



Aruba

# Command Line Interface Reference Guide

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Aruba Command Line Interface Reference Reference Guide

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# Contents

---

Copyright and Trademarks .....	2
Support .....	3
<b>Using the Command Line Interface .....</b>	<b>12</b>
CLI Modes .....	13
User EXEC Mode .....	13
Privileged EXEC Mode .....	14
Global Configuration Mode .....	15
User Privilege Levels .....	16
Monitor .....	16
Administrator .....	16
User Names .....	17
Passwords .....	18
Naming Objects .....	19
Understanding the Command Syntax .....	20
Syntax Helper .....	20
Command History .....	20
Conventions Used in this Manual .....	21
Typographical Conventions .....	21
Syntax Notation .....	21
Using the Command Line-Editing Keys .....	22
Configuring DB-9 Console Access to the Appliance .....	23
<b>Administration Commands .....</b>	<b>24</b>
aaa authentication login default .....	25
aaa authorization map .....	26
arp .....	27
boot system .....	28
clear .....	29
cli .....	30
configuration .....	32
email .....	35
email send-test .....	37
excess-flow .....	38
file debug-dump .....	39
file job upload .....	41
file stats .....	42
file tcpdump .....	43
file upload cancel .....	44
help .....	45
image boot .....	46

---

image install .....	47
image upgrade .....	48
job .....	49
job execute .....	51
license .....	52
proxy-arp .....	53
radius-server .....	54
reboot .....	56
reload .....	57
system disk .....	58
system eclicense .....	59
system firmware .....	60
system passthru-to-sender .....	61
system peer-list .....	62
tacacs-server .....	63
tca .....	65
terminal .....	69
username .....	70
web .....	72
write .....	74
<b>Configuration Commands .....</b>	<b>75</b>
access-list .....	76
IP Address and Netmasks .....	78
Using Deny .....	79
active-flows .....	80
application .....	81
application-group .....	83
banner login .....	85
banner motd .....	86
bgp .....	87
bridge .....	90
cdp .....	91
cifs signing delegation domain .....	92
clock set .....	93
clock timezone .....	94
cluster .....	96
configure terminal .....	97
disable .....	98
dns cache .....	99
enable .....	100
enable password .....	101
exit .....	102
flow-export .....	103
flow-redirection .....	105

---

hostname .....	106
iflabel .....	107
interface cdp .....	108
interface dhcp .....	109
interface inbound-max-bw .....	110
interface ip address .....	111
interface label .....	112
interface lan-if .....	113
interface mac address .....	114
interface mtu .....	115
interface outbound-max-bw .....	116
interface pass-through .....	117
interface security-mode .....	118
interface shutdown .....	119
interface speed-duplex .....	120
interface tunnel admin .....	121
interface tunnel alias .....	122
interface tunnel bind-tunnel .....	123
interface tunnel control-packet .....	124
interface tunnel create .....	126
interface tunnel gre-protocol .....	128
interface tunnel ipsec .....	129
interface tunnel max-bandwidth .....	131
interface tunnel min-bandwidth .....	132
interface tunnel mode .....	133
interface tunnel mtu .....	135
interface tunnel nat-mode .....	136
interface tunnel packet .....	137
interface tunnel peer-name .....	139
interface tunnel revert .....	140
interface tunnel tag-name .....	141
interface tunnel threshold .....	142
interface tunnel traceroute .....	144
interface tunnel udp-flow .....	145
interface tunnel udp-port .....	146
interface virtual .....	147
interface vrrp .....	148
interface wan-if .....	151
ip datapath route .....	152
ip default-gateway .....	154
ip domain-list .....	156
ip host .....	157
ip mgmt-ip .....	158
ip name-server .....	159
ip route .....	160

---

ip-tracking .....	162
nat-map .....	164
nat-map activate .....	166
nat-map comment .....	167
nat-map match .....	168
nat-map modify-priority .....	170
nat-map set .....	171
no nat-map .....	173
no opt-map .....	174
no qos-map .....	175
no route-map .....	176
ntp .....	177
ntpdate .....	179
opt-map .....	180
opt-map activate .....	182
opt-map comment .....	183
opt-map match .....	184
opt-map modify-priority .....	187
opt-map set .....	188
overlay .....	192
preposition ftp .....	195
qos-map .....	196
qos-map activate .....	197
qos-map comment .....	198
qos-map match .....	199
qos-map modify-priority .....	202
qos-map set .....	203
route-map .....	205
route-map activate .....	206
route-map comment .....	207
route-map match .....	208
route-map modify-priority .....	211
route-map set .....	212
saas .....	215
shaper inbound .....	216
shaper outbound .....	218
snmp-server .....	220
snmp-server user v3 .....	223
ssl auth-certificate .....	225
ssl builtin-signing .....	227
ssl cert-substitution .....	228
ssl host-certificate .....	229
ssl signing-certificate .....	231
ssl subs-certificate .....	233
subnet .....	234

---

system arp-table-size .....	236
system auto-ipid .....	237
system auto-mac-configure .....	238
system auto-policy-lookup .....	239
system auto-subnet .....	240
system auto-syn .....	241
system auto-tunnel .....	242
system auto-tunnel allow .....	243
system bandwidth .....	244
system bonding .....	245
system bypass .....	246
system contact .....	248
system disk encryption .....	249
system dpc .....	250
system hostname .....	251
system igmp-snooping .....	252
system int-hairpin .....	253
system location .....	254
system mode .....	255
system nat-all-inbound .....	257
system nat-all-outbound .....	258
system network-memory .....	259
system registration .....	260
system router .....	261
system routing .....	263
system smb-signing .....	264
system ssl-ipsec-override .....	265
traffic-class .....	266
wccp .....	267

<b>Monitoring Commands .....</b>	<b>271</b>
monitor .....	272
show aaa .....	273
show access-list .....	274
show alarms .....	275
show application .....	277
show application-builtin .....	279
show application-group .....	280
show arp .....	282
show banner .....	283
show bgp .....	284
show bootvar .....	285
show bridge .....	286
show cdp .....	288
show cifs signing delegation .....	290

---

show cli .....	291
show clock .....	292
show cluster .....	293
show configuration .....	294
show email .....	296
show excess-flow .....	297
show files .....	298
show flow-debug .....	300
show flow-export .....	301
show flow-redirection .....	302
show hosts .....	303
show iflabels .....	304
show image .....	305
show interfaces .....	306
show interfaces cdp .....	308
show interfaces pass-through .....	309
show interfaces security .....	312
show interfaces tunnel .....	313
show interfaces virtual .....	316
show interfaces vrrp .....	317
show ip .....	318
show ip-tracking .....	319
show jobs .....	321
show licenses .....	322
show l3 .....	323
show log .....	325
show log audit .....	328
show log-files .....	330
show log-list matching .....	332
show logging .....	333
show memory .....	336
show nat-map .....	337
show nat statistics .....	339
show ntp .....	340
show opt-map .....	341
show overlay .....	345
show overlay-common .....	347
show pass-through .....	348
show preposition .....	350
show proxy-arp .....	351
show qos-map .....	352
show radius .....	355
show route-map .....	356
show running-config .....	359
show selftest disk .....	360

---

show shaper .....	361
show snmp .....	362
show ssh .....	364
show ssl .....	365
show stats .....	366
show stats tunnel .....	368
show subif .....	370
show subnet .....	371
show system .....	373
show tacacs .....	376
show tca .....	377
show tech-support .....	380
show terminal .....	381
show tunnel .....	382
show usernames .....	385
show users .....	386
show version .....	387
show vlan .....	389
show vrrp .....	390
show wccp .....	391
show web .....	394
show whoami .....	395
<b>Alarm Commands .....</b>	<b>396</b>
alarms .....	397
logging .....	398
logging facility .....	400
logging files .....	401
logging local .....	403
logging trap .....	404
<b>Troubleshooting Commands .....</b>	<b>406</b>
debug generate dump .....	407
flow-debug .....	408
hping2 .....	410
MODE .....	410
IP .....	411
ICMP .....	411
UDP/TCP .....	412
Common .....	413
ARS packet description (new, unstable) .....	413
mtr .....	414
ping .....	417
selftest .....	420

---

slogin .....	421
ssh client global .....	425
ssh client user .....	427
ssh server .....	429
tcpdump .....	431
tcptraceroute .....	436
tech-support create job .....	439
telnet .....	440
traceroute .....	442

## Using the Command Line Interface

This document provides details of the command syntax for Silver Peak's VXOA software.

This document does not provide feature descriptions or explanations of the technologies. For information about the various features and technologies supported by Silver Peak physical and virtual appliances, see the *Silver Peak Appliance Manager Operator's Guide*.

## CLI Modes

This section describes the following three command modes that the CLI uses for the Silver Peak NX Series appliances:

- User EXEC Mode
- Privileged EXEC Mode
- Global Configuration Mode

Being in a particular command mode determines which commands you may execute. To display a list of the command that are available to you, enter that command mode and type ? (a question mark).

### User EXEC Mode

When you first log in to a Silver Peak appliance, you are in the User EXEC mode. The User EXEC mode provides access to commands for non-configuration tasks, such as checking the appliance status. When you are in this mode, the following prompt displays:

**<appliance>**

where *appliance* is the name of the appliance on which you logged in.

In the User EXEC mode, you have access to the following commands:

<b>cli</b>	Configure CLI shell options
<b>enable</b>	Enter enable mode
<b>exit</b>	Log out of the CLI
<b>no</b>	Negate or clear certain configuration options
<b>ping</b>	Send ICMP echo requests to a specified host
<b>show</b>	Display system configuration or statistics
<b>slogin</b>	Log into another system securely using ssh
<b>telnet</b>	Log into another system using telnet
<b>terminal</b>	Set terminal parameters
<b>traceroute</b>	Trace the route packets take to a destination
<b>wccp</b>	Configure WCCP

## Privileged EXEC Mode

The Privileged EXEC mode provides access to all the commands you could execute in User EXEC mode, as well as several additional commands. Also, from this mode, you can enter Global Configuration mode. Most of the commands that the Privileged EXEC mode makes available are one-time commands, such as **show** commands, which show the current configuration status, and **clear** commands, which clear counters or interfaces.

To enter Privileged EXEC mode, type **enable** to log in as privileged user, which displays this prompt:

**<appliance> #**

where *appliance* is the name of the appliance on which you logged in.

In the Privileged EXEC mode, you access to the following commands:

<b>clear</b>	Reset certain statistics or clear caches
<b>cli</b>	Configure CLI shell options
<b>configure</b>	Enter configuration mode
<b>debug</b>	Debugging commands
<b>disable</b>	Leave enable mode
<b>email</b>	Configure e-mail and event notification via e-mail
<b>exit</b>	Log out of the CLI
<b>file</b>	Manipulate files on disk
<b>image</b>	Manipulate system software images
<b>job</b>	Configure scheduled jobs
<b>logging</b>	Configure event logging
<b>no</b>	Negate or clear certain configuration options
<b>ntpdate</b>	Set system clock once from a remote server using NTP
<b>ping</b>	Send ICMP echo requests to a specified host
<b>reboot</b>	Reboot or shut down the system
<b>show</b>	Display system configuration or statistics
<b>slogin</b>	Log into another system securely using ssh
<b>system</b>	Configure system level information
<b>tcpdump</b>	Display packets on a network
<b>telnet</b>	Log into another system using telnet
<b>terminal</b>	Set terminal parameters
<b>traceroute</b>	Trace the route packets take to a destination
<b>write</b>	Save the running configuration to persistent storage

## Global Configuration Mode

The Global Configuration mode allows you to make changes to the running configuration. If you later save the configuration, these commands are stored across appliance reboots. To enter the Global Configuration mode, you must first enter the Privileged EXEC mode and then type **configure terminal** at the prompt. When you press **Enter**, the following prompt displays:

```
<appliance> (config) #
```

where *appliance* is the name of the appliance on which you logged in.

The Global Configuration mode provides access to all CLI commands, including those available to the User EXEC and Privileged EXEC modes.

You must have an Administrator user privilege level to access the Global Configuration mode.

To leave Global Configuration mode, you can use the command:

```
<appliance> (config) # no configure
```

## User Privilege Levels

The CLI has two user privilege levels, which determine the CLI modes you may enter and the commands you can execute. You can log in to one of the following user privilege levels:

- Administrator
- Monitor

To execute a CLI command at the prompt, you must be logged in at the required user privilege level for that command. For example, most configuration commands require you to have the Administrator privilege level.

You cannot delete user IDs in the CLI; you can only change the password for a user.

### Monitor

The Monitor user privilege level is the default privilege level for the CLI. This privilege level provides access to both the User EXEC and Privileged EXEC modes. The Monitor user privilege level does not have access to most configuration commands.

### Administrator

The Administrator user privilege level has full access to all modes and commands in the CLI.

## User Names

When you create a user name, ensure that the first character of the name is alphabetical (a-z or A-Z). The remaining characters must include one of the following:

- alphabetical (upper or lower case)
- numerical
- dash (-)
- underscore (\_)
- dot (.)

No spaces are allowed.

## Passwords

- You can establish passwords for a user to enter the Privilege EXEC or Global Configuration modes.
- The CLI provides no restrictions on the password you create for a user.
- You may enter a clear-text password or use a utility to create an encrypted password for a user.
- There are also no restrictions on the use of, or requirement for, special characters in the password.

## Naming Objects

When you create a name for an object, such as a tunnel, access control list, or a route map, you can use one of the following characters:

- alphabetical (upper or lower case)
- numerical
- dash (-)
- underscore (\_)
- dot (.)

The Silver Peak command line interface (CLI) supports only the US character set.

## Understanding the Command Syntax

The following symbols are used in the CLI documentation to describe the command syntax. When you execute commands in the CLI, do not type these characters:

<b>Angled brackets</b>	<b>&lt;&gt;</b>	Enclose a variable or a value that you must specify in the command. For example, in the syntax: <b>configure vlan &lt;vlan name&gt; ip address &lt;ip_address&gt;</b> , you must supply a VLAN name for the variable <b>&lt;vlan name&gt;</b> and an IP address for the variable <b>&lt;ip_address&gt;</b> when you enter the command.
<b>Vertical bars</b>	<b> </b>	Separate mutually exclusive items in a list, one of which must be entered. For example, in the syntax <b>file upload &lt;filename&gt;   cancel</b> , you must specify either the file name variable or the word, <b>cancel</b> , when you enter the command.
<b>Curly brackets</b>	<b>{ }</b>	Enclose a required value or list of required arguments. One or more values or arguments can be specified in square brackets. For example, in the syntax <b>configure snmp community {read-only   read-write} &lt;string&gt;</b> , you must include either the <b>read-only</b> or <b>read-write</b> argument in the command.
<b>Square brackets</b>	<b>[ ]</b>	Enclose an optional value or a list of optional arguments. You can specify in curly brackets one or more values or arguments that are not required to execute the command. For example, in the syntax <b>reboot [&lt;date&gt; &lt;time&gt;   cancel]</b> , you can choose to use the reboot command without any arguments. Alternately, you can specify either a particular date and time combination or the keyword <b>cancel</b> to cancel a previously scheduled reboot.

---

## Syntax Helper

The CLI has a built-in Syntax Helper. If you are not sure of the complete syntax for a particular command, enter the first three letters of the command and press the **Tab** key. The Syntax Helper provides a list of options for the remainder of the command, and places the cursor at the end of the command you have entered so far, ready for the next option.

The Syntax Helper also provides assistance by informing you if you have entered an incorrect command.

## Command History

The Silver Peak operating system keeps the last commands you entered in its memory. You can “walk” through these commands one at a time by using the **Up** and **Down** arrows on your keyboard.

## Conventions Used in this Manual

The following topics are discussed in this section:

### Typographical Conventions

- In examples, terminal sessions and system displays are shown in `Courier` font.
- The commands that you need to type exactly as shown are displayed in `courier bold`.

### Syntax Notation

- Commands and keywords are in **bold** text.
- Angled brackets (< >) indicate nonprinting characters, such as passwords, and variables that you need to replace with a value.
- Arguments for which you supply values are in *italics*.
- Curly brackets {} contain required choices.
- Square brackets [ ] contain optional elements.
- Vertical bars | separate the alternative elements.
- Curly brackets and vertical bars within square brackets [{|}] mean a required choice within an optional element.

# Using the Command Line-Editing Keys

These line-editing keys are available when you are using the CLI:

Key	Description
Backspace	This key deletes character to left of cursor and shifts remainder of line to left.
Delete or [Ctrl] + D	Deletes character under cursor and shifts remainder of line to left.
[Ctrl] + K	Deletes characters from under cursor to end of line.
Insert	Toggles between on and off. When on, inserts text and shifts previous text to right.
Left Arrow	Moves cursor to left.
Right Arrow	Moves cursor to right.
Home or [Ctrl] + A	Moves cursor to first character in line.
End or [Ctrl] + E	Moves cursor to last character in line.
[Ctrl] + L	Clears screen and moves cursor to beginning of line.
[Ctrl] + P or Up Arrow	Displays previous command in command history buffer and places cursor at end of command.
[Ctrl] + N or Down Arrow	Displays next command in command history buffer and places cursor at end of command.
[Ctrl] + U	Clears all characters typed from cursor to beginning of line.
[Ctrl] + W	Deletes previous word.

When you choose to display output in multiple pages, the CLI has additional “editor” keys available:

Key	Description
1 + [Shift] + g	Moves to the top of the screen display.
1 + g	Moves to the bottom of the screen display.
/textstring	Searches forward for the textstring you enter.
?textstring	Searches backward for the textstring you enter.
Spacebar	Moves forward a page.
[Enter]	Moves forward one line.
q	Quits out of what it was doing and returns you to the command prompt.

## Configuring DB-9 Console Access to the Appliance

For console port access, the appropriate settings are as follows:

**Bits per second** 9600

**Data bits** 8

**Parity** None

**Stop bits** 1

**Flow control** None

---

## Administration Commands

This section describes the commands that allow you to carry out the administrator's tasks for Silver Peak appliances.

# aaa authentication login default

## Description

Use the **aaa authentication login default** command to configure the order in which authentication methods are tried. **Authentication** is the process of validating that the end user, or device, is who they claim to be. Generally, authentication precedes authorization.

Use the **no** form of this command to clear all authentication login settings.

## Syntax

```
aaa authentication login default {<method> | <method> <method> | <method> <method> <method>}
```

```
no aaa authentication login
```

## Arguments

- <method>** Specifies the methods for authenticating the default login in the order that they will be used. The method options are:
- local
  - radius
  - tacacs+
- 

## Defaults

No default behavior or values.

## Command Mode

Global Configuration Mode

## Usage Guidelines

You can use up to three methods (or databases) for authentication, place the methods in any order, and/or use any method more than once.

However, one of the methods that you include must be **local**.

## Examples

To set the authentication login methods to be local and TACACS+, in that order:

```
(config) # aaa authentication login default local tacacs+
```

# aaa authorization map

## Description

Use the **aaa authorization map default-user** command to configure authorization mapping settings. **Authorization** is the action of determining what a user is allowed to do. Generally, authentication precedes authorization.

## Syntax

```
aaa authorization map default-user <user>
no aaa authorization map default-user
```

```
aaa authorization map order <policy>
no aaa authorization map order
```

## Arguments

- |                                      |  |
|--------------------------------------|--|
| <b>default-user &lt;user&gt;</b>     | Specifies the user ID of a valid local user.<br>Generally, this is <b>admin</b> or <b>monitor</b> .  |
| <b>map default-user &lt;user&gt;</b> | Sets the local user default mapping.<br>Use the <b>no</b> form of this command to clear the local user default mapping.  |
| <b>map order &lt;policy&gt;</b>      | Specifies the order for handling remote-to-local user mapping. Available policies: <ul style="list-style-type: none"> <li>■ <b>remote-only</b> Only honor user mapping from remote authentication server.</li> <li>■ <b>remote-first</b> Honor user mapping from remote auth server, if provided; otherwise use local mapping.</li> <li>■ <b>local-first</b> Ignore user mapping from remote auth server; use local mapping only.</li> </ul> |

The **no** form of the command clears the authorization user mapping order policy.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

When you enter a user name, the system verifies in the database that the user ID is valid.

## Examples

To set authorization mapping to check the remote database first:

```
(config) # aaa authorization map order remote-first
```

# arp

## Description

Use the **arp** command to add static entries to the Address Resolution Protocol (ARP) cache.

Use the **no** form of this command to remove a static entry from the ARP cache.

## Syntax

**arp <ip address> <MAC address>**

**no arp <ip address>**

## Arguments

**<ip address>** Specifies an IP address.

**<MAC address>** Defines the 48-bit MAC address that the IP address to which the IP address will be mapped.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To create an entry in the ARP table for a machine with the IP address 10.10.1.1 and MAC address 00107654bd33:

```
(config) # arp 10.10.1.1 00107654bd33
```

# boot system

## Description

Use the **boot system** command to specify which partition to boot from next time.

## Syntax

```
boot system {1 | 2 | next}
```

## Arguments

- |             |   |
|-------------|---|
| 1           | Sets the next boot partition to 1.                                    |
| 2           | Sets the next boot partition to 2.                                    |
| <b>next</b> | Sets the next boot partition to the partition that isn't running now. |
- 

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To set the appliance to start using partition 2, by default, beginning at the next system boot:

```
(config) # boot system 2
```

- To boot from the other partition at the next system boot:

```
(config) # boot system next
```

# clear

## Description

Use the **clear** command to clear entries and/or counters.

## Syntax

```
clear arp-cache
clear bridge counters
clear bridge mac-address-table
clear cdp counters
clear cdp table
clear cluster spcp
clear flow-redirection
```

## Arguments

<b>arp-cache</b>	Clears dynamic entries from the ARP cache.
<b>bridge counters</b>	Clears the bridge counters.
<b>bridge mac-address-table</b>	Flushes the bridge MAC address table.
<b>cdp counters</b>	Clears the Cisco Discovery Protocol counters
<b>cdp table</b>	Clears the Cisco Discovery Protocol table
<b>cluster spcp</b>	Clears the cluster's Silver Peak Communication Protocol counters. These are used when doing flow redirection.
<b>flow-redirection</b>	Clears the flow redirection counters.

## Defaults

None

## Command Mode

- Privileged EXEC mode
- Global Configuration Mode

## Examples

None

# cli

## Description

Use the **cli** command to configure CLI shell options.

## Syntax

**cli clear-history**

**cli default allow-all-show {enable | disable}**

**cli default auto-logout <number of minutes>**  
**no cli default auto-logout**

**cli session auto-logout <number of minutes>**  
**no cli session auto-logout**

**cli session paging enable**  
**no cli session paging enable**

**cli session terminal length <number of lines>**

**cli session terminal type {xterm | ansi | vt100}**  
**no cli session terminal type**

**cli session terminal width <number of characters>**

## Arguments

<b>clear-history</b>	Clears the current user's command history.
<b>default allow-all-show {enable   disable}</b>	When enabled, allows the user to view all possible show commands. When disabled, the commands a user can see are based on privilege level.
<b>default auto-logout &lt;number of minutes&gt;</b>	Configures—for all <b>future</b> sessions—the amount of time for keyboard inactivity before automatically logging out a user. The default auto-logout setting is 15 minutes. Use the <b>no</b> form of this command to prevent users from being automatically logged out because of keyboard inactivity.
<b>session auto-logout &lt;number of minutes&gt;</b>	Configures— <b>for this session only</b> —how long the keyboard can be inactive before automatically logging out a user. Use the <b>no</b> form of this command to prevent users from being automatically logged out because of keyboard inactivity.
<b>session paging enable</b>	Configures— <b>for this session only</b> —the ability to view text one screen at a time. Paging is enabled, by default. Use the <b>no</b> form of this command to prevent parsing of text into individual, sequential screens.

<b>session terminal length</b> <i>&lt;number of lines&gt;</i>	Sets— <b>for this session only</b> —the number of lines of text for this terminal. The default terminal length is 24 rows.
<b>session terminal type</b> <i>{xterm   ansi   vt100}</i>	Sets— <b>for this session only</b> —the terminal type: <ul style="list-style-type: none"> <li>■ <b>xterm</b> - Sets terminal type to xterm.</li> <li>■ <b>ansi</b> - Sets terminal type to ANSI.</li> <li>■ <b>vt100</b> - Sets terminal type to VT100.</li> </ul> <p>The default type is <b>xterm</b>. Use the <b>no</b> form of the command to clear the terminal type.</p>
<b>session terminal width</b> <i>&lt;number of characters&gt;</i>	Sets— <b>for this session only</b> —the maximum number of characters in a line.

---

## Defaults

- The default auto-logout setting is 15 minutes.
- Paging is enabled, by default.
- The default terminal length is 24 rows.
- The default terminal type is **xterm**.
- The default number of characters per line is 80.

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To set 1.5 hours as the maximum time a session will last without keyboard activity, for this session only:

```
(config) # cli session auto-logout 75
```

- To set the number of lines of text per page to 30 rows:

```
(config) # cli session terminal length 30
```

# configuration

## Description

Use the **configuration** command to manipulate configuration files.

## Syntax

```
configuration copy <filename> <filename>
configuration delete <filename>
configuration download <URL or scp://username:password@hostname/path/filename> [<filename>]
configuration download cancel
configuration factory <filename>
configuration merge <filename>
configuration move <filename> <filename>
configuration new <filename>
configuration reboot-next <filename>
configuration revert saved
configuration upload {active | <filename>} <URL or scp://username:password@hostname/path/filename>
configuration upload cancel
configuration write
configuration write to <filename>
```

## Arguments

<b>copy &lt;filename&gt; &lt;filename&gt;</b>	Makes a copy of a configuration file. Specify, in order, the names of the existing source file and the new destination (configuration) file.
<b>delete &lt;filename&gt;</b>	Deletes the named configuration file. The filename you specify must be one of the configuration files listed on the appliance.
<b>download {&lt;URL or scp://username:password@hostname/path/filename&gt;} [&lt;new filename&gt;]</b>	Downloads a configuration file from a remote host. Optionally, you can rename the downloading file.

<b>download cancel</b>	Cancels a configuration file download.
<b>factory &lt;filename&gt;</b>	Creates a new configuration file.
<b>merge &lt;filename&gt;</b>	Merges settings from the specified configuration file to the currently active configuration file.
<b>move &lt;filename&gt; &lt;filename&gt;</b>	Renames a configuration file. First enter the current file name, followed by the new file name.
<b>new &lt;filename&gt;</b>	Creates a new configuration file with all defaults plus active licenses.
<b>reboot-next &lt;filename&gt;</b>	Loads the named configuration file at the next reboot.
<b>revert saved</b>	Reverts to the last saved configuration.
<b>upload &lt;filename&gt; &lt;URL or scp://username:password@hostname/path/filename&gt;</b>	Uploads an existing, inactive configuration file to a remote host, as specified by a URL or an SCP path.
<b>upload active &lt;URL or scp://username:password@hostname/path/filename&gt;</b>	Uploads the currently active configuration file to a remote host, as specified by a URL or an SCP path.
<b>upload cancel</b>	Cancels the configuration file upload.
<b>write</b>	Saves the running configuration to the active configuration file (same as the <i>write memory</i> ).
<b>write to &lt;filename&gt;</b>	Saves the running configuration to an inactive file and makes that copy the active file.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To display a list of available files, enter one of the following commands, depending on what argument you're using:

```
<silver-peak> (config) # configuration copy ?
<silver-peak> (config) # configuration delete ?
<silver-peak> (config) # configuration merge ?
<silver-peak> (config) # configuration move ?
<silver-peak> (config) # configuration reboot-next ?
<silver-peak> (config) # configuration upload ?
```

## Examples

- To make a copy of the configuration file, “Texas”, and rename it “Texarkana” (three possible ways):

```
(config) # configuration copy Texas Texarkana
(config) # config copy Texas Texarkana
(config) # co copy Texas Texarkana
```

- To create a new, clean configuration file named, “wholesale”:

```
(config) # config new wholesale
```

- To merge the setting from the inactive configuration file, “lanes”, with the currently active configuration file:

```
(config) # config merge lanes
```

- To download the configuration file, “horsemen” from the URL, [www.apocalypse.com/four/](http://www.apocalypse.com/four/), and keep the original file name:

```
(config) # configuration download www.apocalypse.com/four/horsemen
```

- To upload the configuration file, “initial.bak” to an account at the remote SCP host, “ocean”, and rename the file to “coyotes.bak”:

```
(config) # configuration upload initial.bak
scp://root:seminole@ocean/tmp/coyotes.bk
```

- To upload the configuration file, “initial.bak” to an account at the remote SCP host, 10.0.55.28, and rename the file to “coyotes.bak” at the destination:

```
(config) # configuration upload initial.bak
scp://root:seminole@10.0.55.28/tmp/coyotes.bk
```

- To rename the local configuration file, “laurel” to “andhardy”:

```
(config) # configuration move laurel andhardy
```

- To load the configuration file, “wolves”, at the next reboot:

```
(config) # configuration reboot-next wolves
```

- To save the running configuration as a new file named, “newDeployment”, and make it the active configuration:

```
(config) # configuration write to newDeployment
```

# email

## Description

Use the **email** command to configure e-mail, and also event notification via e-mail.

## Syntax

```
email autosupport enable
no email autosupport enable
```

```
email domain <hostname or ip address>
no email domain
```

```
email mailhub <hostname or ip address>
no email mailhub
```

```
email mailhub-port <port number>
no email mailhub-port
```

```
email notify event raise-alarm
no email notify event raise-alarm
```

```
email notify recipient <email addr> class {failure | info}
no email notify recipient <email addr> class {failure | info}
```

```
email notify recipient <email addr> detail
no email notify recipient <email addr> detail
```

## Arguments

<b>autosupport enable</b>	Determines the handling of automatic support e-mail. Use the <b>no</b> form of this command to prevent the sending of automatic support notifications by e-mail.
<b>domain &lt;hostname or ip address&gt;</b>	Overrides the domain from which e-mail appears to come. Specify the hostname or IP address of the domain, for the “return address” you want users to see. Use the <b>no</b> form of this command to clear the e-mail domain override.
<b>mailhub &lt;hostname or ip address&gt;</b>	Specifies the mail relay to use to send e-mails. Use the <b>no</b> form of this command to clear the configured mailhub.
<b>mailhub-port &lt;port number&gt;</b>	Specifies the mail port to use for sending e-mails. Use the <b>no</b> form of this command to clear the configured mail port.
<b>notify event raise-alarm</b>	Sends an e-mail whenever a system alarm is raised. Use the <b>no</b> form of this command to stop sending e-mails when alarms are triggered.

<b>notify recipient &lt;email addr&gt; class {failure   info}</b>	<p>Specifies which types of events are sent to a specific recipient:</p> <ul style="list-style-type: none"> <li>■ <b>failure</b> - Sends failure events to the specified recipient</li> <li>■ <b>info</b> - Sends informational events to the specified recipient</li> </ul> <p>Use the <b>no</b> form of this command to specify which events this recipient should <i>not</i> be sent.</p>
<b>notify recipient &lt;email addr&gt; detail</b>	<p>Sends detailed event e-mails to a specific recipient.</p> <p>Use the <b>no</b> form of this command to send summarized (rather than detailed) event e-mails to a specific recipient.</p>

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To set the outgoing e-mail relay to “canary-post”:

```
(config) # email mailhub canary-post
```

- To notify all members of the mailgroup, engineering@silver-peak.com, whenever there’s a failure event:

```
(config) # email notify recipient engineering@silver-peak.com class failure
```

## email send-test

### Description

Use the **email send-test** command to send a test email to all configured event and failure recipients.

### Syntax

**email send-test**

### Arguments

None

### Defaults

None

### Command Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# excess-flow

## Description

Use the **excess-flow** command to manage flows that exceed the number of flows that an appliance supports.

## Syntax

## excess-flow bypass

**excess-flow bypass dscp-marking {enable | disable}**

## excess-flow drop

## Arguments

<b>bypass</b>	Bypasses excess flow traffic
<b>dscp-marking enable</b>	Enables excess flow DSCP markings
<b>dscp-marking disable</b>	Disables excess flow DSCP markings
<b>drop</b>	Drops excess flow traffic

## Defaults

None

## Command Mode

## Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# file debug-dump

## Description

Use the **file debug-dump** command to manipulate debug dump files.

## Syntax

**file debug-dump delete <filename>**

**file debug-dump email <filename>**

**file debug-dump upload <filename> <URL or scp://username:password@hostname/path/filename>**

## Arguments

<b>delete &lt;filename&gt;</b>	Deletes an existing debug dump file. You can only delete one file at a time.
<b>email &lt;filename&gt;</b>	E-mails a debug dump file to preconfigured recipients. You can only e-mail one file at a time.
<b>upload &lt;filename&gt;</b>	Uploads a debug dump file to a remote host. You can only upload one file at a time.
<b>&lt;URL or scp://username:password@ hostname/path/filename&gt;</b>	Specifies the path to a remote host. Optionally, you can enter a new destination filename.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

To display a list of existing debug files, enter one of these commands, depending the argument you are using:

```
<silver-peak> (config) # file debug-dump delete ?
<silver-peak> (config) # file debug-dump email ?
<silver-peak> (config) # file debug-dump upload ?
```

To preconfigure recipients to receive debug files by e-mail, use the **email mailhub** command.

## Examples

- To upload the debug dump file, “sysdump-localhost-20070206-025124.tgz” to an account at the remote SCP host, “ocean”, and rename the file to “sysdump-chicago-20070206-025124.tgz”:

```
(config) # file debug-dump upload sysdump-localhost-20070206-025124.tgz  
scp://root:seminole@ocean/tmp/sysdump-chicago-20070206-025124
```

- To upload the debug dump file, “gotitall” to the URL, www.catchall.com/tmp/, and keep the original file name:

```
(config) # file debug-dump upload gotitall www.catchall.com/tmp/
```

# file job upload

## Description

Use the **file job upload** command to upload a job output file to a remote host.

## Syntax

**file job upload <job ID> <URL or scp://username:password@hostname/path/filename>**

**file job upload cancel**

## Arguments

<b>&lt;job ID&gt;</b>	Specifies which job output file to upload to a remote host.
<b>&lt;URL or scp://username:password@hostname/path/filename&gt;</b>	Determines the path for a remote host. Optionally, you can specify a new destination filename.
<b>cancel</b>	Cancels the current asynchronous file upload.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## file stats

### Description

Use the **file stats** command to manipulate statistics report files.

### Syntax

```
file stats upload <filename> <URL or scp://username:password@hostname/path/filename>
```

### Arguments

<b>upload</b> <filename> <URL or scp://username:password@hostname/path/filename>	Uploads the specified statistics report file to a remote host. Optionally, you can enter a new destination filename.
---	--

### Defaults

None

### Command Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# file tcpdump

## Description

Use the **file tcpdump** command to manipulate tcpdump output files.

## Syntax

**file tcpdump delete <filename>**

**file tcpdump upload <filename> <URL or scp://username:password@hostname/path/filename>**

## Arguments

**delete <filename>**

Deletes the specified tcpdump output file.

**upload <filename> <URL or  
scp://username:password@hostname/path/filename>**

Uploads the specified statistics report file to a remote host. Optionally, you can specify a new destination filename.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## file upload cancel

### Description

Use the **file upload cancel** command cancels the current asynchronous file upload.

### Syntax

**file upload cancel**

### Arguments

None

### Defaults

None

### Command Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# help

## Description

Use the **help** command to view a description of the interactive help system.

## Syntax

**help**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn2 (config) # help
```

You may request context-sensitive help at any time by pressing '?' on the command line. This will show a list of choices for the word you are on, or a list of top-level commands if you have not typed anything yet.

If "<cr>" is shown, that means that what you have entered so far is a complete command, and you may press Enter (carriage return) to execute it.

Try the following to get started:

```
?  
show ?  
show c?  
show clock?  
show clock ?  
show interfaces ?      (from enable mode)
```

```
Tallinn2 (config) #
```

# image boot

## Description

Use the **image boot** command to specify which system image to boot by default.

## Syntax

```
image boot {1 | 2 | next}
```

## Arguments

- 1** Sets the next boot partition to 1.
  - 2** Sets the next boot partition to 2.
  - next** At the next system boot, boots from the partition that isn't running now.
- 

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# image install

## Description

Use the **image install** command to download and install an image file onto the inactive system partition.

## Syntax

**image install <URL or scp://username:password@hostname/path/filename>**

**image install cancel**

## Arguments

<b>&lt;URL or scp://username:password@hostname/path/filename&gt;</b>	Enter the path for the remote host from which to download and install the image file. You can specify the SCP server by IP address or hostname.
--	---

<b>install cancel</b>	Cancel the system upgrade.
-----------------------	----------------------------

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

Software image files are .zip files.

## Examples

To download the image file, “image-2.4.0.0\_15984.zip”, from the remote SCP host, 10.0.55.28, to the inactive system partition:

```
(config) # image install scp://root:seminole@10.0.55.28/tmp/image-  
2.4.0.0_15984.zip
```

# image upgrade

## Description

Use the **image upgrade** command to download, install, and reboot using a new image file.

## Syntax

**image upgrade <URL or scp://username:password@hostname/path/filename>**

## Arguments

<URL or scp://username:password@hostname/path/filename>	Enter the path for the remote host from which to download and install the image file. You can specify the SCP server by IP address or hostname.
--	---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

Software image files are .zip files.

## Examples

To download the image file, “image-2.4.0.0\_45678.zip”, from the remote SCP host, 10.0.55.44, to the inactive system partition, install it, and reboot to using it:

```
(config) # image upgrade scp://root:seminole@10.0.55.44/tmp/image-  
2.4.0.0_45678.zip
```

# job

## Description

Use the **job** command to configure scheduled jobs.

## Syntax

```
job <job ID>
no job <job ID>
```

```
job <job ID> command <sequence ID> <command string>
no job <job ID> command <sequence ID>
```

```
job <job ID> comment <comment string>
no job <job ID> comment
```

```
job <job ID> date-time <hr>:<mm>:<ss> [<yyyy>/<mm>/<dd>]
no job <job ID> date-time
```

```
job <job ID> enable
no job <job ID> enable
```

```
job <job ID> fail-continue
no job <job ID> fail-continue
```

```
job <job ID> name <friendly job-name>
no job <job ID> name
```

## Arguments

<b>job &lt;job ID&gt;</b>	Specifies the job number, which is a non-negative integer. If the job doesn't already exist, it creates it. Use the <b>no</b> form of this command to delete the job.
<b>command &lt;sequence ID&gt; &lt;command string&gt;</b>	Configures commands for the job. Since jobs may consist of multiple commands, you must assign each command a number that determines its order in the job. Use the <b>no</b> form of this command to remove commands from the job.
<b>comment &lt;comment string&gt;</b>	Adds a comment for the specified job. Use the <b>no</b> form of this command to remove the associated comment from the job.
<b>date-time &lt;hr&gt;:&lt;mm&gt;:&lt;ss&gt; [&lt;yyyy&gt;/&lt;mm&gt;/&lt;dd&gt;]</b>	Sets the time and date for executing the job, based on a 24-hour clock. If you don't set the date, the job executes at the first appropriate time. Use the <b>no</b> form of this command to clear the scheduled time for the job.
<b>enable</b>	Sets a job to the enabled state. A job must be enabled before you can execute it. Use the <b>no</b> form of this command to disable the job.

<b>fail-continue</b>	Sets the job to keep executing if a command fails. Use the <b>no</b> form of this command to stop job on the first command failure.
<b>name &lt;friendly job-name&gt;</b>	Sets the friendly name for this job. Use the <b>no</b> form of this command to remove the associated friendly name for this job.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If a *<command string>* or *<comment string>* includes spaces, enclose the entire string's text in quotation marks.

## Examples

To create the job, “overnight”, to install a new image file, “image-2.0.0.0\_15984.zip”, from “www.company.com/images/” into the inactive system partition:

```
(config) # job overnight command 1 "image install  
www.company.com/images/image-2.0.0.0_15984.zip"
```

# job execute

## Description

Use the **job execute** command to execute the job immediately (if the job has been enabled).

## Syntax

```
job <job ID> execute
```

## Arguments

<b>job &lt;job ID&gt;</b>	Specifies the name of the job.
<b>execute</b>	Immediately execute the job (if enabled).

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

You must enable a command before you can execute it.

## Examples

None

# license

## Description

Use the **license** command to install or remove a license key.

## Syntax

**license delete <license number>**

**license install <license key>**

**no license install**

## Arguments

**delete <license number>** Removes a license key by ID number.

**key <license key>** Installs a new license key.

Use the **no** form of the command to remove license keys.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# proxy-arp

## Description

The **proxy-arp** command enables Proxy ARP on the specified interface. By default, Proxy ARP is disabled on all interfaces

Proxy ARP is a method where ARP requests for an IP Address that is not on a given network is answered by a proxy server on that network. The proxy provides its MAC Address as the destination, then directs traffic directed to the proxy address to its intended destination..

The **no proxy-arp** command disables Proxy ARP on the specified interface..

## Syntax

**arp <interface name>**

**no arp <interface name>**

## Arguments

<i>&lt;interface name&gt;</i>	The interface upon which Proxy ARP is enabled. May be an interface name or interface label.
-------------------------------	---

---

## Defaults

Proxy ARP is disabled

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

This command enables Proxy ARP on WAN2 interface.

```
ECVA (config) # proxy-arp wan2
ECVA (config) # show proxy-arp wan2
interface name          proxy-arp enabled
-----
ECVA (config) #
```

# radius-server

## Description

Use the **radius-server** command to configure RADIUS server settings for user authentication.

## Syntax

```
radius-server host <IP address> [auth-port <port>] [key <string>] [retransmit <0..3>] [timeout <1..15>]
```

```
radius-server {key <string> | retransmit <0..3> | timeout <1..15>}
```

```
no radius-server host <IP address> [auth-port <port>]
```

```
no radius-server {key | retransmit | timeout}
```

## Arguments

<b>host &lt;IP address&gt;</b>	Configures host, at specified IP address, to send RADIUS authentication requests. Use the <b>no</b> form of this command to stop sending RADIUS authentication requests to host.
<b>auth-port &lt;port&gt;</b>	Specifies the authentication port to use with this RADIUS server. Use the <b>no</b> form of this command to stop sending RADIUS authentication requests to the authentication port.
<b>key &lt;string&gt;</b>	Specifies the shared secret key to use with this RADIUS server. Use the <b>no</b> form of this command to remove the global RADIUS server key.
<b>retransmit &lt;0..3&gt;</b>	Specifies the maximum number of retries that can be made in the attempt to connect to this RADIUS server. The range is 0 to 3. Use the <b>no</b> form of this command to reset the global RADIUS server retransmit count to its default.
<b>timeout &lt;1..15&gt;</b>	Specifies the number of seconds to wait before the connection times out with this RADIUS server, because of keyboard inactivity. The range is 1 to 15 seconds. Use the <b>no</b> form of this command to reset the global RADIUS server timeout setting to its default.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To define the RADIUS shared secret as “mysecret”:

```
(config) # radius-server key mysecret
```

- To specify the RADIUS server’s IP address as 208.20.20.4 with authentication port 500 and a timeout of 10 seconds:

```
(config) # radius-server host 208.20.20.4 auth-port 500 timeout 10
```

- To set the number of times the global RADIUS server retransmits to its default value:

```
(config) # no radius-server retransmit
```

# reboot

## Description

Use the **reboot** command to reboot or shutdown the system.

## Syntax

```
reboot [clean | force | halt | halt noconfirm | noconfirm]
```

## Arguments

<b>reboot</b>	Reboots the system.
<b>clean</b>	Reboots the system and cleans out the Network Memory.
<b>force</b>	Forces an immediate reboot of the system, even if it's busy.
<b>halt</b>	Shuts down the system.
<b>halt noconfirm</b>	Shuts down the system without asking about unsaved changes.
<b>noconfirm</b>	Reboots the system without asking about unsaved changes.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# reload

## Description

Use the **reload** command to reboot or shutdown the system.

## Syntax

```
reload [clean | force | halt | halt noconfirm | noconfirm]
```

## Arguments

<b>reload</b>	Reboots the system.
<b>clean</b>	Reboots the system and cleans out the Network Memory.
<b>force</b>	Forces an immediate reboot of the system, even if it's busy.
<b>halt</b>	Shuts down the system.
<b>halt noconfirm</b>	Shuts down the system without asking about unsaved changes.
<b>noconfirm</b>	Reboots the system without asking about unsaved changes.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system disk

## Description

Use the **system disk** command to insert or remove a disk from the RAID array.

## Syntax

**system disk <disk ID> {insert | remove}**

## Arguments

< <i>disk ID</i> >	Designates the host name for the appliance.
<b>insert</b>	Insert disk into RAID array.
<b>remove</b>	Remove disk from RAID array.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To add disk 9 back into an NX-8500's RAID array:

```
(config) # system disk 9 insert
```

# system elicense

## Description

Use the **system elicense** command to configure a Silver Peak EdgeConnect license.

## Syntax

**system elicense boost bandwidth <bandwidth limit in kbps>**

**system elicense boost {disable | enable}**

**system elicense plus {disable | enable}**

## Arguments

<b>boost</b>	EdgeConnect Boost portal license configuration
<b>plus</b>	EdgeConnect Plus portal license configuration
<b>bandwidth &lt;bandwidth limit in kbps&gt;</b>	Sets the EdgeConnect Boost bandwidth limit.
<b>disable</b>	Disables EdgeConnect Boost license.
<b>enable</b>	Enables EdgeConnect Boost license.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

This command is only available for EdgeConnect appliances.

## Examples

None

# system firmware

## Description

Use the **system firmware** command to manage the appliance firmware.

## Syntax

```
system firmware update {LCC | BIOS | SAS | NIC}
```

## Arguments

<b>update {LCC   BIOS   SAS   NIC}</b>	Updates the specified appliance firmware:
<b>LCC</b>	Lifecycle Controller Firmware
<b>BIOS</b>	BIOS Firmware
<b>SAS</b>	Disk Controller Firmware
<b>NIC</b>	NIC Firmware

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## system passthru-to-sender

### Description

Use the **system passthru-to-sender** command to configure passthrough L2 return to sender.

### Syntax

**system passthru-to-sender**

**system passthru-to-sender {disable | enable}**

### Arguments

**disable** Disables passthrough L2 return to sender.

**enable** Enables passthrough L2 return to sender.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# system peer-list

## Description

Use the **system peer-list** command to assign a priority to a peer.

Use the **no** form of this command to remove the peer name from the priority list.

## Syntax

**system peer-list <peer name> <weight>**

**no system peer-list <peer name>**

## Arguments

<*peer name*>      Specifies the peer appliance.

<*priority*>      Specifies the priority to assign to the peer.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

When an appliance receives a Subnet with the same Metric from multiple remote or peer appliances, it uses the Peer Priority list as a tie-breaker.

If a Peer Priority is not configured, then the appliance randomly distributes flows among multiple peers.

The lower the number, the higher the peer's priority.

## Examples

None

# tacacs-server

## Description

Use the **tacacs-server** command to configure hosts TACACS+ server settings for user authentication.

## Syntax

```
tacacs-server host <IP address> [auth-port <port>] [auth-type {ascii | pap}] [key <string>] [retransmit <0..3>] [timeout <1..15>]
```

```
tacacs-server {key <string> | retransmit <0..3> | timeout <1..15>}
```

```
no tacacs-server host <IP address> [auth-port <port>]
```

```
no tacacs-server {key | retransmit | timeout}
```

## Arguments

<b>host &lt;IP address&gt;</b>	Configures host, at specified IP address, to send TACACS+ authentication requests. Use the <b>no</b> form of this command to stop sending TACACS+ authentication requests to host.
<b>auth-port &lt;port&gt;</b>	Specifies the authentication port to use with this TACACS+ server. Use the <b>no</b> form of this command to stop sending TACACS+ authentication requests to the authentication port.
<b>auth-type {ascii   pap}</b>	Specifies the authentication type to use with this TACACS+ server. The options are: <ul style="list-style-type: none"> <li>■ <b>ascii</b> - ASCII authentication</li> <li>■ <b>pap</b> - PAP (Password Authentication Protocol) authentication</li> </ul>
<b>key &lt;string&gt;</b>	Specifies the shared secret key to use with this TACACS+ server. Use the <b>no</b> form of this command to remove the global TACACS+ server key.
<b>retransmit &lt;0..3&gt;</b>	Specifies the maximum number of retries that can be made in the attempt to connect to this TACACS+ server. The range is 0 to 3. Use the <b>no</b> form of this command to reset the global TACACS+ server retransmit count to its default.
<b>timeout &lt;1..15&gt;</b>	Specifies the number of seconds to wait before the connection times out with this TACACS+ server, because of keyboard inactivity. The range is 1 to 15 seconds. Use the <b>no</b> form of this command to reset the global TACACS+ server timeout setting to its default.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

When you don't specify a host IP, then configurations for **host**, **key**, and **retransmit** are global for TACACS+ servers.

## Examples

- To define the TACACS+ shared secret as "mysecret":

```
(config) # tacacs-server key mysecret
```

- To specify that the TACACS+ server with the IP address of 10.10.10.10 uses PAP authentication and tries to retransmit a maximum of 9 times:

```
(config) # (config) # tacacs-server host 10.10.10.10 auth-type pap  
retransmit 9
```

- To reset, to its default, the number of seconds after which the TACACS+ server times out after keyboard inactivity:

```
(config) # no tacacs-server timeout
```

# tca

## Description

Use the **tca** command to set the parameters for threshold crossing alerts.

Use the **no** form of this command to return a special instance (that is, specific values for a named tunnel) to the **default** values.

Use **no tca <tca-name>default** to delete the TCA instance.

## Syntax

```
tca <tca-name> default {rising | falling} raise-threshold <value> clear-threshold <value> [sample-count <number of samples>]
```

```
tca <tca-name> <tunnel-name> {rising | falling} raise-threshold <value> clear-threshold <value> [sample-count <number of samples>]
```

```
tca <tca-name> {pass-through | pass-through-unshaped} {rising | falling} raise-threshold <value> clear-threshold <value> [sample-count <number of samples>]
```

```
no tca <tca-name> {default | <tunnel-name>}
```

```
no tca <tca-name> {default | <tunnel-name>} {rising | falling}
```

```
tca <tca-name> {default | <tunnel-name>} {enable | disable}
```

```
tca <tca-name> {pass-through | pass-through-unshaped} {enable | disable}
```

## Arguments

<b>tca &lt;tca-name&gt;</b>	Specifies which threshold crossing alert to configure. Some apply to one or more types of traffic. Others only have default values. The options are:
	<ul style="list-style-type: none"> <li>▪ <b>file-system-utilization</b> How much of the file system space has been used, expressed as a percentage.</li> <li>▪ <b>lan-side-rx-throughput</b> LAN-side Receive throughput, in kilobits per second (<b>kbps</b>).</li> <li>▪ <b>latency</b> Tunnel latency, in milliseconds (<b>ms</b>).</li> <li>▪ <b>loss-post-fec</b> Tunnel loss, as <b>tenths of a percent</b>, <i>after</i> applying Forward Error Correction (FEC).</li> <li>▪ <b>loss-pre-fec</b> Tunnel loss, as <b>tenths of a percent</b>, <i>before</i> applying Forward Error Correction (FEC).</li> <li>▪ <b>oop-post-poc</b> Tunnel out-of-order packets, as <b>tenths of a percent</b>, <i>after</i> applying Packet Order Correction (POC).</li> <li>▪ <b>oop-pre-poc</b> Tunnel out-of-order packets, as <b>tenths of a percent</b>, <i>before</i> applying Packet Order Correction (POC).</li> <li>▪ <b>optimized flows</b> Total number of optimized flows.</li> <li>▪ <b>reduction</b> Tunnel reduction, in percent (%).</li> <li>▪ <b>total-flows</b> Total number of flows.</li> <li>▪ <b>utilization</b> Tunnel utilization, as a percent (%).</li> <li>▪ <b>wan-side-tx-throughput</b> WAN-side transmit throughput, in kilobits per second (<b>kbps</b>).</li> </ul>
<b>default</b>	Sets the <b>tca &lt;tca-name&gt;</b> argument values for any tunnels that weren't specifically named in configuring an argument. For example, if you configured latency values for <b>tunnel_1</b> but not for <b>tunnel_2</b> and <b>tunnel_3</b> , then configuring <b>default</b> would only apply values to <b>tunnel_2</b> and <b>tunnel_3</b> .
<b>&lt;tunnel-name&gt;</b>	For specifying an individual tunnel for threshold configuration.
<b>falling</b>	Specifies a threshold crossing alarm for when the stat value falls too low.
<b>rising</b>	Specifies a threshold crossing alarm for when the stat value rises too high.
<b>raise-threshold &lt;value&gt;</b>	Specifies at what value to raise an alert.

<b>clear-threshold &lt;value&gt;</b>	After an alarm has been raised, specifies at what value to clear the alert. For a <b>rising</b> alarm, the clear-threshold value is equal to or less than the raise-threshold. For a <b>falling</b> alarm, the clear-threshold value is equal to or more than the raise-threshold.
<b>sample-count&lt;number of samples&gt;</b>	Sets the number of samples that the metric must sustain below (or above) the threshold in order to raise (or clear) the alert.
<b>enable</b>	Enables this threshold control alert instance.
<b>disable</b>	Disables this threshold control alert instance.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

This table lists the default state of each type of threshold crossing alert:

TCA	Type	Unit	Default [ON, OFF]	allow rising	allow falling
wan-side-throughput	system	kbps	OFF	4	4
lan-side-throughput	system	kbps	OFF	4	4
optimized-flows	system	flows	OFF	4	4
total-flows	system	flows	OFF	4	4
file-system-utilization	system	%	ON <sup>a</sup>	4	
latency	tunnel	msec	ON	4	
loss-pre-fec	tunnel	1/10 <sup>th</sup> %	OFF	4	
loss-post-fec	tunnel	1/10 <sup>th</sup> %	OFF	4	
oop-pre-poc	tunnel	1/10 <sup>th</sup> %	OFF	4	
oop-post-poc	tunnel	1/10 <sup>th</sup> %	OFF	4	
utilization	tunnel	%	OFF	4	4
reduction	tunnel	%	OFF		4

<sup>a</sup>Cannot be disabled.

## Examples

To raise an alert when the percent reduction for *tunnel\_a* falls below 60% and to clear the alarm as soon as reduction reaches 70%:

```
(config) # tca reduction tunnel_a falling raise-threshold 60 clear-threshold 70
```

# terminal

## Description

Use the **terminal** command to set terminal parameters.

## Syntax

**terminal length <number of lines>**

**terminal type <terminal type>**

**no terminal type**

**terminal width <number of characters>**

## Arguments

**terminal length <number of lines>**

Sets the number of lines for this terminal.

**terminal type <terminal type>**

Sets the terminal type. The options are **xterm**, **ansi**, and **vt100**.

Use the **no** form of the command to clear the terminal type.

**terminal width <number of characters>**

Sets the number of maximum number of characters in a line (row) for this terminal.

## Defaults

The default terminal length is 24 rows.

The default terminal width is 80 characters.

The default terminal type is **xterm**.

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To set the line width to 120 characters for this terminal:

```
(config) # terminal width 120
```

# username

## Description

Use the **username** command to configure user accounts.

Use the **no** form of the command to delete the specific user account.

## Syntax

```
username <username> capability {admin | monitor}
no username <username> capability
```

```
username <username> disable
no username <username> disable
```

```
username <username> password
```

```
username <username> password 0 <cleartext password>
```

```
username <username> password 7 <encrypted password>
```

```
no username <username>
```

## Arguments

<b>username &lt;username&gt;</b>	Specifies the user ID to whom you want to grant capability. Use <b>no username &lt;username&gt;</b> to delete this user account.
<b>capability admin</b>	Grants admin user privileges to this user account. Use the <b>no</b> form of the command to reset capability for this user account to the default.
<b>capability monitor</b>	Grants monitor user privileges to this user account. Use the <b>no</b> form of the command to reset capability for this user account to the default.
<b>disable</b>	Disables the ability to login to this user account. Use the <b>no</b> form of the command to re-enable this account.
<b>password</b>	When followed immediately by a carriage return, specifies to prompt for the login password rather than entering it on the command line.
<b>password 0 &lt;cleartext password&gt;</b>	Specifies a login password in clear text.
<b>password 7 &lt;encrypted password&gt;</b>	Specifies a login password with an encrypted string. Once the password is entered, the original characters are not recoverable by looking through the history or scrolling back in the file.

## Defaults

The default username and the default password are both **admin**.

## Command Mode

Global Configuration Mode

## Usage Guidelines

Some guidance about password creation:

- Passwords should be a minimum of 8 characters.
- There should be at least one lower case letter and one upper case letter.
- There should be at least one digit.
- There should be at least one special character.
- Consecutive letters in the password should not be dictionary words.

## Examples

To delete the user account, *franklin*:

```
config) # no username franklin
```

# web

## Description

Use the **web** command to configure the Web-based management User Interface.

## Syntax

```
web auto-logout <number of minutes>
no web auto-logout
```

```
web {enable | disable}
```

```
web http {enable | disable}
```

```
web https {enable | disable}
```

```
web session max <5-50>
```

```
no web session max
```

## Arguments

<b>auto-logout &lt;number of minutes&gt;</b>	Sets the length of user inactivity before auto-logout in minutes. The acceptable range is 10 - 60 minutes. Use the <b>no</b> form of the command to reset the automatic logout feature for Web sessions to the default setting of 1000 minutes.
<b>{enable   disable}</b>	Enables or disables the Web User Interface.
<b>http {enable   disable}</b>	Enables or disables HTTP access to the Web User Interface.
<b>https {enable   disable}</b>	Enables or disables HTTPS (secure HTTP) access to the Web User Interface.
<b>session max &lt;5-50&gt;</b>	Specifies, as an integer, the maximum number of simultaneous Web sessions. Select a number between 5 and 50. Use the <b>no</b> form of the command to reset the maximum number of sessions to the default of 10.

## Defaults

- The default auto-logout setting is 15 minutes.
- Web HTTP is disabled.
- Web HTTPS is enabled.
- The default HTTP port is 80.
- The default HTTPS port is 443.
- The maximum number of simultaneous Web sessions for an appliance is 10.

## Command Mode

## Global Configuration Mode

### Usage Guidelines

The acceptable range is between one minutes and 1440 minutes (one day).

### Examples

To set the maximum length of keyboard inactivity to 7 hours before automatic logout:

```
(config) # web auto-logout 420
```

# write

## Description

Use the **write** command to save or display the commands in the running configuration.

## Syntax

**write memory**

**write terminal**

## Arguments

**memory**      Saves the running configuration to the active configuration file.

**terminal**      Displays the commands needed to recreate current running configuration.

---

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

When you execute **write terminal** command, the CLI displays commands in the following categories:

- Network interface configuration
- Routing configuration
- Other IP configuration
- Logging configuration
- AAA configuration
- System network configuration
- Tunnel creation
- Tunnel configuration
- Pass-through configuration
- Network management configuration

## Examples

None

## Configuration Commands

This section describes the commands that allow you to configure Silver Peak appliances.

# access-list

## Description

Use the **access-list** command to configure Access Lists and their rules.

Use the **no access-list** command to delete a specific ACL rule or an entire ACL.

## Syntax

```
access-list <acl name> <priority value> {permit | deny} protocol {<IP protocol number> | <protocol name>} {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [dscp {<dscp value> | any}]
```

```
access-list <acl name> <priority value> {permit | deny} protocol {<IP protocol number> | <protocol name>} {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [vlan {any | <1..4094> | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}]
```

```
access-list <acl name> <priority value> {permit | deny} protocol ip {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [app {<application name> | any}] [dscp {<dscp value> | any}][vlan {any | <1..4094> | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}]
```

```
access-list <acl name> <priority value> {permit | deny} protocol ip {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [app {<application name> | any}] [dscp {<dscp value> | any}]
```

```
access-list <acl name> <priority value> {permit | deny} protocol ip {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [vlan {any | <1..4094> | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}]
```

```
access-list <acl name> <priority value> {permit | deny} protocol {tcp | udp} {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [{<source port number> | any} {<destination port number> | any}] [dscp {<dscp value> | any}]
```

```
access-list <acl name> <priority value> {permit | deny} protocol {tcp | udp} {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [{<source port number> | any} {<destination port number> | any}] [vlan {any | <1..4094> | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}]
```

```
access-list <acl name> <priority value> {permit | deny} app {<application name> | any}
```

```
access-list <acl name> <priority value> {permit | deny} dscp {<dscp value> | any} [vlan {any | <1..4094> | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}]
```

```
access-list <acl name> <priority value> {permit | deny} matchstr {<match string> | any}
```

```
access-list <acl name> <priority value> {permit | deny} vlan {any | <1..4094> | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}
```

```
access-list <acl name> <priority value> comment <comment text>
```

**no access-list <acl name> [<priority value>]**

## Arguments

<b>access-list &lt;acl name&gt;</b> <b>&lt;priority value&gt;</b>	Specifies the name of the ACL and the priority value for the (ACL) rule that you want to add or modify. You can set any priority value between 1 and 65535.
<b>permit</b>	Permits access to this ACL rule.
<b>deny</b>	For traffic that matches this ACL rule, discontinue further processing <b>by this ACL</b> , and continue to look for a match in the subsequent policy entries.
<b>comment</b>	Add a comment for specified access list entry.
<b>protocol {&lt;IP protocol number&gt;   &lt;IP protocol name&gt;   ip   tcp   udp}</b>	Specifies the protocol to match: <ul style="list-style-type: none"> <li>■ The available IP protocol numbers include 1 through 254.</li> <li>■ When you specify <b>protocol ip</b>, the assumption is that you are allowing <i>any</i> IP protocol. In that case, you also need to specify an application. If you don't, the CLI defaults to specifying <b>any</b> application.</li> </ul>
<b>{&lt;source IP address/netmask&gt;   any}</b>	Matches against traffic that has a specific source IP address and netmask (in slash notation). For example, enter <i>10.2.0.0 0.0.255.255</i> as <i>10.2.0.0/16</i> . If you want to include traffic to all destinations, use <b>any</b> .
<b>{&lt;destination IP address/netmask&gt;   any}</b>	Matches against traffic that has a specific destination IP address and netmask (in slash notation). For example, <i>10.2.0.0/16</i> . If you want to include traffic to all destinations, use <b>any</b> .
<b>{&lt;source port number&gt;   any}</b> <b>{&lt;destination port number&gt;   any}</b>	When you specify <b>protocol tcp</b> or <b>protocol udp</b> , you can limit the traffic to specific source and/or destination ports. <b>any</b> is a wildcard.
<b>app {&lt;application name&gt;   any}</b>	Specifies a default or user-defined application name, or the name of a user-defined application group. <b>any</b> is a wildcard.
<b>dscp {&lt;dscp value&gt; any}</b>	Specifies a DSCP value. The available values include: <ul style="list-style-type: none"> <li>■ af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, or ef.</li> <li>■ <b>any</b> is a wildcard.</li> </ul>
<b>matchstr &lt;match string&gt;</b>	Adds a match string for specified access list entry.

<b>vlan {any   &lt;1..4094&gt;   &lt;interface.tag&gt;   &lt;any.tag&gt;   &lt;interface.any&gt;   &lt;interface.native&gt;}</b>	Matches an interface and 802.1q VLAN tag. The available values include:
<1..4094>	number assigned to a VLAN
<interface.tag>	as in <b>lan0.10</b>
<any.tag>	as in <b>any.10</b>
<interface.any>	as in <b>lan0.any</b>
<interface.native>	as in <b>lan0.native</b>
<b>any</b>	is a wildcard

---

<b>any</b>	Is a wildcard.
------------	----------------

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

You name a rule with a *priority*, which not only identifies the rule, but also specifies its sequence in that ACL. Within an ACL, every priority value must be unique. In other words, no two rules in a given ACL can have the same priority value. We recommend that you don't make the priority values contiguous, so that you can later insert a new rule between two existing rules, without needing to change the priority values you've already set. For example, you might create an ACL with rules (priorities) 10, 20, 30, and 40. If you need to add several rules at a later time, you can easily place them between any of the existing rules.

If you need to replace an existing rule, just name the new rule with the same priority as the one you want to replace. The CLI overwrites the existing rule with your new one.

If you specify a priority to create a rule for an ACL that doesn't already exist, the CLI creates the new ACL and populates it with the new rule.

Use the **no** form of this command to delete a rule within an ACL. If you delete the last rule of an ACL, that ACL is removed. If you don't specify a priority value in the **no** command, the entire ACL is deleted.

## IP Address and Netmasks

Source and destination IP addresses are immediately followed by a netmask "/n" where *n* is the number of contiguous non-wildcard bits counting from the left-most bit. For example, 10.10.10.0 /24 refers to the 10.10.10 class C subnet. Use the keyword **any** to specify that all bits are wildcards.

## Using Deny

Since access lists define the matching criteria and not the action, you should remember that **deny** in this context does not actually “drop” traffic. Rather, the **deny** keyword is effectively a sort of break statement, preventing further processing by that particular ACL, and sending the traffic to look for matches against subsequent **policy** entries.

For example, if you wanted to accelerate all IP traffic except for ICMP traffic, you could enter the following commands:

```
access-list a1 100 deny protocol icmp any any
access-list a1 200 permit protocol ip any any
.
.
.
route-map map1 10 match acl a1
route-map map1 10 set tunnel tun1.
.
.
```

In this example, any ICMP traffic that attempts to match the ACL, *a1*, would immediately stop processing at the **deny** statement and would pass through.

## Examples

- To create a rule for an ACL named *ac12*, that matches against all IGP traffic that has a DSCP value of *be* (best effort):

```
(config) # access-list ac12 10 permit protocol igr any any dscp be
```

- To accelerate all IP traffic except for ICMP traffic:

```
(config) # access-list a1 100 deny protocol icmp any any
(config) # access-list a1 200 permit protocol ip any any
```

- To create a rule to match all IP traffic coming from the source 10.2.0.0 0.0.255.255:

```
(config) # access-list a2 40 permit protocol ip 10.2.0.0/16 any
```

- To create a rule to match all UDP traffic going to port 53:

```
(config) # access-list a1 500 protocol udp any any any 53
```

- To delete the priority 100 rule from the ACL named *ac18*:

```
(config) # no access-list ac18 100
```

## active-flows

### Description

Use the **active-flows** command to configure all active flows.

### Syntax

**active-flows {reset-all}**

### Arguments

---

<b>reset-all</b>	Resets all non-TCP accelerated active flows.
------------------	--

---

### Defaults

None

### Command Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# application

## Description

Use the **application** command to configure applications on the appliance.

Use the **no application** command to delete an application.

## Syntax

```
application <application priority> <application name> dscp <dscp value>
application <application priority> <application name> protocol <IP protocol number or name>
application <application priority> <application name> protocol <IP protocol number or name> src-ip
{<source IP address ranges> | any} [src-port {<source port range> | any}]
application <application priority> <application name> protocol <IP protocol number or name> src-ip
{<source IP address ranges> | any} src-port {<source port range> | any} dst-ip {<destination IP address
ranges> | any} [dst-port {<destination port range> | any}]
application <application priority> <application name> protocol <IP protocol number or name> src-ip
{<source IP address ranges> | any} src-port {<source port range> | any} dst-ip {<destination IP address
ranges> | any} [dst-port {<destination port range> | any}] [dscp <dscp value>]
application <application priority> <application name> protocol <IP protocol number or name> src-ip
{<source IP address ranges> | any} src-port {<source port range> | any} dst-ip {<destination IP address
ranges> | any} [dst-port {<destination port range> | any}] [dscp <dscp value>]
no application <application priority>
```

## Arguments

<application priority>	Specifies the priority value of the application.
<application name>	Specifies the name of the application.
<b>protocol</b> <IP protocol number or name>	Specifies the application protocol.
<b>src-ip</b> {<source IP address ranges>   <b>any</b> }	You can specify a comma-delimited list. For example: 192.1.2.0/24,192.10.10.100-200 If you want to include all addresses, use <b>any</b> .
<b>src-port</b> {<source port ranges>   <b>any</b> }	Comma-separated port ranges. If you want to include all ports, use <b>any</b> .
<b>dst-ip</b> {<destination IP address ranges>   <b>any</b> }	You can specify a comma-delimited list. For example: 192.1.2.0/24,192.10.10.100-200 If you want to include all addresses, use <b>any</b> .

<b>dst-port {&lt;destination port ranges&gt;   any}</b>	Comma separated port ranges. If you want to include all ports, use <b>any</b> .												
<b>dscp {&lt;dscp value&gt;   any}</b>	Specifies a DSCP value. The available values include: <ul style="list-style-type: none"> <li>▪ af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, or ef.</li> <li>▪ is a wildcard.</li> </ul>												
<b>vlan {any   &lt;1..4094&gt;   &lt;interface.tag&gt;   &lt;any.tag&gt;   &lt;interface.any&gt;   &lt;interface.native&gt;}</b>	Matches an interface and 802.1q VLAN tag. The available values include: <table border="0"> <tr> <td>&lt;1..4094&gt;</td> <td>number assigned to a VLAN</td> </tr> <tr> <td>&lt;interface.tag&gt;</td> <td>as in <b>lan0.10</b></td> </tr> <tr> <td>&lt;any.tag&gt;</td> <td>as in <b>any.10</b></td> </tr> <tr> <td>&lt;interface.any&gt;</td> <td>as in <b>lan0.any</b></td> </tr> <tr> <td>&lt;interface.native&gt;</td> <td>as in <b>lan0.native</b></td> </tr> <tr> <td><b>any</b></td> <td>is a wildcard</td> </tr> </table>	<1..4094>	number assigned to a VLAN	<interface.tag>	as in <b>lan0.10</b>	<any.tag>	as in <b>any.10</b>	<interface.any>	as in <b>lan0.any</b>	<interface.native>	as in <b>lan0.native</b>	<b>any</b>	is a wildcard
<1..4094>	number assigned to a VLAN												
<interface.tag>	as in <b>lan0.10</b>												
<any.tag>	as in <b>any.10</b>												
<interface.any>	as in <b>lan0.any</b>												
<interface.native>	as in <b>lan0.native</b>												
<b>any</b>	is a wildcard												
<b>any</b>	Is a wildcard												

## Defaults

None

## Command Mode

- User EXEC mode
- Privileged EXEC mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To create an application, *surf*, for traffic that comes from the IP address, 192.4.4.11:

```
NX3600 > application 10 surf protocol any src-ip 192.4.4.11
```

# application-group

## Description

Use the **application-group** command to specify a group of (one or more) applications.

Use **no application-group** to remove one or more applications from an application group or to delete the group, itself.

## Syntax

**application-group <application group name> <app1> [, <app2>, <app3>...]**

**no application-group <application group name> [, <app1>, <app2>...]**

## Arguments

<i>&lt;application group name&gt;</i>	Defines a unique group name. The name is checked against existing application groups and, if the name does not exist, the CLI creates it. If the name does exist, then the application(s) you specify are added to the existing group.
<i>&lt;app&gt;</i>	Specifies an existing application name, whether it's built-in or user-defined.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If your ACLs or policy maps contain match conditions that involve multiple applications, you can simplify the match conditions with *application groups*. Application groups are identifiers that you can create to represent a list of applications.

You create an application group by naming the group and specifying at least one application that belongs in it. After creating it, you can modify the application group by adding or removing applications.

To add applications to an application group that already exists, enter the name of the application group, followed by the applications you are adding. For example, to add two applications to the application group, *omega*, you might use the following command:

```
(config) # application-group omega http, tftp
```

If *omega* did not exist, the CLI would create it and it would contain these two applications.

If you then wanted to remove *http* from *omega*, you would issue the following command:

```
(config) # no application-group omega http
```

The **application-group** command has the following restrictions:

- If you specify more than one application at a time for an application group, you must separate the applications with commas. If you just use spaces, the CLI will respond with an error message.
- If you attempt to delete an application that is not in the application group that you specify, then the CLI displays an error message.

## Examples

To create an application group, *encrypted*, that contains the applications SSH, HTTPS, and SFTP:

```
(config) # application-group encrypted ssh, https, sftp
```

To add two applications to the existing application group, *omega*:

```
(config) # application-group omega http, tftp
```

# banner login

## Description

Use the **banner login** command to create a message for the system login banner, such as legal or welcome text.

Use the **no** form of this command to reset the system login banner.

## Syntax

**banner login <message string>**

**no banner login**

## Arguments

<b>&lt;message string&gt;</b>	Specifies the message to display before a user logs into the appliance. A message that includes spaces requires quotes at the beginning and end of the message string.
-------------------------------	--

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To configure the banner message, *Gotcha!*, to display at login:

```
(config) # banner login Gotcha!
```

To configure the banner message, “*How about some coffee?*”, to display at login:

```
(config) # banner login "How about some coffee?"
```

## banner motd

### Description

Use the **banner motd** command to create a “Message of the Day” banner.

Use the **no** form of this command to reset the system Message of the Day banner.

### Syntax

**banner motd <message string>**

**no banner motd**

### Arguments

<b>&lt;message string&gt;</b>	Specifies the message to display for the Message of the Day. A message that includes spaces requires quotes at the beginning and end of the message string. The Message of the Day appears after successful login.
-------------------------------	---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

To configure the Message of the Day, *Greetings*, to display at login:

```
(config) # banner motd Greetings
```

To configure the banner message, “Time for a margarita”, to display at login:

```
(config) # banner motd "Time for a margarita"
```

# bgp

## Description

Use the **bgp** command to configure BGP (Border Gateway Protocol) on the appliance.

## Syntax

**bgp asn <1-65535>**

**no bgp asn <1-65535>**

**bgp {disable | enable}**

**bgp neighbor <BGP Neighbor's IP address> export-map <Custom BGP bit map of permitted route types to export (decimal)>**

**no bgp neighbor <BGP Neighbor's IP address> export-map**

**bgp neighbor <BGP Neighbor's IP address> import-disable**

**no bgp neighbor <BGP Neighbor's IP address> import-disable**

**bgp neighbor <BGP Neighbor's IP address> metric <Neighbor's additional route cost>**

**no bgp neighbor <BGP Neighbor's IP address> metric**

**bgp neighbor <BGP Neighbor's IP address> password <Neighbor's MD5 password>**

**no bgp neighbor <BGP Neighbor's IP address> password**

**bgp neighbor <BGP Neighbor's IP address> remote-as <Neighbor's ASN> {Branch | Branch-transit | PE-router}**

**bgp router-id <IPv4 address recognizable to remote peer>**

**no bgp router-id <IPv4 address recognizable to remote peer>**

**no bgp neighbor <BGP Neighbor's IP address>**

## Arguments

**asn <1-65535>** Autonomous System Number

**disable** Disables BGP globally.

**enable** Enables BGP globally.

<b>export-map &lt;Custom BGP bit map of permitted route types to export (decimal)&gt;</b>	Creates a BGP neighbor with customized export rules. Use the numbers listed for the following options:	
1	<b>Local</b>	Locally configured
2	<b>Shared</b>	Learned via subnet sharing (from a non-BGP source)
4	<b>BGPBr</b>	Learned from a local BGP branch peer
8	<b>BGPTTr</b>	Learned from a local BGP branch-transit peer
16	<b>BGPPe</b>	Learned from a local BGP Provider Edge peer
32	<b>RemBGP</b>	Remote BGP (learned via subnet sharing, but originally from a BGP peer)
64	<b>RemBGPTTr</b>	Remote BGP branch-transit (learned via subnet sharing, but originally from a BGP branch-transit peer)
<b>neighbor &lt;BGP Neighbor's IP address&gt;</b>	Specifies a BGP neighbor.	
<b>import-disable</b>	Disables the learning of routes from the neighbor.	
<b>metric &lt;Neighbor's additional route cost&gt;</b>	Configures additional metric for BGP neighbor.	
<b>password &lt;Neighbor's MD5 password&gt;</b>	Creates an MD5 password for the BGP neighbor.	
<b>remote-as &lt;Neighbor's ASN&gt; {Branch   Branch-transit   PE-router}</b>	Creates a BGP neighbor with a remote ASN (Autonomous System Number):  Branch      Configures Neighbor as branch type Branch-transit      Configures Neighbor as branch transit type PE-router      Configures Neighbor as Provider Edge type	
<b>router-id &lt;IPv4 address recognizable to remote peer&gt;</b>	Configures router IP ID. The router identifier is the IPv4 address which the remote peer identifies the appliance for BGP purposes.	

## Defaults

None

## Command Mode

- User EXEC mode
- Privileged EXEC mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# bridge

## Description

Use the **bridge** command to configure bridge mode.

## Syntax

**bridge propogate-linkdown {enable | disable}**

**bridge transition-fdb-age <1-300>**

**bridge transition-time <1-300>**

## Arguments

**propogate-linkdown {enable | disable}**

When enabled, forces the WAN interface link to go down when the corresponding LAN interface goes down, and vice versa.

**transition-fdb-age <1-300>**

Specifies the maximum age of a MAC entry, in seconds, during the time that a link is going down.

**transition-time <1-300>**

Specifies, in seconds, the time to wait after the first link goes down before propagating the second link down.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To configure 30 seconds as the time to wait before propagating the WAN interface's link down to the LAN:

```
(config) # bridge transition-time 30
```

# cdp

## Description

Use the **cdp** command to configure Cisco Discovery Protocol (CDP) parameters.

## Syntax

**cdp {enable | disable}**

**cdp holdtime <10-255>**

**cdp timer <5-254>**

## Arguments

**enable | disable** Globally enables or disables Cisco Discovery Protocol.

**holdtime <10-255>** Specifies the length of time, in seconds, that the receiver must keep this packet.

**timer <5-254>** Specifies the rate at which CDP packets are sent, in packets per second.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To specify that CDP packets be sent at 240 packets per second:

```
(config) # cdp timer 240
```

# cifs signing delegation domain

## Description

Use the **cifs signing delegation domain** command to give the appliance the ability to optimize a signed CIFS connection.

## Syntax

**cifs signing delegation domain join domain-name <name of domain to join> username <username> password <password of user for join>**

**cifs signing delegation domain join domain-name <name of domain to join> username <username> password <password of user for join> dchost <IP address of Domain Controller for join>**

**cifs signing delegation domain leave domain-name <name of domain to leave>**

## Arguments

<b>join domain-name &lt;domain fooname&gt;</b>	Specifies the name of the domain that the appliance must join as a first step to enabling this feature.
<b>leave domain-name &lt;domain fooname&gt;</b>	Specifies the name of the domain that the appliance will no longer be part of.
<b>username &lt;username&gt;</b>	Specifies username required for joining the domain.
<b>password &lt;username&gt;</b>	Specifies password required for joining the domain.
<b>dchost &lt;IP address of Domain Controller of join&gt;</b>	Specifies the IP address of the Domain Controller that controls the CIFS connection.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

This command must be executed together with the **system smb-signing** command.

## Examples

None

# clock set

## Description

Use the **clock set** command to set the system time and/or date.

## Syntax

```
clock set <hh>:<mm>:<ss> [<yyyy>/<mm>/<dd>]
```

## Arguments

<hh>:<mm>:<ss> Sets the hour, minute, and second of the current time, but leaves the date unchanged. Time is based on a 24-hour clock.

<yyyy>/<mm>/<dd> Sets the system's date by year/month/date.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To set the time and date to exactly one minute after midnight on the morning of August 11, 2007:

```
(config) # clock set 00:01:00 2007/08/11
```

# clock timezone

## Description

Use the **clock timezone** command to set the time zone for the system.

Use the **no** form of the command to reset the time to its default of Greenwich Mean Time, GMT (also known as UTC).

## Syntax

```
clock timezone <region> . . .
no clock timezone
```

## Arguments

<i>&lt;region&gt;</i>	Specify the region, country, locality, or timezone for the system.
-----------------------	--

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

You set the timezone by selecting from a series of menus. To see the list of possible values for timezone, perform the following procedure:

1. Enter the following command at the command line:

```
<appliance> (config) # clock timezone ?
```

The CLI displays a list of world regions, followed by the command prompt, as in the following example:

```
Africa
America
Antarctica
Arctic
Asia
Atlantic_Ocean
Australia
Europe
GMT-offset
Indian_Ocean
```

Pacific\_Ocean  
UTC

2. Choose a region from the list and append the region to the command, along with a question mark (?). For example, to specify America, you would enter the following command:

```
<appliance> (config) # clock timezone America ?
```

The CLI displays the regions in America, such as in the following example:

Caribbean  
Central  
North  
South

3. Continue specifying the appropriate menu selections, ending each command with a question mark to display the next menu. When the CLI displays <cr>, press **Enter** to complete the command.

The CLI is case-sensitive.

## Examples

None

# cluster

## Description

Use the **cluster** command to configure a cluster of appliances for flow redirection.

Use the **no** form of this command to delete a peer appliance from a cluster.

## Syntax

**cluster interface <interface>**

**cluster peer <IP address, IP address, ....>**

**no cluster peer <IP address>**

## Arguments

<b>interface &lt;interface&gt;</b>	Specifies an interface for intra-cluster communication. Generally, Silver Peak recommends using <b>mgmt1</b> .
<b>peer &lt;IP address&gt;</b>	Specifies a comma-delimited list of peer IP addresses. Use the <b>no</b> form of the command to delete a peer from a cluster.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you specify **mgmt1** as the cluster interface, then when created a list of peers, use the **mgmt1** IP addresses in the comma-delimited list.

## Examples

- To configure **mgmt1** as the cluster interface:

```
Silver-Peak # cluster interface mgmt1
```

- To create a cluster from appliances with the cluster interfaces, 10.10.10.3, 10.10.20.2, and 10.10.30.5:

```
Silver-Peak # cluster peer 10.10.10.3, 10.10.20.2, 10.10.30.5
```

# configure terminal

## Description

Use the **configure terminal** command to enter configuration mode. Use the **no** form of this command to leave the configuration mode.

## Syntax

**configure terminal**

**no configure**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

To exit the configuration mode, you may also use the **exit** command.

The CLI also accepts these two shortened versions of **configure terminal**:

```
Silver-Peak # config t  
Silver-Peak # co t
```

As a result, the prompt changes to:

```
Silver-Peak (config) #
```

## Examples

None

# disable

## Description

Use the **disable** command to exit the Privileged EXEC mode.

## Syntax

**disable**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

## Usage Guidelines

When you use the **disable** command, you enter the User EXEC mode.

## Examples

To go from Privileged EXEC Mode to User EXEC mode (command followed by result):

```
Silver-Peak # disable
Silver-Peak >
```

## **dns cache**

### Description

Use the **dns cache** command to configure the DNS cache.

### Syntax

**dns cache flush**

**dns cache http {disable | enable}**

### Arguments

**flush**           Flushes the DNS cache.

**http disable**   Tells the DNS cache to ignore the HTTP request Host header.

**http enable**   Tells the DNS cache to use the HTTP request Host header.

---

### Defaults

None

### Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# enable

## Description

Use the **enable** command to enter Privileged EXEC mode.

## Syntax

**enable**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC Mode

## Usage Guidelines

The CLI also accepts this shortened version of **enable**:

```
Silver-Peak > en
```

## Examples

To go from User EXEC Mode to Privileged EXEC mode (command followed by result):

```
Silver-Peak > enable
Silver-Peak #
```

# enable password

## Description

Use the **enable password** command to set the password required to enter Privileged EXEC mode.

Use the **no** form of the command to remove the requirement of a password to enter Privileged EXEC mode.

## Syntax

**enable password <password>**

**no enable password**

**enable password 0 <cleartext password>**

**enable password 7 <encrypted password>**

## Arguments

<b>password</b>	Sets the password required to enter enable mode. By default, it will be in cleartext.
<b>&lt;password&gt;</b>	Use the <b>no</b> form of this command to remove the requirement of a password to enter Privileged EXEC mode.
<b>password 0 &lt;cleartext password&gt;</b>	Sets the enable password with a clear text string.
<b>password 7 &lt;encrypted password&gt;</b>	Sets the enable password with an encrypted string. Encrypted password entries aren't visible when viewing a history of commands.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

- To require the cleartext password, ratchet, for entering *enable* mode:

```
<silver-peak> (config) # enable password 0 ratchet
```

- To remove the need for a password for entering *enable* mode:

```
<silver-peak> (config) # no enable password
```

# exit

## Description

Use the **exit** command to log out of the CLI from the User EXEC or Privileged EXEC modes. If you use the **exit** command from the Global Configuration mode, you enter the Privileged EXEC mode.

## Syntax

**exit**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# flow-export

## Description

Use the **flow-export** command to configure the export of data to NetFlow collectors.

## Syntax

**flow-export active-flow-timeout <1-30 minutes>**

**flow-export destination {1 | 2} <Collector IP address> <Collector port>**  
**no flow-export destination {1 | 2}**

**flow-export {disable | enable}**

**flow-export engine-id <0-255>**

**flow-export engine-type <0-255>**

**flow-export traffic-type <lan-rx | lan-tx | wan-rx | wan-tx>**

**no flow-export traffic-type <lan-rx | lan-tx | wan-rx | wan-tx>**

## Arguments

**active-flow-timeout <1-30>** Specifies the flow-export active flow timeout. The range is 1 to 30 minutes.

**destination {1 | 2} <Collector IP address> <Collector port>** Specifies the IP address and port for the NetFlow collector. You can configure up to two collectors.

Use the **no** form of this command to disable the export of NetFlow records to either Collector 1 or Collector 2.

**disable** Disables the export of NetFlow records.

**enable** Enables the export of NetFlow records.

**engine-id <0-255>** Specifies the VIP or LC slot number of the flow switching engine.

**engine-type <0-255>** Specifies the flow-export engine type. They are:

- 0 for RP, and
- 1 for VIP/LC.

**traffic-type <lan-rx | lan-tx | wan-rx | wan-tx>** Specifies which interface to turn on for flow exporting.

Use the **no** form of this command to turn off a specific interface's flow exporting.

## Defaults

When you enable flow exporting, it defaults to the WAN Tx interface.

## Command Mode

### Global Configuration Mode

## Usage Guidelines

The appliance lets you turn on up to four interfaces for flow exporting. However, you must specify each interface by using a separate command.

## Examples

- To configure NetFlow Collector #2, located at 10.10.10.4, using port 146:

```
(config) # flow-export destination 2 10.10.10.4 146
```

- To disable the export of NetFlow records to Collector #1:

```
(config) # flow-export destination 1
```

- To turn on the **WAN Tx** and **LAN Rx** interfaces for flow exporting:

```
(config) # flow-export traffic-type wan-tx (carriage return)  
(config) # flow-export traffic-type lan-rx
```

## flow-redirection

## Description

Use the **flow-redirection** command to configure flow redirection.

## Syntax

**flow-redirection {enable | disable}**

**flow-redirection wait-time <0-500>**

## Arguments

<b>enable</b>	Enables flow redirection.
<b>disable</b>	Disables flow redirection.
<b>wait-time &lt;1-500&gt;</b>	Specifies flow redirection wait time in milliseconds.

## Defaults

None

## Command Mode

## Global Configuration Mode

## Usage Guidelines

Redirection enabled simply enables and disables redirection on the selected appliance.

## Examples

None

# hostname

## Description

Use the **hostname** command to set host name for the appliance.

Use the **no** form of this command to remove the host name from the appliance.

## Syntax

**hostname <hostname>**

**no hostname**

## Arguments

**<hostname>** Designates the host name for the appliance, not including the domain name.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

Hostnames may contain letters, numbers, periods ('.'), and hyphens ('-'), but may not begin with a hyphen.  
Hostnames may **not** contain spaces.

The hostname is limited to 24 characters.

When you remove the hostname, the system reverts to the identifier assigned before shipping. For example, *silverpeak-2f8598*.

## Examples

To rename the appliance to *Chicago*:

```
(config) # hostname Chicago
```

# iflabel

## Description

Use the **iflabel** command to assign labels to interfaces.

## Syntax

**iflabel add {lan-label | wan-label} <label string with no spaces>**

**iflabel delete {lan-label | wan-label} <label string with no spaces>**

## Arguments

<b>add</b>	Add interface label.
<b>delete</b>	Delete interface label.
<b>lan-label</b>	Add LAN interface label.
<b>wan-label</b>	Add WAN interface label.
<b>&lt;label string with no spaces&gt;</b>	Specifies the name of this interface. For example: <b>video</b> or <b>data</b> .

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

No spaces allowed in the label string.

## Examples

To add a WAN label, *Internet*:

```
(config) # iflabel wan-label internet
```

# interface cdp

## Description

Use the **interface cdp** command to enable or disable Cisco Discovery Protocol (CDP) for this interface.

## Syntax

```
interface <interface name> cdp {enable | disable}
```

## Arguments

<interface name>	Specifies the name of this interface.
<b>enable</b>	Enables CDP on this network interface.
<b>disable</b>	Disables CDP on this network interface.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available interface names you may use, enter the following command:

```
<silver-peak> (config) # interface ?
```

## Examples

None

# interface dhcp

## Description

Use the **interface dhcp** command to enable Dynamic Host Configuration Protocol (DHCP) for this interface.

Use the **no** form of this command to disable DHCP for this interface.

## Syntax

**interface <interface name> dhcp**

**interface <interface name> dhcp renew**

**no interface <interface name> dhcp**

## Arguments

<b>&lt;interface name&gt;</b>	Specifies the name of this interface.
<b>renew</b>	Renews DHCP for this interface.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available interface names you may use, enter the following command:

```
<silver-peak> (config) # interface ?
```

## Examples

None

## interface inbound-max-bw

### Description

Use the **interface inbound-max-bw** command to configure the maximum bandwidth for inbound traffic.

### Syntax

```
interface <interface name> inbound-max-bw <BW in kbps>
```

### Arguments

---

<BW in kbps>	Specifies the bandwidth in kilobits per second.
--------------	---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# interface ip address

## Description

The **interface ip address** command configures IP address and netmask for a specified interface.

The **no interface ip address** command erases the IP address and netmask for a specified interface.

## Syntax

```
interface <interface name> ip address <ip address> <netmask>
```

```
interface <interface name> ip address <ip address> <netmask> nexthop <ip address>
```

```
interface <interface name> ip address <ip address> <netmask> nexthop <ip address> portlist <portlist>
```

```
no interface <interface name> ip address
```

## Arguments

**<interface name>** Specifies the name of this interface.

**<ip address> <netmask>** Specifies the source IPv4 address and netmask in standard or slash notation. For example, 10.2.0.0 0.0.255.255 could be entered as 10.2.0.0/16.

**nexthop <ip address>** Next-hop address for this interface. It continues the IP format (IPv4 or IPv6) of the address for which it is the next hop.

**portlist <portlist>** Configures the ports for this bridge interface.  
For example: *lan0,wan0* or *tlan0,tlan1,twan0,twan1*.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available interface names you may use, enter the following command:

```
<silver-peak> (config) # interface ?
```

## Examples

None

## interface label

### Description

Use the **interface label** command to configure a label for the interface.

Use the **no** form of this command to remove the label from this interface.

### Syntax

**interface <interface name> label <label string>**

**no interface <interface name> label**

### Arguments

**<interface name>** Specifies the name of this interface.

**label <label string>** Specifies the label given to the interface. For example, *internet* or *voice*.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## interface lan-if

### Description

Use the **interface lan-if** command to specify that this interface only allow LAN traffic when deploying the appliance in in-line router mode.

Use the **no** form of this command to remove the limitation from this interface.

### Syntax

**interface <interface name> lan-if**

**no interface <interface name> lan-if**

### Arguments

**<interface name>** Specifies the name of this interface.

**lan-if** Specifies that the interface only allow LAN traffic.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Only used for in-line router mode.

### Examples

None

# interface mac address

## Description

Use the **interface mac address** command to configure the MAC (Media Access Control) address for a selected interface.

Use the **no** form of this command to erase the MAC address for this interface.

---

**NOTE** This command is not supported on any Silver Peak hardware appliance.

---

## Syntax

**interface <interface name> mac address <MAC address of interface to use>**

**no interface <interface name> mac address**

## Arguments

<b>&lt;interface name&gt;</b>	Specifies the name of this interface.
-------------------------------	---------------------------------------

<b>mac address &lt;MAC address of interface to use&gt;</b>	Specifies the MAC address.
--	----------------------------

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## interface mtu

### Description

Use the **interface mtu** command to configure MTU (Maximum Transmission Unit) for this interface.

Use the **no** form of this command to reset the MTU for this interface to its default.

### Syntax

**interface <interface name> mtu <MTU in bytes>**

**no interface <interface name> mtu**

### Arguments

**<interface name>** Specifies the name of this interface.

**mtu <MTU in bytes>** In bytes, the largest size packet that can be sent.  
The range is 700 to 2400.

---

### Defaults

The default MTU is **1500**.

### Command Mode

Global Configuration Mode

### Usage Guidelines

To see a list of the available interface names you may use, enter the following command:

```
<silver-peak> (config) # interface ?
```

### Examples

None

## interface outbound-max-bw

### Description

Use the **interface outbound-max-bw** command to configure maximum bandwidth for outbound traffic.

### Syntax

```
interface <interface name> outbound-max-bw <BW in kbps>
```

### Arguments

<BW in kbps>	Specifies the bandwidth in kilobits per second.
--------------	---

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# interface pass-through

## Description

Use the **interface pass-through** command to configure the pass-through parameters for the WAN interface.

## Syntax

```
interface pass-through {max-bandwidth <kbps> | min-bandwidth <kbps>}
```

## Arguments

<b>max-bandwidth &lt;kbps&gt;</b>	Configures maximum bandwidth in kilobits per second.
<b>min-bandwidth &lt;kbps&gt;</b>	Configures minimum bandwidth in kilobits per second.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you try to configure too high a maximum bandwidth, the CLI returns a message telling you what the maximum allowable value is, given the configured System Bandwidth.

## Examples

To set the maximum bandwidth for pass-through traffic at the wan0 interface to 9000 kilobits per second:

```
(config) # interface pass-through max-bandwidth 9000
```

# interface security-mode

## Description

Use the **interface security-mode** command to configure the firewall mode.

## Syntax

```
interface <interface name> security-mode {0 | 1 | 2 | 3}
```

## Arguments

*<interface name>* Specifies the name of this interface.

**security-mode {0 | 1 | 2 | 3}** The following firewall modes are expressed as integers:

0 - Open

1 - Hardened

2 - Stateful firewall

3 - Stateful firewall with Source NAT

---

## Defaults

None

## Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# interface shutdown

## Description

Use the **interface shutdown** command to disable an interface.

Use the **no** form of this command to enable this interface.

## Syntax

**interface <interface name> shutdown**

**no interface <interface name> shutdown**

## Arguments

---

<i>&lt;interface name&gt;</i>	Specifies the name of this interface.
-------------------------------	---------------------------------------

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available interface names you may use, enter the following command:

```
<silver-peak> (config) # interface ?
```

## Examples

None

# interface speed-duplex

## Description

Use the **interface speed-duplex** command to configure the speed and duplex of this interface.

## Syntax

```
interface <interface name> speed-duplex <speed/duplex>
```

## Arguments

<interface name>	Specifies the name of this interface.
<speed/duplex>	Specifies the speed and duplex of this interface. Use one of the following settings, depending on your appliance model: <ul style="list-style-type: none"><li>■ auto/auto</li><li>■ 10/full</li><li>■ 100/full</li><li>■ 1000/full</li><li>■ 10000/full</li></ul>

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available interface names you may use, enter the following command:

```
<silver-peak> (config) # interface ?
```

## Examples

None

# interface tunnel admin

## Description

Use the **interface tunnel admin** command to configure the tunnel administrative mode.

Use the **no** form of this command to reset the tunnel administrative mode to default.

## Syntax

```
interface tunnel <tunnel name> admin {up | down}
```

```
no interface tunnel <tunnel name> admin
```

## Arguments

<tunnel name>	Specifies the name for this tunnel.
<b>up</b>	Enables the tunnel.
<b>down</b>	Disables the tunnel.

---

## Defaults

The default for Admin is **down**.

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

To enable the tunnel, *Rosenkrantz*, for diagnostics only:

```
(config) # interface tunnel Rosenkrantz admin diag
```

# interface tunnel alias

## Description

Use the **interface tunnel alias** command to configure an alias for the tunnel for display purposes.

## Syntax

```
interface tunnel <tunnel name> alias <tunnel alias>
```

## Arguments

<i>&lt;tunnel name&gt;</i>	Specifies the name for this tunnel.
<i>&lt;tunnel alias&gt;</i>	Specifies the alias to display for this tunnel.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## interface tunnel bind-tunnel

### Description

Use the **interface tunnel bind-tunnel** command to bind a tunnel to a bonded tunnel.

Use the **no** form of this command to unbind a tunnel from a bonded tunnel.

### Syntax

**interface tunnel <tunnel name> bind-tunnel <tunnel name>**

**no interface tunnel <tunnel name> bind-tunnel <tunnel name>**

### Arguments

---

<i>&lt;tunnel name&gt;</i>	Specifies the name for this tunnel.
----------------------------	-------------------------------------

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# interface tunnel control-packet

## Description

Use the **interface tunnel control-packet** command to configure the appliance's tunnel health and control packets.

## Syntax

```
interface tunnel <tunnel name> control-packet dscp <DSCP marking for this tunnel>
```

## Arguments

<b>&lt;tunnel name&gt;</b>	Specifies the name for this tunnel.	
<b>dscp &lt;DSCP marking for this tunnel&gt;</b>	Specifies the DSCP option for the tunnel's control packets:	
<b>af11</b>	AF11 dscp	(001010)
<b>af12</b>	AF12 dscp	(001100)
<b>af13</b>	AF13 dscp	(001110)
<b>af21</b>	AF21 dscp	(010010)
<b>af22</b>	AF22 dscp	(010100)
<b>af23</b>	AF23 dscp	(010110)
<b>af31</b>	AF31 dscp	(011010)
<b>af32</b>	AF32 dscp	(011100)
<b>af33</b>	AF33 dscp	(011110)
<b>af41</b>	AF41 dscp	(100010)
<b>af42</b>	AF42 dscp	(100100)
<b>af43</b>	AF43 dscp	(100110)
<b>be</b>	BE dscp	(000000)
<b>cs1</b>	CS1 dscp	(001000)
<b>cs2</b>	CS2 dscp	(010000)
<b>cs3</b>	CS3 dscp	(011000)
<b>cs4</b>	CS4 dscp	(100000)
<b>cs5</b>	CS5 dscp	(101000)
<b>cs6</b>	CS6 dscp	(110000)
<b>cs7</b>	CS7 dscp	(111000)
<b>ef</b>	EF dscp	(101110)

## Defaults

The default (and recommended) tunnel health DSCP setting is **be**.

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# interface tunnel create

## Description

Use the **interface tunnel create** command to create a tunnel interface.

## Syntax

```
interface tunnel <tunnel name> create <(local) IP address> <(remote) IP address>
interface tunnel <tunnel name> create <(local) IP address> <(remote) IP address>
<MinBW in kbps> {<MaxBW in kbps> | auto} [gre | gre_sp | gre_ip | udp | udp_sp | no_encap]
interface tunnel <tunnel name> create <(local) IP address> <(remote) IP address>
<MinBW in kbps> unshaped
interface tunnel <tunnel name> create appliance-ip <(remote) IP address>
interface tunnel <tunnel name> create appliance-ip <(remote) IP address> <MinBW in kbps> {<MaxBW in
kbps> | auto}
interface tunnel <tunnel name> create bonded-tunnel tag-name <overlay name> [bonded-id <overlay
ID>]
```

## Arguments

<i>&lt;tunnel name&gt;</i>	Specifies the name for this tunnel.
<i>&lt;(local) IP address&gt;</i>	Specifies the IP address of the local appliance.
<i>&lt;(remote) IP address&gt;</i>	Specifies the IP address of the remote appliance.
<i>&lt;MinBW in kbps&gt;</i>	Specifies the tunnel's minimum bandwidth in kilobits per second.
<i>&lt;MaxBW in kbps&gt;</i>	Specifies the tunnel's maximum bandwidth in kilobits per second.
<b>appliance-ip</b>	Specifies the remote IP address for this tunnel.
<b>auto</b>	Auto-negotiates maximum bandwidth in kilobits per second.
<b>bonded-tunnel tag-name &lt;overlay name&gt;</b>	Specifies a tag name for a bonded tunnel.
<b>bonded-id &lt;overlay ID&gt;</b>	Specifies the overlay ID for a bonded tunnel.
<b>unshaped</b>	No traffic shaping on this tunnel

[gre   gre_sp   gre_ip   udp   udp_sp   no_encap]	Choose from one of the following tunnel types:
gre	Specifies the Generic Routing Encapsulation (GRE) mode. (legacy term)
gre_sp	Specifies the Generic Routing Encapsulation (GRE) mode. (current term)
gre_ip	Specifies a standard GRE pass-through tunnel to a third-party device.
udp	Specifies the User Datagram Protocol (UDP) mode. (legacy term)
udp_sp	Specifies the User Datagram Protocol (UDP) mode. (current term)
no_encap	Specifies no encapsulation. Use if the service doesn't support GRE.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

- To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

- To remove a tunnel interface, enter the following command:

```
<silver-peak> (config) # no interface tunnel <tunnel name>
```

- To remove a tunnel, enter the following command:

```
<silver-peak> (config) # no interface tunnel <tunnel name>
```

## Examples

None

# interface tunnel gre-protocol

## Description

Use the **interface tunnel gre-protocol** command to configure the GRE protocol ID for a tunnel.

Use the **no** form of this command to reset the GRE protocol ID for this tunnel to its default.

## Syntax

```
interface tunnel <tunnel name> gre-protocol <Layer-2 protocol ID>
```

```
no interface tunnel <tunnel name> gre-protocol
```

## Arguments

<tunnel name>      Specifies the name for this tunnel.

<Layer-2 protocol ID>      Specifies the Layer-2 protocol ID in the GRE header (decimal). For example, **2048** for IP.

---

## Defaults

The default Layer-2 protocol ID in the GRE header (decimal) is **2048**.

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

None

# interface tunnel ipsec

## Description

Use the **interface tunnel ipsec** command to create IPSec (Internet Protocol Security) options for this tunnel.

## Syntax

```
interface tunnel <tunnel name> ipsec auth-algorithm {default | sha1 | sha256 | sha384 | sha512}
```

```
interface tunnel <tunnel name> ipsec crypto-algorithm {default | aes128 | aes256}
```

```
interface tunnel <tunnel name> ipsec {disable | enable}
```

```
interface tunnel <tunnel name> ipsec enable preshared-key <key>
```

```
interface tunnel <tunnel name> ipsec enable preshared-key <key> crypto-algorithm {default | aes128 | aes256} [auth-algorithm {default | sha1 | sha256 | sha384 | sha512}]
```

```
interface tunnel <tunnel name> ipsec preshared-key<key>
```

```
interface tunnel <tunnel name> ipsec enable replay-check-window {64 | 1024 | disable | auto}
```

## Arguments

<tunnel name>	Specifies the name for this tunnel.
auth-algorithm {default   sha1   sha256   sha384   sha512}	Configures auth algorithm for IPSec for this tunnel.
crypto-algorithm {default   aes128   aes256}	Configures crypto algorithm for IPSec for this tunnel.
disable	Disables IPSec for this tunnel.
enable	Enables IPSec for this tunnel.
preshared-key<key>	Configures preshared key for IPSec for this tunnel.
replay-check-window {64   1024   disable   auto}	Configures the IPSec anti-replay-check window for this tunnel.  The IPSec Anti-replay window provides protection against an attacker duplicating encrypted packets by assigning a unique sequence number to each encrypted packet. The decryptor keeps track of which packets it has seen on the basis of these numbers.  The default window size is <b>64</b> packets.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Configurable IPSEC anti-replay Window

In environments with significant out-of-order packet delivery, IPSEC may drop packets that are outside of the anti-replay window.

- To determine whether packets are falling outside of the antireplay window, execute the following CLI command:

```
show interfaces tunnel <tunnel name> stats ipsec
```

and look for increases in “Total bytes dropped in replay check”.

- To change the IPSEC anti-replay window, use the following CLI command:

```
interface tunnel <tunnel name> ipsec replay-check-window  
<64|1024|disable|auto>
```

## Examples

None

# interface tunnel max-bandwidth

## Description

Use the **interface tunnel max-bandwidth** command to configure maximum bandwidth for this tunnel.

## Syntax

```
interface tunnel <tunnel name> max-bandwidth {<kbps> | auto}
```

## Arguments

<b>tunnel</b> <tunnel name>	Specifies the name for this tunnel.
<b>max-bandwidth</b> <kbps>	Specifies the maximum bandwidth in kilobits per second for this interface tunnel. The value must be a number between 0 and 4294967295.
<b>max-bandwidth auto</b>	Auto-negotiates the maximum bandwidth in kilobits per second for this interface tunnel.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

None

# interface tunnel min-bandwidth

## Description

Use the **interface tunnel min-bandwidth** command to configure minimum bandwidth for this tunnel.

## Syntax

```
interface tunnel <tunnel name> min-bandwidth <kbps>
```

## Arguments

<b>tunnel</b> <tunnel name>	Specifies the name for this tunnel.
<b>min-bandwidth</b> <kbps>	Specifies the minimum bandwidth in kilobits per second for this interface tunnel. The value must be a number between 0 and 4294967295.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

None

# interface tunnel mode

## Description

The **interface tunnel mode** command configures the encapsulation mode for a specified tunnel as either GRE or UDP.

Use the **no** form of this command to reset the mode for this tunnel to its default.

## Syntax

**interface tunnel <tunnel name> mode {gre | udp}**

**no interface tunnel <tunnel name> mode**

## Arguments

<b>&lt;tunnel name&gt;</b>	Specifies the name for this tunnel.
<b>gre</b>	Specifies the Generic Routing Encapsulation (GRE) mode. (legacy term)
<b>gre_sp</b>	Specifies the Generic Routing Encapsulation (GRE) mode. (current term)
<b>gre_ip</b>	Specifies a standard GRE pass-through tunnel to a third-party device.
<b>udp</b>	Specifies the User Datagram Protocol (UDP) mode. (legacy term)
<b>udp_sp</b>	Specifies the User Datagram Protocol (UDP) mode. (current term)
<b>no_encap</b>	Specifies no encapsulation. Use if the service doesn't support GRE.

---

## Defaults

The default mode is **gre**.

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To configure the tunnel, *Paris\_London*, for UDP mode:

```
(config) # interface tunnel Paris_London mode udp
```

- To reset the tunnel, *Paris\_London*, to the default mode, GRE:

```
(config) # no interface tunnel Paris_London mode
```

## interface tunnel mtu

### Description

Use the **interface tunnel mtu** command to configure Maximum Transmission Unit (MTU) for this tunnel.

Use the **no** form of this command to reset the MTU for this tunnel to its default.

### Syntax

```
interface tunnel <tunnel name> {mtu <MTU in bytes> | auto}
```

```
no interface tunnel <tunnel name> mtu
```

### Arguments

<tunnel name>	Specifies the name for this tunnel. The range is 700 to 2400.
<MTU in bytes>	Specifies the Maximum Transmission Unit (MTU) in bytes.
<b>auto</b>	Sets MTU automatically.

### Defaults

The default MTU is **1500**.

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## interface tunnel nat-mode

### Description

Use the **interface tunnel nat-mode** command to configure a NAT (Network Address Translation) mode for the tunnel.

### Syntax

```
interface tunnel nat-mode {none | snat}
```

### Arguments

**none** Configures with no NAT.

**snat** Applies Source-NAT to all outbound traffic.

---

### Defaults

None

### Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# interface tunnel packet

## Description

Use the **interface tunnel packet** command to configure packet options for this tunnel.

Use the **no** form of this command to negate or reset the packet options for this tunnel.

## Syntax

```
interface tunnel <tunnel name> packet coalesce {disable | enable}
```

```
interface tunnel <tunnel name> packet coalesce wait <TIME in msecs>
no interface tunnel <tunnel name> packet coalesce wait
```

```
interface tunnel <tunnel name> packet fec {disable | enable | auto}
```

```
interface tunnel <tunnel name> packet fec ratio {1:1 | 1:10 | 1:2 | 1:20 | 1:5}
no interface tunnel <tunnel name> packet fec ratio
```

```
interface tunnel <tunnel name> packet reorder wait <TIME in msec>
no interface tunnel <tunnel name> packet reorder wait
```

## Arguments

<b>&lt;tunnel name&gt;</b>	Specifies the name for this tunnel.
<b>coalesce {disable   enable}</b>	Disables or enables packet coalescing for this tunnel.
<b>coalesce wait &lt;TIME in msecs&gt;</b>	Specifies the coalesce wait time in milliseconds. The value must be a number between 0 and 65535. Use the <b>no</b> form of this command to reset the coalesce wait time to its default.
<b>fec {disable   enable}</b>	Disables or enables the packet forwarding error correction (FEC) options.
<b>fec auto</b>	Configures the packet forwarding error correction (FEC) options to adjust automatically. When set, it auto-tunes up to the value specified by <b>fec ratio</b> .
<b>fec ratio {1:1   1:10   1:20   1:5   1:2}</b>	Sets the packet forwarding error correction (FEC) ratios to one of the available options: 1:1, 1:10, 1:20, 1:5, or 1:2. Use the <b>no</b> form of this command to reset the FEC ratio value to its default.
<b>reorder wait &lt;TIME in msec&gt;</b>	Configures the packet reorder wait time. Use the <b>no</b> form of this command to reset the packet reorder wait time to its default.

## Defaults

The default packet coalesce wait time is 0 milliseconds.

The default packet reorder wait time is 0 milliseconds.

## Command Mode

### Global Configuration Mode

## Usage Guidelines

- To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

- To reset the packet coalesce wait time for the tunnel, *big-pipe*, to the default value of 0 (zero):

```
<silver-peak> (config) # no interface tunnel big-pipe packet coalesce wait
```

## interface tunnel peer-name

### Description

Use the **interface tunnel peer-name** command to configure the tunnel peer name.

Use the **no** command to reset the passthrough peer name.

### Syntax

**interface tunnel <tunnel name> peer-name <peer name>**

**no interface tunnel <tunnel name> peer-name**

### Arguments

<b>peer-name &lt;peer name&gt;</b>	Names the destination of a tunnel that has no destination IP. That is, a passthrough tunnel.
------------------------------------	--

### Defaults

None

### Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## interface tunnel revert

### Description

Use the **interface tunnel revert** command to configure the default values to the factory settings.

### Syntax

**interface tunnel <tunnel name> revert**

### Arguments

---

<i>&lt;tunnel name&gt;</i>	Specifies the name of this tunnel.
----------------------------	------------------------------------

### Defaults

Factory defaults

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## interface tunnel tag-name

### Description

Use the **interface tunnel tag-name** command to apply a tag name to a tunnel.

### Syntax

```
interface tunnel <tunnel name> tag-name <tag name>
```

### Arguments

**<tunnel name>**      Specifies the name of this tunnel.

**tag-name <tag name>**    Specifies the tunnel by calling out the WAN port names at each end of the tunnel.

---

### Defaults

Factory defaults

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# interface tunnel threshold

## Description

Use the **interface tunnel threshold** command to configure threshold options for this tunnel.

## Syntax

**interface tunnel <tunnel name> threshold fastfail {disable | enable}**

**interface tunnel <tunnel name> threshold fastfail-wait {base-ms <wait time in milliseconds> | rtt-x <multiple of RTT>}**

**interface tunnel <tunnel name> threshold jitter <jitter in milliseconds>**

**interface tunnel <tunnel name> threshold latency <latency in milliseconds>**

**interface tunnel <tunnel name> threshold loss <loss in percentage>**

**interface tunnel <tunnel name> threshold retry-count <retry-count>**

## Arguments

<b>&lt;tunnel name&gt;</b>	Specifies the name of this tunnel.
<b>fastfail {disable   enable}</b>	Disables or enables fast failover for this tunnel.
<b>fastfail-wait base-ms &lt;wait time in milliseconds&gt;</b>	Configures fast failover wait-times in milliseconds for this tunnel.
<b>fastfail-wait rtt-x &lt;multiple of RTT&gt;</b>	Configures fast failover wait-times in Return Trip Time (RTT) multiples for this tunnel.
<b>jitter &lt;jitter in milliseconds&gt;</b>	Specifies the jitter threshold for this tunnel in milliseconds.
<b>latency &lt;latency in milliseconds&gt;</b>	Specifies the latency threshold for this tunnel in milliseconds.
<b>loss &lt;loss in percentage&gt;</b>	Specifies the loss threshold for this tunnel in percentage.
<b>retry-count &lt;retry-count&gt;</b>	Specifies the number of retries.

## Defaults

The default number of retries is 10.

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

None

## interface tunnel traceroute

### Description

Use the **interface tunnel traceroute** command to initiate traceroute for this tunnel.

### Syntax

```
interface tunnel <tunnel name> traceroute
```

### Arguments

None

### Defaults

None

### Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# interface tunnel udp-flow

## Description

Use the **interface tunnel udp-flow** command to configure the number of UDP flows for this tunnel.

Use the **no** form of this command to reset the number of UDP flows for this tunnel to its default.

## Syntax

**interface tunnel <tunnel name> udp-flow <flows>**

**no interface tunnel <tunnel name> udp-flow**

## Arguments

<i>&lt;tunnel name&gt;</i>	Specifies the name for this tunnel.
<i>&lt;flows&gt;</i>	Sets the number of UDP flows, between 1 and 1024.

---

## Defaults

The default number of flows is 256.

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

To set the maximum number of UDP flows for the tunnel, *HastaLaVista*:

```
(config) # interface tunnel HastaLaVista udp-flow 1024
```

To reset the number of UDP flows to the default of 256 for the tunnel, *HastaLaVista*:

```
(config) # no interface tunnel HastaLaVista udp-flow
```

# interface tunnel udp-port

## Description

Use the **interface tunnel udp-port** command to configure the UDP destination port for this tunnel.

Use the **no** form of this command to reset the UDP destination port for this tunnel to its default.

## Syntax

```
interface tunnel <tunnel name> udp-port <UDP destination port>
```

```
no interface tunnel <tunnel name> udp-port
```

## Arguments

<tunnel name>	Specifies the name for this tunnel.
---------------	-------------------------------------

<UDP destination port>	Specifies the UDP destination port for this tunnel.
------------------------	---

---

## Defaults

The default UDP destination port is 4163.

## Command Mode

Global Configuration Mode

## Usage Guidelines

To see a list of the available tunnel names you may use, enter the following command:

```
<silver-peak> (config) # interface tunnel ?
```

## Examples

To make UDP port 407 the destination for the tunnel, *MataHari*:

```
<silver-peak> (config) # interface tunnel MataHari udp-port 407
```

# interface virtual

## Description

Use the **interface virtual** command to create or modify a virtual network interface.

Use the **no** command to remove a virtual network interface.

## Syntax

```
interface <interface name> virtual <virtual interface type> username <PPPoE username> password <PPPoE password> etherdev <physical ethernet interface>
```

```
no interface <interface name> virtual <virtual interface type>
```

## Arguments

<i>&lt;interface name&gt;</i>	Specifies the name of the interface.
<b>virtual &lt;virtual interface type&gt;</b>	The type of virtual interface. Currently, the options are limited to <b>pppoe</b> (Point-to-Point over Ethernet).
<b>username &lt;PPPoE username&gt;</b>	Specifies the PPPoE username. This is required.
<b>password &lt;PPPoE password&gt;</b>	Specifies the PPPoE password. This is required.
<b>etherdev &lt;physical ethernet interface&gt;</b>	Specifies the physical ethernet interface to use for PPPoE. For example, <b>wan0</b> , <b>wan1</b> , <b>twan0</b> , or <b>twan1</b> .

## Defaults

None

## Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# interface vrrp

## Description

Use the **interface vrrp** commands to configure network interface Virtual Router Redundancy Protocol (VRRP) instances.

## Syntax

```
interface <interface name> vrrp <1-255> admin {down | up}
no interface <interface name> vrrp <1-255>

interface <interface name> vrrp <1-255> authentication <text>
no interface <interface name> vrrp <1-255> authentication

interface <interface name> vrrp <1-255> debug action {dump_info | clear_stats | mem_stats}

interface <interface name> vrrp <1-255> debug packet_trace
no interface <interface name> vrrp <1-255> debug packet_trace

interface <interface name> vrrp <1-255> description <text>
no interface <interface name> vrrp <1-255> description

interface <interface name> vrrp <1-255> ip </IP address>

interface <interface name> vrrp <1-255> preempt
no interface <interface name> vrrp <1-255> preempt

interface <interface name> vrrp <1-255> priority <1-254>
no interface <interface name> vrrp <1-255> priority

interface <interface name> vrrp <1-255> timers advertise <1-255>
no interface <interface name> vrrp <1-255> timers advertise

interface <interface name> vrrp <1-255> timers holddown <1-255>
no interface <interface name> vrrp <1-255> timers holddown
```

## Arguments

<b>&lt;interface name&gt;</b>	Specifies the name of this interface. Currently, <b>wan0</b> is the sole available interface.
<b>vrrp &lt;1-255&gt;</b>	The ID for the VRRP. Valid numbers are from 1 through 255, inclusive.
<b>admin down</b>	Disables the VRRP instance.
<b>admin up</b>	Enables the VRRP instance.

<b>authentication &lt;text&gt;</b>	Configures an authentication string. This text string is limited to a maximum of eight characters. Use the <b>no</b> form of this command to delete the authentication string.
<b>debug action {dump_info   clear_stats   mem_stats}</b>	For the VRRP instance specified: <ul style="list-style-type: none"> <li>■ <b>dump_info</b> - dumps all info into a log file</li> <li>■ <b>clear_stats</b> - clears debug statistics</li> <li>■ <b>mem_stats</b> - creates a log file of all memory usage information</li> </ul>
<b>debug packet_trace</b>	Enables a VRRP packet trace to a log file. Use the <b>no</b> form of this command to disable the dumping of the Rx/Tx VRRP packet to a log file.
<b>description &lt;text&gt;</b>	Sets the VRRP description string. Use the <b>no</b> form of this command to delete the VRRP description string.
<b>ip &lt;IP address&gt;</b>	Creates a VRRP router or modifies a VRRP virtual IP address.
<b>preempt</b>	Enables preemption of the lower-priority Master. Use the <b>no</b> form of this command to disable preemption of lower priority Master.
<b>priority &lt;1-254&gt;</b>	Sets the priority of this appliance. Use the <b>no</b> form of this command to reset priority level to the default value of 128.
<b>timers advertise &lt;1-255&gt;</b>	Specifies the advertisement interval in seconds. Use the <b>no</b> form of the command to reset to the default value of 1 second.
<b>timers holddown &lt;1-255&gt;</b>	Sets the wait time (in seconds) before asserting ownership. Use the <b>no</b> form of this command to reset holddown to the default value of 10.

---

## Defaults

The default priority is 128.

The default advertisement interval is 1 second.

## Command Mode

Global Configuration Mode

## Usage Guidelines

The **interface vrrp** commands are only valid when the appliance is in router mode. Also, they only support the **wan0** interface.

To see a list of the available interface names you may use, enter the following command:

```
<silver-peak> (config) # interface ?
```

## Examples

- To delete the vrrp authentication string for the VRRP ID, 7:

```
(config) # no interface wan0 vrrp 7 authentication
```

- To reset the appliance priority level to the default value for the VRRP ID, 243:

```
(config) # no interface wan0 vrrp 243 priority
```

## interface wan-if

### Description

Use the **interface wan-if** command to specify that this interface only allow WAN traffic when deploying the appliance in in-line router mode.

Use the **no** form of this command to remove the limitation from this interface.

### Syntax

**interface <interface name> wan-if**

**no interface <interface name> wan-if**

### Arguments

**<interface name>** Specifies the name of this interface.

**wan-if** Specifies that the interface only allow WAN traffic.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Only used for in-line router mode.

### Examples

None

# ip datapath route

## Description

Use the **ip datapath route** command to configure next-hop address(es) for LAN-side networks that are not directly connected to a bridge-mode appliance.

Use the **no** form of **ip datapath route** command to remove datapath static route.

## Syntax

**ip datapath route <network prefix> <netmask or mask length> <next hop IP address>**

**ip datapath route <network prefix> <netmask or mask length> <next hop IP address> metric <1..255> [if <interface name>]**

**no ip datapath route <network prefix> <netmask or mask length> [<destination>]**

## Arguments

<i>&lt;network prefix&gt;</i>	Specifies network prefix. This has the format, nnn.nnn.nnn.0.
<i>&lt;netmask or mask length&gt;</i>	Specifies netmask, or the mask length in slash notation.
<i>&lt;next hop IP address&gt;</i>	Specifies next-hop IP address.
<b>metric &lt;1-255&gt;</b>	Specifies datapath static route metric. Specifies an integer cost metric (ranging from 1 to 255) for the route, which is used when choosing among multiple routes in the routing table that most closely match the destination address of a packet being forwarded. The route with the lowest metric is chosen. The metric can reflect the number of hops, the speed of the path, path reliability, path throughput, or administrative properties.
<b>if &lt;interface name&gt;</b>	Specifies the datapath static route interface.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To configure a datapath route from the 10.10.10.0 network to the next-hop IP, 172.11.15.13, use one of the following:

```
(config) # ip datapath route 10.10.10.0 /24 172.11.15.13  
(config) # ip datapath route 10.10.10.0 255.255.255.0 172.11.15.13
```

# ip default-gateway

## Description

Use the **ip default-gateway** command to set the default route to the specified next-hop or interface.

Use the **no** form of this command to remove the current default route or all the default routes.

## Syntax

**ip default-gateway <next-hop IP address> <interface name>**

**ip default-gateway <next-hop IP address> <interface name> <metric> [<src>]**

**no ip default-gateway**

**no ip default-gateway <next-hop IP address> [<metric>]**

## Arguments

<i>&lt;next-hop IP address&gt;</i>	Specifies the IP address for the default gateway route.
<i>&lt;interface name&gt;</i>	Either <b>mgmt0</b> or <b>mgmt1</b> . The interface named here forces the next-hop to use the named management interface, binding the next-hop.
<i>&lt;metric&gt;</i>	Specifies the metric of the subnet. Value must be between 0 and 100. When a peer has more than one tunnel with a matching subnet (for example, in a high availability deployment), it chooses the tunnel with the greater numerical value.
<i>&lt;src&gt;</i>	Specifies the Source IP to use in the header after the packet reaches the next hop.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

The complete command, **no ip default gateway**, removes all the default routes.

## Examples

To set the default gateway to 10.10.4.5:

```
(config) # ip default-gateway 10.10.4.5
```

# ip domain-list

## Description

Use the **ip domain-list** command to add a domain name to use when resolving hostnames.

Use the **no** form of this command to remove a domain name.

## Syntax

**ip domain-list <domain name>**

**no ip domain-list <domain name>**

## Arguments

---

<i>&lt;domain name&gt;</i>	Defines a domain name. For example, <i>silver-peak</i> .
----------------------------	--

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To add the domain name, “silver-peak”:

```
(config) # ip domain-list silver-peak
```

## ip host

### Description

Use the **ip host** command to configure a static hostname or IP address mapping.

Use the **no** form of this command to remove static hostname or IP address mapping.

### Syntax

**ip host <host name> <IP address>**

**no ip host <host name> <IP address>**

### Arguments

**<host name>** Defines a static host name for the IP host.

**<IP address>** Specifies an IP address for the IP host.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Useful for a URL definition where you want to use a name instead of an IP address.

### Examples

To be able to use the name, “redshoes”, for the IP address, 10.10.10.4:

```
(config) # ip host redshoes 10.10.10.4
```

## ip mgmt-ip

### Description

Use the **ip mgmt-ip** command to configure a LAN IP address for management traffic.

Use the **no** form of this command to remove the LAN IP address configuration for management traffic.

### Syntax

**ip mgmt-ip <IP address>**

**no ip mgmt-ip**

### Arguments

---

<b>&lt;IP address&gt;</b>	Specifies an IP address for the IP host.
---------------------------	--

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## ip name-server

### Description

Use the **ip name-server** command to add a DNS server.

Use the **no** form of this command to remove a DNS server.

### Syntax

**ip name-server <IP address>**

**no ip name-server <IP address>**

### Arguments

---

<i>&lt;IP address&gt;</i>	Specifies an IP address for the DNS server.
---------------------------	---

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

The system allows a maximum of three DNS servers and tells you when you try to request more.

The appliance tries to access DNS servers, as needed, in the order they were configured. Also, if you remove the first host in a list of three, the second host becomes the first host. A newly added host always goes to the bottom of the list.

### Examples

To add a Domain Name Server with the IP address, 172.30.56.89:

```
(config) # ip name-server 172.30.56.89
```

# ip route

## Description

Use the **ip route** command to add a static route. Static routes help the appliance route management traffic out of the appliance to different subnets.

Use the **no** form of this command to remove a static route.

## Syntax

```
ip route <network prefix> <mask length> <next hop IP address> <interface> [<metric>]
```

```
ip route <network prefix> <mask length> <next hop IP address> <interface> <metric> [<src>]
```

```
no ip route <network prefix> <mask length> [<next hop IP address>]
```

```
no ip route <network prefix> <mask length> <next hop IP address> [<interface>]
```

```
no ip route <network prefix> <mask length> <next hop IP address> <interface> [<metric>]
```

## Arguments

<network prefix>	Specifies a network prefix to the IP route. This has the format, nnn.nnn.nnn.0.
<mask length>	Specifies a mask length in slash notation.
<nexthop IP address>	Specifies the next-hop IP address for the IP route.
<nexthop IP address> <interface>	Binds the next-hop to the named interface, in this case, either <b>mgmt0</b> or <b>mgmt1</b> .
<metric>	Specifies the metric of the subnet. Value must be between 0 and 100. When a peer has more than one tunnel with a matching subnet (for example, in a high availability deployment), it chooses the tunnel with the greater numerical value.
<src>	Specifies the Source IP to use in the header after the packet reaches the next hop.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# ip-tracking

## Description

The **ip-tracking** command configures IP tracking on the appliance.

The **no ip-tracking** commands disable specified IP tracking objects.

## Syntax

```
ip-tracking action <action name> attributes <text string>
no ip-tracking action <action name>
```

```
ip-tracking manager <manager name> {attributes <text string> | comment <comment text> | disable |
enable}
no ip-tracking manager <manager name>
```

```
ip-tracking operation <operation name> attributes <text string>
no ip-tracking operation <operation name>
```

## Arguments

<b>action</b> <Action name>	Creates an IP Tracking action object.
<b>manager</b> <Manager name>	Creates an IP Tracking manager object.
<b>operation</b> <Operation name>	Creates an IP Tracking operation object.
<b>attributes</b> <text string>	Configures attributes for an object.
<comment>	Adds comment text.
<b>enable</b>	Enables the IP Tracking manager.
<b>disable</b>	Disables the IP Tracking manager.

---

## Defaults

None

## Command Mode

User EXEC mode  
Privileged EXEC mode  
Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## nat-map

### Description

The appliance can perform ***source network address translation*** (Source NAT or SNAT) on inbound or outbound traffic.

Two use cases illustrate the need for NAT:

**Inbound NAT.** The appliance automatically creates a source NAT map when retrieving subnet information from the Silver Peak Cloud portal. This ensures that traffic destined to SaaS servers has a return path to the appliance from which that traffic originated.

**Outbound NAT.** The appliance and server are in the cloud, and the server accesses the internet. For example, a Citrix thin client accesses its cloud-based server, and the server accesses the internet.

For deployments in the cloud, ***best practice is to NAT all traffic*** – either inbound (WAN-to-LAN) or outbound (LAN-to-WAN), depending on the direction of initiating request. This avoids black-holing that can result from cloud-specific IP addressing requirements.

Enabling NAT on inbound traffic applies NAT policies to pass-through traffic as well as optimized traffic, ensuring that black-holing doesn't occur. Enabling NAT on outbound traffic only applies to pass-through traffic.

If Fallback is enabled, the appliance moves to the next IP (if available) when ports are exhausted on the current NAT IP.

In general, when applying NAT policies, configure separate WAN and LAN interfaces to ensure that NAT works properly. You can do this by deploying the appliance in Router mode in-path with two (or four) interfaces.

There are two types of NAT policies:

**Dynamic** - created automatically by the system for inbound NAT when the ***SaaS Optimization*** feature is enabled and SaaS service(s) are selected for optimization. The appliance polls the Silver Peak Unity Cloud Intelligence service for a directory of SaaS services, and NAT policies are created for each of the subnets associated with selected SaaS service(s), ensuring that traffic destined for servers in use by those SaaS services has a return path to the appliance.

**Manual** - created by the administrator for specific IP addresses / ranges or subnets. When assigning priority numbers to individual policies within a NAT map, first view dynamic policies to ensure that the manual numbering scheme doesn't interfere with dynamic policy numbering (that is, the manually assigned priority numbers cannot be in the range: 40000-50000). The default (no-NAT) policy is numbered 65535.

NAT maps are comprised of ordered entries. Each map entry consists of a *match* statement paired with a *set* action. Set actions are specific to the type of map.

A NAT map entry can match traffic that satisfies either a pre-defined ACL or any of the following attributes:

- ICMP or IP Protocol
- Source IP Address / Subnet
- Destination IP Address / Subnet
- Application (standard or user-defined, or a user-defined application group)
- Source Port Number
- Destination Port Number
- DSCP value
- VLAN

If you want to reuse the same match criteria in more than one map, you can pre-define ACLs, which are, essentially, reusable match statements.

Set actions are specific to the type of map. A NAT map has set actions for the following features:

- NAT type
- NAT direction
- NAT IP
- Fallback

Map entries are ordered according to their assigned *priorities*. Priorities identify, as well as order, entries within a map. Across entries, all priority values must be unique (in other words, no two *entries* in a given map can have the same priority value). *match*

In the following example, we'll add a new entry, with a priority of 50, to the default map, *map1*. The first statement matches all traffic associated with the application, *AOL*. The second statement causes the source address and the source port to change in the IP header of that inbound traffic:

```
(config) # nat-map map1 50 match app aol
(config) # nat-map map1 50 set nat-type source-nat direction inbound
```

If you enter a new priority statement for an existing map, the CLI adds that entry to the map. However, if the map already has a *match* or *set* statement with the same priority, the new entry overwrites the previous one (and the CLI does not provide a warning).

If you want to create a new map, the CLI creates the map the first time you name it in a match statement.

Every map automatically includes a default entry with the priority, 65535, the highest possible number.

By default, one map is always active. You can change the active map at any time, simply by activating a different map.

## nat-map activate

### Description

Use the **nat-map activate** command to activate an inactive NAT map.

### Syntax

```
nat-map <NAT map name> activate
```

### Arguments

---

<nat map name>	Specifies which existing, inactive NAT map.
----------------	---

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Only one NAT map can be active at a time. The Silver Peak appliance has a default NAT map, **map1**, that's active until you create and activate a new NAT map.

### Usage Guidelines

None

### Examples

None

## nat-map comment

### Description

Use the **nat-map comment** command to add a comment for a specified NAT map entry.

### Syntax

```
nat-map <NAT map name> <priority value> comment <comment text>
```

### Arguments

<NAT map name>	Specifies the name of the NAT map.
<priority value>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<comment text>	Specifies the text used for the comment.

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## nat-map match

### Description

Use the **nat-map match** command to create a NAT map entry that uses match criteria to delineate traffic. Also use this command to change the matching conditions associated with an existing entry.

### Syntax

```
nat-map <NAT map name> <priority value> match acl <ACL name>
nat-map <NAT map name> <priority value> match app <application>
nat-map <NAT map name> <priority value> match dscp {any | <dscp value>}
nat-map <NAT map name> <priority value> match matchstr <match string>
nat-map <NAT map name> <priority value> match protocol icmp {<source IP address and mask length> | any | any-ipv4 | any-ipv6} {<dest IP address and mask length> | any | any-ipv4 | any-ipv6} [dscp {any | <dscp value>}] [vlan {any | <1..4094> | <interface>.tag | <any>.tag | <interface>.any | <interface>.native}]
nat-map <NAT map name> <priority value> match protocol ip {<source IP address and mask length> | any | any-ipv4 | any-ipv6} {<dest IP address and mask length> | any | any-ipv4 | any-ipv6} [app <application name>] [dscp {any | <dscp value>}] [vlan {any | <1..4094> | <interface>.tag | <any>.tag | <interface>.any | <interface>.native}]
nat-map <NAT map name> <priority value> match vlan {any | <1..4094> | <interface>.tag | <any>.tag | <interface>.any | <interface>.native]
```

### Arguments

<NAT map name>	Specifies the name of the NAT map.
<priority value>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
match acl <ACL name>	Creates an entry that uses an existing ACL to match traffic. Also use this command to change the ACL associated with an existing entry.
match app <application name>	Creates an entry that uses a built-in or user-defined application—or an application group—to match traffic. Also use this command to change the application associated with an existing entry.
match dscp {<dscp value>   any}	Creates or modifies an entry that matches traffic with a specific DSCP marking. You can use any of the following values: <ul style="list-style-type: none"> <li>■ af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, or ref.</li> <li>■ any is a wildcard.</li> </ul>

<b>match matchstr &lt;match string&gt;</b>	Creates or modifies a NAT map that matches a string.
<b>match protocol icmp {&lt;source IP address and mask length&gt;   any   any-ipv4   any-ipv6}</b>	Creates or modifies a NAT map that matches the ICMP protocol.  <b>any</b> matches any IPv4 or IPv6 address <b>any-ipv4</b> matches any IPv4 address <b>any-ipv6</b> matches any IPv6 address
<b>match protocol ip {&lt;source IP address and mask length&gt;   any   any-ipv4   any-ipv6}</b>	Creates or modifies a NAT map that matches the IP protocol.  <b>any</b> matches any IPv4 or IPv6 address <b>any-ipv4</b> matches any IPv4 address <b>any-ipv6</b> matches any IPv6 address
<b>match vlan {any   &lt;1..4094&gt;   &lt;interface&gt;.tag   &lt;any&gt;.tag   &lt;interface&gt;.any   &lt;interface&gt;.native}</b>	Creates or modifies an entry that matches an interface and 802.1q VLAN tag. The available values include:  <b>&lt;1..4094&gt;</b> the number assigned to a VLAN <b>&lt;interface&gt;.tag</b> as in <b>lan0.10</b> <b>&lt;any&gt;.tag</b> as in <b>any.10</b> <b>&lt;interface&gt;.any</b> as in <b>lan0.any</b> <b>&lt;interface&gt;.native</b> as in <b>lan0.native</b> <b>any</b> is a wildcard
<b>&lt;source IP address and mask length&gt;</b>	Specifies the source IP address and netmask in slash notation. For example, 192.1.2.0/24 or 2001:db8::/32
<b>&lt;destination IP address and mask length&gt;</b>	Specifies the destination IP address and netmask in slash notation. For example, 192.1.2.0/24 or 2001:db8::/32.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# nat-map modify-priority

## Description

Use the **nat-map modify-priority** commands to modify an existing NAT map priority value.

## Syntax

```
nat-map <NAT map name> <priority value> modify-priority <priority value>
```

## Arguments

<nat map name>	Specifies an existing NAT map.
<current priority value>	Specifies the current priority value for the entry you want to change.
<b>modify-priority</b> <new priority value>	Designates the new priority for this entry. This new priority value must be unique and between 1 to 65534.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you try renumber the entry to a priority number that already exists, the CLI informs you that that's the case and that you can't make that modification.

## Examples

To change the priority of entry 40 to be 60 for the map, *map1*:

```
(config) # nat-map map1 40 modify-priority 60
```

## nat-map set

### Description

Use the **nat-map set** command specifies or modifies an entry's action. You cannot create a **set** command for an entry until you first issue a **match** command.

### Syntax

```
nat-map <NAT map name> <priority value> set nat-type source-nat direction {inbound | outbound | none}
```

```
nat-map <NAT map name> <priority value> set nat-type source-nat direction inbound nat-ip {<interface IP address> | auto | tunnel_endpoint} fallback {enable | disable}
```

```
nat-map <NAT map name> <priority value> set nat-type source-nat direction outbound nat-ip {<interface IP address> | auto} fallback {enable | disable}
```

```
nat-map <NAT map name> <priority value> set nat-type source-nat direction none nat-ip {<interface IP address> | auto} fallback {enable | disable}
```

```
nat-map <NAT map name> <priority value> set nat-type no-nat direction inbound nat-ip {<interface IP address> | auto | tunnel_endpoint} fallback {enable | disable}
```

```
nat-map <NAT map name> <priority value> set nat-type no-nat direction outbound nat-ip {<interface IP address> | auto} fallback {enable | disable}
```

```
nat-map <NAT map name> <priority value> set nat-type no-nat direction none nat-ip {<interface IP address> | auto} fallback {enable | disable}
```

### Arguments

<b>nat-map</b> <NAT map name>	Specifies the name of the NAT map.
<priority value>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<b>set</b>	Configures the NAT map with the arguments that follow.
<b>nat-type</b>	Specifies the NAT type.
<b>source-nat</b>	Specifies the Source NAT on traffic coming into the LAN.
<b>no-nat</b>	Disables NAT on all traffic.
<b>direction</b>	Specifies the NAT direction: <ul style="list-style-type: none"> <li>■ <b>inbound</b> Applies NAT to traffic coming into LAN.</li> <li>■ <b>outbound</b> Applies NAT to traffic going out into WAN.</li> <li>■ <b>none</b>; Disables NAT.</li> </ul>

<b>nat-ip &lt;interface IP address&gt;</b>	Specifies the NAT IP address. To display the existing interface addresses, you can type, <b>nat-ip ?</b>
<b>nat-ip {auto   tunnel_endpoint}</b>	Specifies how the system should choose the NAT IP address.
<b>fallback enable</b>	Specifies fallback to the next available NAT IP address upon port exhaustion with the current NAT IP address.
<b>fallback disable</b>	Specifies not to fallback to the next available NAT IP address upon port exhaustion.

## Defaults

The default is **no** network address translation.

## Command Mode

Global Configuration Mode

## Usage Guidelines

You cannot create a **set** command for an entry until you first issue a **match** command. And, until you create a **set** command, no Set Actions exist for that entry's priority.

## Usage Guidelines

None

## Examples

None

## no nat-map

### Description

Use the **no nat-map** command to delete a Network Address Translation (NAT) map or a specific priority entry from a NAT map.

### Syntax

**no nat-map <nat map name>**

**no nat-map <nat map name> <priority value>**

### Arguments

<nat map name> Specifies which NAT map.

<priority value> Designates a priority value for the NAT map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.

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### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

You can only delete a NAT map if it's inactive. Therefore, to delete the active NAT map, you must first activate a different NAT map. For example:

```
(config) # nat-map map3 activate
(config) # no opt-map fred
```

You can also delete a specific entry in a NAT map by using the **no nat-map** command and specifying a priority value. For example, the following statement deletes the priority 100 entry (*match* and *set* statements) from the NAT map, *fred*:

```
(config) # no nat-map fred 100
```

## no opt-map

### Description

Use the **no opt-map** command to delete an optimization map or a specific priority entry from an optimization map.

### Syntax

**no opt-map <opt map name>**

**no opt-map <opt map name> <priority value>**

### Arguments

<b>&lt;opt map name&gt;</b>	Specifies which optimization map.
<b>&lt;priority value&gt;</b>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.

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### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

You can only delete an optimization map if it's inactive. Therefore, to delete the active optimization map, you must first activate a different optimization map. For example:

```
(config) # opt-map ginger activate
(config) # no opt-map fred
```

You can also delete a specific entry in an optimization map by using the **no opt-map** command and specifying a priority value. For example, the following statement deletes the priority 100 entry (*match* and *set* statements) from the optimization map, *fred*:

```
(config) # no opt-map fred 100
```

## no qos-map

### Description

Use the **no qos-map** command to delete a QoS map or a specific priority entry from a QoS map.

### Syntax

**no qos-map <qos map name>**

**no qos-map <qos map name> <priority value>**

### Arguments

**<qos map name>** Specifies which QoS map.

**<priority value>** Designates a priority value in the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry, which cannot be removed.

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### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

You can only delete a QoS map if it's inactive. To delete the active QoS map, you must first activate a different QoS map. For example:

```
(config) # qos-map ginger activate
(config) # no qos-map fred
```

You can also delete a specific entry in a QoS map by using the **no qos-map** command and specifying a priority value. For example, the following statement deletes the priority 100 entry (*match* and *set* statements) from the QoS map, *fred*:

```
(config) # no qos-map fred 100
```

## no route-map

You can use the **no route-map** command to delete a route map or a specific priority entry from a route map.

### Syntax

**no route-map <route\_map\_name>**

**no route-map <route map name> <priority value>**

### Arguments

<i>&lt;route map name&gt;</i>	Specifies which existing route map.
<i>&lt;priority value&gt;</i>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.

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### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

You can only delete a route map if it's inactive. To delete the active route map, you must first activate a different route map. For example:

```
(config) # route-map ginger activate
(config) # no route-map fred
```

You can also delete a specific entry in a route map by using the **no route-map** command and specifying a priority value. For example, the following statement deletes the priority 100 entry (*match* and *set* statements) from the route map, *fred*:

```
(config) # no route-map fred 100
```

# ntp

## Description

Use the **ntp** commands to configure Network Time Protocol (NTP) on the appliance.

Use the **no** forms of the command to negate certain NTP options.

## Syntax

**ntp {disable | enable}**

**no ntp {disable | enable}**

**ntp server <IP address>**

**no ntp server <IP address>**

**ntp status <remote> <refid> <st> <t> <when> <poll> <reach> <delay> <offset> <jitter>**

**ntp server <IP address> version <version number>**

**ntp server <IP address> disable**

**no ntp server <IP address> disable**

**ntp status**

## Arguments

**disable**

Disables NTP on the appliance.

**enable**

Enables NTP on the appliance.

**server <IP address>**

Configures the NTP server node with the default NTP version number.

Use the **no** form of this command to remove this NTP server.

**ntp status**

Checks the connectivity of this NTP server.

**<remote> <refid> <st> <t> <when> <poll> <reach> <delay> <offset> <jitter>**

**server <IP address> version <version number>**

Configures the NTP server node and specifies the NTP version number of this server.

**server <IP address> disable**

Temporarily disables this NTP server.

The **no** command reenables the NTP server.

**status**

Shows the status of NTP servers.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

Use the **no** form of **ntp enable** and **ntp disable** to negate the NTP option. In other words, to disable NTP, you can use the **no ntp enable**; to enable NPT, use the **no ntp disable**.

To remove an NTP server with the address, 170.10.10.4:

```
<silver-peak> (config) # no ntp server 170.10.10.4
```

## Usage Guidelines

None

## Examples

None

# ntpdate

## Description

Use the **ntpdate** command to set the system clock once from a remote server using Network Time Protocol (NTP).

## Syntax

**ntpdate** <IP address>

## Arguments

<IP address>	Specifies the IP address of the remote NTP server.
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## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To synchronize the server to the NTP server, 216.27.190.202:

```
(config) # ntpdate 216.27.190.202
```

## opt-map

### Description

The Silver Peak appliance allows you to configure how your traffic is optimized by creating *optimization maps*. Optimization maps make it easy for you to explicitly filter for the traffic you want to optimize, and then apply an action to that flow.

Optimization maps – like Route maps and QoS maps – are made up of ordered entries. Each map entry consists of a **match** statement paired with a **set** action. Set actions are specific to the type of map.

A map entry can match traffic that satisfies either a pre-defined ACL or any of the following attributes:

- Protocol
- Source IP Address / Subnet
- Destination IP Address / Subnet
- Source Port Number
- Destination Port Number
- Application (standard or user-defined, or a user-defined application group)
- DSCP value
- VLAN

If you want to reuse the same match criteria in more than one map, you can pre-define ACLs, which are, essentially, reusable match statements.

Set actions are specific to the type of map. An optimization map has set actions related to optimization and compression features:

- Network Memory
- IP header compression
- Payload compression
- TCP acceleration
- Protocol acceleration (CIFS, SSL, SRDF)

Map entries are ordered according to their assigned *priorities*. Priorities identify, as well as order, entries within a map. Across entries, all priority values must be unique (in other words, no two *entries* in a given map can have the same priority value).

In the following example, we'll add a new entry, with a priority of 50, to the default map, *map1*. The first statement matches all traffic associated with the application, *AOL*. The second statement enables CIFS acceleration as the action for that traffic:

```
(config) # opt-map map1 50 match app aol
(config) # opt-map map1 50 set cifs enable
```

If you enter a new priority statement for an existing optimization map, the CLI adds that entry to the optimization map. However, if the map already has a *match* or *set* statement with the same priority, the new entry overwrites the previous one (and the CLI does not provide a warning).

If you want to create a new optimization map, the CLI creates the map the first time you name it in a *match* statement.

Every optimization map automatically includes a default entry with the priority, 65535, the highest possible number. That default entry applies all the optimization and compression features to all traffic subject to the optimization map.

By default, optimization maps have additional entries that enable protocol-specific optimizations for CIFS, SSL, iSCSI, SRDF, Citrix, and their common ports.

By default, one optimization map is always active. You can change the active map at any time, simply by activating a different map.

## opt-map activate

### Description

Use the **opt-map activate** command to activate an inactive optimization map.

### Syntax

**opt-map <opt map name> activate**

### Arguments

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<opt map name>	Specifies which existing, inactive optimization map.
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### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Only one optimization map can be active at a time. The Silver Peak appliance has a default optimization map, *map1*, that's active until you create and activate a new optimization map.

### Examples

To activate the new optimization map, *rambo*:

```
(config) # opt-map rambo activate
```

## opt-map comment

### Description

Use the **opt-map comment** command to add a comment for a specified NAT map entry.

### Syntax

```
opt-map <opt map name> <priority value> comment <comment text>
```

### Arguments

<opt map name>	Specifies the name of the optimization map.
<priority value>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<comment text>	Specifies the text used for the comment.

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# opt-map match

## Description

Use the **opt-map match** command to create an optimization map entry that uses match criteria to delineate traffic. Also use this command to change the matching conditions associated with an existing entry.

## Syntax

```
opt-map <opt map name> <priority value> match acl <ACL name>

opt-map <opt map name> <priority value> match app {<application name> | <application group>}

opt-map <opt map name> <priority value> match dscp {<dscp value> | any}

opt-map <optmap name> <priority value> match matchstr <match string>

opt-map <opt map name> <priority value> match protocol <IP protocol number or name> {<source ip address/netmask> | any} {<destination ip address/netmask> | any} [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

opt-map <opt map name> <priority value> match protocol ip {<source ip address/netmask> | any} {<destination ip address/netmask> | any} [app {<application name> | any}] [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

opt-map <opt map name> <priority value> match protocol {tcp | udp} {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [{<source port number> | any} {<destination port number> | any}] [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

opt-map <opt map name> <priority value> match vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}
```

## Arguments

<b>opt map &lt;opt map name&gt;</b>	Specifies which optimization map. If the name doesn't exist, the CLI creates it.
<b>&lt;priority value&gt;</b>	Designates a priority value for the optimization map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<b>match acl &lt;ACL name&gt;</b>	Creates an entry that uses an existing ACL to match traffic. Also use this command to change the ACL associated with an existing entry.
<b>match app &lt;application name&gt;</b>	Creates an entry that uses a built-in or user-defined application—or an application group—to match traffic. Also use this command to change the application associated with an existing entry.

<b>match dscp {&lt;dscp value&gt;   any}</b>	Creates or modifies an entry that matches traffic with a specific DSCP marking. You can use any of the following values: <ul style="list-style-type: none"><li>■ af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, <i>oref</i>.</li><li>■ <b>any</b> is a wildcard.</li></ul>												
<b>match matchstr &lt;match string&gt;</b>	Creates or modifies an opt map that matches a string.												
<b>any</b>	<b>any</b> is a wildcard.												
<b>match protocol &lt;IP protocol number or name&gt;</b>	Creates or modifies an entry that matches traffic with a specific protocol that is <b>NOT</b> named specifically as <i>ip</i> , <i>tcp</i> , or <i>udp</i> .												
<b>match protocol ip</b>	Creates or modifies an entry that matches specific IP addresses. <ul style="list-style-type: none"><li>■ When you specify <b>protocol ip</b>, the assumption is that you are allowing <b>any</b> IP protocol. In that case, you also need to specify an application (or application group). If you don't, the CLI defaults to specifying <b>any</b> application.</li><li>■ If you don't choose to specify a DSCP value in the full command, then the CLI defaults to specifying <b>any</b> DSCP value in the policy entry.</li></ul>												
<b>match protocol {tcp   udp}</b>	Creates or modifies an entry that matches specific TCP or UDP addresses. <ul style="list-style-type: none"><li>■ If you don't choose to specify source and destination ports in the full command, then the CLI defaults to specifying <b>0:0</b> (any source port and any destination port) in the policy entry.</li></ul>												
<b>match vlan {any   &lt;1..4094&gt;   &lt;interface.tag&gt;   &lt;any.tag&gt;   &lt;interface.any&gt;   &lt;interface.native&gt;}</b>	Creates or modifies an entry that matches an interface and 802.1q VLAN tag. The available values include: <table border="0"><tr><td>&lt;1..4094&gt;</td><td>the number assigned to a VLAN</td></tr><tr><td>&lt;interface&gt;.tag</td><td>as in <b>lan0.10</b></td></tr><tr><td>&lt;any&gt;.tag</td><td>as in <b>any.10</b></td></tr><tr><td>&lt;interface&gt;.any</td><td>as in <b>lan0.any</b></td></tr><tr><td>&lt;interface&gt;.native</td><td>as in <b>lan0.native</b></td></tr><tr><td><b>any</b></td><td>is a wildcard</td></tr></table>	<1..4094>	the number assigned to a VLAN	<interface>.tag	as in <b>lan0.10</b>	<any>.tag	as in <b>any.10</b>	<interface>.any	as in <b>lan0.any</b>	<interface>.native	as in <b>lan0.native</b>	<b>any</b>	is a wildcard
<1..4094>	the number assigned to a VLAN												
<interface>.tag	as in <b>lan0.10</b>												
<any>.tag	as in <b>any.10</b>												
<interface>.any	as in <b>lan0.any</b>												
<interface>.native	as in <b>lan0.native</b>												
<b>any</b>	is a wildcard												
<b>&lt;source ip address/netmask&gt;</b>	Specifies the source IP address and netmask in slash notation. For example, <i>10.2.0.0 0.0.255.255</i> should be entered as <i>10.2.0.0/16</i> .												
<b>&lt;destination ip address/netmask&gt;</b>	Specifies the destination IP address and netmask in slash notation. For example, <i>10.2.0.0/16</i> .												

## Defaults

None

## Command Mode

## Global Configuration Mode

## Usage Guidelines

You can specify one of the following standard (built-in) applications (alphabetically left to right):

For each **opt-map match** command with a given priority, you must create an **opt-map set** command(s) with the same priority. But, you cannot create the **set** command without having first created the **match** command.

## Examples

- To create a match criteria with a priority of “100” for the map, “express”, that filters for all traffic coming from the LAN with a DSCP marking of “best effort”:

```
(config) # opt-map express 100 match dscp be
```

- To create a match criteria with a priority of “70” for the map, “express”, that filters for the application group, “secure”:

```
(config) # opt-map express 70 match app secure
```

- To create a match criteria with a priority of “20” for “map2” that filters for all AOL traffic that’s headed from the LAN to 172.34.8.0:

```
(config) # opt-map map2 20 match protocol ip any 172.34.8.0 aol
```

- Since you haven’t specified a DSCP value, the criteria will include all DSCP values, as if you had written it as follows:

```
(config) # opt-map map2 20 match protocol ip any 172.34.8.0 aol any
```

- To create a match criteria with a priority of “30” for the map, “arthouse” that filters for all UDP traffic coming from port 41 and having a destination of 122.33.44.0/24:

```
(config) # opt-map arthouse 30 match protocol udp any 122.33.4.0/24 41:0
```

- Since you haven’t specified a DSCP value, the criteria will include all DSCP values, as if you had written it as follows:

```
(config) # opt-map arthouse 30 match protocol udp any 122.33.4.0/24  
41:0 any
```

- To create a match criteria with a priority of “10” for the map, “waldo” that filters for all Interior Gateway Protocol (IGP) traffic that has a DSCP marking of “af11”:

```
(config) # opt-map waldo 10 match protocol igr any any dscp af11
```

# opt-map modify-priority

## Description

Use **opt-map modify-priority** command to modify the priority value of an existing entry in the optimization map.

## Syntax

```
opt-map <opt map name> <current priority value> modify-priority <new priority value>
```

## Arguments

<opt map name>	Specifies an existing optimization map.
<current priority value>	Specifies the current priority value for the entry you want to change.
<b>modify-priority</b> <new priority value>	Designates the new priority for this entry. This new priority value must be unique and between 1 to 65534.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you try renumber the entry to a priority number that already exists, the CLI informs you that that's the case and that you can't make that modification.

## Examples

To change the priority of entry 40 to be 60 for the map, *wiser*:

```
(config) # opt-map wiser 40 modify-priority 60
```

## opt-map set

### Description

The **opt-map set** command specifies or modifies an entry's set action. You cannot create a **set** command for an entry until you first issue a **match** command.

### Syntax

```
opt-map <opt map name> <priority value> set header {enable | disable}
```

```
opt-map <opt map name> <priority value> set network-memory {disable | balanced | min-latency | max-reduction}
```

```
opt-map <opt map name> <priority value> set payload {enable | disable}
```

```
opt-map <opt map name> <priority value> set tcp {enable | disable}
```

```
opt-map <opt map name> <priority value> set protocol-specific {none | cifs | ssl | srdf | citrix | iscsi} [network-memory {disable | balanced | min-latency | max-reduction}]
```

```
opt-map <opt map name> <priority value> set protocol-specific {none | cifs | ssl | srdf | citrix | iscsi} network-memory {disable | balanced | min-latency | max-reduction} payload {enable | disable} header {enable | disable} tcp {enable | disable}
```

```
opt-map <opt map name> <priority value> set advanced-tcp adjust-mss-to-mtu {enable | disable}
```

```
opt-map <opt map name> <priority value> set advanced-tcp auto-reset-flows {enable | disable}
```

```
opt-map <opt map name> <priority value> set advanced-tcp congestion-control {standard | optimized | aggressive}
```

```
opt-map <opt map name> <priority value> set advanced-tcp e2e-fin-handling {enable | disable}
```

```
opt-map <opt map name> <priority value> set advanced-tcp ip-black-listing {enable | disable}
```

```
opt-map <opt map name> <priority value> set advanced-tcp keep-count <threshold>
```

```
opt-map <opt map name> <priority value> set advanced-tcp keep-idle <seconds>
```

```
opt-map <opt map name> <priority value> set advanced-tcp keep-interval <seconds>
```

```
opt-map <opt map name> <priority value> set advanced-tcp lanside-wsfclamp <threshold>
```

```
opt-map <opt map name> <priority value> set advanced-tcp max-l2w-buffer <Kbytes>
```

```
opt-map <opt map name> <priority value> set advanced-tcp max-w2l-buffer <Kbytes>
```

**opt-map <opt map name> <priority value> set advanced-tcp persist-drop <seconds>**

**opt-map <opt map name> <priority value> set advanced-tcp preserve-pkt-boundary {enable | disable}**

**opt-map <opt map name> <priority value> set advanced-tcp propagate-syn {enable | disable}**

**opt-map <opt map name> <priority value> set advanced-tcp reset-to-default**

**opt-map <opt map name> <priority value> set advanced-tcp route-policy-override {enable | disable}**

**opt-map <opt map name> <priority value> set advanced-tcp slow-lan-defense <threshold>**

**opt-map <opt map name> <priority value> set advanced-tcp slowlan-windowpenalty <threshold>**

**opt-map <opt map name> <priority value> set advanced-tcp window-scale-factor <threshold>**

## Arguments

<b>opt map &lt;opt map name&gt;</b>	Specifies which optimization map.
<b>&lt;priority value&gt;</b>	Specifies an existing priority value for the optimization map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<b>set</b>	Configures the optimization map with the arguments that follow.
<b>header {enable   disable}</b>	Enables or disables header compression.
<b>network-memory {disable   balanced   min-latency   max-reduction}</b>	Sets the type of network memory for matched traffic. The options are: <ul style="list-style-type: none"> <li>■ <b>disable</b> Disables Network Memory.</li> <li>■ <b>balanced</b> Sets Network Memory for a balance between minimum latency and maximum reduction.</li> <li>■ <b>min-latency</b> Sets Network Memory for minimum latency.</li> <li>■ <b>max-reduction</b> Sets Network Memory for maximum reduction.</li> </ul>
<b>payload {enable   disable}</b>	Enables or disables payload compression for matched traffic.
<b>protocol-specific {none   cifs   ssl   srdf   citrix   iscsi}</b>	For the named protocol (CIFS, SSL, SRDF, Citrix, iSCSI) enables acceleration for matched traffic. To disable acceleration for all five protocols, use <b>none</b> .
<b>tcp {enable   disable}</b>	Enables or disables TCP acceleration for matched traffic.
<b>advanced-tcp</b>	Sets advanced TCP acceleration options.
<b>adjust-mss-to-mtu {enable   disable}</b>	Enables or disables the adjustment of the MSS to the tunnel MTU.

<b>auto-reset-flows {enable   disable}</b>	Enables or disables the auto-reset of TCP flows.
<b>congestion-control {enable   disable}</b>	Enables or disables congestion control for WAN.
<b>e2e-fin-handling {enable   disable}</b>	Enables or disables end-to-end FIN handling.
<b>ip-black-listing {enable   disable}</b>	Enables or disables IP blacklisting.
<b>keep-count &lt;threshold&gt;</b>	Specifies the maximum number of TCP keep-alive probes.
<b>keep-idle &lt;seconds&gt;</b>	Specifies the TCP keep-alive time, in seconds, to the first probe.
<b>keep-interval &lt;seconds&gt;</b>	Specifies the time interval between TCP keep-alive probes.
<b>lanside-wsfclamp</b>	For the LAN-side Window Scale Factor clamp, specifies the window scale factor value (1... 14). To disable, use 0.
<b>max-l2w-buffer &lt;Kbytes&gt;</b>	Specifies the maximum LAN-to-WAN buffer size, in kilobytes.
<b>max-w2l-buffer &lt;Kbytes&gt;</b>	Specifies the maximum WAN-to-LAN buffer size, in kilobytes.
<b>persist-drop &lt;seconds&gt;</b>	Specifies the maximum TCP persist timeout.
<b>preserve-pkt-boundary { enable   disable}</b>	Enables or disables the preserving of packet boundaries.
<b>propagate-syn {enable   disable}</b>	Enables or disables the Propagate SYN feature.
<b>reset-to-default</b>	Resets all advanced TCP options to default values.
<b>route-policy-override {enable   disable}</b>	Enables or disables the route policy override feature.
<b>slow-lan-defense &lt;threshold&gt;</b>	Sets the slow LAN defense threshold value (0 .. 12, 0=Off).
<b>slowlan-winpenalty &lt;threshold&gt;</b>	For the Slow LAN Window Penalty, specifies the window scale factor value (1... 10). To disable, use 0.
<b>window-scale-factor &lt;threshold&gt;</b>	Set the window scale factor value (1 .. 14).

## Defaults

By default, the optimization map entry enables protocol-specific acceleration for CIFS and SSL.

## Command Mode

Global Configuration Mode

## Usage Guidelines

You cannot create a **set** command for an entry until you first issue a **match** command. And, until you create a **set** command, no Set Actions exist for that entry's priority.

## Examples

None

# overlay

## Description

Use the **overlay** command to configure applications on the appliance.

## Syntax

```
overlay add <overlay_name> <overlay_id>
overlay common internal-subnets </list of subnets>
overlay delete <overlay_name>
overlay <overlay_name> bonding-policy {high-availability | high-quality | high-throughput | raw}
overlay <overlay_name> brownout-thres {jitter <jitter in milliseconds> | latency <latency in milliseconds> | loss <loss in percentage>}
overlay <overlay name> comment <comment for overlay>
overlay <overlay_name> internet-traffic policy local-breakout {backup <Internet traffic: backup tunnels> | primary <Internet traffic: primary tunnels>}
overlay <overlay name> internet-traffic policy-list <list of internet traffic policies>
overlay <overlay_name> overlay-priority <priority number> links {add <link_name> | delete <link_name>}
overlay <overlay name> overlay-priority <priority number> state {use-sla | use-active}
overlay <overlay_name> topology node-type {non-hub | hub}
```

## Arguments

<overlay_name>	Name of the overlay. For example: <b>voice</b> or <b>data</b> .
<overlay_id>	A numerical identifier for the overlay.
<b>add</b>	Adds an overlay.
<b>bonding-policy</b>	Configures threshold options for this overlay. The four options are: <ul style="list-style-type: none"> <li>■ <b>high-availability</b></li> <li>■ <b>high-quality</b></li> <li>■ <b>high-throughput</b></li> <li>■ <b>raw</b></li> </ul>

<b>brownout-thres</b>	Configures threshold options for this overlay.
<b>comment &lt;comment for overlay&gt;</b>	Adds your comment to the overlay.
<b>common internal-subnets</b>	Configures internal subnets for all overlays.
<b>delete</b>	Deletes the specified overlay.
<b>internet-traffic</b>	Configures internet traffic policy for this overlay.
<b>jitter &lt;jitter in milliseconds&gt;</b>	Configures jitter threshold for this overlay.
<b>latency &lt;latency in milliseconds&gt;</b>	Configures latency threshold for this overlay.
<b>links {add   delete} &lt;/link_name&gt;</b>	Adds or deletes links in this bucket.
<b>local-breakout</b>	Configures the local breakout policy for this overlay. The two options are:  <b>backup &lt;/Internet traffic: backup tunnels&gt;</b> : Configures the backup passthrough tunnel (s) for local-breakout policy. <b>primary &lt;/Internet traffic: primary tunnels&gt;</b> : Configures the primary passthrough tunnel (s) for local-breakout policy.
<b>loss &lt;loss in percentage&gt;</b>	Configures loss threshold for this overlay.
<b>overlay-priority &lt;Priority number&gt;</b>	Configures tunnels usage priority for this overlay.
<b>policy</b>	Configures internet traffic policy
<b>policy-list &lt;list of internet traffic policies&gt;</b>	Configures internet traffic policy-list for this overlay.
<b>state {use-sla   use-active}</b>	Specifies how to detect a brownout condition on the tunnel: <ul style="list-style-type: none"> <li>■ <b>use-sla</b> -- Determines brownout when threshold is exceeded for loss, latency, or jitter.</li> <li>■ <b>use-active</b> -- Determines brownout when tunnel is down.</li> </ul>
<b>topology node-type {non-hub   hub}</b>	Configures topology role for appliance in this overlay.

## Defaults

None

## Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# preposition ftp

## Description

Use the **preposition ftp** command to configure the pre-positioning FTP interface. The appliances' FTP server capability enables administrators to FTP files or directories into Network Memory, pre-positioning the data to get the benefit of second-pass network performance.

## Syntax

**preposition ftp {enable | disable}**

**preposition ftp anonymous {disable | enable}**

**preposition ftp max-clients <integer>**

## Arguments

<b>disable</b>	Disables the pre-positioning FTP interface.
<b>enable</b>	Enables the pre-positioning FTP interface.
<b>anonymous</b>	Disables the anonymous pre-positioning FTP interface.
<b>disable</b>	
<b>anonymous</b>	Enables the anonymous pre-positioning FTP interface.
<b>enable</b>	
<b>max-clients</b> <i>&lt;integer&gt;</i>	Specifies the maximum number of FTP connections allowed. The value must be an integer between 1 and 10.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

- It's important to make sure that the relevant tunnels are admin-ed up before FTP transfer.
- When a user is able to ftp anonymously, they are not authenticated. Otherwise, the user must be a valid user on the appliance.

## Examples

None

## **qos-map**

### Description

The Silver Peak appliance allows you to configure the Quality of Service (QoS) for your traffic by creating *QoS maps*. QoS maps make it easy for you to explicitly match the traffic that you want to queue, and then (1) send that traffic to a particular queue, and (2) specify the DSCP markings for WAN and LAN packets.

You can create elaborate combinations of match criteria, using IP addresses, ports, protocol, and/or DSCP markings. You can also create more complex matches within ACLs. Or, you can choose to simplify your match criteria by using well-known or user-defined applications, or application groups. By default, one QoS map is always active, and you can change the active map at any time, simply by activating a different map.

Each QoS map may have multiple entries. A map entry consists of one or more **match** statements, which specifies packet fields to be matched, and one **set** statement, which specifies the traffic class, or queue, for the traffic. You can also specify DSCP markings for the LAN (inner) and WAN (outer, or tunnel) packets.

For example, in the following example, the first statement matches all traffic that is associated with the application, *AOL*. The second statement specifies a traffic class ID of 9 for that traffic:

```
(conf) # qos-map fred 50 match app aol
(conf) # qos-map fred 50 set traffic-class 9
```

You create a new QoS map with a single, default entry which serves as a catch-all. In this example, if the QoS map, *fred*, did not exist, the CLI would create it when you entered the match statement.

Entries in a map are ordered according to their assigned *priorities*. Priorities are used to identify, as well as to order entries within a map. All priority values must be unique (in other words, no two entries in a given map can have the same priority value). In the above example, the priority for the entries is 50.

If you enter a new priority statement for an existing QoS map, the CLI adds that entry to the QoS map. However, if you enter a statement that has the same priority as one that already exists, the new entry overwrites the previous one (and the CLI does not provide a warning).

A QoS map entry can match traffic that satisfies either a pre-defined ACL or any of the following attributes:

- IP Protocol
- Source IP Address
- Destination IP Address
- Source Port Number
- Destination Port Number
- Application
- DSCP value
- VLAN

To edit the ten available traffic classes, use the **shaper** command.

## **qos-map activate**

### Description

Use the **qos-map activate** command to activate an inactive QoS map.

### Syntax

**qos-map <qos map name> activate**

### Arguments

---

<b>&lt;qos map name&gt;</b>	Specifies which existing, inactive QoS map.
-----------------------------	---

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Only one QoS map can be active at time. The Silver Peak appliance has a default QoS map, *map1*, that is active until you create and activate a new QoS map.

### Examples

To activate the new QoS map, *houdini*:

```
(config) # qos-map houdini activate
```

## **qos-map comment**

### Description

Use the **qos-map comment** command to add a comment for a specified QoS map entry.

### Syntax

```
qos-map <qos map name> <priority value> comment <comment text>
```

### Arguments

<i>&lt;qos map name&gt;</i>	Specifies the name of the QoS map.
<i>&lt;priority value&gt;</i>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<i>&lt;comment text&gt;</i>	Specifies the text used for the comment.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# **qos-map match**

## Description

Use the **qos-map match** command to create a QoS map entry that uses match criteria to delineate traffic. Also use this command to change the matching conditions associated with an existing entry.

## Syntax

```
qos-map <qos map name> <priority value> match acl <ACL name>

qos-map <qos map name> <priority value> match app {<application name> | <application group>}

qos-map <qos map name> <priority value> match dscp {<dscp value> | any}

qos-map <qos map name> <priority value> match matchstr <match string>

qos-map <qos map name> <priority value> match protocol <IP protocol number or name> {<source ip address/netmask> | any} {<destination ip address/netmask> | any} [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

qos-map <qos map name> <priority value> match protocol ip {<source ip address/netmask> | any} {<destination ip address/netmask> | any} [app {<application name> | any}] [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

qos-map <qos map name> <priority value> match protocol {tcp | udp} {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [{<source port number> | any} {<destination port number> | any}] [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

qos-map <qos map name> <priority value> match vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}
```

## Arguments

<b>qos map &lt;qos map name&gt;</b>	Specifies which QoS map. If the name doesn't exist, the CLI creates it.
<b>&lt;priority value&gt;</b>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<b>match acl &lt;ACL name&gt;</b>	Creates an entry that uses an existing ACL to match traffic. Also use this command to change the ACL associated with an existing entry.
<b>match app &lt;application name&gt;</b>	Creates an entry that uses a built-in or user-defined application—or an application group—to match traffic. Also use this command to change the application associated with an existing entry.

<b>match dscp {&lt;dscp value&gt;   any}</b>	Creates or modifies an entry that matches traffic with a specific DSCP marking. You can use any of the following values: <ul style="list-style-type: none"><li>■ af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, <i>oref</i>.</li><li>■ <b>any</b> is a wildcard.</li></ul>												
<b>match matchstr &lt;match string&gt;</b>	Creates or modifies a QoS map that matches a string.												
<b>any</b>	<b>any</b> is a wildcard.												
<b>match protocol &lt;IP protocol number or name&gt;</b>	Creates or modifies an entry that matches traffic with a specific protocol that is <b>NOT</b> named specifically as <i>ip</i> , <i>tcp</i> , or <i>udp</i> .												
<b>match protocol ip</b>	Creates or modifies an entry that matches specific IP addresses. <ul style="list-style-type: none"><li>■ When you specify <b>protocol ip</b>, the assumption is that you are allowing <b>any</b> IP protocol. In that case, you also need to specify an application (or application group). If you don't, the CLI defaults to specifying <b>any</b> application.</li><li>■ If you don't choose to specify a DSCP value in the full command, then the CLI defaults to specifying <b>any</b> DSCP value in the policy entry.</li></ul>												
<b>match protocol {tcp   udp}</b>	Creates or modifies an entry that matches specific TCP or UDP addresses. <ul style="list-style-type: none"><li>■ If you don't choose to specify source and destination ports in the full command, then the CLI defaults to specifying <b>0:0</b> (any source port and any destination port) in the policy entry.</li><li>■ If you don't choose to specify a DSCP value in the full command, then the CLI defaults to specifying <b>any</b> DSCP value in the policy entry.</li></ul>												
<b>match vlan {any   &lt;1..4094&gt;   &lt;interface.tag&gt;   &lt;any.tag&gt;   &lt;interface.any&gt;   &lt;interface.native&gt;}</b>	Creates or modifies an entry that matches an interface and 802.1q VLAN tag. The available values include: <table border="0"><tr><td>&lt;1..4094&gt;</td><td>the number assigned to a VLAN</td></tr><tr><td>&lt;interface&gt;.tag</td><td>as in <b>lan0.10</b></td></tr><tr><td>&lt;any&gt;.tag</td><td>as in <b>any.10</b></td></tr><tr><td>&lt;interface&gt;.any</td><td>as in <b>lan0.any</b></td></tr><tr><td>&lt;interface&gt;.native</td><td>as in <b>lan0.native</b></td></tr><tr><td><b>any</b></td><td>is a wildcard</td></tr></table>	<1..4094>	the number assigned to a VLAN	<interface>.tag	as in <b>lan0.10</b>	<any>.tag	as in <b>any.10</b>	<interface>.any	as in <b>lan0.any</b>	<interface>.native	as in <b>lan0.native</b>	<b>any</b>	is a wildcard
<1..4094>	the number assigned to a VLAN												
<interface>.tag	as in <b>lan0.10</b>												
<any>.tag	as in <b>any.10</b>												
<interface>.any	as in <b>lan0.any</b>												
<interface>.native	as in <b>lan0.native</b>												
<b>any</b>	is a wildcard												
<b>&lt;source ip address/netmask&gt;</b>	Specifies the source IP address and netmask in slash notation. For example, <b>10.2.0.0 0.0.255.255</b> should be entered as <b>10.2.0.0/16</b> .												
<b>&lt;destination ip address/netmask&gt;</b>	Specifies the destination IP address and netmask in slash notation. For example, <b>10.2.0.0/16</b> .												

## Defaults

None

## Command Mode

### Global Configuration Mode

## Usage Guidelines

For each **qos-map match** command with a given priority, you must create a **qos-map set** command with the same priority. But, you cannot create a **set** command without having first created the **match** command.

## Examples

- To create a match criteria with a priority of “100” for the map, “express”, that filters for all traffic coming from the LAN with a DSCP marking of “best effort”:

```
(config) # qos-map express 100 match dscp be
```

- To create a match criteria with a priority of “70” for the map, “express”, that filters for the application group, “secure”:

```
(config) # qos-map express 70 match app secure
```

- To create a match criteria with a priority of “20” for “map2” that filters for all AOL traffic that’s headed from the LAN to 172.34.8.0:

```
(config) # qos-map map2 20 match protocol ip any 172.34.8.0 aol
```

- Since you haven’t specified a DSCP value, the criteria will include all DSCP values, as if you had written it as follows:

```
(config) # qos-map map2 20 match protocol ip any 172.34.8.0 aol any
```

- To create a match criteria with a priority of “30” for the map, “arthouse” that filters for all UDP traffic coming from port 41 and having a destination of 122.33.44.0/24:

```
(config) # qos-map arthouse 30 match protocol udp any 122.33.4.0/24 41:0
```

- Since you haven’t specified a DSCP value, the criteria will include all DSCP values, as if you had written it as follows:

```
(config) # qos-map arthouse 30 match protocol udp any 122.33.4.0/24  
41:0 any
```

- To create a match criteria with a priority of “10” for the map, “waldo” that filters for all Interior Gateway Protocol (IGP) traffic that has a DSCP marking of “af11”:

```
(config) # qos-map waldo 10 match protocol igr any any dscp af11
```

# **qos-map modify-priority**

## Description

Use **qos-map modify-priority** command to modify the priority value of an existing entry.

## Syntax

```
qos-map <qos map name> <current priority value> modify-priority <new priority value>
```

## Arguments

<b>&lt;qos map name&gt;</b>	Specifies an existing QoS map.
<b>&lt;current priority value&gt;</b>	Specifies the current priority value for the entry you want to change.
<b>&lt;new priority value&gt;</b>	Designates the new priority for this entry. This new priority value must be unique and between 1 to 65534.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you try renumber the entry to a priority number that already exists, the CLI informs you that that's the case and that you can't make that modification.

## Examples

To change the priority of entry 40 to be 60 for the map, *DesMoines*:

```
(config) # opt-map DesMoines 40 modify-priority 60
```

# **qos-map set**

## Description

The **qos-map set** command specifies or modifies the set statement in a QoS map entry. You cannot use a **set** command until you first issue a **match** command.

## Syntax

```
qos-map <qos map name> <priority value> set traffic-class <traffic class ID>
```

```
qos-map <qos map name> <priority value> set traffic-class <traffic class ID> lan-qos {trust-lan | <dscp value>} wan-qos {trust-lan | <dscp value>}
```

```
qos-map <qos map name> <priority value> set lan-qos {trust-lan | <dscp value>}
```

```
qos-map <qos map name> <priority value> set wan-qos {trust-lan | <dscp value>}
```

## Arguments

<b>qos-map &lt;qos map name&gt;</b>	Specifies which QoS map.
<b>&lt;priority value&gt;</b>	Specifies an existing priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<b>traffic-class &lt;traffic class ID&gt;</b>	Specifies the traffic class, or queue, to which matched traffic is sent. Traffic classes are identified by integer values from 1 through 10.
<b>lan-qos {trust-lan   &lt;dscp value&gt;}</b>	With <b>lan-qos</b> , <b>trust-lan</b> indicates that the DSCP marking should not change. In other words, the DSCP setting in the inner, encapsulated packet that comes in is the same one that goes out. You can assign any of the following DSCP values: af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, or ref.
<b>wan-qos {trust-lan   &lt;dscp value&gt;}</b>	With <b>wan-qos</b> , <b>trust-lan</b> indicates that the marking of the outer packet follows the marking of the inner packet. You can assign any of the following DSCP values: af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, or ref.

## Defaults

By default, the **set** part of the default optimization map entry (priority 65535) is:

```
qos-map set traffic-class 1 lan-qos trust-lan wan-qos trust-lan
```

## Command Mode

### Global Configuration Mode

## Usage Guidelines

You cannot create a **set** command for an entry until you first issue a **match** command. And, until you create a **set** command, no Set Actions exist for that entry's priority.

- When creating an entry (priority) with the Appliance Manager Graphical User Interface, the QoS map defaults are:
  - Traffic class = 1
  - LAN QoS = trust-lan
  - WAN QoS = trust-lan
- When you create the first **qos-map set** command **for a priority** with the CLI and you use a syntax that doesn't specify all three Set Actions, the CLI automatically creates the rest as defaults in the background.

For example, if your first set command for priority "10" in "map1" is:

```
(config) # qos-map map1 10 set lan-qos be
```

then, the CLI also creates the following two additional entries behind the scenes:

```
(config) # qos-map map1 10 set traffic-class 1
(config) # qos-map map1 10 set wan-qos trust-lan
```

You can verify these results by using the command, **show qos-map**.

For pass-through traffic, any **lan-qos** specification is ignored. Any **wan-qos** specification is placed in the ToS field of the packet.

## Examples

None

## route-map

### Description

The Silver Peak appliance allows you to manage your packet flow by creating *route maps*. Route maps make it easy for you to identify exactly the traffic that you need to manage. You can create elaborate combinations of match criteria, using IP addresses, ports, protocol, and/or DSCP markings. You can also create more complex matches within ACLs. Or, you can choose to simplify your match criteria by using well-known or user-defined applications, or application groups. By default, one route map is always active, and you can change the active map at any time, simply by activating a different map.

Each route map may have multiple entries. A map entry consists of one or more *match* statements, which specifies packet fields to be matched, and one *set* statement, which takes action on the matched traffic, such as sending it to a tunnel or dropping it.

For example, in the following example, the first statement matches all traffic that is associated with the application, *AOL*. The second statement sends that AOL traffic through the tunnel named *Holland*:

```
(conf) # route-map fred 50 match app aol
(conf) # route-map fred 50 set tunnel Holland
```

You create a new route map with a single, default entry which serves as a catch-all. In this example, if the route map, *fred*, did not exist, the CLI would create it when you entered the match statement.

Entries in a map are ordered according to their assigned *priorities*. Priorities are used to identify, as well as to order entries within a map. All priority values must be unique (in other words, no two entries in a given map can have the same priority value). In the above example, the priority for the entries is *50*.

If you enter a new priority statement for an existing route map, the CLI adds that entry to the route map. However, if you enter a statement that has the same priority as one that already exists, the new entry overwrites the previous one (and the CLI does not provide a warning).

A route map entry can match traffic that satisfies either a pre-defined ACL or any of the following attributes:

- IP protocol
- Source IP address and subnet mask
- Destination IP address and subnet mask
- Source port number
- Destination port number
- Application
- DSCP value
- VLAN

# route-map activate

## Description

Use the **route-map activate** command to activate a route map.

## Syntax

```
route-map <route_map_name> activate
```

## Arguments

---

<route map name>	Specifies which route map.
------------------	----------------------------

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

Only one route map can be active at time. The Silver Peak appliance has a default route map, *map1*, that is active until you create and activate a new route map.

## Examples

To activate the new route map, *whichway*:

```
(config) # qos-map whichway activate
```

## route-map comment

### Description

Use the **route-map comment** command to add a comment for a specified QoS map entry.

### Syntax

```
route-map <route map name> <priority value> comment <comment text>
```

### Arguments

<route map name>	Specifies the name of the route map.
<priority value>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<comment text>	Specifies the text used for the comment.

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# route-map match

## Description

Use the **route-map match** command to create a route map entry that uses match criteria to delineate traffic. Also use this command to change the matching conditions associated with an existing entry.

## Syntax

```
route-map <route map name> <priority value> match acl <ACL name>

route-map <route map name> <priority value> match app {<application name> | <application group>}

route-map <route map name> <priority value> match dscp {<dscp value> | any}

route-map <route map name> <priority value> match matchstr <match string>

route-map <route map name> <priority value> match protocol <IP protocol number or name> {<source ip address/netmask> | any} {<destination ip address/netmask> | any} [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

route-map <route map name> <priority value> match protocol ip {<source ip address/netmask> | any} {<destination ip address/netmask> | any} [app {<application name> | any}] [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>]}

route-map <route map name> <priority value> match protocol {tcp | udp} {<source IP address/netmask> | any} {<destination IP address/netmask> | any} [{<source port number> | any} {<destination port number> | any}] [dscp {<dscp value> | any}] [vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}]

route-map <route map name> <priority value> match vlan {any | <1..4094>} | <interface.tag> | <any.tag> | <interface.any> | <interface.native>}
```

## Arguments

<b>route map &lt;route map name&gt;</b>	Specifies which route map. If the name doesn't exist, the CLI creates it.
<b>&lt;priority value&gt;</b>	Designates a priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<b>match acl &lt;ACL name&gt;</b>	Creates an entry that uses an existing ACL to match traffic. Also use this command to change the ACL associated with an existing entry.
<b>match app &lt;application name&gt;</b>	Creates an entry that uses a built-in or user-defined application—or an application group—to match traffic. Also use this command to change the application associated with an existing entry.

<b>match dscp {&lt;dscp value&gt;   any}</b>	Creates or modifies an entry that matches traffic with a specific DSCP marking. You can use any of the following values:		
	<ul style="list-style-type: none"> <li>▪ af11, af12, af13, af21, af22, af23, af31, af32, af33, af41, af42, af43, be, cs1, cs2, cs3, cs4, cs5, cs6, cs7, or ef.</li> <li>▪ any is a wildcard.</li> </ul>		
<b>match matchstr &lt;match string&gt;</b>	Creates or modifies a route map that matches a string.		
<b>any</b>	any is a wildcard.		
<b>match protocol &lt;IP protocol number or name&gt;</b>	Creates or modifies an entry that matches traffic with a specific protocol that is <b>NOT</b> named specifically as <i>ip</i> , <i>tcp</i> , or <i>udp</i> .		
<b>match protocol ip</b>	Creates or modifies an entry that matches specific IP addresses. <ul style="list-style-type: none"> <li>▪ When you specify <b>protocol ip</b>, you allow <i>any</i> IP protocol. In that case, you need to specify an application (or application group). Otherwise, the CLI defaults to specifying <b>any</b> application.</li> <li>▪ If you do not specify a DSCP value in the full command, then the CLI defaults to specifying <b>any</b> DSCP value in the policy entry.</li> </ul>		
<b>match protocol {tcp   udp}</b>	Creates or modifies an entry that matches specific TCP or UDP addresses. <ul style="list-style-type: none"> <li>▪ If you don't choose to specify source and destination ports in the full command, then the CLI defaults to specifying 0:0 (any source port and any destination port) in the policy entry.</li> <li>▪ If you don't choose to specify a DSCP value in the full command, then the CLI defaults to specifying <b>any</b> DSCP value in the policy entry.</li> </ul>		
<b>match vlan {any   &lt;1..4094&gt;   &lt;interface.tag&gt;   &lt;any.tag&gt;   &lt;interface.any&gt;   &lt;interface.native&gt;}</b>	Creates or modifies an entry that matches an interface and 802.1q VLAN tag. The available values include: <table border="0"> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>&lt;1..4094&gt;</li> <li>&lt;interface&gt;.tag</li> <li>&lt;any&gt;.tag</li> <li>&lt;interface&gt;.any</li> <li>&lt;interface&gt;.native</li> <li>any</li> </ul> </td> <td style="vertical-align: top; padding-left: 10px;"> <ul style="list-style-type: none"> <li>the number assigned to a VLAN</li> <li>as in <b>lan0.10</b></li> <li>as in <b>any.10</b></li> <li>as in <b>lan0.any</b></li> <li>as in <b>lan0.native</b></li> <li>is a wildcard</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>&lt;1..4094&gt;</li> <li>&lt;interface&gt;.tag</li> <li>&lt;any&gt;.tag</li> <li>&lt;interface&gt;.any</li> <li>&lt;interface&gt;.native</li> <li>any</li> </ul>	<ul style="list-style-type: none"> <li>the number assigned to a VLAN</li> <li>as in <b>lan0.10</b></li> <li>as in <b>any.10</b></li> <li>as in <b>lan0.any</b></li> <li>as in <b>lan0.native</b></li> <li>is a wildcard</li> </ul>
<ul style="list-style-type: none"> <li>&lt;1..4094&gt;</li> <li>&lt;interface&gt;.tag</li> <li>&lt;any&gt;.tag</li> <li>&lt;interface&gt;.any</li> <li>&lt;interface&gt;.native</li> <li>any</li> </ul>	<ul style="list-style-type: none"> <li>the number assigned to a VLAN</li> <li>as in <b>lan0.10</b></li> <li>as in <b>any.10</b></li> <li>as in <b>lan0.any</b></li> <li>as in <b>lan0.native</b></li> <li>is a wildcard</li> </ul>		
<b>&lt;source ip address/netmask&gt;</b>	Specifies the source IP address and netmask in slash notation. For example, 10.2.0.0 0.0.255.255 should be entered as 10.2.0.0/16.		
<b>&lt;destination ip address/netmask&gt;</b>	Specifies the destination IP address and netmask in slash notation. For example, 10.2.0.0/16.		

## Defaults

None

## Command Mode

### Global Configuration Mode

## Usage Guidelines

For each **route-map match** command with a given priority, a **route-map set** command with the same priority is required. However, you cannot create a **set** command before creating the **match** command.

## Examples

- To create a match criteria with a priority of “100” for the map, “vinnie”, that filters for all traffic coming from the LAN with a DSCP marking of “best effort”:

```
(config) # route-map vinnie 100 match dscp be
```

- To create a match criteria with a priority of “70” for the map, “vinnie”, that filters for the application group, “secure”:

```
(config) # route-map vinnie 70 match app secure
```

- To create a match criteria with a priority of “20” for “map2” that filters for all AOL traffic that’s headed from the LAN to 172.34.8.0:

```
(config) # route-map map2 20 match protocol ip any 172.34.8.0 aol
```

- Since you haven’t specified a DSCP value, the criteria will include all DSCP values, as if you had written it as follows:

```
(config) # route-map map2 20 match protocol ip any 172.34.8.0 aol any
```

- To create a match criteria with a priority of “30” for the map, “arthouse” that filters for all UDP traffic coming from port 41 and having a destination of 122.33.44.0/24:

```
(config) # route-map arthouse 30 match protocol udp any 122.33.4.0/24
41:0
```

- Since you haven’t specified a DSCP value, the criteria will include all DSCP values, as if you had written it as follows:

```
(config) # route-map arthouse 30 match protocol udp any 122.33.4.0/24
41:0 any
```

- To create a match criteria with a priority of “10” for the map, “autobahn” that filters for all Interior Gateway Protocol (IGP) traffic that has a DSCP marking of “af11”:

```
(config) # route-map autobahn 10 match protocol igr any any dscp af112
```

# route-map modify-priority

## Description

Use **route-map modify-priority** command to modify the priority value of an existing entry.

## Syntax

```
route-map <route map name> <current priority value> modify-priority <new priority value>
```

## Arguments

<route map name>	Specifies the name of an existing route map.
<current priority value>	Specifies the current priority value for the entry you want to change.
<new priority value>	Designates the new priority for this entry. This new priority value must be unique and between 1 to 65534.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you try renumber the entry to a priority number that already exists, the CLI informs you that that's the case and that you can't make that modification.

## Examples

To change the priority of entry 40 to be 60 for the map, *lunar*:

```
(config) # route-map lunar 40 modify-priority 60
```

## route-map set

### Description

The **route-map set** command specifies or modifies the SET part of an entry in a given route map. You cannot use a **set** command until you first issue a **match** command.

### Syntax

```
route-map <route map name> <priority value> set auto-opt-balance [if-down {pass-through | pass-through-unshaped | drop}]
```

```
route-map <route map name> <priority value> set auto-opt-low-latency [if-down {pass-through | pass-through-unshaped | drop}]
```

```
route-map <route map name> <priority value> set auto-opt-low-loss [if-down {pass-through | pass-through-unshaped | drop}]
```

```
route-map <route map name> <priority value> set auto-opt-overlay-id <overlay name> [if-down {pass-through | pass-through-unshaped | drop}]
```

```
route-map <route map name> <priority value> set auto-opt-preferred-if {<interface name> | wan0}
```

```
route-map <route map name> <priority value> set auto-optimize [if-down {pass-through | pass-through-unshaped | drop}]
```

```
route-map <route map name> <priority value> set drop
```

```
route-map <route map name> <priority value> set pass-through {shaped | unshaped}
```

```
route-map <route map name> <priority value> set peer-balance <peer hostname> [if-down {pass-through | pass-through-unshaped | drop | continue}]
```

```
route-map <route map name> <priority value> set peer-low-latency <peer hostname> [if-down {pass-through | pass-through-unshaped | drop | continue}]
```

```
route-map <route map name> <priority value> set peer-low-loss <peer hostname> [if-down {pass-through | pass-through-unshaped | drop | continue}]
```

```
route-map <route map name> <priority value> set tunnel <tunnel name> [if-down {pass-through | pass-through-unshaped | drop | continue}]
```

### Arguments

**route-map <route map name>** Specifies which route map.

<code>&lt;priority value&gt;</code>	Specifies an existing priority value for the map entry. Acceptable values are from 1 to 65534. By default, the appliance reserves 65535 for the default entry.
<code>set auto-opt-balance</code>	Auto-routes (optimizes) the traffic, load balancing.
<code>set auto-opt-low-latency</code>	Auto-routes (optimizes) the traffic, select tunnel with lowest latency.
<code>set auto-opt-low-loss</code>	Auto-routes (optimizes) the traffic, select tunnel with lowest loss.
<code>set auto-opt-overlay-id &lt;overlay name&gt;</code>	Auto-routes (optimizes) the traffic, select the named overlay.
<code>set auto-opt-preferred-if</code>	Auto-routes (optimizes) the traffic, select desired interface for auto-opt.
<code>set auto-optimize</code>	Auto-routes (optimizes) the traffic.
<code>set tunnel &lt;tunnel name&gt;</code>	Specifies the name of an existing tunnel. Use the <b>route-map set tunnel</b> command when you send matched traffic to a tunnel or a pair of redundant tunnels.
<code>if-down {pass-through   pass-through-unshaped   drop   continue}</code>	<p>Establishes what action the Silver Peak appliance takes if the primary tunnel (and its backup tunnel, if there is one) is down. You can specify the following options with <b>if-down</b>:</p> <ul style="list-style-type: none"> <li>■ <b>pass-through</b> - Traffic is passed through with QoS shaping.</li> <li>■ <b>pass-through-unshaped</b> - Traffic is passed through with no QoS shaping.</li> <li>■ <b>drop</b> - The packets are dropped.</li> <li>■ <b>continue</b> - Continue processing next entry.</li> </ul> <p>The default option, if you don't specify one, is <b>pass-through</b> (shaped).</p>
<code>set pass-through {shaped   unshaped}</code>	<p>Use the <b>route-map set passthrough</b> command if you want matching traffic to pass through the Silver Peak appliance unaccelerated.</p> <p>To limit the bandwidth of the traffic according to the passthrough bandwidth settings of the shaper, choose <b>shaped</b>; otherwise, choose <b>unshaped</b>.</p>
<code>set peer-balance &lt;peer hostname&gt;</code>	<p>Specifies that the appliance load balance with its named peer.</p> <p>To view a list of peers, enter a space and question mark at the end of this argument.</p>
<code>set peer-low-latency &lt;peer hostname&gt;</code>	When the appliance has a peer, use the one with the lowest latency.
<code>set peer-low-loss &lt;peer hostname&gt;</code>	When the appliance has a peer, use the one with the lowest loss.
<code>set drop</code>	Use when you want to drop matched traffic.

## Defaults

The default action for **if-down** is to send the traffic through as pass-through and shaped.

## Command Mode

## Global Configuration Mode

### Usage Guidelines

- You cannot use a **set** command until you first issue a **match** command.
- By default, the set part of the default route map entry (with priority 65535) is **auto-optimize**, which means that the appliances determine the appropriate, available tunnel for the traffic. You can modify this to drop or pass-through unshaped as follows:

```
route-map <route map name> 65535 set drop  
route-map <route map name> 65535 set pass-through-unshaped
```

### Examples

None

## saas

### Description

Use **saas** command to configure the system SaaS (Software as a Service) options.

### Syntax

**saas {enable | disable}**

**saas ping-src-interface <Source interface for SaaS RTT pings>**

**saas rtt-interval <seconds>**

**saas rtt-num-req-per-host <number>**

### Arguments

<b>disable</b>	Disables SaaS.
<b>enable</b>	Enables SaaS.
<b>ping-src-interface &lt;Source interface for SaaS RTT pings&gt;</b>	Configures a physical source interface for SaaS pings. For example, <b>wan0</b> .
<b>rtt-interval &lt;seconds&gt;</b>	Specifies the RTT (Round Trip Time) daemon interval in seconds.
<b>rtt-num-req-per-host &lt;number&gt;</b>	Specifies the number of requests to send to each host to calculate the average RTT.

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# shaper inbound

## Description

Use **shaper inbound** command to shape individual WAN, LAN, or management interfaces, or to shape the aggregate WAN interface.

Use the **no** command to remove an inbound shaper.

## Syntax

```
shaper inbound <shaper name> {enable | disable}

shaper inbound <shaper name> accuracy <usec>

shaper inbound <shaper name> max-bandwidth <kbps>

shaper inbound <shaper name> traffic-class <1-10> excess-weight <weight>

shaper inbound <shaper name> traffic-class <1-10> flow-rate-limit <kbps>

shaper inbound <shaper name> traffic-class <1-10> max-bandwidth <% of interface bandwidth>

shaper inbound <shaper name> traffic-class <1-10> max-wait <ms>

shaper inbound <shaper name> traffic-class <1-10> min-bandwidth <% of interface bandwidth>

shaper inbound <shaper name> traffic-class <1-10> priority <1-10>

no shaper inbound {<shaper name> | default | wan}
```

## Arguments

<b>disable</b>	Disables inbound shaper.
<b>enable</b>	Enables inbound shaper.
<b>&lt;shaper name&gt;</b>	<ul style="list-style-type: none"> <li>▪ Refers to the shaper for a specific interface, such as <b>wan0</b>, <b>wan1</b>, <b>twan0</b>, <b>twan1</b>, <b>bwan0</b>, <b>lan0</b>, <b>lan1</b>, <b>tlan0</b>, <b>tlan1</b>, <b>blan0</b>, <b>mgmt0</b>, <b>mgmt1</b>.</li> <li>▪ Use <b>wan</b> for shaping the aggregate WAN interface.</li> </ul>
<b>accuracy &lt;usec&gt;</b>	Specifies shaper accuracy in microseconds.
<b>excess-weight &lt;weight&gt;</b>	Specifies the shaper traffic class excess weight. If there is remaining bandwidth after satisfying the minimum bandwidth, then the excess is distributed among the traffic classes in proportion to the weightings specified. Values range from 1 to 10,000.

<b>flow-rate-limit &lt;kbps&gt;</b>	Specifies the traffic class's flow rate limit.
<b>max-bandwidth &lt;% of interface bandwidth&gt;</b>	Specifies the traffic class's maximum bandwidth in kilobits per second. You can limit the maximum bandwidth that a traffic class will use by specifying a percentage. The bandwidth usage for the traffic class never exceeds this value.
<b>max-wait &lt;ms&gt;</b>	Specifies the maximum wait time in milliseconds. Any packets waiting longer than the specified Max Wait Time are dropped.
<b>min-bandwidth &lt;% of interface bandwidth&gt;</b>	Specifies the shaper's minimum bandwidth in kilobits per second. Each traffic class is guaranteed this percentage of bandwidth, allocated in the order of priority. However, if the sum of the percentages is greater than 100%, then lower-priority traffic classes might not receive their guaranteed bandwidth if it is all consumed by higher-priority traffic.
<b>priority &lt;1-10&gt;</b>	Specifies the shaper traffic class priority. This determines the order in which each class's minimum bandwidth is allocated - 1 is first, 10 is last.
<b>traffic-class &lt;1-10&gt;</b>	Specifies the shaper traffic class.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

The inbound Shaper provides a simplified way to globally configure QoS (Quality of Service) on the appliances.

- It shapes inbound traffic by allocating bandwidth across ten traffic classes.
- The system applies these QoS settings globally before decompressing all the inbound tunnelized and pass-through-shaped traffic --- shaping it as it arrives from the WAN.

## Examples

None

# shaper outbound

## Description

Use **shaper outbound** command to shape individual WAN, LAN, or management interfaces, or to shape the aggregate WAN interface.

Use the **no** command to remove an outbound shaper.

## Syntax

```
shaper outbound <shaper name> {enable | disable}

shaper outbound <shaper name> accuracy <usec>

shaper outbound <shaper name> max-bandwidth <kbps>

shaper outbound <shaper name> traffic-class <1-10> excess-weight <weight>

shaper outbound <shaper name> traffic-class <1-10> flow-rate-limit <kbps>

shaper outbound <shaper name> traffic-class <1-10> max-bandwidth <% of interface bandwidth>

shaper outbound <shaper name> traffic-class <1-10> max-wait <ms>

shaper outbound <shaper name> traffic-class <1-10> min-bandwidth <% of interface bandwidth>

shaper outbound <shaper name> traffic-class <1-10> priority <1-10>

no shaper outbound {<shaper name> | default | wan}
```

## Arguments

<b>disable</b>	Disables outbound shaper.
<b>enable</b>	Enables outbound shaper.
<b>&lt;shaper name&gt;</b>	Refers to the shaper for a specific interface, such as <b>wan0</b> , <b>wan1</b> , <b>twan0</b> , <b>twan1</b> , <b>bwan0</b> , <b>lan0</b> , <b>lan1</b> , <b>tlan0</b> , <b>tlan1</b> , <b>blan0</b> , <b>mgmt0</b> , <b>mgmt1</b> . Use <b>wan</b> for shaping the aggregate WAN interface. Availability of the non-WAN interfaces (as arguments) is to facilitate preparations for migrating from one appliance model to another, or one deployment mode to another.
<b>accuracy &lt;usec&gt;</b>	Specifies shaper accuracy in microseconds.

<b>excess-weight &lt;weight&gt;</b>	Specifies the shaper traffic class excess weight. If there is remaining bandwidth after satisfying the minimum bandwidth, then the excess is distributed among the traffic classes in proportion to the weightings specified . Values range from 1 to 10,000.
<b>flow-rate-limit &lt;kbps&gt;</b>	Specifies the traffic class's flow rate limit.
<b>max-bandwidth &lt;% of interface bandwidth&gt;</b>	Specifies traffic class maximum bandwidth (kilobits per second). You can limit the maximum bandwidth that a traffic class will use by specifying a percentage. The bandwidth usage for the traffic class never exceeds this value.
<b>max-wait &lt;ms&gt;</b>	Specifies the maximum wait time in milliseconds. Any packets waiting longer than the specified Max Wait Time are dropped.
<b>min-bandwidth &lt;% of interface bandwidth&gt;</b>	Specifies shaper's minimum bandwidth (kilobits per second). Each traffic class is guaranteed this percentage of bandwidth, allocated in the order of priority. However, if the sum of the percentages is greater than 100%, then lower-priority traffic classes might not receive their guaranteed bandwidth if it is all consumed by higher-priority traffic.
<b>priority &lt;1-10&gt;</b>	Specifies the shaper traffic class priority. This determines the order in which each class's minimum bandwidth is allocated - 1 is first, 10 is last.
<b>traffic-class &lt;1-10&gt;</b>	Specifies the shaper traffic class.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

The Shaper provides a simplified way to globally configure QoS (Quality of Service) on the appliances.

- It shapes outbound traffic by allocating bandwidth as a percentage of the system bandwidth.
- The system applies these QoS settings globally after compressing (deduplicating) all the outbound tunnelized and pass-through-shaped traffic --- shaping it as it exits to the WAN.
- Availability of the non-WAN interfaces (as arguments) is to facilitate preparations for migrating from one appliance model to another, or one deployment mode to another.

## Examples

None

# snmp-server

## Description

Use the **snmp-server** command to configure SNMP server options.

## Syntax

```
snmp-server community <community name> [ro]
no snmp-server community
```

```
snmp-server contact <name of contact>
no snmp-server contact
```

```
snmp-server enable
no snmp-server enable
```

```
snmp-server enable traps
no snmp-server enable traps
```

```
snmp-server encrypt {md5 | sha} {plaintext <password> | prompt}
```

```
snmp-server host <IP address> [disable]
no snmp-server host <IP address> [disable]
```

```
snmp-server host <IP address> traps version {1 | 2c} <community string>
```

```
snmp-server host <IP address> traps version 3 <username for v3>
```

```
snmp-server listen enable
no snmp-server listen enable
```

```
snmp-server listen interface <interface>
no snmp-server listen interface <interface>
```

```
snmp-server location <location of system>
no snmp-server location
```

```
snmp-server traps event raise-alarm
no snmp-server traps event raise-alarm
```

## Arguments

<b>community</b> <community name> [ro]	Configures the name for the SNMP read-only community, which is required to make SNMP queries. Use the <b>no</b> form of this command to reset the community string to its default.
--	---

<b>contact &lt;name of contact&gt;</b>	Sets a value for the <i>syscontact</i> variable in MIB-II. Use the <b>no</b> form of this command to clear the contents of the <i>syscontact</i> variable.
<b>enable</b>	Enables the SNMP server. Use the <b>no</b> form of this command to disable the SNMP server.
<b>enable traps</b>	Enables the sending of SNMP traps from this system. Use the <b>no</b> form of this command to disable sending of SNMP traps from this system.
<b>encrypt {md5   sha}</b>	Generate the encrypted form of the password from plain text, using one of the following hash types: <ul style="list-style-type: none"> <li>■ <b>md5</b> Message-Digest algorithm 5 (a hash function with a 128-bit hash value)</li> <li>■ <b>sha</b> Secure Hash Algorithm, SHA-1</li> </ul>
<b>host &lt;IP address&gt;</b>	Configures the hosts to which to send SNMP traps. Use the <b>no</b> form of this command to stop sending SNMP traps to a specified host.
<b>host &lt;IP address&gt; disable</b>	Temporarily disables sending of traps to this host. Use the <b>no</b> form of this command to reenable sending of SNMP traps to a specified host.
<b>host &lt;IP address&gt; traps version 3&lt;username for v3&gt;</b>	Sends SNMP traps to the specified host. The community string noted here is the V3 username; it's used for particular trap destination hosts.
<b>host &lt;IP address&gt; traps version {1   2c} &lt;community string&gt;</b>	Specifies the SNMP version of traps to send to this host: <ul style="list-style-type: none"> <li>■ <b>1</b> is SNMPv1</li> <li>■ <b>2c</b> is SNMPv2c</li> </ul> The community string noted here is also a community name (string name); it's used for particular trap destination hosts.
<b>listen enable</b>	Enables SNMP interface restriction access to this system. Use the <b>no</b> form of this command to disable SNMP interface restriction access to this system.
<b>listen interface &lt;interface&gt;</b>	Specifies the interface you want to add to the SNMP server access restriction list. The supported interfaces are <b>mgmt0</b> and <b>mgmt1</b> . Use the <b>no</b> form of this command to remove an interface to the SNMP server access restriction list.
<b>location &lt;location of system&gt;</b>	Specifies the value for the <i>syslocation</i> variable in MIB-II. Use the <b>no</b> form of this command to clear the contents of the <i>syslocation</i> variable.
<b>plaintext &lt;password&gt;</b>	Specifies the plaintext password to be encrypted.
<b>prompt</b>	Asks to specify the password securely with the following prompt, at which the user will enter text.
<b>traps event raise-alarm</b>	Generates a trap for each alarm that is raised and cleared. Use the <b>no</b> form of this command to negate this setting.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

You need an SNMP manager application such as HP OpenView™ to browse the MIB II data and receive traps. There are many shareware and freeware SNMP manager applications available from the internet.

## Examples

None

## snmp-server user v3

### Description

Use the **snmp-server user v3** command to configure SNMP access on a per-user basis for v3 security parameters.

### Syntax

```
snmp-server user {<v3 username> | admin}
```

```
snmp-server user {<v3 username> | admin} v3 [enable]
no snmp-server user {<v3 username> | admin} v3 [enable]
```

```
snmp-server user {<v3 username> | admin} v3 auth {md5 | sha} <password>
```

```
snmp-server user {<v3 username> | admin} v3 auth {md5 | sha} <password> priv {des | aes-128}
[<password>]
```

```
snmp-server user {<v3 username> | admin} v3 encrypted auth {md5 | sha} <password>
```

```
snmp-server user {<v3 username> | admin} v3 encrypted auth {md5 | sha} <password> priv {des | aes-128}
[<password>]
```

```
snmp-server user {<v3 username> | admin} v3 prompt auth {md5 | sha} <password>
```

```
snmp-server user {<v3 username> | admin} v3 prompt auth {md5 | sha} <password> priv {des | aes-128}
[<password>]
```

### Arguments

#### auth

Configures SNMP v3 security parameters, specifying passwords in plaintext on the command line.

**NOTE:** Passwords are always stored encrypted.

#### auth {md5 | sha} <password>

Configures the use of either the MD5 or SHA-1 hash algorithm, and sets a plaintext password to use for authentication.

If followed by a carriage return, it uses the default privacy algorithm, with the same privacy password as that specified here for authentication. The default privacy program is AES-128.

#### enable

Enables SNMP v3 access for this user.

Use the **no** form of this command to disable this user's SNMP v3 access.

#### encrypted

Configures SNMP v3 security parameters, specifying passwords in encrypted form.

<b>priv {des   aes-128}</b>	Configures the use of either DES or AES-128 encryption for privacy.
[<password>]	<ul style="list-style-type: none"> <li>▪ If you don't specify a password, it uses the same privacy password as that specified for authentication.</li> <li>▪ If you do specify a password, it is in plaintext.</li> </ul>
<b>prompt</b>	Configures SNMP v3 security parameters, specifying passwords securely in follow-up prompt rather than on the command line.
<b>v3</b>	Configures SNMP v3 users.

---

## Defaults

The default privacy (encryption) program is **AES-128**.

## Command Mode

Global Configuration Mode

## Usage Guidelines

- Only **admin** is allowed as an SNMP v3 user.
- Passwords must be at least eight (8) characters in length.

## Examples

To configure the passwords for **admin**'s SNMP v3 security parameters as a follow-up after entering the command:

```
Tallinn2 (config) # snmp-server user admin v3 prompt auth md5 priv des
Auth password: *****
    Confirm: *****
Privacy password: *****
    Confirm: *****
Tallinn2 (config) #
```

# ssl auth-certificate

## Description

Use the **ssl auth-certificate** command to configure SSL certificate authority parameters.

## Syntax

**ssl auth-certificate delete all**

**ssl auth-certificate delete subject-name <certificate subject name>**

**ssl auth-certificate install cert-file <certificate file or URL>**

**ssl auth-certificate install pfx-file <PFX file or URL>**

**ssl auth-certificate install pfx-file <PFX file or URL> mac-password <MAC password>**

**ssl auth-certificate list [brief | detail | subject-name <certificate subject name>]**

**ssl auth-certificate list subject-name <certificate subject name> [brief | detail]**

**ssl auth-certificate list subject-name <certificate subject name> issuer-name <certificate issuer name> [brief | detail]**

## Arguments

<b>delete all</b>	Deletes all certificate authority data.
<b>subject-name &lt;certificate subject name&gt;</b>	Specifies certificate subject name.
<b>issuer-name &lt;certificate issuer name&gt;</b>	Specifies certificate issuer name.
<b>install {cert-file &lt;certificate file or URL&gt;   pfx-file &lt;PFX file or URL&gt;}</b>	Installs the certificate authority data by using either a certificate file or a PFX file.
<b>key-passphrase &lt;private key file or URL&gt;</b>	Specifies the private key pass phrase.
<b>mac-password &lt;MAC password&gt;</b>	Specifies the MAC password.
<b>list</b>	Lists the certificate authority data.
<b>brief</b>	Lists certificate authorities in brief format.
<b>detail</b>	Lists certificate authorities in detailed format.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# ssl builtin-signing

## Description

Use the **ssl builtin-signing** command to configure the SSL host to use the built-in certificate to sign.

## Syntax

```
ssl builtin-signing {enable | disable}
```

## Arguments

<b>enable</b>	Enables the SSL host to use the built-in certificate to sign.
<b>disable</b>	Disables the SSL host to use the built-in certificate to sign.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## ssl cert-substitution

### Description

Use the **ssl cert-substitution** command to configure SSL certificate substitution.

### Syntax

```
ssl cert-substitution {enable | disable}
```

### Arguments

<b>enable</b>	Enables the SSL certificate substitution.
<b>disable</b>	Disables the SSL certificate substitution.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# ssl host-certificate

## Description

Use the **ssl host-certificate** command to configure SSL host certificate parameters.

## Syntax

**ssl host-certificate delete all**

**ssl host-certificate delete subject-name <certificate subject name>**

**ssl host-certificate delete subject-name <certificate subject name> issuer-name <certificate issuer name>**

**ssl host-certificate install cert-file <certificate file or URL> key-file <private key file or URL> [key-passphrase <private key file or URL>]**

**ssl host-certificate install pfx-file <PFX file or URL>**

**ssl host-certificate install pfx-file <PFX file or URL> mac-password <MAC password> [crypt-password <encryption password>]**

**ssl host-certificate list [brief | detail | subject-name <certificate subject name>]**

**ssl host-certificate list subject-name <certificate subject name> [brief | detail]**

**ssl host-certificate list subject-name <certificate subject name> issuer-name <certificate issuer name> [brief | detail]**

## Arguments

<b>delete all</b>	Deletes all host certificate data.
<b>subject-name &lt;certificate subject name&gt;</b>	Specifies certificate subject name.
<b>issuer-name &lt;certificate issuer name&gt;</b>	Specifies certificate issuer name.
<b>install {cert-file &lt;certificate file or URL&gt;   pfx-file &lt;PFX file or URL&gt;}</b>	Installs the host certificate data by using either a certificate file or a PFX file.
<b>key-file &lt;private key file or URL&gt;</b>	Specifies the private key.
<b>key-passphrase &lt;private key file or URL&gt;</b>	Specifies the private key pass phrase.
<b>mac-password &lt;MAC password&gt;</b>	Specifies the MAC password
<b>crypt-password &lt;encryption password&gt;</b>	Specifies the encryption password
<b>list</b>	Lists the host certificate data.
<b>brief</b>	Lists certificate authorities in brief format.

## detail

Lists certificate authorities in detailed format.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# ssl signing-certificate

## Description

Use the **ssl signing-certificate** command to configure SSL signing certificate parameters.

## Syntax

**ssl signing-certificate delete all**

**ssl signing-certificate delete subject-name <certificate subject name>**

**ssl signing-certificate delete subject-name <certificate subject name> issuer-name <certificate issuer name>**

**ssl signing-certificate install cert-file <certificate file or URL> key-file <private key file or URL> [key-passphrase <private key file or URL>]**

**ssl signing-certificate install pfx-file <PFX file or URL>**

**ssl signing-certificate install pfx-file <PFX file or URL> mac-password <MAC password> [crypt-password <encryption password>]**

**ssl signing-certificate list [brief | detail | subject-name <certificate subject name>]**

**ssl signing-certificate list subject-name <certificate subject name> [brief | detail]**

**ssl signing-certificate list subject-name <certificate subject name> issuer-name <certificate issuer name> [brief | detail]**

## Arguments

<b>delete all</b>	Deletes all signing certificate data.
<b>subject-name &lt;certificate subject name&gt;</b>	Specifies certificate subject name.
<b>issuer-name &lt;certificate issuer name&gt;</b>	Specifies certificate issuer name.
<b>install {cert-file &lt;certificate file or URL&gt;   pfx-file &lt;PFX file or URL&gt;}</b>	Installs the host certificate data by using either a certificate file or a PFX file.
<b>key-file &lt;private key file or URL&gt;</b>	Specifies the private key.
<b>key-passphrase &lt;private key file or URL&gt;</b>	Specifies the private key pass phrase.
<b>mac-password &lt;MAC password&gt;</b>	Specifies the MAC password
<b>crypt-password &lt;encryption password&gt;</b>	Specifies the encryption password
<b>list</b>	Lists the host certificate data.
<b>brief</b>	Lists certificate authorities in brief format.

## detail

Lists certificate authorities in detailed format.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# ssl subs-certificate

## Description

Use the **ssl subs-certificate** command to configure SSL substitute certificate parameters.

## Syntax

```
ssl subs-certificate list [brief | detail | subject-name <certificate subject name>]
```

```
ssl subs-certificate list subject-name <certificate subject name> [brief | detail]
```

```
ssl subs-certificate list subject-name <certificate subject name> issuer-name <certificate issuer name> [brief | detail]
```

## Arguments

**subject-name** <certificate subject name>

Specifies certificate subject name.

**issuer-name** <certificate issuer name>

Specifies certificate issuer name.

**list**

Lists the host certificate data.

**brief**

Lists certificate authorities in brief format.

**detail**

Lists certificate authorities in detailed format.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# subnet

## Description

Use the **subnet** command to configure subnets.

Use the **no** form of this command to remove a specific subnet.

## Syntax

```
subnet <ip prefix/length> advertize {enable | disable}
subnet <ip prefix/length> advertize-bgp {enable | disable}
subnet <ip prefix/length> comment
subnet <ip prefix/length> exclude {enable | disable}
subnet <ip prefix/length> local {enable | disable}
subnet <ip prefix/length> metric <0-100>
no subnet <ip prefix/length>
```

## Arguments

<b>&lt;ip prefix/length&gt;</b>	Specifies IP address and subnet. For example, 10.0.10.0/24.
<b>advertize</b>	Subnet is okay to advertise.
<b>advertize disable</b>	Disables subnet advertising.
<b>advertize enable</b>	Enables subnet advertising.
<b>advertize-bgp disable</b>	Disables advertising to BGP peers.
<b>advertize-bgp enable</b>	Enables advertising to BGP peers.
<b>comment</b>	Adds a comments for a specified subnet entry.
<b>exclude enable</b>	Excludes a subnet from auto optimization.
<b>exclude disable</b>	Includes a subnet for auto optimization.
<b>local</b>	Subnet is local.
<b>local disable</b>	Disable local determination.
<b>local enable</b>	Enables local determination.
<b>metric &lt;0-100&gt;</b>	Specifies a subnet routing metric. Value can be between 0 and 100. Lower metric values have priority.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

Use these commands to build each appliance's subnet table.

## Examples

None

## system arp-table-size

### Description

Use the **system arp-table-size** command to configure the maximum system ARP table size.

### Syntax

**system arp-table-size <maximum arp table size 1024 - 10240000>**

### Arguments

<i>&lt;maximum arp table size 1024 - 10240000&gt;</i>	Configure maximum ARP table size. The range is 1024 to 10240000 entries.
---	--

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## system auto-ipid

### Description

Use the **system auto-ipid** command to configure the auto IP ID feature.

### Syntax

```
system auto-ipid {disable | enable}
```

### Arguments

<b>disable</b>	Disables the auto IP ID.
<b>enable</b>	Enables the auto IP ID.

### Defaults

The default state is enabled.

### Command Mode

Global Configuration Mode

### Usage Guidelines

This command is part of three auto-discovery strategies: **auto IP ID**, **auto SYN**, and **auto-subnet**. All three are enabled by default.

### Examples

None

## system auto-mac-configure

### Description

Use the **system auto-mac-configure** command to configure the virtual appliance to auto-configure the MACs (Media Access Control).

### Syntax

```
system auto-mac-configure {disable | enable}
```

### Arguments

**disable** Allows user to manually map MACs to NIC interfaces on virtual appliances.

**enable** Allows system to automatically map MACs to NIC interfaces on virtual appliances.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# system auto-policy-lookup

## Description

Use the **system auto-policy-lookup** command to configure periodic policy lookups.

## Syntax

```
system auto-policy-lookup interval <0..65535>
```

## Arguments

<b>interval &lt;0..65535&gt;</b>	Configures the interval for periodic policy lookups. The interval is expressed as the number of seconds between lookups.
----------------------------------	--

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system auto-subnet

## Description

Use the **system auto-subnet** command to configure the auto-subnet feature.

## Syntax

```
system auto-subnet add-local-lan {disable | enable}  
system auto-subnet add-local-wan {disable | enable}  
system auto-subnet bgp-redistribute {disable | enable}  
system auto-subnet add-local metric <0 -100>  
system auto-subnet {disable | enable}
```

## Arguments

<b>add-local</b>	Configures auto-subnet add-local capability.
<b>add-local-lan</b>	Configures auto-subnet add-local capability for LAN interfaces.
<b>add-local-wan</b>	Configures auto-subnet add-local capability for WAN interfaces.
<b>add-local metric &lt;0 -100&gt;</b>	Configures the metric for automatically added local subnets.
<b>bgp-redistribute</b>	Configures the capability to redistribute BGP routes.
<b>disable</b>	Disables auto-subnet.
<b>enable</b>	Enables auto-subnet.

## Defaults

The default state is enabled.

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## system auto-syn

### Description

Use the **system auto-syn** command to configure the auto SYN feature.

### Syntax

```
system auto-syn {disable | enable}
```

### Arguments

<b>disable</b>	Disables auto SYN.
<b>enable</b>	Enables auto SYN.

### Defaults

The default state is enabled.

### Command Mode

Global Configuration Mode

### Usage Guidelines

This command is part of three auto-discovery strategies: auto IP ID, auto SYN, and auto-subnet. All three are enabled by default.

### Examples

None

## system auto-tunnel

### Description

Use the **system auto-tunnel** command to configure the auto-tunnel option, which automatically creates tunnels between Silver Peak appliances that have network connectivity and active flows that traverse both appliances.

### Syntax

```
system auto-tunnel {disable | enable}
```

### Arguments

<b>disable</b>	Deactivates the Auto Tunnel feature.
<b>enable</b>	Activates the Auto Tunnel feature.

---

### Defaults

This feature is disabled by default.

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

## system auto-tunnel allow

### Description

Use the **system auto-tunnel allow** command to gain some security by specifying the subnets of appliance IP addresses with which you will allow auto-tunnels to be built. There is strict checking in place to prevent VXOA instances from attempting to create tunnels to anything but another VXOA instance. The **allow** command increases this security by having the user specify the only valid subnets used by remote Silver Peak VXOA instances.

Use the **no** form of this command to remove the auto-tunnel allowable subnet.

### Syntax

```
system auto-tunnel allow <network prefix>/<mask> [<network prefix>/<mask>] [<network prefix>/<mask>]
```

```
no system auto-tunnel allow <network prefix>/<mask>
```

### Arguments

None

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# system bandwidth

## Description

Use the **system bandwidth** command to configure appliance bandwidth.

## Syntax

**system bandwidth max <kbps>**

**system bandwidth if-rx-target [enable | disable]**

## Arguments

<b>max &lt;kbps&gt;</b>	Configures maximum bandwidth for traffic transmitted to the WAN side in kilobits per second. This is a total of all tunnelized traffic and pass-through shaped traffic.
<b>if-rx-target</b>	Receive-side target bandwidth for the WAN interface.
<b>disable</b>	Disables Interface DRC (Dynamic Rate Control).
<b>enable</b>	Enables Interface DRC (Dynamic Rate Control).

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

Receive-side bandwidth (also known as *Dynamic Rate Control*) is a feature that prevents one appliance from overwhelming another appliance as a result of sending it more data than the recipient can process.

## Examples

To configure the appliance to transmit at a maximum bandwidth of 8000 kilobits per second:

```
(config) # system bandwidth max 8000
```

# system bonding

## Description

Use the **system bonding** command to configure the appliance etherchannel bonding option. When using a four-port Silver Peak appliance, you can bond pairs of Ethernet ports into a single port with one IP address per pair.

## Syntax

```
system bonding {disable | enable}
```

## Arguments

**disable** Deactivates system bonding mode (processes all incoming traffic).

**enable** Activates system bypass mode (bypasses all incoming traffic).

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system bypass

## Description

Use the **system bypass** command to configure the appliance bypass option. With this, the appliance mechanically isolates itself from the network, allowing traffic to flow without intervention.

Use the **no** form of this command to remove bypass capability when you've augmented and configured a virtual appliance's stock hardware with a Silicon BPVM or BPUSB card.

## Syntax

**system bypass {disable | enable}**

**system bypass type {bpvm | bpushb} mac address <MAC address of interface to use>**

**no system bypass**

## Arguments

**disable**

Deactivates system bypass mode (processes all incoming traffic).

**enable**

Activates system bypass mode (bypasses all incoming traffic).

**type {bpvm | bpushb} mac address <MAC address of interface to use>**

Configures the Silicon virtual bypass card's interface MAC address:

- **bpvm** Silicon PCI Ethernet bypass adapter
- **bpushb** Silicon USB Ethernet bypass adapter

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

Virtual appliances generally don't have a bypass card because they use stock hardware, like a Dell server. However, motivated customers can open up the server and add a Silicon card to get the same capabilities as one of Silver Peak's NX hardware appliances. Silicon calls this card BPVM.

As part of configuring the BPVM (part of a separate, documented procedure), you must indicate which network interface can be used to communicate with the card by specifying the MAC address.

## Examples

To configure the appliance so that all traffic flows through the appliance without processing any of the traffic:

```
(config) # system bypass enable
```

# system contact

## Description

Use the **system contact** command to configure contact information for this appliance.

## Syntax

**system contact** <contact info>

## Arguments

---

<contact info>	Defines the contact information for the appliance.
----------------	--

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you want to include spaces in the contact information, wrap the entire phrase in quotes.

## Examples

To configure Sherlock Holmes as the system contact:

```
(config) # system contact "Sherlock Holmes"
```

# system disk encryption

## Description

Use the **system disk encryption** command to encrypt the appliance disk.

## Syntax

```
system disk encryption {disable | enable}
```

## Arguments

<b>encryption disable</b>	Disables disk encryption.
<b>encryption enable</b>	Enables disk encryption.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system dpc

## Description

Use the **system dpc** command to configure Dynamic Path Control (DPC) for this appliance.

## Syntax

```
system dpc tunnel-fail-behavior {disable | fail-back | fail-stick}
```

## Arguments

**tunnel-fail-behavior <failover behavior>** If there are parallel tunnels and one fails, then Dynamic Path Control determines where to send the flows. There are three failover behaviors.

**disable**

When the original tunnel fails, the flows aren't routed to another tunnel.

**fail-back**

When the failed tunnel comes back up, the flows return to the original tunnel.

**fail-stick**

When the failed tunnel comes back up, the flows don't return to the original tunnel. They stay where they are.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## system hostname

### Description

Use the **system hostname** command to configure host name for this appliance.

### Syntax

**system hostname <hostname>**

### Arguments

---

<i>&lt;hostname&gt;</i>	Designates the host name for the appliance.
-------------------------	---

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Hostnames may contain letters, numbers, periods ('.'), and hyphens ('-'), but may not begin with a hyphen.  
Hostnames cannot contain spaces.

### Examples

None

# system igmp-snooping

## Description

Use the **system igmp-snooping** command to configure bridge IGMP multicast snooping.

## Syntax

```
system igmp-snooping {disable | enable}
```

## Arguments

<b>disable</b>	Disables IGMP multicast snooping.
<b>enable</b>	Enables IGMP multicast snooping.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

IGMP snooping is a common layer-2 LAN optimization that filters the transmit of multicast frames only to ports where multicast streams have been detected. Disabling this feature floods multicast packets to all ports. IGMP snooping is recommended, and enabled by default.

## Examples

None

## system int-hairpin

### Description

Use the **system int-hairpin** command to configure the internal hairpinning feature.

### Syntax

```
system int-hairpin {disable | enable}
```

### Arguments

<b>disable</b>	Disables the internal hairpinning feature.
<b>enable</b>	Enables the internal hairpinning feature.

---

### Defaults

None

### Command Mode

Global Configuration Mode

### Usage Guidelines

Hairpinning redirects inbound LAN traffic back to the WAN.

### Examples

None

# system location

## Description

Use the **system location** command to configure location information for this appliance.

## Syntax

**system location <location info>**

## Arguments

---

<location info>	Specifies the location information for the appliance.
-----------------	---

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you want to include spaces in the contact information, wrap the entire phrase in quotes.

## Examples

- To specify the appliance location as “Pittsburgh”:

```
(config) # system location Pittsburgh
```

- To specify the appliance location as Earth (specified as a phrase):

```
(config) # system location "third rock from the sun"
```

# system mode

## Description

Use the **system mode** command to configure the appliance's mode (bridge or router) and next-hop IP. When using a 4-port appliance, you can configure two next-hops (one for each WAN interface).

Use the **no** form of the command to reset the router or bridge mode setting to its default.

## Syntax

**system mode bridge <interface> inbound-max-bandwidth <BW in kbps>**

**system mode bridge <interface> outbound-max-bandwidth <BW in kbps>**

**system mode bridge ip <IP address> <netmask or mask length> nexthop <IP address> [second-ip <IP address> <netmask or mask length> second-nexthop <IP address>]**

**system mode router <interface> inbound-max-bandwidth <BW in kbps>**

**system mode router <interface> outbound-max-bandwidth <BW in kbps>**

**system mode router ip <IP address> <netmask or mask length> nexthop <IP address> [second-ip <IP address> <netmask or mask length> second-nexthop <IP address>]**

**system mode router <interface> <IP address> <netmask or mask length> nh <IP address>**

**system mode router <interface> <IP address> <netmask or mask length> nh <IP address> <interface> <IP address> <netmask or mask length> nh <IP address>**

**system mode router <interface> <IP address> <netmask or mask length> nh <IP address> <interface> <IP address> <netmask or mask length> nh <IP address>**

**system mode router <interface> <IP address> <netmask or mask length> nh <IP address> <interface> <IP address> <netmask or mask length> nh <IP address> <interface> <IP address> <netmask or mask length> nh <IP address> <interface> <IP address> <netmask or mask length> nh <IP address>**

**system mode server**

**system mode server inbound-max-bandwidth <BW in kbps>**

**system mode server outbound-max-bandwidth <BW in kbps>**

**no system mode**

## Arguments

<b>bridge</b>	Configures Bridge (in-line) Mode
<b>inbound-max-bandwidth &lt;BW in kbps&gt;</b>	Configures the interface's inbound maximum bandwidth
<b>ip &lt;IP address&gt;</b>	Configures the appliance IP address.
<b>&lt;netmask or mask length&gt;</b>	Configures the appliance netmask or mask length.
<b>nexthop &lt;IP address&gt;</b>	Specifies the IP address of the: ■ WAN next-hop for virtual bridge (bridge mode) ■ router mode next-hop IP (router mode)
<b>nh</b>	Configures the Route mode next-hop
<b>outbound-max-bandwidth &lt;BW in kbps&gt;</b>	Configures the interface's outbound maximum bandwidth
<b>router</b>	Configures Router (out-of-path) Mode
<b>second-ip &lt;IP address&gt;</b>	Configures the appliance's second IP address for tunnel traffic.
<b>second-nexthop &lt;IP address&gt;</b>	Specifies the next-hop IP address that's associated with second IP address.
<b>server</b>	Configures Server Mode (single interface)

---

## Defaults

The default system mode is bridge (in-line) mode.

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To configure an appliance with the IP addresss, 172.27.120.1 to be in router mode, with a netmask of 255.255.255.0 and a next-hop IP address of 172.27.120.2:

```
(config) # system mode router ip 172.27.120.1 /24 nexthop 172.27.120.2
```

- To reset the system to the default (bridge) mode:

```
(config) # no system mode
```

# system nat-all-inbound

## Description

Use the **system nat-all-inbound** command to configure the inbound source NAT feature.

## Syntax

**system nat-all-inbound disable**

**system nat-all-inbound nat-ip {<interface IP address> | auto}**

**system nat-all-inbound nat-ip {<interface IP address> | auto} fallback {enable | disable}**

## Arguments

<b>disable</b>	Disables inbound source NAT.
<b>nat-ip {&lt;interface IP address&gt;   auto}</b>	Configures the inbound source NAT IP address.
<b>fallback enable</b>	Specifies fallback to the next available NAT IP address upon port exhaustion with the current NAT IP address.
<b>fallback disable</b>	Specifies not to fallback to the next available NAT IP address upon port exhaustion.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system nat-all-outbound

## Description

Use the **system nat-all-outbound** command to configure the inbound source NAT feature.

## Syntax

**system nat-all-outbound disable**

**system nat-all-outbound nat-ip {<interface IP address> | auto}**

**system nat-all-outbound nat-ip {<interface IP address> | auto} fallback {enable | disable}**

## Arguments

<b>disable</b>	Disables outbound source NAT.
<b>nat-ip {&lt;interface IP address&gt;   auto}</b>	Configures the outbound source NAT IP address.
<b>fallback enable</b>	Specifies fallback to the next available NAT IP address upon port exhaustion with the current NAT IP address.
<b>fallback disable</b>	Specifies not to fallback to the next available NAT IP address upon port exhaustion.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system network-memory

## Description

Use the **system network-memory** command to configure system network memory.

## Syntax

**system network-memory erase**

**system network-memory media ram**

**system network-memory media ram-and-disk**

## Arguments

<b>erase</b>	Erases system network memory.
<b>media</b>	Configures data store usage for RAM or RAM-and-disk.
<b>ram</b>	Network Memory data stored in RAM only
<b>ram-and-disk</b>	Network Memory data stored in RAM and disk.

## Defaults

The default Network Memory mode is 0.

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system registration

## Description

Use the **system registration** command to register the appliance with the Silver Peak portal.

Use the **no** form of this command to remove Silver Peak portal registration data.

## Syntax

**system registration <Account Key> <Account Name>**

**system registration <Account Key> <Account Name> <Appliance Group Name>**

**system registration <Account Key> <Account Name> <Appliance Group Name> <Appliance Site Name>**

**no system registration**

## Arguments

<b>&lt;Account Key&gt;</b>	Specifies the Account Key assigned by Silver Peak.
<b>&lt;Account Name&gt;</b>	Specifies the Account Name assigned by Silver Peak.
<b>&lt;Appliance Group Name&gt;</b>	Optional tag assigned by user for ease of identification.
<b>&lt;Appliance Site Name&gt;</b>	Optional tag assigned by user for ease of identification.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system router

## Description

Use the **system router** command to configure in-line router mode.

Use the **no** form of this command to remove in-line router mode in whole or in part.

## Syntax

```
system router <name> create interface <interface> <lan or wan>
no system router <name>
```

```
system router <name> dhcp
```

```
system router <name> dhcp vlan <VLAN ID> [inbound-max-bw <BW in kbps> | label <interface label> |
outbound-max-bw <BW in kbps> | renew | security-mode <security mode for interface>]
```

```
system router <name> ip <IP address> [inbound-max-bw <BW in kbps> | label <interface label> |
outbound-max-bw <BW in kbps> | security-mode <security mode for interface>]
```

```
system router <name> ip <IP address> <netmask> nexthop <IP address> [vlan <VLAN ID>]
```

```
system router <name> pppoe [<Unit #>]
```

```
system router <name> pppoe <Unit #> [inbound-max-bw <BW in kbps> | label <interface label> |
outbound-max-bw <BW in kbps> | security-mode <security mode for interface>]
```

```
no system router <name> dhcp [vlan <VLAN ID>]
```

```
no system router <name> dhcp vlan <VLAN ID> label
```

```
no system router <name> ip <IP address> label
```

```
no system router <name> pppoe <Unit #> [label]
```

## Arguments

<b>create interface &lt;physical interface&gt;</b>	Specifies whether to create <b>lan0</b> , <b>wan0</b> , <b>lan1</b> , <b>wan1</b> , etc.
<b>dhcp</b>	Adds DHCPv4.
<b>inbound-max-bw &lt;BW in kbps&gt;</b>	Specifies the VLAN inbound max bandwidth in kilobits per second.
<b>ip &lt;IP address&gt;</b>	Specifies the router IP address
<b>label &lt;interface label&gt;</b>	Specifies the interface label.

<b>nexthop &lt;IP address&gt;</b>	Specifies the Router mode next-hop.
<b>outbound-max-bw &lt;BW in kbps&gt;</b>	Specifies the VLAN outbound max bandwidth in kilobits per second.
<b>renew</b>	Renews DHCP.
<b>router &lt;name&gt;</b>	Specifies the router name.
<b>security-mode &lt;security mode for router interface&gt;</b>	Choose a security mode for the interface:  0 Open 1 Harden 2 Stateful Firewall 3 Stateful Firewall with SNAT
<b>security-mode &lt;security mode for PPPoE interface&gt;</b>	Choose a security mode for the interface:  0 Open 1 Harden 2 Stateful Firewall
<b>vlan &lt;VLAN ID&gt;</b>	Specifies the DHCPv4 VLAN ID.
<b>&lt;lan or wan&gt;</b>	Refers to the LAN side or the WAN side.
<b>&lt;netmask&gt;</b>	Specifies the netmask. For example, 255.255.255.0, or /24.
<b>&lt;Unit #&gt;</b>	PPPoE Unit number

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system routing

## Description

Use the **system routing** command to configure interface routing.

Use the **no** form of this command to reset system-level routing information.

## Syntax

**system routing inline**

**system routing redundancy {default | none | lan-native | lan-native-vlan | lan-and-wan | all}**

**no system routing inline**

## Arguments

<b>inline</b>	Enables inline router mode.
<b>redundancy</b>	Configures redundancy of routes between interfaces.
<b>default</b>	LAN routing allowed between VLANs and native interfaces (equivalent to lan-native-vlan)
<b>None</b>	No routing allowed between interfaces
<b>lan-native</b>	LAN routing allowed between native interfaces (no routing allowed between VLANs)
<b>lan-native-vlan</b>	LAN routing allowed between VLANs and native interfaces
<b>lan-and-wan</b>	LAN and WAN routing allowed between native interfaces
<b>all</b>	LAN and WAN routing allowed between all interfaces (caveat: this may disrupt DPC)

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# system smb-signing

## Description

Use the **system smb-signing** command to enable or disable SMB signing.

## Syntax

```
system smb-signing {disable | enable}
```

## Arguments

<b>disable</b>	Disables SMB Signing optimization.
<b>enable</b>	Enables SMB Signing optimization.

---

## Defaults

The default is disabled.

## Command Mode

Global Configuration Mode

## Usage Guidelines

This command must be executed together with the **cifs signing delegation domain** command.

## Examples

None

## system ssl-ipsec-override

### Description

Use the **system ssl-ipsec-override** command to configure SSL IPSec override.

### Syntax

```
system ssl-ipsec-override {disable | enable}
```

### Arguments

<b>disable</b>	Deactivates the SSL IPSec override feature.
<b>enable</b>	Activates the SSL IPSec override feature.

---

### Defaults

This feature is disabled by default.

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# traffic-class

## Description

Use the **traffic-class** command to assign a name to a specific traffic class.

Use the **no** form of this command to remove a name from a traffic class.

## Syntax

**traffic-class <1-10> name <name>**

**no traffic-class <traffic class id>**

## Arguments

<b>&lt;1-10&gt;</b>	Specifies the number of the traffic class.
<b>name &lt;name&gt;</b>	Specifies the name to assign to a traffic class.
<b>&lt;traffic class id&gt;</b>	Specifies the number of the traffic class.

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# wccp

## Description

Use the **wccp** command to configure the Web Cache Communications Protocol (WCCP).

Use the **no** form of the command to remove a WCCP configuration.

## Syntax

```
wccp {enable | disable}
```

```
wccp multicast-ttl <1..15>
```

```
wccp <51..255> admin {up | down}
```

```
wccp <51..255> assignment method {hash | mask | either}
```

```
wccp <51..255> assignment method {hash | mask | either} assignment-detail {lan-ingress | wan-ingress}
```

```
wccp <51..255> assignment method {hash | mask | either} assignment-detail custom hash-srcip {enable | disable} hash-dstip {enable | disable} hash-srcport {enable | disable} hash-dstport {enable | disable} mask-srcip <32-bit value in hex> mask-dstip <32-bit value in hex> mask-srcport <16-bit value in hex> mask-dstport <16-bit value in hex>
```

```
wccp <51..255> compatibility-mode {ios | nexus}
```

```
wccp <51..255> force-l2-return {enable | disable}
```

```
wccp <51..255> forwarding-method {gre | l2 | either}
```

```
wccp <51..255> password <password>
```

```
wccp <51..255> router <IP address> protocol {tcp | udp} interface {lan0 | wan0}
```

```
wccp <51..255> router <IP address> protocol {tcp | udp} interface {lan0 | wan0} priority <0..255> [forwarding-method {gre | l2 | either}]
```

```
wccp <51..255> router <IP address> protocol {tcp | udp} interface {lan0 | wan0} priority <0..255> forwarding-method {gre | l2 | either} [weight <0..65535>]
```

```
wccp <51..255> router <IP address> protocol {tcp | udp} interface {lan0 | wan0} priority <0..255> forwarding-method {gre | l2 | either} weight <0..65535> [password <password>]
```

```
wccp <51..255> weight <weight>
```

```
no wccp <51..255>
```

## Arguments

<b>wccp &lt;51..255&gt;</b>	Specifies a WCCP service group ID.
<b>admin up</b>	Enables a WCCP service group.
<b>admin down</b>	Disables a WCCP service group.
<b>assignment-detail {custom   lan-ingress   wan-ingress}</b>	Specifies the details of the service group assignment method. The options are: <ul style="list-style-type: none"><li>▪ <b>custom</b> - Assignment by custom values</li><li>▪ <b>lan-ingress</b> - Assignment by hash default. Uses the source address for distribution</li><li>▪ <b>wan-ingress</b> - Assignment by mask default. Uses the destination address for distribution in the router/L3 switch table.</li></ul>
<b>assignment-detail custom</b>	Specifies the details of the service group assignment method. The options are: <ul style="list-style-type: none"><li>▪ <b>hash-srcip {enable   disable}</b> - Enable/disable using the hash source IP</li><li>▪ <b>hash-dstip {enable   disable}</b> - Enable/disable using the hash destination IP</li><li>▪ <b>hash-srciport {enable   disable}</b> - Enable/disable using the hash source port</li><li>▪ <b>hash-dstport {enable   disable}</b> - Enable/disable using the hash destination port</li><li>▪ <b>mask-srcip &lt;32-bit value in hex&gt;</b> - Specifies the mask source IP as a 32-bit hex value</li><li>▪ <b>mask-dstip &lt;32-bit value in hex&gt;</b> - Specifies the mask destination IP as a 32-bit hex value</li><li>▪ <b>mask-srcport &lt;16-bit value in hex&gt;</b> - Specifies the mask source port as a 16-bit hex value</li><li>▪ <b>mask-dstport &lt;16-bit value in hex&gt;</b> - Specifies the mask destination port as a 16-bit hex value</li></ul>
<b>assignment-method {hash   mask   either}</b>	Modifies the service group assignment method. This relates to how load balancing (of what packets go to which appliance) is set up with the router. The options are: <ul style="list-style-type: none"><li>▪ <b>hash</b></li><li>▪ <b>mask</b></li><li>▪ <b>either</b> - The assignment method is either hash or mask. In other words, the appliances will accept packets of either method from the router.</li></ul>

<b>compatibility-mode {ios   nexus}</b>	If a WCCP group is peering with a router running Nexus OS, then the appliance must adjust its WCCP protocol packets to be compatible. By default, the appliance is IOS-compatible.
<b>disable</b>	Disables the WCCP feature.
<b>enable</b>	Enables the WCCP feature.
<b>force-l2-return</b>	Modifies the service group's force L2 return. When WCCP has negotiated L3 forwarding and return methods, Force L2 Return can be used to strip the WCCP GRE header from any packets returned to the router (that is, pass-through traffic). This feature is not applicable if the negotiated forwarding method is L2. <b>NOTE:</b> Routing loops may occur if L2 returned packets are forwarded again to the appliance by a WCCP group.
<b>forwarding-method {gre   l2   either}</b>	Modifies the service group's forwarding method. The options are: <ul style="list-style-type: none"><li>▪ GRE forwarding method</li><li>▪ L2 forwarding method</li><li>▪ Either forwarding method</li></ul>
<b>interface {lan0   wan0}</b>	Modifies service group interface.
<b>multicast-ttl &lt;1..15&gt;</b>	Sets the Time To Live (TTL) value. The range is 1-15.
<b>password &lt;password&gt;</b>	Sets a password for the WCCP service group.
<b>service-grp &lt;51..255&gt;</b>	Specifies a comma-delimited list of service group IDs. <ul style="list-style-type: none"><li>▪ Use comma separator to specify more than one IP.</li><li>▪ Use the physical IP for L2 redirection.</li><li>▪ Use the loopback IP for L3 redirection.</li></ul>
<b>router &lt;/IP address&gt;</b>	
<b>protocol {tcp   udp}</b>	Configures the WCCP service group protocol for this router IP address.
<b>priority &lt;0..255&gt;</b>	Specifies the WCCP service group's priority. Values range from 0 to 255.
<b>weight &lt;0..100&gt;</b>	Specifies the WCCP service group weight. 100 is the highest weight. When there is more than one appliance in a group, weight is used to distribute hash or mask assignment buckets on the router in order to load balance flows.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

To generate output for the **assignment** and **detail** arguments, you must enable WCCP after configuration.

## Examples

None

## Monitoring Commands

This section describes monitoring commands. Monitoring commands display status and performance information.

# monitor

## Description

Use the **monitor** command to monitor interface bandwidth statistics.

## Syntax

```
monitor <interface> [<interface>] [<interface>] [<interface>] [-t]
```

## Arguments

<interface>	Specifies the interface name. You can specify up to 4 interfaces.
-t	Optional timestamp

## Defaults

None

## Command Mode

All levels

## Usage Guidelines

Once you execute the command, the output updates every second. To discontinue, use **Ctrl + C**.

The available interfaces include:

- wan0
- lan0
- mgmt0
- mgmt1
- wan1
- lan1

## Examples

To monitor the lan0 and wan0 interfaces:

```
Tallinn (config) # monitor lan0 wan0
```

## show aaa

### Description

Use the **show aaa** command to display AAA authentication settings.

### Syntax

**show aaa**

### Arguments

None

### Defaults

None

### Command Mode

- Privileged EXEC mode
- Global Configuration Mode

### Usage Guidelines

None

### Examples

```
Tallinn (config) # show aaa
AAA authorization:
    Default User: admin
    Map Order: remote-first
Authentication method(s):
    local
```

```
Tallinn (config) #
```

# show access-list

## Description

Use the **show access-list** command to display all existing Access Control Lists (ACLs). You can also specify a particular ACL to display.

## Syntax

**show access-list**

**show access-list <ACL name>**

## Arguments

<b>access-list</b>	When followed by a carriage return, displays all ACLs.
<b>access-list &lt;ACL name&gt;</b>	Displays the configuration for the specified ACL.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

The following displays the rules in the ACL, *ac1*:

```
Tallinn (config) # show access-list ac1
ACL ac1 configuration

  ID   Protocol Source          Destination          Action DSCP Application
----- -----
  10    ip        any           3.3.3.0/24      permit any
  20    ip        any           any                  permit any     snowball

Tallinn (config) #
```

# show alarms

## Description

Use the **show alarms** command to display the details for all outstanding alarms.

## Syntax

**show alarms** [*<alarm ID>* | **outstanding** | **summary**]

## Arguments

<b>alarms</b> < <i>alarm ID</i> >	Specifies an alarm ID.
<b>outstanding</b>	Displays the outstanding alarm table.
<b>summary</b>	Shows a summary count of outstanding alarms.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

If you use the **show alarms** command without an argument, the CLI displays all outstanding alarms in detail.

## Examples

- To view a list of all alarm details:

```
Tallinn (config) # show alarms
Alarm Details List:

Alarm Id:          1
Severity:         MAJ
Type:             EQU
Sequence Id:      5
Name:              equipment_gateway_connect
Description:       Datapath Gateway Connectivity Test Failed
Source:            system
Time:              2007/06/11 17:40:19
Acknowledged:     no
Active:            yes
```

```

Clearable:      no
Service Affect: yes

Alarm Id:        2
Severity:       CRI
Type:           TUN
Sequence Id:    4
Name:           tunnel_down
Description:    Tunnel state is Down
Source:          HQ-to-BranchA
Time:            2007/06/11 17:38:22
Acknowledged:   no
Active:          yes
Clearable:       no
Service Affect: yes

Alarm Id:        3
Severity:       MAJ
Type:           EQU
Sequence Id:    2
Name:           equipment_if_link_down
Description:    Network Interface Link Down
Source:          wan0
Time:            2007/06/11 17:37:09
Acknowledged:   no
Active:          yes
Clearable:       yes
Service Affect: yes
Tallinn (config) #

```

- To view a table of details for all outstanding alarms:

```

Tallinn (config) # show alarms outstanding
#  Seq  Date              Type  Sev A Source      Description
--- -----
  1    5 2007/06/22 18:53:38  EQU  MAJ N system      Datapath Gateway
Connectivity Test Failed
  2    3 2007/06/22 18:51:37  TUN  CRI N HQ-to-Branch Tunnel state is
Down
  3    2 2007/06/22 18:50:28  EQU  MAJ N wan0       Network Interface
Link Down

```

# show application

## Description

Use the **show application** command to display custom (user-defined) applications, with their associated information for protocol, port(s), DSCP, and VLAN.

## Syntax

**show application**

**show application <application priority> [flows | stats]**

**show application [brief | stats]**

**show application name <application name>**

## Arguments

<b>&lt;application priority&gt;</b>	Displays the configuration for the application assigned this priority.
<b>&lt;application priority&gt; flows</b>	Displays flows that match this application.
<b>&lt;application priority&gt; stats</b>	Displays statistics for this application.
<b>brief</b>	Displays all user-defined applications.
<b>name</b>	Displays application by name.
<b>stats</b>	Displays statistics for all applications.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To display all user-defined applications:

```
tallinn3 (config) # show application
```

```

Application rule 10 configuration
  Application:      one_more
  Protocol:        tcp
  Src IP Range:
    any
  Dst IP Range:
    any
  Src Port Range:
    any
  Dst Port Range:
    any
  DSCP:            be
  VLAN:           any.any

Application rule 20 configuration
  Application:      another_one
  Protocol:        etherip
  Src IP Range:
    any
  Dst IP Range:
    172.50.50.0/24
  Src Port Range:
    any
  Dst Port Range:
    any
  DSCP:            any
  VLAN:           any.any

tallinn3 (config) #

```

- To view the details of the user-defined application, *one-more*, only:

```

tallinn3 (config) # show application name one_more
Application rule 10 configuration
  Application:      one_more
  Protocol:        tcp
  Src IP Range:
    any
  Dst IP Range:
    any
  Src Port Range:
    any
  Dst Port Range:
    any
  DSCP:            be
  VLAN:           any.any

tallinn3 (config) #

```

# show application-builtin

## Description

Use the **show application-builtin** command to display all of the appliance's built-in applications, along with their associated ports.

## Syntax

```
show application-builtin
```

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show application-builtin
```

Application	Ports
aol	5191-5193
aol_im	4443,5190
backweb	370
cifs_smb	139,445
cisco_skinny	2000-2001
citrix	1494,1604
cuseeme	7648-7652,24032
dns	53

Only a small portion of the returned results are shown above.

# show application-group

## Description

Use the **show application-group** command to display a list of all application groups, or to display the contents of a specific application group.

## Syntax

**show application-group**

**show application-group <application group name>**

**show application-group <application group name> debug**

## Arguments

<b>application-group</b> <i>&lt;application group name&gt;</i>	Specifies the name of an existing application group.
<b>debug</b>	Displays debug information for the specific application group named.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

To get a list of the available application groups, enter the following command:

```
<silver-peak> # show application-group ?
```

## Examples

- To display all existing application-groups within the appliance:

```
Tallinn (config) # show application-group
Application Group VoIP : cisco_skinny,h_323,sip
Application Group web : http,https
Tallinn (config) #
```

- To display the applications included in a specific application group:

```
Tallinn (config) # show application-group VoIP
Application Group VoIP : cisco_skinny,h_323,sip
Tallinn (config) #
```

- To display the debug information for the application group, *VoIP*:

```
Tallinn (config) # show application-group VoIP debug
Application-Group VoIP Debug Information
```

```
Tallinn (config) # h_323,sip,
Tallinn (config) #
```

# show arp

## Description

Use the **show arp** command to display the contents of the ARP cache.

## Syntax

**show arp [static]**

**show arp statistics**

## Arguments

<b>static</b>	Limits the returned results to all statically configured ARP entries, omitting the dynamic entries.
<b>statistics</b>	Displays all ARP cache statistics

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

If you use the **show arp** command with no arguments, the CLI displays all static and dynamic entries in the ARP cache.

## Examples

```
Tallinn2 (config) # show arp
10.0.40.33 dev mgmt0 lladdr 00:1b:d4:73:ce:bf REACHABLE
1.1.1.1 dev wan0 INCOMPLETE
```

## show banner

### Description

Use **show banner** command to display the Message of the Day (MOTD) and Login message banners.

### Syntax

**show banner**

### Arguments

None

### Defaults

None

### Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

```
Tallinn (config) # show banner
Banners:
    MOTD: Time for a margarita
    Login: How about some coffee?
Tallinn (config) #
```

## show bgp

### Description

Use the **show bgp** command to display BGP-related information.

### Syntax

**show bgp neighbors**

**show bgp summary**

### Arguments

**neighbors** Displays BGP neighbors.

**summary** Displays summary of BGP global data.

---

### Defaults

None

### Command Mode

Privileged EXEC mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# show bootvar

## Description

Use **show bootvar** command to display installed system images and boot parameters.

## Syntax

**show bootvar**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show bootvar
Installed images:
  Partition 1:
    hidalgo 2.0.0.0_15449 #1-dev 2007-05-30 06:12:39 x86_64
    root@bigchief:unknown

  Partition 2:
    hidalgo 2.0.0.0_15619 #1-dev 2007-06-07 20:00:58 x86_64
    root@bigchief:unknown

Last boot partition: 2
Next boot partition: 2
Tallinn (config) #
```

# show bridge

## Description

Use the **show bridge** command to display bridge information.

## Syntax

**show bridge**

**show bridge [brief | <bridge>]**

**show bridge interface {lan0 | wan0 | lan1 | wan1}**

**show bridge mac-address-table [address <address> | bridge <bridge> | interface <interface>]**

## Arguments

<b>brief</b>	Displays bridge information in brief format.
<b>interface {lan0   wan0   lan1   wan1}</b>	Shows bridge port information.
<b>mac-address-table</b>	Shows bridge MAC address table.
<b>address &lt;address&gt;</b>	Shows bridge MAC address table information for a specific IP address.
<b>bridge &lt;bridge&gt;</b>	Shows bridge MAC address table information for a specific bridge (for example, <b>bvi0</b> ).
<b>interface &lt;interface&gt;</b>	Shows bridge MAC address table information for a specific interface. The interface can be <b>lan0</b> , <b>wan0</b> , <b>lan1</b> , or <b>wan1</b> .

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

MAC table information is not available in router mode.

## Examples

To display bridge information for the *lan1* interface:

```
Tallinn2 (config) # show bridge mac-address-table interface lan1
MAC Address      Dst Port   Learned Port Type          Age (s)
-----  -----  -----  -----
00:e0:ed:0c:19:69 lan1      same      local        0.00
```

# show cdp

## Description

Use the **show cdp** command to display Cisco Discovery Protocol (CDP) information.

## Syntax

**show cdp**

**show cdp neighbors [detail]**

**show cdp traffic**

## Arguments

<b>neighbors</b>	Displays CDP neighbor entries.
<b>neighbors detail</b>	Displays detailed CDP neighbor information.
<b>traffic</b>	Shows CDP statistics.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To show the basic CDP settings:

```
Tallinn2 (config) # show cdp
Global CDP information:
    Sending CDP packets every 60 seconds
    Sending a holdtime value of 180 seconds
    Sending CDPv2 advertisements is enabled
```

- To display the CDP neighbors:

```
Tallinn2 (config) # show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID      Local Intrfce     Holdtme   Capability Platform       Port
ID
attilla        mgmt0          136         T           NX2500 20001
mgmt0
genghis        mgmt0          148         T           NX2500 20001
mgmt0
mykonos        mgmt0          166         T           SP-NX7500 20
mgmt0
houston        mgmt0          156         T           SP-NX7500
mgmt0
rome           mgmt0          175         T           SP-NX7500 20
mgmt0
chicago         mgmt0          169         T           SP-NX7500
mgmt0
santorini      mgmt0          136         T           SP-NX7500 20
mgmt0
lab-s3          mgmt0          138         R S          WS-C4503
GigabitEthe
rnet2/6
```

- To show CDP statistics:

```
Tallinn2 (config) # show cdp traffic
CDP counters:
      Total packets output: 990, Input: 9902
      Hdr syntax: 0, Chksum error: 0, No memory: 991
```

# show cifs signing delegation

## Description

Use the **show cifs signing delegation** command to display CIFS signing delegation status from the running configuration.

## Syntax

**show cifs signing delegation**

**show cifs signing delegation verify**

## Arguments

---

<b>verify</b>	Displays CIFS signing delegation status after verifying with the Active Directory Server.
---------------	---

---

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# show cli

## Description

Use the **show cli** command to display Command Line Interface options.

## Syntax

**show cli**

## Arguments

None

## Defaults

None

## Command Mode

- User EXEC Mode
- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show cli
CLI current session settings
Maximum line size:          8192
Terminal width:             80 columns
Terminal length:            24 rows
Terminal type:              vt102
Auto-logout:                2 hours 0 minutes 0 seconds
Paging:                     disabled
Show hidden config:         yes
Confirm losing changes:     yes
Confirm reboot/shutdown:   no

CLI defaults for future sessions
Auto-logout:                2 hours 0 minutes 0 seconds
Paging:                      enabled
Show hidden config:          yes
Confirm losing changes:      yes
Confirm reboot/shutdown:    no
Tallinn (config) #
```

# show clock

## Description

Use the **show clock** command to display system time and date.

## Syntax

**show clock**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show clock
Time: 21:41:59
Date: 2007/06/16
Time zone: America North United_States Pacific
Tallinn (config) #
```

# show cluster

## Description

Use the **show cluster** command to display cluster information.

## Syntax

**show cluster**

**show cluster spcp**

## Arguments

**cluster** Displays the cluster interface and the appliances in the cluster.

**cluster spcp** Displays the Silver Peak Communication Protocol statistics.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# show configuration

## Description

Use the **show configuration** command to display the commands necessary to recreate the active, saved configuration.

## Syntax

```
show configuration [full]  
show configuration files [<filename>]  
show configuration [running | running full]  
show configuration [download status | upload status]
```

## Arguments

<b>download status</b>	Displays the status of a configuration file being downloaded to the appliance from a remote host.
<b>files</b>	Displays the names of the active and saved configuration files.
<b>files [&lt;filename&gt;]</b>	Displays the contents of the specified configuration file.
<b>full</b>	Displays commands to recreate the active, saved configuration, and includes commands that set default values.
<b>running</b>	Displays commands to recreate the current running configuration.
<b>running full</b>	Displays commands to recreate the current running configuration, and includes commands that set default values.
<b>upload status</b>	Displays the status of a configuration file being saved from the appliance to a remote host.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To display the commands to recreate the active, saved configuration - **excluding** those commands that set default values:

```
> show configuration
```

- To display the commands to recreate the active, saved configuration - **including** the commands that set default values:

```
> show configuration full
```

- To display the commands to recreate the current, running configuration - **excluding** those commands that set default values:

```
> show configuration running
```

- To display the commands to recreate the current, running configuration - **including** the commands that set default values:

```
> show configuration running full
```

- To display a list of configuration files on the appliance:

```
Tallinn (config) # show configuration files
initial (active)
newBaseline
initial.bak
backup.1158658595322.287.NE
Tallinn (config) #
```

- To display the contents of the configuration file, *newBaseline*:

```
> show configuration files newBaseline
```

# show email

## Description

Use the **show email** command to display email and notification settings.

## Syntax

**show email**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show email
Mail hub:
Mail hub port: 25
Domain: silver-peak (default)

Failure events for which emails will be sent:
  raise-alarm: System Alarm has been raised

No recipients configured.
```

```
Autosupport emails
  Enabled: no
  Recipient:

  Mail hub:
```

```
Tallinn (config) #
```

## show excess-flow

### Description

Use the **show excess-flow** command to display information about flows exceeding the number that the appliance supports.

### Syntax

**show excess-flow**

**show excess flow log**

### Arguments

---

<b>log</b>	Displays a log of the excess flows.
------------	-------------------------------------

---

### Defaults

None

### Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# show files

## Description

Use the **show files** command to display a list of available files and/or display their contents.

## Syntax

**show files debug-dump [<filename>]**

**show files job upload status**

**show files stats [<filename>]**

**show files system**

**show files tcpdump**

**show files upload status**

## Arguments

<b>debug-dump [&lt;filename&gt;]</b>	Displays the list of debug-dump files. If you specify a filename, the CLI displays the contents of the file. Debug dump files have the suffix, <b>.tgz</b> .
<b>job upload status</b>	Displays job-output file upload status. You would use this when running the <b>file job upload</b> command.
<b>stats</b>	Displays a list of statistics reports. Debug dump files have the suffix, <b>.csv</b> .
<b>system</b>	Displays information on user-visible file systems.
<b>tcpdump</b>	Displays tcpdump output files.
<b>upload status</b>	Displays files upload status.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

If you use the **show files debug-dump** command without the argument, the CLI displays a list of available debug dump files.

## Examples

To display a list of debug-dump files:

```
Tallinn2 (config) # show files debug-dump
sysdump-RDT-2612-2-20070814-101408.tgz
sysdump-RDT-2612-2-20070820-031350.tgz
tunbug-Tallinn2-20090109.tar
sysdump-RDT-2612-2-20070822-231449.tgz
sysdump-RDT-2612-2-20070910-094351.tgz
tunbug-Tallinn2-20090102.tar.gz
tunbug-Tallinn2-20090103.tar.gz
tunbug-Tallinn2-20090104.tar.gz
tunbug-Tallinn2-20090105.tar.gz
tunbug-Tallinn2-20090106.tar.gz
tunbug-Tallinn2-20090107.tar.gz
tunbug-Tallinn2-20090108.tar.gz
Tallinn2 (config) #
```

# show flow-debug

## Description

Use the **show flow-debug** command to display the flow-debug summary for the specified flow.

## Syntax

**show flow-debug**

**show flow-debug description**

**show flow-debug detail**

## Arguments

**description** Displays the names of the statistics, along with their definitions.

**detail** Displays the detailed state of the selected flow.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

If multiple flows fit the criteria for the configured and enabled **flow-debug** command, then only the first match displays.

## Examples

None

# show flow-export

## Description

Use the **show flow-export** command to display the NetFlow flow export configuration parameters.

## Syntax

```
show flow-export
```

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn2 # show flow-export
Flow export v5 disabled:
  no valid collectors are configured.
  active-flow-timeout    : 1 m
  engine-id              : 1
  engine-type             : 1
  interface               : WANTX

  0 flows exported in 0 udp datagrams
Tallinn2 #
```

# show flow-redirection

## Description

Use the **show flow-redirection** command to display the flow redirection state and statistics.

## Syntax

**show flow-redirection**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn2 # show flow-redirection
```

```
Flow Redirection is disabled
```

```
Tallinn2 #
```

# show hosts

## Description

Use the **show hosts** command to display hostname, DNS (Domain Name Server) configuration, and static host mappings.

## Syntax

**show hosts**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show hosts
Hostname: Tallinn
Name server: 172.2.2.2 (configured)
Name server: 10.50.98.4 (configured)
Name server: 134.55.66.77 (configured)
Domain name: silver-peak (configured)
Domain name: rotrorouter (configured)
Domain name: chacha (configured)
Domain name: airborne (configured)
Domain name: roger (configured)
IP 127.0.0.1 maps to hostname localhost
Tallinn (config) #
```

# show iflabels

## Description

Use the **show iflabels** command to display the labels available for interfaces.

## Syntax

**show iflabels [lan-labels | wan-labels]**

## Arguments

<b>lan-labels</b>	Displays LAN interface labels.
<b>wan-labels</b>	Displays WAN interface label.

---

## Defaults

None

## Command Mode

- User EXEC Mode
- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To display information about the system images and boot parameters for the appliance, *Tallinn*:

```

laine2-vxa (config) # show iflabels
Interface Labels:
LAN interface Labels:
-----
Label    Display Name
4        Voice
5        Data

WAN interface Labels:
-----
Label    Display Name
1        MPLS
2        Internet
3        LTE
laine2-vxa (config) #

```

# show image

## Description

Use the **show image** command to display information about system images and boot parameters.

## Syntax

**show image [status]**

## Arguments

---

<b>status</b>	Displays system image installation status.
---------------	--

---

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To display information about the system images and boot parameters for the appliance, *Tallinn*:

```
Tallinn (config) # show image
Installed images:
  Partition 1:
    hidalgo 2.0.0.0_15449 #1-dev 2007-05-30 06:12:39 x86_64
    root@bigchief:unknown

  Partition 2:
    hidalgo 2.0.0.0_15619 #1-dev 2007-06-07 20:00:58 x86_64
    root@bigchief:unknown

Last boot partition: 2
Next boot partition: 2
Tallinn (config) #
```

# show interfaces

## Description

Use the **show interfaces** command to display the detailed running state for any or all interfaces.

## Syntax

**show interfaces [brief | configured]**

**show interfaces [<interface>]**

**show interfaces <interface> [brief | configured]**

## Arguments

<b>show interfaces</b>	Displays the detailed running state for <b>all</b> interfaces.
<b>interfaces brief</b>	Displays the brief running state for <b>all</b> interfaces.
<b>interfaces configured</b>	Displays the configuration for <b>all</b> interfaces.
<b>interfaces &lt;interface&gt;</b>	Shows the detailed running state for the specified interface, only.

## Defaults

None

## Command Mode

User EXEC Mode [*only* usable for the **show interfaces** command when it takes no arguments]

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

For a list of all the available interfaces only, login in Privileged EXEC Mode or Global Configuration Mode, and enter the following command:

```
Silver-Peak # show interfaces ?
```

## Examples

To show the detailed running state for **lan0**:

```
Tallinn (config) # show interfaces lan0
Interface lan0 state
  Admin up:          no
  Link up:          no
  IP address:
  Netmask:
  Speed:            UNKNOWN
  Duplex:           UNKNOWN
  Interface type:   ethernet
  MTU:              1500
  HW address:       00:0C:BD:00:7F:4B

  RX bytes:         0
  RX packets:        0
  RX mcast packets: 0
  RX discards:       0
  RX errors:         0
  RX overruns:       0
  RX frame:          0

  TX bytes:         0
  TX packets:        0
  TX discards:       0
  TX errors:         0
  TX overruns:       0
  TX carrier:        0
  TX collisions:     0
Tallinn (config) #
```

# show interfaces cdp

## Description

Use the **show interfaces cdp** command to display Cisco Discovery Protocol (CDP) information related to a specific interface.

## Syntax

**show interfaces <interface> cdp**

**show interfaces <interface> cdp neighbors [detail]**

## Arguments

<b>interfaces &lt;interface&gt;</b>	Shows the CDP state for the specified interface, only.
<b>neighbors</b>	Displays the CDP neighbors that are connected to this interface.
<b>neighbors detail</b>	Displays detailed information about CDP neighbors connected to this interface.

---

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To display basic CDP information about a network interface:

```
Tallinn2 (config) # show interfaces wan0 cdp
CDP is enabled on interface wan0
```

To display detailed information about wan0's CDP neighbors:

```
Tallinn2 (config) # show interfaces wan0 cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone

Device ID      Local Intrfce   Holdtme  Capability Platform       Port ID
-----
```

# show interfaces pass-through

## Description

Use the **show interfaces pass-through** command to display detailed state of pass-through traffic.

## Syntax

**show interfaces pass-through**

**show interfaces pass-through configured**

**show interfaces pass-through stats {flow [<traffic class 1-10>] | qos [<DSCP value>] | traffic-class}**

## Arguments

<b>configured</b>	Displays the pass-through traffic configuration.
<b>stats flow</b>	Displays pass-through traffic flow metrics for the default traffic class.
<b>stats flow &lt;traffic class 1-10&gt;</b>	Displays pass-through traffic flow metrics for the specified traffic class.
<b>stats qos</b>	Displays the default pass-through QoS statistics. The default DSCP value is <b>be</b> (best effort).
<b>stats qos &lt;DSCP value&gt;</b>	Displays pass-through QoS statistics for the specified DSCP value.
<b>stats traffic-class</b>	Displays pass-through traffic class statistics.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

This command's functionality is the same as **show pass-through**.

## Examples

- To display the detailed state of pass-through traffic:

```
Tallinn (config) # show interfaces pass-through
```

```

Pass-through traffic state
  Minimum Bw:      32
  Maximum Bw:    10000

  Tx Bytes:      258
  Tx Pkts:       2
Tallinn (config) #

```

- To display the pass-through traffic configuration:

```

Tallinn (config) # show interfaces pass-through configured
Pass-through traffic configuration
  Minimum Bw:      32
  Maximum Bw:    10000

```

```

Traffic Class:
  ID  Priority  Min Bw  Max Bw  Weight
  1   5          500000  1000000  1
  2   10         0        1000000  1
  3   10         0        1000000  1
  4   10         0        1000000  1
  5   10         0        1000000  1
  6   10         0        1000000  1
  7   10         0        1000000  1
  8   10         0        1000000  1
  9   10         0        1000000  1
  10  10         0        1000000  1

```

```

Traffic Class Queue Max:
  ID  Packets  Bytes      Flow Pkts  Flow Bytes  Wait (ms)
  1   2000     3000000  2000      3000000  500
  2   500      500000   100       100000   500
  3   500      500000   100       100000   500
  4   500      500000   100       100000   500
  5   500      500000   100       100000   500
  6   500      500000   100       100000   500
  7   500      500000   100       100000   500
  8   500      500000   100       100000   500
  9   500      500000   100       100000   500
  10  500      500000   100       100000   500
Tallinn (config) #

```

- To display statistics for pass-through traffic with a DSCP marking of Best Effort:

```

eh-3500-1 (config) # show interfaces pass-through stats qos
Tunnel pass-through QOS be Statistics:
  RX bytes:           107077          TX bytes:        68360
  RX packets:         1081            TX packets:       692

```

```
RX processed packets: 0
RX process bytes: 0

RX invalid packets: 0
RX lost packets: 0
RX duplicate packets: 0

RX error correcting packets: 0
TX error correcting packets: 0

RX error correcting bytes: 0
TX error correcting bytes: 0

RX packets lost before error correction: 0
RX packets lost after error correction: 0

RX reconstructed packets in order: 0
RX reconstructed packets out of order: 0

RX out of order packets accepted: 0
RX out of order packets dropped: 0
RX out of order packets reordered: 0

RX packets with 1 packet: 0
Tx packets with 1 packet: 0

RX packets with 1 fragment: 0
TX packets with 1 fragment: 0

RX packets with > 1 packet no fragment: 0
TX packets with > 1 packet no fragment: 0

RX packets with > 1 packet and fragment: 0
TX packets with > 1 packet and fragment: 0
eh-3500-1 (config) #
```

# show interfaces security

## Description

Use the **show interfaces security** command to display the security mode for interfaces.

## Syntax

**show interfaces security**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
laine-vxa # show interfaces security

Interface Security configuration:
-----
Interface      Security mode
-----
lan0           Open
lan1           Open
lo             Open
mgmt0          Open
mgmt1          Open
wan0           Open
wan1           Open
laine-vxa #
```

# show interfaces tunnel

## Description

Use the **show interfaces tunnel** command to display detailed running state for any and all tunnels.

## Syntax

**show interfaces tunnel [brief | configured | peers | summary]**

**show interfaces tunnel <tunnel name> [brief | configured | fastfail | ipsec [status] | summary]**

**show interfaces tunnel <tunnel name> stats flow [<traffic class 1-10>]**

**show interfaces tunnel <tunnel name> stats ipsec**

**show interfaces tunnel <tunnel name> stats latency**

**show interfaces tunnel <tunnel name> stats qos [<DSCP value>]**

**show interfaces tunnel <tunnel name> stats traffic-class**

**show interfaces tunnel <tunnel name> traceroute**

## Arguments

<b>brief</b>	Displays brief running state for the tunnel(s).
<b>configured</b>	Displays configuration for the tunnel(s).
<b>fastfail</b>	Displays Fastfail information. When multiple tunnels are carrying data between two appliances, this feature determines on what basis to disqualify a tunnel from carrying data, and how quickly.
<b>peers</b>	Displays table summary information for all tunnel peers.
<b>redundancy</b>	Displays redundancy information (regarding WCCP or VRRP) for the tunnel(s).
<b>summary</b>	Displays summary information for the tunnel(s).
<b>tunnel &lt;tunnel name&gt;</b>	Displays the detailed running state for this tunnel.
<b>ipsec status</b>	Displays the specified tunnel's IPSec information.
<b>stats flow</b>	Displays the flow metrics for the default traffic class in the designated tunnel.
<b>stats flow &lt;traffic class 1-10&gt;</b>	Displays the flow metrics for the specified traffic class in the designated tunnel.
<b>stats ipsec</b>	Displays the IPSec statistics for the designated tunnel.

<b>stats latency</b>	Displays the latency metrics for the designated tunnel.
<b>stats qos</b>	Displays the default QoS statistics for the designated tunnel. The default DSCP value is <b>be</b> (best effort).
<b>stats qos &lt;DSCP value&gt;</b>	Displays the QoS statistics for the specified DSCP value in the designated tunnel.
<b>stats traffic-class</b>	Displays the traffic class statistics for the designated tunnel.
<b>traceroute</b>	Displays traceroute information for this tunnel.

---

## Defaults

The default DSCP value for QoS is **be** (Best Effort).

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

- If you don't specify a tunnel, then the output includes information for **all** tunnels.
- If you do specify a tunnel, then the output is limited to that tunnel.
- This command is equivalent to the **show tunnel** command.

## Examples

- To display summary information for the tunnel, "HQ-to-Branch":

```
Tallinn (config) # show interfaces tunnel HQ-to-BranchA summary
Tunnel                               Admin   Oper      Remote IP
Uptime
-----
HQ-to-BranchA                      up     Down      172.30.5.2      0s
Tallinn (config) #
```

- To display the IPSec status information for the tunnel, "HQ-to-Branch":

```
Tallinn (config) # show interfaces tunnel HQ-to-BranchA ipsec status
Tunnel HQ-to-BranchA ipsec state
  Tunnel Oper:          Down
  IPSec Enabled:        no
  IPSec Oper:           Disabled
  Total IPSec SAs:     in:0 out:0
Tallinn (config) #
```

- To display the traffic class statistics for the tunnel, “gms\_dm-vx3000a\_dm-vx3000b”:

```
dm-vx3000a (config) # show interfaces tunnel gms_dm-vx3000a_dm-vx3000b
stats traffic-class
show request for tunnel gms_dm-vx3000a_dm-vx3000b
Tunnel gms_dm-vx3000a_dm-vx3000b traffic class statistics
      tc name          LAN RX    LAN RX    WAN TX    WAN TX
      QOS  Drops  Misc.Drops
                           Packets   Bytes   Packets   Kbps
Packets   Packets
      1 default          0        0        0        0
      0        0
      2 real-time         0        0        0        0
      0        0
      3 interactive       0        0        0        0
      0        0
      4 best-effort      32132609 46538966888 16922817 23465651199
      0        0
      5                  0        0        0        0
      0        0
      6                  0        0        0        0
      0        0
      7                  0        0        0        0
      0        0
      8                  0        0        0        0
      0        0
      9                  0        0        0        0
      0        0
      10                 0        0        0        0
      0        0
dm-vx3000a (config) #
```

- To display the latency statistics for traffic in the tunnel, “tunnel-2-8504”:

```
eh-3500-1 (config) # show interfaces tunnel tunnel-2-8504 stats latency
Tunnel tunnel-2-8504 QOS 0 Latency Metrics:
  Minimum Round Trip Time :           1
  Maximum Round Trip Time :          4
  Average Round Trip Time :          2
eh-3500-1 (config) #
```

# show interfaces virtual

## Description

Use the **show interfaces virtual** command to display virtual interface information.

## Syntax

**show interfaces virtual**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC mode =

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# show interfaces vrrp

## Description

Use the **show interfaces vrrp** command to display the detailed running state for all VRRPs.

## Syntax

**show interfaces <interface> vrrp**

**show interfaces <interface> vrrp {brief | configured}**

**show interfaces <interface> vrrp <1-255> {brief | configured}**

## Arguments

<b>interfaces &lt;interface&gt;</b>	Shows the running state for the specified interface, only.
<b>vrrp</b>	Displays the detailed running state for all VRRPs.
<b>brief</b>	Displays brief running state info for all VRRPs.
<b>configured</b>	Display configured info for all VRRPs on this interface.
<b>&lt;1-255&gt;</b>	A specific VRRP Group ID.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# show ip

## Description

Use the **show ip** command to display IP-related information.

## Syntax

```
show ip
show ip datapath route
show ip default-gateway [static]
show ip mgmt-ip
show ip route [static]
```

## Arguments

<b>datapath route</b>	Displays the datapath routing table.
<b>default-gateway</b>	Displays the active default route.
<b>default-gateway static</b>	Displays the configured default route.
<b>mgmt-ip</b>	Displays the management IP address
<b>route</b>	Displays the routing table.
<b>route static</b>	Displays the configured static routes.

---

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

If you're using DHCP for **mgmt0**, then it displays, **Management IP address: <none>**.

## Examples

To display the active default datapath route:

```
Tallinn (config) # show ip default-gateway
Active default gateway: 10.0.52.5
Tallinn (config) #
```

# show ip-tracking

## Description

Use the **show ip-tracking** command to display IP tracking (IPSLA) information.

## Syntax

**show ip-tracking ipsla-debug**

**show ip-tracking ipsla-if-debug**

**show ip-tracking ipsla-ip-debug**

**show ip-tracking manager**

**show ip-tracking summary**

## Arguments

**ipsla-debug** Displays IPSLA (Internet Protocol Service Level Agreement) debug information.

**ipsla-if-debug** Displays IPSLA interface debug information.

**ipsla-ip-debug** Displays IPSLA IP address debug information.

**manager** Displays the IP Tracking manager table.

**summary** Displays a summary of the IP Tracking component.

---

## Defaults

None

## Command Mode

User EXEC mode

Privileged EXEC mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To view the IP Tracking manager table:

```
laine-vxa (config) # show ip-tracking manager
IP Tracking Mgr Table: 0 active Manager entries
```

- To view a summary of the IP Tracking component:

```
laine-vxa (config) # show ip-tracking summary
Global IP Tracking information:
Process Status:          Active
Manager Count:           0
Managers Active:          0
Monitor Operation Count:  0
Action Count:             0
Monitor Requests Sent:   0
```

# show jobs

## Description

Use the **show jobs** command to display job configuration and status.

## Syntax

**show jobs** [*<job ID>*]

## Arguments

**jobs** *<job ID>*

Displays the configuration and status for the specified job.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

To display a list of available jobs, enter the following command:

```
<silver peak> # show jobs ?
```

## Examples

None

# show licenses

## Description

Use the **show licenses** command to display the installed licenses and licensed features.

## Syntax

**show licenses**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show licenses
No licenses have been configured.
Tallinn (config) #
```

# show l3

## Description

The **show l3** commands display the currently active layer 3 next-hops configured for physical and virtual interfaces. An interface can have multiple next-hops. Next-hops are used by the routing table and route policies for traffic forwarding.

- The l3 interfaces command displays the currently active layer 3 interface table.
- The l3 nexthops command displays the currently active layer 3 nexthop table.
- The l3 ports command displays the currently active layer 3 port table.

## Syntax

**show l3 interfaces**

**show l3 nexthops**

**show l3 ports**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Examples

This command displays the datapath l3 interface table.

```
ECVA (config) # show l3 interfaces
L3 interfaces count: 2 max: 127 redundancy: lan-native-vlan (3)
=====
0:           lan0: type native-router(2) direction LAN ip/mask 10.18.28.10/255.255.255.0 gw
0.0.0.0 (init)
              ifindex: 4
              Shaper index 3 Target Threshold in 95.000000 Target Threshold out 95.000000
              VRF Default (0)
              Firewall mode open (0) Zone id 0
              Bandwidth in Unlimited (0) Bandwidth out Unlimited (0)
3:           wan0: type native-router(2) direction WAN ip/mask 10.18.29.10/255.255.255.0 gw
10.18.29.1 (reachable)
```

```

ifindex: 3label 2 (4)
Shaper index 19 Target Threshold in 95.000000 Target Threshold out 95.000000
VRF Default (0)
Firewall mode open (0) Zone id 0
Bandwidth in Unlimited (0) Bandwidth out 4000
ECVA (config) #

```

This command displays the L3 nexthop table.

```

ECVA (config) # show l3 nexthops
L3 Nexthop Table v1,0 [nentries: 2, last: 2, max: 2048]
=====
Nexthop                         Version   Refcnt
-----
10.18.29.1                       IPv4     3
  Interfaces
  ++++++
  [ 3] Name: wan0          10.18.29.10/24  RefCnt: 2  State: reachable
10.1.0.1
  Interfaces
  ++++++
  [ 0] Name: lan0          10.18.28.10/24  RefCnt: 1  State: unreachable
ECVA (config) #

```

This command displays the L3 port table.

```

ECVA (config) # show l3 ports
L3 Ports (index by interface ifindex) containing 2 ports
=====
3: wan0: owner wan0 (3) ip 10.18.29.10/24 (UP) physical ifindex 3 direction WAN label 2 (4)
    hardened open (0) MTU 1500 zone 0 3rd party tunnel n/a
    pastthrough tunnel map: DEF OL1 OL2 OL3 OL4 OL5 OL6 OL7
    | 8| 5| 6| 9| 10| 0| 0| 0|
4: lan0: owner lan0 (0) ip 10.18.28.10/24 (UP) physical ifindex 4 direction LAN label none (0)
    hardened open (0) MTU 1500 zone 0 3rd party tunnel n/a
    pastthrough tunnel map: DEF OL1 OL2 OL3 OL4 OL5 OL6 OL7
    | 7| 0| 0| 0| 0| 0| 0| 0|
ECVA (config) #

```

# show log

## Description

Use the **show log** command to view event log contents.

## Syntax

**show log**

**show log alert**

**show log alert continuous**

**show log alert files [<file number>]**

**show log alert files <file number> [matching <regular expression>]**

**show log alert matching <regular expression>**

**show log continuous [matching <regular expression>]**

**show log continuous not matching <regular expression>**

**show log files [<file number>]**

**show log files <file number> matching <regular expression>**

**show log files <file number> not matching <regular expression>**

**show log matching <regular expression>**

**show log not matching <regular expression>**

## Arguments

<b>alert</b>	Displays alert event logs.
<b>continuous</b>	Displays new log messages as they arrive.
<b>files</b>	Displays a listing of all available <b>archived</b> log files.
<b>files &lt;file number&gt;</b>	Specifies which <b>archived</b> log file number to display.
<b>matching &lt;regular expression&gt;</b>	Displays event logs that match a given regular expression. If the expression includes spaces, use quotation marks to enclose the expression.
<b>not matching &lt;regular expression&gt;</b>	Displays event logs that <b>do not</b> match a given regular expression. If the expression includes spaces, use quotation marks to enclose the expression.

## Defaults

- Without arguments, the command, **show log**, displays the **current event log**.
- The command, **show log alert**, displays the **current alerts log**.

- The appliance keeps up to 30 archived alert log files. The older the file, the higher the file number. The newest file has no number, and the most recent archived file is numbered, “1”.

## Command Mode

### Privileged EXEC Mode

### Global Configuration Mode

## Usage Guidelines

- To see what archived logs are available, use one of the following:

```
(config) # show log files ?
(config) # show log alert files ?
```

## Examples

- To show a list of all available alert log files:

```
Tallinn (config) # show log files
1
2
Tallinn (config) #
```

- To show all archived files that match the expression, “ping”, in any string:

```
Tallinn (config) # show log matching ping

r dumping
Jun 17 17:24:45 localhost rename_ifs: Mapping MAC: 00:0C:BD:00:7F:4A to
interface name: wan0
Jun 17 17:24:45 localhost rename_ifs: Mapping MAC: 00:0C:BD:00:7F:4B to
interface name: lan0
Jun 17 17:24:45 localhost rename_ifs: Mapping MAC: 00:E0:81:2F:85:98 to
interface name: mgmt0
Jun 17 17:24:45 localhost rename_ifs: Mapping MAC: 00:E0:81:2F:85:99 to
interface name: mgmt1
Jun 17 17:25:09 Tallinn sysd[798]: TID 1084225888: [sysd.NOTICE]: WDOG:
Gateway datapath ping test disabled when in BYPASS.
Jun 17 17:28:09 Tallinn sysd[798]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAILED: 2
Jun 17 17:29:09 Tallinn sysd[798]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAILED: 2
Jun 17 17:30:09 Tallinn sysd[798]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAILED: 2
Jun 17 17:33:09 Tallinn sysd[798]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAILED: 2
Jun 17 17:34:09 Tallinn sysd[798]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAILED: 2
```

```
Jun 17 17:34:24 Tallinn cli[2411]: [cli.NOTICE]: user admin: Executing
command:
show log matching ping
/tmp/messages_filtered-rvzGgG lines 39947-39958/39958 (END)
```

- To view new alert log messages as they arrive:

```
Tallinn (config) # show log continuous
```

- To view the #3 archived alert log file:

```
(config) # show log alert files 3
```

# show log audit

## Description

Use the **show log audit** command to view audit log contents.

This log lists all configuration changes (create, modify, delete) and all system actions such as login/logout made by any users (CLI, Appliance Manager, or Orchestrator). Each log entry contains a timestamp, the appliance hostname, the username and IP address of the user, the action or change applied, and whether the operation succeeded or failed.

## Syntax

**show log audit**

**show log audit continuous**

**show log audit files [<file number>]**

**show log audit files <file number> [matching <regular expression>]**

**show log audit matching <regular expression>**

## Arguments

<b>continuous</b>	Displays new log messages as they arrive.
<b>files</b>	Displays a listing of all available <b>archived</b> log files.
<b>files &lt;file number&gt;</b>	Specifies which <b>archived</b> log file number to display.
<b>matching &lt;regular expression&gt;</b>	Displays event logs that match a given regular expression. If the expression includes spaces, use quotation marks to enclose the expression.

## Defaults

None

## Command Mode

- Privileged EXEC mode
- Global Configuration Mode

## Usage Guidelines

To see what archived logs are available, use the following:

```
(config) # show log audit files ?
```

## Examples

- To view new alert log messages as they arrive:

```
Tallinn (config) # show log audit continuous
```

- To view the #6 archived audit log file:

```
(config) # show log audit files 6
```

# show log-files

## Description

Use the **show log-files** command to display the a specific log listing.

## Syntax

```
show log-files <file number> [list matching <regular expression>]
```

## Arguments

<b>log-files &lt;file number&gt;</b>	Specifies a file number for which to display a log listing.
<b>list matching &lt;regular expression&gt;</b>	Lists selected log lines that match the given expression.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To see what log files are available:

```
Tallinn (config) # show log-files ?
<file number>
1
2
Tallinn (config) #
```

- To list log lines in the archived log file, “1”, that match the expression “system”:

```
Tallinn (config) # show log-files 1 list matching system
Dec 14 19:38:53 Tallinn mgmt[850]: [mgmtd.ALERT]: ALARM RAISE:
WARN,SW,9,
```

```
system_shutdown, System shutdown has been initiated, System, 2006/12/14
19:38:53, 1, no, no, yes, yes.
Dec 14 19:39:00 Tallinn shutdown: shutting down for system reboot
Dec 14 19:41:49 localhost kernel: SCSI subsystem initialized
Dec 14 19:41:49 localhost kernel: VFS: Mounted root (ext3 filesystem)
readonly.
Dec 14 19:41:49 localhost mdinit: Running system image: hidalgo 2.0.0.0_
13180
#1-dev 2006-12-14 07:0
5:03 x86_64 root@bigchief:unknown
Dec 14 19:41:43 localhost rc.sysinit: Checking root filesystem succeeded
Dec 14 19:41:43 localhost rc.sysinit: Remounting root filesystem in read-
write mode: succeeded
Dec 14 19:41:43 localhost fsck: Checking all file systems.
Dec 14 19:41:43 localhost rc.sysinit: Checking filesystems succeeded
Dec 14 19:41:43 localhost rc.sysinit: Mounting local filesystems:
succeeded
Dec 14 19:41:59 Tallinn mdinit: Shutting down system logger:
Dec 14 19:42:13 Tallinn mgmtd[849]: [mgmtd.ALERT]: ALARM RAISE:
CRI,EQU,2,
equipment_system_bypass, System BYPASS mode, System, 2006/12/14
19:42:13, 1, no, yes, no, no. NIC fail-to-wire
mode - BYPASS
Dec 14 19:43:23 Tallinn mgmtd[849]: [mgmtd.ALERT]: ALARM CLEAR:
CRI,EQU,4,
equipment_system_bypass, System BYPASS mode, System, 2006/12/14
19:42:13, 2, no, yes, no, no. NIC fail-to-wire
mode - NORMAL
Dec 14 19:44:23 Tallinn mgmtd[849]: [mgmtd.ALERT]: ALARM RAISE:
MAJ,EQU,5,
equipment_gateway_connect, Datapath Gateway Connectivity Test
Failed, system, 2006/12/14 19:44:23, 1, no, yes, no, yes.
Datapath Gateway Connectivity Test Failed
Dec 26 15:45:21 Tallinn mgmtd[849]: [mgmtd.ALERT]: ALARM RAISE:
WARN,SW,6,
system_shutdown, System shutdown has been initiated, System, 2006/12/26
15:45:21, 1, no, no, yes, yes.
Dec 26 15:45:26 Tallinn shutdown: shutting down for system reboot
lines 1-16
```

# show log-list matching

## Description

Use the **show log-list matching** command to list event log lines that match the specified expression.

## Syntax

**show log-list matching <regular expression>**

## Arguments

---

<b>matching &lt;regular expression&gt;</b>	Lists selected log lines that match the given expression.
--	---

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# show logging

## Description

Use the **show logging** command to display the logging configuration.

## Syntax

**show logging**

**show logging facilities**

**show logging files upload status**

**show logging tech-support**

## Arguments

**facilities** Displays the log facilities configuration.

**files upload status** Displays the progress of a logging file that's being saved to a remote host.

**tech-support** Displays log entries that the appliance creates for tech support.

---

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To view the logging configuration:

```
Tallinn (config) # show logging
Local logging level: notice
Default remote logging level: notice
No remote syslog servers configured.
```

```
Allow receiving of messages from remote hosts: no
Number of archived log files to keep: 30
Log rotation size threshold: 50 megabytes
Log format: standard
Levels at which messages are logged:
  CLI commands: notice
Tallinn (config) #
```

- To monitor the progress of a logging files as it's being copied from the appliance to a remote host.

```
Tallinn (config) # show logging files upload status
File Upload Status
  Name:          -not set-
  Status:        Ready
  Last Upload Status: The system is ready for upload
  Start time:    -not set-
  End time:      -not set-
  Total upload size: 0
  Transferred size: 0
  Transfer rate:   0 bps
  Percent complete: 0%
Tallinn (config) #
```

- To view the information saved for tech support:

```
Tallinn (config) # show logging tech-support
Apr 22 01:15:15 Tallinn sysd[781]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAIL
ED: 2
Apr 22 01:15:20 Tallinn tunneld[779]: TID 182912294944: [tunneld.ERR]:
cipsec_recovery_stemachine:
Took IPSec recovery action - tunnel:Tallinn_to_Helsinki still down..
Apr 22 01:16:10 Tallinn tunneld[779]: TID 182912294944: [tunneld.ERR]:
cipsec_recovery_stemachine:
Took IPSec recovery action - tunnel:Tallinn_to_Helsinki still down..
Apr 22 01:16:15 Tallinn sysd[781]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAIL
ED: 2
Apr 22 01:17:00 Tallinn tunneld[779]: TID 182912294944: [tunneld.ERR]:
cipsec_recovery_stemachine:
Took IPSec recovery action - tunnel:Tallinn_to_Helsinki still down..
Apr 22 01:17:15 Tallinn sysd[781]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAIL
ED: 2
Apr 22 01:17:50 Tallinn tunneld[779]: TID 182912294944: [tunneld.ERR]:
cipsec_recovery_stemachine:
Took IPSec recovery action - tunnel:Tallinn_to_Helsinki still down..
Apr 22 01:18:15 Tallinn sysd[781]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAIL
ED: 2
Apr 22 01:18:40 Tallinn tunneld[779]: TID 182912294944: [tunneld.ERR]:
cipsec_recovery_stemachine:
```

```
Took IPSec recovery action - tunnel:Tallinn_to_Helsinki still down..
Apr 22 01:19:15 Tallinn sysd[781]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAIL
ED: 2
Apr 22 01:19:30 Tallinn tunneld[779]: TID 182912294944: [tunneld.ERR]:
cipsec_recovery_stateemachine:
Took IPSec recovery action - tunnel:Tallinn_to_Helsinki still down..
Apr 22 01:20:15 Tallinn sysd[781]: TID 1084225888: [sysd.ERR]: WDOG:
Gateway datapath ping test FAIL
lines 1-12
```

- To view the log facilities configuration:

```
Tallinn3 (config) # show logging facilities
Log Facilities Configuration:
    audit:      local0
    system:     local1
    flow:       local2
Tallinn3 (config) #
```

# show memory

## Description

Use the **show memory** command to display system memory usage.

## Syntax

**show memory**

## Arguments

None

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show memory
      Total      Used      Free
Physical  4061 MB   3481 MB    579 MB
Swap        0 MB      0 MB      0 MB
Tallinn (config) #
```

# show nat-map

## Description

Use the **show nat-map** command to display a list of all the existing NAT maps. The CLI also indicates which NAT map is currently active.

## Syntax

**show nat-map**

**show nat-map <NAT map name>**

**show nat-map <NAT map name> <priority>**

**show nat-map <NAT map name> <priority> stats**

## Arguments

**nat-map** Displays all existing NAT maps.

**nat-map <NAT map name>** Displays each priority (entry) for the specified NAT map, along with their MATCH criteria and SET actions.

**nat-map <NAT map name> <priority>** Displays the priority specified for the designated NAT map.

**stats** Displays statistics for the specified map.  
If the priority number is included in the command, then the match statistics are limited to that map entry.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

The default entry in any map is always priority 65535. The NAT map specifics are:

65535	match	
	Protocol:	ip
	IP version:	any
	Source:	any

```
Destination:          any
Application:         any
DSCP:                any
VLAN:               any.any
set
  NAT Type:           no-nat
  NAT direction:     None
  NAT IP:            auto
  Fallback:          disabled
```

## Examples

None

# show nat statistics

## Description

Use the **show nat statistics** command to display NAT-related statistics.

## Syntax

**show nat statistics**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show nat statistics
NAT Statistics

    Total NAT Tcp flow      :0
    Total NAT Udp flow      :0
    Total NAT Icmp flow     :0
    NAT mid flow no alloc  :0

Tallinn (config) #
```

## show ntp

### Description

Use the **show ntp** command to display NTP settings.

### Syntax

**show ntp**

### Arguments

None

### Defaults

None

### Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

```
Tallinn (config) # show ntp
NTP enabled: no
No NTP peers configured.
No NTP servers configured.
Tallinn (config) #
```

# show opt-map

## Description

Use the **show opt-map** command to display a list of all the existing optimization maps. The CLI also indicates which optimization map is currently active.

## Syntax

**show opt-map**

**show opt-map <optimization map name>**

**show opt-map <optimization map name> <priority>**

**show opt-map <optimization map name> <priority> advanced-tcp**

**show opt-map <optimization map name> <priority> flows**

**show opt-map <optimization map name> [<priority>] stats**

## Arguments

<b>opt-map</b>	Displays all existing optimization maps.
<b>opt-map &lt;optimization map name&gt;</b>	Displays each priority (entry) for the specified optimization map, along with their MATCH criteria and SET actions.
<b>opt-map &lt;optimization map name&gt; &lt;priority&gt;</b>	Displays the priority specified for the designated optimization map.
<b>advanced-tcp</b>	Displays advanced TCP options.
<b>flows</b>	Displays the flows that match the priority (entry) number specified.
<b>stats</b>	Displays statistics for the specified map. If the priority number is included in the command, then the match statistics are limited to that map entry.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

- The default entries in any new opt map are as follows:

```
Tallinn3 (config) # show opt-map map1
Opt map map1 configuration (ACTIVE)
  10000 match
    Protocol:          tcp
    Source:            any
    Destination:      any
    Source Port:      any
    Destination Port: 139
    DSCP:              any
    VLAN:             any.any
  set
    Network Memory:   balanced
    Payload Comp:    enable
    Proxy Type:      cifs

  10010 match
    Protocol:          tcp
    Source:            any
    Destination:      any
    Source Port:      any
    Destination Port: 445
    DSCP:              any
    VLAN:             any.any
  set
    Network Memory:   balanced
    Payload Comp:    enable
    Proxy Type:      cifs

  10020 match
    Protocol:          tcp
    Source:            any
    Destination:      any
    Source Port:      any
    Destination Port: 443
    DSCP:              any
    VLAN:             any.any
  set
    Network Memory:   balanced
    Payload Comp:    enable
    Proxy Type:      ssl

  65535 match
    Protocol:          ip
    Source:            any
    Destination:      any
    Application:      any
    DSCP:              any
    VLAN:             any.any
  set
    Network Memory:   balanced
    Payload Comp:    enable
```

```
Proxy Type:          tcp-only
Tallinn3 (config) #
```

- You can view an appliance's list of optimization maps—and determine which map is active—with the command, **show opt-map**:

```
Silver Peak> # show opt-map
maryann
ginger      [ACTIVE]
```

## Examples

- To view a list of all the priorities included in the optimization map, “map1”, for this appliance:

```
Tallinn (config) # show opt-map map1 ?
<cr>                  Display this optimization map
<1..65535>
10
20
75
85
90
100
110
120
130
65535
Tallinn (config) #
```

- To find out how many flows match priority “100” in the optimization map, “ginger”:

```
Silver-Peak (config) # show opt-map ginger 100 flows
Flows matching Optimization Map ginger prio:100:
6 (L->W)  sip:10.2.1.128 dip:10.16.1.200 ports:0/0

Total flows:1
```

- To view the specifics of priority 10 in “map1” of the appliance, Tallinn:

```
Tallinn (config) # show opt-map map1 10
    10    match
Protocol:          ip
    Source:           10.10.10.0/24
    Destination:     10.10.20.0/24
    Application:    any
    DSCP:            any
    VLAN:           any.any
set
    Network Memory: balanced
```

```
Payload Comp:      enable
Proxy Type:        tcp-only
```

```
Tallinn (config) #
```

- To display the statistics for the optimization map, "O-2-3500-2", in the appliance, "eh-3500-1":

```
eh-3500-1 (config) # show opt-map O-2-3500-2 stats
Optimization Map O-2-3500-2 Lookup Statistics:

Priority 100:
Match Succeeded:    38918
  Permits: 38918 Denies: 0
Match Failed: 0
  Source IP Address: 0 Destination IP Address: 0
  Source Port: 0 Destination Port: 0
  Application: 0 DSCP Markings: 0 Protocol: 0

Priority 65535:
Match Succeeded: 0
  Permits: 0 Denies: 0
Match Failed: 0
  Source IP Address: 0 Destination IP Address: 0
  Source Port: 0 Destination Port: 0
  Application: 0 DSCP Markings: 0 Protocol: 0
eh-3500-1 (config) #
```

# show overlay

## Description

Use the **show overlay** command to display detailed information any or all overlays.

## Syntax

**show overlay**

**show overlay <overlay name>**

## Arguments

<b>&lt;overlay name&gt;</b>	Displays the name of a specific overlay.
-----------------------------	--

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To display all existing overlays:

```

laine2-vxa (config) # show overlay

Overlay Name (ID):          Voice (1)
    Brownout Loss:           1.000000
    Brownout latency:        75
    Brownout Jitter:         50
    Bonding policy:          high-availability
    Tunnel Usage Policy Bucket: 1
        Condition:            use-sla
    Links:
        MPLS-MPLS (1-1)
        Internet-Internet (2-2)
        Kate-Kate (6-6)

```

```
Tunnel Usage Policy Bucket: 2
    Condition:      use-active
    Links:
        MPLS-MPLS (1-1)
        Internet-Internet (2-2)
        Kate-Kate (6-6)
laine2-vxa (config) #
```

# show overlay-common

## Description

Use the **show overlay-common** command to display common configuration for overlays.

## Syntax

**show overlay-common internal-subnets**

## Arguments

---

<b>internal-subnets</b>	Displays internal subnets list.
-------------------------	---------------------------------

---

## Defaults

None

## Command Mode

Privileged EXEC mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
laine-vxa (config) # show overlay-common internal-subnets
Internal subnets:
-----
10.0.0.0/8
172.16.0.0/12
192.168.0.0/16
laine-vxa (config) #
```

# show pass-through

## Description

Use the **show pass-through** command to display detailed information about pass-through traffic.

This command's functionality is the same as **show interfaces pass-through**.

## Syntax

**show pass-through**

**show pass-through configured**

**show pass-through stats {flow [<traffic class 1-10>] | qos [<DSCP value>] | traffic-class}**

## Arguments

<b>configured</b>	Displays the pass-through traffic configuration.
<b>stats flow</b>	Displays pass-through traffic flow metrics.
<b>stats qos</b>	Displays the pass-through QoS statistics. The default DSCP value is <b>be</b> (best effort).
<b>stats qos &lt;DSCP value&gt;</b>	Displays pass-through QoS statistics for the specified DSCP value.
<b>stats traffic-class</b>	Displays pass-through traffic class statistics.

---

## Defaults

The default traffic class is 1.

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

Use the command without arguments to display a detailed state of pass-through traffic.

## Examples

To display the pass-through QoS statistics:

```
Tallinn (config) # show pass-through stats qos
```

```
Tunnel pass-through QOS be Statistics:  
RX bytes: 0 TX bytes: 258  
RX packets: 0 TX packets: 2  
  
RX processed packets: 0  
RX process bytes: 0  
  
RX invalid packets: 0  
RX lost packets: 0  
RX duplicate packets: 0  
  
RX error correcting packets: 0  
TX error correcting packets: 0  
  
RX error correcting bytes: 0  
TX error correcting bytes: 0  
  
RX packets lost before error correction: 0  
RX packets lost after error correction: 0  
  
RX reconstructed packets in order: 0  
RX reconstructed packets out of order: 0  
  
RX out of order packets accepted: 0  
RX out of order packets dropped: 0  
RX out of order packets reordered: 0  
  
RX packets with 1 packet: 0  
Tx packets with 1 packet: 0  
  
RX packets with 1 fragment: 0  
TX packets with 1 fragment: 0  
  
RX packets with > 1 packet no fragment: 0  
TX packets with > 1 packet no fragment: 0  
RX packets with > 1 packet and fragment: 0  
TX packets with > 1 packet and fragment: 0  
Tallinn (config) #
```

# show preposition

## Description

Use the **show preposition** command to display pre-positioning interface status.

## Syntax

**show preposition**

**show preposition ftp**

## Arguments

**ftp** Displays the pre-positioning FTP interface status.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show preposition
  FTP server enabled:          no
  FTP server status:           unmanaged
  FTP server anonymous access: no
  FTP server max clients:     5
Tallinn (config) #
```

# show proxy-arp

## Description

The **show proxy-arp** command displays the enabled Proxy ARP status of the specified interface.

## Syntax

**show proxy-arp <interface name>**

## Arguments

<i>&lt;interface name&gt;</i>	The interface upon which the show command displays status.
-------------------------------	--

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None.

## Examples

This command enables Proxy ARP status on WAN2 interface.

```
ECVA (config) # proxy-arp wan2
ECVA (config) # show proxy-arp wan2
interface name          proxy-arp enabled
-----
ECVA (config) #
```

# show qos-map

## Description

Use the **show qos-map** command to display a list of all the existing QoS maps. The CLI also indicates which QoS map is currently active.

## Syntax

**show qos-map**

**show qos-map <QoS map name>**

**show qos-map <QoS map name> <priority>**

**show qos-map <QoS map name> <priority> flows**

**show qos-map <QoS map name> [<priority>] stats**

## Arguments

<b>qos-map</b>	Displays all existing QoS maps.
<b>qos-map &lt;QoS map name&gt;</b>	Displays each priority (entry) for the specified QoS map, along with their MATCH criteria and SET actions.
<b>qos-map &lt;QoS map name&gt; &lt;priority&gt;</b>	Displays the priority specified for the designated QoS map.
<b>flows</b>	Displays the flows that match the priority (entry) number specified.
<b>stats</b>	Displays statistics for the specified map. If the priority number is included in the command, then the match statistics are limited to that map entry.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

- The default entry in any map is always priority 65535. The QoS map specifics are:

```

65535 match
    Protocol:          ip
    Source:            any
    Destination:      any
    Application:      any
    DSCP:              any
set
    Traffic Class:    1
    LAN QoS:          trust-lan
    WAN QoS:          trust-lan

```

- The following example shows the a sample list of QoS maps:

```

Silver Peak> # show qos-map
maryann
ginger           [ACTIVE]

```

## Examples

- To show all the priorities in the QoS map, “map1”:

```

Tallinn (config) # show qos-map map1
QoS map map1 configuration (ACTIVE)
  10  match
      Protocol:          ip
      Source:            any
      Destination:      any
      Application:      web
      DSCP:              any
set
      Traffic Class:    1
      LAN QoS:          be
      WAN QoS:          be

  20  match
      Protocol:          ip
      Source:            172.20.20.0/24
      Destination:      any
      Application:      any
      DSCP:              any
set
      Traffic Class:    3
      LAN QoS:          af12
      WAN QoS:          trust-lan

  40  match
      Protocol:          ip
      Source:            any
      Destination:      any
      Application:      aol
      DSCP:              any
set

```

```

Traffic Class:          3
LAN QoS:               trust-lan
WAN QoS:               trust-lan

60      match
        Protocol:          ip
        Source:             any
        Destination:        any
        Application:        any
        DSCP:               be
    set

65535 match
        Protocol:          ip
        Source:             any
        Destination:        any
        Application:        any
        DSCP:               any
    set
        Traffic Class:     1
        LAN QoS:           trust-lan
        WAN QoS:           trust-lan

Tallinn (config) #

```

- To display information similar about flows that match the conditions specified by priority 100 in the map, “ginger”:

```

Silver-Peak (config) # show qos-map ginger 100 flows
Flows matching QoS Map ginger prio:100:
6 (L->W) sip:10.2.1.128 dip:10.16.1.200 ports:0/0

Total flows:1

```

# show radius

## Description

Use the **show radius** command to display RADIUS settings for user authentication.

## Syntax

**show radius**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To show any RADIUS settings for the appliance, Tallinn:

```
Tallinn (config) # show radius
RADIUS defaults:
    key:
    timeout: 3
    retransmit: 1
No RADIUS servers configured.
Tallinn (config) #
```

# show route-map

## Description

Use the **show route-map** command to display a list of all the existing route maps. The CLI also indicates which route map is currently active.

## Syntax

**show route-map**

**show route-map <route map name>**

**show route-map <route map name> <priority>**

**show route-map <route map name> <priority> flows**

**show route-map <route map name> <priority> stats**

## Arguments

<b>route-map</b>	Displays all existing route maps.
<b>route-map &lt;route map name&gt;</b>	Displays each priority (entry) for the specified route map, along with their MATCH criteria and SET actions.
<b>route-map &lt;route map name&gt; &lt;priority&gt;</b>	Displays the priority specified for the designated route map.
<b>flows</b>	Displays the flows that match the priority (entry) number specified.
<b>stats</b>	Displays statistics for the specified map. If the priority number is included in the command, then the match statistics are limited to that map entry.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

- The default entry in any map is always priority 65535. The route map specifics are:

```
Tallinn (config) # show route-map map1 65535
65535 match
    Protocol:          ip
    Source:            any
    Destination:      any
    Application:      any
    DSCP:              any
set
    Pass-through:     Shaped
```

- The following example shows the a sample list of route maps:

```
Silver Peak> # show route-map
maryann
ginger           [ACTIVE]
```

## Examples

- To show all the priorities in the route map, “map1”:

```
Tallinn (config) # show route-map map1
Route map map1 configuration (ACTIVE)
  10  match
    Protocol:          ip
    Source:            any
    Destination:      any
    Application:      citrix
    DSCP:              any
set
    Primary Tunnel:   HQ-to-BranchA
    Down Action:      pass-through

  20  match
    Protocol:          etherip
    Source:            10.10.10.0/24
    Destination:      10.10.20.0/24
    DSCP:              any
set
    Primary Tunnel:   HQ-to-BranchA
    Down Action:      pass-through

  65535 match
    Protocol:          ip
    Source:            any
    Destination:      any
    Application:      any
    DSCP:              any
set
    Pass-through:     Shaped

Tallinn (config) #
```

- To show the statistics for priority 20 in the route map, R-2-3500-2:

```
eh-3500-1 (config) # show route-map R-2-3500-2 20 stats
Route Map R-2-3500-2 Lookup Statistics:

Priority 20:
Match Succeeded:      3212721
Permits:      3212721 Denies: 0
Match Failed:   483
Source IP Address:    479     Destination IP Address: 4
Source Port:        0     Destination Port:       0
Application:       0     DSCP Markings: 0     Protocol:      0
eh-3500-1 (config) #
```

- To list all the current flows that match priority 20 for the route map, R-2-3500-2:

```
eh-3500-1 (config) # show route-map R-2-3500-2 10 flows
Flows matching Route Map R-2-3500-2 prio:10:

Total flows:0
eh-3500-1 (config) # show route-map R-2-3500-2 20 flows
Flows matching Route Map R-2-3500-2 prio:20:
1155 (L->W) sip:3.3.3.132 dip:3.3.5.132 ports:54317/7079
954 (L->W) sip:3.3.3.60 dip:3.3.5.60 ports:46082/7078
5169 (L->W) sip:3.3.3.79 dip:3.3.5.79 ports:17516/37693
647 (L->W) sip:3.3.3.74 dip:3.3.5.74 ports:30370/62999
4200 (L->W) sip:3.3.3.19 dip:3.3.5.19 ports:48779/1720
4193 (L->W) sip:3.3.3.115 dip:3.3.5.115 ports:50455/63239
3395 (L->W) sip:3.3.3.103 dip:3.3.5.103 ports:48726/1720
640 (L->W) sip:3.3.3.101 dip:3.3.5.101 ports:53199/58066
1368 (L->W) sip:3.3.3.16 dip:3.3.5.16 ports:18124/7079
35468 (L->W) sip:3.3.3.160 dip:3.3.5.160 ports:5060/5060
4475 (L->W) sip:3.3.3.143 dip:3.3.5.143 ports:32129/10581
1219 (L->W) sip:3.3.3.101 dip:3.3.5.101 ports:22793/7078
162 (L->W) sip:3.3.3.77 dip:3.3.5.77 ports:18249/26865
680 (L->W) sip:3.3.3.134 dip:3.3.5.134 ports:31366/38078
4414 (L->W) sip:3.3.3.31 dip:3.3.5.31 ports:8352/28438
120 (L->W) sip:3.3.3.132 dip:3.3.5.132 ports:8972/57105
4325 (L->W) sip:3.3.3.88 dip:3.3.5.88 ports:36950/36893
2354 (L->W) sip:3.3.3.148 dip:3.3.5.148 ports:7078/41540
```

# show running-config

## Description

Use the **show running-config** command to display the current running configuration.

## Syntax

**show running-config [full]**

## Arguments

**full** Do not exclude commands that set default values.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# show selftest disk

## Description

Use the **show selftest disk** command to run a self test and diagnostics.

## Syntax

**show selftest disk**

## Arguments

None

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To view disk self test results:

```
Tallinn3 (config) # show selftest disk

Disk self test results:
Disk read results:
Duration: 26 seconds
Read I/O operations per second (IOPS): 391
Read rate (MBytes/second): 97
Read IOPS compared to optimal: 391%
Read rate compared to optimal: 391%

Disk write results:
Duration: 60 seconds
Write I/O operations per second (IOPS): 169
Write rate (MBytes/second): 42
Write IOPS compared to optimal: 169%
Write rate compared to optimal: 169%

Overall result: PASS
```

A reboot is required after disk selftest. Do you want to restart the appliance?  
(y/n)

# show shaper

## Description

Use the **show shaper** command to display the shaper statistics.

## Syntax

**show shaper**

**show shaper [configured | stats]**

## Arguments

**configured** Displays shaper configuration.

**stats** Displays shaper debug stats.

---

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To view the shaper configuration :

```
Tallinn (config) # show shaper configured
wan shaper
  Max rate      : 500000 kbps
  Accuracy     : 5000 us
    class        prio  min%  max% excess   wait
    1 default    5     30    100    100    500
    2 real-time   1     30    100   1000    100
    3 interactive 2     20    100   1000    200
    4 best-effort 8     20    100    100    500
    5 blah        5     30    100    100    500
    6              5     30    100    100    500
    7              5     30    100    100    500
    8              5     30    100    100    500
    9              5     30    100    100    500
    10             5     30    100    100    500
Tallinn (config) #
```

# show snmp

## Description

Use the **show snmp** command to display SNMP settings.

## Syntax

**show snmp [engine ID | user]**

## Arguments

<b>engine ID</b>	Displays the SNMP engine ID of the local system.
<b>user</b>	Displays the SNMP v3 user security settings.

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To display the SNMP settings:

```
Tallinn (config) # show snmp
SNMP enabled: yes
System location: third rock from the sun
System contact: ET Fone-Hoam
Read-only community: public
Traps enabled: yes
Events for which traps will be sent:
    raise-alarm: System Alarm has been raised
Trap sinks:
    172.20.2.191
        Enabled: yes
        Type: traps version 1
        Community: textstring
```

```
Interface listen enabled: yes
No Listen Interfaces.
Tallinn (config) #
```

- To display the local system's SNMP engine ID:

```
Tallinn2 (config) # show snmp engineID
Local SNMP engineID: 0x80005d3b04393062346436376132336534
Tallinn2 (config) #
```

- To display the SNMP v3 user security settings:

```
Tallinn2 (config) # show snmp user
User name: admin
    Enabled:          no
    Authentication type: sha
    Authentication password: (NOT SET; user disabled)
    Privacy type:      aes-128
    Privacy password: (NOT SET; user disabled)
Tallinn2 (config) #
```

# show ssh

## Description

Use the **show ssh** command to display SSH settings for server and/or client.

## Syntax

**show ssh client**

**show ssh server [host-keys]**

## Arguments

<b>client</b>	Displays Secure Shell (SSH) client settings.
<b>server</b>	Displays Secure Shell (SSH) server settings.
<b>server host-keys</b>	Displays Secure Shell (SSH) server settings with full host keys

---

## Defaults

None

## Command Mode

- User EXEC Mode
- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To show the SSH server settings for the appliance, “Tallinn”:

```
Tallinn (config) # show ssh server
SSH server enabled: yes
SSH server listen enabled: yes
    No Listen Interfaces.

RSA v1 host key: 19:7a:68:d4:2b:61:b2:1c:9b:16:aa:d1:bc:ab:36:d1
RSA v2 host key: b7:c4:9c:7e:d2:a7:8e:8f:bd:c7:76:d4:d5:5f:f6:d9
DSA v2 host key: 2d:64:71:ba:98:f6:96:52:53:ad:16:ea:cc:4e:01:d9
Tallinn (config) #
```

## show ssl

### Description

Use the **show ssl** command to list host certificate data.

### Syntax

**show ssl**

### Arguments

None

### Defaults

None

### Command Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

```
Tallinn # show ssl
SSL Proxy Settings:
    Certificate Substitution: Disabled
    Built-in CA Signing: Enabled
```

```
Tallinn #
```

# show stats

## Description

Use the **show stats** command to display various traffic statistics.

## Syntax

```
show stats app <application name> {optimized-traffic | pass-through-unshaped | pass-through | all-traffic} [pretty]
```

```
show stats dscp <DSCP value> {optimized-traffic | pass-through-unshaped | pass-through | all-traffic} [pretty]
```

```
show stats flow {tcpacc | tcpnoacc | nontcp} {optimized-traffic | pass-through-unshaped | pass-through | all-traffic} [pretty]
```

```
show stats ftype {tcpacc | tcpnoacc | nontcp} {optimized-traffic | pass-through-unshaped | pass-through | all-traffic} [pretty]
```

```
show stats tclass <traffic class number> {optimized-traffic | pass-through-unshaped | pass-through | all-traffic} [pretty]
```

## Arguments

<b>app</b> <application name>	Displays network traffic statistics by application.
<b>dscp</b> <DSCP value>	Displays network statistics by DSCP marking.
<b>tclass</b> <traffic class number>	Displays network traffic statistics by traffic-class.
<b>ftype</b> {tcpacc   tcpnoacc   nontcp}	Displays flow type traffic statistics: <b>tcpacc</b> Accelerated TCP traffic <b>tcpnoacc</b> Non-accelerated TCP traffic <b>nontcp</b> Non-TCP traffic
<b>flow</b> {tcpacc   tcpnoacc   nontcp}	Displays flow statistics: <b>tcpacc</b> Accelerated TCP traffic <b>tcpnoacc</b> Non-accelerated TCP traffic <b>nontcp</b> Non-TCP traffic
<b>all-traffic</b>	Displays all optimized, pass-through, and pass-through-unshaped traffic.
<b>optimized-traffic</b>	Displays all optimized traffic.
<b>pass-through</b>	Displays pass-through traffic.

<b>pass-through-unshaped</b>	Displays pass-through unshaped traffic.
<b>pretty</b>	Displays in thousands, separated and right-aligned.

---

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# show stats tunnel

## Description

Use the **show stats tunnel** command to display tunnel traffic statistics.

## Syntax

**show stats tunnel <tunnel>**

**show stats tunnel <tunnel> {latency | qos-error | qos-error <traffic class number>} [pretty]**  
**show stats tunnel <tunnel> [pretty]**

**show stats tunnel default**

**show stats tunnel default {latency | qos-error} [pretty]**  
**show stats tunnel default [pretty]**

**show stats tunnel pass-through {latency | qos-error} [pretty]**  
**show stats tunnel pass-through [pretty]**

**show stats tunnel pass-through-unshaped {latency | qos-error} [pretty]**  
**show stats tunnel pass-through-unshaped [pretty]**

**show stats tunnel all-traffic {latency | qos-error} [pretty]**  
**show stats tunnel all-traffic [pretty]**

**show stats tunnel optimized-traffic {latency | qos-error} [pretty]**  
**show stats tunnel optimized-traffic [pretty]**

## Arguments

<b>&lt;tunnel&gt;</b>	Specifies the name of the tunnel.
<b>all-traffic</b>	Displays all optimized, pass-through, and pass-through-unshaped traffic.
<b>latency</b>	Displays tunnel latency statistics.
<b>optimized-traffic</b>	Displays all optimized traffic.
<b>pass-through</b>	Displays pass-through traffic.
<b>pass-through-unshaped</b>	Displays pass-through unshaped traffic.
<b>pretty</b>	Displays in thousands, separated and right-aligned.
<b>qos-error</b>	Displays tunnel QoS error statistics on all traffic classes.
<b>qos-error &lt;traffic class number&gt;</b>	Displays tunnel QoS error statistics for the specified traffic class.

## Defaults

None

## Command Mode

- User EXEC Mode
- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To view optimized traffic, formatted for easier reading:

```
SP42-NX8600 # show stats tunnel optimized-traffic pretty
    bytes_wtx:    714,823,758
    bytes_wrx:    729,500,245
    bytes_ltx:  5,739,117,443
    bytes_lrx:  3,231,002,684
    pkts_wtx:     816,634
    pkts_wrx:     977,866
    pkts_ltx:    4,529,350
    pkts_lrx:    2,731,216
    comp_12w:      0
    comp_w21:      0
    comp_nohead_12w: 0
    comp_nohead_w21: 0
        latency_s: 0
        latency_min_s: 0
        flow_ext_tcp: 1
    flow_ext_tcpacc: 0
        flow_ext_non: 0
        flow_add: 0
        flow_rem: 0
    loss_prefec_wrx_pkts: 1,308
    loss_postfec_wrx_pkts: 0
        loss_prefec_wrx_pct: 0
    loss_postfec_wrx_pct: 0
        ooo_prepoc_wrx_pkts: 0
    ooo_postpoc_wrx_pkts: 26
        ooo_prepoc_wrx_pct: 0
    ooo_postpoc_wrx_pct: 0
        ohead_wrx_pkts: 3,142,683
        ohead_wtx_pkts: 3,126,115
        ohead_wrx_bytes: 463,542,375
        ohead_wtx_bytes: 474,786,262
        ohead_wrx_hdr_bytes: 113,928,904
        ohead_wtx_hdr_bytes: 184,900,104
        bw_util_pct: 0
SP42-NX8600 #
```

## show subif

### Description

Use the **show subif** command to display sub-interface information.

### Syntax

**show subif**

### Arguments

None

### Defaults

None

### Command Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# show subnet

## Description

Use the **show subnet** command to display subnet-related information.

## Syntax

**show subnet**

**show subnet bgp [ipv4]**

**show subnet configured**

**show subnet debug {module | peer}**

**show subnet learned**

## Arguments

<b>bgp [ipv4]</b>	Displays BGP advertisable (ipv4) rules.
<b>configured</b>	Displays configured rules.
<b>debug module</b>	Displays subnet module state, as a debugging aid.
<b>debug peer</b>	Displays subnet peer state, as a debugging aid.
<b>learned</b>	Displays learned rules.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To display configured rules:

```
laine-vxa (config) # show subnet configured
```

```
Route Table: 1/20000 entries
prefix/len :      metric    peer id saas
details
10.1.153.0/24  :          50    1659809 0
automatic advertized BGP local
```

# show system

## Description

Use the **show system** command to display system configuration information.

## Syntax

**show system**

**show system arp-table-size**

**show system auto-mac-configure**

**show system bypass**

**show system disk [brief | smart-data]**

**show system firmware**

**show system network-memory media**

**show system [nexthops | wan-next-hops]**

**show system peer-list**

**show system registration**

**show system smb-signing**

**show system ssl-ipsec-override**

## Arguments

<b>arp-table-size</b>	Displays configured system ARP (Address Resolution Protocol) table size.
<b>auto-mac-configure</b>	Displays auto MAC-NIC configuration.
<b>bypass</b>	Displays system bypass information.
<b>disk</b>	Displays system disk information.
<b>disk brief</b>	Displays brief system disk information.
<b>disk smart-data</b>	Displays system disk SMART (Self-Monitoring Analysis and Reporting Technology) data. These are statistics that a disk collects about itself.
<b>firmware</b>	Displays system firmware information.
<b>network-memory media</b>	Displays the media used for the system's network memory.

<b>nexthops</b>	Displays all system next-hops, along with their reachability and uptime.
<b>peer-list</b>	Displays peer list information.
<b>registration</b>	Displays system registration information.
<b>smb-signing</b>	Displays SMB signing option.
<b>ssl-ipsec-override</b>	Displays any SSL IPSec override.
<b>wan-next-hops</b>	Displays system configuration WAN next-hops, along with their configured state and current status.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To display the configured system ARP table size:

```
Tallinn (config) # show system arp-table-size
System Arp Table Size

    Configured maximum arp table size      : 10240
    System's current maximum arp table size : 10240
Tallinn (config) #
```

- To display the system disk information:

```
Tallinn (config) # show system disk
RAID 0 Info:
Status:          OK
Type:           Software
Size:            216
Percent Complete: 100
Drives:          1,0
Configuration:   RAID_1
Disk ID 0
    Status:        OK
    Size:         232 GB
    Serial Number: WD-WCAL73249872
```

```
Disk ID 1
  Status:          OK
  Size:           232 GB
  Serial Number: WD-WCAL73275682

Tallinn (config) #
```

- To display the brief system disk information:

```
Tallinn (config) # show system disk brief
RAID 0 Info:
  Status:          OK
  Type:           Software
  Size:            216
  Percent Complete: 100
  Drives:          1,0
  Configuration:   RAID_1
    ID      Status  Size (GB)      Serial
    0       OK      232          WD-WCAL73249872
    1       OK      232          WD-WCAL73275682

Tallinn (config) ##
```

- To display the type of media being used for Network Memory:

```
SP42-NX8600 # show system network-memory media
Network Memory Media: ram and disk
SP42-NX8600 #
```

## show tacacs

### Description

Use the **show tacacs** command to display TACACS+ settings.

### Syntax

**show tacacs**

### Arguments

None

### Defaults

None

### Command Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

```
Tallinn (config) # show tacacs
TACACS+ defaults:
  key:
  timeout: 3
  retransmit: 1
No TACACS+ servers configured.
Tallinn (config) #
```

## show tca

### Description

Use the **show tca** command to display threshold crossing alert settings.

### Syntax

**show tca**

**show tca <tca-name>**

### Arguments

<b>tca &lt;tca-name&gt;</b>	Specifies which threshold crossing alert to display. The options are:
■ <b>file-system-utilization</b>	How much of the file system space has been used, expressed as a percentage.
■ <b>lan-side-rx-throughput</b>	LAN-side Receive throughput, in kilobits per second ( <b>kbps</b> ).
■ <b>latency</b>	Tunnel latency, in milliseconds ( <b>ms</b> ).
■ <b>loss-post-fec</b>	Tunnel loss, as <b>tenths of a percent</b> , <i>after</i> applying Forward Error Correction (FEC).
■ <b>loss-pre-fec</b>	Tunnel loss, as <b>tenths of a percent</b> , <i>before</i> applying Forward Error Correction (FEC).
■ <b>oop-post-poc</b>	Tunnel out-of-order packets, as <b>tenths of a percent</b> , <i>after</i> applying Packet Order Correction (POC).
■ <b>oop-pre-poc</b>	Tunnel out-of-order packets, as <b>tenths of a percent</b> , <i>before</i> applying Packet Order Correction (POC).
■ <b>optimized flows</b>	Total number of optimized flows.
■ <b>reduction</b>	Tunnel reduction, in percent (%).
■ <b>total-flows</b>	Total number of flows.
■ <b>utilization</b>	Tunnel utilization, as a percent (%).
■ <b>wan-side-tx-throughput</b>	WAN-side transmit throughput, in kilobits per second ( <b>kbps</b> ).

---

### Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To display a summary of what the defaults are for the various threshold crossing alerts (this information is static because it is **not** the same as reporting the current state of any alert):

```
tallinn3 > show tca
file-system-utilization (File-system utilization):
enabled
lan-side-rx-throughput (LAN-side receive throughput):
disabled
latency (Tunnel latency):
enabled
loss-post-fec (Tunnel loss post-FEC):
disabled
loss-pre-fec (Tunnel loss pre-FEC):
disabled
oop-post-poc (Tunnel OOP post-POC):
disabled
oop-pre-poc (Tunnel OOP pre-POC):
disabled
optimized-flows (Total number of optimized flows):
disabled
reduction (Tunnel reduction):
disabled
total-flows (Total number of flows):
disabled
utilization (Tunnel utilization):
disabled
wan-side-tx-throughput (WAN-side transmit throughput):
disabled
tallinn3 > fil
```

- To display how reduction is currently configured in the threshold crossing alerts:

```
tallinn3 > show tca reduction
reduction - Tunnel reduction:
  default
    enabled:          no
  A-to-B
    enabled:          yes
```

```
falling:  
  raise-threshold:      20 %  
  clear-threshold:     35 %  
pass-through  
  enabled:             no  
pass-through-unshaped  
  enabled:             no  
tallinn3 >
```

# show tech-support

## Description

Use the **show tech-support** command to build a list of troubleshooting information that Silver Peak will request to assist the customer when problems are encountered and technical support has been requested.

## Syntax

**show tech-support**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

## show terminal

### Description

Use the **show terminal** command to display the current terminal settings.

### Syntax

**show terminal**

### Arguments

None

### Defaults

None

### Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

```
Tallinn (config) # show terminal
CLI current session settings
  Terminal width:          80 columns
  Terminal length:         24 rows
  Terminal type:           vt102
Tallinn (config) #
```

# show tunnel

## Description

Use the **show tunnel** command to display the detailed running state for all tunnels.

An equivalent command is **show interfaces tunnel**.

## Syntax

**show tunnel [brief | configured | peers | summary]**

**show tunnel <tunnel name> [brief | configured | fastfail | ipsec [status] | summary | traceroute]**

**show tunnel <tunnel name> stats flow [<traffic class 1-10>]**

**show tunnel <tunnel name> stats ipsec**

**show tunnel <tunnel name> stats latency**

**show tunnel <tunnel name> stats qos [<DSCP value>]**

**show tunnel <tunnel name> stats traffic-class**

**show tunnel stats cifs**

**show tunnel stats ssl**

## Arguments

<b>brief</b>	Displays brief running state for the tunnel(s).
<b>configured</b>	Displays configuration for the tunnel(s).
<b>fastfail</b>	Displays Fastfail information. When multiple tunnels are carrying data between two appliances, this feature determines on what basis to disqualify a tunnel from carrying data, and how quickly.
<b>ipsec status</b>	Displays the specified tunnel's IPSec information.
<b>peers</b>	Displays table summary information for all tunnel peers.
<b>redundancy</b>	Displays redundancy information (regarding WCCP or VRRP) for the tunnel(s).
<b>stats cifs</b>	Displays system-wide CIFS statistics.
<b>stats flow</b>	Displays the flow metrics for the default traffic class in the designated tunnel.

<b>stats flow &lt;traffic class 1-10&gt;</b>	Displays the flow metrics for the specified traffic class in the designated tunnel.
<b>stats ipsec</b>	Displays the IPSec statistics for the designated tunnel.
<b>stats latency</b>	Displays the latency metrics for the designated tunnel.
<b>stats qos</b>	Displays the default QoS statistics for the designated tunnel. The default DSCP value is <b>be</b> (best effort).
<b>stats qos &lt;DSCP value&gt;</b>	Displays the QoS statistics for the specified DSCP value in the designated tunnel.
<b>stats ssl</b>	Displays system-wide SSL statistics.
<b>stats traffic-class</b>	Displays the traffic class statistics for the designated tunnel.
<b>summary</b>	Displays summary information for the tunnel(s).
<b>traceroute</b>	Displays traceroute information for this tunnel.
<b>tunnel &lt;tunnel name&gt;</b>	Displays the detailed running state for this tunnel.

## Defaults

The default DSCP value for QoS is **be** (Best Effort).

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

- If you don't specify a tunnel, then the output includes information for **all** tunnels.
- If you do specify a tunnel, then the output is limited to that tunnel.

## Examples

- To display the IPSec status for the tunnel, "tunnel-2-7501", in appliance, "eh-3500-1":

```
eh-3500-1 (config) # show tunnel tunnel-2-7501 ipsec status
Tunnel tunnel-2-7501 ipsec state
  Tunnel Oper:          Down
  IPSec Enabled:       no
  IPSec Oper:          Disabled
  Total IPSec SAs:    in:0 out:0
eh-3500-1 (config) #
```

- To display the statistics for Traffic Class 41 for "t1", in appliance, "eh-3500-1":

```
eh-3500-1 (config) # show tunnel t1 stats traffic-class 4
```

```
Tunnel t1 Traffic Class 4 Statistics:  
RX bytes: 0 TX bytes: 0  
RX packets: 0 TX packets: 0  
TX Invalid packets: 0  
  
LAN queue dropped packets  
Packet Overload: 0  
Byte Overload: 0  
Packet Overload on Flow: 0  
Byte Overload on Flow: 0  
Queue Time Exceeded: 0  
eh-3500-1 (config) #
```

- To display the latency statistics for “tunnel-2-8504”, in appliance, “eh-3500-1”:

```
eh-3500-1 (config) # show tunnel tunnel-2-8504 stats latency  
Tunnel tunnel-2-8504 QOS 0 Latency Metrics:  
Minimum Round Trip Time : 0  
Maximum Round Trip Time : 4  
Average Round Trip Time : 0  
eh-3500-1 (config) #  
  
Byte Overload on Flow: 0  
Queue Time Exceeded: 0  
eh-3500-1 (config) #
```

# show usernames

## Description

Use the **show usernames** command to display a list of user accounts.

## Syntax

**show usernames**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show usernames
Chris      Capability: admin      Password set
admin      Capability: admin      Password set
monitor    Capability: monitor   Password set
Tallinn (config) #
```

# show users

## Description

Use the **show users** command to display a list of the users that are currently logged in to the appliance.

## Syntax

**show users**

**show users history [username <username>]**

## Arguments

**history** Displays login history for all users.

**history username <username>** Displays login history for a specific username.

---

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To display which users are currently logged in:

```
Tallinn2 (config) # show users
Line      User          Host          Login Time      Idle
pts/0     admin         172.20.41.92  2009/01/12 12:37:47  0s
Total users: 1
```

To display the login history for the user, “admin”:

```
Tallinn2 (config) # show users history username admin
admin    ttyS0          Thu Dec 11 13:50  still logged in
admin    ttyS0          Thu Dec 11 12:47 - 13:50  (01:03)
admin    ttyS0          Thu Dec 11 11:48 - 12:03  (00:15)
admin    ttyS0          Wed Dec 10 17:13 - 18:14  (01:00)
admin    ttyS0          Tue Dec  9 21:49 - 22:33  (00:44)
admin    ttyS0          Tue Dec  9 20:31 - 20:56  (00:24)
wtmp begins Tue Dec  9 20:31:45 2008
```

# show version

## Description

Use the **show version** command to display version information for current system image.

## Syntax

**show version [concise]**

## Arguments

<b>concise</b>	Displays concise version information.
----------------	---------------------------------------

---

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

To display verbose version information, use the **show version** command without an argument .

## Examples

- To display version information for the current system image:

```
Tallinn (config) # show version
Product name:      NX Series Appliance
Product release:   2.0.0.0_15619
Build ID:          #1-dev
Build date:        2007-06-07 20:00:58
Build arch:        x86_64
Built by:          root@bigchief

Uptime:            24m 40s

Product model:    NX3500
System memory:    3469 MB used / 591 MB free / 4061 MB total
Number of CPUs:   1
CPU load averages: 0.39 / 0.20 / 0.19
```

```
Tallinn (config) #
```

- To display concise version information for the appliance, “Tallinn”:

```
Tallinn (config) # show version concise
hidalgo 2.0.0.0_15619 #1-dev 2007-06-07 20:00:58 x86_64
root@bigchief:unknown
Tallinn (config) #
```

# show vlan

## Description

Use the **show vlan** command to display VLAN information.

## Syntax

**show vlan**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

This is in Standard 4-port mode with two IPs:

```
[admin@SP1]# show vlan
```

Tag	Interface	IP Nexthop	Second Nexthop
206	bvi0.206	80.80.80.1/24	80.80.80.2
70	bvi0.70	70.70.70.1/24	70.70.70.2

# show vrrp

## Description

Use the **show vrrp** command to display VRRP information for all instances on all configured interfaces.

## Syntax

**show vrrp [brief | configured]**

## Arguments

<b>brief</b>	Displays brief running state information for all VRRP instances.
<b>configured</b>	Displays configured information for all VRRP instances.

---

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

The **show vrrp** command with no argument displays VRRP information for all instances on all interfaces.

## Examples

```
buenosaires (config) # show vrrp
VRRP Interface wan0 - Group 4
Virtual IP address:           1.2.3.4
Advertisement interval: 1 secs
Holddown Timer: 200 secs
Admin: up
Preemption Enabled: yes
Priority (configured): 128
Authentication String:
Description String:
Packet Trace Enabled: no
IP Address Owner: no
Current Priority: 128
Current State: init
State Uptime: 0 days 0 hrs 23 mins 19 secs
Master State Transitions: 0
Master IP address: 0.0.0.0
Virtual Mac Address: 00:00:00:00:00:00
```

# show wccp

## Description

Use the **show wccp** command to display Web Cache Communications Protocol (WCCP) settings.

## Syntax

**show wccp**

**show wccp <51-255>**

**show wccp [configured | detail]**

**show wccp <51-255> [assignment | configured | detail]**

## Arguments

<b>wccp &lt;51-255&gt;</b>	Specifies a WCCP service group ID.
<b>assignment</b>	Displays the details of a WCCP service group.
<b>configured</b>	Displays a configured WCCP service group.
<b>detail</b>	Displays details for a configured WCCP service group.
<b>view</b>	Displays a configured WCCP service group in view.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

Use the **show wccp** command without an argument to display global WCCP information.

## Examples

- To show an appliance's global WCCP information:

```
Sicily (config) # show wccp
Global WCCP information
```

```

Appliance information:
  Appliance Identifier:      172.30.2.34
  Protocol Version:
  Multicast TTL:            5
  Admin State:              Disabled

% There are no configured WCCP service groups.

```

- To display the configuration for the WCCP service group, 51:

```

Tallinn2 (config) # show wccp 51 configured
Service Identifier: 51
  Admin State:          up
  Interface:            wan0
  Appliance Identifier:
  Router IP address:   10.10.10.7
  Protocol:             tcp
  Weight:               100
  Priority:             128
  Policy Group:         300
  Password:

  Forwarding Method:    either
  Force-L2-Return:       no
  Assignment Method:    either
  Assignment Detail:    lan-ingress
  HASH Assignments
    hash-srcip:          yes
    hash-dstip:          no
    hash-srcport:        no
    hash-dstport:        no
  MASK Assignments
    mask-srcip:          0x00001741
    mask-dstip:          0x00000000
    mask-srcport:        0x0000
    mask-dstport:        0x0000

```

```
Tallinn2 (config) #
```

- To show the compatibility mode of WCCP service group 98:

```

paris (config) # show wccp 98 configured
Service Identifier: 98
  Admin State:          up
  Interface:            wan0
  Appliance Identifier: 6.6.6.1
  Router IP address:   6.6.6.101
  Protocol:             tcp
  Weight:               100
  Priority:             128

```

```
Policy Group:          300
Password:              -
Compatibility Mode:   nexus

Forwarding Method:    either
Force-L2-Return:      no
Assignment Method:    either
Assignment Detail:    lan-ingress
    HASH Assignments
        hash-srcip:      yes
        hash-dstip:      no
        hash-srcport:    no
        hash-dstport:    no
    MASK Assignments
        mask-srcip:      0x00001741
        mask-dstip:      0x00000000
        mask-srcport:    0x0000
        mask-dstport:    0x000
paris (config) #
```

# show web

## Description

Use the **show web** command to display Web user interface configuration and status.

## Syntax

**show web**

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

```
Tallinn (config) # show web
Web User Interface enabled: yes
    HTTP port:      80
    HTTP enabled:   yes
    HTTPS port:     443
    HTTPS enabled: yes
    Inactivity timeout: 30 minutes
    Max Web user sessions: 10
    Active Web user sessions: 1
Tallinn (config) #
```

## show whoami

### Description

Use the **show whoami** command to display the identity and capabilities of the current user.

### Syntax

**show whoami**

### Arguments

None

### Defaults

None

### Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

```
Tallinn2 > show whoami
Current user: admin
Capabilities: admin
Tallinn2 >
```

## Alarm Commands

This section describes alarm commands. Alarm commands display alarms and event logging information.

# alarms

## Description

Use the **alarms** command to manage the alarms in the system.

## Syntax

**alarms {acknowledge | unacknowledge} <alarm sequence number>**

**alarms clear <alarm sequence number>**

## Arguments

<b>acknowledge</b>	Acknowledges an alarm in the system.
<b>clear</b>	Clears an alarm in the system.
<b>unacknowledge</b>	Unacknowledges an alarm in the system.
<b>&lt;alarm sequence number&gt;</b>	Specifies the sequence number of the alarm.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

For a list of current alarms, use the following command:

```
(config) # show alarms outstanding
Tallinn (config) # show alarms outstanding
# Seq Date Type Sev A Source Description
--- --- -----
1 5 2007/06/19 19:23:54 EQU MAJ N system Datapath Gateway Connectivity
Test Failed
2 4 2007/06/19 19:21:58 TUN CRI N HQ-to-Branch Tunnel state is Down
3 2 2007/06/19 19:20:44 EQU MAJ N wan0 Network Interface Link Down
```

The *alarm sequence number* is **not** the same as the *alarm ID* number.

## Examples

None

# logging

## Description

Use the **logging <IP Address>** command to configure event logging to a specific syslog server.

Use the **no** form of this command to abstain from sending event log messages to this server.

## Syntax

**logging <IP address>**

**no logging <IP address>**

**logging <IP address> facility {<facility level> | all}**

**no logging <IP address> facility {<facility level> | all}**

**logging <IP address> trap <severity level>**

## Arguments

**logging <IP address>** Specifies the IP address to which you want to log events.

**facility <facility level>** Specifically sets the facility for messages to this syslog server to one of the following: Local 0, Local 1, Local 2, Local 3, Local 4, Local 5, Local 6, or Local 7

**facility all** Specifies all facilities.

**trap <severity level>** Sets the minimum severity of log messages saved to this syslog server. You can choose from the following severity options:

**none** Disables logging

**emerg** Emergency: system is unusable

**alert** Action must be taken immediately

**crit** Critical conditions

**err** Error conditions

**warning** Warning conditions

**notice** Normal but significant condition

**info** Informational messages

**debug** Debug-level messages

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To configure the server, 10.10.4.4, to not receive any event logs:

```
(config) # no logging 10.10.4.4
```

# logging facility

## Description

Use the **logging facility** command to configure event logging to a specific syslog server.

## Syntax

**logging facility auditlog <facility level>**

**logging facility flow <facility level>**

**logging facility node {local0 | local1 |local2 |local3 |local4 |local5 |local6 |local7}**

**logging facility system<facility level>**

## Arguments

<facility level>	Specifically sets the facility for messages to this syslog server to one of the following: Local 0, Local 1, Local 2, Local 3, Local 4, Local 5, Local 6, or Local 7
<b>auditlog</b>	Specifies the log facility setting for audit log.
<b>flow</b>	Specifies the log facility setting for flow.
<b>node</b>	Specifies the log facility setting for the node.
<b>system</b>	Specifies the log facility setting for the system.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# logging files

## Description

Use the **logging files** command to configure settings for local log files.

## Syntax

**logging files rotation criteria frequency {daily | weekly | monthly}**

**logging files rotation criteria size <size in megabytes>**

**logging files rotation criteria size-pct <percentage>**

**logging files rotation force**

**logging files rotation max-num <number of files>**

**logging files upload <filename> <URL or scp://username:password@hostname/path/filename>**

**logging files upload cancel**

## Arguments

**rotation criteria frequency**

Rotates log files on a fixed, time-based schedule:

- **daily** = once per day at midnight
- **weekly** = once per week
- **monthly** = on the first day of every month

**rotation criteria size <megabytes>**

Rotates log files when they surpass a size threshold, in megabytes.

**rotation criteria size-pct <percentage>**

Rotates log files when they surpass a specified percentage of /var partition size per log file.

**rotation force**

Forces an immediate rotation of the log files.

**rotation max-num <number of files>**

Specifies the maximum amount of log files to keep. The value must be between 0 and 4294967295.

**upload <filename>**

Specifies which log file to upload to a remote host.

<b>upload &lt;URL or scp://username:password@hostname/path/filename&gt;</b>	Determines the path for a remote host. Optionally, you can specify a new destination filename.
<b>upload cancel</b>	Cancels the current asynchronous file upload.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

- To delete the four oldest local log files:

```
(config) # logging files delete oldest 4
```

- To keep the most recent 350 local log files:

```
(config) # logging files rotation max-num 350
```

- To upload the log file, "messages" to an account at the remote SCP host, "ocean", and rename the file to "messages\_April2007":

```
(config) # logging files upload messages
scp://root:seminole@ocean/tmp/messages_April2007
```

- To upload the log file, "messages.2.gz" to the URL, www.catchall.com/tmp/, and keep the original file name:

```
(config) # logging files upload messages.2.gz www.catchall.com/tmp/
```

- To rotate the log files when the /var partition surpasses 85% per log file:

```
(config) # logging files rotation criteria size-pct 85
```

# logging local

## Description

The **logging local** command sets minimum severity of log messages saved on the local disk.

Use the **no** form of this command to negate writing event log messages to the local disk.

## Syntax

**logging local <severity level>**

**no logging local**

## Arguments

<b>local &lt;severity level&gt;</b>	Sets the minimum severity of log messages saved on the local disk. You can choose from the following severity options:
<b>none</b>	Disables logging
<b>emerg</b>	Emergency: system is unusable
<b>alert</b>	Action must be taken immediately
<b>crit</b>	Critical conditions
<b>err</b>	Error conditions
<b>warning</b>	Warning conditions
<b>notice</b>	Normal but significant condition
<b>info</b>	Informational messages
<b>debug</b>	Debug-level messages

---

## Defaults

None

## Command Mode

- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

To disable local logging of all events related to system resources, use one of the following two commands:

```
(config) # logging local override class system priority none
(config) # no logging local override class system
```

# logging trap

## Description

Use the **logging trap** to set the minimum severity of log messages sent to **all** syslog servers.

Use the **no** form of this command to negate sending events to all syslog servers.

## Syntax

**logging trap <severity level>**

**no logging trap**

## Arguments

<b>trap &lt;severity level&gt;</b>	Specifies the minimum severity of log messages sent to all syslog servers. You can choose from the following severity options:
<b>none</b>	Disables logging
<b>emerg</b>	Emergency: system is unusable
<b>alert</b>	Action must be taken immediately
<b>crit</b>	Critical conditions
<b>err</b>	Error conditions
<b>warning</b>	Warning conditions
<b>notice</b>	Normal but significant condition
<b>info</b>	Informational messages
<b>debug</b>	Debug-level messages

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

To set the minimum severity level of log messages sent to all syslog servers to “critical”:

```
(config) # logging trap crit
```

## Troubleshooting Commands

This section describes the troubleshooting commands. These commands allow you to troubleshoot Silver Peak appliances and your network.

# debug generate dump

## Description

Use the **debug generate dump** command to generate files that are useful for debugging the system. These are also commonly known as “sysdump” files.

## Syntax

```
debug generate dump
```

## Arguments

None

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# flow-debug

## Description

Use the **flow-debug** command to configure the flow debugging feature to isolate a single flow.

Use the **no** form of this command to remove the previous criteria for isolating a specific flow.

## Syntax

**flow-debug {disable | enable}**

**flow-debug flow-id <flow-id>**

**no flow-debug flow-id <flow-id>**

**flow-debug ip1 {<ip address> | any} ip2 {<ip address> | any} protocol {<1..255> | any}**  
**no flow-debug ip1 <ip address> ip2 <ip address> protocol <1..255>**

**flow-debug ip1 {<ip address> | any} ip2 {<ip address> | any} protocol {<1..255> | any}**  
**port1 {<port number> | any} port2 {<port number> | any}**

**no flow-debug ip1 <ip address> ip2 <ip address> protocol <1..255> port1 <port number> port2 <port number>**

**flow-debug reset**

## Arguments

<b>disable</b>	Disables flow debugging feature.
<b>enable</b>	Enables flow debugging feature.
<b>flow-id &lt;flow-id&gt;</b>	Specifies a flow ID for the flow specifier.
<b>ip1 &lt;ip address&gt;</b>	Specifies IP1 for the flow specifier.
<b>ip2 &lt;ip address&gt;</b>	Specifies IP2 for the flow specifier.
<b>protocol &lt;1..255&gt;</b>	Specifies the protocol for the flow specifier.
<b>port1 &lt;port number&gt;</b>	Specifies the port number of the first endpoint.
<b>port2 &lt;port number&gt;</b>	Specifies the port number of the second endpoint.
<b>any</b>	<b>any</b> is a wildcard.
<b>reset</b>	Resets flow debugging data.

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

The **flow-debug** commands let you narrow down to a single flow and then generate output about that flow. You can isolate a flow by using the flow's ID number or by entering specifics about the endpoints, protocol, and/or ports. When more than one flow fit the criteria you specify, then the first match is what displays.

Generally, you first specify the flow, then **enable** it, and finally, use the **show flow-debug** command to generate the informational output.

You can enable and disable at will. Once you've specified a flow, it remains the target flow until you specify another flow.

## Examples

None

# hping2

## Description

Use the **hping2** command to send and analyze TCP, UDP, ICMP, and RAW-IP packets to a specified host.

## Syntax

**hping2 <hping2 options> <destination>**

## Arguments

**<hping2 options>** Specifies the type of **hping2**. Select one of the following options:

<b>-h</b>	--help	Show this help.
<b>-v</b>	--version	Show version
<b>-c</b>	--count	Packet count
<b>-i</b>	--interval wait --fast	(uX for X microseconds, for example <b>-i u1000</b> ). Alias for <b>-i u1000</b> (10 packets for second)
<b>-n</b>	--numeric	Numeric output
<b>-q</b>	--quiet	Quiet
<b>-I</b>	--interface	Interface name (otherwise default routing interface)
<b>-V</b>	--verbose	Verbose mode
<b>-D</b>	--debug	Debugging info
<b>-z</b>	--bind	Bind <b>CTRL+z</b> to ttl (default to destination port)
<b>-Z</b>	--unbind	Unbind <b>CTRL+z</b>

---

## MODE

Default mode = TCP

<b>-0</b>	--rawip	RAW IP mode
<b>-1</b>	--icmp	ICMP mode
<b>-2</b>	--udp	UDP mode
<b>-8</b>	--scan	SCAN mode
<b>-9</b>	--listen	Listen mode

---

**IP**

<b>-a</b>	--spoof	Spoof source address
	--rand-dest	Random destination address mode. See the man.
	--rand-source	Random source address mode. See the man.
<b>-t</b>	--ttl ttl	(default 64)
<b>-N</b>	--id id	(default random)
<b>-W</b>	--winid	Use win* id byte ordering.
<b>-r</b>	--rel	Relativize id field (to estimate host traffic)
<b>-f</b>	--frag	Split packets in more frag. (may pass weak acl)
<b>-x</b>	--morefrag	Set more fragments flag.
<b>-y</b>	--dontfrag	Set don't fragment flag.
<b>-g</b>	--fragoff	Set the fragment offset.
<b>-m</b>	--mtu	Set virtual mtu, implies --frag if packet size > mtu.
<b>-o</b>	--tos	Type of service (default 0x00), try --tos help
<b>-G</b>	--rroute	Includes RECORD_ROUTE option and displays the route buffer.
	--lsrr	Loose source routing and record route.
	--ssrr	Strict source routing and record route.
<b>-H</b>	--ipproto	Set the IP protocol field, only in RAW IP mode.

**ICMP**

<b>-C</b>	--icmptype	icmp type (default echo request)
<b>-K</b>	--icmpcode	icmp code (default 0)
	--force-icmp	Send all ICMP types (default send only supported types).
	--icmp-gw	Set gateway address for ICMP redirect (default 0.0.0.0).
	--icmp-ts	Alias for --icmp --icmptype 13 (ICMP timestamp)
	--icmp-addr	Alias for --icmp --icmptype 17 (ICMP address subnet mask)
	--icmp-help	Display help for others icmp options.

## UDP/TCP

<b>-s</b>	--baseport	Base source port (default random).
<b>-p</b>	--destport	[+][+]<port> destination port (default 0) CTRL+Z. inc/dec.
<b>-k</b>	--keep	Keep still source port.
<b>-w</b>	--win	winsize (default 64)
<b>-O</b>	--tcpoff	Set fake tcp data offset (instead of tcphdrlen / 4).
<b>-Q</b>	--seqnum	Shows only TCP sequence number
<b>-b</b>	--badcksum	(Try to) send packets with a bad IP checksum. Many systems will fix the IP checksum sending the packet so you'll get bad UDP/TCP checksum instead.
<b>-M</b>	--setseq	Set TCP sequence number.
<b>-L</b>	--setack	Set TCP ack.
<b>-F</b>	--fin	Set FIN flag.
<b>-S</b>	--syn	Set SYN flag.
<b>-R</b>	--rst	Set RST flag.
<b>-P</b>	--push	Set PUSH flag.
<b>-A</b>	--ack	Set ACK flag.
<b>-U</b>	--urg	Set URG flag.
<b>-X</b>	--xmas	Set X unused flag (0x40).
<b>-Y</b>	--ymas	Set Y unused flag (0x80).
	--tcpexitcode	Use last tcp->th_flags as exit code.
	--tcp-timestamp	Enable the TCP timestamp option to guess the HZ/uptime.

---

## Common

<b>-d</b>	--data	data size (default is 0)
<b>-E</b>	--file	data from file
<b>-e</b>	--sign	add 'signature'
<b>-j</b>	--dump	dump packets in hex
<b>-J</b>	--print	dump printable characters
<b>-B</b>	--safe	enable 'safe' protocol
<b>-u</b>	--end	tell you when --file reached EOF and prevent rewind
<b>-T</b>	--traceroute	traceroute mode (implies --bind and --ttl 1)
	--tr-stop	Exit when receive the first not ICMP in traceroute mode
	--tr-keep-ttl	Keep the source TTL fixed, useful to monitor just one hop
	--tr-no-rtt	Don't calculate/show RTT information in traceroute mode

## ARS packet description (new, unstable)

	--apd-send	Send the packet described with APD
<i>&lt;destination&gt;</i>	Specifies the IP address of the destination that you are pinging.	

## Defaults

The default mode is **TCP**.

## Command Mode

- User EXEC mode
- Privileged EXEC mode
- Global Configuration Mode

## Usage Guidelines

- **hping2** is a command-line oriented TCP/IP packet assembler/analyzer.
- The interface is inspired by the ping unix command, but hping2 isn't limited to sending ICMP echo requests. It supports TCP, UDP, ICMP, and RAW-IP protocols, and has a traceroute mode.

## Examples

None

# mtr

## Description

Use the **mtr** command to probe and report on routers and their response time on an individual route path.

## Syntax

```
mtr [-hvrcglspniu46] [--help] [--version] [--report] [--report-wide] [--report-cycles COUNT] [--curses] [--split] [--raw] [--no-dns] [--gtk] [--address IP.ADD.RE.SS] [--interval SECONDS] [--psize BYTES | -s BYTES] HOSTNAME [PACKETSIZE]
```

## Arguments

< <i>mtr options</i> >	Specifies the type of <b>mtr</b> . Select one of the following options:
<b>-h</b>	<i>help</i> . Print the summary of command line argument options.
<b>-v</b>	<i>version</i> . Print the installed version of <b>mtr</b> .
<b>-r</b>	<i>report</i> . This option puts <b>mtr</b> into report mode. When in this mode, <b>mtr</b> will run for the number of cycles specified by the <b>-c</b> option, and then print statistics and exit. This mode is useful for generating statistics about network quality. Note that each running instance of <b>mtr</b> generates a significant amount of network traffic. Using <b>mtr</b> to measure the quality of your network may result in decreased network performance.
<b>-w</b>	<i>report-wide</i> . This option puts <b>mtr</b> into wide report mode. When in this mode, <b>mtr</b> will not cut hostnames in the report.
<b>-c</b>	<i>report-cycles COUNT</i> . Use this option to set the number of pings sent to determine both the machines on the network and the reliability of those machines. Each cycle lasts one second.
<b>-s</b>	<i>BYTES</i> , <b>-psize BYTES</b> , <b>-PACKETSIZE</b> . These options or a trailing <b>PACKETSIZE</b> on the command line sets the packet size used for probing. It is in bytes inclusive IP and ICMP headers. If set to a negative number, every iteration will use a different, random packet size up to that number.
<b>-t</b>	<i>curses</i> . Use this option to force <b>mtr</b> to use the curses based terminal interface (if available).
<b>-n</b>	<i>no-dns</i> . Use this option to force <b>mtr</b> to display numeric IP numbers and not try to resolve the host names.
<b>-o</b>	<i>fields order</i> . Use this option to specify the fields and their order when loading <b>mtr</b> . Example: <b>-o "LSD NBAW"</b>
<b>-g</b>	<i>gtk</i> . Use this option to force <b>mtr</b> to use the GTK+ based X11 window interface (if available). GTK+ must have been available on the system when <b>mtr</b> was built for this to work. See the GTK+ web page at <a href="http://www.gimp.org/gtk/">http://www.gimp.org/gtk/</a> for more information about GTK+.

- p *split*. Use this option to set **mtr** to spit out a format that is suitable for a split-user interface.
  - l *raw*. Use this option to tell **mtr** to use the raw output format. This format is better suited for archival of the measurement results. It could be parsed to be presented into any of the other display methods.
  - a *address IP.ADD.RE.SS*. Use this option to bind outgoing packets' socket to specific interface, so that any packet will be sent through this interface.  
NOTE that this options doesn't apply to DNS requests (which could be and could not be what you want).
  - i *interval SECONDS*. Use this option to specify the positive number of seconds between ICMP ECHO requests. The default value for this parameter is one second.
  - u Use UDP diagrams instead of ICMP ECHO.
  - 4 Use IPv4 only.
  - 6 Use IPv6 only.
- 

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

- **mtr** combines the functionality of traceroute and ping in a single network diagnostic tool.
- **mtr** probes routers on the route path by limiting the number of hops that individual packets may traverse, and listening to responses of their expiry.  
  
It regularly repeats this process, usually once per second, and keep track of the response times of the hops along the path.
- **mtr** combines the functionality of the **traceroute** and **ping** programs in a single network diagnostic tool.
- [*from Linux man page*] As **mtr** starts, it investigates the network connection between the host **mtr** runs on and **HOSTNAME**, by sending packets with purposely low TTLs. It continues to send packets with low TTL, noting the response time of the intervening routers. This allows **mtr** to print the response percentage and response times of the internet route to **HOSTNAME**. A sudden increase in packet loss or response time is often an indication of a bad (or simply overloaded) link.

## Examples

```
tallinn3 (config) # mtr
                           My traceroute [v0.75]
tallinn3 (0.0.0.0)                                     Tue
Sep 21 02:03:12 2010
Keys: Help     Display mode    Restart statistics   Order of fields   quit
                                         Packets

Pings
Host
Avg Best Wrst StDev      Loss% Snt Last
1. localhost              0.0% 66  0.0
0.0  0.0  0.0  0.0
```

# ping

## Description

Use the **ping** command to send Internet Control Message Protocol (ICMP) echo requests to a specified host.

## Syntax

**ping** <*ping options*> <*destination*>

## Arguments

< <i>ping options</i> >	Specifies the type of ping. Select one of the following options:
-a	Audible ping.
-A	<i>Adaptive ping</i> . Interpacket interval adapts to round-trip time, so that effectively not more than one (or more, if preload is set) unanswered probes present in the network. Minimal interval is 200 msec if not super-user. On networks with low rtt this mode is essentially equivalent to flood mode.
-b	Allow pinging a broadcast address.
-B	Do not allow ping to change source address of probes. The address is bound to the one selected when ping starts.
-c	<i>count</i> : Stop after sending <i>count</i> ECHO_REQUEST packets. With deadline option, ping waits for <i>count</i> ECHO_REPLY packets, until the time-out expires.
-d	Set the SO_DEBUG option on the socket being used. This socket option is unused.
-F	<i>flow label</i> : Allocate and set 20 bit flow label on echo request packets. If value is zero, kernel allocates random flow label.
-f	<i>Flood ping</i> . For every ECHO_REQUEST sent a period “.” is printed, while for ever ECHO_REPLY received a backspace is printed. This provides a rapid display of how many packets are being dropped. If interval is not given, it sets interval to zero and outputs packets as fast as they come back or one hundred times per second, whichever is more. Only the super-user may use this option with zero interval.
-i	<i>interval</i> : Wait <i>interval</i> seconds between sending each packet. The default is to wait for one second between each packet normally, or not to wait in flood mode. Only super-user may set interval to values less 0.2 seconds.
-I	<i>interface address</i> : Set source address to specified interface address. Argument may be numeric IP address or name of device.

- I      *preload*: If preload is specified, ping sends that many packets not waiting for reply. Only the super-user may select preload more than 3.
  - L      Suppress loopback of multicast packets. This flag only applies if the ping destination is a multicast address.
  - n      Numeric output only. No attempt will be made to lookup symbolic names for host addresses.
  - p      *pattern*: You may specify up to 16 “pad” bytes to fill out the packet you send. This is useful for diagnosing data-dependent problems in a network. For example, -p ff will cause the sent packet to be filled with all ones.
    - -Qtos: Set Quality of Service -related bits in ICMP datagrams. tos can be either decimal or hex number.  
Traditionally (RFC1349), these have been interpreted as: 0 for reserved (currently being redefined as congestion control), 1-4 for Type of Service and 5-7 for Precedence.
    - Possible settings for Type of Service are: minimal cost: 0x02, reliability: 0x04, throughput: 0x08, low delay: 0x10.
    - Multiple TOS bits should not be set simultaneously.
    - Possible settings for special Precedence range from priority (0x20) to net control (0xe0). You must be root (CAP\_NET\_ADMIN capability) to use Critical or higher precedence value. You cannot set bit 0x01 (reserved) unless ECN has been enabled in the kernel.
    - In RFC2474, these fields has been redefined as 8-bit Differentiated Services (DS), consisting of: bits 0-1 of separate data (ECN will be used, here), and bits 2-7 of Differentiated Services Codepoint (DSCP).
  - q      *Quiet output*. Nothing is displayed except the summary lines at startup time and when finished.
  - R      *Record route*. Includes the RECORD\_ROUTE option in the ECHO\_REQUEST packet and displays the route buffer on returned packets. Note that the IP header is only large enough for nine such routes. Many hosts ignore or discard this option.
  - r      Bypass the normal routing tables and send directly to a host on an attached interface. If the host is not on a directly attached network, an error is returned. This option can be used to ping a local host through an interface that has no route through it provided the option -l is also used.
-

<b>-s</b>	<i>packetsize</i> : Specifies the number of data bytes to be sent. The default is 56, which translates into 64 ICMP data bytes when combined with the 8 bytes of ICMP header data.
<b>-S</b>	<i>sndbuf</i> : Set socket sndbuf. If not specified, it is selected to buffer not more than one packet.
<b>-t ttl</b>	Set the IP Time to Live.
<b>-T</b>	<i>timestamp option</i> : Set special IP timestamp options. timestamp option may be either tsonly (only timestamps), tsandaddr (timestamps and addresses) or tspspec host1 [host2 [host3 [host4]]] (timestamp prespecified hops).
<b>-M</b>	<i>hint</i> : Select Path MTU Discovery strategy. hint may be either do (prohibit fragmentation, even local one), want (do PMTU discovery, fragment locally when packet size is large), or dont (do not set DF flag).
<b>-U</b>	Print full user-to-user latency (the old behavior). Normally ping prints network round trip time, which can be different f.e. due to DNS failures.
<b>-v</b>	Verbose output.
<b>-V</b>	Show version and exit.
<b>-w</b>	<i>deadline</i> : Specify a timeout, in seconds, before ping exits regardless of how many packets have been sent or received. In this case ping does not stop after count packet are sent, it waits either for deadline expire or until count probes are answered or for some error notification from network. Specifies the IP address of the destination that you are pinging.

## Defaults

None

## Command Mode

- User EXEC Mode
- Privileged EXEC Mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# selftest

## Description

Use the **selftest** command to run a self test and diagnostics.

## Syntax

**selftest start disk**

**selftest stop disk**

## Arguments

**start disk** Starts a disk self test operation.

**stop disk** Stops a disk self test operation..

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

When you enter , the following message appears:

This is an intrusive self test. This test will put the system in bypass mode and perform read/write operations on the disks. The system will not process any network traffic for the duration of the test. At the end of the test, you need to reboot the system. While the test is running, if you attempt to run other commands, you will receive errors.

Do you want to proceed? (y/n) [*If you don't respond, the question times out.*]

Disk self test has been canceled.

## Examples

None

# slogin

## Description

Use the **slogin** command to securely log into another system using Secure Shell (SSH).

## Syntax

**slogin <slogin options> [<user@>] <hostname> [<command>]**

## Arguments

<i>&lt;slogin options&gt;</i>	Specify one of the following SSH login options:
-a	Disables forwarding of the authentication agent connection.
-A	Enables forwarding of the authentication agent connection. This can also be specified on a per-host basis in a configuration file. Agent forwarding should be enabled with caution. Users with the ability to bypass file permissions on the remote host (for the agent's Unix-domain socket) can access the local agent through the forwarded connection. An attacker cannot obtain key material from the agent, however they can perform operations on the keys that enable them to authenticate using the identities loaded into the agent.
-b	<i>bind_address</i> : Specify the interface to transmit from on machines with multiple interfaces or aliased addresses.
-c	<i>cipher_spec</i> : Additionally, for protocol version 2 a comma-separated list of ciphers can be specified in order of preference.
-e	<b>ch   ^ch   none</b> : Sets the escape character for sessions with a pty (default: ~). The escape character is only recognized at the beginning of a line. The escape character followed by a dot (.) closes the connection, followed by control-Z suspends the connection, and followed by itself sends the escape character once. Setting the character to Nonefully transparent.
-f	Requests ssh to go to background just before command execution. This is useful if ssh is going to ask for passwords or passphrases, but the user wants it in the background. This implies -n. The recommended way to start X11 programs at a remote site is with something like ssh -f host xterm.
-g	Allows remote hosts to connect to local forwarded ports.
-i	<i>identity_file</i> : Selects a file from which the private key for RSA or DSA authentication is read. Default is \$HOME/.ssh/identity (protocol version 1) and \$HOME/.ssh/id_rsa and \$HOME/.ssh/id_dsa (protocol version 2). Identity files may also be specified on a per-host basis in the configuration file. Multiple -i options are permitted, along with multiple identities specified in configuration files.

- k** Disables forwarding of Kerberos tickets and AFS tokens. This may also be specified on a per-host basis in the configuration file.
  - l** *login\_name*: Specifies the user to log in as on the remote machine. This also may be specified on a per-host basis in the configuration file.
  - m** *mac\_spec*: Additionally, for protocol version 2 a comma-separated list of MAC (message authentication code) algorithms can be specified in order of preference.
  - n** Redirects stdin from **/dev/null** (actually, prevents reading from stdin). This must be used when ssh is run in the background. A common trick is to use this to run X11 programs on a remote machine. For example, ssh -n shadows.cs.hut.fi emacs and will start an emacs on shadows.cs.hut.fi, and the X11 connection will be automatically forwarded over an encrypted channel. The ssh program will be put in the background. (This does not work if ssh needs to ask for a password or passphrase; see also the **-f** option.)
  - N** Do not execute a remote command. This is useful for just forwarding ports (protocol version 2 only).
  - o** *option*: Can be used to give options in the format used in the configuration file. This is useful for specifying options for which there is no separate command-line flag.
  - p** *port*: Port to connect to on the remote host. This can be specified on a per-host basis in the configuration file.
  - q** *Quiet mode*. Causes all warning and diagnostic messages to be suppressed.
  - s** May be used to request invocation of a subsystem on the remote system. Subsystems are a feature of the SSH2 protocol which facilitate the use of SSH as a secure transport for other applications (for example, sftp). The subsystem is specified as the remote command.
  - t** Force pseudo-tty allocation. This can be used to execute arbitrary screen-based programs on a remote machine, which can be very useful, for example, when implementing menu services. Multiple **-t** options force tty allocation, even if ssh has no local tty.
  - T** Disable pseudo-tty allocation.
  - v** *Verbose mode*. Causes ssh to print debugging messages about its progress. This is helpful in debugging connection, authentication, and configuration problems. Multiple **-v** options increases the verbosity. Maximum is 3.
  - V** Display the version number and exit.
-

- X** Disables X11 forwarding.
- X** Enables X11 forwarding. This can also be specified on a per-host basis in a configuration file. X11 forwarding should be enabled with caution. Users with the ability to bypass file permissions on the remote host (for the user's X authorization database) can access the local X11 display through the forwarded connection. An attacker may then be able to perform activities such as keystroke monitoring.
- Y** Enables trusted X11 forwarding. Trusted X11 forwardings are not subjected to the X11 SECURITY extension controls.
- C** Requests compression of all data (including stdin, stdout, stderr, and data for forwarded X11 and TCP/IP connections). The compression algorithm is the same used by gzip(1), and the *level* CompressionLevel option for protocol version 1. Compression is desirable on modem lines and other slow connections, but will only slow down things on fast networks. The default value can be set on a host-by-host basis in the configuration files.
- F** *configfile*: Specifies an alternative per-user configuration file. If a configuration file is given on the command line, the system-wide configuration file (/etc/ssh/ssh\_config) will be ignored. The default for the per-user configuration file is \$HOME/.ssh/config.
- L** *port:host:hostport*: Specifies that the given port on the local (client) host is to be forwarded to the given host and port on the remote side. This works by allocating a socket to listen to port on the local side, and whenever a connection is made to this port, the connection is forwarded over the secure channel, and a connection is made to host port hostport from the remote machine. Port forwardings can also be specified in the configuration file. Only root can forward privileged ports. IPv6 addresses can be specified with an alternative syntax: port/host/hostport
- R** *port:host:hostport*: Specifies that the given port on the remote (server) host is to be forwarded to the given host and port on the local side. This works by allocating a socket to listen to port on the remote side, and whenever a connection is made to this port, the connection is forwarded over the secure channel, and a connection is made to host port hostport from the local machine. Port forwardings can also be specified in the configuration file. Privileged ports can be forwarded only when logging in as root on the remote machine. IPv6 addresses can be specified with an alternative syntax: port/host/hostport
- D** *port*: Specifies a local dynamic This works by allocating a socket to listen to port on the local side, and whenever a connection is made to this port, the connection is forwarded over the secure channel, and the application protocol is then used to determine where to connect to from the remote machine. Currently the SOCKS4 protocol is supported, and ssh will act as a SOCKS4 server. Only root can forward privileged ports. Dynamic port forwardings can also be specified in the configuration file.

- 1 Forces ssh to try protocol version 1 only.
  - 2 Forces ssh to try protocol version 2 only.
  - 4 Forces ssh to use IPv4 addresses only.
  - 6** Forces ssh to use IPv6 addresses only.
- 

**<user@>** Specifies the name of a user on the remote host.

**<hostname>** Specifies the name or path of the remote host.

**<command>** Specifies a command to execute on the remote system.

---

## Defaults

None

## Command Mode

User EXEC Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# ssh client global

## Description

Use the **ssh client global** command to configure global SSH client settings.

## Syntax

```
ssh client global host-key-check {yes | no | ask}
no ssh client global host-key-check
```

```
ssh client global known-host <known host entry>
no ssh client global known-host <known host entry>
```

```
ssh client global known-hosts-file <filename>
no ssh client global known-hosts-file
```

## Arguments

<b>host-key-check &lt;policy&gt;</b>	Configures global SSH client host key check settings. The policy choices are: <ul style="list-style-type: none"> <li>■ <b>yes</b> Strict host key checking: only permit connection if a matching host key is already in the known hosts file</li> <li>■ <b>no</b> Non-strict host key checking: always permit connection, and accept any new or changed host keys without checking</li> <li>■ <b>ask</b> Medium-strict host key checking: prompt user to accept new host keys, but do not permit a connection if there was already a known host entry that does not match the one presented by the host</li> </ul> Use the <b>no</b> form of this command to reset global SSH client host key check settings.
<b>known-host &lt;known host entry&gt;</b>	Adds a global SSH client known host entry. This can be a hostname or an IP address. Use the <b>no</b> form of this command to remove a global SSH client known host entry by host.
<b>known-hosts-file &lt;filename&gt;</b>	Configures global SSH client known_hosts file settings. Use the <b>no</b> form of this command to rest a global SSH client known_hosts file settings.

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# ssh client user

## Description

Use the **ssh client user** command to configure the SSHv2 RSA authorized key for the specified SSH user.

## Syntax

```
ssh client user <user name> authorized-key sshv2 <public key>
no ssh client user <user name> authorized-key sshv2 <public key>

ssh client user <user name> identity rsa2 {generate | private-key <private key> | public-key <public key>}
no ssh client user <user name> identity rsa2

ssh client user <user name> identity dsa2 {generate | private-key <private key> | public-key <public key>}
no ssh client user <user name> identity dsa2

no ssh client user <user name> identity

ssh client user <user name> known-host <known host> remove
```

## Arguments

<b>user &lt;user name&gt;</b>	Specifies the name of an existing user of the appliance.
<b>authorized-key sshv2 &lt;public key&gt;</b>	Configures SSHv2 an authorized-key for the specified SSH user. Use the <b>no</b> form of this command to negate the authorized-key settings for the specified user.
<b>identity</b>	Sets certain SSH client identity settings for a user. Use the <b>no</b> form of this command to negate the authorized-key settings for the specified user.
<b>rsa2</b>	Specifies the RSAv2 algorithm for public-key encryption.
<b>dsa2</b>	Specifies the Digital Signature Algorithm, version 2 (DSAv2).
<b>generate</b>	Generates SSH client identity keys for specified user.
<b>known-host &lt;known host&gt; remove</b>	Removes the host from the user's known host file.
<b>private-key &lt;private key&gt;</b>	Sets the private key SSH client identity settings for the user.
<b>public-key &lt;public key&gt;</b>	Sets the public key SSH client identity settings for the user.

## Defaults

None

## Command Mode

### Global Configuration Mode

## Usage Guidelines

- To negate the SSHv2 authorized-key settings for a specified user named “Chris”, where the public key ID is “columbus”:

```
(config) # no ssh client user Chris authorized-key sshv2 columbus
```

- To delete all SSH client identity keys for a specified user named “Chris”:

```
(config) # no ssh client user Chris identity
```

- To delete the RSAv2 identity for the user named “Chris”:

```
(config) # no ssh client user Chris identity rsa2
```

## Examples

None

# ssh server

## Description

Use the **ssh server** command to configure the Secure Shell (SSH) server.

## Syntax

**ssh server enable**

**no ssh server enable**

**ssh server host-key <key type> {private-key <private key> | public-key <public key>}**

**ssh server host-key generate**

**ssh server listen enable**

**no ssh server listen enable**

**ssh server listen interface <interface>**

**no ssh server listen interface <interface>**

**ssh server min-version <version number>**

**no ssh server min-version**

**ssh server ports <port> [<port>] [<port>] ...**

## Arguments

### **enable**

Enables Secure Shell (SSH) access to this system.

Use the **no** form of this command to disable SSH access to this system.

### **host-key**

Manipulates the host keys for SSH.

#### **<key type>**

Specifies the type of host keys to create. The choices are:

- **rsa1** RSAv1
- **rsa2** RSAv2
- **dsa2** DSAv2

#### **private-key <private key>**

Sets a new private-key for the host keys of the type you specify.

#### **public-key <public key>**

Sets a new public-key for the host keys of the type you specify.

#### **generate**

Generates new RSA and DSA host keys for SSH.

#### **listen enable**

Enables SSH interface restriction access to this system.

Use the **no** form of this command to disable SSH interface restriction access to this system.

<b>listen interface &lt;interface&gt;</b>	Adds an interface to the SSH server access restriction list. Use the <b>no</b> form of this command to remove the specified interface from the SSH server access restriction list.
<b>min-version &lt;version number&gt;</b>	Sets the minimum version of SSH protocol supported. Use the <b>no</b> form of this command to reset the minimum version of SSH protocol supported.
<b>ports &lt;port&gt; [&lt;port&gt;] [&lt;port&gt;]</b>	Specifies the ports that the SSL server will listen on. When you hit the carriage return, it sets this list as the entire set of SSH server ports, removing all others.
...	

---

## Defaults

None

## Command Mode

Global Configuration Mode

## Usage Guidelines

If you use the optional **listen** argument, then the **ssh server listen enable** command enables SSH interface restriction access to this system.

## Examples

To remove **lan0** from the SSH server access restriction list:

```
(config) # no ssh server listen interface lan0
```

# tcpdump

## Description

Use the **tcpdump** command to display packets on a network.

## Syntax

**tcpdump** [*<tcpdump options>*]

## Arguments

*<tcpdump options>*

Enter one of the following options:

- A Print each packet (minus its link level header) in ASCII. Handy for capturing web pages.
  - c Exit after receiving count packets.
  - C Before writing a raw packet to a savefile, check whether the file is currently larger than file\_size and, if so, close the current savefile and open a new one. Savefiles after the first savefile will have the name specified with the -w flag, with a number after it, starting at 1 and continuing upward. The units of file\_size are millions of bytes (1,000,000 bytes, not 1,048,576 bytes).
  - d Dump the compiled packet-matching code in a human readable form to standard output and stop.
  - dd Dump packet-matching code as a C program fragment.
  - ddd Dump packet-matching code as decimal numbers (preceded with a count).
  - D Print the list of the network interfaces available on the system and on which tcpdump can capture packets. For each network interface, a number and an interface name, possibly followed by a text description of the interface, is printed. The interface name or the number can be supplied to the -i flag to specify an interface on which to capture.
  - e Print the link-level header on each dump line.
-

<b>-E</b>	<p>Use spi@ipaddr algo:secret for decrypting IPsec ESP packets that are addressed to addr and contain Security Parameter Index value spi. This combination may be repeated with comma or newline separation.</p> <ul style="list-style-type: none"> <li>▪ Note that setting the secret for IPv4 ESP packets is supported at this time.</li> <li>▪ Algorithms may be des-cbc, 3des-cbc, blowfish-cbc, rc3-cbc, cast128-cbc, or None. The default is des-cbc. The ability to decrypt packets is only present if tcpdump was compiled with cryptography enabled.</li> <li>▪ <code>secret</code> is the ASCII text for ESP secret key. If preceded by <code>0x</code>, then a hex value will be read.</li> <li>▪ The option assumes RFC2406 ESP, not RFC1827 ESP. The option is only for debugging purposes, and the use of this option with a true ‘secret’ key is discouraged. By presenting IPsec secret key onto command line you make it visible to others, via <code>ps(1)</code> and other occasions.</li> <li>▪ In addition to the above syntax, the syntax file name may be used to have tcpdump read the provided file in. The file is opened upon receiving the first ESP packet, so any special permissions that tcpdump may have been given should already have been given up.</li> </ul>
<b>-f</b>	<p>Print ‘foreign’ IPv4 addresses numerically rather than symbolically.</p>
<b>-F</b>	<p>Use file as input for the filter expression. An additional expression given on the command line is ignored.</p>
<b>-i</b>	<p>Listen on interface. If unspecified, tcpdump searches the system interface list for the lowest numbered, configured up interface (excluding loopback). Ties are broken by choosing the earliest match.</p>
<b>-l</b>	<p>Make stdout line buffered. Useful if you want to see the data while capturing it. For example,</p> <pre>tcpdump -l   tee dat, or tcpdump -l &gt; dat &amp; tail -f dat</pre>

---

- L** List the known data link types for the interface and exit.
- m** Load SMI MIB module definitions from file module. This option can be used several times to load several MIB modules into tcpdump.
- M** Use secret as a shared secret for validating the digests found in TCP segments with the TCP-MD5 option (RFC 2385), if present.
- n** Don't convert host addresses to names. This can be used to avoid DNS lookups.
- nn** Don't convert protocol and port numbers etc. to names either.
- N** Don't print domain name qualification of host names. For example, if you give this flag then tcpdump will print `nic` instead of `nic.ddn.mil`.
- O** Do not run the packet-matching code optimizer. This is useful only if you suspect a bug in the optimizer.
- p** Don't put the interface into promiscuous mode. Note that the interface might be in promiscuous mode for some other reason; hence, **-p** cannot be used as an abbreviation for 'ether host {local-hw-addr} or ether broadcast'.
- q** Quick (quiet?) output. Print less protocol information so output lines are shorter.
- R** Assume ESP/AH packets to be based on old specification (RFC1825 to RFC1829). If specified, tcpdump will not print replay prevention field. Since there is no protocol version field in ESP/AH specification, tcpdump cannot deduce the version of ESP/AH protocol.
- r** Read packets from file (which was created with the **-w** option). Standard input is used if file is `"-"`.
- S** Print absolute, rather than relative, TCP sequence numbers.
- s** Snarf snaplen bytes of data from each packet rather than the default of 68 (with SunOS's NIT, the minimum is actually 96). 68 bytes is adequate for IP, ICMP, TCP and UDP but may truncate protocol information from name server and NFS packets. Packets truncated because of a limited snapshot are indicated in the output with `[[proto]]`, where **proto** is the name of the protocol level at which the truncation has occurred.

Note that taking larger snapshots both increases the amount of time it takes to process packets and, effectively, decreases the amount of packet buffering. This may cause packets to be lost. You should limit snaplen to the smallest number that will capture the protocol information you're interested in. Setting snaplen to 0 means use the required length to catch whole packets.

<b>-T</b>	Force packets selected by “expression” to be interpreted the specified type. Currently known types are:
<b>aodv</b>	(Ad-hoc On-demand Distance Vector protocol)
<b>cnfp</b>	(Cisco NetFlow protocol)
<b>rpc</b>	(Remote Procedure Call)
<b>rtp</b>	(Real-Time Applications protocol)
<b>rtcp</b>	(Real-Time Applications control protocol)
<b>snmp</b>	(Simple Network Management Protocol)
<b>tftp</b>	(Trivial File Transfer Protocol)
<b>vat</b>	(Visual Audio Tool)
<b>wb</b>	(distributed White Board)
<hr/>	
<b>-t</b>	Don’t print a timestamp on each dump line.
<b>-tt</b>	Print an unformatted timestamp on each dump line.
<b>-ttt</b>	Print a delta (in micro-seconds) between current and previous line on each dump line.
<b>-tttt</b>	Print a timestamp in default format proceeded by date on each dump line.
<b>-u</b>	Print undecoded NFS handles.
<b>-U</b>	Make output saved via the <b>-w</b> option “packet-buffered”; that is, as each packet is saved, it will be written to the output file, rather than being written only when the output buffer fills.
 	The <b>-U</b> flag will not be supported if tcpdump was built with an older version of libpcap that lacks the <code>pcap_dump_flush()</code> function.
<b>-v</b>	Parses and prints (slightly more) verbose output. For example, time to live, identification, total length, and options in IP packets are printed. Also enables additional packet integrity checks such as verifying the IP and ICMP header checksum.
 	When writing to a file with the <b>-w</b> option, report, every 10 seconds, the number of packets captured.
<b>-vv</b>	Even more verbose output. For example, additional fields are printed from NFS reply packets, and SMB packets are fully decoded.
<b>-vvv</b>	Even more verbose output. For example, telnet SB... SE options are printed in full. With <b>-X</b> Telnet options are printed in hexl.

---

<b>-W</b>	Write the raw packets to file rather than parsing and printing them out. They can later be printed with the -r option. Standard output is used if file is “-”.
<b>-W</b>	Used in conjunction with the -C option, this will limit the number of files created to the specified number, and begin overwriting files from the beginning, thus creating a ‘rotating’ buffer. In addition, it will name the files with enough leading 0s to support the maximum number of files, allowing them to sort correctly.
<b>-X</b>	Print each packet (minus its link level header) in hex. The smaller of the entire packet or snaplen bytes will be printed. Note that this is the entire link-layer packet, so for link layers that pad (e.g. Ethernet), the padding bytes will also be printed when the higher layer packet is shorter than the required padding.
<b>-XX</b>	Print each packet, including its link level header, in hex.
<b>-X</b>	Print each packet (minus its link level header) in hex and ASCII. This is very handy for analyzing new protocols.
<b>-XX</b>	Print each packet, including its link level header, in hex and ASCII.
<b>-y</b>	Set the data link type to use while capturing packets to datalinktype.
<b>-Z</b>	Drops privileges (if root) and changes user ID to user and the group ID to the primary group of user.

This behavior can also be enabled by default at compile time.

---

## Defaults

None

## Command Mode

Privileged EXEC Mode

Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# tcptraceroute

## Description

Use the **tcptraceroute** command to record route information in environments where traditional ICMP traceroute is defeated by firewalls or other filters.

## Syntax

```
tcptraceroute [-nNFSAE] [-i <interface>] [-f <first ttl>] [-l <packet length>][-q <number of queries>] [-t <tos>]
[-m <max ttl>] [-pP] <source port>] [-s <source address>][-w <wait time>] <host> [destination port] [packet
length]
```

## Arguments

<i>&lt;tcptraceroute options&gt;</i>	Specifies the type of <b>tcptraceroute</b> . Select from the following options:
-n	Display numeric output, rather than doing a reverse DNS lookup for each hop. By default, reverse lookup is not attempted on RFC1918 address space, regardless of -n flag.
-N	Perform a reverse DNS lookup for each hop, including RFC1918 addresses.
-f	Set initial TTL used in first outgoing packet. Default is 1.
-m	Set the maximum TTL used in outgoing packets. Default is 30.
-p	Use the specified local TCP port in outgoing packets. The default is to obtain a free port from the kernel using <i>bind</i> . Unlike with traditional <b>traceroute</b> , this number will not increase with each hop.
-s	Set source address for outgoing packets. See -i flag.
-i	Use the specified interface for outgoing packets.
-q	Set the number of probes to be sent to each hop. Default is 3.
-w	Set the timeout, in seconds, to wait for a response for each probe. Default is 3.
-S	Set the TCP SYN flag in outgoing packets. This is the default, if neither -S or -A is specified.
-A	Set the TCP ACK flag in outgoing packets. By doing so, it is possible to trace through stateless firewalls which permit outgoing TCP connections.
-E	Send ECN SYN packets, as described in RFC2481.

<b>-t</b>	Set the IP TOS (type of service) to be used in outgoing packets. The default is not to set any TOS.
<b>-F</b>	Set the IP "don't fragment" bit in outgoing packets.
<b>-I</b>	Set the total packet length to be used in outgoing packets. If the length is greater than the minimum size required to assemble the necessary probe packet headers, this value is automatically increased.
<b>-d</b>	Enable debugging, which may or may not be useful.
<b>--dnat</b>	Enable DNAT detection, and display messages when DNAT transitions are observed. DNAT detection is based on the fact that some NAT devices, such as some Linux 2.4 kernels, do not correctly rewrite the IP address of the IP packets quoted in ICMP time-exceeded messages tcptraceroute solicits, revealing the destination IP address an outbound probe packet was NATed to. NAT devices which correctly rewrite the IP address quoted by ICMP messages, such as some Linux 2.6 kernels, will not be detected. For some target hosts, it may be necessary to use --dnat in conjunction with --track-port. See the examples.txt file for examples.
<b>--no-dnat</b>	Enable DNAT detection for the purposes of correctly identifying ICMP time-exceeded messages that match up with outbound probe packets, but do not display messages when a DNAT transition is observed. This is the default behavior.
<b>--no-dnat-strict</b>	Do not perform DNAT detection. No attempt is made to match ICMP time-exceeded messages with outbound probe packets. When tracerouting through a NAT device that does not rewrite IP addresses of IP packets quoted in ICMP time-exceeded messages, some hops along the path may appear unresponsive. This option is not needed in the vast majority of cases, but may be utilized if it is suspected that the DNAT detection code is misidentifying ICMP time-exceeded messages.

---

**host <destination port><length>**      The destination port and the packet length.

---

## Defaults

The probe packet length is **40**.

## Command Mode

- User EXEC mode
- Privileged EXEC mode
- Global Configuration Mode

## Usage Guidelines

- **tcptraceroute** is a traceroute implementation using TCP packets.
- The more traditional traceroute sends out either UDP or ICMP ECHO packets with a TTL of one, and increments the TTL until the destination has been reached. By printing the gateways that generate ICMP time exceeded messages along the way, it is able to determine the path packets are taking to reach the destination.
- The problem is that with the widespread use of firewalls on the modern Internet, many of the packets that **traceroute** sends out end up being filtered, making it impossible to completely trace the path to the destination.

However, in many cases, if hosts sitting behind the firewall are listening for connections on specific ports, then these firewalls will permit inbound TCP packets to those ports.

By sending out TCP SYN packets instead of UDP or ICMP ECHO packets, **tcptraceroute** is able to bypass the most common firewall filters.

- It is worth noting that **tcptraceroute** never completely establishes a TCP connection with the destination host.

If the host is not listening for incoming connections, it will respond with an RST indicating that the port is closed.

If the host instead responds with a SYN|ACK, the port is known to be open, and an RST is sent by the kernel **tcptraceroute** is running on to tear down the connection without completing three-way handshake. This is the same half-open scanning technique that **nmap** uses when passed the **-sS** flag.

## Examples

None

## tech-support create job

### Description

Use the **tech-support create job** command to create the default tech-support job.

### Syntax

```
tech-support create job
```

### Arguments

None

### Defaults

The appliance always assigns this job the ID, **9999**.

### Command Mode

Global Configuration Mode

### Usage Guidelines

None

### Examples

None

# telnet

## Description

Use the **telnet** command to log into another system by using telnet.

## Syntax

**telnet** [*<telnet options>*] <host> [<port>]

## Arguments

<i>&lt;tcptraceroute options&gt;</i>	Specifies the type of <b>tcptraceroute</b> . Select from the following options:
<b>-8</b>	Specify an 8-bit data path. This causes an attempt to negotiate the TELNET BINARY option on both input and output.
<b>-E</b>	Stop any character from being recognized as an escape character.
<b>-F</b>	Forward a forwardable copy of the local credentials to the remote system.
<b>-K</b>	Specify no automatic login to the remote system.
<b>-L</b>	Specify an 8-bit data path on output. This causes the BINARY option to be negotiated on output.
<b>-S tos</b>	Set the IP type-of-service (TOS) option for the telnet connection to the value tos, which can be a numeric TOS value (in decimal, or a hex value preceded by 0x, or an octal value preceded by a leading 0) or, on systems that support it, a symbolic TOS name found in the /etc/iptos file.
<b>-X atype</b>	Disable the atype type of authentication.
<b>-a</b>	Attempt automatic login. This sends the user name via the USER variable of the ENVIRON option, if supported by the remote system. The name used is that of the current user as returned by getlogin(2) if it agrees with the current user ID; otherwise it is the name associated with the user ID.
<b>-c</b>	Disable the reading of the user's .telnetrc file.
<b>-d</b>	Set the initial value of the debug flag to TRUE.
<b>-e escape char</b>	Set the initial telnet escape character to escape char. If escape char is omitted, then there will be no escape character.
<b>-f</b>	Forward a copy of the local credentials to the remote system.

<b>-k realm</b>	If Kerberos authentication is being used, request that telnet obtain tickets for the remote host in realm instead of the remote host's realm, as determined by krb_realmofhost(3).
<b>-l user</b>	If the remote system understands the ENVIRON option, then user will be sent to the remote system as the value for the variable user. This option implies the -a option. This option may also be used with the open command.
<b>-n tracefile</b>	Open tracefile for recording trace information.
<b>-r</b>	Specify a user interface similar to rlogin(1). In this mode, the escape character is set to the tilde (~) character, unless modified by the -e option.
<b>-x</b>	Turn on encryption of the data stream. When this option is turned on, telnet will exit with an error if authentication cannot be negotiated or if encryption cannot be turned on.
<b>&lt;host&gt;</b>	Specifies the name, alias, or Internet address of the remote host.
<b>&lt;port&gt;</b>	Specifies a port number (address of an application). If the port is not specified, the default telnet port (23) is used

## Defaults

None

## Command Mode

- User EXEC mode
- Privileged EXEC mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

None

# traceroute

## Description

Use the **traceroute** command to trace the route that packets take to a destination.

## Syntax

**traceroute** [*<traceroute options>*] <host> [<packet-length>]

## Arguments

<i>&lt;traceroute options&gt;</i>	Enter one of the following options:
-4	Use IPv4.
-6	Use IPv6.
-A	Perform AS path lookups in routing registries and print results directly after the corresponding addresses.
-f	Set the initial time-to-live used in the first outgoing probe packet.
-F	Set the “don’t fragment” bit. This tells intermediate routers not to fragment the packet when they find it’s too big for a network hop’s MTU.
-d	Enable socket level debugging.
-g	Specify a loose source route gateway (8 maximum).
-i	Specify a network interface to obtain the source IP address for outgoing probe packets. This is normally only useful on a multi-homed host. (See the -s flag for another way to do this.)
-l	Use ICMP ECHO instead of UDP datagrams.
-l	Use specified flow_label for IPv6 packets.
-m	Set the max time-to-live (max number of hops) used in outgoing probe packets. Default is 30 hops (same default used for TCP connections).
-n	Print hop addresses numerically rather than symbolically and numerically (saves a nameserver address-to-name lookup for each gateway found on the path).
-N	Number of probe packets sent simultaneously. Sending several probes concurrently can speed up traceroute. Default is 16. Some routers and hosts can use ICMP rate throttling – in this case, specifying too large a number can lead to losing some responses.
-p	Set the base UDP port number used in probes (default is 33434). Traceroute hopes that nothing is listening on UDP ports base to base + nhops - 1 at the destination host (so an ICMP PORT_UNREACHABLE message will be returned to terminate the route tracing). If something is listening on a port in the default range, this option can be used to pick an unused port range.

<b>-q</b>	nqueries
<b>-r</b>	Bypass normal routing tables and send directly to a host on an attached network. If the host is not on a directly-attached network, an error is returned. Use this option to ping a local host through an interface with no route through it (such as after the interface was dropped by routed (8C)).
<b>-s</b>	Use the specifiedIP address (usually given as an IP number, not a hostname) as the source address in outbound probe packets. On multi-homed hosts (those with more than one IP address), this option can be used to force the source address to a value other than the IP address of the interface the probe packet is sent on. If the IP address is not one of this machine's interface addresses, an error is returned and nothing is sent. (See the -i flag for another way to do this.)
<b>-t</b>	Set type-of-service in probe packets to specified value (default zero) which is a decimal integer between 0 to 255. This option determines if different types-of-service result in different paths. (If you are not running 4.4bsd, this may not matter since normal network services like telnet and ftp does not control TOS). Not all values of TOS are legal or meaningful - see IP spec for definitions. If TOS value is changed by intermediate routers, (TOS=<value>! ) is printed once: value is the decimal value of the changed TOS byte.
<b>-T</b>	Use TCP SYN for tracerouting.
<b>-U</b>	Use UDP datagram (default) for tracerouting.
<b>-V</b>	Print version info and exit.
<b>-w</b>	Set wait time (seconds) for a response to a probe (default 5 sec.).
<b>-z</b>	Set the time (in milliseconds) to pause between probes (default 0). Some systems such as Solaris and routers such as Ciscos rate limit icmp messages. A good value to use with this is 500 (e.g. 1/2 second).

**<host>** Specifies the name, alias, or Internet address of the remote host.

**<packet-length>** Specifies the packet length in bytes.

## Defaults

The default packet length is 40 bytes.

## Command Mode

- User EXEC mode
- Privileged EXEC mode
- Global Configuration Mode

## Usage Guidelines

None

## Examples

None