

# M2 Series Switches

## SONiC\_1.3.5 Command Reference

**Applicable products: M2-W6510-32C, M2-W6510-48GT4V, M2-W6510-48V8C, M2-W6520-24DC8QC, M2-W6910-64C, M2-W6920-4S, M2-W6920-32QC2X, M2-W6930-64QC**

**There may be descriptions available for other products provided only for reference purposes.**

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# Preface

## Intended Audience

This document is intended for:

- Network engineers
- Technical support and servicing engineers
- Network administrators

## Technical Support

Official Website: <https://www.micasnetworks.com/support/>

## Conventions

Convention	Description
<b>Bold font</b>	Commands, command options, and keywords are in <b>bold</b> font.
<i>Italic font</i>	Arguments for which you supply values are in <i>italic</i> font.
[ ]	Elements in square brackets are optional.
{ x   y   z }	Alternative keywords are grouped in braces and separated by vertical bars.
[ x   y   z ]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
&<1-n>	The argument before the sign (&) can be input for consecutive 1- n times.
//	Double slashes at the beginning of a line of code indicate a comment line.

## Signs

The signs used in this document are described as follows:

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### **Warning**

An alert that calls attention to important rules and information that if not understood or followed can result in data loss or equipment damage.

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 **Caution**

An alert that calls attention to essential information that if not understood or followed can result in function failure or performance degradation.

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 **Note**

An alert that contains additional or supplementary information that if not understood or followed will not lead to serious consequences.

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 **Specification**

An alert that contains a description of product or version support.

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**Note**

- The port type involved in this manual may be different from the actual situation. Please proceed with configuration according to the port type supported by the product.
- The display information involved in this manual may contain the content of other products (such as model and description). Please refer to the actual display information.
- The routers and router product icons involved in this manual represent common routers and Layer 3 switches capable of routing protocols.

# M2 Series Switches SONiC\_1.3.5

## Command Reference

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# 1 ZTP Commands

Command	Function
<a href="#"><u>config ztp enable</u></a>	Enable ZTP administrative mode.
<a href="#"><u>config ztp disable</u></a>	Disable ZTP administrative mode.
<a href="#"><u>config ztp run</u></a>	Manually restart a new ZTP session.
<a href="#"><u>show ztp status</u></a>	Display the current ZTP configuration of the switch.



## 1.1 config ztp enable

### Function

Run the **config ztp enable** command to enable ZTP administrative mode.

### Syntax

```
config ztp enable
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
root@sonic:/home/admin# config ztp enable
Running command: ztp enable
```

## 1.2 config ztp disable

### Function

Run the **config ztp disable** command to disable ZTP administrative mode.

### Syntax

```
config ztp disable [ -y ]
```

### Parameter Description

N/A

### Usage Guidelines

This command can also be used to abort a current ZTP session and load the factory default switch configuration.

### Examples

```
root@sonic:/home/admin# config ztp disable
Active ZTP session will be stopped and disabled, continue? [y/N]: y
Running command: ztp disable -y
```

## 1.3 config ztp run

### Function

Run the **config ztp run** command to manually restart a new ZTP session.

This command deletes the existing `*/etc/sonic/config_db.json*` file and starts ZTP service. It also erases the previous ZTP session data. ZTP configuration is loaded on to the switch and ZTP discovery is performed.

### Syntax

```
config ztp run [ -y ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
root@sonic:/home/admin# config ztp run
ZTP will be restarted. You may lose switch data and connectivity, continue? [y/N]: y
Running command: ztp run -y
```

## 1.4 show ztp status

### Function

Run the **show ztp status** command to display the current ZTP configuration of the switch.

### Syntax

```
show ztp status [ --verbose ]
```

### Parameter Description

N/A

### Usage Guidelines

It also displays detailed information about current state of a ZTP session. It displays information related to all configuration sections as defined in the switch provisioning information discovered in a particular ZTP session.

### Examples

```
root@B1-SP1-7712:/home/admin# show ztp status
ZTP Admin Mode : True
ZTP Service      : Inactive
ZTP Status       : SUCCESS
ZTP Source       : dhcp-opt67 (eth0)
Runtime          : 05m 31s
Timestamp        : 2019-09-11 19:12:24 UTC
```

```
ZTP Service is not running

01-configdb-json: SUCCESS
02-connectivity-check: SUCCESS
```

Use the verbose option to display more detailed information.

```
root@BI-SPI-7712:/home/admin# show ztp status --verbose
Command: ztp status --verbose
=====
ZTP
=====
ZTP Admin Mode : True
ZTP Service      : Inactive
ZTP Status       : SUCCESS
ZTP Source       : dhcp-opt67 (eth0)
Runtime          : 05m 31s
Timestamp        : 2019-09-11 19:12:16 UTC
ZTP JSON Version : 1.0

ZTP Service is not running

-----
01-configdb-json
-----
Status           : SUCCESS
Runtime          : 02m 48s
Timestamp        : 2019-09-11 19:11:55 UTC
Exit Code        : 0
Ignore Result    : False

-----
02-connectivity-check
-----
Status           : SUCCESS
Runtime          : 04s
Timestamp        : 2019-09-11 19:12:16 UTC
Exit Code        : 0
Ignore Result    : False
```

**Table 1-1 Output Fields of the show ztp status –verbose command**

Field	Description
ZTP Admin Mode	Displays if the ZTP feature is administratively enabled or

Field	Description
	disabled. Possible values are True or False. This value is configurable using "config ztp enabled" and "config ztp disable" commands.
ZTP Service	Displays the ZTP service status. The following are possible values this field can display: <ul style="list-style-type: none"> <li>● Active Discovery: ZTP service is operational and is performing DHCP discovery to learn switch provisioning information</li> <li>● Processing: ZTP service has discovered switch provisioning information and is processing it</li> </ul>
ZTP Status	Displays the current state and result of ZTP session. The following are possible values this field can display: <ul style="list-style-type: none"> <li>● IN-PROGRESS: ZTP session is currently in progress. ZTP service is processing switch provisioning information.</li> <li>● SUCCESS: ZTP service has successfully processed the switch provisioning information.</li> <li>● FAILED: ZTP service has failed to process the switch provisioning information.</li> <li>● Not Started: ZTP service has not started processing the discovered switch provisioning information.</li> </ul>
ZTP Source	Displays the DHCP option and then interface name from which switch provisioning information has been discovered.
Runtime	Displays the time taken for ZTP process to complete from start to finish. For individual configuration sections it indicates the time taken to process the associated configuration section.
Timestamp	Displays the date/time stamp when the status field has last changed.
ZTP JSON Version	Version of ZTP JSON file used for describing switch provisioning information.
Status	Displays the current state and result of a configuration section. The following are possible values this field can display: <ul style="list-style-type: none"> <li>● IN-PROGRESS: Corresponding configuration section is currently being processed.</li> <li>● SUCCESS: Corresponding configuration section was processed successfully.</li> <li>● FAILED: Corresponding configuration section failed to execute successfully.</li> </ul>

Field	Description
	<ul style="list-style-type: none"><li>● Not Started: ZTP service has not started processing the corresponding configuration section.</li><li>● DISABLED: Corresponding configuration section has been marked as disabled and will not be processed.</li></ul>
Exit Code	Displays the program exit code of the configuration section executed. Non-zero exit code indicates that the configuration section has failed to execute successfully.
Ignore Result	If this value is True, the result of the corresponding configuration section is ignored and not used to evaluate the overall ZTP result.
Activity String	In addition to above information an activity string is displayed indicating the current action being performed by the ZTP service and how much time it has been performing the mentioned activity. Below is an example.

# 1 Syslog Commands

Command	Function
<a href="#"><u>config syslog add</u></a>	Add a SYSLOG server to the syslog server list. Note that more than one syslog server can be added in the device.
<a href="#"><u>config syslog delete</u></a>	Delete the syslog server configured.

## 1.1 config syslog add

### Function

Run the **config syslog add** command to add a SYSLOG server to the syslog server list. Note that more than one syslog server can be added in the device.

### Syntax

```
config syslog add [ syslog-ip-address ] [ syslog-ip-address ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config syslog add 1.1.1.1
Syslog server 1.1.1.1 added to configuration
Restarting rsyslog-config service...
```

## 1.2 config syslog delete

### Function

Run the **config syslog delete** command to delete the syslog server configured.

### Syntax

```
config syslog del [ syslog-ip-address ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config syslog del 1.1.1.1
Syslog server 1.1.1.1 removed from configuration
Restarting rsyslog-config service...
```

# 1 SoNIC Platform Commands

Command	Function
<a href="#"><u>config hostname</u></a>	Change device hostname without traffic being impacted.
<a href="#"><u>config set_timezone</u></a>	Set the timezone.
<a href="#"><u>show timezone-list</u></a>	Display the full list of timezones available.
<a href="#"><u>show boot</u></a>	Display the current OS image, the image to be loaded on next reboot, and lists all the available images installed on the device.
<a href="#"><u>show clock</u></a>	Display the current date and time configured on the system.
<a href="#"><u>show environment</u></a>	Display the platform environmentals, such as voltages, temperatures and fan speeds.
<a href="#"><u>show logging</u></a>	Display all the currently stored log messages.
<a href="#"><u>show platform fan</u></a>	Display the status of the device's fans.
<a href="#"><u>show platform pcieinfo</u></a>	Display the status of pcie.
<a href="#"><u>show platform psustatus</u></a>	Display the status of the device's power supply units.
<a href="#"><u>show platform ssdhealth</u></a>	Display health parameters of the device's SSD.
<a href="#"><u>show platform summary</u></a>	Display a summary of the device's hardware platform.
<a href="#"><u>show platform syseeprom</u></a>	Display information stored on the system EEPROM.
<a href="#"><u>show platform temperature</u></a>	Display the status of the device's thermal sensors.
<a href="#"><u>show reboot-cause</u></a>	Display the cause of the previous reboot.
<a href="#"><u>show reboot-cause history</u></a>	Display the history of the previous reboots up to 10 entry.



<a href="#"><b>show uptime</b></a>	Display the current system uptime.
<a href="#"><b>show users</b></a>	Display a list of users currently logged in to the device.
<a href="#"><b>show version</b></a>	Display software component versions of the currently running SONiC image.
<a href="#"><b>sonic-installer cleanup</b></a>	Remove all unused images from the device, leaving only the currently active image and the image which will be booted into next (if different) installed.
<a href="#"><b>sonic-installer install</b></a>	Install a new image on the alternate image partition.
<a href="#"><b>sonic-installer list</b></a>	Display information about currently installed images.
<a href="#"><b>sonic-installer remove</b></a>	Remove the unused SONiC image from the disk.
<a href="#"><b>sonic-installer set_default</b></a>	Change the image which can be loaded by default in all the subsequent reboots.
<a href="#"><b>sonic-installer set_next_boot</b></a>	Change the image that can be loaded in the next reboot only.
<a href="#"><b>show interfaces transceiver</b></a>	Display information for all the interfaces for the transceiver requested or a specific interface if the optional "interface-name" is specified.
<a href="#"><b>sonic-package-manager install</b></a>	Pull and installs a package on SONiC host.
<a href="#"><b>sonic-package-manager list</b></a>	List all available SONiC packages, their description, installed version and installation status.
<a href="#"><b>sonic-package-manager repository add</b></a>	Add a new repository as source for SONiC packages to the database.
<a href="#"><b>sonic-package-manager repository remove</b></a>	Remove a repository as source for SONiC packages from the database.
<a href="#"><b>sonic-package-manager reset</b></a>	Reset the package by reinstalling it to its default version.
<a href="#"><b>sonic-package-manager show package changelog</b></a>	Fetches the changelog from the package manifest and displays it.
<a href="#"><b>sonic-package-manager show package</b></a>	Fetch the package manifest and displays

---

<a href="#"><b>manifest</b></a>	it.
<a href="#"><b>sonic-package-manager show package versions</b></a>	Retrieve a list of all available versions for the given package from the configured upstream repository.
<a href="#"><b>sonic-package-manager uninstall</b></a>	Uninstall package from SONiC host. User needs to stop the feature prior to uninstalling it.

## 1.1 config hostname

### Function

Run the **config hostname** command to change device hostname without traffic being impacted.

### Syntax

```
config hostname hostname
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config hostname CSW06  
Please note loaded setting will be lost after system reboot. To preserve setting, run config save.
```

## 1.2 config set\_timezone

### Function

Run the **config set\_timezone** command to set the timezone.

### Syntax

```
sudo config set_timezone timezone-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config set_timezone America/New_York  
set sonic timezone to America/New_York success!  
admin@sonic:~$ show clock  
Mon 20 Mar 2023 10:45:18 AM EDT
```

## 1.3 show timezone-list

### Function

Run the **show timezone-list** command to display the full list of timezones available.

### Syntax

```
show timezone-list
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show timezone-list
Africa/Abidjan
Africa/Accra
Africa/Algiers
Africa/Bissau
Africa/Cairo
...
```

## 1.4 show boot

### Function

Run the **show boot** command to display the current OS image, the image to be loaded on next reboot, and lists all the available images installed on the device.

### Syntax

```
show boot
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show boot
Current: SONiC-OS-20181130.31
Next: SONiC-OS-20181130.31
```

```
Available:  
SONiC-OS-20181130.31
```

## 1.5 show clock

### Function

Run the **show clock** command to display the current date and time configured on the system.

### Syntax

```
show clock
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show clock  
Mon Mar 25 20:25:16 UTC 2019
```

## 1.6 show environment

### Function

Run the **show environment** command to display the platform environmentals, such as voltages, temperatures and fan speeds.

### Syntax

```
show environment
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show environment  
coretemp-isa-0000  
Adapter: ISA adapter  
Core 0:          +28.0 C   (high = +98.0 C, crit = +98.0 C)  
Core 1:          +28.0 C   (high = +98.0 C, crit = +98.0 C)
```

```

Core 2:          +28.0 C   (high = +98.0 C, crit = +98.0 C)
Core 3:          +28.0 C   (high = +98.0 C, crit = +98.0 C)
SMF_Z9100_ON-isa-0000
Adapter: ISA adapter
CPU XP3R3V_EARLY:          +3.22 V
<... few more things ...>
Onboard Temperature Sensors:
CPU:                      30 C
BCM56960 (PSU side):      35 C
<... few more things ...>

Onboard Voltage Sensors:
CPU XP3R3V_EARLY          3.22 V
<... few more things ...>

Fan Trays:
Fan Tray 1:
  Fan1 Speed:             6192 RPM
  Fan2 Speed:             6362 RPM
  Fan1 State:              Normal
  Fan2 State:              Normal
  Air Flow:                F2B
<... few more things ...>

PSUs:
  PSU 1:
    Input:                 AC
<... few more things ...>

```

### Note

The show output has got lot of information; only the sample output is given in the above example. Though the displayed output slightly differs from one platform to another platform, the overall content will be similar to the example mentioned above.

## 1.7 show logging

### Function

Run the **show logging** command to display all the currently stored log messages.

All the latest processes and corresponding transactions are stored in the "syslog" file.

This file is saved in the path ``/var/log`` and can be viewed by giving the command ``sudo cat syslog`` as this requires root login.

## Syntax

```
show logging [ { process-name [ -l | --lines number-of-lines ] } | { -f | --follow } ]
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show logging
```

It can be useful to pipe the output from **show logging** to the command **more** in order to examine one screenful of log messages at a time.

```
admin@sonic:~$ show logging | more
```

Optionally, you can specify a process name in order to display only log messages mentioning that process.

```
admin@sonic:~$ show logging sensord
```

Optionally, you can specify a number of lines to display using the **-l** or **--lines** option. Only the most recent N lines will be displayed. Also note that this option can be combined with a process name.

```
admin@sonic:~$ show logging --lines 50
admin@sonic:~$ show logging sensord --lines 50
```

Optionally, you can follow the log live as entries are written to it by specifying the **-f** or **--follow** flag.

```
admin@sonic:~$ show logging --follow
```

## 1.8 show platform fan

### Function

Run the **show platform fan** command to display the status of the device's fans.

### Syntax

```
show platform fan
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show platform fan
          FAN      Speed      Direction      Presence      Status
Timestamp
-----
          fan1      34%      intake      Present      OK
20200302 06:58:56
          fan2      43%      intake      Present      OK
20200302 06:58:56
          fan3      38%      intake      Present      OK
20200302 06:58:56
          fan4      49%      intake      Present      OK
20200302 06:58:57
          fan5      38%      exhaust     Present      OK
20200302 06:58:57
          fan6      48%      exhaust     Present      OK
20200302 06:58:57
          fan7      39%      exhaust     Present      OK
20200302 06:58:57
          fan8      48%      exhaust     Present      OK
20200302 06:58:57
```

## 1.9 show platform pcieinfo

### Function

Run the **show platform pcieinfo** command to display the status of pcie.

### Syntax

**show platform pcieinfo**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show platform pcieinfo
=====Display PCIe
Device=====
bus:dev.fn 00:00.0 - dev_id=0x6f00, Host bridge: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D DMI2 (rev 05)
```



bus:dev.fn 00:01.0 - dev\_id=0x6f02, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 1 (rev 05)

bus:dev.fn 00:01.1 - dev\_id=0x6f03, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 1 (rev 05)

bus:dev.fn 00:02.0 - dev\_id=0x6f04, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 2 (rev 05)

bus:dev.fn 00:02.2 - dev\_id=0x6f06, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 2 (rev 05)

bus:dev.fn 00:02.3 - dev\_id=0x6f07, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 2 (rev 05)

bus:dev.fn 00:03.0 - dev\_id=0x6f08, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 3 (rev 05)

bus:dev.fn 00:03.1 - dev\_id=0x6f09, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 3 (rev 05)

bus:dev.fn 00:03.2 - dev\_id=0x6f0a, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 3 (rev 05)

bus:dev.fn 00:03.3 - dev\_id=0x6f0b, PCI bridge: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D PCI Express Root Port 3 (rev 05)

bus:dev.fn 00:04.0 - dev\_id=0x6f20, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 0 (rev 05)

bus:dev.fn 00:04.1 - dev\_id=0x6f21, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 1 (rev 05)

bus:dev.fn 00:04.2 - dev\_id=0x6f22, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 2 (rev 05)

bus:dev.fn 00:04.3 - dev\_id=0x6f23, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 3 (rev 05)

bus:dev.fn 00:04.4 - dev\_id=0x6f24, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 4 (rev 05)

bus:dev.fn 00:04.5 - dev\_id=0x6f25, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 5 (rev 05)

bus:dev.fn 00:04.6 - dev\_id=0x6f26, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 6 (rev 05)

bus:dev.fn 00:04.7 - dev\_id=0x6f27, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Crystal Beach DMA Channel 7 (rev 05)

bus:dev.fn 00:05.0 - dev\_id=0x6f28, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Map/VTd\_Misc/System Management (rev 05)

bus:dev.fn 00:05.1 - dev\_id=0x6f29, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Hot Plug (rev 05)

bus:dev.fn 00:05.2 - dev\_id=0x6f2a, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO RAS/Control Status/Global Errors (rev 05)

bus:dev.fn 00:05.4 - dev\_id=0x6f2c, PIC: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D I/O APIC (rev 05)

bus:dev.fn 00:05.6 - dev\_id=0x6f39, Performance counters: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IO Performance Monitoring (rev 05)

bus:dev.fn 00:06.0 - dev\_id=0x6f10, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:06.1 - dev\_id=0x6f11, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:06.2 - dev\_id=0x6f12, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:06.3 - dev\_id=0x6f13, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:06.4 - dev\_id=0x6f14, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:06.5 - dev\_id=0x6f15, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:06.6 - dev\_id=0x6f16, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:06.7 - dev\_id=0x6f17, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:07.0 - dev\_id=0x6f18, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:07.1 - dev\_id=0x6f19, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:07.2 - dev\_id=0x6f1a, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:07.3 - dev\_id=0x6f1b, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:07.4 - dev\_id=0x6f1c, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D IIO Debug (rev 05)

bus:dev.fn 00:14.0 - dev\_id=0x8c31, USB controller: Intel Corporation 8 Series/C220 Series Chipset Family USB xHCI (rev 05)

bus:dev.fn 00:16.0 - dev\_id=0x8c3a, Communication controller: Intel Corporation 8 Series/C220 Series Chipset Family MEI Controller #1 (rev 04)

bus:dev.fn 00:16.1 - dev\_id=0x8c3b, Communication controller: Intel Corporation 8 Series/C220 Series Chipset Family MEI Controller #2 (rev 04)

bus:dev.fn 00:1d.0 - dev\_id=0x8c26, USB controller: Intel Corporation 8 Series/C220 Series Chipset Family USB EHCI #1 (rev 05)

bus:dev.fn 00:1f.0 - dev\_id=0x8c54, ISA bridge: Intel Corporation C224 Series Chipset Family Server Standard SKU LPC Controller (rev 05)

bus:dev.fn 00:1f.2 - dev\_id=0x8c02, SATA controller: Intel Corporation 8 Series/C220 Series Chipset Family 6-port SATA Controller 1 [AHCI mode] (rev 05)

bus:dev.fn 00:1f.3 - dev\_id=0x8c22, SMBus: Intel Corporation 8 Series/C220 Series Chipset Family SMBus Controller (rev 05)

bus:dev.fn 04:00.0 - dev\_id=0x15ab, Ethernet controller: Intel Corporation Ethernet Connection X552 10 GbE Backplane

bus:dev.fn 04:00.1 - dev\_id=0x15ab, Ethernet controller: Intel Corporation Ethernet Connection X552 10 GbE Backplane

bus:dev.fn 05:00.0 - dev\_id=0x15ab, Ethernet controller: Intel Corporation Ethernet Connection X552 10 GbE Backplane

bus:dev.fn 05:00.1 - dev\_id=0x15ab, Ethernet controller: Intel Corporation Ethernet Connection X552 10 GbE Backplane

bus:dev.fn 06:00.0 - dev\_id=0xb780, Ethernet controller: Broadcom Inc. and subsidiaries Device b780 (rev 01)

bus:dev.fn 07:00.0 - dev\_id=0x1537, Ethernet controller: Intel Corporation I210 Gigabit Backplane Connection (rev 03)

bus:dev.fn 08:00.0 - dev\_id=0x7011, Memory controller: Xilinx Corporation Device 7011

bus:dev.fn ff:0b.0 - dev\_id=0x6f81, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D R3 QPI Link 0/1 (rev 05)

bus:dev.fn ff:0b.1 - dev\_id=0x6f36, Performance counters: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D R3 QPI Link 0/1 (rev 05)

bus:dev.fn ff:0b.2 - dev\_id=0x6f37, Performance counters: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D R3 QPI Link 0/1 (rev 05)

bus:dev.fn ff:0b.3 - dev\_id=0x6f76, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D R3 QPI Link Debug (rev 05)

bus:dev.fn ff:0c.0 - dev\_id=0x6fe0, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:0c.1 - dev\_id=0x6fe1, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:0c.2 - dev\_id=0x6fe2, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:0c.3 - dev\_id=0x6fe3, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:0f.0 - dev\_id=0x6ff8, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:0f.4 - dev\_id=0x6ffc, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:0f.5 - dev\_id=0x6ffd, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:0f.6 - dev\_id=0x6ffe, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Caching Agent (rev 05)

bus:dev.fn ff:10.0 - dev\_id=0x6f1d, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D R2PCIe Agent (rev 05)

bus:dev.fn ff:10.1 - dev\_id=0x6f34, Performance counters: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D R2PCIe Agent (rev 05)

bus:dev.fn ff:10.5 - dev\_id=0x6fle, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Ubox (rev 05)

bus:dev.fn ff:10.6 - dev\_id=0x6f7d, Performance counters: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Ubox (rev 05)

bus:dev.fn ff:10.7 - dev\_id=0x6f1f, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Ubox (rev 05)

bus:dev.fn ff:12.0 - dev\_id=0x6fa0, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Home Agent 0 (rev 05)

bus:dev.fn ff:12.1 - dev\_id=0x6f30, Performance counters: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Home Agent 0 (rev 05)

bus:dev.fn ff:12.2 - dev\_id=0x6f70, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Home Agent 0 Debug (rev 05)

bus:dev.fn ff:13.0 - dev\_id=0x6fa8, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Target Address/Thermal/RAS (rev 05)

bus:dev.fn ff:13.1 - dev\_id=0x6f71, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Target Address/Thermal/RAS (rev 05)

bus:dev.fn ff:13.2 - dev\_id=0x6faa, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel Target Address Decoder (rev 05)

bus:dev.fn ff:13.3 - dev\_id=0x6fab, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel Target Address Decoder (rev 05)

bus:dev.fn ff:13.4 - dev\_id=0x6fac, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel Target Address Decoder (rev 05)

bus:dev.fn ff:13.5 - dev\_id=0x6fad, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel Target Address Decoder (rev 05)

bus:dev.fn ff:13.6 - dev\_id=0x6fae, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D DDRIO Channel 0/1 Broadcast (rev 05)

bus:dev.fn ff:13.7 - dev\_id=0x6faf, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D DDRIO Global Broadcast (rev 05)

bus:dev.fn ff:14.0 - dev\_id=0x6fb0, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 0 Thermal Control (rev 05)

bus:dev.fn ff:14.1 - dev\_id=0x6fb1, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 1 Thermal Control (rev 05)

bus:dev.fn ff:14.2 - dev\_id=0x6fb2, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 0 Error (rev 05)

bus:dev.fn ff:14.3 - dev\_id=0x6fb3, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 1 Error (rev 05)

bus:dev.fn ff:14.4 - dev\_id=0x6fbc, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D DDRIO Channel 0/1 Interface (rev 05)

bus:dev.fn ff:14.5 - dev\_id=0x6fbd, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D DDRIO Channel 0/1 Interface (rev 05)

bus:dev.fn ff:14.6 - dev\_id=0x6fbe, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D DDRIO Channel 0/1 Interface (rev 05)

bus:dev.fn ff:14.7 - dev\_id=0x6fbf, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5 v4/Xeon E3 v4/Xeon D DDRIO Channel 0/1 Interface (rev 05)

```

bus:dev.fn ff:15.0 - dev_id=0x6fb4, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 2 Thermal Control (rev 05)
bus:dev.fn ff:15.1 - dev_id=0x6fb5, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 3 Thermal Control (rev 05)
bus:dev.fn ff:15.2 - dev_id=0x6fb6, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 2 Error (rev 05)
bus:dev.fn ff:15.3 - dev_id=0x6fb7, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Memory Controller 0 - Channel 3 Error (rev 05)
bus:dev.fn ff:1e.0 - dev_id=0x6f98, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Power Control Unit (rev 05)
bus:dev.fn ff:1e.1 - dev_id=0x6f99, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Power Control Unit (rev 05)
bus:dev.fn ff:1e.2 - dev_id=0x6f9a, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Power Control Unit (rev 05)
bus:dev.fn ff:1e.3 - dev_id=0x6fc0, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Power Control Unit (rev 05)
bus:dev.fn ff:1e.4 - dev_id=0x6f9c, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Power Control Unit (rev 05)
bus:dev.fn ff:1e.7 - dev_id=0x6f9f, System peripheral: Intel Corporation Device 6f9f (rev 05)
bus:dev.fn ff:1f.0 - dev_id=0x6f88, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Power Control Unit (rev 05)
bus:dev.fn ff:1f.2 - dev_id=0x6f8a, System peripheral: Intel Corporation Xeon E7 v4/Xeon E5
v4/Xeon E3 v4/Xeon D Power Control Unit (rev 05)

```

## 1.10 show platform psustatus

### Function

Run the **show platform psustatus** command to display the status of the device's power supply units.

### Syntax

```
show platform psustatus
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show platform psustatus
PSU      Model          Serial          HW Rev          Voltage (V)
Current (A)  Power (W)    Status          LED

```

PSU 1	MTEF-PSF-AC-A	MT1621X15246	A3	11.97
4.56	54.56	OK	green	

## 1.11 show platform ssdhealth

### Function

Run the **show platform ssdhealth** command to display health parameters of the device's SSD.

### Syntax

```
show platform ssdhealth [ --vendor ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show platform ssdhealth
Device Model : M.2 (S42) 3IE3
Health       : 99.665%
Temperature  : 30C
```

## 1.12 show platform summary

### Function

Run the **show platform summary** command to display a summary of the device's hardware platform.

### Syntax

```
show platform summary
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show platform summary
```

```
Platform: x86_64-micas_m2-w6520-24dc8qc-r0
HwSKU: M2-W6520-24DC8QC
ASIC: broadcom
ASIC Count: 1
Serial Number: 0000000000000
Model Number: 01019APZ
Hardware Revision: 105
```

## 1.13 show platform syseeprom

### Function

Run the **show platform syseeprom** command to display information stored on the system EEPROM.

Note that the output of this command is not the same for all vendor's platforms.

Couple of example outputs are given below.

### Syntax

**show platform syseeprom**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show platform syseeprom
TlvInfo Header:
  Id String:      TlvInfo
  Version:        1
  Total Length: 193
  TLV Name          Code          Len  Value
-----
Product Name       0x21          16  M2-W6520-24DC8QC
Part Number        0x22           8  01019APZ
Serial Number      0x23          13  0000000000000
Base MAC Address   0x24           6  EC:B9:70:B4:4C:2B
Manufacture Date   0x25          19  07/26/2023 16:05:42
Device Version     0x26           1  105
Label Revision     0x27           3  R01
Platform Name      0x28          32  x86_64-micas_m2-w6520-24dc8qc-r0
ONIE Version       0x29           7  2023.02
```

MAC Addresses	0x2A	2	3
Manufacturer	0x2B	5	Micas
Manufacture Country	0x2C	3	USA
Vendor Name	0x2D	5	Micas
Diag Version	0x2E	8	0.1.0.15
Service Tag	0x2F	21	www.micasnetworks.com
Vendor Extension	0xFD	6	
CRC-32	0xFE	4	0x9FCB07E3

(checksum valid)

## 1.14 show platform temperature

### Function

Run the **show platform temperature** command to display the status of the device's thermal sensors.

### Syntax

**show platform temperature**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show platform temperature
```

Crit High Th	Crit Low Th	NAME	Temperature	High Th	Low Th
		Warning	Timestamp		
120.0	N/A	Ambient ASIC Temp	37.0	100.0	N/A
120.0	N/A	Ambient Fan Side Temp	28.5	100.0	N/A
120.0	N/A	Ambient Port Side Temp	31.0	100.0	N/A
105.0	N/A	CPU Core 0 Temp	36.0	87.0	N/A
105.0	N/A	CPU Core 1 Temp	38.0	87.0	N/A



	CPU Pack Temp		38.0	87.0	N/A
105.0	N/A	False	20200302 06:59:57		
	PSU-1 Temp		28.0	100.0	N/A
120.0	N/A	False	20200302 06:59:58		
	PSU-2 Temp		28.0	100.0	N/A
120.0	N/A	False	20200302 06:59:58		
	xSFP module 1 Temp		31.5	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 2 Temp		35.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 3 Temp		32.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 4 Temp		33.5	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 5 Temp		34.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 6 Temp		36.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 7 Temp		33.5	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 8 Temp		33.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 9 Temp		32.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 10 Temp		38.5	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 11 Temp		38.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 12 Temp		39.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 13 Temp		35.5	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 14 Temp		37.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 15 Temp		36.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 16 Temp		36.5	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 17 Temp		32.0	70.0	N/A
90.0	N/A	False	20200302 06:59:57		
	xSFP module 18 Temp		34.5	70.0	N/A
90.0	N/A	False	20200302 06:59:57		

xSFP module 19 Temp	30.0	70.0	N/A
90.0 N/A	False	20200302 06:59:57	
xSFP module 20 Temp	31.5	70.0	N/A
90.0 N/A	False	20200302 06:59:57	
xSFP module 21 Temp	34.0	70.0	N/A
90.0 N/A	False	20200302 06:59:57	
xSFP module 22 Temp	34.4	70.0	N/A
90.0 N/A	False	20200302 06:59:57	
xSFP module 23 Temp	34.0	70.0	N/A
90.0 N/A	False	20200302 06:59:57	
xSFP module 24 Temp	35.6	70.0	N/A
90.0 N/A	False	20200302 06:59:57	
xSFP module 25 Temp	38.0	70.0	N/A
90.0 N/A	False	20200302 06:59:57	
xSFP module 26 Temp	32.2	70.0	N/A
90.0 N/A	False	20200302 06:59:58	
xSFP module 27 Temp	39.0	70.0	N/A
90.0 N/A	False	20200302 06:59:58	
xSFP module 28 Temp	30.1	70.0	N/A
90.0 N/A	False	20200302 06:59:58	
xSFP module 29 Temp	32.0	70.0	N/A
90.0 N/A	False	20200302 06:59:58	
xSFP module 30 Temp	35.3	70.0	N/A
90.0 N/A	False	20200302 06:59:58	
xSFP module 31 Temp	31.0	70.0	N/A
90.0 N/A	False	20200302 06:59:58	
xSFP module 32 Temp	39.5	70.0	N/A
90.0 N/A	False	20200302 06:59:58	

## 1.15 show reboot-cause

### Function

Run the **show reboot-cause** command to display the cause of the previous reboot.

### Syntax

**show reboot-cause**

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show reboot-cause
User issued reboot command [User: admin, Time: Mon Mar 25 01:02:03 UTC 2019]
```

## 1.16 show reboot-cause history

### Function

Run the **show reboot-cause history** command to display the history of the previous reboots up to 10 entry.

### Syntax

```
show reboot-cause history
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show reboot-cause history
Name          Cause          Time
User          Comment
-----
2020_10_09_02_33_06  reboot          Fri Oct 9 02:29:44 UTC 2020  admin
2020_10_09_01_56_59  reboot          Fri Oct 9 01:53:49 UTC 2020  admin
2020_10_09_02_00_53  fast-reboot    Fri Oct 9 01:58:04 UTC 2020  admin
2020_10_09_04_53_58  warm-reboot    Fri Oct 9 04:51:47 UTC 2020  admin
```

## 1.17 show uptime

### Function

Run the **show uptime** command to display the current system uptime.

### Syntax

```
show uptime
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show uptime
up 2 days, 21 hours, 30 minutes
```

## 1.18 show users

### Function

Run the **show users** command to display a list of users currently logged in to the device.

### Syntax

```
show users
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show users
admin      pts/9          Mar 25 20:31 (100.127.20.23)

admin@sonic:~$ show users
admin      ttyS1         2019-03-25 20:31
```

## 1.19 show version

### Function

Run the **show version** command to display software component versions of the currently running SONiC image.

This includes the SONiC image version as well as Docker image versions.

This command is used to display relevant information as the SONiC and Linux kernel version being utilized, as well as the ID of the commit used to build the SONiC image. The second section of the output displays the various docker images and their associated IDs.

### Syntax

```
show version
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show version

SONiC Software Version: SONiC_1.3.5_20231201033518
Distribution: Debian 11.8
Kernel: 5.10.0-8-2-amd64
Build commit: eb6f0fcaa
Build date: Thu Nov 30 19:47:18 UTC 2023
Built by: ngcf@sonic-114

Platform: x86_64-micas_m2-w6930-64qc-r0
HwSKU: M2-W6930-64QC
ASIC: broadcom
ASIC Count: 1
Serial Number: 00000000000000
Model Number: 01019AQ0
Hardware Revision: 105
Uptime: 01:56:39 up 2 days, 23:48, 1 user, load average: 1.97, 1.98, 2.11

Docker images:
REPOSITORY          TAG
IMAGE ID           SIZE
docker-syncd-brcm   SONiC_1.3.5_20231201033518  dca4b32dfe24
741MB
docker-syncd-brcm   latest
dca4b32dfe24       741MB
docker-gbsyncd-credo SONiC_1.3.5_20231201033518  8ca879183bf0
471MB
docker-gbsyncd-credo latest
8ca879183bf0      471MB
docker-macsec       SONiC_1.3.5_20231201033518
88b65a5e9418      437MB
docker-macsec       latest
88b65a5e9418      437MB
docker-l2mcd        SONiC_1.3.5_20231201033518
b0dba9e6fb88      452MB
```

docker-l2mcd		latest	
b0dba9e6fb88	452MB		
docker-fpm-frr		SONiC_1.3.5_20231201033518	94415c4a208f
452MB			
docker-fpm-frr		latest	
94415c4a208f	452MB		
docker-iccpd		SONiC_1.3.5_20231201033518	
a5cf29dedab2	434MB		
docker-iccpd		latest	
a5cf29dedab2	434MB		
docker-dhcp-relay		latest	
f0a300bf2656	431MB		
docker-teamd		SONiC_1.3.5_20231201033518	
c66765cb3bda	433MB		
docker-teamd		latest	
c66765cb3bda	433MB		
docker-stp		SONiC_1.3.5_20231201033518	
d8102ab1219c	456MB		
docker-stp		latest	
d8102ab1219c	456MB		
docker-snmp		SONiC_1.3.5_20231201033518	
f9f9613320f5	510MB		
docker-snmp		latest	
f9f9613320f5	510MB		
docker-sonic-telemetry		SONiC_1.3.5_20231201033518	3dea78a5d131
563MB			
docker-sonic-telemetry		latest	
3dea78a5d131	563MB		
docker-sonic-mgmt-framework		SONiC_1.3.5_20231201033518	0ee611058c6e
657MB			
docker-sonic-mgmt-framework		latest	
0ee611058c6e	657MB		
docker-sflow		SONiC_1.3.5_20231201033518	9eac54af4cfb
434MB			
docker-sflow		latest	
9eac54af4cfb	434MB		
docker-router-advertiser		SONiC_1.3.5_20231201033518	b92c95b83283
417MB			
docker-router-advertiser		latest	
b92c95b83283	417MB		
docker-platform-monitor		SONiC_1.3.5_20231201033518	40edccee910b
678MB			

docker-platform-monitor		latest	
40edccee910b	678MB		
docker-reup		SONiC_1.3.5_20231201033518	
d0f5018dc39e	482MB		
docker-reup		latest	
d0f5018dc39e	482MB		
docker-orchagent		SONiC_1.3.5_20231201033518	b0ad64277121
449MB			
docker-orchagent		latest	
b0ad64277121	449MB		
docker-nat		SONiC_1.3.5_20231201033518	
1662cf2b43a4	434MB		
docker-nat		latest	
1662cf2b43a4	434MB		
docker-lldp		SONiC_1.3.5_20231201033518	28bf2b377b1e
455MB			
docker-lldp		latest	
28bf2b377b1e	455MB		
docker-database		SONiC_1.3.5_20231201033518	269329a8cac1
415MB			
docker-database		latest	
269329a8cac1	415MB		
docker-mux		SONiC_1.3.5_20231201033518	
4323b930ddad	467MB		
docker-mux		latest	
4323b930ddad	467MB		

## 1.20 sonic-installer cleanup

### Function

Run the **sonic-installer cleanup** command to remove all unused images from the device, leaving only the currently active image and the image which will be booted into next (if different) installed.

If there are no images which can be removed, the command will output "No image(s) to remove".

### Syntax

**sonic-installer cleanup** [ -y | --yes ]

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo sonic-installer cleanup
Remove images which are not current and next, continue? [y/N]: y
No image(s) to remove
```

## 1.21 sonic-installer install

### Function

Run the **sonic-installer install** command to install a new image on the alternate image partition.

This command takes a path to an installable SONiC image or URL and installs the image.

### Syntax

```
sonic-installer install image-file-path
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo sonic-installer install https://sonic-
jenkins.westus.cloudapp.azure.com/job/xxxx/job/buildimage-xxxx-
all/xxx/artifact/target/sonic-xxxx.bin
New image will be installed, continue? [y/N]: y
Downloading image...
...100%, 480 MB, 3357 KB/s, 146 seconds passed
Command: /tmp/sonic_image
Verifying image checksum ... OK.
Preparing image archive ... OK.
ONIE Installer: platform: XXXX
onie_platform:
Installing SONiC in SONiC
Installing SONiC to /host/image-xxxx
Directory /host/image-xxxx/ already exists. Cleaning up...
Archive:  fs.zip
  creating: /host/image-xxxx/boot/
  inflating: /host/image-xxxx/boot/vmlinuz-3.16.0-4-amd64
```



```

inflating: /host/image-xxx/boot/config-3.16.0-4-amd64
inflating: /host/image-xxx/boot/System.map-3.16.0-4-amd64
inflating: /host/image-xxx/boot/initrd.img-3.16.0-4-amd64
  creating: /host/image-xxx/platform/
extracting: /host/image-xxx/platform/firsttime
  inflating: /host/image-xxx/fs.squashfs
  inflating: /host/image-xxx/dockerfs.tar.gz
Log file system already exists. Size: 4096MB
Installed SONiC base image SONiC-OS successfully

Command: cp /etc/sonic/minigraph.xml /host/

Command: grub-set-default --boot-directory=/host 0

Done

```

Installing a new image using the `sonic-installer` will keep using the packages installed on the currently running SONiC image and automatically migrate those. In order to perform clean SONiC installation use the `*--skip-package-migration*` option.

```

admin@sonic:~$ sudo sonic-installer install https://sonic-
jenkins.westus.cloudapp.azure.com/job/xxx/job/buildimage-xxx-
all/xxx/artifact/target/sonic-xxx.bin --skip-package-migration

```

## 1.22 sonic-installer list

### Function

Run the **sonic-installer list** command to display information about currently installed images.

It displays a list of installed images, currently running image and image set to be loaded in next reboot.

### Syntax

```
sonic-installer list
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ sudo sonic-installer list
Current: SONiC-OS-HEAD.XXXX

```

```
Next: SONiC-OS-HEAD.XXXX
Available:
SONiC-OS-HEAD.XXXX
SONiC-OS-HEAD.YYYY
```

---

**Note**

This output can be obtained without elevated privileges by running the **show boot** command.

---

## 1.23 sonic-installer remove

### Function

Run the **sonic-installer remove** command to remove the unused SONiC image from the disk.

---

**Note**

It's not allowed to remove currently running image.

---

### Syntax

```
sonic-installer remove [ -y | --yes ] image-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo sonic-installer remove SONiC-OS-HEAD.YYYY
Image will be removed, continue? [y/N]: y
Updating GRUB...
Done
Removing image root filesystem...
Done
Command: grub-set-default --boot-directory=/host 0

Image removed
```

## 1.24 sonic-installer set\_default

### Function

Run the **sonic-installer set\_default** command to change the image which can be loaded by default in all the subsequent reboots.

### Syntax

```
sonic-installer set_default image-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo sonic-installer set_default SONiC-OS-HEAD.XXXX
```

## 1.25 sonic-installer set\_next\_boot

### Function

Run the **sonic-installer set\_next\_boot** command to change the image that can be loaded in the next reboot only.



#### Note

That it will fallback to current image in all other subsequent reboots after the next reboot.

---

### Syntax

```
sonic-installer set_next_boot image-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo sonic-installer set_next_boot SONiC-OS-HEAD.XXXX
```

## 1.26 show interfaces transceiver

### Function

Run the **show interfaces transceiver** command to display information for all the interfaces for the transceiver requested or a specific interface if the optional "interface-name" is specified.

### Syntax

```
show interfaces transceiver { eprom [ -d | --dom ] | lpmode | presence | error-status
[ -hw | --fetch-from-hardware ] } [ interface-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

Decode and display information stored on the EEPROM of SFP transceiver connected to Ethernet0.

```
admin@sonic:~$ show interfaces transceiver eeprom --dom Ethernet0
```

```
Ethernet0: SFP detected
```

```
Connector : No separable connector
```

```
Encoding : Unspecified
```

```
Extended Identifier : Unknown
```

```
Extended RateSelect Compliance : QSFP+ Rate Select Version 1
```

```
Identifier : QSFP+
```

```
Length Cable Assembly(m) : 1
```

```
Specification compliance :
```

```
    10/40G Ethernet Compliance Code : 40GBASE-CR4
```

```
    Fibre Channel Speed : 1200 Mbytes/Sec
```

```
    Fibre Channel link length/Transmitter Technology : Electrical inter-enclosure
```

```
(EL)
```

```
    Fibre Channel transmission media : Twin Axial Pair (TW)
```

```
Vendor Date Code(YYYY-MM-DD Lot) : 2015-10-31
```

```
Vendor Name : XXXXX
```

```
Vendor OUI : XX-XX-XX
```

```
Vendor PN : 111111111
```

```
Vendor Rev :
```

```
Vendor SN : 111111111
```

```
ChannelMonitorValues:
```

```
    RX1Power: -1.1936dBm
```

```
    RX2Power: -1.1793dBm
```

```

RX3Power: -0.9388dBm
RX4Power: -1.0729dBm
TX1Bias: 4.0140mA
TX2Bias: 4.0140mA
TX3Bias: 4.0140mA
TX4Bias: 4.0140mA
ModuleMonitorValues :
    Temperature : 1.1111C
    Vcc : 0.0000Volts

```

Display status of low-power mode of SFP transceiver connected to Ethernet100.

```

admin@sonic:~$ show interfaces transceiver lpmode Ethernet100
Port                Low-power Mode
-----
Ethernet100        On

```

Display presence of SFP transceiver connected to Ethernet100.

```

admin@sonic:~$ show interfaces transceiver presence Ethernet100
Port                Presence
-----
Ethernet100        Present

```

Display error status of SFP transceiver connected to Ethernet100.

```

admin@sonic:~$ show interfaces transceiver error-status Ethernet100
Port                Error Status
-----
Ethernet100        OK

```

## 1.27 sonic-package-manager install

### Function

Run the **sonic-package-manager install** command to pull and installs a package on SONiC host.

---

#### Note

This command requires elevated (root) privileges to run.

---

### Syntax

```
sonic-package-manager install [ OPTIONS ] [ PACKAGE-EXPR ]
```

### Parameter Description

*OPTIONS*:

- o `--enable`:  
Set the default state of the feature to enabled and enable feature right after installation. NOTE: user needs to execute "config save -y" to make this setting persistent.
- o `--set-owner [ local | kube ]`:  
Default owner configuration setting for a feature.
- o `--from-repository TEXT`:  
Fetch package directly from image registry repository.

---

**Note**

This argument is mutually exclusive with arguments: [ `from-tarball`, `package-expr` ].

---

- o `--from-tarball FILE`:  
Fetch package from saved image tarball.

---

**Note**

This argument is mutually exclusive with arguments: [ `package-expr`, `from-repository` ].

---

- o `-f, --force`:  
Force operation by ignoring package dependency tree and package manifest validation failures.
- o `-y, --yes`:  
Automatically answer yes on prompts.
- o `-v, --verbosity LVL`:  
Either CRITICAL, ERROR, WARNING, INFO or DEBUG.  
Default is INFO.
- o `--skip-host-plugins`:  
Do not install host OS plugins provided by the package (CLI, etc).

---

**Note**

In case when package host OS plugins are set as mandatory in package manifest this option will fail the installation.

---

- o `--allow-downgrade`:  
Allow package downgrade. By default an attempt to downgrade the package will result in a failure since downgrade might not be supported by the package, thus requires explicit request from the user.
- o `--help`:  
Show this message and exit..

## Usage Guidelines

N/A

## Examples

```

admin@sonic:~$ sudo sonic-package-manager install dhcp-relay=1.0.2
admin@sonic:~$ sudo sonic-package-manager install dhcp-relay@latest
admin@sonic:~$ sudo sonic-package-manager install dhcp-
relay@sha256:9780f6d83e45878749497a6297ed9906c19ee0cc48cc88dc63827564bb8768f
d
admin@sonic:~$ sudo sonic-package-manager install --from-repository azure/sonic-
cpu-report:latest
admin@sonic:~$ sudo sonic-package-manager install --from-tarball sonic-docker-
image.gz

```

## 1.28 sonic-package-manager list

### Function

Run the **sonic-package-manager list** command to list all available SONiC packages, their description, installed version and installation status.

SONiC package status can be *\*Installed\**, *\*Not installed\** or *\*Built-In\**. "Built-In" status means that a feature is built-in to SONiC image and can't be upgraded or uninstalled.

### Syntax

**sonic-package-manager list**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ sonic-package-manager list
Name              Repository          Description
Version          Status
-----
cpu-report        azure/cpu-report    CPU report package
N/A              Not Installed
database          docker-database     SONiC database package
1.0.0            Built-In

```

dhcp-relay		azure/docker-dhcp-relay	SONiC dhcp-relay package
1.0.0	Installed		
fpm-frr		docker-fpm-frr	SONiC fpm-frr package
1.0.0	Built-In		
lldp		docker-lldp	SONiC lldp package
1.0.0	Built-In		
macsec		docker-macsec	SONiC macsec
package		1.0.0 Built-In	
mgmt-framework		docker-sonic-mgmt-framework	SONiC mgmt-framework
package	1.0.0	Built-In	
nat		docker-nat	SONiC nat package
1.0.0	Built-In		
pmon		docker-platform-monitor	SONiC pmon package
1.0.0	Built-In		
radv		docker-router-advertiser	SONiC radv package
1.0.0	Built-In		
sflow		docker-sflow	SONiC sflow package
1.0.0	Built-In		
snmp		docker-snmp	SONiC snmp
package		1.0.0 Built-In	
swss		docker-orchagent	SONiC swss package
1.0.0	Built-In		
syncd		docker-syncd-mlnx	SONiC syncd package
1.0.0	Built-In		
teamd		docker-teamd	SONiC teamd
package		1.0.0 Built-In	
telemetry		docker-sonic-telemetry	SONiC telemetry package
1.0.0	Built-In		

## 1.29 sonic-package-manager repository add

### Function

Run the **sonic-package-manager repository add** command to add a new repository as source for SONiC packages to the database.

#### Note

This command requires elevated (root) privileges to run.

### Syntax

**sonic-package-manager repository add** [ OPTIONS ] NAME REPOSITORY



## Parameter Description

**add:** Add a new repository to database.

*OPTIONS:*

- o `--default-reference TEXT:`  
Default installation reference. Can be a tag or sha256 digest in repository.
- o `--description TEXT:`  
Optional package entry description.
- o `--help:`  
Show this message and exit.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo sonic-package-manager repository add cpu-report azure/sonic-cpu-report --default-reference 1.0.0
```

# 1.30 sonic-package-manager repository remove

## Function

Run the **sonic-package-manager repository remove** command to remove a repository as source for SONiC packages from the database.

The package has to be *\*Not Installed\** in order to be removed from package database.



### Note

This command requires elevated (root) privileges to run.

---

## Syntax

```
sonic-package-manager repository remove [ OPTIONS ] NAME
```

## Parameter Description

**remove:** Remove repository from database.

*OPTIONS:*

- o `--help:` Show this message and exit.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo sonic-package-manager repository remove cpu-report
```

## 1.31 sonic-package-manager reset

### Function

Run the **sonic-package-manager reset** command to reset the package by reinstalling it to its default version.

---

**Note**

This command requires elevated (root) privileges to run.

---

### Syntax

**sonic-package-manager reset** [ *OPTIONS* ] *NAME*

### Parameter Description

**reset:** Reset package to the default version.

*OPTIONS:*

- o **-f, --force:**  
Force operation by ignoring package dependency tree and package manifest validation failures.
- o **-y, --yes:**  
Automatically answer yes on prompts.
- o **-v, --verbosity LVL:**  
Either CRITICAL, ERROR, WARNING, INFO or DEBUG. Default is INFO.
- o **--skip-host-plugins** Do not install host OS plugins provided by the package (CLI, etc).

---

**Note**

In case when package host OS plugins are set as mandatory in package manifest this option will fail the installation.

---

- o **--help:**  
Show this message and exit.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo sonic-package-manager reset dhcp-relay
```

## 1.32 sonic-package-manager show package changelog

### Function

Run the **sonic-package-manager show package changelog** command to fetches the changelog from the package manifest and displays it.

---

**Note**

The package changelog can be retrieved from registry or read from image tarball without installing it.

---

### Syntax

```
sonic-package-manager show package changelog [ OPTIONS ] [ PACKAGE-EXPR ]
```

### Parameter Description

*OPTIONS*:

- o `--from-repository TEXT`:  
Fetch package directly from image registry repository.

---

**Note**

This argument is mutually exclusive with arguments: [ `from-tarball`, `package-expr` ].

---

- o `--from-tarball FILE`:  
Fetch package from saved image tarball.

---

**Note**

This argument is mutually exclusive with arguments: [ `package-expr`, `from-repository` ].

---

- o `--help`:  
Show this message and exit.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sonic-package-manager show package changelog dhcp-relay
1.0.0:
```

Initial release

Author (author@email.com) Mon, 25 May 2020 12:25:00 +0300

## 1.33 sonic-package-manager show package manifest

### Function

Run the **sonic-package-manager show package manifest** command to fetch the package manifest and displays it.

---

#### Note

The package manifest can be retrieved from registry or read from image tarball without installing it.

---

### Syntax

**sonic-package-manager show package manifest** [ *OPTIONS* ] [ *PACKAGE-EXPR* ]

### Parameter Description

*OPTIONS*:

- o `--from-repository TEXT`:  
Fetch package directly from image registry repository.

---

#### Note

This argument is mutually exclusive with arguments: [ `from-tarball`, `package-expr` ].

---

- o `--from-tarball FILE`:  
Fetch package from saved image tarball.

---

#### Note

This argument is mutually exclusive with arguments: [ `package-expr`, `from-repository` ].

---

- o `-v, --verbosity LVL`:  
Either CRITICAL, ERROR, WARNING, INFO or DEBUG.
- o `--help`:  
Show this message and exit.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sonic-package-manager show package manifest dhcp-relay=2.0.0
{
  "version": "1.0.0",
  "package": {
    "version": "2.0.0",
    "depends": [
      "database>=1.0.0,<2.0.0"
    ]
  },
  "service": {
    "name": "dhcp_relay"
  }
}
```

## 1.34 sonic-package-manager show package versions

### Function

Run the **sonic-package-manager show package versions** command to retrieve a list of all available versions for the given package from the configured upstream repository.

### Syntax

```
sonic-package-manager show package versions [ OPTIONS ] NAME
```

### Parameter Description

*OPTIONS*:

- o --all:  
Show all available tags in repository.
- o --plain:  
Plain output.
- o --help:  
Show this message and exit.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sonic-package-manager show package versions dhcp-relay
1.0.0
1.0.2
2.0.0
```

```
admin@sonic:~$ sonic-package-manager show package versions dhcp-relay --plain
1.0.0
1.0.2
2.0.0
admin@sonic:~$ sonic-package-manager show package versions dhcp-relay --all
1.0.0
1.0.2
2.0.0
latest
```

## 1.35 sonic-package-manager uninstall

### Function

Run the **sonic-package-manager uninstall** command to uninstall package from SONiC host. User needs to stop the feature prior to uninstalling it.

---

#### Note

This command requires elevated (root) privileges to run.

---

### Syntax

```
sonic-package-manager uninstall [ OPTIONS ] NAME
```

### Parameter Description

**uninstall:** Uninstall package.

*OPTIONS:*

- o -f, --force:  
Force operation by ignoring package dependency tree and package manifest validation failures.
- o -y, --yes:  
Automatically answer yes on prompts.
- o -v, --verbosity LVL:  
Either CRITICAL, ERROR, WARNING, INFO or DEBUG. Default is INFO.
- o --help:  
Show this message and exit.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo sonic-package-manager uninstall dhcp-relay
```

# 1 Container Warm Restart Commands

Command	Function
<a href="#"><u>bgp graceful-restart</u></a>	Enable the function of global BGP graceful restart (GR).
<a href="#"><u>config warm_restart</u></a>	Enable or disable the warm_restart for a particular service that supports warm reboot.
<a href="#"><u>config warm_restart bgp_timer</u></a>	Set the bgp_timer value for warm_restart of BGP service.
<a href="#"><u>config warm_restart neighsyncd_timer</u></a>	Set the neighsyncd_timer value for warm_restart of "swss" service.
<a href="#"><u>config warm_restart teamsyncd_timer</u></a>	Set the teamsyncd_timer value for warm_restart of teamd service.
<a href="#"><u>show warm_restart config</u></a>	Display all the configuration related to warm_restart.
<a href="#"><u>show warm_restart state</u></a>	Display the warm_restart state.
<a href="#"><u>warm reboot</u></a>	Initiates a warm reboot of the device.

## 1.1 bgp graceful-restart

### Function

Run the **bgp graceful-restart** command to enable the function of global BGP graceful restart (GR).

---

#### Note

That during a warm restart, certain BGP fast convergence feature and black hole avoidance feature should either be disabled or be set to a lower preference to avoid conflicts with BGP graceful restart.

---

### Syntax

```
bgp graceful-restart
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ vtysh
sonic# configure terminal
sonic(config)# router bgp 65000
sonic(config-router)# bgp graceful-restart
Graceful restart configuration changed, reset all peers to take effect
```

## 1.2 config warm\_restart

### Function

Run the **config warm\_restart** command to enable or disable the warm\_restart for a particular service that supports warm reboot.

### Syntax

```
config warm_restart [ { -s | --redis-unix-socket-path } socket-path ] { enable | disable } [ module-name ]
```

### Parameter Description

*module-name*: Can be either system or swss or bgp or teamd. If "module-name" argument is not specified, it will enable "system" module.



## Usage Guidelines

Following four services support warm reboot. When user restarts the particular service using "systemctl restart service-name", this configured value will be checked for whether it is enabled or disabled.

If this configuration is enabled for that service, it will perform warm reboot for that service. Otherwise, it will do cold restart of the service.

## Examples

Set warm\_restart as "enable" for the "system" service.

```
admin@sonic:~$ sudo config warm_restart enable
```

Set warm\_restart as "enable" for the "swss" service. When user does "systemctl restart swss", it will perform warm reboot instead of cold reboot.

```
admin@sonic:~$ sudo config warm_restart enable swss
```

Set warm\_restart as "enable" for the "teamd" service. When user does "systemctl restart teamd", it will perform warm reboot instead of cold reboot.

```
admin@sonic:~$ sudo config warm_restart enable teamd
```

Set warm\_restart as "enable" for the "syncd" service. When user does "systemctl restart syncd", it will perform warm reboot instead of cold reboot.

```
admin@sonic:~$ sudo config warm_restart enable syncd
```

## 1.3 config warm\_restart bgp\_timer

### Function

Run the **config warm\_restart bgp\_timer** command to set the bgp\_timer value for warm\_restart of BGP service.

### Syntax

```
config warm_restart [ { -s | --redis-unix-socket-path } socket-path ] bgp_timer  
seconds
```

### Parameter Description

*seconds*: Range from 1 to 3600.

### Usage Guidelines

The bgp\_timer holds the time interval utilized by fpmSyncd during warm-restart episodes.

During this interval fpmSyncd will recover all the routing state previously pushed to AppDB, as well as all the new state coming from zebra/bgpd.

Upon expiration of this timer, fpmSyncd will execute the reconciliation logic to eliminate all the stale entries from AppDB.

This timer should match the BGP-GR restart-timer configured within the elected routing-stack.

## Examples

```
admin@sonic:~$ sudo config warm_restart bgp_timer 1000
```

## 1.4 config warm\_restart neighsyncd\_timer

### Function

Run the **config warm\_restart neighsyncd\_timer** command to set the neighsyncd\_timer value for warm\_restart of "swss" service.

### Syntax

```
config warm_restart [ { -s | --redis-unix-socket-path } socket-path ]  
neighsyncd_timer seconds
```

### Parameter Description

*seconds*: Range from 1 to 9999.

### Usage Guidelines

The neighsyncd\_timer is the timer used for "swss" (neighsyncd) service during the warm restart.

Timer is started after the neighborTable is restored to internal data structures.

neighborsyncd then starts to read all Linux kernel entries and mark the entries in the data structures accordingly.

Once the timer is expired, reconciliation is done and the delta is pushed to appDB.

## Examples

```
admin@sonic:~$ sudo config warm_restart neighsyncd_timer 2000
```

## 1.5 config warm\_restart teamsyncd\_timer

### Function

Run the **config warm\_restart teamsyncd\_timer** command to set the teamsyncd\_timer value for warm\_restart of teamd service.

### Syntax

```
config warm_restart teamsyncd_timer seconds
```

### Parameter Description

*seconds*: Range from 1 to 9999.

## Usage Guidelines

The `teamsyncd_timer` holds the time interval utilized by `teamsyncd` during warm-restart episodes.

The timer is started when `teamsyncd` starts. During the timer interval, `teamsyncd` will preserve all LAG interface changes, but it will not apply them.

The changes will only be applied when the timer expires.

When the changes are applied, the stale LAG entries will be removed, the new LAG entries will be created.

## Examples

```
admin@sonic:~$ sudo config warm_restart teamsyncd_timer 3000
```

## 1.6 show warm\_restart config

### Function

Run the **show warm\_restart config** command to display all the configuration related to `warm_restart`.

### Syntax

```
show warm_restart config
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show warm_restart config
name      enable  timer_name  timer_duration  eoiu_enable
-----  -
bgp       true    NULL        NULL            NULL
swss      true    NULL        NULL            NULL
syncd     true    NULL        NULL            NULL
teamd     true    NULL        NULL            NULL
```

## 1.7 show warm\_restart state

### Function

Run the **show warm\_restart state** command to display the `warm_restart` state.

## Syntax

```
show warm_restart state
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show warm_restart state
name                restore_count  state
-----
bgp                  1             reconciled
fdbsyncd            2             replayed
intfmgrd            2             reconciled
neighsyncd          2             reconciled
orchagent           2             reconciled
portsyncd           2             reconciled
syncd               1             reconciled
teamsyncd           1             reconciled
vlanmgrd            2             reconciled
vrfmgrd             2             reconciled
vxlanmgrd           2             reconciled
```

# 1.8 warm reboot

## Function

Run the **warm reboot** command to initiates a warm reboot of the device.

## Syntax

```
warm-reboot [ -h | -? | -v | -f | -i | -d | -r | -k | -x | -c control plane assistant IP list | -s | -t | -D ]
```

## Parameter Description

- h,-?** : get this help
- v**: turn on verbose mode
- f**: force execution - ignore Orchagent RESTARTCHECK failure
- i**: force execution - ignore ASIC MD5-checksum-verification
- d**: force execution - ignore database integrity check
- r**: reboot with /sbin/reboot

- k**: reboot with `/sbin/kexec -e` [default]
- x**: execute script with `-x` flag
- c**: specify control plane assistant IP list
- s**: strict mode: do not proceed without:  
control plane assistant IP list.
- t**: Don't tag the current kube images as latest
- D**: detached mode - closing terminal will not cause stopping reboot

## Usage Guidelines

Warm-reboot command doesn't require setting warm restart configuration. The Command will setup everything needed to perform warm reboot. This command requires root privilege.

## Examples

```
admin@sonic:~$ sudo warm-reboot -v
Mon 20 Mar 2023 09:55:11 AM UTC Saving counters folder before warmboot...
Mon 20 Mar 2023 09:55:15 AM UTC Pausing orchagent ...
Mon 20 Mar 2023 09:55:15 AM UTC Collecting logs to check ssd health before warm-
reboot...
Mon 20 Mar 2023 09:55:15 AM UTC Stopping lldp.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopped lldp.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopping mgmt-framework.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopped mgmt-framework.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopping pmon.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopped pmon.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopping snmp.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopped snmp.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopping telemetry.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopped telemetry.timer ...
Mon 20 Mar 2023 09:55:15 AM UTC Stopping lldp ...
Mon 20 Mar 2023 09:55:17 AM UTC Stopped lldp
Mon 20 Mar 2023 09:55:17 AM UTC Stopping radv ...
Mon 20 Mar 2023 09:55:17 AM UTC Stopped radv
Mon 20 Mar 2023 09:55:17 AM UTC Stopping bgp ...
Mon 20 Mar 2023 09:55:22 AM UTC Stopped bgp
Mon 20 Mar 2023 09:55:22 AM UTC Stopping swss ...
Mon 20 Mar 2023 09:55:29 AM UTC Stopped swss
Mon 20 Mar 2023 09:55:29 AM UTC Initialize pre-shutdown ...
Mon 20 Mar 2023 09:55:30 AM UTC Requesting pre-shutdown ...
Mon 20 Mar 2023 09:55:30 AM UTC Waiting for pre-shutdown ...
```

```
Mon 20 Mar 2023 09:55:30 AM UTC Pre-shutdown succeeded, state: pre-shutdown-
succeeded ...
Mon 20 Mar 2023 09:55:30 AM UTC Backing up database ...
Mon 20 Mar 2023 09:55:31 AM UTC Stopping teamd ...
Mon 20 Mar 2023 09:55:31 AM UTC Stopped teamd
Mon 20 Mar 2023 09:55:31 AM UTC Stopping syncd ...
Mon 20 Mar 2023 09:55:41 AM UTC Stopped syncd
Mon 20 Mar 2023 09:55:41 AM UTC Stopping all remaining containers ...
Mon 20 Mar 2023 09:55:44 AM UTC Stopped all remaining containers ...
Mon 20 Mar 2023 09:55:46 AM UTC Enabling Watchdog before warm-reboot
Mon 20 Mar 2023 09:55:46 AM UTC Rebooting with /sbin/kexec -e to SONiC-OS-
SONiC_1.3.0_20230320003403 ...
```

# 1 Ethernet Interface Commands

Command	Function
<a href="#"><u>config interface advertised-speeds (Versions &gt;= 202106)</u></a>	Set port advertised speed
<a href="#"><u>config interface advertised-types (Versions &gt;= 202106)</u></a>	Set port advertised interface types
<a href="#"><u>config interface arp</u></a>	Configure the ARP aging time and gratuitous ARP.
<a href="#"><u>config interface autoneg (Versions &gt;= 202106)</u></a>	Set port auto negotiation mode
<a href="#"><u>config interface breakout (Versions &gt;= 202006)</u></a>	Set active breakout mode available for user-specified interface based on the platform-specific port configuration file(i.e. platform.json) and the current mode set for the interface
<a href="#"><u>config interface cable-length (Versions &gt;= 202006)</u></a>	Configure the length of the cable connected to a port
<a href="#"><u>config interface lossless-pg (Versions &gt;= 202006)</u></a>	Configure the priority groups on which lossless traffic runs
<a href="#"><u>config interface carrier_delay (Versions &gt;= 202111)</u></a>	Set the carrier-delay time for a specified interface
<a href="#"><u>config interface description (Versions &gt;= 202111)</u></a>	Set the description for a specified interface
<a href="#"><u>config interface error_down (Versions &gt;= 202111)</u></a>	Recover the interface link status
<a href="#"><u>config interface fastlink</u></a>	Enable or disable fastlink.
<a href="#"><u>config interface fec (Versions &gt;= 202111)</u></a>	Set the fec mode for a specified interface
<a href="#"><u>config interface headroom-override (Versions &gt;= 202006)</u></a>	Configure a static buffer profile on a port's lossless priorities
<a href="#"><u>config interface ip add (Versions &gt;= 201904)</u></a>	Add the IP address for an interface
<a href="#"><u>config interface ip add (Versions &lt;= 201811)</u></a>	Add the IP address for an interface
<a href="#"><u>config interface ip remove (Versions &gt;=</u></a>	Remove the IP address for an interface

<a href="#"><u>201904</u></a> )	
<a href="#"><u>config interface ip remove (Versions &lt;= 201811)</u></a>	Remove the IP address for an interface
<a href="#"><u>config interface ipv6 enable use-link-local-only</u></a>	Enable an interface to forward L3 traffic with out configuring an address. This command creates the routing interface based on the auto generated IPv6 link-local address. This command can be used even if an address is configured on the interface.
<a href="#"><u>config interface ipv6 disable use-link-local-only</u></a>	Disable use-link-local-only configuration on an interface.
<a href="#"><u>config interface ip-statistics</u></a>	Enable or disable the IP packet counter specific to the interface.
<a href="#"><u>config interface lacp-port-priority (Versions &gt;= 202111)</u></a>	Set the LACP port priority for a specified interface
<a href="#"><u>config interface link_dither (Versions &gt;= 202111)</u></a>	Disable an interface when flapping occurs
<a href="#"><u>config interface mediatype (Versions &gt;= 202111)</u></a>	Set the media type for a specified interface
<a href="#"><u>config interface mpls add (Versions &gt;= 202106)</u></a>	Add MPLS operation on the interface
<a href="#"><u>config interface mpls remove (Versions &gt;= 202106)</u></a>	Remove MPLS operation on the interface
<a href="#"><u>config interface mtu (Versions &gt;= 202111)</u></a>	Set the MTU for a specified interface
<a href="#"><u>config interface mtu (Versions &gt;= 201904)</u></a>	Set the MTU for a specified interface
<a href="#"><u>config interface pfc asymmetric (Versions &gt;= 201904)</u></a>	Set the asymmetric PFC for an interface to either "on" or "off"
<a href="#"><u>config interface pfc asymmetric (Versions &lt;= 201811)</u></a>	Set the asymmetric PFC for an interface to either "on" or "off"
<a href="#"><u>config interface pfc priority</u></a>	Set PFC on a given priority of a given interface to either "on" or "off". Once it is successfully configured, it will show current losses priorities on the given interface. Otherwise, it will show error information.
<a href="#"><u>config interface shutdown (Versions &gt;= 201904)</u></a>	Administratively shut down either the Physical interface or port channel



	interface. Once if it is configured, use "show interfaces status" to check the same
<a href="#"><u>config interface shutdown (Versions &lt;= 201811)</u></a>	Administratively shut down either the Physical interface or port channel interface
<a href="#"><u>config interface speed (Versions &gt;= 201904)</u></a>	Configure the speed for the Physical interface
<a href="#"><u>config interface speed (Versions &lt;= 201811)</u></a>	Configure the speed for the Physical interface
<a href="#"><u>config interface startup (Versions &gt;= 201904)</u></a>	Administratively bringing up the Physical interface or port channel interface
<a href="#"><u>config interface startup (Versions &lt;= 201811)</u></a>	Administratively bringing up the Physical interface or port channel interface
<a href="#"><u>config interface storm_control (Versions &gt;= 202111)</u></a>	Configure storm control for a specified interface
<a href="#"><u>config interface switchmode (Versions &gt;= 202111)</u></a>	Configure the switchport mode
<a href="#"><u>config interface tpid (Versions &gt;= 202106)</u></a>	Configure the TPID for the Physical/PortChannel interface
<a href="#"><u>config interface transceiver lpmode</u></a>	Enable or disable low-power mode for an SFP transceiver.
<a href="#"><u>config interface transceiver reset</u></a>	Reset an SFP transceiver.
<a href="#"><u>config interface type (Versions &gt;= 202106)</u></a>	Set port interface type.
<a href="#"><u>config interface_naming_mode</u></a>	Change the interface naming mode
<a href="#"><u>config ipv6 enable link-local</u></a>	Enable use-link-local-only command on all the interfaces globally.
<a href="#"><u>config ipv6 disable link-local</u></a>	Disable use-link-local-only command on all the interfaces globally.
<a href="#"><u>config loopback</u></a>	Add or delete loopback interfaces.
<a href="#"><u>config platform firmware install</u></a>	Install a platform component firmware.
<a href="#"><u>config platform firmware update</u></a>	Update a platform component firmware from current/next SONiC image.
<a href="#"><u>config subinterface</u></a>	Add or delete loopback interfaces.

<a href="#"><b><u>show platform firmware status</u></b></a>	Display platform components firmware status information.
<a href="#"><b><u>show platform firmware updates</u></b></a>	Display platform components firmware updates information.
<a href="#"><b><u>show platform firmware version</u></b></a>	Display platform components firmware utility version.
<a href="#"><b><u>show subinterfaces status</u></b></a>	Display all the subinterfaces that are configured on the device and its current status.
<a href="#"><b><u>show interfaces alias</u></b></a>	Display name and alias of the interface. For a single interface, provide the interface name with the sub-command.
<a href="#"><b><u>show interfaces autoneg</u></b></a>	Display name and alias of the interface. For a single interface, provide the interface name with the sub-command.
<a href="#"><b><u>show interfaces breakout (Versions &gt;= 202006)</u></b></a>	Display the port capability for all interfaces i.e. index, lanes, default_brkout_mode, breakout_modes(i.e. available breakout modes) and brkout_mode (i.e. current breakout mode)
<a href="#"><b><u>show interfaces counters</u></b></a>	Display packet counters for all interfaces since the last time the counters were cleared. To display I3 counters "rif" subcommand can be used. There is no facility to display counters for one specific I2 interface. For I3 interfaces a single interface output mode is present. Optional argument "-a" provides two additional columns - RX-PPS and TX_PPS.
<a href="#"><b><u>show interfaces description</u></b></a>	Display the key fields of the interfaces such as Operational Status, Administrative Status, Alias and Description.
<a href="#"><b><u>show interfaces errdisable</u></b></a>	Display the error disable information such as status and reason.
<a href="#"><b><u>show interfaces info</u></b></a>	Display the interface information such as description, status, line protocol status, MAC address, speed, bandwidth, admin FEC, oper FEC, MTU, interface IP address, interface IPv6 address, VLAN, link up delay, link down delay, and statistics.

<a href="#"><b>show interfaces ip-statistics</b></a>	Display the status of IP packet counter specific to the interface.
<a href="#"><b>show interfaces media</b></a>	Display the interface media type.
<a href="#"><b>show interfaces mpls</b></a>	Display the configured MPLS state for the list of configured interfaces.
<a href="#"><b>show interfaces naming_mode</b></a>	Display the current interface naming mode.
<a href="#"><b>show interfaces neighbor</b></a>	Display the list of expected neighbors for all interfaces (or for a particular interface) that is configured.
<a href="#"><b>show interfaces portchannel</b></a>	Display information regarding port-channel interfaces.
<a href="#"><b>show interfaces status</b></a>	Display some more fields such as Lanes, Speed, MTU, Type, Asymmetric PFC status and also the operational and administrative status of the interfaces.
<a href="#"><b>show interfaces storm_control</b></a>	Display broadcast, multicast, and unicast storm control configuration.
<a href="#"><b>show interfaces tpid</b></a>	Display the key fields of the interfaces such as Operational Status, Administrative Status, Alias and TPID.
<a href="#"><b>show interfaces transceiver</b></a>	Explain here.
<a href="#"><b>show interfaces vlan-info</b></a>	Display VLAN interface configuration.
<a href="#"><b>show ipv6 link-local-mode</b></a>	Display the link local mode of all the interfaces.

## 1.1 config interface advertised-speeds (Versions >= 202106)

### Function

Run the **config interface advertised-speeds (Versions >= 202106)** command to set port advertised speed.

### Syntax

```
sudo config interface advertised-speeds interface-name speed-list
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface advertised-speeds Ethernet0 all
admin@sonic:~$ sudo config interface advertised-speeds Ethernet0 50000,100000
```

## 1.2 config interface advertised-types (Versions >= 202106)

### Function

Run the **config interface advertised-types (Versions >= 202106)** command to set port advertised interface types.

### Syntax

```
sudo config interface advertised-types interface-name interface-type-list
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface advertised-types Ethernet0 all
admin@sonic:~$ sudo config interface advertised-types Ethernet0 CR,CR4
```

## 1.3 config interface arp

### Function

Run the **config interface arp** command to configure the ARP aging time and gratuitous ARP.

### Syntax

```
config interface arp { adv-gratuitous { disable | enable } | adv-gratuitous-interval interval | gratuitous { disable | enable } | reachable-time reachable-time | stale-time stale-time }
```

### Parameter Description

**adv-gratuitous**: Enable/Disable advertising gratuitous\_arp to the interface

**adv-gratuitous-interval** *interval*: Set advertising gratuitous\_arp interval time to the interface

**gratuitous**: Enable/Disable gratuitous\_arp to the interface

**reachable-time** *reachable-time*: Add arp reachable\_time to the interface

**stale-time** *stale-time*: Add arp aging\_time to the interface

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface arp adv-gratuitous Ethernet22 enabled
admin@sonic:~$ sudo config interface arp adv-gratuitous-interval Ethernet22 10
admin@sonic:~$ sudo config interface arp gratuitous Ethernet22 enabled
admin@sonic:~$ sudo config interface arp reachable-time Ethernet30 1800
admin@sonic:~$ sudo config interface arp stale-time Ethernet30 60
```

## 1.4 config interface autoneg (Versions >= 202106)

### Function

Run the **config interface autoneg (Versions >= 202106)** command to set port auto negotiation mode.

### Syntax

```
sudo config interface autoneg interface-name mode
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface autoneg Ethernet0 enabled
admin@sonic:~$ sudo config interface autoneg Ethernet0 disabled
```

## 1.5 config interface breakout (Versions >= 202006)

### Function

Run the **config interface breakout (Versions >= 202006)** command to set active breakout mode available for user-specified interface based on the platform-specific port configuration file (i.e. platform.json) and the current mode set for the interface.

### Syntax

```
sudo config interface breakout interface-name mode [ -f ] [ -l ] [ -y ] [ -v ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface breakout Ethernet0 <tab><tab>
<tab provides option for breakout mode>
1x100G[40G] 2x50G      4x25G[10G]
This command also provides "--force-remove-dependencies/-f" option to CLI, which will
automatically determine and remove the configuration dependencies using Yang models.
admin@sonic:~$ sudo config interface breakout Ethernet0 4x25G[10G] -f -l -v -y
```

## 1.6 config interface cable-length (Versions >= 202006)

### Function

Run the **config interface cable-length (Versions >= 202006)** command to configure the length of the cable connected to a port. The cable\_length is in unit of meters and must be suffixed with "m".

### Syntax

```
sudo config interface cable-length interface-name length
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

N/A

## 1.7 config interface lossless-pg (Versions >= 202006)

### Function

Run the **config interface lossless-pg (Versions >= 202006)** command to configure the priority groups on which lossless traffic runs.

### Syntax

```
sudo config interface lossless-pg
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

N/A

## 1.8 config interface carrier\_delay (Versions >= 202111)

### Function

Run the **config interface carrier\_delay (Versions >= 202111)** command to set the carrier-delay time for a specified interface.

### Syntax

```
config interface carrier_delay { down | up } interface-name delay-time
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface carrier_delay down Ethernet22 100
admin@sonic:~$ sudo config interface carrier_delay up Ethernet22 100
```

## 1.9 config interface description (Versions >= 202111)

### Function

Run the **config interface description (Versions >= 202111)** command to set the description for a specified interface.

### Syntax

```
config interface description interface-name description
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface description Ethernet44 "Example"
```

## 1.10 config interface error\_down (Versions >= 202111)

### Function

Run the **config interface error\_down (Versions >= 202111)** command to recover the interface link status.

### Syntax

```
config interface error_down { auto_recovery [ disable | enable | interval interval ] | recovery link_dither }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface error_down auto_recovery enable
admin@sonic:~$ sudo config interface error_down auto_recovery disable
admin@sonic:~$ sudo config interface error_down auto_recovery interval 100
admin@sonic:~$ sudo config interface error_down recovery link_dither
```



## 1.11 config interface fastlink

### Function

Run the **config interface fastlink** command to enable or disable fastlink.

### Syntax

```
config interface fastlink { disable | enable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo cconfig interface fastlink enable
admin@sonic:~$ sudo config interface fastlink disable
```

## 1.12 config interface fec (Versions >= 202111)

### Function

Run the **config interface fec (Versions >= 202111)** command to set the fec mode for a specified interface.

### Syntax

```
config interface fec interface-name [ fc | none | rs ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface fec Ethernet23 rs
```

## 1.13 config interface headroom-override (Versions >= 202006)

### Function

Run the **config interface headroom-override (Versions >= 202006)** command to configure a static buffer profile on a port's lossless priorities.

## Syntax

```
sudo config interface headroom-override
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

N/A

## 1.14 config interface ip add (Versions >= 201904)

### Function

Run the **config interface ip add (Versions >= 201904)** command to add the IP address for an interface.

IP address for either physical interface or for portchannel or for VLAN interface or for Loopback interface can be configured using this command. While configuring the IP address for the management interface "eth0", users can provide the default gateway IP address as an optional parameter from release 201911.

### Syntax

```
config interface ip add [ interface-name ] [ ip-addr/mask ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface ip add Ethernet63 10.11.12.13/24
admin@sonic:~$ sudo config interface ip add eth0 20.11.12.13/24 20.11.12.254
```

## 1.15 config interface ip add (Versions <= 201811)

### Function

Run the **config interface ip add (Versions <= 201811)** command to add the IP address for an interface.

IP address for either physical interface or for portchannel or for VLAN interface or for Loopback interface can be configured using this command. While configuring the IP

address for the management interface "eth0", users can provide the default gateway IP address as an optional parameter from release 201911.

### Syntax

```
config interface [ interface-name ] ip add [ ip-addr/mask ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface Ethernet63 ip add 10.11.12.13/24
```

## 1.16 config interface ip remove (Versions >= 201904)

### Function

Run the **config interface ip remove (Versions >= 201904)** command to remove the IP address for an interface.

IP address for either physical interface or for portchannel or for VLAN interface or for Loopback interface can be configured using this command. While configuring the IP address for the management interface "eth0", users can provide the default gateway IP address as an optional parameter from release 201911.

### Syntax

```
config interface ip remove [ interface-name ] [ ip-addr/mask ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface ip remove Ethernet63 10.11.12.13/24  
admin@sonic:~$ sudo config interface ip remove eth0 20.11.12.13/24
```

## 1.17 config interface ip remove (Versions <= 201811)

### Function

Run the **config interface ip remove (Versions <= 201811)** command to remove the IP address for an interface. IP address for either physical interface or for portchannel or for

VLAN interface or for Loopback interface can be configured using this command. While configuring the IP address for the management interface "eth0", users can provide the default gateway IP address as an optional parameter from release 201911.

### Syntax

```
config interface [ interface-name ] ip remove [ ip-addr/mask ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface Ethernet63 ip remove 10.11.12.13/24
```

## 1.18 config interface ipv6 enable use-link-local-only

### Function

Run the **config interface ipv6 enable use-link-local-only** command to enable an interface to forward L3 traffic with out configuring an address. This command creates the routing interface based on the auto generated IPv6 link-local address. This command can be used even if an address is configured on the interface.

### Syntax

```
config interface ipv6 enable use-link-local-only [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface ipv6 enable use-link-local-only Vlan206  
admin@sonic:~$ sudo config interface ipv6 enable use-link-local-only PortChannel007  
admin@sonic:~$ sudo config interface ipv6 enable use-link-local-only Ethernet52
```

## 1.19 config interface ipv6 disable use-link-local-only

### Function

Run the **config interface ipv6 disable use-link-local-only** command to disable use-link-local-only configuration on an interface.

## Syntax

```
config interface ipv6 disable use-link-local-only [ interface-name ]
```

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface ipv6 disable use-link-local-only Vlan206
admin@sonic:~$ sudo config interface ipv6 disable use-link-local-only PortChannel007
admin@sonic:~$ sudo config interface ipv6 disable use-link-local-only Ethernet52
```

# 1.20 config interface ip-statistics

## Function

Run the **config interface ip-statistics** command to enable or disable the IP packet counter specific to the interface.

## Syntax

```
config interface ip-statistics { interface-name | all } { disable | enable }
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface ip-statistics all enable
admin@sonic:~$ sudo config interface ip-statistics Ethernet12 enable
admin@sonic:~$ sudo config interface ip-statistics Ethernet12 disable
```

# 1.21 config interface lacp-port-priority (Versions >= 202111)

## Function

Run the **config interface lacp-port-priority (Versions >= 202111)** command to set the LACP port priority for a specified interface.

## Syntax

```
config interface lacp-port-priority interface-name priority
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface lACP-port-priority Ethernet44 1000
```

## 1.22 config interface link\_dither (Versions >= 202111)

### Function

Run the **config interface lACP-port-priority (Versions >= 202111)** command to disable an interface when flapping occurs.

### Syntax

```
config interface link_dither { disable | enable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface link_dither disable
admin@sonic:~$ sudo config interface link_dither enable
```

## 1.23 config interface mediatype (Versions >= 202111)

### Function

Run the **config interface lACP-port-priority (Versions >= 202111)** command to set the media type for a specified interface.

### Syntax

```
config interface mediatype interface-name mediatype
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface mediatype Ethernet44 fiber
```

## 1.24 config interface mpls add (Versions >= 202106)

### Function

Run the **config interface mpls add (Versions >= 202106)** command to add MPLS operation on the interface.

MPLS operation for either physical, portchannel, or VLAN interface can be configured using this command.

### Syntax

```
sudo config interface mpls add interface-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface mpls add Ethernet4
```

## 1.25 config interface mpls remove (Versions >= 202106)

### Function

Run the **config interface mpls remove (Versions >= 202106)** command to remove MPLS operation on the interface.

MPLS operation for either physical, portchannel, or VLAN interface can be configured using this command.

### Syntax

```
sudo config interface mpls remove interface-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface mpls remove Ethernet4
```

## 1.26 config interface mtu (Versions >= 202111)

### Function

Run the **config interface mtu (Versions >= 202111)** command to set the MTU for a specified interface.

### Syntax

```
config interface mtu interface-name mtu
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface mtu Ethernet44 1500
```

## 1.27 config interface mtu (Versions >= 201904)

### Function

Run the **config interface mtu (Versions >= 201904)** command to configure the mtu for the Physical interface. Use the value 1500 for setting max transfer unit size to 1500 bytes.

### Syntax

```
config interface mtu [ interface-name ] [ mtu-value ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface mtu Ethernet64 1500
```

## 1.28 config interface pfc asymmetric (Versions >= 201904)

### Function

Run the **config interface pfc asymmetric (Versions >= 201904)** command to set the asymmetric PFC for an interface to either "on" or "off".

Once if it is configured, use "show interfaces status" to check the same.



## Syntax

```
config interface pfc asymmetric [ interface-name ] { on | off }
```

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface pfc asymmetric Ethernet60 on
```

## 1.29 config interface pfc asymmetric (Versions <= 201811)

### Function

Run the **config interface pfc asymmetric (Versions <= 201811)** command to set the asymmetric PFC for an interface to either "on" or "off".

Once if it is configured, use "show interfaces status" to check the same.

### Syntax

```
config interface [ interface-name ] pfc asymmetric { on | off }
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface Ethernet60 pfc asymmetric on
```

## 1.30 config interface pfc priority

### Function

Run the **config interface pfc priority** command to set PFC on a given priority of a given interface to either "on" or "off". Once it is successfully configured, it will show current losses priorities on the given interface. Otherwise, it will show error information.

### Syntax

```
config interface pfc priority [ interface-name ] { on | off }
```

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```

admin@sonic:~$ sudo config interface pfc priority Ethernet0 3 off
Interface      Lossless priorities
-----
Ethernet0      4
admin@sonic:~$ sudo config interface pfc priority Ethernet0 8 off
Usage: pfc config priority [OPTIONS] STATUS INTERFACE PRIORITY
Error: Invalid value for "priority": invalid choice: 8. (choose from 0, 1, 2, 3, 4, 5, 6, 7)
admin@sonic:~$ sudo config interface pfc priority Ethernet101 3 off
Cannot find interface Ethernet101
admin@sonic:~$ sudo config interface pfc priority Ethernet0 3 on
Interface      Lossless priorities
-----
Ethernet0      3,4

```

## 1.31 config interface shutdown (Versions >= 201904)

### Function

Run the **config interface shutdown (Versions >= 201904)** command to administratively shut down either the Physical interface or port channel interface. Once if it is configured, use "show interfaces status" to check the same.

### Syntax

```
config interface shutdown [ interface-name ] { on | off }
```

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```

admin@sonic:~$ sudo config interface shutdown Ethernet63

```

## 1.32 config interface shutdown (Versions <= 201811)

### Function

Run the **config interface shutdown (Versions <= 201811)** command to administratively shut down either the Physical interface or port channel interface.

Once it is configured, use "show interfaces status" to check the same.

### Syntax

```
config interface [ interface-name ] shutdown { on | off }
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface Ethernet63 shutdown
shutdown multiple interfaces
admin@sonic:~$ sudo config interface shutdown Ethernet8,Ethernet16-20,Ethernet32
```

## 1.33 config interface speed (Versions >= 201904)

### Function

Run the **config interface speed (Versions >= 201904)** command to configure the speed for the Physical interface.

Use the value 40000 for setting it to 40G and 100000 for 100G. Users need to know the device to configure it properly.

### Syntax

```
config interface speed [ interface-name ] [ speed_value ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface speed Ethernet63 40000
```

## 1.34 config interface speed (Versions <= 201811)

### Function

Run the **config interface speed (Versions <= 201811)** command to configure the speed for the Physical interface. Use the value 40000 for setting it to 40G and 100000 for 100G. Users need to know the device to configure it properly.

### Syntax

```
config interface [ interface-name ] speed [ speed_value ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface Ethernet63 speed 40000
```

## 1.35 config interface startup (Versions >= 201904)

### Function

Run the **config interface startup (Versions >= 201904)** command to administratively bringing up the Physical interface or port channel interface.

Once it is configured, use "show interfaces status" to check the same.

### Syntax

```
config interface startup [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface startup Ethernet63
```

## 1.36 config interface startup (Versions <= 201811)

### Function

Run the **config interface startup (Versions <= 201811)** command to administratively bringing up the Physical interface or port channel interface. Once it is configured, use "show interfaces status" to check the same.

### Syntax

```
config interface [ interface-name ] startup
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface Ethernet63 startup
admin@sonic:~$ sudo config interface Ethernet8,Ethernet16-20,Ethernet32 startup
```

## 1.37 config interface storm\_control (Versions >= 202111)

### Function

Run the **config interface storm\_control (Versions >= 202111)** command to configure storm control for a specified interface.

### Syntax

```
config interface storm_control [ interface_name ] { broadcast | multicast | unicast }
```

### Parameter Description

*interface-name*: Interface name.

**broadcast**: broadcast storm control

**multicast**: Multicast storm control

**unicast**: Unicast storm control

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface storm_control Ethernet44 broadcast kbps 1214
admin@sonic:~$ sudo config interface storm_control Ethernet43 broadcast level 20
admin@sonic:~$ sudo config interface storm_control Ethernet42 broadcast pps 1214
```

## 1.38 config interface switchmode (Versions >= 202111)

### Function

Run the **config interface switchmode (Versions >= 202111)** command to configure the switchport mode.

### Syntax

```
config interface switchmode { access vlan-id | no-access interface-name | no-trunk | trunk { no-vlan-range vlan-list | pvid vlan-id | vlan-range vlan-list } } interface-name
```

### Parameter Description

**access**: Set interface access mode.

**no-access**: Set interface default access mode.

**no-trunk**: Remove interface all trunk configuration.

**trunk**: Set interface trunk mode

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface switchmode access 100 Ethernet22
admin@sonic:~$ sudo config interface switchmode no-access Ethernet22
admin@sonic:~$ sudo config interface switchmode trunk pvid 20 Ethernet22
admin@sonic:~$ sudo config interface switchmode trunk vlan-range 100-104 Ethernet22
admin@sonic:~$ sudo config interface switchmode trunk no-vlan-range 100-101 Ethernet22
admin@sonic:~$ sudo config interface switchmode no-trunk Ethernet22
```

## 1.39 config interface tpid (Versions >= 202106)

### Function

Run the **config interface tpid (Versions >= 202106)** command to configure the TPID for the Physical/PortChannel interface.

Default is 0x8100. Other allowed values if supported by HW SKU (0x9100, 0x9200, 0x88A8).

### Syntax

```
config interface tpid [ interface_name ] [ tpid_value ]
```

### Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface tpid Ethernet64 0x9200
```

# 1.40 config interface transceiver lpmode

## Function

Run the **config interface transceiver lpmode** command to enable or disable low-power mode for an SFP transceiver.

## Syntax

- **config interface transceiver lpmode** [ *interface-name* ] { **enable** | **disable** }

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```
user@sonic~$ sudo config interface transceiver lpmode Ethernet0 enable
Enabling low-power mode for port Ethernet0... OK
user@sonic~$ sudo config interface transceiver lpmode Ethernet0 disable
Disabling low-power mode for port Ethernet0... OK
```

# 1.41 config interface transceiver reset

## Function

Run the **config interface transceiver reset** command to reset an SFP transceiver.

## Syntax

- **config interface transceiver reset** [ *interface-name* ]

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface transceiver reset Ethernet0
```

## 1.42 config interface type (Versions >= 202106)

### Function

Run the **config interface types (Versions >= 202106)** command to set port interface type.

### Syntax

```
sudo config interface type interface-name type
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface type Ethernet0 CR4
```

## 1.43 config interface\_naming\_mode

### Function

Run the **config interface\_naming\_mode** command to change the interface naming mode.

Users can select between default mode (SONiC interface names) or alias mode (Hardware vendor names). The user must log out and log back in for changes to take effect. Note that the newly-applied interface mode will affect all interface-related show/config commands.

### Syntax

```
config interface_naming_mode { default | alias }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces naming_mode
default
```



```
admin@sonic:~$ show interface status Ethernet0
```

Interface	Lanes	Speed	MTU	Alias	Oper	Admin
-----------	-------	-------	-----	-------	------	-------

Ethernet0	101,102	40G	9100	fortyGigE1/1/1	up	up
-----------	---------	-----	------	----------------	----	----

```
admin@sonic:~$ sudo config interface_naming_mode alias
```

Please logout and log back in for changes take effect.

```
^^^
```

- After user logs out and logs back in again, interfaces will then referenced by hardware vendor aliases:

```
^^^
```

```
admin@sonic:~$ show interfaces naming_mode
```

alias

```
admin@sonic:~$ sudo config interface fortyGigE1/1/1 shutdown
```

```
admin@sonic:~$ show interface status fortyGigE1/1/1
```

Interface	Lanes	Speed	MTU	Alias	Oper	Admin
-----------	-------	-------	-----	-------	------	-------

Ethernet0	101,102	40G	9100	fortyGigE1/1/1	down	down
-----------	---------	-----	------	----------------	------	------

```
^^^
```

## 1.44 config ipv6 enable link-local

### Function

Run the **config ipv6 enable link-local** command to enable use-link-local-only command on all the interfaces globally.

### Syntax

```
sudo config ipv6 enable link-local
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config ipv6 enable link-local
```

## 1.45 config ipv6 disable link-local

### Function

Run the **config ipv6 disable link-local** command to disable use-link-local-only command on all the interfaces globally.

### Syntax

```
sudo config ipv6 disable link-local
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config ipv6 disable link-local
```

## 1.46 config loopback

### Function

Run the **config loopback** command to add or delete loopback interfaces.

### Syntax

```
config loopback { add | del } loopback-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

Create the loopback with name "Loopback11"

```
admin@sonic:~$ sudo config loopback add Loopback11
```

## 1.47 config platform firmware install

### Function

Run the **config platform firmware install** command to install a platform component firmware.

Both modular and non modular chassis platforms are supported.

### Syntax

**config platform firmware install chassis component** *component-name* **fw** *fw-path*

**config platform firmware install module** *module\_name* **component** *component\_name* **fw** *fw\_path* [ **-y** | **--yes** ]

### Parameter Description

**-y** | **--yes\_**: automatic yes to prompts. Assume "yes" as answer to all prompts and run non-interactively.

### Usage Guidelines

*fw-path* can be absolute path or URL.

### Examples

```
admin@sonic:~$ sudo config platform firmware install chassis component BIOS fw
/usr/local/lib/firmware/chassis1/bios.bin
Warning: Immediate cold reboot is required to complete BIOS firmware update.
New firmware will be installed, continue? [y/N]: y
Installing firmware:
  /usr/local/lib/firmware/chassis1/bios.bin
```

## 1.48 config platform firmware update

### Function

Run the **config platform firmware update** command to update a platform component firmware from current/next SONiC image.

Both modular and non modular chassis platforms are supported.

### Syntax

**config platform firmware update chassis component** *component-name* **fw** [ **-y** | **--yes** ] [ **-f** | **--force** ] [ **-i** | **--image** ]

**config platform firmware update module** *module-name* **component** *component-name* **fw** [ **-y** | **--yes** ] [ **-f** | **--force** ] [ **-i** | **--image** ]

## Parameter Description

**-y | --yes\_**: automatic yes to prompts. Assume "yes" as answer to all prompts and run non-interactively.

**-f | --force**: update FW regardless the current version.

**-i | --image**: update FW using current/next SONiC image.

## Usage Guidelines

FW update requires `platform\_components.json` to be created and placed at:

sonic-buildimage/device/<platform\_name>/<onie\_platform>/platform\_components.json.

Example:

1. Non modular chassis platform

```

{
  "chassis": {
    "Chassis1": {
      "component": {
        "BIOS": {
          "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/chassis1/bios.bin",
          "version": "<bios_version>"
        },
        "CPLD": {
          "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/chassis1/cpld.bin",
          "version": "<cpld_version>"
        },
        "FPGA": {
          "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/chassis1/fpga.bin",
          "version": "<fpga_version>"
        }
      }
    }
  }
}

```

2. Modular chassis platform

```

{

```

```

"chassis": {
  "Chassis1": {
    "component": {
      "BIOS": {
        "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/chassis1/bios.bin",
        "version": "<bios_version>"
      },
      "CPLD": {
        "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/chassis1/cpld.bin",
        "version": "<cpld_version>"
      },
      "FPGA": {
        "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/chassis1/fpga.bin",
        "version": "<fpga_version>"
      }
    }
  }
},
"module": {
  "Module1": {
    "component": {
      "CPLD": {
        "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/module1/cpld.bin",
        "version": "<cpld_version>"
      },
      "FPGA": {
        "firmware":
"/usr/local/lib/firmware/<platform_name>/<onie_platform>/module1/fpga.bin",
        "version": "<fpga_version>"
      }
    }
  }
}
}

```

FW update will be disabled if component definition is not provided (e.g., 'BIOS': { }).

FW version will be read from image if `version` field is not provided.

current/next values for `_-i|--image_` are taken from ``sonic-installer list``.

## Examples

```
admin@sonic:~$ sudo config platform firmware update chassis component BIOS fw
Warning: Immediate cold reboot is required to complete BIOS firmware update.
New firmware will be installed, continue? [y/N]: y
Updating firmware:
  /usr/local/lib/firmware/broadcom/x86_64-micas_m2-w6520-24dc8qc-
r0/chassis1/bios.bin
```

```
admin@sonic:~$ sudo config platform firmware update module Module1 component BIOS
fw
Warning: Immediate cold reboot is required to complete BIOS firmware update.
New firmware will be installed, continue? [y/N]: y
Updating firmware:
  /usr/local/lib/firmware//broadcom/x86_64-micas_m2-w6520-24dc8qc-
r0/module1/bios.bin
```

```
admin@sonic:~$ sudo sonic-installer list
Current: SONiC-OS-202012.0-fb89c28c9
Next: SONiC-OS-201911.0-2bec3004e
Available:
SONiC-OS-202012.0-fb89c28c9
SONiC-OS-201911.0-2bec3004e
```

## 1.49 config subinterface

### Function

Run the **config subinterface** command to add or delete loopback interfaces.

### Syntax

```
config subinterface { add | del } subinterface-name [ vlan-id ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

Create the subinterfces with name "Ethernet0.100"

```
admin@sonic:~$ sudo config subinterface add Ethernet0.100
```

Create the subinterfces with name "Eth64.100"

```
admin@sonic:~$ sudo config subinterface add Eth64.100 100
```

Delete the subinterfces with name "Ethernet0.100"

```
admin@sonic:~$ sudo config subinterface del Ethernet0.100
```

Delete the subinterfces with name "Eth64.100"

```
admin@sonic:~$ sudo config subinterface del Eth64.100 100
```

## 1.50 show platform firmware status

### Function

Run the **show platform firmware status** command to display platform components firmware status information.

### Syntax

```
show platform firmware status
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo show platform firmware status
Chassis Module Component  Version          Description
-----
M2XXX  N/A  ONIE  2020.11-5.2.0022-9600  ONIE - Open Network Install
Environment
      SSD  0202-000          SSD - Solid-State Drive
      BIOS  0ACLH004_02.02.008_9600  BIOS - Basic Input/Output System
      CPLD1  CPLD000120_REV0900      CPLD - Complex Programmable
Logic Device
      CPLD2  CPLD000165_REV0500      CPLD - Complex Programmable
Logic Device
      CPLD3  CPLD000166_REV0300      CPLD - Complex Programmable
Logic Device
      CPLD4  CPLD000167_REV0100      CPLD - Complex Programmable
Logic Device
```

## 1.51 show platform firmware updates

### Function

Run the **show platform firmware updates** command to display platform components firmware updates information.

### Syntax

```
show platform firmware updates [ -i | --image ]
```

### Parameter Description

**-i | --image**: show updates using current/next SONiC image

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo show platform firmware updates
Chassis  Module  Component  Firmware
Version (Current/Available)                Status
-----  -
M2XXX    N/A     ONIE        /usr/local/lib/firmware/onie.bin
2020.11-5.2.0022-9600 / 2020.11-5.2.0024-9600  update is required
          SSD    /usr/local/lib/firmware/ssd.bin
0202-000 / 0204-000                update is required
          BIOS   /usr/local/lib/firmware/bios.bin
0ACLH004_02.02.008_9600 / 0ACLH004_02.02.010_9600  update is required
          CPLD1   /usr/local/lib/firmware/cpld.mpfa
CPLD000120_REV0900 / CPLD000120_REV0900      up-to-date
          CPLD2   /usr/local/lib/firmware/cpld.mpfa
CPLD000165_REV0500 / CPLD000165_REV0500      up-to-date
          CPLD3   /usr/local/lib/firmware/cpld.mpfa
CPLD000166_REV0300 / CPLD000166_REV0300      up-to-date
          CPLD4   /usr/local/lib/firmware/cpld.mpfa
CPLD000167_REV0100 / CPLD000167_REV0100      up-to-date
```

## 1.52 show platform firmware version

### Function

Run the **show platform firmware version** command to display platform components firmware utility version.



**Syntax**

```
show platform firmware version
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show platform firmware version
fwutil version 2.0.0.0
```

**1.53 show subinterfaces status****Function**

Run the **show subinterfaces status** command to display all the subinterfaces that are configured on the device and its current status.

**Syntax**

```
show subinterfaces status
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show subinterfaces status
Sub port interface  Speed  MTU  Vlan  Admin  Type
-----
Eth64.10          100G  9100  100   up     dot1q-encapsulation
Ethernet0.100     100G  9100  100   up     dot1q-encapsulation
```

**1.54 show interfaces alias****Function**

Run the **show interfaces alias** command to display name and alias of the interface. For a single interface, provide the interface name with the sub-command.

## Syntax

```
show interfaces alias
```

```
show interfaces alias [ interface-name ]
```

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces autoneg status
```

Name	Alias
Ethernet1	twentyfiveGigE0/1
Ethernet2	twentyfiveGigE0/2
Ethernet3	twentyfiveGigE0/3
Ethernet4	twentyfiveGigE0/4
Ethernet5	twentyfiveGigE0/5
Ethernet6	twentyfiveGigE0/6
Ethernet7	twentyfiveGigE0/7

```
admin@sonic:~$ show interfaces alias Ethernet54
```

Name	Alias
Ethernet54	hundredGigE0/6

...

## 1.55 show interfaces autoneg

### Function

Run the **show interfaces autoneg** command to display name and alias of the interface. For a single interface, provide the interface name with the sub-command.

### Syntax

```
show interfaces autoneg status [ interface_name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces autoneg status
  Interface      Auto-Neg Mode   Speed   Adv Speeds   Type   Adv Types   Oper
Admin
-----
-----
Ethernet0       enabled        25G     10G,25G     CR     CR,CR4     up
up
Ethernet4       disabled       100G     all         CR4    all        up
up

admin@sonic:~$ show interfaces autoneg status Ethernet8
  Interface      Auto-Neg Mode   Speed   Adv Speeds   Type   Adv Types   Oper
Admin
-----
-----
Ethernet8       disabled       100G     N/A         CR4    N/A        up
up
```

## 1.56 show interfaces breakout (Versions >= 202006)

### Function

Run the **show interfaces breakout (Versions >= 202006)** command to display the port capability for all interfaces i.e. index, lanes, default\_brkout\_mode, breakout\_modes (i.e. available breakout modes) and brkout\_mode (i.e. current breakout mode). To display current breakout mode, "current-mode" subcommand can be used. For a single interface, provide the interface name with the sub-command.

### Syntax

```
show interfaces breakout
```

```
show interfaces breakout current-mode [ interface_name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@lnos-x1-a-fab01:~$ show interfaces breakout
{
  "Ethernet0": {
```

```

    "index": "1,1,1",
    "default_brkout_mode": "1x100G[40G]",
    "child ports": "Ethernet0",
    "child port speed": "100G",
    "breakout_modes": "1x100G[40G],2x50G,4x25G[10G]",
    "Current Breakout Mode": "1x100G[40G]",
    "lanes": "65,66,67,68",
    "alias_at_lanes": "Eth1/1, Eth1/2, Eth1/3, Eth1/4"
  },... continue
}

```

The "current-mode" subcommand is used to display current breakout mode for all interfaces.

```
admin@lnos-x1-a-fab01:~$ show interfaces breakout current-mode
```

```

+-----+-----+
| Interface | Current Breakout Mode |
+=====+=====+
| Ethernet0 | 4x25G[10G]           |
+-----+-----+
| Ethernet4 | 4x25G[10G]           |
+-----+-----+
| Ethernet8 | 4x25G[10G]           |
+-----+-----+
| Ethernet12| 4x25G[10G]           |
+-----+-----+

```

```
admin@lnos-x1-a-fab01:~$ show interfaces breakout current-mode Ethernet0
```

```

+-----+-----+
| Interface | Current Breakout Mode |
+=====+=====+
| Ethernet0 | 4x25G[10G]           |
+-----+-----+

```

## 1.57 show interfaces counters

### Function

Run the **show interfaces counters** command to display packet counters for all interfaces since the last time the counters were cleared. To display I3 counters "rif" subcommand can be used. There is no facility to display counters for one specific I2 interface. For I3 interfaces a single interface output mode is present. Optional argument "-a" provides two additional columns - RX\_PPS and TX\_PPS.

### Syntax

**show interfaces counters** [ **-a** | **--printall** ] [ **-p** | **--period** [ *period* ] ]

**show interfaces counters errors**

**show interfaces counters rates**

**show interfaces counters rif** [ **-p** | **--period** [ *period* ] ] [ **-i** [ *interface-name* ] ]

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces counters
      IFACE  STATE      RX_OK      RX_BPS      RX_UTIL      RX_ERR      RX_DRP
RX_OVR      TX_OK      TX_BPS      TX_UTIL      TX_ERR      TX_DRP      TX_OVR
-----
Ethernet0    U  471,729,839,997  653.87 MB/s  12.77%      0      18,682
0  409,682,385,925  556.84 MB/s  10.88%      0      0      0
Ethernet4    U  453,838,006,636  632.97 MB/s  12.36%      0      1,636
0  388,299,875,056  529.34 MB/s  10.34%      0      0      0
Ethernet8    U  549,034,764,539  761.15 MB/s  14.87%      0      18,274
0  457,603,227,659  615.20 MB/s  12.02%      0      0      0
Ethernet12   U  458,052,204,029  636.84 MB/s  12.44%      0      17,614
0  388,341,776,615  527.37 MB/s  10.30%      0      0      0
Ethernet16   U  16,679,692,972   13.83 MB/s   0.27%      0      17,605
0  18,206,586,265   17.51 MB/s   0.34%      0      0      0
Ethernet20   U  47,983,339,172   35.89 MB/s   0.70%      0      2,174
0  58,986,354,359   51.83 MB/s   1.01%      0      0      0
Ethernet24   U  33,543,533,441   36.59 MB/s   0.71%      0      1,613
0  43,066,076,370   49.92 MB/s   0.97%      0      0      0

admin@sonic:~$ show interfaces counters -i Ethernet4,Ethernet12-16
      IFACE  STATE      RX_OK      RX_BPS      RX_UTIL      RX_ERR      RX_DRP
RX_OVR      TX_OK      TX_BPS      TX_UTIL      TX_ERR      TX_DRP      TX_OVR
-----
Ethernet4    U  453,838,006,636  632.97 MB/s  12.36%      0      1,636
0  388,299,875,056  529.34 MB/s  10.34%      0      0      0
```

```

Ethernet12      U  458,052,204,029  636.84 MB/s    12.44%        0   17,614
0  388,341,776,615  527.37 MB/s    10.30%         0    0        0
Ethernet16      U  16,679,692,972   13.83 MB/s     0.27%         0   17,605
0  18,206,586,265   17.51 MB/s     0.34%         0    0        0

```

# The "errors" subcommand is used to display the interface errors.

```

admin@str-s6000-ac-s-11:~$ show interface counters errors
  IFACE  STATE  RX_ERR  RX_DRP  RX_OVR  TX_ERR  TX_DRP  TX_OVR
-----
Ethernet0  U      0      4      0      0      0      0
Ethernet4  U      0      0      0      0      0      0
Ethernet8  U      0      1      0      0      0      0
Ethernet12 U      0      0      0      0      0      0

```

# The "rates" subcommand is used to display only the interface rates.

```

admin@str-s6000-ac-s-11:/usr/bin$ show int counters rates
  IFACE  STATE  RX_OK  RX_BPS  RX_PPS  RX_UTIL  TX_OK  TX_BPS
TX_PPS  TX_UTIL
-----
Ethernet0  U  467510  N/A     N/A     N/A     466488  N/A
N/A      N/A
Ethernet4  U  469679  N/A     N/A     N/A     469245  N/A
N/A      N/A
Ethernet8  U  466660  N/A     N/A     N/A     465982  N/A
N/A      N/A
Ethernet12 U  466579  N/A     N/A     N/A     466318  N/A
N/A      N/A

```

# The "rif" subcommand is used to display L3 interface counters. Layer 3 interfaces include router interfaces, portchannels and vlan interfaces.

```

admin@sonic:~$ show interfaces counters rif
  IFACE  RX_OK  RX_BPS  RX_PPS  RX_ERR  TX_OK  TX_BPS
TX_PPS  TX_ERR
-----
PortChannel0001  62,668  107.81 B/s  1.34/s  3  6  0.02 B/s
0.00/s  0
PortChannel0002  62,645  107.77 B/s  1.34/s  3  2  0.01 B/s
0.00/s  0
PortChannel0003  62,481  107.56 B/s  1.34/s  3  3  0.01 B/s
0.00/s  0

```

PortChannel0004	62,732	107.88 B/s	1.34/s	2	3	0.01 B/s
0.00/s	0					
Vlan1000	0	0.00 B/s	0.00/s	0	0	0.00 B/s
0.00/s	0					

# Optionally, you can specify a period (in seconds) with which to gather counters over. Note that this function will take `<period>` seconds to execute.

```
admin@sonic:~$ show interfaces counters -p 5
      IFACE   STATE  RX_OK   RX_BPS   RX_UTIL  RX_ERR  RX_DRP
RX_OVR  TX_OK   TX_BPS  TX_UTIL  TX_ERR  TX_DRP  TX_OVR
-----  -
Ethernet0   U     515  59.14 KB/s  0.00%    0      0      0
1,305 127.60 KB/s  0.00%    0      0      0
Ethernet4   U     305  26.54 KB/s  0.00%    0      0      0
279 39.12 KB/s  0.00%    0      0      0
Ethernet8   U     437  42.96 KB/s  0.00%    0      0      0
182 18.37 KB/s  0.00%    0      0      0
Ethernet12  U     284  40.79 KB/s  0.00%    0      0      0
160 13.03 KB/s  0.00%    0      0      0
Ethernet16  U     377  32.64 KB/s  0.00%    0      0      0
214 18.01 KB/s  0.00%    0      0      0
Ethernet20  U     284  36.81 KB/s  0.00%    0      0      0
138 8758.25 B/s  0.00%    0      0      0
Ethernet24  U     173  16.09 KB/s  0.00%    0      0      0
169 11.39 KB/s  0.00%    0      0      0
```

# Interface counters can be cleared by the user with the following command:

```
admin@sonic:~$ sonic-clear counters
```

# Layer 3 interface counters can be cleared by the user with the following command:

```
admin@sonic:~$ sonic-clear rifcounters
```

## 1.58 show interfaces description

### Function

Run the **show interfaces description** command to display the key fields of the interfaces such as Operational Status, Administrative Status, Alias and Description.

### Syntax

**show interfaces description** [ *interface-name* ]

## Parameter Description

*interface-name*: Interface name.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces description
Interface   Oper    Admin      Alias      Description
-----
Ethernet0   down    up          hundredGigE1/1  T0-1:hundredGigE1/30
Ethernet4   down    up          hundredGigE1/2  T0-2:hundredGigE1/30
Ethernet8   down    down        hundredGigE1/3   hundredGigE1/3
Ethernet12  down    down        hundredGigE1/4   hundredGigE1/4
```

# To only display the description for interface Ethernet4

```
admin@sonic:~$ show interfaces description Ethernet4
Interface   Oper    Admin      Alias      Description
-----
Ethernet4   down    up          hundredGigE1/2  T0-2:hundredGigE1/30
```

## 1.59 show interfaces errdisable

### Function

Run the **show interfaces errdisable** command to display the error disable information such as status and reason.

### Syntax

```
show interfaces errdisable
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces errdisable
Interface   Status      Reason
-----
Ethernet50  Error disable  link-dither
```



## 1.60 show interfaces info

### Function

Run the **show interfaces info** command to display the interface information such as description, status, line protocol status, MAC address, speed, bandwidth, admin FEC, oper FEC, MTU, interface IP address, interface IPv6 address, VLAN, link up delay, link down delay, and statistics.

### Syntax

**show interfaces info**

**show interfaces info** [ *interface\_name* ]

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces info
===== Interface Ethernet1 =====
Description:
Admin status: up
Line protocol status: down
MAC: 58:69:6c:fb:20:19
Speed: 25.0G
Bandwidth: 25.0G
Admin FEC: none    Oper FEC: none
MTU: 9100
Interface IP:
Interface IPv6:
Vlan:
  Native vlan: 1
Link up delay:   0 s 0 ms
Link down delay: 0 s 0 ms
Statistic:
  RX packets 0  bytes 0 (0.0 B)
  RX errors 0  dropped 0  overruns 0  frame 0
  TX packets 0  bytes 0 (0.0 B)
  TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0
===== Interface Ethernet2 =====
Description:
Admin status: up
```

```
Line protocol status: down
MAC: 58:69:6c:fb:20:19
Speed: 25.0G
Bandwidth: 25.0G
Admin FEC: none    Oper FEC: none
MTU: 9100
Interface IP:
Interface IPv6:
Vlan:
  Native vlan: 1
Link up delay:    0 s 0 ms
Link down delay: 0 s 0 ms
Statistic:
  RX packets 0  bytes 0 (0.0 B)
  RX errors 0  dropped 0  overruns 0  frame 0
  TX packets 0  bytes 0 (0.0 B)
  TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

```
admin@sonic:~$ show interfaces info Ethernet56
===== Interface Ethernet56 =====
Description:
Admin status: up
Line protocol status: down
MAC: 58:69:6c:fb:20:19
Speed: 100.0G
Bandwidth: 100.0G
Admin FEC: none    Oper FEC: none
MTU: 9100
Interface IP:
Interface IPv6:
Vlan:
  Native vlan: 1
Link up delay:    0 s 0 ms
Link down delay: 0 s 0 ms
Statistic:
  RX packets 0  bytes 0 (0.0 B)
  RX errors 0  dropped 0  overruns 0  frame 0
  TX packets 0  bytes 0 (0.0 B)
  TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

## 1.61 show interfaces ip-statistics

### Function

Run the **show interfaces ip-statistics** command to display the status of IP packet counter specific to the interface.

### Syntax

```
show interfaces ip-statistics state
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces ip-statistics state
Interface   ip_statistics state
-----
Ethernet1   disable
Ethernet2   disable
Ethernet3   disable
Ethernet4   disable
Ethernet5   disable
Ethernet6   disable
Ethernet7   disable
```

## 1.62 show interfaces media

### Function

Run the **show interfaces media** command to display the interface media type.

### Syntax

```
show interfaces media
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces media
Media type Configure
+-----+-----+
| port name | media_type |
+=====+=====+
| Ethernet22 | fiber      |
+-----+-----+
```

## 1.63 show interfaces mpls

### Function

Run the **show interfaces mpls** command to display the configured MPLS state for the list of configured interfaces.

### Syntax

```
show interfaces mpls [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces mpls
Interface    MPLS State
-----
Ethernet0    disable
Ethernet4    enable
Ethernet8    enable
Ethernet12   disable
Ethernet16   disable
Ethernet20   disable
```

# To only display the MPLS state for interface Ethernet4

```
admin@sonic:~$ show interfaces mpls Ethernet4
Interface    MPLS State
-----
Ethernet4    enable
```

## 1.64 show interfaces naming\_mode

### Function

Run the **show interfaces naming\_mode** command to display the current interface naming mode.

### Syntax

```
show interfaces naming_mode
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces naming_mode
default
"default" naming mode will display all SONiC interface names in 'show' commands and
accept SONiC interface names as parameters in 'config commands
admin@sonic:~$ show interfaces naming_mode
alias
"alias" naming mode will display all hardware vendor interface aliases in 'show'
commands and accept hardware vendor interface aliases as parameters in 'config
commands
```

## 1.65 show interfaces neighbor

### Function

Run the **show interfaces neighbor** command to display the list of expected neighbors for all interfaces (or for a particular interface) that is configured.

### Syntax

```
show interfaces neighbor expected [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces neighbor expected
LocalPort   Neighbor   NeighborPort   NeighborLoopback   NeighborMgmt
NeighborType
-----
-----
Ethernet112 Router01T1 Ethernet1       None                10.16.205.100    ToRRouter
Ethernet116 Router02T1 Ethernet1       None                10.16.205.101    SpineRouter
Ethernet120 Router03T1 Ethernet1       None                10.16.205.102    LeafRouter
Ethernet124 Router04T1 Ethernet1       None                10.16.205.103    LeafRouter
```

## 1.66 show interfaces portchannel

### Function

Run the **show interfaces portchannel** command to display information regarding port-channel interfaces.

### Syntax

**show interfaces portchannel**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces portchannel
Flags: A - active, I - inactive, Up - up, Dw - Down, N/A - not available, S - selected, D - deselected
No.  Team Dev          Protocol  Ports
-----
24   PortChannel24 LACP(A)(Up) Ethernet28(S) Ethernet24(S)
48   PortChannel48 LACP(A)(Up) Ethernet52(S) Ethernet48(S)
40   PortChannel40 LACP(A)(Up) Ethernet44(S) Ethernet40(S)
0    PortChannel0   LACP(A)(Up) Ethernet0(S) Ethernet4(S)
8    PortChannel8   LACP(A)(Up) Ethernet8(S) Ethernet12(S)
```

## 1.67 show interfaces status

### Function

Run the **show interfaces status** command to display some more fields such as Lanes, Speed, MTU, Type, Asymmetric PFC status and also the operational and administrative status of the interfaces.

### Syntax

```
show interfaces status [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
# Show interface status of all interfaces
```

```
admin@sonic:~$ show interfaces status
Interface          Lanes   Speed  MTU      Alias      Oper   Admin  Type
Asym PFC
-----
Ethernet0         49,50,51,52  100G  9100  hundredGigE1/1  down   up     N/A
off
Ethernet4         53,54,55,56  100G  9100  hundredGigE1/2  down   up     N/A
off
Ethernet8         57,58,59,60  100G  9100  hundredGigE1/3  down   down   N/A
off
<continues to display all the interfaces>
```

```
# To only display the status for interface Ethernet0
```

```
admin@sonic:~$ show interface status Ethernet0
Interface  Lanes   Speed  MTU      Alias      Oper   Admin
-----
Ethernet0  101,102  40G    9100  fortyGigE1/1/1  up     up
```

```
# To only display the status for range of interfaces
```

```
admin@sonic:~$ show interfaces status Ethernet8,Ethernet168-180
Interface          Lanes   Speed  MTU      Alias      Oper   Admin
Type  Asym PFC
-----
```

Ethernet8	49,50,51,52	100G	9100	hundredGigE3	down	down	
N/A	N/A						
Ethernet168	9,10,11,12	100G	9100	hundredGigE43	down	down	
N/A	N/A						
Ethernet172	13,14,15,16	100G	9100	hundredGigE44	down	down	
N/A	N/A						
Ethernet176	109,110,111,112	100G	9100	hundredGigE45	down	down	N/A
N/A							
Ethernet180	105,106,107,108	100G	9100	hundredGigE46	down	down	
N/A	N/A						

## 1.68 show interfaces storm\_control

### Function

Run the **show interfaces storm\_control** command to display broadcast, multicast, and unicast storm control configuration.

### Syntax

```
show interfaces storm_control
```

```
show interfaces storm_control [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces storm_control
Interface   Broadcast Control   Multicast Control   Unicast Control
-----
Ethernet1   Disabled            Disabled            Disabled
Ethernet2   Disabled            Disabled            Disabled
Ethernet3   Disabled            Disabled            Disabled
Ethernet4   Disabled            Disabled            Disabled
Ethernet5   Disabled            Disabled            Disabled
```

```
admin@sonic:~$ show interfaces storm_control Ethernet55
Interface   Broadcast Control   Multicast Control   Unicast Control
-----
Ethernet55   Disabled            Disabled            Disabled
```



## 1.69 show interfaces tpid

### Function

Run the **show interfaces tpid** command to display the key fields of the interfaces such as Operational Status, Administrative Status, Alias and TPID.

### Syntax

```
show interfaces tpid [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces tpid
  Interface          Alias      Oper    Admin    TPID
  -----
  Ethernet0         fortyGigE1/1/1    up      up    0x8100
  Ethernet1         fortyGigE1/1/2    up      up    0x8100
  Ethernet2         fortyGigE1/1/3    down    down    0x8100
  Ethernet3         fortyGigE1/1/4    down    down    0x8100
  Ethernet4         fortyGigE1/1/5    up      up    0x8100
  Ethernet5         fortyGigE1/1/6    up      up    0x8100
  Ethernet6         fortyGigE1/1/7    up      up    0x9200
  Ethernet7         fortyGigE1/1/8    up      up    0x88A8
  Ethernet8         fortyGigE1/1/9    up      up    0x8100
  ...
  Ethernet63        fortyGigE1/4/16   down    down    0x8100
  PortChannel0001           N/A      up      up    0x8100
  PortChannel0002           N/A      up      up    0x8100
  PortChannel0003           N/A      up      up    0x8100
  PortChannel0004           N/A      up      up    0x8100
```

# To only display the TPID for interface Ethernet6

```
admin@sonic:~$ show interfaces tpid Ethernet6
  Interface          Alias      Oper    Admin    TPID
  -----
  Ethernet6         fortyGigE1/1/7    up      up    0x9200
```

## 1.70 show interfaces transceiver

### Function

Run the **show interfaces transceiver** command to explain here.

### Syntax

```
show interfaces transceiver { EEPROM | error-status | lpmode | presence } [ interface-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces transceiver eeprom
Ethernet1: SFP EEPROM detected
  Application Advertisement: N/A
  Connector: No separable connector
  Encoding: 64B/66B
  Extended Identifier: Power Class 1 Module (1.5W max.), No CLEI code present in Page
02h, No CDR in TX, No CDR in RX
  Extended RateSelect Compliance: Unknown
  Identifier: QSFP28 or later
  Length Cable Assembly(m): 1.0
  Nominal Bit Rate(100Mbps): 255
  Specification compliance:
    10/40G Ethernet Compliance Code: Unknown
    Extended Specification Compliance: 10GBASE-CR4, 25GBASE-CR CA-25G-L
or 50GBASE-CR2 with RS
  Fibre Channel Link Length: Unknown
  Fibre Channel Speed: Unknown
  Fibre Channel Transmission Media: Unknown
  Fibre Channel Transmitter Technology: Unknown
  Gigabit Ethernet Compliant Codes: Unknown
  SAS/SATA Compliance Codes: Unknown
  SONET Compliance Codes: Unknown
  Vendor Date Code(YYYY-MM-DD Lot): 2020-10-09 00
  Vendor Name: LEONI
  Vendor OUI: a8-b0-ae
  Vendor PN: C45593-A502-D10
  Vendor Rev: 00
```

Vendor SN: LEO2041G2WX

```
admin@sonic:~$ show interfaces transceiver error-status
```

Port	Error Status
Ethernet1	OK
Ethernet5	Unplugged
Ethernet9	Unplugged
Ethernet13	OK
Ethernet17	Unplugged
Ethernet21	OK
Ethernet25	Unplugged

```
admin@sonic:~$ show interfaces transceiver lpmode
```

```
Traceback (most recent call last):
```

```
File "/usr/local/bin/sfputil", line 8, in <module>
  sys.exit(cli())
File "/usr/local/lib/python3.9/dist-packages/click/core.py", line 764, in __call__
  return self.main(*args, **kwargs)
File "/usr/local/lib/python3.9/dist-packages/click/core.py", line 717, in main
  rv = self.invoke(ctx)
File "/usr/local/lib/python3.9/dist-packages/click/core.py", line 1137, in invoke
  return _process_result(sub_ctx.command.invoke(sub_ctx))
File "/usr/local/lib/python3.9/dist-packages/click/core.py", line 1137, in invoke
  return _process_result(sub_ctx.command.invoke(sub_ctx))
File "/usr/local/lib/python3.9/dist-packages/click/core.py", line 956, in invoke
  return ctx.invoke(self.callback, **ctx.params)
File "/usr/local/lib/python3.9/dist-packages/click/core.py", line 555, in invoke
  return callback(*args, **kwargs)
File "/usr/local/lib/python3.9/dist-packages/sfputil/main.py", line 799, in lpmode
  lpmode = platform_chassis.get_sfp(physical_port).get_lpmode()
File "/usr/lib/python3/dist-packages/sonic_platform/sfp.py", line 146, in get_lpmode
  return SfpOptoeBase.get_lpmode(self)
File "/usr/local/lib/python3.9/dist-packages/sonic_platform_base/sonic_xcvr/sfp_optoe_base.py", line 154, in get_lpmode
  return api.get_lpmode() if api is not None else None
AttributeError: 'Sff8636Api' object has no attribute 'get_lpmode'
```

```
admin@sonic:~$ show interfaces transceiver pre
```

Port	Presence
Ethernet1	Present
Ethernet5	Not present

Ethernet9	Not present
Ethernet13	Present
Ethernet17	Not present

## 1.71 show interfaces vlan-info

### Function

Run the **show interfaces vlan-info** command to display VLAN interface configuration.

### Syntax

```
show interfaces vlan-info [ interface-name ]
```

### Parameter Description

*interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces vlan-info
===== Interface Vlan20 =====
Description:
Admin status: up
Line protocol status: down
MAC: 00:22:22:22:22:22
Interface IP:
  192.168.30.20/24
Interface IPv6:
===== Interface Vlan100 =====
Description:
Admin status: up
Line protocol status: down
MAC: 58:69:6c:fb:20:19
Interface IP:
  192.168.20.20/24
Interface IPv6:
```

```
admin@sonic:~$ show interfaces vlan-info Vlan20
===== Interface Vlan20 =====
Description:
Admin status: up
Line protocol status: down
```

```
MAC: 00:22:22:22:22:22
Interface IP:
  192.168.30.20/24
Interface IPv6:
```

## 1.72 show ipv6 link-local-mode

### Function

Run the **show ipv6 link-local-mode** command to display the link local mode of all the interfaces.

### Syntax

```
show ipv6 link-local-mode
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
root@sonic:/home/admin# show ipv6 link-local-mode
+-----+-----+
| Interface Name | Mode   |
+=====+=====+
| Ethernet16    | Disabled |
+-----+-----+
| Ethernet18    | Enabled  |
+-----+-----+
```

# 1 LAG Interface Commands

Command	Function
<a href="#"><u>config portchannel</u></a>	Add or delete the portchannel. It is recommended to use portchannel names in the format "PortChannelxxxx", where "xxxx" is number of 1 to 4 digits. Ex: "PortChannel0002".
<a href="#"><u>config portchannel lacp-update</u></a>	Update portchannel.
<a href="#"><u>config portchannel member</u></a>	Add or delete a member port to/from the already created portchannel.
<a href="#"><u>show interfaces portchannel</u></a>	Display all the port channels that are configured in the device and its current status.

## 1.1 config portchannel

### Function

Run the **config portchannel** command to add or delete the portchannel. It is recommended to use portchannel names in the format "PortChannelxxxx", where "xxxx" is number of 1 to 4 digits. Ex: "PortChannel0002".

### Syntax

```
config portchannel { add | del } [ portchannel_name ] [ --min-links [ num_min_links ] ]
[ --fallback { true | false } ] [ --system-id [ mac-address as xx:xx:xx:xx:xx:xx ] ] [ --device-
id num_id ] [ --system-priority [ num ] ] [ --fast-rate ( true | false ) ] [ --mode ( manual |
lacp ) ]
```

### Parameter Description

N/A

### Usage Guidelines

If users specify any other name like "pc99", command will succeed, but such names are not supported. Such names are not printed properly in the "show interface portchannel" command. It is recommended not to use such names.

When any port is already member of any other portchannel and if user tries to add the same port in some other portchannel (without deleting it from the current portchannel), the command fails internally. But, it does not print any error message. In such cases, remove the member from current portchannel and then add it to new portchannel.

### Examples

```
admin@sonic:~$ sudo config portchannel add PortChannel0011
```

## 1.2 config portchannel lacp-update

### Function

Run the **config portchannel lacp-update** command to update portchannel.

### Syntax

```
config portchannel lacp-update { fallback | fast-rate | min-links } portchannel-name
```

### Parameter Description

**Fallback**: update lacp fallback

**fast-rate**: update lacp fast-rate

**min-links**: update lacp min-links

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config portchannel lacp-update fallback PortChannel20 true
```

## 1.3 config portchannel member

### Function

Run the **config portchannel member** command to add or delete a member port to/from the already created portchannel.

### Syntax

```
config portchannel member { add | del } portchannel-name member-portname
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config portchannel member add PortChannel0011 Ethernet4
```

## 1.4 show interfaces portchannel

### Function

Run the **show interfaces portchannel** command to display all the port channels that are configured in the device and its current status.

### Syntax

```
show interfaces portchannel
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show interfaces portchannel
Flags: A - active, I - inactive, Up - up, Dw - Down, N/A - not available, S - selected, D -
deselected
No.  Team Dev      Protocol  Ports
-----
```



```
24 PortChannel24 LACP(A)(Up) Ethernet28(S) Ethernet24(S)
48 PortChannel48 LACP(A)(Up) Ethernet52(S) Ethernet48(S)
40 PortChannel40 LACP(A)(Up) Ethernet44(S) Ethernet40(S)
0 PortChannel0 LACP(A)(Up) Ethernet0(S) Ethernet4(S)
8 PortChannel8 LACP(A)(Up) Ethernet8(S) Ethernet12(S)
^^^
```

# 1 Startup & Running Configuration Commands

Command	Function
<a href="#"><u>show runningconfiguration all</u></a>	Display the entire running configuration.
<a href="#"><u>show runningconfiguration acl</u></a>	Display the running configuration of the acls.
<a href="#"><u>show runningconfiguration bgp</u></a>	Display the running configuration of the BGP module.
<a href="#"><u>show runningconfiguration interfaces</u></a>	Display the running configuration for the "interfaces".
<a href="#"><u>show runningconfiguration ntp</u></a>	Display the running configuration of the ntp module.
<a href="#"><u>show runningconfiguration ports</u></a>	Display the running configuration of the ports.
<a href="#"><u>show runningconfiguration snmp</u></a>	Display the running configuration of the snmp module.
<a href="#"><u>show runningconfiguration syslog</u></a>	Display the running configuration of the syslog module.
<a href="#"><u>show startupconfiguration bgp</u></a>	Display the startup configuration for the BGP module..

## 1.1 show runningconfiguration all

### Function

Run the **show runningconfiguration all** command to display the entire running configuration.

### Syntax

```
show runningconfiguration all
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration all
```

## 1.2 show runningconfiguration acl

### Function

Run the **show runningconfiguration acl** command to display the running configuration of the acls.

### Syntax

```
show runningconfiguration acl
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration acl
```

## 1.3 show runningconfiguration bgp

### Function

Run the **show runningconfiguration bgp** command to display the running configuration of the BGP module.

### Syntax

```
show runningconfiguration bgp
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration bgp
```

## 1.4 show runningconfiguration interfaces

### Function

Run the **show runningconfiguration interfaces** command to display the running configuration for the "interfaces".

### Syntax

```
show runningconfiguration interfaces
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration interfaces
```

## 1.5 show runningconfiguration ntp

### Function

Run the **show runningconfiguration ntp** command to display the running configuration of the ntp module.

**Syntax**

```
show runningconfiguration ntp
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show runningconfiguration ntp
NTP Servers
-----
1.1.1.1
2.2.2.2
```

## 1.6 show runningconfiguration ports

**Function**

Run the **show runningconfiguration ports** command to display the running configuration of the ports.

**Syntax**

```
show runningconfiguration ports [ port-name ]
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show runningconfiguration ports
```

```
admin@sonic:~$ show runningconfiguration ports
```

## 1.7 show runningconfiguration snmp

**Function**

Run the **show runningconfiguration snmp** command to display the running configuration of the snmp module.

**Syntax**

```
show runningconfiguration snmp
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show runningconfiguration snmp
```

## 1.8 show runningconfiguration syslog

**Function**

Run the **show runningconfiguration syslog** command to display the running configuration of the syslog module.

**Syntax**

```
show runningconfiguration syslog
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show runningconfiguration syslog
syslog server    port
-----
172.31.240.48   514
```

## 1.9 show startupconfiguration bgp

**Function**

Run the **show startupconfiguration bgp** command to display the startup configuration for the BGP module..

**Syntax**

```
show startupconfiguration bgp
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show startupconfiguration bgp
Routing-Stack is: quagga
!
! ===== Managed by sonic-cfggen DO NOT edit manually!
! =====
! generated by templates/quagga/bgpd.conf.j2 with config DB data
! file: bgpd.conf
!
!
hostname T1-2
password zebra
log syslog informational
log facility local4
! enable password !
!
! bgp multiple-instance
!
route-map FROM_BGP_SPEAKER_V4 permit 10
!
route-map TO_BGP_SPEAKER_V4 deny 10
!
router bgp 65000
  bgp log-neighbor-changes
  bgp bestpath as-path multipath-relax
  no bgp default ipv4-unicast
  bgp graceful-restart restart-time 180
<Only the partial output is shown here. In actual command, more configuration information
will be displayed>
```

# 1 Monitor-Link Commands

Command	Function
<a href="#"><u>config monitor-link</u></a>	Enable or disable a monitor link group.
<a href="#"><u>config monitor-link group</u></a>	Set a monitor link group.
<a href="#"><u>config monitor-link up-delay</u></a>	Set the switchover delay for the downlink interfaces in a monitor link group.
<a href="#"><u>config monitor-link up-threshold</u></a>	Set the switchover threshold for the downlink interfaces in a monitor link group.
<a href="#"><u>config monitor-link { uplink   downlink }</u></a>	Add an uplink or downlink interface to a monitor link group.
<a href="#"><u>show monitor-link all</u></a>	Display the monitor link group configuration.



## 1.1 config monitor-link

### Function

Run the **config monitor-link** command to enable or disable a monitor link group.

### Syntax

```
config monitor-link { enable | disable } id (Versions >= 202111)
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config monitor-link disable 1
admin@sonic:~$ sudo config monitor-link enable 1
```

## 1.2 config monitor-link group

### Function

Run the **config monitor-link group** command to set a monitor link group.

### Syntax

```
config monitor-link group { add | del } id (Versions >= 202111)
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config monitor-link group add 1
admin@sonic:~$ sudo config monitor-link group del 1
```

## 1.3 config monitor-link up-delay

### Function

Run the **config monitor-link up-delay** command to set the switchover delay for the downlink interfaces in a monitor link group.

## Syntax

**config monitor-link up-delay** *grp-id time* (Versions >= 202111)

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config monitor-link up-delay 1 100
```

## 1.4 config monitor-link up-threshold

### Function

Run the **config monitor-link up-threshold** command to set the switchover threshold for the downlink interfaces in a monitor link group.

### Syntax

**config monitor-link up-threshold** *grp-id num-threshold* (Versions >= 202111)

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config monitor-link up-threshold 1 1
```

## 1.5 config monitor-link { uplink | downlink }

### Function

Run the **config monitor-link { uplink | downlink }** command to add an uplink or downlink interface to a monitor link group.

### Syntax

**config monitor-link { uplink | downlink }** *id interface-name* (Versions >= 202111)

### Parameter Description

*interface-name*: interface name

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config monitor-link uplink add 1 Ethernet12
admin@sonic:~$ sudo config monitor-link downlink add 1 Ethernet13
```

## 1.6 show monitor-link all

### Function

Run the **show monitor-link all** command to display the monitor link group configuration.

### Syntax

**show monitor-link all**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show monitor-link all
Monitor Link Group Configure
+-----+-----+-----+-----+
| group id | is_use  | up_delay | up_threshold |
+=====+=====+=====+=====+
|         1 | true   |      100 |             1 |
+-----+-----+-----+-----+
Monitor Link Ports Configure
+-----+-----+-----+
| group id | port name | type   |
+=====+=====+=====+
|         1 | Ethernet12 | uplink |
+-----+-----+-----+
|         1 | Ethernet13 | downlink |
+-----+-----+-----+
```

# 1 VLAN Commands

Command	Function
<a href="#"><u>config vlan</u></a>	Add or delete the vlan.
<a href="#"><u>config vlan proxy_arp</u></a>	Enable or disable proxy ARP for a VLAN interface.
<a href="#"><u>config vlan mac</u></a>	Configure a MAC address for a VLAN interface.
<a href="#"><u>config vlan member</u></a>	Add or delete a member port into the already created vlan.
<a href="#"><u>show vlan brief</u></a>	Display brief information about all the vlans configured in the device. It displays the vlan ID, IP address (if configured for the vlan), list of vlan member ports, whether the port is tagged or in untagged mode, the DHCP Helper Address, and the proxy ARP status
<a href="#"><u>show vlan config</u></a>	Display all the vlan configuration.

## 1.1 config vlan

### Function

Run the **config vlan** command to add or delete the vlan.

### Syntax

```
config vlan { add | del } vlan-id
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

Create the VLAN "Vlan100" if it does not already exist

```
admin@sonic:~$ sudo config vlan add 100
```

## 1.2 config vlan proxy\_arp

### Function

Run the **config vlan proxy\_arp** command to enable or disable proxy ARP for a VLAN interface.

### Syntax

```
config vlan proxy_arp vlan-id { enabled | disabled }
```

### Parameter Description

N/A

### Usage Guidelines

Adding the -u or --untagged flag will set the member in "untagged" mode.

### Examples

```
admin@sonic:~$ sudo config vlan proxy_arp 1000 enabled
This command will enable proxy ARP for the interface 'Vlan1000'
```

## 1.3 config vlan mac

### Function

Run the **config vlan mac** command to configure a MAC address for a VLAN interface.

## Syntax

```
config vlan mac vlan-id [ mac-address | default ]
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config vlan mac 100 00:77:cc:12:34:
admin@sonic:~$ sudo config vlan mac 100 default
```

# 1.4 config vlan member

## Function

Run the **config vlan member** command to add or delete a member port into the already created vlan.

## Syntax

```
config vlan member { add | del } [ -u | --untagged ] [ vlan-id ] [ member-portname ]
```

## Parameter Description

N/A

## Usage Guidelines

Adding the **-u** or **--untagged** flag will set the member in "untagged" mode.

## Examples

```
admin@sonic:~$ sudo config vlan member add 100 Ethernet0
This command will add Ethernet0 as member of the vlan 100

admin@sonic:~$ sudo config vlan member add 100 Ethernet4
This command will add Ethernet4 as member of the vlan 100.
```

# 1.5 show vlan brief

## Function

Run the **show vlan brief** command to display brief information about all the vlans configured in the device. It displays the vlan ID, IP address (if configured for the vlan), list of vlan member ports, whether the port is tagged or in untagged mode, the DHCP Helper Address, and the proxy ARP status

### Syntax

**show vlan brief**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vlan brief

+-----+-----+-----+-----+-----+-----+
|VLAN ID|IP Address|Ports|Port Tagging| DHCP Helper Address|Proxy ARP  |
+=====+=====+=====+=====+=====+=====+=====+
=====+
|  100 |1.1.2.2/16|Ethernet0|tagged  |192.0.0.1          | disabled  |
|      |          |Ethernet4|tagged  |192.0.0.2          |           |
|      |          |          |        |192.0.0.3          |           |
+-----+-----+-----+-----+-----+-----+-----+

```

## 1.6 show vlan config

### Function

Run the **show vlan config** command to display all the vlan configuration.

### Syntax

**show vlan config**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vlan config
Name      VID  Member      Mode
-----  ---  -
Vlan100   100  Ethernet0   tagged
Vlan100   100  Ethernet4   tagged

```

# 1 LLDP Commands

Command	Function
<a href="#"><u>config lldp mode set</u></a>	Set the LLDP mode for a specified interface.
<a href="#"><u>show lldp mode</u></a>	Display the brief summary of all LLDP neighbors.
<a href="#"><u>show lldp neighbors</u></a>	Display more details about all LLDP neighbors or only the neighbors connected to a specific interface.
<a href="#"><u>show lldp table</u></a>	Display the brief summary of all LLDP neighbors.



## 1.1 config lldp mode set

### Function

Run the **config lldp mode set** command to set the LLDP mode for a specified interface.

### Syntax

```
config lldp mode set [ interface-name ] [ work-mode ] (Versions >= 202111)
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config lldp mode set Ethernet44 tx
```

## 1.2 show lldp mode

### Function

Run the **show lldp mode** command to display the brief summary of all LLDP neighbors.

### Syntax

```
show lldp mode [ interface-name ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

To display all neighbors in all interfaces

```
admin@sonic:~$ show lldp mode
ports      lldp-mode
-----
Ethernet1  rx-and-tx
Ethernet2  rx-and-tx
Ethernet3  rx-and-tx
Ethernet4  rx-and-tx
Ethernet5  rx-and-tx
```

```
admin@sonic:~$ show lldp mode Ethernet22
ports      lldp-mode
-----
Ethernet22 rx-and-tx
```

## 1.3 show lldp neighbors

### Function

Run the **show lldp neighbors** command to display more details about all LLDP neighbors or only the neighbors connected to a specific interface.

### Syntax

```
show lldp neighbors [ interface-name ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

To display all neighbors in all interfaces

```
admin@sonic:~$ show lldp neighbors
-----
LLDP neighbors:
-----
Interface:   eth0, via: LLDP, RID: 1, Time: 0 day, 12:21:21
Chassis:
  ChassisID:  mac 00:01:e8:81:e3:45
  SysName:    swtor-b2lab2-1610
  SysDescr:   SONiC Software Version: SONiC.SONiC_1.3.3_20230925044746 - HwSku:
M2-W6510-48GT4V - Distribution: Debian 11.7 - Kernel: 5.10.0-8-2-amd64
  TTL:        20
  Capability: Repeater, on
  Capability: Bridge, on
  Capability: Router, on
Port:
  PortID:     ifname GigabitEthernet 0/2
  VLAN:       162, pvid: yes
-----
Interface:   Ethernet116, via: LLDP, RID: 3, Time: 0 day, 12:20:49
```

```

Chassis:
  ChassisID:   mac 4c:76:25:e7:f0:c0
  SysName:     T1-2
  SysDescr:    Debian GNU/Linux 8 (jessie) Linux 4.9.0-8-amd64 #1 SMP Debian 4.9.110-
3+deb9u6 (2015-12-19) x86_64
  TTL:         120
  MgmtIP:      10.11.162.40
  Capability:  Bridge, on
  Capability:  Router, on
  Capability:  Wlan, off
  Capability:  Station, off
Port:
  PortID:      local hundredGigE1/2
  PortDescr:   T0-2:hundredGigE1/30

```

Optionally, you can specify an interface name in order to display only that particular interface

```

admin@sonic:~$ show lldp neighbors Ethernet112
show lldp neighbors Ethernet112
-----
LLDP neighbors:
-----
Interface:   Ethernet112, via: LLDP, RID: 2, Time: 0 day, 19:24:17
Chassis:
  ChassisID:   mac 4c:76:25:e5:e6:c0
  SysName:     T1-1
  SysDescr:    Debian GNU/Linux 8 (jessie) Linux 4.9.0-8-amd64 #1 SMP Debian 4.9.110-
3+deb9u6 (2015-12-19) x86_64
  TTL:         120
  MgmtIP:      10.11.162.41
  Capability:  Bridge, on
  Capability:  Router, on
  Capability:  Wlan, off
  Capability:  Station, off
Port:
  PortID:      local hundredGigE1/2
  PortDescr:   T0-2:hundredGigE1/29
-----

```

## 1.4 show lldp table

### Function

Run the **show lldp table** command to display the brief summary of all LLDP neighbors.

**Syntax**

```
show lldp table
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show lldp table
Capability codes: (R) Router, (B) Bridge, (O) Other
LocalPort RemoteDevice RemotePortID Capability RemotePortDescr
-----
Ethernet112 T1-1 hundredGigE1/2 BR T0-2:hundredGigE1/29
Ethernet116 T1-2 hundredGigE1/2 BR T0-2:hundredGigE1/30
eth0 swtor-b2lab2-1610 GigabitEthernet 0/2 OBR
-----
Total entries displayed: 3
```

# 1 NAT Commands

Command	Function
<a href="#"><u>config nat add static</u></a>	Add a static NAT or NAPT entry. When configuring the Static NAT entry, user has to specify the following fields with 'basic' keyword.
<a href="#"><u>config nat add pool</u></a>	Create a NAT pool used for dynamic Source NAT or NAPT translations. Pool can be configured in one of the following combinations.
<a href="#"><u>config nat add binding</u></a>	Create a NAT binding between a pool and an ACL. The following fields are needed for configuring the binding.
<a href="#"><u>config nat add interface</u></a>	Configure NAT zone on an L3 interface. Default value of NAT zone on an L3 interface is 0. Valid range of zone values is 0-3.
<a href="#"><u>config nat feature</u></a>	Config nat feature
<a href="#"><u>config nat set</u></a>	Set the NAT timeout values. Different timeout values can be configured for the NAT entry timeout, NAPT TCP entry timeout, NAPT UDP entry timeout.
<a href="#"><u>sonic-clear nat translations</u></a>	Clear the dynamic NAT and NAPT translation entries.
<a href="#"><u>sonic-clear nat statistics</u></a>	Clear the statistics of all the NAT and NAPT entries.
<a href="#"><u>show nat config</u></a>	Display the NAT configuration.
<a href="#"><u>show nat statistics</u></a>	Display the NAT translation statistics for each entry.
<a href="#"><u>show nat translations</u></a>	Display the NAT translation entries.

# 1.1 config nat add static

## Function

Run the **config nat add static** command to add a static NAT or NAPT entry. When configuring the Static NAT entry, user has to specify the following fields with 'basic' keyword.

## Syntax

```
config nat add static { { basic ( global-ip ) ( local-ip ) } | { { tcp | udp } ( global-ip ) ( global-port ) ( local-ip ) ( local-port ) } } [ -nat_type { snat | dnat } ] [ -twice_nat_id ( value ) ]
```

- To delete a static NAT or NAPT entry, use the command below. Giving the all argument deletes all the configured static NAT and NAPT entries.

```
config nat remove static { { basic ( global-ip ) ( local-ip ) } | { { tcp | udp } ( global-ip ) ( global-port ) ( local-ip ) ( local-port ) } | all }
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config nat add static basic 65.55.45.1 12.12.12.14 -nat_type dnat
admin@sonic:~$ sudo config nat add static tcp 65.55.45.2 100 12.12.12.15 200 -nat_type dnat

admin@sonic:~$ show nat translations

Static NAT Entries           ..... 2
Static NAPT Entries         ..... 2
Dynamic NAT Entries         ..... 0
Dynamic NAPT Entries        ..... 0
Static Twice NAT Entries    ..... 0
Static Twice NAPT Entries   ..... 0
Dynamic Twice NAT Entries   ..... 0
Dynamic Twice NAPT Entries  ..... 0
Total SNAT/SNAPT Entries    ..... 2
Total DNAT/DNAPT Entries    ..... 2
Total Entries                ..... 4

Protocol Source              Destination                 Translated Source  Translated Destination
-----
-
```

```

all      12.12.12.14      ---          65.55.42.1      ---
all      ---              65.55.42.1      ---          12.12.12.14
tcp     12.12.12.15:200  ---          65.55.42.2:100  ---
tcp     ---              65.55.42.2:100  ---          12.12.12.15:200
...

```

## 1.2 config nat add pool

### Function

Run the **config nat add pool** command to create a NAT pool used for dynamic Source NAT or NAPT translations. Pool can be configured in one of the following combinations.

### Syntax

**config nat add pool ( pool-name ) ( global-ip-range ) ( global-port-range )**

- To delete a NAT pool, use the command. Pool cannot be removed if it is referenced by a NAT binding. Giving the pools argument removes all the configured pools.

**config nat remove { pool ( pool-name ) | pools }**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ sudo config nat add pool pool1 65.55.45.2-65.55.45.10
admin@sonic:~$ sudo config nat add pool pool2 65.55.45.3 100-1024

```

```

admin@sonic:~$ show nat config pool

```

Pool Name	Global IP Range	Global Port Range
pool1	65.55.45.2-65.55.45.10	---
pool2	65.55.45.3	100-1024
...		

## 1.3 config nat add binding

### Function

Run the **config nat add binding** command to create a NAT binding between a pool and an ACL. The following fields are needed for configuring the binding.

## Syntax

```
config nat add binding ( binding-name ) [ ( pool-name ) ] [ ( acl-name ) ] [ -nat_type { snat | dnat } ] [ -twice_nat_id ( value ) ]
```

- To delete a NAT binding, use the command below. Giving the bindings argument removes all the configured bindings.

```
config nat remove { binding ( binding-name ) | bindings }
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show acl table
```

Name	Type	Binding	Description	Stage	Dscp	CIR	CBS	Status	Mode
CTRL	CTRLPLANE	SSH	CTRL					N/A	
CUSTOM	L2	Ethernet1	CUSTOM	ingress				Active	
TEST	L3	Ethernet1	TEST	ingress				Active	
		Ethernet2							
		Ethernet3							
TEST2	L3_QOS	Ethernet5	TEST2	ingress	10	100	200	Active	
		Ethernet6							
TEST3	L3	Ethernet5	TEST3	egress				Active	community

## 1.4 config nat add interface

### Function

Run the **config nat add interface** command to configure NAT zone on an L3 interface. Default value of NAT zone on an L3 interface is 0. Valid range of zone values is 0-3.

### Syntax

```
config nat add interface ( interface-name ) -nat_zone ( value )
```

- To reset the NAT zone on an interface, use the command below. Giving the interfaces argument resets the NAT zone on all the L3 interfaces to 0.

```
config nat remove { interface ( interface-name ) | interfaces }
```

### Parameter Description

N/A



## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config nat add interface Ethernet28 -nat_zone 1
```

```
admin@sonic:~$ show nat config zones
```

Port	Zone
Ethernet0	0
Ethernet28	1
Ethernet22	0
Vlan2091	0

## 1.5 config nat feature

### Function

Run the **config nat feature** command to config nat feature

### Syntax

```
config nat feature { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config nat feature enable
```

```
admin@sonic:~$ sudo config nat feature disable
```

## 1.6 config nat set

### Function

Run the **config nat set** command to set the NAT timeout values. Different timeout values can be configured for the NAT entry timeout, NAPT TCP entry timeout, NAPT UDP entry timeout.

### Syntax

```
config nat set { tcp-timeout ( value ) | timeout ( value ) | udp-timeout ( value ) }
```

- To reset the timeout values to the default values, use the command.

```
config nat reset { tcp-timeout | timeout | udp-timeout }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config nat add set tcp-timeout 3600
```

```
admin@sonic:~$ show nat config globalvalues
```

```
Admin Mode      : enabled
Global Timeout  : 600 secs
TCP Timeout     : 600 secs
UDP Timeout     : 300 secs
~~~
```

## 1.7 sonic-clear nat translations

### Function

Run the **sonic-clear nat translations** command to clear the dynamic NAT and NAPT translation entries.

### Syntax

```
sonic-clear nat translations
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

N/A

## 1.8 sonic-clear nat statistics

### Function

Run the **sonic-clear nat statistics** command to clear the statistics of all the NAT and NAPT entries.

**Syntax**

```
sonic-clear nat statistics
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

N/A

**1.9 show nat config****Function**

Run the **show nat config** command to display the NAT configuration.

**Syntax**

```
show nat config [ static | pool | bindings | globalvalues | zones ]
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show nat config static
```

Nat Type	IP Protocol	Global IP	Global L4 Port	Local IP	Local L4 Port	Twice-Nat Id
dnat	all	65.55.45.5	---	10.0.0.1	---	---
dnat	all	65.55.45.6	---	10.0.0.2	---	---
dnat	tcp	65.55.45.7	2000	20.0.0.1	4500	1
snat	tcp	20.0.0.2	4000	65.55.45.8	1030	1

```
admin@sonic:~$ show nat config pool
```

Pool Name	Global IP Range	Global L4 Port Range
-----	-----	-----

```

Pool1      65.55.45.5          1024-65535
Pool2      65.55.45.6-65.55.45.8  ---
Pool3      65.55.45.10-65.55.45.15  500-1000

admin@sonic:~$ show nat config bindings

Binding Name  Pool Name  Access-List  Nat Type  Twice-Nat Id
-----
Bind1         Pool1     ---          snat      ---
Bind2         Pool2     1            snat      1
Bind3         Pool3     2            snat      --

admin@sonic:~$ show nat config globalvalues

Admin Mode    : enabled
Global Timeout : 600 secs
TCP Timeout   : 86400 secs
UDP Timeout   : 300 secs

admin@sonic:~$ show nat config zones

Port      Zone
-----
Ethernet2  0
Vlan100   1
~~~

```

## 1.10 show nat statistics

### Function

Run the **show nat statistics** command to display the NAT translation statistics for each entry.

### Syntax

```
show nat statistics
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show nat statistics
```

Protocol	Source	Destination	Packets	Bytes
all	10.0.0.1	---	802	1009280
all	10.0.0.2	---	23	5590
tcp	20.0.0.1:4500	---	110	12460
udp	20.0.0.1:4000	---	1156	789028
tcp	20.0.0.1:6000	---	30	34800
tcp	20.0.0.1:5000	65.55.42.1:2000	128	110204
tcp	20.0.0.1:5500	65.55.42.1:2000	8	3806

## 1.11 show nat translations

### Function

Run the **show nat translations** command to display the NAT translation entries.

### Syntax

**show nat translations [ ount ]**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show nat translations
```

Static NAT Entries	.....	4
Static NAPT Entries	.....	2
Dynamic NAT Entries	.....	0
Dynamic NAPT Entries	.....	4
Static Twice NAT Entries	.....	0
Static Twice NAPT Entries	.....	4
Dynamic Twice NAT Entries	.....	0
Dynamic Twice NAPT Entries	.....	0
Total SNAT/SNAPT Entries	.....	9
Total DNAT/DNAPT Entries	.....	9
Total Entries	.....	14

```

Protocol Source          Destination          Translated Source    Translated Destination
-----
-
all    10.0.0.1             ---                65.55.42.2          ---
all    ---                  65.55.42.2        ---                10.0.0.1
all    10.0.0.2             ---                65.55.42.3          ---
all    ---                  65.55.42.3        ---                10.0.0.2
tcp    20.0.0.1:4500        ---                65.55.42.1:2000     ---
tcp    ---                  65.55.42.1:2000   ---                20.0.0.1:4500
udp    20.0.0.1:4000        ---                65.55.42.1:1030     ---
udp    ---                  65.55.42.1:1030   ---                20.0.0.1:4000
tcp    20.0.0.1:6000        ---                65.55.42.1:1024     ---
tcp    ---                  65.55.42.1:1024   ---                20.0.0.1:6000
tcp    20.0.0.1:5000        65.55.42.1:2000   65.55.42.1:1025     20.0.0.1:4500
tcp    20.0.0.1:4500        65.55.42.1:1025   65.55.42.1:2000     20.0.0.1:5000
tcp    20.0.0.1:5500        65.55.42.1:2000   65.55.42.1:1026     20.0.0.1:4500
tcp    20.0.0.1:4500        65.55.42.1:1026   65.55.42.1:2000     20.0.0.1:5500

admin@sonic:~$ show nat translations count

Static NAT Entries          ..... 4
Static NAPT Entries         ..... 2
Dynamic NAT Entries         ..... 0
Dynamic NAPT Entries        ..... 4
Static Twice NAT Entries    ..... 0
Static Twice NAPT Entries   ..... 4
Dynamic Twice NAT Entries    ..... 0
Dynamic Twice NAPT Entries  ..... 0
Total SNAT/SNAPT Entries    ..... 9
Total DNAT/DNAPT Entries    ..... 9
Total Entries                ..... 14
...

```

# 1 ARP Commands

Command	Function
<a href="#">show arp</a>	Display the ARP entries in the device with following options.
<a href="#">show arp-aging-time</a>	Display the ARP aging time.

## 1.1 show arp

### Function

Run the **show arp** command to display the ARP entries in the device with following options.

- Display the entire table.
- Display the ARP entries learnt on a specific interface.
- Display the ARP of a specific ip-address.

### Syntax

```
show arp [-if interface-name ] [ ip-address ]
```

### Parameter Description

**-if interface-name**: Displays the ARP specific to the specified interface.

**ip-address**: Displays the ARP specific to the specified ip-address.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show arp
```

Address	MacAddress	Iface	Vlan
192.168.1.183	88:5a:92:fb:bf:41	Ethernet44	-
192.168.1.175	88:5a:92:fc:95:81	Ethernet28	-
192.168.1.181	e4:c7:22:c1:07:7c	Ethernet40	-
192.168.1.179	88:5a:92:de:a8:bc	Ethernet36	-
192.168.1.118	00:1c:73:3c:de:43	Ethernet64	-
192.168.1.11	00:1c:73:3c:e1:38	Ethernet88	-
192.168.1.161	24:e9:b3:71:3a:01	Ethernet0	-
192.168.1.189	24:e9:b3:9d:57:41	Ethernet56	-
192.168.1.187	74:26:ac:8b:8f:c1	Ethernet52	-
192.168.1.165	88:5a:92:de:a0:7c	Ethernet8	-

Total number of entries 10

Optionally, you can specify the interface in order to display the ARPs learnt on that particular interface.

```
admin@sonic:~$ show arp -if Ethernet40
```

Address	MacAddress	Iface	Vlan
192.168.1.181	e4:c7:22:c1:07:7c	Ethernet40	-



```
Total number of entries 1
```

Optionally, you can specify an IP address in order to display only that particular entry.

```
admin@sonic:~$ show arp 192.168.1.181
Address           MacAddress           Iface           Vlan
-----
192.168.1.181    e4:c7:22:c1:07:7c   Ethernet40      -
Total number of entries 1
```

## 1.2 show arp-aging-time

### Function

Run the **show arp-aging-time** command to display the ARP aging time.

### Syntax

```
show arp-aging-time
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show arp-aging-time
Interface           Arp Reachable-time(sec)   Arp Stale-time(sec)
-----
Ethernet1           45                         1800
Ethernet2           45                         1800
Ethernet3           45                         1800
Ethernet4           45                         1800
Ethernet5           45                         1800
Ethernet6           45                         1800
Ethernet7           45                         1800
Ethernet8           45                         1800
Ethernet9           45                         1800
Ethernet10          45                         1800
Ethernet11          45                         1800
Ethernet12          45                         1800
Ethernet13          45                         1800
...
```

# 1 DHCP Relay Commands

Command	Function
<a href="#"><u>config dhcp_relay ipv4</u></a>	Enable or disable DHCPv4 Relay function.
<a href="#"><u>config dhcp_relay ipv4 helper</u></a>	Add or delete IPv4 DHCP Relay helper addresses from a VLAN. Note that more than one IPv4 DHCP Relay helper address can be added to or removed from a VLAN interface.
<a href="#"><u>config dhcp_relay ipv4 opt82</u></a>	Enable or disable DHCPv4 Relay option 82 function.
<a href="#"><u>config dhcp_relay ipv6</u></a>	Enable or disable DHCPv6 Relay function.
<a href="#"><u>config dhcp_relay ipv6 destination</u></a>	Add or delete IPv6 DHCP Relay destination addresses from a VLAN. Note that more than one IPv6 DHCP Relay destination address can be added to or deleted from a VLAN interface.
<a href="#"><u>config dhcp_relay ipv6 opt18</u></a>	Enable or disable DHCPv6 Relay option 18 (interface-id option) on a VLAN interface.
<a href="#"><u>config dhcp_relay ipv6 opt79</u></a>	Enable or disable DHCPv6 Relay option 79 (Client Link-Layer Address Option) on a VLAN interface.
<a href="#"><u>config feature state dhcp_relay</u></a>	Load and start dhcp_relay docker. Please refer Feature config commands for the details of this command.
<a href="#"><u>config vlan dhcp_relay enable --version 4</u></a>	Enable DHCPv4 Relay function.
<a href="#"><u>config vlan dhcp_relay disable --version 4</u></a>	Disable DHCPv4 Relay function.
<a href="#"><u>config vlan dhcp_relay add</u></a>	Add IPv4 DHCP Relay helper addresses to a VLAN. Note that more than one IPv4 DHCP Relay helper address can be added on a VLAN interface.
<a href="#"><u>config vlan dhcp_relay delete</u></a>	Delete a configured DHCP Relay Destination IP address or multiple IP addresses from a VLAN interface.
<a href="#"><u>config vlan dhcp_relay v4-opt82 enable</u></a>	Enable DHCPv4 Relay option 82 function.

<a href="#"><b><u>config vlan dhcp_relay v4-opt82 disable</u></b></a>	Disable DHCPv4 Relay option 82 function.
<a href="#"><b><u>show dhcp_relay ipv4 helper</u></b></a>	Display IPv4 DHCP Relay helper.
<a href="#"><b><u>show dhcp_relay ipv6 destination</u></b></a>	Display IPv6 DHCP Relay destination.
<a href="#"><b><u>show dhcp_relay ipv6 counters</u></b></a>	Display IPv6 DHCP Relay counters.
<a href="#"><b><u>show runningconfiguration dhcp_relay ipv4</u></b></a>	Display the status of DHCPv4 Relay function and DHCPv4 Relay option 82 function.
<a href="#"><b><u>show runningconfiguration dhcp_relay ipv6</u></b></a>	Display the status of DHCPv6 Relay function, DHCPv6 Relay option 18 and option 79 function.
<a href="#"><b><u>sonic-clear dhcp_relay ipv6 counter</u></b></a>	Clear IPv6 DHCP Relay counters.

## 1.1 config dhcp\_relay ipv4

### Function

Run the **config dhcp\_relay ipv4** command to enable or disable DHCPv4 Relay function.

### Syntax

```
config dhcp_relay ipv4 { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config dhcp_relay ipv4 enable
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv4 disable
Restarting DHCP relay service...
```

## 1.2 config dhcp\_relay ipv4 helper

### Function

Run the **config dhcp\_relay ipv4 helper** command to add or delete IPv4 DHCP Relay helper addresses from a VLAN. Note that more than one IPv4 DHCP Relay helper address can be added to or removed from a VLAN interface.

### Syntax

```
config dhcp_relay ipv4 helper { add | del } [ vlan-id ] [ dhcp-helper-ips ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config dhcp_relay ipv4 helper add 1000 7.7.7.7
Added DHCP relay address [7.7.7.7] to Vlan1000
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv4 helper add 1000 7.7.7.7 1.1.1.1
Added DHCP relay address [7.7.7.7, 1.1.1.1] to Vlan1000
```

```
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv4 helper del 1000 7.7.7.7
Removed DHCP relay address [7.7.7.7] from Vlan1000
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv4 helper del 1000 7.7.7.7 1.1.1.1
Removed DHCP relay address [7.7.7.7, 1.1.1.1] from Vlan1000
Restarting DHCP relay service...
```

## 1.3 config dhcp\_relay ipv4 opt82

### Function

Run the **config dhcp\_relay ipv4 opt82** command to enable or disable DHCPv4 Relay option 82 function.

### Syntax

```
config dhcp_relay ipv4 opt82 { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config dhcp_relay ipv4 opt82 enable
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv4 opt82 disable
Restarting DHCP relay service...
```

## 1.4 config dhcp\_relay ipv6

### Function

Run the **config dhcp\_relay ipv6** command to enable or disable DHCPv6 Relay function.

### Syntax

```
config dhcp_relay ipv6 { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config dhcp_relay ipv6 enable
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv6 disable
Restarting DHCP relay service..
```

## 1.5 config dhcp\_relay ipv6 destination

### Function

Run the **config dhcp\_relay ipv6 destination** command to add or delete IPv6 DHCP Relay destination addresses from a VLAN. Note that more than one IPv6 DHCP Relay destination address can be added to or deleted from a VLAN interface.

### Syntax

```
config dhcp_relay ipv6 destination { add | del } [ vlan-id ] [ dhcp-destination-ips ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config dhcp_relay ipv6 destination add 1000 fc02:2000::1
Added DHCP relay address [fc02:2000::1] to Vlan1000
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv6 destination add 1000 fc02:2000::1 fc02:2000::2
Added DHCP relay address [fc02:2000::1, fc02:2000::2] to Vlan1000
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv6 destination del 1000 fc02:2000::1
Removed DHCP relay address [fc02:2000::1] from Vlan1000
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv6 destination del 1000 fc02:2000::1 fc02:2000::2
Removed DHCP relay address [fc02:2000::1, fc02:2000::2] from Vlan1000
Restarting DHCP relay service...
```

## 1.6 config dhcp\_relay ipv6 opt18

### Function

Run the **config dhcp\_relay ipv6 opt18** command to enable or disable DHCPv6 Relay option 18 (interface-id option) on a VLAN interface.

## Syntax

```
config dhcp_relay ipv6 opt18 { enable | disable } [ vlan-id ]
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config dhcp_relay ipv6 opt18 enable 100
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv6 opt18 disable 100
Restarting DHCP relay service...
```

## 1.7 config dhcp\_relay ipv6 opt79

### Function

Run the **config dhcp\_relay ipv6 opt79** command to enable or disable DHCPv6 Relay option 79 (Client Link-Layer Address Option) on a VLAN interface.

### Syntax

```
config dhcp_relay ipv6 opt79 { enable | disable } [ vlan-id ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config dhcp_relay ipv6 opt79 enable 100
Restarting DHCP relay service...
admin@sonic:~$ sudo config dhcp_relay ipv6 opt79 disable 100
Restarting DHCP relay service...
```

## 1.8 config feature state dhcp\_relay

### Function

Run the **config feature state dhcp\_relay** command to load and start dhcp\_relay docker. Please refer Feature config commands for the details of this command.

**Syntax**

```
config feature state dhcp_relay { enabled | disabled }
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

N/A

## 1.9 config vlan dhcp\_relay enable --version 4

**Function**

Run the **config vlan dhcp\_relay enable --version 4** command to enable DHCPv4 Relay function.

**Syntax**

```
config vlan dhcp_relay enable --version 4
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config vlan dhcp_relay enable --version 4
Enable DHCPv4 relay
Starting DHCPv4 relay service...
```

## 1.10 config vlan dhcp\_relay disable --version 4

**Function**

Run the **config vlan dhcp\_relay disable --version 4** command to disable DHCPv4 Relay function.

**Syntax**

```
config vlan dhcp_relay disable --version 4
```



## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config vlan dhcp_relay disable --version 4
Disable DHCPv4 relay
Stopping DHCPv4 relay service...
```

## 1.11 config vlan dhcp\_relay add

### Function

Run the **config vlan dhcp\_relay add** command to add IPv4 DHCP Relay helper addresses to a VLAN. Note that more than one IPv4 DHCP Relay helper address can be added on a VLAN interface.

### Syntax

```
config vlan dhcp_relay add [ vlan-id ] [ dhcp_relay-destination-ips ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config vlan dhcp_relay add 1000 7.7.7.7
Added DHCP relay destination address ['7.7.7.7'] to Vlan1000
Restarting DHCP relay service...
admin@sonic:~$ sudo config vlan dhcp_relay add 1000 7.7.7.7 1.1.1.1
Added DHCP relay destination address ['7.7.7.7', '1.1.1.1'] to Vlan1000
Restarting DHCP relay service...
```

## 1.12 config vlan dhcp\_relay delete

### Function

Run the **config vlan dhcp\_relay delete** command to delete a configured DHCP Relay Destination IP address or multiple IP addresses from a VLAN interface.

## Syntax

```
config vlan dhcp_relay delete [ vlan-id ] [ dhcp_relay-destination-ips ]
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config vlan dhcp_relay del 1000 7.7.7.7
Removed DHCP relay destination address 7.7.7.7 from Vlan1000
Restarting DHCP relay service...
admin@sonic:~$ sudo config vlan dhcp_relay del 1000 7.7.7.7 1.1.1.1
Removed DHCP relay destination address ('7.7.7.7', '1.1.1.1') from Vlan1000
Restarting DHCP relay service...
```

## 1.13 config vlan dhcp\_relay v4-opt82 enable

### Function

Run the **config vlan dhcp\_relay v4-opt82 enable** command to enable DHCPv4 Relay option 82 function.

### Syntax

```
config vlan dhcp_relay v4-opt82 enable
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config vlan dhcp_relay v4-opt82 enable
DHCPv4 relay option82 has been enabled
Restarting DHCPv4 relay service...
```

## 1.14 config vlan dhcp\_relay v4-opt82 disable

### Function

Run the **config vlan dhcp\_relay v4-opt82 disable** command to disable DHCPv4 Relay option 82 function.

**Syntax**

```
config vlan dhcp_relay v4-opt82 disable
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config vlan dhcp_relay v4-opt82 disable
DHCPv4 relay option82 has been disabled
Restarting DHCPv4 relay service...
```

**1.15 show dhcp\_relay ipv4 helper****Function**

Run the **show dhcp\_relay ipv4 helper** command to display IPv4 DHCP Relay helper.

**Syntax**

```
show dhcp_relay ipv4 helper
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show dhcp_relay ipv4 helper
+-----+-----+
| Interface | DHCP Relay Address |
+=====+=====+
| Vlan1000  | 172.2.2.1 |
+-----+-----+
```

**1.16 show dhcp\_relay ipv6 destination****Function**

Run the **show dhcp\_relay ipv6 destination** command to display IPv6 DHCP Relay destination.

**Syntax**

**show dhcp\_relay ipv6 destination**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show dhcp_relay ipv6 destination
+-----+-----+
| Interface | DHCP Relay Address |
+=====+=====+
| Vlan1000  |          2001::1 |
+-----+-----+
```

## 1.17 show dhcp\_relay ipv6 counters

**Function**

Run the **show dhcp\_relay ipv6 counters** command to display IPv6 DHCP Relay counters.

**Syntax**

**show dhcp\_relay ipv6 counters**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo sonic-clear dhcp_relay counters
Message Type  Vlan1000
-----
Unknown              0
Solicit              0
Advertise             0
Request              5
Confirm              0
Renew                 0
Rebind                0
```

Reply	0
Release	0
Decline	0
Reconfigure	0
Information-Request	0
Relay-Forward	0
Relay-Reply	0
Malformed	0
...	

## 1.18 show runningconfiguration dhcp\_relay ipv4

### Function

Run the **show runningconfiguration dhcp\_relay ipv4** command to display the status of DHCPv4 Relay function and DHCPv4 Relay option 82 function.

### Syntax

```
show runningconfiguration dhcp_relay ipv4
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration dhcp_relay ipv4
-----
DHCPv4 Relay Status:          FALSE
DHCPv4 Relay Option82 Status: FALSE
-----
```

## 1.19 show runningconfiguration dhcp\_relay ipv6

### Function

Run the **show runningconfiguration dhcp\_relay ipv6** command to display the status of DHCPv6 Relay function, DHCPv6 Relay option 18 and option 79 function.

### Syntax

```
show runningconfiguration dhcp_relay ipv6
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show runningconfiguration dhcp_relay ipv6
-----
DHCPv6 Relay Staus:  TRUE
-----
+-----+-----+-----+
| Interface      | DHCPv6 Relay Option18 Status   | DHCPv6 Relay Option79 Status   |
+=====+=====+=====+
| Vlan100       | FALSE                           | TRUE                            |
|
+-----+-----+-----+
```

## 1.20 sonic-clear dhcp\_relay ipv6 counter

### Function

Run the **sonic-clear dhcp\_relay ipv6 counter** command to clear IPv6 DHCP Relay counters.

### Syntax

```
sonic-clear dhcp_relay ipv6 counter [ -i interface ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo sonic-clear dhcp_relay ipv6 counters
Go Back To Beginning of the document or Beginning of this section
```

# 1 Route Management Commands

Command	Function
<a href="#"><u>ip route</u></a>	Configure a static IPv4 route.
<a href="#"><u>ip route arp-to-host interface</u></a>	Enable ARP-to-host routing on a specified interface.
<a href="#"><u>ip route arp-to-host tag</u></a>	Configure the tag of the ARP-to-host route.
<a href="#"><u>ipv6 route</u></a>	Configure a static IPv6 route.
<a href="#"><u>ipv6 route nd-to-route interface</u></a>	Enable nd-to-route on a specified interface.
<a href="#"><u>ipv6 route nd-to-route tag</u></a>	Configure the tag of the nd-to-route.
<a href="#"><u>show ip interfaces</u></a>	Display the details about all the Layer3 IP interfaces in the device for which IP address has been assigned. The type of interfaces include the following.
<a href="#"><u>show ip protocol</u></a>	Display the route-map that is configured for the routing protocol.
<a href="#"><u>show ip route</u></a>	Display either all the route entries from the routing table or a ipv4 specific route.
<a href="#"><u>show ipv6 interfaces</u></a>	Display the details about all the Layer3 IPv6 interfaces in the device for which IPv6 address has been assigned. The type of interfaces include the following.
<a href="#"><u>show ipv6 protocol</u></a>	Display the route-map that is configured for the IPv6 routing protocol.
<a href="#"><u>show ipv6 route</u></a>	Display either all the IPv6 route entries from the routing table or a specific IPv6 route.

## 1.1 ip route

### Function

Run the **ip route** command to configure a static IPv4 route.

### Syntax

```
ip route NETWORK GATEWAY [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

```
ip route NETWORK IFNAME [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

```
ip route NETWORK GATEWAY IFNAME [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

```
ip route NETWORK [ blackhole | reject ] [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "ip route 1.1.1/24 2.2.2.2"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "no ip route 1.1.1/24 2.2.2.2"
```

## 1.2 ip route arp-to-host interface

### Function

Run the **ip route arp-to-host interface** command to enable ARP-to-host routing on a specified interface.

### Syntax

```
ip route arp-to-host interface interface-name
```

### Parameter Description

*interface-name*: interface name

### Usage Guidelines

N/A



## Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "ip route arp-to-host interface Ethernet1"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "no ip route arp-to-host interface Ethernet1"
```

## 1.3 ip route arp-to-host tag

### Function

Run the **ip route arp-to-host tag** command to configure the tag of the ARP-to-host route.

### Syntax

```
ip route arp-to-host tag tag-number
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "ip route arp-to-host tag 10"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "no ip route arp-to-host tag"
```

## 1.4 ipv6 route

### Function

Run the **ipv6 route** command to configure a static IPv6 route.

### Syntax

```
ipv6 route NETWORK GATEWAY [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

```
ipv6 route NETWORK IFNAME [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

```
ipv6 route NETWORK GATEWAY IFNAME [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

```
ipv6 route NETWORK [ blackhole | reject ] [ DISTANCE ] [ table TABLENO ] [ nexthop-vrf VRFNAME ] [ vrf VRFNAME ] [ tag TAG ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "ipv6 route 100::1/120 200::1"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "no ipv6 route 100::1/120 200::1"
```

## 1.5 ipv6 route nd-to-route interface

### Function

Run the **ipv6 route nd-to-route interface** command to enable nd-to-route on a specified interface.

### Syntax

```
ipv6 route nd-to-route interface interface-name [ ipv6-prefix X:X:X:X/M ] [ prefix-len masklen ]
```

### Parameter Description

*interface-name*: interface name

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "ipv6 route nd-to-route interface
Ethernet1 prefix-len 120"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "no ipv6 route nd-to-route interface
Ethernet1"
```

## 1.6 ipv6 route nd-to-route tag

### Function

Run the **ipv6 route nd-to-route tag** command to configure the tag of the nd-to-route.

### Syntax

```
ipv6 route nd-to-route tag tag-number
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "ipv6 route nd-to-route tag 10"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "no ipv6 route nd-to-route tag"
```

## 1.7 show ip interfaces

### Function

Run the **show ip interfaces** command to display the details about all the Layer3 IP interfaces in the device for which IP address has been assigned. The type of interfaces include the following.

- Front panel physical ports.
- PortChannel.
- VLAN interface.
- Loopback interfaces
- docker interface
- management interface

### Syntax

```
show ip interfaces
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ip interfaces
Interface      Master      IPv4 address/mask      Admin/Oper
-----
Loopback0      Vrf-red     10.0.0.1/32            up/up
Loopback11     Vrf-blue   11.1.1.1/32            up/up
Loopback100    Vrf-blue   100.0.0.1/32           up/up
PortChannel01  Vrf-red     10.0.0.56/31           up/down
PortChannel02  Vrf-red     10.0.0.58/31           up/down
PortChannel03  Vrf-red     10.0.0.60/31           up/down
PortChannel04  Vrf-red     10.0.0.62/31           up/down
Vlan100        Vrf-red     1001.1.1/24            up/up
Vlan1000       Vrf-red     192.168.0.1/27         up/up
docker0        Vrf-red     240.127.1.1/24         up/down
eth0           Vrf-red     10.3.147.252/23        up/up
```

lo	127.0.0.1/8	up/up
----	-------------	-------

## 1.8 show ip protocol

### Function

Run the **show ip protocol** command to display the route-map that is configured for the routing protocol.

### Syntax

```
show ip protocol
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ip protocol
Protocol      : route-map
-----
system       : none
kernel       : none
connected    : none
static       : none
rip          : none
ripng        : none
ospf         : none
ospf6        : none
isis         : none
bgp          : RM_SET_SRC
pim          : none
hsls        : none
olsr         : none
babel        : none
any          : none
```

## 1.9 show ip route

### Function

Run the **show ip route** command to display either all the route entries from the routing table or a ipv4 specific route.

**Syntax**

```
show ip route [ vrf vrf-name ] [ ip-address ]
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
       > - selected route, * - FIB route
S>* 0.0.0.0/0 [200/0] via 10.11.162.254, eth0
C>* 1.1.0.0/16 is directly connected, Vlan100
C>* 10.1.1.0/31 is directly connected, Ethernet112
C>* 10.1.1.2/31 is directly connected, Ethernet116
C>* 10.11.162.0/24 is directly connected, eth0
C>* 127.0.0.0/8 is directly connected, lo
C>* 240.127.1.0/24 is directly connected, docker0
```

Optionally, you can specify an IP address in order to display only routes to that particular IP address

```
admin@sonic:~$ show ip route 10.1.1.0
Routing entry for 10.1.1.0/31
  Known via "connected", distance 0, metric 0, best
  * directly connected, Ethernet112
```

Vrf-name can also be specified to get IPv4 routes programmed in the vrf.

```
admin@sonic:~$ show ip route vrf Vrf-red
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,
       T - Table, v - VNC, V - VNC-Direct, A - Babel, D - SHARP,
       F - PBR, f - OpenFabric,
       > - selected route, * - FIB route
VRF Vrf-red:
C>* 11.1.1.1/32 is directly connected, Loopback11, 21:50:47
C>* 100.1.1.0/24 is directly connected, Vlan100, 03w1d06h
```

```
admin@sonic:~$ show ip route vrf Vrf-red 11.1.1.1/32
Routing entry for 11.1.1.1/32
  Known via "connected", distance 0, metric 0, vrf Vrf-red, best
```

Last update 21:57:53 ago  
 \* directly connected, Loopback11

## 1.10 show ipv6 interfaces

### Function

Run the **show ipv6 interfaces** command to display the details about all the Layer3 IPv6 interfaces in the device for which IPv6 address has been assigned. The type of interfaces include the following.

- Front panel physical ports.
- PortChannel.
- VLAN interface.
- Loopback interfaces
- management interface

### Syntax

**show ipv6 interfaces**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ipv6 interfaces
```

Interface	Master	IPv6 address/mask	Admin/Oper
Bridge		fe80::7c45:1dff:fe08:cdd%Bridge/64	up/up
Loopback11	Vrf-red	1100::1/128	up/up
PortChannel01		fc00::71/126	up/down
PortChannel02		fc00::75/126	up/down
PortChannel03		fc00::79/126	up/down
PortChannel04		fc00::7d/126	up/down
Vlan100	Vrf-red	100::1/112	up/up
		fe80::eef4:bbff:fe08:880a%Vlan100/64	
eth0		fe80::eef4:bbff:fe08:880a%eth0/64	up/up
lo		fc00::1::32/128	up/up

## 1.11 show ipv6 protocol

### Function

Run the **show ipv6 protocol** command to display the route-map that is configured for the IPv6 routing protocol.

### Syntax

```
show ipv6 protocol
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ipv6 protocol
Protocol      : route-map
-----
system       : none
kernel       : none
connected    : none
static       : none
rip          : none
ripng        : none
ospf         : none
ospf6        : none
isis         : none
bgp          : RM_SET_SRC6
pim          : none
hsls        : none
olsr         : none
babel        : none
any          : none
```

## 1.12 show ipv6 route

### Function

Run the **show ipv6 route** command to display either all the IPv6 route entries from the routing table or a specific IPv6 route.

**Syntax**

```
show ipv6 route [ vrf vrf-name ] [ ipv6-address ]
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show ipv6 route
Codes: K - kernel route, C - connected, S - static, R - RIPng,
       O - OSPFv6, I - IS-IS, B - BGP, A - Babel,
       > - selected route, * - FIB route

C>* ::1/128 is directly connected, lo
C>* 2018:2001::/126 is directly connected, Ethernet112
C>* 2018:2002::/126 is directly connected, Ethernet116
C>* fc00:1::32/128 is directly connected, lo
C>* fc00:1::102/128 is directly connected, lo
C>* fc00:2::102/128 is directly connected, eth0
C * fe80::/64 is directly connected, Vlan100
C * fe80::/64 is directly connected, Ethernet112
C * fe80::/64 is directly connected, Ethernet116
C * fe80::/64 is directly connected, Bridge
C * fe80::/64 is directly connected, PortChannel0011
C>* fe80::/64 is directly connected, eth0
```

Optionally, you can specify an IPv6 address in order to display only routes to that particular IPv6 address.

```
admin@sonic:~$ show ipv6 route fc00:1::32
Routing entry for fc00:1::32/128
  Known via "connected", distance 0, metric 0, best
  * directly connected, lo
```

Vrf-name can also be specified to get IPv6 routes programmed in the vrf.

```
admin@sonic:~$ show ipv6 route vrf Vrf-red
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,
       T - Table, v - VNC, V - VNC-Direct, A - Babel, D - SHARP,
       F - PBR, f - OpenFabric,
       > - selected route, * - FIB route
VRF Vrf-red:
```



```
C>* 1100::1/128 is directly connected, Loopback11, 21:50:47
C>* 100::1/128 is directly connected, Vlan100, 03w1d06h
C>* fe80::/64 is directly connected, Loopback11, 21:50:47
C>* fe80::/64 is directly connected, Vlan100, 03w1d06h
```

```
admin@sonic:~$ show ipv6 route vrf Vrf-red 1100::1/128
Routing entry for 1100::1/128
Known via "connected", distance 0, metric 0, vrf Vrf-red, best
Last update 21:57:53 ago
* directly connected, Loopback11
```

# 1 OSPF Commands

Command	Function
<a href="#"><u>config docker-routing-config-mode</u></a>	Configure the BGP docker routing config mode. When it is 'spilt', it will stop your configuration from being overwirrten with a builtin template each time the FRR docker container is restarted. When it is 'unified' or 'seperated', both of which overwrite any FRR routing protocol configuration.
<a href="#"><u>config frr mgmt-framework</u></a>	Configure the FRRouting (FRR) mgmt-framework. FRR is an open source Internet routing protocol suite. FRR mgmt-framework is the framework used to manage FRR under SONiC. The FRR suite contains many protocol components, including OSPF. To use SONiC's OSPF commands, set mgmt-framework value to true.
<a href="#"><u>config frr ospf add area-range</u></a>	Summarize intra area paths from specified area into one Type-3 summary-LSA announced to other areas.
<a href="#"><u>config frr ospf add area-virtual-link</u></a>	Set a virtual-link for the area.
<a href="#"><u>config frr ospf add interface-area</u></a>	Enable OSPF on the interface, optionally restricted to just the IP address given by ADDR, putting it in the AREA area.
<a href="#"><u>config frr ospf add interface-network-type</u></a>	Configure a point-to-point network on an interface and the interface has a /32 address associated with then OSPF will treat the interface as being unnumbered.
<a href="#"><u>config frr ospf add network-area</u></a>	Specify the OSPF enabled interface(s). If the interface has an address from range A.B.C.D/M then the command below enables ospf on this interface so router can provide network information to the other ospf routers via this interface.
<a href="#"><u>config frr ospf add redistribution</u></a>	Redistribute routes of the specified protocol or kind into OSPF, with the metric type and metric set if specified, filtering

	the routes using the given route-map if specified.
<a href="#"><u>config frr ospf add router-id</u></a>	Set the router-ID of the OSPF process. It must be unique within the entire OSPF domain to the OSPF speaker - bad things will happen if multiple OSPF speakers are configured with the same router-ID.
<a href="#"><u>config frr ospf6 add area-range</u></a>	Summarize a group of internal subnets into a single Inter-Area-Prefix LSA. This command can only be used at the area boundary (ABR router).
<a href="#"><u>config frr ospf6 add interface-area</u></a>	Enable OSPFv3 on the interface and add it to the specified area.
<a href="#"><u>config frr ospf6 add interface-network-type</u></a>	Set explicitly network type for specified interface.
<a href="#"><u>config frr ospf6 add redistribution</u></a>	Redistribute routes of the specified protocol or kind into OSPFv3, with the metric type and metric set if specified, filtering the routes using the given route-map if specified.
<a href="#"><u>config frr ospf6 add router-id</u></a>	Set router's Router-ID.
<a href="#"><u>show ip ospf</u></a>	Display the OSPF status.
<a href="#"><u>show ipv6 ospf6</u></a>	Display the OSPF6 status.

## 1.1 config docker-routing-config-mode

### Function

Run the **config docker-routing-config-mode** command to configure the BGP docker routing config mode. When it is 'split', it will stop your configuration from being overwritten with a builtin template each time the FRR docker container is restarted. When it is 'unified' or 'seperated', both of which overwrite any FRR routing protocol configuration.

### Syntax

```
config docker-routing-config-mode [ OPTIONS ] [ unified | split | separated ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config docker-routing-config-mode split
```

## 1.2 config frr mgmt-framework

### Function

Run the **config frr mgmt-framework** command to configure the FRRouting (FRR) mgmt-framework. FRR is an open source Internet routing protocol suite. FRR mgmt-framework is the framework used to manage FRR under SONiC. The FRR suite contains many protocol components, including OSPF. To use SONiC's OSPF commands, set mgmt-framework value to true.

### Syntax

```
config frr mgmt-framework [ OPTIONS ] [ true | false ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config frr mgmt-framework 'true'
```

## 1.3 config frr ospf add area-range

### Function

Run the **config frr ospf add area-range** command to summarize intra area paths from specified area into one Type-3 summary-LSA announced to other areas.

### Syntax

• **config frr ospf add area-range** [ *A.B.C.D* ] **range** [ *A.B.C.D/M* ] [ **--vrfname** *VRF* ]

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ config frr ospf add area-range 0.0.0.5 range 192.168.10.2/24
```

## 1.4 config frr ospf add area-virtual-link

### Function

Run the **config frr ospf add area-virtual-link** command to set a virtual-link for the area.

### Syntax

**config frr ospf add area-virtual-link** [ *A.B.C.D* ] **virtual-link** [ *A.B.C.D* ] [ **--vrfname** *VRF* ]

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ config frr ospf add area-virtual-link 0.0.0.2 virtual-link 0.0.0.6
```

## 1.5 config frr ospf add interface-area

### Function

Run the **config frr ospf add interface-area** command to enable OSPF on the interface, optionally restricted to just the IP address given by ADDR, putting it in the AREA area.

**Syntax**

```
config frr ospf add interface-area [ INTERFACE ] [ A.B.C.D ] [ A.B.C.D ] [ --vrfname VRF ]
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ admin@sonic:~$ sudo config frr ospf add interface-area Ethernet12
10.0.0.24 0.0.0.5
```

**1.6 config frr ospf add interface-network-type****Function**

Run the **config frr ospf add interface-network-type** command to configure a point-to-point network on an interface and the interface has a /32 address associated with then OSPF will treat the interface as being unnumbered.

**Syntax**

```
config frr ospf add interface-network-type [ INTERFACE ] [ A.B.C.D ] [ broadcast | point-to-point | point-to-multipoint | non-broadcast ] [ --vrfname VRF ]
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
config frr ospf add interface-network-type Ethernet12 10.0.0.24 broadcast
```

**1.7 config frr ospf add network-area****Function**

Run the **config frr ospf add network-area** command to specify the OSPF enabled interface(s). If the interface has an address from range A.B.C.D/M then the command below enables ospf on this interface so router can provide network information to the other ospf routers via this interface.

**Syntax**

```
config frr ospf add network-area [ A.B.C.D/M ] area [ A.B.C.D ] [ --vrfname VRF ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config frr ospf add network-area 192.168.0.1/24 area 0.0.0.5
```

## 1.8 config frr ospf add redistribution

### Function

Run the **config frr ospf add redistribution** command to redistribute routes of the specified protocol or kind into OSPF, with the metric type and metric set if specified, filtering the routes using the given route-map if specified.

### Syntax

```
config frr ospf add redistribution [ arp-host | bgp | eigrp | kernel | openfabric | rip | static |  
vnc | babel | connected | isis | nhrp | ospf | sharp | table ] [ --metric-type (1-2) ] [ --metric  
(0-16777214) ] [ --route-map NAME ] [ --vrfname VRF ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config frr ospf add redistribution ospf
```

## 1.9 config frr ospf add router-id

### Function

Run the **config frr ospf add router-id** command to set the router-ID of the OSPF process. It must be unique within the entire OSPF domain to the OSPF speaker - bad things will happen if multiple OSPF speakers are configured with the same router-ID.

### Syntax

```
config frr ospf add router-id [ A.B.C.D ] [ --vrfname VRF ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config fr ospf add router-id 10.0.0.5
```

## 1.10 config fr ospf6 add area-range

### Function

Run the **config fr ospf6 add area-range** command to summarize a group of internal subnets into a single Inter-Area-Prefix LSA. This command can only be used at the area boundary (ABR router).

### Syntax

```
config fr ospf6 add area-range [ A.B.C.D ] range [ A::B/M ] [ --advertise [ true | false ] ] [ --cost ( 0-167777214 ) ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ config fr ospf6 add area-range 0.0.0.5 range 1100::5/64
```

## 1.11 config fr ospf6 add interface-area

### Function

Run the **config fr ospf6 add interface-area** command to enable OSPFv3 on the interface and add it to the specified area.

### Syntax

```
config fr ospf6 add interface-area [ INTERFACE ] [ A.B.C.D ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A



## Examples

```
admin@sonic:~$ sudo config frr ospf6 add interface-area Ethernet14 0.0.0.5
```

## 1.12 config frr ospf6 add interface-network-type

### Function

Run the **config frr ospf6 add interface-network-type** command to set explicitly network type for specified interface.

### Syntax

```
config frr ospf6 add interface-network-type [ INTERFACE ] [ broadcast | point-to-point ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ config frr ospf6 add interface-network-type Ethernet12 broadcast
```

## 1.13 config frr ospf6 add redistribution

### Function

Run the **config frr ospf6 add redistribution** command to redistribute routes of the specified protocol or kind into OSPFv3, with the metric type and metric set if specified, filtering the routes using the given route-map if specified.

### Syntax

```
config frr ospf6 add redistribution [ babel | bgp | connected | isis | kernel | nd-route | nhrp | openfabric | ripng | sharp | static | table | vnc ] [ --route-map NAME ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config frr ospf6 add redistribution bgp
```

## 1.14 config frr ospf6 add router-id

### Function

Run the **config frr ospf6 add router-id** command to set router's Router-ID.

### Syntax

```
config frr ospf6 add router-id [ A.B.C.D ] [ --vrfname VRF ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config frr ospf6 add router-id 10.0.0.5
```

## 1.15 show ip ospf

### Function

Run the **show ip ospf** command to display the OSPF status.

### Syntax

```
show ip ospf [ all | border-routers | database | interface | neighbor | route | router-info ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ip ospf all
  OSPF Routing Process, Router ID: 10.0.0.5
  Supports only single TOS (TOS0) routes
  This implementation conforms to RFC2328
  RFC1583Compatibility flag is disabled
  OpaqueCapability flag is disabled
  Initial SPF scheduling delay 0 millise(c)s
  Minimum hold time between consecutive SPFs 50 millise(c)s
  Maximum hold time between consecutive SPFs 5000 millise(c)s
  Hold time multiplier is currently 1
```

```
SPF algorithm last executed 44m57s ago
Last SPF duration 23 usecs
SPF timer is inactive
LSA minimum interval 5000 msec
LSA minimum arrival 1000 msec
Write Multiplier set to 20
Refresh timer 10 secs
Number of external LSA 0. Checksum Sum 0x00000000
Number of opaque AS LSA 0. Checksum Sum 0x00000000
Number of areas attached to this router: 4
Area ID: 0.0.0.0 (Backbone)
  Number of interfaces in this area: Total: 1, Active: 0
  Number of fully adjacent neighbors in this area: 0
  Area has no authentication
  SPF algorithm executed 0 times
  Number of LSA 0
  Number of router LSA 0. Checksum Sum 0x00000000
  Number of network LSA 0. Checksum Sum 0x00000000
  Number of summary LSA 0. Checksum Sum 0x00000000
  Number of ASBR summary LSA 0. Checksum Sum 0x00000000
  Number of NSSA LSA 0. Checksum Sum 0x00000000
  Number of opaque link LSA 0. Checksum Sum 0x00000000
  Number of opaque area LSA 0. Checksum Sum 0x00000000

Area ID: 0.0.0.1
  Shortcutting mode: Default, S-bit consensus: ok
  Number of interfaces in this area: Total: 0, Active: 0
  Number of fully adjacent neighbors in this area: 0
  Area has no authentication
  Number of full virtual adjacencies going through this area: 0
  SPF algorithm executed 3 times
  Number of LSA 1
  Number of router LSA 1. Checksum Sum 0x00004ef4
  Number of network LSA 0. Checksum Sum 0x00000000
  Number of summary LSA 0. Checksum Sum 0x00000000
  Number of ASBR summary LSA 0. Checksum Sum 0x00000000
  Number of NSSA LSA 0. Checksum Sum 0x00000000
  Number of opaque link LSA 0. Checksum Sum 0x00000000
  Number of opaque area LSA 0. Checksum Sum 0x00000000
```

## 1.16 show ipv6 ospf6

### Function

Run the **show ipv6 ospf6** command to display the OSPF6 status.

### Syntax

```
show ipv6 ospf6 [ all | border-routers | interface | neighbor | route | area | database |  
linkstate | redistribute | spf ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ipv6 ospf6 all
OSPFv3 Routing Process (0) with Router-ID 51.0.0.1
Running 00:28:28
LSA minimum arrival 1000 msec
Initial SPF scheduling delay 0 millisecond(s)
Minimum hold time between consecutive SPF 50 millisecond(s)
Maximum hold time between consecutive SPF 5000 millisecond(s)
Hold time multiplier is currently 1
SPF algorithm has not been run
SPF timer is inactive
Number of AS scoped LSAs is 0
Number of areas in this router is 1

Area 0.0.0.5
  Number of Area scoped LSAs is 0
  Interface attached to this area: Ethernet14
SPF has not been run
```

# 1 BGP Commands

Command	Function
<a href="#"><u>bgp advertise lowest-priority on-startup</u></a>	Configure BGP to minimize the priorities of the BGP routes to be advertised upon system restart.
<a href="#"><u>bgp evpn-vni-list</u></a>	Configure the VNI list configuration of EVPN.
<a href="#"><u>bgp initial-advertise-delay</u></a>	Intend for the configuration of delayed route advertisement upon system restart.
<a href="#"><u>clear bgp advertise lowest-priority on-startup</u></a>	Restore the priorities of the BGP routes advertised to neighbors.
<a href="#"><u>config bgp remove neighbor</u></a>	Remove particular IPv4 or IPv6 BGP neighbor configuration using either the IP address or hostname.
<a href="#"><u>config bgp shutdown all</u></a>	Shutdown all the BGP IPv4 & IPv6 sessions.
<a href="#"><u>config bgp shutdown neighbor</u></a>	Shut down a BGP session with a neighbor by that neighbor's IP address or hostname.
<a href="#"><u>config bgp startup all</u></a>	Start up all the IPv4 & IPv6 BGP neighbors.
<a href="#"><u>config bgp startup neighbor</u></a>	Start up the particular IPv4 or IPv6 BGP neighbor using either the IP address or hostname.
<a href="#"><u>redistribute</u></a>	Redistribute the route information of other routing protocols to BGP.
<a href="#"><u>show bgp evpn-vni-list</u></a>	Display the VNI list configuration of EVPN.
<a href="#"><u>show ip bgp neighbors</u></a>	Display all the details of IPv4 & IPv6 BGP neighbors when no optional argument is specified.
<a href="#"><u>show ipv6 bgp neighbors</u></a>	Display all the details of one particular IPv6 Border Gateway Protocol (BGP) neighbor. Option is also available to display only the advertised routes, or the received routes, or all routes.
<a href="#"><u>show ip bgp network</u></a>	Display all the details of IPv4 Border

---

	Gateway Protocol (BGP) prefixes.
<a href="#"><b>show ipv6 bgp network</b></a>	Display all the details of IPv6 Border Gateway Protocol (BGP) prefixes.
<a href="#"><b>show ip bgp summary</b></a>	Display the summary of all IPv4 & IPv6 bgp neighbors that are configured and the corresponding states.
<a href="#"><b>show ipv6 bgp summary</b></a>	Display the summary of all IPv6 bgp neighbors that are configured and the corresponding states.
<a href="#"><b>show route-map</b></a>	Display the routing policy that takes precedence over the other route processes that are configured.

## 1.1 bgp advertise lowest-priority on-startup

### Function

Run the **bgp advertise lowest-priority on-startup** command to configure BGP to minimize the priorities of the BGP routes to be advertised upon system restart.

### Syntax

```
[ no ] bgp advertise lowest-priority on-startup [ recover-time ]
```

### Parameter Description

*recover-time*: The time for restoring the priority of the advertised routes, in seconds. The value ranges from 1 to 65535, and the default value is 600.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 100" -c "bgp advertise lowest-priority on-startup"
```

## 1.2 bgp evpn-vni-list

### Function

Run the **bgp evpn-vni-list** command to configure the VNI list configuration of EVPN.

### Syntax

```
[ no ] bgp evpn-vni-list { list-name } vni1, vni2,...
```

### Parameter Description

*List-name*: The name of a VNI list.

*vni*: The VNI ID. The value ranges from 1 to 16777215. The information of multiple VNIs can be configured at the same time, and all the VNIs are separated using commas.

### Usage Guidelines

When the local host goes online, BGP will send the host ARP routing information to its neighbors. However, if the peer end does not want to generate traffic redirection through ARP, you can control the local ARP routes so that local ARP routes are not sent to the peer end.

This command combines route map and is used on neighbors.

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "bgp evpn-vni-list v1 100,200"
```

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "route-map map1 deny 10" -c "match evpn deny-arp v1 local"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "route-map map1 permit 20"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 65530" -c "address-family I2vpn evpn" -c "neighbor 13.1.1.1 activate" -c "neighbor 13.1.1.1 route-map map1 out"
```

## 1.3 bgp initial-advertise-delay

### Function

Run the **bgp initial-advertise-delay** command to intend for the configuration of delayed route advertisement upon system restart.

### Syntax

```
[ no ] bgp initial-advertise-delay { delay-time [ startup-time ] | prefix-list name }
```

### Parameter Description

*delay-time*: The delay time for advertising routes after the BGP neighborhood is established upon system restart, in seconds. The value ranges from 1 to 600. The default value is 1.

*startup-time*: The time for system restart (the mechanism of delayed route advertisement is adopted for the neighbor in this period), in seconds. The value range is from 5 to 58400. The default value is 600.

*name*: The name of the prefix list.

### Usage Guidelines

Delay-time indicates the maximum time to wait for BGP neighbors to send routes to their neighbors after establishing a connection. After a neighborhood is established, normally the first route is advertised immediately, and the subsequent route advertisement is delayed as default (see the neighbor advertisement-interval command). Startup-time indicates the user configurable startup time, which is timed from the time when the command takes effect. During startup-time, BGP neighbor routes are advertised at the interval of delay-time. This command can change the route advertisement behavior of BGP peers after system restart.

The prefix-list policy is configured to ensure that partial routes can be normally delivered. The prefix-list policy applies to distributed routes. Matched routes will be normally delivered without being affected by delayed advertisement. For details about the address family scope to which the prefix-list policy applies, see the neighbor prefix-list command.

This command is used by the administrator to adjust the BGP route advertisement behavior during device restart based on the hardware conditions, number of neighbors, number of routes, and actual deployment requirements.

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 100" -c "bgp initial-advertise-delay 60 500" -c "bgp initial-advertise-delay prefix-list aa"
```



## 1.4 clear bgp advertise lowest-priority on-startup

### Function

Run the **clear bgp advertise lowest-priority on-startup** command to restore the priorities of the BGP routes advertised to neighbors.

### Syntax

```
clear bgp advertise lowest-priority on-startup
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo vtysh -c "clear bgp advertise lowest-priority on-startup"
```

## 1.5 config bgp remove neighbor

### Function

Run the **config bgp remove neighbor** command to remove particular IPv4 or IPv6 BGP neighbor configuration using either the IP address or hostname.

### Syntax

```
sudo config bgp remove neighbor { ip-address | hostname }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config bgp remove neighbor 192.168.1.124
```

```
admin@sonic:~$ sudo config bgp remove neighbor 2603:10b0:b0f:346::4a
```

```
admin@sonic:~$ sudo config bgp remove neighbor SONIC02SPINE
```

## 1.6 config bgp shutdown all

### Function

Run the **config bgp shutdown all** command to shutdown all the BGP IPv4 & IPv6 sessions.

When the session is shutdown using this command, BGP state in "show ip bgp summary" is displayed as "Idle (Admin)".

### Syntax

```
config bgp shutdown all
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config bgp shutdown all
```

## 1.7 config bgp shutdown neighbor

### Function

Run the **config bgp shutdown neighbor** command to shut down a BGP session with a neighbor by that neighbor's IP address or hostname.

### Syntax

```
sudo config bgp shutdown neighbor { ip-address | hostname }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config bgp shutdown neighbor 192.168.1.124
```

```
dmin@sonic:~$ sudo config bgp shutdown neighbor SONIC02SPINE
```

## 1.8 config bgp startup all

### Function

Run the **config bgp startup all** command to start up all the IPv4 & IPv6 BGP neighbors.

### Syntax

```
config bgp startup all
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config bgp startup all
```

## 1.9 config bgp startup neighbor

### Function

Run the **config bgp startup neighbor** command to start up the particular IPv4 or IPv6 BGP neighbor using either the IP address or hostname.

### Syntax

```
config bgp startup neighbor { ip-address | hostname }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config bgp startup neighbor 192.168.1.124
```

```
admin@sonic:~$ sudo config bgp startup neighbor SONIC02SPINE
```

## 1.10 redistribute

### Function

Run the **redistribute** command to redistribute the route information of other routing protocols to BGP.

Redistribution arp-host added to IPv4 unicast address family.

Redistribution nd route added to IPv6 unicast address family.

### Syntax

```
[ no ] redistribute [ arp-host | nd-route ]
```

### Parameter Description

**arp-host:** Host routes converted from ARP entries.

**nd-route:** Host routes converted from ND entries.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 100" -c "address-family
ipv4 unicast" -c "redistribute arp-host" -c "address-family ipv6 unicast" -c "redistribute nd-
route"
```

## 1.11 show bgp evpn-vni-list

### Function

Run the **show bgp evpn-vni-list** command to display the VNI list configuration of EVPN.

### Syntax

```
show bgp evpn-vni-list { list-name }
```

### Parameter Description

*list-name*: The name of a VNI list.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo vtysh -c "show bgp evpn-vni-list "
bgp evpn-vni-list v1:
  10 20
```

## 1.12 show ip bgp neighbors

### Function

Run the **show ip bgp neighbors** command to display all the details of IPv4 & IPv6 BGP neighbors when no optional argument is specified.

When the optional argument `IPv4_address` is specified, it displays the detailed neighbor information about that specific IPv4 neighbor.

Command has got additional optional arguments to display only the advertised routes, or the received routes, or all routes.

In order to get details for an IPv6 neighbor, use "show bgp ipv6 neighbor <ipv6\_address>" command.

### Syntax

- Versions >= 201904 using default FRR routing stack:

```
show bgp neighbors [ ipv4-address [ advertised-routes | received-routes | routes ] ]
```

- Versions <= 201811 using Quagga routing stack:

**show ip bgp neighbors** [ *ipv4-address* [ **advertised-routes** | **received-routes** | **routes** ] ]

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show bgp neighbors
BGP neighbor is 10.0.0.57, remote AS 64600, local AS 65100, external link
Description: Router01T1
BGP version 4, remote router ID 100.1.0.29, local router ID 10.1.0.32
BGP state = Established, up for 00:42:15
Last read 00:00:00, Last write 00:00:03
Hold time is 10, keepalive interval is 3 seconds
Configured hold time is 10, keepalive interval is 3 seconds
Neighbor capabilities:
  4 Byte AS: advertised and received
  AddPath:
    IPv4 Unicast: RX advertised IPv4 Unicast and received
  Route refresh: advertised and received(new)
  Address Family IPv4 Unicast: advertised and received
  Hostname Capability: advertised (name: sonic-z9264f-9251, domain name: n/a) not
received
  Graceful Restart Capability: advertised and received
    Remote Restart timer is 300 seconds
  Address families by peer:
    none
Graceful restart information:
  End-of-RIB send: IPv4 Unicast
  End-of-RIB received: IPv4 Unicast
Message statistics:
  Inq depth is 0
  Outq depth is 0

```

	Sent	Rcvd
Opens:	2	1
Notifications:	2	0
Updates:	3206	3202
Keepalives:	845	847
Route Refresh:	0	0
Capability:	0	0

```

Total:                4055      4050
Minimum time between advertisement runs is 0 seconds
For address family: IPv4 Unicast
Update group 1, subgroup 1
Packet Queue length 0
Inbound soft reconfiguration allowed
Community attribute sent to this neighbor(all)
6400 accepted prefixes

Connections established 1; dropped 0
Last reset 00:42:37, due to NOTIFICATION sent (Cease/Connection collision resolution)
Local host: 10.0.0.56, Local port: 179
Foreign host: 10.0.0.57, Foreign port: 46419
Nexthop: 10.0.0.56
Nexthop global: fc00::71
Nexthop local: fe80::2204:fff:fe36:9449
BGP connection: shared network
BGP Connect Retry Timer in Seconds: 120
Read thread: on   Write thread: on

```

# Optionally, you can specify an IP address in order to display only that particular neighbor. In this mode, you can optionally specify whether you want to display all routes advertised to the specified neighbor, all routes received from the specified neighbor or all routes (received and accepted) from the specified neighbor.

```

admin@sonic:~$ show bgp neighbors 10.0.0.57

admin@sonic:~$ show bgp neighbors 10.0.0.57 advertised-routes

admin@sonic:~$ show bgp neighbors 10.0.0.57 received-routes

admin@sonic:~$ show bgp neighbors 10.0.0.57 routes

```

## 1.13 show ipv6 bgp neighbors

### Function

Run the **show ipv6 bgp neighbors** command to display all the details of one particular IPv6 Border Gateway Protocol (BGP) neighbor. Option is also available to display only the advertised routes, or the received routes, or all routes.

### Syntax

- Versions >= 201904 using default FRR routing stack:

```
show bgp ipv6 neighbors [ ipv6-address [ advertised-routes | received-routes | routes ] ]
```

- Versions <= 201811 using Quagga routing stack:

```
show ipv6 bgp neighbors [ ipv6-address [ advertised-routes | received-routes | routes ] ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show bgp ipv6 neighbors fc00::72 advertised-routes
```

```
admin@sonic:~$ show bgp ipv6 neighbors fc00::72 received-routes
```

```
admin@sonic:~$ show bgp ipv6 neighbors fc00::72 routes
```

## 1.14 show ip bgp network

### Function

Run the **show ip bgp network** command to display all the details of IPv4 Border Gateway Protocol (BGP) prefixes.

### Syntax

```
show ip bgp network [ ipv4-address | ipv4-prefix ] [ bestpath | multipath | longer-prefixes | json ]
```

### Parameter Description

N/A

### Usage Guidelines

The "longer-prefixes" option is only available when a network prefix with a "/" notation is used.

### Examples

```
admin@sonic:~$ show ip bgp network
```

```
admin@sonic:~$ show ip bgp network 10.1.0.32 bestpath
```

```
admin@sonic:~$ show ip bgp network 10.1.0.32 multipath
```

```
admin@sonic:~$ show ip bgp network 10.1.0.32 json
```

```
admin@sonic:~$ show ip bgp network 10.1.0.32/32 bestpath
```

```
admin@sonic:~$ show ip bgp network 10.1.0.32/32 multipath
admin@sonic:~$ show ip bgp network 10.1.0.32/32 json
admin@sonic:~$ show ip bgp network 10.1.0.32/32 longer-prefixes
```

## 1.15 show ipv6 bgp network

### Function

Run the **show ipv6 bgp network** command to display all the details of IPv6 Border Gateway Protocol (BGP) prefixes.

### Syntax

```
show ip bgp network [ ipv4-address / ipv4-prefix ] [ bestpath | multipath | longer-  
prefixes | json ]
```

### Parameter Description

N/A

### Usage Guidelines

The "longer-prefixes" option is only available when a network prefix with a "/" notation is used.

### Examples

```
admin@sonic:~$ show ipv6 bgp network
admin@sonic:~$ show ipv6 bgp network fc00::72 bestpath
admin@sonic:~$ show ipv6 bgp network fc00::72 multipath
admin@sonic:~$ show ipv6 bgp network fc00::72 json
admin@sonic:~$ show ipv6 bgp network fc00::72/64 bestpath
admin@sonic:~$ show ipv6 bgp network fc00::72/64 multipath
admin@sonic:~$ show ipv6 bgp network fc00::72/64 json
admin@sonic:~$ show ipv6 bgp network fc00::72/64 longer-prefixes
```



## 1.16 show ip bgp summary

### Function

Run the **show ip bgp summary** command to display the summary of all IPv4 & IPv6 bgp neighbors that are configured and the corresponding states.

### Syntax

- Versions >= 201904 using default FRR routing stack:

**show bgp summary**

- Versions <= 201811 using Quagga routing stack:

**show ip bgp summary**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ip bgp summary
```

```
IPv4 Unicast Summary:
```

```
BGP router identifier 10.1.0.32, local AS number 65100 vrf-id 0
```

```
BGP table version 6465
```

```
RIB entries 12807, using 2001 KiB of memory
```

```
Peers 4, using 83 KiB of memory
```

```
Peer groups 2, using 128 bytes of memory
```

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
NeighborName									
10.0.0.57	4	64600	3995	4001	0	0	0	00:39:32	6400
Lab-T1-01									
10.0.0.59	4	64600	3995	3998	0	0	0	00:39:32	6400
Lab-T1-02									
10.0.0.61	4	64600	3995	4001	0	0	0	00:39:32	6400
Lab-T1-03									
10.0.0.63	4	64600	3995	3998	0	0	0	00:39:32	6400
NotAvailable									

```
Total number of neighbors 4
```

```
admin@sonic:~$ show bgp summary
```

IPv4 Unicast Summary:

BGP router identifier 10.1.0.32, local AS number 65100 vrf-id 0

BGP table version 6465

RIB entries 12807, using 2001 KiB of memory

Peers 4, using 83 KiB of memory

Peer groups 2, using 128 bytes of memory

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
10.0.0.57	4	64600	3995	4001		0	0	0 00:39:32	6400
10.0.0.59	4	64600	3995	3998		0	0	0 00:39:32	6400
10.0.0.61	4	64600	3995	4001		0	0	0 00:39:32	6400
10.0.0.63	4	64600	3995	3998		0	0	0 00:39:32	6400

Total number of neighbors 4

IPv6 Unicast Summary:

BGP router identifier 10.1.0.32, local AS number 65100 vrf-id 0

BGP table version 12803

RIB entries 12805, using 2001 KiB of memory

Peers 4, using 83 KiB of memory

Peer groups 2, using 128 bytes of memory

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
fc00::72	4	64600	3995	5208		0	0	0 00:39:30	6400
fc00::76	4	64600	3994	5208		0	0	0 00:39:30	6400
fc00::7a	4	64600	3993	5208		0	0	0 00:39:30	6400
fc00::7e	4	64600	3993	5208		0	0	0 00:39:30	6400

Total number of neighbors 4

## 1.17 show ipv6 bgp summary

### Function

Run the **show ipv6 bgp summary** command to display the summary of all IPv6 bgp neighbors that are configured and the corresponding states.

### Syntax

- Versions >= 201904 using default FRR routing stack:

#### **show bgp ipv6 summary**

- Versions <= 201811 using Quagga routing stack:

**show ipv6 bgp summary****Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```

admin@sonic:~$ show bgp ipv6 summary
BGP router identifier 10.1.0.32, local AS number 65100 vrf-id 0
BGP table version 12803
RIB entries 12805, using 2001 KiB of memory
Peers 4, using 83 KiB of memory
Peer groups 2, using 128 bytes of memory

Neighbor          V      AS MsgRcvd MsgSent   TblVer  InQ OutQ  Up/Down
State/PfxRcd NeighborName
fc00::72          4      64600   3995   5208     0    0    0 00:39:30    6400
Lab-T1-01
fc00::76          4      64600   3994   5208     0    0    0 00:39:30    6400
Lab-T1-02
fc00::7a          4      64600   3993   5208     0    0    0 00:39:30    6400
Lab-T1-03
fc00::7e          4      64600   3993   5208     0    0    0 00:39:30    6400
Lab-T1-04

Total number of neighbors 4

```

## 1.18 show route-map

**Function**

Run the **show route-map** command to display the routing policy that takes precedence over the other route processes that are configured.

**Syntax****show route-map****Parameter Description**

N/A

**Usage Guidelines**

N/A

## Examples

```
admin@sonic:~$ show route-map
ZEBRA:
route-map RM_SET_SRC, permit, sequence 10
  Match clauses:
  Set clauses:
    src 10.12.0.102
  Call clause:
  Action:
    Exit routemap
ZEBRA:
route-map RM_SET_SRC6, permit, sequence 10
  Match clauses:
  Set clauses:
    src fc00:1::102
  Call clause:
  Action:
    Exit routemap
BGP:
route-map FROM_BGP_SPEAKER_V4, permit, sequence 10
  Match clauses:
  Set clauses:
  Call clause:
  Action:
    Exit routemap
BGP:
route-map TO_BGP_SPEAKER_V4, deny, sequence 10
  Match clauses:
  Set clauses:
  Call clause:
  Action:
    Exit routemap
BGP:
route-map ISOLATE, permit, sequence 10
  Match clauses:
  Set clauses:
    as-path prepend 65000
  Call clause:
  Action:
    Exit routemap
```

# 1 VRF Commands

Command	Function
<a href="#"><u>config interface vrf bind</u></a>	Bind an interface to a vrf. By default, all L3 interfaces will be in default vrf. Above vrf bind command will let users bind interface to a vrf. Using the bind or unbind vrf command will cause L3 interfaces to lose all IP addresses, ARP, and routes.
<a href="#"><u>config interface vrf unbind</u></a>	Unbind an interface from a vrf. This will move the interface to default vrf.
<a href="#"><u>config snmpagentaddress add</u></a>	Add the SNMP agent IP address on which the SNMP agent is expected to listen. When SNMP agent is expected to work as part of management VRF, users should specify the optional vrf_name parameter as "mgmt". This configuration goes into snmpd.conf that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.
<a href="#"><u>config snmpagentaddress del</u></a>	Delete the SNMP agent IP address on which the SNMP agent is expected to listen. When users had added the agent IP as part of "mgmt" VRF, users should specify the optional vrf_name parameter as "mgmt" while deleting as well. This configuration is removed from snmpd.conf that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.
<a href="#"><u>config snmptrap del</u></a>	Delete the SNMP Trap server IP address to which SNMP agent is expected to send TRAPs. When users had added the trap server IP as part of "mgmt" VRF, users should specify the optional vrf_name parameter as "mgmt" while deleting as well. This configuration is removed from snmpd.conf that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.
<a href="#"><u>config snmptrap modify</u></a>	Modify the SNMP trap server IP address to which the SNMP agent is expected to send

	<p>the traps. Users can configure one server IP address for each SNMP version to send the traps. When SNMP agent is expected to send traps as part of management VRF, users should specify the optional <code>vrf_name</code> parameter as "mgmt". This configuration goes into <code>snmpd.conf</code> that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.</p>
<a href="#"><b>config vrf add</b></a>	Create vrf in SONiC system with provided vrf-name.
<a href="#"><b>config vrf add mgmt</b></a>	<p>Enable the management VRF in the system. This command restarts the "interfaces-config" service which in turn regenerates the <code>/etc/network/interfaces</code> file and restarts the "networking" service. This creates a new interface and I3mdev CGROUP with the name as "mgmt" and enslaves the management interface "eth0" into this master interface "mgmt". Note that the VRFName "mgmt" (or "management") is reserved for management VRF. i.e. Data VRFs should not use these reserved VRF names.</p>
<a href="#"><b>config vrf del</b></a>	Delete vrf with name vrf-name.
<a href="#"><b>config vrf del mgmt</b></a>	<p>Disable the management VRF in the system. This command restarts the "interfaces-config" service which in turn regenerates the <code>/etc/network/interfaces</code> file and restarts the "networking" service. This deletes the interface "mgmt" and deletes the I3mdev CGROUP named "mgmt" and puts back the management interface "eth0" into the default VRF. Note that the VRFName "mgmt" (or "management") is reserved for management VRF. i.e. Data VRFs should not use these reserved VRF names.</p>
<a href="#"><b>show management_interface address</b></a>	Display the IP address(es) configured for the management interface "eth0" and the management network default gateway.
<a href="#"><b>show mgmt-vrf</b></a>	Display whether the management VRF is enabled or disabled. It also displays the details about the the links (eth0, mgmt, lo-m) that are related to management

	VRF.
<a href="#"><b>show mgmt-vrf routes</b></a>	Display the routes that are present in the routing table 5000 that is meant for management VRF.
<a href="#"><b>show snmpagentaddress</b></a>	Display the configured SNMP agent IP addresses.
<a href="#"><b>show snmptrap</b></a>	Display the configured SNMP Trap server IP addresses.
<a href="#"><b>show vrf</b></a>	Display all vrfs configured on the system along with interface binding to the vrf. If vrf-name is also provided as part of the command, if the vrf is created it will display all interfaces binding to the vrf, if vrf is not created nothing will be displayed.

## 1.1 config interface vrf bind

### Function

Run the **config interface vrf bind** command to bind an interface to a vrf. By default, all L3 interfaces will be in default vrf. Above vrf bind command will let users bind interface to a vrf. Using the bind or unbind vrf command will cause L3 interfaces to lose all IP addresses, ARP, and routes.

### Syntax

```
config interface vrf bind [ interface-name ] [ vrf-name ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

N/A

## 1.2 config interface vrf unbind

### Function

Run the **config interface vrf unbind** command to unbind an interface from a vrf. This will move the interface to default vrf.

### Syntax

```
config interface vrf unbind [ interface-name ] [ vrf-name ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

N/A

## 1.3 config snmpagentaddress add

### Function

Run the **config snmpagentaddress add** command to add the SNMP agent IP address on which the SNMP agent is expected to listen. When SNMP agent is expected to work as part



of management VRF, users should specify the optional `vrf_name` parameter as "mgmt". This configuration goes into `snmpd.conf` that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.

### Syntax

```
config snmpagentaddress add [-p port-num ] [-v vrf-name ] agentip
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmpagentaddress add -v mgmt -p 123 21.22.13.14
```

Note: For this example, configuration goes into `/etc/snmp/snmpd.conf` inside snmp docker as follows. When "-v" parameter is not used, the additional "%" in the following line will not be present.

```
agentAddress 21.22.13.14:123%mgmt
```

## 1.4 config snmpagentaddress del

### Function

Run the **config snmpagentaddress del** command to delete the SNMP agent IP address on which the SNMP agent is expected to listen. When users had added the agent IP as part of "mgmt" VRF, users should specify the optional `vrf_name` parameter as "mgmt" while deleting as well. This configuration is removed from `snmpd.conf` that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.

### Syntax

```
config snmpagentaddress del [-p port-num ] [-v vrf-name ] agentip
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmpagentaddress del -v mgmt -p 123 21.22.13.14
```

## 1.5 config snmptrap del

### Function

Run the **config snmptrap del** command to delete the SNMP Trap server IP address to which SNMP agent is expected to send TRAPs. When users had added the trap server IP as part of "mgmt" VRF, users should specify the optional vrf\_name parameter as "mgmt" while deleting as well. This configuration is removed from snmpd.conf that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.

### Syntax

```
config snmptrap del [-p port-num] [-v vrf-name] [-c community] trapserverip
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmptrap del -v mgmt -p 123 21.22.13.14
```

## 1.6 config snmptrap modify

### Function

Run the **config snmptrap modify** command to modify the SNMP trap server IP address to which the SNMP agent is expected to send the traps. Users can configure one server IP address for each SNMP version to send the traps. When SNMP agent is expected to send traps as part of management VRF, users should specify the optional vrf\_name parameter as "mgmt". This configuration goes into snmpd.conf that is used by SNMP agent. SNMP service is restarted to make this configuration effective in SNMP agent.

### Syntax

```
config snmptrap modify [snmp-version] [-p port-num] [-v vrf-name] [-c community] trapserverip
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmptrap modify 2 -p 456 -v mgmt 21.21.21.21
```

For this example, configuration goes into `/etc/snmp/snmpd.conf` inside snmp docker as follows. When `-v` parameter is not used, the additional `%` in the following line will not be present. In case of SNMPv1, `"trapsink"` will be updated, in case of v2, `"trap2sink"` will be updated and in case of v3, `"informsink"` will be updated.

```
trap2sink 31.31.31.31:456%mgmt public
```

## 1.7 config vrf add

### Function

Run the **config vrf add** command to create vrf in SONiC system with provided vrf-name.

### Syntax

```
config vrf add [ vrf-name ]
```

### Parameter Description

N/A

### Usage Guidelines

vrf-name should always start with keyword "Vrf".

### Examples

N/A

## 1.8 config vrf add mgmt

### Function

Run the **config vrf add mgmt** command to enable the management VRF in the system. This command restarts the "interfaces-config" service which in turn regenerates the `/etc/network/interfaces` file and restarts the "networking" service. This creates a new interface and I3mdev CGROUP with the name as "mgmt" and enslaves the management interface "eth0" into this master interface "mgmt". Note that the VRFName "mgmt" (or "management") is reserved for management VRF. i.e. Data VRFs should not use these reserved VRF names.

### Syntax

```
config vrf add mgmt
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config vrf add mgmt
```

## 1.9 config vrf del

### Function

Run the **config vrf del** command to delete vrf with name vrf-name.

### Syntax

```
config vrf del [ vrf-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

N/A

## 1.10 config vrf del mgmt

### Function

Run the **config vrf del mgmt** command to disable the management VRF in the system. This command restarts the "interfaces-config" service which in turn regenerates the `/etc/network/interfaces` file and restarts the "networking" service. This deletes the interface "mgmt" and deletes the l3mdev CGROUP named "mgmt" and puts back the management interface "eth0" into the default VRF. Note that the VRFName "mgmt" (or "management") is reserved for management VRF. i.e. Data VRFs should not use these reserved VRF names.

### Syntax

```
config vrf del mgmt
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config vrf del mgmt
```

## 1.11 show management\_interface address

### Function

Run the **show management\_interface address** command to display the IP address(es) configured for the management interface "eth0" and the management network default gateway.

### Syntax

```
show management_interface address
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show management_interface address
Management IP address = 10.16.210.75/24
Management NetWork Default Gateway = 10.16.210.254
Management IP address = FC00:2::32/64
Management Network Default Gateway = fc00:2::1
```

## 1.12 show mgmt-vrf

### Function

Run the **show mgmt-vrf** command to display whether the management VRF is enabled or disabled. It also displays the details about the the links (eth0, mgmt, lo-m) that are related to management VRF.

### Syntax

```
show mgmt-vrf
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show mgmt-vrf

ManagementVRF : Enabled
```

```

Management VRF interfaces in Linux:
348: mgmt: <NOARP,MASTER,UP,LOWER_UP> mtu 65536 qdisc noqueue state UP mode
DEFAULT group default qlen 1000
    link/ether f2:2a:d9:bc:e8:f0 brd ff:ff:ff:ff:ff:ff
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq master mgmt state UP
mode DEFAULT group default qlen 1000
    link/ether 4c:76:25:f4:f9:f3 brd ff:ff:ff:ff:ff:ff
350: lo-m: <BROADCAST,NOARP,UP,LOWER_UP> mtu 1500 qdisc noqueue master mgmt state
UNKNOWN mode DEFAULT group default qlen 1000
    link/ether b2:4c:c6:f3:e9:92 brd ff:ff:ff:ff:ff:ff

```

NOTE: The management interface "eth0" shows the "master" as "mgmt" since it is part of management VRF.

## 1.13 show mgmt-vrf routes

### Function

Run the **show mgmt-vrf routes** command to display the routes that are present in the routing table 5000 that is meant for management VRF.

### Syntax

```
show mgmt-vrf routes
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show mgmt-vrf routes

Routes in Management VRF Routing Table:
default via 10.16.210.254 dev eth0 metric 201
broadcast 10.16.210.0 dev eth0 proto kernel scope link src 10.16.210.75
10.16.210.0/24 dev eth0 proto kernel scope link src 10.16.210.75
local 10.16.210.75 dev eth0 proto kernel scope host src 10.16.210.75
broadcast 10.16.210.255 dev eth0 proto kernel scope link src 10.16.210.75
broadcast 127.0.0.0 dev lo-m proto kernel scope link src 127.0.0.1
127.0.0.0/8 dev lo-m proto kernel scope link src 127.0.0.1
local 127.0.0.1 dev lo-m proto kernel scope host src 127.0.0.1
broadcast 127.255.255.255 dev lo-m proto kernel scope link src 127.0.0.1

```

## 1.14 show snmpagentaddress

### Function

Run the **show snmpagentaddress** command to display the configured SNMP agent IP addresses.

### Syntax

```
show snmpagentaddress
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show snmpagentaddress
ListenIP      ListenPort  ListenVrf
-----
1.2.3.4        787        mgmt
```

## 1.15 show snmptrap

### Function

Run the **show snmptrap** command to display the configured SNMP Trap server IP addresses.

### Syntax

```
show snmptrap
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show snmptrap
Version  TrapReceiverIP  Port  VRF  Community
-----
2       31.31.31.31     456   mgmt public
```

## 1.16 show vrf

### Function

Run the **show vrf** command to display all vrfs configured on the system along with interface binding to the vrf. If vrf-name is also provided as part of the command, if the vrf is created it will display all interfaces binding to the vrf, if vrf is not created nothing will be displayed.

### Syntax

```
show vrf [ vrf-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vrf
VRF      Interfaces
-----  -
default  Vlan20
rf-red   Vlan100
         pback11
         Eth0.100
rf-blue  Loopback100
         Loopback102
         Ethernet0.10
         PortChannel101
```



# 1 ACL Commands

Command	Function
<a href="#"><u>config acl add table</u></a>	Create new ACL tables.
<a href="#"><u>config acl clear counters</u></a>	Clear ACL counters.
<a href="#"><u>config acl log-update</u></a>	Control the log output interval by setting the interval for packets to match logs. View ACL logging in the syslog file.
<a href="#"><u>config acl remove rule</u></a>	Delete a rule from an ACL table.
<a href="#"><u>config acl remove table</u></a>	Delete an ACL table.
<a href="#"><u>config acl update full</u></a>	Update the rules in all the tables or in one specific table in full.
<a href="#"><u>config acl update incremental</u></a>	Configure the rules.
<a href="#"><u>show acl counters</u></a>	Display the ACL statistics counters.
<a href="#"><u>show acl log-update interval</u></a>	Display the output interval of ACL matching logs.
<a href="#"><u>show acl resources</u></a>	Display the ACL resources.
<a href="#"><u>show acl rule</u></a>	Display all the ACL rules present in all the ACL tables or only the rules present in specified table "TABLE_NAME" or only the rule matching the RULE_ID option.
<a href="#"><u>show acl table</u></a>	Display either all the ACL tables that are configured or only the specified "TABLE_NAME".

## 1.1 config acl add table

### Function

Run the **config acl add table** command to create new ACL tables.

You can use the high-capacity configuration mode and community configuration mode to create an ACL table. The distinction between the two modes applies only to the ACLs on the data plane.

### Syntax

- high-capacity configuration mode:

```
config acl add table [ OPTIONS ] table-name table-type [ -d description ] [ -p ports ] [ -s { ingress | egress } ] [ -sp cir-cbs ] [ -sd dscp-value ] [ -ss { SSH | NTP | SNMP } ]
```

- community configuration mode:

```
config acl add table [ OPTIONS ] table-name table-type [ -d description ] [ -p ports ] [ -s { ingress | egress } ] [ -sp cir-cbs ] [ -sd dscp-value ] [ -ss { SSH | NTP | SNMP } ] -m community
```

### Parameter Description

*table-name*: The name of the ACL table to create.

*table-type*: The type of ACL table to create (e.g. "L3", "L3V6", "MIRROR")

*description*: A description of the table for the user. (default is the *table\_name*)

*ports*: A comma-separated list of ports/interfaces to add to the table. The behavior is as follows:

- Physical ports will be bound as physical ports
- Portchannels will be bound as portchannels - passing a portchannel member is invalid
- VLANs will be expanded into their members (e.g. "Vlan1000" will become "Ethernet0,Ethernet2,Ethernet4...")

*stage*: The stage this ACL table will be applied to, either ingress or egress. (default is ingress)

*cir-cbs*: The *cir* indicates the bandwidth limit per second (KBits). The *cbs* indicates the burst traffic limit (KBytes). This parameter is used for QoS ACL. (e.g. 1000000\_2000)

*dscp-value*: The *dscp* value of the packet, range 0 to 63. This parameter is used for QoS ACL.

**SSH | NTP | SNMP**: The service type of CTRLPLANE ACL. This parameter is used for CTRLPLANE ACL.

## Usage Guidelines

- ACL restrictions in high-capacity configuration mode
  - In high-capacity configuration mode, only one object (physical interface or portchannel interface) can be applied to the ACL in the egress direction.
  - In high-capacity configuration mode, when an ACL is applied to portchannel, only one portchannel interface can be applied to an ACL.
  - In high-capacity configuration mode, when an ACL is applied to vni, only one vni can be applied to an ACL.
  - In high-capacity configuration mode, an ACL cannot be applied to both physical interfaces and portchannel interfaces.
  - After an ACL is configured as high-capacity mode, it cannot be changed to the community mode. After an ACL is configured as the community mode, it cannot be changed to the high-capacity mode.

## Examples

```
admin@sonic:~$ sudo config acl add table EXAMPLE_L3 -p Ethernet1,Ethernet4 -s ingress
```

```
admin@sonic:~$ sudo config acl add table EXAMPLE_2 L3V6 -p Ethernet2 -s egress
```

```
admin@sonic:~$ sudo config acl add table EXAMPLE_3 L3_QOS -p Ethernet5 -s ingress -sp 1024_2048 -sd 30
```

```
admin@sonic:~$ sudo config acl add table EXAMPLE_4 L2_QOS -p Ethernet3 -s ingress -sd 28
```

```
admin@sonic:~$ sudo config acl add table EXAMPLE_5 L3V6_QOS -p Ethernet6 -s ingress -sp 1000_2000
```

```
admin@sonic:~$ sudo config acl add table EXAMPLE_6 CTRLPLANE -ss SSH
```

## 1.2 config acl clear counters

### Function

Run the **config acl clear counters** command to clear ACL counters.

### Syntax

```
sudo sonic-clear acl counters [ table-name ]
```

### Parameter Description

*table-name*: The name of the ACL table.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl counters
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
```

```
-----
```

```
RULE_1        TEST          9999   76042306     9733442816   2023-03-21 07:35:45
```

```
DEFAULT_RULE  TEST          1       0             0            1970-01-01 00:00:00
```

```
admin@sonic:~$ sudo sonic-clear acl counters
```

```
admin@sonic:~$ show acl counters
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
```

```
-----
```

```
RULE_1        TEST          9999   0             0            1970-01-01 00:00:00
```

```
DEFAULT_RULE  TEST          1       0             0            1970-01-01 00:00:00
```

```
admin@sonic:~$ show acl counters
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
```

```
-----
```

```
RULE_1        CUSTOM        9999   84264487     10785890048   2023-03-21 09:44:57
```

```
DEFAULT_RULE  CUSTOM        1       0             0            1970-01-01 00:00:00
```

```
RULE_1        TEST          9999   84258128     10785075968   2023-03-21 09:44:57
```

```
DEFAULT_RULE  TEST          1       0             0            1970-01-01 00:00:00
```

```
admin@sonic:~$ sudo sonic-clear acl counters TEST
```

```
admin@sonic:~$ show acl counters
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
```

RULE_1	CUSTOM	9999	85557677	10951382656	2023-03-21 09:45:07
DEFAULT_RULE	CUSTOM	1	0	0	1970-01-01 00:00:00
RULE_1	TEST	9999	0	0	1970-01-01 00:00:00
DEFAULT_RULE	TEST	1	0	0	1970-01-01 00:00:00

## 1.3 config acl log-update

### Function

Run the **config acl log-update** command to control the log output interval by setting the interval for packets to match logs. View ACL logging in the syslog file.

### Syntax

```
config acl log-update { interval time | default }
```

### Parameter Description

**interval** *time*: The log output interval, in minutes. The default value 0 indicates that no log is output.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config acl add table TEST L3 -p Ethernet49 -s ingress
admin@sonic:~$ cat L3_ACL.json
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "REJECT",
```

```
"log-action": "LOG_SYSLOG"
```

```
    }
  },
  "config": {
    "sequence-id": 1
  },
  "ip": {
    "config": {
      "source-ip-address": "0.0.0.0/0",
```

```
"destination-ip-address": "0.0.0.0/0"
```

```
    }
  },
  "config": {
    "name": "TEST"
  }
}
}
}
}
}
```

```
admin@sonic:~$ sudo config acl update incremental L3_ACL.json
admin@sonic:~$ sudo config acl log-update interval 1
admin@sonic:~$ show acl log-update interval
acl log-update interval 1
```

```
admin@sonic:~$ sudo config acl log-update interval 5
admin@sonic:~$ show acl log-update interval
acl log-update interval 5
```

```
admin@sonic:~$ sudo config acl log-update default
admin@sonic:~$ show acl log-update interval
acl log-update interval 0 (default)
```

## 1.4 config acl remove rule

### Function

Run the **config acl remove rule** command to delete a rule from an ACL table.

## Syntax

```
sudo acl-loader delete table_name rule_name
```

## Parameter Description

*table-name*: The name of the ACL table to which the rule belongs.

*rule-name*: The name of the rule to delete.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show acl rule
Table   Rule           Priority   Action   Match
-----
TEST    RULE_1         9999      DROP     DST_IP: 0.0.0.0/0
                                         LOG_ACTION: LOG_SYSLOG
                                         SRC_IP: 0.0.0.0/0

TEST    RULE_2         9998      DROP     DST_IP: 0.0.0.0/0
                                         LOG_ACTION: LOG_SYSLOG
                                         SRC_IP: 0.0.0.1/32

TEST    DEFAULT_RULE 1         DROP     ETHER_TYPE: 2048
admin@sonic:~$ sudo acl-loader delete TEST RULE_1
admin@sonic:~$ show acl rule
Table   Rule           Priority   Action   Match
-----
TEST    RULE_2         9998      DROP     DST_IP: 0.0.0.0/0
                                         LOG_ACTION: LOG_SYSLOG
                                         SRC_IP: 0.0.0.1/32

TEST    DEFAULT_RULE 1         DROP     ETHER_TYPE: 2048
```

## 1.5 config acl remove table

### Function

Run the **config acl remove table** command to delete an ACL table.

### Syntax

```
config acl remove table [ OPTIONS ] table-name [ -p ports ] [ -up ] [ -ud ]
```

### Parameter Description

*table-name*: The name of the ACL table to delete.

*ports*: A comma-separated list of ports/interfaces to add to the table. The behavior is as follows:

**-ud**: unset\_dscp. The QoS DSCP parameters are deleted.

**-up**: unset\_policer. The QoS policer parameters are deleted.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl table
Name    Type    Binding    Description    Stage    Dscp    CIR    CBS
```

```
-----
CUSTOM  L2      Ethernet1  CUSTOM         egress
TEST    L3      Ethernet49  TEST           ingress
```

```
admin@sonic:~$ sudo config acl remove table TEST
```

```
admin@sonic:~$ show acl table
Name    Type    Binding    Description    Stage    Dscp    CIR    CBS
```

```
-----
CUSTOM  L2      Ethernet1  CUSTOM         egress
```

```
admin@sonic:~$ show acl table
Name    Type    Binding    Description    Stage    Dscp    CIR    CBS
```

```
-----
TEST    L3_QOS  Ethernet1  TEST           ingress    30     1024   2048
```

```
admin@sonic:~$ sudo config acl remove table TEST -p Ethernet1
```

```
admin@sonic:~$ show acl table
Name    Type    Binding    Description    Stage    Dscp    CIR    CBS
```

```
-----
TEST    L3_QOS                TEST           30     1024   2048
```

```
admin@sonic:~$ show acl table
```



Name	Type	Binding	Description	Stage	Dscp	CIR	CBS
TEST	L3_QOS	Ethernet1	TEST	ingress	30	1024	2048

```
admin@sonic:~$ sudo config acl remove table TEST -up -ud
admin@sonic:~$ show acl table
```

Name	Type	Binding	Description	Stage	Dscp	CIR	CBS
TEST	L3_QOS	Ethernet1	TEST	ingress			

## 1.6 config acl update full

### Function

Run the **config acl update full** command to update the rules in all the tables or in one specific table in full.

If a `table_name` is provided, the operation will be restricted in the specified table. All existing rules in the specified table or all tables will be removed. New rules loaded from file will be installed. If the `table_name` is specified, only rules within that table will be removed and new rules in that table will be installed. If the `table_name` is not specified, all rules from all tables will be removed and only the rules present in the input file will be added.

The command does not modify anything in the list of acl tables. It modifies only the rules present in those pre-existing tables.

In order to create acl tables, either follow the `config_db.json` method or `minigraph` method to populate the list of ACL tables.

After creating tables, either the `config_db.json` method or the `minigraph` method or the CLI method (explained here) can be used to populate the rules in those ACL tables.

This command updates only the ACL rules and it does not disturb the ACL tables; i.e. the output of "show acl table" is not altered by using this command; only the output of "show acl rule" will be changed after this command.

When "`--session_name`" optional argument is specified, command sets the `session_name` for the ACL table with this mirror session name. It fails if the specified mirror session name does not exist.

When "`--mirror_stage`" optional argument is specified, command sets the mirror action to `ingress/egress` based on this parameter. By default command sets `ingress` mirror action in case argument is not specified.

When the optional argument "`max_priority`" is specified, each rule's priority is calculated by subtracting its "`sequence_id`" value from the "`max_priority`". If this value is not passed, the default "`max_priority`" 10000 is used.

## Syntax

```
config acl update full [ --table_name table-name ] [ --session_name session_name ]
[ --mirror_stage { ingress | egress } ] [ --max_priority priority-value ] acl-json-file-
name
```

## Parameter Description

*table\_name*: Specify the name of the ACL table to load. Example: `config acl update full "--table_name DT_ACL_T1 /etc/sonic/acl_table_1.json"`

*session\_name*: Specify the name of the ACL session to load. Example: `config acl update full "--session_name mirror_ses1 /etc/sonic/acl_table_1.json"`

*priority\_value*: Specify the maximum priority to use when loading ACL rules. Example: `config acl update full "--max-priority 100 /etc/sonic/acl_table_1.json"`

## Usage Guidelines

- All these optional parameters should be inside double quotes. If none of the options are provided, double quotes are not required for specifying filename alone.
- Any number of optional parameters can be configured in the same command.

## Examples

```
admin@sonic:~$ sudo config acl update full /etc/sonic/acl_full_snmp_1_2_ssh_4.json
admin@sonic:~$ sudo config acl update full "--table_name SNMP-ACL
/etc/sonic/acl_full_snmp_1_2_ssh_4.json"
admin@sonic:~$ sudo config acl update full "--session_name everflow0
/etc/sonic/acl_full_snmp_1_2_ssh_4.json"00
```

# 1.7 config acl update incremental

## Function

Run the **config acl update incremental** command to configure the rules.

## Syntax

```
config acl update incremental [ OPTIONS ] file-name
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config acl update incremental acl_rule.json
```

# L3 ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                },
                "icmp": {
                  "config": {
                    "type": "1",
                    "code": "1"
                  }
                },
                "ip": {
                  "config": {
                    "protocol": "IP_ICMP",
                    "source-ip-address": "172.20.3.1/32",
                    "destination-ip-address": "172.20.2.0/24"
                  }
                }
              },
            },
          },
        },
      },
    },
  },
  "2": {
    "actions": {
      "config": {
        "forwarding-action": "ACCEPT"
      }
    }
  },
}
```

```
    "config": {
      "sequence-id": 2
    },
    "ip": {
      "config": {
        "protocol": "IP_TCP",
        "source-ip-address": "1.1.1.1/32",
        "destination-ip-address": "2.2.2.2/32"
      }
    },
    "transport": {
      "config": {
        "source-port": "555",
        "destination-port": "2222",
        "tcp-flags": [
          "TCP_ACK",
          "TCP_SYN"
        ]
      }
    }
  },
  "config": {
    "name": "TEST2"
  }
}
}
```

### L3 ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.

- forwarding-action(REJECT) : If this option is configured, the keyword indicates that the rule is reject.
- forwarding-action(TRAP) : If this option is configured, this rule matches packets and sends a copy to the CPU. At the same time, the forwarded packets are discarded.
- forwarding-action(COPY) : If this option is configured, it indicates that the rule matches packets and sends a copy to the CPU. In addition, the packets forwarded are not affected.
- redirect-action(REDIRECT:target) : If this option is configured, it indicates that the rule belongs to the redirection class. To use the ACL redirection function, change the "forwarding-action" to "redirect-action". The redirection action must be configured in the "redirect-action:REDIRECT:target" format. The "target" indicates the redirected target in the following formats:
  - ipaddress (ipv6 supported)
  - port/portchannel
  - ipaddress@port/portchannel
  - ipaddress@vrfname
  - ipaddress1,ipaddress2... (Next hop group)
  - ipaddress1,ipaddress2... @port/portchannel/vrfname (Next hop group)
- protocol: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including IP\_TCP, IP\_UDP, and IP\_ICMP.
- source-ip-address: If this parameter is specified, the IP packets sent from a host or from hosts within a certain IP network segment are to be matched.
- source-port: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- destination-ip-address: If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- destination-port: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- tcp-flags: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- log-action: If this option is configured, the matching log is periodically generated if packets are matched.

# L3V6 ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
```

```
"acl-entry": {  
  "1": {  
    "actions": {  
      "config": {  
        "forwarding-action": "ACCEPT",
```

```
"log-action": "LOG_SYSLOG"
```

```
    }  
  },  
  "config": {  
    "sequence-id": 1  
  },  
  "icmp": {  
    "config": {  
      "type": "1",  
      "code": "1"  
    }  
  },  
  "ip": {  
    "config": {  
      "protocol": "IP_ICMP",  
      "source-ip-address": "201::2/128",
```

```
"destination-ip-address": "0::0/0"
```

```
    }  
  },  
  "2": {  
    "actions": {  
      "config": {  
        "forwarding-action": "ACCEPT"
```

```
    }  
  },  
  "config": {  
    "sequence-id": 2  
  },  
  "ip": {  
    "config": {  
      "protocol": "IP_TCP",
```

```
"source-ip-address": "200::1/128",
```

```
"destination-ip-address": "0::/0"
```

```
    }
  },
  "transport": {
    "config": {
      "source-port": "555",
      "destination-port": "2222",
```

```
      "tcp-flags": [
        "TCP_ACK",
        "TCP_SYN"
```

```
      ]
```

```
    }
```

```
  }
```

```
},
```

```
"config": {
```

```
  "name": "TEST2"
```

```
}
```

```
}
```

```
}
```

```
}
```

```
}
```

```
}
```

L3V6 ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `forwarding-action(TRAP)` : If this option is configured, this rule matches packets and sends a copy to the CPU. At the same time, the forwarded packets are discarded.
- `forwarding-action(COPY)` : If this option is configured, it indicates that the rule matches packets and sends a copy to the CPU. In addition, the packets forwarded are not affected.

- `redirect-action(REDIRECT:target)` : If this option is configured, it indicates that the rule belongs to the redirection class. To use the ACL redirection function, change the "forwarding-action" to "redirect-action". The redirection action must be configured in the "redirect-action:REDIRECT:target" format. The "target" indicates the redirected target in the following formats:
  - `ipaddress` (ipv6 supported)
  - `port/portchannel`
  - `ipaddress@port/portchannel`
  - `ipaddress@vrfname`
  - `ipaddress1,ipaddress2...` (Next hop group)
  - `ipaddress1,ipaddress2... @port/portchannel/vrfname` (Next hop group)
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including `IP_TCP`, `IP_UDP`.
- `source-ip-address`: If this parameter is specified, the IPv6 packets sent from a host or from hosts within a certain IPv6 network segment are to be matched.
- `source-port`: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `destination-ip-address`: If this option is configured, the IPv6 packets destined for a specific host or hosts on a specific IPv6 network segment are to be matched.
- `destination-port`: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `tcp-flags`: indicates the TCP FLAG bit. It includes `TCP_FIN`, `TCP_SYN`, `TCP_RST`, `TCP_PSH`, `TCP_ACK`, and `TCP_URG`.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

CTRLPLANE ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST4": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "REJECT",
```



```
"log-action": "LOG_SYSLOG"
```

```
    }
  },
  "config": {
    "sequence-id": 10
  },
  "ip": {
    "config": {
      "source-ip-address": "192.168.2.2/32"
    }
  }
}
```

```
    }
  },
  "transport": {
    "config": {
      "destination-port": "2222"
    }
  }
}
```

```
    }
  },
  "config": {
    "name": "CUSTOM"
  }
}
}
}
}
}
}
```

CTRLPLANE ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `source-ip-address`: If this parameter is specified, the IP packets sent by a host with the source IP address or the packets sent by hosts within a certain IP network segment match the IP packets sent by any host. The value can be an IPv4 or IPv6 address.

- destination-port: indicates the matched packet port number. This field does not need to be specified by default.
- tcp-flags: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.

#L2 ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "CUSTOM": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                }
              },
              "config": {
                "sequence-id": 10
              },
              "l2": {
                "config": {
                  "ethertype": "2048",
                  "destination-mac": "00:e0:f8:00:00:0c",
                  "destination-mac-mask": "ff:ff:ff:ff:ff:ff"
                }
              }
            }
          }
        }
      }
    },
    "config": {
      "name": "CUSTOM"
    }
  }
}
```

```

    }
  }
}

```

L2 ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `forwarding-action(TRAP)` : If this option is configured, this rule matches packets and sends a copy to the CPU. At the same time, the forwarded packets are discarded.
- `forwarding-action(COPY)` : If this option is configured, it indicates that the rule matches packets and sends a copy to the CPU. In addition, the packets forwarded are not affected.
- `redirect-action(REDIRECT:target)` : If this option is configured, it indicates that the rule belongs to the redirection class.To use the ACL redirection function, change the "forwarding-action" to "redirect-action".The redirection action must be configured in the "redirect-action:REDIRECT:target" format. The "target" indicates the redirected target in the following formats:
  - `ipaddress` (ipv6 supported)
  - `port/portchannel`
  - `ipaddress@port/portchannel`
  - `ipaddress@vrfname`
  - `ipaddress1,ipaddress2...` (Next hop group)
  - `ipaddress1,ipaddress2... @port/portchannel/vrfname` (Next hop group)
- `ether type`: If configured, Layer 2 packets of the specified Ethernet type must be matched.
- `source-mac`: If this option is configured, it matches Layer 2 packets sent by a host with the source MAC address or packets sent by hosts within a certain MAC address segment.
- `destination-mac`: indicates that Layer 2 packets whose destination mac address is a host or packets whose destination MAC address is a host on a specific MAC address segment are to be matched.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

# L3\_QOS ACL json example:

```

{
  "acl": {

```

```

"acl-sets": {
  "acl-set": {
    "TEST2": {
      "acl-entries": {
        "acl-entry": {
          "1": {
            "actions": {
              "config": {
                "forwarding-action": "ACCEPT",

```

```

"log-action": "LOG_SYSLOG"

```

```

      }
    },
    "config": {
      "sequence-id": 1
    },
    "icmp": {
      "config": {
        "type": "1",
        "code": "1"
      }
    },
    "ip": {
      "config": {
        "protocol": "IP_ICMP",
        "source-ip-address": "172.20.3.1/32",

```

```

"destination-ip-address": "172.20.2.0/24"

```

```

      }
    },
    "2": {
      "actions": {
        "config": {
          "forwarding-action": "ACCEPT"

```

```

      }
    },
    "config": {
      "sequence-id": 2
    },

```

```

        "ip": {
            "config": {
                "protocol": "IP_TCP",
                "source-ip-address": "1.1.1.1/32",
                "destination-ip-address": "2.2.2.2/32"
            }
        },
        "transport": {
            "config": {
                "source-port": "555",
                "destination-port": "2222",
                "tcp-flags": [
                    "TCP_ACK",
                    "TCP_SYN"
                ]
            }
        },
        "config": {
            "name": "TEST2"
        }
    }
}

```

L3\_QOS ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to

replace specific IP protocol numbers, including IP\_TCP, IP\_UDP, and IP\_ICMP.

- `source-ip-address`: If this parameter is specified, the IP packets sent from a host or from hosts within a certain IP network segment are to be matched.
- `source-port`: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- `destination-ip-address`: If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- `destination-port`: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- `tcp-flags`: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

# L3V6\_QOS ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                },
                "icmp": {
                  "config": {
                    "type": "1",
                    "code": "1"
                  }
                },
                "ip": {
                  "config": {
                    "protocol": "IP_ICMP",
```

```
        "source-ip-address": "172.20.3.1/32",
        "destination-ip-address": "172.20.2.0/24"
    }
}
},
"2": {
    "actions": {
        "config": {
            "forwarding-action": "ACCEPT"
        }
    },
    "config": {
        "sequence-id": 2
    },
    "ip": {
        "config": {
            "protocol": "IP_TCP",
            "source-ip-address": "1.1.1.1/32",
            "destination-ip-address": "2.2.2.2/32"
        }
    },
    "transport": {
        "config": {
            "source-port": "555",
            "destination-port": "2222",
            "tcp-flags": [
                "TCP_ACK",
                "TCP_SYN"
            ]
        }
    }
}
},
},
"config": {
    "name": "TEST2"
}
}
}
}
```

L3V6\_QOS ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including `IP_TCP`, `IP_UDP`.
- `source-ip-address`: If this parameter is specified, the IPv6 packets sent from a host or from hosts within a certain IPv6 network segment are to be matched.
- `source-port`: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `destination-ip-address`: If this option is configured, the IPv6 packets destined for a specific host or hosts on a specific IPv6 network segment are to be matched.
- `destination-port`: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `tcp-flags`: indicates the TCP FLAG bit. It includes `TCP_FIN`, `TCP_SYN`, `TCP_RST`, `TCP_PSH`, `TCP_ACK`, and `TCP_URG`.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

# L2\_QOS ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "CUSTOM": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
              },
            },
          "config": {
            "sequence-id": 10
          }
        }
      }
    }
  }
}
```





```
"acl-sets": {
  "acl-set": {
    "TEST2": {
      "acl-entries": {
        "acl-entry": {
          "1": {
            "actions": {
              "config": {
                "forwarding-action": "ACCEPT",
                "log-action": "LOG_SYSLOG"
              }
            },
            "config": {
              "sequence-id": 1
            },
            "icmp": {
              "config": {
                "type": "1",
                "code": "1"
              }
            },
            "ip": {
              "config": {
                "protocol": "IP_ICMP",
                "source-ip-address": "172.20.3.1/32",
                "destination-ip-address": "172.20.2.0/24"
              }
            }
          },
          "2": {
            "actions": {
              "config": {
                "forwarding-action": "ACCEPT"
              }
            },
            "config": {
              "sequence-id": 2
            },
            "icmp": {
              "config": {
                "type": "1",
                "code": "1"
              }
            }
          }
        }
      }
    }
  }
}
```

```
    },  
    "ip": {  
      "config": {  
        "protocol": "IP_TCP",  
        "source-ip-address": "1.1.1.1/32",  
        "destination-ip-address": "2.2.2.2/32"  
      }  
    },  
    "transport": {  
      "config": {  
        "source-port": "555",  
        "destination-port": "2222",  
        "tcp-flags": [  
          "TCP_ACK",  
          "TCP_SYN"  
        ]  
      }  
    }  
  }  
},  
"config": {  
  "name": "TEST2"  
}  
}  
}  
}
```

MIRROR ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is configured, it indicates that the rule belongs to the allowed class. After this field is set to `ACCEPT`, the ACL RULE action of the MIRROR type in the ingress direction is converted to `MIRROR_INGRESS_ACTION`, indicating the traffic of the mirror ingress direction.
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including `IP_TCP`, `IP_UDP`, and `IP_ICMP`.
- `source-ip-address`: If this parameter is specified, the IP packets sent from a host or from

hosts within a certain IP network segment are to be matched.

- **source-port:** indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- **destination-ip-address:** If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- **destination-port:** indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- **tcp-flags:** indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- **log-action:** If this option is configured, the matching log is periodically generated if packets are matched.

# MIRRORV6 ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                },
                "icmp": {
                  "config": {
                    "type": "1",
                    "code": "1"
                  }
                },
                "ip": {
                  "config": {
                    "protocol": "IP_ICMP",
                    "source-ip-address": "201::2/128",
                    "destination-ip-address": "0::0/0"
                  }
                }
              }
            }
          }
        }
      }
    }
  }
}
```

```
    }
  }
},
"2": {
  "actions": {
    "config": {
      "forwarding-action": "ACCEPT"
    }
  },
  "config": {
    "sequence-id": 2
  },
  "icmp": {
    "config": {
      "type": "1",
      "code": "1"
    }
  },
  "ip": {
    "config": {
      "protocol": "IP_TCP",
      "source-ip-address": "200::1/128",
      "destination-ip-address": "0::/0"
    }
  },
  "transport": {
    "config": {
      "source-port": "555",
      "destination-port": "2222",
      "tcp-flags": [
        "TCP_ACK",
        "TCP_SYN"
      ]
    }
  }
}
},
"config": {
  "name": "TEST2"
}
}
```

```

    }
  }
}

```

MIRRORV6 ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is configured, it indicates that the rule belongs to the allowed class. After this field is set to ACCEPT, the ACL RULE action of the MIRROR type in the ingress direction is converted to MIRROR\_INGRESS\_ACTION, indicating the traffic of the mirror ingress direction.
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including IP\_TCP, IP\_UDP, and IP\_ICMP.
- `source-ip-address`: If this parameter is specified, the IP packets sent from a host or from hosts within a certain IP network segment are to be matched.
- `source-port`: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- `destination-ip-address`: If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- `destination-port`: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- `tcp-flags`: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

## 1.8 show acl counters

### Function

Run the **show acl counters** command to display the ACL statistics counters.

### Syntax

```
show acl counters [ table-name ] [ rule-name ]
```

### Parameter Description

*table-name*: The name of the ACL table.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show acl counters
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
-----
RULE_1         CUSTOM        9999   7890943       1010075392  2023-03-21 06:48:47
DEFAULT_RULE   CUSTOM         1       0              0           1970-01-01 00:00:00
RULE_1         TEST          9999   7878959       1008541568  2023-03-21 06:48:47
DEFAULT_RULE   TEST           1       0              0           1970-01-01 00:00:00
```

```
admin@sonic:~$ show acl counters CUSTOM
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
-----
RULE_1         CUSTOM        9999   50121379      6415571584  2023-03-21 06:48:57
DEFAULT_RULE   CUSTOM         1       0              0           1970-01-01 00:00:00
```

```
admin@sonic:~$ show acl counters TEST RULE_1
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
-----
RULE_1         TEST          9999   92335015      11818917376 2023-03-21 06:49:07
```

## 1.9 show acl log-update interval

### Function

Run the **show acl log-update interval** command to display the output interval of ACL matching logs.

### Syntax

```
show acl log-update interval
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl log-update interval
acl log-update interval 1
```

## 1.10 show acl resources

### Function

Run the **show acl resources** command to display the ACL resources.

### Syntax

```
show acl resources { group | table }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl resources table
```

Table Name	Table OID	Resource Name	Used Count	Available Count
CUSTOM	0x70000000009fb	acl_entry	2	1534
CUSTOM	0x70000000009fb	acl_counter	2	57850

```
admin@sonic:~$ show acl resources group
```

Stage	Bind Point	Resource Name	Used Count	Available Count
INGRESS	PORT	acl_group	1	255
INGRESS	PORT	acl_table	2	1
INGRESS	LAG	acl_group	0	255
INGRESS	LAG	acl_table	0	1
INGRESS	VLAN	acl_group	0	255
INGRESS	VLAN	acl_table	0	4
INGRESS	RIF	acl_group	0	255
INGRESS	RIF	acl_table	0	4
INGRESS	SWITCH	acl_group	0	255
INGRESS	SWITCH	acl_table	0	4
EGRESS	PORT	acl_group	0	255
EGRESS	PORT	acl_table	0	2
EGRESS	LAG	acl_group	0	255
EGRESS	LAG	acl_table	0	2
EGRESS	VLAN	acl_group	0	255
EGRESS	VLAN	acl_table	0	2



EGRESS	RIF	acl_group	0	255
EGRESS	RIF	acl_table	0	2
EGRESS	SWITCH	acl_group	0	255
EGRESS	SWITCH	acl_table	0	2

## 1.11 show acl rule

### Function

Run the **show acl rule** command to display all the ACL rules present in all the ACL tables or only the rules present in specified table "TABLE\_NAME" or only the rule matching the RULE\_ID option.

Output from the command gives the following information about the rules.

- Table name - ACL table name to which the rule belongs to.
- Rule name - ACL rule name
- Priority - Priority for this rule.
- Action - Action to be performed if the packet matches with this ACL rule.

It can be:

- "DROP"/"FORWARD"("ACCEPT" for control plane ACL)

Users can choose to have a default permit rule or default deny rule. In case of default "deny all" rule, add the permitted rules on top of the deny rule. In case of the default "permit all" rule, users can add the deny rules on top of it. If users have not configured any rule, SONiC allows all traffic (which is "permit all").

- Match - The fields from the packet header that need to be matched against the same present in the incoming traffic.

### Syntax

```
show acl rule [ table-name ] [ rule-id ]
```

### Parameter Description

*table-name*: The name of the ACL table.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl rule
```

Table	Rule	Priority	Action	Match
CUSTOM	RULE_1	9999	DROP	DST_MAC: 00:e0:f8:00:00:0d/ff:ff:ff:ff:ff:ff

CUSTOM	RULE_2	9998	FORWARD	ETHER_TYPE: 2048 LOG_ACTION: LOG_SYSLOG SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00 DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00 LOG_ACTION: LOG_SYSLOG SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
CUSTOM	DEFAULT_RULE	1	DROP	DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00 SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
TEST	RULE_1	9999	DROP	DST_IP: 0.0.0.0/0 LOG_ACTION: LOG_SYSLOG SRC_IP: 0.0.0.0/0
TEST	RULE_2	9998	DROP	DST_IP: 0.0.0.0/0 LOG_ACTION: LOG_SYSLOG SRC_IP: 0.0.0.32/32
TEST	DEFAULT_RULE	1	DROP	ETHER_TYPE: 2048

```
admin@sonic:~$ show acl rule CUSTOM
```

Table	Rule	Priority	Action	Match
CUSTOM	RULE_1	9999	DROP	DST_MAC: 00:e0:f8:00:00:0d/ff:ff:ff:ff:ff:ff ETHER_TYPE: 2048 LOG_ACTION: LOG_SYSLOG SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
CUSTOM	RULE_2	9998	FORWARD	DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00 LOG_ACTION: LOG_SYSLOG SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
CUSTOM	DEFAULT_RULE	1	DROP	DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00 SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00

```
admin@sonic:~$ show acl rule CUSTOM RULE_1
```

Table	Rule	Priority	Action	Match
CUSTOM	RULE_1	9999	DROP	DST_MAC: 00:e0:f8:00:00:0d/ff:ff:ff:ff:ff:ff ETHER_TYPE: 2048 LOG_ACTION: LOG_SYSLOG SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00

## 1.12 show acl table

### Function

Run the **show acl table** command to display either all the ACL tables that are configured or only the specified "TABLE\_NAME".

Output from the command displays the table name, type of the table, the cir and cbs, the dscp value, the status, the mode, the list of interface(s) to which the table is bound and the description about the table.

**Syntax**

**show acl table** [ *table-name* ]

**Parameter Description**

*table-name*: The name of the ACL table.

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show acl table
```

Name	Type	Binding	Description	Stage	Dscp	CIR	CBS	Status	Mode
CTRL	CTRLPLANE	SSH	CTRL					N/A	
CUSTOM	L2	Ethernet1	CUSTOM	ingress				Active	
TEST	L3	Ethernet1 Ethernet2 Ethernet3	TEST	ingress				Active	
TEST2	L3_QOS	Ethernet5 Ethernet6	TEST2	ingress	10	100	200	Active	
TEST3	L3	Ethernet5	TEST3	egress				Active	community

```
admin@sonic:~$ show acl table TEST
```

Name	Type	Binding	Description	Stage	Dscp	CIR	CBS	Status	Mode
TEST	L3	Ethernet1 Ethernet2 Ethernet3	TEST	ingress				Active	

# 1 Qos Commands

Command	Function
<a href="#"><u>config acl add table</u></a>	Create new ACL tables.
<a href="#"><u>config acl remove table</u></a>	Delete an ACL table.
<a href="#"><u>config acl update incremental</u></a>	Configure the rules.
<a href="#"><u>config interface qos default</u></a>	Restore the queue rate limiting of interface or the port rate limiting to the default value.
<a href="#"><u>config interface qos interface-rate-limit</u></a>	Configure port rate limiting.
<a href="#"><u>config interface qos queue-rate-limit</u></a>	Configure queue rate limiting on interface.
<a href="#"><u>config interface qos schedule</u></a>	Configure the scheduling policy for the output queue of a port.
<a href="#"><u>config interface qos schedule default</u></a>	Restore the scheduling policy and weight of the port output queue to the default settings.
<a href="#"><u>config interface trust-mode</u></a>	Configure the trust mode of interface.
<a href="#"><u>config qos clear</u></a>	Clear all the QoS configuration from all the following QOS Tables in ConfigDB.
<a href="#"><u>config qos map add</u></a>	Configure qos map.
<a href="#"><u>config qos map apply</u></a>	Apply qos map to interface.
<a href="#"><u>config qos map delete</u></a>	Delete qos map.
<a href="#"><u>config qos reload</u></a>	Reload the QoS configuration.
<a href="#"><u>show acl counters</u></a>	Display the ACL statistics counters.
<a href="#"><u>show acl rule</u></a>	Display all the ACL rules present in all the ACL tables or only the rules present in specified table "TABLE_NAME" or only the rule matching the RULE_ID option.
<a href="#"><u>show acl table</u></a>	Display either all the ACL tables that are configured or only the specified "TABLE_NAME".

<a href="#"><b>show buffer_pool persistent-watermark</b></a>	Display the user persistent-watermark for all the buffer pools.
<a href="#"><b>show buffer_pool watermark</b></a>	Display the user watermark for all the buffer pools.
<a href="#"><b>show interfaces qos interface-rate-limit</b></a>	View the rate limiting of interface.
<a href="#"><b>show interfaces qos map</b></a>	View the priority mapping of packets applied to interface.
<a href="#"><b>show interfaces qos queue-rate-limit</b></a>	View the queue rate limiting on interface.
<a href="#"><b>show interfaces trust-mode</b></a>	View the trust mode of interface.
<a href="#"><b>show pfc asymmetric</b></a>	Display the status of asymmetric PFC for all interfaces or a given interface.
<a href="#"><b>show pfc counters</b></a>	Display the details of Rx & Tx priority-flow-control (pfc) for all ports. This command can be used to clear the counters using -c option.
<a href="#"><b>show pfc priority</b></a>	Display the lossless priorities for all interfaces or a given interface.
<a href="#"><b>show priority-group</b></a>	Display The user watermark or persistent-watermark for the Ingress "headroom" or "shared pool occupancy" per priority-group for all ports. Dropped packets per priority-group for all ports.
<a href="#"><b>show qos map</b></a>	View the packet priority mapping.
<a href="#"><b>show queue counters</b></a>	Display packet and byte counters for all queues of all ports or one specific-port given as argument.
<a href="#"><b>show queue persistent-watermark</b></a>	Display the user persistet-watermark for the queues (Egress shared pool occupancy per queue) for either the unicast queues or multicast queues for all ports.
<a href="#"><b>show queue schedule</b></a>	View the scheduling policy of the output queue of ports.
<a href="#"><b>show queue watermark</b></a>	Display the user watermark for the queues (Egress shared pool occupancy per queue) for either the unicast queues or multicast queues for all ports.

---

<a href="#"><b>sonic-clear queue counters</b></a>	Clear the statistics of packets in the queue.
---	---

## 1.1 config acl add table

### Function

Run the **config acl add table** command to create new ACL tables.

You can use the high-capacity configuration mode and community configuration mode to create an ACL table. The distinction between the two modes applies only to the ACLs on the data plane.

### Syntax

- high-capacity configuration mode:

```
config acl add table [ OPTIONS ] table-name table-type [ -d description ] [ -p ports ] [ -s { ingress | egress } ] [ -sp cir-cbs ] [ -sd dscp-value ] [ -ss { SSH | NTP | SNMP } ]
```

- community configuration mode:

```
config acl add table [ OPTIONS ] table-name table-type [ -d description ] [ -p ports ] [ -s { ingress | egress } ] [ -sp cir-cbs ] [ -sd dscp-value ] [ -ss { SSH | NTP | SNMP } ] -m community
```

### Parameter Description

*table-name*: The name of the ACL table to create.

*table-type*: The type of ACL table to create (e.g. "L3", "L3V6", "MIRROR")

*description*: A description of the table for the user. (default is the *table\_name*)

*ports*: A comma-separated list of ports/interfaces to add to the table. The behavior is as follows:

- Physical ports will be bound as physical ports
- Portchannels will be bound as portchannels - passing a portchannel member is invalid
- VLANs will be expanded into their members (e.g. "Vlan1000" will become "Ethernet0,Ethernet2,Ethernet4...")

*stage*: The stage this ACL table will be applied to, either ingress or egress. (default is ingress)

*cir-cbs*: The cir indicates the bandwidth limit per second (KBits). The cbs indicates the burst traffic limit (KBytes). This parameter is used for QoS ACL. (e.g. 1000000\_2000)

*dscp-value*: The dscp value of the packet, range 0 to 63. This parameter is used for QoS ACL.

**SSH** | **NTP** | **SNMP**: The service type of CTRLPLANE ACL. This parameter is used for CTRLPLANE ACL.

### Usage Guidelines

- ACL restrictions in high-capacity configuration mode
  - In high-capacity configuration mode, only one object (physical interface or portchannel interface) can be applied to the ACL in the egress direction.

- o In high-capacity configuration mode, when an ACL is applied to portchannel, only one portchannel interface can be applied to an ACL.
- o In high-capacity configuration mode, when an ACL is applied to vni, only one vni can be applied to an ACL.
- o In high-capacity configuration mode, an ACL cannot be applied to both physical interfaces and portchannel interfaces.
- o After an ACL is configured as high-capacity mode, it cannot be changed to the community mode. After an ACL is configured as the community mode, it cannot be changed to the high-capacity mode.

## Examples

```
admin@sonic:~$ sudo config acl add table EXAMPLE_L3 -p Ethernet1,Ethernet4 -s ingress
admin@sonic:~$ sudo config acl add table EXAMPLE_2 L3V6 -p Ethernet2 -s egress
admin@sonic:~$ sudo config acl add table EXAMPLE_3 L3_QOS -p Ethernet5 -s ingress -sp
1024_2048 -sd 30
admin@sonic:~$ sudo config acl add table EXAMPLE_4 L2_QOS -p Ethernet3 -s ingress -sd
28
admin@sonic:~$ sudo config acl add table EXAMPLE_5 L3V6_QOS -p Ethernet6 -s ingress -
sp 1000_2000
admin@sonic:~$ sudo config acl add table EXAMPLE_6 CTRLPLANE -ss SSH
```

## 1.2 config acl remove table

### Function

Run the **config acl remove table** command to delete an ACL table.

### Syntax

```
config acl remove table [ OPTIONS ] table-name [ -p ports ] [ -up ] [ -ud ]
```

### Parameter Description

*table-name*: The name of the ACL table to delete.

*ports*: A comma-separated list of ports/interfaces to add to the table. The behavior is as follows:

**-ud**: unset\_dscp. The QoS DSCP parameters are deleted.

**-up**: unset\_policer. The QoS policer parameters are deleted.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl table
Name      Type      Binding      Description      Stage      Dscp      CIR      CBS
-----
-----
```



```

CUSTOM L2 Ethernet1 CUSTOM egress
TEST L3 Ethernet49 TEST ingress
admin@sonic:~$ sudo config acl remove table TEST
admin@sonic:~$ show acl table
Name Type Binding Description Stage Dscp CIR CBS
-----
CUSTOM L2 Ethernet1 CUSTOM egress

```

```

admin@sonic:~$ show acl table
Name Type Binding Description Stage Dscp CIR CBS
-----
TEST L3_QOS Ethernet1 TEST ingress 30 1024 2048
admin@sonic:~$ sudo config acl remove table TEST -p Ethernet1
admin@sonic:~$ show acl table
Name Type Binding Description Stage Dscp CIR CBS
-----
TEST L3_QOS TEST 30 1024 2048

```

```

admin@sonic:~$ show acl table
Name Type Binding Description Stage Dscp CIR CBS
-----
TEST L3_QOS Ethernet1 TEST ingress 30 1024 2048
admin@sonic:~$ sudo config acl remove table TEST -up -ud
admin@sonic:~$ show acl table
Name Type Binding Description Stage Dscp CIR CBS
-----
TEST L3_QOS Ethernet1 TEST ingress

```

## 1.3 config acl update incremental

### Function

Run the **config acl update incremental** command to configure the rules.

### Syntax

```
config acl update incremental [ OPTIONS ] file-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config acl update incremental acl_rule.json
```

```
# L3 ACL json example:
```

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                },
                "icmp": {
                  "config": {
                    "type": "1",
                    "code": "1"
                  }
                },
                "ip": {
                  "config": {
                    "protocol": "IP_ICMP",
                    "source-ip-address": "172.20.3.1/32",
                    "destination-ip-address": "172.20.2.0/24"
                  }
                }
              },
            "2": {
              "actions": {
                "config": {
                  "forwarding-action": "ACCEPT"
                }
              },
              "config": {

```

```
        "sequence-id": 2
      },
      "ip": {
        "config": {
          "protocol": "IP_TCP",
          "source-ip-address": "1.1.1.1/32",
          "destination-ip-address": "2.2.2.2/32"
        }
      },
      "transport": {
        "config": {
          "source-port": "555",
          "destination-port": "2222",
          "tcp-flags": [
            "TCP_ACK",
            "TCP_SYN"
          ]
        }
      }
    },
    "config": {
      "name": "TEST2"
    }
  }
}
}
```

### L3 ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `forwarding-action(TRAP)` : If this option is configured, this rule matches packets and sends a copy to the CPU. At the same time, the forwarded packets are discarded.

- forwarding-action(COPY) : If this option is configured, it indicates that the rule matches packets and sends a copy to the CPU. In addition, the packets forwarded are not affected.
- redirect-action(REDIRECT:target) : If this option is configured, it indicates that the rule belongs to the redirection class. To use the ACL redirection function, change the "forwarding-action" to "redirect-action". The redirection action must be configured in the "redirect-action:REDIRECT:target" format. The "target" indicates the redirected target in the following formats:
  - ipaddress (ipv6 supported)
  - port/portchannel
  - ipaddress@port/portchannel
  - ipaddress@vrfname
  - ipaddress1,ipaddress2... (Next hop group)
  - ipaddress1,ipaddress2... @port/portchannel/vrfname (Next hop group)
- protocol: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including IP\_TCP, IP\_UDP, and IP\_ICMP.
- source-ip-address: If this parameter is specified, the IP packets sent from a host or from hosts within a certain IP network segment are to be matched.
- source-port: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- destination-ip-address: If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- destination-port: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- tcp-flags: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- log-action: If this option is configured, the matching log is periodically generated if packets are matched.

# L3V6 ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
```

```
        "log-action": "LOG_SYSLOG"
    }
},
"config": {
    "sequence-id": 1
},
"icmp": {
    "config": {
        "type": "1",
        "code": "1"
    }
},
"ip": {
    "config": {
        "protocol": "IP_ICMP",
        "source-ip-address": "201::2/128",
        "destination-ip-address": "0::0/0"
    }
}
},
"2": {
    "actions": {
        "config": {
            "forwarding-action": "ACCEPT"
        }
    },
    "config": {
        "sequence-id": 2
    },
    "ip": {
        "config": {
            "protocol": "IP_TCP",
            "source-ip-address": "200::1/128",
            "destination-ip-address": "0::/0"
        }
    },
    "transport": {
        "config": {
            "source-port": "555",
            "destination-port": "2222",
            "tcp-flags": [
                "TCP_ACK",
                "TCP_SYN"
            ]
        }
    }
}
```



replace specific IP protocol numbers, including IP\_TCP, IP\_UDP.

- **source-ip-address:** If this parameter is specified, the IPv6 packets sent from a host or from hosts within a certain IPv6 network segment are to be matched.
- **source-port:** indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- **destination-ip-address:** If this option is configured, the IPv6 packets destined for a specific host or hosts on a specific IPv6 network segment are to be matched.
- **destination-port:** indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- **tcp-flags:** indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- **log-action:** If this option is configured, the matching log is periodically generated if packets are matched.

CTRLPLANE ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST4": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "REJECT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 10
                },
                "ip": {
                  "config": {
                    "source-ip-address": "192.168.2.2/32"
                  }
                },
                "transport": {
                  "config": {
                    "destination-port": "2222"
                  }
                }
              }
            }
          }
        }
      }
    }
  }
}
```

```
    }
  },
  "config": {
    "name": "CUSTOM"
  }
}
}
}
```

CTRLPLANE ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `source-ip-address`: If this parameter is specified, the IP packets sent by a host with the source IP address or the packets sent by hosts within a certain IP network segment match the IP packets sent by any host. The value can be an IPv4 or IPv6 address.
- `destination-port`: indicates the matched packet port number. This field does not need to be specified by default.
- `tcp-flags`: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.

#L2 ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "CUSTOM": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                }
              }
            }
          }
        }
      }
    }
  }
}
```





- port/portchannel
- ipaddress@port/portchannel
- ipaddress@vrfname
- ipaddress1,ipaddress2... (Next hop group)
- ipaddress1,ipaddress2... @port/portchannel/vrfname (Next hop group)
- ether type: If configured, Layer 2 packets of the specified Ethernet type must be matched.
- source-mac: If this option is configured, it matches Layer 2 packets sent by a host with the source MAC address or packets sent by hosts within a certain MAC address segment.
- destination-mac: indicates that Layer 2 packets whose destination mac address is a host or packets whose destination MAC address is a host on a specific MAC address segment are to be matched.
- log-action: If this option is configured, the matching log is periodically generated if packets are matched.

# L3\_QOS ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                },
                "icmp": {
                  "config": {
                    "type": "1",
                    "code": "1"
                  }
                },
                "ip": {
                  "config": {
                    "protocol": "IP_ICMP",
                    "source-ip-address": "172.20.3.1/32",
```

```

        "destination-ip-address":"172.20.2.0/24"
      }
    },
    "2": {
      "actions": {
        "config": {
          "forwarding-action": "ACCEPT"
        }
      },
      "config": {
        "sequence-id": 2
      },
      "ip": {
        "config": {
          "protocol": "IP_TCP",
          "source-ip-address": "1.1.1.1/32",
          "destination-ip-address": "2.2.2.2/32"
        }
      },
      "transport": {
        "config": {
          "source-port": "555",
          "destination-port": "2222",
          "tcp-flags": [
            "TCP_ACK",
            "TCP_SYN"
          ]
        }
      }
    },
    "config": {
      "name": "TEST2"
    }
  }
}

```

L3\_QOS ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including `IP_TCP`, `IP_UDP`, and `IP_ICMP`.
- `source-ip-address`: If this parameter is specified, the IP packets sent from a host or from hosts within a certain IP network segment are to be matched.
- `source-port`: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `destination-ip-address`: If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- `destination-port`: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `tcp-flags`: indicates the TCP FLAG bit. It includes `TCP_FIN`, `TCP_SYN`, `TCP_RST`, `TCP_PSH`, `TCP_ACK`, and `TCP_URG`.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

# L3V6\_QOS ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                }
              }
            }
          }
        }
      }
    }
  }
}
```

```
    "icmp": {
      "config": {
        "type": "1",
        "code": "1"
      }
    },
    "ip": {
      "config": {
        "protocol": "IP_ICMP",
        "source-ip-address": "172.20.3.1/32",
        "destination-ip-address": "172.20.2.0/24"
      }
    }
  },
  "2": {
    "actions": {
      "config": {
        "forwarding-action": "ACCEPT"
      }
    },
    "config": {
      "sequence-id": 2
    },
    "ip": {
      "config": {
        "protocol": "IP_TCP",
        "source-ip-address": "1.1.1.1/32",
        "destination-ip-address": "2.2.2.2/32"
      }
    },
    "transport": {
      "config": {
        "source-port": "555",
        "destination-port": "2222",
        "tcp-flags": [
          "TCP_ACK",
          "TCP_SYN"
        ]
      }
    }
  }
},
}
```

```

    "config": {
      "name": "TEST2"
    }
  }
}

```

L3V6\_QOS ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including `IP_TCP`, `IP_UDP`.
- `source-ip-address`: If this parameter is specified, the IPv6 packets sent from a host or from hosts within a certain IPv6 network segment are to be matched.
- `source-port`: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `destination-ip-address`: If this option is configured, the IPv6 packets destined for a specific host or hosts on a specific IPv6 network segment are to be matched.
- `destination-port`: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is `IP_TCP` or `IP_UDP`.
- `tcp-flags`: indicates the TCP FLAG bit. It includes `TCP_FIN`, `TCP_SYN`, `TCP_RST`, `TCP_PSH`, `TCP_ACK`, and `TCP_URG`.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

# L2\_QOS ACL json example:

```

{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "CUSTOM": {
          "acl-entries": {
            "acl-entry": {

```

```

    "1": {
      "actions": {
        "config": {
          "forwarding-action": "ACCEPT",
          "log-action": "LOG_SYSLOG"
        }
      },
      "config": {
        "sequence-id": 10
      },
      "12": {
        "config": {
          "ethertype": "2048",
          "destination-mac": "00:e0:f8:00:00:0c",
          "destination-mac-mask": "ff:ff:ff:ff:ff:ff"
        }
      }
    },
    "config": {
      "name": "CUSTOM"
    }
  }
}

```

L2\_QOS ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is set, it indicates that the rule belongs to the allowed class.
- `forwarding-action(REJECT)` : If this option is configured, the keyword indicates that the rule is reject.
- `ether type`: If configured, Layer 2 packets of the specified Ethernet type must be matched.
- `source-mac`: If this option is configured, it matches Layer 2 packets sent by a host with the source MAC address or packets sent by hosts within a certain MAC address segment.
- `destination-mac`: indicates that Layer 2 packets whose destination mac address is a

host or packets whose destination MAC address is a host on a specific MAC address segment are to be matched.

- log-action: If this option is configured, the matching log is periodically generated if packets are matched.

# MIRROR ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                },
                "icmp": {
                  "config": {
                    "type": "1",
                    "code": "1"
                  }
                },
                "ip": {
                  "config": {
                    "protocol": "IP_ICMP",
                    "source-ip-address": "172.20.3.1/32",
                    "destination-ip-address": "172.20.2.0/24"
                  }
                }
              },
              "2": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT"
                  }
                }
              }
            }
          }
        }
      }
    }
  }
}
```



```
    },
    "config": {
      "sequence-id": 2
    },
    "icmp": {
      "config": {
        "type": "1",
        "code": "1"
      }
    },
    "ip": {
      "config": {
        "protocol": "IP_TCP",
        "source-ip-address": "1.1.1.1/32",
        "destination-ip-address": "2.2.2.2/32"
      }
    },
    "transport": {
      "config": {
        "source-port": "555",
        "destination-port": "2222",
        "tcp-flags": [
          "TCP_ACK",
          "TCP_SYN"
        ]
      }
    }
  },
  "config": {
    "name": "TEST2"
  }
}
}
```

MIRROR ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list.

The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.

- forwarding-action(ACCEPT) : If this option is configured, it indicates that the rule belongs to the allowed class. After this field is set to ACCEPT, the ACL RULE action of the MIRROR type in the ingress direction is converted to MIRROR\_INGRESS\_ACTION, indicating the traffic of the mirror ingress direction.
- protocol: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including IP\_TCP, IP\_UDP, and IP\_ICMP.
- source-ip-address: If this parameter is specified, the IP packets sent from a host or from hosts within a certain IP network segment are to be matched.
- source-port: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- destination-ip-address: If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- destination-port: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- tcp-flags: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- log-action: If this option is configured, the matching log is periodically generated if packets are matched.

# MIRRORV6 ACL json example:

```
{
  "acl": {
    "acl-sets": {
      "acl-set": {
        "TEST2": {
          "acl-entries": {
            "acl-entry": {
              "1": {
                "actions": {
                  "config": {
                    "forwarding-action": "ACCEPT",
                    "log-action": "LOG_SYSLOG"
                  }
                },
                "config": {
                  "sequence-id": 1
                }
              },
              "icmp": {
                "config": {
                  "type": "1",
```

```
        "code": "1"
      }
    },
    "ip": {
      "config": {
        "protocol": "IP_ICMP",
        "source-ip-address": "201::2/128",
        "destination-ip-address": "0::0/0"
      }
    }
  },
  "2": {
    "actions": {
      "config": {
        "forwarding-action": "ACCEPT"
      }
    },
    "config": {
      "sequence-id": 2
    },
    "icmp": {
      "config": {
        "type": "1",
        "code": "1"
      }
    },
    "ip": {
      "config": {
        "protocol": "IP_TCP",
        "source-ip-address": "200::1/128",
        "destination-ip-address": "0::/0"
      }
    },
    "transport": {
      "config": {
        "source-port": "555",
        "destination-port": "2222",
        "tcp-flags": [
          "TCP_ACK",
          "TCP_SYN"
        ]
      }
    }
  }
}
```

```
    }
  },
  "config": {
    "name": "TEST2"
  }
}
}
```

MIRRORV6 ACL json example Parameters:

- `acl_rule.json`: specifies the imported json file name.
- `sequence-id`: indicates the sequence number of the rule entry. The value range is [1, 9000]. The sequence number determines the priority of the rule entry in the access list. The smaller the sequence number is, the larger the priority is. The higher the priority is, the packets are preferentially matched.
- `forwarding-action(ACCEPT)` : If this option is configured, it indicates that the rule belongs to the allowed class. After this field is set to ACCEPT, the ACL RULE action of the MIRROR type in the ingress direction is converted to MIRROR\_INGRESS\_ACTION, indicating the traffic of the mirror ingress direction.
- `protocol`: indicates the IP protocol number. The value ranges from 0 to 255. For convenience, the system provides short names of common IP protocol numbers to replace specific IP protocol numbers, including IP\_TCP, IP\_UDP, and IP\_ICMP.
- `source-ip-address`: If this parameter is specified, the IP packets sent from a host or from hosts within a certain IP network segment are to be matched.
- `source-port`: indicates the source port number of the matched packets. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- `destination-ip-address`: If this option is configured, the packets destined for a specific host or hosts on a specific IP network segment are to be matched.
- `destination-port`: indicates the destination port of the matched packet. The value ranges from 0 to 65535. This option is available when the protocol type is IP\_TCP or IP\_UDP.
- `tcp-flags`: indicates the TCP FLAG bit. It includes TCP\_FIN, TCP\_SYN, TCP\_RST, TCP\_PSH, TCP\_ACK, and TCP\_URG.
- `log-action`: If this option is configured, the matching log is periodically generated if packets are matched.

## 1.4 config interface qos default

### Function

Run the **config interface qos default** command to restore the queue rate limiting of interface or the port rate limiting to the default value.

**Syntax**

**sudo config interface qos default interface-rate-limit** *interface-name*

**sudo config interface qos default queue-rate-limit** *interface-name queue-id*

**Parameter Description**

*interface-name*: interface name.

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show interfaces qos interface-rate-limit
```

Port	pir	pbs
Ethernet1		
Ethernet2		
Ethernet3	200000000	2000
Ethernet4		
Ethernet5		
Ethernet6		
Ethernet7		
Ethernet8		
Ethernet9		
Ethernet10	300000000	
Ethernet11		
Ethernet12		
Ethernet13		
Ethernet14		
Ethernet15		
Ethernet16		
Ethernet17		
Ethernet18		
Ethernet19		
Ethernet20		
Ethernet21		
Ethernet22		
Ethernet23		
Ethernet24		
Ethernet25		
Ethernet26		
Ethernet27		
Ethernet28		

```
Ethernet29  
Ethernet30  
Ethernet31  
Ethernet32  
Ethernet33  
Ethernet34  
Ethernet35  
Ethernet36  
Ethernet37  
Ethernet38  
Ethernet39  
Ethernet40  
Ethernet41  
Ethernet42  
Ethernet43  
Ethernet44  
Ethernet45  
Ethernet46  
Ethernet47  
Ethernet48  
Ethernet49  
Ethernet53  
Ethernet57  
Ethernet61  
Ethernet65  
Ethernet69  
Ethernet73  
Ethernet77
```

```
admin@sonic:~$ sudo config interface qos default interface-rate-limit Ethernet3
```

```
admin@sonic:~$ show interfaces qos interface-rate-limit
```

Port	pir	pbs
Ethernet1		
Ethernet2		
Ethernet3		
Ethernet4		
Ethernet5		
Ethernet6		
Ethernet7		
Ethernet8		
Ethernet9		
Ethernet10	300000000	

Ethernet11  
Ethernet12  
Ethernet13  
Ethernet14  
Ethernet15  
Ethernet16  
Ethernet17  
Ethernet18  
Ethernet19  
Ethernet20  
Ethernet21  
Ethernet22  
Ethernet23  
Ethernet24  
Ethernet25  
Ethernet26  
Ethernet27  
Ethernet28  
Ethernet29  
Ethernet30  
Ethernet31  
Ethernet32  
Ethernet33  
Ethernet34  
Ethernet35  
Ethernet36  
Ethernet37  
Ethernet38  
Ethernet39  
Ethernet40  
Ethernet41  
Ethernet42  
Ethernet43  
Ethernet44  
Ethernet45  
Ethernet46  
Ethernet47  
Ethernet48  
Ethernet49  
Ethernet53  
Ethernet57  
Ethernet61  
Ethernet65

```

Ethernet69
Ethernet73
Ethernet77

admin@sonic:~$ show interfaces qos queue-rate-limit Ethernet1
Port      queue-id  cir      cbs    pir      pbs
-----
Ethernet1 0          200000000
Ethernet1 1
Ethernet1 2          200000000  2000   300000000  3000
Ethernet1 3
Ethernet1 4
Ethernet1 5
Ethernet1 6
Ethernet1 7

admin@sonic:~$ sudo config interface qos default queue-rate-limit Ethernet1 2
admin@sonic:~$ show interfaces qos queue-rate-limit Ethernet1
Port      queue-id  cir      cbs    pir      pbs
-----
Ethernet1 0          200000000
Ethernet1 1
Ethernet1 2
Ethernet1 3
Ethernet1 4
Ethernet1 5
Ethernet1 6
Ethernet1 7

```

## 1.5 config interface qos interface-rate-limit

### Function

Run the **config interface qos interface-rate-limit** command to configure port rate limiting.

### Syntax

```
sudo config interface qos interface-rate-limit interface-name -pir pir-value [ -pbs pbs-value ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A



## Examples

```
admin@sonic:~$ sudo config interface qos interface-rate-limit Ethernet3 -pir 200000000 -
pbs 2000
admin@sonic:~$ show interfaces qos interface-rate-limit
Port          pir          pbs
-----
Ethernet1
Ethernet2
Ethernet3    200000000    2000
Ethernet4
Ethernet5
Ethernet6
Ethernet7
Ethernet8
Ethernet9
Ethernet10
Ethernet11
Ethernet12
Ethernet13
Ethernet14
Ethernet15
Ethernet16
Ethernet17
Ethernet18
Ethernet19
Ethernet20
Ethernet21
Ethernet22
Ethernet23
Ethernet24
Ethernet25
Ethernet26
Ethernet27
Ethernet28
Ethernet29
Ethernet30
Ethernet31
Ethernet32
Ethernet33
Ethernet34
Ethernet35
Ethernet36
Ethernet37
```

```
Ethernet38  
Ethernet39  
Ethernet40  
Ethernet41  
Ethernet42  
Ethernet43  
Ethernet44  
Ethernet45  
Ethernet46  
Ethernet47  
Ethernet48  
Ethernet49  
Ethernet53  
Ethernet57  
Ethernet61  
Ethernet65  
Ethernet69  
Ethernet73  
Ethernet77
```

```
admin@sonic:~$ sudo config interface qos interface-rate-limit Ethernet10 -pir 300000000
```

```
admin@sonic:~$ show interfaces qos interface-rate-limit
```

Port	pir	pbs
-----	-----	-----
Ethernet1		
Ethernet2		
Ethernet3	200000000	2000
Ethernet4		
Ethernet5		
Ethernet6		
Ethernet7		
Ethernet8		
Ethernet9		
Ethernet10	300000000	
Ethernet11		
Ethernet12		
Ethernet13		
Ethernet14		
Ethernet15		
Ethernet16		
Ethernet17		
Ethernet18		
Ethernet19		

Ethernet20  
Ethernet21  
Ethernet22  
Ethernet23  
Ethernet24  
Ethernet25  
Ethernet26  
Ethernet27  
Ethernet28  
Ethernet29  
Ethernet30  
Ethernet31  
Ethernet32  
Ethernet33  
Ethernet34  
Ethernet35  
Ethernet36  
Ethernet37  
Ethernet38  
Ethernet39  
Ethernet40  
Ethernet41  
Ethernet42  
Ethernet43  
Ethernet44  
Ethernet45  
Ethernet46  
Ethernet47  
Ethernet48  
Ethernet49  
Ethernet53  
Ethernet57  
Ethernet61  
Ethernet65  
Ethernet69  
Ethernet73  
Ethernet77

## 1.6 config interface qos queue-rate-limit

### Function

Run the **config interface qos queue-rate-limit** command to configure queue rate limiting on interface.

## Syntax

```
sudo config interface qos queue-rate-limit interface-name queue-id -cir cir-value [ -cbs cbs-value ] [ -pir pir-value ] [ -pbs pbs-value ]
```

## Parameter Description

*interface-name*: interface name.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface qos queue-rate-limit Ethernet1 0 -cir 200000000
admin@sonic:~$ show interfaces qos queue-rate-limit Ethernet1
```

Port	queue-id	cir	cbs	pir	pbs
Ethernet1	0	200000000			
Ethernet1	1				
Ethernet1	2				
Ethernet1	3				
Ethernet1	4				
Ethernet1	5				
Ethernet1	6				
Ethernet1	7				

```
admin@sonic:~$ sudo config interface qos queue-rate-limit Ethernet1 2 -cir 200000000 -
cbs 2000 -pir 300000000 -pbs 3000
```

```
admin@sonic:~$ show interfaces qos queue-rate-limit Ethernet1
```

Port	queue-id	cir	cbs	pir	pbs
Ethernet1	0	200000000			
Ethernet1	1				
Ethernet1	2	200000000	2000	300000000	3000
Ethernet1	3				
Ethernet1	4				
Ethernet1	5				
Ethernet1	6				
Ethernet1	7				

## 1.7 config interface qos schedule

### Function

Run the **config interface qos schedule** command to configure the scheduling policy for the output queue of a port.

## Syntax

**sudo config interface qos schedule** *interface-name* **sp**

**sudo config interface qos schedule** *interface-name* **wrr** *tx0 tx1 tx2 tx3 tx4 tx5 tx6 tx7*

**sudo config interface qos schedule** *interface-name* **dwrr** *tx0 tx1 tx2 tx3 tx4 tx5 tx6 tx7*

## Parameter Description

*interface-name*: interface name.

*tx0 tx1 tx2 tx3 tx4 tx5 tx6 tx7*: indicates the weight assigned to the corresponding scheduling algorithm.

**sp**: Strict-Priority scheduling.

**wrr**: Weighted Round Robin scheduling.

**dwrr**: Dificit Round Robin scheduling.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface qos schedule Ethernet1 sp
```

```
admin@sonic:~$ show queue schedule Ethernet1
```

Port	TxQ	Mode	Weight
Ethernet1	UC0	SP	0
Ethernet1	UC1	SP	0
Ethernet1	UC2	SP	0
Ethernet1	UC3	SP	0
Ethernet1	UC4	SP	0
Ethernet1	UC5	SP	0
Ethernet1	UC6	SP	0
Ethernet1	UC7	SP	0

```
admin@sonic:~$ sudo config interface qos schedule Ethernet2 wrr 0 0 0 0 1 2 3 4
```

```
admin@sonic:~$ show queue schedule Ethernet2
```

Port	TxQ	Mode	Weight
Ethernet2	UC0	SP	0
Ethernet2	UC1	SP	0
Ethernet2	UC2	SP	0
Ethernet2	UC3	SP	0
Ethernet2	UC4	WRR	1
Ethernet2	UC5	WRR	2
Ethernet2	UC6	WRR	3

```

Ethernet2 UC7 WRR 4
admin@sonic:~$ sudo config interface qos schedule Ethernet3 wrr 1 2 3 4 5 6 7 8
admin@sonic:~$ show queue schedule Ethernet3

```

Port	TxQ	Mode	Weight
Ethernet3	UC0	WRR	1
Ethernet3	UC1	WRR	2
Ethernet3	UC2	WRR	3
Ethernet3	UC3	WRR	4
Ethernet3	UC4	WRR	5
Ethernet3	UC5	WRR	6
Ethernet3	UC6	WRR	7
Ethernet3	UC7	WRR	8

```

admin@sonic:~$ sudo config interface qos schedule Ethernet4 dwrr 1 2 3 4 5 6 7 8
admin@sonic:~$ show queue schedule Ethernet4

```

Port	TxQ	Mode	Weight
Ethernet4	UC0	DWRR	1
Ethernet4	UC1	DWRR	2
Ethernet4	UC2	DWRR	3
Ethernet4	UC3	DWRR	4
Ethernet4	UC4	DWRR	5
Ethernet4	UC5	DWRR	6
Ethernet4	UC6	DWRR	7
Ethernet4	UC7	DWRR	8

```

admin@sonic:~$ sudo config interface qos schedule Ethernet5 dwrr 5 6 7 8 0 0 0 0
admin@sonic:~$ show queue schedule Ethernet5

```

Port	TxQ	Mode	Weight
Ethernet5	UC0	DWRR	5
Ethernet5	UC1	DWRR	6
Ethernet5	UC2	DWRR	7
Ethernet5	UC3	DWRR	8
Ethernet5	UC4	SP	0
Ethernet5	UC5	SP	0
Ethernet5	UC6	SP	0
Ethernet5	UC7	SP	0

## 1.8 config interface qos schedule default

### Function

Run the **config interface qos schedule default** command to restore the scheduling policy and weight of the port output queue to the default settings.

### Syntax

```
sudo config interface qos schedule interface-name wrr 11111111
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show queue schedule Ethernet1
```

Port	TxQ	Mode	Weight
Ethernet1	UC0	SP	0
Ethernet1	UC1	SP	0
Ethernet1	UC2	SP	0
Ethernet1	UC3	SP	0
Ethernet1	UC4	DWRR	1
Ethernet1	UC5	DWRR	2
Ethernet1	UC6	DWRR	3
Ethernet1	UC7	DWRR	4

```
admin@sonic:~$ sudo config interface qos schedule Ethernet1 wrr 11111111
```

```
admin@sonic:~$ show queue schedule Ethernet1
```

Port	TxQ	Mode	Weight
Ethernet1	UC0	WRR	1
Ethernet1	UC1	WRR	1
Ethernet1	UC2	WRR	1
Ethernet1	UC3	WRR	1
Ethernet1	UC4	WRR	1
Ethernet1	UC5	WRR	1
Ethernet1	UC6	WRR	1
Ethernet1	UC7	WRR	1

## 1.9 config interface trust-mode

### Function

Run the **config interface trust-mode** command to configure the trust mode of interface.

### Syntax

```
sudo config interface trust-mode interface-name { dscp | dot1p }
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces trust-mode
```

Port	trust-mode
Ethernet1	dot1p
Ethernet2	dscp
Ethernet3	dscp
Ethernet4	dscp
Ethernet5	dscp
Ethernet6	dscp
Ethernet7	dscp
Ethernet8	dscp
Ethernet9	dscp
Ethernet10	dscp
Ethernet11	dscp
Ethernet12	dscp
Ethernet13	dscp
Ethernet14	dscp
Ethernet15	dscp
Ethernet16	dscp
Ethernet17	dscp
Ethernet18	dscp
Ethernet19	dscp
Ethernet20	dscp
Ethernet21	dscp
Ethernet22	dscp
Ethernet23	dscp
Ethernet24	dscp
Ethernet25	dscp



```

Ethernet26      dscp
Ethernet27      dscp
Ethernet28      dscp
Ethernet29      dscp
Ethernet30      dscp
Ethernet31      dscp
Ethernet32      dscp
Ethernet33      dscp
Ethernet34      dscp
Ethernet35      dscp
Ethernet36      dscp
Ethernet37      dscp
Ethernet38      dscp
Ethernet39      dscp
Ethernet40      dscp
Ethernet41      dscp
Ethernet42      dscp
Ethernet43      dscp
Ethernet44      dscp
Ethernet45      dscp
Ethernet46      dscp
Ethernet47      dscp
Ethernet48      dscp
Ethernet49      dscp
Ethernet53      dscp
Ethernet57      dscp
Ethernet61      dscp
Ethernet65      dscp
Ethernet69      dscp
Ethernet73      dscp
Ethernet77      dscp

```

```
admin@sonic:~$ sudo config interface trust-mode Ethernet10 dot1p
```

```
admin@sonic:~$ show interfaces trust-mode
```

```

      Port      trust-mode
-----
Ethernet1      dot1p
Ethernet2      dscp
Ethernet3      dscp
Ethernet4      dscp
Ethernet5      dscp
Ethernet6      dscp
Ethernet7      dscp

```

Ethernet8	dscp
Ethernet9	dscp
Ethernet10	dot1p
Ethernet11	dscp
Ethernet12	dscp
Ethernet13	dscp
Ethernet14	dscp
Ethernet15	dscp
Ethernet16	dscp
Ethernet17	dscp
Ethernet18	dscp
Ethernet19	dscp
Ethernet20	dscp
Ethernet21	dscp
Ethernet22	dscp
Ethernet23	dscp
Ethernet24	dscp
Ethernet25	dscp
Ethernet26	dscp
Ethernet27	dscp
Ethernet28	dscp
Ethernet29	dscp
Ethernet30	dscp
Ethernet31	dscp
Ethernet32	dscp
Ethernet33	dscp
Ethernet34	dscp
Ethernet35	dscp
Ethernet36	dscp
Ethernet37	dscp
Ethernet38	dscp
Ethernet39	dscp
Ethernet40	dscp
Ethernet41	dscp
Ethernet42	dscp
Ethernet43	dscp
Ethernet44	dscp
Ethernet45	dscp
Ethernet46	dscp
Ethernet47	dscp
Ethernet48	dscp
Ethernet49	dscp
Ethernet53	dscp

```

Ethernet57      dscp
Ethernet61      dscp
Ethernet65      dscp
Ethernet69      dscp
Ethernet73      dscp
Ethernet77      dscp

admin@sonic:~$ show interfaces trust-mode Ethernet1
  Port      trust-mode
  -----  -
Ethernet1   dot1p
admin@sonic:~$ sudo config interface trust-mode Ethernet1 dscp
admin@sonic:~$ show interfaces trust-mode Ethernet1
  Port      trust-mode
  -----  -
Ethernet1   dscp

```

## 1.10 config qos clear

### Function

Run the **config qos clear** command to clear all the QoS configuration from all the following QOS Tables in ConfigDB.

- (1) TC\_TO\_PRIORITY\_GROUP\_MAP,
- (2) MAP\_PFC\_PRIORITY\_TO\_QUEUE,
- (3) TC\_TO\_QUEUE\_MAP,
- (4) DSCP\_TO\_TC\_MAP,
- (5) MPLS\_TC\_TO\_TC\_MAP,
- (6) SCHEDULER,
- (7) PFC\_PRIORITY\_TO\_PRIORITY\_GROUP\_MAP,
- (8) PORT\_QOS\_MAP,
- (9) WRED\_PROFILE,
- (10) QUEUE,
- (11) CABLE\_LENGTH,
- (12) BUFFER\_POOL,
- (13) BUFFER\_PROFILE,
- (14) BUFFER\_PG,
- (15) BUFFER\_QUEUE

### Syntax

**config qos clear**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config qos clear
```

**1.11 config qos map add****Function**

Run the **config qos map add** command to configure qos map.

**Syntax**

```
sudo config qos map add tc-to-pg tc-to-pg-name tc-value pg-value
```

```
sudo config qos map add pfc-to-queue pfc-to-queue-name pfc-value queue-value
```

```
sudo config qos map add dot1p-to-tc dot1p-to-tc-name dot1p-value tc-value
```

```
sudo config qos map add dscp-to-tc dscp-to-tc-name dscp-value tc-value
```

```
sudo config qos map add tc-to-dot1p tc-to-dot1p-name tc-value dot1p-value
```

```
sudo config qos map add tc-to-dscp tc-to-dscp-name tc-value dscp-value
```

```
sudo config qos map add tc-to-queue tc-to-queue-name tc-value queue-value
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config qos map add tc-to-pg tc-pg 0-7 1
```

```
admin@sonic:~$ show qos map tc-to-pg
```

```
TC_TO_PG_MAP: tc-pg
```

```
-----
  tc   pg
  ----  ---
  0    1
  1    1
  2    1
  3    1
  4    1
```

```

5    1
6    1
7    1

```

Num of maps: 1

```
admin@sonic:~$ sudo config qos map add pfc-to-queue pfc-queue 0-7 5
```

```
admin@sonic:~$ show qos map pfc-to-queue
```

PFC\_TO\_QUEUE\_MAP: default

```

-----
 pfc   queue
-----
  0     0
  1     1
  2     2
  3     3
  4     4
  5     5
  6     6
  7     7

```

PFC\_TO\_QUEUE\_MAP: pfc-queue

```

-----
 pfc   queue
-----
  0     5
  1     5
  2     5
  3     5
  4     5
  5     5
  6     5
  7     5

```

Num of maps: 2

```
admin@sonic:~$ sudo config qos map add dot1p-to-tc dot1p-tc 0-5 3
```

```
admin@sonic:~$ show qos map dot1p-to-tc
```

DOT1P\_TO\_TC\_MAP: default

```

-----
 dot1p  tc
-----
  0     0

```

```

1 1
2 2
3 3
4 4
5 5
6 6
7 7

```

DOTIP\_TO\_TC\_MAP: dotIp-tc

```

-----
dotIp  tc
-----  ----
0      3
1      3
2      3
3      3
4      3
5      3

```

Num of maps: 2

```

admin@sonic:~$ sudo config qos map add dscp-to-tc dscp-tc 5 2
admin@sonic:~$ sudo config qos map add dscp-to-tc dscp-tc 15 3
admin@sonic:~$ sudo config qos map add dscp-to-tc dscp-tc 28 5
admin@sonic:~$ show qos map dscp-to-tc

```

DSCP\_TO\_TC\_MAP: default

```

-----
dscp   tc
-----  ----
0      0
1      0
2      0
3      0
4      0
5      0
6      0
7      0
8      1
9      1
10     1
11     1
12     1
13     1

```

---

14	1
15	1
16	2
17	2
18	2
19	2
20	2
21	2
22	2
23	2
24	3
25	3
26	3
27	3
28	3
29	3
30	3
31	3
32	4
33	4
34	4
35	4
36	4
37	4
38	4
39	4
40	5
41	5
42	5
43	5
44	5
45	5
46	5
47	5
48	6
49	6
50	6
51	6
52	6
53	6
54	6
55	6
56	7

---

```
57 7
58 7
59 7
60 7
61 7
62 7
63 7
```

DSCP\_TO\_TC\_MAP: dscp-tc

```
-----
dscp  tc
-----  ---
    5   2
   15   3
   28   5
```

Num of maps: 2

```
admin@sonic:~$ sudo config qos map add tc-to-dscp tc-dscp 0-5 2
```

```
admin@sonic:~$ show qos map tc-to-dscp
```

TC\_TO\_DSCP\_MAP: tc-dscp

```
-----
tc    dscp
----  -----
  0    2
  1    2
  2    2
  3    2
  4    2
  5    2
```

Num of maps: 1

```
admin@sonic:~$ sudo config qos map add tc-to-dot1p tc-dot1p 0-7 3
```

```
admin@sonic:~$ show qos map tc-to-dot1p
```

TC\_TO\_DOTIP\_MAP: tc-dot1p

```
-----
tc    dot1p
----  -----
  0    3
  1    3
  2    3
  3    3
```



```

4      3
5      3
6      3
7      3

```

```
Num of maps: 1
```

## 1.12 config qos map apply

### Function

Run the **config qos map apply** command to apply qos map to interface.

### Syntax

```
sudo config qos map apply tc-to-pg interface-name tc-to-pg-name
```

```
sudo config qos map apply pfc-to-queue interface-name pfc-to-queue-name
```

```
sudo config qos map apply dot1p-to-tc interface-name dot1p-to-tc-name
```

```
sudo config qos map apply dscp-to-tc interface-name dscp-to-tc-name
```

```
sudo config qos map apply tc-to-dot1p interface-name tc-to-dot1p-name
```

```
sudo config qos map apply tc-to-dscp interface-name tc-to-dscp-name
```

```
sudo config qos map apply tc-to-queue interface-name tc-to-queue-name
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show interfaces qos map apply Ethernet2
Port      Map              Profile
-----  -
Ethernet2 dot1p_to_tc_map  default
          dscp_to_tc_map  default
          pfc_to_queue_map default
          tc_to_queue_map default
admin@sonic:~$ sudo config qos map apply dscp-to-tc Ethernet2 dscp-tc
admin@sonic:~$ show interfaces qos map apply Ethernet2
Port      Map              Profile
-----  -
Ethernet2 dot1p_to_tc_map  default
          dscp_to_tc_map  dscp-tc

```

```

        pfc_to_queue_map default
        tc_to_queue_map default

admin@sonic:~$ show interfaces qos map apply Ethernet5
Port      Map              Profile
-----  -
Ethernet5 dot1p_to_tc_map  default
          dscp_to_tc_map  default
          pfc_to_queue_map default
          tc_to_queue_map default

admin@sonic:~$ sudo config qos map apply dot1p-to-tc Ethernet5 dot1p-tc
admin@sonic:~$ show interfaces qos map apply Ethernet5
Port      Map              Profile
-----  -
Ethernet5 dot1p_to_tc_map  dot1p-tc
          dscp_to_tc_map  default
          pfc_to_queue_map default
          tc_to_queue_map default

admin@sonic:~$ sudo config qos map apply tc-to-dot1p Ethernet10 tc-dot1p
admin@sonic:~$ show interfaces qos map apply Ethernet10
Port      Map              Profile
-----  -
Ethernet10 dot1p_to_tc_map  default
          dscp_to_tc_map  default
          pfc_to_queue_map default
          tc_to_dot1p_map tc-dot1p
          tc_to_queue_map default

admin@sonic:~$ sudo config qos map apply tc-to-dot1p Ethernet10 default
admin@sonic:~$ show interfaces qos map apply Ethernet10
Port      Map              Profile
-----  -
Ethernet10 dot1p_to_tc_map  default
          dscp_to_tc_map  default
          pfc_to_queue_map default
          tc_to_queue_map default

```

## 1.13 config qos map delete

### Function

Run the **config qos map delete** command to delete qos map.

## Syntax

```

sudo config qos map delete tc-to-pg tc-to-pg-name
sudo config qos map delete pfc-to-queue pfc-to-queue-name
sudo config qos map delete dot1p-to-tc dot1p-to-tc-name
sudo config qos map delete dscp-to-tc dscp-to-tc-name
sudo config qos map delete tc-to-dot1p tc-to-dot1p-name
sudo config qos map delete tc-to-dscp tc-to-dscp-name
sudo config qos map delete tc-to-queue tc-to-queue-name

```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```

admin@sonic:~$ show qos map tc-to-queue
TC_TO_QUEUE_MAP: default
-----
  tc    queue
  ---  -
  0     0
  1     1
  2     2
  3     3
  4     4
  5     5
  6     6
  7     7

TC_TO_QUEUE_MAP: tc-queue
-----
  tc    queue
  ---  -
  0     2
  1     2
  2     2
  3     2

Num of maps: 2

```

```
admin@sonic:~$ sudo config qos map delete tc-to-queue tc-queue
```

```
admin@sonic:~$ show qos map tc-to-queue
```

```
TC_TO_QUEUE_MAP: default
```

```
-----
```

tc	queue
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

```
Num of maps: 1
```

```
admin@sonic:~$ show qos map pfc-to-queue
```

```
PFC_TO_QUEUE_MAP: default
```

```
-----
```

pfc	queue
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

```
PFC_TO_QUEUE_MAP: pfc-queue
```

```
-----
```

pfc	queue
0	5
1	5
2	5
3	5
4	5
5	5
6	5
7	5

```

Num of maps: 2

admin@sonic:~$ sudo config qos map delete pfc-to-queue pfc-queue
admin@sonic:~$ show qos map pfc-to-queue
PFC_TO_QUEUE_MAP: default
-----
   pfc   queue
-----
    0     0
    1     1
    2     2
    3     3
    4     4
    5     5
    6     6
    7     7

Num of maps: 1

```

## 1.14 config qos reload

### Function

Run the **config qos reload** command to reload the QoS configuration.

QoS configuration has got two sets of configurations.

- (1) Generic QoS Configuration - This gives complete list of all possible QoS configuration. Its given in the file `/usr/share/sonic/templates/qos_config.j2` in the device.

Reference: [https://github.com/Azure/sonic-buildimage/blob/master/files/build\\_templates/qos\\_config.j2](https://github.com/Azure/sonic-buildimage/blob/master/files/build_templates/qos_config.j2)

Users have flexibility to have platform specific qos configuration by placing the `qos_config.j2` file at `/usr/share/sonic/device/<platform>/<hwsku>/`.

If users want to modify any of this loaded QoS configuration, they can modify this file in the device and then issue the "config qos reload" command.

- (2) Platform specific buffer configuration. Every platform has got platform specific and topology specific (T0 or T1 or T2) buffer configuration at `/usr/share/sonic/device/<platform>/<hwsku>/buffers_defaults_tx.j2`

In addition to platform specific configuration file, a generic configuration file is also present at `/usr/share/sonic/templates/buffers_config.j2`.

Reference: [https://github.com/Azure/sonic-buildimage/blob/master/files/build\\_templates/buffers\\_config.j2](https://github.com/Azure/sonic-buildimage/blob/master/files/build_templates/buffers_config.j2)

Users can either modify the platform specific configuration file, or the generic configuration file and then issue this "config qos reload" command.

These configuration files are already loaded in the device as part of the reboot process. In case if users wants to modify any of these configurations, they need to modify the appropriate QOS tables and fields in these files and then use this reload command.

This command uses those modified buffers.json.j2 file & qos.json.j2 file and reloads the new QOS configuration.

If users have not made any changes in these configuration files, this command need not be executed.

Some of the example QOS configurations that users can modify are given below.

- (1) TC\_TO\_PRIORITY\_GROUP\_MAP
- (2) MAP\_PFC\_PRIORITY\_TO\_QUEUE
- (3) TC\_TO\_QUEUE\_MAP
- (4) DSCP\_TO\_TC\_MAP
- (5) MPLS\_TC\_TO\_TC\_MAP
- (6) SCHEDULER
- (7) PFC\_PRIORITY\_TO\_PRIORITY\_GROUP\_MAP
- (8) PORT\_QOS\_MAP
- (9) WRED\_PROFILE
- (10) CABLE\_LENGTH
- (11) BUFFER\_QUEUE

## Syntax

**config qos reload**

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

In this example, it uses the buffers.json.j2 file and qos.json.j2 file from platform specific folders.

When there are no changes in the platform specific configuration files, they internally use the file "/usr/share/sonic/templates/buffers\_config.j2" and "/usr/share/sonic/templates/qos\_config.j2" to generate the configuration.

```
admin@sonic:~$ sudo config qos reload
Running command: /usr/local/bin/sonic-cfggen -d -t /usr/share/sonic/device/x86_64-
micas_m2-w6510-48gt4v-r0/M2-W6510-48GT4V/buffers.json.j2 >/tmp/buffers.json
```

```
Running command: /usr/local/bin/sonic-cfggen -d -t /usr/share/sonic/device/x86_64-
micas_m2-w6510-48gt4v-r0/M2-W6510-48GT4V/qos.json.j2 -y
/etc/sonic/sonic_version.yml >/tmp/qos.json
Running command: /usr/local/bin/sonic-cfggen -j /tmp/buffers.json --write-to-db
Running command: /usr/local/bin/sonic-cfggen -j /tmp/qos.json --write-to-db
```

## 1.15 show acl counters

### Function

Run the **show acl counters** command to display the ACL statistics counters.

### Syntax

```
show acl counters [ table-name ] [ rule-name ]
```

### Parameter Description

*table-name*: The name of the ACL table.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl counters
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
-----
RULE_1         CUSTOM        9999   7890943       1010075392  2023-03-21 06:48:47
DEFAULT_RULE  CUSTOM         1       0              0            1970-01-01 00:00:00
RULE_1         TEST          9999   7878959       1008541568  2023-03-21 06:48:47
DEFAULT_RULE  TEST           1       0              0            1970-01-01 00:00:00
```

```
admin@sonic:~$ show acl counters CUSTOM
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
-----
RULE_1         CUSTOM        9999   50121379      6415571584  2023-03-21 06:48:57
DEFAULT_RULE  CUSTOM         1       0              0            1970-01-01 00:00:00
```

```
admin@sonic:~$ show acl counters TEST RULE_1
RULE NAME      TABLE NAME    PRIO  PACKETS COUNT  BYTES COUNT  UPDATE TIME
-----
RULE_1         TEST          9999   92335015      11818917376 2023-03-21 06:49:07
```

## 1.16 show acl rule

### Function

Run the **show acl rule** command to display all the ACL rules present in all the ACL tables or only the rules present in specified table "TABLE\_NAME" or only the rule matching the RULE\_ID option.

Output from the command gives the following information about the rules.

- Table name - ACL table name to which the rule belongs to.
- Rule name - ACL rule name
- Priority - Priority for this rule.
- Action - Action to be performed if the packet matches with this ACL rule.

It can be:

- "DROP"/"FORWARD"("ACCEPT" for control plane ACL)

Users can choose to have a default permit rule or default deny rule. In case of default "deny all" rule, add the permitted rules on top of the deny rule. In case of the default "permit all" rule, users can add the deny rules on top of it. If users have not configured any rule, SONiC allows all traffic (which is "permit all").

- Match - The fields from the packet header that need to be matched against the same present in the incoming traffic.

### Syntax

```
show acl rule [ table-name ] [ rule-id ]
```

### Parameter Description

*table-name*: The name of the ACL table.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show acl rule
```

Table	Rule	Priority	Action	Match
CUSTOM	RULE_1	9999	DROP	DST_MAC: 00:e0:f8:00:00:0d/ff:ff:ff:ff:ff:ff ETHER_TYPE: 2048 LOG_ACTION: LOG_SYSLOG
CUSTOM	RULE_2	9998	FORWARD	DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00 LOG_ACTION: LOG_SYSLOG SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00



```

CUSTOM  DEFAULT_RULE  1    DROP  DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
TEST    RULE_1          9999  DROP  DST_IP: 0.0.0.0/0
LOG_ACTION: LOG_SYSLOG
SRC_IP: 0.0.0.0/0
TEST    RULE_2          9998  DROP  DST_IP: 0.0.0.0/0
LOG_ACTION: LOG_SYSLOG
SRC_IP: 0.0.0.32/32
TEST    DEFAULT_RULE  1    DROP  ETHER_TYPE: 2048

```

```

admin@sonic:~$ show acl rule CUSTOM
Table  Rule          Priority  Action  Match
-----
CUSTOM  RULE_1          9999    DROP    DST_MAC: 00:e0:f8:00:00:0d/ff:ff:ff:ff:ff:ff
ETHER_TYPE: 2048
LOG_ACTION: LOG_SYSLOG
SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
CUSTOM  RULE_2          9998    FORWARD DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
LOG_ACTION: LOG_SYSLOG
SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
CUSTOM  DEFAULT_RULE  1    DROP    DST_MAC: 00:00:00:00:00:00/00:00:00:00:00:00
SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00

```

```

admin@sonic:~$ show acl rule CUSTOM RULE_1
Table  Rule  Priority  Action  Match
-----
CUSTOM  RULE_1  9999    DROP    DST_MAC: 00:e0:f8:00:00:0d/ff:ff:ff:ff:ff:ff
ETHER_TYPE: 2048
LOG_ACTION: LOG_SYSLOG
SRC_MAC: 00:00:00:00:00:00/00:00:00:00:00:00

```

## 1.17 show acl table

### Function

Run the **show acl table** command to display either all the ACL tables that are configured or only the specified "TABLE\_NAME".

Output from the command displays the table name, type of the table, the cir and cbs, the dscp value, the status, the mode, the list of interface(s) to which the table is bound and the description about the table.

### Syntax

```
show acl table [ table-name ]
```

## Parameter Description

*table-name*: The name of the ACL table.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show acl table
```

Name	Type	Binding	Description	Stage	Dscp	CIR	CBS	Status	Mode
CTRL	CTRLPLANE	SSH	CTRL					N/A	
CUSTOM	L2	Ethernet1	CUSTOM	ingress				Active	
TEST	L3	Ethernet1	TEST	ingress				Active	
		Ethernet2							
		Ethernet3							
TEST2	L3_QOS	Ethernet5	TEST2	ingress	10	100	200	Active	
		Ethernet6							
TEST3	L3	Ethernet5	TEST3	egress				Active	community

## 1.18 show buffer\_pool persistent-watermark

### Function

Run the **show buffer\_pool persistent-watermark** command to display the user persistent-watermark for all the buffer pools.

### Syntax

```
show buffer_pool persistent-watermark
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show buffer_pool persistent-watermark
```

Shared pool maximum occupancy:

Pool	Bytes
ingress_lossless_pool	0
lossy_pool	2464

## 1.19 show buffer\_pool watermark

### Function

Run the **show buffer\_pool watermark** command to display the user watermark for all the buffer pools.

### Syntax

```
show buffer_pool watermark
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show buffer_pool watermark
Shared pool maximum occupancy:
      Pool      Bytes
-----
ingress_lossless_pool      0
      lossy_pool      2464
```

## 1.20 show interfaces qos interface-rate-limit

### Function

Run the **show interfaces qos interface-rate-limit** command to view the rate limiting of interface.

### Syntax

```
show interfaces qos interface-rate-limit [ interface-name ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces qos interface-rate-limit
Port      pir      pbs
-----
```

```
Ethernet1 200000000 2000
Ethernet2
Ethernet3
Ethernet4
Ethernet5
Ethernet6
Ethernet7
Ethernet8
Ethernet9
Ethernet10
Ethernet11
Ethernet12
Ethernet13
Ethernet14
Ethernet15
Ethernet16
Ethernet17
Ethernet18
Ethernet19
Ethernet20
Ethernet21
Ethernet22
Ethernet23
Ethernet24
Ethernet25 100000000 1500
Ethernet26
Ethernet27
Ethernet28
Ethernet29
Ethernet30
Ethernet31
Ethernet32
Ethernet33
Ethernet34
Ethernet35
Ethernet36
Ethernet37
Ethernet38
Ethernet39
Ethernet40
Ethernet41
Ethernet42
Ethernet43
```

```

Ethernet44
Ethernet45
Ethernet46
Ethernet47
Ethernet48
Ethernet49
Ethernet53
Ethernet57
Ethernet61
Ethernet65
Ethernet69
Ethernet73
Ethernet77

admin@sonic:~$ show interfaces qos interface-rate-limit Ethernet1
Port      pir      pbs
-----  -
Ethernet1 200000000 2000

```

## 1.21 show interfaces qos map

### Function

Run the **show interfaces qos map** command to view the priority mapping of packets applied to interface.

### Syntax

```
show interfaces qos map apply interface_name [ tc-to-pg | pfc-to-queue | dot1p-to-tc | dscp-to-tc | tc-to-queue | tc-to-dscp | tc-to-dot1p ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show interfaces qos map apply Ethernet5
Port      Map              Profile
-----  -
Ethernet5 dot1p_to_tc_map  default
           dscp_to_tc_map  default
           pfc_to_queue_map default
           tc_to_queue_map default

```

```
admin@sonic:~$ show interfaces qos map apply Ethernet5 dscp-to-tc
Port      Map          Profile
-----
Ethernet5 dscp_to_tc_map default
```

## 1.22 show interfaces qos queue-rate-limit

### Function

Run the **show interfaces qos queue-rate-limit** command to view the queue rate limiting on interface.

### Syntax

```
show interfaces qos queue-rate-limit interface_name [ queue-id ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show interfaces qos queue-rate-limit Ethernet1
Port      queue-id  cir          cbs    pir          pbs
-----
Ethernet1 0          2000000000  2000   3000000000  3000
Ethernet1 1
Ethernet1 2
Ethernet1 3
Ethernet1 4
Ethernet1 5
Ethernet1 6
Ethernet1 7
```

```
admin@sonic:~$ show interfaces qos queue-rate-limit Ethernet1 0
Port      queue-id  cir          cbs    pir          pbs
-----
Ethernet1 0          2000000000  2000   3000000000  3000
```

## 1.23 show interfaces trust-mode

### Function

Run the **show interfaces trust-mode** command to view the trust mode of interface.

**Syntax**

```
show interfaces trust-mode [ interface_name ]
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show interfaces trust-mode
```

Port	trust-mode
-----	-----
Ethernet1	dot1p
Ethernet2	dscp
Ethernet3	dscp
Ethernet4	dscp
Ethernet5	dscp
Ethernet6	dscp
Ethernet7	dscp
Ethernet8	dscp
Ethernet9	dscp
Ethernet10	dscp
Ethernet11	dscp
Ethernet12	dscp
Ethernet13	dscp
Ethernet14	dscp
Ethernet15	dscp
Ethernet16	dscp
Ethernet17	dscp
Ethernet18	dscp
Ethernet19	dscp
Ethernet20	dscp
Ethernet21	dscp
Ethernet22	dscp
Ethernet23	dscp
Ethernet24	dscp
Ethernet25	dscp
Ethernet26	dscp
Ethernet27	dscp
Ethernet28	dscp
Ethernet29	dscp

```
Ethernet30      dscp
Ethernet31      dscp
Ethernet32      dscp
Ethernet33      dscp
Ethernet34      dscp
Ethernet35      dscp
Ethernet36      dscp
Ethernet37      dscp
Ethernet38      dscp
Ethernet39      dscp
Ethernet40      dscp
Ethernet41      dscp
Ethernet42      dscp
Ethernet43      dscp
Ethernet44      dscp
Ethernet45      dscp
Ethernet46      dscp
Ethernet47      dscp
Ethernet48      dscp
Ethernet49      dscp
Ethernet53      dscp
Ethernet57      dscp
Ethernet61      dscp
Ethernet65      dscp
Ethernet69      dscp
Ethernet73      dscp
Ethernet77      dscp
```

```
admin@sonic:~$ show interfaces trust-mode Ethernet5
```

```
  Port      trust-mode
-----
Ethernet5   dscp
```

```
admin@sonic:~$ sudo config qos map add tc-to-queue tc-queue 0-3 2
```

```
admin@sonic:~$ show qos map tc-to-queue
```

```
TC_TO_QUEUE_MAP: default
```

```
-----
  tc      queue
-----
  0        0
  1        1
  2        2
  3        3
```



```

4      4
5      5
6      6
7      7

TC_TO_QUEUE_MAP: tc-queue
-----
tc     queue
-----
0      2
1      2
2      2
3      2

Num of maps: 2

```

## 1.24 show pfc asymmetric

### Function

Run the **show pfc asymmetric** command to display the status of asymmetric PFC for all interfaces or a given interface.

### Syntax

```
show pfc asymmetric [ interface-name ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show pfc asymmetric

Interface  Asymmetric
-----
Ethernet0  off
Ethernet2  off
Ethernet4  off
Ethernet6  off
Ethernet8  off
Ethernet10 off
Ethernet12 off

```

```

Ethernet14  off

admin@sonic:~$ show pfc asymmetric Ethernet0

Interface  Asymmetric
-----
Ethernet0  off

```

## 1.25 show pfc counters

### Function

Run the **show pfc counters** command to display the details of Rx & Tx priority-flow-control (pfc) for all ports. This command can be used to clear the counters using `-c` option.

### Syntax

```
show pfc counters
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show pfc counters
  Port Rx   PFC0   PFC1   PFC2   PFC3   PFC4   PFC5   PFC6   PFC7
  -----
Ethernet0   0       0       0       0       0       0       0       0
Ethernet4   0       0       0       0       0       0       0       0
Ethernet8   0       0       0       0       0       0       0       0
Ethernet12  0       0       0       0       0       0       0       0

  Port Tx   PFC0   PFC1   PFC2   PFC3   PFC4   PFC5   PFC6   PFC7
  -----
Ethernet0   0       0       0       0       0       0       0       0
Ethernet4   0       0       0       0       0       0       0       0
Ethernet8   0       0       0       0       0       0       0       0
Ethernet12  0       0       0       0       0       0       0       0
...

```



#### Note

PFC counters can be cleared by the user with the following command.

```
admin@sonic:~$ sonic-clear pfccounters
```

## 1.26 show pfc priority

### Function

Run the **show pfc priority** command to display the lossless priorities for all interfaces or a given interface.

### Syntax

```
show pfc priority [ interface-name ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show pfc priority
```

Interface	Lossless priorities
-----	-----
Ethernet0	3,4
Ethernet2	3,4
Ethernet8	3,4
Ethernet10	3,4
Ethernet16	3,4

```
admin@sonic:~$ show pfc priority Ethernet0
```

Interface	Lossless priorities
-----	-----
Ethernet0	3,4

## 1.27 show priority-group

### Function

Run the **show priority-group** command to display The user watermark or persistent-watermark for the Ingress "headroom" or "shared pool occupancy" per priority-group for all ports. Dropped packets per priority-group for all ports.

### Syntax

**show priority-group { watermark | persistent-watermark } { headroom | shared }**

**show priority-group drop counters**

### Parameter Description

N/A

### Usage Guidelines

In addition to user watermark("show queue|priority-group watermark ..."), a persistent watermark is available.

It hold values independently of user watermark. This way user can use "user watermark" for debugging, clear it, etc, but the "persistent watermark" will not be affected.

### Examples

```
admin@sonic:~$ show priority-group watermark shared
Ingress shared pool occupancy per PG:
  Port   PG0   PG1   PG2   PG3   PG4   PG5   PG6   PG7
-----
Ethernet0  0     0     0     0     0     0     0     0
Ethernet4  0     0     0     0     0     0     0     0
Ethernet8  0     0     0     0     0     0     0     0
Ethernet12 0     0     0     0     0     0     0     0
```

Ingress headroom per PG.

```
admin@sonic:~$ show priority-group watermark headroom
```

Ingress shared pool occupancy per PG.

```
admin@sonic:~$ show priority-group persistent-watermark shared
```

Ingress headroom per PG.

```
admin@sonic:~$ show priority-group persistent-watermark headroom
```

Ingress dropped packets per PG.

```
admin@sonic:~$ show priority-group drop counters
Ingress PG dropped packets:
  Port   PG0   PG1   PG2   PG3   PG4   PG5   PG6   PG7
-----
Ethernet0  0     0     0     0     0     0     0     0
Ethernet4  0     0     0     0     0     0     0     0
Ethernet8  0     0     0     0     0     0     0     0
Ethernet12 0     0     0     0     0     0     0     0
```

## 1.28 show qos map

### Function

Run the **show qos map** command to view the packet priority mapping.

### Syntax

```
show qos map { tc-to-pg | pfc-to-queue | dot1p-to-tc | dscp-to-tc | tc-to-queue | tc-to-dscp | tc-to-dot1p }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show qos map tc-to-pg
TC_TO_PG_MAP: tc-pg
-----
  tc   pg
  ---  ---
  0    1
  1    1
  2    1
  3    1
  4    1
  5    1
  6    1
  7    1

Num of maps: 1

admin@sonic:~$ show qos map pfc-to-queue
PFC_TO_QUEUE_MAP: default
-----
  pfc   queue
  ---   ---
  0     0
  1     1
  2     2
  3     3
  4     4
  5     5
```

```
6      6
7      7
```

Num of maps: 1

```
admin@sonic:~$ show qos map dot1p-to-tc
```

```
DOTIP_TO_TC_MAP: default
```

```
-----
```

dot1p	tc
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Num of maps: 1

```
admin@sonic:~$ show qos map dscp-to-tc
```

```
DSCP_TO_TC_MAP: default
```

```
-----
```

dscp	tc
0	0
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	2

---

17	2
18	2
19	2
20	2
21	2
22	2
23	2
24	3
25	3
26	3
27	3
28	3
29	3
30	3
31	3
32	4
33	4
34	4
35	4
36	4
37	4
38	4
39	4
40	5
41	5
42	5
43	5
44	5
45	5
46	5
47	5
48	6
49	6
50	6
51	6
52	6
53	6
54	6
55	6
56	7
57	7
58	7
59	7

---

```
60    7
61    7
62    7
63    7
```

Num of maps: 1

```
admin@sonic:~$ show qos map tc-to-queue
```

```
TC_TO_QUEUE_MAP: default
```

```
-----
```

tc	queue
----	-----
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Num of maps: 1

```
admin@sonic:~$ show qos map tc-to-dscp
```

```
TC_TO_DSCP_MAP: tc-dscp
```

```
-----
```

tc	dscp
----	-----
0	1
1	1
2	1
3	1
4	1
5	1
6	1
7	1

Num of maps: 1

```
admin@sonic:~$ show qos map tc-to-dot1p
```

```
TC_TO_DOT1P_MAP: tc-dot1p
```

```
-----
```

tc	dot1p
----	-------



```

-----
0      1
1      1
2      1
3      1
4      1
5      1
6      1
7      1

Num of maps: 1

```

## 1.29 show queue counters

### Function

Run the **show queue counters** command to display packet and byte counters for all queues of all ports or one specific-port given as argument.

#### Note

That port specific clear is not supported.

### Syntax

```
show queue counters [ interface_name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show queue counters
```

Port	TxQ	Counter/pkts	Counter/bytes	Drop/pkts	Drop/bytes
Ethernet1	UC0	0	0	0	0
Ethernet1	UC1	0	0	0	0
Ethernet1	UC2	0	0	0	0
Ethernet1	UC3	0	0	0	0
Ethernet1	UC4	0	0	0	0
Ethernet1	UC5	0	0	0	0
Ethernet1	UC6	0	0	0	0
Ethernet1	UC7	0	0	0	0

Ethernet1	UC8	0	0	0	0
Ethernet1	UC9	0	0	0	0
Ethernet1	MC10	0	0	0	0
Ethernet1	MC11	0	0	0	0
Ethernet1	MC12	0	0	0	0
Ethernet1	MC13	0	0	0	0
Ethernet1	MC14	0	0	0	0
Ethernet1	MC15	0	0	0	0
Ethernet1	MC16	0	0	0	0
Ethernet1	MC17	0	0	0	0
Ethernet1	MC18	0	0	0	0
Ethernet1	MC19	0	0	0	0
...					
Port	TxQ	Counter/pkts	Counter/bytes	Drop/pkts	Drop/bytes
Ethernet55	UC0	0	0	0	0
Ethernet55	UC1	0	0	0	0
Ethernet55	UC2	0	0	0	0
Ethernet55	UC3	0	0	0	0
Ethernet55	UC4	0	0	0	0
Ethernet55	UC5	0	0	0	0
Ethernet55	UC6	0	0	0	0
Ethernet55	UC7	0	0	0	0
Ethernet55	UC8	0	0	0	0
Ethernet55	UC9	0	0	0	0
Ethernet55	MC10	0	0	0	0
Ethernet55	MC11	0	0	0	0
Ethernet55	MC12	0	0	0	0
Ethernet55	MC13	0	0	0	0
Ethernet55	MC14	0	0	0	0
Ethernet55	MC15	0	0	0	0
Ethernet55	MC16	0	0	0	0
Ethernet55	MC17	0	0	0	0
Ethernet55	MC18	0	0	0	0
Ethernet55	MC19	0	0	0	0
...					

Optionally, you can specify an interface name in order to display only that particular interface.

```
admin@sonic:~$ show queue counters Ethernet2
```

Port	TxQ	Counter/pkts	Counter/bytes	Drop/pkts	Drop/bytes
Ethernet2	UC0	0	0	0	0

Ethernet2	UC1	0	0	0	0
Ethernet2	UC2	0	0	0	0
Ethernet2	UC3	0	0	0	0
Ethernet2	UC4	0	0	0	0
Ethernet2	UC5	0	0	0	0
Ethernet2	UC6	0	0	0	0
Ethernet2	UC7	0	0	0	0
Ethernet2	UC8	0	0	0	0
Ethernet2	UC9	0	0	0	0
Ethernet2	MC10	0	0	0	0
Ethernet2	MC11	0	0	0	0
Ethernet2	MC12	0	0	0	0
Ethernet2	MC13	0	0	0	0
Ethernet2	MC14	0	0	0	0
Ethernet2	MC15	0	0	0	0
Ethernet2	MC16	0	0	0	0
Ethernet2	MC17	0	0	0	0
Ethernet2	MC18	0	0	0	0
Ethernet2	MC19	0	0	0	0

**Note**

Queue counters can be cleared by the user with the following command.

```
admin@sonic:~$ sonic-clear queuecounters
```

## 1.30 show queue persistent-watermark

### Function

Run the **show queue persistent-watermark** command to display the user persistent-watermark for the queues (Egress shared pool occupancy per queue) for either the unicast queues or multicast queues for all ports.

### Syntax

```
show queue persistent-watermark { unicast | multicast }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show queue persistent-watermark unicast
```

Egress shared pool occupancy per unicast queue:

Port	UC0	UC1	UC2	UC3	UC4	UC5	UC6	UC7
Ethernet0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethernet4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethernet8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethernet12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Egress shared pool occupancy per multicast queue.

```
admin@sonic:~$ show queue persistent-watermark multicast
```

### Note

"user watermark", "persistent watermark" and "ingress dropped packets" can be cleared by user.

```
admin@sonic:~$ sonic-clear queue persistent-watermark unicast
```

```
admin@sonic:~$ sonic-clear queue persistent-watermark multicast
```

```
admin@sonic:~$ sonic-clear priority-group persistent-watermark shared
```

```
admin@sonic:~$ sonic-clear priority-group persistent-watermark headroom
```

```
admin@sonic:~$ sonic-clear priority-group drop counters
```

## 1.31 show queue schedule

### Function

Run the **show queue schedule** command to view the scheduling policy of the output queue of ports.

### Syntax

```
show queue schedule [ interface-name ]
```

### Parameter Description

*Interface-name*: Interface name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show queue schedule
```

Port	TxQ	Mode	Weight
-----	-----	-----	-----

```

Ethernet1 UC0 WRR 1
Ethernet1 UC1 WRR 1
Ethernet1 UC2 WRR 1
Ethernet1 UC3 WRR 1
Ethernet1 UC4 WRR 1
Ethernet1 UC5 WRR 1
Ethernet1 UC6 WRR 1
Ethernet1 UC7 WRR 1
...
Port TxQ Mode Weight
-----
Ethernet48 UC0 WRR 1
Ethernet48 UC1 WRR 1
Ethernet48 UC2 WRR 1
Ethernet48 UC3 WRR 1
Ethernet48 UC4 WRR 1
Ethernet48 UC5 WRR 1
Ethernet48 UC6 WRR 1
Ethernet48 UC7 WRR 1
...

admin@sonic:~$ show queue schedule Ethernet1
Port TxQ Mode Weight
-----
Ethernet1 UC0 WRR 1
Ethernet1 UC1 WRR 1
Ethernet1 UC2 WRR 1
Ethernet1 UC3 WRR 1
Ethernet1 UC4 WRR 1
Ethernet1 UC5 WRR 1
Ethernet1 UC6 WRR 1
Ethernet1 UC7 WRR 1

```

## 1.32 show queue watermark

### Function

Run the **show queue watermark** command to display the user watermark for the queues (Egress shared pool occupancy per queue) for either the unicast queues or multicast queues for all ports.

### Syntax

```
show queue watermark { multicast | unicast }
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show queue watermark unicast
Egress shared pool occupancy per unicast queue:
      Port   UC0   UC1   UC2   UC3   UC4   UC5   UC6   UC7
-----
Ethernet0    0     0     0     0     0     0     0     0
Ethernet4    0     0     0     0     0     0     0     0
Ethernet8    0     0     0     0     0     0     0     0
Ethernet12   0     0     0     0     0     0     0     0
```

Egress shared pool occupancy per multicast queue.

```
admin@sonic:~$ show queue watermark multicast
```

### 1.33 sonic-clear queue counters

**Function**

Run the **sonic-clear queue counters** command to clear the statistics of packets in the queue.

**Syntax**

**sudo sonic-clear queue counters**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show queue counters Ethernet50
      Port   TxQ   Counter/pkts   Counter/bytes   Drop/pkts   Drop/bytes
-----
Ethernet50  UC0           219           25035            0            0
Ethernet50  UC1            0              0              0            0
Ethernet50  UC2            0              0              0            0
Ethernet50  UC3            0              0              0            0
```

Ethernet50	UC4	0	0	0	0
Ethernet50	UC5	0	0	0	0
Ethernet50	UC6	0	0	0	0
Ethernet50	UC7	0	0	0	0
Ethernet50	UC8	0	0	0	0
Ethernet50	UC9	0	0	0	0
Ethernet50	MC10	0	0	0	0
Ethernet50	MC11	0	0	0	0
Ethernet50	MC12	0	0	0	0
Ethernet50	MC13	0	0	0	0
Ethernet50	MC14	0	0	0	0
Ethernet50	MC15	0	0	0	0
Ethernet50	MC16	0	0	0	0
Ethernet50	MC17	0	0	0	0
Ethernet50	MC18	0	0	0	0
Ethernet50	MC19	0	0	0	0

```
admin@sonic:~$ sudo sonic-clear queue counters
```

```
admin@sonic:~$ show queue counters Ethernet50
```

Port	TxQ	Counter/pkts	Counter/bytes	Drop/pkts	Drop/bytes
Ethernet50	UC0	0	0	0	0
Ethernet50	UC1	0	0	0	0
Ethernet50	UC2	0	0	0	0
Ethernet50	UC3	0	0	0	0
Ethernet50	UC4	0	0	0	0
Ethernet50	UC5	0	0	0	0
Ethernet50	UC6	0	0	0	0
Ethernet50	UC7	0	0	0	0
Ethernet50	UC8	0	0	0	0
Ethernet50	UC9	0	0	0	0
Ethernet50	MC10	0	0	0	0
Ethernet50	MC11	0	0	0	0
Ethernet50	MC12	0	0	0	0
Ethernet50	MC13	0	0	0	0
Ethernet50	MC14	0	0	0	0
Ethernet50	MC15	0	0	0	0
Ethernet50	MC16	0	0	0	0
Ethernet50	MC17	0	0	0	0
Ethernet50	MC18	0	0	0	0
Ethernet50	MC19	0	0	0	0

# 1 IGMP Snooping Commands

Command	Function
<a href="#"><u>config igmp-snooping</u></a>	Configure IGMP Snooping VLAN.
<a href="#"><u>config igmp-snooping fast-leave</u></a>	Configure VLAN-based IGMP Snooping fast leave.
<a href="#"><u>config igmp-snooping last-member-query-interval</u></a>	Configure a VLAN-based IGMP Snooping last member query interval in milliseconds.
<a href="#"><u>config igmp-snooping mrouter</u></a>	Configure VLAN-based mrouter interface.
<a href="#"><u>config igmp-snooping querier</u></a>	Configure VLAN-based IGMP Snooping querier.
<a href="#"><u>config igmp-snooping query-interval</u></a>	Configure a VLAN-based IGMP Snooping query interval in seconds.
<a href="#"><u>config igmp-snooping query-max-response-time</u></a>	Configure the maximum response time of VLAN-based IGMP Snooping query in seconds.
<a href="#"><u>config igmp-snooping static-group</u></a>	Configure VLAN-based static member interfaces.
<a href="#"><u>config igmp-snooping version</u></a>	Configure a VLAN-based IGMP Snooping version.
<a href="#"><u>show igmp-snooping all</u></a>	Display IGMP Snooping configuration on all VLANs.
<a href="#"><u>show igmp-snooping groups all</u></a>	Display L2MC entries on all VLANs.
<a href="#"><u>show igmp-snooping groups vlan</u></a>	Display L2MC entries specific to a VLAN.
<a href="#"><u>show igmp-snooping vlan</u></a>	Display IGMP Snooping configuration specific to a VLAN.



## 1.1 config igmp-snooping

### Function

Run the **config igmp-snooping** command to configure IGMP Snooping VLAN.

Devices running IGMP Snooping provide multicast services based on VLANs. Multicast streams can only be forwarded within the VLAN to which they belong, and user hosts can only apply for multicast streams within the VLAN to which they belong.

### Syntax

```
config igmp-snooping [ OPTIONS ] { enable | disable } vlan-id
```

### Parameter Description

*OPTIONS*:

- o `-s, --redis-unix-socket-path TEXT`:  
unix socket path for redis connection
- o `-h, -?, --help`:  
Show this message and exit.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config igmp-snooping enable 10
admin@sonic:~$ sudo config igmp-snooping disable 10
```

## 1.2 config igmp-snooping fast-leave

### Function

Run the **config igmp-snooping fast-leave** command to configure VLAN-based IGMP Snooping fast leave.

After the port fast leave function is enabled, when a port of the device receives a Leave message (including IGMPv2 Leave message and IGMPv3 INCLUDE type Report message without any source address), it is immediately removed from the corresponding forwarding entry for a multicast group. After that, when the device receives the corresponding specific group query packets and multicast data packets, the device will no longer forward them to the port.

### Syntax

```
config igmp-snooping fast-leave { enable | disable } vlan-id
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config igmp-snooping fast-leave enable 10
admin@sonic:~$ sudo config igmp-snooping fast-leave disable 10
```

## 1.3 config igmp-snooping last-member-query-interval

### Function

Run the **config igmp-snooping last-member-query-interval** command to configure a VLAN-based IGMP Snooping last member query interval in milliseconds.

When the querier receives an IGMP leave message, it verifies that the multicast group has no remaining listeners by sending a set of group-specific queries at a configured interval. If the querier does not receive a response to the query, it deletes the multicast and stops forwarding multicast traffic. This command configures the interval for sending specific multicast or specific group source query messages to the interface.

### Syntax

```
config igmp-snooping last-member-query-interval vlan-id time
```

### Parameter Description

*time*: The value ranges from 100 to 25500.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config igmp-snooping last-member-query-interval 10 1000
```

## 1.4 config igmp-snooping mrouter

### Function

Run the **config igmp-snooping mrouter** command to configure VLAN-based mrouter interface.

The role of the routing connection port is to receive upstream multicast data and guide the forwarding of IGMP Report/Leave messages. When an interface is configured as a static routing interface, the interface will never age out and can forward IGMP Report/Leave messages to the upstream IGMP querier stably for a long time.

### Syntax

```
config igmp-snooping mrouter { add | del } vlan-id interface-name
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ config igmp-snooping mrouter add 10 Ethernet1
admin@sonic:~$ config igmp-snooping mrouter del 10 Ethernet1
```

## 1.5 config igmp-snooping querier

### Function

Run the **config igmp-snooping querier** command to configure VLAN-based IGMP Snooping querier.

On a Layer 3 multicast network, the Layer 3 multicast device acts as a querier and runs the IGMP protocol to maintain group membership. Layer 2 multicast devices only need to listen to IGMP messages to establish and maintain forwarding entries to implement Layer 2 multicast. However, in a scenario where the multicast source and the user host are on the same Layer 2 network, the query item function cannot be implemented because the Layer 2 device does not support IGMP. To solve this problem, enable the IGMP Snooping querier on the Layer 2 device, send IGMP Query messages to the user host instead of the Layer 3 multicast device, and monitor and maintain the IGMP Report messages answered by the user to establish Layer 2 multicast forwarding entry.

### Syntax

```
config igmp-snooping querier { enable | disable } vlan-id
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config igmp-snooping querier enable 10
admin@sonic:~$ sudo config igmp-snooping querier disable 10
```

## 1.6 config igmp-snooping query-interval

### Function

Run the **config igmp-snooping query-interval** command to configure a VLAN-based IGMP Snooping query interval in seconds.

The IGMP Snooping querier sends query messages periodically.

## Syntax

**config igmp-snooping query-interval** *vlan-id time*

## Parameter Description

*time*: This parameter defines the sending interval of the query messages. The value ranges from 1 to 18000.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config igmp-snooping query-interval 10 125
```

## 1.7 config igmp-snooping query-max-response-time

### Function

Run the **config igmp-snooping query-max-response-time** command to configure the maximum response time of VLAN-based IGMP Snooping query in seconds.

After receiving the query message from the device, the host directly connected to the device needs to respond to the Report message within the maximum response time. This function allows you to configure the maximum response time on the device, requiring the host to respond to the Report message after receiving the query message sent by the device. If the host does not respond to the Report message within the maximum response time, the device will consider that there are no group members in the directly connected network segment and delete the group information.

### Syntax

**config igmp-snooping query-max-response-time** *vlan-id time*

### Parameter Description

*time*: The value ranges from 1 to 25.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config igmp-snooping query-max-response-time 10 10
```

## 1.8 config igmp-snooping static-group

### Function

Run the **config igmp-snooping static-group** command to configure VLAN-based static member interfaces.

Configure the interface connected with the member host as a static member port. Then the member host can receive the multicast stream of the specified multicast group regardless of whether it joins the multicast group, and the static member port will never age out.

### Syntax

```
config igmp-snooping static-group { add | del } vlan-id interface-name ip-addr
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ config igmp-snooping static-group add 10 Ethernet2 224.1.1.1  
admin@sonic:~$ config igmp-snooping static-group del 10 Ethernet2 224.1.1.1
```

## 1.9 config igmp-snooping version

### Function

Run the **config igmp-snooping version** command to configure a VLAN-based IGMP Snooping version.

Configuring the IGMP Snooping version can specify the version of IGMP messages that IGMP Snooping can process. IGMP Snooping v3 can process all information of IGMPv1, IGMPv2 and IGMPv3 messages. IGMP Snooping v2 only performs simple processing on IGMPv3 and does not process the source information carried in the packets.

### Syntax

```
config igmp-snooping version vlan-id version
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config igmp-snooping version 10 2
```

## 1.10 show igmp-snooping all

### Function

Run the **show igmp-snooping all** command to display IGMP Snooping configuration on all VLANs.

### Syntax

```
show igmp-snooping all
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
root@sonic:/home/admin/ll# show igmp-snooping all
```

```
Vlan ID: 1
Multicast Router ports:
Querier - false
IGMP Operation mode: IGMPv2
Is Fast-Leave Enabled: Disabled
Max Response time = 10
Query Interval = 125
Last Member Query Interval = 1000
```

```
Vlan ID: 10
Multicast Router ports: Ethernet1
Querier - false
IGMP Operation mode: IGMPv2
Is Fast-Leave Enabled: Disabled
Max Response time = 10
Query Interval = 125
Last Member Query Interval = 1000
```

```
Total number of entries: 2
```

## 1.11 show igmp-snooping groups all

### Function

Run the **show igmp-snooping groups all** command to display L2MC entries on all VLANs.

### Syntax

```
show igmp-snooping groups all
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show igmp-snooping groups all

Vlan ID : 1
-----
Total number of entries: 0

Vlan ID : 10
-----
Mrouters Ports:
  Ethernet1(static)
1 (*, 224.1.1.1)
Members Ports:
  Ethernet2(static)
Total number of entries: 1
```

## 1.12 show igmp-snooping groups vlan

### Function

Run the **show igmp-snooping groups vlan** command to display L2MC entries specific to a VLAN.

### Syntax

```
show igmp-snooping groups vlan vlan-id
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show igmp-snooping groups vlan 10

Vlan ID : 10
-----
Mrouters Ports:
  Ethernet1(static)
1 (*, 224.1.1.1)
Members Ports:
  Ethernet2(static)
Total number of entries: 1
```

## 1.13 show igmp-snooping vlan

### Function

Run the **show igmp-snooping vlan** command to display IGMP Snooping configuration specific to a VLAN.

### Syntax

```
show igmp-snooping vlan vlan-id
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show igmp-snooping vlan 10
Vlan ID: 10
Multicast Router ports: Ethernet1
Querier - false
IGMP Operation mode: IGMPv2
Is Fast-Leave Enabled: Disabled
Max Response time = 10
Query Interval = 125
Last Member Query Interval = 1000
```



# 1 AAA Commands

Command	Function
<a href="#"><u>aaa authentication failthrough</u></a>	Either enable or disable the failthrough option.
<a href="#"><u>aaa authentication login</u></a>	Either configure whether AAA should use local database or remote tacacs+ database for user authentication.
<a href="#"><u>config username</u></a>	Configure a local user. It is an interactive command. An interactive page will be displayed asking you to enter the password.
<a href="#"><u>remove username</u></a>	Delete a local user.
<a href="#"><u>show aaa</u></a>	Display the AAA settings currently present in the network node.
<a href="#"><u>show username</u></a>	Shows the configured users, including local users, tacacs users and radius users, and so on.

## 1.1 aaa authentication failthrough

### Function

Run the **aaa authentication failthrough** command to either enable or disable the failthrough option.

This command is useful when user has configured more than one tacacs+ server and when user has enabled tacacs+ authentication.

When authentication request to the first server fails, this configuration allows to continue the request to the next server.

When this configuration is enabled, authentication process continues through all servers configured.

When this is disabled and if the authentication request fails on first server, authentication process will stop and the login will be disallowed.

### Syntax

```
sudo config aaa authentication failthrough { enable | disable | default }
```

### Parameter Description

**enable:** This allows the AAA module to process with local authentication if remote authentication fails.

**disable:** This disallows the AAA module to proceed further if remote authentication fails.

**default:** This re-configures the default value, which is "enable".

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config aaa authentication failthrough enable
```

## 1.2 aaa authentication login

### Function

Run the **aaa authentication login** command to either configure whether AAA should use local database or remote tacacs+ database for user authentication.

By default, AAA uses local database for authentication. New users can be added/deleted using the linux commands (Note that the configuration done using linux commands are not preserved during reboot).

Admin can enable remote tacacs+ server based authentication by selecting the AUTH\_PROTOCOL as tacacs+ in this command.

Admins need to configure the tacacs+ server accordingly and ensure that the connectivity to tacacs+ server is available via the management interface.

Once if the admins choose the remote authentication based on tacacs+ server, all user logins will be authenticated by the tacacs+ server.

If the authentication fails, AAA will check the "failthrough" configuration and authenticates the user based on local database if failthrough is enabled.

## Syntax

```
sudo config aaa authentication login { tacacs+ | local | default }
```

## Parameter Description

**tacacs+**: Enables remote authentication based on tacacs+.

**local**: Disables remote authentication and uses local authentication.

**default**: Reset back to default value, which is only "local" authentication.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config aaa authentication login tacacs+
```

## 1.3 config username

### Function

Run the **config username** command to configure a local user. It is an interactive command. An interactive page will be displayed asking you to enter the password.

The root account cannot be configured with a password.

The default admin and root accounts cannot be deleted.

### Syntax

```
sudo config username add name -ek
```

### Parameter Description

*name*: The name of the username to create.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config username add test001 -ek
Please input your password:
Please confirm your password:
admin@sonic:~$
admin@sonic:~$ show username
```

Index	Username	Type
1	test001	cli-user
2	admin	default-user
3	tacacsuser	remote-user

## 1.4 remove username

### Function

Run the **remove username** command to delete a local user.

### Syntax

```
sudo config username delete name
```

### Parameter Description

*name*: The name of the username to create.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show username
Index  Username  Type
-----  -
1      test001   cli-user
2      admin     default-user
admin@sonic:~$ sudo config username delete test001
admin@sonic:~$ show username
Index  Username  Type
-----  -
1      admin     default-user
```

## 1.5 show aaa

### Function

Run the **show aaa** command to display the AAA settings currently present in the network node.

### Syntax

```
show aaa
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show aaa
AAA authentication login local (default)
AAA authentication failthrough True (default)
AAA authentication fallback True (default)
```

## 1.6 show username

### Function

Run the **show username** command to shows the configured users, including local users, tacacs users and radius users, and so on.

### Syntax

```
show username
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show username
Index  Username  Type
-----  -
1      test001   cli-user
2      admin     default-user
3      tacacsuser remote-user
```

# 1 RADIUS Commands

Command	Function
<a href="#"><u>config radius add</u></a>	Add a RADIUS server to the radius server list.
<a href="#"><u>config radius authtype</u></a>	Modify the global value for the RADIUS authtype.
<a href="#"><u>config radius default</u></a>	Reset the global value for authtype, passkey, timeout, nasip, sourceip, or retransmit to default value.
<a href="#"><u>config radius delete</u></a>	Delete the configured radius server.
<a href="#"><u>config radius nasip</u></a>	Set the NAS-ip-address attribute used by the NAS to send RADIUS packets.
<a href="#"><u>config radius passkey</u></a>	Modify the global value for the RADIUS passkey.
<a href="#"><u>config radius retransmit</u></a>	Set the number of retransmission times for RADIUS authentication request packets.
<a href="#"><u>config radius sourceip</u></a>	Set the source IP address for the device to communicate with the RADIUS server.
<a href="#"><u>config radius statistics</u></a>	Enable or disable RADIUS statistics.
<a href="#"><u>config radius timeout</u></a>	Modify the global value for the RADIUS timeout.
<a href="#"><u>show radius</u></a>	Display the global configuration fields and the list of all radius servers and their corresponding configurations.

## 1.1 config radius add

### Function

Run the **config radius add** command to add a RADIUS server to the radius server list.

Note that more than one radius (maximum of seven) can be added in the device.

When user tries to login, tacacs client shall contact the servers one by one.

When any server times out, device will try the next server one by one based on the priority value configured for that server.

When this command is executed, the configured radius server addresses are updated in `/etc/pam.d/common-auth-sonic` configuration file which is being used by radius service.

### Syntax

```
sudo config radius add { ipv4-address | ipv6-address } [ -r retransmit ] [ -p priority-integer ] [ -t timeout-integer ] [ -k shared-secret ] [ -a auth-type { chap | pap | mschapv2 } ] [ -o auth-port ] [ -s source-interface ] [ -m | --use-mgmt-vrf ]
```

### Parameter Description

*ipv4\_address*: RADIUS server IP address.

*ipv6\_address*: RADIUS server IP address.

*retransmit*: Number of retransmission times for communicating with the RADIUS server, default 3.

*priority-integer*: Priority, priority range 1 to 64, default 1.

*timeout-integer*: Transmission timeout interval in seconds, range 1 to 60, default 5.

*shared-secret*: Shared key for the server. If no shared key is configured, use global configuration. When this option is specified, the key is entered interactively.

*auth-type*: Authentication type, "chap" or "pap" or "mschapv2", default is "pap".

*auth-port*: UDP port range is 1 to 65535, default 1812.

*source-interface*: Source interface that communicates with the radius server.

**use-mgmt-vrf**: This means that the server is part of Management vrf, default is "no vrf".

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config radius add 172.31.240.109 -t 10 -k -a chap -p 2
Please input your password:
Please confirm your password:
```

Example Server Configuration in `/etc/pam.d/common-auth-sonic` configuration file:

```
# root user can only be authenticated locally. Jump to local.
auth [success=1 default=ignore] pam_succeed_if.so user = root
# For the RADIUS servers, on success jump to the cache the MPL(Privilege)
auth [success=2 new_authtok_reqd=done default=ignore]
pam_radius_auth.so conf=/etc/pam_radius_auth.d/172.31.240.109_1812.conf
privilege_level protocol=chap retry=3 client_id=sonic statistics=172.31.240.109
try_first_pass
# Local
auth [success=done new_authtok_reqd=done default=ignore] pam_unix.so
nullok try_first_pass
auth requisite pam_deny.so
# Cache MPL(Privilege)
auth [success=1 default=ignore] pam_exec.so /usr/sbin/cache_radius
```

## 1.2 config radius authtype

### Function

Run the **config radius authtype** command to modify the global value for the RADIUS authtype.

When user has not configured server specific authtype, this global value shall be used for that server.

### Syntax

```
sudo config radius authtype { chap | pap | mschapv2 }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config radius authtype chap
```

## 1.3 config radius default

### Function

Run the **config radius default** command to reset the global value for authtype, passkey, timeout, nasip, sourceip, or retransmit to default value.

Default for authtype is "pap", default for passkey is EMPTY\_STRING and default for timeout is 5 seconds.



## Syntax

```
sudo config radius default { authtype | passkey | timeout | nasip | sourceip | retransmit }
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

This will reset the global authtype back to the default value "pap".

```
admin@sonic:~$ sudo config radius default authtype
```

## 1.4 config radius delete

### Function

Run the **config radius delete** command to delete the configured radius server.

### Syntax

```
sudo config radius delete { ipv4-address | ipv6-address }
```

### Parameter Description

*ip\_address*: RADIUS server IP address.

*ipv6\_address*: RADIUS server IP address.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config radius delete 172.31.240.109
```

## 1.5 config radius nasip

### Function

Run the **config radius nasip** command to set the NAS-ip-address attribute used by the NAS to send RADIUS packets.

### Syntax

```
sudo config radius nasip { nas-ip | IPv6-address }
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config radius nasip 172.31.32.50
```

## 1.6 config radius passkey

### Function

Run the **config radius passkey** command to modify the global value for the RADIUS passkey.

When user has not configured server specific passkey, this global value shall be used for that server.

### Syntax

```
sudo config radius passkey -k
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config radius passkey -k
Please input your password:
Please confirm your password:
```

## 1.7 config radius retransmit

### Function

Run the **config radius retransmit** command to set the number of retransmission times for RADIUS authentication request packets.

### Syntax

```
sudo config radius retransmit retry_attempts
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config radius retransmit 5
```

## 1.8 config radius sourceip

### Function

Run the **config radius sourceip** command to set the source IP address for the device to communicate with the RADIUS server.

### Syntax

```
sudo config radius radius sourceip { ipv4-address | ipv6-address }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config radius sourceip 172.31.32.50
```

## 1.9 config radius statistics

### Function

Run the **config radius statistics** command to enable or disable RADIUS statistics.

### Syntax

```
sudo config radius statistics { enable | disable | default }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config radius statistics enable
```

## 1.10 config radius timeout

### Function

Run the **config radius timeout** command to modify the global value for the RADIUS timeout.

When user has not configured server specific timeout, this global value shall be used for that server.

### Syntax

```
sudo config radius [ default ] timeout [ timeout_value_in_seconds ]
```

### Parameter Description

**default:** When the optional keyword "default" is specified, `timeout_value_in_seconds` parameter wont be used; default value of 5 is used.

`timeout_value_in_seconds:` Valid values for timeout is 1 to 60 seconds.

### Usage Guidelines

N/A

### Examples

To configure non-default timeout value.

```
admin@sonic:~$ admin@sonic:~$ sudo config radius timeout 60
```

## 1.11 show radius

### Function

Run the **show radius** command to display the global configuration fields and the list of all radius servers and their corresponding configurations.

### Syntax

```
show radius
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show radius
RADIUS global auth_type pap (default)
RADIUS global retransmit 3 (default)
RADIUS global timeout 5 (default)
```

```
RADIUS global passkey *****  
RADIUS global statistics True  
  
RADIUS_SERVER address 172.31.240.109  
                  auth_port 1812  
                  priority 1
```

# 1 TACACS Commands

Command	Function
<a href="#"><u>config tacacs add</u></a>	Add a TACACS+ server to the tacacs server list.
<a href="#"><u>config tacacs authtype</u></a>	Modify the global value for the TACACS+ authtype.
<a href="#"><u>config tacacs default</u></a>	Reset the global value for authtype or paskey or timeout to default value.
<a href="#"><u>config tacacs delete</u></a>	Delete the tacacs+ servers configured.
<a href="#"><u>config tacacs paskey</u></a>	Modify the global value for the TACACS+ paskey.
<a href="#"><u>config tacacs timeout</u></a>	Modify the global value for the TACACS+ timeout.
<a href="#"><u>show tacacs</u></a>	Display the global configuration fields and the list of all tacacs servers and their corresponding configurations.

## 1.1 config tacacs add

### Function

Run the **config tacacs add** command to add a TACACS+ server to the tacacs server list.

Note that more than one tacacs+ (maximum of seven) can be added in the device.

When user tries to login, tacacs client shall contact the servers one by one.

When any server times out, device will try the next server one by one based on the priority value configured for that server.

When this command is executed, the configured tacacs+ server addresses are updated in `/etc/pam.d/common-auth-sonic` configuration file which is being used by tacacs service.

### Syntax

```
sudo config tacacs add ip-address [ -t | --timeout seconds ] [ -ek | --encrypted-key secret ] [ -a | --type type ] [ -o | --port port ] [ -p | --pri priority ] [ -m | --use-mgmt-vrf ]
```

### Parameter Description

*ip-address*: TACACS+ server IP address.

*seconds*: Transmission timeout interval in seconds, range 1 to 60, default 5.

*secret*: Shared key for the server. If no shared key is configured, use global configuration. When this option is specified, the key is entered interactively.

*type*: Authentication type, "chap" or "pap" or "mschap" or "login", default is "pap".

*port*: TCP port range is 1 to 65535, default 49.

*priority*: priority range 1 to 64, default 1.

**use-mgmt-vrf**: This means that the server is part of Management vrf, default is "no vrf".

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config tacacs add 172.31.240.110 -t 10 -ek -a chap -o 50 -p 9
Please input your password:
Please confirm your password:
admin@sonic:~$
```

Example Server Configuration in `/etc/pam.d/common-auth-sonic` configuration file:

```
auth [success=done new_authtok_reqd=done default=ignore] pam_tacplus.so
server=10.11.12.14:50 secret=testing789 login=mschap timeout=10 try_first_pass
auth [success=done new_authtok_reqd=done default=ignore] pam_tacplus.so
server=10.11.12.24:50 secret=testing789 login=mschap timeout=987654321098765433211
0987 try_first_pass
```

```

auth [success=done new_authtok_reqd=done default=ignore] pam_tacplus.so
server=10.0.0.9:49 secret= login=mschap timeout=5 try_first_pass
auth [success=done new_authtok_reqd=done default=ignore] pam_tacplus.so
server=10.0.0.8:49 secret= login=mschap timeout=5 try_first_pass
auth [success=done new_authtok_reqd=done default=ignore] pam_tacplus.so
server=10.11.12.13:50 secret=testing789 login=mschap timeout=10 try_first_pass
auth [success=done new_authtok_reqd=done default=ignore auth_err=die]
pam_tacplus.so server=172.31.240.109:49
secret=U2FsdGVkX1+cytzC2jID2K8v0ljpZjnrWsA/hbb/PBE= login=pap timeout=5
try_first_pass
auth [success=1 default=ignore] pam_unix.so nullok try_first_pass

```

### Note

In the above example, the servers are stored (sorted) based on the priority value configured for the server.

## 1.2 config tacacs authtype

### Function

Run the **config tacacs authtype** command to modify the global value for the TACACS+ authtype.

When user has not configured server specific authtype, this global value shall be used for that server.

### Syntax

```
sudo config tacacs authtype { chap | pap | login }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config tacacs authtype chap
```

## 1.3 config tacacs default

### Function

Run the **config tacacs default** command to reset the global value for authtype or passkey or timeout to default value.



Default for `authtype` is "pap", default for `passkey` is `EMPTY_STRING` and default for `timeout` is 5 seconds.

### Syntax

```
sudo config tacacs default { authtype | passkey | timeout }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

This will reset the global `authtype` back to the default value "pap".

```
admin@sonic:~$ sudo config tacacs default authtype
```

## 1.4 config tacacs delete

### Function

Run the **config tacacs delete** command to delete the tacacs+ servers configured.

### Syntax

```
sudo config tacacs delete ip_address
```

### Parameter Description

*ip-address*: TACACS+ server IP address.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config tacacs delete 10.11.12.13
```

## 1.5 config tacacs passkey

### Function

Run the **config tacacs passkey** command to modify the global value for the TACACS+ passkey.

When user has not configured server specific passkey, this global value shall be used for that server.

## Syntax

```
sudo config tacacs encrypted-passkey -ek
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config tacacs encrypted-passkey -ek
Please input your password:
Please confirm your password:
```

## 1.6 config tacacs timeout

### Function

Run the **config tacacs timeout** command to modify the global value for the TACACS+ timeout.

When user has not configured server specific timeout, this global value shall be used for that server.

### Syntax

```
sudo config tacacs [ default ] timeout [ timeout_value_in_seconds ]
```

### Parameter Description

**default:** When the optional keyword "default" is specified, `timeout_value_in_seconds` parameter wont be used; default value of 5 is used.

`timeout_value_in_seconds:` Valid values for timeout is 1 to 60 seconds.

### Usage Guidelines

N/A

### Examples

To configure non-default timeout value.

```
admin@sonic:~$ sudo config tacacs timeout 60
```

## 1.7 show tacacs

### Function

Run the **show tacacs** command to display the global configuration fields and the list of all tacacs servers and their corresponding configurations.

**Syntax**

**show tacacs**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show tacacs
TACPLUS global auth_type pap (default)
TACPLUS global timeout 5 (default)
TACPLUS global passkey *****

TACPLUS_SERVER address 172.31.240.109
                  priority 1
                  tcp_port 49
```

# 1 RSTP Commands

Command	Function
<a href="#"><u>config spanning-tree forward-delay</u></a>	Configure STP bridge forward delay, and forward-delay-value must be $2 * (\text{forward-delay-value-1}) \geq \text{max-age-value} \geq 2 * (\text{hello-time-value} + 1)$ .
<a href="#"><u>config spanning-tree hello</u></a>	Configure STP bridge hello time, and hello-value must be $2 * (\text{forward-delay-value-1}) \geq \text{max-age-value} \geq 2 * (\text{hello-time-value} + 1)$ .
<a href="#"><u>config spanning-tree interface autoedge</u></a>	Configure STP port autoedge.
<a href="#"><u>config spanning-tree interface bpdudfilter</u></a>	Configure STP port bpdudfilter.
<a href="#"><u>config spanning-tree interface bpduguard</u></a>	Configure STP port bpdudfilter.
<a href="#"><u>config spanning-tree interface cost</u></a>	Configure STP port path_cost.
<a href="#"><u>config spanning-tree interface priority</u></a>	Configure STP port priority, and port priority_value must be multiple of 16.
<a href="#"><u>config spanning-tree max-age</u></a>	Configure STP bridge max-age, and max-age-value must be $2 * (\text{forward-delay-value-1}) \geq \text{max-age-value} \geq 2 * (\text{hello-time-value} + 1)$ .
<a href="#"><u>config spanning-tree priority</u></a>	Configure STP bridge priority, and priority_value must be multiple of 4096.
<a href="#"><u>config spanning-tree version</u></a>	Configure the STP mode.
<a href="#"><u>debug spanning-tree loglevel</u></a>	Display the STP log level.
<a href="#"><u>show runningconfiguration spanning-tree</u></a>	Display the STP view configuration.
<a href="#"><u>show spanning-tree</u></a>	Display brief STP information. It displays the Common and Internal Spanning Tree (CIST) information.
<a href="#"><u>show spanning-tree interface</u></a>	Display brief STP information. It displays the CIST interface information.
<a href="#"><u>sonic-clear spanning-tree statistics</u></a>	Clear the statistics for the Spanning Tree Protocol.

**[sonic-clear spanning-tree statistics interface](#)**

Clear the statistics for the STP port. For a single interface, provide the interface name with the sub-command.

## 1.1 config spanning-tree forward-delay

### Function

Run the **config spanning-tree forward-delay** command to configure STP bridge forward delay, and forward-delay-value must be  $2 * (\text{forward-delay-value} - 1) \geq \text{max-age-value} \geq 2 * (\text{hello-time-value} + 1)$ .

In STP, forward delay is a parameter that determines the time a switch spends in the listening and learning states before forwarding packets. When a switch receives a Bridge Protocol Data Unit (BPDU) and determines that it is not the root bridge, it moves into the listening state, during which it listens for BPDU messages from other switches. After a period of time, the switch moves into the learning state, during which it learns the MAC addresses of devices connected to its ports. Finally, the switch moves into the forwarding state, during which it forwards packets. The forward delay parameter is used to ensure that the network topology is stable before forwarding packets, and the default value is 15 seconds.

### Syntax

**config spanning-tree forward-delay** *forward-delay-value*

### Parameter Description

*forward-delay-value*: The range is from 4 to 30.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config spanning-tree forward-delay 15
```

## 1.2 config spanning-tree hello

### Function

Run the **config spanning-tree hello** command to configure STP bridge hello time, and hello-value must be  $2 * (\text{forward-delay-value} - 1) \geq \text{max-age-value} \geq 2 * (\text{hello-time-value} + 1)$ .

In STP, hello time is the interval at which switches send Bridge Protocol Data Unit (BPDU) messages to each other. BPDU messages are used to establish the network topology and calculate the tree. Switches exchange BPDU messages to determine the root bridge and port states. Hello time determines how often switches send BPDU messages, or how frequently switches update their information about the network topology. By default, hello time is set to 2 seconds, but it can be adjusted as needed.

### Syntax

**config spanning-tree hello** *hello-value*

## Parameter Description

*hello-value*: The range is from 1 to 10.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config spanning-tree hello 2
```

## 1.3 config spanning-tree interface autoedge

### Function

Run the **config spanning-tree interface autoedge** command to configure STP port autoedge.

In STP, autoedge is a feature that allows a port to automatically transition to the forwarding state if it is connected to an end device, such as a computer or printer. End devices do not generate BPDU messages, so autoedge allows the switch to quickly recognize that the port is not part of the spanning tree and can forward packets immediately. If the switch later receives a BPDU on an autoedge port, the port will transition to the blocking state and participate in the spanning tree. Autoedge is enabled by default on STP-enabled switches.

### Syntax

```
config spanning-tree interface autoedge { enable | disable } interface-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config spanning-tree interface autoedge enable Ethernet49
```

## 1.4 config spanning-tree interface bpdufilter

### Function

Run the **config spanning-tree interface bpdufilter** command to configure STP port bpdufilter.

In STP, bpdufilter is a feature that allows a port to discard all incoming BPDU messages. This can be useful in situations where a switch is connected to a non-STP aware device, such as a server or router, and the switch port should not participate in the spanning tree. By enabling bpdufilter on the port, the switch will not receive or process any BPDU messages on that port. However, enabling bpdufilter on a port can also create a potential loop on the

network if the non-STP aware device generates its own BPDU messages. Bpdufilter should be used with caution and only in specific situations where it is necessary.

### Syntax

```
config spanning-tree interface bpdufilter { enable | disable } interface-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config spanning-tree interface bpdufilter disable Ethernet49
```

## 1.5 config spanning-tree interface bpduguard

### Function

Run the **config spanning-tree interface bpduguard** command to configure STP port bpduguard.

In STP, bpduguard is a feature that allows a port to discard all incoming BPDU messages. This can be useful in situations where a switch is connected to a non-STP aware device, such as a server or router, and the switch port should not participate in the spanning tree. By enabling bpduguard on the port, the switch will not receive or process any BPDU messages on that port. However, enabling bpduguard on a port can also create a potential loop on the network if the non-STP aware device generates its own BPDU messages. Bpduguard should be used with caution and only in specific situations where it is necessary.

### Syntax

```
config spanning-tree interface bpduguard { enable | disable } interface-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config spanning-tree interface bpduguard disable Ethernet49
```

## 1.6 config spanning-tree interface cost

### Function

Run the **config spanning-tree interface cost** command to configure STP port path\_cost.



In STP, `path_cost` is a parameter that is used to determine the cost of a particular path through the network. The `path_cost` is calculated based on the bandwidth of the link between switches. The formula for calculating `path_cost` is  $10^8/\text{bandwidth}$ , where bandwidth is measured in bits per second. The `path_cost` is used in the selection of root and designated ports, as well as in the calculation of the shortest path to the root bridge. By default, the `path_cost` is set to 20000.

## Syntax

```
config spanning-tree interface cost interface-name cost-value
```

## Parameter Description

*cost-value*: The range is from 2 to 200000000.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config spanning-tree interface cost Ethernet49 20000
```

# 1.7 config spanning-tree interface priority

## Function

Run the **config spanning-tree interface priority** command to configure STP port priority, and port priority\_value must be multiple of 16.

In STP, port priority is a parameter that is used to determine the priority of a port on a switch. Port priority is used in the election of designated ports, which are the ports that are responsible for forwarding traffic on a segment. The port with the lowest port priority on a segment becomes the designated port. If two ports have the same port priority, the port with the lower port number becomes the designated port. Port priority can be manually configured on each port, or it can be automatically assigned based on the switch model and firmware. The default port priority value for STP is 128.

## Syntax

```
config spanning-tree interface priority interface-name priority-value
```

## Parameter Description

*priority-value*: The range is from 0 to 240.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config spanning-tree interface priority Ethernet49 128
```

## 1.8 config spanning-tree max-age

### Function

Run the **config spanning-tree max-age** command to configure STP bridge max-age, and max-age-value must be  $2 * (\text{forward-delay-value} - 1) \geq \text{max-age-value} \geq 2 * (\text{hello-time-value} + 1)$ .

In STP, max-age is a parameter that determines the maximum time a switch will consider a BPDU valid. The default value is 20 seconds.

### Syntax

**config spanning-tree max-age** *max-age-value*

### Parameter Description

*max-age-value*: The range is from 6 to 40.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config spanning-tree max-age 20
```

## 1.9 config spanning-tree priority

### Function

Run the **config spanning-tree priority** command to configure STP bridge priority, and priority\_value must be multiple of 4096.

In STP, priority is a parameter that is used to determine the priority of a switch on the network. The priority value is used in the election of the root bridge, and the switch with the lowest priority value becomes the root bridge. If two switches have the same priority, the switch with the lower MAC address becomes the root bridge. Priority values can be manually configured on each switch, or they can be automatically assigned based on the switch model and firmware. The default priority value for STP is 32768.

### Syntax

**config spanning-tree priority** *priority-value*

### Parameter Description

*priority-value*: The range is from 0 to 61440.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config spanning-tree priority 32768
```

## 1.10 config spanning-tree version

### Function

Run the **config spanning-tree version** command to configure the STP mode.

STP is a protocol used to prevent loops on a network by creating a tree-like topology. STP achieves this by selecting a root bridge and disabling some of the links on the network to create a loop-free topology. Rapid Spanning Tree Protocol (RSTP) is a protocol used to prevent loops on a network by creating a tree-like topology. It is an improvement over the original STP in that it has a faster convergence time, meaning it can quickly adapt to changes in the network topology.

### Syntax

```
config spanning-tree version { stp | rstp }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config spanning-tree version rstp
```

## 1.11 debug spanning-tree loglevel

### Function

Run the **debug spanning-tree loglevel** command to display the STP log level.

### Syntax

```
debug spanning-tree loglevel { DEBUG | INFO | ERROR }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo debug spanning-tree loglevel DEBUG
```

## 1.12 show runningconfiguration spanning-tree

### Function

Run the **show runningconfiguration spanning-tree** command to display the STP view configuration.

### Syntax

```
show runningconfiguration spanning-tree
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration spanning-tree
"STP":
{
  "GLOBAL": {
    "force_version": "rstp",
    "forward_delay": "15",
    "hello_time": "2",
    "max_age": "20",
    "priority": "32768"
  }
}
"STP_PORT":
{
  "Ethernet49": {
    "autoedge": "disable",
    "bpdu_filter": "disable",
    "bpdu_guard": "disable",
    "path_cost": "500",
    "priority": "128"
  }
}
```

## 1.13 show spanning-tree

### Function

Run the **show spanning-tree** command to display brief STP information. It displays the Common and Internal Spanning Tree (CIST) information.

### Syntax

```
show spanning-tree
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show spanning-tree
Bridge CIST info
enabled          yes
bridge id        8.000.C0:B8:E6:C0:AB:B3
designated root   8.000.C0:B8:E6:C0:AB:B3
regional root    8.000.C0:B8:E6:C0:AB:B3
root port        none
path cost        0          internal path cost  0
max age          20          bridge max age      20
forward delay    15          bridge forward delay 15
tx hold count    6          max hops             20
hello time       2          ageing time          300
force protocol version  rstp
time since topology change 836
topology change count      0
topology change            no
topology change port       None
last topology change port  None
```

## 1.14 show spanning-tree interface

### Function

Run the **show spanning-tree interface** command to display brief STP information. It displays the CIST interface information.

### Syntax

**show spanning-tree interface** [ *interface-name* ]

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show spanning-tree interface
Bridge:Ethernet49 CIST info
enabled          yes                role          Designated
port id          8.002                state         forwarding
external port cost 500                admin external cost 0
internal port cost 500                admin internal cost 0
designated root   8.000.C0:B8:E6:C0:AB:B3 dsgn external cost 0
dsgn regional root 8.000.C0:B8:E6:C0:AB:B3 dsgn internal cost 0
designated bridge 8.000.C0:B8:E6:C0:AB:B3 designated port 8.002
admin edge port  no                auto edge port  yes
oper edge port  yes                topology change ack no
point-to-point  yes                admin point-to-point auto
restricted role  no                restricted TCN   no
port hello time 2                disputed         no
bpdu guard port no                bpdu guard error no
network port    no                BA inconsistent  no
bpdu filter port no                Num RX BPDU Filtered 0
Num TX BPDU     1239                Num TX TCN       0
Num RX BPDU     0                Num RX TCN       0
Num Transition FWD 1                Num Transition BLK 1
Rcvd BPDU       no                Rcvd STP         no
Rcvd RSTP       no                Send RSTP        yes
Rcvd TC Ack     no                Rcvd TCN         no
Bridge:Ethernet51 CIST info
enabled          yes                role          Designated
port id          8.003                state         forwarding
external port cost 500                admin external cost 0
internal port cost 500                admin internal cost 0
designated root   8.000.C0:B8:E6:C0:AB:B3 dsgn external cost 0
dsgn regional root 8.000.C0:B8:E6:C0:AB:B3 dsgn internal cost 0
designated bridge 8.000.C0:B8:E6:C0:AB:B3 designated port 8.003
admin edge port  no                auto edge port  yes
```

```

oper edge port      yes
point-to-point     yes
restricted role    no
port hello time    2
bpdu guard port    no
network port       no
bpdu filter port   no
Num TX BPDU        1239
Num RX BPDU        0
Num Transition FWD 1
Rcvd BPDU          no
Rcvd RSTP          no
Rcvd TC Ack        no

topology change ack no
admin point-to-point auto
restricted TCN      no
disputed            no
bpdu guard error    no
BA inconsistent     no
Num RX BPDU Filtered 0
Num TX TCN          0
Num RX TCN          0
Num Transition BLK  1
Rcvd STP            no
Send RSTP           yes
Rcvd TCN            no

```

```
admin@sonic:~$ show spanning-tree interface Ethernet49
```

```

Bridge:Ethernet49 CIST info
enabled          yes
port id          8.002
external port cost 500
internal port cost 500
designated root   8.000.C0:B8:E6:C0:AB:B3 dsgn external cost 0
dsgn regional root 8.000.C0:B8:E6:C0:AB:B3 dsgn internal cost 0
designated bridge 8.000.C0:B8:E6:C0:AB:B3 designated port 8.002
admin edge port  no
oper edge port  yes
point-to-point  yes
restricted role no
port hello time 2
bpdu guard port no
network port    no
bpdu filter port no
Num TX BPDU     1239
Num RX BPDU     0
Num Transition FWD 1
Rcvd BPDU       no
Rcvd RSTP       no
Rcvd TC Ack     no

role          Designated
state         forwarding
admin external cost 0
admin internal cost 0
dsgn external cost 0
dsgn internal cost 0
auto edge port yes
topology change ack no
admin point-to-point auto
restricted TCN no
disputed no
bpdu guard error no
BA inconsistent no
Num RX BPDU Filtered 0
Num TX TCN 0
Num RX TCN 0
Num Transition BLK 1
Rcvd STP no
Send RSTP yes
Rcvd TCN no

```

## 1.15 sonic-clear spanning-tree statistics

### Function

Run the **sonic-clear spanning-tree statistics** command to clear the statistics for the Spanning Tree Protocol.

This command is used to clear all the counters and statistics related to STP, including the number of packets received and transmitted, the number of topology changes, and the number of BPDU messages sent and received. This command can be useful for troubleshooting STP-related issues, as it allows the user to start with a fresh set of statistics and counters.

### Syntax

**sonic-clear spanning-tree statistics**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo sonic-clear spanning-tree statistics
```

## 1.16 sonic-clear spanning-tree statistics interface

### Function

Run the **sonic-clear spanning-tree statistics interface** command to clear the statistics for the STP port. For a single interface, provide the interface name with the sub-command.

### Syntax

**sonic-clear spanning-tree statistics interface** *interface-name*

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo sonic-clear spanning-tree statistics interface Ethernet49
```



# 1 SSH Commands

Command	Function
<a href="#"><u>config ssh</u></a>	Display the global SSH configuration.
<a href="#"><u>config ssh banner</u></a>	Configure an SSH banner.
<a href="#"><u>config ssh port set</u></a>	Set the port of the SSH service.
<a href="#"><u>config ssh port unset</u></a>	Unset the port of the SSH service.
<a href="#"><u>show ssh config</u></a>	Display the global SSH configuration.

## 1.1 config ssh

### Function

Run the **config ssh** command to display the global SSH configuration.

### Syntax

```
config ssh { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config ssh enable
Restarting sshd-config service...
```

## 1.2 config ssh banner

### Function

Run the **config ssh banner** command to configure an SSH banner.

### Syntax

```
config ssh banner path
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config ssh banner /etc/sonic/banner
Restarting sshd-config service...
```

## 1.3 config ssh port set

### Function

Run the **config ssh port set** command to set the port of the SSH service.

## Syntax

```
config ssh port set port-num
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config ssh port set 10022
Restarting sshd-config service...
```

## 1.4 config ssh port unset

### Function

Run the **config ssh port unset** command to unset the port of the SSH service.

### Syntax

```
config ssh port unset
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config ssh port unset
Restarting sshd-config service...
```

## 1.5 show ssh config

### Function

Run the **show ssh config** command to display the global SSH configuration.

### Syntax

```
show ssh config
```

### Parameter Description

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show ssh config
  sshd status: enable
  sshd port: 22
  sshd banner: None
```

# 1 CoPP Commands

Command	Function
<a href="#"><u>config copp algorithm</u></a>	Specify the rate-limiting algorithm for protocol.
<a href="#"><u>config copp bandwidth</u></a>	Specify the packet type and set the CPU bandwidth for sending the packet.
<a href="#"><u>config copp packet_action</u></a>	Configure how protocol packets are processed.
<a href="#"><u>config copp queue</u></a>	Configure the protocol priority queue.
<a href="#"><u>config copp trap</u></a>	Configure the protocol-specific trap attributes.
<a href="#"><u>show copp group</u></a>	Display the CoPP group configuration.
<a href="#"><u>show copp statistics</u></a>	Display CoPP statistics.
<a href="#"><u>show copp trap</u></a>	Display the CoPP trap configuration.
<a href="#"><u>sonic-clear copp statistics</u></a>	Clear CoPP statistics.

## 1.1 config copp algorithm

### Function

Run the **config copp algorithm** command to specify the rate-limiting algorithm for protocol.

### Syntax

```
sudo config copp algorithm packet-type { sr_tcm | tr_tcm | storm } { blind | aware } [ { -g | --green_action } green-action ] [ { -y | --yellow_action } yellow-action ] [ { -r | --red_action } red-action ]
```

### Parameter Description

*packet-type*: Protocol type.

*mode*: Rate-limiting algorithm.

*color*: Working mode of the rate-limiting algorithm

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config copp algorithm arp sr_tcm blind
admin@sonic:~$ show copp group arp_group
trap_group      queue  trap_action  trap_priority  meter_type  mode  color
cbs  cir  pbs  pir  green_action  yellow_action  red_action
-----
arp_group        5  copy                    5  packets  sr_tcm  blind
1500 1500  NA   NA   NA           drop         drop
```

## 1.2 config copp bandwidth

### Function

Run the **config copp bandwidth** command to specify the packet type and set the CPU bandwidth for sending the packet.

### Syntax

```
sudo config copp bandwidth packet-type [ -cir cir-value ] [ -cbs cbs-value ] [ -pir pir-value ] [ -pbs pbs-value ] [ { -m | --meter_type } { packets | bytes } ]
```

### Parameter Description

*packet-type*: Protocol type.

*cir-value*: Committed information rate.

*cbs-value*: Committed burst size.

*pir-value*: Peak information rate.

*pbs-value*: Peak burst size.

**meter\_type**: Statistical unit of the speed limiting algorithm packets or bytes.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config copp bandwidth arp -cir 2000 -cbs 20000 -pir 3000 -pbs 30000
admin@sonic:~$ show copp group arp_group
trap_group      queue  trap_action  trap_priority  meter_type  mode  color
cbs  cir  pbs  pir  green_action  yellow_action  red_action
-----
arp_group          5  copy          5  packets      sr_tcm  blind
20000  2000  30000  3000  trap          drop          drop
```

## 1.3 config copp packet\_action

### Function

Run the **config copp packet\_action** command to configure how protocol packets are processed.

### Syntax

**sudo config copp packet\_action** *packet-type* *packet-action*

### Parameter Description

*packet-type*: Protocol type.

*packet-action*: Packet processing mode, including drop, forward, copy, copy\_cancel, trap, log, deny, and transit.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config copp packet_action arp trap
admin@sonic:~$ show copp group arp_group
trap_group      queue  trap_action  trap_priority  meter_type  mode  color
cbs  cir  pbs  pir  green_action  yellow_action  red_action
```

```
-----
-----
arp_group          5 trap                               5 packets      sr_tcm blind
1500 1500 NA      NA      NA                               drop           drop
```

## 1.4 config copp queue

### Function

Run the **config copp queue** command to configure the protocol priority queue.

### Syntax

```
sudo config copp packet_action packet-type queue
```

### Parameter Description

*packet-type*: Protocol type.

*queue*: Priority queue, range 0 to 7.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config copp queue arp 5
admin@sonic:~$ show copp group arp_group
trap_group      queue trap_action      trap_priority meter_type  mode  color
cbs  cir pbs  pir  green_action  yellow_action  red_action
-----
-----
arp_group          5 trap                               5 packets      sr_tcm blind
1500 1500 NA      NA      NA                               drop           drop
```

## 1.5 config copp trap

### Function

Run the **config copp trap** command to configure the protocol-specific trap attributes.

### Syntax

```
sudo config copp trap { add | del } packet-type
```

```
sudo config copp trap set packet-type [ { -t | --trap_ids } trap_ids ] [ { -g | --group }
packet-group ] [ { -a | --always_enabled } { true | false } ]
```

### Parameter Description

*packet-type*: Protocol type.



*trap-ids*: Protocol.

*packet-group*: Group to which the protocol belongs.

**always\_enabled**: Install protocols which have no associated feature.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config copp trap set arp -a false
admin@sonic:~$ show copp trap
name      trap_ids                trap_group  always_enabled
-----
arp       arp_req,arp_resp       arp_group   false
bfd       bfd,bfdv6              bfd_group   NA

admin@sonic:~$ sudo config copp trap del arp
admin@sonic:~$ show copp trap
name      trap_ids                trap_group  always_enabled
-----
bfd       bfd,bfdv6              bfd_group   NA
bgp       bgp,bgpv6              bgp_group   NA
```

## 1.6 show copp group

### Function

Run the **show copp group** command to display the CoPP group configuration.

### Syntax

**show copp group**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show copp group
trap_group      queue trap_action  trap_priority  meter_type  mode
color cbs    cir pbs    pir  green_action  yellow_action  red_action
-----
-----
```

arp_group			5	copy	5	packets	sr_tcm	blind
1500	1500	NA	NA	trap	drop	drop		
bfd_group			7	trap	7	packets	sr_tcm	NA
3000	3000	NA	NA	NA	drop	drop		
bgp_group			6	trap	6	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
default			0	trap	NA	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
dhcp_group			4	trap	4	packets	sr_tcm	NA
300	300	NA	NA	NA	drop	drop		
dhcpv6_group			3	trap	3	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
dhcpv6_l2_group			3	trap	3	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
ip2me_group			2	trap	2	packets	sr_tcm	NA
2000	2000	NA	NA	NA	drop	drop		
isis_group			3	trap	3	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
lACP_group			7	trap	7	packets	sr_tcm	NA
300	300	NA	NA	NA	drop	drop		
lldp_group			3	trap	3	packets	sr_tcm	NA
300	300	NA	NA	NA	drop	drop		
nat_group			1	trap	1	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
nd_group			5	copy	5	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
ospf6_group			6	trap	6	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
ospf_group			6	trap	6	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
pim_group			6	trap	6	packets	sr_tcm	NA
1500	1500	NA	NA	NA	drop	drop		
sflow_group			1	trap	10	bytes	storm	NA
8000	8000	NA	NA	NA	NA	drop		
snmp_group			4	trap	4	packets	sr_tcm	NA
300	300	NA	NA	NA	drop	drop		
ssh_group			4	trap	4	packets	sr_tcm	NA
300	300	NA	NA	NA	drop	drop		
stp_group			3	trap	3	packets	sr_tcm	NA
300	300	NA	NA	NA	drop	drop		
udld_group			4	trap	4	packets	sr_tcm	NA
300	300	NA	NA	NA	drop	drop		

vrrp_group	7	trap	7	packets	sr_tcm	NA
300	300	NA	NA	drop	drop	

## 1.7 show copp statistics

### Function

Run the **show copp statistics** command to display CoPP statistics.

### Syntax

```
show copp statistics [ { -t | --type } { count | rate } ] [ { -m | --meter } { packet | byte } ]
[ { -p | --protocol } packet-group ]
```

### Parameter Description

*packet-group*: Group to which the protocol belongs.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show copp statistics
Packet Type      Total Packets Rate   Green Packets Rate   Yellow Packets Rate
Red Packets Rate
-----
lldp_group      0           0           0
0
bgp_group       0           0           0
0
ospf_group      0           0           0
0
default        0           0           0
0
bfd_group       0           0           0
0
pim_group       0           0           0
0
ospf6_group    0           0           0
0
arp_group      0           0           0
0
isis_group     0           0           0
0
```

```

stp_group          0          0          0
0
vrrp_group        0          0          0
0
snmp_group        0          0          0    0
lACP_group        0          0          0
0
ip2me_group       0          0          0    0
dhcpv6_group      0          0          0    0
dhcpv6_I2_group   0          0          0    0

admin@sonic:~$ show copp statistics -t count -m packet -p arp_group
Packet Type      Total Packets  Green Packets  Yellow Packets  Red Packets
-----
arp_group        0              10             0                0

```

## 1.8 show copp trap

### Function

Run the **show copp trap** command to display the CoPP trap configuration.

### Syntax

```
show copp trap
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show copp trap
name      trap_ids          trap_group      always_enabled
-----
arp       arp_req,arp_resp arp_group       true
bfd       bfd,bfdv6        bfd_group       NA
bgp       bgp,bgpv6        bgp_group       NA
dhcp      dhcp              dhcp_group      NA
dhcpv6    dhcpv6            dhcpv6_group    true
dhcpv6_I2 dhcpv6_I2         dhcpv6_I2_group true
ip2me     ip2me             ip2me_group     true
isis      isis              isis_group      true
lACP      lACP              lACP_group      true

```

lldp	lldp	lldp_group	NA
nat	src_nat_miss,dest_nat_miss	nat_group	NA
nd	neigh_discovery	nd_group	NA
ospf	ospf	ospf_group	NA
ospf6	ospf6	ospf6_group	NA
pim	pim	pim_group	NA
sflow	sample_packet	sflow_group	NA
snmp	snmp	snmp_group	NA
ssh	ssh	ssh_group	NA
stp	stp	stp_group	NA
udld	udld	udld_group	NA
vrrp	vrrp,vrrpv6	vrrp_group	NA

## 1.9 sonic-clear copp statistics

### Function

Run the **sonic-clear copp statistics** command to clear CoPP statistics.

### Syntax

```
sudo sonic-clear copp statistics [ packet-group ]
```

### Parameter Description

*packet-group*: Group to which the protocol belongs.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show copp statistics -t count
```

Packet Type	Total Packets	Green Packets	Yellow Packets	Red Packets
lldp_group	19425	19425	0	0
bgp_group	0	0	0	0
ospf_group	0	0	0	0
default	0	0	0	0
bfd_group	0	0	0	0
pim_group	0	0	0	0
ospf6_group	0	0	0	0
arp_group	16	16	0	0
isis_group	40093	40093	0	0
stp_group	9550	9550	0	0
vrrp_group	0	0	0	0
snmp_group	0	0	0	0

```

lACP_group          0          0          0          0
ip2me_group         0          0          0          0
dhcpv6_group        0          0          0          0
dhcpv6_I2_group     525        525        0          0
admin@sonic:~$ sudo sonic-clear copp statistics lldp_group

```

```
admin@sonic:~$ show copp statistics -t count
```

Packet Type	Total Packets	Green Packets	Yellow Packets	Red Packets
lldp_group	2	2	0	0
bgp_group	0	0	0	0
ospf_group	0	0	0	0
default	0	0	0	0
bfd_group	0	0	0	0
pim_group	0	0	0	0
ospf6_group	0	0	0	0
arp_group	16	16	0	0
isis_group	40093	40093	0	0
stp_group	9550	9550	0	0
vrrp_group	0	0	0	0
snmp_group	0	0	0	0
lACP_group	0	0	0	0
ip2me_group	0	0	0	0
dhcpv6_group	0	0	0	0
dhcpv6_I2_group	525	525	0	0

```
admin@sonic:~$ sonic-clear copp statistics
```

```
admin@sonic:~$ show copp statistics -t count
```

Packet Type	Total Packets	Green Packets	Yellow Packets	Red Packets
lldp_group	0	0	0	0
bgp_group	0	0	0	0
ospf_group	0	0	0	0
default	0	0	0	0
bfd_group	0	0	0	0
pim_group	0	0	0	0
ospf6_group	0	0	0	0
arp_group	0	0	0	0
isis_group	0	0	0	0
stp_group	0	0	0	0
vrrp_group	0	0	0	0
snmp_group	0	0	0	0

---

lACP_group	0	0	0	0
ip2me_group	0	0	0	0
dhcpv6_group	0	0	0	0
dhcpv6_I2_group	0	0	0	0

# 1 M-LAG Commands

Command	Function
<a href="#"><u>config mclag</u></a>	Set MCLAG.
<a href="#"><u>config mclag keepalive-interval</u></a>	The MCLAG keepalive interval.
<a href="#"><u>config mclag member</u></a>	Set an MCLAG member interface.
<a href="#"><u>config mclag session-timeout</u></a>	Set the MCLAG session timeout.
<a href="#"><u>show mclag config</u></a>	Display the MCLAG configuration.
<a href="#"><u>show mclag summary</u></a>	Display the MCLAG summary.



## 1.1 config mclag

### Function

Run the **config mclag** command to set MCLAG.

### Syntax

```
config mclag add domain-id source-ip-addr peer-ip-addr peer-ifname
```

```
config mclag del domain-id
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config mclag add 1 10.10.10.10 20.20.20.20 PortChannel20
admin@sonic:~$ sudo config mclag del 1
```

## 1.2 config mclag keepalive-interval

### Function

Run the **config mclag keepalive-interval** command to the MCLAG keepalive interval.

### Syntax

```
config mclag keepalive-interval domain-id time-in-secs
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config mclag keepalive-interval 1 10
```

## 1.3 config mclag member

### Function

Run the **config mclag member** command to set an MCLAG member interface.

## Syntax

```
config mclag member { add | del } domain-id portchannel-name
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config mclag member add 1 PortChannel30
```

## 1.4 config mclag session-timeout

### Function

Run the **config mclag session-timeout** command to set the MCLAG session timeout.

### Syntax

```
config mclag session-timeout domain-id time-in-secs
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config mclag session-timeout 1 10
```

## 1.5 show mclag config

### Function

Run the **show mclag config** command to display the MCLAG configuration.

### Syntax

```
show mclag config
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show mclag config
domain id: 1
Local ip: 10.10.10.10
Peer ip: 20.20.20.20
Peer link:
Mclag interfaces: PortChannel30
Keepalive interval: 1
Session timeout: 15
```

## 1.6 show mclag summary

### Function

Run the **show mclag summary** command to display the MCLAG summary.

### Syntax

```
show mclag summary
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show mclag summary
The MCLAG's keepalive is: OK
MCLAG info sync is: complete
Domain id: 1
Local Ip: 10.10.10.10
Peer Ip: 20.20.20.20
Peer Link Interface: PortChannel20
Keepalive time: 1
session Timeout : 15
Peer Link Mac: 58:69:6c:fb:22:08
Role: Standby
MCLAG Interface: PortChannel30
Loglevel: NOTICE
```

# 1 VRRP Commands

Command	Function
<a href="#"><u>config interface vrrp add</u></a>	Add a VRRP instance on an interface.
<a href="#"><u>config interface vrrp adv_interval</u></a>	Configure a VRRP advertisement interval for a VRRP instance.
<a href="#"><u>config interface vrrp backup_forward</u></a>	Enable or disable the VRRP instance to forward service traffic even if the VRRP instance is in the backup state.
<a href="#"><u>config interface vrrp ip add</u></a>	Add a virtual IP address to a VRRP instance on an interface.
<a href="#"><u>config interface vrrp ip remove</u></a>	Remove a virtual IP address from a VRRP instance on an interface.
<a href="#"><u>config interface vrrp pre_empty</u></a>	Enable or disable preemption of a master VRRP router by a higher-priority VRRP router.
<a href="#"><u>config interface vrrp priority</u></a>	Configure a priority for a VRRP instance.
<a href="#"><u>config interface vrrp remove</u></a>	Remove a VRRP instance from an interface.
<a href="#"><u>config interface vrrp shutdown</u></a>	Bring the VRRP instance into administrative shutdown mode.
<a href="#"><u>config interface vrrp startup</u></a>	Bring the VRRP instance into administrative up mode.
<a href="#"><u>config interface vrrp track_interface add</u></a>	Add a track interface to a VRRP instance.
<a href="#"><u>show vrrp interface</u></a>	Display the VRRP information specific to the interface.
<a href="#"><u>show vrrp summary</u></a>	Display a summary of VRRP information.
<a href="#"><u>show vrrp vrid</u></a>	Display the VRRP information specific to the VRID.

## 1.1 config interface vrrp add

### Function

Run the **config interface vrrp add** command to add a VRRP instance on an interface.

### Syntax

```
config interface vrrp add interface-name vrrp-id
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface vrrp add Ethernet51 5
```

## 1.2 config interface vrrp adv\_interval

### Function

Run the **config interface vrrp adv\_interval** command to configure a VRRP advertisement interval for a VRRP instance.

### Syntax

```
config interface vrrp adv_interval interface-name vrrp-id interval
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface vrrp adv_interval Ethernet51 5 1200
```

## 1.3 config interface vrrp backup\_forward

### Function

Run the **config interface vrrp backup\_forward** command to enable or disable the VRRP instance to forward service traffic even if the VRRP instance is in the backup state.

## Syntax

```
config interface vrrp backup_forward interface-name vrrp-id forward
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface vrrp backup_forward Ethernet51 5 enabled
```

# 1.4 config interface vrrp ip add

## Function

Run the **config interface vrrp ip add** command to add a virtual IP address to a VRRP instance on an interface.

## Syntax

```
config interface vrrp ip add interface-name vrrp-id ip-addr
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface vrrp ip add Ethernet51 5 10.10.10.10/24
```

# 1.5 config interface vrrp ip remove

## Function

Run the **config interface vrrp ip remove** command to remove a virtual IP address from a VRRP instance on an interface.

## Syntax

```
config interface vrrp ip remove interface-name vrrp-id ip-addr
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface vrrp ip remove Ethernet51 5 10.10.10.10/24
```

## 1.6 config interface vrrp pre\_empt

### Function

Run the **config interface vrrp pre\_empt** command to enable or disable preemption of a master VRRP router by a higher-priority VRRP router.

### Syntax

```
config interface vrrp pre_empt interface-name vrrp-id mode
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface vrrp pre_empt Ethernet51 5 enabled
```

## 1.7 config interface vrrp priority

### Function

Run the **config interface vrrp priority** command to configure a priority for a VRRP instance.

### Syntax

```
config interface vrrp priority interface-name vrrp-id priority
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface vrrp priority Ethernet51 5 120
```

## 1.8 config interface vrrp remove

### Function

Run the **config interface vrrp remove** command to remove a VRRP instance from an interface.

### Syntax

```
config interface vrrp remove interface-name vrrp-id
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface vrrp remove Ethernet51 5
```

## 1.9 config interface vrrp shutdown

### Function

Run the **config interface vrrp shutdown** command to bring the VRRP instance into administrative shutdown mode.

### Syntax

```
config interface vrrp shutdown interface-name vrrp-id
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface vrrp shutdown Ethernet51 5
```

## 1.10 config interface vrrp startup

### Function

Run the **config interface vrrp startup** command to bring the VRRP instance into administrative up mode.



## Syntax

```
config interface vrrp startup interface-name vrrp-id
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config interface vrrp startup Ethernet51 5
```

## 1.11 config interface vrrp track\_interface add

### Function

Run the **config interface vrrp track\_interface add** command to add a track interface to a VRRP instance.

### Syntax

```
config interface vrrp track_interface add interface-name vrrp-id track-interface weight
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface vrrp track_interface add Ethernet51 5 Ethernet4 20
```

## 1.12 show vrrp interface

### Function

Run the **show vrrp interface** command to display the VRRP information specific to the interface.

### Syntax

```
show vrrp interface [ OPTIONS ] interface-name vrid
```

### Parameter Description

*OPTIONS*:

- o --verbose:

Enable verbose output

- o -h, -?, --help:

Show this message and exit.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show vrrp interface Ethernet53

Virtual Router ID           5
Protocol Version           3
Autoconfigured             No
Shutdown                   No
Interface                   Ethernet53
VRRP interface (v4)        Vrrp4-5
VRRP interface (v6)        None
Primary IP (v4)            10.0.0.98
Primary IP (v6)            ::
Virtual MAC (v4)           00:00:5e:00:01:05
Virtual MAC (v6)           00:00:5e:00:02:05
Status (v4)                 Master
Status (v6)                 Initialize
Priority                     100
Effective Priority (v4)     100
Effective Priority (v6)     100
Preempt Mode                Yes
Accept Mode                 Yes
Advertisement Interval       1000 ms
Master Advertisement Interval (v4) 1000 ms
Master Advertisement Interval (v6) 0 ms
Advertisements Tx (v4)      1
Advertisements Tx (v6)      0
Advertisements Rx (v4)      0
Advertisements Rx (v6)      0
Gratuitous ARP Tx (v4)     1
Neigh. Adverts Tx (v6)     0
State transitions (v4)      2
State transitions (v6)      0
Skew Time (v4)              600 ms
Skew Time (v6)              0 ms
Master Down Interval (v4)   3600 ms
Master Down Interval (v6)   0 ms
```

IPv4 Addresses		1
.....	11.11.11.11	
IPv6 Addresses		0

### 1.13 show vrrp summary

#### Function

Run the **show vrrp summary** command to display a summary of VRRP information.

#### Syntax

**show vrrp summary** [ *OPTIONS* ]

#### Parameter Description

*OPTIONS*:

- o --verbose:  
Enable verbose output
- o -h, -?, --help:  
Show this message and exit.

#### Usage Guidelines

N/A

#### Examples

```
admin@sonic:~$ show vrrp summary
Interface      VRID    Configured Priority  Priority  IPv4  IPv6  State (v4)
State (v6)
-----
Ethernet2      10      100              100      0     0     Backup
Backup
Ethernet53     5       100              100      1     0     Master
Backup
```

### 1.14 show vrrp vrid

#### Function

Run the **show vrrp vrid** command to display the VRRP information specific to the VRID.

#### Syntax

**show vrrp vrid** [ *OPTIONS* ] *vrid*

## Parameter Description

### OPTIONS:

- o --verbose:  
Enable verbose output
- o -h, -?, --help:  
Show this message and exit.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show vrrp vrid 5

Virtual Router ID           5
Protocol Version           3
Autoconfigured             No
Shutdown                   No
Interface                   Ethernet53
VRRP interface (v4)        Vrrp4-5
VRRP interface (v6)        None
Primary IP (v4)            10.0.0.98
Primary IP (v6)            ::
Virtual MAC (v4)           00:00:5e:00:01:05
Virtual MAC (v6)           00:00:5e:00:02:05
Status (v4)                 Master
Status (v6)                 Initialize
Priority                    100
Effective Priority (v4)     100
Effective Priority (v6)     100
Preempt Mode                Yes
Accept Mode                 Yes
Advertisement Interval       1000 ms
Master Advertisement Interval (v4) 1000 ms
Master Advertisement Interval (v6) 0 ms
Advertisements Tx (v4)      1
Advertisements Tx (v6)      0
Advertisements Rx (v4)      0
Advertisements Rx (v6)      0
Gratuitous ARP Tx (v4)     1
Neigh. Adverts Tx (v6)     0
State transitions (v4)      2
```

State transitions (v6)	0
Skew Time (v4)	600 ms
Skew Time (v6)	0 ms
Master Down Interval (v4)	3600 ms
Master Down Interval (v6)	0 ms
IPv4 Addresses	1
..... 11.11.11	
IPv6 Addresses	0

# 1 BFD Commands

Command	Function
<a href="#"><u>detect-multiplier</u></a>	Set detect-multiplier value in BFD peer configuration view. This value ranges from 2 to 255 and default is 3.
<a href="#"><u>echo-interval</u></a>	Set the interval in milliseconds to send BFD echo packets in BFD peer configuration view. This value ranges from 10 to 60000 and default is 50.
<a href="#"><u>echo-mode</u></a>	Enable or disable BFD echo mode in BFD peer configuration view.
<a href="#"><u>passive-mode</u></a>	Enable or disable BFD passive mode in BFD peer configuration view.
<a href="#"><u>peer</u></a>	Add or delete a BFD session in BFD configuration view.
<a href="#"><u>receive-interval</u></a>	Set the interval in milliseconds to receive BFD probe packets in BFD peer configuration view. This value ranges from 10 to 60000 and default is 300.
<a href="#"><u>show bfd peer</u></a>	Display the state and key parameters of specified BFD session in vtysh global view.
<a href="#"><u>show bfd peers</u></a>	Display the state and key parameters of all BFD sessions in vtysh global view.
<a href="#"><u>show radius</u></a>	Display the global configuration fields and the list of all radius servers and their corresponding configurations.
<a href="#"><u>shutdown</u></a>	Shut down the BFD session in BFD peer configuration view.
<a href="#"><u>transmit-interval</u></a>	Set the interval in milliseconds to send BFD probe packets in BFD peer configuration view. This value ranges from 10 to 60000 and default is 300.

## 1.1 detect-multiplier

### Function

Run the **detect-multiplier** command to set detect-multiplier value in BFD peer configuration view. This value ranges from 2 to 255 and default is 3.

### Syntax

```
[ no ] detect-multiplier value
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
sonic(config-bfd-peer)# detect-multiplier 10
```

## 1.2 echo-interval

### Function

Run the **echo-interval** command to set the interval in milliseconds to send BFD echo packets in BFD peer configuration view. This value ranges from 10 to 60000 and default is 50.

### Syntax

```
[ no ] echo-interval value
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
sonic(conf-bfd-peer)# echo-interval 100
```

## 1.3 echo-mode

### Function

Run the **echo-mode** command to enable or disable BFD echo mode in BFD peer configuration view.

**Syntax**

[ no ] **echo-mode**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
sonic(conf-bfd-peer)# echo-mode
```

## 1.4 passive-mode

**Function**

Run the **passive-mode** command to enable or disable BFD passive mode in BFD peer configuration view.

**Syntax**

[ no ] **passive-mode**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
sonic(conf-bfd-peer)# passive-mode
```

## 1.5 peer

**Function**

Run the **peer** command to add or delete a BFD session in BFD configuration view.

**Syntax**

[ no ] **peer** { *ipv4-address* | *ipv6-address* } [ **interface** *intf-name* ] [ **local-address** { *ipv4-address* | *ipv6-address* } ] [ **vrf** *vrf-name* ]

**Parameter Description**

N/A



## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ vtysh

Hello, this is FRRouting (version 7.5.1-sonic).
Copyright 1996-2005 Kunihiro Ishiguro, et al.

sonic# configure terminal
sonic(config)# bfd
sonic(config-bfd)# peer 1.1.1.1
sonic(config-bfd-peer)#
```

## 1.6 receive-interval

### Function

Run the **receive-interval** command to set the interval in milliseconds to receive BFD probe packets in BFD peer configuration view. This value ranges from 10 to 60000 and default is 300.

### Syntax

```
[ no ] receive-interval value
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
sonic(conf-bfd-peer)# receive-interval 100
```

## 1.7 show bfd peer

### Function

Run the **show bfd peer** command to display the state and key parameters of specified BFD session in vtysh global view.

If you want to use it in other views, run the "**do show bfd peer**" command.

## Syntax

```
show bfd peer { ipv4-address | ipv6-address } [ vrf vrf-name ] [ interface interface-name ] [ local-address { ipv4-address | ipv6-address } ]
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
sonic(config-bfd-peer)# do show bfd peer 1.1.1.1 interface Ethernet1 local-address 1.1.1.2
BFD Peer:
  peer 1.1.1.1 vrf default interface Ethernet1
    ID: 1324817806
    Remote ID: 0
    Active mode
    Echo mode: False
    Status: down
    Downtime: 34 minute(s), 47 second(s)
    Diagnostics: ok
    Remote diagnostics: ok
    Peer Type: configured
    Local timers:
      Detect-multiplier: 3
      Receive interval: 300ms
      Transmission interval: 300ms
      Echo transmission interval: 50ms
    Remote timers:
      Detect-multiplier: 3
      Receive interval: 1000ms
      Transmission interval: 1000ms
      Echo transmission interval: 0ms

sonic(config-bfd-peer)#
```

## 1.8 show bfd peers

### Function

Run the **show bfd peers** command to display the state and key parameters of all BFD sessions in vtysh global view.

If you want to use it in other views, run the "**do show bfd peers**" command.

## Syntax

```
show bfd peers
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
sonic(config-bfd-peer)# do show bfd peers
BFD Peers:
  peer 10.10.10.10 vrf default interface Ethernet1
    ID: 3119629624
    Remote ID: 0
    Active mode
    Echo mode: False
    Status: down
    Downtime: 2 hour(s), 37 minute(s), 36 second(s)
    Diagnostics: ok
    Remote diagnostics: ok
    Peer Type: configured
    Local timers:
      Detect-multiplier: 3
      Receive interval: 300ms
      Transmission interval: 300ms
      Echo transmission interval: 50ms
    Remote timers:
      Detect-multiplier: 3
      Receive interval: 1000ms
      Transmission interval: 1000ms
      Echo transmission interval: 0ms
...
sonic(config-bfd-peer)#
```

## 1.9 show radius

### Function

Run the **show radius** command to display the global configuration fields and the list of all radius servers and their corresponding configurations.

## Syntax

**show radius**

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show radius
RADIUS global auth_type pap (default)
RADIUS global retransmit 3 (default)
RADIUS global timeout 5 (default)
RADIUS global passkey *****
RADIUS global statistics True

RADIUS_SERVER address 172.31.240.109
                auth_port 1812
                priority 1
```

## 1.10 shutdown

### Function

Run the **shutdown** command to shut down the BFD session in BFD peer configuration view.

### Syntax

[ no ] **shutdown**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
sonic(conf-bfd-peer)# shutdown
```

## 1.11 transmit-interval

### Function

Run the **transmit-interval** command to set the interval in milliseconds to send BFD probe packets in BFD peer configuration view. This value ranges from 10 to 60000 and default is 300.

### Syntax

[ no ] **transmit-interval** *value*

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
sonic(conf-bfd-peer)# transmit-interval 100
```

# 1 ECMP Commands

Command	Function
<a href="#">config load balance ecmp</a>	Configure ECMP load balancing.
<a href="#">config load balance lag</a>	Configure LAG load balancing.
<a href="#">show load balance ecmp</a>	Display the ECMP configuration.
<a href="#">show load balance lag</a>	Display the LAG configuration.

## 1.1 config load balance ecmp

### Function

Run the **config load balance ecmp** command to configure ECMP load balancing.

### Syntax

```
config load-balance ecmp [ OPTIONS ] { enhanced | hash-algorithm }
```

```
config load-balance ecmp enhanced [ OPTIONS ] { hash-seed | ipv4 | ipv6 }
```

```
config load-balance ecmp hash-algorithm [ OPTIONS ] [ CRC | XOR | RANDOM | CRC_32LO | CRC_32HI | CRC_CCITT | CRC_XOR ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config load-balance ecmp enhanced hash-seed 10  
admin@sonic:~$ sudo config load-balance ecmp hash-algorithm XOR
```

## 1.2 config load balance lag

### Function

Run the **config load balance lag** command to configure LAG load balancing.

### Syntax

```
config load-balance lag [ OPTIONS ] { enhanced | hash-algorithm }
```

```
config load-balance lag enhanced [ OPTIONS ] { hash-seed | ipv4 | ipv6 }
```

```
config load-balance lag hash-algorithm [ OPTIONS ] [ CRC | XOR | RANDOM | CRC_32LO | CRC_32HI | CRC_CCITT | CRC_XOR ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config load-balance lag enhanced hash-seed 10  
admin@sonic:~$ sudo config load-balance lag hash-algorithm XOR
```

## 1.3 show load balance ecmp

### Function

Run the **show load balance ecmp** command to display the ECMP configuration.

### Syntax

```
show load_balance ecmp
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show load_balance ecmp
Hash Algorithm : CRC
IPV4 Field : dst-ip,l4-dst-port,l4-src-port,protocol,src-ip
IPV6 Field : dst-ip,l4-dst-port,l4-src-port,protocol,src-ip
Hash Seed : 0
```

## 1.4 show load balance lag

### Function

Run the **show load balance lag** command to display the LAG configuration.

### Syntax

```
show load_balance lag
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show load_balance lag
Hash Algorithm : CRC
IPV4 Field : dst-ip,l4-dst-port,l4-src-port,protocol,src-ip
IPV6 Field : dst-ip,l4-dst-port,l4-src-port,protocol,src-ip
Hash Seed : 0
```



# 1 Mirroring Commands

Command	Function
<a href="#"><u>config mirror_session</u></a>	Add or remove mirroring sessions.
<a href="#"><u>config mirror_session span add</u></a>	Configure the following fields that are used while forwarding the mirrored packets.
<a href="#"><u>show mirror_session</u></a>	Display all the mirror sessions that are configured.

## 1.1 config mirror\_session

### Function

Run the **config mirror\_session** command to add or remove mirroring sessions.

### Syntax

```
config mirror_session erspan add [ session-name ] [ src-ip ] [ dst-ip ] [ dscp ] [ ttl ] [ gre-type ] [ queue ] [ policer policer-name ] [ source-port-list ] [ direction ]
```

- The following command is also supported to be backward compatible. This command will be deprecated in future releases.

```
config mirror_session add [ session-name ] [ src-ip ] [ dst-ip ] [ dscp ] [ ttl ] [ gre-type ] [ queue ]
```

### Parameter Description

N/A

### Usage Guidelines

Mirror session is identified by "session\_name". This command supports configuring both SPAN/ERSPAN sessions. In SPAN user can configure mirroring of list of source ports/LAG to destination port in ingress/egress/both directions. In ERSPAN user can configure mirroring of list of source ports/LAG to a destination IP. Both SPAN/ERSPAN support ACL based mirroring and can be used in ACL configurations.

While adding a new ERSPAN session, users need to configure the following fields that are used while forwarding the mirrored packets.

- source IP address,
- destination IP address,
- DSCP (QoS) value with which mirrored packets are forwarded
- TTL value
- optional - GRE Type in case if user wants to send the packet via GRE tunnel. GRE type could be anything; it could also be left as empty; by default, it is 0x8949.
- optional - Queue in which packets shall be sent out of the device. Valid values 0 to 7 for most of the devices. Users need to know their device and the number of queues supported in that device.
- optional - Policer which will be used to control the rate at which frames are mirrored.
- optional - List of source ports which can have both Ethernet and LAG ports.
- optional - Direction - Mirror session direction when configured along with Source port. (Supported rx/tx/both. default direction is both)

### Examples

```
admin@sonic:~$ sudo config mirror_session add mrr_legacy 1.2.3.4 20.21.22.23 8 100 0x6558
0
admin@sonic:~$ show mirror_session
```

```

Name          Status   SRC IP      DST IP      GRE      DSCP
TTL           Queue   Policer     Monitor Port SRC Port  Direction
-----
mrr_legacy    inactive 1.2.3.4     20.21.22.23 0x6558  8        100    0
admin@sonic:~$ sudo config mirror_session erspan add mrr_abcd 1.2.3.4 20.21.22.23 8 100
0x6558 0
admin@sonic:~$ show mirror_session
Name          Status   SRC IP      DST IP      GRE      DSCP      TTL
Queue        Policer  Monitor Port SRC Port    Direction
-----
mrr_abcd     inactive 1.2.3.4     20.21.22.23 0x6558  8        100    0
admin@sonic:~$
admin@sonic:~$ sudo config mirror_session erspan add mrr_port 1.2.3.4 20.21.22.23 8 100
0x6558 0 Ethernet10
admin@sonic:~$ show mirror_session
Name          Status   SRC IP      DST IP      GRE      DSCP      TTL
Queue        Policer  Monitor Port SRC Port    Direction
-----
mrr_port     inactive 1.2.3.4     20.21.22.23 0x6558  8        100    0
Ethernet10   both
admin@sonic:~$

```

## 1.2 config mirror\_session span add

### Function

Run the **config mirror\_session span add** command to configure the following fields that are used while forwarding the mirrored packets.

### Syntax

```

config mirror_session span add [ session-name ] [ dst-port ] [ source-port-list ]
[ direction ] [ queue ] [ policer policer-name ]

```

### Parameter Description

N/A

### Usage Guidelines

While adding a new SPAN session, users need to configure the following fields that are used while forwarding the mirrored packets.

- destination port,
- optional - List of source ports- List of source ports which can have both Ethernet and LAG

ports.

- optional - Direction - Mirror session direction when configured along with Source port. (Supported rx/tx/both. default direction is both)
- optional - Queue in which packets shall be sent out of the device. Valid values 0 to 7 for most of the devices. Users need to know their device and the number of queues supported in that device.
- optional - Policer which will be used to control the rate at which frames are mirrored.

### Examples

```
admin@sonic:~$ show acl counters
RULE NAME          TABLE NAME  PRIO  PACKETS COUNT  BYTES COUNT  UPDATE
TIME
RULE_1             TEST         9999  76042306      9733442816
2023-03-21 07:35:45
DEFAULT_RULE TEST         1      0              0
1970-01-01 00:00:00
```

## 1.3 show mirror\_session

### Function

Run the **show mirror\_session** command to display all the mirror sessions that are configured.

### Syntax

**show mirror\_session**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show mirror_session
ERSPAN Sessions
Name          Status    SRC IP      DST IP      GRE    DSCP    TTL
Queue        Policer   Monitor Port SRC Port    Direction
-----
everflow0    active   10.1.0.32  10.0.0.7
SPAN Sessions
```

Name Policer	Status	DST Port	SRC Port	Direction	Queue
----- port0	----- active	----- Ethernet10	----- Ethernet20	----- rx	-----

# 1 sflow Commands

Command	Function
<a href="#"><u>config sflow agent-id</u></a>	Add/delete the sFlow agent-id.
<a href="#"><u>config sflow collector add</u></a>	Add a sFlow collector.
<a href="#"><u>config sflow collector del</u></a>	Delete a sFlow collector with the given name.
<a href="#"><u>config sflow</u></a>	Start and sample will start on all interfaces which have sFlow enabled at the interface level (see "config sflow interface...").
<a href="#"><u>config sflow interface</u></a>	Enable all interfaces at the interface level.
<a href="#"><u>config sflow interface sample-rate</u></a>	Configure the sample-rate for a specific interface.
<a href="#"><u>config sflow polling-interval</u></a>	Set the counter polling interval.
<a href="#"><u>show sflow</u></a>	Display the global sFlow configuration that includes the admin state, collectors, the Agent ID and counter polling interval.
<a href="#"><u>show sflow interface</u></a>	Display the per-interface sflow admin status and the sampling rate.

## 1.1 config sflow agent-id

### Function

Run the **config sflow agent-id** command to add/delete the sFlow agent-id.

This setting is global (applicable to both collectors) and optional. Only a single agent-id is allowed. If agent-id is not specified (with this CLI), an appropriate IP that belongs to the switch is used as the agent-id based on some simple heuristics.

### Syntax

```
config sflow agent-id [ add/del ] [ interface-name ]
```

### Parameter Description

*interface-name*: specify the interface name whose ipv4 or ipv6 address will be used as the agent-id in sFlow datagrams.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config sflow agent-id add lo
```

## 1.2 config sflow collector add

### Function

Run the **config sflow collector add** command to add a sFlow collector.

### Syntax

```
config sflow collector add [ collector-name ] [ ipv4-address | ipv6-address ] [ port  
number ]
```

### Parameter Description

*collector-name*: unique name of the sFlow collector

*ipv4-address*: IP address of the collector in dotted decimal format for IPv4

*ipv6-address*: x: x: x: x::x format for IPv6 address of the collector (where :: notation specifies successive hexadecimal fields of zeros)

**port (OPTIONAL)**: specifies the UDP port of the collector (the range is from 0 to 65535. The default is 6343.)

### Usage Guidelines

Note that a maximum of 2 collectors is allowed.

## Examples

```
admin@sonic:~$ sudo config sflow collector add collector_A 10.11.46.2
```

## 1.3 config sflow collector del

### Function

Run the **config sflow collector del** command to delete a sFlow collector with the given name.

### Syntax

```
config sflow collector del [ collector-name ]
```

### Parameter Description

*collector-name*: unique name of the sFlow collector

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config sflow collector del collector_A
```

## 1.4 config sflow

### Function

Run the **config sflow** command to start and sample will start on all interfaces which have sFlow enabled at the interface level (see "config sflow interface...").

When sflow is disabled globally, sampling is stopped on all relevant interfaces and sflow daemon is stopped.

### Syntax

```
config sflow { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config sflow enable
```



## 1.5 config sflow interface

### Function

Run the **config sflow interface** command to enable all interfaces at the interface level.

Use this command to explicitly disable sFlow for a specific interface. An interface is sampled if sflow is enabled globally as well as at the interface level. Note that this configuration deals only with sFlow flow samples and not counter samples.

### Syntax

```
config sflow interface { enable | disable } [ interface-name | all ]
```

### Parameter Description

*interface-name*: specify the interface for which sFlow flow samples have to be enabled/disabled. The "all" keyword is used as a convenience to enable/disable sflow at the interface level for all the interfaces.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config sflow interface disable Ethernet40
```

## 1.6 config sflow interface sample-rate

### Function

Run the **config sflow interface sample-rate** command to configure the sample-rate for a specific interface.

### Syntax

```
config sflow interface sample-rate [ interface-name ] [ value ]
```

### Parameter Description

*interface-name*: specify the interface for which the sampling rate value is to be set.

*value*: value is the average number of packets skipped before the sample is taken. "The sampling rate specifies random sampling probability as the ratio of packets observed to samples generated. For example a sampling rate of 256 specifies that, on average, 1 sample will be generated for every 256 packets observed." Valid range 256:8388608.

### Usage Guidelines

The default sample rate for any interface is (ifSpeed / 1e6) where ifSpeed is in bits/sec. So, the default sample rate based on interface speed is:

1-in-1000 for a 1G link

1-in-10,000 for a 10G link

1-in-40,000 for a 40G link

1-in-50,000 for a 50G link

1-in-100,000 for a 100G link

It is recommended not to change the defaults. This CLI is to be used only in case of exceptions (e.g., to set the sample-rate to the nearest power-of-2 if there are hardware restrictions in using the defaults)

## Examples

```
admin@sonic:~$ sudo config sflow interface sample-rate Ethernet32 1000
```

## 1.7 config sflow polling-interval

### Function

Run the **config sflow polling-interval** command to set the counter polling interval.

### Syntax

```
config sflow polling-interval [ value ]
```

### Parameter Description

*value*: 0-300 seconds. Set polling-interval to 0 to disable counter polling.

### Usage Guidelines

Default is 20 seconds.

## Examples

```
admin@sonic:~$ sudo config sflow polling-interval 30
```

## 1.8 show sflow

### Function

Run the **show sflow** command to display the global sFlow configuration that includes the admin state, collectors, the Agent ID and counter polling interval.

### Syntax

```
show sflow
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show sflow

sFlow Global Information:
sFlow Admin State:          up
sFlow Polling Interval:    default(20s)
sFlow AgentID:             default
Collectors configured:     2
  Name: 1                   IP addr: 172.168.1.3
  UDP port: 6343           VRF: default
  Name: 2                   IP addr: 172.168.1.2
  UDP port: 6343           VRF: default
```

## 1.9 show sflow interface

### Function

Run the **show sflow interface** command to display the per-interface sflow admin status and the sampling rate.

### Syntax

**show sflow interface**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show sflow interface

sFlow interface configurations
+-----+-----+-----+-----+
| Interface | Admin State | Sampling Rate | Sampling Stage |
+-----+-----+-----+-----+
====+
| Ethernet1 | down        |                | 25000 | ingress |
+-----+-----+-----+-----+
| Ethernet2 | down        |                | 25000 | ingress |
+-----+-----+-----+-----+
| Ethernet3 | down        |                | 25000 | ingress |
+-----+-----+-----+-----+
```

```
| Ethernet4    | down          |          |          | 25000 | ingress |          |
+-----+-----+-----+-----+-----+-----+-----+
| Ethernet5    | down          |          |          | 25000 | ingress |          |
+-----+-----+-----+-----+-----+-----+
| Ethernet6    | down          |          |          | 25000 | ingress |          |
+-----+-----+-----+-----+-----+-----+
...
+-----+-----+-----+-----+-----+-----+
| Ethernet52   | down          |          |          | 100000 | ingress |          |
+-----+-----+-----+-----+-----+-----+
| Ethernet53   | down          |          |          | 100000 | ingress |          |
+-----+-----+-----+-----+-----+-----+
| Ethernet54   | down          |          |          | 100000 | ingress |          |
+-----+-----+-----+-----+-----+-----+
| Ethernet55   | down          |          |          | 100000 | ingress |          |
+-----+-----+-----+-----+-----+-----+
| Ethernet56   | down          |          |          | 100000 | ingress |          |
+-----+-----+-----+-----+-----+-----+
```

# 1 NTP Commands

Command	Function
<a href="#">config ntp add</a>	Add a NTP server address.
<a href="#">config ntp add_src</a>	Add a NTP source.
<a href="#">config ntp del</a>	Delete a configured NTP server address.
<a href="#">config ntp del_src</a>	Delete a configured NTP source.
<a href="#">show ntp</a>	Display a list of NTP peers known to the server as well as a summary of their state.

## 1.1 config ntp add

### Function

Run the **config ntp add** command to add a NTP server address.

The address can be an IP address or a domain address.

---

#### Note

That only one NTP server address can be added in the device. So, if you repeat this command, it will overwrite the previous configuration.

---

### Syntax

```
sudo config ntp add server-addr
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config ntp add 9.9.9.9
NTP server 9.9.9.9 added to configuration
Restarting ntp-config service...
admin@sonic:~$ sudo config ntp add ntp.ntsc.ac.cn
NTP server ntp.ntsc.ac.cn added to configuration
Restarting ntp-config service...
```

## 1.2 config ntp add\_src

### Function

Run the **config ntp add\_src** command to add a NTP source.

The source can be an interface or an IP address. The interface can be eth0, Vlan, PortChannel, Ethernet and Loopback. If you want to specify a source interface, the interface must be configured with an IP address. If you want to specify a source IP address, the IP address must be configured in the device.

---

#### Note

That only one NTP source can be added in the device. So, if you repeat this command, it will overwrite the previous configuration.

---

## Syntax

```
sudo config ntp add_src src
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config ntp add_src 172.28.145.251
172.28.145.250 has been configured as ntp source
Restarting ntp-config service...
admin@sonic:~$ sudo config ntp add_src eth0
eth0 has been configured as ntp source
Restarting ntp-config service...
```

## 1.3 config ntp del

### Function

Run the **config ntp del** command to delete a configured NTP server address.

### Syntax

```
sudo config ntp del address
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config ntp del 9.9.9.9
9.9.9.9 has been removed from ntp source
Restarting ntp-config service...
```

## 1.4 config ntp del\_src

### Function

Run the **config ntp del\_src** command to delete a configured NTP source.

**Syntax**

```
sudo config ntp del_src src
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config ntp del_src 172.28.145.250
172.28.145.250 has been removed from ntp source
Restarting ntp-config service...
```

## 1.5 show ntp

**Function**

Run the **show ntp** command to display a list of NTP peers known to the server as well as a summary of their state.

**Syntax**

```
show ntp
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config ntp add 172.28.145.251
MGMT_VRF_CONFIG is not present.
  remote          refid      st t when poll reach  delay  offset  jitter
=====
=====
*172.28.145.251   LOCAL(0)  6 u   59   64  377   0.136 -63445.144.447
```

```
NTP SERVER :
  172.28.145.251
Source Interface : unspecified
```



# 1 FTP Commands

Command	Function
<a href="#"><u>binary/ascii</u></a>	Switch the data transfer mode between binary and ascii.
<a href="#"><u>config ftp-server disable</u></a>	Disable FTP server function.
<a href="#"><u>config ftp-server enable</u></a>	Enable FTP server function.
<a href="#"><u>config ftp-server login-times</u></a>	Set the maximum number of FTP login attempts allowed.
<a href="#"><u>config ftp-server max-sessions</u></a>	Set the maximum number of FTP clients that can be concurrently connected to the FTP server.
<a href="#"><u>config ftp-server timeout</u></a>	Set the idle timeout duration of the FTP server for online clients in seconds.
<a href="#"><u>ftp</u></a>	Log in a FTP server.
<a href="#"><u>get</u></a>	Download files.
<a href="#"><u>put</u></a>	Upload files.
<a href="#"><u>passive</u></a>	Switch the FTP connection mode between passive and active.
<a href="#"><u>rstatus</u></a>	Display FTP server information.
<a href="#"><u>status</u></a>	Display FTP client information.
<a href="#"><u>show ftp-server</u></a>	Display the status of FTP server function, maximum number of login attempts allowed, maximum number of sessions, and idle timeout duration.

## 1.1 binary/ascii

### Function

Run the **binary/ascii** command to switch the data transfer mode between binary and ascii.

### Syntax

**binary**

**ascii**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ ftp 172.20.92.130
Connected to 172.20.92.130.
220 Microsoft FTP Service
Name (172.20.92.130:admin): admin
331 Password required
Password:
230 User logged in.
Remote system type is Windows_NT.
ftp> binary
200 Type set to I.
ftp>
ftp> ascii
200 Type set to A.
ftp>
```

## 1.2 config ftp-server disable

### Function

Run the **config ftp-server disable** command to disable FTP server function.

### Syntax

**sudo config ftp-server disable**

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config ftp-server disable
Restarting vsftpd-config service...
```

## 1.3 config ftp-server enable

### Function

Run the **config ftp-server enable** command to enable FTP server function.

### Syntax

```
sudo config ftp-server enable
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config ftp-server enable
Restarting vsftpd-config service...
```

## 1.4 config ftp-server login-times

### Function

Run the **config ftp-server login-times** command to set the maximum number of FTP login attempts allowed.

The default value is 1, which means if an incorrect user name or password is entered once, the session is terminated. If the configured value is greater than 1, the client needs to use the "user" command to re-enter the user name and password after a login failure. The value ranges from 1 to 10. The default value is 1.

### Syntax

```
sudo config ftp-server login-times [ login-times ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config ftp-server login-times 5
Restarting vsftpd-config service...
```

## 1.5 config ftp-server max-sessions

### Function

Run the **config ftp-server max-sessions** command to set the maximum number of FTP clients that can be concurrently connected to the FTP server.

The value ranges from 1 to 20. The default value is 10.

### Syntax

```
sudo config ftp-server max-sessions [ max-sessions ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config ftp-server max-sessions 5
Restarting vsftpd-config service...
```

## 1.6 config ftp-server timeout

### Function

Run the **config ftp-server timeout** command to set the idle timeout duration of the FTP server for online clients in seconds.

The value ranges from 1 to 3600. The default value is 600. When the idle timeout duration expires, the client is disconnected from the FTP server.

### Syntax

```
sudo config ftp-server timeout [ timeout ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config ftp-server timeout 300
Restarting vsftpd-config service...
```

## 1.7 ftp

### Function

Run the **ftp** command to log in a FTP server.

### Syntax

```
ftp [ server-address ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ ftp 10.110.197.248
Connected to 10.110.197.248.
220 (vsFTPD 3.0.3)
Name (10.110.197.248:admin): admin
331 Please specify the password.
Password:
530 Login incorrect.
Login failed.
ftp> user
(username) admin
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp>
^^^
```

## 1.8 get

### Function

Run the **get** command to download files.

### Syntax

```
get [ remote-directory | local-file ] [ local-directory | local-file ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ ftp 172.20.92.130
Connected to 172.20.92.130.
220 Microsoft FTP Service
Name (172.20.92.130:admin): admin
331 Password required
Password:
230 User logged in.
Remote system type is Windows_NT.
ftp> get sonic/server_file.txt /home/admin/test/server_file.txt
local: /home/admin/test/server_file.txt remote: sonic/server_file.txt
200 PORT command successful.
125 Data connection already open; Transfer starting.
226 Transfer complete.
ftp>
```

## 1.9 put

### Function

Run the **put** command to upload files.

### Syntax

```
put [ local-directory | local-file ] [ remote-directory | remote-file ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ ftp 172.20.92.130
Connected to 172.20.92.130.
220 Microsoft FTP Service
Name (172.20.92.130:admin): admin
331 Password required
Password:
230 User logged in.
Remote system type is Windows_NT.
ftp> put /home/admin/test/client_file.txt sonic/client_file.txt
local: /home/admin/test/client_file.txt remote: sonic/client_file.txt
200 PORT command successful.
125 Data connection already open; Transfer starting.
226 Transfer complete.
ftp>
```

## 1.10 passive

### Function

Run the **passive** command to switch the FTP connection mode between passive and active.

### Syntax

**passive**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ ftp 172.20.92.130
Connected to 172.20.92.130.
220 Microsoft FTP Service
Name (172.20.92.130:admin): admin
331 Password required
Password:
230 User logged in.
```

```
Remote system type is Windows_NT.  
ftp> passive  
Passive mode on.  
ftp> passive  
Passive mode off.  
ftp>
```

## 1.11 rstatus

### Function

Run the **rstatus** command to display FTP server information.

### Syntax

```
rstatus
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ ftp 172.28.48.112  
Connected to 172.28.48.112.  
220 (vsFTPd 3.0.3)  
Name (172.28.48.112:admin): sdk  
331 Please specify the password.  
Password:  
230 Login successful.  
Remote system type is UNIX.  
Using binary mode to transfer files.  
ftp> rstatus  
211-FTP server status:  
  Connected to ::ffff:172.20.37.43  
  Logged in as sdk  
  TYPE: ASCII  
  No session bandwidth limit  
  Session timeout in seconds is 300  
  Control connection is plain text  
  Data connections will be plain text  
  At session startup, client count was 1  
  vsFTPd 3.0.3 - secure, fast, stable  
211 End of status
```



```
ftp>
```

## 1.12 status

### Function

Run the **status** command to display FTP client information.

### Syntax

**status**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ ftp 172.28.48.112
Connected to 172.28.48.112.
220 (vsFTPD 3.0.3)
Name (172.28.48.112:admin): admin
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> status
Connected to 172.28.48.112.
No proxy connection.
Connecting using address family: any.
Mode: stream; Type: binary; Form: non-print; Structure: file
Verbose: on; Bell: off; Prompting: on; Globbing: on
Store unique: off; Receive unique: off
Case: off; CR stripping: on
Quote control characters: on
Ntrans: off
Nmap: off
Hash mark printing: off; Use of PORT cmds: on
Tick counter printing: off
ftp>
```

## 1.13 show ftp-server

### Function

Run the **show ftp-server** command to display the status of FTP server function, maximum number of login attempts allowed, maximum number of sessions, and idle timeout duration.

### Syntax

```
show ftp-server
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ftp-server
enable : Y
timeout : 300 s
max sessions : 10
login_times : 1
```

# 1 SNMP Commands

Command	Function
<a href="#"><u>config snmp</u></a>	Enable or disable the SNMP service.
<a href="#"><u>config snmp community</u></a>	Add, delete, or modify the SNMP community.
<a href="#"><u>config snmp contact</u></a>	Add, delete, or modify the SNMP contact.
<a href="#"><u>config snmp location</u></a>	Add, delete, or modify the SNMP location.
<a href="#"><u>config snmp user</u></a>	Add or delete the SNMP user for SNMPv3.
<a href="#"><u>config snmp view</u></a>	Add, delete, or modify the SNMP view.
<a href="#"><u>show runningconfiguration snmp</u></a>	Display the global SNMP configuration that includes the location, contact, community, and user settings.
<a href="#"><u>show runningconfiguration snmp community</u></a>	Display the SNMP community settings.
<a href="#"><u>show runningconfiguration snmp contact</u></a>	Display the SNMP contact setting.
<a href="#"><u>show runningconfiguration snmp location</u></a>	Display the SNMP location setting.
<a href="#"><u>show runningconfiguration snmp view</u></a>	Display the SNMP view setting.
<a href="#"><u>show runningconfiguration snmp user</u></a>	Display the SNMP user settings.

## 1.1 config snmp

### Function

Run the **config snmp** command to enable or disable the SNMP service.

### Syntax

```
config snmp { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmp enable
Restarting SNMP service...
```

## 1.2 config snmp community

### Function

Run the **config snmp community** command to add, delete, or modify the SNMP community.

### Syntax

```
config snmp community add [ community ] [ RO | RW ] [ -s | --source ] [ -v | --view ]
```

```
config snmp community del [ community ]
```

```
config snmp community modify [ community ] [ RO | RW ] [ -s | --source ] [ -v | --view ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmp community add testcomm ro -s 172.31.240.48 -v
testview1
SNMP community testcomm added to configuration
Restarting SNMP service...
```

```
admin@sonic:~$ sudo config snmp community del testcomm
SNMP community testcomm removed from configuration
Restarting SNMP service...
```

```
admin@sonic:~$ sudo config snmp community modify testcomm rw -s 172.31.240.48 -v
testview2
Restarting SNMP service...
```

## 1.3 config snmp contact

### Function

Run the **config snmp contact** command to add, delete, or modify the SNMP contact.

### Syntax

```
config snmp contact add [ contact ] [ contact_email ]
```

```
config snmp contact del [ contact ]
```

```
config snmp contact modify [ contact ] [ contact_email ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmp contact add joe joe@contoso.com
Contact name joe and contact email joe@contoso.com have been added to configuration
Restarting SNMP service...
^^^
```

```
admin@sonic:~$ sudo config snmp contact del joe
SNMP contact joe removed from configuration
Restarting SNMP service...
```

```
admin@sonic:~$ sudo config snmp contact modify test test@contoso.com
SNMP contact test and contact email test@contoso.com updated
Restarting SNMP service...
```

## 1.4 config snmp location

### Function

Run the **config snmp location** command to add, delete, or modify the SNMP location.

### Syntax

```
config snmp location { add | del | modify } [ location ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
# Add new SNMP location "Emerald City" if it does not already exist
```

```
admin@sonic:~$ sudo config snmp location add Emerald City
SNMP Location Emerald City has been added to configuration
Restarting SNMP service...
```

```
# Delete SNMP location "Emerald City" if it already exists
```

```
admin@sonic:~$ sudo config snmp location del Emerald City
SNMP Location Emerald City removed from configuration
Restarting SNMP service...
```

```
# Modify SNMP location "Emerald City" to "Redmond"
```

```
admin@sonic:~$ sudo config snmp location modify Redmond
SNMP location Redmond modified in configuration
Restarting SNMP service...
```

## 1.5 config snmp user

### Function

Run the **config snmp user** command to add or delete the SNMP user for SNMPv3.

### Syntax

```
config snmp user add [ user ] { noAuthNoPriv | AuthNoPriv | Priv } { RO | RW } [ [ MD5 | SHA ] [ auth_password ] ] [ [ DES | AES ] [ encrypt_password ] ] [ -v | --view ]
config snmp user del [ user ]
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config snmp user add testuser1 noauthnopriv ro
SNMP user testuser1 added to configuration
Restarting SNMP service...
```

```
admin@sonic:~$ sudo config snmp user add testuser2 authnopriv ro sha
testuser2_auth_pass
SNMP user testuser2 added to configuration
Restarting SNMP service...
```

```
admin@sonic:~$ sudo config snmp user add testuser3 priv rw md5 testuser3_auth_pass
aes testuser3_encrypt_pass -v testview1
SNMP user testuser3 added to configuration
Restarting SNMP service...
```

```
admin@sonic:~$ sudo config snmp user del testuser1
SNMP user testuser1 removed from configuration
Restarting SNMP service...
```

## 1.6 config snmp view

### Function

Run the **config snmp view** command to add, delete, or modify the SNMP view.

### Syntax

```
config snmp view add [ viewname ] [ viewtype ] [ viewoid ]
```

```
config snmp view del [ viewname ] [ viewtype ] [ viewoid ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config snmp view add testview1 include 1.3.6.1.2.1
Restarting SNMP service...
```

```
admin@sonic:~$ sudo config snmp view del testview1 include 1.3.6.1.2.1
Restarting SNMP service...
```

## 1.7 show runningconfiguration snmp

### Function

Run the **show runningconfiguration snmp** command to display the global SNMP configuration that includes the location, contact, community, and user settings.

### Syntax

```
show runningconfiguration snmp
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration snmp
Status
-----
enable

Location
-----
Emerald City

SNMP_CONTACT      SNMP_CONTACT_EMAIL
-----
joe                joe@contoso.com

View      Type      OID
-----
testview  include  1.3.6.1.2.1

Community String      Community Type      Source      View
-----
Jack                  RW                  172.31.240.48  testview1
```



User	Permission	Type	Type	Auth Type	Auth Password	Encryption Type
	Encryption Password		View			
Travis	RO		Priv	SHA	TravisAuthPass	AES
	TravisEncryptPass		testview1			

## 1.8 show runningconfiguration snmp community

### Function

Run the **show runningconfiguration snmp community** command to display the SNMP community settings.

### Syntax

**show runningconfiguration snmp community**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration snmp community
```

Community String	Community Type	Source	View
testcom1	RO		
testcom2	RO	172.31.240.48	testview1

## 1.9 show runningconfiguration snmp contact

### Function

Run the **show runningconfiguration snmp contact** command to display the SNMP contact setting.

### Syntax

**show runningconfiguration snmp contact**

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show runningconfiguration snmp contact
Contact      Contact Email
-----
joe          joe@contoso.com
```

## 1.10 show runningconfiguration snmp location

### Function

Run the **show runningconfiguration snmp location** command to display the SNMP location setting.

### Syntax

```
show runningconfiguration snmp location
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show runningconfiguration snmp location
Location
-----
Emerald City
```

## 1.11 show runningconfiguration snmp view

### Function

Run the **show runningconfiguration snmp view** command to display the SNMP view setting.

### Syntax

```
show runningconfiguration snmp view
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show runningconfiguration snmp view
View      Type      OID
-----
testview1 included  1.3.6.1.2.1
```

## 1.12 show runningconfiguration snmp user

**Function**

Run the **show runningconfiguration snmp user** command to display the SNMP user settings.

**Syntax**

**show runningconfiguration snmp user**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show runningconfiguration snmp user
User      Permission Type      Type      Auth Type      Auth Password      Encryption Type
Encryption Password      View
-----
Travis RO              Priv      SHA              TravisAuthPass      AES
TravisEncryptPass
Joe      RO              Priv      SHA              TravisAuthPass      AES
TravisEncryptPass      testview1
...

```

# 1 RESTCONF Commands

Command	Function
<a href="#"><u>config rest-server default certs</u></a>	Configure X509 certificates for the REST server.
<a href="#"><u>config rest-server default client-auth</u></a>	Configure the authentication type of the REST server.
<a href="#"><u>config rest-server default log-level</u></a>	Configure the log output level for the REST server.
<a href="#"><u>config rest-server default port</u></a>	Configure the port of the REST server.
<a href="#"><u>config rest-server default reset port</u></a>	Configure the REST port of the REST server.
<a href="#"><u>config rest-server default status</u></a>	Enable or disable the REST server.
<a href="#"><u>show rest-server default</u></a>	Display the REST server configuration.

## 1.1 config rest-server default certs

### Function

Run the **config rest-server default certs** command to configure X509 certificates for the REST server.

### Syntax

```
config rest-server default certs [ server-crt ] [ server-key ] [ ca-crt ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config rest-server default certs /etc/sonic/certs/target.crt  
/etc/sonic/certs/target.key /etc/sonic/certs/ca.crt  
Restarting mgmt-framework service...
```

## 1.2 config rest-server default client-auth

### Function

Run the **config rest-server default client-auth** command to configure the authentication type of the REST server.

### Syntax

```
config rest-server default client-auth { cert | none | user }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config rest-server default client-auth cert  
Restarting mgmt-framework service...
```

## 1.3 config rest-server default log-level

### Function

Run the **config rest-server default log-level** command to configure the log output level for the REST server.

### Syntax

```
config rest-server default log-level [ log-level ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config rest-server default log-level 5
Restarting mgmt-framework service...
```

## 1.4 config rest-server default port

### Function

Run the **config rest-server default port** command to configure the port of the REST server.

### Syntax

```
config rest-server default port [ port-num ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config rest-server default port 11443
Restarting mgmt-framework service...
```

## 1.5 config rest-server default reset port

### Function

Run the **config rest-server default reset port** command to configure the REST port of the REST server.

## Syntax

```
config rest-server default reset port
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config rest-server default reset port
Restarting mgmt-framework service...
```

## 1.6 config rest-server default status

### Function

Run the **config rest-server default status** command to enable or disable the REST server.

### Syntax

```
config rest-server default status { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config rest-server default status enable
Restarting mgmt-framework service...
```

## 1.7 show rest-server default

### Function

Run the **show rest-server default** command to display the REST server configuration.

### Syntax

```
show rest-server default
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show rest-server default
status      enable
port        443
auth_type   none
log_level   2
server_cert /etc/sonic/certs/target.crt
server_key  /etc/sonic/certs/target.key
ca_cert     /etc/sonic/certs/ca.crt
^^^
```



# 1 Telemetry Commands

Command	Function
<a href="#"><u>config telemetry certs</u></a>	Configure X509 certificates for telemetry.
<a href="#"><u>config telemetry gnmi auth-type</u></a>	Set the authentication type for the gNMI server.
<a href="#"><u>config telemetry gnmi log-level</u></a>	Set the log output level for the gNMI server.
<a href="#"><u>config telemetry gnmi port-num</u></a>	Set the port of the gNMI server.
<a href="#"><u>config telemetry gnmi status</u></a>	Enable or disable telemetry.
<a href="#"><u>show telemetry certs</u></a>	Display the telemetry certificate configuration.
<a href="#"><u>show telemetry gnmi</u></a>	Display the gNMI server configuration.

## 1.1 config telemetry certs

### Function

Run the **config telemetry certs** command to configure X509 certificates for telemetry.

### Syntax

```
config telemetry telemetry certs server-crt server-key ca-crt
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config telemetry certs /etc/sonic/certs/target.crt  
/etc/sonic/certs/target.key /etc/sonic/certs/ca.crt  
Restarting telemetry service...
```

## 1.2 config telemetry gnmi auth-type

### Function

Run the **config telemetry gnmi auth-type** command to set the authentication type for the gNMI server.

### Syntax

```
config telemetry gnmi auth-type { cert | none | password }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config telemetry gnmi auth-type cert  
Restarting telemetry service...
```

## 1.3 config telemetry gnmi log-level

### Function

Run the **config telemetry gnmi log-level** command to set the log output level for the gNMI server.

### Syntax

```
config telemetry gnmi log-level log-level
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config telemetry gnmi log-level 5  
Restarting telemetry service...
```

## 1.4 config telemetry gnmi port-num

### Function

Run the **config telemetry gnmi port-num** command to set the port of the gNMI server.

### Syntax

```
config telemetry gnmi port-num port-num
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config telemetry gnmi port-num 8090  
Restarting telemetry service...
```

## 1.5 config telemetry gnmi status

### Function

Run the **config telemetry gnmi status** command to enable or disable telemetry.

## Syntax

```
config telemetry gnmi status { enable | disable }
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config telemetry gnmi status enable
Restarting telemetry service...
```

## 1.6 show telemetry certs

### Function

Run the **show telemetry certs** command to display the telemetry certificate configuration.

### Syntax

```
show telemetry certs
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show telemetry certs
server_cert /etc/sonic/certs/target.crt
server_key  /etc/sonic/certs/target.key
ca_cert     /etc/sonic/certs/ca.crt
```

## 1.7 show telemetry gnmi

### Function

Run the **show telemetry gnmi** command to display the gNMI server configuration.

### Syntax

```
show telemetry gnmi
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show telemetry gnmi
status      enable
port        8090
auth_type   none
log_level   2 Location
```

# 1 VXLAN Commands

Command	Function
<a href="#"><u>config vxlan</u></a>	Add a VXLAN instance
<a href="#"><u>config vxlan evpn_nvo</u></a>	Configure EVPN.
<a href="#"><u>config vxlan mac capacity</u></a>	Configure the dynamic MAC address table capacity of the VNI.
<a href="#"><u>config vxlan mac filter</u></a>	Configure the filter MAC address of the VNI.
<a href="#"><u>config vxlan map</u></a>	Configure VLAN-VNI mapping.
<a href="#"><u>config vxlan remote-neigh-learn</u></a>	Configure the remote learning ability.
<a href="#"><u>config vxlan storm-control</u></a>	Configure storm control for the VNI.
<a href="#"><u>show vxlan interface</u></a>	Display VXLAN VTEP information.
<a href="#"><u>show vxlan mac-capacity</u></a>	Display the dynamic MAC address table capacity of the VNI.
<a href="#"><u>show vxlan mac-filter</u></a>	Display the filter MAC address of the VNI.
<a href="#"><u>show vxlan name</u></a>	Display vxlan name configuration.
<a href="#"><u>show vxlan storm-control</u></a>	Display the storm control entries of the VNI.
<a href="#"><u>show vxlan tunnel</u></a>	Display brief information about all the vxlans configured in the device.
<a href="#"><u>show vxlan tunnelcounters</u></a>	Display VXLAN tunnel counters.
<a href="#"><u>show vxlan remotevtep</u></a>	Display VRF VNI mapping information.
<a href="#"><u>show vxlan remotemac</u></a>	Display the MAC addresses pointing to the remote VTEP.
<a href="#"><u>show vxlan remotevni</u></a>	Display the VLANs extended to the remote VTEP.
<a href="#"><u>show vxlan vlanvni</u></a>	Display VLAN VNI mapping information.
<a href="#"><u>show vxlan vnicounters</u></a>	Display VXLAN VNI counters.
<a href="#"><u>show vxlan vrfvni</u></a>	Display VRF VNI mapping information.

## 1.1 config vxlan

### Function

Run the **config vxlan** command to add a VXLAN instance.

### Syntax

```
config vxlan { add | del } [ OPTIONS ] vxlan-name src-ip
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config vxlan add vtep1 1.0.0.1
admin@sonic:~$ sudo config vxlan del vtep1
```

## 1.2 config vxlan evpn\_nvo

### Function

Run the **config vxlan evpn\_nvo** command to configure EVPN.

### Syntax

```
config vxlan evpn_nvo [ OPTIONS ] { add | del } nvo-name vxlan-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config vxlan evpn_nvo add nvo vtep1
admin@sonic:~$ sudo config vxlan evpn_nvo del nvo
```

## 1.3 config vxlan mac capacity

### Function

Run the **config vxlan mac capacity** command to configure the dynamic MAC address table capacity of the VNI.

### Syntax

```
config vxlan mac capacity [ OPTIONS ] { add | del } oper vni capacity-number
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config vxlan mac capacity add 100011 100
admin@sonic:~$ sudo config vxlan mac capacity del 100011 100
```

## 1.4 config vxlan mac filter

### Function

Run the **config vxlan mac filter** command to configure the filter MAC address of the VNI.

### Syntax

```
config vxlan mac filter [ OPTIONS ] { add | del } oper vni mac-address
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config vxlan mac filter add 100011 00:00:00:10:10:10
admin@sonic:~$ sudo config vxlan mac filter del 100011 00:00:00:10:10:10
```

## 1.5 config vxlan map

### Function

Run the **config vxlan map** command to configure VLAN-VNI mapping.

### Syntax

```
config vxlan map [ OPTIONS ] { add | del } vtep-name vlan-id vni
```

### Parameter Description

N/A

### Usage Guidelines

N/A



## Examples

```
admin@sonic:~$ sudo config vxlan map add vtep1 11 100011
admin@sonic:~$ sudo config vxlan map del vtep1 11 100011
```

## 1.6 config vxlan remote-neighbor-learn

### Function

Run the **config vxlan remote-neighbor-learn** command to configure the remote learning ability.

### Syntax

```
config vxlan remote-neighbor-learn vtep-name { enable | disable }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config vxlan remote-neighbor-learn enable
admin@sonic:~$ sudo config vxlan remote-neighbor-learn disable
```

## 1.7 config vxlan storm-control

### Function

Run the **config vxlan storm-control** command to configure storm control for the VNI.

### Syntax

```
config vxlan storm-control [ OPTIONS ] { add | del } vni { unicast | broadcast | multicast }
{ pps pps-value | kbits kbits-value | level level-value }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config vxlan storm-control add 100011 unicast pps 1000
admin@sonic:~$ sudo config vxlan storm-control del 100011 unicast pps 1000
```

## 1.8 show vxlan interface

### Function

Run the **show vxlan interface** command to display VXLAN VTEP information.

### Syntax

```
show vxlan interface
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vxlan interface
VTEP Information:

VTEP Name : vtep1, SIP : 2.0.0.1
NVO Name  : nvo, VTEP : vtep1
Source interface : Loopback1
Remote neigh learn: True
Tunnel counting : True, Period : 1000
VNI counting   : True, Period : 1000
```

## 1.9 show vxlan mac-capacity

### Function

Run the **show vxlan mac-capacity** command to display the dynamic MAC address table capacity of the VNI.

### Syntax

```
show vxlan mac-capacity
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vxlan mac-capacity
```

```

+-----+-----+
| VNI    | mac-capacity |
+=====+=====+
| 100011 | 100          |
+-----+-----+
Total count : 1

```

## 1.10 show vxlan mac-filter

### Function

Run the **show vxlan mac-filter** command to display the filter MAC address of the VNI.

### Syntax

```
show vxlan mac-filter
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show vxlan mac-filter
+-----+-----+
| VNI    | filter-mac          |
+=====+=====+
| 100011 | 00:00:00:00:00:22:22 |
+-----+-----+
Total count : 1

```

## 1.11 show vxlan name

### Function

Run the **show vxlan name** command to display vxlan name configuration.

### Syntax

```
show vxlan name vxlan-name
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show vxlan name tunnel3
vxlan tunnel name   source ip   destination ip   tunnel map name   tunnel map
mapping(vni -> vlan)
-----
tunnel3             10.10.10.10 30.10.10.10     tmap2             1235 -> 200
```

## 1.12 show vxlan storm-control

### Function

Run the **show vxlan storm-control** command to display the storm control entries of the VNI.

### Syntax

```
show vxlan storm-control [ OPTIONS ] [ VNID ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vxlan storm-control
VNI   Broadcast Control   Multicast Control   Unicast Control
-----
100011   10000 pps           10000 pps           1000 pps
100012   60 %                 50 %                 10000 kbps
admin@sonic:~$ show vxlan storm-control 100011
VNI   Broadcast Control   Multicast Control   Unicast Control
-----
100011   10000 pps           10000 pps           1000 pps
```

## 1.13 show vxlan tunnel

### Function

Run the **show vxlan tunnel** command to display brief information about all the vxlans configured in the device.

It displays the vxlan tunnel name, source IP address, destination IP address (if configured), tunnel map name and mapping.

### Syntax

```
show vxlan tunnel
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vxlan tunnel
vxlan tunnel name  source ip  destination ip  tunnel map name  tunnel map
mapping(vni -> vlan)
-----
tunnel1           10.10.10.10
tunnel2           10.10.10.10  20.10.10.10    tmap1            1234 -> 100
tunnel3           10.10.10.10  30.10.10.10    tmap2            1235 -> 200
```

## 1.14 show vxlan tunnelcounters

### Function

Run the **show vxlan tunnelcounters** command to display VXLAN tunnel counters.

### Syntax

```
show vxlan tunnelcounters
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vxlan tunnelcounters
Tunnel      RX_PKTS  RX_BYTES  RX_PPS  RX_BPS  TX_PKTS  TX_BYTES  TX_PPS
TX_BPS
-----
-
```

EVPN_2.0.0.1	1234	1512034	10/s	1.1KB/s	2234	2235235	23/s	2.2KB/s
EVPN_3.2.3.2	2344	162034	15/s	1.5KB/s	200	55235	2/s	0.2KB/s

## 1.15 show vxlan remotevtep

### Function

Run the **show vxlan remotevtep** command to display VRF VNI mapping information.

### Syntax

**show vxlan remotevtep**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vxlan remotevtep
+-----+-----+-----+-----+
| SIP    | DIP    | Creation Source | OperStatus |
+-----+-----+-----+-----+
| 1.0.0.1 | 2.0.0.1 | EVPN           | oper_up    |
+-----+-----+-----+-----+
Total count : 1
```

## 1.16 show vxlan remotemac

### Function

Run the **show vxlan remotemac** command to display the MAC addresses pointing to the remote VTEP.

### Syntax

**show vxlan remotemac** [ *vtep-ip* | **all** ]

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show vxlan remotemac all
+-----+-----+-----+-----+-----+
| VLAN  | MAC                | RemoteVTEP | VNI | Type  |
+=====+=====+=====+=====+=====+
| Vlan11 | 00:00:00:12:30:10 | 2.0.0.1    | 100011 | dynamic |
+-----+-----+-----+-----+-----+
Total count : 1

admin@sonic:~$ show vxlan remotemac 2.0.0.1
+-----+-----+-----+-----+-----+
| VLAN  | MAC                | RemoteVTEP | VNI | Type  |
+=====+=====+=====+=====+=====+
| Vlan11 | 00:00:00:12:30:10 | 2.0.0.1    | 100011 | dynamic |
+-----+-----+-----+-----+-----+
Total count : 1
    
```

## 1.17 show vxlan remotevni

### Function

Run the **show vxlan remotevni** command to display the VLANs extended to the remote VTEP.

### Syntax

**show vxlan remotevni** [ *vtep-ip* | **all** ]

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show vxlan remotevni all
+-----+-----+-----+
| VLAN  | RemoteVTEP | VNI  |
+=====+=====+=====+
| Vlan11 | 2.0.0.1    | 100011 |
+-----+-----+-----+
Total count : 1

admin@sonic:~$ show vxlan remotevni 2.0.0.1
+-----+-----+-----+
    
```

```
| VLAN      | RemoteVTEP | VNI      |
+=====+
| Vlan11    | 2.0.0.1    | 100011   |
+-----+
Total count : 1
```

## 1.18 show vxlan vlanvni

### Function

Run the **show vxlan vlanvni** command to display VLAN VNI mapping information.

### Syntax

**show vxlan vlanvni**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vxlan vlanvni
+-----+
| VLAN  | VNI  |
+=====+
| Vlan11| 100011|
+-----+
| Vlan12| 100012|
+-----+
Total count : 2
```

## 1.19 show vxlan vnicounters

### Function

Run the **show vxlan vnicounters** command to display VXLAN VNI counters.

### Syntax

**show vxlan vnicounters**



**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show vxlan vnicounters
VNI      RX_PKTS  RX_BYTES  RX_PPS   RX_BPS   TX_PKTS  TX_BYTES  TX_PPS   TX_BPS
-----
100010   1234     1512034   10/s     1.1KB/s  2234     2235235   23/s     2.2KB/s
```

**1.20 show vxlan vrfvni****Function**

Run the **show vxlan vrfvni** command to display VRF VNI mapping information.

**Syntax**

```
show vxlan vrfvni
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show vxlan vrfvni
+-----+-----+
| VRF  |  VNI  |
+=====+=====+
| Vrf1 | 10001 |
+-----+-----+
Total count : 1
```

# 1 Vnet Commands

Command	Function
<a href="#"><u>show vnet brief</u></a>	Display brief information about all the vnets configured in the device.
<a href="#"><u>show vnet interfaces</u></a>	Display vnet interfaces information about all the vnets configured in the device.
<a href="#"><u>show vnet name</u></a>	Display brief information about vnet name configured in the device.
<a href="#"><u>show vnet neighbors</u></a>	Display vnet neighbor information about all the vnets configured in the device.
<a href="#"><u>show vnet routes all</u></a>	Display all routes information about all the vnets configured in the device.
<a href="#"><u>show vnet routes tunnel</u></a>	Display tunnel routes information about all the vnets configured in the device.

## 1.1 show vnet brief

### Function

Run the **show vnet brief** command to display brief information about all the vnets configured in the device.

It displays the vnet name, vxlan tunnel name, vni and peer list (if configured).

### Syntax

```
show vnet brief
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vnet brief
vnet name      vxlan tunnel      vni  peer list
-----
Vnet_2000      tunnell           2000
Vnet_3000      tunnell           3000  Vnet_2000,Vnet4000E
```

## 1.2 show vnet interfaces

### Function

Run the **show vnet interfaces** command to display vnet interfaces information about all the vnets configured in the device.

### Syntax

```
show vnet interfaces
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vnet interfaces
vnet name      interfaces
```

```

-----
Vnet_2000      Ethernet1
Vnet_3000      Vlan2000

```

## 1.3 show vnet name

### Function

Run the **show vnet name** command to display brief information about vnet name configured in the device.

### Syntax

```
show vnet name vnet-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show vnet name Vnet_3000
vnet name      vxlan tunnel      vni      peer list
-----
Vnet_3000      tunnel1           3000     Vnet_2000,Vnet4000

```

## 1.4 show vnet neighbors

### Function

Run the **show vnet neighbors** command to display vnet neighbor information about all the vnets configured in the device.

It displays the vnet name, neighbor IP address, neighbor mac address (if configured) and interface.

### Syntax

```
show vnet neighbors
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show vnet neighbors
Vnet_2000      neighbor      mac_address      interfaces
-----
                11.11.11.11      Ethernet1
                11.11.11.12      Ethernet1

Vnet_3000      neighbor      mac_address      interfaces
-----
                20.20.20.20      aa:bb:cc:dd:ee:ff      Vlan2000
```

## 1.5 show vnet routes all

### Function

Run the **show vnet routes all** command to display all routes information about all the vnets configured in the device.

### Syntax

```
show vnet routes all
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show vnet routes all
vnet name      prefix      nexthop      interface
-----
Vnet_2000      100.100.3.0/24      Ethernet52
Vnet_3000      100.100.4.0/24      Vlan2000

vnet name      prefix      endpoint      mac address      vni
-----
Vnet_2000      100.100.1.1/32      10.10.10.1
Vnet_3000      100.100.2.1/32      10.10.10.2      00:00:00:00:03:04
```

## 1.6 show vnet routes tunnel

### Function

Run the **show vnet routes tunnel** command to display tunnel routes information about all the vnets configured in the device.

**Syntax**

**show vnet routes tunnel**

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show vnet routes tunnel
vnet name      prefix          endpoint        mac address      vni
-----
Vnet_2000      100.100.1.1/32  10.10.10.1
Vnet_3000      100.100.2.1/32  10.10.10.2     00:00:00:00:03:04
```

# 1 RDMA Commands

Command	Function
<a href="#"><u>config buffer pool</u></a>	Configure a custom pool.
<a href="#"><u>config buffer profile</u></a>	Configure a lossless buffer profile.
<a href="#"><u>config buffer shared-headroom-pool</u></a>	Configure the shared headroom pool.
<a href="#"><u>config ecn</u></a>	Configures the possible fields in a particular WRED profile that is specified using " <b>-profile</b> <i>profile-name</i> " argument.
<a href="#"><u>config interface buffer priority-group lossless</u></a>	Configure the priority groups on which lossless traffic runs.
<a href="#"><u>config interface buffer queue</u></a>	Configure the buffer profiles for queues.
<a href="#"><u>config interface cable_length</u></a>	Configure the length of the cable connected to a port. The cable_length is in unit of meters and must be suffixed with "m".
<a href="#"><u>config pfcwd action</u></a>	Configure the PFC-deadlock recovery action.
<a href="#"><u>config pfcwd detect-precision</u></a>	Configure the PFC-deadlock detection precision.
<a href="#"><u>config pfcwd set</u></a>	Configure the detection times and recovery time of the PFC watchdog for different priority groups.
<a href="#"><u>show buffer configuration</u></a>	Display the status of buffer pools and profiles currently configured.
<a href="#"><u>show buffer statistics</u></a>	Display the buffer counters.
<a href="#"><u>show ecn</u></a>	Display all the WRED profiles that are configured in the device.
<a href="#"><u>show pfc asymmetric</u></a>	Display the status of asymmetric PFC for all interfaces or a given interface.
<a href="#"><u>show pfc counters</u></a>	Display the details of Rx & Tx priority-flow-control (pfc) for all ports. This command can be used to clear the counters using -c option.

---

<a href="#"><b>show pfc priority</b></a>	Display the lossless priorities for all interfaces or a given interface.
<a href="#"><b>show pfcwd config</b></a>	Shows current PFC Watchdog configuration.
<a href="#"><b>show pfcwd stats</b></a>	Shows current PFC Watchdog statistics (storms detected, packets dropped, etc).



## 1.1 config buffer pool

### Function

Run the **config buffer pool** command to configure a custom pool.

### Syntax

```
config buffer pool set [ OPTIONS ] pool-name
```

```
config buffer pool remove pool-name
```

### Parameter Description

OPTIONS:

- o **-t, --type** [ ingress | egress ]:  
buffer pool type [ required ]
- o **-m, --mode** [ static ]:  
buffer pool mode
- o **-x, --xoff** INTEGER:  
buffer global headroom pool size
- o **-s, --size** INTEGER:  
buffer shared pool size
- o **-h, -?, --help**:  
Show this message and exit.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config buffer pool set def_ingress_pool -t ingress -x 2560 -s  
2560000  
admin@sonic:~$ sudo config buffer pool remove def_ingress_pool
```

## 1.2 config buffer profile

### Function

Run the **config buffer profile** command to configure a lossless buffer profile.

### Syntax

```
config buffer profile { add | set } profile-name --pool pool-name --mode { static |  
dynamic } [ --xon xon-threshold ] [ --xon_offset xon-offset-threshold ] [ --xoff xoff-  
threshold ] [ --size size ] [ --dynamic_th dynamic-th | --static_th static-th ]
```

**config buffer profile remove** *profile-name*

## Parameter Description

**add:** The command is designed for adding a new buffer profile to the system.

**set:** The command is designed for modifying an existing buffer profile in the system.

For a profile with dynamically calculated headroom information, only **dynamic\_th** can be modified.

**remove:** The command is designed for removing an existing buffer profile from the system. When removing a profile, it shouldn't be referenced by any entry in **CONFIG\_DB.BUFFER\_PG**.

## Usage Guidelines

All the parameters are divided to two groups, one for headroom and one for **dynamic\_th**. For any command at least one group of parameters should be provided.

For headroom parameters:

**xon** is mandatory.

- If shared headroom pool is disabled:
  - At least one of **xoff** and **size** should be provided and the other will be optional and conducted via the formula **xon + xoff = size**.
  - **xon + xoff <= size**.
- If shared headroom pool is enabled:
  - **xoff** should be provided.
  - **size = xoff** if it is not provided.

If only **dynamic\_th** parameter is provided, the **headroom\_type** will be set as **dynamic** and **xon**, **xoff** and **size** won't be set. This is only used for non default **dynamic\_th**. In this case, the profile won't be deployed to ASIC directly. It can be configured to a lossless PG and then a dynamic profile will be generated based on the port's speed, cable length, and MTU and deployed to the ASIC.

## Examples

```
admin@sonic:~$ sudo config buffer profile add --mode static --size 2560 --xoff 2560 --
static_th 25600 --pool ingress_lossy_pool profile1
admin@sonic:~$ sudo config buffer profile remove profile1
```

## 1.3 config buffer shared-headroom-pool

### Function

Run the **config buffer shared-headroom-pool** command to configure the shared headroom pool.

The shared headroom pool can be enabled in the following ways:

- Configure the over subscribe ratio. In this case, the size of shared headroom pool is

calculated as the accumulative xoff of all of the lossless PG divided by the over subscribe ratio.

- Configure the size.

In case both of the above parameters have been configured, the **size** will take effect. To disable shared headroom pool, configure both parameters to zero.

## Syntax

```
config buffer shared-headroom-pool { over-subscribe-ratio over-subscribe-ratio | size size }
```

## Parameter Description

*over-subscribe-ratio*: The range of over-subscribe-ratio is from 1 to number of ports inclusive.

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config shared-headroom-pool over-subscribe-ratio 2
admin@sonic:~$ sudo config shared-headroom-pool size 1024000
```

# 1.4 config ecn

## Function

Run the **config ecn** command to configures the possible fields in a particular WRED profile that is specified using "**-profile** *profile-name*" argument.

The list of the WRED profile fields that are configurable is listed in the below "Usage".

## Syntax

```
config ecn set -profile profile-name -rmax red-threshold-max -rmin red-threshold-min -ymax yellow-threshold-max -ymin yellow-threshold-min -gmax green-threshold-max -gmin green-threshold-min -rdrop red-drop-probability -ydrop yellow-drop-probability -gdrop green-drop-probability --weight sampling-weight
```

```
config ecn enable profile-name { none | green | yellow | red | green_yellow | green_red | yellow_red | all }
```

```
config ecn apply -profile profile-name -queue_map queue-map -port interface-name
```

## Parameter Description

*profile-name*: Profile name.

## Usage Guidelines

N/A

## Examples

Configures the "max threshold" for the WRED profile name "wredprofileabcd". It will create the WRED profile if it does not exist.

```
admin@sonic:~$ sudo config ecn set -profile default -rmax 5080 -rmin 2540 -ymax 5080 -
ymin 2540 -gmax 5080 -gmin 2540 -rdrop 20 -ydrop 20 -gdrop 20
admin@sonic:~$ sudo config ecn enable default all
admin@sonic:~$ sudo config ecn apply -profile default -queue_map 0-2 -port Ethernet1
```

## 1.5 config interface buffer priority-group lossless

### Function

Run the **config interface buffer priority-group lossless** command to configure the priority groups on which lossless traffic runs.

### Syntax

```
config interface buffer priority-group lossless { { { add | set } interface-name pg-map
[ profile ] } } | { remove interface-name [ pg-map ] } }
```

### Parameter Description

*pg-map*: The parameter represents the map of priorities for lossless traffic. It should be a string and in form of a bit map like 3-4. The - connects the lower bound and upper bound of a range of priorities. It can be in one of the following two forms:

- o For a range of priorities, the lower bound and upper bound connected by a dash, like 3-4.
- o For a single priority, the number, like 6.

**add**: The command is designed for adding a new lossless PG on top of current PGs. The new PG range must be disjoint with all existing PGs.

For example, currently the PG range 3-4 exist on port Ethernet4, to add PG range 4-5 will fail because it isn't disjoint with 3-4. To add PG range 5-6 will succeed. After that both range 3-4 and 5-6 will work as lossless PG.

*profile*: The parameter is optional. When provided, it represents the predefined buffer profile for headroom override.

**set**: The command is designed for modifying an existing PG from dynamic calculation to headroom override or vice versa. The *pg-map* must be an existing PG.

**remove**: The command is designed for removing an existing PG. The option *pg-map* must be an existing PG. All lossless PGs will be removed in case no *pg-map* provided.

### Usage Guidelines

N/A

### Examples

To configure *lossless\_pg* on a port:

```
admin@sonic:~$ sudo config interface buffer priority-group lossless add Ethernet0 3-4
```

To change the profile used for lossless\_pg on a port:

```
admin@sonic:~$ sudo config interface buffer priority-group lossless set Ethernet0 3-4 new-profile
```

To remove one lossless priority from a port:

```
admin@sonic:~$ sudo config interface buffer priority-group lossless remove Ethernet0 6
```

To remove all lossless priorities from a port:

```
admin@sonic:~$ sudo config interface buffer priority-group lossless remove Ethernet0
```

## 1.6 config interface buffer queue

### Function

Run the **config interface buffer queue** command to configure the buffer profiles for queues.

### Syntax

**config interface buffer queue add** *interface-name queue-map profile*

**config interface buffer queue set** *interface-name queue-map profile*

**config interface buffer queue remove** *interface-name queue-map*

### Parameter Description

**add:** The command is designed for adding a buffer profile for a group of queues. The new queue range must be disjoint with all queues with buffer profile configured.

For example, currently the buffer profile configured on queue 3-4 on port Ethernet4, to configure buffer profile on queue 4-5 will fail because it isn't disjoint with 3-4. To configure it on range 5-6 will succeed.

*profile:* The parameter represents a predefined egress buffer profile to be configured on the queues.

*queue-map:* The parameter represents the map of queues. It can be in one of the following two forms:

- For a range of priorities, the lower bound and upper bound connected by a dash, like 3-4.
- For a single priority, the number, like 6.

**set:** The command is designed for modifying an existing group of queues.

**remove:** The command is designed for removing buffer profile on an existing group of queues.

### Usage Guidelines

N/A

## Examples

To configure buffer profiles for queues on a port:

```
admin@sonic:~$ sudo config interface buffer queue add Ethernet0 3-4
egress_lossless_profile
```

To change the profile used for queues on a port:

```
admin@sonic:~$ sudo config interface buffer queue set Ethernet0 3-4 new-profile
```

To remove a group of queues from a port:

```
admin@sonic:~$ sudo config interface buffer queue remove Ethernet0 3-4
```

## 1.7 config interface cable\_length

### Function

Run the **config interface cable\_length** command to configure the length of the cable connected to a port. The cable\_length is in unit of meters and must be suffixed with "m".

### Syntax

```
config interface cable_length interface-name cable-length
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config interface cable_length Ethernet0 40m
```

## 1.8 config pfcwd action

### Function

Run the **config pfcwd action** command to configure the PFC-deadlock recovery action.

### Syntax

```
config pfcwd action { drop | forward }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config pfcwd action forward
```

## 1.9 config pfcwd detect-precision

### Function

Run the **config pfcwd detect-precision** command to configure the PFC-deadlock detection precision.

### Syntax

```
config pfcwd detect-precision detect-precision
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config pfcwd detect-precision 100
```

## 1.10 config pfcwd set

### Function

Run the **config pfcwd set** command to configure the detection times and recovery time of the PFC watchdog for different priority groups.

### Syntax

```
config pfcwd set priority-group [ -d detection_time ] [ -r restoration_time ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config pfcwd set 1 -d 10 -r 100  
admin@sonic:~$ sudo config pfcwd start Ethernet1 0-2
```

## 1.11 show buffer configuration

### Function

Run the **show buffer configuration** command to display the status of buffer pools and profiles currently configured.

### Syntax

```
show buffer configuration
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show buffer configuration
Lossless traffic pattern:
----- -
default_dynamic_th    0
over_subscribe_ratio  0
----- -

Pool: ingress_lossless_pool
----
type ingress
mode dynamic
----

Pool: egress_lossless_pool
----
type egress
mode dynamic
size 34340822
----

Pool: ingress_lossy_pool
----
type ingress
mode dynamic
----

Pool: egress_lossy_pool
```



```
-----  
type  egress  
mode  dynamic  
-----  
  
Profile: q_lossy_profile  
-----  
dynamic_th  3  
pool        [BUFFER_POOL:egress_lossy_pool]  
size        0  
-----  
  
Profile: egress_lossy_profile  
-----  
dynamic_th  3  
pool        [BUFFER_POOL:egress_lossy_pool]  
size        4096  
-----  
  
Profile: egress_lossless_profile  
-----  
dynamic_th  7  
pool        [BUFFER_POOL:egress_lossless_pool]  
size        0  
-----  
  
Profile: ingress_lossless_profile  
-----  
dynamic_th  0  
pool        [BUFFER_POOL:ingress_lossless_pool]  
size        0  
-----  
  
Profile: ingress_lossy_profile  
-----  
dynamic_th  3  
pool        [BUFFER_POOL:ingress_lossy_pool]  
size        0  
-----
```

## 1.12 show buffer statistics

### Function

Run the **show buffer statistics** command to display the buffer counters.

### Syntax

**show buffer statistics priority-group** [ **-p** *port-name* ]

**show buffer statistics queue** [ **-p** *port-name* ]

### Parameter Description

*port-name*: Port name.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show buffer statistics priority-group -p Ethernet2
  Port   Priority Group   Guaranteed Used   Guaranteed Available   Share Used
  Share Available   Headroom Used   Headroom Available
-----
Ethernet2           0           4096           0           2304
26234624           0           0
Ethernet2           1           4096           0           14324736
11912192           0           0
Ethernet2           2           4096           0           1536
26235392           0           0
Ethernet2           3           4096           0           5376
26231552           0           0
Ethernet2           4           4096           0           1024
26235904           0           0
Ethernet2           5           2560           0           1789440
0           81920           0
Ethernet2           6           4096           0           5313792
20923136           0           0
```

Ethernet2	7	4096	0	16896
26220032	0	0		

```
admin@sonic:~$ show buffer statistics queue -p Ethernet6
  Port   Queue   Guaranteed Used   Guaranteed Available   Share Used   Share
Available
-----
Ethernet6 UC0           7424           0           5376
6157056
Ethernet6 UC1      14366208           0      14364160
0
Ethernet6 UC2           4352           0           3328
6159104
Ethernet6 UC3           11008           0           9984
6152448
Ethernet6 UC4           7424           0           5376
6157056
Ethernet6 UC5      1873920           0      1871360
3674828
Ethernet6 UC6      5289216           0      5287168
875264
Ethernet6 UC7           10240           0           8192
6154240
```

### 1.13 show ecn

#### Function

Run the **show ecn** command to display all the WRED profiles that are configured in the device.

#### Syntax

```
show ecn
```

#### Parameter Description

N/A

#### Usage Guidelines

N/A

#### Examples

```
admin@sonic:~/hhh$ show ecn cfg
```

Profile Name	Max Threshold	Min Threshold	Drop Probability	Weight	Ecn Enable
wred	512	256	60	15	disable

```
admin@sonic:~/hhh$ show ecn apply
Interface   Queue   Ecn Wred Profile
-----
Ethernet6   5       wred
```

## 1.14 show pfc asymmetric

### Function

Run the **show pfc asymmetric** command to display the status of asymmetric PFC for all interfaces or a given interface.

### Syntax

```
show pfc asymmetric [ interface-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show pfc asymmetric

Interface   Asymmetric
-----
Ethernet0   off
Ethernet2   off
Ethernet4   off
Ethernet6   off
Ethernet8   off
Ethernet10  off
Ethernet12  off
Ethernet14  off

admin@sonic:~$ show pfc asymmetric Ethernet0

Interface   Asymmetric
```

```
-----
Ethernet0  off
```

## 1.15 show pfc counters

### Function

Run the **show pfc counters** command to display the details of Rx & Tx priority-flow-control (pfc) for all ports. This command can be used to clear the counters using **-c** option.

### Syntax

**show pfc counters**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show pfc counters
Port Rx   PFC0   PFC1   PFC2   PFC3   PFC4   PFC5   PFC6   PFC7
-----
Ethernet0  0      0      0      0      0      0      0      0
Ethernet4  0      0      0      0      0      0      0      0
Ethernet8  0      0      0      0      0      0      0      0
Ethernet12 0      0      0      0      0      0      0      0

Port Tx   PFC0   PFC1   PFC2   PFC3   PFC4   PFC5   PFC6   PFC7
-----
Ethernet0  0      0      0      0      0      0      0      0
Ethernet4  0      0      0      0      0      0      0      0
Ethernet8  0      0      0      0      0      0      0      0
```

```
Ethernet12    0    0    0    0    0    0    0    0
```

```
...
```

**Note**

PFC counters can be cleared by the user with the following command:

```
admin@sonic:~$ sonic-clear pfccounters
```

## 1.16 show pfc priority

### Function

Run the **show pfc priority** command to display the lossless priorities for all interfaces or a given interface.

### Syntax

```
show pfc priority [ interface-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show pfc priority
```

Interface	Lossless priorities
Ethernet0	3,4
Ethernet2	3,4
Ethernet8	3,4
Ethernet10	3,4
Ethernet16	3,4

```
admin@sonic:~$ show pfc priority Ethernet0
```

Interface	Lossless priorities
Ethernet0	3,4

## 1.17 show pfcwd config

### Function

Run the **show pfcwd config** command to shows current PFC Watchdog configuration.

### Syntax

**show pfcwd config**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~/hhh$ show pfcwd config
Detect Precision: 10ms
Recovery Action: forward
  Queue    Detect Time    Recovery Time(ms)
-----
UC5        15             150
```

## 1.18 show pfcwd stats

### Function

Run the **show pfcwd stats** command to shows current PFC Watchdog statistics (storms detected, packets dropped, etc).

### Syntax

**show pfcwd stats**

### Parameter Description

*packet-group*: Group to which the protocol belongs.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~/hhh$ show pfcwd stats -port Ethernet6
Interface  QUEUE    Count    Status
-----
Ethernet6  UC0      0
```

---

Ethernet6	UC1	0	
Ethernet6	UC2	0	
Ethernet6	UC3	0	
Ethernet6	UC4	0	
Ethernet6	UC5	2379	DETECTED
Ethernet6	UC6	0	
Ethernet6	UC7	0	
Ethernet6	UC8	0	
Ethernet6	UC9	0	



# 1 Troubleshooting Commands

Command	Function
<a href="#"><u>bgp advertise lowest-priority on-startup</u></a>	Configure BGP to minimize the priorities of the BGP routes to be advertised upon system restart.

## 1.1 bgp advertise lowest-priority on-startup

### Function

Run the **bgp advertise lowest-priority on-startup** command to configure BGP to minimize the priorities of the BGP routes to be advertised upon system restart.

### Syntax

```
[ no ] bgp advertise lowest-priority on-startup [ recover-time ]
```

### Parameter Description

*recover-time*: The time for restoring the priority of the advertised routes, in seconds. The value ranges from 1 to 65535, and the default value is 600.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 100" -c "bgp advertise lowest-priority on-startup"
```

## 1.2 bgp advertise lowest-priority on-startup

### Function

Run the **bgp advertise lowest-priority on-startup** command to configure the configuration of delayed route advertisement upon system restart.

### Syntax

```
[ no ] bgp initial-advertise-delay { delay-time [ startup-time ] | prefix-list name }
```

### Parameter Description

*delay-time*: The delay time for advertising routes after the BGP neighborhood is established upon system restart, in seconds. The value ranges from 1 to 600. The default value is 1.

*startup-time*: The time for system restart (the mechanism of delayed route advertisement is adopted for the neighbor in this period), in seconds. The value range is from 5 to 58400. The default value is 600.

*name*: The name of the prefix list.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 100" -c "bgp initial-advertise-delay 60 500" -c "bgp initial-advertise-delay prefix-list aa"
```

## 1.3 bgp evpn-vni-list

### Function

Run the **bgp evpn-vni-list** command to configure the EVPN VNI list.

### Syntax

```
[ no ] bgp evpn-vni-list list-name vni-list
```

### Parameter Description

*list-name*: The name of a VNI list.

*vni-list*: The VNI ID list. The value ranges from 1 to 16777215. The information of multiple VNIs can be configured at the same time, and all the VNIs are separated using commas.

### Usage Guidelines

When the local host goes online, BGP will send the host ARP routing information to its neighbors. However, if the peer end does not want to generate traffic redirection through ARP, you can control the local ARP routes so that local ARP routes are not sent to the peer end. This command combines route map and is used on neighbors.

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "bgp evpn-vni-list v1 100,200"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "route-map map1 deny 10" -c "match evpn deny-arp v1 local"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "route-map map1 permit 20"
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 65530" -c "address-family l2vpn evpn" -c "neighbor 13.1.1.1 activate" -c "neighbor 13.1.1.1 route-map map1 out"
```

## 1.4 clear bgp advertise lowest-priority on-startup

### Function

Run the **clear bgp advertise lowest-priority on-startup** command to restore the priorities of the BGP routes advertised to neighbors.

### Syntax

```
clear bgp advertise lowest-priority on-startup
```

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo vtysh -c "clear bgp advertise lowest-priority on-startup"
```

## 1.5 config auto-techsupport global max-core-limit

### Function

Run the **config auto-techsupport global max-core-limit** command to configure global max-core-limit.

### Syntax

```
config auto-techsupport global max-core-limit limit
```

### Parameter Description

*limit*: A percentage value should be specified. This signifies maximum size to which `/var/core/` directory can be grown until.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config auto-techsupport global max-core-limit 10.15
```

## 1.6 config auto-techsupport global max-techsupport-limit

### Function

Run the **config auto-techsupport global max-techsupport-limit** command to configure global max-techsupport-limit.

### Syntax

```
config auto-techsupport global max-techsupport-limit limit
```

### Parameter Description

*limit*: A percentage value should be specified. This signifies maximum size to which `/var/core/` directory can be grown until.

### Usage Guidelines

N/A

## Examples

```
config auto-techsupport global max-techsupport-limit 10.15
```

## 1.7 config auto-techsupport global rate-limit-interval

### Function

Run the **config auto-techsupport global rate-limit-interval** command to configure global rate-limit-interval.

### Syntax

```
config auto-techsupport global rate-limit-interval interval
```

### Parameter Description

*interval*: Minimum time in seconds to wait after the last techsupport creation time before invoking a new one.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config auto-techsupport global rate-limit-interval 200
```

## 1.8 config auto-techsupport global since

### Function

Run the **config auto-techsupport global since** command to configure the time the logs & core-dumps generated.

### Syntax

```
config auto-techsupport global since date-string
```

### Parameter Description

*date-string*: This limits the auto-invoked techsupport to only collect the logs & core-dumps generated since the time provided. Any valid date string of the formats specified here can be used. ([https://www.gnu.org/software/coreutils/manual/html\\_node/Date-input-formats.html](https://www.gnu.org/software/coreutils/manual/html_node/Date-input-formats.html)). If this value is not explicitly configured or a non-valid string is provided, a default value of "2 days ago" is used.

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config auto-techsupport global since "3 days ago"
```

## 1.9 config auto-techsupport global state

### Function

Run the **config auto-techsupport global state** command to configure global state.

### Syntax

```
config auto-techsupport global state { enabled | disabled }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config auto-techsupport global state enabled
```

## 1.10 config auto-techsupport-feature add

### Function

Run the **config auto-techsupport global add** command to add feature.

### Syntax

```
config auto-techsupport-feature add feature-name --state [ enabled | disabled ] --rate-limit-interval rate-limit-interval
```

### Parameter Description

*state*: enable/disable the capability for the specific feature/container.

*rate-limit-interval*: Rate limit interval for the corresponding feature. Configure 0 to explicitly disable. For the techsupport to be generated by auto-techsupport, both the global and feature specific rate-limit-interval has to be passed

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config auto-techsupport-feature add bgp --state enabled --rate-limit-interval 200
```

## 1.11 config auto-techsupport-feature delete

### Function

Run the **config auto-techsupport-feature delete** command to delete feature.

### Syntax

```
config auto-techsupport-feature delete feature-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config auto-techsupport-feature delete swss
```

## 1.12 config auto-techsupport-feature update

### Function

Run the **config auto-techsupport-feature update** command to update feature.

### Syntax

- **config auto-techsupport-feature update** *feature-name* **--state** [ **enabled** | **disabled** ]
- **config auto-techsupport-feature update** *feature-name* **--rate-limit-interval** *rate-limit-interval*

### Parameter Description

*state*: enable/disable the capability for the specific feature/container.

*rate-limit-interval*: Rate limit interval for the corresponding feature. Configure 0 to explicitly disable. For the techsupport to be generated by auto-techsupport, both the global and feature specific rate-limit-interval has to be passed

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config auto-techsupport-feature update snmp --state enabled
admin@sonic:~$ sudo config auto-techsupport-feature update swss --rate-limit-interval
200
```

## 1.13 redistribute

### Function

Run the **redistribute** command to redistribute the route information of other routing protocols to BGP.

### Syntax

```
[ no ] redistribute [ arp-host | nd-route ]
```

### Parameter Description

**arp-host:** Host routes converted from ARP entries.

**nd-route:** Host routes converted from ND entries.

### Usage Guidelines

Redistribution arp-host added to IPv4 unicast address family  
Redistribution nd route added to IPv6 unicast address family.

### Examples

```
admin@sonic:~$ sudo vtysh -c "configure terminal" -c "router bgp 100" -c "address-family  
ipv4 unicast" -c "redistribute arp-host" -c "address-family ipv6 unicast" -c "redistribute nd-  
route"
```

## 1.14 show auto-techsupport global

### Function

Run the **show auto-techsupport global** command to display auto-techsupport global status.

### Syntax

```
show auto-techsupport global
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show auto-techsupport global  
STATE          RATE LIMIT INTERVAL (sec)    MAX TECHSUPPORT LIMIT (%)    MAX  
CORE LIMIT (%)          SINCE
```



```

-----
-----
enabled                               180
10.0                                5.0  2 days ago
    
```

## 1.15 show auto-techsupport history

### Function

Run the **show auto-techsupport history** command to display auto-techsupport history.

### Syntax

**show auto-techsupport global**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show auto-techsupport history
TECHSUPPORT DUMP                                TRIGGERED BY    CORE
DUMP
-----
-----
sonic_dump_r-lionfish-16_20210901_221402    bgp
bgpcfgd.1630534439.55.core.gz
sonic_dump_r-lionfish-16_20210901_203725    snmp
python3.1630528642.23.core.gz
sonic_dump_r-lionfish-16_20210901_222408    teamd
python3.1630535045.34.core.gz
    
```

## 1.16 show auto-techsupport-feature

### Function

Run the **show auto-techsupport-feature** command to display auto-techsupport feature status.

### Syntax

**show auto-techsupport-feature**

### Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show auto-techsupport-feature
FEATURE NAME      STATE      RATE LIMIT INTERVAL (sec)
-----
bgp                enabled           600
database           enabled           600
dhcp_relay         enabled           600
lldp               enabled           600
swss               disabled          800
```

## 1.17 show bgp evpn-vni-list

### Function

Run the **show bgp evpn-vni-list** command to display the VNI list configuration of EVPN.

### Syntax

```
show bgp evpn-vni-list list-name
```

### Parameter Description

*list-name*: The name of a VNI list.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo vtysh -c "show bgp evpn-vni-list "
bgp evpn-vni-list v1:
  10 20
```

## 1.18 show ip bgp neighbors

### Function

Run the **show ip bgp neighbors** command to display all the details of IPv4 & IPv6 BGP neighbors when no optional argument is specified.

### Syntax

```
show ip bgp neighbors [ ipv4-address [ advertised-routes | received-routes | routes ] ]
```

## Parameter Description

N/A

## Usage Guidelines

When the optional argument IPv4\_address is specified, it displays the detailed neighbor information about that specific IPv4 neighbor.

Command has got additional optional arguments to display only the advertised routes, or the received routes, or all routes.

In order to get details for an IPv6 neighbor, use "show ipv6 bgp neighbor *ipv6-address*" command.

## Examples

```
admin@sonic:~$ show ip bgp neighbors
BGP neighbor is 192.168.1.161, remote AS 65501, local AS 65061, external link
Description: Router01T0
  BGP version 4, remote router ID 1.2.3.4
  BGP state = Established, up for 08w5d14h
  Last read 00:00:46, hold time is 180, keepalive interval is 60 seconds
  Neighbor capabilities:
    4 Byte AS: advertised and received
    Dynamic: received
    Route refresh: advertised and received(old & new)
    Address family IPv4 Unicast: advertised and received
    Graceful Restart Capability: advertised and received
      Remote Restart timer is 120 seconds
    Address families by peer:
      IPv4 Unicast(not preserved)
  Graceful restart informations:
    End-of-RIB send: IPv4 Unicast
    End-of-RIB received: IPv4 Unicast
  Message statistics:
    Inq depth is 0
    Outq depth is 0

                                Sent          Rcvd
  Opens:                          1            1
  Notifications:                    0            0
  Updates:                        14066          3
  Keepalives:                       88718        88698
  Route Refresh:                     0            0
  Capability:                        0            0
  Total:                            102785       88702
  Minimum time between advertisement runs is 30 seconds
```

```

For address family: IPv4 Unicast
  Community attribute sent to this neighbor(both)
  2 accepted prefixes

Connections established 1; dropped 0
Last reset never
Local host: 192.168.1.160, Local port: 32961
Foreign host: 192.168.1.161, Foreign port: 179
Next hop: 192.168.1.160
Next hop global: fe80::f60f:1bff:fe89:bc00
Next hop local: ::
BGP connection: non shared network
Read thread: on   Write thread: off

```

Optionally, you can specify an IP address in order to display only that particular neighbor. In this mode, you can optionally specify whether you want to display all routes advertised to the specified neighbor, all routes received from the specified neighbor or all routes (received and accepted) from the specified neighbor.

Examples:

```

admin@sonic:~$ show ip bgp neighbors 192.168.1.161

admin@sonic:~$ show ip bgp neighbors 192.168.1.161 advertised-routes

admin@sonic:~$ show ip bgp neighbors 192.168.1.161 received-routes

admin@sonic:~$ show ip bgp neighbors 192.168.1.161 routes

```

## 1.19 show ip bgp summary

### Function

Run the **show ip bgp summary** command to display the summary of all IPv4 bgp neighbors that are configured and the corresponding states.

### Syntax

```
show ip bgp summary
```

### Parameter Description

N/A

### Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show ip bgp summary
BGP router identifier 1.2.3.4, local AS number 65061
RIB entries 6124, using 670 KiB of memory
Peers 2, using 143 KiB of memory

Neighbor          V                AS MsgRcvd MsgSent   TblVer  InQ OutQ
Up/Down    State/PfxRcd
192.168.1.161    4 65501          88698  102781         0    0    0 08w5d14h
2
192.168.1.163    4 65502          88698  102780         0    0    0 08w5d14h
2

Total number of neighbors 2
```

## 1.20 show ipv6 bgp neighbors

### Function

Run the **show ipv6 bgp neighbors** command to all the details of one particular IPv6 Border Gateway Protocol (BGP) neighbor. Option is also available to display only the advertised routes, or the received routes, or all routes.

### Syntax

```
show ipv6 bgp neighbors [ ipv6-address [ advertised-routes | received-routes | routes ] ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ipv6 bgp neighbors fc00::72 advertised-routes

admin@sonic:~$ show ipv6 bgp neighbors fc00::72 received-routes

admin@sonic:~$ show ipv6 bgp neighbors fc00::72 routes
```

## 1.21 show ipv6 bgp summary

### Function

Run the **show ipv6 bgp summary** command to display the summary of all IPv6 bgp neighbors that are configured and the corresponding states.

### Syntax

```
show ipv6 bgp summary
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ipv6 bgp summary
BGP router identifier 10.1.0.32, local AS number 65100
RIB entries 12809, using 1401 KiB of memory
Peers 8, using 36 KiB of memory
```

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ
Up/Down	State/PfxRcd						
fc00::72 6402	4 64600	12588	12591	0	0	0	06:51:17
fc00::76 6402	4 64600	12587	6190	0	0	0	06:51:28
fc00::7a 6402	4 64600	12587	9391	0	0	0	06:51:23
fc00::7e 6402	4 64600	12589	12592	0	0	0	06:51:25

```
Total number of neighbors 4
```

## 1.22 show route-map

### Function

Run the **show route-map** command to display the routing policy that takes precedence over the other route processes that are configured.

### Syntax

```
show route-map
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show route-map
ZEBRA:
route-map RM_SET_SRC, permit, sequence 10
  Match clauses:
  Set clauses:
    src 10.12.0.102
  Call clause:
  Action:
    Exit routemap
ZEBRA:
route-map RM_SET_SRC6, permit, sequence 10
  Match clauses:
  Set clauses:
    src fc00::1:102
  Call clause:
  Action:
    Exit routemap
BGP:
route-map FROM_BGP_SPEAKER_V4, permit, sequence 10
  Match clauses:
  Set clauses:
  Call clause:
  Action:
    Exit routemap
BGP:
route-map TO_BGP_SPEAKER_V4, deny, sequence 10
  Match clauses:
  Set clauses:
  Call clause:
  Action:
    Exit routemap
BGP:
route-map ISOLATE, permit, sequence 10
  Match clauses:
  Set clauses:
```

```
as-path prepend 65000
```

Call clause:

Action:

```
Exit routemap
```



# 1 System State Commands

Command	Function
<a href="#"><u>show mmu</u></a>	Display virtual address to the physical address translation status of the Memory Management Unit (MMU).
<a href="#"><u>show processes cpu</u></a>	Display the current CPU usage by process.
<a href="#"><u>show processes memory</u></a>	Display the current memory usage by processes.
<a href="#"><u>show processes summary</u></a>	Display the current summary information about all the processes.
<a href="#"><u>show services</u></a>	Display the state of all the SONiC processes running inside a docker container.
<a href="#"><u>show system-health detail</u></a>	Display the current status of 'Services' and 'Hardware' under monitoring.
<a href="#"><u>show system-health monitor-list</u></a>	Display a list of all current 'Services' and 'Hardware' being monitored, their status and type.
<a href="#"><u>show system-health summary</u></a>	Display the current status of 'Services' and 'Hardware' under monitoring.
<a href="#"><u>show system-memory</u></a>	Display the system-wide memory utilization information – just a wrapper over linux native “free” command.
<a href="#"><u>show system-storage</u></a>	Display storage usage of the device.

## 1.1 show mmu

### Function

Run the **show mmu** command to display virtual address to the physical address translation status of the Memory Management Unit (MMU).

### Syntax

```
show services
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show mmu
Pool: ingress_lossless_pool
----
xoff  4194112
type  ingress
mode  dynamic
size  10875072
----

Pool: egress_lossless_pool
----
type  egress
mode  static
size  15982720
----

Pool: egress_lossy_pool
----
type  egress
mode  dynamic
size  9243812
----

Profile: egress_lossy_profile
-----
dynamic_th  3
```

```

pool          [BUFFER_POOL|egress_lossy_pool]
size          1518
-----
Profile: pg_lossless_100000_300m_profile
-----
xon_offset    2288
dynamic_th    -3
xon           2288
xoff          268736
pool          [BUFFER_POOL|ingress_lossless_pool]
size          1248
-----
Profile: egress_lossless_profile
-----
static_th     3995680
pool          [BUFFER_POOL|egress_lossless_pool]
size          1518
-----
Profile: pg_lossless_100000_40m_profile
-----
xon_offset    2288
dynamic_th    -3
xon           2288
xoff          177632
pool          [BUFFER_POOL|ingress_lossless_pool]
size          1248
-----
Profile: ingress_lossy_profile
-----
dynamic_th    3
pool          [BUFFER_POOL|ingress_lossless_pool]
size          0
-----
Profile: pg_lossless_40000_40m_profile
-----
xon_offset    2288
dynamic_th    -3
xon           2288

```

```
xoff          71552
pool          [BUFFER_POOL|ingress_lossless_pool]
size         1248
-----
```

## 1.2 show processes cpu

### Function

Run the **show processes cpu** command to display the current CPU usage by process.

### Syntax

**show processes cpu**

### Parameter Description

N/A

### Usage Guidelines

This command uses linux's "top -bn 1 -o %CPU" command to display the output.

Users can pipe the output to "head" to display only the "n" number of lines (e.g., show processes cpu | head -n 10).

Advanced users can view individual processes using variations of the ps command (e.g., ps -ax | grep <process name>).

### Examples

```
admin@sonic:~$ show processes cpu
top - 23:50:08 up 1:18, 1 user, load average: 0.25, 0.29, 0.25
Tasks: 161 total, 1 running, 160 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.8 us, 1.0 sy, 0.0 ni, 95.1 id, 0.1 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem: 8181216 total, 1161060 used, 7020156 free, 105656 buffers
KiB Swap: 0 total, 0 used, 0 free. 557560 cached
Mem

  PID USER      PR  NI   VIRT   RES   SHR S  %CPU  %MEM     TIME+ COMMAND
 2047 root        20   0 683772 109288 39652 S   23.8   1.3   7:44.79 syncd
 1351 root        20   0  43360   5616  2844 S   11.9   0.1   1:41.56 redis-
server
10093 root        20   0  21944   2476  2088 R    5.9   0.0   0:00.03
top
   1 root        20   0  28992   5508  3236 S    0.0   0.1   0:06.42
systemd
```

```

    2 root          20    0          0          0          0 S    0.0  0.0
0:00.00 kthreadd
    3 root          20    0          0          0          0 S    0.0  0.0
0:00.56 ksoftirqd/0
    5 root          0 -20         0          0          0 S    0.0  0.0
0:00.00 kworker/0:0H
...

```

## 1.3 show processes memory

### Function

Run the **show processes memory** command to display the current memory usage by processes.

### Syntax

```
show processes memory
```

### Parameter Description

N/A

### Usage Guidelines

This command uses linux's "top -bn 1 -o %MEM" command to display the output.

NOTE that pipe option can be used using " | head -n" to display only the "n" number of lines.

### Examples

```

admin@sonic:~$ show processes memory
top - 23:41:24 up 7 days, 39 min,  2 users,    load average: 1.21, 1.19, 1.18
Tasks: 191 total,   2 running, 189 sleeping,   0 stopped,   0 zombie
%Cpu(s):  2.8 us, 20.7 sy,   0.0 ni, 76.3 id,   0.0 wa,   0.0 hi,   0.2 si,   0.0 st
KiB Mem :  8162264 total,  5720412 free,   945516 used,  1496336 buff/cache
KiB Swap:           0 total,           0 free,           0 used.  6855632 avail
Mem

  PID USER      PR  NI   VIRT   RES    SHR S  %CPU %MEM
TIME+ COMMAND
18051 root      20   0  851540 274784   8344 S   0.0  3.4  0:02.77 syncd
17760 root      20   0 1293428 259212   58732 S   5.9  3.2 96:46.22 syncd
  508 root      20   0  725364  76244  38220 S   0.0  0.9  4:54.49
dockerd
30853 root      20   0   96348  56824   7880 S   0.0  0.7  0:00.98
show

```

17266 root	20	0	509876	49772	30640 S	0.0	0.6	0:06.36
docker								
24891 admin	20	0	515864	49560	30644 S	0.0	0.6	0:05.54
docker								
17643 admin	20	0	575668	49428	30628 S	0.0	0.6	0:06.29
docker								
23885 admin	20	0	369552	49344	30840 S	0.0	0.6	0:05.57
docker								
18055 root	20	0	509076	49260	30296 S	0.0	0.6	0:06.36
docker								
17268 root	20	0	371120	49052	30372 S	0.0	0.6	0:06.45
docker								
1227 root	20	0	443284	48640	30100 S	0.0	0.6	0:41.91
docker								
23785 admin	20	0	443796	48552	30128 S	0.0	0.6	0:05.58
docker								
17820 admin	20	0	435088	48144	29480 S	0.0	0.6	0:06.33
docker								
506 root	20	0	1151040	43140	23964 S	0.0	0.5	8:51.08
containerd								
18437 root	20	0	84852	26388	7380 S	0.0	0.3	65:59.76
python3.6								

## 1.4 show processes summary

### Function

Run the **show processes summary** command to display the current summary information about all the processes.

### Syntax

```
show processes summary
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show processes summary
PID  PPID CMD                %MEM %CPU
1     0 /sbin/init             0.0  0.0
2     0 [kthreadd]             0.0  0.0
```

3	2 [ksoftirqd/0]	0.0	0.0
5	2 [kworker/0:0H]	0.0	0.0
...			

## 1.5 show services

### Function

Run the **show services** command to display the state of all the SONiC processes running inside a docker container.

### Syntax

**show services**

### Parameter Description

N/A

### Usage Guidelines

This helps to identify the status of SONiC’s critical processes.

### Examples

```
admin@sonic:~$ show services
dhcp_relay      docker
-----
UID             PID  PPID  C STIME TTY             TIME CMD
root            1    0    0 05:26 ?             00:00:12 /usr/bin/python
/usr/bin/supervi
root           24    1    0 05:26 ?             00:00:00 /usr/sbin/rsyslogd -n

nat             docker
-----
USER           PID PPID  C STIME TTY             TIME CMD
root            1    0    0 05:26 ?             00:00:12 /usr/bin/python
/usr/bin/supervisord
root           18    1    0 05:26 ?             00:00:00 /usr/sbin/rsyslogd -n
root           23    1    0 05:26 ?             00:00:01 /usr/bin/natmgrd
root           34    1    0 05:26 ?             00:00:00 /usr/bin/natsyncd

snmp           docker
-----
UID             PID  PPID  C STIME TTY             TIME CMD
root            1    0    0 05:26 ?             00:00:16 /usr/bin/python
/usr/bin/supervi
root           24    1    0 05:26 ?             00:00:02 /usr/sbin/rsyslogd -n
```

```

Debian--+      29      1  0 05:26 ?      00:00:04 /usr/sbin/snmpd -f -LS4d -u
Debi
root          31      1  1 05:26 ?      00:15:10 python3.6 -m sonic_ax_impl

syncd      docker
-----
UID          PID    PPID   C STIME TTY          TIME CMD
root          1      0    0 05:26 ?          00:00:13 /usr/bin/python
/usr/bin/supervi
root         12      1    0 05:26 ?          00:00:00 /usr/sbin/rsyslogd -n
root         17      1    0 05:26 ?          00:00:00 /usr/bin/dsserve
/usr/bin/syncd
root         27     17 22 05:26 ?          04:09:30 /usr/bin/syncd --diag -p
/usr/sh
root         51     27    0 05:26 ?          00:00:01 /usr/bin/syncd --diag -p
/usr/sh

swss      docker
-----
UID          PID    PPID   C STIME TTY          TIME CMD
root          1      0    0 05:26 ?          00:00:29 /usr/bin/python
/usr/bin/supervi
root         25      1    0 05:26 ?          00:00:00 /usr/sbin/rsyslogd -n
root         30      1    0 05:26 ?          00:00:13 /usr/bin/orchagent -d
/var/log/s
root         42      1    1 05:26 ?          00:12:40 /usr/bin/portsyncd -p
/usr/share
root         45      1    0 05:26 ?          00:00:00 /usr/bin/intfsyncd
root         48      1    0 05:26 ?          00:00:03 /usr/bin/neighsyncd
root         59      1    0 05:26 ?          00:00:01 /usr/bin/vlanmgrd
root         92      1    0 05:26 ?          00:00:01 /usr/bin/intfmgrd
root        3606     1    0 23:36 ?          00:00:00 bash -c
/usr/bin/arp_update; sle
root        3621   3606    0 23:36 ?          00:00:00 sleep 300
...
    
```

## 1.6 show system-health detail

### Function

Run the **show system-health detail** command to display the current status of 'Services' and 'Hardware' under monitoring.



## Syntax

**show system-health detail**

## Parameter Description

N/A

## Usage Guidelines

If any of the elements under each of these two sections is 'Not OK' a proper message will appear under the relevant section. In addition, displays a list of all current 'Services' and 'Hardware' being monitored and a list of ignored elements.

## Examples

```
admin@sonic:~$ show system-health detail
System status summary

System status LED    red
Services:
  Status: Not OK
  Not Running: 'telemetry', 'orchagent'
Hardware:
  Status: OK

System services and devices monitor list
```

Name	Status	Type
telemetry	Not OK	Process
orchagent	Not OK	Process
neighsyncd	OK	Process
vrfmgrd	OK	Process
dialout_client	OK	Process
zebra	OK	Process
rsyslog	OK	Process
snmpd	OK	Process
redis_server	OK	Process
intfmgrd	OK	Process
vxlanmgrd	OK	Process
lldpd_monitor	OK	Process
portsyncd	OK	Process
var-log	OK	Filesystem
lldpmgrd	OK	Process
syncd	OK	Process
sonic	OK	System

buffermgrd	OK	Process
portmgrd	OK	Process
staticd	OK	Process
bgpd	OK	Process
lldp_syncd	OK	Process
bgpcfgd	OK	Process
snmp_subagent	OK	Process
root-overlay	OK	Filesystem
fpmsyncd	OK	Process
sflowmgrd	OK	Process
vlanmgrd	OK	Process
nbrmgrd	OK	Process
PSU 2	OK	PSU
psu_1_fan_1	OK	Fan
psu_2_fan_1	OK	Fan
fan11	OK	Fan
fan10	OK	Fan
fan12	OK	Fan
ASIC	OK	ASIC
fan1	OK	Fan
PSU 1	OK	PSU
fan3	OK	Fan
fan2	OK	Fan
fan5	OK	Fan
fan4	OK	Fan
fan7	OK	Fan
fan6	OK	Fan
fan9	OK	Fan
fan8	OK	Fan

System services and devices ignore list

Name	Status	Type
-----	-----	-----
psu.voltage	Ignored	Device

## 1.7 show system-health monitor-list

### Function

Run the **show system-health monitor-list** command to display a list of all current 'Services' and 'Hardware' being monitored, their status and type.

**Syntax****show system-health monitor-list****Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show system-health monitor-list
System services and devices monitor list
```

Name	Status	Type
telemetry	Not OK	Process
orchagent	Not OK	Process
neighsyncd	OK	Process
vrfmgrd	OK	Process
dialout_client	OK	Process
zebra	OK	Process
rsyslog	OK	Process
snmpd	OK	Process
redis_server	OK	Process
intfmgrd	OK	Process
vxlanmgrd	OK	Process
lldpd_monitor	OK	Process
portsyncd	OK	Process
var-log	OK	Filesystem
lldpmgrd	OK	Process
syncd	OK	Process
sonic	OK	System
buffermgrd	OK	Process
portmgrd	OK	Process
staticd	OK	Process
bgpd	OK	Process
lldp_syncd	OK	Process
bgpcfgd	OK	Process
snmp_subagent	OK	Process
root-overlay	OK	Filesystem
fpmsyncd	OK	Process
sflowmgrd	OK	Process

vlanmgrd	OK	Process
nbrmgrd	OK	Process
PSU 2	OK	PSU
psu_1_fan_1	OK	Fan
psu_2_fan_1	OK	Fan
fan11	OK	Fan
fan10	OK	Fan
fan12	OK	Fan
ASIC	OK	ASIC
fan1	OK	Fan
PSU 1	OK	PSU
fan3	OK	Fan
fan2	OK	Fan
fan5	OK	Fan
fan4	OK	Fan
fan7	OK	Fan
fan6	OK	Fan
fan9	OK	Fan
fan8	OK	Fan

## 1.8 show system-health summary

### Function

Run the **show system-health summary** command to display the current status of 'Services' and 'Hardware' under monitoring.

### Syntax

```
show system-health summary
```

### Parameter Description

N/A

### Usage Guidelines

If any of the elements under each of these two sections is 'Not OK' a proper message will appear under the relevant section.

### Examples

```
admin@sonic:~$ show system-health summary
System status summary

System status LED    red
Services:
  Status: Not OK
```

```

Not Running: 'telemetry', 'sflowmgrd'
Hardware:
  Status: OK
admin@sonic:~$ show system-health summary
System status summary

System status LED    green
Services:
  Status: OK
Hardware:
  Status: OK

```

## 1.9 show system-memory

### Function

Run the **show system-memory** command to display the system-wide memory utilization information – just a wrapper over linux native “free” command.

### Syntax

```
show system-memory
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```

admin@sonic:~$ show system-memory
Command: free -m -h

```

	total	used	free	shared	buffers
cached					
Mem:	3.9G	2.0G	1.8G	33M	
324M	791M				
-/+ buffers/cache:	951M	2.9G			
Swap:	0B	0B	0B		

## 1.10 show system-storage

### Function

Run the **show system-storage** command to display storage usage of the device.

**Syntax****show system-storage****Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show system-storage
Filesystem      Size  Used Avail Use% Mounted on
udev            3.9G     0  3.9G   0% /dev
tmpfs           785M    15M  770M   2% /run
root-overlay    32G   6.1G   24G   21% /
/dev/sda3       32G   6.1G   24G   21% /host
/dev/loop1      3.9G  335M   3.4G   9% /var/log
tmpfs           3.9G     0  3.9G   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           4.0M     0  4.0M   0% /sys/fs/cgroup
overlay         32G   6.1G   24G   21%
/var/lib/docker/overlay2/7286b36addf78df670ebe51207156d4f62c7e948258ec105720de2a
962faea47/merged
...
```

# 1 Static routing Commands

Command	Function
<a href="#"><u>config route add</u></a>	Add a static route. Note that prefix /nexthop vrf's and interface name are optional.
<a href="#"><u>config route del</u></a>	Remove a static route. Note that prefix /nexthop vrf's and interface name are optional.
<a href="#"><u>show ip route</u></a>	Display either all the route entries from the routing table or an ipv4 specific route.

## 1.1 config route add

### Function

Run the **config route add** command to add a static route. Note that prefix /nexthop vrf's and interface name are optional.

### Syntax

```
config route add prefix [ vrf vrf-name ] [ A.B.C.D/M ] nexthop [ vrf vrf name ] [ A.B.C.D ] |  
[ dev dev-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ config route add prefix 2.2.3.4/32 nexthop 30.0.0.9
```

It also supports ECMP, and adding a new nexthop to the existing prefix will complement it and not overwrite them.

```
admin@sonic:~$ sudo config route add prefix 2.2.3.4/32 nexthop vrf Vrf-RED 30.0.0.9  
admin@sonic:~$ sudo config route add prefix 2.2.3.4/32 nexthop vrf Vrf-BLUE 30.0.0.10
```

## 1.2 config route del

### Function

Run the **config route del** command to remove a static route. Note that prefix /nexthop vrf's and interface name are optional.

### Syntax

```
config route del prefix [ vrf vrf-name ] [ A.B.C.D/M ] nexthop [ vrf vrf name ] [ A.B.C.D ] |  
[ dev dev-name ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config route del prefix 2.2.3.4/32 nexthop vrf Vrf-RED 30.0.0.9  
admin@sonic:~$ sudo config route del prefix 2.2.3.4/32 nexthop vrf Vrf-BLUE 30.0.0.10
```



## 1.3 show ip route

### Function

Run the **show ip route** command to display either all the route entries from the routing table or an ipv4 specific route.

### Syntax

**show ip route**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
       O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,
       T - Table, v - VNC, V - VNC-Direct, A - Babel, D - SHARP,
       F - PBR, f - OpenFabric,
       > - selected route, * - FIB route, q - queued, r - rejected, b - backup

S>* 0.0.0.0/0 [200/0] via 192.168.111.3, eth0, weight 1, 3d03h58m
S>  1.2.3.4/32 [1/0] via 30.0.0.7, weight 1, 00:00:06
C>* 10.0.0.18/31 is directly connected, Ethernet36, 3d03h57m
C>* 10.0.0.20/31 is directly connected, Ethernet40, 3d03h57m
```

# 1 Console Commands

Command	Function
<a href="#"><u>config console add</u></a>	Add a console port setting.
<a href="#"><u>config console baud</u></a>	Remove a console port setting.
<a href="#"><u>config console del</u></a>	Remove a console port setting.
<a href="#"><u>config console disable</u></a>	Disable SONiC console switch feature.
<a href="#"><u>config console enable</u></a>	Enable SONiC console switch feature.
<a href="#"><u>config console flow_control</u></a>	Enable or disable flow control feature for a console port.
<a href="#"><u>config console remote_device</u></a>	Update the remote device name for a console port.
<a href="#"><u>show line</u></a>	Display serial port or a virtual network connection status.
<a href="#"><u>connect device</u></a>	Connect to a remote device via console line with an interactive cli.
<a href="#"><u>connect line</u></a>	Connect to a remote device via console line with an interactive cli.
<a href="#"><u>sonic-clear line</u></a>	Remote device via console line with an interactive cli.

## 1.1 config console add

### Function

Run the **config console add** command to add a console port setting.

### Syntax

```
config console add port-name [ --baud | -b baud-rate ] [ --flowcontrol | -f ] [ --devicename | -d remote-device ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ config console add 1 --baud 9600 --devicename switch1
```

## 1.2 config console baud

### Function

Run the **config console baud** command to remove a console port setting.

### Syntax

```
config console baud port-name baud-rate
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config console baud 1 9600
```

## 1.3 config console del

### Function

Run the **config console del** command to remove a console port setting.

### Syntax

```
config console del port-name port-name
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config console del 1
```

## 1.4 config console disable

**Function**

Run the **config console disable** command to disable SONiC console switch feature.

**Syntax**

```
config console disable
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config console disable
```

## 1.5 config console enable

**Function**

Run the **config console control** command to enable SONiC console switch feature.

**Syntax**

```
config console enable
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sudo config console enable
```

## 1.6 config console flow\_control

### Function

Run the **config console flow\_control** command to enable or disable flow control feature for a console port.

### Syntax

```
config console flow_control { enable | disable } port-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config console flow_control enable 1
```

## 1.7 config console remote\_device

### Function

Run the **config console remote\_device** command to update the remote device name for a console port.

### Syntax

```
config console remote_device port-name remote-device
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config console remote_device 1 switch1
```

## 1.8 show line

### Function

Run the **show line** command to display serial port or a virtual network connection status.

### Syntax

```
show line [ -b | --breif ]
```

## Parameter Description

N/A

## Usage Guidelines

Optionally, you can display configured console ports only by specifying the ``-b`` or ``--brief`` flag.

## Examples

```
admin@sonic:~$ show line
  Line      Baud      Flow Control      PID      Start Time      Device
-----
  1         9600         Enabled           -         -               switch1
  2          -         Disabled          -         -               -
  3          -         Disabled          -         -               -
  4          -         Disabled          -         -               -
  5          -         Disabled          -         -               -
```

```
admin@sonic:~$ show line -b
  Line      Baud      Flow Control      PID      Start Time      Device
-----
  1         9600         Enabled           -         -               switch1
```

# 1.9 connect device

## Function

Run the **connect device** command to connect to a remote device via console line with an interactive cli.

## Syntax

```
connect device devicename
```

## Parameter Description

N/A

## Usage Guidelines

The command is same with "connect line --devicename <devicename>".

## Examples

```
admin@sonic:~$ connect line 1
Successful connection to line 1
Press ^A ^X to disconnect
```

## 1.10 connect line

### Function

Run the **connect line** command to connect to a remote device via console line with an interactive cli.

### Syntax

```
connect line target [ -d | --devicename ]
```

### Parameter Description

N/A

### Usage Guidelines

By default, the target is “port\_name”.

Optionally, you can connect with a remote device name by specifying the ``-d`` or ``--devicename`` flag

### Examples

```
admin@sonic:~$ connect line 1
Successful connection to line 1
Press ^A ^X to disconnect
```

```
admin@sonic:~$ connect line --devicename switch1
Successful connection to line 1
Press ^A ^X to disconnect
```

## 1.11 sonic-clear line

### Function

Run the **sonic-clear line** command to remote device via console line with an interactive cli.

### Syntax

```
sonc-clear line target [ -d | --devicename ]
```

### Parameter Description

N/A

### Usage Guidelines

By default, the target is “port\_name”.

Optionally, you can clear with a remote device name by specifying the ``-d`` or ``--devicename`` flag.

**Examples**

```
admin@sonic:~$ sonic-clear line 1
```

```
admin@sonic:~$ sonic-clear line --devicename switch1
```



# 1 Drop Counters Commands

Command	Function
<a href="#"><u>config dropcounters add_reasons</u></a>	Add drop reasons to an already initialized counter.
<a href="#"><u>config dropcounters delete</u></a>	Delete a drop counter.
<a href="#"><u>config dropcounters install</u></a>	Initialize a new drop counter. The user must specify a name, type, and initial list of drop reasons.
<a href="#"><u>config dropcounters remove_reasons</u></a>	Remove drop reasons from an already initialized counter.
<a href="#"><u>show dropcounters capabilities</u></a>	Show the drop counter capabilities that are available on this device. It displays the total number of drop counters that can be configured on this device as well as the drop reasons that can be configured for the counters.
<a href="#"><u>show dropcounters configuration</u></a>	Show the current running configuration of the drop counters on this device.
<a href="#"><u>show dropcounters counts</u></a>	Show the current statistics for the configured drop counters. Standard drop counters are displayed as well for convenience.
<a href="#"><u>sonic-clear dropcounters</u></a>	Clear drop counters. This is done on a per-user basis.

## 1.1 config dropcounters add\_reasons

### Function

Run the **config dropcounters add\_reasons** command to add drop reasons to an already initialized counter.

This command will fail if any of the specified drop reasons are not supported.

### Syntax

```
config dropcounters add_reasons counter-name reasons-list
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config dropcounters add_reasons DEBUG_2 [SIP_CLASS_E]
```

## 1.2 config dropcounters delete

### Function

Run the **config dropcounters delete** command to delete a drop counter.

### Syntax

```
config dropcounters delete counter-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config dropcounters delete DEBUG_2
```

## 1.3 config dropcounters install

### Function

Run the **config dropcounters install** command to initialize a new drop counter. The user must specify a name, type, and initial list of drop reasons.

### Syntax

```
config dropcounters install counter-name counter-type reasons-list [ -d description ] [ -g group ] [ -a alias ]
```

## Parameter Description

N/A

## Usage Guidelines

This command will fail if the given name is already in use, if the type of counter is not supported, or if any of the specified drop reasons are not supported. It will also fail if all available counters are already in use on the device.

## Examples

```
admin@sonic:~$ sudo config dropcounters install DEBUG_2 PORT_INGRESS_DROPS  
[EXCEEDS_L2_MTU,DECAP_ERROR] -d "More port ingress drops" -g BAD -a BAD_DROPS
```

## 1.4 config dropcounters remove\_reasons

### Function

Run the **config dropcounters remove\_reasons** command to remove drop reasons from an already initialized counter.

### Syntax

```
config dropcounters remove_reasons counter-name reasons-list
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config dropcounters remove_reasons DEBUG_2 [SIP_CLASS_E]
```

## 1.5 show dropcounters capabilities

### Function

Run the **show dropcounters capabilities** command to show the drop counter capabilities that are available on this device. It displays the total number of drop counters that can be configured on this device as well as the drop reasons that can be configured for the counters.

### Syntax

```
show dropcounters capabilities
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```

admin@sonic:~$ show dropcounters capabilities
Counter Type                Total
-----
PORT_INGRESS_DROPS          3
SWITCH_EGRESS_DROPS         2

PORT_INGRESS_DROPS:
    L2_ANY
    SMAC_MULTICAST
    SMAC_EQUALS_DMACE
    INGRESS_VLAN_FILTER
    EXCEEDS_L2_MTU
    SIP_CLASS_E
    SIP_LINK_LOCAL
    DIP_LINK_LOCAL
    UNRESOLVED_NEXT_HOP
    DECAP_ERROR

SWITCH_EGRESS_DROPS:
    L2_ANY
    L3_ANY
    A_CUSTOM_REASON

```

**1.6 show dropcounters configuration****Function**

Run the **show dropcounters configuration** command to show the current running configuration of the drop counters on this device.

**Syntax**

```
show dropcounters configuration [ -g group-name ]
```

**Parameter Description**

N/A

## Usage Guidelines

N/A

## Examples

```

admin@sonic:~$ show dropcounters configuration
Counter   Alias      Group  Type                               Reasons
Description
-----
-----
DEBUG_0   RX_LEGIT  LEGIT  PORT_INGRESS_DROPS                SMAC_EQUALS_DMAC
Legitimate port-level RX pipeline drops

INGRESS_VLAN_FILTER
DEBUG_1   TX_LEGIT  None   SWITCH_EGRESS_DROPS              EGRESS_VLAN_FILTER
Legitimate switch-level TX pipeline drops

admin@sonic:~$ show dropcounters configuration -g LEGIT
Counter   Alias      Group  Type                               Reasons
Description
-----
-----
DEBUG_0   RX_LEGIT  LEGIT  PORT_INGRESS_DROPS                SMAC_EQUALS_DMAC
Legitimate port-level RX pipeline drops

INGRESS_VLAN_FILTER

```

## 1.7 show dropcounters counts

### Function

Run the **show dropcounters counts** command to show the current statistics for the configured drop counters. Standard drop counters are displayed as well for convenience.

Because clear (see below) is handled on a per-user basis different users may see different drop counts.

### Syntax

```
show dropcounters counts [ -g group-name ] [ -t counter-type ]
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show dropcounters counts
      IFACE      STATE      RX_ERR      RX_DROPS      TX_ERR      TX_DROPS
RX_LEGIT
-----
Ethernet0      U          10          100           0
0              20
Ethernet4      U          0           1000          0
0              100
Ethernet8      U          100         10            0
0              0
```

```
admin@sonic:~$ show dropcounters counts -g LEGIT
      IFACE      STATE      RX_ERR      RX_DROPS      TX_ERR      TX_DROPS
RX_LEGIT
-----
Ethernet0      U          10          100           0
0              20
Ethernet4      U          0           1000          0
0              100
Ethernet8      U          100         10            0
0              0
```

```
admin@sonic:~$ show dropcounters counts -t SWITCH_EGRESS_DROPS
DEVICE  TX_LEGIT
-----
sonic   1000
```

## 1.8 sonic-clear dropcounters

### Function

Run the **sonic-clear dropcounters** command to clear drop counters. This is done on a per-user basis.

### Syntax

**sonic-clear dropcounters**

### Parameter Description

N/A

### Usage Guidelines

N/A

**Examples**

```
admin@sonic:~$ sonic-clear dropcounters  
Cleared drop counters
```

# 1 Feature Commands

Command	Function
<a href="#"><u>config feature autorestart</u></a>	Configure the status of auto-restart for a specific feature container.
<a href="#"><u>config feature fallback</u></a>	Fallback the feature.
<a href="#"><u>config feature owner</u></a>	Configure the owner for a feature as "local" or "kube".
<a href="#"><u>config feature state</u></a>	Configure the state for a specific feature.
<a href="#"><u>show feature autorestart</u></a>	Display the status of auto-restart for feature container.
<a href="#"><u>show feature config</u></a>	Show the config of given feature or all if no feature is given.
<a href="#"><u>show feature status</u></a>	Show show feature status.



## 1.1 config feature autorestart

### Function

Run the **config feature autorestart** command to configure the status of auto-restart for a specific feature container.

### Syntax

```
config feature autorestart feature-name { enabled | disabled }
```

### Parameter Description

N/A

### Usage Guidelines

If the existing state or auto-restart value for a feature is "always\_enabled" then config commands are don't care and will not update state/auto-restart value.

### Examples

```
admin@sonic:~$ sudo config feature autorestart bgp disabled
```

## 1.2 config feature fallback

### Function

Run the **config feature fallback** command to fallback the feature.

### Syntax

```
config feature fallback [ feature-name ] [ on | off ]
```

### Parameter Description

N/A

### Usage Guidelines

Features configured for "kube" deployment could be allowed to fallback to using local image, until the point of successful kube deployment. The fallback is allowed by default.

### Examples

```
admin@sonic:~$ sudo config feature fallback snmp on
```

## 1.3 config feature owner

### Function

Run the **config feature owner** command to configure the owner for a feature as "local" or "kube".

## Syntax

```
config feature owner [ feature-name ] [ local | kube ]
```

## Parameter Description

N/A

## Usage Guidelines

The "local" implies starting the feature container from local image. The "kube" implies that kubernetes server is made eligible to deploy the feature. The deployment of a feature by kubernetes is conditional based on many factors like, whether the kube server is configured or not, connected-to-kube-server or not and if that master has manifest for this feature for this switch or not and more. At some point in future, the deployment *could* happen and till that point the feature can run from local image, called "fallback". The fallback is allowed by default and it could be toggled to "not allowed". When fallback is not allowed, the feature would run only upon deployment by kubernetes master.

## Examples

```
admin@sonic:~$ sudo config feature owner snmp kube
```

## 1.4 config feature state

### Function

Run the **config feature state** command to configure the state for a specific feature.

### Syntax

```
config feature state feature-name { enabled | disabled }
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config feature state bgp disabled
```

## 1.5 show feature autorestart

### Function

Run the **show feature autorestart** command to display the status of auto-restart for feature container.

## Syntax

```
show feature autorestart feature-name
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show feature autorestart
Feature          AutoRestart
-----          -
bgp              enabled
database        always_enabled
dhcp_relay      enabled
lldp            enabled
pmon            enabled
radv            enabled
snmp            enabled
swss            enabled
syncd          enabled
teamd           enabled
telemetry       enabled
```

## 1.6 show feature config

### Function

Run the **show feature config** command to show the config of given feature or all if no feature is given.

The "fallback" is shown only if configured. The fallback defaults to "true" when not configured.

### Syntax

```
show feature config feature-name
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show feature config
Feature           State           AutoRestart     Owner           fallback
-----
bgp                enabled         enabled         local
database          enabled         disabled        local
dhcp_relay        enabled         enabled         kube
lldp              enabled         enabled         kube            true
mgmt-framework    enabled         enabled         local
nat               disabled        enabled         local
pmon              enabled         enabled         kube
radv              enabled         enabled         kube
sflow            disabled        enabled         local
snmp              enabled         enabled         kube
swss              enabled         enabled         local
syncd             enabled         enabled         local
teamd             enabled         enabled         local
telemetry         enabled         enabled         kube
```

## 1.7 show feature status

### Function

Run the **show feature status** command to show show feature status.

The "fallback" defaults to "true" when not configured.

The subset of features are configurable for remote management and only those report additional data.

### Syntax

**show feature status** *feature-name*

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show feature status
Feature           State           AutoRestart     SystemState     UpdateTime
ContainerId       ContainerVersion SetOwner        CurrentOwner
RemoteState
-----
-----
-----
-----
-----
-----
```

bgp		enabled	enabled	up	
local	local		none		
database		enabled	disabled		
local					
dhcp_relay		enabled	enabled	up	2020-11-
15 18:21:09	249e70102f55		20201230.100	kube	local
lldp		enabled	enabled	up	2020-
11-15 18:21:09	779c2d55ee12		20201230.100	kube	local
mgmt-framework		enabled	enabled	up	
local	local		none		
nat		disabled	enabled		
local					
pmon		enabled	enabled	up	
2020-11-15 18:20:27	a2b9ffa8aba3		20201230.100	kube	local
radv		enabled	enabled	up	2020-
11-15 18:21:05	d8ff27dcfe46		20201230.100	kube	local
sflow		disabled	enabled		
local					
snmp		enabled	enabled	up	
2020-11-15 18:25:51	8b7d5529e306		20201230.111	kube	kube
running					
swss		enabled	enabled	up	
local	local		none		
syncd		enabled	enabled	up	
local	local		none		
teamd		enabled	enabled	up	
local	local		none		
telemetry		enabled	enabled	down	2020-11-15
18:24:59			20201230.100	kube	none

# 1 Flow Counters Commands

Command	Function
<a href="#"><u>show flowcnt-trap stats</u></a>	Show the current statistics for the registered host interface traps.
<a href="#"><u>sonic-clear flowcnt-trap</u></a>	Clear the current statistics for the registered host interface traps. This is done on a per-user basis.

## 1.1 show flowcnt-trap stats

### Function

Run the **show flowcnt-trap stats** command to show the current statistics for the registered host interface traps.

### Syntax

**show flowcnt-trap stats**

### Parameter Description

N/A

### Usage Guidelines

Because clear (see below) is handled on a per-user basis different users may see different counts.

### Examples

```
admin@sonic:~$ show flowcnt-trap stats
Trap Name      Packets      Bytes      PPS
-----
      dhcp            100      2,000      50.25/s

For multi-ASIC:
admin@sonic:~$ show flowcnt-trap stats
ASIC ID      Trap Name      Packets      Bytes      PPS
-----
      asic0            dhcp            100      2,000      50.25/s
      asic1            dhcp            200      3,000      45.25/s
```

## 1.2 sonic-clear flowcnt-trap

### Function

Run the **sonic-clear flowcnt-trap** command to clear the current statistics for the registered host interface traps. This is done on a per-user basis.

### Syntax

**sonic-clear flowcnt-trap**

### Parameter Description

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ sonic-clear flowcnt-trap  
Trap Flow Counters were successfully cleared
```



# 1 GearBox Commands

Command	Function
<a href="#"><u>show gearbox interfaces status</u></a>	Display information about the gearbox phy interface lanes, speeds and status.
<a href="#"><u>show gearbox phys status</u></a>	Display basic information about the gearbox phys configured on the switch.

## 1.1 show gearbox interfaces status

### Function

Run the **show gearbox interfaces status** command to display information about the gearbox phy interface lanes, speeds and status.

### Syntax

**show gearbox interfaces status**

### Parameter Description

N/A

### Usage Guidelines

Data is displayed for both MAC side and line side of the gearbox phy.

### Examples

```
admin@sonic:~$ show gearbox interfaces status
```

PHY Id	Interface	MAC Lanes	MAC Lane Speed	PHY Lanes
PHY Lane Speed	Line Lanes	Line Lane Speed	Oper	Admin
1	Ethernet0	25,26,27,28	10G	200,201
20G	206		40G	up
1	Ethernet4	29,30,31,32	10G	202,203
20G	207		40G	up
1	Ethernet8	33,34,35,36	10G	204,205
20G	208		40G	up

## 1.2 show gearbox phys status

### Function

Run the **show gearbox phys status** command to display basic information about the gearbox phys configured on the switch.

### Syntax

**show gearbox phys status**

### Parameter Description

N/A

### Usage Guidelines

N/A

**Examples**

```
admin@sonic:~$ show gearbox phys status
```

PHY Id	Name	Firmware
1	sesto-1	v0.1

# 1 Kubernetes Commands

Command	Function
<a href="#"><b>show kubernetes server config</b></a>	Display the kubernetes server configuration, if any, else would report as not configured.
<a href="#"><b>show kubernetes server status</b></a>	Display the kubernetes server status.

## 1.1 show kubernetes server config

### Function

Run the **show kubernetes server config** command to display the kubernetes server configuration, if any, else would report as not configured.

### Syntax

```
show kubernetes server config
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show kubernetes server config
ip                port        insecure      disable
-----
10.3.157.24      6443        True          False
```

## 1.2 show kubernetes server status

### Function

Run the **show kubernetes server status** command to display the kubernetes server status.

### Syntax

```
show kubernetes server status
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show kubernetes server status
ip                port        connected      update-time
-----
10.3.157.24      6443        true           2020-11-15 18:25:05
```

# 1 Linux Kernel Dump Commands

Command	Function
<a href="#"><code>show kdump config</code></a>	Show the configuration of Linux kernel dump.
<a href="#"><code>show kdump files</code></a>	Show the Linux kernel core dump files and dmesg files which are generated by kernel dump tool.
<a href="#"><code>show kdump logging</code></a>	Show the last 10 lines of latest dmesg file.

## 1.1 show kdump config

### Function

Run the **show kdump config** command to show the configuration of Linux kernel dump.

### Syntax

```
show kdump config
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:$ show kdump config
Kdump administrative mode: Disabled
Kdump operational mode: Unready
Kdump memory researvation: 0M-2G:256M,2G-4G:320M,4G-8G:384M,8G--:448M
Maximum number of Kdump files: 3
```

## 1.2 show kdump files

### Function

Run the **show kdump files** command to show the Linux kernel core dump files and dmesg files which are generated by kernel dump tool.

### Syntax

```
show kdump files
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show kdump files
Kernel core dump files                                Kernel dmesg files
-----
/var/crash/202106242344/kdump.202106242344
/var/crash/202106242344/dmesg.202106242344
```





```
x_tables(E) autofs4(E) loop(E) ext4(E) crc16(E) mbcache(E) jbd2(E) crc32c_generic(E)
fscrypto(E) ecb(E) crypto_simd(E) cryptd(E) glue_helper(E) aes_x86_64(E) nvme(E)
nvme_core(E) nls_utf8(E) nls_cp437(E) nls_ascii(E) vfat(E) fat(E) overlay(E) squashfs(E)
zstd_decompress(E) xxhash(E) sd_mod(E) gpio_ich(E) ahci(E)
[ 159.864532] libahci(E) mlxsw_core(E) devlink(E) ehci_pci(E) ehci_hcd(E) crc32c_intel(E)
libata(E) i2c_i801(E) scsi_mod(E) usbcore(E) usb_common(E) lpc_ich(E) mfd_core(E)
e1000e(E) fan(E) thermal(E)
[ 160.075846] CR2: 0000000000000000
```

# You can specify a file name in order to show its last 10 lines.

```
admin@sonic:~$ show kdump logging dmesg.202106242337
[ 654.120195] RSP: 002b:00007ffe697690f8 EFLAGS: 00000246 ORIG_RAX: 0000000000000001
[ 654.210778] RAX: ffffffffda RBX: 0000000000000002 RCX: 00007fcfca27b504
[ 654.296157] RDX: 0000000000000002 RSI: 000055a6e4d1b3f0 RDI: 0000000000000001
[ 654.381543] RBP: 000055a6e4d1b3f0 R08: 000000000000000a R09: 00007fcfca2cc5f0
[ 654.466925] R10: 000000000000000a R11: 0000000000000246 R12: 00007fcfca34d760
[ 654.552310] R13: 0000000000000002 R14: 00007fcfca348760 R15: 0000000000000002
[ 654.637694] Modules linked in: binfmt_misc(E) nft_chain_route_ipv6(E)
nft_chain_route_ipv4(E) xt_TCPMSS(E) dummy(E) team_mode_loadbalance(E) team(E)
sx_bfd(OE) sx_netdev(OE) psample(E) sx_core(OE) 8021q(E) garp(E) mrp(E)
mst_pciconf(OE) mst_pci(OE) xt_hl(E) xt_tcpudp(E) ip6_tables(E) nft_chain_nat_ipv4(E)
nf_nat_ipv4(E) nft_compat(E) nft_counter(E) xt_conntrack(E) nf_nat(E) jc42(E)
nf_conntrack_netlink(E) nf_conntrack(E) nf_defrag_ipv6(E) nf_defrag_ipv4(E)
libcrc32c(E) xfrm_user(E) xfrm_algo(E) mlxsw_minimal(E) mlxsw_i2c(E) i2c_mux_reg(E)
i2c_mux(E) mlxreg_hotplug(E) mlxreg_io(E) i2c_mlxcpld(E) leds_mlxcpld(E) mei_wdt(E)
evdev(E) intel_rapl(E) x86_pkg_temp_thermal(E) intel_powerclamp(E) kvm_intel(E)
kvm(E) mlx_platform(E) irqbypass(E) crct10dif_pclmul(E) crc32_pclmul(E)
ghash_clmulni_intel(E) intel_cstate(E)
[ 655.493833] intel_uncore(E) intel_rapl_perf(E) pcspkr(E) sg(E) iTCO_wdt(E)
iTCO_vendor_support(E) mei_me(E) mei(E) bonding(E) video(E) button(E)
pcc_cpufreq(E) ebt_vlan(E) ebtable_broute(E) bridge(E) stp(E) llc(E) ebtable_nat(E)
ebtable_filter(E) ebtables(E) nf_tables(E) nfnetlink(E) xdpe12284(E) at24(E)
ledtrig_timer(E) tmp102(E) drm(E) lm75(E) coretemp(E) max1363(E)
industrialio_triggered_buffer(E) kfifo_buf(E) industrialio(E) fuse(E) tps53679(E) pmbus(E)
pmbus_core(E) i2c_dev(E) configfs(E) ip_tables(E) x_tables(E) autofs4(E) loop(E) ext4(E)
crc16(E) mbcache(E) jbd2(E) crc32c_generic(E) fscrypto(E) ecb(E) crypto_simd(E)
cryptd(E) glue_helper(E) aes_x86_64(E) nvme(E) nvme_core(E) nls_utf8(E) nls_cp437(E)
nls_ascii(E) vfat(E) fat(E) overlay(E) squashfs(E) zstd_decompress(E) xxhash(E)
sd_mod(E)
[ 656.337476] gpio_ich(E) ahci(E) mlxsw_core(E) libahci(E) devlink(E) crc32c_intel(E)
libata(E) i2c_i801(E) scsi_mod(E) lpc_ich(E) mfd_core(E) ehci_pci(E) ehci_hcd(E)
usbcore(E) e1000e(E) usb_common(E) fan(E) thermal(E)
```

```
[ 656.569590] CR2: 0000000000000000
```

# You can also specify a file name and number of lines in order to show the last number of lines.

```
admin@sonic:~$ show kdump logging dmesg.202106242337 -l 20
```

```
[ 653.525427] __handle_sysrq.cold.9+0x45/0xf2
```

```
[ 653.576487] write_sysrq_trigger+0x2b/0x30
```

```
[ 653.625472] proc_reg_write+0x39/0x60
```

```
[ 653.669252] vfs_write+0xa5/0x1a0
```

```
[ 653.708881] ksys_write+0x57/0xd0
```

```
[ 653.748501] do_syscall_64+0x53/0x110
```

```
[ 653.792287] entry_SYSCALL_64_after_hwframe+0x44/0xa9
```

```
[ 653.852707] RIP: 0033:0x7fcfa27b504
```

```
[ 653.895452] Code: 00 f7 d8 64 89 02 48 c7 c0 ff ff ff ff eb b3 0f 1f 80 00 00 00 00 48 8d 05 f9
61 0d 00 8b 00 85 c0 75 13 b8 01 00 00 00 0f 05 <48> 3d 00 f0 ff ff 77 54 c3 0f 1f 00 41 54 49 89
d4 55 48 89 f5 53
```

```
[ 654.120195] RSP: 002b:00007ffe697690f8 EFLAGS: 00000246 ORIG_RAX: 0000000000000001
```

```
[ 654.210778] RAX: ffffffffda RBX: 0000000000000002 RCX: 00007fcfa27b504
```

```
[ 654.296157] RDX: 0000000000000002 RSI: 000055a6e4d1b3f0 RDI: 0000000000000001
```

```
[ 654.381543] RBP: 000055a6e4d1b3f0 R08: 000000000000000a R09: 00007fcfa2cc5f0
```

```
[ 654.466925] R10: 000000000000000a R11: 0000000000000246 R12: 00007fcfa34d760
```

```
[ 654.552310] R13: 0000000000000002 R14: 00007fcfa348760 R15: 0000000000000002
```

```
[ 654.637694] Modules linked in: binfmt_misc(E) nft_chain_route_ipv6(E)
```

```
nft_chain_route_ipv4(E) xt_TCPMSS(E) dummy(E) team_mode_loadbalance(E) team(E)
```

```
sx_bfd(OE) sx_netdev(OE) psample(E) sx_core(OE) 8021q(E) garp(E) mrp(E)
```

```
mst_pcionf(OE) mst_pci(OE) xt_hl(E) xt_tcpudp(E) ip6_tables(E) nft_chain_nat_ipv4(E)
```

```
nf_nat_ipv4(E) nft_compat(E) nft_counter(E) xt_conntrack(E) nf_nat(E) jc42(E)
```

```
nf_conntrack_netlink(E) nf_conntrack(E) nf_defrag_ipv6(E) nf_defrag_ipv4(E)
```

```
libcrc32c(E) xfrm_user(E) xfrm_algo(E) mlxsw_minimal(E) mlxsw_i2c(E) i2c_mux_reg(E)
```

```
i2c_mux(E) mlxreg_hotplug(E) mlxreg_io(E) i2c_mlxcpld(E) leds_mlxcpld(E) mei_wdt(E)
```

```
evdev(E) intel_rapl(E) x86_pkg_temp_thermal(E) intel_powerclamp(E) kvm_intel(E)
```

```
kvm(E) mlx_platform(E) irqbypass(E) crct10dif_pclmul(E) crc32_pclmul(E)
```

```
ghash_clmulni_intel(E) intel_cstate(E)
```

```
[ 655.493833] intel_uncore(E) intel_rapl_perf(E) pcspkr(E) sg(E) iTCO_wdt(E)
```

```
iTCO_vendor_support(E) mei_me(E) mei(E) bonding(E) video(E) button(E)
```

```
pcc_cpufreq(E) ebt_vlan(E) ebtable_broute(E) bridge(E) stp(E) llc(E) ebtable_nat(E)
```

```
ebtable_filter(E) ebtables(E) nf_tables(E) nfnetlink(E) xdpe12284(E) at24(E)
```

```
ledtrig_timer(E) tmp102(E) drm(E) lm75(E) coretemp(E) max1363(E)
```

```
industrialio_triggered_buffer(E) kfifo_buf(E) industrialio(E) fuse(E) tps53679(E) pmbus(E)
```

```
pmbus_core(E) i2c_dev(E) configfs(E) ip_tables(E) x_tables(E) autofs4(E) loop(E) ext4(E)
```

```
crc16(E) mbcache(E) jbd2(E) crc32c_generic(E) fscrypto(E) ecb(E) crypto_simd(E)
```

```
cryptd(E) glue_helper(E) aes_x86_64(E) nvme(E) nvme_core(E) nls_utf8(E) nls_cp437(E)
```

```
nls_ascii(E) vfat(E) fat(E) overlay(E) squashfs(E) zstd_decompress(E) xxhash(E)
sd_mod(E)
[ 656.337476] gpio_ich(E) ahci(E) mlxsw_core(E) libahci(E) devlink(E) crc32c_intel(E)
libata(E) i2c_i801(E) scsi_mod(E) lpc_ich(E) mfd_core(E) ehci_pci(E) ehci_hcd(E)
usbcore(E) e1000e(E) usb_common(E) fan(E) thermal(E)
[ 656.569590] CR2: 0000000000000000
```

# 1 Loading, Reloading And Saving Configuration Commands

Command	Function
<a href="#"><u>config load</u></a>	Load the configuration from a JSON file.
<a href="#"><u>config load_mgmt_config</u></a>	Reconfigure hostname and mgmt interface based on device description file.
<a href="#"><u>config load_minigraph</u></a>	Load the configuration from /etc/sonic/minigraph.xml.
<a href="#"><u>config reload</u></a>	Clear current configuration and import new configuration from the input file or from /etc/sonic/config_db.json.
<a href="#"><u>config save</u></a>	Save the config DB configuration into the user-specified filename or into the default /etc/sonic/config_db.json.

## 1.1 config load

### Function

Run the **config load** command to load the configuration from a JSON file.

### Syntax

```
config load [ -y | --yes ] [ filename ]
```

### Parameter Description

N/A

### Usage Guidelines

This command is used to load the configuration from a JSON file like the file which SONiC saves its configuration to, `~/etc/sonic/config_db.json``

This command loads the configuration from the input file (if user specifies this optional filename, it will use that input file. Otherwise, it will use the default `~/etc/sonic/config_db.json`` file as the input file) into CONFIG\_DB.

The configuration present in the input file is applied on top of the already running configuration.

This command does not flush the config DB before loading the new configuration (i.e., If the configuration present in the input file is same as the current running configuration, nothing happens)

If the config present in the input file is not present in running configuration, it will be added.

If the config present in the input file differs (when key matches) from that of the running configuration, it will be modified as per the new values for those keys.

When user specifies the optional argument "-y" or "--yes", this command forces the loading without prompting the user for confirmation.

If the argument is not specified, it prompts the user to confirm whether user really wants to load this configuration file.

### Examples

```
admin@sonic:~$ sudo config load
Load config from the file /etc/sonic/config_db.json? [y/N]: y
Running command: /usr/local/bin/sonic-cfggen -j /etc/sonic/config_db.json --write-to-db
```

## 1.2 config load\_mgmt\_config

### Function

Run the **config load\_mgmt\_config** command to reconfigure hostname and mgmt interface based on device description file.

## Syntax

```
config load_mgmt_config [ -y | --yes ] [ filename ]
```

## Parameter Description

N/A

## Usage Guidelines

This command either uses the optional file specified as argument or looks for the file "/etc/sonic/device\_desc.xml". If the file does not exist or if the file does not have valid fields for "hostname" and "ManagementAddress", it fails.

When user specifies the optional argument "-y" or "--yes", this command forces the loading without prompting the user for confirmation. If the argument is not specified, it prompts the user to confirm whether user really wants to load this configuration file.

## Examples

```
admin@sonic:~$ sudo config load_mgmt_config
Reload config from minigraph? [y/N]: y
Running command: /usr/local/bin/sonic-cfggen -M /etc/sonic/device_desc.xml --write-to-db
```

## 1.3 config load\_minigraph

### Function

Run the **config load\_minigraph** command to load the configuration from /etc/sonic/minigraph.xml.

### Syntax

```
config load_minigraph [ -y | --yes ] [ -n | --no-service-restart ]
```

### Parameter Description

N/A

### Usage Guidelines

When users do not want to use configuration from config\_db.json, they can copy the minigraph.xml configuration file to the device and load it using this command.

This command restarts various services running in the device and it takes some time to complete the command.



#### Note

- NOTE: If the user had logged in using SSH, users might get disconnected and some configuration failures might happen which might be hard to recover. Users need to

reconnect their SSH sessions after configuring the management IP address. It is recommended to execute this command from console port

- Management interface IP address and default route (or specific route) may require reconfiguration in case if those parameters are not part of the minigraph.xml.

When user specifies the optional argument "-y" or "--yes", this command forces the loading without prompting the user for confirmation.

If the argument is not specified, it prompts the user to confirm whether user really wants to load this configuration file.

When user specifies the optional argument "-n" or "--no-service-restart", this command loads the configuration without restarting dependent services

running on the device. One use case for this option is during boot time when config-setup service loads minigraph configuration and there is no services running on the device.

## Examples

```
admin@sonic:~$ sudo config load_minigraph
Reload config from minigraph? [y/N]: y
Running command: /usr/local/bin/sonic-cfggen -j /etc/sonic/config_db.json --write-to-db
```

## 1.4 config reload

### Function

Run the **config reload** command to clear current configuration and import new configuration from the input file or from `/etc/sonic/config_db.json`.

### Syntax

```
config reload [ -y | --yes ] [ -l | --load-sysinfo ] [ filename ] [ -n | --no-service-restart ]
[ -f | --force ]
```

### Parameter Description

N/A

### Usage Guidelines

This command shall stop all services before clearing the configuration and it then restarts those services.

This command restarts various services running in the device and it takes some time to complete the command.

NOTE: If the user had logged in using SSH, users **might get disconnected** depending upon the new management IP address. Users need to reconnect their SSH sessions.

In general, it is recommended to execute this command from console port after disconnecting all SSH sessions to the device. When users do "config reload" the newly loaded config may have management IP address, or it may not have management IP address. If mgmtIP is there in the newly loaded config file, that mgmtIP might be same as

previously configured value or it might be different. This difference in mgmtIP address values results in following possible behaviours.

Case1: Previously configured mgmtIP is same as newly loaded mgmtIP. The SSH session may not be affected at all, but it's possible that there will be a brief interruption in the SSH session. But, assuming the client's timeout value isn't on the order of a couple of seconds, the session would most likely just resume again as soon as the interface is reconfigured and up with the same IP.

Case2: Previously configured mgmtIP is different from newly loaded mgmtIP. Users will lose their SSH connections.

Case3: Newly loaded config does not have any mgmtIP. Users will lose their SSH connections.

NOTE: Management interface IP address and default route (or specific route) may require reconfiguration in case if those parameters are not part of the minigraph.xml.

When user specifies the optional argument "-y" or "--yes", this command forces the loading without prompting the user for confirmation.

If the argument is not specified, it prompts the user to confirm whether user really wants to load this configuration file.

When user specifies the optional argument "-n" or "--no-service-restart", this command clear and loads the configuration without restarting dependent services running on the device. One use case for this option is during boot time when config-setup service loads existing old configuration and there is no services running on the device.

When user specifies the optional argument "-f" or "--force", this command ignores the system sanity checks. By default a list of sanity checks are performed and if one of the checks fail, the command will not execute. The sanity checks include ensuring the system status is not starting, all the essential services are up and swss is in ready state.

## Examples

```
admin@sonic:~$ sudo config reload
Clear current config and reload config from the file /etc/sonic/config_db.json? [y/N]: y
Running command: systemctl stop dhcp_relay
Running command: systemctl stop swss
Running command: systemctl stop snmp
Warning: Stopping snmp.service, but it can still be activated by:
  snmp.timer
Running command: systemctl stop lldp
Running command: systemctl stop pmon
Running command: systemctl stop bgp
Running command: systemctl stop teamd
Running command: /usr/local/bin/sonic-cfggen -H -k Force10-Z9100-C32 --write-to-db
Running command: /usr/local/bin/sonic-cfggen -j /etc/sonic/config_db.json --write-to-db
Running command: systemctl restart hostname-config
Running command: systemctl restart interfaces-config
Timeout, server 10.11.162.42 not responding.
```



```
# When some sanity checks fail below error messages can be seen.
```

```
admin@sonic:~$ sudo config reload -y
System is not up. Retry later or use -f to avoid system checks

admin@sonic:~$ sudo config reload -y
Relevant services are not up. Retry later or use -f to avoid system checks

admin@sonic:~$ sudo config reload -y
SwSS container is not ready. Retry later or use -f to avoid system checks
```

## 1.5 config save

### Function

Run the **config save** command to save the config DB configuration into the user-specified filename or into the default `/etc/sonic/config_db.json`.

### Syntax

```
config save [ -y | --yes ] [ filename ]
```

### Parameter Description

N/A

### Usage Guidelines

This saves the configuration into the disk which is available even after reboots. Saved file can be transferred to remote machines for debugging. If users wants to load the configuration from this new file at any point of time, they can use "config load" command and provide this newly generated file as input. If users wants this newly generated file to be used during reboot, they need to copy this file to `/etc/sonic/config_db.json`.

### Examples

```
# Save configuration to /etc/sonic/config_db.json
```

```
admin@sonic:~$ sudo config save -y
```

Save configuration to a specified file

```
admin@sonic:~$ sudo config save -y /etc/sonic/config2.json
```

# 1 MAC Address FDB Commands

Command	Function
<a href="#"><u>config mac</u></a>	Add a static FDB entry.
<a href="#"><u>config mac aging-time</u></a>	Set the FDB aging time.
<a href="#"><u>show mac</u></a>	Display the MAC (FDB) entries either in full or partial as given below.
<a href="#"><u>show mac aging-time</u></a>	Display the default mac aging time on the switch.
<a href="#"><u>sonic-clear fdb all</u></a>	Clear the FDB table.

## 1.1 config mac

### Function

Run the **config mac** command to add a static FDB entry.

### Syntax

```
config mac { add | del } vid mac-addr (Versions >= 202111)
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config mac add 1 00:11:11:11:11:11 Ethernet55
admin@sonic:~$ sudo config mac del 1 00:11:11:11:11:11
```

## 1.2 config mac aging-time

### Function

Run the **config mac aging-time** command to set the FDB aging time.

### Syntax

```
config mac aging-time time (Versions >= 202111)
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config mac aging-time 300
```

## 1.3 show mac

### Function

Run the **show mac** command to display the MAC (FDB) entries either in full or partial as given below.

## Syntax

```
show mac [ -v vlan-id ] [ -p port-name ] [ -a mac-address ] [ -t type ] [ -c ]
```

## Parameter Description

- v *vlan-id*: displays the MACs learnt on the particular VLAN ID.
- p *port-name*: displays the MACs learnt on the particular port.
- a *mac-address*: display the MACs that match a specific mac-address.
- t *type*: display the MACs that match a specific type (static/dynamic).
- c: display the count of MAC addresses

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show mac
```

No.	Vlan	MacAddress	Port	Type
1	1000	E2:8C:56:85:4A:CD	Ethernet192	Dynamic
2	1000	A0:1B:5E:47:C9:76	Ethernet192	Dynamic
3	1000	AA:54:EF:2C:EE:30	Ethernet192	Dynamic
4	1000	A4:3F:F2:17:A3:FC	Ethernet192	Dynamic
5	1000	0C:FC:01:72:29:91	Ethernet192	Dynamic
6	1000	48:6D:01:7E:C9:FD	Ethernet192	Dynamic
7	1000	1C:6B:7E:34:5F:A6	Ethernet192	Dynamic
8	1000	EE:81:D9:7B:93:A9	Ethernet192	Dynamic
9	1000	CC:F8:8D:BB:85:E2	Ethernet192	Dynamic
10	1000	0A:52:B3:9C:FB:6C	Ethernet192	Dynamic
11	1000	C6:E2:72:02:D1:23	Ethernet192	Dynamic
12	1000	8A:C9:5C:25:E9:28	Ethernet192	Dynamic
13	1000	5E:CD:34:E4:94:18	Ethernet192	Dynamic
14	1000	7E:49:1F:B5:91:B5	Ethernet192	Dynamic
15	1000	AE:DD:67:F3:09:5A	Ethernet192	Dynamic
16	1000	DC:2F:D1:08:4B:DE	Ethernet192	Dynamic
17	1000	50:96:23:AD:F1:65	Ethernet192	Static
18	1000	C6:C9:5E:AE:24:42	Ethernet192	Static

Total number of entries 18

Optionally, you can specify a VLAN ID or interface name or type or mac-address in order to display only that particular entries.

```
admin@sonic:~$ show mac -v 1000
```

No.	Vlan	MacAddress	Port	Type
-----	------	------------	------	------

```

-----
 1 1000 E2:8C:56:85:4A:CD Ethernet192 Dynamic
 2 1000 A0:1B:5E:47:C9:76 Ethernet192 Dynamic
 3 1000 AA:54:EF:2C:EE:30 Ethernet192 Dynamic
 4 1000 A4:3F:F2:17:A3:FC Ethernet192 Dynamic
 5 1000 0C:FC:01:72:29:91 Ethernet192 Dynamic
 6 1000 48:6D:01:7E:C9:FD Ethernet192 Dynamic
 7 1000 1C:6B:7E:34:5F:A6 Ethernet192 Dynamic
 8 1000 EE:81:D9:7B:93:A9 Ethernet192 Dynamic
 9 1000 CC:F8:8D:BB:85:E2 Ethernet192 Dynamic
10 1000 0A:52:B3:9C:FB:6C Ethernet192 Dynamic
11 1000 C6:E2:72:02:D1:23 Ethernet192 Dynamic
12 1000 8A:C9:5C:25:E9:28 Ethernet192 Dynamic
13 1000 5E:CD:34:E4:94:18 Ethernet192 Dynamic
14 1000 7E:49:1F:B5:91:B5 Ethernet192 Dynamic
15 1000 AE:DD:67:F3:09:5A Ethernet192 Dynamic
16 1000 DC:2F:D1:08:4B:DE Ethernet192 Dynamic
17 1000 50:96:23:AD:F1:65 Ethernet192 Static
18 1000 C6:C9:5E:AE:24:42 Ethernet192 Static

```

Total number of entries 18

```
admin@sonic:~$ show mac -p Ethernet192
```

```

No.   Vlan  MacAddress          Port          Type
-----
 1    1000  E2:8C:56:85:4A:CD  Ethernet192   Dynamic
 2    1000  A0:1B:5E:47:C9:76  Ethernet192   Dynamic
 3    1000  AA:54:EF:2C:EE:30  Ethernet192   Dynamic
 4    1000  A4:3F:F2:17:A3:FC  Ethernet192   Dynamic
 5    1000  0C:FC:01:72:29:91  Ethernet192   Dynamic
 6    1000  48:6D:01:7E:C9:FD  Ethernet192   Dynamic
 7    1000  1C:6B:7E:34:5F:A6  Ethernet192   Dynamic
 8    1000  EE:81:D9:7B:93:A9  Ethernet192   Dynamic
 9    1000  CC:F8:8D:BB:85:E2  Ethernet192   Dynamic
10    1000  0A:52:B3:9C:FB:6C  Ethernet192   Dynamic
11    1000  C6:E2:72:02:D1:23  Ethernet192   Dynamic
12    1000  8A:C9:5C:25:E9:28  Ethernet192   Dynamic
13    1000  5E:CD:34:E4:94:18  Ethernet192   Dynamic
14    1000  7E:49:1F:B5:91:B5  Ethernet192   Dynamic
15    1000  AE:DD:67:F3:09:5A  Ethernet192   Dynamic
16    1000  DC:2F:D1:08:4B:DE  Ethernet192   Dynamic
17    1000  50:96:23:AD:F1:65  Ethernet192   Static
18    1000  C6:C9:5E:AE:24:42  Ethernet192   Static

```

```
Total number of entries 18
```

```
admin@sonic:~$ show mac -a E2:8C:56:85:4A:CD
No.   Vlan  MacAddress          Port          Type
-----
  1   1000  E2:8C:56:85:4A:CD  Ethernet192   Dynamic
Total number of entries 1
```

```
admin@sonic:~$ show mac -t Static
No.   Vlan  MacAddress          Port          Type
-----
  2   1000  50:96:23:AD:F1:65  Ethernet192   Static
  2   1000  C6:C9:5E:AE:24:42  Ethernet192   Static
Total number of entries 2
```

```
admin@sonic:~$ show mac -c
Total number of entries 18
```

## 1.4 show mac aging-time

### Function

Run the **show mac aging-time** command to display the default mac aging time on the switch.

### Syntax

```
show mac aging-time
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show mac aging-time
Aging time for switch is 600 seconds
```

## 1.5 sonic-clear fdb all

### Function

Run the **sonic-clear fdb all** command to clear the FDB table.

### Syntax

```
sonic-clear fdb all
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sonic-clear fdb all  
FDB entries are cleared.
```

# 1 Muxcable Commands

Command	Function
<a href="#"><u>config muxcable loopback</u></a>	Set the configuration and enable/disable of loopback on a port user provides.
<a href="#"><u>config muxcable mode</u></a>	Set the configuration of a muxcable Port/all ports to be active or auto.
<a href="#"><u>config muxcable prbs</u></a>	Set the configuration and enable/disable of prbs on a port user provides.
<a href="#"><u>show muxcable ber-info</u></a>	Display the ber(Bit error rate) of the port user provides on the target user provides.
<a href="#"><u>show muxcable config</u></a>	Display all the configurations of either all the ports which are connected to muxcable or any individual port selected by the user.
<a href="#"><u>show muxcable eye-info</u></a>	Display the eye info in mv(milli volts) of the port user provides on the target user provides.
<a href="#"><u>show muxcable status</u></a>	Display all the status of either all the ports which are connected to muxcable or any individual port selected by the user.



## 1.1 config muxcable loopback

### Function

Run the **config muxcable loopback** command to set the configuration and enable/disable of loopback on a port user provides.

### Syntax

**config muxcable loopback enable** [ *options* ] *port target lane-map*

**config muxcable loopback disable** [ *options* ] *port target*

### Parameter Description

*port*: PORT required – Port number should be a valid port.

*target*: TARGET required – the actual target to run the loopback on 0 -> local side, 1 -> TOR 1  
2 -> TOR 2 3 -> NIC.

*lane-map*: LANE\_MAP required – an integer representing the lane\_map to be run loopback on 0bit for lane 0, 1bit for lane1 and so on. for example 3 -> 0b'0011 , means running on lane0 and lane1.

### Usage Guidelines

While enabling in addition to port the user also needs to provides the target and lane map on which the user intends to run loopback on. The target reflects where the enable/disable will happen.

### Examples

```
admin@sonic:~$ sudo config muxcable loopback enable 1 1 3
loopback config successful
admin@sonic:~$ sudo config muxcable loopback disable 1 0
loopback disable successful
```

## 1.2 config muxcable mode

### Function

Run the **config muxcable mode** command to set the configuration of a muxcable Port/all ports to be active or auto.

### Syntax

**config muxcable mode** [ *options* ] *operation-status* [ *port-name* ]

### Parameter Description

*options*: --json optional – option to display the result in json format. By default output will be in tabular format.

*operation-status*: <auto/active> operation\_state, permitted operation to be configured which can only be auto or active.

*port-name*: PORT optional - Port name should be a valid port.

## Usage Guidelines

The user has to enter a port number or else all to make the muxcable config operation on all the ports. Depending on the status of the muxcable port state the resultant output could be OK or INPROGRESS. OK would imply no change on the state, INPROGRESS would mean the toggle is happening in the background.

## Examples

```
admin@sonic:~$ sudo config muxcable mode active Ethernet0
port      state
-----  -
Ethernet0 OK
admin@sonic:~$ sudo config muxcable mode --json active Ethernet0
{
  "Ethernet0": "OK"
}
admin@sonic:~$ sudo config muxcable mode active all
port      state
-----  -
Ethernet0 OK
Ethernet32 INPROGRESS
admin@sonic:~$ sudo config muxcable mode active all --json
{
  "Ethernet32": "INPROGRESS",
  "Ethernet0": "OK"
}
```

## 1.3 config muxcable prbs

### Function

Run the **config muxcable prbs** command to set the configuration and enable/disable of prbs on a port user provides.

### Syntax

```
config muxcable prbs enable [ options ] port target mode-value lane-map
config muxcable prbs disable [ options ] port target
```

### Parameter Description

*port*: PORT required - Port number should be a valid port.

*target*: TARGET required - the actual target to run the prbs on 0 -> local side, 1 -> TOR 1 2 -> TOR 2 3 -> NIC.

*mode-value*: MODE\_VALUE required - the mode/type for configuring the PRBS mode. 0x00 = PRBS 9, 0x01 = PRBS 15, 0x02 = PRBS 23, 0x03 = PRBS 31.

*lane-map*: LANE\_MAP required - an integer representing the lane\_map to be run PRBS on 0bit for lane 0, 1bit for lane1 and so on. for example 3 -> 0b'0011 , means running on lane0 and lane1.

## Usage Guidelines

While enabling in addition to port the user also needs to provide the target, prbs mode and lane map on which the user intends to run prbs on. The target reflects where the enable/disable will happen.

## Examples

```
admin@sonic:~$ sudo config muxcable prbs enable 1 1 3 3
PRBS config successful
admin@sonic:~$ sudo config muxcable prbs disable 1 0
PRBS disable successful
```

## 1.4 show muxcable ber-info

### Function

Run the **show muxcable ber-info** command to display the ber(Bit error rate) of the port user provides on the target user provides.

### Syntax

```
show muxcable ber-info [ options ] port target
```

### Parameter Description

*port*: PORT required - Port number should be a valid port.

*target*: TARGET required - the actual target to get the ber info of.

## Usage Guidelines

The target provided as an integer corresponds to actual target as. 0 -> local 1 -> tor 1 2 -> tor 2 3 -> nic.

## Examples

```
admin@sonic:~$ show muxcable ber-info 1 1
Lane1    Lane2
-----  -----
0        0
```

## 1.5 show muxcable config

### Function

Run the **show muxcable config** command to display all the configurations of either all the ports which are connected to muxcable or any individual port selected by the user.

### Syntax

```
show muxcable config [ port ] [ options ]
```

### Parameter Description

*port*: PORT optional - Port name should be a valid port.

*options*: --json optional - option to display the result in json format. By default output will be in tabular format.

### Usage Guidelines

The resultant table or json output will show the current configurations of muxcable on the port(active/standby) and also the ipv4 and ipv6 address of the port as well as peer TOR ip address with the hostname.

### Examples

```
admin@sonic:~$ show muxcable config
SWITCH_NAME    PEER_TOR
-----
sonic          10.1.1.1
port    state    ipv4    ipv6
-----
Ethernet0 active 10.1.1.1 fc00::75
admin@sonic:~$ show muxcable config --json
{
  "MUX_CABLE": {
    "PEER_TOR": "10.1.1.1",
    "PORTS": {
      "Ethernet0": {
        "STATE": "active",
        "SERVER": {
          "IPv4": "10.1.1.1",
          "IPv6": "fc00::75"
        }
      }
    }
  }
}
admin@sonic:~$ show muxcable config Ethernet0
```

```

SWITCH_NAME    PEER_TOR
-----
sonic          10.1.1.1
port          state  ipv4    ipv6
-----
Ethernet0 active 10.1.1.1 fc00::75
admin@sonic:~$ show muxcable config Ethernet0 --json
{
  "MUX_CABLE": {
    "PORTS": {
      "Ethernet0": {
        "STATE": "active",
        "SERVER": {
          "IPv4": "10.1.1.1",
          "IPv6": "fc00::75"
        }
      }
    }
  }
}

```

## 1.6 show muxcable eye-info

### Function

Run the **show muxcable eye-info** command to display the eye info in mv(milli volts) of the port user provides on the target user provides.

### Syntax

```
show muxcable eye-info [ options ] port target
```

### Parameter Description

*port*: PORT required - Port number should be a valid port.

*target*: TARGET required - the actual target to get the eye info of.

### Usage Guidelines

The target provided as an integer corresponds to actual target as. 0 -> local 1 -> tor 1 2 -> tor 2 3 -> nic.

### Examples

```

admin@sonic:~$ show muxcable eye-info 1 1
Lane1    Lane2
-----
632      622

```

## 1.7 show muxcable status

### Function

Run the **show muxcable status** command to display all the status of either all the ports which are connected to muxcable or any individual port selected by the user.

### Syntax

```
show muxcable status [ port ] [ options ]
```

### Parameter Description

*port*: PORT optional - Port name should be a valid port.

*options*: --json optional - option to display the result in json format. By default output will be in tabular format.

### Usage Guidelines

The resultant table or json output will show the current status of muxcable on the port (auto/active) and also the health of the muxcable.

### Examples

```
admin@sonic:~$ show muxcable status
PORT      STATUS   HEALTH
-----
Ethernet32 active   HEALTHY
Ethernet0 auto     HEALTHY
admin@sonic:~$ show muxcable status --json
{
  "MUX_CABLE": {
    "Ethernet32": {
      "STATUS": "active",
      "HEALTH": "HEALTHY"
    },
    "Ethernet0": {
      "STATUS": "auto",
      "HEALTH": "HEALTHY"
    }
  }
}

admin@sonic:~$ show muxcable status Ethernet0
PORT      STATUS   HEALTH
-----
Ethernet0 auto     HEALTHY
admin@sonic:~$ show muxcable status Ethernet0 --json
```

```
{
  "MUX_CABLE": {
    "Ethernet0": {
      "STATUS": "auto",
      "HEALTH": "HEALTHY"
    }
  }
}
```

# 1 NDP Commands

Command	Function
<a href="#">show ndp</a>	Display either all the IPv6 neighbor mac addresses, or for a particular IPv6 neighbor, or for all IPv6 neighbors reachable via a specific interface.



## 1.1 show ndp

### Function

Run the **show ndp** command to display either all the IPv6 neighbor mac addresses, or for a particular IPv6 neighbor, or for all IPv6 neighbors reachable via a specific interface.

### Syntax

```
show ndp [ -if | --iface [ interface-name ] ] [ ipv6_address ]
```

### Parameter Description

*interface-name*: interface name.

### Usage Guidelines

N/A

### Examples

Show all IPv6 neighbors.

```
admin@sonic:~$ show ndp
Address                MacAddress            Iface   Vlan   Status
-----
fe80::20c:29ff:feb8:b11e 00:0c:29:b8:b1:1e eth0    -     REACHABLE
fe80::20c:29ff:feb8:cff0 00:0c:29:b8:cf:f0 eth0    -     REACHABLE
fe80::20c:29ff:fef9:324  00:0c:29:f9:03:24 eth0    -     REACHABLE
Total number of entries 3
```

Show specific IPv6 neighbor.

```
admin@sonic:~$ show ndp fe80::20c:29ff:feb8:b11e
Address                MacAddress            Iface   Vlan   Status
-----
fe80::20c:29ff:feb8:b11e 00:0c:29:b8:b1:1e eth0    -     REACHABLE
Total number of entries 1
show IPv6 neighbors learned on a specific interface
admin@sonic:~$ show ndp -if eth0
Address                MacAddress            Iface   Vlan   Status
-----
fe80::20c:29ff:feb8:b11e 00:0c:29:b8:b1:1e eth0    -     REACHABLE
fe80::20c:29ff:feb8:cff0 00:0c:29:b8:cf:f0 eth0    -     REACHABLE
fe80::20c:29ff:fef9:324  00:0c:29:f9:03:24 eth0    -     REACHABLE
Total number of entries 3
```

# 1 PBH Commands

Command	Function
<a href="#"><u>config pbh hash</u></a>	Manage PBH hash objects.
<a href="#"><u>config pbh hash-field</u></a>	Manage PBH hash field objects.
<a href="#"><u>config pbh rule</u></a>	Manage PBH rule objects.
<a href="#"><u>config pbh table</u></a>	Manage PBH table objects.
<a href="#"><u>show pbh hash</u></a>	Display PBH hash configuration.
<a href="#"><u>show pbh hash-field</u></a>	Display PBH hash field configuration.
<a href="#"><u>show pbh rule</u></a>	Display PBH rule configuration.
<a href="#"><u>show pbh statistics</u></a>	Display PBH statistics.
<a href="#"><u>show pbh table</u></a>	Display PBH table configuration.

## 1.1 config pbh hash

### Function

Run the **config pbh hash** command to manage PBH hash objects.

It supports add/update/remove operations.

### Syntax

```
config pbh hash add hash-name --hash-field-list <hash-field-list>
```

```
config pbh hash update hash-name [ --hash-field-list <hash-field-list> ]
```

```
config pbh hash delete hash-name
```

### Parameter Description

*hash-name*: the name of the PBH hash

*hash-field-list*: list of hash-field objects to apply with the PBH hash

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config pbh hash add 'inner_v6_hash' --hash-field-list
'inner_ip_proto,inner_l4_dst_port,inner_l4_src_port,inner_dst_ipv6,inner_src_i
admin@sonic:~$ sudo config pbh hash update 'inner_v6_hash' --hash-field-list
'inner_ip_proto'
admin@sonic:~$ sudo config pbh hash delete 'inner_v6_hash'
```

## 1.2 config pbh hash-field

### Function

Run the **config pbh hash-field** command to manage PBH hash field objects.

It supports add/update/remove operations.

### Syntax

```
config pbh hash-field add hash-field-name --hash-field hash-field [ --ip-mask ip-
mask ] --sequence-id sequence-id
```

```
config pbh hash-field update hash-field-name [ --hash-field hash-field ] [ --ip-mask
ip-mask ] [ --sequence-id sequence-id ]
```

```
config pbh hash-field delete hash-field-name
```

### Parameter Description

*hash-field-name*: the name of the PBH hash field

*hash-field*: native hash field for the PBH hash field Valid values:

- INNER\_IP\_PROTOCOL
- INNER\_L4\_DST\_PORT
- INNER\_L4\_SRC\_PORT
- INNER\_DST\_IPV4
- INNER\_SRC\_IPV4
- INNER\_DST\_IPV6
- INNER\_SRC\_IPV6

*ip-mask*: IPv4/IPv6 address mask for the PBH hash field Valid only: *hash\_field* is:

- INNER\_DST\_IPV4
- INNER\_SRC\_IPV4
- INNER\_DST\_IPV6
- INNER\_SRC\_IPV6

*sequence-id*: the order in which fields are hashed

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config pbh hash-field add 'inner_dst_ipv6' --hash-field
'INNER_DST_IPV6' --ip-mask 'ffff:' --sequence-id '4'
admin@sonic:~$ sudo config pbh hash update 'inner_v6_hash' --hash-field-list
'inner_ip_proto'
admin@sonic:~$ sudo config pbh hash delete 'inner_v6_hash'
```

## 1.3 config pbh rule

### Function

Run the **config pbh rule** command to manage PBH rule objects.

It supports add/update/remove operations.

### Syntax

```
config pbh rule add table-name rule-name --priority priority [ --gre-key gre-key ] [ --ether-type ether-type ] [ --ip-protocol ip-protocol ] [ --ipv6-next-header ipv6-next-header ] [ --l4-dst-port l4-dst-port ] [ --inner-ether-type inner-ether-type ] --hash hash [ --packet-action packet-action ] [ --flow-counter flow-counter ]
```

```
config pbh rule update table-name rule-name [ --priority priority ] [ --gre-key gre-key ] [ --ether-type ether-type ] [ --ip-protocol ip-protocol ] [ --ipv6-next-header ipv6-next-header ] [ --l4-dst-port l4-dst-port ] [ --inner-ether-type inner-ether-type ] [ --hash hash ] [ --packet-action packet-action ] [ --flow-counter flow-counter ]
```

**config pbh rule delete** *table-name rule-name*

### Parameter Description

*table-name*: the name of the PBH table

*rule-name*: the name of the PBH rule

*priority*: the priority of the PBH rule

*gre-key*: packet match for the PBH rule: GRE key (value/mask)

*ether-type*: packet match for the PBH rule: EtherType (IANA Ethertypes)

*ip-protocol*: packet match for the PBH rule: IP protocol (IANA Protocol Numbers)

*ipv6-next-header*: packet match for the PBH rule: IPv6 Next header (IANA Protocol Numbers)

*l4-dst-port*: packet match for the PBH rule: L4 destination port

*inner-ether-type*: packet match for the PBH rule: inner EtherType (IANA Ethertypes)

*hash*: hash object to apply with the PBH rule

*packet-action*: packet action for the PBH rule Valid values:

- SET\_ECMP\_HASH
- SET\_LAG\_HASH

Default: SET\_ECMP\_HASH

*flow-counter*: packet/byte counter for the PBH rule Valid values:

- DISABLED
- ENABLED

Default:DISABLED

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config pbh rule add 'pbh_table' 'nvgre' --priority '2' --ether-type
'0x0800' --ip-protocol '0x2f' --gre-key '0x2500/0xffffffff00' --inner-ether-type '0x86dd' --
hash 'inner_v6_hash' --packet-action 'SET_ECMP_HASH' --flow-counter 'DISABLED'
admin@sonic:~$ sudo config pbh rule update 'pbh_table' 'nvgre' --flow-counter 'ENABLED'
admin@sonic:~$ sudo config pbh rule delete 'pbh_table' 'nvgre'
```

## 1.4 config pbh table

### Function

Run the **config pbh table** command to manage PBH table objects.

It supports add/update/remove operations.

## Syntax

```
config pbh table add table-name --interface-list interface-list --description description
```

```
config pbh table update table-name [ --interface-list interface-list ] [ --description description ]
```

```
config pbh table delete table-name
```

## Parameter Description

*table-name*: the name of the PBH table

*interface-list*: interfaces to which PBH table is applied

*description*: the description of the PBH table

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ sudo config pbh table add 'pbh_table' --interface-list
'Ethernet0,Ethernet4,PortChannel0001,PortChannel0002' --description 'NVGRE and VxLAN'
admin@sonic:~$ sudo config pbh table update 'pbh_table' --interface-list 'Ethernet0'
admin@sonic:~$ sudo config pbh table delete 'pbh_table'
```

# 1.5 show pbh hash

## Function

Run the **show pbh hash** command to display PBH hash configuration.

## Syntax

```
show pbh hash
```

## Parameter Description

N/A

## Usage Guidelines

N/A

## Examples

```
admin@sonic:~$ show pbh hash
NAME                HASH FIELD
-----
inner_v4_hash       inner_ip_proto
                    inner_l4_dst_port
                    inner_l4_src_port
```

```

inner_dst_ipv4
inner_src_ipv4
inner_v6_hash inner_ip_proto
inner_l4_dst_port
inner_l4_src_port
inner_dst_ipv6
inner_src_ipv6

```

## 1.6 show pbh hash-field

### Function

Run the **show pbh hash-field** command to display PBH hash field configuration.

### Syntax

```
show pbh hash-field
```

### Parameter Description

N/A

### Usage Guidelines

SYMMETRIC is an artificial column and is only used to indicate fields symmetry.

### Examples

```
admin@sonic:~$ show pbh hash-field
```

NAME	FIELD	MASK	SEQUENCE	SYMMETRIC
inner_ip_proto	INNER_IP_PROTOCOL	N/A	1	No
inner_l4_dst_port	INNER_L4_DST_PORT	N/A	2	Yes
inner_l4_src_port	INNER_L4_SRC_PORT	N/A	2	Yes
inner_dst_ipv4	INNER_DST_IPV4	255. 0. 0. 0	3	Yes
inner_src_ipv4	INNER_SRC_IPV4	0. 0. 0. 255	3	Yes
inner_dst_ipv6	INNER_DST_IPV6	ffff::	4	Yes
inner_src_ipv6	INNER_SRC_IPV6	::ffff	4	Yes

## 1.7 show pbh rule

### Function

Run the **show pbh rule** command to display PBH rule configuration.

### Syntax

```
show pbh rule
```

**Parameter Description**

N/A

**Usage Guidelines**

N/A

**Examples**

```
admin@sonic:~$ show pbh rule
TABLE      RULE      PRIORITY  MATCH                                     HASH      ACTION
COUNTER
-----
pbh_table  nvgre    2          ether_type: 0x0800          inner_v6_hash
SET_ECMP_HASH DISABLED
          ip_protocol: 0x2f
          gre_key: 0x2500/0xffffffff00
          inner_ether_type: 0x86dd
pbh_table  vxlan    1          ether_type: 0x0800          inner_v4_hash
SET_LAG_HASH ENABLED
          ip_protocol: 0x11
          l4_dst_port: 0x12b5
          inner_ether_type: 0x0800
```

**1.8 show pbh statistics****Function**

Run the **show pbh statistics** command to display PBH statistics.

**Syntax**

```
show pbh statistics
```

**Parameter Description**

N/A

**Usage Guidelines**

RX PACKETS COUNT and RX BYTES COUNT can be cleared by user.

**Examples**

```
admin@sonic:~$ show pbh statistics
TABLE      RULE      RX PACKETS COUNT  RX BYTES COUNT
-----
pbh_table  nvgre    0                  0
```



```
pbh_table vxlan 0 0
```

## 1.9 show pbh table

### Function

Run the **show pbh table** command to display PBH table configuration.

### Syntax

```
show pbh table
```

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show pbh table
NAME          INTERFACE          DESCRIPTION
-----
pbh_table    Ethernet0          NVGRE and VxLAN
              Ethernet4
              PortChannel0001
              PortChannel0002
```

# 1 Routing Stack Commands

SONiC software is agnostic of the routing software that is being used in the device. For example, users can use either Quagga or FRR routing stack as per their requirement. A separate shell (vtysh) is provided to configure such routing stacks. Once if users go to "vtysh", they can use the routing stack specific commands as given in the following example.

---

## Notes

Refer the routing stack [Quagga Command Reference] (<https://www.quagga.net/docs/quagga.pdf>) or [FRR Command Reference] (<https://buildmedia.readthedocs.org/media/pdf/frouting/latest/frouting.pdf>) to know more about the routing stack configuration.

---

```
admin@sonic:~$ vtysh
```

```
Hello, this is FRRouting (version 7.5.1-sonic)
Copyright 1996-2005 Kunihiro Ishiguro, et al.
```

```
sonic# show route-map (This command displays the route-map that is configured for the
routing protocol.)
```

```
ZEBRA:
```

```
route-map RM_SET_SRC, permit, sequence 10
```

```
  Match clauses:
```

```
  Set clauses:
```

```
    src 10.12.0.102
```

```
  Call clause:
```

```
  Action:
```

```
    Exit routemap
```

# 1 Watermark Commands

Command	Function
<a href="#">config watermark telemetry interval</a>	Configure the interval for telemetry.
<a href="#">show watermark telemetry interval</a>	Display the configured interval for the telemetry.

## 1.1 config watermark telemetry interval

### Function

Run the **config watermark telemetry interval** command to configure the interval for telemetry.

### Syntax

**config watermark telemetry interval** *value*

### Parameter Description

*value*: There is no regulation on the valid range of values; it leverages linux timer. The default interval is 120 seconds.

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ sudo config watermark telemetry interval 999
```

## 1.2 show watermark telemetry interval

### Function

Run the **show watermark telemetry interval** command to display the configured interval for the telemetry.

### Syntax

**show watermark telemetry interval**

### Parameter Description

N/A

### Usage Guidelines

N/A

### Examples

```
admin@sonic:~$ show watermark telemetry interval
```

```
Telemetry interval 120 second(s)
```