



# Extreme 9920 Software Command Reference

21.1.2.0

9037262-00 Rev AA  
January 2022



Copyright © 2022 Extreme Networks, Inc. All rights reserved.

## Legal Notice

Extreme Networks, Inc. reserves the right to make changes in specifications and other information contained in this document and its website without prior notice. The reader should in all cases consult representatives of Extreme Networks to determine whether any such changes have been made.

The hardware, firmware, software or any specifications described or referred to in this document are subject to change without notice.

## Trademarks

Extreme Networks and the Extreme Networks logo are trademarks or registered trademarks of Extreme Networks, Inc. in the United States and/or other countries.

All other names (including any product names) mentioned in this document are the property of their respective owners and may be trademarks or registered trademarks of their respective companies/owners.

For additional information on Extreme Networks trademarks, see: [www.extremenetworks.com/company/legal/trademarks](http://www.extremenetworks.com/company/legal/trademarks)

## Open Source Declarations

Some software files have been licensed under certain open source or third-party licenses. End-user license agreements and open source declarations can be found at: <https://www.extremenetworks.com/support/policies/open-source-declaration/>



# Table of Contents

---

|   |           |
|---|-----------|
| <b>Preface.....</b>                       | <b>9</b>  |
| Text Conventions.....                     | 9         |
| Documentation and Training.....           | 10        |
| Help and Support.....                     | 11        |
| Subscribe to Product Announcements.....   | 11        |
| Send Feedback.....                        | 11        |
| <b>What's New in this Document.....</b>   | <b>13</b> |
| New Commands.....                         | 13        |
| Modified Commands.....                    | 14        |
| <b>Using the NPB Application CLI.....</b> | <b>15</b> |
| User Accounts.....                        | 15        |
| Default Account Credentials.....          | 15        |
| Predefined Accounts and Roles.....        | 16        |
| Accessing the CLI.....                    | 16        |
| Command Modes.....                        | 17        |
| Exec Mode.....                            | 17        |
| Config Mode.....                          | 17        |
| do Command.....                           | 17        |
| CLI Commands and Command Syntax.....      | 17        |
| Completing CLI Commands.....              | 18        |
| CLI Keyboard Shortcuts.....               | 19        |
| Show Command Output Modifiers.....        | 19        |
| Unsupported Input Characters.....         | 20        |
| Debug and System Diagnostic Commands..... | 20        |
| <b>NPB Application Commands.....</b>      | <b>21</b> |
| aaa accounting.....                       | 27        |
| aaa authentication.....                   | 29        |
| acl-config.....                           | 30        |
| address.....                              | 31        |
| banner login.....                         | 32        |
| banner motd.....                          | 33        |
| base command   append.....                | 34        |
| base command   begin.....                 | 35        |
| base command   count.....                 | 36        |
| base command   exclude.....               | 37        |
| base command   include.....               | 38        |
| base command   last.....                  | 39        |
| base command   linenum.....               | 40        |
| base command   more.....                  | 41        |
| base command   nomore.....                | 42        |

|   |     |
|---|-----|
| base command   save.....                    | 43  |
| base command   until.....                   | 44  |
| breakout.....                               | 45  |
| capture.....                                | 46  |
| channel-group.....                          | 48  |
| clear counters access-list.....             | 50  |
| clear counters egress.....                  | 52  |
| clear counters egress-group.....            | 53  |
| clear counters encap.....                   | 54  |
| clear counters ingress-group.....           | 55  |
| clear counters interface.....               | 56  |
| clear counters lacp.....                    | 58  |
| clear counters lacp interface.....          | 59  |
| clear counters listener-policy.....         | 60  |
| clear counters lldp all.....                | 61  |
| clear counters lldp interface ethernet..... | 62  |
| clear counters route-map.....               | 63  |
| clear counters transport-tunnel.....        | 64  |
| clock set.....                              | 65  |
| clock timezone.....                         | 66  |
| connector.....                              | 67  |
| copy default-config.....                    | 68  |
| copy FILE.....                              | 69  |
| copy FILE1 FILE2.....                       | 70  |
| copy running-config.....                    | 72  |
| crypto export.....                          | 73  |
| crypto import-pkcs.....                     | 74  |
| crypto import type.....                     | 76  |
| decap.....                                  | 78  |
| delete.....                                 | 79  |
| description.....                            | 80  |
| deny ipv4-dest.....                         | 82  |
| deny ipv6-dest.....                         | 83  |
| destination-ipv4-addr.....                  | 85  |
| destination-mac-addr.....                   | 86  |
| dir.....                                    | 87  |
| egress.....                                 | 90  |
| egress-group.....                           | 91  |
| enable acl-counter.....                     | 92  |
| encap.....                                  | 93  |
| encap-type.....                             | 94  |
| fec.....                                    | 95  |
| forward-action.....                         | 97  |
| hardware.....                               | 98  |
| ingress-group.....                          | 99  |
| interface ethernet.....                     | 100 |
| interface port-channel.....                 | 101 |
| ip access-list.....                         | 102 |
| ip address.....                             | 103 |

|                                    |     |
|------------------------------------|-----|
| ip dns.....                        | 105 |
| ip gateway.....                    | 107 |
| ipv6 access-list.....              | 108 |
| ipv6 address.....                  | 109 |
| ipv6 gateway.....                  | 111 |
| lacp min-links.....                | 112 |
| lacp port-priority.....            | 113 |
| lacp rate.....                     | 114 |
| lacp system-mac.....               | 116 |
| lacp system-priority.....          | 117 |
| link-fault-signaling.....          | 118 |
| listener-policy.....               | 119 |
| lldp enable.....                   | 120 |
| lldp hello-timer.....              | 121 |
| lldp holdtime.....                 | 122 |
| lldp receive.....                  | 123 |
| lldp transmit.....                 | 124 |
| load-balance.....                  | 125 |
| mac access-list.....               | 127 |
| match ip access-list.....          | 128 |
| match ipv6 access-list.....        | 129 |
| match mac access-list.....         | 130 |
| mirror.....                        | 131 |
| mtu.....                           | 132 |
| new-scope.....                     | 133 |
| ntp.....                           | 134 |
| ping.....                          | 136 |
| precedence.....                    | 138 |
| port.....                          | 140 |
| protocol lacp.....                 | 141 |
| protocol lldp.....                 | 142 |
| qos.....                           | 143 |
| qos-forwarding-group.....          | 144 |
| queue.....                         | 145 |
| route-map.....                     | 146 |
| seq (ip access-list rules).....    | 148 |
| seq (ipv6 access-list rules).....  | 152 |
| seq (mac access-list rules).....   | 156 |
| set egress.....                    | 159 |
| set egress-group.....              | 161 |
| set encap.....                     | 163 |
| set ingress-group.....             | 164 |
| set interface ethernet.....        | 166 |
| set listener-policy.....           | 167 |
| set route-map.....                 | 168 |
| show.....                          | 169 |
| show acl-config.....               | 171 |
| show capture packet config.....    | 172 |
| show capture packet interface..... | 173 |

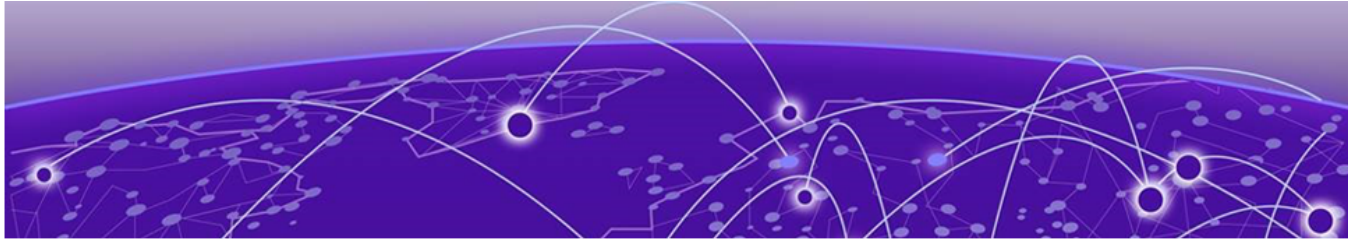
|   |     |
|---|-----|
| show capture packet pcapfile-info.....  | 175 |
| show inventory.....                     | 176 |
| show chassis .....                      | 178 |
| show clock.....                         | 179 |
| show counters egress .....              | 180 |
| show counters egress-group.....         | 181 |
| show counters encap.....                | 182 |
| show counters ingress-group.....        | 183 |
| show counters interface ethernet.....   | 185 |
| show counters interface management..... | 187 |
| show counters lacp.....                 | 188 |
| show counters lldp.....                 | 189 |
| show counters lldp summary.....         | 190 |
| show counters link-fault-signaling..... | 191 |
| show counters transport-tunnel.....     | 192 |
| show crypto ca certificates.....        | 193 |
| show egress.....                        | 194 |
| show egress-group.....                  | 195 |
| show encap.....                         | 196 |
| show firmware.....                      | 197 |
| show firmware history.....              | 198 |
| show grpc-server gnmi capabilities..... | 199 |
| show grpc-server gnmi statistics.....   | 201 |
| show ingress-group.....                 | 203 |
| show interface brief.....               | 205 |
| show interface ethernet.....            | 206 |
| show interface management.....          | 208 |
| show interface port-channel.....        | 209 |
| show inventory.....                     | 213 |
| show ip access-list.....                | 215 |
| show ip dns.....                        | 217 |
| show ipv6 access-list.....              | 218 |
| show lacp interface ethernet.....       | 220 |
| show lacp system-identifier.....        | 221 |
| show link-fault-signaling.....          | 222 |
| show listener-policy.....               | 223 |
| show lldp.....                          | 224 |
| show logging.....                       | 226 |
| show mac access-list.....               | 228 |
| show media.....                         | 230 |
| show mirror.....                        | 232 |
| show ntp association.....               | 233 |
| show ntp status.....                    | 234 |
| show qos forwarding-group.....          | 235 |
| show role.....                          | 236 |
| show route-map.....                     | 237 |
| show running-config aaa.....            | 238 |
| show running-config access-list.....    | 239 |
| show running-config acl-config.....     | 240 |

|   |     |
|---|-----|
| show running-config banner.....                 | 241 |
| show running-config clock.....                  | 242 |
| show running-config egress.....                 | 243 |
| show running-config egress-group.....           | 244 |
| show running-config encap.....                  | 245 |
| show running-config ingress-group.....          | 246 |
| show running-config interface.....              | 247 |
| show running-config ip.....                     | 248 |
| show running-config ip dns.....                 | 249 |
| show running-config ipv6.....                   | 250 |
| show running-config lacp.....                   | 251 |
| show running-config listener-policy.....        | 252 |
| show running-config lldp.....                   | 253 |
| show running-config mac.....                    | 254 |
| show running-config mirror.....                 | 255 |
| show running-config ntp.....                    | 256 |
| show running-config qos.....                    | 257 |
| show running-config route-map.....              | 258 |
| show running-config snmp-server.....            | 259 |
| show running-config system logging host.....    | 260 |
| show running-config system logging service..... | 261 |
| show running-config tacacs-server.....          | 262 |
| show running-config transport-tunnel.....       | 263 |
| show running-config username.....               | 264 |
| show snmp-server.....                           | 265 |
| show sysinfo all.....                           | 266 |
| show sysinfo fan.....                           | 268 |
| show sysinfo led.....                           | 269 |
| show sysinfo power-supply.....                  | 270 |
| show sysinfo sensor.....                        | 271 |
| show sysinfo slot.....                          | 274 |
| show system internal.....                       | 275 |
| show system logging host.....                   | 277 |
| show system logging service.....                | 278 |
| show system service.....                        | 279 |
| show transport-tunnel.....                      | 280 |
| show usb.....                                   | 281 |
| show users.....                                 | 282 |
| show version.....                               | 283 |
| shutdown.....                                   | 284 |
| snmp-server community.....                      | 285 |
| snmp-server host.....                           | 286 |
| snmp-server user.....                           | 288 |
| source-ipv4-addr.....                           | 289 |
| source-mac-addr.....                            | 290 |
| speed (ethernet interfaces).....                | 291 |
| speed (management interfaces).....              | 292 |
| strip.....                                      | 293 |
| system firmware commit.....                     | 294 |

---

|                                      |     |
|--------------------------------------|-----|
| system firmware rollback.....        | 295 |
| system firmware update.....          | 296 |
| system logging host.....             | 298 |
| system service rollback.....         | 300 |
| system logging service severity..... | 301 |
| system service update.....           | 302 |
| tacacs-server.....                   | 304 |
| terminal.....                        | 306 |
| traceroute.....                      | 307 |
| traffic-type.....                    | 309 |
| traffic-type ip.....                 | 313 |
| traffic-type mpls outer.....         | 315 |
| traffic-type outer mirror.....       | 317 |
| traffic-type vxlan outer ip.....     | 319 |
| traffic-type vxlan outer vni.....    | 321 |
| transport-tunnel.....                | 323 |
| truncate.....                        | 324 |
| tunnel-type ipv4.....                | 325 |
| tunnel-type ipv6.....                | 327 |
| usb enable.....                      | 329 |
| username.....                        | 330 |
| vlan.....                            | 332 |
| vlan-id.....                         | 334 |
| vlan-pcp.....                        | 335 |





# Preface

---

Read the following topics to learn about:

- The meanings of text formats used in this document.
- Where you can find additional information and help.
- How to reach us with questions and comments.






## Text Conventions

---

Unless otherwise noted, information in this document applies to all supported environments for the products in question. Exceptions, like command keywords associated with a specific software version, are identified in the text.

When a feature, function, or operation pertains to a specific hardware product, the product name is used. When features, functions, and operations are the same across an entire product family, such as ExtremeSwitching switches or SLX routers, the product is referred to as *the switch* or *the router*.

**Table 1: Notes and warnings**

| Icon  | Notice type | Alerts you to...  |
|---|-------------|---|
|  | Tip         | Helpful tips and notices for using the product          |
|  | Note        | Useful information or instructions                      |
|  | Important   | Important features or instructions                      |
|  | Caution     | Risk of personal injury, system damage, or loss of data |
|  | Warning     | Risk of severe personal injury                          |

**Table 2: Text**

| Convention                             | Description   |
|--|---|
| screen displays                        | This typeface indicates command syntax, or represents information as it is displayed on the screen.   |
| The words <i>enter</i> and <i>type</i> | When you see the word <i>enter</i> in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says <i>type</i> .           |
| <b>Key</b> names                       | Key names are written in boldface, for example <b>Ctrl</b> or <b>Esc</b> . If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press <b>Ctrl+Alt+Del</b> |
| Words in italicized type               | Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles.  |
| <b>NEW!</b>                            | New information. In a PDF, this is searchable text.   |

**Table 3: Command syntax**

| Convention                         | Description  |
|------------------------------------|--|
| <b>bold</b> text                   | Bold text indicates command names, keywords, and command options.  |
| <i>italic</i> text                 | Italic text indicates variable content.  |
| [ ]                                | Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.  |
| { <b>x</b>   <b>y</b>   <b>z</b> } | A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.  |
| <b>x</b>   <b>y</b>                | A vertical bar separates mutually exclusive elements.  |
| < >                                | Nonprinting characters, such as passwords, are enclosed in angle brackets.   |
| ...                                | Repeat the previous element, for example, <i>member</i> [ <i>member</i> ...].  |
| \                                  | In command examples, the backslash indicates a “soft” line break. When a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash. |

## Documentation and Training

Find Extreme Networks product information at the following locations:

[Current Product Documentation](#)

[Release Notes](#)

[Hardware and software compatibility](#) for Extreme Networks products

[Extreme Optics Compatibility](#)

[Other resources](#) such as white papers, data sheets, and case studies

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For details, visit [www.extremenetworks.com/education/](http://www.extremenetworks.com/education/).

---

## Help and Support

---

If you require assistance, contact Extreme Networks using one of the following methods:

### Extreme Portal

Search the GTAC (Global Technical Assistance Center) knowledge base; manage support cases and service contracts; download software; and obtain product licensing, training, and certifications.

### The Hub

A forum for Extreme Networks customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.

### Call GTAC

For immediate support: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2826. For the support phone number in your country, visit: [www.extremenetworks.com/support/contact](http://www.extremenetworks.com/support/contact)

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number, or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any actions already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

## Subscribe to Product Announcements

You can subscribe to email notifications for product and software release announcements, Field Notices, and Vulnerability Notices.

1. Go to [The Hub](#).
2. In the list of categories, expand the **Product Announcements** list.
3. Select a product for which you would like to receive notifications.
4. Select **Subscribe**.
5. To select additional products, return to the **Product Announcements** list and repeat steps 3 and 4.

You can modify your product selections or unsubscribe at any time.

---

## Send Feedback

---

The Information Development team at Extreme Networks has made every effort to ensure that this document is accurate, complete, and easy to use. We strive to improve our documentation to help you in your work, so we want to hear from you. We welcome all feedback, but we especially want to know about:

- Content errors, or confusing or conflicting information.

- Improvements that would help you find relevant information.
- Broken links or usability issues.

To send feedback, do either of the following:

- Access the feedback form at <https://www.extremenetworks.com/documentation-feedback/>.
- Email us at [documentation@extremenetworks.com](mailto:documentation@extremenetworks.com).

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.



# What's New in this Document

---

There are new and modified commands for the Extreme 9920 software, release 21.1.2.0.

## New Commands

---

The following commands are introduced in this release.

- [clear counters lacp](#) on page 58
- [clear counters lldp all](#) on page 61
- [clear counters lldp interface ethernet](#) on page 62
- [crypto export](#) on page 73
- [deny ipv6-dest](#) on page 83
- [lacp min-links](#) on page 112
- [lacp port-priority](#) on page 113
- [lacp rate](#) on page 114
- [lacp system-mac](#) on page 116
- [lacp system-priority](#) on page 117
- [lldp enable](#) on page 120
- [lldp hello-timer](#) on page 121
- [lldp holdtime](#) on page 122
- [lldp receive](#) on page 123
- [lldp transmit](#) on page 124
- [protocol lacp](#) on page 141
- [protocol lldp](#) on page 142
- [qos](#) on page 143
- [qos-forwarding-group](#) on page 144
- [queue](#) on page 145
- [show counters lacp](#) on page 188
- [show counters lldp](#) on page 189
- [show counters lldp summary](#) on page 190
- [show lacp interface ethernet](#) on page 220
- [show lacp system-identifier](#) on page 221
- [show lldp](#) on page 224
- [show qos forwarding-group](#) on page 235
- [show running-config lacp](#) on page 251

- [show running-config lldp](#) on page 253
- [show running-config qos](#) on page 257
- [traffic-type mpls outer](#) on page 315
- [tunnel-type ipv6](#) on page 327

## Modified Commands

---

The following commands are modified in this release.

- [channel-group](#) on page 48
- [clear counters ingress-group](#) on page 55
- [description](#) on page 80
- [seq \(ip access-list rules\)](#) on page 148
- [seq \(ipv6 access-list rules\)](#) on page 152
- [seq \(mac access-list rules\)](#) on page 156
- [show ingress-group](#) on page 203
- [show counters ingress-group](#) on page 183
- [traffic-type outer mirror](#) on page 317

For more information about this release, see the [Extreme 9920 Software Release Notes, 21.1.2.0](#).



# Using the NPB Application CLI

---

- [User Accounts on page 15](#)
- [Default Account Credentials on page 15](#)
- [Predefined Accounts and Roles on page 16](#)
- [Accessing the CLI on page 16](#)
- [Command Modes on page 17](#)
- [CLI Commands and Command Syntax on page 17](#)
- [Completing CLI Commands on page 18](#)
- [CLI Keyboard Shortcuts on page 19](#)
- [Show Command Output Modifiers on page 19](#)
- [Unsupported Input Characters on page 20](#)
- [Debug and System Diagnostic Commands on page 20](#)

The command line provides a powerful means for configuring, managing, and monitoring packet traffic through the Extreme 9920 device.

The following topics describe accessing and using the NPB application command-line interface (CLI), including syntax, command completion, shortcuts, and other helpful subjects.

## User Accounts

---

A user account specifies that user's level of access to the device CLI.

The NPB application uses role-based access control (RBAC) as the authorization mechanism. A *role* is a container for rules, which specify which commands can be executed and with which permissions. When you create a user account you need to specify a role for that account. In general, *user* (as opposed to *user-level*) refers to any account to which an admin or user role can be assigned.

For more information about user accounts and roles, see [Extreme 9920 Software Security Configuration Guide, 21.1.2.0](#).

## Default Account Credentials

---

The NPB application ships with two default user accounts.

When you install the NPB application on Extreme 9920, two default user accounts are provided—**admin** and **user**—with the following case-sensitive default passwords:

- admin account password: **rocks**
- user account password: **password**

As a best practice, log on as the administrator and change the default passwords immediately after the NPB application is installed.

## Predefined Accounts and Roles

The NPB application ships with two predefined accounts—**admin** and **user**. The maximum number of user accounts that you can configure is 64, including the predefined accounts.

- **admin**—Accounts with admin role access can execute all commands supported on the device.
- **user**—Accounts with user-level access have read-only permissions. User-level accounts can run the following operational CLI commands.

**Table 4: User-level operational commands**

| Command  | Action  |
|--|---|
| <b>dir</b>   | List flash files                              |
| <b>end</b>   | End current mode and change to enable mode    |
| <b>exit</b>  | Exit current mode and revert to previous mode |
| <b>list</b>  | Print command list                            |
| <b>ping</b>  | Ping  |
| <b>quit</b>  | Exit current mode and revert to previous mode |
| <b>show</b>  | Show values                                   |
| <b>terminal</b>  | Set terminal timeout parameters               |
| <b>traceroute</b>  | Run traceroute                                |
| The <b>ping</b> and <b>traceroute</b> commands are also supported on gNOI and accept both IPv4 and IPv6 addresses. |   |

## Accessing the CLI

After an IP address is assigned to the device, you can access the CLI through a serial console connection to the Ethernet management port or SSH session using the device management IP address.

For information on a session connection, see the [Extreme 9920 Software Configuration Guide, 21.1.2.0](#).

The procedure to access the CLI is same for both console interface and SSH session. The following example shows the admin role logging into the device:

```
device login: admin
Password:*****
device#
```



### Note

Multiple users can open sessions on the device and issue commands. The device supports a maximum of 32 CLI sessions.



## Command Modes

---

The application CLI uses an industry-standard hierarchical shell familiar to networking administrators.

### Exec Mode

Log into the device to access Exec mode. Exec mode supports all clear, show, and debug commands. In addition, some configuration commands that do not make changes to the system configuration are also supported. The following example shows the command prompt in Exec mode:

```
device#
```

Use the `disable`, `exit`, or `logout` command to exit Exec mode.

### Config Mode

Config mode supports commands that change the device configuration. All NPB application configurations are auto-persistent. Config mode provides access to sub-configuration modes for individual interfaces and other configuration areas. The following example shows how to access the Config mode:

```
device# configure terminal
device(config)#
```

### do Command

You can use the **do** command as a shortcut to save time when you are working in any configuration mode and you want to run a command in Exec mode.

For example, if you are configuring an Ethernet interface and you want to run an Exec mode command, such as the **dir** command, you first have to exit the Interface configuration mode. By using the **do** command with the **dir** command, you can ignore the need to change configuration modes, as shown in the following example:

```
device(config-if-eth-1/2)# do dir
total 32
drwxrwxr-x 3 21487 1011 4096 Mar 26 17:58 .
drwxrwxr-x 3 21487 1011 4096 Mar 13 06:45 ..
-rw-r--r-- 1 root sys 495 Mar 16 15:41 defaultconfig.cluster
-rw-r--r-- 1 root sys 210 Mar 16 15:41 defaultconfig.standalone
drwxrwxr-x 5 root sys 4096 Mar 26 17:57 flex-cli
-rw-r--r-- 1 root root 11093 Mar 26 18:04 startup-config

16908197888 bytes total (8438681600 bytes free)
```

## CLI Commands and Command Syntax

---

You can display commands and syntax information in any mode and from any point in the command hierarchy.

Enter a question mark (?) in any command mode to display the list of commands available in that mode.

```
device# ?
```

To display a list of commands that start with the same characters, type the characters followed by a question mark (?).

```
device# e?
Possible completions:
  event-handler   Event Handler Commands
  execute-script  Run user-level BASH scripts
  exit            Exit the management session
```

To display the keywords and arguments associated with a command, enter the keyword followed by a space and then a question mark (?).

```
device# terminal ?
Possible completions:
  length   Sets Terminal Length for this session
  no       Sets Terminal Length for this session to default :24.
  timeout  Sets the interval that the EXEC command interpreter wait for user input.
```

If the question mark (?) is typed within an incomplete keyword, but the keyword matches several keywords, the CLI displays help for all the matching keywords.

```
device# show d?
Possible completions:
  debug      Display the udd debug configuration
  defaults   Display default configuration
  dot1x      Show dot1x
```

If the device does not recognize a command after you press **Enter**, an error message displays.

```
device# hookup
          ^
syntax error: unknown argument.
```

If you enter an incomplete command, an error message displays.

```
device# show
          ^
syntax error: unknown argument.
```

## Completing CLI Commands

To complete the spelling of commands or keywords automatically, begin typing the command or keyword and then press **Tab**. For example, at the CLI command prompt, type `te` and press **Tab**:

```
device# te
```

The CLI displays the following command.

```
device# terminal
```

If there is more than one command or keyword associated with the characters typed, the CLI displays all choices. For example, at the CLI command prompt, type `show 1` and press **Tab**.

```
device# show 1
```

## CLI Keyboard Shortcuts

The following table lists CLI keyboard shortcuts.

**Table 5: CLI keyboard shortcuts**

| Keystroke                              | Description  |
|--|--|
| <b>Ctrl+A</b>                          | Moves the cursor to the beginning of the command line.   |
| <b>Ctrl+B</b> (or the left arrow key)  | Moves the cursor back one character.   |
| <b>Ctrl+C</b>                          | Escapes and stops command prompts and ongoing tasks (such as lengthy displays), and displays a fresh command prompt. |
| <b>Ctrl+E</b>                          | Moves the cursor to the end of the command line.   |
| <b>Ctrl+F</b> (or the right arrow key) | Moves the cursor forward one character.  |
| <b>Ctrl+N</b> (or the down arrow key)  | Displays commands in the history buffer with the most recent command displayed last.                                 |
| <b>Ctrl+P</b> (or the up arrow key)    | Displays commands in the history buffer with the most recent command displayed first.                                |
| <b>Ctrl+U</b>                          | Deletes all characters from the cursor to the beginning of the command line.   |
| <b>Ctrl+W</b>                          | Deletes the last word you typed.   |
| <b>Ctrl+Z</b>                          | Returns to privileged EXEC mode. Using <b>Ctrl+Z</b> in privileged EXEC mode runs partial commands.                  |
| <b>Esc B</b>                           | Moves the cursor back one word.  |
| <b>Esc F</b>                           | Moves the cursor forward one word.   |

## Show Command Output Modifiers

You can filter the output of the CLI **show** commands using the output modifiers.

**Table 6: CLI command output modifiers**

| Output Modifier                                   | Description   |
|---|---|
| <b>append</b> <i>filename</i>                     | Appends the output to a file.   |
| <b>save</b> <i>filename</i>                       | Redirects the command output to the specified file.                     |
| <b>include</b> <i>string</i> or <i>expression</i> | Displays the command output that includes the specified expression.     |
| <b>exclude</b> <i>string</i> or <i>expression</i> | Displays the command output that excludes the specified expression.     |
| <b>begin</b> <i>string</i> or <i>expression</i>   | Displays the command output that begins with the specified expression.  |
| <b>last</b> <i>number</i>                         | Displays only the specified number of last lines of the command output. |

**Table 6: CLI command output modifiers (continued)**

| Output Modifier            | Description  |
|----------------------------|--|
| <b>until</b> <i>string</i> | Ends the output when the output text matches the string. |
| <b>count</b>               | Counts the number of lines in the output.                |
| <b>linnum</b>              | Enumerates the lines in the output.                      |
| <b>more</b>                | Paginates the output.                                    |
| <b>nomore</b>              | Suppresses the pagination of the output.                 |

## Unsupported Input Characters

If unsupported input characters are used for user-defined objects, an error message is displayed.

However, characters dependent on combinations of the **AltGr** key and another key are not supported.



### Note

The **AltGr** key is the **Alt** key to the right of the space bar.

## Debug and System Diagnostic Commands

Debug and system diagnostic commands, such as "debug" and "show system internal" commands, are developed and intended for specialized troubleshooting.

Extreme Networks recommends that you work closely with Extreme technical support in running such commands and interpreting their results.



### Note

Not all diagnostic commands are documented.



# NPB Application Commands

---

[aaa accounting](#) on page 27  
[aaa authentication](#) on page 29  
[acl-config](#) on page 30  
[address](#) on page 31  
[banner login](#) on page 32  
[banner motd](#) on page 33  
[base command | append](#) on page 34  
[base command | begin](#) on page 35  
[base command | count](#) on page 36  
[base command | exclude](#) on page 37  
[base command | include](#) on page 38  
[base command | last](#) on page 39  
[base command | linenum](#) on page 40  
[base command | more](#) on page 41  
[base command | nomore](#) on page 42  
[base command | save](#) on page 43  
[base command | until](#) on page 44  
[breakout](#) on page 45  
[capture](#) on page 46  
[channel-group](#) on page 48  
[clear counters access-list](#) on page 50  
[clear counters egress](#) on page 52  
[clear counters egress-group](#) on page 53  
[clear counters encap](#) on page 54  
[clear counters ingress-group](#) on page 55  
[clear counters interface](#) on page 56  
[clear counters lacp](#) on page 58  
[clear counters lacp interface](#) on page 59  
[clear counters listener-policy](#) on page 60  
[clear counters lldp all](#) on page 61  
[clear counters lldp interface ethernet](#) on page 62  
[clear counters route-map](#) on page 63  
[clear counters transport-tunnel](#) on page 64  
[clock set](#) on page 65

[clock timezone](#) on page 66  
[connector](#) on page 67  
[copy default-config](#) on page 68  
[copy FILE](#) on page 69  
[copy FILE1 FILE2](#) on page 70  
[copy running-config](#) on page 72  
[crypto export](#) on page 73  
[crypto import-pkcs](#) on page 74  
[crypto import type](#) on page 76  
[decap](#) on page 78  
[delete](#) on page 79  
[description](#) on page 80  
[deny ipv4-dest](#) on page 82  
[deny ipv6-dest](#) on page 83  
[destination-ipv4-addr](#) on page 85  
[destination-mac-addr](#) on page 86  
[dir](#) on page 87  
[egress](#) on page 90  
[egress-group](#) on page 91  
[enable acl-counter](#) on page 92  
[encap](#) on page 93  
[encap-type](#) on page 94  
[fec](#) on page 95  
[forward-action](#) on page 97  
[hardware](#) on page 98  
[ingress-group](#) on page 99  
[interface ethernet](#) on page 100  
[interface port-channel](#) on page 101  
[ip access-list](#) on page 102  
[ip address](#) on page 103  
[ip dns](#) on page 105  
[ip gateway](#) on page 107  
[ipv6 access-list](#) on page 108  
[ipv6 address](#) on page 109  
[ipv6 gateway](#) on page 111  
[lACP min-links](#) on page 112  
[lACP port-priority](#) on page 113  
[lACP rate](#) on page 114  
[lACP system-mac](#) on page 116  
[lACP system-priority](#) on page 117  
[link-fault-signaling](#) on page 118  
[listener-policy](#) on page 119

[lldp enable](#) on page 120  
[lldp hello-timer](#) on page 121  
[lldp holdtime](#) on page 122  
[lldp receive](#) on page 123  
[lldp transmit](#) on page 124  
[load-balance](#) on page 125  
[mac access-list](#) on page 127  
[match ip access-list](#) on page 128  
[match ipv6 access-list](#) on page 129  
[match mac access-list](#) on page 130  
[mirror](#) on page 131  
[mtu](#) on page 132  
[new-scope](#) on page 133  
[ntp](#) on page 134  
[ping](#) on page 136  
[precedence](#) on page 138  
[port](#) on page 140  
[protocol lacp](#) on page 141  
[protocol lldp](#) on page 142  
[qos](#) on page 143  
[qos-forwarding-group](#) on page 144  
[queue](#) on page 145  
[route-map](#) on page 146  
[seq \(ip access-list rules\)](#) on page 148  
[seq \(ipv6 access-list rules\)](#) on page 152  
[seq \(mac access-list rules\)](#) on page 156  
[set egress](#) on page 159  
[set egress-group](#) on page 161  
[set encap](#) on page 163  
[set ingress-group](#) on page 164  
[set interface ethernet](#) on page 166  
[set listener-policy](#) on page 167  
[set route-map](#) on page 168  
[show](#) on page 169  
[show acl-config](#) on page 171  
[show capture packet config](#) on page 172  
[show capture packet interface](#) on page 173  
[show capture packet pcapfile-info](#) on page 175  
[show inventory](#) on page 176  
[show chassis](#) on page 178  
[show clock](#) on page 179  
[show counters egress](#) on page 180

[show counters egress-group](#) on page 181  
[show counters encap](#) on page 182  
[show counters ingress-group](#) on page 183  
[show counters interface ethernet](#) on page 185  
[show counters interface management](#) on page 187  
[show counters lacp](#) on page 188  
[show counters lldp](#) on page 189  
[show counters lldp summary](#) on page 190  
[show counters link-fault-signaling](#) on page 191  
[show counters transport-tunnel](#) on page 192  
[show crypto ca certificates](#) on page 193  
[show egress](#) on page 194  
[show egress-group](#) on page 195  
[show encap](#) on page 196  
[show firmware](#) on page 197  
[show firmware history](#) on page 198  
[show grpc-server gnmi capabilities](#) on page 199  
[show grpc-server gnmi statistics](#) on page 201  
[show ingress-group](#) on page 203  
[show interface brief](#) on page 205  
[show interface ethernet](#) on page 206  
[show interface management](#) on page 208  
[show interface port-channel](#) on page 209  
[show inventory](#) on page 213  
[show ip access-list](#) on page 215  
[show ip dns](#) on page 217  
[show ipv6 access-list](#) on page 218  
[show lacp interface ethernet](#) on page 220  
[show lacp system-identifier](#) on page 221  
[show link-fault-signaling](#) on page 222  
[show listener-policy](#) on page 223  
[show lldp](#) on page 224  
[show logging](#) on page 226  
[show mac access-list](#) on page 228  
[show media](#) on page 230  
[show mirror](#) on page 232  
[show ntp association](#) on page 233  
[show ntp status](#) on page 234  
[show qos forwarding-group](#) on page 235  
[show role](#) on page 236  
[show route-map](#) on page 237  
[show running-config aaa](#) on page 238



[show running-config access-list](#) on page 239  
[show running-config acl-config](#) on page 240  
[show running-config banner](#) on page 241  
[show running-config clock](#) on page 242  
[show running-config egress](#) on page 243  
[show running-config egress-group](#) on page 244  
[show running-config encap](#) on page 245  
[show running-config ingress-group](#) on page 246  
[show running-config interface](#) on page 247  
[show running-config ip](#) on page 248  
[show running-config ip dns](#) on page 249  
[show running-config ipv6](#) on page 250  
[show running-config lacp](#) on page 251  
[show running-config listener-policy](#) on page 252  
[show running-config lldp](#) on page 253  
[show running-config mac](#) on page 254  
[show running-config mirror](#) on page 255  
[show running-config ntp](#) on page 256  
[show running-config qos](#) on page 257  
[show running-config route-map](#) on page 258  
[show running-config snmp-server](#) on page 259  
[show running-config system logging host](#) on page 260  
[show running-config system logging service](#) on page 261  
[show running-config tacacs-server](#) on page 262  
[show running-config transport-tunnel](#) on page 263  
[show running-config username](#) on page 264  
[show snmp-server](#) on page 265  
[show sysinfo all](#) on page 266  
[show sysinfo fan](#) on page 268  
[show sysinfo led](#) on page 269  
[show sysinfo power-supply](#) on page 270  
[show sysinfo sensor](#) on page 271  
[show sysinfo slot](#) on page 274  
[show system internal](#) on page 275  
[show system logging host](#) on page 277  
[show system logging service](#) on page 278  
[show system service](#) on page 279  
[show transport-tunnel](#) on page 280  
[show usb](#) on page 281  
[show users](#) on page 282  
[show version](#) on page 283  
[shutdown](#) on page 284

[snmp-server community](#) on page 285  
[snmp-server host](#) on page 286  
[snmp-server user](#) on page 288  
[source-ipv4-addr](#) on page 289  
[source-mac-addr](#) on page 290  
[speed \(ethernet interfaces\)](#) on page 291  
[speed \(management interfaces\)](#) on page 292  
[strip](#) on page 293  
[system firmware commit](#) on page 294  
[system firmware rollback](#) on page 295  
[system firmware update](#) on page 296  
[system logging host](#) on page 298  
[system service rollback](#) on page 300  
[system logging service severity](#) on page 301  
[system service update](#) on page 302  
[tacacs-server](#) on page 304  
[terminal](#) on page 306  
[traceroute](#) on page 307  
[traffic-type](#) on page 309  
[traffic-type ip](#) on page 313  
[traffic-type mpls outer](#) on page 315  
[traffic-type outer mirror](#) on page 317  
[traffic-type vxlan outer ip](#) on page 319  
[traffic-type vxlan outer vni](#) on page 321  
[transport-tunnel](#) on page 323  
[truncate](#) on page 324  
[tunnel-type ipv4](#) on page 325  
[tunnel-type ipv6](#) on page 327  
[usb enable](#) on page 329  
[username](#) on page 330  
[vlan](#) on page 332  
[vlan-id](#) on page 334  
[vlan-pcp](#) on page 335

The following topics describe NPB application commands and include details about parameters and usage.

## aaa accounting

---

Enables or disables sending accounting logs for commands or login information to the TACACS+ server.

### Syntax

```
aaa accounting { commands | exec | all } default start-stop { tacacs+ |  
    none }  
no aaa accounting commands default start-stop tacacs+
```

### Command Default

Accounting is disabled.

### Parameters

**accounting**

Configures command accounting.

**commands**

Enables or disables command accounting.

**exec**

Enables or disables login accounting.

**all**

Enables or disables command and login accounting.

**default**

Enables sending of logged information to the default server.

**start-stop**

Enables the sending of a "start" accounting notice at the beginning of a process and a "stop" accounting notice at the end of a process. The "start" accounting record is sent in the background. The requested user process begins regardless of whether the "start" accounting notice was received by the accounting server.

**tacacs+**

Configures TACACS+ server for accounting.

**none**

Disables accounting services.

### Modes

Config mode

### Usage Guidelines

This command is allowed in Config mode only.

This command is available only to users with the admin role.

You can modify or enable only one accounting configuration.

## Examples

The following example configures command accounting, with the CLI information being forwarded to the TACACS+ server.

```
device# configure terminal
device(config)# aaa accounting all default start-stop tacacs+

device# show running-config aaa
aaa authentication login tacacs+ local-auth-fallback
aaa accounting commands default start-stop tacacs+
aaa accounting exec default start-stop tacacs+
```

The following example disables login accounting; command accounting (when also configured) remains active.

```
device(config)# no aaa accounting all default start-stop
```

## aaa authentication

---

Configures the Authentication, Accounting, and Authorization (AAA) login sequence with TACACS+ primary and local auth secondary.

### Syntax

```
aaa authentication login tacacs+ local-auth-fallback  
no aaa authentication login tacacs+ local-authfallback
```

### Command Default

Authenticates with the local database if this command is not run.

### Parameters

**login**

Specifies the order of login authentication sources for login

**tacacs+**

Specifies the use of TACACS+ servers

**local-auth-fallback**

Specifies the use of a local switch database if authentication methods are not active or authentication fails.

### Modes

Config mode

### Usage Guidelines

This command is allowed only in configuration mode.

This command is available only to users with the admin role.

### Examples

The following example configures the authentication sequence to first use a TACACS+ server, then to use the fallback database if TACACS+ authentication is not active or fails.

```
device# configure terminal  
device(config)# aaa authentication login tacacs+ local-auth-fallback
```

The following example removes the authentication sequence from the TACACS+ server and defaults to local database authentication.

```
device(config)# no aaa authentication login tacacs+ local-auth-fallback
```

---

## acl-config

---

Changes the CLI mode to `acl-config` to configure functions common to all types of ACL.

### Syntax

**acl-config**

### Parameters

**acl-config**

Specifies ACL common configurations.

### Modes

Config mode

### Examples

The following example changes the CLI mode to `acl-config`.

```
device (config) # acl-config
device (config-acl-config) #
```

---

## address

---

Configures the IP address of the remote syslog server.

### Syntax

```
address [ A.B.C.D | A:B::C:D ]
```

### Parameters

*A.B.C.D*

Specifies the IPv4 address.

*A:B::C:D*

Specifies the IPv6 address.

### Modes

Host configuration mode

### Usage Guidelines

Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

### Examples

The following example shows how to configure the IP address of the remote syslog server.

```
device(config-logging-host-H1)# address 1.1.1.1  
Warning: Existing Host configuration changed
```

---

## banner login

---

Configures the login banner message for displaying before the authentication prompt.

### Syntax

**banner login** *STRING*

**no banner login**

### Parameters

**login** *STRING*

Specifies the login message string. Valid range is 1-1024.

### Modes

Config mode

### Examples

The following example configures the banner login message.

```
device(config)# banner login "This is sample login message"

device# show running-config banner
banner login "This is sample login message"
```



## banner motd

---

Configures the message of the day (MOTD) banner for displaying after authenticating the user.

### Syntax

**banner motd** *STRING*

**no banner motd**

### Parameters

**motd** *STRING*

Specifies the motd message string. Valid range is 1-1024.

### Modes

Config mode

### Examples

The following example configures the motd banner message.

```
device(config)# banner motd "This is sample motd message"

device# show running-config banner
banner login "This is sample motd message"
```

---

## base command | append

---

Appends output of the base command to a text file.

### Syntax

```
base command | append FILENAME
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**append** *FILENAME*

Specifies the file name for filtering the output of the base command. File format is `flash://cli/<name>`.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example appends the base command output to a flash file.

```
device# show running-config | append flash://cli/file1
```

## base command | begin

---

Starts displaying the base command output for the matching token or expression.

### Syntax

```
base command | begin REGEX
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**begin** *REGEX*

Specifies the token or expression to match to start displaying the base command output.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example starts displaying the output of the **show running-config** command after matching the expression, `interface ethernet 0/18`.

```
device# show running-config | begin "interface ethernet 0/18"

interface ethernet 0/18
 shutdown
interface ethernet 0/19
 shutdown
interface management 0
 ip address dhcp
 no ipv6 address dhcp
 no shutdown
```

---

## base command | count

---

Counts the number of lines in the output of the base command.

### Syntax

```
base command | count
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**count**

Specifies the number of lines in the base command output.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example counts the number of lines in the base command output.

```
device# show running-config | count  
Count: 50 lines
```

## base command | exclude

---

Hides the base command output lines that match the specific token or expression.

### Syntax

```
base command | exclude REGEX
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**exclude** *REGEX*

Specifies the token or expression to match for hiding the base command output lines.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example hides the base command output lines that match the expression.

```
device# show running-config | exclude "ethernet 0" | exclude shutdown

ntp enable
ntp server 1.in.pool.ntp.org
ntp server 2.2.2.2
ntp server 2.1.1.1
ntp server 3.2.2.2
ntp server 3.2.2.1
interface management 0
  ip address dhcp
  no ipv6 address dhcp
```

---

## base command | include

---

Displays only the base command output lines that match the specific token or expression.

### Syntax

```
base command | include REGEX
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**include** *REGEX*

Specifies the token or expression to match for displaying the base command output lines.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example includes the base command output lines that match the specific expression.

```
device# show running-config | include interface | exclude "ethernet 0/"  
  
interface management 0
```

## base command | last

---

Displays only the specified number of last lines from the base command output.

### Syntax

```
base command | last NUMBER
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**last** *NUMBER*

Specifies the number of last lines from the base command output for displaying.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example displays last four lines of the base command output.

```
device# ngnpb# show running-config | last 4

interface management 0
  ip address dhcp
  no ipv6 address dhcp
  no shutdown
```

## base command | **linenum**

---

Numbers the base command output lines.

### Syntax

```
base command | linenum
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**linenum**

Numbers the base command output lines.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example numbers the base command output lines.

```
device# show running-config | linnum | last 4

47:interface management 0
48: ip address dhcp
49: no ipv6 address dhcp
50: no shutdown
```



## base command | more

---

Paginates the base command output.

### Syntax

```
base command | more
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**more**

Paginates the base command output.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example paginates the base command output.

```
device# show running-config | more

ntp enable
ntp server 3.2.2.1
ntp server 1.in.pool.ntp.org
ntp server 2.2.2.2
ntp server 2.1.1.1
ntp server 3.2.2.2
--More--
```

## base command | nomore

---

Suppresses default pagination for the base command output.

### Syntax

```
base command | nomore
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**nomore**

Suppresses default pagination for the base command output.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example suppresses default pagination for the base command output.

```
device# show running-config | nomore

ntp enable
ntp server 3.2.2.1
ntp server 1.in.pool.ntp.org
ntp server 2.2.2.2
ntp server 2.1.1.1
ntp server 3.2.2.2
interface ethernet 0/1
  shutdown
interface ethernet 0/2
  shutdown
interface ethernet 0/3
  shutdown
interface ethernet 0/4
  shutdown
interface ethernet 0/5
  shutdown
interface ethernet 0/6
  shutdown .....
```

## base command | save

---

Saves the base command output to a text file.

### Syntax

```
base command | save FILENAME
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**exclude** *FILENAME*

Specifies the file name for writing the base command output. File format is `flash://cli/<name>`.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example writes the base command output to the specified file.

```
device# show running-config | save flash://cli/file2
```

## base command | until

---

Stops displaying the base command output until a match is found for the specific token or expression.

### Syntax

```
base command | until REGEX
```

### Parameters

*base command*

Specifies the base command for filtering the output.

**until** *REGEX*

Specifies the token or expression to match from the base command output.

### Modes

Filter mode

### Usage Guidelines

The "|" symbol in this command does not act as a separator, but instead provides access to the filter command.

### Examples

The following example stops displaying the base command output until a match is found.

```
device# show running-config | until "interface ethernet 0/2"

ntp enable
ntp server 2.1.1.1
ntp server 3.2.2.2
ntp server 3.2.2.1
ntp server 1.in.pool.ntp.org
ntp server 2.2.2.2
interface ethernet 0/1
  shutdown
interface ethernet 0/2
```

## breakout

---

Configures breakout mode on the supported connectors.

### Syntax

```
breakout [ 4x10g | 4x25g ]
```

```
no breakout
```

### Parameters

*4x10g*

Configures the 4 x 10 G breakout mode.

*4x25g*

Configures the 4 x 25 G breakout mode.

### Modes

Connector config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported only on even numbered ports. Example: 1/8

The port must not be part of a port channel.

The port must be in shutdown state.

The current and the previous port are deleted and four new ports with the breakout speed are created.

### Examples

The following examples shows how to configure and verify breakout ports.

```
device(config-connector-1/8)# breakout 4x10g
WARN: Enabling breakout on a interface is a disruptive action and will result port 1/7 to
be unavailable for use along with defaulting all the configs on port 1/8.
```

```
device(config-connector-1/8)# breakout 4x10g
Port is already in breakout mode.
```

---

## capture

---

Configures onboard packet capture on the interface.

### Syntax

```
capture packet interface ethernet IFNAME { direction [ both | rx | tx ]  
  [ packet-count number ] }
```

```
capture start
```

```
capture stop
```

```
no capture packet interface ethernet IFNAME
```

### Parameters

**interface ethernet** *IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

**direction**

Specifies the type of packet capture.

**both**

Specifies both ingress and egress packet capture.

**rx**

Specifies ingress packet capture.

**tx**

Specifies egress packet capture.

**packet-count** *number*

Specifies the number of packets to be captured on the interface. Valid packet capture values range from 1 to 8000.

**start**

Starts packet capture.

**stop**

Stops packet capture.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

Only one mirror session is allowed per port.

You must configure the interface before configuring packet capture.

A maximum of 10 mirror sessions per device are allowed.

Packet capture is not allowed if maximum PCAP files are already created.

When packet-count parameter is specified, the packet capture automatically stops on the interface after the specified number of packets are captured.

The maximum number of existing PCAP files cannot exceed 25.

After packet capture is configured on the required ports, use the `capture start` command to start capturing packets in the active running PCAP file.

The `capture stop` command stops writing the packet to PCAP file and moves the active file to next available inactive PCAP file.

The start and stop options do not clear hardware entries.

Onboard packet capture is not persistent across reboot.

## Examples

The following example configures both ingress and egress packet capture, up to 100, on ethernet interface 1/1.

```
device# capture packet interface ethernet 1/1 direction both packet-count 100
```

The following example removes packet capture configuration on the specified ethernet slot/port.

```
device# no capture packet interface ethernet 1/1
```

The following example starts, verifies, and stops packet capture.

```
device# capture start
device# show capture packet config
capture start
device# capture stop
```

---

## channel-group

---

Assigns and configures a physical interface to a link aggregation group (LAG).

### Syntax

```
channel-group number mode { on | active | passive }  
no channel-group
```

### Parameters

*number*

Specifies the number of the channel groups. Valid range is from 1 through 255.

**mode**

Specifies the LAG mode of the interface.

**on**

Specifies that all LAGs that are not running LACP remain in this mode. This is the default mode.

**active**

Enables LACP on the specified interface.

**passive**

Enables LACP only if an LACP device is detected.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

The LAG in the **on** channel mode is a pure LAG (static-lag), and can aggregate a maximum of 64 ports.

Validations for the command are as follows:

- The channel-group must be already present.
- MTU must not be configured.
- A port must be mapped with only one channel-group.
- The speed of the member ports must be same as the current port.
- The ingress-group or egress object configured on an interface cannot be configured as a member port of the port- channel.

The **no channel-group** command removes the interface from the channel-group.



## Examples

The following examples configure a physical interface to the channel-group.

```
device# configure terminal
device# interface ethernet 1/1
device#(config-if-eth-1/1)# channel-group 1 mode on
device#(config-if-eth-1/1)# no shutdown
device#(config-if-eth-1/1)# end

device# show running-config
interface ethernet 1/1
  channel-group 1 mode on
  no shutdown

device# configure terminal
device(config)# interface port-channel 100
device(config-if-po-100)# no shutdown
device(config-if-po-100)# exit
device(config)#
device(config)# interface ethernet 1/8:1
device(config-if-eth-1/8:1)# channel-group 100 mode active

device# show running-config
protocol lacp
hardware
  connector 1/8
  breakout 4x10g
  connector 2/8
  breakout 4x10g
interface port-channel 100
  no shutdown
interface ethernet 1/8:1
  channel-group 100 mode active
  no shutdown
interface ethernet 1/8:2
```

## clear counters access-list

Clears all or specified counters for all configured MAC, IPv4, and IPv6 access lists.

### Syntax

```
clear counters access-list all  
clear counters ip access-list [ ACL_NAME | all ]  
clear counters ipv6 access-list [ ACL_NAME | all ]  
clear counters mac access-list [ ACL_NAME | all ]
```

### Parameters

*ACL\_NAME*

Specifies the name of the access-list.

**all**

Specifies all configured access-lists.

**ip**

Specifies the IPv4 access-list.

**ipv6**

Specifies the IPv6 access-list.

**mac**

Specifies the MAC access-list.

### Modes

Exec mode

### Examples

The following examples clear counters for access-lists.

```
device# clear counter ip access-list all  
device# clear counter ip access-list v4-acl  
device# clear counter ipv6 access-list v6-acl  
device# clear counter mac access-list l2-acl
```

The following example displays all MAC access-lists and their counters.

```
device# show mac access-list all  
  
mac access-list L2  
  seq 10 permit 02:02:02:02:02:02 02:02:02:02:02:02 02:02:02:02:02:03 02:02:02:02:02:03  
  ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )
```

The following example displays all IP access-lists and their counters.

```
device# show ip access-list all  
ip access-list grp_a_deny_1
```

```
seq 10 deny ip 2.2.4.0 255.255.255.0 1.1.1.3 255.255.255.255 ( 5000000 Packets,  
1940000000 Bytes, 0 Packets/sec, 0 Bits/sec )  
seq 20 deny ip 2.2.5.0 255.255.255.0 1.1.1.4 255.255.255.255 ( 5000000 Packets,  
1940000000 Bytes, 0 Packets/sec, 0 Bits/sec )  
ip access-list grp_a_deny_2  
seq 10 deny ip 2.2.6.0 255.255.255.0 1.1.1.5 255.255.255.255 ( 5000000 Packets,  
1940000000 Bytes, 0 Packets/sec, 0 Bits/sec )  
seq 20 deny ip 2.2.7.0 255.255.255.0 1.1.1.6 255.255.255.255 ( 5000000 Packets,  
1940000000 Bytes, 0 Packets/sec, 0 Bits/sec )
```

The following example verifies that all access-list counters were cleared.

```
device# show ip access-list all  
ip access-list grp_a_deny_0  
seq 10 deny ip 2.2.2.0 255.255.255.0 1.1.1.1 255.255.255.255 ( 0 Packets, 0 Bytes, 0  
Packets/sec, 0 Bits/sec )  
seq 20 deny ip 2.2.3.0 255.255.255.0 1.1.1.2 255.255.255.255 ( 0 Packets, 0 Bytes, 0  
Packets/sec, 0 Bits/sec )  
ip access-list grp_a_deny_1  
seq 10 deny ip 2.2.4.0 255.255.255.0 1.1.1.3 255.255.255.255 ( 0 Packets, 0 Bytes, 0  
Packets/sec, 0 Bits/sec )  
seq 20 deny ip 2.2.5.0 255.255.255.0 1.1.1.4 255.255.255.255 ( 0 Packets, 0 Bytes, 0  
Packets/sec, 0 Bits/sec )
```

---

## clear counters egress

---

Clears all egress counters.

### Syntax

```
clear counters egress all
```

### Parameters

**all**

Specifies deletion of all counters for configured egresses.

### Modes

Exec mode

### Usage Guidelines

This command is ignored silently if an entry is not present.

### Examples

The following example clears counters for all egresses.

```
device# clear counters egress all
```

## clear counters egress-group

---

Clears counters for all egress-groups.

### Syntax

```
clear counters egress-group all
```

### Parameters

**all**

Specifies deletion of counters for all egress groups.

### Modes

Exec mode

### Usage Guidelines

This command is ignored silently if an entry is not present.

### Examples

The following example clears counters for all egress groups.

```
device# clear counters egress-group all
```

## clear counters encap

---

Clears current statistics available on encap.

### Syntax

```
clear counters encap { name | all }
```

### Parameters

*name*

Specifies the encap counter name.

**all**

Specifies all encap counters.

### Modes

Encap config mode

### Usage Guidelines

Valid encap name must be provided.

### Examples

The following example clears encap\_1 counters.

```
device(config-encap)# clear counters encap encap_1

Show running:
device# show encap counters encap_1

Tunnel Encapsulation Statistics(GRE)
  Egress port : ethernet 1/2
  RX Frames : 0
  RX Bytes : 0
```

The following example clears all encap counters.

```
device# clear counters encap all
```

The following example shows encap counters.

```
device# show counters encap encap-1

Tunnel Encapsulation Statistics(GRE)
  Egress port : ethernet 10/2
  RX Frames : 0
  RX Bytes : 0
mac access-list L2
```

## clear counters ingress-group

Clears all or specified counters for all ingress-groups.

### Syntax

```
clear counters ingress-group { name | all }
```

### Parameters

*name*

Specifies the name of the ingress-group counter. Supports 1-64 characters.

**all**

Specifies all ingress-group counters.

### Modes

Exec mode

### Usage Guidelines

If the ingress group has only the associated ports, the **clear ingress-group counters** command does not clear statistics as it fetches the interface statistics. Interface clear clears the statistics for the ingress group as well.

### Examples

The following example clears ingress-group counters.

```
device# clear counters ingress-group ig1  
device# clear counters ingress-group all
```

The following example displays all ingress-group counters information.

```
# show counters ingress-group all  
Number of ingress-groups: 2  
Ingress-group Packet Statistics (Vxlan Tunnel)  
    Name : IgVxlanVni100  
    RX Frames : 0  
    RX Bytes : 0
```

The following example clears counters on all ingress groups and verifies it with the show command.

```
device# clear counters ingress-group all  
  
device# show counters ingress-group all  
Number of ingress-groups: 2  
    Name : ig_01  
No ingress-group stats found  
  
    Name : ig_02  
No ingress-group stats found
```

## clear counters interface

---

Clears counters of the specified interface.

### Syntax

```
clear counters interface ethernet [ IFNAME | all ]  
clear counters interface management number  
clear counters interface port-channel [ PORANGE | all ]
```

### Parameters

#### **ethernet**

Specifies the counters of Ethernet interfaces.

*IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

#### **all**

Clears all Ethernet interface counters.

#### **management** *number*

Specifies the management interface.

#### **port-channel**

*PORANGE*

Specifies the channel number or range of channel numbers. Valid range is 1 to 255.

#### **all**

Specifies all port-channel interfaces.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example clears counters of the Ethernet interface on slot/port 1/1.

```
device# clear counters interface ethernet 1/1
```

The following example clears counters on management interface 0.

```
device# clear counters interface management 0
```



The following example clears port-channel 1 counters.

```
device# clear counters interface port-channel 1
```

```
device# clear counters interface port-channel 1-3,5,7-9
```

The following example clears counters for all Ethernet interfaces.

```
device# clear counters interface ethernet all
```

## **NEW!** clear counters lacp

---

Clears all LACP counters.

### Syntax

```
clear counters lacp
```

### Parameters

```
counters lacp
```

Specifies the LACP counters.

### Modes

Exec mode

### Examples

The following example clears LACP counters.

```
device# clear counters lacp
```

## clear counters lacp interface

---

Clears all LACP port-channel counters.

### Syntax

```
clear counters lacp interface port-channel PORANGE
```

### Parameters

**port-channel** *PORANGE*

Specifies the channel number or range of channel numbers assigned to the Ether Channel logical interface. Valid range is 1-255. Example: 1,1-3,5,7-9.

### Modes

Config mode

### Examples

The following example clears the LACP port channel counters.

```
device# configure terminal
device(config)# clear counters lacp interface port-channel 100,200
```

## clear counters listener-policy

Clears the counters of the specified or all configured listener-policies.

### Syntax

```
clear counters listener-policy [ POLICY_NAME | all ]  
clear counters ip access-list [ ACL_NAME | all ] listener-policy  
    [ POLICY_NAME | all ]  
clear counters ipv6 access-list [ ACL_NAME | all ] listener-policy  
    [ POLICY_NAME | all ]  
clear counters mac access-list [ ACL_NAME | all ] listener-policy  
    [ POLICY_NAME | all ]
```

### Parameters

*ACL\_NAME*

Specifies the name of the access-list.

*POLICY\_NAME*

Specifies the name of the listener policy.

**all**

Specifies counters information for all access-lists or listener policies.

**ip**

Specifies the IPv4 access-list.

**ipv6**

Specifies the IPv6 access-list.

**mac**

Specifies the MAC access-list.

### Modes

Exec mode

### Examples

The following example clears counters for listener-policies.

```
device# clear counters listener-policy lp1  
  
device# clear counters listener-policy lp1 ipv6 access-list all  
  
device# clear counters listener-policy lp1 mac access-list macAcl  
  
device# clear counters mac access-list l2-acl listener-policy lp1
```

## **NEW!** clear counters lldp all

---

Clears all LLDP counters.

### Syntax

```
clear counters lldp all
```

### Parameters

**all**

Specifies all interfaces.

### Modes

This command is supported in all modes.

### Examples

The following examples clears LLDP counters information.

```
device# clear counters lldp all
```

## **NEW!** clear counters lldp interface ethernet

---

Clears LLDP counters information.

### Syntax

```
clear counters lldp
```

```
clear counters lldp interface ethernet [ IFNAME | all ]
```

### Parameters

#### **interface ethernet**

Specifies the interface name.

*IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

#### **all**

Specifies all interfaces.

### Modes

This command is supported in all modes.

### Examples

The following examples clear LLDP counters information.

```
device# clear counters lldp all
```

```
device# clear counters lldp interface ethernet 1/1
```

## clear counters route-map

Clears the counters of the specified or all configured route-maps.

### Syntax

```
clear counters route-map [ ROUTE_MAP_NAME | all ]  
clear counters ip access-list [ ACL_NAME | all ] route-map  
    [ ROUTE_MAP_NAME | all ]  
clear counters ipv6 access-list [ ACL_NAME | all ] route-map  
    [ ROUTE_MAP_NAME | all ]  
clear counters mac access-list [ ACL_NAME | all ] route-map  
    [ ROUTE_MAP_NAME | all ]
```

### Parameters

*ACL\_NAME*

Specifies the name of the access-list.

*ROUTE\_MAP\_NAME*

Specifies the name of the route-map.

**all**

Specifies counters information for all access-lists or route-maps.

**ip**

Specifies the IPv4 access-list.

**ipv6**

Specifies the IPv6 access-list.

**mac**

Specifies the MAC access-list.

### Modes

Exec mode

### Examples

The following examples clears counters for route-maps.

```
device# clear counters route-map all  
  
device# clear counters route-map all ip access-list ipv4Acl  
  
device# clear counters ip access-list v4-acl route-map r1  
  
device# clear counters ipv6 access-list v4-acl route-map all
```

---

## clear counters transport-tunnel

---

Clears the specified or all counters for transport tunnels.

### Syntax

```
clear counters transport-tunnel [ all | name ]
```

### Parameters

**all**

Specifies all transport-tunnels.

*name*

Specifies the name of the transport-tunnel.

### Modes

Exec mode

### Usage Guidelines

You must have the admin role to run this command.

### Examples

The following example clears counters for all transport tunnels.

```
device# clear counters transport-tunnel all
```



## clock set

---

Sets the clock date and time.

### Syntax

```
clock set date - time
```

### Parameters

```
set date - time
```

Sets the clock date and time.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example configures clock date and time.

```
device# clock set
TIME dateTime (CCYY-MM-DDTHH:MM:SS)

device# clock set 23423423-23-21T23:00:00
Failed to parse time specification: 23423423-23-21 23:00:00
```

---

## clock timezone

---

Configures the system time zone.

### Syntax

```
clock timezone region / city
```

```
no clock timezone region / city
```

### Parameters

```
timezone region / city
```

Specifies the supported time zone.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

The `no clock timezone` resets the system clock to default UTC.

### Examples

The following example configures the time zone for Los Angeles.

```
device(config)# clock timezone America/Los_Angeles
```

## connector

---

Configures the connector.

### Syntax

```
connector slot/port
```

### Parameters

*slot/port*

Specifies the name of the connector in slot/port format.

### Modes

Hardware configuration mode

### Examples

The following example shows how to configure the connector.

```
device (config) # hardware
device (config-hardware) # connector 1/2
device (config-connector-1/2)
```

## copy default-config

---

Clears the running configuration.

### Syntax

```
copy default-config running-config
```

### Parameters

**default-config**

Specifies the default configuration.

**running-config**

Specifies the current running configuration.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

After running this command, the system reboots with the management interface configuration.

### Examples

The following example replaces the running configuration with the default configuration.

```
device# copy default-config running-config

This operation will modify your running configuration.
WARN: system will be rebooted to have configuration changes to take effect!

Do you want to continue? [y/n]:
Reloading.... please wait
```

## copy FILE

---

Copies contents of a configuration file from the specified location to the running configuration.

### Syntax

```
copy FLASH-FILE running-config
copy REMOTE-FILE running config
copy USB-FILE running-config
```

### Parameters

**running-config**

Specifies the current running configuration.

**FLASH-FILE**

Specifies the flash file path in format `flash://flash-type/file-name`.

**REMOTE-FILE**

Specifies the remote server file path in format `scp://username:password@host[:port]/filepath`.

Domain name, IPv4 address, and IPv6 address are supported as host. Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

**USB-FILE**

Specifies the USB file path in format `usb://file-name`.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

Valid user credentials must be provided for accessing the remote server.

Input config file path must be valid.

### Examples

The following examples are some valid **copy** commands.

```
device# copy flash://config-file/testfile running-config
device# scp://test:test@1.1.1.1:22/home/test/config-file/testfile running-config
device# copy usb://testfile running-config
```

## copy FILE1 FILE2

---

Copies a flash or USB file to a remote server and vice versa.

### Syntax

```
copy FLASH-FILE FLASH-FILE
copy FLASH-FILE USB-FILE
copy FLASH-FILE REMOTE-FILE
copy USB-FILE FLASH-FILE
copy USB-FILE USB-FILE
copy USB-FILE REMOTE-FILE
copy REMOTE-FILE FLASH-FILE
copy REMOTE-FILE USB-FILE
```

### Parameters

#### **FLASH-FILE**

Specifies the flash file path in format `flash://flash-type/file-name`.

#### **REMOTE-FILE**

Specifies the remote server file path in format `scp://username:password@host[:port]/filepath`.

Domain name, IPv4 address, and IPv6 address are supported as host. Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

#### **USB-FILE**

Specifies the USB file path in format `usb://file-name`.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

Valid user credentials must be provided for accessing the remote server.

Input file path must be valid.

Target destination must be reachable.

Copying a file from one remote server to another remote server is not supported.

## Examples

The following example copies a file from the USB to a remote location.

```
device# copy usb://testfile scp://testuser:testpassword@1.1.1.1:22/home/testuser/test123
```

## copy running-config

---

Copies the running configuration to the specified file to create a backup.

### Syntax

```
copy running-config FLASH-FILE
copy running-config REMOTE-FILE
copy running-config USB-FILE
```

### Parameters

**running-config**

Specifies current running configuration.

**FLASH-FILE**

Specifies the flash file path in format `flash://flash-type/file-name`.

**REMOTE-FILE**

Specifies the remote server file path in format `scp://username:password@host[:port]/filepath`.

Domain name, IPv4 address, and IPv6 address are supported as host. Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

**USB-FILE**

Specifies the USB file path in format `usb://file-name`.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

Valid user credentials must be provided for accessing the remote server.

The file path must be valid.

The target destination file must be reachable.

### Examples

The following example copies the running configuration to the specified file.

```
device# copy running-config flash://config-file/testfile
device# copy running-config scp://test:test@1.1.1.1:22/home/test/testfile
device# copy running-config usb://testfile
```



## NEW! crypto export

Exports the default CA certificate from the device to the remote host in PEM format.

### Syntax

```
crypto export [ ca-certificate default ] [ protocol [ scp | sftp ] ]  
  [ remote-server ADDRESS ] [ remote-file FILE ] [ user NAME ]  
  [ password NAME ]
```

### Parameters

**ca-certificate default**

Specifies the default CA certificate.

**protocol [ scp | sftp ]**

Specifies the protocol used for sending the CA certificate.

**remote-server ADDRESS**

Specifies the IPv4 or IPv6 unicast address of the remote server.

**remote-file FILE**

Specifies the remote file name to copy the CA certificate. Supports 1-512 characters.

**user NAME**

Specifies the remote user to copy the CA certificate. Supports 1-64 characters.

**password NAME**

Specifies the remote user password. Supports 1-64 characters.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example exports the default CA certificate from the switch to the remote-server.

```
device# crypto export ca-certificate default protocol scp remote-server 10.37.16.211  
remote-file /root/temp/test.txt user root password root123  
Exporting switch 'default' CA certificate...  
Exported switch 'default' CA certificate successfully.
```

## crypto import-pkcs

Imports a TLS server certificate and a private key in PKCS12 format.

### Syntax

```
crypto import-pkcs type [ https ] protocol [ scp | sftp ] [ host ip-
  address ] [ file cert-file ] [ passphrase passphrase ] [ user remote-
  user ] [ password password ]

no crypto import type [ https ]
```

### Parameters

#### protocol

##### scp

Specifies use of SCP for accessing the certificate file.

##### sftp

Specifies use of SFTP for accessing the certificate file.

#### type https

Indicates that the certificate is used for HTTPS server authentication.

#### host remote-ip

Specifies the IPv4 or IPv6 unicast address of the remote server where the file is located.

#### user remote-user

Specifies the remote user with access to the file. Supports 1-64 characters.

#### password remote-user-password

Specifies the password for the remote user.



#### Note

As a best practice, do not list the password in the command line for security purposes. The user is prompted for the password.

#### file certificate-and-key-file

Specifies the PKCS file to retrieve. Supports 1-512 characters.

#### pkcspassphrase passphrase

Specifies the passphrase to unlock the file. Supports 1-64 characters.

### Modes

Exec mode

### Usage Guidelines

Use this command to import a TLS server certificate and private key (in PKCS12 format) to a device and establish a secure connection.

The `no` form of the command removes the installed PKCS-format files.

## Examples

The following example specifies HTTPS authentication and SCP for the certificate file `ngnpb.pkcs`.

```
device# crypto import-pkcs protocol scp type https host 10.24.12.111 user testuser
password password file ngnpb.pkcs pkcspassphrase passphrase
```

```
HTTPS server certificate imported.
```

```
Installing https certificate will result in a momentary delay and may affect active CLI
connections - please be patient.
Successfully imported file: ngnpb.pkcs
```

The following example removes the installed PKCS-format files.

```
device# no crypto import-pkcs type https
```

## crypto import type

---

Imports the authentication certificate for security configuration.

### Syntax

```
crypto import type [ https | syslogca ] protocol [ scp | sftp ] [ host
  ip-address ] [ certificate cert-file ] [ key key-file ] [ user
  remote-user ] [ password remote-password ]
no crypto import type [ https | syslogca ]
```

### Parameters

#### type

##### https

Specifies an HTTPS certificate.

##### syslogca

Specifies a Syslogca certificate

#### host *ip-address*

Specifies the IPv4 or IPv6 unicast address of the remote server where the file is located.

#### protocol

##### scp

Specifies the use of SCP for accessing the certificate file.

##### sftp

Specifies the use of SFTP for accessing the certificate file.

#### certificate *file-name*

Defines the name of the certificate file.

#### key *key-file*

Specifies the key file to retrieve.

#### *username*

Specifies the name of the remote user that has access to the file.

#### password *user-password*

Defines the password for the user name on the host server. The password for a remote user can be up to 64 characters.



#### Note

As a best practice, do not list the password in the command line for security purposes.

### Modes

Exec mode

## Usage Guidelines

The `no` form of the command removes the authentication certificate.

When the `no` form of the command is used with **https** type, a new certificate or key pair is regenerated and used with the ingress controller.

This command is available only to users with the admin role.

## Examples

The following example imports the certificate key pair using SCP.

```
device# crypto import type https protocol scp host 10.37.16.211 certificate /root/  
certMgmt/certificates/ngnpbTestCA_Cert.pem key /root/certMgmt/certificates/  
ngnpbTestCA.key user root password root123  
Installing https certificate will result in a momentary delay and may affect active CLI  
connections - please be patient.
```

The following example deletes an HTTPS certificate.

```
device# no crypto import type https  
device#
```

## decap

Decapsulates the current tunnel of the received packet.

### Syntax

**decap**

**no decap**

### Modes

Route-map config mode

Listener-policy config mode

### Usage Guidelines

**Enabled in route-map mode:** Decapsulates a particular encapsulation header in the packet and process remaining packet in further processing blocks. The scope of the headers is shifted to inner headers automatically.

**Enabled in listener-policy mode:** Terminates the incoming tunneled packets and strips the tunneled header. The payload of the tunneled packet is forwarded to the egress.

The **no decap** command removes the decapsulation action from the route map.

### Examples

The following example enables the decap function in route-map configuration mode and then uses the show command to verify the setting.

```
device# configure terminal
device(config)# route-map rmap1 10
device(config-route-map)# decap

device# show route-map all
route-map rmap1 10
forward-action deny
decap

Policy matches: 0 packets, 0 bytes, 0 Packets/secRate, 0 Bits/sec
```

The following example enables the decap function in listener-policy configuration mode.

```
device# configure terminal
device(config)# listener-policy lp1 100
device(config-listener-policy)# decap
```

The following example removes the decap function from a route-map for `rmap1 10`.

```
device# configure terminal
device(config)# route-map rmap1 10
device(config-route-map)# no decap
```

## delete

---

Deletes a flash or USB file.

### Syntax

**delete FLASH-FILE**

**delete USB-FILE**

### Parameters

#### **FLASH-FILE**

Specifies the flash file path in format `flash://flash-type/file-name`.

#### **USB-FILE**

Specifies the USB file path in format `usb://file-name`.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

Valid input file path must be provided.

The active PCAP file cannot be deleted.

### Examples

The following examples show how to delete configuration files.

```
device# delete flash://config-file test.txt
Warning: File flash://config-file/test.txt will be deleted (from flash).
Do you want to continue? [y/n]:

device# delete usb://test
Warning: File usb://test will be deleted (from usb).
Do you want to continue? [y/n]:
```

The following example deletes a PCAP file.

```
device# delete flash://pcap-file/test.pcap
```

The following example deletes a system-created file.

```
device# delete flash://config-file/
Warning: File flash://config-file/ will be deleted (from flash).
Do you want to continue? [y/n]: y
```

---

## description

---

Sets the description for a route map, listener policy, interface, mirror object, or a Quality of Service (QoS) forwarding group.

### Syntax

**description** *description-string*

**no description**

### Parameters

*description-string*

Specifies the description of the route map, listener policy, interface, mirror object, or forwarding group.

Maximum length of the description is 63 characters. Special characters are allowed.

### Modes

Route-map config mode

Listener-policy config mode

Interface config mode

Mirror config mode

QoS config mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following examples show how to configure a description for an interface.

```
device# configure terminal
device(config)# route
device(config-if-eth 1/10)# description Ethernet Interface 1/10 (100G)

device# show running interface ethernet 1/10
interface ethernet 1/10
description Ethernet Interface 1/10 (100G)
shutdown
```

The following examples show how to configure a description for a listener policy.

```
device# configure terminal
device(config)# listener-policy lp-12
device(config-listener-policy)# description listener policy 12
```



```
device# show listener-policy lp-12
interface ethernet 1/10
description listener-policy 12
shutdown
```

The following example shows how to configure a description for a route map.

```
device# configure terminal
device(config)# route-map rmap10
device(config-route-map)# description rmap10 configured Month Date, Year
```

The following example displays the specified route-map.

```
device# show route-map rmap10
interface ethernet 1/10
description rmap10 configured Month Date, Year
no shutdown
```

The following examples show how to configure a description for a mirror object, then display the mirror object.

```
device(config)# mirror mirr_1
device(config-mirror)# description mirror-1

device# show mirror mirr_1

          Name : mirr_1
    Description : mirror-1
          Interface : none
```

The following example shows how to create a description of a QoS forwarding group.

```
device#(config-qos-group)# description group-for-site-A-to-B
```

## deny ipv4-dest

---

Drops packets that match the configured destination IPv4 address and mask.

### Syntax

```
deny [ ipv4-dest addr mask ]  
no deny [ ipv4-dest addr mask ]
```

### Parameters

**ipv4-dest** *addr mask*

Specifies the IPv4 address and mask configured in dotted decimal notation. Example: 196.168.0.1.

### Modes

Transport tunnel config mode

### Usage Guidelines

This command is available only to users with the admin role.

A valid IP address and mask must be provided.

The configured destination IP address must be removed before you configure a new destination IP address.

If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.

### Examples

The following example configures the IPv4 address and mask to match and deny further packet processing for transport tunnel tt1 and verifies the configuration with the show command.

```
device(config)# transport-tunnel tt1  
device(config-transport-tunnel)# deny ipv4-dest 192.168.4.20 255.255.255.0  
  
device# show running-config transport-tunnel tt1  
transport-tunnel tt1  
deny ipv4-dest 192.168.4.20 255.255.255.0
```

## **NEW!** deny ipv6-dest

Drops packets that match the configured destination IPv6 address and mask.

### Syntax

```
deny [ ipv6-dest addr mask ]
```

```
no deny [ ipv6-dest addr mask ]
```

### Parameters

**ipv6-dest** *addr mask*

Specifies the source IPv6 address and mask configured in hexadecimal between 0 and FFFF.

Example: 202:304:606:708:90a:b0c:d0e:f11.

The upper 4 bytes and lower 8 bytes of the mask must be zero because only 32 bits out of 128 bits of IPv6 are supported. Example: 0000:0000:FFFF:FFFF:0000:0000:0000:0000.

### Modes

Transport tunnel config mode

### Usage Guidelines

This command is available only to users with the admin role.

A valid IP address and mask must be provided.

The configured destination IP address must be removed before you configure a new destination IP address.

If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.

### Examples

The following example configures the IPv6 address and mask to match and deny further packet processing for transport tunnel tt1 and verifies the configuration with the show command.

```
device(config)# transport-tunnel tt1

device(config-transport-tunnel)#
deny ipv6-dest 1145:456:234:2345:1123:1145:456:234 0000:0000:FFFF:FFFF:0000:0000:0000:000

device# show transport-tunnel tt1
      Name : tt1
  Source-Ipv6-Addr : 2233:304:606:708:90a:b0c:d0e:f11
  Source-Ipv6-Mask : 0000:0000:FFFF:FFFF:0000:0000:0000:000
  Destination-Ipv6-Addr : 1145:456:234:2345:1123:1145:456:234
  Destination-Ipv6-Mask : 0000:0000:FFFF:FFFF:0000:0000:0000:000
      Tunnel-Type : GRE
```

```
Ingress-Group : none

device# show running-config transport-tunnel
transport-tunnel tt1
  tunnel-type gre ipv6-src
  2233:304:606:708:90a:b0c:d0e:f11 0000:0000:FFFF:FFFF:0000:0000:0000:000
  deny ipv6-dest
  1145:456:234:2345:1123:1145:456:234 0000:0000:FFFF:FFFF:0000:0000:0000:000
```

## destination-ipv4-addr

---

Configures the destination IPv4 address for the encapsulation of outgoing packets.

### Syntax

```
destination-ipv4-addr ip-addr
```

```
no destination-ipv4-addr ip-addr
```

### Parameters

*ip-addr*

Specifies the IPv4 address to be configured as the destination IP address.

### Modes

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- Valid IP addresses must be provided. The following addresses are considered invalid IP addresses:
  - Unspecified IP address (0.0.0.0)
  - Broadcast IP address (255.255.255.255)
  - Multicast IP addresses (224.x.x.x to 240.x.x.x)
- One IP address per encapsulation is allowed. The configured IP address must be removed before you configure a new IP address.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the **no** form of the command is run without the configuration, the command is ignored and no error is reported.

### Examples

The following example configures the destination IP address.

```
device(config-encap-1)# destination-ipv4-addr 20.20.20.1

Show running:
device# show running-configuration

encap encap-1
destination-ipv4-addr 20.20.20.1
```

## destination-mac-addr

---

Configures the destination MAC address for the encapsulation of outgoing packets.

### Syntax

```
destination-mac-addr mac-addr
```

```
no destination-mac-addr mac-addr
```

### Parameters

*mac-addr*

Specifies the MAC address to be configured as the destination MAC.

### Modes

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- A valid MAC address must be provided.
- One MAC address per encapsulation is allowed. The configured MAC address must be removed before you configure a new MAC address.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

### Examples

The following example configures the destination MAC address.

```
device (config-encap-1) # destination-mac-addr 00:01:02:03:04:05
device (config-encap-1) #

Show running:
device# show running-configuration

encap encap-1
destination-mac-addr 00:01:02:03:04:05
```

## dir

---

Lists flash and USB directory information.

### Syntax

```
dir [ flash://[ api-gw | chassis-mgr | cli | config-file | coredumps |  
    firmware | interface-mgr | lacp | lldp | ms-images | pcap-file | snmp  
    | tech-support ] ] | [ usb://filename ]
```

### Parameters

#### **dir**

Lists flash directory information.

#### **flash://api-gw**

Lists API gateway files.

#### **flash://chassis-mgr**

Lists chassis files.

#### **flash://cli**

Lists CLI files.

#### **flash://config-file**

Lists configuration files.

#### **flash://coredumps**

Lists coredump files.

#### **flash://firmware**

Lists firmware files.

#### **flash://interface-mgr**

Lists interface manager files.

#### **flash://lacp**

Lists LACP files.

#### **flash://lldp**

Lists LLDP files.

#### **flash://ms-images**

Lists ms images files.

#### **flash://pcap-file**

Lists PCAP files.

#### **flash://snmp**

Lists SNMP files.

#### **flash://tech-support**

Lists tech support files.

**usb://filename**

Lists USB files.

## Modes

Exec mode

## Examples

The following example lists flash directory information.

```

device# dir
config-file :
-rw-r--r-- 790 2021-04-22 05:50:40 comm9.conf
-rw-r--r-- 1047 2021-04-17 09:03:27 temp.conf
-rw-r--r-- 117 2021-04-12 05:54:09 temp2.conf
-rw-r--r-- 73 2021-04-13 06:14:34 temp3.conf
-rw-r--r-- 48 2021-04-13 06:18:08 temp4.conf
-rw-r--r-- 1047 2021-04-17 10:16:18 temp_1618654577.conf
-rw-r--r-- 1047 2021-04-19 11:47:49 temp_1618832866.conf
pcap-file :
-rw-r--r-- 0 2021-06-01 08:03:44 README.md
tech-support :
firmware :
ms-images :

drwxr-xr-x 4096 2021-12-16 21:13:24 api-gw
drwxr-xr-x 4096 2021-12-16 21:13:24 chassis-mgr
drwxr-xr-x 4096 2021-12-16 21:13:24 cli
drwxr-xr-x 4096 2021-12-16 21:13:24 config-db
drwxr-xr-x 4096 2021-12-16 21:13:24 interface-agent
drwxr-xr-x 4096 2021-12-16 21:13:24 interface-mgr
drwxr-xr-x 4096 2021-12-16 21:13:24 lacp
drwxr-xr-x 4096 2021-12-16 21:13:24 lldp
drwxr-xr-x 4096 2021-12-16 21:13:24 msg-bus
drwxr-xr-x 4096 2021-12-16 21:13:24 nexthop-agent
drwxr-xr-x 4096 2021-12-16 21:13:24 packet-mgr
drwxr-xr-x 4096 2021-12-16 21:13:24 pbd-agent
drwxr-xr-x 4096 2021-12-16 21:13:24 pcap-agent
drwxr-xr-x 4096 2021-12-16 21:13:24 persistent-state-db
drwxr-xr-x 4096 2021-12-16 21:13:24 pipeline-agent
drwxr-xr-x 4096 2021-12-16 21:13:24 security
drwxr-xr-x 4096 2021-12-16 21:13:24 sfcs-agent
drwxr-xr-x 4096 2021-12-16 21:13:24 snmp
drwxr-xr-x 4096 2021-12-16 21:13:24 state-db
drwxr-xr-x 4096 2021-12-16 21:13:24 stratum
drwxr-xr-x 4096 2021-12-16 21:13:24 svcplane-agent
drwxr-xr-x 4096 2021-12-16 21:13:24 target-proxy-agent

chassis-mgr:
interface-mgr:
lacp:
lldp:
cli:
api-gw:
snmp:
coredumps:
-rw----- 273702912 2021-05-28 10:08:07 core.npbcli.PID_13825.SIG_6.16
22196487

USB:

```



```
-rw-r--r-- 734 2021-05-11 04:49:58 test  
-rw-r--r-- 734 2021-05-06 18:33:36 test1  
-rw-r--r-- 734 2021-05-14 04:04:07 test123  
-rw-r--r-- 734 2021-05-06 18:24:01 testfile
```

```
device# dir usb://
```

```
USB:
```

```
-rw-r--r-- 734 2021-05-11 04:49:58 test  
-rw-r--r-- 734 2021-05-06 18:33:36 test1  
-rw-r--r-- 734 2021-05-14 04:04:07 test123  
-rw-r--r-- 734 2021-05-06 18:24:01 testfile
```

## egress

---

Creates or deletes an egress.

### Syntax

```
egress name  
no egress name
```

### Parameters

*name*

Specifies the name of the configured egress object.

Supports 1-32 characters. Characters allowed are alpha-numeric, underscore and dot. Underscore is not allowed as the first character.

### Modes

Config mode

Egress config mode

### Usage Guidelines

This command is available only to users with the admin role.

A valid egress name must be provided. The reserved name, **all**, cannot be used for configuration.

An egress name must be unique. An error is returned if you try to use the same name for an egress as for an egress group.

The following reserved keywords cannot be used as name identifiers: **all**, **ingress-group**, **egress**, **egress-group**, **match**, **list**, **access-list**, **route-map**, and **listener-policy**.

The **no** form of the command deletes the specified egress name.

### Examples

The following example creates egress-123.

```
device(config)# egress egress-100  
device(config-egress)# precedence 10 interface ethernet 1/10  
device(config-egress)# set encap-100  
device(config-egress)# set listener-policy lp-100  
  
device# show running-config egress  
Egress egress-100  
Precedence 10 interface ethernet 1/10  
encap-100  
lp-100
```

## egress-group

---

Creates or removes an egress-group.

### Syntax

**egress-group** *name*

**no egress-group** *name*

### Parameters

*name*

Specifies the name of the egress-group. Supports 1-32 characters.

Characters allowed are alpha-numeric, underscore, and dot. Underscore is not allowed as the first character.

### Modes

Config mode

### Usage Guidelines

A maximum of 64 egress objects can be added to an egress-group.

A valid egress name must be provided.

An egress-group name must be unique. An error is returned if you try to use the same name for an egress-group as for an egress.

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

The **no** form of the command deletes the specified egress-group.

### Examples

The following example creates an egress group named MyEgressGroup.

```
device (config) # egress-group MyEgressGroup
```

## enable acl-counter

Enables or disables ACL counters globally.

### Syntax

```
enable acl-counter  
no enable acl-counter
```

### Modes

ACL config mode

### Usage Guidelines

The **enable acl-counter** command is enabled by default.

When this command is enabled, ACLs update their count to the extreme-policy-statistics module in the Extreme YANG tree.

The **show running configuration** command does not show the **enable acl-counter** command because it is the default value.

When the **enable acl-counter** command is disabled, the `count` option in ACL rules comes into effect. The count is published to the extreme-policy-statistics module and other control plane applications for ACL rules that explicitly specify the count option.

The **no** form of the command disables ACL counters globally.

### Examples

The following examples shows how to configure ACL counters.

```
device(conf)# acl-config  
device(conf-acl-config)# enable acl-counter  
device(config)# ip access-list acl-ipv4-1  
device(config-ip-acl)# seq 10 permit tcp any any count  
    <- This ACL clause will display count.  
device(config-ip-acl)# seq 20 deny ip any any  
    <- This ACL clause also will display count.  
  
device(conf)# acl-config  
device(conf-acl-config)# no enable acl-counter  
device(config)# ip access-list acl-ipv4-1  
device(config-ip-acl)# seq 10 permit tcp any any count  
    <- This ACL clause will display count.  
  
device(config-ip-acl)# seq 20 deny ip any any  
    <- This ACL clause will not display count.  
  
device# show running-config acl-config  
  
acl-config  
no enable acl-counter
```

## encap

---

Configures encapsulation parameters for the outgoing packets.

### Syntax

```
encap name
```

```
no encap name
```

### Parameters

*name*

Specifies the name of the encap object. Supports 1-64 characters.

The name must start with an alphabet character or an underscore.

### Modes

Config mode

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the **no** form of the command is run without the configuration, the command is ignored and no error is reported.
- If the **no** form of the command is run with the configuration, all sub-mode configurations are removed along with the encap object.
- The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

### Examples

The following example configures encapsulation parameters for encap-1.

```
device(config)# encap encap-1
device(config-encap-1)#
```

## encap-type

---

Configures encapsulation type for outgoing packets.

### Syntax

```
encap-type gre
```

```
no encap-type gre
```

### Parameters

**gre**

Sets encapsulation type to GRE.

### Modes

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- The `encap-type` cannot be modified or deleted when the encap is associated with the egress object.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

### Examples

The following examples show GRE encapsulation.

```
device# configure terminal
device(config)# encap encap-1
device(config-encap)# encap-type gre
```

```
Show running:
device# show running-config encap
encap encap-1
    encap-type gre
```

## fec

Configures Forward Error Correction (FEC) mode.

### Syntax

```
fec [ fc-fec | rs-fec | auto-negotiation | disabled ]
```

### Parameters

**fc-fec**

Configures FC-FEC in manual mode.

**rs-fec**

Configures RS-FEC in manual mode.

**auto-negotiation**

Configures FEC auto negotiation.

**disabled**

Disables FEC.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported only on ports with 100G or 25G speed.

The interface must be disabled before changing the FEC configuration.

Speed configuration is not allowed when FEC is configured.

### Examples

The following examples show FEC configuration.

```
device(config)# int e 4/16
device(config-if-eth-4/16)# fec fc-fec

device(config)# int e 4/16
device(config-if-eth-4/16)# channel-group 111 mode on
device(config-if-eth-4/16)# fec rs-fec

device# show int e 4/16
ethernet 4/16 Admin state DOWN      Operational state DOWN
  Interface index is 268435744 (0x10000120)
  MTU 0 bytes
  Hardware is Ethernet  mac address 40:88:2f:c1:02:43
  Current Speed 100G
  FEC Mode: RS-FEC
```

```
Statistics
Carrier Transitions: 0
      LastClear: 0s
Input:
      Broadcast Pkts: 0
      Discard Pkts: 0
      Errors Pkts: 0
      FCS Errors: 0
      MCast Pkts: 0
      Octets: 0
      UCast Pkts: 0
      Unknown Protocols: 0
Out:
      Broadcast Pkts: 0
      Discard Pkts: 0
      Errors Pkts: 0
      MCast Pkts: 0
      Octets: 0
      UCast Pkts: 0
```



## forward-action

Determines the actions performed on a packet for the current route map or listener-policy.

### Syntax

```
forward-action { permit | deny }
```

### Command Default

Default is **permit**.

### Parameters

#### **permit**

Modifies outgoing packets according to specified matching actions. Otherwise, it tries to match the condition in the next instance of the same listener-policy. If a match is not found, the packet is forwarded without applying any actions.

#### **deny**

Skips the matching listener policy instance and drops traffic.

### Modes

Route-map config mode

Listener-policy config mode

### Examples

The following example allows packet forwarding based on the ACL for the current route map.

```
device# configure terminal
device# config-route-map
device(config-route-map)# forward-action permit
```

The following example allows packet forwarding based on the ACL for the current listener policy.

```
device# configure terminal
device(config)# listener-policy lp1 <scriptId>
device(config-listener-policy)# forward-action permit

device# show listener-policy rt 45
forward-action permit
```

The following example blocks packet forwarding and drops packets for the current route map.

```
device# config-route-map
device(config-route-map)# forward-action deny
```

## hardware

---

Enters the hardware mode.

### Syntax

**hardware**

### Parameters

**hardware**

Allows hardware configuration.

### Modes

Config mode

### Examples

The following example shows how to enter the hardware mode.

```
device(config)# hardware
device(config-hardware)#
```

## ingress-group

---

Configures or removes an ingress group for classifying the packets received on the interface.

### Syntax

```
ingress-group name  
no ingress-group {name | all }
```

### Parameters

*name*

Specifies the name of the ingress group to be used for packets received on the interface.

**all**

Deletes all configured ingress groups. Use of this parameter deletes interface binding also.

### Modes

Config mode

### Usage Guidelines

The **no** form of the command deletes a specified ingress group or all configured ingress groups.

Removal of an ingress-group fails silently if the group is not present.

### Examples

The following example configures the ingress group, binds route-map rm1 to this ingress group, and then verifies the configuration.

```
device# configure terminal  
device(config)# ingress-group group-1  
device(config-ingress-group)# set route-map rm1  
  
device# show running-config ingress-group  
ingress-group ingress-group-1  
    set route-map rm1
```

## interface ethernet

---

Changes the configuration mode to interface or range of interfaces.

### Syntax

**Interface ethernet** *IFNAME*

### Parameters

*IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following examples change the config mode to interface configuration mode.

```
device# configure terminal
device(config)# interface ethernet 1/10-14
device(config-if-eth 1/10-14)#

device(config)# int e 1/1-16,2/1-16
device(config-if-eth-1/1-16,2/1-16)#

device(config-hardware)# int e 1/2:1-4,2/1-16
device(config-if-eth-1/2:1-4,2/1-16)#
```

## interface port-channel

---

Creates a port-channel or changes the configuration mode to an already created port-channel or a range of port-channels.

### Syntax

```
interface port-channel PORANGE
```

```
no interface port-channel PORANGE
```

### Parameters

*PORANGE*

Specifies the channel number or range of multiple channel numbers. The valid range is 1 through 255.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

The packets are load balanced on member port-channel ports when a port-channel is added as part of the egress.

The `no interface port-channel PORANGE` command deletes the LAG group.

### Examples

The following example configures the link aggregation group.

```
device# configure terminal
device(config)# interface port-channel 1
device(config-if-po-1)# no shutdown

device# configure terminal
device(config)# interface port-channel 1-3,5,7-9
device(config-if-po-1-3,5,7-9)# no shutdown
```

## ip access-list

---

Creates an IP access control list (ACL). ACLs contain rules that permit or deny traffic based on packet fields belonging to the IPv4 family of protocols.

### Syntax

```
ip access-list name  
no ip access-list name
```

### Parameters

*name*  
Specifies the name of the IP access list.

### Modes

Config mode

### Usage Guidelines

Command-line mode changes from (config) to (config-ip-acl) after new IP ACL is created.

Names cannot exceed 64 characters and must start with an alphabetic character or an underscore, followed by alphabetic or numeric characters or dots.

The following reserved keywords cannot be used as name identifiers: all, ingress-group, egress, egress-group, match, list, access-list, route-map, and listener-policy.

### Examples

The following example creates an ACL named P4. On successful creation the mode changes to config-ip-acl.

```
device# configure terminal  
device(config)# ip access-list P4  
device(config-ip-acl)#  
  
device# show running-config ip access-list P4  
ip access-list P4  
  
device# show running-config ip access-list all  
ip access-list P4
```

The following example deletes the ACL named P4.

```
device# configure terminal  
device(config)# no ip access-list P4
```

## ip address

---

Configures the IPv4 address for the interfaces.

### Syntax

```
ip address A.B.C.D/M
ip address dhcp
no ip address A.B.C.D/M
no ip address dhcp
```

### Parameters

*A.B.C.D/M*  
Specifies the valid IPv4 unicast address.

*dhcp*  
Specifies the DHCP IPv4 address.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported on management interfaces.

The **no ip address** command removes the IPv4 address configured on the interface.

The **no ip address dhcp** command removes the DHCP IPv4 address configured on the interface.

### Examples

The following example configures the IPv4 address.

```
device# configure terminal
device(config)# interface management 0
device(config-if-mgmt-0)# ip address 192.168.122.10/24

device# show running interface management 0
interface management 0
no ip address dhcp
ip address 192.168.122.10/24
shutdown
```

The following example configures the DHCP IPv4 address.

```
device# configure terminal
device(config)# interface management 0
```

```
device(config-if-mgmt-0)# ip address dhcp

device# show running interface management 0
interface management 0
ip address dhcp
shutdown
```



## ip dns

---

Configures the DNS IP address.

### Syntax

```
ip dns domain-name NAME  
ip dns name-server [ A.B.C.D | XX:XX::XX ]  
no ip dns domain-name NAME  
no ip dns name-server [ A.B.C.D | XX:XX::XX ]
```

### Parameters

**domain-name** *NAME*  
Specifies the DNS domain name.

**name-server** *A.B.C.D* | *XX:XX::XX*  
Specifies the IPv4 or IPv6 address of the DNS name server.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

A maximum of six DNS domain names is supported.

A maximum of three DNS name servers is supported.

The `no ip dns domain-name` command removes the specified DNS domain name.

The `no ip dns name-server` command removes the specified DNS name server.

### Examples

The following example configures IP DNS domain name.

```
device(config)# ip dns domain-name extreme.com  
  
device(config)# ip dns domain-name corp.extreme.com  
  
device(config)# do sh running-config ip dns  
ip dns domain-name corp.extremenetworks.com  
ip dns domain-name extremenetworks.com  
ip dns name-server 10.6.16.32  
ip dns name-server 10.6.24.30  
ip dns name-server 1111:2222::1
```

The following example configures IP DNS name server.

```
device(config)# ip dns name-server 10.6.16.32

device(config)# ip dns name-server 1111:2222::1

device# sh running-config ip dns
ip dns name-server 10.6.16.32
ip dns name-server 1111:2222::1
```

## ip gateway

---

Configures an IPv4 gateway for the interfaces.

### Syntax

```
ip gateway A.B.C.D
```

```
no ip gateway A.B.C.D
```

### Parameters

*A.B.C.D*

Specifies the IPv4 address of the gateway.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported on management interfaces.

Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

The **no** form of the command removes the IP address configured on the interface.

### Examples

The following example configures an IPv4 gateway.

```
device# configure terminal
device(config)# interface management 0
device(config-if-mgmt-0)# ip gateway 192.168.122.1

device# show running interface management 0
interface management 0
no ip address dhcp
ip address 192.168.122.10/24
ip gateway 192.168.122.1
shutdown
```

## ipv6 access-list

---

Creates an IPv6 access list that contains rules that permit or deny traffic based on packet fields of the IPv6 family of protocols.

### Syntax

```
ipv6 access-list name  
no ipv6 access-list name
```

### Parameters

*name*  
Specifies the name of the IPv6 access list.

### Modes

Config mode

### Usage Guidelines

Names cannot exceed 64 characters and must start with an alphabetic character or an underscore, followed by alphabetic or numeric characters or dots.

On successful completion, CLI mode changes from `config` to `ipv6-acl`.

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

### Examples

The following example creates an IPv6 access list, P6.

```
device# configure terminal  
device(config)#ipv6 access-list P6  
device(config-ipv6-acl)#  
  
device# show running-config ipv6 access-list ip6-acl  
ipv6 access-list ip6-acl  
  
device# show running-config ipv6 access-list all  
ipv6 access-list ip6-acl
```

## ipv6 address

---

Configures the IPv6 address for the interfaces.

### Syntax

```
ipv6 address A:B::C:D/M  
no ipv6 address A:B::C:D/M  
ipv6 address dhcp  
no ipv6 address dhcp
```

### Parameters

*A:B::C:D/M*  
Specifies the IPv6 address configuration.

*dhcp*  
Specifies the DHCP IPv6 address.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported on management interfaces.

Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

The command `no ipv6 address` removes the IPv6 address configured on the interface.

The command `no ipv6 address dhcp` removes the DHCP IPv6 address configured on the interface.

### Examples

The following example configures the IPv6 address.

```
device# configure terminal  
device(config)# interface management 0  
device(config-if-mgmt-0)# ipv6 address 2001:db8:fe::100/120  
  
device# show running interface management 0  
interface management 0  
ipv6 address 2001:db8:fe::100/120  
shutdown
```

The following example configures the DHCP IPv6 address.

```
device# configure terminal
device(config)# interface management 0
device(config-if-mgmt-0)# ipv6 address dhcp

device# show running interface management 0
interface management 0
ipv6 address dhcp
shutdown
```

## ipv6 gateway

---

Configures an IPv6 gateway for the interfaces.

### Syntax

```
ipv6 gateway A:B::C:D  
no ipv6 gateway A:B::C:D
```

### Parameters

*A:B::C:D*

Specifies the IPv6 address for the gateway.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported on management interfaces.

Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

The **no** form of the command removes the IP gateway on the interface.

### Examples

The following example configures an IPv6 gateway.

```
device# configure terminal  
device(config)# interface management 0  
device(config-if-mgmt-0)# ipv6 gateway 2001:db8:fe::2  
  
device# show running interface management 0  
interface management 0  
ipv6 gateway 2001:db8:fe::2  
shutdown
```

## **NEW!** lACP min-links

---

Configures or resets the minimum number of active member links required for the port-channel to be operationally UP.

### Syntax

```
lACP min-links min-link-number  
no lACP min-links min-link-number
```

### Parameters

```
min-links min-link-number
```

Specifies the minimum number of active member links required for the port-channel to be operationally UP. The range is 1 through 64. The default value is 1.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

The **no** form of the command resets the minimum LACP threshold to the default value 1.

### Examples

The following example configures the minimum LACP threshold.

```
device# configure terminal  
device(config)# interface port-channel 1  
device(config-if-po-1)# lACP min-links 3  
device(config-if-po-1)# end  
  
device# show running-configuration  
interface port-channel 1  
lACP min-links 3  
no shutdown
```



## **NEW!** lacp port-priority

Configures or resets the port priority for use with LACP.

### Syntax

```
lacp port-priority NUM
```

```
no lacp port-priority NUM
```

### Parameters

```
port-priority NUM
```

Specifies the port priority. Valid values are from 1 through 65535 and higher numbers have a lower priority. The default value is 32768.

### Modes

Interface config mode

### Usage Guidelines

The `no lacp port-priority` command resets LACP system priority to the default value, 32768.

### Examples

The following example configures LACP port priority.

```
device# configure terminal
device(config)# interface ethernet 0/1
device(config)# lacp port-priority 40000

device# show running-configuration
protocol lacp
hardware
  connector 1/8
  breakout 4x10g
interface port-channel 1
  no shutdown
interface ethernet 1/8:1
  channel-group 1 mode active
  lacp port-priority 1234
  no shutdown
```

## NEW! lACP rate

Configures or resets the fast rate at which LACP control packets are received on the LACP supported interface.

### Syntax

```
lACP rate { fast | normal }
```

```
no lACP rate fast
```

### Parameters

#### **rate**

Specifies LACP reception interval.

#### **fast**

Specifies that the LACP packets are sent at a 1 second interval and 3 second timeout.

#### **normal**

Specifies that the LACP packets are sent at 30 second intervals with a 90 second timeout.

Default rate is 30 seconds.

### Modes

Interface config mode

### Usage Guidelines

The **no** form of the command resets the LACP rate interval to the default value, 30 seconds.

Timeout is calculated on the LACP rate. For fast rate, timeout is  $3 \times 1 = 3$  seconds and for normal rate, timeout is  $30 \times 3 = 90$  seconds.

### Examples

The following example configures the LACP rate.

```
device# configure terminal
device(config)# interface ethernet 1/8:1
device(config-if-eth-1/8:1)# lACP rate fast
```

```
device# show running-config
protocol lACP
  lACP system-priority 1234
hardware
  connector 1/8
  breakout 4x10g
  connector 2/8
  breakout 4x10g
interface port-channel 100
  no shutdown
```

```
interface ethernet 1/1
 shutdown
interface ethernet 1/2
 shutdown
interface ethernet 1/3
 shutdown
interface ethernet 1/4
 shutdown
interface ethernet 1/5
 shutdown
interface ethernet 1/6
 shutdown
interface ethernet 1/8:1
 channel-group 100 mode active
 lacp rate fast
 no shutdown
interface ethernet 1/8:2
```

## **NEW!** lACP system-mac

Configures or resets the MAC address to be used for the LACP exchanges.

### Syntax

```
lACP system-mac mac-address
```

```
no lACP system-mac
```

### Parameters

```
system-mac mac-address
```

Specifies the MAC address for configuring LACP protocol exchanges. The MAC address format is XXXX.XXXX.XXXX.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

The `no lACP system-mac` command resets LACP system MAC to the default MAC address.

### Examples

The following example configures LACP system-mac.

```
device# configure terminal
device(config)# interface port-channel 100
device(config-if-po-100)# lACP system-mac aabb.ccdd.eeff
device(config-if-po-100)# end

device# show running-config
protocol lACP
  lACP system-priority 1234
hardware
  connector 1/8
  breakout 4x10g
  connector 2/8
  breakout 4x10g
interface port-channel 100
  lACP system-mac aabb.ccdd.eeff
  lACP system-priority 1234
  no shutdown
```

## **NEW!** lACP system-priority

Configures or resets the system priority for use with LACP.

### Syntax

```
lACP system-priority priority  
no lACP system-priority
```

### Parameters

```
system-priority priority
```

Configures system priority. Valid values are from 1 through 65535, and higher numbers have a lower priority. The default value is 32768.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

The `no lACP system-priority` command resets LACP system priority to the default value, 32768.

### Examples

The following example configures LACP system priority.

```
device# configure terminal  
device(config)# interface port-channel 100  
device(config-if-po-100)# lACP system-priority 1234  
device(config-if-po-100)# end  
  
device# show running-config  
protocol lACP  
  lACP system-priority 1222  
hardware  
  connector 1/8  
    breakout 4x10g  
  connector 2/8  
    breakout 4x10g  
interface port-channel 1  
interface port-channel 100  
  lACP system-priority 1234  
  no shutdown
```

## link-fault-signaling

---

Enables or disables Link Fault Signaling (LFS).

### Syntax

```
link-fault-signaling  
no link-fault-signaling
```

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is not allowed on management interface.

The **no** form of the command disables LFS.

### Examples

The following example enables LFS.

```
device(config-if-eth-1/8)# link-fault-signaling  
  
device# show int e 1/8:2  
ethernet 1/8:2 Admin state UP      Operational state DOWN  
Interface index is 268435873 (0x100001a1)  
MTU 9216 bytes  
Hardware is Ethernet  mac address 40:88:2f:c1:02:0d  
Current Speed 10G  
FEC Mode: disabled  
Link Fault Signaling: ON  
Link Fault Status: Remote fault
```

The following example disables LFS.

```
device(config-if-eth-1/8)# no link-fault-signaling
```

## listener-policy

---

Creates or removes a listener policy.

### Syntax

```
listener-policy { name sequence-id }  
no listener-policy { [ name sequence-id ] | sequence-id | all }
```

### Parameters

*name*

Specifies the listener policy name. Supports 1 through 64 characters. Allowed Characters are alpha-numeric, underscore, and dot.

Underscore is not allowed as the first character.

*sequence-id*

Specifies the sequence ID. The valid range is 1 through 65535.

**all**

Specifies that all listener policies are to be deleted with the **no** form of the command.

### Modes

Config mode

### Usage Guidelines

Valid listener policy name must be provided.

The following reserved keywords cannot be used as name identifiers: **all**, **ingress-group**, **egress**, **egress-group**, **match**, **list**, **access-list**, **route-map**, and **listener-policy**.

Attempts to remove any listener policy that is not configured are ignored.

### Examples

The following examples show how to configure a listener policy.

```
device# configure terminal  
device(config)# listener-policy lp1 4 13  
  
device(config)# listener-policy lp2 5  
  
device(config)# no listener-policy lp1 4 13  
device(config)# no listener-policy lp2 5
```

The following example removes the configured listener policy.

```
device# configure terminal  
device(config)# no listener-policy lp1 4 243
```

## **NEW!** lldp enable

---

Enables LLDP on the interface.

### Syntax

**lldp enable**

**no lldp enable**

### Parameters

**enable**

Enables LLDP on the interface.

### Modes

Interface config mode

### Usage Guidelines

The `no lldp enable` command disables LLDP on the interface.

### Examples

The following example enables LLDP protocol.

```
device# configure terminal
device(config)# interface ethernet 1/1
device(config-if)# lldp enable
device(config-if)# no lldp enable

device# show running-configuration
interface ethernet 1/1
no lldp enable
end
```



## **NEW!** lldp hello-timer

---

Configures the global LLDP transmit interval.

### Syntax

```
lldp hello-timer seconds  
no lldp hello-timer
```

### Parameters

**hello-timer** *seconds*

Specifies the global LLDP transmit interval in seconds. Range is 1 to 65535. Default is 30 seconds.

### Modes

Config mode

### Usage Guidelines

The `no lldp hello-timer` command resets the hello-timer to the default value of 30 seconds.

### Examples

The following example configures the `no lldp hello-timer` to 10 seconds.

```
device# configure terminal  
device(config)# lldp hello-timer 10  
  
device# show running-configuration  
lldp hello-timer 10
```

## **NEW!** lldp holdtime

---

Configures the LLDP holdtime to hold the information received by the neighbor device before discarding it.

### Syntax

```
lldp holdtime seconds
```

```
no lldp holdtime
```

### Parameters

```
holdtime seconds
```

Specifies the amount of time in seconds. Valid range is 10 through 65535. Default value is 120 seconds.

### Modes

Config mode

### Usage Guidelines

The `no lldp holdtime` command resets the holdtime to the default holdtime of 120 seconds.

### Examples

The following example configures the `lldp holdtime` to 10 seconds.

```
device# configure terminal
device(config)# lldp holdtime 10
device(config)#

Show running:
device# show running-configuration
lldp holdtime 10
```

## **NEW!** lldp receive

---

Enables global or interface LLDP packet receive mode.

### Syntax

```
lldp receive
```

```
no lldp receive
```

### Parameters

```
receive
```

Specifies the global or interface LLDP packet receive mode (true or false). Default mode is true.

### Modes

Config mode

Interface config mode

### Usage Guidelines

The `no lldp receive` command sets the LLDP receive mode to false.

### Examples

The following example configures global LLDP packet receive mode.

```
device# configure terminal
device(config)# lldp receive

device# show running-configuration
lldp receive
```

The following example configures LLDP packet receive mode on the interface.

```
device# configure terminal
device(config)# interface ethernet 1/1
device(config-if)# lldp receive

device# show running-configuration
interface ethernet 1/1
lldp receive
```

## **NEW!** lldp transmit

---

Enables global or interface LLDP transmit mode.

### Syntax

```
lldp transmit
no lldp transmit
```

### Parameters

#### **transmit**

Specifies the global or interface LLDP packet transmit mode (true or false). Default mode is true.

### Modes

Config mode

Interface config mode

### Usage Guidelines

The `no lldp transmit` command sets the transmit mode to false.

You cannot disable both `lldp transmit` and `lldp receive` together. Use the global command, `no protocol lldp` to disable both transmit and receive.

### Examples

The following example configures LLDP transmit mode globally.

```
device# configure terminal
device(config)# lldp transmit

device# show running-configuration
lldp transmit
```

The following example configures LLDP transmit mode on the interface.

```
device# configure terminal
device(config)# interface ethernet 1/1
device(config-if)# lldp transmit
device(config-if)#

device# show running-configuration
interface ethernet 1/1
lldp transmit
```

## load-balance

---

Enables or disables masking of tunnel ID while computing hashing for per LAG basis.

### Syntax

```
load-balance [ src-dst-ip-l4port-tid | src-dst-ip-l4port ]  
no load-balance
```

### Parameters

#### **src-dst-ip-l4port-tid**

Specifies source IP, destination IP, l4 port, protocol, and specific GTP tunnel ID-based load-balancing.

#### **src-dst-ip-l4port**

Specifies source IP, destination IP, l4port, and protocol-based load balancing (default) method.

### Modes

Port-channel config mode

### Usage Guidelines

This command is available only to users with the admin role.

The **no load-balance** command sets the default value to LAG hash.

The port-channel must be created first.

The load-balance method configured in other egress-objects that co-exist in the same egress-group must match the new load-balance setting.

If there is a conflict in load-balance setting with other egress objects:

1. Remove the port-channels from other egress objects co-existing in egress-groups.
2. Configure the new load-balance method in all port-channels that co-exist in egress-groups with the current port-channel.
3. Add the port-channels back to egress objects with the original configuration.

### Examples

The following example enables the `src-dst-ip-l4port-tid` load balancing method.

```
device# configure terminal  
device#(config)# interface port-channel 1  
device(config-if-po-1)# load-balance src-dst-ip-l4port-tid
```

The following example shows how to resolve a conflicting load-balance type setting.

```
device# show egress-group all

Number of egress-groups: 1
  Name : egg1
    egress : eg2
    egress : eg3

device# show egress eg2
  Name : eg2
  Precedence : 20
  Interface : port-channel 1

device# show egress eg3
  Name : eg3
  Precedence : 30
  Interface : port-channel 2

device# show run interface port-channel 1
interface port-channel 1
  no shutdown --> load-balance type is default (src-dst-ip-l4port)
device# show run interface port-channel 2

interface port-channel 2
  no shutdown --> load-balance type is default (src-dst-ip-l4port)

device(config)# interface port-channel 1
device(config-if-po-1)# load-balance src-dst-ip-l4port-tid

Error: all egress objects present in group should have same loadbalance type. eg3 has
type SRC_DST_IP_L4_PORT in group egg1

device(config-if-po-1)# exit
device(config)# egress eg2
device(config-egress)# no precedence 20
device(config-egress)# exit

device(config)# egress eg3
device(config-egress)# no precedence 30
device(config-egress)# exit

device(config)# interface port-channel 1
device(config-if-po-1)# load-balance src-dst-ip-l4port-tid
device(config-if-po-1)# exit

device(config)# interface port-channel 2
device(config-if-po-2)# load-balance src-dst-ip-l4port-tid
device(config-if-po-2)#
device(config-if-po-2)# exit

device(config)# egress eg2
device(config-egress)# precedence 20 interface port-channel 1
device(config-egress)# exit

device(config)# egress eg3
device(config-egress)# precedence 30 interface port-channel 2
```

## mac access-list

Creates a MAC access control list that contains rules that permit or deny traffic based on packet fields of the L2 OSI layer.

### Syntax

```
mac access-list name
```

```
no mac access-list [ name | all ]
```

### Parameters

*name*

Specifies the name of the MAC ACL. Names cannot exceed 64 characters and must start with an alphabetic character or an underscore, followed by alphabetic or numeric characters or dots. Reserved keywords cannot be used, such as `all` or `egress`.

**all**

Specifies all MAC ACLs.

### Modes

Config mode

### Usage Guidelines

Command-line mode changes from `config` to `config-mac-acl` after new MAC ACL is created.

The `no` form of the command removes the specific or all configured MAC ACLs.

### Examples

The following example creates a MAC ACL named L2 and on successful creation, the mode changes to `config-mac acl`.

```
device# configure terminal
device(config)# mac access-list L2
device(config-mac-acl)#

device# show running-config access-list
mac access-list L2

device# show running-config mac access-list L2
mac access-list L2

device# show running-config mac access-list all
mac access-list L2
```

The following example deletes the MAC ACL named L2.

```
device# configure terminal
device(config)# no mac access-list L2
```

## match ip access-list

---

Configures or deletes IPv4 access list (ACL) match criteria assigned to a route-map or listener-policy instance.

### Syntax

```
match ip access-list name  
no match ip access-list name
```

### Parameters

*name*

Specifies the name of the IPv4 ACL to be matched and assigned to the current route map.

### Modes

Route-map config mode

Listener-policy config mode

### Usage Guidelines

If match criteria succeed, the next action is decided by the permit | deny clause of route map:

- If permitted, packet-forwarding behavior is based on the match and set actions.
- If denied, packets are dropped.

If match criteria fail, this command is not applied and packets are evaluated by other route-map clauses.

### Examples

The following example configures IPv4 ACL matching criteria for `ipv4-1` for the route-map instance.

```
device(conf-route-map)# match ip access-list ipv4-1
```

The following example deletes the IPv4 ACL named `ipv4-1` from the current route map.

```
device(conf-route-map)# no match ip access-list ipv4-1
```



## match ipv6 access-list

---

Configures or deletes IPv6 ACL match criteria assigned to a route-map or listener-policy instance.

### Syntax

```
match ipv6 access-list aclname  
no match ipv6 access-list aclname
```

### Parameters

*aclname*

Specifies the name of the IPv6 ACL to be matched and assigned to the current route map.

### Modes

Route-map config mode

Listener-policy config mode

### Usage Guidelines

If match criteria succeed, the next action is decided by the permit | deny clause of route map:

- If permitted, packet-forwarding behavior is based on the match and set actions.
- If denied, packets are dropped.

If match criteria fail, this command is not applied and packets are evaluated by other route-map clauses.

### Examples

The following example configures the IPv6 ACL named `ipv6-1` to be matched for the current route map.

```
device(conf-route-map)# match ip access-list ipv6-1
```

The following example deletes the IPv6 ACL named `ipv6-1` from the current route map.

```
conf-route-map#  
(conf-route-map)# no match ip access-list ipv6-1
```

## match mac access-list

---

Configures or deletes L2/MAC access list (ACL) match criteria for the current route-map or listener-policy instance.

### Syntax

```
match mac access-list aclname  
no match mac access-list aclname
```

### Parameters

*aclname*

Specifies the name of the L2/MAC ACL to be matched and assigned to the current route map.

### Modes

Route-map config mode

Listener-policy config mode

### Usage Guidelines

If match criteria succeed, the next action is decided by the permit | deny clause of route map:

- If permitted, packet-forwarding behavior is based on the match and set actions.
- If denied, packets are dropped.

If match criteria fail, this command is not applied and packets are evaluated by other route-map clauses.

### Examples

The following example configures the L2/MAC ACL named to be matched for the current route map.

```
device(conf-route-map)# match mac access-list mac-1
```

The following example deletes the L2/MAC ACL named from the current route map.

```
device(conf-route-map)# no match mac access-list mac-1
```

## mirror

---

Configures the mirror object to monitor traffic.

### Syntax

```
mirror name  
no mirror name
```

### Parameters

*name*

Specifies the name of the configured mirror object.

The name cannot exceed 64 characters. The name must start with an alphabet character or an underscore. The name must contain alphanumeric characters and special characters (underscores, hyphens, or periods).

### Modes

Config mode

### Usage Guidelines

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

If the `no` form of the command is run with the configuration, all sub-mode configurations are removed automatically.

### Examples

The following example configures the mirror object to monitor traffic.

```
device# configure  
device(config)# mirror mirr_1  
device(config-mirror)#  
  
device# show mirror mirr_1  
      Name : mirr_1  
      Description : -  
      Interface : none
```

---

## mtu

---

Configures the global or interface value for Maximum Transmission Unit (MTU).

### Syntax

```
mtu value
```

```
no mtu value
```

### Parameters

*value*

Specifies MTU value of an interface. Valid range is 1500 through 9216. Default MTU value is 9216.

### Modes

Interface config mode

### Usage Guidelines

The MTU configured in the specified interface overrides the global MTU.

The **no** form of the command sets the MTU to the default value, 9216.

This command is available only to users with the admin role.

Running this command causes changes that trigger port flap. As a best practice, run this command during a maintenance window to avoid service disruptions.

### Examples

The following examples show how to configure global and interface MTU value.

```
device# configure terminal
device(config)# mtu 4000

device# configure terminal
device(config)# interface ethernet 1/10
device(config-if-eth 1/10)# mtu 4000

device# show running interface ethernet 1/10
interface ethernet 1/10
mtu 4000
shutdown
```

## new-scope

---

Configures scope shift for the current tunnel of the received packet.

### Syntax

**new-scope**

**no new-scope**

### Modes

Route-map config mode

### Usage Guidelines

The **no** form of the command disables scope shift for the route-map.

When scope shift is enabled, the packet headers are not decapsulated. The scope of the header is shifted to inner headers in the packet. Further blocks in the packet processing pipeline start using inner headers of the packet.

### Examples

The following example configures scope shift for the route-map.

```
device(conf)# route-map rmap1 10

device(conf-route-map)# new-scope
device(config-route-map)# do show route-map all
route-map rmap1 10
forward-action deny
decap
new-scope
Policy matches: 0 packets, 0 bytes, 0 Packets/sec, 0 Bits/sec
```

## ntp

---

Enables and configures Network Time Protocol (NTP).

### Syntax

**ntp enable**

**ntp server** [ *ip address* | *domain name* ]

**ntp peer** [ *ip address* | *domain name* ]

**no ntp enable**

**no ntp server** [ *ip address* | *domain name* ]

**no ntp peer** [ *ip address* | *domain name* ]

### Command Default

NTP is disabled by default.

### Parameters

#### **enable**

Enables the NTP feature.

#### *domain name*

Specifies the domain name.

#### *ip address*

Specifies the IPv4 or IPv6 address.

#### **peer**

Specifies the NTP peer.

#### **server**

Specifies the NTP server. The maximum number of NTP servers is eight.

### Modes

Config mode

### Usage Guidelines

Both IPv4 and IPv6 addresses are supported.

This command is available only to users with the admin role.

NTP is disabled by default. You must enable it explicitly when configuring NTP servers and peers.

The `no ntp enable` command disables the NTP feature.

The `no ntp server` command deletes the NTP server.

The `no ntp peer` command disables the NTP peer.

## Examples

The following example disables NTP.

```
device# configure terminal
device(config)# no ntp enable
```

The following example deletes the NTP server from the system.

```
device# configure terminal
device(config)# no ntp server 1.1.1.1
```

The following example deletes the NTP peer from the system.

```
device# configure terminal
device(config)# no ntp peer 1.1.1.1
```

## ping

Sends ICMP echo requests to the specified IP or host.

### Syntax

```
ping [ [ A.B.C.D | NAME ] | [ ipv6 [ IPADDR | NAME ] ] [ count 1-1000 |  
      datagram-size 64-9000 | quiet | timeout 1-60 ]
```

### Parameters

*A.B.C.D*

Specifies the destination IPv4 address.

*IPADDR*

Specifies the destination IPv6 address.

*NAME*

Specifies the destination host name.

**count** *1-1000*

Specifies the number of attempts to ping the host. The range is 1-1000, default is 5.

**datagram-size** *18-9000*

Specifies the size of the ping frame. The range is 64-9000, default is 64 bytes.

**quiet**

Specifies that there is no output except the start-up and finishing line.

**timeout**

Specifies the timeout value in seconds. The range is 1-60. The default is 5 seconds.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is also supported on gNOI.

### Examples

The following example shows how to use the ping command.

```
device# ping 10.20.73.129 count 3 datagram-size 1000 timeout 2  
  
PING 10.20.73.129 (10.20.73.129) 1000(1028) bytes of data.  
1008 bytes from 10.20.73.129: icmp_seq=1 ttl=63 time=1.91 ms  
1008 bytes from 10.20.73.129: icmp_seq=2 ttl=63 time=0.684 ms  
1008 bytes from 10.20.73.129: icmp_seq=3 ttl=63 time=0.592 ms
```



```
--- 10.20.73.129 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2013ms
rtt min/avg/max/mdev = 0.592/1.064/1.916/0.603 ms

device# ping www.google.com
PING www.google.com (172.217.165.132) 64(92) bytes of data.
72 bytes from 172.217.165.132 (172.217.165.132): icmp_seq=1 ttl=107 time=66.4 ms
72 bytes from 172.217.165.132 (172.217.165.132): icmp_seq=2 ttl=107 time=66.4 ms
72 bytes from 172.217.165.132 (172.217.165.132): icmp_seq=3 ttl=107 time=66.4 ms
72 bytes from 172.217.165.132 (172.217.165.132): icmp_seq=4 ttl=107 time=66.4 ms
72 bytes from 172.217.165.132 (172.217.165.132): icmp_seq=5 ttl=107 time=66.5 ms

--- www.google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 66.469/66.488/66.502/0.010 ms

device# ping -6 www.google.com
PING www.google.com(sfo03s01-in-x04.1e100.net) 56 data bytes
64 bytes from sfo03s01-in-x04.1e100.net: icmp_seq=1 ttl=121 time=1.44 ms
64 bytes from sfo03s01-in-x04.1e100.net: icmp_seq=2 ttl=121 time=1.51 ms
64 bytes from sfo03s01-in-x04.1e100.net: icmp_seq=3 ttl=121 time=1.52 ms
64 bytes from sfo03s01-in-x04.1e100.net: icmp_seq=4 ttl=121 time=1.54 ms
64 bytes from sfo03s01-in-x04.1e100.net: icmp_seq=5 ttl=121 time=1.51 ms

--- www.google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 1.446/1.510/1.545/0.041 ms
```

## precedence

---

Configures or deletes precedence for the specified interface or port channel. Precedence indicates the priority given to a port or port channel. The lower the number, the higher the priority.

### Syntax

```
precedence number interface [ ethernet IFNAME | port-channel 1-255 ]  
no precedence number
```

### Parameters

**precedence** *number*

Specifies the precedence value. The valid range is 1 through 65535.

**interface**

Specifies the interface type.

**ethernet** *IFNAME*

Specifies the Ethernet interface name.

**port-channel** *1-255*

Specifies the port channel. The valid range is 1 through 255.

### Modes

Egress config mode

### Usage Guidelines

A valid interface for the platform must be provided.

The `no` version of the command deletes the interface from the egress instance.

If the interface is a port-channel, the load-balance method configured in other egress-objects that co-exist in the same egress-group must match the new load-balance setting.

If there is a conflict in load-balance setting with other egress objects:

1. Remove the port-channels from other egress objects co-existing in egress-groups.
2. Configure the new load-balance method in all port-channels that co-exist in egress-groups with the current port-channel.
3. Add the port-channels back to egress objects with the original configuration.

### Examples

The following example configures the egress object, egress-123 at precedence 10 and 20.

```
device (conf)# egress egress-123  
device(conf-egress)# precedence 10 interface ethernet 2/10
```

```
Show running:
egress egress-123
precedence 10 interface ethernet 2/10
```

The following example shows how to resolve a conflicting load-balance type setting.

```
device(config)# do show egress-group egg1

  Name : egg1
    egress : eg1
    egress : eg2
device(config)# egress eg2
device(config-egress)# precedence 20 interface port-channel 2
Error: all egress objects present in group should have same loadbalance type.
eg1 has type SRC_DST_IP_L4_PORT in group egg1
device(config-egress)#

device(config)# egress eg1
device(config-egress)# no precedence 10
device(config-egress)# exit
device(config)#
device(config)# interface port-channel 1
device(config-if-po-1)# load-balance src-dst-ip-l4port-tid
device(config-if-po-1)# exit
device(config)#
device(config)# egress eg1
device(config-egress)# precedence 10 interface port-channel 1
device(config-egress)# exit

device(config)# egress eg2
device(config-egress)# precedence 20 interface port-channel 2
device(config-egress)#
device(config-egress)# exit
```

## port

---

Configures the port number of the Remote syslog server (Rsyslog).

### Syntax

```
port [ 514-530 ]
```

### Parameters

```
port 514-530
```

Specifies port numbers between 514-530.

### Modes

Host configuration mode

### Examples

The following example configures the port number of the Remote syslog server.

```
device(config-logging-host-H1)# port 514  
Warning: Existing Host configuration changed
```

## **NEW!** protocol lacp

---

Enables the link aggregation control protocol (LACP) globally.

### Syntax

```
protocol lacp  
no protocol lacp
```

### Parameters

```
lacp  
Enables or disables LACP.
```

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

After enabling LACP globally, there is no need to run LACP on all LAGs on the switch. You can enable LACP on each channel mode using the `channel-group mode` command.

The **no feature lacp** command disables LACP globally.

### Examples

The following example enables LACP globally.

```
device# configure terminal  
device(config)# protocol lacp  
  
device# show running-configuration  
protocol lacp  
hardware  
  connector 1/8  
  breakout 4x10g  
  connector 2/8  
  breakout 4x10g  
interface ethernet 1/1  
  shutdown
```

## **NEW!** protocol lldp

---

Represents system level state of the LLDP protocol and enables LLDP globally.

### Syntax

```
protocol lldp  
no protocol lldp
```

### Parameters

**lldp**  
Enables or disables LLDP.

### Modes

Config mode

### Usage Guidelines

The `no protocol lldp` command disables LLDP globally.

### Examples

The following example enables LLDP globally and then disables globally.

```
device# configure terminal  
  
device(config)# protocol lldp  
  
device(config)# no protocol lldp  
  
device# show running-configuration  
no protocol lldp
```

**NEW!** qos

Sets the device to Quality of Service (QoS) configuration.

### Syntax

**qos**

### Modes

Config mode

QoS config mode

### Usage Guidelines

Only admin users can perform this procedure.

This command is allowed in Config mode only.

When executed, Config mode puts the system in the QoS config mode.

### Examples

The following example sets the device into QoS config mode.

```
device(config)# qos
device(config-qos)#
```

## **NEW!** qos-forwarding-group

---

Configures a Quality of Service (QoS) forwarding group for matched packets.

### Syntax

```
qos-forwarding-group group-name  
no qos-forwarding-group
```

### Parameters

*group-name*

The group name of the QoS forwarding group.

```
no qos-forwarding-group
```

Negates the command.

### Modes

Config mode

Route-map config mode

### Examples

The following example configures a route-map, named **map1 1**, to contain a QoS forwarding group name of **FG1**.

```
device(Config)# qos  
device(config-qos)# forwarding-group FG1
```



**NEW!** **queue**

Creates a Quality of Service (QoS) queue.

## Syntax

**queue** *queue-name*

**no queue** *queue-name*

## Parameters

*queue-name*

Specifies the QoS queue name in the format q0 (default) through q7. The highest queue priority is q7 and q0 is the lowest queue priority.

## Modes

Config mode

QoS config mode

QoS forwarding group config mode

## Usage Guidelines

The **no queue** command resets the queue name to the default value, q0.

## Examples

The following example resets to the default value, q0.

```
(config)# no queue
```

The following example assigns the queue as q1.

```
device(config-qos-group)# queue q1
```

## route-map

---

Configures a route-map instance that dictates the packet forwarding behavior based on the match and set actions for ingress ACLs.

### Syntax

```
route-map name sequence_number
```

```
no route-map { name sequence_number } | all
```

### Parameters

*name*

Specifies the name of the route-map to be used for packet forwarding as part of this ingress group. Valid range is 1 through 64.

The name must start with an alphabet character or an underscore character, followed by alphanumeric characters or special characters (underscores, hyphens, or periods).

*sequence\_number*

Assigns sequence number to the route-map instance. This defines the order of route-map instances within a route-map. Valid range is 1 through 65535.

**all**

Specifies all route-maps when using the **no** form of this command.

### Modes

Config mode

### Usage Guidelines

Two route-map instances cannot have the same sequence-number.

Any attempts to remove an unconfigured route-map are ignored.

The **no route-map name** command deletes a route-map and **no route-map [name] [sequence-number]** command deletes the route-map with the specified sequence number.

The following reserved keywords cannot be used as name identifiers: **all**, **ingress-group**, **egress**, **egress-group**, **match**, **list**, **access-list**, **route-map**, and **listener-policy**.

### Examples

The following examples show how to configure a route-map named `rmap1` with the sequence number 10.

```
device# configure terminal
device(config)# route-map rmap1 10
device(config-route-map)# match mac access-list mac_acl1
device(config-route-map)# match ip access-list ipv4_acl1
```

```
device(config-route-map)# match ipv6 access-list ipv6_acl1
device(config-route-map)# set egress-group eg200

device# show route-map all
route-map rml 1
forward-action permit
match ip access-list acl4 (active)
match mac access-list acl2 (pending)
egress-group egl
Policy matches: 0 packets, 0 bytes, 0 Packet/sec, 0 Bits/sec
```

The following examples delete a route map and a route map with a sequence number.

```
device# configure terminal
device(config)# no route-map rml
device(config)# no route-map rmap1 10
```

## seq (ip access-list rules)

Inserts or removes filtering rules in IPv4 access control lists (ACLs).

### Syntax

```
seq { 1-65535 } [ permit | deny ] [ tcp | udp | icmp | igmp | ip | esp |
  1-254 ] | [ vxlan | nvgre | gre | ipip | gtpc | gtpu ]
  { 1-4294967295 } [ src-ip | prefix-length | src-ip src-mask ] [ dst-
  ip | prefix-length | dst-ip dst-mask ] { sport 1-65535 } { dport
  1-65535 } { sport-end 1-65535 } { dport-end 1-65535 } { dscp 1-63 }
  { length 64-9000 | length-end 65-9000 } { push } { sync } { ack }
  { fin } { urg } { cwr } { ece } { reset } {{ { morefragment |
  dontfragment }} } { vlan 0-4095 } { count } { log } { qos-forwarding-
  group group-name }
```

```
no seq ID
```

### Parameters

**seq** *ID*

Specifies the sequence ID for the rule. This parameter is optional. Valid values range from 1 through 65535 and the value must be unique within the selected IP ACL. If the value is not specified, a non-assigned value starting from 10 with an increment of 10 is assigned.

**permit | deny**

Specifies the forwarding action for the matching traffic.

**tcp|udp | icmp | igmp | ip | esp**

Specifies the numerical protocol type of the traffic for non-tunneled packets.

*number*

Specifies the custom protocol number to be matched. Valid values range from 1 through 254.

**push | sync | ack | fin | urg | cwr | ece | reset**

Specifies the TCP protocol configuration. (Valid for only the TCP protocol.)

**vxlan | nvgre | gre | ipip | gtpc | gtpu**

Specifies the tunnel types supported for tunneled traffic.

For tunnel types, IP address and masks are mapped to the outer header. Valid values range from 1 through 4294967295.

- VXLAN and NVGRE tunnels allow VNID or VSID values in the range of 1 through 16777215.
- GTP-U and GTP-C tunnels allow tunnel ID values in the range of 1 through 4294967295.

**src-ip | prefix-length | src-mask | dst-ip | prefix-length | dst-mask**

Specifies the source IP address, the source IP mask, the destination IP address, and destination IP address mask of the traffic.

IP addresses and masks display in a dot-separated, decimal format.

Instead of using the IP address mask, the subnet prefix length can be specified with the source IP address and the destination IP address keywords.

**length | length-end**

Specifies the length of the IPv4 packets. The valid value range is 64 through 9000.

The length range, and length end parameters are provided to match based on range. Valid ranges are from 65 through 9000.

When specifying range, the length value is mandatory.

Specifying length end alone is not valid. Length must be less than the length end.

**sport | sport-end**

Specifies the sport source port value. The valid value range is 1 through 65535.

The source port range and parameters are provided to match on range.

When specifying range, the source port value is mandatory.

Specifying source port end alone is not valid.

The source port value must be less than the source port end.

**dport | dport-end**

Specifies the destination port and the destination port end. Valid values range from 1 through 65535.

When specifying a match based on the range, destination port range, and destination port parameters are provided.

When specifying range, the destination port value is mandatory.

Specifying destination end alone is not valid.

The destination port value must be less than the destination port end.

**count**

Enables counters for the rule.

**log**

Enables the system log (syslog) for the rule.

**dscp**

Specifies the type of service field for IPv4 protocol. The valid value ranges are through 1 to 63.

**vlan *vlan-ID***

Specifies the VLAN ID. The valid values ranges are from 0 to 4095.

**morefragment | dontfragment**

Specifies the fragment parameters.

**qos-forwarding-group *group-name***

Specifies the name of the Quality of Service (QoS) forwarding group.

## Modes

IP ACL config mode

## Usage Guidelines

GRE tunnel-type:

- Version-1 packets are not filtered with this setting.
- Version-0 packets are filtered successfully with this setting when checksum, key, or sequence number are not configured.

GTP-U tunnel type:

- Packets with outer IP and UDP port settings (ACL configured with the IP address and the combination of source port and destination port) are not forwarded to the egress.

The IPv4 address and IPv4 mask must be configured in dotted-decimal notation.

Duplicate ACL rules are not allowed.

Conflicting ACL rules (rules with same match condition and different forwarding action) are not allowed.

The following specified length limitation applies to the specified port end and destination port end range length configuration.



### Important

If you configure an IPv4 or an IPv6 ACL rule to match a specific IP length and also configure an IPv4 or IPv6 ACL with an overlapping IP length range, then the rule with specific length will not work.

**IPvn rules configured with specified lengths that overlap IPvn length-range configurations fail silently.**

Example 1. The IPv6 ACL rule in this example will not work because the rule with a specific length (**bold font**) overlaps the configured IP ACL range from 100 through 200. The rule with the overlapping specified length fails silently.

```
ip access-list v4acl
 seq 10 permit ip any 1.0.0.1 255.255.255.0 length 100 length-end 200

ipv6 access-list v6acl
 seq 10 permit ipv6 any bbbb::bbbb ffff::ffff length 150
```

Example 2. The IPv6 ACL rule (**bold font**) in this example will not work because the rule with a specific length overlaps the range from 100 through 200. The rule with the overlapping specified length fails silently.

```
ipv6 access-list v6acl
 seq 10 permit ipv6 any aaaa::aaaa ffff::ffff length 100 length-end 200
 seq 20 permit ipv6 any bbbb::bbbb ffff::ffff length 150
```

Example 3. This IPv6 ACL rule example will not work because in this configuration, because the rule with a specific length (**bold font**) overlaps the range from 100 through 200. The rule with the overlapping specified length fails silently.

```
ipv6 access-list v6acl-1
 seq 10 permit ipv6 any aaaa::aaaa ffff::ffff length 100 length-end 200

ipv6 access-list v6acl-2
 seq 10 permit ipv6 any bbbb::bbbb ffff::ffff length 150
```

## Examples

The following example configures **seq 1** for IP access list P4.

```
device# configure terminal
device(config)#ip access-list P4
device(config-ip-acl)# seq 1 permit udp
1.1.1.1 255.0.0.0 2.2.2.2 255.0.0.0 dontfragment

device# show running-config access-list
ip access-list ip-acl
  seq 20 permit ip 10.0.0.1 255.0.0.0 20.0.0.2 255.0.0.0

device# show running-config ip access-list ip-acl
ip access-list ip-acl
  seq 20 permit ip 10.0.0.1 255.0.0.0 20.0.0.2 255.0.0.0

device# show running-config ip access-list all
ip access-list ip-acl
  seq 20 permit ip 10.0.0.1 255.0.0.0 20.0.0.2 255.0.0.0
```

The following example deletes **seq 1**.

```
device(config-mac-acl)# no seq 1
```

## seq (ipv6 access-list rules)

Inserts filtering rules in IPv6 access lists (ACLs).

### Syntax

```
seq { 1-65535 } [ permit | deny ] [ tcp | udp | icmpv6 | igmpv6 | ipv6 |
  esp | 1-254 ] | [ vxlan | nvgre | gre | ipip | gtpc | gtpu ]
  { 1-4294967295 } [ src-ip | prefix-length | src-ip src-mask ] [ dst-
  ip | prefix-length | dst-ip dst-mask ] { sport 1-65535 } { dport
  1-65535 } { sport-end 1-65535 } { dport-end 1-65535 } { dscp 1-63 }
  { length 64-9000 | length-end 65-9000 } { push } { sync } { ack }
  { fin } { urg } { cwr } { ece } { reset } {{ morefragment |
  dontfragment }} { vlan 0-4095 } { count } { log } { qos-forwarding-
  group group-name }
```

```
no seq ID
```

### Parameters

**seq** *ID*

Specifies the sequence ID for the rule. This parameter is mandatory. Valid values range from 1 through 65535, and the value must be unique within the selected IP ACL.

If the value is not specified, a non-assigned value starting from 10 with an increment of 10 is assigned.

**permit** | **deny**

Specifies the forwarding action for the matching traffic.

**tcp** | **udp** | **icmpv6** | **igmpv6** | **ipv6** | **esp** | *protocol-number*

Specifies the protocol type of the traffic for non-tunneled packets.

Valid values range from 1 through 254.

**vxlan** | **nvgre** | **gre** | **ipip** | **gtpc** | **gtpu**

Specifies the tunnel types supported for tunneled traffic. For tunnel types IP address and masks are mapped to the outer header.

VNI and TEID are configured for the VXLAN and GTP-U tunnels, respectively. Valid values range from 1 through 4294967295.

- VXLAN and NVGRE tunnels allow VNID and VSID values in the range of 1 through 16777215.
- GTP-U and GTP-C tunnels allow tunnel ID values in the range of 1 through 4294967295.

**src-ip** | **prefix-length** | **src-mask** | **dst-ip** | **prefix-length** | **dst-mask**

Specifies the source IP address, source mask, destination IP address, and destination mask of the traffic.

IP addresses and IP masks display in hexadecimal format.

Instead of subnet mask, the subnet prefix length also can be specified.

**sport** | **sport-end**



Specifies the source port value. The valid values range is from 1 through 65535.

Provides matching based on sport range and sport range end parameters.

When specifying a range, source port value is mandatory.

Specifying the source port end value alone is not valid.

The source port value must be less than the sport port end.

**dport | dport-end**

Specifies the destination port. The valid values range is from 1 through 65535.

To match based on range, use the provided destination port value and the destination port end parameters.

The destination port value must be less than the destination port end value.

**dscp**

Specifies the type of service field for the IPv6 protocol. The valid values range is from 1 through 63.

**length | length-end**

Specifies the length of the IPv6 packets. The valid values range is from 64 to 9000.

To match based on length range, use the provided length and length-end parameters. The valid values range is from 65 through 9000.

When specifying range, length value is mandatory.

Specifying length-end alone is not valid.

Length must be less than the length-end.

**push | sync | ack | cwr | ece | reset | fin | urg**

Specifies the TCP protocol configuration.

**vlan** *vlan-id*

Specifies the VLAN ID. The valid values range is 0 through 4095.

**morefragment | dontfragment**

Specifies the fragment parameters.

**count**

Enables counters for the rule.

**log**

Enables the system log (syslog) for the rule.

**qos-forwarding-group** *group-name*

Specifies the name of a Quality of Service (QoS) forwarding group.

## Modes

IP ACL config mode

## Usage Guidelines

GRE tunnel-type:

- Version-1 packets are not filtered with this setting.
- Version-0 packets are filtered successfully with this setting.

The following specified length limitation applies to the `sport-end` and `dport-end` range length configuration.



### Important

If you configure an IPv4 or IPv6 ACL rule to match a specific IP length and also configure an IPv4 or IPv6 ACL with an overlapping IP length range, then the rule with specific length will not work.

**IPvn rules configured with specified lengths that overlap IPvn length-range configurations fail silently.**

Example 1. The IPv6 ACL rule in this example will not work because the rule with a specific length (**bold font**) overlaps the configured IP ACL range from 100 through 200. The rule with the overlapping specified length fails silently.

```
ip access-list v4acl
  seq 10 permit ip any 1.0.0.1 255.255.255.0 length 100 length-end 200

ipv6 access-list v6acl
  seq 10 permit ipv6 any bbbb::bbbb ffff::ffff length 150
```

Example 2. The IPv6 ACL rule (**bold font**) in this example will not work because the rule with a specific length overlaps the range from 100 through 200. The rule with the overlapping specified length fails silently.

```
ipv6 access-list v6acl
  seq 10 permit ipv6 any aaaa::aaaa ffff::ffff length 100 length-end 200
  seq 20 permit ipv6 any bbbb::bbbb ffff::ffff length 150
```

Example 3. This IPv6 ACL rule example will not work because in this configuration, because the rule with a specific length (**bold font**) overlaps the range from 100 through 200. The rule with the overlapping specified length fails silently.

```
ipv6 access-list v6acl-1
  seq 10 permit ipv6 any aaaa::aaaa ffff::ffff length 100 length-end 200

ipv6 access-list v6acl-2
  seq 10 permit ipv6 any bbbb::bbbb ffff::ffff length 150
```

Duplicate ACL rules are not allowed.

Conflicting ACL rules, rules with same match condition and different forwarding action are not allowed.

## Examples

The following example configures an IPv6 ACL.

```
device# configure terminal
device(config)#ipv6 access-list ip6-acl
device(config-ip6-acl)# seq 1 permit 2000::1 FFFF::1 any any count log

device# show running-config access-list
ipv6 access-list ip6-acl
  seq 10 permit ipv6 2001::1 2001::0 2002::2 2002::0
```

```
device# show running-config ipv6 access-list all
ipv6 access-list ip6-acl
  seq 10 permit ipv6 2001::1 2001::0 2002::2 2002::0

device# show running-config ipv6 access-list all
ipv6 access-list ip6-acl
  seq 10 permit ipv6 2001::1 2001::0 2002::2 2002::0
```

## seq (mac access-list rules)

Inserts filtering rules in L2 (MAC) access control lists (ACL) to permit or deny traffic based on matching L2 protocols fields.

### Syntax

```
seq ID [ permit | deny ] { vxlan | gre | nvgre | gtpu | ipip } { src-mac |
  src-mask | dst-mac | dst-mask } { vlan | etype | pcp | count | log }
  { qos-forwarding-group group-name }

no seq ID
```

### Parameters

**seq** *ID*

Specifies the sequence ID for the rule. This parameter is mandatory. Valid values range from 1 through 65535. If the value is not specified, a non-assigned value starting from 10 with an increment of 10 is assigned.

**permit** | **deny**

Specifies the forwarding action for the matching traffic.

**vxlan** | **gre** | **nvgre** | **gtpu** | **ipip**

Specifies the optional parameters provided to support different tunnel types.

For VXLAN or GTP-U tunnel types, VNI or TEID or TEID can be configured.

The tunnel ID parameter can be supplied for only VXLAN, GTP-U, and GTP-C protocols, and there is no CLI token for this parameter.

- Valid range for VXLAN is 1 through 16777215
- Valid range for GTP-U is 1 through 4294967295
- Valid range for GTP-C is 1 through 429496729

*src-mac*

Specifies the source MAC address. There is no explicit keyword. MAC addresses are represented by a colon-separated, one-byte hexadecimal format. Zero padding must be used to make one-byte data into 2-digit value. For example, supply the MAC address 2:2:2:2:2:2 as 02:02:02:02:02:02.

*src-mask*

Specifies the mask for the configured *src-mac*. To opt out of *src-mask*, use *any* instead of *src-mac*. There is no explicit keyword. MAC addresses are represented by a colon-separated, one-byte hexadecimal format. Zero padding must be used to make one-byte data into 2-digit value. For example, supply the MAC address 2:2:2:2:2:2 as 02:02:02:02:02:02.

*dst-mac*

Specifies the destination MAC address. There is no explicit keyword. MAC addresses are represented by a colon-separated, one-byte hexadecimal format. Zero padding must be used to make one-byte data into 2-digit value. For example, supply the MAC address 2:2:2:2:2:2 as 02:02:02:02:02:02.

***dst-mask***

Specifies the destination MAC mask.

To opt out of using destination MAC address and destination mask, use *any* instead.

MAC addresses are represented by colon-separated, one-byte hexadecimal format. Zero padding must be used to make one-byte data into 2-digit value. For example, supply the MAC address 2:2:2:2:2:2 as 02:02:02:02:02:02.

There is no explicit keyword.

**vlan-tag**

Specifies the value of VLAN tag. Valid values range is from 1 to 4095. This is an optional parameter.

**etype**

Specifies the value of either type given in hexadecimal format. Valid values range from 0x01 to 0xFFFF, (**excluding 0x8100**). Alternatively, select one the following protocol names, ARP, IPv4, and IPv6. This is an optional parameter.

**pcp**

Specifies the traffic class mapped to the outgoing PCP value when a packet egresses the switch. Valid values range is from 0 through 7.

**count**

Enables counter for the current rule.

**log**

Enables logging for the current rule.

**qos-forwarding-group** *group-name*

Specifies the name for a Quality of Service (QoS) forwarding group.

## Modes

IP ACL config mode

## Usage Guidelines

GRE tunnel-type:

- Version-1 packets are not filtered with this setting.
- Version-0 packets are filtered successfully with this setting.

GTP-U tunnel type:

- Packets with outer IP and UDP port settings (ACL configured with *ip address* and *sport/dport* combination) are not forwarded to the egress.

This command configures rules to permit or drop traffic based on MAC address source and destination.

The order of the rules in an ACL is critical. The first matching rule stops further processing. When creating rules, specifying sequence values determines the order of rule processing. If the sequence value is not specified, the rule is added to the end of the list.

To delete a rule from an ACL:

- If you know the rule number, enter **no seq seq-value**.
- If you do not know the rule number, enter **no** and then enter the full syntax without the sequence value.

Duplicate ACL rules are not allowed.

Conflicting ACL rules, rules with same match condition and different forwarding action are not allowed.

The **no** form of the command removes the MAC ACL rule entry that matches the supplied sequence id within the current MAC ACL context.

## Examples

The following example configures MAC ACL I2.

```
device# configure terminal
device(config)# mac access-list L2
device(config-mac-acl)# seq 1 permit 01:23:45:67:89:ab FF:FF:FF:FF:FF:FF
01:23:41:67:89:ac FF:FF:FF:FF:FF:00
```

The following example verifies that the MAC ACL was configured.

```
device(config-mac-acl)# show running-config access-list
mac access-list L2
  seq 10 permit 02:02:02:02:02:02 02:02:02:02:02:02
02:02:02:02:02:03 02:02:02:02:02:03

device# show running-config mac access-list all
mac access-list L2
  seq 10 permit 02:02:02:02:02:02 02:02:02:02:02:02
02:02:02:02:02:03 02:02:02:02:02:03
```

## set egress

---

Sets the egress to be used by an egress group.

### Syntax

```
set egress name
```

```
no set egress name
```

### Parameters

*name*

Specifies the name of the configured egress. Supports 1-64 characters.

The name must start with an alphabet character or an underscore character, followed by alphanumeric characters or special characters (underscores, hyphens, or periods).

### Modes

Egress-group config mode

### Usage Guidelines

This command is available only to users with the admin role.

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

If the new egress object contains port-channel, the load-balance method of that port-channel must match the load-balance method configured in other egress-objects of the group.

If there is a conflict in load-balance setting with other egress objects:

1. Remove the port-channels from other egress objects co-existing in egress-groups.
2. Configure the same load-balance method in all port-channels that exist in egress-groups and the new egress object.
3. Add the port-channels to the existing egress objects in egress-groups.
4. Add the new egress object to the group.

### Examples

The following example binds an egress to an egress group.

```
device# configure terminal
device(config)# egress-group egl
device(config-egress-group)# set egress egress_1

device# show running-config egress-group
egress-group egl
    set egress egress_1
```

The following example unbinds an egress from an egress group.

```
device# configure terminal
device(config)# egress-group eg1
device(config-egress-group)# no set egress egress_1
```

The following example shows how to resolve a conflicting load-balance type setting.

```
device(config)# egress-group egg1
device(config-egress-group)#
device(config-egress-group)# set egress eg1
device(config-egress-group)#
device(config-egress-group)# set egress eg2
Error: all egress objects present in group should have same loadbalance type. new
egress(eg2) has conflicting type
device(config-egress-group)#
device(config-egress-group)# exit

device(config)# egress eg1
device(config-egress)# no precedence 10
device(config-egress)# exit
device(config)# interface port-channel 1
device(config-if-po-1)# load-balance src-dst-ip-l4port
device(config-if-po-1)# exit
device(config)#
device(config)# egress-group egg1
device(config-egress-group)# set egress eg2
device(config-egress-group)#
```



## set egress-group

Sets the egress group to be used by the route map for forwarding matched packets.

### Syntax

```
set egress-group name
```

```
no set egress-group name
```

### Parameters

*name*

Specifies the configured egress group to be bound to the route map and used for packet forwarding. Name must not exceed 64 characters and must start with an alphabetic character or an underscore followed by an arbitrary sequence of alphabetic or numeric characters, underscores, hyphens, or dots.

### Modes

Route-map config mode

### Usage Guidelines

This command is available only to users with the admin role.

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

### Examples

The following example configures `egress-group egr1` to be used by the route map for forwarding matched packets.

```
device# configure terminal
device(config)# route-map rmap1 10
device(config-route-map)# set egress-group egr1
device(config-route-map)# end

device# show route-map all
route-map R1 10
forward-action permit
match ip access-list test_1 (active)
egress-group eg_1
Policy matches: 0 packets, 0 bytes, 0 PacketRate, 0 BitRate
```

The following example sets the egress for the `egress-group` and uses the `show running-config` command to verify the setting.

```
device# configure terminal
device(conf)# egress-group eg-100
device(conf-egress-group)#set egress egress-100
```

```
device# show running-config egress-group
egress-group eg-100
  set egress egress-100
```

The following example unbinds the egress-group egr1 from the route map.

```
device# configure terminal
device(config)# route-map rmap1 10
device(config-egress-group)# no set egress-group egr1
```

## set encap

---

Sets tunnel encapsulation for an egress.

### Syntax

```
set encap name  
no set encap name
```

### Parameters

*name*

Specifies the configured encap to be bound to the egress ro tunnel termination.

### Modes

Config mode

### Usage Guidelines

Tunnel encap must be configured before binding an encap with an egress.

### Examples

The following example configures encap en1 to be used by egress\_1 for encapsulation and uses the show command to verify the setting.

```
device# configure terminal  
device(config)# egress egress_1  
device(config-egress)# set encap en1  
device(config-egress)# end  
  
device# show egress all  
egress egress_1  
    set encap en1
```

The following example unbinds the encap en1 from egress\_1.

```
device# configure terminal  
device(config)# egress egress_1  
device(config-egress)# no set encap en1
```

## set ingress-group

---

Sets the ingress group to be used by the an interface or transport tunnel for forwarding matched packets.

### Syntax

```
set ingress-group name
```

```
no set ingress-group name
```

### Parameters

*name*

Specifies the configured ingress group. Supports 64 characters.

The name must start with an alphabet character or an underscore character, followed by alphanumeric characters or special characters (underscores, hyphens, or periods).

### Modes

Interface config mode

Transport tunnel config mode

### Usage Guidelines

This command is available only to users with the admin role.

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

### Examples

The following examples configure ingress-groups for forwarding the matched packets.

```
device# configure terminal
device(config)# interface ethernet 1/1
device(config-if-eth-1/1)# set ingress-group ig1

device# configure terminal
device(config)# transport-tunnel tt1
device(config-transport-tunnel)# set ingress-group ig1

device# show running-config interface ethernet 1/1
interface port-channel 1
  set ingress-group ig1
interface ethernet 1/1
  set ingress-group ig1
transport-tunnel tt1
  set ingress-group ig1
```

The following example unbinds the ingress-group from the transport tunnel.

```
device# configure terminal
device(config)# transport-tunnel tt1
device(config-transport-tunnel)# no set ingress-group ig1
```

## set interface ethernet

---

Configures packet mirroring by specifying the egress port for the monitored traffic.

### Syntax

```
set interface ethernet name  
no set interface ethernet name
```

### Parameters

```
interface ethernet name
```

Specifies the name of the interface for the mirror destination.

### Modes

Config mode

### Usage Guidelines

The name identifier must be a valid interface for the platform.

The name must be in slot/port format.

If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.

### Examples

The following examples show how to configure description for an interface.

```
device# configure terminal  
device(config)#
```

## set listener-policy

---

Sets the listener policy to be used at egress for forwarding matched packets.

### Syntax

```
set listener-policy name
```

```
no set listener-policy name
```

### Parameters

*name*

Specifies the configured listener policy to be applied to matching packets at egress for packet forwarding. Name must not exceed 64 characters and must start with an alphabetic character or an underscore followed by an arbitrary sequence of alphabetic or numeric characters, underscores, hyphens, or dots.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

### Examples

The following example configures listener-policy lp100 to be used by egress\_1 for packet forwarding.

```
device# configure terminal
device(config)# egress egress_1
device(config-egress)# set listener-policy lp100
device(config-egress)# end
device#
```

The following example verifies the configuration for egress\_1.

```
device# show running-config egress egress_1
egress egress_1
    set listener-policy lp100
```

The following example unbinds the listener-policy lp100 from egress\_1.

```
device# configure terminal
device(config)# egress egress_1
device(config-egress)# no set listener-policy lp100
```

## set route-map

---

Sets the route map to be used by an ingress group for forwarding matched packets.

### Syntax

```
set route-map name
```

```
no set route-map name
```

### Parameters

*name*

Specifies the configured route map to be applied to matching packets for an ingress group for packet forwarding. Name must not exceed 64 characters and must start with an alphabetic character or an underscore followed by an arbitrary sequence of alphabetic or numeric characters, underscores, hyphens, or dots.

### Modes

Ingress-group config mode

### Usage Guidelines

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

### Examples

The following example configures route map `rm1` to be used by ingress group `ig1` for packet forwarding.

```
device# configure terminal
device(config)# ingress-group ig1
device(config-ingress-group)# set route-map rm1
device(config-ingress-group)# end
```

The following example uses the `show` command to verify the configuration for ingress group `ig1`.

```
device# show running-config ingress-group ig1
  ingress-group ig1
    set route-map rm1
```

The following example unbinds route map `rm1` from ingress group `ig1`.

```
device# configure terminal
device(config)# ingress-group ig1
device(config-ingress-group)# no set route-map rm1
```



## show

Displays the contents of a flash or USB file.

### Syntax

```
show FLASH-FILE
```

```
show USB-FILE
```

### Parameters

*FLASH-FILE*

Specifies the flash file path in format `flash://flash-type/file-name`.

*USB-FILE*

Specifies the USB file path in format `usb://file-name`.

### Modes

Exec mode

### Examples

The following example shows details of the config-file, test.

```
device# show flash://config-file/test
```

```
interface ethernet 1/1
  shutdown
interface ethernet 1/2
  shutdown
interface ethernet 1/3
  shutdown
interface ethernet 1/4
  shutdown
interface ethernet 1/5
  shutdown
interface ethernet 1/6
  shutdown
interface ethernet 1/7
  shutdown
interface ethernet 1/8
  shutdown
interface ethernet 1/9
  shutdown
```

```
device# show usb://test
interface ethernet 0/1
  shutdown
interface ethernet 0/2
  shutdown
interface ethernet 0/3
  shutdown
interface ethernet 0/4
  shutdown
interface ethernet 0/5
```

```
shutdown
interface ethernet 0/6
shutdown
interface ethernet 0/7
shutdown
interface ethernet 0/8
shutdown
interface ethernet 0/9
shutdown
```

## show acl-config

---

Displays the ACL global configurations.

### Syntax

```
show acl-config
```

### Parameters

**acl-config**

Specifies ACL common configurations.

### Modes

Exec mode

### Examples

The following example displays the ACL global configurations.

```
device (config) # show acl-config
acl-config
  no enable acl-counter
```

---

## show capture packet config

---

Displays all packet capture configurations on Ethernet ports.

### Syntax

```
show capture packet config
```

### Modes

Exec mode

### Examples

The following example shows all packet capture configurations on Ethernet interfaces.

```
device# show capture packet config
All protocol RX capture is enabled on interface Eth 1/2
All protocol RX capture is enabled on interface Eth 1/3
All protocol RX capture is enabled on interface Eth 1/1
All protocol TX capture is enabled on interface Eth 1/1
```

## show capture packet interface

Displays content of the active or latest PCAP file.

### Syntax

```
show capture packet interface [all | ethernet IFNAME ]
```

### Parameters

#### **all**

Specifies interfaces on which packet capture is enabled.

#### **ethernet** *IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

### Modes

Exec mode

### Usage Guidelines

The active PCAP file is updated at an interval of 10 seconds.

This command can decode and display packets with the following headers: ARP, Dot1Q, EAPOL, Ethernet, GTP, ICMP, ICMPv6, IPv4, Ipv6, LACP, LLC, LLDP, TCP, and UDP.

### Examples

The following example shows content of the active PCAP file.

```
device# show capture packet interface all
-----
Frames Logged on interface = All
-----

-----
Pkt Capture Metadata: #1 of 1 Packets
-----
Frame Received Time : Fri, 04 Dec 2020 20:25:02 UTC
Packet Length(bytes) : 64
Packet Direction    : RX
Packet Filter       : All
Front Panel Port    : 1/1
-----
ETHERNET HEADER    :
-----
SrcMAC              : 00:00:11:da:4d:72
DstMAC              : 00:00:00:f0:c9:b9
EtherType           : IPv4 (0x800)
-----
IPv4 HEADER        :
-----
Src IP Address      : 1.0.10.2
```

```
Dst IP Address      : 1.0.10.1
Type of service    : 0
Total Length       : 28 Bytes
Identification     : 0x0
Fragmentation     : 0
TTL               : 64
Protocol           : ICMPv4(1)
IP Checksum       : 0x24df
-----:-----
ICMP DETAILS      :
-----:-----
ICMP Hdr Type     : EchoRequest
ICMP Hdr Code     : 0x0
ICMP Hdr Checksum : 0xf7f7
ICMP ID          : 0x0
ICMP Sequence No : 0x8
-----:-----
--More--
```

## show capture packet pcapfile-info

Displays metadata of packet capture files with the following headers: Ethernet, Dot1Q, IPv4, TCP, UDP, ARP, ICMP, EAPOL, LLC, LLDP, LACP, Ipv6, ICMPv6, GTP.

### Syntax

```
show capture packet pcapfile-info
```

### Parameters

#### **pcapfile-info**

Shows metadata of all packet capture files.

### Modes

Exec mode

### Examples

The following example shows metadata of all packet capture files.

```
NPB# show capture packet pcapfile-info
-----
PCAP File(s)  Details:
-----
Pcap  File Name : pktcapture_1.pcapng
Last Modified  : Fri Dec  4 11:54:08 2020 (UTC +0000)
PcapFile Size  : 0.48 KB
Packet Count   : 2

Pcap  File Name : pktcapture_2.pcapng
Last Modified  : Fri Dec  4 17:16:37 2020 (UTC +0000)
PcapFile Size  : 2.4 KB
Packet Count   : 10
-----
```

## show inventory

Displays the inventory detail for slot cards, power supply units, or both that are currently in use and whose status is UP.

### Syntax

```
show inventory { slot | power-supply | all }
```

### Parameters

#### **slot**

Specifies show inventory detail for slot cards.

#### **power-supply**

Specifies show inventory detail for power-supply units.

#### **all**

Specifies show inventory detail for all slot and power-supply units.

### Modes

Exec mode

### Examples

The following example displays inventory details for all slot cards.

```
device# show inventory slot
  Module      : Slot-1
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10036
  Version     : 4
Manufacturer  : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-2
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10035
  Version     : 4
Manufacturer  : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-3
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10034
  Version     : 4
Manufacturer  : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15
```



The following example shows all inventory detail for power supply units.

```
device# show inventory power-supply
  Module      : PSU-0
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40007
  Version     : S0F

  Module      : PSU-1
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40014
  Version     : S0F
```

The following example shows inventory detail for all cards and power supplies.

```
device# show inventory all
  Module      : Slot-1
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10036
  Version     : 4
  Manufacturer : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-2
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10035
  Version     : 4
  Manufacturer : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-3
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10034
  Version     : 4
  Manufacturer : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : PSU-0
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40007
  Version     : S0F

  Module      : PSU-1
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40014
  Version     : S0F
```

## show chassis

---

Displays the status for components in the device.

### Syntax

```
show chassis
```

### Modes

Exec mode

### Examples

The following example displays Extreme 9920 chassis information.

```
NPB# show chassis
  PlatformName: x86_64-extremenetworks-chassis-9920
  Product Name: Extreme 9920-NPB-8
  FPGA Version: v2.12
  Hardware Rev: Beta
  ManufactureDate: 01/12/2021 00:30:00
  Manufacturer: Extreme Networks, Inc.
    PartNumber: 801103-00-04
    SerialNumber: AE012102Y-10006
    Vendor: Extreme Networks Inc.
    description: Extreme 9920-NPB-8, 4.14.49-OpenNetworkLinux, Version
NGNPB_v0.6.0-20210302_150946.UTC
  Status: Online
  Reboot Reason: None
  System Contact: jnixon@extremenetworks.com
  System Location: SJ_HQ2:EK20:U27
  System Uptime: 15m34s
    Mac: 40:88:2f:c1:18:00
    MacRange: 1024
    LC Slots: 8
    Fan Count: 5
    Led Count: 4
    PSU Count: 4
    Sensor Count: 27
```

## show clock

---

Displays the current time.

### Syntax

```
show clock
```

### Parameters

**clock**

Specifies the system clock.

### Modes

Exec mode

### Examples

The following example shows current time.

```
device# show clock  
  
2020-11-18 10:24:01 UTC +0000
```

## show counters egress

---

Displays egress counters information for the specified egress.

### Syntax

```
show counters egress name
```

### Parameters

*name*

Specifies the name of the egress for counter show. The egress name supports 1 through 32 characters. Characters allowed are alpha-numeric, underscore, and dot. Underscore is not allowed as the first character.

### Modes

Exec mode

### Usage Guidelines

Valid egress-name must be provided.

The `clear counters egress` command can be used to clear egress counters.

### Examples

The following example shows egress statistics for egr1.

```
device# show counters egress egr1
Egress-group Packet Statistics
  TX Frames : 10
  TX Bytes  : 1430
```

The following example shows egress statistics for all egresses.

```
device# show counters egress all
Egress Packet Statistics : ep_eg01_01
  TX Frames : 250000000
  TX Bytes  : 130000000000

Egress Packet Statistics : ep_eg01_02
  TX Frames : 250000000
  TX Bytes  : 130000000000
```

## show counters egress-group

---

Displays the egress group counters for the specified egress group.

### Syntax

```
show counters egress-group {name | all }
```

### Parameters

*name*

Specifies show counters for the the named egress group.

The `egress-group-name` supports 1-32 characters. Characters allowed are alpha-numeric, underscore, and dot. Underscore is not allowed as the first character.

**all**

Specifies show counters for all configured egress groups.

### Modes

Exec mode

### Usage Guidelines

Valid egress group name must be provided.

### Examples

The following example shows egress group counters information.

```
device# show counters egress-group eg1
Egress-group Packet Statistics : eg_01

    TX Frames : 500000000
    TX Bytes  : 260000000000

Egress-group Packet Statistics : eg_02

    TX Frames : 500000000
    TX Bytes  : 260000000000
```

---

## show counters encap

---

Displays encap counters statistic for the specified or all encap objects.

### Syntax

```
show counters encap { all | name }
```

### Parameters

**all**

Specifies all encap counters.

*name*

Specifies the encap name.

### Modes

Exec mode

### Usage Guidelines

Valid encap name must be provided.

### Examples

The following example shows information about encap counter encap\_1.

```
device# show counters encap encap_1

Tunnel Encapsulation Statistics (GRE)
  Egress port : ethernet 1/2
  RX Frames : 0
  RX Bytes : 0
```

The following example shows information about all encap counters.

```
device# show counters encap all
```

## show counters ingress-group

Displays ingress-group counters information.

### Syntax

```
show counters ingress-group [ name | all ]
```

### Parameters

*name*

Specifies the name of an ingress group.

**all**

Specifies counters information for all ingress groups.

### Modes

Exec mode

### Usage Guidelines

The traffic type must be configured for the ingress group.

Counters for non-transport tunnel type ingress groups is not supported.

### Examples

The following example displays all ingress group counters information.

```
device# show counters ingress-group all
Number of ingress-groups: 2
Ingress-group Packet Statistics (Vxlan Tunnel)
  Name : IgVxlanVni100
  RX Frames : 0
  RX Bytes : 0
Outer Tunnel (Vxlan)
  Rx Frames: 4
  RX Bytes: 788
```

The following examples show the output for the `show counters ingress-group`.

VXLAN outer tunnel configuration:

```
device# show counters ingress-group vxlangtp
Ingress-group Packet Statistics (GTPU Tunnel)
  RX Frames : 2
  RX Bytes : 288
```

Outer tunnel configuration:

```
device# show counters ingress-group vxlangtp
Ingress-group Packet Statistics (GTPU Tunnel)
```

```
RX Frames : 2
RX Bytes : 288

Outer tunnel (Vxlan):
RX Frames : 2
RX Bytes : 288
```

MPLS outer tunnel configuration:

```
device# show counters ingress-group iggAnyMpls

Ingress-group Packet Statistics (GTPU Tunnel)
RX Frames : 0
RX Bytes : 0

Outer tunnel (MPLS):
RX Frames : 585
RX Bytes : 74880
```



## show counters interface ethernet

Displays the counters of Ethernet interface.

### Syntax

```
show counters interface ethernet [ IFNAME | all | brief ]
```

### Parameters

#### *IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

#### **all**

Specifies all interfaces.

#### **brief**

Displays brief interface statistics.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example shows counters of the Ethernet interface.

```
device# Interface Statistics: ethernet 1/1
Carrier Transitions: 0
      LastClear: 1h51m53.558433595s
Input:
      Total pkts: 20000000
      Broadcast pkts: 0
      Discard pkts: 0
      Errors pkts: 0
      FCS Errors: 0
      MCast pkts: 0
      Octets: 7760000000
      UCast pkts: 20000000
      Runt pkts: 0
      CRC Errors: 0
Input Distribution:
      64 byte pkts: 0
      65-127 byte pkts: 0
      128-255 byte pkts: 0
      256-511 byte pkts: 10000000
      512-1023 byte pkts: 10000000
      1024-1518 byte pkts: 0
      Jumbo pkts: 0
Out:
```

```

        Total pkts: 0
        Broadcast pkts: 0
        Discard pkts: 0
        Errors pkts: 0
        MCast pkts: 0
        Octets: 0
        UCast pkts: 0
Rate Info:
        Input: 0.000000 Mbits/sec, 0 pkts/sec 0.00% of line-rate
        Output: 0.000000 Mbits/sec, 0 pkts/sec 0.00% of line-rate

```

The following example shows brief statistics of the Ethernet interface.

```

device# show counters interface ethernet brief

```

| Interface | Packets |     | Error |    | Discards |    | CRC |
|-----------|---------|-----|-------|----|----------|----|-----|
|           | rx      | tx  | rx    | tx | rx       | tx | rx  |
| Eth 1/1   | 0       | 0   | 0     | 0  | 0        | 0  | 0   |
| Eth 1/2   | 0       | 0   | 0     | 0  | 0        | 0  | 0   |
| Eth 1/3   | 0       | 0   | 0     | 0  | 0        | 0  | 0   |
| Eth 1/4   | 0       | 0   | 0     | 0  | 0        | 0  | 0   |
| Eth 1/5   | 0       | 144 | 0     | 0  | 0        | 0  | 0   |

## show counters interface management

Displays counter information for specified management interface.

### Syntax

```
show counters interface management number
```

### Parameters

*number*

Specifies the management interface by number.

### Modes

Exec mode

### Examples

The following example shows counters information for management interface 0.

```
device# sh counters interface management 0
Statistics
  Carrier Transitions: 0
                    LastClear: 0s
Input:
  Total pkts: 36892
Broadcast pkts: 2833
  Discard pkts: 0
  Errors pkts: 0
  CRC Errors: 0
  MCast pkts: 32459
  Octets: 3016973
Out:
  Total pkts: 1793
Broadcast pkts: 379
  Discard pkts: 0
  Errors pkts: 0
  MCast pkts: 44
  Octets: 480103
Rate Info:
  Input: 0.014576 Mbits/sec, 15 pkts/sec 0.00% of line-rate
  Output: 0.004194 Mbits/sec, 3 pkts/sec 0.00% of line-rate
```

## **NEW!** show counters lacp

Displays the LACP counter information.

### Syntax

```
show counters lacp
```

### Parameters

```
counters lacp
```

Specifies the LACP counters.

### Modes

Exec mode

### Examples

The following example displays the LACP counter information.

```
device# show counters lacp
```

| Port               | in-pkts | out-pkts | TxErr | RxErr | unknownErr | LacpErr |
|--------------------|---------|----------|-------|-------|------------|---------|
| -----              |         |          |       |       |            |         |
| Channel group: 1   |         |          |       |       |            |         |
| ethernet 1/8:1     | 4       | 5        | 0     | 0     | 0          | 0       |
| Channel group: 100 |         |          |       |       |            |         |
| ethernet 1/8:2     | 10      | 13       | 0     | 0     | 0          | 0       |

## **NEW!** show counters lldp

---

Displays LLDP counters information.

### Syntax

```
show counters lldp
```

```
show counters lldp interface ethernet [ all | IFNAME ]
```

### Parameters

**interface ethernet**

Displays LLDP counters for ethernet interfaces.

**all**

Specifies all interfaces.

*IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

### Examples

The following example shows LLDP interface level statistics.

```
device# show counters lldp interface ethernet 1/2

LLDP Interface Statistics: ethernet 1/2
    FrameIn: 0
    FrameOut: 0
    LastClear: 1h41m22s
```

## **NEW!** show counters lldp summary

---

Displays LLDP global statistics.

### Syntax

```
show counters lldp summary
```

### Parameters

#### **summary**

Displays the global LLDP counters summary.

### Modes

This command is supported in all modes.

### Examples

The following example shows global LLDP counters statistics.

```
device# show counters lldp summary

LLDP Global Statistics:
  FrameIn: 0
  FrameOut: 0
  LastClear: 1h41m22s
```

## show counters link-fault-signaling

Displays current link-fault-signaling counter information.

### Syntax

```
show counters link-fault-signaling
```

### Modes

Exec mode

### Examples

The following example shows link-fault-signaling counter information.

```
device# show counters link-fault-signaling
```

| Port      | Local-Fault-Count | Last-Local-Fault     | Remote-Fault-Count | Last-Remote-Fault    |
|-----------|-------------------|----------------------|--------------------|----------------------|
| Eth 1/8:1 | 2                 | 2021-08-17T18:01:07Z | 0                  | NA                   |
| Eth 1/8:2 | 2                 | 2021-08-17T18:01:07Z | 0                  | NA                   |
| Eth 1/8:3 | 2                 | 2021-08-17T18:01:41Z | 0                  | NA                   |
| Eth 1/8:4 | 2                 | 2021-08-17T18:01:41Z | 1                  | 2021-08-17T18:01:25Z |

---

## show counters transport-tunnel

---

Displays transport tunnel counters information for the specified transport tunnel.

### Syntax

```
show counters transport-tunnel [ name | all ]
```

### Parameters

*name*

Specifies the tunnel name for displaying transport tunnel counters information.

**all**

Specifies all transport-tunnel counters.

### Modes

Exec mode

### Examples

The following example shows transport tunnel counters information for tunnel-1.

```
# show counters transport-tunnel tunnel-1

ERSPAN Terminated Packet Statistics
  RX Frames : 0
  RX Bytes : 0
ERSPAN Dropped Packet Statistics
  Dropped Frames : 0
  Dropped Bytes : 0
```



## show crypto ca certificates

---

Displays CA certificates used by the switch.

### Syntax

```
show crypto ca certificates
```

### Modes

Exec mode

### Usage Guidelines

Output includes effective date and certificate identifiers.

### Examples

The following example shows installed CA certificate information for the current switch.

```
device# show crypto ca certificates
SHA256

Fingerprint=7F:87:87:28:C1:E3:0B:EF:BB:08:3F:8F:E3:0D:FE:15:D7:79:EA:5C:1E:9A:67:15:C5:E6:
44:32:7B:B4:C2:A8

  Subject: CN=ngnpb.extremenetworks.com

  Issuer: CN=NGNPB Intermediate CA,OU=Extreme
Networks NextGenNPB,O=Extreme Networks,ST=CA,C=US

  Not Before: Sep 14 17:31:15 2020 UTC
  Not After  : Sep 14 17:31:15 2021 UTC
```

## show egress

---

Displays egress operational information for the specified egress or all egresses.

### Syntax

```
show egress [ name | all ]
```

### Parameters

*name*

Specifies the name of the egress for show egress. The egress name supports 1-32 characters. Characters allowed are alpha-numeric, underscore, and dot. Underscore is not allowed as the first character.

**all**

Specifies all egresses for show egress.

### Modes

Exec mode

### Usage Guidelines

A valid egress name must be provided.

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows operational egress information for ep1.

```
device# show egress ep1
      Name : ep1
      Description : egress_obj_1
Encap : encap_gre
      Listener Policy : lp1
      Precedence : 10
      Interface : ethernet 1/2
```

The following example show operational information for all configured egresses.

```
device# show egress all
      Name : e1
      Description : egress_obj_1
      Encap : encap_gre
      Listener Policy : v4
      Precedence : 12
      Interface : ethernet 1/9
```

## show egress-group

---

Displays egress group configuration for the specified egress group or all egress-groups.

### Syntax

```
show egress-group [ egress-group-name | all ]
```

### Modes

Exec mode

### Parameters

#### **all**

Specifies all egress groups.

#### *egress-group-name*

Specifies the egress group name for config show.

Supports 1-32 characters. Characters allowed are alpha-numeric, underscore, and dot. Underscore is not allowed as the first character.

### Usage Guidelines

Valid egress-group-name must be provided.

### Examples

```
device# show egress-group eg1

  Name : eg1
  Description : -
    egress : e1

device# show egress-group all
Number of egress-groups: 1

  Name : eg1
  Description : -
    egress : e1
```

## show encap

---

Displays encap information for all or specified encap.

### Syntax

```
show encap [ all | encap-name ]
```

### Parameters

**all**

Displays all encaps.

**encap-name**

Specifies the name of the encap.

### Modes

Exec mode

### Usage Guidelines

Valid encap name must be provided.

### Examples

The following example shows encap information for encap-1.

```
device# show encap encap-1
encap encap-1
encap-type      : erspan
encap-id        : 123456
source-ipv4-addr : 10.10.10.1
destination-ipv4-addr : 20.20.20.1
destination-mac-addr : 00:01:02:03:04:05
vlan-id         : 1234
vlan-pcp        : 6
```

## show firmware

Displays the current firmware version and rollback firmware version of the system along with BMC firmware version on hardware.

### Syntax

```
show firmware
```

### Modes

Exec mode

### Examples

The following example displays the firmware version information.

```
device# show firmware
Current Firmware Version:      TierraOS-21.1.2.0-NPB-20211218_043748.UTC
Rollback Firmware Version:     TierraOS-21.1.2.0-NPB-20211217_143922.UTC
Is Current Firmware Committed: false
Rollback Version after Commit: TierraOS-21.1.2.0-NPB-20211218_022830.UTC
BMC Firmware Version:         1.32
```

The following example displays the firmware version information after a system firmware commit.

```
device# show firmware
Current Firmware Version:      TierraOS-21.1.2.0-NPB-20211218_043748.UTC
Rollback Firmware Version:     TierraOS-21.1.2.0-NPB-20211217_143922.UTC
Is Current Firmware Committed: true
BMC Firmware Version:         1.32
```

The following example displays the firmware version information when the current firmware is not committed.

```
device# show firmware
Current Firmware Version:      TierraOS-21.1.2.0-NPB-20211218_043748.UTC
Rollback Firmware Version:     TierraOS-21.1.2.0-NPB-20211123_081647.UTC
Is Current Firmware Committed: false
BMC Firmware Version:         1.32
```

The following example displays the default device firmware version information.

```
device# show firmware
Current Firmware Version:      TierraOS-21.1.2.0-NPB
Rollback Firmware Version:     None
Is Current Firmware Committed: true
BMC Firmware Version:         1.32
```

## show firmware history

---

Displays firmware version history.

### Syntax

```
show firmware history
```

### Modes

Exec mode

### Examples

The following example shows the last 5 firmware versions on the switch.

```
device# show firmware history

Firmware Version                Install Date
-----
device_v21.0.7.0-20210408_012657_UTC  Mon, 12 Apr 2021 14:07:38 UTC
device_v21.0.7.0-20210412_050245_UTC  Mon, 12 Apr 2021 13:58:46 UTC
device_v21.0.7.0-20210408_012657_UTC  Fri, 09 Apr 2021 18:17:22 UTC
device_v21.0.7.0-20210409_012648_UTC  Fri, 09 Apr 2021 18:13:26 UTC
device_v21.0.7.0-20210408_012657_UTC  Fri, 09 Apr 2021 17:56:30 UTC
```

## show grpc-server gnmi capabilities

Provides capability information

### Syntax

```
show grpc-server gnmi capabilities
```

### Parameters

#### **capabilities**

Display gNMI service version, the versioned data models it supports, and the supported data encoding.

### Modes

Exec mode

### Usage Guidelines

This information is used in subsequent RPC messages from the client to indicate the set of models that the client can use (GET, SUBSCRIBE, SET) and the encoding to be used for the data.

### Examples

The following example shows detail for gNMI capabilities.

```
device# show grpc-server gnmi capabilities
gNMI version: 0.7.0
Supported YANG modules:
Module Name                               Organization                               Version
-----
extreme-acl-ext                           Extreme Networks, Inc.                    1.0.0
extreme-acl-ipv4-ext                       Extreme Networks, Inc.                    1.0.0
extreme-acl-ipv6-ext                       Extreme Networks, Inc.                    1.0.0
extreme-acl-mac-ext                       Extreme Networks, Inc.                    1.0.0
extreme-common-types                       Extreme Networks, Inc.                    1.0.0
extreme-egress-group                       Extreme Networks, Inc.                    1.0.0
extreme-egress                             Extreme Networks, Inc.                    1.0.0
extreme-eth-ext                             Extreme Networks, Inc.                    1.0.0
extreme-ingress-group                     Extreme Networks, Inc.                    1.0.0
extreme-lag-ext                             Extreme Networks, Inc.                    1.0.0
extreme-listener-policy                   Extreme Networks, Inc.                    1.0.0
extreme-lldp-ext                           Extreme Networks, Inc.                    1.0.0
extreme-pcap                               Extreme Networks, Inc.                    1.0.0
extreme-policy-statistics                 Extreme Networks, Inc.                    1.0.0
extreme-routemap                           Extreme Networks, Inc.                    1.0.0
extreme-saps                               Extreme Networks, Inc.                    1.0.0
extreme-sfcs                               Extreme Networks, Inc.                    1.0.0
extreme-sfs                                Extreme Networks, Inc.                    1.0.0
extreme-snmp                               Extreme Networks, Inc.                    1.0.0
extreme-system-logging-ext                Extreme Networks, Inc.                    1.0.0
extreme-transport-tunnel                  Extreme Networks, Inc.                    1.0.0
extreme-tunnel-encap                       Extreme Networks, Inc.                    1.0.0
openconfig-acl                             OpenConfig working group                  1.0.1
```

```
openconfig-interfaces      OpenConfig working group  2.4.3
openconfig-platform       OpenConfig working group  0.11.0
openconfig-system         OpenConfig working group  0.5.0
openconfig-network-instance OpenConfig working group  0.10.2
-----
```

```
Supported Encoding:
PROTO
```



## show grpc-server gnmi statistics

Displays gNMI subscription detail.

### Syntax

```
show grpc-server gnmi statistics
```

### Parameters

#### **statistics**

Display detail of active gNMI stream subscriptions.

### Modes

Exec mode

### Usage Guidelines

gNMI stream details include the number of active stream subscriptions and subscription details for client, mode, number of subscribed keypaths, keypath details, and subscription interval.

### Examples

The following example shows statistics for active gNMI stream subscriptions.

```
device# show grpc-server gnmi statistics
Number of active subscriptions: 3
Subscription Details:

Client:10.42.0.73:51240      Mode:STREAM      Subscribed Path Count:1
Keypath
Subscription Mode  Interval
-----
/interfaces/interface[name=management 0]/subinterfaces/subinterface[index=0]/ipv4/addresses
ON_CHANGE          0s
-----

Client:10.42.0.72:33242      Mode:STREAM      Subscribed Path Count:1
Keypath
Subscription Mode  Interval
-----
/interfaces/interface[name=*]/state/oper-status
ON_CHANGE          0s
-----

Client:10.42.0.90:60554      Mode:STREAM      Subscribed Path Count:1
Keypath
Subscription Mode  Interval
-----
```

```
/interfaces/interface[name=*]/aggregation/state/lag-load-balance-method  
ON_CHANGE          0s
```

```
-----  
-----
```

## show ingress-group

Displays ingress group configuration for the given ingress group or all ingress groups.

### Syntax

```
show ingress-group [ ingress-group-name | all ]
```

### Parameters

*ingress-group-name*

Specifies the name of the ingress group.

**all**

Specifies all ingress groups.

### Modes

Exec mode

### Usage Guidelines

A valid ingress-group-name must be provided.

### Examples

```
device# show ingress-group ing

  Name : ing
    Route-Map : -
    Description : -
    Interfaces : none
    Traffic-Type : GTPU
    Tunnel-Id : 5000
    Mode : decap
  Destination-ip-addr : any
  Source-ip-addr : any

  Outer Tunnel Config :
    Traffic-Type : VxLAN
    Tunnel-Id : 7000
  Destination-ip-addr : 192.168.20.2
  Destination-ip-mask : 255.255.255.0
  Source-ip-addr : any
  Mirror : none

device# show ingress-group all
Number of ingress-groups: 2

  Name : ing
    Route-Map : -
    Description : -
    Interfaces : none
    Traffic-Type : GTPU
    Tunnel-Id : 5000
```

```

                Mode : decap
Destination-ip-addr : any
    Source-ip-addr : any

Outer Tunnel Config :
    Traffic-Type : VxLAN
    Tunnel-Id : 7000
Destination-ip-addr : 192.168.20.2
Destination-ip-mask : 255.255.255.0
    Source-ip-addr : any
    Mirror : none

Name : ing2
    Route-Map : -
    Description : -
    Interfaces : none
    Traffic-Type : NVGRE
    Tunnel-Id : 5000
    Mode : none
Destination-ip-addr : any
    Source-ip-addr : 192.168.2.3
    Source-ip-mask : 255.255.255.0

Outer Tunnel Config :
    Traffic-Type : VxLAN
    Tunnel-Id : 5000
Destination-ip-addr : 192.168.10.2
Destination-ip-mask : 255.255.255.0
    Source-ip-addr : any
    Mirror : mirr_2

device# show running-config ingress-group
ingress-group ing
traffic-type gtpu teid 5000 mode decap
traffic-type gtpu ip any any
traffic-type vxlan outer vni 7000
traffic-type vxlan outer ip any 192.168.20.2 255.255.255.0

ingress-group ing2
traffic-type nvgre vsid 5000
traffic-type nvgre ip 192.168.2.3 255.255.255.0 any
traffic-type vxlan outer vni 5000
traffic-type vxlan outer ip any 192.168.10.2 255.255.255.0
traffic-type vxlan outer mirror mirr_2

device(config-ingress-group)# do show ingress-group igg1
Number of ingress-groups: 1
Name : igg1
    Route-Map : rmap1
    Description : -
    Interfaces : ethernet 0/1

Outer Tunnel Config :
    Traffic-Type : MPLS
Header1 (Bottom of Stack header):
    label : 12345
    Traffic Class : any
    Time to Live : any
    Mirror : mirr_2

device# show running-config ingress-group
ingress-group igg1
traffic-type mpls outer header1 12345 any any
traffic-type mpls outer mirror mirr_2

```

## show interface brief

Displays brief information about interfaces in the system.

### Syntax

```
show interface brief
```

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example shows brief interface information.

```
device# show interface brief

Number of interfaces 20
Name      Mtu      Admin-State  Oper-State  Speed Ifindex  Description
-----
Eth 1/1   9216     DOWN         DOWN        0x10000008  100G ethernet port
Eth 1/2   9216     DOWN         DOWN        0x10000009  100G ethernet port
Eth 1/3   9216     DOWN         DOWN        0x1000000a  100G ethernet port
Eth 1/4   9216     DOWN         DOWN        0x1000000b  100G ethernet port
Eth 1/5   9216     DOWN         DOWN        0x1000000c  100G ethernet port
Eth 1/6   9216     DOWN         DOWN        0x1000000d  100G ethernet port
Eth 1/7   9216     DOWN         DOWN        0x1000000e  100G ethernet port
Eth 1/8   9216     DOWN         DOWN        0x1000000f  100G ethernet port
Eth 1/9   9216     DOWN         DOWN        0x10000010  100G ethernet port
Eth 1/10  9216     DOWN         DOWN        0x10000011  100G ethernet port
Eth 1/11  9216     DOWN         DOWN        0x10000012  100G ethernet port
Eth 1/12  9216     DOWN         DOWN        0x10000013  100G ethernet port
Eth 1/13  9216     DOWN         DOWN        0x10000014  100G ethernet port
Eth 1/14  9216     DOWN         DOWN        0x10000015  100G ethernet port
Eth 1/15  9216     DOWN         DOWN        0x10000016  100G ethernet port
Eth 1/16  9216     DOWN         DOWN        0x10000017  100G ethernet port
Eth 1/17  9216     DOWN         DOWN        0x10000018  100G ethernet port
Eth 1/18  9216     DOWN         DOWN        0x10000019  100G ethernet port
Eth 1/19  9216     DOWN         DOWN        0x1000001a  100G ethernet port
Mgmt 0    1514     UP           UP          1G 0x60000010  Management
```

## show interface ethernet

Displays the details of Ethernet interface or range of interfaces.

### Syntax

```
show interface ethernet [ IFNAME | all ]
```

### Parameters

*IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

**all**

Specifies all Ethernet interfaces for the show command.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example displays information pertaining to an Ethernet interface.

```
NPB# show int e 1/2
ethernet 1/2 Admin state UP      Operational state UP
Interface index is 268435868 (0x1000019c)
MTU 9000 bytes
Hardware is Ethernet mac address
Current Speed 100G

Statistics
Carrier Transitions: 0
                LastClear: 0s
Input:
    Total Pkts: 570850
    Broadcast Pkts: 3
    Discard Pkts: 0
    Errors Pkts: 0
    FCS Errors: 0
    MCast Pkts: 18
    Octets: 381845280
    UCast Pkts: 44478
    Runt pkts: 0
    CRC Errors: 0

Input Distribution:
    64 byte pkts: 0
    65-127 byte pkts: 21
    128-255 byte pkts: 0
```

```
    256-511 byte pkts: 0
    512-1023 byte pkts: 0
    1024-1518 byte pkts: 0
        Jumbo pkts: 44478

Out:
    Total Pkts: 0
    Broadcast Pkts: 0
    Discard Pkts: 0
    Errors Pkts: 0
    MCast Pkts: 0
        Octets: 0
    UCast Pkts: 0

Rate Info:
    Input: 1680.724704 Mbits/sec, 24426 pkts/sec 1.68% of line-rate
    Output: 0.000000 Mbits/sec, 0 pkts/sec 0.00% of line-rate
```

## show interface management

Displays the details of management interface and the IP address configured on the interface.

### Syntax

```
show interface management interface-number
```

### Parameters

```
management interface-number
```

Specifies the management interface number.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example shows the details of the specified management interface.

```
device# show interface management 0
management 0 Admin state UP      Operational state UP
MTU 1514 bytes
Hardware is Ethernet  mac address d8:84:66:f9:3c:03
Current Speed  1G
DHCPv4 Disabled
IPv4 address 192.168.122.160/24
IPv4 gateway 192.168.122.1
DHCPv6 Disabled
IPv6 address 2001::100/120
IPv6 gateway 2001::1
Statistics
Carrier Transitions: 0
Input:
    Total pkts: 424129
    Broadcast pkts: 22621
    Discard pkts: 0
    Errors pkts: 0
    CRC Errors: 0
    MCast pkts: 248183
    Octets: 227726675
Out:
    Total pkts: 45587
    Broadcast pkts: 2858
    Discard pkts: 0
    Errors pkts: 0
    MCast pkts: 247
    Octets: 3974088
Rate Info:
    Input: 0.017180 Mbits/sec, 17 pkts/sec 0.00% of line-rate
    Output: 0.007562 Mbits/sec, 5 pkts/sec 0.00% of line-rate
```



## show interface port-channel

---

Displays the port-channel information.

### Syntax

```
show interface port-channel PORANGE detail
```

```
show interface port-channel brief
```

### Parameters

**port-channel** *PORANGE*

Specifies the channel number or channel number range. The range is 1-255.

**detail**

Displays detail information of the specified port-channel.

**port-channel brief**

Displays brief information of the specified port-channel.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following examples show interface port-channel information.

```
device# show interface port-channel 1
port-channel 1 is up
  MTU 9216 Bytes
  IfIndex 0x40000201
  Port mode is Full Duplex, 100 Gb/s
  LagType is Static
  MinLinks is 1
  Load balance method uses Src/Dst IP, Src/Dst L4 port and
  protocol
  Active Members in this channel: Eth 1/1
  Members in this channel: Eth 1/1

Statistics
  Carrier Transitions: 3
  LastClear: 37m48.716951005s

Input:
  Broadcast Pkts: 0
  Discard Pkts: 0
  Errors Pkts: 0
  FCS Errors: 0
  MCast Pkts: 0
  Octets: 0
```

```

        UCast Pkts: 0
        Unknown Protocols: 0
Out:
        Broadcast Pkts: 0
        Discard Pkts: 0
        Errors Pkts: 0
        MCast Pkts: 0
        Octets: 0
        UCast Pkts: 0

device# show interface port-channel 1-2,5
port-channel 1 is down
  MTU 9216 Bytes
  IfIndex 0x40000200
  Port mode is Full Duplex, SpeedUnknown
  LagType is Static
  MinLinks is 1
  Load balance method uses Src/Dst IP, Src/Dst L4 port and protocol
  Active Members in this channel: Nil
  Members in this channel: Nil

Statistics
  Carrier Transitions: 0
  LastClear: 0s
Input:
  Broadcast pkts: 0
  Discard pkts: 0
  Errors pkts: 0
  FCS Errors: 0
  MCast pkts: 0
  Octets: 0
  UCast pkts: 0
  Unknown Protocols: 0
Out:
  Broadcast pkts: 0
  Discard pkts: 0
  Errors pkts: 0
  MCast pkts: 0
  Octets: 0
  UCast pkts: 0

port-channel 2 is down
  MTU 9216 Bytes
  IfIndex 0x40000201
  Port mode is Full Duplex, SpeedUnknown
  LagType is Static
  MinLinks is 1
  Load balance method uses Src/Dst IP, Src/Dst L4 port and protocol
  Active Members in this channel: Nil
  Members in this channel: Nil

Statistics
  Carrier Transitions: 0
  LastClear: 0s
Input:
  Broadcast pkts: 0
  Discard pkts: 0
  Errors pkts: 0
  FCS Errors: 0
  MCast pkts: 0
  Octets: 0
  UCast pkts: 0
  Unknown Protocols: 0
Out:
```

```

        Broadcast pkts: 0
        Discard pkts: 0
        Errors pkts: 0
        MCast pkts: 0
        Octets: 0
        UCast pkts: 0
port-channel 5 is down
  MTU 9216 Bytes
  IfIndex 0x40000204
  Port mode is Full Duplex, SpeedUnknown
  LagType is Static
  MinLinks is 1
  Load balance method uses Src/Dst IP, Src/Dst L4 port and protocol
  Active Members in this channel: Nil
  Members in this channel: Nil
Statistics
  Carrier Transitions: 0
    LastClear: 0s
Input:
  Broadcast pkts: 0
  Discard pkts: 0
  Errors pkts: 0
  FCS Errors: 0
  MCast pkts: 0
  Octets: 0
  UCast pkts: 0
  Unknown Protocols: 0
Out:
  Broadcast pkts: 0
  Discard pkts: 0
  Errors pkts: 0
  MCast pkts: 0
  Octets: 0
  UCast pkts: 0

```

The following examples show detail information of the port-channel when same speed member-ports are present.

```

device# show interface port-channel 2 detail

port-channel 2 is up
  Number of Active Members: 4
  Number of Members: 4

Port          Status      Speed
-----
Eth 2/8:1    active      10G
Eth 2/8:2    active      10G
Eth 2/8:3    active      10G
Eth 2/8:4    active      10G

device# show interface port-channel 2 detail

port-channel 2 is up
  Number of Active Members: 3
  Number of Members: 4

Port          Status      Speed
-----
Eth 2/8:1    passive     10G
Eth 2/8:2    active      10G
Eth 2/8:3    active      10G
Eth 2/8:4    active      10G

```

The following example shows detail information of the port-channel when different speed member-ports are present.

```
device# show interface port-channel 2 detail

port-channel 2 is down
  Reason: Different speed member-ports are present !
  Number of Active Members: 0
  Number of Members: 5

Port          Status      Speed
-----
Eth 1/1       passive    100G
Eth 2/8:1     passive    10G
Eth 2/8:2     passive    10G
Eth 2/8:3     passive    10G
Eth 2/8:4     passive    10G
```

The following example shows brief information of the port-channel.

```
device# show interface port-channel brief

Number of interfaces 23

Port  Mtu   Admin-State  Oper-State  Speed  Ifindex  Description
-----
Po1   9216  DOWN        DOWN       10G    0x40000200  Port-Channel Interface
Po2   9216  UP          UP         10G    0x40000201  Port-Channel Interface
Po3   9216  UP          UP         10G    0x40000202  Port-Channel Interface
```

## show inventory

Displays the inventory detail for slot cards, power supply units, or both that are currently in use and whose status is UP.

### Syntax

```
show inventory { slot | power-supply | all }
```

### Parameters

#### slot

Specifies show inventory detail for slot cards.

#### power-supply

Specifies show inventory detail for power-supply units.

#### all

Specifies show inventory detail for all slot and power-supply units.

### Modes

Exec mode

### Examples

The following example displays inventory details for all slot cards.

```
device# show inventory slot
  Module      : Slot-1
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10036
  Version     : 4
Manufacturer  : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-2
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10035
  Version     : 4
Manufacturer  : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-3
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10034
  Version     : 4
Manufacturer  : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15
```

The following example shows all inventory detail for power supply units.

```
device# show inventory power-supply
  Module      : PSU-0
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40007
  Version     : S0F

  Module      : PSU-1
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40014
  Version     : S0F
```

The following example shows inventory detail for all cards and power supplies.

```
device# show inventory all
  Module      : Slot-1
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10036
  Version     : 4
  Manufacturer : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-2
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10035
  Version     : 4
  Manufacturer : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : Slot-3
  Model       : 9920-16C
  PartNo      : 801112-00-04
  SerialNo    : AE022102Y-10034
  Version     : 4
  Manufacturer : Extreme Networks Inc.
  Mfg Date    : Fri Jan 15 09:30:00 2021
  ECVersion   : 15

  Module      : PSU-0
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40007
  Version     : S0F

  Module      : PSU-1
  Model       : 9920-ACPWR-1600W-F
  SystemNo    : 801115-00-01
  SerialNo    : AE042050B-40014
  Version     : S0F
```

## show ip access-list

Displays specific IPv4 access control list (ACL), all configured IPv4 access lists, or IPv4 ACLs bound to a route map or listener policy.

### Syntax

```
show ip access-list { name | all }  
show ip access-list all route-map  
show ip access-list all listener-policy
```

### Parameters

*name*

Shows information for the named IPv4 ACL.

**all**

Shows all configured IPv4 ACLs.

**route-map**

Shows all IPv4 ACLs bound to a route map.

**listener-policy**

Shows all IPv4 ACLs bound to a listener policy.

### Modes

Exec mode

### Usage Guidelines

To display all IPv4 ACLs bound to a route map or listener policy, the **route-map** and **listener policy** optional parameters are available.

### Examples

The following example shows the configured ACL named IPv4-1.

```
device# show ip access-list IPv4-1  
ip access-list IPv4-1  
  seq 66 permit tcp any any (0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )  
  seq 65 permit udp any any (0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )
```

The following example shows all configured ACLs and all ACLs bound to a route map or listener policy options..

```
device# show ip access-list all  
ip access-list IPv4-1  
seq 66 permit tcp any any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )  
device# show ip access-list all route-map
```

```
Route map: rm1
  ip access-list v4
    seq 10 permit ip any any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )
  ip access-list ip-3
    seq 70 permit udp any any dport 20000 dport-end 20010 sport 10000 sport-end 10010
    ➤ ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )

device# show ip access-list all listener-policy
Listener policy: LP1
  ip access-list ip-eg-acl
    seq 10 permit ip any any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )
```



## show ip dns

---

Displays the details of IP DNS configuration information.

### Syntax

```
show ip dns
```

### Parameters

**ip dns**

Specifies the DNS IP address.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example show IP DNS information.

```
device# sh ip dns
ip dns domain name
corp.extremenetworks.com
extremenetworks.com
ip dns name-server
10.6.16.32
10.6.24.30
1111:2222::1
```

## show ipv6 access-list

Displays all or specific configured IPv6 access control list (ACL) or IPv6 ACLs bound to a route map or listener policy.

### Syntax

```
show ipv6 access-list { name | all }  
show ipv6 access-list all route-map  
show ipv6 access-list all listener-policy
```

### Parameters

*name*

Specifies the name of IPv6 ACL.

**all**

Specifies all configured IPv6 ACLs.

**route-map**

Specifies the name of the route-map.

**listener-policy**

Specifies the name of the listener-policy.

### Modes

Exec mode

### Examples

The following example shows settings for the IPv6 access list, IPV6-1.

```
device# show ipv6 access-list IPv6-1  
seq 66 permit tcp any any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )
```

The following example shows all IPv6 access lists.

```
device# sshow ipv6 access-list all  
ipv6 access-list ip6-2  
  seq 10 permit gtpu any any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )  
  seq 20 permit ipv6 2001::1 2001:0::0:1 any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0  
Bits/sec )  
ipv6 access-list ip6-3  
  seq 40 permit ipv6 2002::2 2002:: 2003::3 2003::0 ( 0 Packets, 0 Bytes, 0 Packets/sec,  
0 Bits/sec )
```

The following example shows all configured IPv6 access lists bound to a route map.

```
device# show ipv6 access-list all route-map  
Route map: rml  
  ipv6 access-list ip6-3
```

```
seq 40 permit ipv6 2002::2 2002:: 2003::3 2003::0 ( 0 Packets, 0 Bytes, 0 Packets/
sec, 0 Bits/sec )
```

The following example shows all IPv6 access lists bound to a listener policy.

```
device# show ipv6 access-list all listener-policy
Listener policy: LP1
  ipv6 access-list ip6-2
    seq 10 permit gtpu any any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0 Bits/sec )
    seq 20 permit ipv6 2001::1 2001:0::0:1 any ( 0 Packets, 0 Bytes, 0 Packets/sec, 0
Bits/sec )
```

## **NEW!** show lacp interface ethernet

Displays the LACP information for a specific interface.

### Syntax

```
show lacp interface ethernet IFNAME
```

### Parameters

```
interface ethernet IFNAME
```

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

### Modes

Exec mode

### Examples

The following example shows LACP information.

```
device# show lacp interface ethernet 1/8:1
interface Eth 1/8:1 is up
  Channel group is 100 port channel is Po100
  PDUs sent: 72
  PDUs rcvd: 71
  LACP Rx errors: 0
  LACP Tx errors: 0
  LACP unknown errors: 0
  LACP errors: 0
Local Port: Eth 1/8:1 MAC Address = 40:88:2f:c1:02:00
System Identifier = 80:00:40:88:2f:c1:02:00
Port Identifier = 0x8000, 0x1a0
Operational key = 100
LACP_Activity = active
LACP_Timeout = Long Timeout (30s)
Synchronization = IN_SYNC
Collecting = true
Distributing = true

Partner information
Partner-id = 80:00:60:9c:9f:b1:3a:00
Partner-key = {1, 11}
```

## **NEW!** show lacp system-identifier

---

Displays the LACP system identification information.

### Syntax

```
show lacp system-identifier
```

### Parameters

**system-identifier**

Displays the system priority and MAC address.

### Modes

Exec mode

### Examples

The following example shows the LACP system identification.

```
device# show lacp system-identifier
System ID: 0x4d2, 40:88:2f:c1:02:00

device# configure terminal
device(config)# show lacp system-identifier
32768, aa:bb:cc:dd:ee:ff
```

## show link-fault-signaling

---

Displays link-fault-signaling information.

### Syntax

```
show link-fault-signaling
```

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is not allowed on management interface.

### Examples

The following example shows how to configure link-fault-signaling on a device.

```
device(config)# int e 1/1-16,2/1-16  
  
device(config-if-eth-1/1-16,2/1-16)# no link-fault-signaling  
  
device(config-if-eth-1/1-16,2/1-16)#
```

The following example shows link-fault-signaling information.

```
device# show link-fault-signaling  
Port          Link-Fault  
=====
```

|         |     |
|---------|-----|
| Eth 1/1 | OFF |
| Eth 1/2 | ON  |
| Eth 1/3 | ON  |
| Eth 1/4 | ON  |
| Eth 1/5 | ON  |
| Eth 1/6 | ON  |
| Eth 1/7 | ON  |

## show listener-policy

---

Displays a list of all or specified listener policies on the device.

### Syntax

```
show listener-policy { name | all }
```

### Parameters

*name*

Specifies the name of the configured listener policy.

**all**

Displays all configured listener policies on the device.

### Modes

Exec mode

### Examples

The following example shows configuration parameters for the listener policy IPV6.

```
device# show listener-policy IPV6
listener-policy IPV6 65
match ipv6 access-list IPV6-1
truncate 1280 description policy v6 is applied
Policy matches: 11 packets, 1573 bytes
```

The following example shows all listener policies.

```
device# show listener-policy all
listener-policy IPV6
Policy-1
Policy matches: 11 packets, 1573 bytes
```

**NEW!** show lldp

Displays the LLDP global configuration information.

## Syntax

```
show lldp
```

```
show lldp neighbors
```

```
show lldp neighbors interface ethernet [ IFNAME | all ]
```

## Parameters

**neighbors**

Displays the LLDP neighbors information.

**interface**

Displays the LLDP neighbors interface information.

*IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

**all**

Specifies all interfaces.

## Modes

Exec mode

## Examples

The following example shows the LLDP global configuration information.

```
device# show lldp

Global LLDP Information:
Status: ACTIVE
LLDP advertisements are sent every 30 seconds
LLDP hold time advertised is 120 seconds
LLDP transmit: On
LLDP receive: On

Interface LLDP Information:
Intf          State      Rx         Tx
-----i-----
ethernet 1/1    Enable    On         On
ethernet 1/2    Disable   Off        Off
ethernet 1/3    Enable    On         On
ethernet 1/4    Enable    On         On
ethernet 1/5    Enable    On         On
ethernet 1/6    Enable    On         On
```



The following example shows the LLDP neighbors information.

```

device# show lldp neighbors
show LLDP Neighbors Information
Chassis ID          Local-Port      Dead Rem  Remote          Remote
System
Name
60:9c:9f:b1:3a:00 ethernet 1/8:1 120  107  Ethernet 0/11  Eth 0/11
SLX
60:9c:9f:b1:3a:00 ethernet 1/8:2 120  107  Ethernet 0/12  Eth 0/12
SLX
60:9c:9f:b1:3a:00 ethernet 1/8:3 120  106  Ethernet 0/13  Eth 0/13
SLX
60:9c:9f:b1:3a:00 ethernet 1/8:4 120  107  Ethernet 0/14  Eth 0/14
SLX
60:9c:9f:b1:3a:00 ethernet 2/8:1 120  108  Ethernet 0/15  Eth 0/15
SLX
60:9c:9f:b1:3a:00 ethernet 2/8:2 120  108  Ethernet 0/16  Eth 0/16
SLX
60:9c:9f:b1:3a:00 ethernet 2/8:3 120  108  Ethernet 0/17  Eth 0/17
SLX
60:9c:9f:b1:3a:00 ethernet 2/8:4 120  109  Ethernet 0/18  Eth 0/18      SLX

Total entries displayed: 8

```

The following example shows the LLDP neighbors ethernet interface information.

```

show lldp neighbors interface ethernet 0/1-2
Capability codes:
(R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
(W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other

LLDP Interface: ethernet 0/1
Local Port id: ethernet 0/1
Chassis id: 88f0.31f9.a340
Remote Port id: ethernet 1/10
Remote Port Description: ethernet 1/10
System Name: Lab switch1
Dead Interval: 120 seconds
Time remaining: 91 seconds
System Description: "ExtremeXOS (Summit) version 31.1.1.4 v311b4 by release-manager on
Fri Feb 13 16:30:06 EST 2021"
System Capabilities: B, R
Enabled Capabilities: B, R
Management Address: 10.77.143.43
Management Address IPV6: not advertised

LLDP Interface: ethernet 0/2
Local Port id: ethernet 0/2
Chassis id: 88f0.31f9.a341
Remote Port id: ethernet 1/11
Remote Port Description: ethernet 1/11
System Name: Lab switch 2
Dead Interval: 120 seconds
Time remaining: 85 second
System Description: Cisco Nexus Operating System (NX-OS) Software 9.2(1) TAC support:
http://www.cisco.com/tac Copyright (c) 2002-2018, Cisco Systems, Inc. All rights
reserved.
System Capabilities: B, R
Enabled Capabilities: B, R
Management Address: 10.77.143.43
Management Address IPV6: not advertised

```

## show logging

---

Displays logging information.

### Syntax

```
show logging audit [ config | firmware | security ]
```

```
show logging file
```

```
show logging id 1-60000
```

### Parameters

#### **audit**

Displays audit logging entries.

#### **config**

Displays configuration related log information.

#### **firmware**

Displays firmware related log information.

#### **Security**

Displays security related log information.

#### **file**

Selects file for general log entries.

**id** *1-60000*

Selects log ID to see the description.

### Modes

Exec mode

### Examples

The following example shows audit logging firmware information.

```
device# show logging audit firmware
Wed 28 Apr 2021 23:07:27.971 UTC +0000 LogID:5021 Info Msg: Firmware change successful.
Current Firmware Version is NGNPB_v21.0.7.0-20210427_045749.UTC
```

The following example shows logging information for ID 5001.

```
device# NPB# show logging id 5001
Log ID: 5001
Level      : Fatal
Message    : Unable to connect to Operational Database
Probable cause: Database is down
Remedy     : Check Database status
Impact     : Service not operational
```

The following example shows audit logging file information.

```
show logging file
2021-04-22 12:17:01.2425 liblogging-stdlog: [origin software="rsyslogd"
swVersion="8.24.0" x-pid="17744" x-info="http://www.rsyslog.com"] rsyslogd was HUPed
2021-04-22 17:17:02.8468 liblogging-stdlog: [origin software="rsyslogd"
swVersion="8.24.0" x-pid="17744" x-info="http://www.rsyslog.com"] rsyslogd was HUPed
2021-04-22 21:17:02.3471 liblogging-stdlog: [origin software="rsyslogd"
swVersion="8.24.0" x-pid="17744" x-info="http://www.rsyslog.com"] rsyslogd was HUPed
--More--
```

The following example shows audit logging configuration information.

```
show logging audit config
Sat 16 Jan 2021 17:02:05.512 UTC +0000 LogID:8001 Info Msg: nouser/norole/none/ssh/cli,
Status:100 Command:'operational assigned to groups: admin'
Mon 25 Jan 2021 22:52:24.557 UTC +0000 LogID:8001 Info Msg: nouser/norole/none/ssh/cli,
Status:100 Command:'operational assigned to groups: admin'
Mon 25 Jan 2021 22:57:38.538 UTC +0000 LogID:8001 Info Msg: admin/admin sudo docker/
none/ssh/cli, Status:100 Command:'operational assigned to groups: admin'
Mon 25 Jan 2021 22:57:42.089 UTC +0000 LogID:8001 Info Msg: admin/admin sudo docker/
none/ssh/cli, Status:0 Command:'operational conf t'
Mon 25 Jan 2021 22:59:34.316 UTC +0000 LogID:8001 Info Msg: admin/admin sudo docker/
none/ssh/cli, Status:0 Command:'configure (config) exit'
Mon 25 Jan 2021 23:18:12.456 UTC +0000 LogID:8001 Info Msg: admin/admin sudo docker/
none/ssh/cli, Status:100 Command:'operational assigned to groups: admin'
Fri 29 Jan 2021 14:51:42.566 UTC +0000 LogID:8001 Info Msg: nouser/norole/none/ssh/cli,
Status:100 Command:'operational assigned to groups: admin'
--More--
```

---

## show mac access-list

---

Displays all or specific MAC ACLs.

### Syntax

```
show mac access-list { name | all }  
show mac access-list all route-map  
show mac access-list all listener-policy
```

### Parameters

*name*

Specifies the name of the MAC ACL or all MAC ACLs and displays a list of MAC ACL rule entries configured for the specified ACL.

**all**

Displays all MAC ACLs with aggregated stats.

**route-map**

Displays all MAC ACLs mapped to a route map.

**listener-policy**

Displays MAC ACLs mapped to a listener policy.

### Modes

Exec mode

### Examples

The following example shows all MAC ACLs.

```
device# show mac access-list all  
mac access-list mac2  
  seq 10 permit aa:aa:aa:aa:aa:aa FF:FF:FF:FF:FF:FF any ( 0 Packets, 0 Bytes, 0 Packets/  
sec, 0 Bits/sec )  
  
mac access-list mac3  
  seq 90 permit gtpu 4294967295 02:02:02:02:02:02 02:02:02:02:02:02 any ( 0 Packets, 0  
Bytes, 0 Packets/sec, 0 Bits/sec )
```

The following example shows all ACLs bound to a route map.

```
device# show mac access-list all route-map  
Route map: rml  
  mac access-list mac3  
    seq 90 permit gtpu 4294967295 02:02:02:02:02:02 02:02:02:02:02:02 any ( 0 Packets, 0  
Bytes, 0 Packets/sec, 0 Bits/sec )
```

The following example shows all listener policies bound to a route map.

```
device# show mac access-list all listener-policy  
Listener policy: LP1
```

```
mac access-list mac2
  seq 10 permit aa:aa:aa:aa:aa:aa FF:FF:FF:FF:FF:FF any ( 0 Packets, 0 Bytes, 0 Packets/
sec, 0 Bits/sec )
```

## show media

Displays detail information about media on the specified interface.

### Syntax

```
show media detected
show media interface ethernet IFNAME
show media supported
```

### Parameters

#### media

##### detected

Specifies media detected in the chassis.

##### interface ethernet *IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

##### supported

Displays the supported media information.

### Modes

Exec mode

### Usage Guidelines

Channel information is displayed only for the csupported optics.

Supported passive optics value is 0.

### Examples

The following example shows media detected in the chassis.

```
device# show media detected
S/C  Qual  Optical Type  PartNum      Serial Num   Vendor      Description
-----
--
1/1   No    QSFP28      AA1405031-E6  16CN10300147 Volex Inc.   Volex QSFP media
1/2   No    QSFP28      AA1405031-E6  16CN10300147 Volex Inc.   Volex QSFP media
1/3   No    QSFP28      AA1405031-E6  16CN10300147 Volex Inc.   Volex QSFP media
1/4   No    QSFP28      AA1405031-E6  16CN10300147 Volex Inc.   Volex QSFP media
2/16  No    SFP28       BBA1405031-E6  18CN10300147 Molex Inc.   Molex QSFP media
```

The following example shows detail for ethernet 1/1.

```
device# show media interface ethernet 4/4
      Interface: ethernet 4/4
      Cage: 4
```

```

        Slot: 4
        Qual: Yes
        Optical: yes
        State: Inserted
        Module Type: QSFP28
        Part Number: 57-1000336-01
        Serial Number: YMJ11645F66002F
        Vendor: BROCADE
        Description: 100G QSFP28 CWDM
        Channels: 4
        Datecode: 161123
Channel[1]:
    Voltage: 3.240000
    Temperature: 39.500000
    RxPower: -1.690000
    TxBias: 24.140000
    TxPower: 0.960000
Channel[2]:
    Voltage: 3.240000
    Temperature: 39.500000
    RxPower: -3.210000
    TxBias: 24.140000
    TxPower: 1.230000
Channel[3]:
    Voltage: 3.240000
    Temperature: 39.500000
    RxPower: -1.430000
    TxBias: 24.130000
    TxPower: 0.020000
Channel[4]:
    Voltage: 3.240000
    Temperature: 39.500000
    RxPower: -2.780000
    TxBias: 24.480000
    TxPower: -1.180000

```

The following command lists the supported media.

```

device# show media supported
-----
Type          PartNum      Vendor      Description
-----
qsfp          57-1000129-01  BROCADE    40GBase-SR4 QSFP
qsfp          57-1000263-01  BROCADE    40G QSFPP-LR4 10KM
qsfp          58-0000033-01  BROCADE    40G-QSFP-QSFP 1m cable passive
qsfp          58-0000034-01  BROCADE    40G-QSFP-QSFP 3m cable passive
qsfp          58-0000035-01  BROCADE    40G-QSFP-QSFP 5m cable passive
qsfp          58-0000041-01  BROCADE    40G-QSFP-QSFP 1m Active Copper
qsfp          58-0000042-01  BROCADE    40G-QSFP-QSFP 3m Active Copper
qsfp          58-0000043-01  BROCADE    40G-QSFP-QSFP 5m Active Copper
qsfp          57-1000325-01  BROCADE    40G-QSFP+ LM4
qsfp          57-1000306-01  BROCADE    40G QSFP to QSFP cable 10m AOC
qsfp          57-1000339-01  BROCADE    40G QSFPP BIDI Optic
qsfp          AFBR-79EBPZ    AVAGO      40G QSFPP BIDI Optic
qsfp          AFBR-79EBRZ    AVAGO      40G QSFPP BIDI Receiver Optic
qsfp          58-0000053-01  BROCADE    4x10G QSFPP 5m Active Copper Cable

```

## show mirror

---

Displays the mirror configuration for the given ingress group or for all mirrors.

### Syntax

```
show mirror [ name | all ]
```

### Parameters

*name*

Specifies the name of the mirror.

**all**

Specifies all mirrors.

### Modes

Exec mode

### Examples

```
device(config)# mirror mirr_1
device(config-mirror)# description mirror-1
device(config-mirror)# set interface ethernet 1/1

device# show mirror mirr_1
      Name : mirr_1
      Description : mirror-1
      Interface : ethernet 1/1
```



## show ntp association

Displays Network Time Protocol (NTP) association information.

### Syntax

```
show ntp association detail
```

### Parameters

**association detail**

Displays NTP association information in detail.

### Modes

Exec mode

### Examples

The following example shows NTP association information.

```
device# show ntp association

remote          refid          st t  when poll reach  delay  offset jitter
=====
*10.24.12.107   10.6.24.32    2  u  356  512  377   0.731  0.915  0.137

* synced, # selected, + candidate, - outlayer, x falseticker, ~ configured

device# show ntp as d
[detail] display ntp association in detail

device# show ntp association detail

ind  assid  status  conf  reach  auth  condition  last_event cnt
=====
1    41294  8011    yes   no     none  reject     mobilize  1
2    41295  8011    yes   no     none  reject     mobilize  1
3    41296  8011    yes   no     none  reject     mobilize  1
4    41297  8011    yes   no     none  reject     mobilize  1
```

---

## show ntp status

---

Displays the Network Time Protocol (NTP) status information.

### Syntax

```
show ntp status
```

### Parameters

**status**

Displays NTP information.

### Modes

Exec mode

### Examples

The following example shows NTP status information.

```
device# show ntp status

Clock is synchronized, stratum 3, reference clock is 10.24.12.107,
precision is -16,
reference time is e35f7b06.7cc6df3e Wed, Nov 18 2020 10:50:46.487,
clock offset is 0.534396, root delay is 85.256,
root dispersion is 79.806, peer dispersion is 4504,
NTP client mode is enabled

device# show ntp status
Clock is unsynchronized, no reference clock
NTP client mode is disabled
```

## **NEW!** show qos forwarding-group

---

Displays the Quality of Service (QoS) forwarding groups.

### Syntax

```
show qos { forwarding-group [ all | NAME ] }
```

### Parameters

#### **forwarding-group**

Shows the specified forwarding-group.

#### **all**

Specifies all forwarding-groups.

#### *NAME*

Specifies the QoS forwarding-group name.

### Modes

Exec mode

### Examples

The following example displays the QoS forwarding-group named FP1.

```
device# show qos forwarding-group Fp1
```

The following example displays all QoS forwarding-groups.

```
device# show qos forwarding-group all
```

---

## show role

---

Displays all role information.

### Syntax

```
show role
```

### Parameters

**role**

Displays all role information.

### Modes

Exec mode

### Examples

The following example shows the defined roles available in the system.

```
device# show role
Role: admin
Type: SYSTEM_DEFINED
Description: Predefined admin role has access to all commands

Role: user
Type: SYSTEM_DEFINED
Description: Predefined user role has access to Show
commands and selected Exec commands
```

## show route-map

Displays operational information a configured route map.

### Syntax

```
show route-map [ name | all ]
```

### Parameters

*name*

Specifies the name of the route map.

**all**

Specifies all configured route maps.

### Modes

Exec mode

### Output

The **show route-map** command displays match access-list status information, shown in the following examples.

| Output field                            | Description   |
|---|---|
| match ip access-list<br>acl4 (active)   | (active) status indicates that the bound match ACL has been created configured.         |
| match mac access-list<br>acl2 (pending) | (pending) status indicates that the bound match ACL has not been created or configured. |

### Examples

The following example shows the route map, rmap1.

```
# show route-map rml
route-map rml 1
forward-action permit
match ip access-list acl4 (active)
match mac access-list acl2 (pending)
egress-group egl

Policy matches: 0 packets, 0 bytes, 0 Packets/sec, 0 Bits/sec
```

## show running-config aaa

---

Displays the Authentication, Accounting, and Authorization (AAA) server accounting configuration.

### Syntax

```
show running-config aaa
```

### Modes

Exec mode

### Examples

The following example shows the authentication mode.

```
device# show running-config aaa
aaa accounting exec default start-stop tacacs+
aaa accounting commands default start-stop tacacs+
```

## show running-config access-list

---

### Syntax

```
show running-config access-list [ name ]
```

### Parameters

*name*

Specifies the name of an access-list.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows configuration information for all configured ACLs.

```
device# show running-config access-list
ipv6 access-list ip6-acl
  seq 10 permit ipv6 2001::1 2001::0 2002::2 2002::0

ip access-list ip-acl
  seq 20 permit ip 10.0.0.1 255.0.0.0 20.0.0.2 255.0.0.0

mac access-list L2
```

The following example shows configuration for ip6-acl.

```
device# show running-config access-list ip6-acl
ipv6 access-list ip6-acl
  seq 10 permit ipv6 2001::1 2001::0 2002::2 2002::0
```

## show running-config acl-config

---

Displays the ACL common configuration information.

### Syntax

```
show running-config acl-config
```

### Modes

Exec mode

### Examples

The following example shows the authentication mode.

```
device# show running-config acl-config
acl-config
no enable acl-counter
```



## show running-config banner

---

Displays the configured banner message.

### Syntax

```
show running-config banner
```

### Modes

Exec mode

### Examples

The following example shows the configured banner message.

```
device# show running-config banner  
banner login "This is sample login message"  
banner motd "This is sample motd message"
```

## show running-config clock

---

Displays the clock time-zone information.

### Syntax

```
show running-config clock
```

### Modes

Exec mode

### Examples

The following example shows system clock information.

```
device# show running-config clock  
clock timezone Asia/Kolkata
```

## show running-config egress

---

Displays configuration information for configured egress.

### Syntax

```
show running-config egress name
```

### Parameters

*name*

Specifies the name of the egress.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows egress configuration information for ep1.

```
device# show egress ep1
  Name : ep1
  Description : egress_obj_1

Encap : encap_gre
  Listener Policy : lp1
  Precedence : 10
  Interface : ethernet 1/2
```

The following example show configuration information for all configured egresses.

```
device# show egress all
  Name : e1
  Description : egress_obj_1
  Encap : encap_gre
  Listener Policy : v4
  Precedence : 12
  Interface : ethernet 1/9
```

---

## show running-config egress-group

---

Displays configuration detail for egress groups.

### Syntax

```
show running-config egress-group [ name ]
```

### Parameters

*name*

Specifies the egress group name.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows configuration information for all configured egress groups.

```
device# show running-config egress-group
egress-group eg_1
  description egress-group_1
  set egress e2
egress-group eg_2
  description egress-group_2
```

## show running-config encap

---

Displays the encap configuration information.

### Syntax

```
show running-config encap
```

### Modes

Exec mode

### Examples

The following examples show encap configuration information.

```
device# show running-config encapencap encap1
encap-type gre
source-ipv4-addr 1.1.1.1
destination-ipv4-addr 2.2.2.2
source-mac-addr 00:00:00:11:11:11
destination-mac-addr 00:00:00:22:22:22
vlan-id 100
vlan-pcp 3
```

## show running-config ingress-group

Displays ingress-group configuration information.

### Syntax

```
show running-config ingress-group [ name ]
```

### Parameters

**ingress-group** *name*

Specifies an ingress-group.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows configurations for all configured ingresses.

```
device# show running-config ingress-group
ingress-group ig1
  traffic-type gtpu mode decap
  traffic-type gtpu ip any any
  traffic-type vxlan outer ip any any
  set route-map rm2
ingress-group ig2
  traffic-type gtpu teid 3000 mode new-scope
  traffic-type gtpu ip 10.10.10.1 255.255.255.255 20.20.20.1 255.255.255.255
  traffic-type vxlan outer vni 100
  traffic-type vxlan outer ip any any
  traffic-type vxlan outer mirror m1
  set route-map rm1
ingress-group ig3
  traffic-type gtpu mode decap
  traffic-type gtpu ip 30.30.30.1 255.255.255.255 40.40.40.1 255.255.255.255
  traffic-type vxlan outer ip any any
  set route-map rm2
```

The following example shows configuration for the ingress-group, ig1.

```
device# show running-config ingress-group ig1
ingress-group ig1
  traffic-type gtpu mode decap
  traffic-type gtpu ip any any
  traffic-type vxlan outer ip any any
  set route-map rm2
```

## show running-config interface

Displays the interface configuration information.

### Syntax

```
show running-config interface ethernet IFNAME  
show running-config interface management number  
show running-config interface port-channel PORANGE
```

### Parameters

#### **interface**

Displays the running-configuration information.

**ethernet** *IFNAME*

Specifies the interface name in slot/port or slot/port:breakout format. Example: 1/1, 1/1-3, 5, 2/7-9, 10:1-4.

**management** *number*

Specifies the management interface number.

**port-channel** *PORANGE*

Specifies the channel number or channel number range.

### Modes

Exec mode

### Examples

The following examples show running-config interface.

```
device# show running-config interface ethernet 1/1  
interface ethernet 1/1  
shutdown
```

```
device# show running-config interface management 0  
interface management 0  
no ip address dhcp  
ip gateway 10.20.73.138  
no ipv6 address dhcp  
ipv6 address fc00:0:0:12:10:20:73:155/64  
ipv6 gateway fc00:0:0:12::1  
no shutdown
```

```
show running-config interface port-channel 1  
interface port-channel 1  
load-balance src-dst-ip-l4port-tid  
no shutdown
```

---

## show running-config ip

---

Displays the IP configuration information.

### Syntax

```
show running-config ip
```

```
show running-config ip access-list [ all | NAME ]
```

```
show running-config ip
```

### Modes

Exec mode

### Examples

The following examples show running IP access-list configurations.

```
device# show running-config ip access-list P4  
ip access-list P4
```

```
device# show running-config ip access-list all  
ip access-list P4
```



## show running-config ip dns

---

Displays configuration detail for IP DNS configurations.

### Syntax

```
show running-config ip dns
```

### Modes

Exec mode

### Examples

The following example shows configuration detail for all IP domain name servers.

```
device# show running-config ip dns
ip dns domain-name corp.extremenetworks.com
ip dns domain-name extremenetworks.com
ip dns name-server 10.6.16.32
ip dns name-server 10.6.24.30
ip dns name-server 1111:2222::1
```

---

## show running-config ipv6

---

Displays the IPv6 configuration information.

### Syntax

```
show running-config ipv6
```

```
show running-config ipv6 access-list [ all | NAME ]
```

### Modes

Exec mode

### Examples

The following examples show running IPv6 access-list configurations.

```
device# show running-config ipv6 access-list ip6-acl  
ipv6 access-list ip6-acl
```

```
device# show running-config ipv6 access-list all  
ipv6 access-list ip6-acl
```

## **NEW!** show running-config lacp

---

Displays LACP configuration information.

### Syntax

```
show running-configuration lacp
```

### Modes

Exec mode

### Examples

The following example shows LACP configuration information.

```
device# show running-configuration lacp
protocol lacp
  lacp system-priority 631
interface port-channel 100
  lacp min-links 2
  lacp system-mac 0001.0002.0003
  lacp system-priority 256
interface ethernet 1/4
  channel-group 100 mode active
interface ethernet 2/9
  channel-group 100 mode passive
  lacp rate fast
  lacp port-priority 123
interface ethernet 3/16
  channel-group 100 mode active
```

---

## show running-config listener-policy

---

Displays configuration detail of a listener policy for an egress.

### Syntax

```
show running-config listener-policy [ name ]
```

### Parameters

*name*

Specifies the name of the listener policy.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows the IPv4 listener policy configuration.

```
device# show running-config listener-policy
listener-policy LP1 1
  forward-action permit
  match ip access-list ip1
  truncate 200
  strip vlan-tag
```

## **NEW!** show running-config lldp

---

Displays LLDP configuration information.

### Syntax

```
show running-configuration lldp
```

### Modes

Exec mode

### Examples

The following example shows LLDP configuration information.

```
device# show running-configuration lldp

Global LLDP Configurations:
no protocol lldp
lldp hello-timer 120
lldp holdtime 300
no lldp transmit
no lldp receive

Interface Level configurations:
Interface ethernet 1/1
no lldp enable
no lldp transmit
no lldp receive
```

---

## show running-config mac

---

Displays the MAC configuration information.

### Syntax

```
show running-config mac  
show running-config mac access-list [ all | NAME ]
```

### Modes

Exec mode

### Examples

The following examples show running MAC access-list configurations.

```
device# show running-config mac access-list L2  
mac access-list L2  
  
device# show running-config mac access-list all  
mac access-list L2
```

---

## show running-config mirror

---

Displays the mirror configuration information.

### Syntax

```
show running-config mirror
```

### Modes

Exec mode

### Examples

The following examples show the mirror configuration.

```
device# show running-config mirror
mirror m1
  description mirror-1
  set interface ethernet 1/4
mirror m2
  description mirror-2
  set interface ethernet 2/4

device# show running-config mirror m1
mirror m1
  description mirror-1
  set interface ethernet 1/4
```

## show running-config ntp

---

Displays the ntp configuration information.

### Syntax

```
show running-config ntp [ server | peer ]
```

### Parameters

#### server

Specifies the NTP server IP address.

#### peer

Specifies the NTP peer IP address.

### Modes

Exec mode

### Examples

The following example shows the configured NTP details.

```
device# show running-config ntp
ntp enable
ntp peer 10.12.145.32
ntp server 10.12.145.36
ntp server 10.12.155.42
```

The following examples show the configured NTP peers.

```
device# show running-config ntp peer
ntp peer 10.12.145.32
```

The following examples show the configured NTP servers.

```
device# show running-config ntp server
ntp server 10.12.145.36
ntp server 10.12.155.42
```



## **NEW!** show running-config qos

---

Displays the QoS configuration information.

### Syntax

```
show running-config qos
```

### Modes

Exec mode

### Examples

The following example shows the configured QoS information.

```
device# show running-config qos

qos
  forwarding-group Fp1
    description group-for-site-A-to-B
    queue q1
```

## show running-config route-map

---

Displays route-map configuration information for the current system.

### Syntax

```
show running-config route-map name
```

### Parameters

*name*

Specifies the name of the route-map.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows configuration information for rmap1.

```
device# show running-config route-map rmap1
route-map rmap1 10
  forward-action permit
```

The following example shows configuration information for all route-maps.

```
device# show running-config route-map
route-map R1 10
  forward-action permit
  match ip access-list test_1
  set egress-group eg_1
route-map R1 12
  forward-action permit
  match ip access-list test_2
route-map rmap1 10
  forward-action permit
```

---

## show running-config snmp-server

---

Displays running SNMP configurations on the device.

### Syntax

```
show running-config snmp-server
```

### Modes

Exec mode

### Examples

The following example shows all SNMP configurations tried on the device.

```
device# show running-config snmp-server
snmp-server community test123
snmp-server host 1.1.1.1 comm1 162 version 2c

device# show running-config snmp-server
snmp-server user user1 auth md5 auth-key authkey1 priv aes priv-key privkey1
snmp-server user user2 auth sha auth-key authkey2 priv nopriv
snmp-server user user3 noauth
```

---

## show running-config system logging host

---

Displays logging host configuration details.

### Syntax

```
show running-config system logging host name
```

### Parameters

*name*

Specifies the host name or label.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows configuration for all logging hosts on the device.

```
device# show running-config system logging host
system logging host H1
  address 1.1.1.1

system logging host logger
  address 192.168.1.1
  port 514
  transport TCP
  secure-forwarding TLS

system logging host myServer
  address 10.20.30.40
  port 515
```

The following example shows configuration information for the logging host logger.

```
device# show running-config system logging host logger
system logging host logger
  address 192.168.1.1
  port 514
  transport TCP
  secure-forwarding TLS
```

---

## show running-config system logging service

---

Displays configured logging severity levels for microservices.

### Syntax

```
show running-config system logging service name
```

### Parameters

*name*

Specifies the name of the service. Example: `chassis-mgr`, `interface-mgr`, `snmp`, `api-gw`, `packet-mgr`.

Supports 1-64 characters.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all.

### Examples

The following example shows the configuration for the chassis service.

```
device# show running-config system logging service chassis-mgr
```

---

## show running-config tacacs-server

---

Display the TACACS+ server configuration.

### Syntax

```
show running-config tacacs-server
```

### Modes

Exec mode

### Examples

The following example shows the TACACS+ server configuration.

```
device# show running-config tacacs-server
tacacs-server host 10.24.65.6
    encrypted-key "jahasjikjdoaskjuihuhiaoljsiaknkaiua="
```

## show running-config transport-tunnel

---

Displays the transport tunnel configuration information.

### Syntax

```
show running-config transport-tunnel
```

### Modes

Exec mode

### Examples

The following examples show transport tunnel configuration.

```
device# show running-config transport-tunnel
transport-tunnel tt1
  tunnel-type gre ipv4-src 10.202.180.10 255.255.255.0
  deny ipv4-dest 103.10.150.225 255.255.255.0
  set ingress-group ig1
transport-tunnel tt2
  tunnel-type gre ipv4-src 10.202.181.10 255.255.255.0
  deny ipv4-dest 103.10.151.225 255.255.255.0
  set ingress-group ig2

device# show running-config transport-tunnel tt1
transport-tunnel tt1
  tunnel-type gre ipv4-src 10.202.180.10 255.255.255.0
  deny ipv4-dest 103.10.150.225 255.255.255.0
  set ingress-group ig1
```

---

## show running-config username

---

Displays all usernames and role, password, and encryption level for each.

### Syntax

```
show running-config username
```

### Modes

Exec mode

### Examples

The following example shows username, role, password, and encryption level for each.

```
device# show running-config username

username testuser1 role admin password $6$salt$cevuzTZ/QBjzuZG0/
ebEeedmcTnhyM8ITUu8K032Cp2XvIibq7voqYagm18bwpLBqrg/l/16YxTmKKibJz5r10 encryption-level 10

username testuser2 role user password $6$salt$cevuzTZ/QBjzuZG0/
ebEeedmcTnhyM8ITUu8K032Cp2XvIibq7voqYagm18bwpLBqrg/l/16YxTmKKibJz5r10 encryption-level 10
```



## show snmp-server

---

Displays all SNMP-related information on the device.

### Syntax

```
show snmp-server
```

### Modes

Exec mode

### Examples

The following example shows SNMP-related information for the device.

```
device# show snmp-server
snmp-server community test123
snmp-server host 1.1.1.1 comm1 162 version 2c

device# show snmp-server
snmp-server user user1 auth md5 auth-key authkey1 priv aes priv-key privkey1
snmp-server user user2 auth sha auth-key authkey2 priv nopriv
snmp-server user user3 auth noauth
```

## show sysinfo all

Displays all system HW component information such as FANs, PSUs, sensors, slots, and LEDs.

### Syntax

```
show sysinfo all
```

### Modes

Exec mode

### Examples

The following example shows all hardware information.

```
device# show sysinfo all
Fan Information
Id      Status      RPM      Percentage SpeedLevel      Direction
-----
1       Up          7300     41           MEDIUM          FAN_DIR_F2B
2       Up          7300     41           MEDIUM          FAN_DIR_F2B
3       Up          7300     41           MEDIUM          FAN_DIR_F2B
4       Up          7300     41           MEDIUM          FAN_DIR_F2B
5       Up          7300     41           MEDIUM          FAN_DIR_F2B

FAN_DIR_F2B - Fan Airflow Direction is FrontToBack

FanSpeedLevel - <40%[LOW],40-70%[MEDIUM],>70%[HIGH]

Led Information
Id      State      Color      Description
-----
led-0   Solid      GREEN      Power Supply Unit
led-1   Solid      GREEN      Fan
led-2   Solid      GREEN      System Status

PSU Information
Id      Status      Type      C[in]  C[out]  P[in]  P[out]  V[in]  V[out]
-----
1       Up          AC        3       53      684    632     206    11
2       Up          AC        3       51      660    612     206    11

**C - Current in Amps ,**P - Power in Watts ,**V - Voltage in Volts
Total power budget for chassis = 3200 Watts
Total power used by LC and system core = 2040 Watts
Total power available = 1160 Watts
Power Board CpldVersion = 00 09

Sensor Information
Id      Name          Current(°C/Volt) Warning(°C/Volt) Critical(°C/Volt) Shutdown(°C/Volt)
-----
1       CPU Core      37              85              90.00           0.00
2       TF2 MAC       42.00           75              80              95.00
3       TF2 Serdes1   56.00           80.00           85.00           95
4       TF2 Serdes2   50.00           80.00           85              95
5       TF2 Serdes3   54              80.00           85              95.00
6       TF2 Serdes4   53              80.00           85.00           95
7       LC1 PHY MAX   70.00           115             120.00          125.00
8       LC1 QSFP MAX  38              63.00           68.00           73.00
```

|    |              |       |        |        |        |
|----|--------------|-------|--------|--------|--------|
| 9  | LC2 PHY MAX  | 67    | 115.00 | 120    | 125.00 |
| 10 | LC2 QSFP MAX | 38.00 | 63     | 68.00  | 73.00  |
| 11 | LC3 PHY MAX  | 66    | 115.00 | 120    | 125    |
| 12 | LC3 QSFP MAX | 41.00 | 63.00  | 68     | 73.00  |
| 13 | LC4 PHY MAX  | 67    | 115.00 | 120.00 | 125.00 |
| 14 | LC4 QSFP MAX | 40    | 63.00  | 68     | 73     |
| 15 | LC5 PHY MAX  | 67    | 115.00 | 120.00 | 125    |
| 16 | LC5 QSFP MAX | 36    | 63     | 68     | 73.00  |
| 17 | LC6 PHY MAX  | 59.00 | 115.00 | 120.00 | 125.00 |
| 18 | LC6 QSFP MAX | 28.00 | 63.00  | 68.00  | 73.00  |
| 19 | LC7 PHY MAX  | 57.00 | 115.00 | 120.00 | 125    |
| 20 | LC7 QSFP MAX | 0.00  | 63     | 68.00  | 73     |
| 21 | LC8 PHY MAX  | 64.00 | 115.00 | 120.00 | 125.00 |
| 22 | LC8 QSFP MAX | 44.00 | 63     | 68.00  | 73     |
| 23 | DIMM1        | 36    | 80     | 85.00  | 0      |
| 24 | DIMM2        | 32    | 80     | 85.00  | 0      |
| 25 | DIMM3        | 35    | 80     | 85.00  | 0.00   |
| 26 | DIMM4        | 33.00 | 80     | 85.00  | 0.00   |
| 27 | SSD          | 39.00 | 75.00  | 80.00  | 0.00   |
| 28 | BMC-12V      | 12.00 | 0      | 12     | 12.00  |
| 29 | BMC-3_3V     | 3     | 0.00   | 3.00   | 3      |
| 30 | SWB-075V     | 0     | 0      | 0      | 0.00   |
| 31 | SWB-3_3V     | 3.00  | 0.00   | 3      | 3.00   |
| 32 | SWB-2_5V     | 2.00  | 0.00   | 2.00   | 2.00   |
| 33 | SWB-1_8V     | 1     | 0.00   | 1.00   | 1      |
| 34 | SWB-1_5V     | 1.00  | 0.00   | 1.00   | 1      |
| 35 | SWB-1_2V     | 1.00  | 0      | 1      | 1.00   |

## Slot Information

| Slot | State  | FRU-Id | FRU-Type  | Description              |
|------|--------|--------|-----------|--------------------------|
| 1    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |
| 2    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |
| 3    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |
| 4    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |
| 5    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |
| 6    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |
| 7    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |
| 8    | Online | 1      | LC16x100G | 16x100G QSFP28 Line Card |

## show sysinfo fan

Displays all 5 FAN HW component information.

### Syntax

```
show sysinfo fan
```

### Modes

Exec mode

### Usage Guidelines

The airflow direction is by default FrontToBack.

### Examples

The following example shows all hardware information.

```
device# show sysinfo fan

Fan Information
Id      Status   RPM      Percentage SpeedLevel  Direction
-----
1       UP       4300     24         LOW         FAN_DIR_F2B
2       UP       4100     23         LOW         FAN_DIR_F2B
3       UP       4300     24         LOW         FAN_DIR_F2B
4       UP       4300     24         LOW         FAN_DIR_F2B
5       UP       4300     24         LOW         FAN_DIR_F2B

FAN_DIR_F2B - Fan Airflow Direction is FrontToBack
FanSpeedLevel - <40%[LOW], 40-70%[MEDIUM], >70%[HIGH]
```

## show sysinfo led

---

Displays the front panel system LED values.

### Syntax

```
show sysinfo led
```

### Modes

Exec mode

### Usage Guidelines

The steady Green LEDs indicate that there are no issues and the steady or blinking Amber LEDs indicate a warning.

### Examples

The following example shows system LED status.

```
device# show sysinfo led

Led Information
Id      State   Color   Description
-----
led-0   Solid   GREEN   Power Supply Unit
led-1   Solid   GREEN   Fan
led-2   Solid   GREEN   System Status
```

## show sysinfo power-supply

Displays the hardware power supply information.

### Syntax

```
show sysinfo power-supply
```

### Modes

Exec mode

### Examples

The following example configures the VXLAN traffic type.

```
device# show sysinfo power-supply
```

```
PSU Information
```

```
Id      Status      Type      C[in]  C[out]  P[in]   P[out]  V[in]  V[out]
```

```
-----  
1       UP          AC        2       33      408     130     210    11  
2       UP          AC        2       32      424     143     210    11  
3       Unplugged  Empty    0        0        0        0        0        0  
4       Unplugged  Empty    0        0        0        0        0        0
```

```
Total power budget for chassis = 3200 Watts
```

```
Total power used by LC and system core = 2040 Watts
```

```
Total power available = 1160 Watts
```

## show sysinfo sensor

Displays sensor data.

### Syntax

```
show sysinfo sensor [ all | cpu | lc | mem_mod | voltage ]
```

### Parameters

#### all

Displays information for all sensors.

#### cpu

Displays CPU information.

#### lc

Displays line card (slot) information.

#### mem\_mod

Displays memory module information.

#### voltage

Displays voltage information.

### Modes

Exec mode

### Examples

The following example shows information for all sensors.

```
device# show sysinfo sensor all
Sensor Information
Id   Name           Current(°C/Volt) Warning(°C/Volt) Critical(°C/Volt) Shutdown(°C/Volt)
-----
1    CPU Core       33              85              90.00           0
2    TF2 MAC        41              75              80              95.00
3    TF2 Serdes1    56              80.00          85.00           95
4    TF2 Serdes2    50.00           80.00           85              95
5    TF2 Serdes3    54.00           80.00           85.00           95
6    TF2 Serdes4    53.00           80              85.00           95.00
7    LC1 PHY MAX    70              115            120             125
8    LC1 QSFP MAX   38              63.00          68.00           73
9    LC2 PHY MAX    67.00           115.00         120.00          125.00
10   LC2 QSFP MAX   38.00           63.00           68.00           73
11   LC3 PHY MAX    66.00           115.00         120.00          125.00
12   LC3 QSFP MAX   41.00           63.00           68.00           73.00
13   LC4 PHY MAX    67.00           115.00         120.00          125.00
14   LC4 QSFP MAX   40              63             68              73
15   LC5 PHY MAX    67              115            120.00          125.00
16   LC5 QSFP MAX   36              63.00          68.00           73
17   LC6 PHY MAX    59              115.00         120.00          125.00
18   LC6 QSFP MAX   28.00           63.00           68              73.00
19   LC7 PHY MAX    57              115            120.00          125
```

|    |              |       |       |        |       |
|----|--------------|-------|-------|--------|-------|
| 20 | LC7 QSFP MAX | 0.00  | 63.00 | 68.00  | 73.00 |
| 21 | LC8 PHY MAX  | 64    | 115   | 120.00 | 125   |
| 22 | LC8 QSFP MAX | 44.00 | 63    | 68.00  | 73    |
| 23 | DIMM1        | 36    | 80.00 | 85.00  | 0.00  |
| 24 | DIMM2        | 32    | 80.00 | 85     | 0.00  |
| 25 | DIMM3        | 35.00 | 80.00 | 85     | 0     |
| 26 | DIMM4        | 33.00 | 80    | 85.00  | 0.00  |
| 27 | SSD          | 39    | 75    | 80     | 0     |
| 28 | BMC-12V      | 12    | 0     | 12.00  | 12    |
| 29 | BMC-3_3V     | 3.00  | 0     | 3.00   | 3     |
| 30 | SWB-075V     | 0     | 0.00  | 0.00   | 0.00  |
| 31 | SWB-3_3V     | 3.00  | 0     | 3      | 3     |
| 32 | SWB-2_5V     | 2     | 0     | 2.00   | 2.00  |
| 33 | SWB-1_8V     | 1.00  | 0     | 1      | 1.00  |
| 34 | SWB-1_5V     | 1     | 0.00  | 1      | 1     |
| 35 | SWB-1_2V     | 1     | 0     | 1.00   | 1.00  |

The following example shows CPU information.

```
device# show sysinfo sensor cpu
```

#### Sensor Information

| Id | Name        | Current(°C/Volt) | Warning(°C/Volt) | Critical(°C/Volt) | Shutdown(°C/Volt) |
|----|-------------|------------------|------------------|-------------------|-------------------|
| 1  | CPU Core    | 33               | 85.00            | 90.00             | 0                 |
| 2  | TF2 MAC     | 41               | 75.00            | 80                | 95                |
| 3  | TF2 Serdes1 | 56.00            | 80.00            | 85.00             | 95                |
| 4  | TF2 Serdes2 | 50.00            | 80               | 85.00             | 95.00             |
| 5  | TF2 Serdes3 | 54.00            | 80               | 85                | 95                |
| 6  | TF2 Serdes4 | 53.00            | 80.00            | 85                | 95                |

The following module show line card (slot) information.

```
device# show sysinfo sensor lc
```

#### Sensor Information

| Id | Name         | Current(°C/Volt) | Warning(°C/Volt) | Critical(°C/Volt) | Shutdown(°C/Volt) |
|----|--------------|------------------|------------------|-------------------|-------------------|
| 7  | LC1 PHY MAX  | 70               | 115.00           | 120               | 125.00            |
| 8  | LC1 QSFP MAX | 38.00            | 63.00            | 68                | 73.00             |
| 9  | LC2 PHY MAX  | 67               | 115.00           | 120               | 125.00            |
| 10 | LC2 QSFP MAX | 38.00            | 63               | 68.00             | 73                |
| 11 | LC3 PHY MAX  | 66               | 115              | 120.00            | 125               |
| 12 | LC3 QSFP MAX | 41.00            | 63.00            | 68                | 73.00             |
| 13 | LC4 PHY MAX  | 67               | 115              | 120               | 125               |
| 14 | LC4 QSFP MAX | 40.00            | 63.00            | 68                | 73                |
| 15 | LC5 PHY MAX  | 67               | 115              | 120               | 125               |
| 16 | LC5 QSFP MAX | 36.00            | 63               | 68                | 73                |
| 17 | LC6 PHY MAX  | 59.00            | 115.00           | 120.00            | 125               |
| 18 | LC6 QSFP MAX | 28.00            | 63               | 68                | 73.00             |
| 19 | LC7 PHY MAX  | 57.00            | 115.00           | 120.00            | 125               |
| 20 | LC7 QSFP MAX | 0.00             | 63.00            | 68                | 73.00             |
| 21 | LC8 PHY MAX  | 64               | 115.00           | 120.00            | 125.00            |
| 22 | LC8 QSFP MAX | 44               | 63.00            | 68.00             | 73                |

The following example shows memory module information.

```
device# show sysinfo sensor mem_mod
```

#### Sensor Information

| Id | Name  | Current(°C/Volt) | Warning(°C/Volt) | Critical(°C/Volt) | Shutdown(°C/Volt) |
|----|-------|------------------|------------------|-------------------|-------------------|
| 23 | DIMM1 | 36               | 80               | 85                | 0                 |
| 24 | DIMM2 | 32               | 80.00            | 85.00             | 0.00              |



|    |       |       |       |       |      |
|----|-------|-------|-------|-------|------|
| 25 | DIMM3 | 35    | 80.00 | 85.00 | 0.00 |
| 26 | DIMM4 | 33    | 80.00 | 85.00 | 0    |
| 27 | SSD   | 39.00 | 75    | 80.00 | 0.00 |

The following example shows voltage information.

```
device# show sysinfo sensor voltage
```

#### Sensor Information

| Id | Name      | Current(°C/Volt) | Warning(°C/Volt) | Critical(°C/Volt) | Shutdown(°C/Volt) |
|----|-----------|------------------|------------------|-------------------|-------------------|
| 28 | BMC-12V   | 12.00            | 0                | 12.00             | 12.00             |
| 29 | BMC-3_3V  | 3.00             | 0                | 3.00              | 3.00              |
| 30 | SWB-075V  | 0.00             | 0.00             | 0                 | 0                 |
| 31 | SWB-3_3V  | 3.00             | 0.00             | 3.00              | 3.00              |
| 32 | SWB-2_5V  | 2.00             | 0.00             | 2                 | 2.00              |
| 33 | SWB-1_8V  | 1                | 0.00             | 1.00              | 1                 |
| 34 | SWB-1_5V  | 1.00             | 0.00             | 1                 | 1.00              |
| 35 | SWB-1_2V  | 1.00             | 0                | 1.00              | 1.00              |
| 36 | SWB-1V    | 1                | 0                | 1                 | 1                 |
| 37 | SWB-VCORE | 0                | 0                | 0                 | 0                 |

## show sysinfo slot

Displays the line card or slot status.

### Syntax

```
show sysinfo slot
```

### Modes

Exec mode

### Examples

The following example displays the line card or slot status information.

```
device# show sysinfo slot
Slot Information
Slot  State          FRU-Id  FRU-Type  Description
-----
1     Initializing  1      LC16x100G  16x100G QSFP28 Line Card
2     Initializing  1      LC16x100G  16x100G QSFP28 Line Card
3     Initializing  1      LC16x100G  16x100G QSFP28 Line Card
4     Initializing  1      LC16x100G  16x100G QSFP28 Line Card
5     Initializing  1      LC16x100G  16x100G QSFP28 Line Card
6     Initializing  1      LC16x100G  16x100G QSFP28 Line Card
7     Initializing  1      LC16x100G  16x100G QSFP28 Line Card
8     Initializing  1      LC16x100G  16x100G QSFP28 Line Card

Slot Information
Slot  State          FRU-Id  FRU-Type  Description
-----
1     Online         1      LC16x100G  16x100G QSFP28 Line Card
2     Online         1      LC16x100G  16x100G QSFP28 Line Card
3     Online         1      LC16x100G  16x100G QSFP28 Line Card
4     Online         1      LC16x100G  16x100G QSFP28 Line Card
5     Online         1      LC16x100G  16x100G QSFP28 Line Card
6     Online         1      LC16x100G  16x100G QSFP28 Line Card
7     Online         1      LC16x100G  16x100G QSFP28 Line Card
8     Online         1      LC16x100G  16x100G QSFP28 Line Card
```

## show system internal

Shows data stored in the specified database in JSON format.

### Syntax

```
show system internal {{ cdb | sdb | psdb } keypath }
```

### Parameters

**cdb**

Specifies data in the config database.

**sdb**

Specifies data in the state database.

**psdb**

Specifies data in the persistent state database.

*keypath*

Specifies a YANG-compliant path.

### Modes

Exec mode

### Usage Guidelines

Depending on selected Database type and provided keypath, configured data will be showed in JSON format.

If the command is run with a keypath where data is not present in database, a “No Data” message is displayed.

### Examples

The following example shows internal config database information for route maps.

```
device# show system internal cdb /routemaps

key /routemaps
{
  "routemap": [
    {
      "name": "rml",
      "routemap-instances": {
        "routemap-instance": [
          {
            "config": {
              "egress-group": "est",
              "ipv4-acl": "acl1",
              "permit-deny": true
            },
            "sequence-id": 10
          }
        ]
      }
    }
  ]
}
```

```
}  
]  
}  
}
```

## show system logging host

Displays successfully applied logging host details.

### Syntax

```
show system logging host [name ]
```

### Parameters

*name*

Specifies the hostname or label.

### Modes

Exec mode

### Usage Guidelines

No information displays if the specified host is not found.

### Examples

The following example shows logging information for all system logging hosts.

```
device# show system logging host
System Logging Hosts: System Logging Hosts:

HOSTNAME          ADDRESS          PORT    TRANSPORT    SECURE-FORWARDING
-----
H1                 1.1.1.1         514     UDP          NONE
logger            192.168.1.1    514     TCP          TLS
myServer          10.20.30.40    515     UDP          NONE
```

The following example shows logging information for system host logger.

```
device# show system logging host logger
System Logging Hosts:
HOSTNAME  ADDRESS  PORT  TRANSPORT  SECURE-FORWARDING
-----
logger   192.168.1.1  514  TCP        TLS
```

## show system logging service

Displays severity level for the specified or all services.

### Syntax

```
show system logging service name
```

### Parameters

*name*

Specifies the name of the service. Example: `chassis-mgr`, `interface-mgr`, `snmp`, `api-gw`, `packet-mgr`.

Supports 1-64 characters.

### Modes

Exec mode

### Usage Guidelines

You can run this command without specifying a name to display configuration information for all system services.

### Examples

The following example shows the configured logging severity for all services.

```
device(config)#show system logging service
Service                Severity
=====
api-gw                 DEBUG
chassis-mgr            DEBUG
interface-agent        DEBUG
interface-mgr          DEBUG
nexthop-agent          DEBUG
packet-mgr              DEBUG
pbd-agent              DEBUG
pcap-agent             DEBUG
pipeline-agent         DEBUG
security               DEBUG
sfcs-agent             DEBUG
snmp                   DEBUG
svcplane-agent         DEBUG
target-proxy-agent     DEBUG
```

## show system service

Displays all services and corresponding versions.

### Syntax

```
show system service
```

### Modes

Exec mode

### Examples

The following example shows all system services.

```
device# show system service
```

| SERVICE             | CURRENT<br>VERSION | ROLLBACK<br>VERSION | READY | STATE   | RESTARTS |
|---------------------|--------------------|---------------------|-------|---------|----------|
| api-gw              | 1.1.0              | None                | true  | Running | 0        |
| chassis-mgr         | 1.2.0              | None                | true  | Running | 0        |
| cli                 | 1.1.0              | None                | true  | Running | 0        |
| config-db           | 1.1.0              | None                | true  | Running | 0        |
| interface-agent     | 1.1.0              | None                | true  | Running | 0        |
| interface-mgr       | 1.2.0              | None                | true  | Running | 0        |
| lACP                | 1.0.0              | None                | true  | Running | 0        |
| lldp                | 1.0.0              | None                | true  | Running | 0        |
| msg-bus             | 1.1.0              | None                | true  | Running | 0        |
| nextHop-agent       | 1.1.0              | None                | true  | Running | 0        |
| packet-mgr          | 1.2.0              | None                | true  | Running | 0        |
| pbd-agent           | 1.1.0              | None                | true  | Running | 0        |
| pcap-agent          | 1.1.0              | None                | true  | Running | 0        |
| persistent-state-db | 1.1.0              | None                | true  | Running | 0        |
| pipeline-agent      | 1.1.0              | None                | true  | Running | 0        |
| security            | 1.1.0              | None                | true  | Running | 0        |
| sfcs-agent          | 1.1.0              | None                | true  | Running | 0        |
| snmp                | 1.1.0              | None                | true  | Running | 0        |
| state-db            | 1.1.0              | None                | true  | Running | 0        |
| stratum             | 0.4.18-4.14.49     | None                | true  | Running | 0        |
| svcplane-agent      | 1.1.0              | None                | true  | Running | 0        |
| target-proxy-agent  | 1.1.0              | None                | true  | Running | 0        |

## show transport-tunnel

---

Displays configuration of all or specified transport tunnels.

### Syntax

```
show transport-tunnel [ all | tunnel-name ]
```

### Parameters

#### **all**

Displays configurations for all configured transport tunnels.

#### *tunnel-name*

Specifies the name of the tunnel.

### Modes

Exec mode

### Usage Guidelines

Valid transport tunnel name must be provided.

### Examples

The following example shows configured transport tunnel information for tunnel-1.

```
# show transport-tunnel tunnel-1
name           : tunnel-1
tunnel-type    : erspan
tunnel-id      : 12345
source IP      : 10.10.10.0
source IP mask : 255.255.255.0
dest IP        : 20.20.20.0
dest IP mask   : 255.0.0.0
ingress-group  : ig1
```



## show usb

---

Displays whether USB access is enabled.

### Syntax

```
show usb
```

### Modes

Exec mode

### Examples

The following example displays access status to the USB.

```
device# show usb  
USB Enabled: true
```

## show users

---

Displays all active user sessions information.

### Syntax

```
show users
```

### Modes

Exec mode

### Examples

The following example shows the active user sessions in the system.

```
device# show users

Username      Role      Host IP      Device      Time Logged In
=====
root          admin     -            Console     04:40
admin         admin     192.168.122.1 SSH         04:47
user          user      192.168.122.1 SSH         04:48
```

## show version

Displays version information for firmware and services.

### Syntax

```
show version
```

### Modes

Exec mode

### Examples

```
device# show version

NGNPB Operating System Software
Copyright (c) 2020 Extreme Networks Inc.

Firmware Info:
Current Firmware Version:      NGNPB_v21.0.7.0-20210430_082447.UTC
Rollback Firmware Version:    None
BMC Firmware Version:         None
Kernel:                        4.14.49-OpenNetworkLinux

System Uptime:                 0 day(s), 06:41:35

MicroService Info:
SERVICE                       CURRENT  ROLLBACK  READY  STATE  RESTARTS
VERSION                         VERSION
-----
agent-pbd-ms                    0.1.0   None     true   Running  0
agent-pipeline-ms              0.1.0   None     true   Running  0
agent-sp-intf-ms               0.1.0   None     true   Running  0
--More--
```

---

## shutdown

---

Enables (no shutdown) or disables (shutdown) an interface.

### Syntax

**shutdown**

**no shutdown**

### Modes

Interface config mode

### Usage Guidelines

The **no shutdown** command enables the interface.

This command is available only to users with the admin role.

### Examples

The following example disables the interface.

```
device# configure terminal
device(config)# interface ethernet 1/10
device(config-if-eth 1/10)# shutdown

device(config)# interface ethernet 1/1-5
device(config-if-eth 1/1-5)# shutdown

device# show running interface ethernet 1/10
Interface ethernet 1/10
Shutdown
```

## snmp-server community

---

Configures the SNMP community.

### Syntax

```
snmp-server community name
```

```
no snmp-server community name
```

### Parameters

*name*

Specifies the community name. Community string must start with a character and can contain only alpha-numeric characters. Valid string range is 2-16 characters.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

A maximum of 256 community strings are supported.

All configured communities have READ-only permissions.

### Examples

The following example configures the extremero community for the SNMP server and confirms the configuration with the show command.

```
device# configure terminal
device(config)# snmp-server community extremero
device(config)# end

device# show snmp-server
snmp-server community extremero
snmp-server host 10.23.17.128 public 162 version 2c
```

The following example removes the extremero SNMP community.

```
device# configure terminal
device(config)# no snmp-server community extremero
```

## snmp-server host

---

Configures the agent with the SNMP trap destination information with the community or user-name attached to it.

### Syntax

```
snmp-server { host [ ip-address | host ] comm-user udp-port version [ 1 | 2c | 3 ] }  
no snmp-server { host [ ip-address | host ] comm-user }
```

### Parameters

*ip-address*

Specifies the trap receiver unicast IPv4 or IPv6 address.

*host*

Specifies the host name of the trap receiver.

**comm-user**

Specifies the community string associated with SNMP traps. Community string must start with a character and can contain only alpha-numeric characters. The valid string length is 2 through 16 characters.

Supported on SNMP versions 1 and 2c.

**udp-port**

Specifies the port on which the receiver is listening for SNMP traps. Valid port range is 1 through 65535.

The default port is 162.

**version** [ 1 | 2c | 3 ]

Specifies the SNMP version to be used to send SNMP traps. Default version is 2c.

If SNMP version is 3, the valid length is between 1 and 32 characters.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command combines a host and community string.

Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

The **no** form of the command removes the corresponding configuration.

## Examples

The following example configures the SNMP server with the community string using version 2c.

```
device# configure terminal
device(config)# snmp-server host 10.23.17.128 public 162 version 2c

device(config)# do show running-config snmp-server
snmp-server host 10.23.17.128 public 162 version 2c
```

The following example removes the configured host and community string.

```
device# configure terminal
device(config)# no snmp-server host 10.23.17.128 public
```

## snmp-server user

---

Configures the SNMP v3 user for authenticating.

### Syntax

```
snmp-server { user [ user name ] auth [ noauth | md5 | sha ] auth-key
  [ auth-key ] priv [ nopriv | aes | des ] priv-key [ priv-key ] }
```

### Parameters

**user** *user name*

Specifies the SNMPv3 user name. Valid length is 1 to 32 characters.

**auth** [ *noauth* | *md5* | *sha* ]

Specifies the supported authentication method.

**auth-key** *auth-key*

Specifies the key phrase to be used for authentication. The auth-key string can contain only alpha-numeric characters. Valid string length is 8 to 40 characters.

**priv** [ *nopriv* | *aes* | *des* ]

Specifies the supported encryption method.

**priv-key** [ *priv-key*]

Specifies the key phrase to be used for encryption. Valid priv-key length is 8 to 40 characters.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example configures an SNMP server user.

```
device(config)# snmp-server user user8 auth sha auth-key authKey1 priv aes priv-key
user1privkey

device(config)# snmp-server user user2 auth md5 auth-key authkey12 priv nopriv

device(config)# snmp-server user user3 auth noauth
```



## source-ipv4-addr

---

Configures the source IP address for encapsulation of outgoing packets.

### Syntax

```
source-ipv4-addr ip-addr
```

```
no source-ipv4-addr ip-addr
```

### Parameters

*ip-addr*

Specifies the source IP address.

### Modes

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- Valid IP addresses must be provided.
- One IP address per encapsulation is allowed. The configured IP address must be removed before you configure a new IP address.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

### Examples

The following example configures the source IPv4 address.

```
device(config-encap-1)# source-ipv4-addr 10.10.10.1
device(config-encap-1)#

Show running:
device# show running-configuration

encap encap-1
source-ipv4-addr 10.10.10.1
```

## source-mac-addr

---

Configures the source MAC address for encapsulation of outgoing packets.

### Syntax

```
source-mac-addr mac-addr
```

```
no source-mac-addr mac-addr
```

### Parameters

*mac-addr*

Specifies the source MAC address.

### Modes

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- A valid MAC address must be provided.
- One MAC address per encapsulation is allowed. The configured MAC address must be removed before you configure a new MAC address.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

### Examples

The following example configures the source MAC address.

```
device(config-encap)# source-MAC-addr 00:01:02:03:04:05

device# show running-configuration
encap encap-1
destination-mac-addr 00:01:02:03:04:05
```

## speed (ethernet interfaces)

---

Configures the port speed on Ethernet interfaces.

### Syntax

```
speed [ 40000 | 100000 | auto ]
```

### Parameters

**40000**

Specifies 40 Gbps port speed.

**100000**

Specifies 100 Gbps port speed.

**auto**

Specifies auto detection. This is the default port speed.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported on Ethernet interfaces.

### Examples

The following example configures the port speed on Ethernet interfaces.

```
device# configure terminal
device(config)# interface ethernet 2/16
device(config-if-mgmt-0)# speed 40000

device# show running-config interface e 2/16
interface ethernet 2/16
  speed 40000
  shutdown
```

## speed (management interfaces)

---

Configures the port speed on management interfaces.

### Syntax

```
speed [ 10 | 100 | auto ]
```

### Parameters

**10**

Specifies 10 Mbps port speed.

**100**

Specifies 100 Mbps port speed.

**auto**

Specifies 1 Gbps port speed with auto negotiation. This is the default port speed.

### Modes

Interface config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is supported on management interfaces.

### Examples

The following example configures the port speed on management interfaces.

```
device# configure terminal
device(config)# interface management 0
device(config-if-mgmt-0)# speed 100

device# show running-config interface management 0
interface management 0
speed 100
no shutdown
```

## strip

---

Removes the specified headers from incoming packets (802.1BR, VN, or VLAN).

### Syntax

```
strip [ br-tag | vlan-tag | vn-tag ]  
no strip [ br-tag | vlan-tag | vn-tag ]
```

### Parameters

**br-tag**

Strips 802.1BR tag from the packet header.

**vlan-tag**

Strips VLAN tag from the packet header.

**vn-tag**

Strips VN tag from the packet header.

### Modes

Listener-policy config mode

### Usage Guidelines

If `br-tag` is already enabled, `vn-tag` cannot be enabled.

The `no strip` command removes the strip configuration.

### Examples

The following example removes the specified headers.

```
device# configure terminal  
device(config)# listener-policy lp1 <sid>  
device(config-listener-policy)# strip br-tag  
device(config-listener-policy)# strip vlan-tag  
  
listener-policy rt 45  
strip br-tag  
strip vlan-tag
```

---

## system firmware commit

---

Commits the firmware version that is currently running.

### Syntax

```
system firmware commit
```

### Modes

Exec mode

### Usage Guidelines

You must have the admin role to run this command.

You cannot commit a previously committed version.

There is no auto-commit after firmware update.

- If you are satisfied with the new update, run this command when the system reboots to commit the new firmware version.
- If the new firmware does not come up properly, you must run the **system firmware rollback** and remove the new image from the device.



#### Note

It is not necessary to run **system firmware commit** after you run **system firmware rollback**.

### Examples

The following example runs the command to accept the running software version.

```
device# system firmware commit
```

## system firmware rollback

---

Rolls back the firmware version to the previous running version.

### Syntax

```
system firmware rollback
```

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example rolls back the firmware version to the previous running version.

```
device# system firmware rollback
```

## system firmware update

---

Updates the system firmware.

### Syntax

```
system firmware update FLASH-FILE
```

```
system firmware update USB-FILE
```

```
system firmware update SCP-FILE
```

```
system firmware update SFTP-FILE
```

```
system firmware update HTTP-FILE
```

```
system firmware update HTTPS-FILE
```

### Parameters

#### **FLASH-FILE**

Specifies the flash file path in format `flash://firmware/filename`.

#### **USB-FILE**

Specifies the USB file path in format `usb://file-name`.

#### **SCP-FILE**

Specifies the SCP file path in format `scp://username:password@host[:port]/filepath`.

#### **SFTP-FILE**

Specifies the SFTP file path in format `sftp://username:password@host[:port]/filepath`.

#### **HTTP-FILE**

Specifies the HTTP file path in format `http://[username:password@]host[:port]/filepath`.

#### **HTTPS-FILE**

Specifies the HTTPS file path in format `https://[username:password@]host[:port]/filepath`.

*username*

Account name of the authorized user.

*password*

Password of the authorized user.



#### **Note**

As a best practice, do not list the password in the command line for security purposes.

*hostname*



Specifies the server by name or IP address. Both IPv4 and IPv6 are supported.

Hostname usage requires that DNS resolution is configured on the device.

*port*

Specifies the port number, which must be preceded by a colon. If the port is not included, the default port is assumed.

*filepath*

Specifies the path to the file.

## Modes

Exec mode

## Usage Guidelines

This command is available only to users with the admin role.

Host IP must be in the format of a valid IPv4 or IPv6 address.

Firmware images are `.bin` files with the version format, `YearBorn.Major.Minor.Patch`.

There is no auto-commit after firmware update.

- After the firmware update, use the **system firmware commit** command to commit the new firmware version.
- Use the **system firmware rollback** command to remove the new image from the device.

## Examples

The following examples update the system firmware.

```
device# system firmware update system firmware update flash://firmware/TierraOS-21.1.1.0-NPB.bin

device# system firmware update usb://TierraOS-21.1.1.0-NPB.bin

device# system firmware update http://1.1.1.1:8000/path/TierraOS-21.1.0.0-NPB.bin

device# system firmware update scp://test:pass@1.1.1.1/path/TierraOS-21.1.0.0-NPB.bin

device# system firmware update sftp://test:pass@1.1.1.1/path/TierraOS-21.1.0.0-NPB.bin
```

---

## system logging host

---

Enters into a sub-configuration mode for logging host parameter configuration.

### Syntax

```
system logging [ host hostname ] [ address ip-address ] [ port port-number ] transport [ udp | tcp ] secure-forwarding [ tls | none ]  
no system logging [ host hostname ]
```

### Command Default

Default transport protocol: UDP

Default secure-forwarding encryption (host): none

### Parameters

*hostname*

Specifies the name or label of the host. Valid length is 1 through 64 characters.

*ip-address*

Specifies the IP address for the host. Valid format is IPv4 dotted-decimal notation.

*port-number*

Specifies the port number of the remote syslog server. Valid port-number range is 514 through 530.

**udp**

Sends syslogs to remote server using UDP protocol. This is the default protocol.

**tcp**

Sends syslogs to remote server using TCP protocol.

**tls**

Sends syslogs to remote server using TLS encryption. Syslog CA certificates must be installed before configuring TLS encryption.

**none**

Sends syslogs in plain text. This is the default configuration for the host.

### Modes

Exec mode

### Usage Guidelines

You can configure a maximum of 10 logging hosts.

If the `no` version of the command is without the `hostname` option, all hosts are removed.

Syslog CA certificates must be installed before configuring TLS encryption.

Syslog CA certificates can be imported using the **crypto import** command.

## Examples

The following example configures the host H1 as the system logging host and uses the show command to confirm the configuration.

```
device# configure terminal
device(config)# system logging host sysLogHost1
device(config-logging-host-sysLogHost1)# address 10.25.125.5
device(config-logging-host-sysLogHost1)# port 6154
device(config-logging-host-sysLogHost1)# transport TCP
device(config-logging-host-sysLogHost1)# secure-forwarding TLS

device# do show running-config system logging host
system logging host sysLogHost1
  address 10.25.125.5
  port 6154
  transport TCP
  secure-forwarding TLS
```

The following example configures transport TCP.

```
device(config-logging-host-H1)# transport TCP
Warning: Existing Host configuration changed
```

The following example removes all system logging hosts.

```
device# configure terminal
device(config)# no system logging host
```

---

## system service rollback

---

Restores the specified system service to the previous running version.

### Syntax

```
system service rollback name
```

### Parameters

*name*

Specifies the name of the service. Example: `chassis-mgr`, `interface-mgr`, `snmp`, `api-gw`, `packet-mgr`.

Supports 1-64 characters.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example restores the previous running version of the `chassis-mgr` service.

```
device# system service rollback chassis-mgr
```

---

## system logging service severity

---

Sets the logging level of a microservice.

### Syntax

```
system logging service name severity [ alert | critical | emergency |  
error | warning | notice | info | debug | trace ]  
no system logging service name severity [ alert | critical | emergency |  
error | warning | notice | info | debug | trace ]
```

### Command Default

Default log level is DEBUG.

### Parameters

*name*

Specifies the name of the service. Example: chassis-mgr, interface-mgr, snmp, api-gw, packet-mgr.

Supports 1-64 characters.

```
severity [ alert | critical | emergency | error | warning | notice |  
info | debug | trace ]
```

Specifies the logging level for the specified service.

### Modes

Config mode

### Usage Guidelines

The service name must be valid.

The no form of the command puts the log level back to the default log level (DEBUG level).

### Examples

The following example configures the severity logging level for chassis-mgr and for interface-mgr.

```
device# configure terminal  
device(config)# system logging service chassis-mgr severity error  
device(config)# system logging service interface-mgr severity trace
```

## system service update

---

Updates the service to a different version with minimal downtime.

### Syntax

```
system service update FLASH-FILE
```

```
system service update USB-FILE
```

```
system service update SCP-FILE
```

```
system service update SFTP-FILE
```

```
system service update HTTP-FILE
```

```
system service update HTTPS-FILE
```

### Parameters

#### **FLASH-FILE**

Specifies the flash file path in format `flash://ms-images/filename`.

#### **USB-FILE**

Specifies the USB file path in format `usb://filename`.

#### **SCP-FILE**

Specifies the SCP file path in format `scp://username:password@host[:port]/filepath`.

#### **SFTP-FILE**

Specifies the SFTP file path in format `sftp://username:password@host[:port]/filepath`.

#### **HTTP-FILE**

Specifies the HTTP file path in format `http://[username:password@]host[:port]/filepath`.

#### **HTTPS-FILE**

Specifies the HTTPS file path in format `https://[username:password@]host[:port]/filepath`.

*username*

Account name of the authorized user.

*password*

Password of the authorized user.



#### **Note**

As a best practice, do not list the password in the command line for security purposes.

*hostname*

Specifies the server by name or IP address (IPv4 or IPv6). Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.

Hostname usage requires that DNS resolution is configured on the device.

*port*

Specifies the port number, which must be preceded by a colon. If the port is not included, the default port is assumed.

*filepath*

Specifies the path to the file.

## Modes

Exec mode

## Usage Guidelines

Service images are `tar.gz` files with the version format, `major.minor.patch`.

Validations for the command are as follows:

- This command is available only to users with the admin role.
- The target destination must be valid and reachable.
- The *major.minor* version numbers must be identical between the current and new images.

## Examples

The following example updates system service.

```
device# system service update flash://ms-images/chassis-mgr_1.1.0.tar.gz

device# system service update usb://chassis-mgr_1.1.0.tar.gz

device# system service update scp://test:pass@1.1.1.1/home/test/chassis-mgr_1.1.0.tar.gz

device# system service update sftp://test:pass@1.1.1.1/home/test/
interface_mgr_1.1.0.tar.gz

device# system service update http://1.1.1.1:8000/home/test/packet-mgr_1.1.0.tar.gz
```

## tacacs-server

---

Configures a Terminal Access Controller Access-Control System plus (TACACS+) server.

### Syntax

```
tacacs-server host ip address { plain-key | encrypted-key }  
no tacacs-server host ip address no key
```

### Parameters

#### **host**

Specifies the IPv4 or IPv6 address of the TACACS+ server.

#### *plain-key*

Specifies a secret string shared with the TACACS+ server in plain-text format. Supports 1 through 40 characters.

#### *encrypted-key*

Specifies a secret string shared with the TACACS+ server in encrypted format. Supports 1 through 128 characters.

### Modes

Config mode

### Usage Guidelines

A maximum of five TACACS servers are supported.

The following list shows non-configurable default settings:

```
DefaultPort = 49  
DefaultTimeout = 5  
DefaultRetries = 3  
Protocol = "CHAP"
```

Use the **no** form of the command to remove the configuration.

### Examples

The following example configures a TACACS+ server with an encrypted key.

```
device# configure terminal  
device(config)# tacacs-server host 10.24.15.201  
device(config-tacacs-config)# encrypted-key QjQkJLQUF3ncI1ooQCOaoEsBn5epVI3GsQwFD6i_BW  
device# show running-config tacacs-server  
tacacs-server host 10.2.3.5  
    key zgR4B-sop6rYJdrp5zmg3zDKx_N-LKQF8ubf40WuYGo
```



The following example shows the tacacs-server host being set as well as a plain-key.

```
device# configure terminal
device(config)# tacacs-server host 10.24.15.201
device(config-tacacs-config)# plain-key testKey
```

The following example shows information about configured TACAC+ servers.

```
device# show running tacacs-server
tacacs-server host 1.2.3.4
  encrypted-key JMeYDVdBN4Vb-wx35d7HnXIE8BL9KLUCePFwMNGoo
tacacs-server host 10.20.73.134
  encrypted-key QjQkJLQUF3ncI1ooQCOaoEsBn5epVI3GsQwFD6i_BWw
tacacs-server host 10.24.15.200
  encrypted-key aimBmdAKcaduyaPNfE68IiWGEYOMywtFxVv8Ftu5bqc
```

The following example removes the encrypted key from the server.

```
device(config)# tacacs-server host 10.24.15.201
device(config-tacacs-config)# no encrypted-key
```

---

## terminal

---

Configures screen length and timeout settings for a terminal.

### Syntax

```
terminal [ length lines | no length | timeout seconds | no timeout]
```

### Parameters

**length** *lines*

Specifies the number of lines on the screen.

**no length**

Resets the length to the default value of 24 lines.

**timeout** *seconds*

Specifies the number of seconds that the CLI waits for input before timing out.

**no timeout**

Sets the timeout to the default value.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following examples show how to set the timeout and length parameters.

```
device# terminal timeout 2148
device# terminal length 512
```

## traceroute

Sends ICMP echo requests with increasing TTL value to the specified IP.

### Syntax

```
traceroute [ [ IPADDR | NAME ] | [ ipv6 [ IPADDR | NAME ] ] [ max-ttl 1-255 | min-ttl 1-255 | timeout 1-60 ]
```

### Parameters

**IPADDR**

Specifies the destination IPV4 or IPV6 address.

**NAME**

Specifies the destination host name.

**max-ttl** 1-255

Specifies the maximum TTL, number of hops. Valid range is 1-255, default is 30.

**min-ttl** 1-255

Specifies the minimum TTL, number of hops. Valid range is 1-255, default is 1.

**timeout** 1-60

Specifies the timeout value in seconds. The range 1-60, default is 5 seconds.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

This command is also supported on gNOI.

### Examples

The following example sends ICMP echo requests.

```
device# traceroute 172.217.165.132

traceroute to 172.217.165.132 (172.217.165.132), 30 hops max, 60 byte packets
 1 host.internal (10.42.0.1) 0.053 ms 0.020 ms 0.018 ms
 2 10.20.73.129 (10.20.73.129) 0.330 ms 0.458 ms 0.478 ms
 3 10.22.3.6 (10.22.3.6) 0.897 ms 1.675 ms 1.751 ms
 4 10.22.3.17 (10.22.3.17) 0.950 ms 1.752 ms 1.746 ms
 5 10.22.3.13 (10.22.3.13) 8.126 ms 8.143 ms 8.199 ms
 6 10.254.127.58 (10.254.127.58) 3.409 ms 0.499 ms 0.578 ms
 7 134.141.55.25 (134.141.55.25) 0.497 ms 0.552 ms 0.542 ms
 8 208.185.247.161.IPYX-150368-ZYO.zip.zayo.com (208.185.247.161) 1.078 ms 1.228 ms 1.009
ms
 9 100.ge-11-3-4.mpr3.sjc7.us.zip.zayo.com.zip.zayo.com (208.185.247.73) 0.673 ms 0.663
ms 0.656 ms
```

```
10 ae16.crl.sjc2.us.zip.zayo.com (64.125.31.12) 4.104 ms 4.126 ms 4.237 ms
11 ae27.cs1.sjc2.us.eth.zayo.com (64.125.30.230) 3.512 ms 3.487 ms 5.108 ms
12 * * *
13 142.250.160.46 (142.250.160.46) 2.449 ms 2.440 ms 2.451 ms
14 209.85.243.50 (209.85.243.50) 2.209 ms 2.188 ms 2.180 ms
15 108.170.242.83 (108.170.242.83) 2.827 ms 2.846 ms 2.935 ms
16 142.250.234.137 (142.250.234.137) 2.722 ms 2.865 ms 2.858 ms
17 142.250.237.172 (142.250.237.172) 9.852 ms 9.826 ms 9.870 ms
18 * 142.250.235.172 (142.250.235.172) 51.634 ms *
19 * * *
20 216.239.57.137 (216.239.57.137) 68.178 ms * *
21 108.170.226.122 (108.170.226.122) 67.973 ms 66.627 ms 66.614 ms
22 108.170.248.1 (108.170.248.1) 67.274 ms 67.365 ms 67.498 ms
23 142.250.224.245 (142.250.224.245) 67.081 ms 67.077 ms 67.100 ms
24 172.217.165.132 (172.217.165.132) 67.678 ms 66.427 ms 66.502 ms

device# tracert -6 www.google.com

tracert to www.google.com (2404:6800:4004:808::2004), 30 hops max, 80 byte packets
 1 2001:2e8:665:0:2:2:0:1 (2001:2e8:665:0:2:2:0:1) 0.100 ms 0.052 ms 0.066 ms
 2 2001:2e8:22:204::2 (2001:2e8:22:204::2) 1.123 ms 1.082 ms 1.089 ms
 3 2001:2e8:20::22:11 (2001:2e8:20::22:11) 1.712 ms 1.603 ms 1.522 ms
 4 2001:3e0:5001:12::1 (2001:3e0:5001:12::1) 6.361 ms 6.278 ms 6.386 ms
 5 2001:7fa:7:1:0:1:5169:1 (2001:7fa:7:1:0:1:5169:1) 1.367 ms 1.346 ms 1.235 ms
 6 2001:4860:0:1002::1 (2001:4860:0:1002::1) 1.675 ms * *
 7 * * *
 8 nrt20s08-in-x04.1e100.net (2404:6800:4004:808::2004) 1.718 ms 1.602 ms 1.553 ms
```

## traffic-type

Configures or removes the specific header type to be matched for traffic classification.

### Syntax

```

traffic-type { gre | ipip } { mode [ new-scope | decap ] }
no traffic-type [ gre | ipip ] mode
traffic-type gtpu teid teid-value { mode [ new-scope | decap ] }
no traffic-type gtpu [ teid | mode ]
traffic-type nvgre vsid vsid-value { mode [ new-scope | decap ] }
no traffic-type nvgre [ vsid | mode ]
traffic-type vxlan vnid vnid-value { mode [ new-scope | decap ] }
no traffic-type vxlan [ vnid | mode ]

```

### Parameters

[ **gre** | **gtpu teid** *teid-value* | **ipip** | **nvgre vsid** *vsid-value* | **vxlan vnid** *vnid-value* ]

Specifies the header to be matched for classifying the packet.

Valid vsid range is 4096-16777214. The vsid range 1-4095 and VSID value 16777215 are reserved and not configurable.

Valid VNI range is 1-16777215.

Valid TEID range is 1-4294967295.

#### **mode**

Specifies the actions for matching packets.

#### **decap**

Removes the encapsulated header.

#### **new-scope**

Shifts the scope of headers to inner headers for further processing.

### Modes

Ingress-group config mode

### Usage Guidelines

Validations for the command are as follows:

- This command is available only to users with the admin role.
- Valid decapsulation type and corresponding ID must be provided.
- Only one traffic type per ingress group is allowed.

- The configured traffic type must be removed before you configure a new traffic type.
- Existing traffic type cannot be configured again with a different ID or scope.
- The mode of the existing traffic type can be deleted, but cannot be modified. The existing mode must be removed and reconfigured with the new mode.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- The `no` form of the command removes both traffic type and mode even if the mode is not specified.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

## Examples

The following examples configure traffic types `gre` and `ipip` with `decap` and `new-scope` modes.

```
device(config)# ingress-group ing-1
device(config-ingress-group)# traffic-type gre mode decap
device(config-ingress-group)# end

device# show running-config ingress-group ing-1
ingress-group ing-1
traffic-type gre mode decap

device(config-ingress-group)# traffic-type ipip mode new-scope

Show running:
device# show running-configuration ingress-group ing-1
ingress-group ing-1
traffic-type ipip mode new-scope
```

The following example configures `gtpu` traffic type with `decap` mode.

```
device(config-ingress-group)# traffic-type gtpu teid 3000 mode decap
device(config-ingress-group)# end

device# show running-config ingress-group ing
ingress-group ing
  traffic-type gtpu teid 3000
  traffic-type gtpu ip any any

device# conf t
device(config)# ingress-group ing
device(config-ingress-group)# no traffic-type gtpu teid
device(config-ingress-group)# traffic-type gtpu teid 5000 mode decap

show ingress-group ing

      Name : ing
      Route-Map : -
      Description : -
      Interfaces : none
      Traffic-Type : GTPU
      Tunnel-Id : 5000
      Mode : decap
      Destination-ip-addr : any
      Source-ip-addr : any

device# show running-config ingress-group
ingress-group ing
```

```

traffic-type gtpu teid 5000 mode decap
traffic-type gtpu ip any any

device# conf t
device(config)# ingress-group ing
device(config-ingress-group)# no traffic-type gtpu teid
device(config-ingress-group)# end
device# show running-config ingress-group

ingress-group ing
  traffic-type gtpu mode decap
  traffic-type gtpu ip any any

```

The following example configures nvgre traffic type with decap mode.

```

device(config-ingress-group)# traffic-type nvgre vsid 7000 mode decap
device(config-ingress-group)# end

device# show running-config ingress-group ing

ingress-group ing
  Name : ing
  Route-Map : -
  Description : -
  Interfaces : none
  Traffic-Type : NVGRE
  Tunnel-Id : 7000
  Mode : decap
  Destination-ip-addr : any
  Source-ip-addr : any

device# show running-config ingress-group

ingress-group ing
  traffic-type nvgre vsid 7000 mode decap
  traffic-type nvgre ip any any

device# conf t
device(config)# ingress-group ing
device(config-ingress-group)# no traffic-type nvgre mode
device(config-ingress-group)# end

device# show running-config ingress-group

ingress-group ing
  traffic-type nvgre vsid 7000
  traffic-type nvgre ip any any

```

The following example configures the vxlan traffic type with decap mode.

```

device(config-ingress-group)# traffic-type vxlan vni 2000 mode decap
device(config-ingress-group)# end

device# show running-config ingress-group ing

  Name : ing
    Route-Map : -
    Description : -
    Interfaces : none
    Traffic-Type : VxLAN
    Tunnel-Id : 2000
    Mode : decap
  Destination-ip-addr : any
  Source-ip-addr : any

```

```
device# show running-config ingress-group
  ingress-group ing
  traffic-type vxlan vni 2000 mode decap
  traffic-type vxlan ip any any

device(config)# ingress-group ing
device(config-ingress-group)# no traffic-type vxlan vni
device(config-ingress-group)# end

device# show running-config ingress-group
  ingress-group ing
  traffic-type vxlan mode decap
  traffic-type vxlan ip any any
```



## traffic-type ip

---

Configures the specific header type with the IP address to be matched for traffic classification.

### Syntax

```
traffic-type { gre | ipip | gtpu | vxlan | nvgre } ip [ src-ip src-mask  
dst-ip dst-mask ]
```

```
no traffic-type { gre | ipip | gtpu | vxlan | nvgre } ip
```

### Parameters

```
{ gre | ipip | gtpu | vxlan | nvgre }
```

Specifies the header to be matched for classifying the packet.

```
ip
```

Specifies the IPv4 or IPv6 addresses on matching packets.

```
src-ip src-mask dst-ip dst-mask
```

Specifies the source IPv4 or IPv6 address, source IPv4 or IPv6 mask, destination IPv4 or IPv6 address, and destination IPv4 or IPv6 mask values.

### Modes

Ingress-group config mode

### Usage Guidelines

Validations for the command are as follows:

- This command is available only to users with the admin role.
- Valid IP addresses must be provided. The following IP addresses are not valid:
  - Unspecified IPv4 address (0.0.0.0)
  - Broadcast IPv4 address (255.255.255.255)
  - Unspecified IPv6 address ("::")
  - Broadcast IPv6 address (ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff)
- Only one traffic type per ingress group is allowed.
- The configured traffic type must be removed before you configure a new traffic type.
- Existing traffic type cannot be configured again with a different ID, IP, or scope.
- Both IPv4 and IPv6 addresses are supported.
- The overlapping IP combination between different ingress-group traffic-type is not allowed.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- The **no** keyword can remove only the IP configuration.

## Examples

The following examples configures gtpu traffic type with IP address.

```
device(config-ingress-group)# traffic-type gtpu ip 192.168.2.1 255.255.255.0 192.168.3.2
255.255.255.0

device# show ingress-group ing

  Name : ing
    Route-Map : -
    Description : -
    Interfaces : none
    Traffic-Type : GTPU
    Tunnel-Id : any
    Mode : none
  Destination-ip-addr : 192.168.3.2
  Destination-ip-mask : 255.255.255.0
  Source-ip-addr : 192.168.2.1
  Source-ip-mask : 255.255.255.0
```

## **NEW!** traffic-type mpls outer

---

Filters Multiprotocol Label Switching Segment Routing (MPLS-SR) packets.

### Syntax

```
traffic-type mpls outer header1 { [ label1 | any ] [ tc1 | any ] [ ttl1 |  
    any ] }  
no traffic-type mpls outer header1  
no traffic-type mpls outer
```

### Parameters

#### **mpls outer**

Specifies that the MPLS-SR is the outer encapsulation type to be matched to classify packet. MPLS can be the outer encapsulation or the only encapsulation.

#### **header1**

Configures the MPLS Bottom of Stack header (inner-most header) values to be matched.

#### **label1**

Specifies the label value of the MPLS Bottom of Stack to be matched. Valid range is 0 through 1048575.

#### **any**

Matches all values of the specified parameter.

#### **tc1**

Specifies the value of Traffic Class (earlier named as Experimental bits) from the Bottom of Stack MPLS header to be matched. Valid range is 0 through 7.

#### **ttl1**

Specifies the value of time-to-live field from the Bottom of Stack MPLS header to be matched. Valid range is 1 through 255.

### Modes

Ingress-group config mode

### Usage Guidelines

This command is available only to users with the admin role.

This command classifies MPLS-SR packets by removing all MPLS headers and sending payload to the tools. You can use the ingress or egress ACLs to match packets based on the payload fields.

The packets can also be classified based on the Bottom of Stack (inner-most header) MPLS header values.

Removal of MPLS headers is supported for maximum depth of four MPLS labels.

Validations for the command are as follows:

- A maximum of four MPLS labels are supported.
- The configured MPLS header values must be removed before you configure a new header value.
- When MPLS header values are not set, all values in innermost header are classified.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.

## Examples

The following example enables classification of packets based on MPLS headers.

```
device(config-ingress-group)# traffic-type mpls outer header1 12345 3 250

device(config-ingress-group)# do show ingress-group all

Number of ingress-groups: 1
  Name : igg1
    Route-Map : rmap1
    Description : -
    Interfaces : ethernet 0/1

  Outer Tunnel Config :
    Traffic-Type : MPLS
  Header1 (Bottom of Stack header):
    label : 12345
    Traffic Class : 3
    Time to Live : 250
    Mirror : none
```

## traffic-type outer mirror

---

Configures VXLAN or MPLS as outermost encapsulation type with the mirror action to classify MPLS Segment Routing packets.

### Syntax

```
traffic-type [ vxlan | mpls ] outer mirror name  
no traffic-type [ vxlan | mpls ] outer mirror name  
no traffic-type [ vxlan | mpls ] outer mirror name
```

### Parameters

#### **vxlan**

Specifies the VXLAN outermost header to be matched to classify packet in double encapsulated packet.

#### **mpls**

Specifies MPLS as the encapsulation type to be matched to classify packet. MPLS can be the outer encapsulation or the only encapsulation.

#### **outer**

Specifies the outer-most header to be matched to classify packet.

#### **mirror**

Enables the mirror action for the outer VXLAN tunnel.

#### *name*

Specifies the mirror name.

### Modes

Ingress-group config mode

### Usage Guidelines

This command enables mirroring in double encapsulation traffic with VXLAN as outermost header or traffic with MPLS outer encapsulation type. Successfully classified traffic is mirrored to the configured front-panel interface.

Validations for the command are as follows:

- This command is available only to users with the admin role.
- Outer config must be VXLAN tunnel or MPLS encapsulation.
- The mirror must not be already configured.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- The `no` form of the command can remove just the mirror or the entire VXLAN or MPLS outer configuration.

## Examples

The following example configures the mirror for the VXLAN outermost header.

```
device(config-ingress-group)# traffic-type vxlan outer mirror mirr_1

device# show ingress-group ing
  Name : ing
    Route-Map : -
    Description : -
    Interfaces : none
    Traffic-Type : GTPU
    Tunnel-Id : any
    Mode : none
  Destination-ip-addr : 192.168.3.2
  Destination-ip-mask : 255.255.255.0
  Source-ip-addr : 192.168.2.1
  Source-ip-mask : 255.255.255.0

  Outer Tunnel Config :
    Traffic-Type : VxLAN
    Tunnel-Id : any
  Destination-ip-addr : 192.168.5.2
  Destination-ip-mask : 255.255.255.0
  Source-ip-addr : 192.168.4.2
  Source-ip-mask : 255.255.255.0
  Mirror : mirr_1
```

The following example configures the mirror for MPLS outer header.

```
device(config-ingress-group)# traffic-type mpls outer mirror mirr_2

device(config-ingress-group)# do show ingress-group all
Number of ingress-groups: 1
  Name : igg1
    Route-Map : rmap1
    Description : -
    Interfaces : ethernet 0/1

  Outer Tunnel Config :
    Traffic-Type : MPLS
  Header1 (Bottom of Stack header):
    label : 12345
    Traffic Class : 3
    Time to Live : 250
    Mirror : mirr_2
```

## traffic-type vxlan outer ip

Configures the VXLAN outermost header with the IP address in double encapsulation traffic.

### Syntax

```
traffic-type vxlan outer ip src-ip src-mask dst-ip dst-mask
```

```
no traffic-type vxlan outer ip src-ip src-mask dst-ip dst-mask
```

### Parameters

#### **vxlan outer**

Specifies the VXLAN outermost header to be matched to classify packet in double encapsulated packet.

#### **ip**

Specifies the IP address matching packets.

*src-ip src-mask dst-ip dst-mask*

Specifies the source IPv4 address, source IPv4 mask, destination IPv4 address, and destination IPv4 mask values.

### Modes

Ingress-group config mode

### Usage Guidelines

This command is available only to users with the admin role.

Only the VXLAN tunnel is supported for outer config.

Valid IP addresses must be provided.

IPv6 is not supported for the VXLAN outer configuration.

The overlapping IP combination between different ingress-group traffic-type is not allowed.

If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.

The **no** keyword can remove only the IP configuration.

### Examples

The following example configures the VXLAN outermost header.

```
device(config-ingress-group)#  
traffic-type vxlan outer ip 192.168.4.2 255.255.255.0 192.168.5.2 255.255.255.0  
  
device# show ingress-group ing
```

```
Name : ing
  Route-Map : -
  Description : -
  Interfaces : none
  Traffic-Type : GTPU
  Tunnel-Id : any
  Mode : none
Destination-ip-addr : 192.168.3.2
Destination-ip-mask : 255.255.255.0
Source-ip-addr : 192.168.2.1
Source-ip-mask : 255.255.255.0

Outer Tunnel Config :
  Traffic-Type : VxLAN
  Tunnel-Id : any
Destination-ip-addr : 192.168.5.2
Destination-ip-mask : 255.255.255.0
Source-ip-addr : 192.168.4.2
Source-ip-mask : 255.255.255.0
Mirror : none
```



## traffic-type vxlan outer vni

Configures VXLAN outermost header for VNI match based classification.

### Syntax

```
traffic-type vxlan outer vni vni-value
```

```
no traffic-type vxlan outer vni vni-value
```

### Parameters

#### **vxlan outer**

Specifies the VXLAN outermost header to be matched to classify packet in double encapsulated packet.

#### **vni** vni-value

Specifies the VNI value to be matched. The valid range is 1-16777215.

### Modes

Ingress-group config mode

### Usage Guidelines

This is an individual command used with the other **vxlan outer config** commands.

Validations for the command are as follows:

- This command is available only to users with the admin role.
- Only the VXLAN tunnel is supported for outer config.
- The VNI must not be already configured.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- The **no** keyword can remove just the VNI or the entire VXLAN outer configuration.

### Examples

The following example configures the VXLAN outermost header.

```
device(config-ingress-group)# traffic-type vxlan outer vni 2000
device# show ingress-group ing

  Name : ing
  Route-Map : -
  Description : -
  Interfaces : none
  Traffic-Type : GTPU
  Tunnel-Id : any
  Mode : none
  Destination-ip-addr : 192.168.3.2
  Destination-ip-mask : 255.255.255.0
```

```
Source-ip-addr : 192.168.2.1  
Source-ip-mask : 255.255.255.0
```

```
Outer Tunnel Config :  
  Traffic-Type : VxLAN  
  Tunnel-Id : 2000  
Destination-ip-addr : 192.168.5.2  
Destination-ip-mask : 255.255.255.0  
Source-ip-addr : 192.168.4.2  
Source-ip-mask : 255.255.255.0  
Mirror : mirr_1
```

## transport-tunnel

---

Creates a new transport tunnel.

### Syntax

```
transport-tunnel tunnel-name
```

```
no transport-tunnel tunnel-name
```

### Parameters

*tunnel-name*

Specifies the name of the transport tunnel. Supports 64 characters.

The name must start with an alphabet character or an underscore character, followed by alphanumeric characters or special characters (underscores, hyphens, or periods).

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

The following reserved keywords cannot be used as name identifiers: `all`, `ingress-group`, `egress`, `egress-group`, `match`, `list`, `access-list`, `route-map`, and `listener-policy`.

The transport tunnel name cannot be same as the ingress group that is associated with the transport tunnel.

If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

The attached route-map must be a member of at least one interface, LAG, or transport tunnel. Remove the route map from ingress group or attach the ingress group to another interface, LAG, or transport tunnel before removing it from the tunnel.

### Examples

The following example configures transport tunnel.

```
device(config)# transport-tunnel tt1
device(config-transport-tunnel)#

Show running:
device# show running-config transport-tunnel tt1
transport-tunnel tt1
```

---

## truncate

---

Truncates received packets to the configured length for the current route map or listener policy.

### Syntax

```
truncate length
```

```
no truncate
```

### Parameters

*length*

Specifies the truncated length of received packets. The valid range is 64 to 9000.

### Modes

Route-map config mode

Listener-policy config mode

Route-map config mode

### Examples

The following example configures received packets to a length of 100 for the current route map and uses the show command to verify configuration.

```
device# configure terminal
device(config)# route-map mall2
device(config-route-map)# truncate 100
device(config-route-map)# end

device# show route-map mall2
route-map mall2 45
forward-action permit
truncate 100
Policy matches: 0 packets, 0 bytes, 0 Packets/secRate, 0 Bits/secRate
```

The following example configures received packets to a length of 63 for the listener policy.

```
device# configure terminal
device(config)# listener-policy lp1 <scriptId>
device(config-listener-policy)# truncate 63
```

The following example deletes configured truncation for received packets for the current route map.

```
device(config)# route-map mall2
device(config-route-map)# no truncate
```

## tunnel-type ipv4

---

Configures the source IPv4 address with mask and tunnel-type for the transport tunnel packets to be terminated.

### Syntax

```
tunnel-type [ gre | erspan ] [ ipv4-src ipaddr mask ]  
no tunnel-type [ gre | erspan ] [ ipv4-src ipaddr mask ]
```

### Parameters

**gre** | **erspan**

Specifies the type of tunnel to be terminated.

**ipv4-src** *ipaddr mask*

Specifies the source IPv4 address and mask configured in dotted decimal notation. Example: 196.168.0.1.

### Modes

Transport tunnel config mode

### Usage Guidelines

This command is available only to users with the admin role.

If all the parameters match along with the chassis MAC, the transport header is removed and packets are subjected to further processing.

If the IP address is not provided, all packets matching the tunnel type or transport header type are configured for termination.

Validations for the command are as follows:

- Valid tunnel type must be provided.
- Valid IP address and mask must be provided.
- Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.
- Only one tunnel type per transport tunnel is allowed. The configured tunnel type must be removed before you configure a new tunnel type.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

## Examples

The following examples configure the transport tunnel:

```
device(config-transport-tunnel)# tunnel-type erspan ipv4-src 192.168.2.10 255.255.0.0

device(config-transport-tunnel)# tunnel-type gre ipv4-src 10.10.2.3 255.255.255.0

device# show running-config transport-tunnel tt1
transport-tunnel tt1
    tunnel-type gre ipv4-src 10.10.2.3 255.255.255.0
```

## **NEW!** tunnel-type ipv6

---

Configures the source IPv6 address with mask and tunnel type for the transport tunnel packets to be terminated.

### Syntax

```
tunnel-type gre [ ipv6-src ipaddr mask ]  
no tunnel-type gre [ ipv6-src ipaddr mask ]
```

### Parameters

#### **gre**

Specifies the type of tunnel to be terminated.

#### **ipv6-src** *ipaddr mask*

Specifies the source IPv6 address and mask configured in hexadecimal between 0 and FFFF.

Example: 202:304:606:708:90a:b0c:d0e:f11.

The upper 4 bytes and lower 8 bytes of the mask must be zero because only 32 bits out of 128 bits of IPv6 are supported. Example: 0000:0000:FFFF:FFFF:0000:0000:0000:0000.

### Modes

Transport tunnel config mode

### Usage Guidelines

This command is available only to users with the admin role.

If all the parameters match along with the chassis MAC, the transport header is removed and packets are subjected to further processing.

If the IP address is not provided, all packets matching the tunnel type or transport header type are configured for termination.

Validations for the command are as follows:

- Tunnel type must be GRE.
- Valid IP address and mask must be provided.
- Only valid unicast IP addresses are supported. Multicast IP addresses are not supported.
- Only one tunnel type per transport tunnel is allowed. The configured tunnel type must be removed before you configure a new tunnel type.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the **no** form of the command is run without the configuration, the command is ignored and no error is reported.

## Examples

The following example configures the transport tunnel.

```
device(config-transport-tunnel)# tunnel-type gre ipv6-src
2233:304:606:708:90a:b0c:d0e:f11

device(config)# show transport-tunnel tt1

                Name : tt1
Source-Ipv6-Addr : 2233:304:606:708:90a:b0c:d0e:f11
Source-Ipv6-Mask : 0000:0000:FFFF:FFFF:0000:0000:0000:000
                Tunnel-Type : GRE
                Ingress-Group : none

device# show running-config transport-tunnel
transport-tunnel tt1
    tunnel-type gre ipv6-src 2233:304:606:708:90a:b0c:d0e:f11
0000:0000:FFFF:FFFF:0000:0000:0000:000
```



## usb enable

---

Enables access to the USB.

### Syntax

**usb enable**

**no usb enable**

### Parameters

**enable**

Enables access to the USB. USB access is disabled by default.

### Modes

Exec mode

### Usage Guidelines

This command is available only to users with the admin role.

USB access is disabled after firmware upgrade, downgrade, or reboot.

The `no` form of the command disables access to the USB storage device.

### Examples

The following example enables access to the USB.

```
device# usb enable
```

## username

---

Configures user along with role for local authentication.

### Syntax

```
username username role role password password [ encryption-level 0 | 10 ]  
no username username
```

### Parameters

*username*

Specifies the user name. The username supports 1-32 characters. Characters allowed are alpha-numeric, underscore, and dot. Underscore is not allowed as the first character.

**role**

Specifies the predefined role to be assigned to the user. The supported roles are admin and user. The role supports 1-32 characters. Characters allowed are alpha-numeric, underscore and dot. Underscore is not allowed as the first character.

**password**

Specifies the password of the user. Supported length of the plain text password is 8-40 and 8-128 for hashed passwords.

**encryption-level** 0 | 10

Specifies whether the password input is encrypted. The values 0 and 10 indicate clear-text and encryption. The default value is 0.

### Modes

Config mode

### Usage Guidelines

This command is available only to users with the admin role.

### Examples

The following example configures users with admin and user roles.

```
device# configure terminal  
device(config)# username testuser1 role admin password password123 encryption-level 0  
device(config)# username testuser2 role user password  
$6$salt$cevuzTZ/QBjzuZG0/ebEeedmcTnhyM8ITUu8K032Cp2XvIibq7voqYagm18bwpLBqrg  
/1/16YxTmKKibJz5r10 encryption-level 10  
  
device# show running-config username  
username testuser1 role admin password  
$6$salt$cevuzTZ/QBjzuZG0/ebEeedmcTnhyM8ITUu8K032Cp2XvIibq7voqYagm18bwpLBqrg  
/1/16YxTmKKibJz5r10 encryption-level 10  
username testuser2 role user password
```

```
$6$salt$cevuzTZ/QBjzuZG0/ebEeedmcTnhyM8ITUu8K032Cp2XvIibq7voqYagm18bwpLBqrg  
/1/16YxTmKKibJz5r10 encryption-level 10
```

## vlan

Configures forwarding actions by VLAN ID to be performed on outgoing packets.

### Syntax

```
vlan vlan-id  
no vlan vlan-id
```

### Parameters

*vlan-id*

Specifies the VLAN ID to be configured. Valid range is 1 through 4095.

### Modes

Listener-policy config mode

### Usage Guidelines

Action is determined by forward-action setting in the listener policy.

- If the **forward-action** is set to deny, packets are dropped.
- If the **forward-action** is set to permit, the VLAN ID is changed to the configured value for permitted packets.
- Valid VLAN ID must be provided.
- VLAN ID must be unique per listener policy.

### Examples

The following example configures the VLAN ID for listener policy, and then uses the show command to verify the configuration.

```
device# configure terminal  
device(config)# listener-policy lp1 12  
device(config-listener-policy)# vlan 500  
device(config-listener-policy)# end  
device#  
  
device# show listener-policy lp1 12  
forward-action permit  
match ip access-list test_2 (active)  
truncate 512  
strip vn-tag  
vlan 500  
Policy matches: 0 packets, 0 bytes, 0 Packets/sec, 0 Bits/sec
```

The following example removes the VLAN ID configuration from the listener policy, and then uses the show command to verify the VLAN ID is removed from the configuration.

```
device# configure terminal  
device(config)# listener-policy lp1 12
```

```
device(config-listener-policy)# no vlan
device(config-listener-policy)# end
device#

device# show listener-policy lpl 12
forward-action permit
match ip access-list test_2 (active)
truncate 512
strip vn-tag
Policy matches: 0 packets, 0 bytes, 0 Packets/sec, 0 Bits/sec
```

## vlan-id

---

Configures VLAN ID for encapsulation of outgoing packets.

### Syntax

```
vlan-id vlan-id-value  
no vlan-id vlan-id-value
```

### Parameters

*vlan-id*

Specifies the VLAN ID to be configured. Valid range is 1 through 4096.

### Modes

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- Valid VLAN ID must be provided.
- Single VLAN ID per encapsulation is allowed. Already configured VLAN ID must be removed before configuring a new VLAN ID.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

### Examples

The following example configures the VLAN ID.

```
device(config-encap-1)# vlan-id 1234  
device(config-encap-1)#  
  
device# show running-configuration  
encap encap-1  
vlan-id 1234
```

## vlan-pcp

Configures VLAN priority (PCP) value for encapsulation of outgoing packets.

### Syntax

```
vlan-pcp vlan-pcp-value  
no vlan-pcp vlan-pcp-value
```

### Parameters

```
vlan-pcp vlan-pcp-value
```

Specifies the VLAN PCP value. Valid values are 0 through 7.

### Modes

Encap config mode

### Usage Guidelines

Validations for the command are as follows:

- This command is optional.
- When this parameter is not configured, the outgoing packet does not contain a VLAN header.
- If this command is enabled without configuring `vlan-id`, the outgoing packet will not contain the VLAN header.
- Valid VLAN PCP value must be provided.
- If another VLAN PCP is already configured, it must be removed before configuring a new VLAN PCP.
- If the same command is run more than once, the second and subsequent instances are ignored and no error is reported.
- If the `no` form of the command is run without the configuration, the command is ignored and no error is reported.

### Examples

The following example configures `vlan-pcp` and verifies the configuration with the `show` command.

```
device# configure terminal  
device(config)# encap encap-1  
device#(config-encap)# vlan-id 4000  
device(config-encap)# vlan-pcp 2  
device(config-encap)# end  
  
device# show running-config encap encap-1  
encap encap-1  
  vlan-id 4000  
  vlan-pcp 2
```