Basic CLI Commands

Global Commands

enable-admin

Syntax **enable-admin**

Context <global>

Description **NOTE:** See the description for the **admin-password** command. If the **admin-password** is configured in the **config>system>security>password** context, then any user can enter a special administrative mode by entering the **enable-admin** command.

enable-admin is in the default profile. By default, all users are given access to this command.

Once the **enable-admin** command is entered, the user is prompted for a password. If the password matches, the user is given unrestricted access to all the commands.

The minimum length of the password is determined by the **minimum-length** command. The complexity requirements for the password is determined by the **complexity** command.

The following displays a password configuration example:

```
A:ALA-1>config>system>security# info
----------------------------------------------
...
            password
                aging 365
                minimum-length 8
                attempts 5 time 5 lockout 20
                admin-password "rUYUz9XMo6I" hash
            exit
...
----------------------------------------------
A:ALA-1>config>system>security#
```

There are two ways to verify that a user is in the enable-admin mode:

- `show users` – Administrator can know which users are in this mode.
- Enter the `enable-admin` command again at the root prompt and an error message will be returned.

```
A:ALA-1# show users
===============================================================================
User Type From Login time Idle time
===============================================================================
admin Console -- 10AUG2006 13:55:24 0d 19:42:22
admin Telnet 10.20.30.93 09AUG2004 08:35:23 0d 00:00:00 A
-------------------------------------------------------------------------------
Number of users : 2
'A' indicates user is in admin mode
===============================================================================
A:ALA-1#
A:ALA-1# enable-admin
MINOR: CLI Already in admin mode.
A:ALA-1#
```

back

Syntax **back**

Context <GLOBAL>

Description This command moves the context back one level of the command hierarchy. For example, if the current level is the **config router ospf** context, the **back** command moves the cursor to the **config router** context level.

clear

Syntax **clear**

Context <GLOBAL>

Description This command clears statistics for a specified entity or clears and resets the entity.

Parameters **card —** Reinitializes a I/O module in the specified slot.

cflowd — Clears cflowd.

cpm-filter — Clears IP filter entry IDs.

cron — Clears CRON history.

filter — Clears IP, MAC, and log filter counters.

lag — Clears LAG-related entities.

log — Closes and reinitializes the log specified by log-id.

mda — Reinitializes the specified MDA in a particular slot.

port — Clears port statistics.

qos — Clears QoS statistics.

radius — Clears the RADIUS server state.

router — Clears router commands affecting the router instance in which they are entered.

Values arp, authentication, bgp, bfd, dhcp, dhcp6, forwarding-table, icmp-redirect-route, icmp6, igmp, interface, isis, ldp, mpls, neighbor, ospf, ospf3, pim, rip, router-advertisement, rsvp

saa — Clears the SAA test results.

screen — Clears the console or telnet screen.

service — Clears service ID and statistical entities.

subscriber-mgmt — Clears subscriber management data.

system — Clears (re-enables) a previously failed reference.

tacplus — Clears the TACACS+ server state.

trace — Clears the trace log.

vrrp — Clears and resets the VRRP interface and statistical entities.

echo

Syntax **echo** [*text-to-echo*] [*extra-text-to-echo*] [*more-text*]

Context <GLOBAL>

Description This command echoes arguments on the command line. The primary use of this command is to allow messages to be displayed to the screen in files executed with the **exec** command.

Parameters *text-to-echo* — Specifies a text string to be echoed up to 256 characters.

extra-text-to-echo — Specifies more text to be echoed up to 256 characters.

more-text — Specifies more text to be echoed up to 256 characters.

exec

Syntax **exec** [**-echo**] [**-syntax**] {*filename* | <<[*eof_string*]}

Context <GLOBAL>

Description This command executes the contents of a text file as if they were CLI commands entered at the console.

Exec commands do not have **no** versions.

Parameters **-echo —** Echo the contents of the **exec** file to the session screen as it executes.

Default Echo disabled.

-syntax — Perform a syntax check of the file without executing the commands. Syntax checking will be able to find invalid commands and keywords, but it will not be able to validate erroneous user- supplied parameters.

Default Execute file commands.

filename — The text file with CLI commands to execute.

<< — Stdin can be used as the source of commands for the exec command. When stdin is used as the exec command input, the command list is terminated with <Ctrl-C>, "EOF<Return>" or "*eof_string*<Return>".

If an error occurs entering an exec file sourced from stdin, all commands after the command returning the error will be silently ignored. The exec command will indicate the command error line number when the stdin input is terminated with an end-of-file input.

eof_string — The ASCII printable string used to indicate the end of the exec file when stdin is used as the exec file source. <Ctrl-C> and "EOF" can always be used to terminate an exec file sourced from stdin.

Default <Ctrl-C>, EOF

Related Commands

boot-bad-exec command on page 351 — Use this command to configure a URL for a CLI script to exec following a failed configuration boot.

boot-good-exec command on page 351 — Use this command to configure a URL for a CLI script to exec following a successful configuration boot.

exit

Syntax **exit [all]**

Context <GLOBAL>

Description This command returns to the context from which the current level was entered. For example, if you navigated to the current level on a context by context basis, then the **exit** command only moves the cursor back one level.

```
A:ALA-1# configure
A:ALA-1>config# router
A:ALA-1>config>router# ospf
A:ALA-1>config>router>ospf# exit
A:ALA-1>config>router# exit
A:ALA-1>config# exit
```

If you navigated to the current level by entering a command string, then the **exit** command returns the cursor to the context in which the command was initially entered.

```
A:ALA-1# configure router ospf
A:ALA-1>config>router>ospf# exit
A:ALA-1#
The exit all command moves the cursor all the way back to the root level.

A:ALA-1# configure
A:ALA-1>config# router
A:ALA-1>config>router# ospf
A:ALA-1>config>router>ospf# exit all
A:ALA-1#
```

Parameters **all** — Exits back to the root CLI context.

help

Syntax **help**
help edit
help global
help special-characters
<GLOBAL>

Description This command provides a brief description of the help system. The following information displays:

```
Help may be requested at any point by hitting a question mark '?'.
In case of an executable node, the syntax for that node will be displayed with an explana-
tion of all parameters.
In case of sub-commands, a brief description is provided.
Global Commands:
     Help on global commands can be observed by issuing "help globals" at any time.
Editing Commands:
     Help on editing commands can be observed by issuing "help edit" at any time.
```

Parameters **help —** Displays a brief description of the help system.

help edit — Displays help on editing.

Available editing keystrokes:

```
Delete current character.....................Ctrl-d
Delete text up to cursor.....................Ctrl-u
Delete text after cursor.....................Ctrl-k
Move to beginning of line....................Ctrl-a
Move to end of line..........................Ctrl-e
Get prior command from history...............Ctrl-p
Get next command from history................Ctrl-n
Move cursor left.............................Ctrl-b
Move cursor right............................Ctrl-f
Move back one word...........................Esc-b
Move forward one word........................Esc-f
Convert rest of word to uppercase............Esc-c
Convert rest of word to lowercase............Esc-l
Delete remainder of word.....................Esc-d
Delete word up to cursor.....................Ctrl-w
Transpose current and previous character.....Ctrl-t
Enter command and return to root prompt......Ctrl-z
Refresh input line...........................Ctrl-l
```

help global — Displays help on global commands.

Available global commands:

```
back            - Go back a level in the command tree
echo            - Echo the text that is typed in
exec            - Execute a file - use -echo to show the commands and
                  prompts on the screen
exit            - Exit to intermediate mode - use option all to exit to
                  root prompt
help            - Display help
history         - Show command history
info            - Display configuration for the present node
logout          - Log off this system
oam             + OAM Test Suite
ping            - Verify the reachability of a remote host
pwc             - Show the present working context
```

```
sleep           - Sleep for specified number of seconds
ssh             - SSH to a host
telnet          - Telnet to a host
traceroute      - Determine the route to a destination address
tree            - Display command tree structure from the context of
                  execution
write           - Write text to another user
```

help special-characters — Displays help on special characters.

Use the following CLI commands to display more information about commands and command syntax:

? — Lists all commands in the current context.

string? — Lists all commands available in the current context that start with the string.

command ? — Display command's syntax and associated keywords.

string<Tab> or **string<Space> —** Complete a partial command name (auto-completion) or list available commands that match the string.

history

Syntax **history**

Context <GLOBAL>

Description This command lists the last 30 commands entered in this session.

Re-execute a command in the history with the **!n** command, where **n** is the line number associated with the command in the history output.

For example:

```
A:ALA-1# history
  68 info
  69 exit
  70 info
  71 filter
  72 exit all
  73 configure
  74 router
  75 info
  76 interface "test"
  77 exit
  78 reduced-prompt
  79 info
  80 interface "test"
  81 icmp unreachables exit all
  82 exit all
  83 reduced-prompt
  84 configure router
  85 interface
  86 info
  87 interface "test"
  88 info
  89 reduced-prompt
  90 exit all
  91 configure
  92 card 1
```

```
  93 card-type
  94 exit
  95 router
  96 exit
  97 history
A:ALA-1# !91
A:ALA-1# configure
A:ALA-1>config#
```

info

Syntax **info [detail]**

Context <GLOBAL>

Description This command displays the running configuration for the configuration context.

The output of this command is similar to the output of a **show config** command. This command, however, lists the configuration of the context where it is entered and all branches below that context level.

By default, the command only enters the configuration parameters that vary from the default values. The **detail** keyword causes all configuration parameters to be displayed.

For example,

```
A:ALA-48>config>router>mpls# info
----------------------------------------------
            admin-group "green" 15
            admin-group "red" 25
            admin-group "yellow" 20
            interface "system"
            exit
            interface "to-104"
                admin-group "green"
                admin-group "red"
                admin-group "yellow"
                label-map 35
                    swap 36 nexthop 10.10.10.91
                    no shutdown
                exit
            exit
            path "secondary-path"
                hop 1 10.10.0.111  strict
                hop 2 10.10.0.222  strict
                hop 3 10.10.0.123  strict
                no shutdown
            exit
            path "to-NYC"
                hop 1 10.10.10.104  strict
                hop 2 10.10.0.210  strict
                no shutdown
            exit
            path "to-104"
                no shutdown
            exit
            lsp "to-104"
                to 10.10.10.104
                from 10.10.10.103
                rsvp-resv-style ff
```

```
                cspf
...
-----------------------------------------------
A:ALA-48>config>router>mpls#
A:ALA-48>config>router>mpls# info detail
-----------------------------------------------
            frr-object
            no resignal-timer
            admin-group "green" 15
            admin-group "red" 25
            admin-group "yellow" 20
            interface "system"
                no admin-group
                no shutdown
            exit
            interface "to-104"
                admin-group "green"
                admin-group "red"
                admin-group "yellow"
                label-map 35
                    swap 36 nexthop 10.10.10.91
                    no shutdown
                exit
                no shutdown
            exit
            path "secondary-path"
                hop 1 10.10.0.111  strict
                hop 2 10.10.0.222  strict
                hop 3 10.10.0.123  strict
                no shutdown
            exit
            path "to-NYC"
                hop 1 10.10.10.104  strict
                hop 2 10.10.0.210  strict
                no shutdown
            exit
            path "to-104"
                no shutdown
            exit
            lsp "to-104"
                to 10.10.10.104
                from 10.10.10.103
                rsvp-resv-style ff
                adaptive
                cspf
                include "red"
                exclude "green"
                adspec
                fast-reroute one-to-one
                    no bandwidth
                    no hop-limit
                    node-protect
                exit
                hop-limit 10
                retry-limit 0
                retry-timer 30
                secondary "secondary-path"
                    no standby
                    no hop-limit
                    adaptive
                    no include
```

```
                    no exclude
                    record
                    record-label
                    bandwidth 50000
                    no shutdown
                exit
                primary "to-NYC"
                    hop-limit 50
                    adaptive
                    no include
                    no exclude
                    record
                    record-label
                    no bandwidth
                    no shutdown
                exit
                no shutdown
            exit
...
-------------------------------------------
A:ALA-48>config>router>mpls#
```

Parameters **detail —** Displays all configuration parameters including parameters at their default values.

logout

Syntax **logout**

Context <GLOBAL>

Description This command logs out of the router session.

When the **logout** command is issued from the console, the login prompt is displayed, and any log IDs directed to the console are discarded. When the console session resumes (regardless of the user), the log output to the console resumes.

When a Telnet session is terminated from a **logout** command, all log IDs directed to the session are removed. When a user logs back in, the log IDs must be re-created.

mrinfo

Syntax **mrinfo** [*ip-address* | *dns-name*] [**router** *router-instance*]

Context <GLOBAL>

Description This command is used to print relevant multicast information from the target multicast router. Information displayed includes adjacency information, protocol, metrics, thresholds, and flags from the target multicast route

Parameters *ip-address* — Specify the ip-address of the multicast capable target router.

dns-name — Specify the DNS name (if DNS name resolution is configured).

Values 63 characters maximum

router *router-instance* **—** Specify the router name or service ID.

Values *router-name*: Base, management
service-id: 1 — 2147483647

Default Base

mstat

Syntax **mstat source** [*ip-address* | *dns-name*] [**group** *grp-ip-address*] [**destination** *dst-ip-address*] [**hop** *hop*] [**router** *router-instance*] [**wait-time** *wait-time*]

Context <GLOBAL>

Description This command traces a multicast path from a source to a receiver and displays multicast packet rate and loss information.

Parameters **source** *ip-address* **—** Specify the IP address of the multicast-capable source.

ip-address — Specify the ip-address of the multicast capable target router.

dns-name — Specify the DNS name (if DNS name resolution is configured).

Values 63 characters maximum

group *group-ip-address* **—** Specify the multicast address of the group to be displayed.

destination *dst-ip-address* **—** Specify the unicast destination address.

hop count **—** Specify the maximum number of hops that will be traced from the receiver back toward the source.

Values 1 — 255

Default 32 hops (infinity for the DVMRP routing protocol).

router *router-instance* **—** Specify the router name or service ID.

Values *router-name*: Base, management
service-id: 1 — 2147483647

Default Base

wait-time ***wait-time*** **—** Specify the number of seconds to wait for the response.

Values 1 — 60

mtrace

Syntax **mtrace source** [*ip-address* | *dns-name*] [**group** *grp-ip-address*] [**destination** *dst-ip-address*] [**hop** *hop*] [**router** *router-instance*] [**wait-time** *wait-time*]

Context <GLOBAL>

Description This command traces a multicast path from a source to a receiver.

Parameters *ip-address* — Specify the ip-address of the multicast capable target router.

dns-name — Specify the DNS name (if DNS name resolution is configured).

Values 63 characters maximum

group *group-ip-address* **—** Specify the multicast address or DNS name of the group that resolves to the multicast group address that will be used. If the group is not specified, address 224.2.0.1 (the MBone audio) will be used. This will suffice if packet loss statistics for a particular multicast group are not needed.

destination *dst-p-address* **—** Specify either the IP address or the DNS name of the unicast destination. If this parameter is omitted the IP address of the system where the command is entered will be used. The receiver parameter can also be used to specify a local interface address as the destination address for sending the trace query. The response will also be returned to the address specified as the receiver.

hop *hop* **—** Specify the maximum number of hops that will be traced from the receiver back toward the source.

Values 1 — 255

Default 32 hops (infinity for the DVMRP routing protocol).

router-instance — Specify the router name or service ID.

Values *router-name*: Base, management
service-id: 1 — 2147483647

Default Base

wait-time ***wait-time*** **—** Specify the number of seconds to wait for the response.

Values 1 — 60

password

Syntax **password**

Context <ROOT>

Description This command changes a user CLI login password.

When a user logs in after the administrator forces a **new-password-at-login**, or the password has expired (**aging**), then this command is automatically invoked.

When invoked, the user is prompted to enter the old password, the new password, and then the new password again to verify the correct input.

If a user fails to create a new password after the administrator forces a **new-password-at-login** or after the password has expired, the user is not allowed access to the CLI.

A user cannot configure a non-conformant password for themselves using the global password command. A password value that does not conform to the minimum-length or other password complexity rules can be configured using the **config>system>security>user>password** command (for example, by an administrator), but a warning is provided in the CLI. This allows, for example, an administrator to configure a nonconformant password for a user.

ping

Syntax **ping** {*ip-address*| *ipv6-address* | *dns-name*} [**rapid** | **detail**] [**ttl** *time-to-live*] [**tos** *type-of-service*] [**size** *bytes*] [**pattern** *pattern*] [**source** *ip-address*] [**interval** *seconds*] [{**next-hop** *ip-address*} | {**interface** *interface-name*} | **bypass-routing**] [**count** *requests*] [**do-not-fragment**] [**router** [*router-instance*] [**timeout** *timeout*]

Context <GLOBAL>

Description This command is the TCP/IP utility to verify IP reachability.

Parameters *ip-address* | *dns-name* — The remote host to ping. The IP address or the DNS name (if DNS name resolution is configured) can be specified.

ipv6-address — The IPv6 IP address.

Values x:x:x:x:x:x:x:x (eight 16-bit pieces)
x:x:x:x:x:x:d.d.d.d
x: 0 — FFFF H
d: 0 — 255 D

rapid | **detail —** The **rapid** parameter specifies to send ping requests rapidly. The results are reported in a single message, not in individual messages for each ping request. By default, five ping requests are sent before the results are reported. To change the number of requests, include the **count** option.

The **detail** parameter includes in the output the interface on which the ping reply was received.

Example output:

```
A:ALA-1# ping 192.168.xx.xx4 detail
PING 192.168.xx.xx4: 56 data bytes
64 bytes from 192.168.xx.xx4 via fei0: icmp_seq=0 ttl=64 time=0.000 ms.
64 bytes from 192.168.xx.xx4 via fei0: icmp_seq=1 ttl=64 time=0.000 ms.
64 bytes from 192.168.xx.xx4 via fei0: icmp_seq=2 ttl=64 time=0.000 ms.
64 bytes from 192.168.xx.xx4 via fei0: icmp_seq=3 ttl=64 time=0.000 ms.
64 bytes from 192.168.xx.xx4 via fei0: icmp_seq=4 ttl=64 time=0.000 ms.

---- 192.168.xx.xx4 PING Statistics ----
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max/stddev = 0.000/0.000/0.000/0.000 ms
A:ALA-1#
```

ttl *time-to-live* — The IP Time To Live (TTL) value to include in the ping request, expressed as a decimal integer.

Values 0 —128

tos *type-of-service* — The type-of-service (TOS) bits in the IP header of the ping packets, expressed as a decimal integer.

Values 0 — 255

size *bytes* — The size in bytes of the ping request packets.

Default 56 bytes (actually 64 bytes because 8 bytes of ICMP header data are added to the packet)

Values 0 — 65507

pattern *pattern* — A 16-bit pattern string to include in the ping packet, expressed as a decimal integer.

Values 0 — 65535

source *ip-address* — The source IP address to use in the ping requests in dotted decimal notation.

Default The IP address of the egress IP interface.

Values 0.0.0.0 — 255.255.255.255

interval *seconds* — The interval in seconds between consecutive ping requests, expressed as a decimal integer.

Default 1

Values 1 — 10000

next-hop *ip-address* — This option disregards the routing table and will send this packet to the specified next hop address. This address must be on an adjacent router that is attached to a subnet that is common between this and the next-hop router.

Default Per the routing table.

Values A valid IP next hop IP address.

interface *interface-name* — Specify the interface name.

bypass-routing — Send the ping request to a host on a directly attached network bypassing the routing table. The host must be on a directly attached network or an error is returned.

count *requests* — The number of ping requests to send to the remote host, expressed as a decimal integer.

Default 5

Values 1 — 10000

do-not-fragment — Specifies that the request frame should not be fragmented. This option is particularly useful in combination with the size parameter for maximum MTU determination.

router *router-instance* — Specify the router name or service ID.

Default Base

Values

router-name:	Base, management
service-id:	1 — 2147483647

timeout *timeout* — Specify the timeout in seconds.

Default 5

Values 1 — 10

pwc

Syntax **pwc** [**previous**]

Context <GLOBAL>

Description This command displays the present or previous working context of the CLI session. The **pwc** command provides a user who is in the process of dynamically configuring a chassis a way to display the current or previous working context of the CLI session. The **pwc** command displays a list of the CLI nodes that hierarchically define the current context of the CLI instance of the user.
For example,

```
A:ALA-1>config>router>bgp>group# pwc
-----------------------------------------------
Present Working Context :
-----------------------------------------------
<root>
  configure
  router Base
  bgp
  group test
  ospf
  area 1
-----------------------------------------------
A:ALA-1>config>router>bgp>group#
```

For example,

When the **previous** keyword is specified, the previous context displays. This is the context entered by the CLI parser upon execution of the **exit** command. The current context of the CLI is not affected by the **pwc** command.

For example,

```
A:ALA-1>config>router>bgp>group# pwc previous
-------------------------------------------------
Previous Working Context :
-------------------------------------------------
<root>
  configure
  router Base
  bgp
  ospf
-------------------------------------------------
A:ALA-1>config>router>bgp>group#
```

Parameters **previous —** Specifies to display the previous present working context.

sleep

Syntax **sleep** [*seconds*]

Context <GLOBAL>

Description This command causes the console session to pause operation (sleep) for 1 second (default) or for the specified number of seconds.

Parameters *seconds* — The number of seconds for the console session to sleep, expressed as a decimal integer.

Default 1

Values 1 — 100

ssh

Syntax **ssh** [*ip-addr* | *dns-name* |*username@ip-addr*] [**-l** *username*] [**-v** *SSH-version*] [**router** *router-instance*| **service-name** *service-name*]

Context <GLOBAL>

Description This command initiates a client SSH session with the remote host and is independent from the administrative or operational state of the SSH server. However, to be the target of an SSH session, the SSH server must be operational.

Quitting SSH while in the process of authentication is accomplished by either executing a ctrl-c or "~." (tilde and dot) assuming the "~" is the default escape character for SSH session.

Parameters *ip-address* | *host-name* — The remote host to which to open an SSH session. The IP address or the DNS name (providing DNS name resolution is configured) can be specified.

-l *user* — The user name to use when opening the SSH session.

router *router-instance* — Specify the router name or service ID.

Values *router-name*: Base, management
service-id: 1 — 2147483647

Default Base

telnet

Syntax **telnet** [*ip-address* | *dns-name*] [*port*] [**router** *router-instanc*e]

Context <GLOBAL>

Description This command opens a Telnet session to a remote host. Telnet servers in 7750 SRnetworks limit a Telnet clients to three retries to login. The Telnet server disconnects the Telnet client session after three retries. The number of retry attempts for a Telnet client session is not user-configurable.

Parameters *ip-address* — The IP address or the DNS name (providing DNS name resolution is configured) can be specified.

Values

ipv4-address	a.b.c.d
ipv6-address	x:x:x:x:x:x:x:x[-interface] x:x:x:x:x:x:d.d.d.d[-interface] x: [0 — FFFF]H d: [0 — 255]Dipv6-address

dns-name — Specify the DNS name (if DNS name resolution is configured).

Values 128 characters maximum

port — The TCP port number to use to Telnet to the remote host, expressed as a decimal integer.

Default 23

Values 1 — 65535

router *router-instance* **—** Specify the router name or service ID.

Values

router-name:	Base, management
service-id:	1 — 2147483647

Default Base

traceroute

Syntax **traceroute** {*ip-address* | *dns-name*} [**ttl** *ttl*] [**wait** *milliseconds*] [**no-dns**] [**source** *ip-address*] [**tos** *type-of-service*] [**router** *router-instance*]

Context <GLOBAL>

Description The TCP/IP traceroute utility determines the route to a destination address. Note that aborting a traceroute with the <Ctrl-C> command could require issuing a second <Ctrl-C> command before the prompt is returned.

```
A:ALA-1# traceroute 192.168.xx.xx4
traceroute to 192.168.xx.xx4, 30 hops max, 40 byte packets
 1  192.168.xx.xx4 0.000 ms  0.000 ms  0.000 ms
A:ALA-1#
```

Parameters *ip-address* | *dns-name* — The remote address to traceroute. The IP address or the DNS name (if DNS name resolution is configured) can be specified.

Values

ipv4-address	a.b.c.d
ipv6-address	x:x:x:x:x:x:x:x[-interface] x:x:x:x:x:x:d.d.d.d[-interface] x: [0 — FFFF]H d: [0 — 255]Dipv6-address
dns-name	128 characters maximum

ttl *ttl* **—** The maximum Time-To-Live (TTL) value to include in the traceroute request, expressed as a decimal integer.

Values 1 — 255

wait *milliseconds* — The time in milliseconds to wait for a response to a probe, expressed as a decimal integer.

Default 5000

Values 1 — 60000

no-dns — When the **no-dns** keyword is specified, a DNS lookup for the specified host name will not be performed.

Default DNS lookups are performed

source *ip-address* — The source IP address to use as the source of the probe packets in dotted decimal notation. If the IP address is not one of the device's interfaces, an error is returned.

tos *type-of-service* — The type-of-service (TOS) bits in the IP header of the probe packets, expressed as a decimal integer.

Values 0 — 255

router *router-instance* — Specifies the router name or service ID.

Values *router-name*: Base, management
service-id: 1 — 2147483647

Default Base

tree

Syntax **tree** [**detail**]

Context <GLOBAL>

Description This command displays the command hierarchy structure from the present working context.

Parameters **detail** — Includes parameter information for each command displayed in the tree output.

write

Syntax **write** {*user* | **broadcast**} *message-string*

Context <GLOBAL>

Description This command sends a console message to a specific user or to all users with active console sessions.

Parameters *user* — The name of a user with an active console session to which to send a console message.

Values Any valid CLI username

broadcast — Specifies that the *message-string* is to be sent to all users logged into the router.

message-string — The message string to send. Allowed values are any string up to 250 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

CLI Environment Commands

alias

Syntax **alias** *alias-name alias-command-line*
no alias *alias-name*

Context environment

Description This command enables the substitution of a command line by an alias. Use the **alias** command to create alternative or easier to remember/understand names for an entity or command string. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes. The special characters | and > can't be used inside environment alias strings. Additionally, the special characters / and \ cannot be used as the first character inside an alias string. Only a single command can be present in the command string. The **alias** command can be entered in any context but must be created in the **root>environment** context.
For example, to create an alias named **soi** to display OSPF interfaces, enter:

alias soi "show router ospf interface"

Parameters *alias-name* — The alias name. Do not use a valid command string for the alias. If the alias specified is an actual command, this causes the command to be replaced by the alias.

alias-command-line — The command line to be associated.

create

Syntax [**no**] **create**

Context environment

Description By default, the **create** command is required to create a new OS entity.

The **no** form of the command disables requiring the **create** keyword.

Default **create** — The create keyword is required.

more

Syntax [**no**] **more**

Context environment

Description This command enables per-screen CLI output, meaning that the output is displayed on a screen-by- screen basis. The terminal screen length can be modified with the **terminal** command.
The following prompt appears at the end of each screen of paginated output:

```
Press any key to continue (Q to quit)
```

The **no** form of the command displays the output all at once. If the output length is longer than one screen, the entire output will be displayed, which may scroll the screen.

Default **more** — CLI output pauses at the end of each screen waiting for the user input to continue.

reduced-prompt

Syntax **reduced-prompt** [*number of nodes in prompt*]
no reduced-prompt

Context environment

Description This command configures the maximum number of higher CLI context levels to display in the CLI prompt for the current CLI session. This command is useful when configuring features that are several node levels deep, causing the CLI prompt to become too long.
By default, the CLI prompt displays the system name and the complete context in the CLI.

The number of *nodes* specified indicates the number of higher-level contexts that can be displayed in the prompt. For example, if reduced prompt is set to 2, the two highest contexts from the present working context are displayed by name with the hidden (reduced) contexts compressed into a ellipsis ("…").

```
A:ALA-1>environment# reduced-prompt 2
A:ALA-1>vonfig>router# interface to-103
A:ALA-1>...router>if#
```

Note that the setting is not saved in the configuration. It must be reset for each CLI session or stored in an **exec** script file.

The **no** form of the command reverts to the default.

Default **no reduced-prompt** — Displays all context nodes in the CLI prompt.

Parameters *number of nodes in prompt* — The maximum number of higher-level nodes displayed by name in the prompt, expressed as a decimal integer.

Default 2

Values 0 — 15

saved-ind-prompt

Syntax [**no**] **saved-ind-prompt**

Context environment

Description This command enables saved indicator in the prompt. When changes are made to the configuration file a "*" appears in the prompt string indicating that the changes have not been saved. When an admin save command is executed the "*" disappears.

```
*A:ALA-48# admin save
Writing file to ftp://128.251.10.43/./sim48/sim48-config.cfg
Saving configuration .... Completed.
A:ALA-48#
```

suggest-internal-objects

Syntax [**no**] **suggest-internal-objects**

Context environment

Description This command enables suggesting of internally created objects while auto completing.

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

terminal

Syntax **terminal**
no terminal

Context environment

Description This command enables the context to configure the terminal screen length for the current CLI session.

length

Syntax **length** *lines*

Context environment>terminal

Description This command sets the number of lines on a screen.

Default **24** — Terminal dimensions are set to 24 lines long by 80 characters wide.

Parameters *lines* — The number of lines for the terminal screen length, expressed as a decimal integer.

Values 1 — 512

width

Syntax **width** *width*

Context environment>terminal

Description This command determines display terminal width.

Default 80 — Terminal dimensions are set to 24 lines long by 80 characters wide.

Parameters *width* — Sets the width of the display terminal.

Values 1 — 512

time-display

Syntax **time-display** {**local** | **utc**}

Context environment

Description This command displays time stamps in the CLI session based on local time or Coordinated Universal Time (UTC).

The system keeps time internally in UTC and is capable of displaying the time in either UTC or local time based on the time zone configured.

This configuration command is only valid for times displayed in the current CLI session. This includes displays of event logs, traps and all other places where a time stamp is displayed.

In general all time stamps are shown in the time selected. This includes log entries destined for console/session, memory, or SNMP logs. Log files on compact flash are maintained and displayed in UTC format.

Default **time-display local** — Displays time stamps based on the local time.

Monitor CLI Commands

card

Syntax **card** *slot-number* **fp** *fp-number* **ingress {access | network} queue-group** *queue-group-name* **instance** *instance-id* **[interval** *seconds* **] [repeat** *repeat***] policer** *policer-id* **[absolute | percent-rate |** *reference-rate***]**

Context monitor

Description This command monitors policer statistics in an ingress FP queue group.

Parameters **card** *slot-number* **—** Specifies the slot number associated with the queue group, expressed as an integer.

Values 1 — 20

fp *fp-number* **—** Specifies the FP number associated with the queue group, expressed as an integer.

Values 1 — 2

ingress — Displays policer statistics applied on the ingress FP.

access — Displays policer statistics on the FP access.

network — Displays policer statistics on the FP network.

queue-group *queue-group-name* — Specifies the name of the queue group up to 32 characters in length.

instance *instance-id* **—** Specifies the identification of a specific instance of the queue-group.

Values 1— 65535

interval *interval* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

policer *policer-id* — The specified policer-id must exist within the queue-group template applied to the ingress context of the forwarding plane.

Values 1 — 8

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

percent-rate — When the percent-rate keyword is specified, the rate-per-second for each statistic is displayed based on the reference rate of 10G.

Default 10

Values 1 — 999

reference-rate — When a reference-rate value is specified, the rate-per-second for each statistic is displayed as a percentage based on the reference rate specified.

Values 100M, 1G, 10G, 40G, 100G, 400G

ccag

Syntax **ccag** *ccag-id* [**path** {**a** | **b**}] [**type** {**sap-sap** | **sap-net** | **net-sap**}] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor

Description Displays monitor command output of traffic statistics for Cross Connect Aggregation Groups (CCAGs) ports.

Parameters *ccag-id* — Specifies the CCAG instance to monitor.

path — Specifies the CCA path nodal context where the CCA path bandwidth, buffer and accounting parameters are maintained. The path context must be specified with either the **a** or **b** keyword specifying the CCA path context to be entered.

type — Specify cross connect type.

Values **sap-sap**, **sap-net**, **net-sap**

interval — Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

cpm-filter

Syntax **cpm-filter**

Context monitor

Description Displays monitor command output for CPM filters.

ip

Syntax **ip entry** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>cpm-filter

Description This command displays monitor command statistics for IP filter entries.

Parameters **entry** *entry-id* — Displays information on the specified filter entry ID for the specified filter ID only.

Values 1 — 65535

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

ipv6

Syntax **ip entry** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>cpm-filter

Description This command displays monitor command statistics for IPv6 filter entries.

Parameters **entry** *entry-id* — Displays information on the specified filter entry ID for the specified filter ID only.

Values 1 — 65535

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

mac

Syntax **mac entry** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>cpm-filter

Description This command displays monitor command statistics for MAC filter entries.

Parameters **entry** *entry-id* — Displays information on the specified filter entry ID for the specified filter ID only.

Values 1 — 65535

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

filter

Syntax **filter**

Context monitor

Description This command enables the context to configure criteria to monitor IP and MAC filter statistics.

ip

Syntax **ip** *ip-filter-id* **entry** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>filter

Description This command enables IP filter monitoring. The statistical information for the specified IP filter entry displays at the configured interval until the configured count is reached.
The first screen displays the current statistics related to the specified IP filter. The subsequent statistical information listed for each interval is displayed as a delta to the previous display.
When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *ip-filter-id* — Displays detailed information for the specified filter ID and its filter entries.

Values 1 — 65535

entry *entry-id* — Displays information on the specified filter entry ID for the specified filter ID only.

Values 1 — 65535

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-1>monitor# filter ip 10 entry 1 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for IP filter 10 entry 1
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
===============================================================================
A:ALA-1>monitor#


A:ALA-1>monitor# filter ip 10 entry 1 interval 3 repeat 3 rate
===============================================================================
Monitor statistics for IP filter 10 entry 1
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
```

```
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
===============================================================================
A:ALA-1>monitor#
```

ipv6

Syntax **ipv6** *ipv6-filter-id* **entry** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>filter

Description This command enables IPv6 filter monitoring. The statistical information for the specified IPv6 filter entry displays at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified IPv6 filter. The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *iv6p-filter-id* — Displays detailed information for the specified IPv6 filter ID and its filter entries.

Values 1 — 65535

entry *entry-id* — Displays information on the specified IPv6 filter entry ID for the specified filter ID only.

Values 1 — 65535

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-48# monitor filter ipv6 100 entry 10 interval 3 repeat 3 absolute
```

```
===============================================================================
Monitor statistics for IPv6 filter 100 entry 10
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 1
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 1
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 1
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 01
===============================================================================
A:ALA-48#


A:ALA-48# monitor filter ipv6 100 entry 10 interval 3 repeat 3 rate
===============================================================================
Monitor statistics for IPv6 filter 100 entry 10
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 1
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 1
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 1
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches : 0                                Egr. Matches   : 1
===============================================================================
A:ALA-48#
```

mac

Syntax **mac** *mac-filter-id* **entry** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>filter

Description This command enables MAC filter monitoring. The statistical information for the specified MAC filter entry displays at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified MAC filter. The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *mac-filter-id* — The MAC filter policy ID.

Values 1 — 65535

entry *entry-id* — Displays information on the specified filter entry ID for the specified filter ID only.

Values 1 — 65535

interval *seconds* — Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-1>monitor>filter# mac 50 entry 10 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for Mac filter 50 entry 10
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
===============================================================================


A:ALA-1>monitor>filter# mac 50 entry 10 interval 3 repeat 3 rate
===============================================================================
Monitor statistics for Mac filter 50 entry 10
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
```

```
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Ing. Matches: 0                                 Egr. Matches    : 0
===============================================================================
A:ALA-1>monitor>filter#
```

lag

Syntax **lag** *lag-id* [*lag-id*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | *rate*]

Context monitor

Description This command monitors traffic statistics for Link Aggregation Group (LAG) ports. Statistical information for the specified LAG ID(s) displays at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified LAG ID. The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *lag-id* — The number of the LAG.

Default none — The LAG ID value must be specified.

Values 1 — 800

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12# monitor lag 12
```

```
===============================================================================
Monitor statistics for LAG ID 12
===============================================================================
Port-id     Input    Input   Output    Output    Input   Output
            Bytes    Packets Bytes     Packets   Errors  Errors
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
1/1/1       2168900  26450   64        1         0       0
1/1/2       10677318 125610  2273750   26439     0       0
1/1/3       2168490  26445   0         0         0       0
-------------------------------------------------------------------------------
Totals      15014708 178505  2273814   26440     0       0
-------------------------------------------------------------------------------
At time t = 5 sec (Mode: Delta)
-------------------------------------------------------------------------------
1/1/1       0        0       0         0         0       0
1/1/2       258      3       86        1         0       0
1/1/3       82       1       0         0         0       0
-------------------------------------------------------------------------------
Totals      340      4       86        1         0       0
===============================================================================
A:ALA-12#
```

lsp-egress-stats

Syntax **lsp-egress-stats**
lsp-egress-stats *lsp-name*

Context show>router>mpls

Description This command displays MPLS LSP egress statistics information.

lsp-ingress-stats

Syntax **lsp-ingress-stats**
lsp-ingress-stats *ip-address* **lsp** *lsp-name*

Context show>router>mpls

Description This command displays MPLS LSP ingress statistics information.

management-access-filter

Syntax **management-access-filter**

Context monitor

Description This command enables the context to monitor management-access filters. These filters are configured in the **config>system>security>mgmt-access-filter** context.

ip

Syntax **ip entry** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | *rate*]

Context monitor>management-access-filter

Description This command nonitors statistics for the MAF IP filter entry.

Parameters **entry** *entry-id* **—** Specifies an existing IP MAF entry ID.

Values 1 — 9999

interval seconds — Configures the interval for each display in seconds.

Default 10

Values 3 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

ipv6

Syntax **ipv6** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | *rate*]

Context monitor>management-access-filter

Description This command nonitors statistics for the MAF IPv6 filter entry.

Parameters **entry** *entry-id* **—** Specifies an existing IP MAF entry ID.

Values 1 — 9999

interval seconds — Configures the interval for each display in seconds.

Default 10

Values 3 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

mac

Syntax **mac** *entry-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | *rate*]

Context monitor>management-access-filter

Description This command nonitors statistics for the MAF MAC filter entry.

Parameters **entry** *entry-id* **—** Specifies an existing IP MAF entry ID.

Values 1 — 9999

interval seconds — Configures the interval for each display in seconds.

Default 10

Values 3 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

port

Syntax **port** *port-id* [*port-id*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor

Description This command enables port traffic monitoring. The specified port(s) statistical information displays at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified port(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **port** *port-id* — Specify up to 5 port IDs.

Syntax: *port-id* slot/mda/port[.channel]
aps-id aps-*group-id*[.*channel*]
aps keyword
group-id 1 — 64
bundle ID bundle-*type-slot/mda.bundle-num*
bundle keyword
type ima, ppp
bundle-num 1 — 128

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor# port 2/1/4 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for Port 2/1/4
===============================================================================
                                                Input                  Output
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
===============================================================================
A:ALA-12>monitor#


A:ALA-12>monitor# port 2/1/4 interval 3 repeat 3 rate
===============================================================================
Monitor statistics for Port 2/1/4
===============================================================================
                                                Input                  Output
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
```

```
-------------------------------------------------------------------------------
Octets                                          0                           0
Packets                                        39                         175
Errors                                          0                           0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
Octets                                          0                           0
Packets                                         0                           0
Errors                                          0                           0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Octets                                          0                           0
Packets                                         0                           0
Errors                                          0                           0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Octets                                          0                           0
Packets                                         0                           0
Errors                                          0                           0
===============================================================================
A:ALA-12>monitor#
```

atm

Syntax **atm** [**interval** *seconds*] [**repeat** *repeat*] [**absolute**|**rate**]

Context monitor>port

Description This command enables ATM port traffic monitoring.

Parameters **interval** *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

port

Syntax **port** *port-id* **atm** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]
port *port-id* **atm aal-5** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]
port *port-id* **atm ilmi** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]
port *port-id* **atm interface-connection** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]
port *port-id* **atm pvc** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]
port *port-id* **atm pvp** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]
port *port-id* **atm pvt** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor

Description This command monitors ATM port traffic statistics.

Parameters *port-id* — Specify up to 5 port IDs.

Syntax: *port-id* slot/mda/port[.channel]
aps-id aps-*group-id*[.*channel*]
aps keyword
group-id 1 — 64
bundle ID bundle-*type-slot/mda.bundle-num*
bundle keyword
type ima, ppp
bundle-num 1 — 128

atm — keyword specifying ATM information.

interface-connection — Monitors ATM interface statistics.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

Default Default mode delta

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Default Default mode delta

aal-5 — Displays ATM Adaptation Layer 5 (AAL5) information.

ilmi — Monitors ATM ILMI statistics.

pvc — Identifies the port by the PVC identifier (vpi/vci).

pvp — Identifies the port by the permanent virtual path.

pvt — Identifies the port by the permanent virtual tunnel.

oam — Identifies the port by the OAM test suite ID.

qos

Syntax **qos**

Context monitor

Description This command enables the context to configure criteria to monitor QoS scheduler statistics for specific customers and SAPs.

arbiter-stats

Syntax **arbiter-stats**

Context monitor>qos

Description This command enables the context to configure monitor commands for arbiter statistics.

port

Syntax **port**

Context monitor>qos

Description This command enables the context to configure monitor commands for port related statistics.

port

Syntax **port** *port-id* **exp-secondary-shaper** *shaper-name* **[interval** *seconds***] [repeat** *repeat***] [absolute|rate]**

Context monitor>qos

Description This command monitors expanded secondary shaper statistics.

Parameters **port** *port-id* — Specifies the port ID.

Values slot/mda/port

exp-secondary-shaper *shaper-name* **—** Displays statistics for the named exp secondary shaper.

interval — *seconds* — Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the rate keyword is specified, the rate-per-second for each statistic is displayed.

port

Syntax **port** *port-id* **vport** *name* **monitor-threshold [interval** *seconds***] [repeat** *repeat***]**

Context monitor>qos

Description This command monitors VPORT statistics.

Parameters **port** *port-id* **—** Specifies the port ID.

Values slot/mda/port [.channel]

vport *name* **—** Displays statistics for the named VPORT.

monitor-threshold — Displays the exceed-count for the port-scheduler for the named VPORT.

interval — *seconds* — Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

scheduler-stats

Syntax **scheduler-stats**

Context monitor>qos

Description This command enables the context to configure monitor commands for scheduler statistics.

card

Syntax **card** *slot-number* **fp** *fp-number* **queue-group** *queue-group-name* **instance** *instance-id* **[ingress] [access | networks] [interval** *seconds***] [repeat** *repeat***] [absolute | percent-rate |** *reference-rate***] [arbiter** *root* **|** *name***]**

Context monitor>qos>arbiter-stats

Description This command monitors arbiter statistics in an ingress FP queue group.

Parameters **card** *slot-number* **—** Specifies the slot number associated with the queue group, expressed as an integer.

Values 1 — 20

fp *fp-number* **—** Specifies the FP number associated with the queue group, expressed as an integer.

Values 1 — 2

queue-group *queue-group-name* **—** Specifies the name of the queue group up to 32 characters in length.

instance *instance-id* **—** Specifies the identification of a specific instance of the queue-group.

Values 1— 65535

ingress — Displays arbiter-name statistics applied on the ingress FP.

access — Displays arbiter-name statistics applied on the FP access.

network — Displays arbiter-name statistics applied on the FP network.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

percent-rate — When the percent-rate keyword is specified, the rate-per-second for each statistic is displayed based on the reference rate of 10G.

reference-rate — When a reference-rate value is specified, the rate-per-second for each statistic is displayed as a percentage based on the reference rate specified.

Values 100M, 1G, 10G, 40G, 100G, 400G

arbiter *name* **—** Specifies the name of the policer control policy arbiter.

Values An existing arbiter-name in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

root — Specifies the root arbiter.

customer

Syntax **customer** *customer-id* **site** *customer-site-name* **[arbiter** *root*|*name***] [ingress|egress] [interval** *seconds***] [repeat** *repeat***] [absolute|rate]**

Context monitor>qos>arbiter-stats

Description This command monitors arbiter statistics for a customer site.

Parameters *customer-id* — Specifies the ID number to be associated with the customer, expressed as an integer.

Values 1 — 2147483647

site *customer-site-name* **—** Specifies the customer site which is an anchor point for ingress and egress arbiter hierarchy.

arbiter *name* **—** Specify the name of the policer control policy arbiter. This parameter is mandatory if the SAP resides on a LAG in adapt-qos link or port-fair mode.

Values Values An existing arbiter-name in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

root — Specify the root arbiter.

ingress — Displays arbiter-name statistics applied on the site ingress.

egress — — Displays arbiter-name statistics applied on the site egress.

interval *seconds* **— —** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the rate keyword is specified, the rate-per-second for each statistic is displayed.

port

Syntax **port** *port-id* **egress** *network* **queue-group** *queue-group-name* **instance** *instance-id* **[interval** *seconds***] [repeat** *repeat***] [absolute | rate] [arbiter** *root* **|** *name***]**

Context monitor>qos>arbiter-stats

Description This command monitors arbiter statistics for a customer site.

Parameters **port** *port-id* **—** Specifies the port ID.

Values slot/mda/port

egress *network* **—** — Specifies statistics are for an egress network queue group.

Values network

queue-group *queue-group-name* **—** Specifies the name of the queue group up to 32 characters in length.

instance *instance-id* **—** Specifies the identification of a specific instance of the queue-group.

Values 1— 65535

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the rate keyword is specified, the rate-per-second for each statistic is displayed.

arbiter *name* **—** Specify the name of the policer control policy arbiter.

Values An existing arbiter-name in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

root — Specify the root arbiter.

sap

Syntax **sap** *sap-id* [**arbiter** *name* | *root*] [**ingress** | **egress**] [**interval** *seconds*] [**repeat** repeat] [**absolute** | **rate**]

Context monitor>qos>arbiter-stats

Description This command monitors arbiter statistics for a SAP.

Parameters *sap-id* — Specify the physical port identifier portion of the SAP definition.

arbiter *name* — Specify the name of the policer control policy arbiter. This parameter is mandatory if the SAP resides on a LAG in adapt-qoslink or port-fair mode.

Values An existing *scheduler-name* in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

root — Specify the scheduler to which this queue would be feeding.

ingress — Displays *scheduler-name* statistics applied on the ingress SAP.

egress — Displays *scheduler-name* statistics applied on the egress SAP.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

subscriber

Syntax **subscriber** *sub-ident-string* [**arbiter** *name* | *root*] [**ingress** | **egress**] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>qos>arbiter-stats

Description This command monitors arbiter statistics for a subscriber.

Parameters *sub-ident-string* — Specifies an existing subscriber a identification policy name.

arbiter *name* — Specify the name of the policer control policy arbiter.

Values An existing *scheduler-name* in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

root — Specify the scheduler to which this queue would be feeding.

ingress — Displays *scheduler-name* statistics applied on the ingress SAP.

egress — Displays *scheduler-name* statistics applied on the egress SAP.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics. customer

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

customer

Syntax **customer** *customer-id* **site** *customer-site-name* [**scheduler** *scheduler-name*] [**ingress** | **egress**] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>qos>scheduler-stats

Description Use this command to monitor scheduler statistics per customer multi-service-site. The first screen displays the current statistics related to the specified customer ID and customer site name. The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.
Monitor commands are similar to **show** commands but only statistical information displays. These commands display selected statistics per the configured number of times at the interval specified.

Parameters *customer-id* — Specifies the ID number to be associated with the customer, expressed as an integer.

Values 1 — 2147483647

site *customer-site-name* **—** Specify the customer site which is an anchor point for ingress and egress virtual scheduler hierarchy.

scheduler *scheduler-name* — Specify an existing *scheduler-name*. Scheduler names are configured in the **config>qos>scheduler-policy>tier** *level* context. This parameter is mandatory if the customer resides on a LAG in adapt-qoslink or port-fair mode.

Values An existing *scheduler-name* is in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

ingress — Displays the customer's multi-service-site ingress scheduler policy.

egress — Displays the customer's multi-service-site egress scheduler policy.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

sap

Syntax **sap** *sap-id* [**scheduler** *scheduler-name*] [**ingress** | **egress**] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>qos>scheduler-stats

Description Use this command to monitor scheduler statistics for a SAP at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified SAP. The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *sap-id* — Specifies the physical port identifier portion of the SAP definition.

scheduler *scheduler-name* — Specify an existing *scheduler-name*. Scheduler names are configured in the c**onfig>qos>scheduler-policy>tier** *level* context. This parameter is mandatory if the SAP resides on a LAG in adapt-qoslink or port-fair mode.

Values An existing *scheduler-name* in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

ingress — Displays *scheduler-name* statistics applied on the ingress SAP.

egress — Displays *scheduler-name* statistics applied on the egress SAP.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

subscriber

Syntax **subscriber** *sub-ident-string* [**scheduler** *scheduler-name*] [**ingress** | **egress**] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>qos>scheduler-stats

Description This command monitors cheduler statistics for a subscriber.

Parameters *sub-ident-string* — Specifies an existing subscriber a identification policy name.

scheduler *scheduler-name* — Specify an existing QoS scheduler policy name. Scheduler names are configured in the `config>qos>scheduler-policy>tier level` context.

Values An existing *scheduler-name* in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

ingress — Displays *scheduler-name* statistics applied on the ingress SAP.

egress — Displays *scheduler-name* statistics applied on the egress SAP.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 **—** 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

port

Syntax **port** *port-id* **queue-group** *queue-group-name* **[ingress | egress] [interval** *seconds***] [repeat** *repeat***] [absolute | rate] [access | network] [instance** *instance-id***]**

Context monitor>qos>scheduler-stats

Description This command monitors scheduler statistics in a port queue group.

Parameters **port** *port-id* **—** Specifies the port ID.

Values slot/mda/port

queue-group *queue-group-name* **—** Specifies the name of the queue group up to 32 characters in length.

instance *instance-id* **—** Specifies the identification of a specific instance of the queue-group.

Values 1— 65535

ingress — Specifies statistics are for an ingress queue group.

egress — Specifies statistics are for an egress queue group.

interval *seconds* — Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the rate keyword is specified, the rate-per-second for each statistic is displayed.

access — Displays scheduler statistics applied on an access port.

network — Displays scheduler statistics applied on a network port.

port

Syntax **port** *port-id* **vport** *name* **[interval** *seconds***] [repeat** *repeat***][absolute|rate]**

Context monitor>qos>scheduler-stats

Description This command monitors scheduler statistics in a VPORT.

Parameters **port** *port-id* — Specifies the port ID.

Values slot/mda/port

vport *name* — Displays statistics for the named VPORT.

interval *seconds* — Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the rate keyword is specified, the rate-per-second for each statistic is displayed.

sap

Syntax **sap** *sap-id* **encap-group** *group-name* **[member** *encap-id***] [scheduler** *scheduler-name***] [interval** *seconds***] [repeat** *repeat***] [absolute|rate]**

Context monitor>qos>scheduler-stats

Description This command monitors scheduler statistics for a SAP encap-group.

Parameters **sap** *sap-id* — Specify the physical port identifier portion of the SAP definition.

encap-group *group-name* — Displays statistics for the encap group.

member *encap-id* — The value of the encap-id to be displayed.

Values 0 - 16777215

scheduler *scheduler-name* — Specify an existing scheduler-name. Scheduler names are configured in the config>qos>scheduler-policy>tier level context. This parameter is mandatory if the SAP resides on a LAG in adapt-qoslink or port-fair mode

Values An existing scheduler-name is in the form of a string up to 32 characters long composed of printable, 7-bit ASCII characters.

interval *seconds* — Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the rate keyword is specified, the rate-per-second for each statistic is displayed.

subscriber

Syntax **subscriber** *sub-ident-string* **[interval** *seconds***] [repeat** *repeat***] [absolute|rate] sap** *sap-id* **sla-profile** *sla-profile-name*

Context monitor>qos>scheduler-stats

Description This command monitors scheduler statistics for an SLA profile.

Parameters **subscriber** *sub-ident-string* — Specifies an existing subscriber a identification policy name.

interval *seconds* — Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the absolute keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the rate keyword is specified, the rate-per-second for each statistic is displayed.

sap *sap-id* **—** Specify the physical port identifier portion of the SAP definition.

sla-profile *sla-profile-name* **—** Specifies the SLA profile belonging to the subscriber host.

router

Syntax **router** *router-instance*

Context monitor

Description This command enables the context to configure criteria to monitor statistical information for BGP, LDP, MPLS, OSPF, OSPF3, PIM,RIP, and RSVP protocols.

Parameters *router-instance* — Specify the router name or service ID.

Values

router-name:	Base, management
service-id:	1 — 2147483647

Default Base

neighbor

Syntax **neighbor** *ip-address* [*ip-address*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>bgp

Description This command displays statistical BGP neighbor information at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified neighbor(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **neighbor** *ip-address* **—** Displays damping information for entries received from the BGP neighbor. Up to 5 IP addresses can be specified.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor>router>bgp# neighbor 180.0.0.10 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for BGP Neighbor 180.0.0.10
===============================================================================
At time t = 0 sec
-------------------------------------------------------------------------------
Recd. Prefixes   : 2                    Sent Prefixes    : 0
Recd. Paths      : 0                    Suppressed Paths : 0
Num of Flaps     : 0
i/p Messages     : 916                  o/p Messages     : 916
i/p Octets       : 17510                o/p Octets       : 17386
i/p Updates      : 2                    o/p Updates      : 0
-------------------------------------------------------------------------------
At time t = 3 sec
-------------------------------------------------------------------------------
Recd. Prefixes   : 0                    Sent Prefixes    : 0
Recd. Paths      : 0                    Suppressed Paths : 0
Num of Flaps     : 0
i/p Messages     : 0                    o/p Messages     : 0
i/p Octets       : 0                    o/p Octets       : 0
i/p Updates      : 0                    o/p Updates      : 0
-------------------------------------------------------------------------------
At time t = 6 sec
-------------------------------------------------------------------------------
Recd. Prefixes   : 0                    Sent Prefixes    : 0
Recd. Paths      : 0                    Suppressed Paths : 0
Num of Flaps     : 0
i/p Messages     : 0                    o/p Messages     : 0
i/p Octets       : 0                    o/p Octets       : 0
i/p Updates      : 0                    o/p Updates      : 0
-------------------------------------------------------------------------------
At time t = 9 sec
-------------------------------------------------------------------------------
Recd. Prefixes   : 0                    Sent Prefixes    : 0
Recd. Paths      : 0                    Suppressed Paths : 0
Num of Flaps     : 0
i/p Messages     : 0                    o/p Messages     : 0
i/p Octets       : 6                    o/p Octets       : 0
i/p Updates      : 0                    o/p Updates      : 0
===============================================================================
A:ALA-12>monitor>router>bgp#
```

statistics

Syntax **statistics** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>isis

Description This command displays statistical IS-IS traffic information at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified router statistics. The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **interval** *seconds* — Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor>router>isis# statistics interval 3 repeat 2 absolute
===============================================================================
ISIS Statistics
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
ISIS Instance     : 1                       SPF Runs       : 2
Purge Initiated   : 0                       LSP Regens.    : 11

CSPF Statistics

Requests          : 0                       Request Drops  : 0
Paths Found       : 0                       Paths Not Found: 0
-------------------------------------------------------------------------------
PDU Type   Received   Processed  Dropped    Sent       Retransmitted
-------------------------------------------------------------------------------
LSP        0          0          0          0          0
IIH        0          0          0          74         0
CSNP       0          0          0          0          0
PSNP       0          0          0          0          0
Unknown    0          0          0          0          0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
ISIS Instance     : 1                       SPF Runs       : 2
```

```
Purge Initiated   : 0                       LSP Regens.    : 11

CSPF Statistics

Requests          : 0                       Request Drops  : 0
Paths Found       : 0                       Paths Not Found: 0
-------------------------------------------------------------------------------
PDU Type   Received   Processed  Dropped    Sent       Retransmitted
-------------------------------------------------------------------------------
LSP        0          0          0          0          0
IIH        0          0          0          74         0
CSNP       0          0          0          0          0
PSNP       0          0          0          0          0
Unknown    0          0          0          0          0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
ISIS Instance     : 1                       SPF Runs       : 2
Purge Initiated   : 0                       LSP Regens.    : 11

CSPF Statistics

Requests          : 0                       Request Drops  : 0
Paths Found       : 0                       Paths Not Found: 0
-------------------------------------------------------------------------------
PDU Type   Received   Processed  Dropped    Sent       Retransmitted
-------------------------------------------------------------------------------
LSP        0          0          0          0          0
IIH        0          0          0          74         0
CSNP       0          0          0          0          0
PSNP       0          0          0          0          0
Unknown    0          0          0          0          0
===============================================================================


A:ALA-12>monitor>router>isis# statistics interval 3 repeat 2 rate
===============================================================================
ISIS Statistics
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
ISIS Instance     : 1                       SPF Runs       : 2
Purge Initiated   : 0                       LSP Regens.    : 11

CSPF Statistics

Requests          : 0                       Request Drops  : 0
Paths Found       : 0                       Paths Not Found: 0
-------------------------------------------------------------------------------
PDU Type   Received   Processed  Dropped    Sent       Retransmitted
-------------------------------------------------------------------------------
LSP        0          0          0          0          0
IIH        0          0          0          76         0
CSNP       0          0          0          0          0
PSNP       0          0          0          0          0
Unknown    0          0          0          0          0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
ISIS Instance     : 1                       SPF Runs       : 0
Purge Initiated   : 0                       LSP Regens.    : 0
```

```
CSPF Statistics

Requests          : 0                       Request Drops  : 0
Paths Found       : 0                       Paths Not Found: 0
-------------------------------------------------------------------------------
PDU Type   Received   Processed  Dropped    Sent       Retransmitted
-------------------------------------------------------------------------------
LSP        0          0          0          0          0
IIH        0          0          0          0          0
CSNP       0          0          0          0          0
PSNP       0          0          0          0          0
Unknown    0          0          0          0          0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
ISIS Instance     : 1                       SPF Runs       : 0
Purge Initiated   : 0                       LSP Regens.    : 0

CSPF Statistics

Requests          : 0                       Request Drops  : 0
Paths Found       : 0                       Paths Not Found: 0
-------------------------------------------------------------------------------
PDU Type   Received   Processed  Dropped    Sent       Retransmitted
-------------------------------------------------------------------------------
LSP        0          0          0          0          0
IIH        0          0          0          1          0
CSNP       0          0          0          0          0
PSNP       0          0          0          0          0
Unknown    0          0          0          0          0
===============================================================================
A:ALA-12>monitor>router>isis#
```

session

Syntax **session** *ldp-id* [*ldp-id*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>ldp

Description This command displays statistical information for LDP sessions at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified LDP session(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *ldp-id* — Specify the IP address of the LDP session to display.

Values *ip-address*[:*label-space*]
ip-address — a.b.c.d
label-space — [0..65535]

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-103>monitor>router>ldp# session 10.10.10.104 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for LDP Session 10.10.10.104
===============================================================================
                              Sent                    Received
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
FECs                          1                       2
Hello                         5288                    5289
Keepalive                     8225                    8225
Init                          1                       1
Label Mapping                 1                       4
Label Request                 0                       0
Label Release                 0                       0
Label Withdraw                0                       0
Label Abort                   0                       0
Notification                  0                       0
Address                       1                       1
Address Withdraw              0                       0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
FECs                          1                       2
Hello                         5288                    5289
Keepalive                     8226                    8226
Init                          1                       1
Label Mapping                 1                       4
Label Request                 0                       0
Label Release                 0                       0
Label Withdraw                0                       0
Label Abort                   0                       0
Notification                  0                       0
Address                       1                       1
Address Withdraw              0                       0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
FECs                          1                       2
Hello                         5288                    5290
```

```
Keepalive                      8226                      8226
Init                           1                         1
Label Mapping                  1                         4
Label Request                  0                         0
Label Release                  0                         0
Label Withdraw                 0                         0
Label Abort                    0                         0
Notification                   0                         0
Address                        1                         1
Address Withdraw               0                         0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
FECs                           1                         2
Hello                          5288                      5290
Keepalive                      8226                      8226
Init                           1                         1
Label Mapping                  1                         4
Label Request                  0                         0
Label Release                  0                         0
Label Withdraw                 0                         0
Label Abort                    0                         0
Notification                   0                         0
Address                        1                         1
Address Withdraw               0                         0
===============================================================================
A:ALA-12>monitor>router>ldp#
```

```
A:ALA-12>monitor>router>ldp# session 10.10.10.104 interval 3 repeat 3 rate
===============================================================================
Monitor statistics for LDP Session 10.10.10.104
===============================================================================
                               Sent                      Received
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
FECs                           1                         2
Hello                          5289                      5290
Keepalive                      8227                      8227
Init                           1                         1
Label Mapping                  1                         4
Label Request                  0                         0
Label Release                  0                         0
Label Withdraw                 0                         0
Label Abort                    0                         0
Notification                   0                         0
Address                        1                         1
Address Withdraw               0                         0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
FECs                           0                         0
Hello                          0                         0
Keepalive                      0                         0
Init                           0                         0
Label Mapping                  0                         0
Label Request                  0                         0
Label Release                  0                         0
Label Withdraw                 0                         0
Label Abort                    0                         0
```

```
Notification                0                         0
Address                     0                         0
Address Withdraw            0                         0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
FECs                        0                         0
Hello                       0                         0
Keepalive                   0                         0
Init                        0                         0
Label Mapping               0                         0
Label Request               0                         0
Label Release               0                         0
Label Withdraw              0                         0
Label Abort                 0                         0
Notification                0                         0
Address                     0                         0
Address Withdraw            0                         0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
FECs                        0                         0
Hello                       0                         0
Keepalive                   0                         0
Init                        0                         0
Label Mapping               0                         0
Label Request               0                         0
Label Release               0                         0
Label Withdraw              0                         0
Label Abort                 0                         0
Notification                0                         0
Address                     0                         0
Address Withdraw            0                         0
===============================================================================
A:ALA-12>monitor>router>ldp#
```

statistics

Syntax **statistics** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>ldp

Description Monitor statistics for LDP instance at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the LDP statistics. The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **interval** *seconds* — Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor>router>ldp# statistics interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for LDP instance
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                   Addr FECs Recv     : 0
Serv FECs Sent    : 1                   Serv FECs Recv     : 2
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                   Addr FECs Recv     : 0
Serv FECs Sent    : 1                   Serv FECs Recv     : 2
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                   Addr FECs Recv     : 0
Serv FECs Sent    : 1                   Serv FECs Recv     : 2
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                   Addr FECs Recv     : 0
Serv FECs Sent    : 1                   Serv FECs Recv     : 2
===============================================================================
A:ALA-12>monitor>router>ldp#


A:ALA-12>monitor>router>ldp# statistics interval 3 repeat 3 rate
===============================================================================
Monitor statistics for LDP instance
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                   Addr FECs Recv     : 0
Serv FECs Sent    : 1                   Serv FECs Recv     : 2
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                   Addr FECs Recv     : 0
Serv FECs Sent    : 0                   Serv FECs Recv     : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                   Addr FECs Recv     : 0
Serv FECs Sent    : 0                   Serv FECs Recv     : 0
-------------------------------------------------------------------------------
```

```
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Addr FECs Sent    : 0                    Addr FECs Recv     : 0
Serv FECs Sent    : 0                    Serv FECs Recv     : 0
===============================================================================
A:ALA-12>monitor>router>ldp#
```

interface

Syntax **interface** *interface* [*interface*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>mpls

Description This command displays statistics for MPLS interfaces at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the MPLS interface(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *interface* — Specify the interface's IP address (*ip-address*) or interface name (*ip-int-name*). Up to 5 interfaces can be specified. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor>router>mpls# interface system interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for MPLS Interface "system"
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
-------------------------------------------------------------------------------
```

```
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
===============================================================================
A:ALA-12>monitor>router>mpls#


A:ALA-12>monitor>router>mpls# interface system interval 3 repeat 3 rate
===============================================================================
Monitor statistics for MPLS Interface "system"
===============================================================================
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
  Transmitted  : Pkts - 0                    Octets - 0
  Received     : Pkts - 0                    Octets - 0
===============================================================================
A:ALA-12>monitor>router>mpls#
```

lsp-egress-statistics

Syntax **lsp-egress-stats** *lsp-name* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>mpls

Description This command displays egress statistics for LSP interfaces at the configured interval until the configured count is reached.

Default **no lsp-egress-statistics**

Parameters **repeat** *repeat* — Specifies how many times the command is repeated.

Values 10

Values 1 — 999

interval *seconds* — Specifies the interval for each display, in seconds.

Values 10

Values 3 — 60

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample

```
B:Dut-C-cpm2# monitor router mpls lsp-egress-stats sample repeat 3 interval 10 absolute
===============================================================================
Monitor egress statistics for MPLS LSP "sample"
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
LSP Name      : sample
-------------------------------------------------------------------------------
Collect Stats : Enabled                Accting Plcy. : 5
Adm State     : Up                     PSB Match     : True
FC BE
InProf Pkts   : 0                      OutProf Pkts  : 551
InProf Octets : 0                      OutProf Octets: 560918
FC L2
InProf Pkts   : 0                      OutProf Pkts  : 551
InProf Octets : 0                      OutProf Octets: 560918
FC AF
InProf Pkts   : 551                    OutProf Pkts  : 0
InProf Octets : 560918                 OutProf Octets: 0
FC L1
InProf Pkts   : 551                    OutProf Pkts  : 0
InProf Octets : 560918                 OutProf Octets: 0
FC H2
InProf Pkts   : 0                      OutProf Pkts  : 551
InProf Octets : 0                      OutProf Octets: 560918
FC EF
InProf Pkts   : 0                      OutProf Pkts  : 551
InProf Octets : 0                      OutProf Octets: 560918
FC H1
InProf Pkts   : 0                      OutProf Pkts  : 551
InProf Octets : 0                      OutProf Octets: 560918
FC NC
InProf Pkts   : 551                    OutProf Pkts  : 0
InProf Octets : 560918                 OutProf Octets: 0
-------------------------------------------------------------------------------
At time t = 10 sec (Mode: Absolute)
-------------------------------------------------------------------------------
LSP Name      : sample
```

```
-------------------------------------------------------------------------------
Collect Stats : Enabled                Accting Plcy. : 5
Adm State     : Up                     PSB Match     : True
FC BE
InProf Pkts   : 0                      OutProf Pkts  : 580
InProf Octets : 0                      OutProf Octets: 590440
FC L2
InProf Pkts   : 0                      OutProf Pkts  : 580
InProf Octets : 0                      OutProf Octets: 590440
FC AF
InProf Pkts   : 580                    OutProf Pkts  : 0
InProf Octets : 590440                 OutProf Octets: 0
FC L1
InProf Pkts   : 580                    OutProf Pkts  : 0
InProf Octets : 590440                 OutProf Octets: 0
FC H2
InProf Pkts   : 0                      OutProf Pkts  : 580
InProf Octets : 0                      OutProf Octets: 590440
FC EF
InProf Pkts   : 0                      OutProf Pkts  : 580
InProf Octets : 0                      OutProf Octets: 590440
FC H1
InProf Pkts   : 0                      OutProf Pkts  : 580
InProf Octets : 0                      OutProf Octets: 590440
FC NC
InProf Pkts   : 580                    OutProf Pkts  : 0
InProf Octets : 590440                 OutProf Octets: 0
-------------------------------------------------------------------------------
At time t = 20 sec (Mode: Absolute)
-------------------------------------------------------------------------------
LSP Name      : sample
-------------------------------------------------------------------------------
Collect Stats : Enabled                Accting Plcy. : 5
Adm State     : Up                     PSB Match     : True
FC BE
InProf Pkts   : 0                      OutProf Pkts  : 609
InProf Octets : 0                      OutProf Octets: 619962
FC L2
InProf Pkts   : 0                      OutProf Pkts  : 609
InProf Octets : 0                      OutProf Octets: 619962
FC AF
InProf Pkts   : 609                    OutProf Pkts  : 0
InProf Octets : 619962                 OutProf Octets: 0
FC L1
InProf Pkts   : 609                    OutProf Pkts  : 0
InProf Octets : 619962                 OutProf Octets: 0
FC H2
InProf Pkts   : 0                      OutProf Pkts  : 609
InProf Octets : 0                      OutProf Octets: 619962
FC EF
InProf Pkts   : 0                      OutProf Pkts  : 609
InProf Octets : 0                      OutProf Octets: 619962
FC H1
InProf Pkts   : 0                      OutProf Pkts  : 609
InProf Octets : 0                      OutProf Octets: 619962
FC NC
InProf Pkts   : 609                    OutProf Pkts  : 0
InProf Octets : 619962                 OutProf Octets: 0
-------------------------------------------------------------------------------
At time t = 30 sec (Mode: Absolute)
-------------------------------------------------------------------------------
```

```
LSP Name      : sample
-------------------------------------------------------------------------------
Collect Stats : Enabled                Accting Plcy. : 5
Adm State     : Up                     PSB Match     : True
FC BE
InProf Pkts   : 0                      OutProf Pkts  : 638
InProf Octets : 0                      OutProf Octets: 649484
FC L2
InProf Pkts   : 0                      OutProf Pkts  : 638
InProf Octets : 0                      OutProf Octets: 649484
FC AF
InProf Pkts   : 638                    OutProf Pkts  : 0
InProf Octets : 649484                 OutProf Octets: 0
FC L1
InProf Pkts   : 638                    OutProf Pkts  : 0
InProf Octets : 649484                 OutProf Octets: 0
FC H2
InProf Pkts   : 0                      OutProf Pkts  : 638
InProf Octets : 0                      OutProf Octets: 649484
FC EF
InProf Pkts   : 0                      OutProf Pkts  : 638
InProf Octets : 0                      OutProf Octets: 649484
FC H1
InProf Pkts   : 0                      OutProf Pkts  : 638
InProf Octets : 0                      OutProf Octets: 649484
FC NC
InProf Pkts   : 638                    OutProf Pkts  : 0
InProf Octets : 649484                 OutProf Octets: 0
===============================================================================
B:Dut-C-cpm2#
```

lsp-ingress-statistics

Syntax **lsp-ingress-stats lsp** *lsp-name* **sender** *sender-address* [**interval** *seconds*] [**repeat** *repeat*] [**absolute | rate**]

Context monitor>router>mpls

Description This command displays ingress statistics for LSP interfaces at the configured interval until the configured count is reached.

Parameters **repeat** *repeat* — Specifies how many times the command is repeated.

Values 10

Values 1 — 999

interval *seconds* — Specifies the interval for each display, in seconds.

Values 10

Values 3 — 60

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
B:Dut-C-cpm2# monitor router mpls lsp-ingress-stats lsp sample 1.1.1.1 repeat 3 interval 10
absolute
===============================================================================
Monitor ingress statistics for MPLS LSP "sample"
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
LSP Name      : sample
Sender        : 1.1.1.1
-------------------------------------------------------------------------------
Collect Stats : Enabled                Accting Plcy. : None
Adm State     : Up                     PSB Match     : True
FC BE
InProf Pkts   : 539                    OutProf Pkts  : 0
InProf Octets : 548702                 OutProf Octets: 0
FC L2
InProf Pkts   : 0                      OutProf Pkts  : 539
InProf Octets : 0                      OutProf Octets: 548702
FC AF
InProf Pkts   : 0                      OutProf Pkts  : 0
InProf Octets : 0                      OutProf Octets: 0
FC L1
InProf Pkts   : 1078                   OutProf Pkts  : 0
InProf Octets : 1097404                OutProf Octets: 0
FC H2
InProf Pkts   : 0                      OutProf Pkts  : 539
InProf Octets : 0                      OutProf Octets: 548702
FC EF
InProf Pkts   : 539                    OutProf Pkts  : 0
InProf Octets : 548702                 OutProf Octets: 0
FC H1
InProf Pkts   : 539                    OutProf Pkts  : 0
InProf Octets : 548702                 OutProf Octets: 0
FC NC
InProf Pkts   : 0                      OutProf Pkts  : 539
InProf Octets : 0                      OutProf Octets: 548702
-------------------------------------------------------------------------------
At time t = 10 sec (Mode: Absolute)
-------------------------------------------------------------------------------
LSP Name      : sample
Sender        : 1.1.1.1
-------------------------------------------------------------------------------
Collect Stats : Enabled                Accting Plcy. : None
Adm State     : Up                     PSB Match     : True
FC BE
InProf Pkts   : 568                    OutProf Pkts  : 0
InProf Octets : 578224                 OutProf Octets: 0
FC L2
InProf Pkts   : 0                      OutProf Pkts  : 568
InProf Octets : 0                      OutProf Octets: 578224
FC AF
InProf Pkts   : 0                      OutProf Pkts  : 0
InProf Octets : 0                      OutProf Octets: 0
FC L1
InProf Pkts   : 1136                   OutProf Pkts  : 0
InProf Octets : 1156448                OutProf Octets: 0
FC H2
InProf Pkts   : 0                      OutProf Pkts  : 568
```

```
InProf Octets : 0                       OutProf Octets: 578224
FC EF
InProf Pkts   : 568                     OutProf Pkts  : 0
InProf Octets : 578224                  OutProf Octets: 0
FC H1
InProf Pkts   : 568                     OutProf Pkts  : 0
InProf Octets : 578224                  OutProf Octets: 0
FC NC
InProf Pkts   : 0                       OutProf Pkts  : 568
InProf Octets : 0                       OutProf Octets: 578224
-------------------------------------------------------------------------------
At time t = 20 sec (Mode: Absolute)
-------------------------------------------------------------------------------
LSP Name      : sample
Sender        : 1.1.1.1
-------------------------------------------------------------------------------
Collect Stats : Enabled                 Accting Plcy. : None
Adm State     : Up                      PSB Match     : True
FC BE
InProf Pkts   : 597                     OutProf Pkts  : 0
InProf Octets : 607746                  OutProf Octets: 0
FC L2
InProf Pkts   : 0                       OutProf Pkts  : 597
InProf Octets : 0                       OutProf Octets: 607746
FC AF
InProf Pkts   : 0                       OutProf Pkts  : 0
InProf Octets : 0                       OutProf Octets: 0
FC L1
InProf Pkts   : 1194                    OutProf Pkts  : 0
InProf Octets : 1215492                 OutProf Octets: 0
FC H2
InProf Pkts   : 0                       OutProf Pkts  : 597
InProf Octets : 0                       OutProf Octets: 607746
FC EF
InProf Pkts   : 597                     OutProf Pkts  : 0
InProf Octets : 607746                  OutProf Octets: 0
FC H1
InProf Pkts   : 597                     OutProf Pkts  : 0
InProf Octets : 607746                  OutProf Octets: 0
FC NC
InProf Pkts   : 0                       OutProf Pkts  : 597
InProf Octets : 0                       OutProf Octets: 607746
-------------------------------------------------------------------------------
At time t = 30 sec (Mode: Absolute)
-------------------------------------------------------------------------------
LSP Name      : sample
Sender        : 1.1.1.1
-------------------------------------------------------------------------------
Collect Stats : Enabled                 Accting Plcy. : None
Adm State     : Up                      PSB Match     : True
FC BE
InProf Pkts   : 627                     OutProf Pkts  : 0
InProf Octets : 638286                  OutProf Octets: 0
FC L2
InProf Pkts   : 0                       OutProf Pkts  : 627
InProf Octets : 0                       OutProf Octets: 638286
FC AF
InProf Pkts   : 0                       OutProf Pkts  : 0
InProf Octets : 0                       OutProf Octets: 0
FC L1
InProf Pkts   : 1254                    OutProf Pkts  : 0
```

```
InProf Octets : 1276572                OutProf Octets: 0
FC H2
InProf Pkts   : 0                      OutProf Pkts  : 627
InProf Octets : 0                      OutProf Octets: 638286
FC EF
InProf Pkts   : 627                    OutProf Pkts  : 0
InProf Octets : 638286                 OutProf Octets: 0
FC H1
InProf Pkts   : 627                    OutProf Pkts  : 0
InProf Octets : 638286                 OutProf Octets: 0
FC NC
InProf Pkts   : 0                      OutProf Pkts  : 627
InProf Octets : 0                      OutProf Octets: 638286
===============================================================================
B:Dut-C-cpm2#
```

ospf

Syntax **ospf** [*ospf-instance*]

Context monitor>router>ospf

Description This command enables the context to configure monitor commands for the OSPF instance.

Parameters *ospf-instance* — Specifies the OSPF instance.

Values 1 — 31

ospf3

Syntax **ospf3**

Context monitor>router

Description This command enables the context to configure monitor commands for the OSPF3 instance.

interface

Syntax **interface** *interface* [*interface*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>ospf
monitor>router>ospf3

Description This command displays statistics for OSPF interfaces at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the OSPF interface(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *interface* — Specify the interface's IP address (*ip-address*s) or interface name (*ip-int-name*). Up to 5 interfaces can be specified. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor>router>ospf# interface to-104 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for OSPF Interface "to-104"
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Tot Rx Packets : 8379                  Tot Tx Packets : 8528
Rx Hellos      : 8225                  Tx Hellos      : 8368
Rx DBDs        : 6                     Tx DBDs        : 12
Rx LSRs        : 2                     Tx LSRs        : 1
Rx LSUs        : 55                    Tx LSUs        : 95
Rx LS Acks     : 91                    Tx LS Acks     : 52
Retransmits    : 2                     Discards       : 0
Bad Networks   : 0                     Bad Virt Links : 0
Bad Areas      : 0                     Bad Dest Addrs : 0
Bad Auth Types : 0                     Auth Failures  : 0
Bad Neighbors  : 0                     Bad Pkt Types  : 0
Bad Lengths    : 0                     Bad Hello Int. : 0
Bad Dead Int.  : 0                     Bad Options    : 0
Bad Versions   : 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Tot Rx Packets : 8379                  Tot Tx Packets : 8528
Rx Hellos      : 8225                  Tx Hellos      : 8368
Rx DBDs        : 6                     Tx DBDs        : 12
Rx LSRs        : 2                     Tx LSRs        : 1
Rx LSUs        : 55                    Tx LSUs        : 95
Rx LS Acks     : 91                    Tx LS Acks     : 52
Retransmits    : 2                     Discards       : 0
Bad Networks   : 0                     Bad Virt Links : 0
Bad Areas      : 0                     Bad Dest Addrs : 0
```

```
Bad Auth Types : 0                    Auth Failures  : 0
Bad Neighbors  : 0                    Bad Pkt Types  : 0
Bad Lengths    : 0                    Bad Hello Int. : 0
Bad Dead Int.  : 0                    Bad Options    : 0
Bad Versions   : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Tot Rx Packets : 8380                 Tot Tx Packets : 8529
Rx Hellos      : 8226                 Tx Hellos      : 8369
Rx DBDs        : 6                    Tx DBDs        : 12
Rx LSRs        : 2                    Tx LSRs        : 1
Rx LSUs        : 55                   Tx LSUs        : 95
Rx LS Acks     : 91                   Tx LS Acks     : 52
Retransmits    : 2                    Discards       : 0
Bad Networks   : 0                    Bad Virt Links : 0
Bad Areas      : 0                    Bad Dest Addrs : 0
Bad Auth Types : 0                    Auth Failures  : 0
Bad Neighbors  : 0                    Bad Pkt Types  : 0
Bad Lengths    : 0                    Bad Hello Int. : 0
Bad Dead Int.  : 0                    Bad Options    : 0
Bad Versions   : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Tot Rx Packets : 8380                 Tot Tx Packets : 8529
Rx Hellos      : 8226                 Tx Hellos      : 8369
Rx DBDs        : 6                    Tx DBDs        : 12
Rx LSRs        : 2                    Tx LSRs        : 1
Rx LSUs        : 55                   Tx LSUs        : 95
Rx LS Acks     : 91                   Tx LS Acks     : 52
Retransmits    : 2                    Discards       : 0
Bad Networks   : 0                    Bad Virt Links : 0
Bad Areas      : 0                    Bad Dest Addrs : 0
Bad Auth Types : 0                    Auth Failures  : 0
Bad Neighbors  : 0                    Bad Pkt Types  : 0
Bad Lengths    : 0                    Bad Hello Int. : 0
Bad Dead Int.  : 0                    Bad Options    : 0
Bad Versions   : 0
===============================================================================
A:ALA-12>monitor>router>ospf#


A:ALA-12>monitor>router>ospf# interface to-104 interval 3 repeat 3 rate
===============================================================================
Monitor statistics for OSPF Interface "to-104"
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Tot Rx Packets : 8381                 Tot Tx Packets : 8530
Rx Hellos      : 8227                 Tx Hellos      : 8370
Rx DBDs        : 6                    Tx DBDs        : 12
Rx LSRs        : 2                    Tx LSRs        : 1
Rx LSUs        : 55                   Tx LSUs        : 95
Rx LS Acks     : 91                   Tx LS Acks     : 52
Retransmits    : 2                    Discards       : 0
Bad Networks   : 0                    Bad Virt Links : 0
Bad Areas      : 0                    Bad Dest Addrs : 0
Bad Auth Types : 0                    Auth Failures  : 0
Bad Neighbors  : 0                    Bad Pkt Types  : 0
Bad Lengths    : 0                    Bad Hello Int. : 0
```

```
Bad Dead Int.  : 0                     Bad Options    : 0
Bad Versions   : 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
Tot Rx Packets : 0                     Tot Tx Packets : 0
Rx Hellos      : 0                     Tx Hellos      : 0
Rx DBDs        : 0                     Tx DBDs        : 0
Rx LSRs        : 0                     Tx LSRs        : 0
Rx LSUs        : 0                     Tx LSUs        : 0
Rx LS Acks     : 0                     Tx LS Acks     : 0
Retransmits    : 0                     Discards       : 0
Bad Networks   : 0                     Bad Virt Links : 0
Bad Areas      : 0                     Bad Dest Addrs : 0
Bad Auth Types : 0                     Auth Failures  : 0
Bad Neighbors  : 0                     Bad Pkt Types  : 0
Bad Lengths    : 0                     Bad Hello Int. : 0
Bad Dead Int.  : 0                     Bad Options    : 0
Bad Versions   : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Tot Rx Packets : 0                     Tot Tx Packets : 0
Rx Hellos      : 0                     Tx Hellos      : 0
Rx DBDs        : 0                     Tx DBDs        : 0
Rx LSRs        : 0                     Tx LSRs        : 0
Rx LSUs        : 0                     Tx LSUs        : 0
Rx LS Acks     : 0                     Tx LS Acks     : 0
Retransmits    : 0                     Discards       : 0
Bad Networks   : 0                     Bad Virt Links : 0
Bad Areas      : 0                     Bad Dest Addrs : 0
Bad Auth Types : 0                     Auth Failures  : 0
Bad Neighbors  : 0                     Bad Pkt Types  : 0
Bad Lengths    : 0                     Bad Hello Int. : 0
Bad Dead Int.  : 0                     Bad Options    : 0
Bad Versions   : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Tot Rx Packets : 0                     Tot Tx Packets : 0
Rx Hellos      : 0                     Tx Hellos      : 0
Rx DBDs        : 0                     Tx DBDs        : 0
Rx LSRs        : 0                     Tx LSRs        : 0
Rx LSUs        : 0                     Tx LSUs        : 0
Rx LS Acks     : 0                     Tx LS Acks     : 0
Retransmits    : 0                     Discards       : 0
Bad Networks   : 0                     Bad Virt Links : 0
Bad Areas      : 0                     Bad Dest Addrs : 0
Bad Auth Types : 0                     Auth Failures  : 0
Bad Neighbors  : 0                     Bad Pkt Types  : 0
Bad Lengths    : 0                     Bad Hello Int. : 0
Bad Dead Int.  : 0                     Bad Options    : 0
Bad Versions   : 0
===============================================================================
A:ALA-12>monitor>router>ospf#
```

neighbor

Syntax **neighbor** *ip-address* [*ip-address*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>ospf

Description This command displays statistical OSPF or OSPF3 neighbor information at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified OSPF neighbor(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **neighbor** *ip-address* **—** The IP address to display information for entries received from the specified OPSF neighbor. Up to 5 IP addresses can be specified.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor>router# ospf neighbor 10.0.0.104 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for OSPF Neighbor 10.0.0.104
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
```

```
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
===============================================================================
A:ALA-12>monitor>router#


A:ALA-12>monitor>router# ospf neighbor 10.0.0.104 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for OSPF Neighbor 10.0.0.104
===============================================================================
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Bad Nbr States   : 0                    LSA Inst fails   : 0
Bad Seq Nums     : 0                    Bad MTUs         : 0
Bad Packets      : 0                    LSA not in LSDB  : 0
Option Mismatches: 0                    Nbr Duplicates   : 0
===============================================================================
A:ALA-12>monitor>router#
```

neighbor

Syntax **neighbor** [*router-id*] [*interface-name*] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>ospf3

Description This command displays statistical OSPF or OSPF3 neighbor information at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified OSPF neighbor(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **neighbor** *ip-address* **—** The IP address to display information for entries received from the specified OSPF neighbor. Up to 5 IP addresses can be specified.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

router-id — The router ID for an existing IP interface.

virtual-link

Syntax **virtual-link** *nbr-rtr-id* **area** *area-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>ospf
monitor>router>ospf3

Description This command displays statistical OSPF virtual link information at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified neighbor(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *nbr-rtr-id* — The IP address to uniquely identify a neighboring router in the autonomous system.

area *area-id* — The OSPF area ID, expressed in dotted decimal notation or as a 32-bit decimal integer.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

virtual-neighbor

Syntax **virtual-neighbor** *nbr-rtr-id* **area** *area-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>ospf
monitor>router>ospf3

Description This command displays statistical OSPF virtual neighbor information at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified OSPF virtual neighbor router. The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *nbr-rtr-id* — The IP address to uniquely identify a neighboring router in the autonomous system.

area *area-id* — The OSPF area ID, expressed in dotted decimal notation or as a 32-bit decimal integer.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

group

Syntax **group** *grp-ip-address* [**source** *ip-address*] [**interval** *interval*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>pim

Description This command monitors statistics for a PIM source group.

Parameters *grp-ip-address* — The IP address of an multicast group that identifies a set of recipients that are interested in a particular data stream.

source *ip-address* **—** The source IP address to use in the ping requests in dotted decimal notation.

Default The IP address of the egress IP interface.

Values 0.0.0.0 — 255.255.255.255

interval *interval* **—** Configures the interval for each display in seconds.

Default 10 seconds

Values 10|20|30|40|50|60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

neighbor

Syntax **neighbor** *neighbor* [*neighbor*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>rip

Description This command displays statistical RIP neighbor information at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified RIP neighbor(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **neighbor** *ip-address* **—** The IP address to display information for entries received from the specified RIP neighbor. Up to 5 IP addresses can be displayed.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

interface

Syntax **interface** *interface* [*interface*...(up to 5 max)][**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>rsvp

Description This command displays statistics for RSVP interfaces at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the RSVP interface(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *interface* — Specify the interface's IP address (*ip-address*s) or interface name (*ip-int-name*). Up to 5 interfaces can be specified. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

service

Syntax **service**

Context monitor

Description This command enables the context to configure criteria to monitor specific service SAP criteria.

id

Syntax **id** *service-id*

Context monitor>service

Description This command displays statistics for a specific service, specified by the *service-id*, at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the *service-id*. The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *service-id* — The unique service identification number which identifies the service in the service domain.

sap

Syntax **sap** *sap-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>service>id *service-id*

Description This command monitors statistics for a SAP associated with this service.

This command displays statistics for a specific SAP, identified by the *port-id* and encapsulation value, at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the SAP. The subsequent statistical information listed for each interval is displayed as a delta to the previous display. When the keyword **rate** is specified, the “rate per second” for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters *sap-id* — Specifies the physical port identifier portion of the SAP definition.

sap-id:	null	[*port-id* | *bundle-id* | *bpgrp-id* | *lag-id* | *aps-id*]
	dot1q	[*port-id* | *bundle-id* | *bpgrp-id* | *lag-id* | *aps-id*]:*qtag1*
	qinq	[*port-id* | *bundle-id* | *bpgrp-id* | *lag-id*]:*qtag1.qtag2*
	atm	[*port-id* | *aps-id* | *bundle-id* | *bpgrp-id*][:*vpi/vci* |*vpi* |*vpi1.vpi2*]
	frame	[*port-id* | *bundle-id*]:*dlci*
	cisco-hdlc	*slot/mda/port.channel*
	port-id	*slot/mda/port*[.*channel*]

aps-id	aps-*group-id*[.*channel*]	
	aps	keyword
	group-id	1 — 64
bpgrp-id:	bpgrp-*type-bpgrp-num*	
	bpgrp	keyword
	type	ima
	bpgrp-num	1 — 1280
ccag-id	ccag-*id*.*path-id*[*cc-type*]:*cc-id*	
	ccag	keyword
	id	1 — 8
	path-id	a, b
	cc-type	.sap-net, .net-sap
	cc-id	0 — 4094
lag-id	lag-*id*	
	lag	keyword
	id	1 — 800

port-id — Specifies the physical port ID in the *slot/mda/port* format.

If the card in the slot has MDAs installed, the *port-id* must be in the slot_number/MDA_number/port_number format. For example 6/2/3 specifies port 3 on MDA 2 in slot 6.

The *port-id* must reference a valid port type. When the *port-id* parameter represents SONET/SDH and TDM channels, the port ID must include the channel ID. A period "." separates the physical port from the *channel-id*. The port must be configured as an access port.

If the SONET/SDH port is configured as clear-channel then only the port is specified.

bundle-id — Specifies the multilink bundle to be associated with this IP interface. The **bundle** keyword must be entered at the beginning of the parameter.
The command syntax must be configured as follows:

bundle-id:	**bundle-***type-slot-id*/*mda-slot*.*bundle-num*
bundle-id value range:	1 — 128

For example:

```
*A:ALA-12>config#  port bundle-ppp-5/1.1
*A:ALA-12>config>port# multilink-bundle
```

bgprp-id — Specifies the bundle protection group ID to be associated with this IP interface. The **bpgrp** keyword must be entered at the beginning of the parameter.

The command syntax must be configured as follows:

bpgrp-id:	bpgrp-*type-bpgrp-num*
type:	ima
bpgrp-num value range:	1 — 1280

For example:

```
*A:ALA-12>config# port bpgrp-ima-1
*A:ALA-12>config>service>vpls$ sap bpgrp-ima-1
```

qtag1, qtag2 — Specifies the encapsulation value used to identify the SAP on the port or sub-port. If this parameter is not specificially defined, the default value is 0.

Values	qtag1:	0 — 4094
	qtag2 :	* | 0 — 4094

The values depends on the encapsulation type configured for the interface. The following table describes the allowed values for the port and encapsulation types.

Port Type	Encap-Type	Allowed Values	Comments
Ethernet	Null	0	The SAP is identified by the port.
Ethernet	Dot1q	0 — 4094	The SAP is identified by the 802.1Q tag on the port. Note that a 0 qtag1 value also accepts untagged packets on the dot1q port.
Ethernet	QinQ	qtag1: 0 — 4094 qtag2: 0 — 4094	The SAP is identified by two 802.1Q tags on the port. Note that a 0 qtag1 value also accepts untagged packets on the dot1q port.
SONET/SDH	IPCP	-	The SAP is identified by the channel. No BCP is deployed and all traffic is IP.
SONET/SDH TDM	BCP-Null	0	The SAP is identified with a single service on the channel. Tags are assumed to be part of the customer packet and not a service delimiter.
SONET/SDH TDM	BCP-Dot1q	0 — 4094	The SAP is identified by the 802.1Q tag on the channel.
SONET/SDH TDM	Frame Relay	16 — 991	The SAP is identified by the data link connection identifier (DLCI).
SONET/SDH ATM	ATM	vpi (NNI) 0 — 4095 vpi (UNI) 0 — 255 vci 1, 2, 5 — 65535 -	The SAP is identified by port or by PVPC or PVCC identifier (vpi, vpi/vci, or vpi range)

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 **—** 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the absolute rate-per-second value for each statistic is displayed.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
*A:cses-A13# monitor service id 88  sap 1/1/2:0
===============================================================================
Monitor statistics for Service 88 SAP 1/1/2:0
```

```
===============================================================================
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Sap Statistics
-------------------------------------------------------------------------------
Last Cleared Time     : N/A
                        Packets                 Octets
Forwarding Engine Stats
Dropped               : 0                       0
Off. HiPrio           : 0                       0
Off. LowPrio          : 0                       0
Off. Uncolor          : 0                       0

Queueing Stats(Ingress QoS Policy 1)
Dro. HiPrio           : 0                       0
Dro. LowPrio          : 0                       0
For. InProf           : 0                       0
For. OutProf          : 0                       0

Queueing Stats(Egress QoS Policy 1)
Dro. InProf           : 0                       0
Dro. OutProf          : 0                       0
For. InProf           : 0                       0
For. OutProf          : 0                       0
-------------------------------------------------------------------------------
Sap per Queue Stats
-------------------------------------------------------------------------------
                        Packets                 Octets

Ingress Queue 1 (Unicast) (Priority)
Off. HiPrio           : 0                       0
Off. LoPrio           : 0                       0
Dro. HiPrio           : 0                       0
Dro. LoPrio           : 0                       0
For. InProf           : 0                       0
For. OutProf          : 0                       0
```

sdp

Syntax **sdp** {*sdp-id* | **far-end** *ip-address*} [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>service>id *service-id*

Description This command monitors statistics for a SDP binding associated with this service.

Parameters *sdp-id* — Specify the SDP identifier.

Values 1 — 17407

far-end *ip-address* **—** The system address of the far-end SR OS router for the SDP in dotted decimal notation.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 11 seconds

Values 11 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the absolute rate-per-second value for each statistic is displayed.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12# monitor service id 100 sdp 10 repeat 3
===============================================================================
Monitor statistics for Service 100 SDP binding 10
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
I. Fwd. Pkts.   : 0                    I. Dro. Pkts.   : 0
E. Fwd. Pkts.   : 0                    E. Fwd. Octets  : 0
-------------------------------------------------------------------------------
At time t = 11 sec (Mode: Delta)
-------------------------------------------------------------------------------
I. Fwd. Pkts.   : 0                    I. Dro. Pkts.   : 0
E. Fwd. Pkts.   : 0                    E. Fwd. Octets  : 0
-------------------------------------------------------------------------------
At time t = 22 sec (Mode: Delta)
-------------------------------------------------------------------------------
I. Fwd. Pkts.   : 0                    I. Dro. Pkts.   : 0
E. Fwd. Pkts.   : 0                    E. Fwd. Octets  : 0
-------------------------------------------------------------------------------
At time t = 33 sec (Mode: Delta)
-------------------------------------------------------------------------------
I. Fwd. Pkts.   : 0                    I. Dro. Pkts.   : 0
E. Fwd. Pkts.   : 0                    E. Fwd. Octets  : 0
===============================================================================
A:ALA-12#
```

vrrp

Syntax **vrrp**

Context monitor>router

Description This command enables the context to configure criteria to monitor VRRP statistical information for a VRRP enabled on a specific interface.

instance

Syntax **instance interface** *interface-name* **vr-id** *virtual-router-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>router>vrrp

Description Monitor statistics for a VRRP instance.

Parameters *interface-name* — The name of the existing IP interface on which VRRP is configured.

vr-id *virtual-router-id* **—** The virtual router ID for the existing IP interface, expressed as a decimal integer.

interval *seconds* **—** Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

subscriber

Syntax **subscriber** *sub-ident-string* **sap** *sap-id* **sla-profile** *sla-profile-name* [**base** | **ingress-queue-id** *ingress-queue-id* | **egress-queue-id** *egress-queue-id*] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>service

Description This command monitors statistics for a subscriber.

Parameters **sub-ident-string —** Specifies an existing subscriber identification profile to monitor.

sap *sap-id* **—** Specifies the physical port identifier portion of the SAP definition.

Values dlci 16 — 1022

sla-profile *sla-profile-name* **—** Specifies an existing SLA profile.

interval *seconds* **—** Configures the interval for each display in seconds

Default 11

Values 11 — 60

repeat *repeat* **—** Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

Default mode delta

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

base — Monitor base statistics.

ingress-queue-id *ingress-queue-id* **—** Monitors statistics for this queue.

Values 1 — 32

egress-queue-id *egress-queue-id* **—** Monitors statistics for this queue.

Values 1 — 8

Sample Output

```
A:Dut-A# monitor service subscriber alcatel_100 sap 1/2/1:101 sla-profile sla_default
===============================================================================
Monitor statistics for Subscriber alcatel_100
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
SLA Profile Instance statistics
-------------------------------------------------------------------------------
                          Packets                 Octets
Off. HiPrio           : 0                       0
Off. LowPrio          : 94531                   30704535
Off. Uncolor          : 0                       0

Queueing Stats (Ingress QoS Policy 1000)
Dro. HiPrio           : 0                       0
Dro. LowPrio          : 7332                    2510859
For. InProf           : 0                       0
For. OutProf          : 87067                   28152288

Queueing Stats (Egress QoS Policy 1000)
Dro. InProf           : 880                     127660
Dro. OutProf          : 0                       0
For. InProf           : 90862                   12995616
For. OutProf          : 0                       0
-------------------------------------------------------------------------------
SLA Profile Instance per Queue statistics
-------------------------------------------------------------------------------
                          Packets                 Octets
Ingress Queue 1 (Unicast) (Priority)
Off. HiPrio           : 0                       0
Off. LowPrio          : 0                       0
Off. Uncolor          : 0                       0
Dro. HiPrio           : 0                       0
Dro. LowPrio          : 0                       0
For. InProf           : 0                       0
For. OutProf          : 0                       0

Ingress Queue 2 (Unicast) (Priority)
Off. HiPrio           : 0                       0
Off. LowPrio          : 94531                   30704535
```

```
Off. Uncolor          : 0                     0
Dro. HiPrio           : 0                     0
Dro. LowPrio          : 7332                  2510859
For. InProf           : 0                     0
For. OutProf          : 87067                 28152288

Ingress Queue 3 (Unicast) (Priority)
Off. HiPrio           : 0                     0
Off. LowPrio          : 0                     0
Off. Uncolor          : 0                     0
Dro. HiPrio           : 0                     0
Dro. LowPrio          : 0                     0
For. InProf           : 0                     0
For. OutProf          : 0                     0

Ingress Queue 11 (Multipoint) (Priority)
Off. HiPrio           : 0                     0
Off. LowPrio          : 0                     0
Off. Uncolor          : 0                     0
Dro. HiPrio           : 0                     0
Dro. LowPrio          : 0                     0
For. InProf           : 0                     0
For. OutProf          : 0                     0

Egress Queue 1
Dro. InProf           : 880                   127660
Dro. OutProf          : 0                     0
For. InProf           : 90862                 12995616
For. OutProf          : 0                     0

Egress Queue 2
Dro. InProf           : 0                     0
Dro. OutProf          : 0                     0
For. InProf           : 0                     0
For. OutProf          : 0                     0

Egress Queue 3
Dro. InProf           : 0                     0
Dro. OutProf          : 0                     0
For. InProf           : 0                     0
For. OutProf          : 0                     0
===============================================================================
A:Dut-A#


A:Dut-A# monitor service subscriber alcatel_100 sap 1/2/1:101 sla-profile sla_default base
rate
===============================================================================
Monitor statistics for Subscriber alcatel_100
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
SLA Profile Instance statistics
-------------------------------------------------------------------------------
                        Packets                 Octets
Off. HiPrio           : 0                     0
Off. LowPrio          : 109099                35427060
Off. Uncolor          : 0                     0
Queueing Stats (Ingress QoS Policy 1000)
Dro. HiPrio           : 0                     0
Dro. LowPrio          : 8449                  2894798
```

```
For. InProf           : 0                      0
For. OutProf          : 100523                 32489663
Queueing Stats (Egress QoS Policy 1000)
Dro. InProf           : 880                    127660
Dro. OutProf          : 0                      0
For. InProf           : 105578                 15104553
For. OutProf          : 0                      0
-------------------------------------------------------------------------------
At time t = 11 sec (Mode: Rate)
-------------------------------------------------------------------------------
SLA Profile Instance statistics
-------------------------------------------------------------------------------
                        Packets                Octets                 % Port
                                                                      Util.
Off. HiPrio           : 0                      0                      0.00
Off. LowPrio          : 1469                   477795                 0.38
Off. Uncolor          : 0                      0                      0.00
Queueing Stats (Ingress QoS Policy 1000)
Dro. HiPrio           : 0                      0                      0.00
Dro. LowPrio          : 119                    40691                  0.03
For. InProf           : 0                      0                      0.00
For. OutProf          : 1349                   437350                 0.34
Queueing Stats (Egress QoS Policy 1000)
Dro. InProf           : 0                      0                      0.00
Dro. OutProf          : 0                      0                      0.00
For. InProf           : 1469                   209129                 0.16
For. OutProf          : 0                      0                      0.00
===============================================================================
A:Dut-A#


A:Dut-A# monitor service subscriber alcatel_100 sap 1/2/1:101 sla-profile sla_default
ingress-queue-id 1
===============================================================================
Monitor statistics for Subscriber alcatel_100
===============================================================================
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
                        Packets                Octets
Ingress Queue 1 (Unicast) (Priority)
Off. HiPrio           : 0                      0
Off. LowPrio          : 0                      0
Off. Uncolor          : 0                      0
Dro. HiPrio           : 0                      0
Dro. LowPrio          : 0                      0
For. InProf           : 0                      0
For. OutProf          : 0                      0
===============================================================================
A:Dut-A#


A:Dut-A# monitor service subscriber alcatel_100 sap 1/2/1:101 sla-profile sla_default
egress-queue-id 1
===============================================================================
Monitor statistics for Subscriber alcatel_100
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
                        Packets                Octets
Egress Queue 1
Dro. InProf           : 880                    127660
```

```
Dro. OutProf          : 0                       0
For. InProf           : 164366                  23506178
For. OutProf          : 0                       0
===============================================================================
A:Dut-A#
```

Candidate Commands

candidate

Syntax **candidate**

Context <root>

Description This command enables the context to edit candidate configurations.

Commands in the **candidate** CLI branch, except **candidate edit**, are available only when in edit-cfg mode.

edit

Syntax **edit** [**exclusive**]

Context candidate

Description This command enables the edit-cfg mode where changes can be made to the candidate configuration and sets the edit-point to the end of the candidate. In edit-cfg mode the CLI prompt contains **edit-cfg** near the root of the prompt. Commands in the **candidate** CLI branch, except **candidate edit**, are available only when in edit-cfg mode.

Parameters **exclusive —** Allows a user to exclusively create a candidate configuration by blocking other users (and other sessions of the same user) from entering edit-cfg mode. Exclusive edit-cfg mode can only be entered if the candidate configuration is empty and no user is in edit-cfg mode. Once a user is in exclusive edit-cfg mode no other users/sessions are allowed in edit-cfg mode. The user must either commit or discard the exclusive candidate before leaving exclusive edit-cfg mode. If the CLI session times out while a user is in exclusive edit-cfg mode then the contents of the candidate are discarded. The **admin disconnect** command can be used to force a user to disconnect (and to clear the contents of the candidate) if they have the candidate locked.

commit

Syntax **commit** [**confirmed** *timeout*] [**comment** *comment*]
commit no-checkpoint [**confirmed** *timeout*]

Context candidate

Description This command applies the changes in the candidate configuration to the active running configuration. The candidate changes will take operational effect.

If a commit operation is successful then all of the candidate changes will take operational effect and the candidate is cleared. If there is an error in the processing of the commit, or a 'commit confirmed' is not confirmed and an auto-revert occurs, then the router will return to a configuration state with none of the candidate changes applied. The operator can then continue editing the candidate and try a commit later.

By default SR OS will automatically create a new rollback checkpoint after a commit operation. The rollback checkpoint will contain the new configuration changes made by the commit. An optional **no-checkpoint** keyword can be used to avoid the auto-creation of a rollback checkpoint after a commit.

A commit operation is blocked if a rollback revert is currently being processed.

Parameters **confirmed —** Specifies that the commit operation (if successful) should be automatically reverted (undone) at the end of the timeout period unless the operator issues the confirm command before the timeout period expires. A rollback checkpoint is created after the commit operation (if successful) and will remain available whether the commit is auto-reverted or not. The contents of the candidate will remain visible (candidate view) and changes to the candidate are blocked until the timeout is completed or the candidate confirm command is executed. If the timeout expires and an auto-revert occurs, then the original candidate config will be available in edit-cfg mode.

Standard line-by-line non-transactional configuration commands (including via SNMP) are not blocked during the countdown period and any changes made to the configuration during the countdown period will be rolled back if the timeout expires. The confirmed option is useful when changes are being made that could impact management reachability to the router.

A rollback revert is blocked during the countdown period until the commit has been confirmed.

timeout — The auto-revert timeout period in minutes.

Values 1 — 168

no-checkpoint — Used to avoid the automatic creation of a rollback checkpoint for a successful commit.

comment *comment* **—** Adds a comment up to 255 characters in length to the automatic rollback checkpoint.

confirm

Syntax **confirm**

Context candidate

Description This command is used to stop an automatic reversion to the previous configuration after the **candidate commit confirmed** command was used. If the confirm command is not executed before the commit confirmed timeout period expires then the previous commit changes will be undone and the previous candidate configuration will be available for editing and a subsequent commit.

During the countdown the contents of the candidate will remain visible (candidate view) and changes to the candidate are blocked until the timeout is completed or the candidate confirm command is executed. Executing the confirm command clears the contents of the candidate and allows editing of the candidate.

copy

Syntax **copy [line]**

Context candidate

Description This command copies the selected CLI node (which includes all sub-branches) into a temporary buffer that can be used for a subsequent insert. The contents of the temporary buffer are deleted when the operator exits the candidate edit mode.

Parameters **line —**

Values line, offset, first, edit-point last
line Absolute line number.
offset Relative line number to current edit point. Prefixed with '+' or '-'
first Keyword - first line
edit-point Keyword - current edit point
last Keyword - last line that is not 'exit'

delete

Syntax **delete [line]**

Context candidate

Description This command deletes the selected CLI node (which includes all sub-branches). The deleted lines are also copied into a temporary buffer that can be used for a subsequent insert.

Parameters **line —**

Values line, offset, first, edit-point last
line Absolute line number.
offset Relative line number to current edit point. Prefixed with '+' or '-'.
first Keyword - first line
edit-point Keyword - current edit point
last Keyword - last line that is not 'exit'

discard

Syntax **discard [now]**

Context candidate

Description This command deletes the entire contents of the candidate configuration and exits the edit-cfg mode. Undo cannot be used to recover a candidate that has been discarded with **candidate discard**.

Parameters **now —** Avoids a confirmation prompt for the discard.

goto

Syntax **goto line**

Context candidate

Description This command changes the edit point of the candidate configuration. The edit point is the point after which new commands are inserted into the candidate configuration as an operator navigates the CLI and issues commands in edit-cfg mode.

Parameters **line —**

Values line, offset, first, edit-point last
line Absolute line number.
offset Relative line number to current edit point. Prefixed with '+' or '-'.
first Keyword - first line
edit-point Keyword - current edit point
last Keyword - last line that is not 'exit'

insert

Syntax **insert [line]**

Context candidate

Description This command inserts the contents of the temporary buffer (populated by a previous copy or delete command) into the candidate configuration. The contents are inserted by default after the current edit point. Optional parameters allow the insertion after some other point of the candidate. The contents of the temporary buffer are deleted when the operator exits candidate edit mode.

Insertions are context-aware. The temporary buffer always stores the CLI context (such as the current CLI branch) for each line deleted or copied. f the lines to be inserted are supported at the context of the insertion point then the lines are simply inserted into the configuration. If the lines to be inserted are not supported at the context of the insertion point, then the context at the insertion point is first closed using multiple exit statements, the context of the lines to be inserted is built (added) into the candidate at the insertion point, then the lines themselves are added, the context of the inserted lines is closed using exit statements and finally the context from the original insertion point is built again leaving the context at the same point as it was before the insertion.

Parameters **line —**

Values line, offset, first, edit-point last
line Absolute line number.
offset Relative line number to current edit point. Prefixed with '+' or '-'.
first Keyword - first line
edit-point Keyword - current edit point
last Keyword - last line that is not 'exit'

load

Syntax **load file-url [overwrite | insert | append]**

Context candidate

Description This command loads a previously saved candidate configuration into the current candidate. The edit point will be set to the end of the loaded configuration lines. The candidate configuration cannot be modified while a load is in progress.

Default If the candidate is empty then a load without any of the optional parameters (such as overwrite, etc) will simply load the file-url into the candidate. If the candidate is not empty then one of the options, such as overwrite, insert, etc., must be specifed.

Parameters **file-url —** The directory and filename to load.

overwrite — Discards the contents of the current candidate and replace it with the contents of the file.

insert — Inserts the contents of the file at the current edit point.

append — Inserts the contents of the file at the end of the current candidate.

quit

Syntax **quit**

Context candidate

Description This command exits the edit-cfg mode. The contents of the current candidate will not be deleted and the operator can continue editing the candidate later.

redo

Syntax **redo** [*count*]

Context candidate

Description This command reapplies the changes to the candidate that were removed using a previous undo. All undo/redo history is lost when the operator exists edit-cfg mode.

A **redo** command is blocked if another user has made changes in the same CLI branches that would be impacted during the redo.

Parameters **count —** The number of previous changes to reapply.

Values 1 — 50

Default 1

replace

Syntax **replace** [**line**]

Context candidate

Description This command displays the specified line (a single line only) and allows it to be changed.

Parameters **line —**

Values line, offset, first, edit-point last
line Absolute line number.
offset Relative line number to current edit point. Prefixed with '+' or '-'.
first Keyword - first line
edit-point Keyword - current edit point
last Keyword - last line that is not 'exit'

save

Syntax **save** *file-url*

Context candidate

Description This command saves the current candidate to a file.

Parameters *file-url* — The directory and filename,

undo

Syntax **undo** [*count*]

Context candidate

Description This command removes the most recent change(s) done to the candidate. The changes can be reapplied using the redo command. All undo/redo history is lost when the operator exists edit-cfg mode. Undo can not be used to recover a candidate that has been discarded with **candidate discard**.

An undo command is blocked if another user has made changes in the same CLI branches that would be impacted during the undo.

Parameters **count —** The number of previous changes to remove.

Values 1 — 50

Default 1

view

Syntax **view** [**line**]

Context candidate

Description This command displays the candidate configuration along with line numbers that can be used for editing the candidate configuration.

Parameters **line —** displays the candidate starting at the point indicated by the following options (the display is not limited to the current CLI context/branch)

Values line, offset, first, edit-point last

line Absolute line number.
offset Relative line number to current edit point. Prefixed with '+' or '-'.
first Keyword - first line
edit-point Keyword - current edit point
last Keyword - last line that is not 'exit'

info operational

Syntax **info** {**operational**}

Context <root>

Description In edit-cfg mode, the operational keyword is mandatory when using the **info** command.

candidate

Syntax **candidate**

Context show>system

Description This command shows candidate configuration information.

Output **Candidate Output —** The following table describes the candidate output fields.

Label	Description
Candidate configuration state	• empty — Indicates there are no uncommitted changes in the candidate config. • modified — Indicates there are uncommitted changes in the candidate config. • unconfirmed — Indicates there are no uncommitted changes in the candidate config but the result of the last commit will be auto-reverted unless it is confirmed before the timeout expires.
Num editors/viewers	The number of CLI sessions currently in edit-cfg mode.
Candidate cfg exclusive locked	Indicates if a user has exclusively locked the candidate using the **candidate edit exclusive com**mand.
Last commit state	• none , — Indicates there have been no commits since the last reboot of the node. • in-progress — Indicates the system is currently committing the candidate config. • success — Indicates the last commit finished successfully. • revert-pending — Indicates the last commit finished successfully but has not been confirmed yet, and will be auto-reverted if it is not confirmed before the timeout expires. • failed — Indicates the last commit failed and has been undone. •revert-in-progress — Indicates the last commit finished successfully but was not confirmed in time and is currently being reverted. • reverted — Indicates the last commit finished successfully but was not confirmed in time and has been reverted. • revert-failed — Indicates the last commit finished successfully but was not confirmed in time and the system attempted to revert it but failed.
Last commit time	The time at which the last commit attempt was started.
Checkpoint created with last commit	indicates if a rollback checkpoint was created after the previous commit completed.

Label	Description (Continued)
Scheduled revert time	Used to indicate the currently scheduled auto-revert time based on the confirmed option being used with a candidate commit.
Last commit revert time	The time the commit was last reverted.
Users in edit-cfg mode	Lists all the user sessions that are currently in edit-cfg mode.
Type (from)	Indicates the type of session (such as Console, Telnet, etc.) and also the source of the session (such as the the source IP address of the remote host).

Sample Output

```
*A:bksim3107# show system candidate
===============================================================================
Candidate Config Information
===============================================================================
Candidate configuration state          : modified
Num editors/viewers                    : 0
Candidate cfg exclusive locked         : no
Last commit state                      : revert-failed
Last commit time                       : 10/23/2012 17:21:47
Checkpoint created with last commit    : yes
Scheduled revert time                  : N/A
Last commit revert time                : 10/23/2012 17:22:47

===============================================================================
Users in edit-cfg mode
===============================================================================
Username         Type (from)
===============================================================================
admin            Console
Joris            Telnet (172.31.117.239)
===============================================================================
```

Rollback Commands

compare

Syntax **compare** [**to** *source2*]
compare *source1* **to** *source2*

Context admin
admin>rollback
config>*xx* (where *xx* is any sub-branch at any level below config, but not at the config context itself)

Description This command displays the differences between rollback checkpoints and the active operational configuration, with source1 as the base/first file to which source2 is compared.

A compare operation does not check authorization of each line of output. Permission to execute the compare operation from the "admin" branch of CLI (authorization for the **admin rollback compare** or **admin compare** command itself) should only be given to users who are allowed to view the entire configuration, similar to permissions for **admin display-config**.

Parameters *source1, source2* — Specifies comparison information.

Values **active-cfg** — The currently operational configuration that is active in the node.

latest-rb — The most recent rollback checkpoint (the checkpoint file at the configured rollback-location with "*.rb" as the suffix).

rescue— The rescue configuration (at the configured rescue-location).

checkpoint-id — An id from [1 ..max] indicating a specific rollback checkpoint (where max is the highest checkpoint allowed/configured). A checkpoint-id of 1 indicates the rollback checkpoint file (at the configured rollback-location) with "*.rb.1" as the suffix, 2 for file "*.rb.2", etc.

Default The defaults for source1 and source2 are context aware and differ based on the branch in which the command is executed. In general, the default for source1 matches the context from which the command is issued.

- In the admin node: No defaults. source1 and source2 must be specified.
- In the admin>rollback node:

  source1 default = active-cfg, source2 default = lastest-rb

  compare: Equivalent to "compare active-cfg to lastest-rb"

  compare to source2:Equivalent to "compare active-cfg to source2"
- In a config>*xx* node:

  compare to source2: Equivalent to "compare active-cfg to source2"

delete

Syntax **delete** {**latest-rb**| *checkpoint-id* | **rescue**}

Context admin>rollback

Description This command deletes a rollback checkpoint and causes the suffixes to be adjusted (decremented) for all checkpoints older that the one that was deleted (to close the "hole" in the list of checkpoint files and create room to create another checkpoint).

If "**config redundancy rollback-sync**" is enabled, a rollback delete will also delete the equivalent checkpoint on the standby CF and shuffle the suffixes on the standby CF.

It is not advised to manually delete a rollback checkpoint (for example, using a "file delete" command). If a rollback checkpoint file is manually deleted without using the "admin rollback delete" command then the suffixes of the checkpoint files are NOT shuffled, nor is the equivalent checkpoint file deleted from the standby CF. This manual deletion creates a "hole" in the checkpoint file list until enough new checkpoints have been created to roll the "hole" off the end of the list.

Default none

Parameters **latest-rb —** Specifies the most recently created rollback checkpoint (corresponds to the file-url.rb rollback checkpoint file).

checkpoint-id — An id from [1 ..max] indicating a specific rollback checkpoint (where max is the highest checkpoint allowed/configured). A checkpoint-id of 1 indicates the rollback checkpoint file (at the configured rollback-location) with "*.rb.1" as the suffix, 2 for file "*.rb.2", etc.

rescue — Deletes the rescue checkpoint. No checkpoint suffix numbers are changed.

revert

Syntax **revert** [**latest-rb**| *checkpoint-id* | **rescue**] [**now**]

Context admin>rollback

Description This command initiates a configuration rollback revert operation that will return the configuration state of the node to a previously saved checkpoint. The rollback revert minimizes impacts to running services. There are no impacts in areas of configuration that did not change since the checkpoint. Configuration parameters that changed (or items on which changed configuration have dependencies) are first removed (revert to default) and the previous values are then restored (can be briefly service impacting in changed areas).

Parameters **latest-rb —** Specifies the most recently created rollback checkpoint (corresponds to the file-url.rb rollback checkpoint file).

checkpoint-id — >Indicates the configuration to return to (which rollback checkpoint file to use). Checkpoint-id of "1" corresponds to the file-url.rb.1 rollback checkpoint file. The higher the id, the older the checkpoint. Max is the highest rollback checkpoint supported or configured.

Values 1—max, where max is the number of configured checkpoints minus 1 (since, for example, the 10th checkpoint has an id of 9)

rescue — Revert to the rescue checkpoint.

now — Forces a rollback revert without any interactive confirmations (assumes 'y' for any confirmations that would have occurred).

save (rollback)

Syntax **save** [**rescue**] [**comment** *comment-string*]

Context admin>rollback

Description If the optional “rescue” keyword is not used, this command saves a rollback checkpoint at the location and with the filename specified by the rollback-location with a suffix of ".rb". The previously saved checkpoints will have their suffixes incremented by one (.rb.1 becomes .rb.2, etc). If there are already as many checkpoint files as the maximum number supported, then the last checkpoint file is deleted.

If the “rescue” keyword is used, then this command saves the current operational configuration as a rescue configuration at the location and with the filename specified by the rescue-location. The filename will have the suffix “.rc” appended.

Default none

Parameters *comment-string* — A comment of up to 255 characters in length that is associated with the checkpoint.

rescue — Save the rescue checkpoint instead of a normal rollback checkpoint.

view

Syntax **view** [**latest-rb** | *checkpoint-id* | **rescue**]

Context admin>rollback

Description This command displays checkpoint..

Default none

Parameters **latest-rb —** Specifies the most recently created rollback checkpoint (corresponds to the file-url.rb rollback checkpoint file).

checkpoint-id — >Indicates rollback checkpoint file to be viewed. Checkpoint-id of “1” corresponds to the file-url.rb.1 rollback checkpoint file. The higher the id, the older the checkpoint. Max is the highest rollback checkpoint supported or configured.

Values 1..max

rescue — View the rescue configuration.

view

Syntax **view** {**bootup-cfg|active-cfg|candidate-cfg|latest-rb|** *checkpoint-id*|**rescue**}

Context <ROOT>

Description The context to configure administrative system viewing parameters. Only authorized users can execute the commands in the **admin** context.

Default none

Parameters **bootup-cfg —** Specifies the bootup configuration.

active-cfg — Specifies current running configuration.

candidate-cfg — Specifies candidate configuration.

latest-rb — Specifies the latest configuration.

checkpoint-id — Specifies a specific checkpoint file configuration.

Values 1 — 9

rescue — Specifies a rescue checkpoint configuration.

rollback-location

Syntax **rollback-location** *file-url/***rollback** *filename*

Context config>system>rollback

Description The location and name of the rollback checkpoint files is configurable to be local (on compact flash) or remote. The file-url must not contain a suffix (just a path/directory + filename). The suffixes for rollback checkpoint files are ".rb", ".rb.1", ..., ".rb.9" and are automatically appended to rollback checkpoint files.

Default None. A valid rollback-location must be configured before a rollback save is executed.

Values

<file-url>
<local-url>|<remote-url>

local-url	[<cflash-id>/][<file-path>] 200 chars max, including cflash-id directory length 99 chars max each
remote-url	[{ftp://}<login>:<pswd>@ <remote-locn>/][<file-path>] 255 chars max directory length 99 chars max each
remote-locn	[<hostname> | <ipv4-address> | <ipv6-address>]
ipv4-address	a.b.c.d
ipv6-address	x:x:x:x:x:x:x:x[-interface] x:x:x:x:x:x:d.d.d.d[-interface] x - [0..FFFF]H d - [0..255]D interface - 32 chars max, for link local addresses
cflash-id	cf1:|cf1-A:|cf1-B:|cf2:|cf2-A:|cf2-B:| cf3:|cf3-A:|cf3-B:

<rollback filename> suffixed with .rb, .rb.1 up to .9 during rollback checkpoint creation

rescue-location

Syntax **no rescue-location** *file-url*

Context config>system>rollback

Description The location and filename of the rescue configuration is configurable to be local (on compact flash) or remote. The suffix ".rc" will be automatically appended to the filename when a rescue configuration file is saved. Trivial FTP (tftp) is not supported for remote locations.

Default None. A valid rescue-location must be configured before a rescue configuration is saved.

Parameters *file-url* — Specifies the URL.

Values

<file-url>		
	<local-url>|<remote-url>	
	local-url	[<cflash-id>/][<file-path>] 200 chars max, including cflash-id directory length 99 chars max each
	remote-url	[{ftp://}<login>:<pswd>@ <remote-locn>/][<file-path>] 255 chars max directory length 99 chars max each
	remote-locn	[<hostname> | <ipv4-address> | <ipv6-address>]
	ipv4-address	a.b.c.d
	ipv6-address	x:x:x:x:x:x:x:x[-interface] x:x:x:x:x:x:d.d.d.d[-interface] x - [0..FFFF]H d - [0..255]D interface - 32 chars max, for link local addresses
	cflash-id	cf1:|cf1-A:|cf1-B:|cf2:|cf2-A:|cf2-B:| cf3:|cf3-A:|cf3-B:
<rescue filename>		suffixed with .rc during rescue file creation

local-max-checkpoints

Syntax **local-max-checkpoints** *<1..50>*

Context config>system>rollback

Description Configures the maximum number of rollback checkpoint files when the rollback-location is on local compact flash.

Default 10

remote-max-checkpoints

Syntax **remote-max-checkpoints** *<1..200>*

Context config>system>rollback

Description Configures the maximum number of rollback checkpoint files when the rollback-location is remote (e.g. ftp).

Default 10

Management Infrastructure Control Commands

management

Syntax **management** {**cli**}

Context config>system

Description This command enables the context to configure management interface parameters.

Default No default

Parameters **cli** — Allows configuration of parameters related to basic CLI commands for datastore infrastructure operation and behavior.

configuration

Syntax **configuration**

Context config>system>management

Description This command enables the context to configure parameters related to configuration data.

immediate

Syntax [**no**] **immediate**

Context config>system>management>configuration

Description This command enables writeable access in the **configure** CLI branch.

The **no** form of this command, when configured under the **management cli** context, blocks writeable access and configuration changes in the **configure** CLI branch. This causes the running configuration datastore from the **configure** CLI branch to be read-only.

This command can be used to enforce the use of candidate configuration and the **commit** command, instead of allowing immediate mode line-by-line configuration changes.

Default **immediate** (configuration changes are allowed in the **configure** CLI branch)

Show Commands

alias

Syntax **alias**

Context <root>

Description This command displays a list of existing aliases.

Output **Show Alias Fields —** The following table describes alias output fields.

Table 19: Show Alias Output Fields

Label	Description
Alias-Name	Displays the name of the alias.
Alias-command-name	The command and parameter syntax that define the alias.
Number of aliases	The total number of aliases configured on the router.

Sample Output

```
A:ALA-103>config>system# show alias
===============================================================================
Alias-Name                    Alias-command-name
===============================================================================
sri                           show router interface
sse                           show service service-using epipe
ssvpls                        show service service-using vpls
ssvprn                        show service service-using vprn
ssi                           show service service-using ies
-------------------------------------------------------------------------------
Number of aliases : 5
===============================================================================
A:ALA-103>config>system#
```