

## Chapter 15

# Summary of Traffic Sampling and Forwarding Options Configuration Statements

The following sections explain each of the sampling and forwarding statements. The statements are organized alphabetically.

### accounting

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**Syntax**    `accounting group-name {  
          output {  
            cflowd [ hostnames ] {  
              aggregation {  
                autonomous-system;  
                destination-prefix;  
                protocol-port;  
                source-destination-prefix {  
                  caida-compliant;  
                }  
              source-prefix;  
            }  
            autonomous-system-type (origin | peer);  
            port port-number;  
            version format;  
          }  
          flow-active-timeout seconds;  
          flow-inactive-timeout seconds;  
          interface [ interface-names ] {  
            engine-id number;  
            engine-type number;  
            source-address address;  
          }  
          }  
          }`

**Hierarchy Level**    [edit forwarding-options]

**Description**        Specify discard accounting instance name and options.

The statements are explained separately.

**Usage Guidelines** See “Configuring Discard Accounting” on page 242.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## aggregation

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**Syntax** aggregation {  
    autonomous-system;  
    destination-prefix;  
    protocol-port;  
    source-destination-prefix {  
        caida-compliant;  
    }  
    source-prefix;  
}

**Hierarchy Level** [edit forwarding-options accounting output cflowd *hostname*],  
[edit forwarding-options sampling output cflowd *hostname*]

**Description** For cflowd version 8 only, specify the type of data to be aggregated; cflowd records and sends only those flows that match the specified criteria.

**Options** autonomous-system—Aggregate by autonomous system (AS) number.

caida-compliant—Record source and destination mask length values in compliance with the Version 2.1b1 release of the cflowd application from the Cooperative Association for Internet Data Analysis (CAIDA). If this statement is not configured, the JUNOS software records source and destination mask length values in compliance with the *cflowd Configuration Guide*, dated August 30, 1999.

destination-prefix—Aggregate by destination prefix.

protocol-port—Aggregate by protocol and port number.

source-destination-prefix—Aggregate by source and destination prefix.

source-prefix—Aggregate by source prefix.

**Usage Guidelines** See “Configuring Flow Aggregation (cflowd)” on page 254.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## autonomous-system-type

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<b>Syntax</b>	autonomous-system-type (origin   peer);
<b>Hierarchy Level</b>	[edit forwarding-options accounting output cflowd <i>hostname</i> ], [edit forwarding-options sampling output cflowd <i>hostname</i> ]
<b>Description</b>	Specify the type of AS numbers that cflowd exports.
<b>Options</b>	origin—Export origin AS numbers of the packet source address in the Source Autonomous System cflowd field.  peer—Export peer AS numbers through which the packet passed in the Source Autonomous System cflowd field.
<b>Default</b>	origin
<b>Usage Guidelines</b>	See “Configuring Flow Aggregation (cflowd)” on page 254.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## bootp

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<b>Syntax</b>	bootp { description <i>description-of-service</i> ; interface <i>interface-group</i> { description <i>description-of-interface</i> ; maximum-hop-count <i>number</i> ; minimum-wait-time <i>seconds</i> ; no-listen; server [ <i>addresses</i> ]; } maximum-hop-count <i>number</i> ; minimum-wait-time <i>seconds</i> ; server [ <i>addresses</i> ]; }
<b>Hierarchy Level</b>	[edit forwarding-options helpers]
<b>Description</b>	Configures a router or interface to act as a Dynamic Host Configuration Protocol (DHCP) or bootstrap protocol (BOOTP) relay agent.  DHCP relaying is disabled.
<b>Options</b>	The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## cflowd

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See the following sections:

cflowd (Discard Accounting) on page 264

cflowd (Flow Monitoring) on page 265

cflowd (Sampling) on page 265

### ***cflowd (Discard Accounting)***

```
Syntax  cflowd hostname {
           aggregation {
             autonomous-system;
             destination-prefix;
             protocol-port;
             source-destination-prefix {
               caida-compliant;
             }
             source-prefix;
           }
           autonomous-system-type (origin | peer);
           port port-number;
           source-address address;
           version format;
        }
```

**Hierarchy Level** [edit forwarding-options accounting *group-name* output]

**Description** Collect an aggregate of sampled flows and send the aggregate to a specified host system that runs the collection utility cfdcollect.

You can configure up to one version 5 and one version 8 flow format at the [edit forwarding-options accounting *group-name* output] hierarchy level.

**Options** *hostname*—The IP address or identifier of the host system (the workstation running the cflowd utility).

The remaining statements are explained separately.

**Usage Guidelines** See “Configuring Flow Aggregation (cflowd)” on page 254.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

***cflowd (Flow Monitoring)***

<b>Syntax</b>	<pre>cflowd hostname {     port port-number; }</pre>
<b>Hierarchy Level</b>	[edit forwarding-options monitoring <i>group-name</i> family inet output]
<b>Description</b>	Collect an aggregate of sampled flows and send the aggregate to a specified host system that runs the collection utility <code>cfcollect</code> .  You can configure up to eight version 5 flow formats at the [edit forwarding-options monitoring <i>group-name</i> output] hierarchy level. Version 8 flow formats are not supported for flow-monitoring applications.
<b>Options</b>	<i>hostname</i> —The IP address or identifier of the host system (the workstation running the <code>cflowd</code> utility).  The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring Flow Monitoring” on page 243.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

***cflowd (Sampling)***

<b>Syntax</b>	<pre>cflowd hostname {     aggregation {         autonomous-system;         destination-prefix;         protocol-port;         source-destination-prefix {             caida-compliant;         }         source-prefix;     }     autonomous-system-type (origin   peer);     (local-dump   no-local-dump);     port port-number;     source-address address;     version format; }</pre>
<b>Hierarchy Level</b>	[edit forwarding-options sampling output]
<b>Description</b>	Collect an aggregate of sampled flows and send the aggregate to a specified host system that runs the collection utility <code>cfcollect</code> .  You can configure up to one version 5 and one version 8 flow format at the [edit forwarding-options sampling output] hierarchy level.
<b>Options</b>	<i>hostname</i> —The IP address or identifier of the host system (the workstation running the <code>cflowd</code> utility).  The remaining statements are explained separately.

**Usage Guidelines** See “Configuring Flow Aggregation (cflowd)” on page 254.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## description

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See the following sections:

description (Interface) on page 266

description (Service) on page 266

### ***description (Interface)***

**Syntax** description *description-of-interface*;

**Hierarchy Level** [edit forwarding-options helpers bootp interface *interface-group*],  
[edit forwarding-options helpers domain interface *interface-name*],  
[edit forwarding-options helpers tftp interface *interface-name*]

**Description** Text description of interface.

**Usage Guidelines** See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245 and “Configuring DNS and TFTP Packet Forwarding” on page 247.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

### ***description (Service)***

**Syntax** description *description-of-service*;

**Hierarchy Level** [edit forwarding-options helpers bootp],  
[edit forwarding-options helpers domain],  
[edit forwarding-options helpers tftp]

**Description** Description of BOOTP, DHCP, Domain Name System (DNS), or Trivial File Transfer Protocol (TFTP) service.

**Usage Guidelines** See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245 and “Configuring DNS and TFTP Packet Forwarding” on page 247.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## disable

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<b>Syntax</b>	disable;
<b>Hierarchy Level</b>	[edit forwarding-options sampling], [edit forwarding-options sampling output file]
<b>Description</b>	Disable traffic sampling.
<b>Usage Guidelines</b>	See “Disabling Traffic Sampling” on page 248.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## domain

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<b>Syntax</b>	domain { description <i>description-of-service</i> ; server <i>address</i> < [ routing-instance <i>routing-instance-names</i> ] >; interface <i>interface-name</i> { description <i>description-of-interface</i> ; no-listen; server <i>address</i> < [ routing-instance <i>routing-instance-names</i> ] >; } }
<b>Hierarchy Level</b>	[edit forwarding-options helpers]
<b>Description</b>	Enable DNS request packet forwarding.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring DNS and TFTP Packet Forwarding” on page 247.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## export-format

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<b>Syntax</b>	export-format cflowd-version-5;
<b>Hierarchy Level</b>	[edit forwarding-options monitoring <i>group-name</i> family inet output]
<b>Description</b>	Flow monitoring export format.
<b>Options</b>	cflowd-version-5—Cflowd version 5.
<b>Usage Guidelines</b>	See “Configuring Flow Monitoring” on page 243.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## family

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**Syntax** family *family-name* {  
     filter {  
         input *filter-name*;  
     }  
     flood {  
         input *filter-name*;  
     }  
 }

**Hierarchy Level** [edit forwarding-options]

**Description** Specify address family for filters.

**Options** *family-name*—Address family. Specify inet for IP version 4 (IPv4), inet6 for IP version 6 (IPv6), mpls for Multiprotocol Label Switching (MPLS), or vpls for virtual private LAN service (VPLS).

filter—Filtering for forwarding table.

*filter-name*—Name of filter to apply to forwarded packets.

flood—(For VPLS address family only) Filtering for flood table.

**Usage Guidelines** See “Configuring a Forwarding Table Filter” on page 240.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

## family inet

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See the following sections:

family inet (Load Balancing) on page 269

family inet (Sampling) on page 269

***family inet (Load Balancing)***

<b>Syntax</b>	family inet { layer-3; layer-4; }
<b>Hierarchy Level</b>	[edit forwarding-options hash-key]
<b>Description</b>	Configure layer information for the load-balancing specification. Only the IPv4 protocol is supported.
<b>Options</b>	layer-3—Include Layer 3 (IP) data in the hash key.  layer-4—Include Layer 4 Transmission Control Protocol (TCP) or User Datagram Protocol (UDP) data in the hash key.
<b>Usage Guidelines</b>	See “Configuring Load-Balance Per-Packet Action” on page 138.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

***family inet (Sampling)***

<b>Syntax</b>	family inet { max-packets-per-second <i>number</i> ; rate <i>number</i> ; run-length <i>number</i> ; }
<b>Hierarchy Level</b>	[edit forwarding-options sampling input]
<b>Description</b>	Configure the protocol family to be sampled. Only the IPv4 protocol is supported.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring a Forwarding Table Filter” on page 240.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## family mpls

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**Syntax** family mpls {  
    label-1;  
    label-2;  
    payload {  
        ip;  
    }  
}

**Hierarchy Level** [edit forwarding-options hash-key]

**Description** For aggregated Ethernet and SONET/SDH interfaces only, configure load balancing based on MPLS labels. Only the IPv4 protocol is supported.

**Options** label-1—Include only one label in the hash key.

label-2—Include both labels in the hash key.

payload—Includes bits from IP payload in the hash key.

**Usage Guidelines** See “Configuring Load-Balance Per-Packet Action” on page 138.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## file

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See the following sections:

file (Helpers Trace Options) on page 271

file (Sampling) on page 271

file (Trace Options) on page 272

**file (Helpers Trace Options)**

<b>Syntax</b>	file <i>filename</i> { files <i>number</i> ; size <i>bytes</i> ; }
<b>Hierarchy Level</b>	[edit forwarding-options helpers traceoptions]
<b>Description</b>	Configure information about the DNS and TFTP packet-forwarding files that contain trace logging information.
<b>Options</b>	<i>filename</i> —Name of the file containing the trace information. <b>Default:</b> /var/log/sampled
	The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Tracing BOOTP, DNS, and TFTP Forwarding Operations” on page 248.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**file (Sampling)**

<b>Syntax</b>	file { disable; filename <i>filename</i> ; files <i>number</i> ; size <i>bytes</i> ; (stamp   no-stamp); (world-readable   no-world-readable); }
<b>Hierarchy Level</b>	[edit forwarding-options sampling output]
<b>Description</b>	Collect the traffic samples in a file.  The statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling Output” on page 252.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**file (Trace Options)**

<b>Syntax</b>	file <i>filename</i> { files <i>number</i> ; size <i>bytes</i> ; (world-readable   no-world-readable); }
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring traceoptions], [edit forwarding-options sampling traceoptions]
<b>Description</b>	Configure information about the files that contain trace logging information.
<b>Options</b>	<i>filename</i> —The name of the file containing the trace information. <b>Default:</b> /var/log/sampled
	The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Tracing Traffic Sampling Operations” on page 254.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**filename**

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<b>Syntax</b>	filename <i>filename</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options sampling output file]
<b>Description</b>	Configure the name of the output file.
<b>Options</b>	<i>filename</i> —Name of the file in which to place the traffic samples. All files are placed in the directory /var/tmp.
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling Output” on page 252.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## files

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<b>Syntax</b>	files <i>number</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring traceoptions file], [edit forwarding-options sampling output file], [edit forwarding-options sampling traceoptions file]
<b>Description</b>	Configure the total number of files to be saved with samples or trace data.
<b>Options</b>	<i>number</i> —Maximum number of traffic sampling or trace log files. When a file named <i>sampling-file</i> reaches its maximum size, it is renamed <i>sampling-file.0</i> , then <i>sampling-file.1</i> , and so on, until the maximum number of traffic sampling files is reached. Then the oldest sampling file is overwritten. <b>Range:</b> 1 through 100 files <b>Default:</b> 5 files for sampling output; 10 files for trace log information
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling Output” on page 252 and “Tracing Traffic Sampling Operations” on page 254.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## filter

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<b>Syntax</b>	filter input <i>filter-name</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options family <i>family-name</i> ]
<b>Description</b>	Apply a forwarding table filter to a forwarding table.
<b>Options</b>	input <i>filter-name</i> —Name of the forwarding table filter.
<b>Usage Guidelines</b>	See “Configuring a Forwarding Table Filter” on page 240.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## flood

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<b>Syntax</b>	flood input <i>filter-name</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options family <i>family-name</i> ]
<b>Description</b>	Apply a forwarding table filter to a flood table.
<b>Options</b>	input <i>filter-name</i> —Name of the forwarding table filter.
<b>Usage Guidelines</b>	See “Configuring a Forwarding Table Filter” on page 240.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## flow-active-timeout

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<b>Syntax</b>	flow-active-timeout <i>seconds</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options accounting <i>group-name</i> output], [edit forwarding-options monitoring <i>group-name</i> family inet output], [edit forwarding-options sampling output]
<b>Description</b>	Configure the interval before exporting an active flow.
<b>Options</b>	<i>seconds</i> —Interval, in seconds. <b>Range:</b> 60 through 1800 <b>Default:</b> 1800
<b>Usage Guidelines</b>	See “Configuring Discard Accounting” on page 242, “Configuring Flow Monitoring” on page 243, and “Configuring Traffic Sampling Output” on page 252.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## flow-export-destination

---

<b>Syntax</b>	flow-export-destination { collector-pic; }
<b>Hierarchy Level</b>	[edit forwarding-options monitoring <i>group-name</i> family inet output],
<b>Description</b>	Configure flow collection.
<b>Options</b>	collector-pic—Collector PIC.
<b>Usage Guidelines</b>	See “Configuring Flow Monitoring” on page 243.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## flow-inactive-timeout

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<b>Syntax</b>	flow-inactive-timeout <i>seconds</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options accounting <i>group-name</i> output], [edit forwarding-options monitoring <i>group-name</i> family inet output], [edit forwarding-options sampling output]
<b>Description</b>	Configure the interval before a flow is considered inactive.
<b>Options</b>	<i>seconds</i> —Interval, in seconds. <b>Range:</b> 15 through 1800 <b>Default:</b> 60
<b>Usage Guidelines</b>	See “Configuring Discard Accounting” on page 242, “Configuring Flow Monitoring” on page 243, and “Configuring Traffic Sampling Output” on page 252.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## forwarding-options

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<b>Syntax</b>	forwarding-options { ... }
<b>Hierarchy Level</b>	[edit]
<b>Description</b>	Configure traffic forwarding.  The statements are explained separately.
<b>Usage Guidelines</b>	See “Traffic Sampling and Forwarding Configuration” on page 235.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## hash-key

---

```

Syntax hash-key {
            family inet {
                layer-3;
                layer-4;
            }
            family mpls {
                label-1;
                label-2;
                payload {
                    ip;
                }
            }
        }

```

**Hierarchy Level** [edit forwarding-options]

**Description** Select which packet header data to use for per-flow load balancing.

**Options** inet—IP address family.

mpls—MPLS address family.

layer-3—Incorporate Layer 3 data into the hash key.

layer-4—Incorporate Layer 4 data into the hash key.

label-1—Incorporate the first label into the hash key.

label-2—Incorporate the second label into the hash key.

payload—Incorporate payload data into the hash key.

ip—Specify payload as an IP packet.

**Usage Guidelines** See “Configuring Load-Balance Per-Packet Action” on page 138.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

## helpers

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```

Syntax  helpers {
            bootp {
                description description-of-service;
                interface interface-group {
                    description description-of-interface;
                    maximum-hop-count number;
                    minimum-wait-time seconds;
                    no-listen;
                    server [ addresses ];
                }
                maximum-hop-count number;
                minimum-wait-time seconds;
                server address [ addresses ];
            }
            domain {
                description description-of-service;
                server address < [ routing-instance routing-instance-names ] >;
                interface interface-name {
                    description description-of-interface;
                    no-listen;
                    server address < [ routing-instance routing-instance-names ] >;
                }
            }
            tftp {
                description description-of-service;
                server address < [ routing-instance routing-instance-names ] >;
                interface interface-name {
                    description description-of-interface;
                    no-listen;
                    server address < [ routing-instance routing-instance-names ] >;
                }
            }
            traceoptions {
                file filename {
                    files number;
                    size bytes;
                }
                level level;
                flag flag;
            }
        }

```

**Hierarchy Level** [edit forwarding-options]

**Description** Enable TFTP or DNS request packet forwarding, or configure the router or interface to act as a DHCP/BOOTP relay agent. Use only one server address per interface or global configuration.

**Options** The statements are explained separately.

**Usage Guidelines** See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245 and “Configuring DNS and TFTP Packet Forwarding” on page 247.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## input

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See the following sections:

input (Port Mirroring) on page 278

input (Sampling) on page 278

### *input (Port Mirroring)*

**Syntax** input {  
    family inet {  
        rate *number*;  
        run-length *number*;  
    }  
}

**Hierarchy Level** [edit forwarding-options port-mirroring]

**Description** Configure port mirroring on a logical interface.  
The statements are explained separately.

**Usage Guidelines** See “Configuring Port Mirroring” on page 257.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

### *input (Sampling)*

**Syntax** input {  
    family inet {  
        max-packets-per-second *number*;  
        rate *number*;  
        run-length *number*;  
    }  
}

**Hierarchy Level** [edit forwarding-options sampling]

**Description** Configure traffic sampling on a logical interface.  
The statements are explained separately.

**Usage Guidelines** See “Configuring Traffic Sampling” on page 241.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## interface

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See the following sections:

interface (Accounting or Sampling) on page 279

interface (BOOTP) on page 280

interface (DNS and TFTP Packet Forwarding or Relay Agent) on page 280

interface (Monitoring) on page 281

interface (Next-Hop Group) on page 281

interface (Port Mirroring) on page 282

### ***interface (Accounting or Sampling)***

**Syntax** interface [ *interface-names* ] {  
     engine-id *number*;  
     engine-type *number*;  
     source-address *address*;  
 }

**Hierarchy Level** [edit forwarding-options accounting *group-name* output],  
 [edit forwarding-options sampling output]

**Description** Specify the output interface for sending copies of packets elsewhere to be analyzed.

**Options** *interface-names*—Name of one or more accounting interfaces.

engine-id *number*—Identity of the accounting interface.

engine-type *number*—Type of this accounting interface.

source-address *address*—Address used for generating packets.

**Usage Guidelines** See “Configuring Discard Accounting” on page 242 and “Configuring Traffic Sampling Output” on page 252.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**interface (BOOTP)**

<b>Syntax</b>	interface <i>interface-group</i> { description <i>description-of-interface</i> ; maximum-hop-count <i>number</i> ; minimum-wait-time <i>seconds</i> ; no-listen; server [ <i>addresses</i> ]; }
<b>Hierarchy Level</b>	[edit forwarding-options helpers bootp]
<b>Description</b>	Specify the interface for a DHCP or BOOTP relay agent.
<b>Options</b>	<i>interface-group</i> —Sets a logical interface or group of logical interfaces with a specific DHCP relay configuration.  The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**interface (DNS and TFTP Packet Forwarding or Relay Agent)**

<b>Syntax</b>	interface <i>interface-name</i> { description <i>description-of-service</i> ; no-listen; server <i>address</i> < [ routing-instance <i>routing-instance-names</i> ] >; }
<b>Hierarchy Level</b>	[edit forwarding-options helpers domain], [edit forwarding-options helpers tftp]
<b>Description</b>	Specify the interface for monitoring and forwarding DNS or TFTP requests.
<b>Options</b>	<i>interface-name</i> —Name of the interface.  The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring DNS and TFTP Packet Forwarding” on page 247.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**interface (Monitoring)**

**Syntax** interface *interface-name* {  
     engine-id *number*;  
     engine-type *number*;  
     input-interface-index *number*;  
     output-interface-index *number*;  
     source-address *address*;  
 }

**Hierarchy Level** [edit forwarding-options monitoring *group-name* family inet output]

**Description** Specify the output interface for monitored traffic.

**Options** *interface-name*—Name of the interface.

engine-id *number*—Identity of the monitoring interface.

engine-type *number*—Type of this monitoring interface.

input-interface-index *number*—Input interface index for records from this interface.

output-interface-index *number*—Output interface index for records from this interface.

source-address *address*—Address used for generating packets.

**Usage Guidelines** See “Configuring Flow Monitoring” on page 243.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**interface (Next-Hop Group)**

**Syntax** interface *interface-name* {  
     next-hop [ *addresses* ];  
 }

**Hierarchy Level** [edit forwarding-options next-hop-group *group-names* ]

**Description** Specify the output interface for sending copies of packets elsewhere to be analyzed.

**Options** *interface-name*—Name of the interface.

The remaining statements are explained separately.

**Usage Guidelines** See “Configuring a Next-Hop Group” on page 244.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**interface (Port Mirroring)**

<b>Syntax</b>	interface <i>interface-name</i> { next-hop <i>address</i> ; }
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring output]
<b>Description</b>	Specify the output interface for sending copies of packets elsewhere to be analyzed.
<b>Options</b>	<i>interface-name</i> —Name of the interface.  The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring Port Mirroring” on page 257.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**local-dump**

---

<b>Syntax</b>	(local-dump   no-local-dump);
<b>Hierarchy Level</b>	[edit forwarding-options sampling output cflowd <i>hostname</i> ]
<b>Description</b>	Enable collection of cflowd records in a log file.
<b>Options</b>	no-local-dump—Do not dump cflowd records to a log file before exporting.  local-dump—Dump cflowd records to a log file before exporting.
<b>Usage Guidelines</b>	See “Debugging cflowd Flow Aggregation” on page 256.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**max-packets-per-second**

---

<b>Syntax</b>	max-packets-per-second <i>number</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options sampling input family inet]
<b>Description</b>	Specify the traffic threshold that must be exceeded before packets are dropped. A value of 0 instructs the Packet Forwarding Engine not to sample any traffic.
<b>Options</b>	<i>number</i> — Maximum number of packets per second. <b>Range:</b> 0 through 65,535 <b>Default:</b> 1000
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling” on page 241.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## maximum-hop-count

---

<b>Syntax</b>	maximum-hop-count <i>number</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options helpers bootp], [edit forwarding-options helpers bootp interface <i>interface-group</i> ]
<b>Description</b>	The maximum number of hops allowed.
<b>Options</b>	<i>number</i> — Maximum number of hops. <b>Default:</b> 4 hops
<b>Usage Guidelines</b>	See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## minimum-wait-time

---

<b>Syntax</b>	minimum-wait-time <i>seconds</i> ;
<b>Hierarchy Level</b>	[edit forwarding-options helpers bootp], [edit forwarding-options helpers bootp interface <i>interface-group</i> ]
<b>Description</b>	The minimum time allowed.
<b>Options</b>	<i>seconds</i> —Minimum time. <b>Default:</b> 3
<b>Usage Guidelines</b>	See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## monitoring

---

```

Syntax  monitoring group-name {
            family inet {
              output {
                cflowd hostname {
                  port port-number;
                }
                export-format cflowd-version-5;
                flow-active-timeout seconds;
                flow-export-destination {
                  collector-pic;
                }
                flow-inactive-timeout seconds;
                interface interface-name {
                  engine-id number;
                  engine-type number;
                  input-interface-index number;
                  output-interface-index number;
                  source-address address;
                }
              }
            }
          }

```

**Hierarchy Level** [edit forwarding-options]

**Description** Specify flow monitoring instance name and properties.  
The statements are explained separately.

**Usage Guidelines** See “Configuring Flow Monitoring” on page 243.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## next-hop

---

```

Syntax  next-hop address;

```

**Hierarchy Level** [edit forwarding-options port-mirroring output interface *interface-name*]

**Description** Specify the next-hop address for sending copies of packets to an analyzer.

**Options** *address*—IP address of the next-hop router.

**Usage Guidelines** See “Configuring Port Mirroring” on page 257.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## next-hop-group

---

<b>Syntax</b>	<pre>next-hop-group [ <i>group-names</i> ] {     interface <i>interface-name</i> {         next-hop [ <i>addresses</i> ];     } }</pre>
<b>Hierarchy Level</b>	[edit forwarding-options]
<b>Description</b>	Specify the next-hop address for sending copies of packets to an analyzer.
<b>Options</b>	<p><i>addresses</i>—IP address of the next-hop router. Each next-hop group supports up to 16 next-hop addresses. Up to 30 next-hop groups are supported. Each next-hop group must have at least two next-hop addresses.</p> <p><i>group-names</i>—Name of next-hop group. Up to 30 next-hop groups are supported for the router. Each next-hop group must have at least 2 next-hop addresses.</p> <p><i>interface-name</i>—Interface used to reach the next-hop destination.</p>
<b>Usage Guidelines</b>	See “Configuring a Next-Hop Group” on page 244.
<b>Required Privilege Level</b>	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

## no-filter-check

---

<b>Syntax</b>	no-filter-check ;
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring output]
<b>Description</b>	<p>Disable filter checking on the port-mirroring interface.</p> <p>This statement is required when you send port-mirrored traffic to a Tunnel PIC that has a filter applied to it.</p>
<b>Usage Guidelines</b>	See “Configuring Port Mirroring” on page 257.
<b>Required Privilege Level</b>	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

## no-listen

---

<b>Syntax</b>	no-listen;
<b>Hierarchy Level</b>	[edit forwarding-options helpers bootp interface <i>interface-group</i> ], [edit forwarding-options helpers domain interface <i>interface-name</i> ], [edit forwarding-options helpers tftp interface <i>interface-name</i> ]
<b>Description</b>	Disable recognition of DNS requests or stop packets from being forwarded on a logical interface, a group of logical interfaces, or a router.
<b>Usage Guidelines</b>	See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245 and “Configuring DNS and TFTP Packet Forwarding” on page 247.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## no-local-dump

---

**See** local-dump on page 282

## no-stamp

---

**See** stamp on page 296

## no-world-readable

---

**See** world-readable on page 299

## output

---

See the following sections:

output (Accounting) on page 287

output (Monitoring) on page 288

output (Port Mirroring) on page 288

output (Sampling) on page 289

### **output (Accounting)**

```
Syntax output {
    cflowd [ hostnames ] {
        aggregation {
            autonomous-system;
            destination-prefix;
            protocol-port;
            source-destination-prefix {
                caida-compliant;
            }
            source-prefix;
        }
        autonomous-system-type (origin | peer);
        port port-number;
        version format;
    }
    flow-active-timeout seconds;
    flow-inactive-timeout seconds;
    interface[ interface-names ] {
        engine-id number;
        engine-type number;
        source-address address;
    }
}
```

**Hierarchy Level** [edit forwarding-options accounting *group-name*]

**Description** Configure cflowd, output interfaces, and flow properties.

The statements are explained separately.

**Usage Guidelines** See “Configuring Discard Accounting” on page 242.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**output (Monitoring)**

```

Syntax  output {
            cflowd hostname {
                port port-number;
            }
            export-format cflowd-version-5;
            flow-active-timeout seconds;
            flow-export-destination {
                collector-pic;
            }
            flow-inactive-timeout seconds;
            interface interface-name {
                engine-id number;
                engine-type number;
                input-interface-index number;
                output-interface-index number;
                source-address address;
            }
        }

```

**Hierarchy Level** [edit forwarding-options monitoring *group-name* family inet]

**Description** Configure cflowd, output interfaces, and flow properties.

The statements are explained separately.

**Usage Guidelines** See “Configuring Flow Monitoring” on page 243.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**output (Port Mirroring)**

```

Syntax  output {
            interface interface-name {
                next-hop address;
            }
            no-filter-check;
        }

```

**Hierarchy Level** [edit forwarding-options port-mirroring]

**Description** Configure output interfaces and flow properties.

The statements are explained separately.

**Usage Guidelines** See “Configuring Port Mirroring” on page 257.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**output (Sampling)**

```

Syntax  output {
            cflowd hostname {
                aggregation {
                    autonomous-system;
                    destination-prefix;
                    protocol-port;
                    source-destination-prefix {
                        caida-compliant;
                    }
                    source-prefix;
                }
                autonomous-system-type (origin | peer);
                (local-dump | no-local-dump);
                port port-number;
                source-address address;
                version format;
            }
            file {
                disable;
                filename filename;
                files number;
                size bytes;
                (stamp | no-stamp);
                (world-readable | no-world-readable);
            }
            flow-active-timeout seconds;
            flow-inactive-timeout seconds;
            interface [ interface-names ] {
                engine-id number;
                engine-type number;
                source-address address;
            }
        }

```

**Hierarchy Level** [edit forwarding-options sampling]

**Description** Configure cflowd, output files and interfaces, and flow properties.

The statements are explained separately.

**Usage Guidelines** See “Configuring Traffic Sampling Output” on page 252.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## port

---

<b>Syntax</b>	<code>port port-number;</code>
<b>Hierarchy Level</b>	[edit forwarding-options accounting <i>group-name</i> output cflowd <i>hostname</i> ], [edit forwarding-options monitoring <i>group-name</i> family inet output cflowd <i>hostname</i> ], [edit forwarding-options sampling output cflowd <i>hostname</i> ]
<b>Description</b>	Specify the UDP port number on the cflowd host system.
<b>Options</b>	<i>port-number</i> —Any valid UDP port number on the host system.
<b>Usage Guidelines</b>	See “Configuring Flow Aggregation (cflowd)” on page 254.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## port-mirroring

---

<b>Syntax</b>	<pre> port-mirroring {   input {     family inet{       rate <i>number</i>;       run-length <i>number</i>;     }   }   output {     interface <i>interface-name</i> {       next-hop <i>address</i>;     }     no-filter-check;   }   traceoptions {     file <i>filename</i> {       files <i>number</i>;       size <i>bytes</i>;       (world-readable   no-world-readable);     }   } } </pre>
<b>Hierarchy Level</b>	[edit forwarding-options]
<b>Description</b>	Specify the address family, rate, run length, interface, and next-hop address for sending copies of packets to an analyzer.  The statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring Port Mirroring” on page 257.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## rate

---

<b>Syntax</b>	<code>rate number;</code>
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring input family inet], [edit forwarding-options sampling input family inet]
<b>Description</b>	Set the ratio of the number of packets to be sampled. For example, if you specify a rate of 10, every tenth packet (1 packet out of 10) is sampled.
<b>Options</b>	<i>number</i> —Denominator of the ratio. <b>Range:</b> 1 through 65,535
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling” on page 241.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## routing-instance

---

<b>Syntax</b>	<code>routing-instance [ routing-instance-names ];</code>
<b>Hierarchy Level</b>	[edit forwarding-options helpers domain interface <i>interface-name</i> server <i>address</i> ], [edit forwarding-options helpers domain server <i>address</i> ], [edit forwarding-options helpers tftp interface <i>interface-name</i> server <i>address</i> ], [edit forwarding-options helpers tftp server <i>address</i> ]
<b>Description</b>	Set the routing instance of the server to forward. You can include as many routing instances as necessary in the same statement.
<b>Options</b>	<i>routing-instance-names</i> —Name of the routing instance.
<b>Usage Guidelines</b>	See “Configuring a Forwarding Table Filter” on page 240.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## run-length

---

<b>Syntax</b>	<code>run-length <i>number</i>;</code>
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring family inet input], [edit forwarding-options sampling input family inet]
<b>Description</b>	Set the number of samples following the initial trigger event. This allows you to sample packets following those already being sampled.
<b>Options</b>	<i>number</i> —Number of samples. <b>Range:</b> 0 through 20 <b>Default:</b> 0
<b>Usage Guidelines</b>	See “Configuring a Forwarding Table Filter” on page 240.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## sampling

```

Syntax  sampling {
           disable;
           input {
             family inet {
               max-packets-per-second number;
               rate number;
               run-length number;
             }
           }
           output {
             cflowd hostname {
               aggregation {
                 autonomous-system;
                 destination-prefix;
                 protocol-port;
                 source-destination-prefix {
                   caida-compliant;
                 }
                 source-prefix;
               }
               autonomous-system-type (origin | peer);
               (local-dump | no-local-dump);
               port port-number;
               source-address address;
               version format;
             }
             file {
               disable;
               filename filename;
               files number;
               size bytes;
               (stamp | no-stamp);
               (world-readable | no-world-readable);
             }
             flow-active-timeout seconds;
             flow-inactive-timeout seconds;
             interface [ interface-names ] {
               engine-id number;
               engine-type number;
               source-address address;
             }
           }
           traceoptions {
             file filename {
               files number;
               size bytes;
               (world-readable | no-world-readable);
             }
           }
         }

```

**Hierarchy Level** [edit forwarding-options]

<b>Description</b>	Configure traffic sampling.  The statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring a Forwarding Table Filter” on page 240, “Configuring Flow Aggregation (cflowd)” on page 254, “Tracing Traffic Sampling Operations” on page 254, and “Configuring Port Mirroring” on page 257.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

---

## server

See the following sections:

server (DHCP or BOOTP Service) on page 294

server (DNS and TFTP Service) on page 295

### ***server (DHCP or BOOTP Service)***

<b>Syntax</b>	server [ <i>addresses</i> ];
<b>Hierarchy Level</b>	[edit forwarding-options helpers bootp], [edit forwarding-options helpers bootp interface <i>interface-group</i> ]
<b>Description</b>	Configure the router to act as a DHCP or BOOTP relay agent.
<b>Options</b>	<i>addresses</i> —One or more addresses of the server.
<b>Usage Guidelines</b>	See “Configuring the Router or Interface to Act as a DHCP/BOOTP Relay Agent” on page 245.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

**server (DNS and TFTP Service)**

<b>Syntax</b>	<code>server address &lt; [ routing-instance <i>routing-instance-names</i> ] &gt;;</code>
<b>Hierarchy Level</b>	[edit forwarding-options helpers domain], [edit forwarding-options helpers domain interface <i>interface-name</i> ], [edit forwarding-options helpers tftp], [edit forwarding-options helpers tftp interface <i>interface-name</i> ]
<b>Description</b>	Specify the DNS or TFTP server for forwarding DNS or TFTP requests. Only one server can be specified for each interface.
<b>Options</b>	<i>address</i> —Address of the server.  <i>routing-instance</i> [ <i>routing-instance-names</i> ]—Set the routing instance name or names that belong to the DNS server or TFTP server.
<b>Usage Guidelines</b>	See “Configuring DNS and TFTP Packet Forwarding” on page 247.
<b>Required Privilege Level</b>	<i>interface</i> —To view this statement in the configuration. <i>interface-control</i> —To add this statement to the configuration.

**size**


---

<b>Syntax</b>	<code>size bytes;</code>
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring traceoptions file], [edit forwarding-options sampling output file], [edit forwarding-options sampling traceoptions file]
<b>Description</b>	Specify the maximum size of each file containing sample or log data. The file size is limited by the number of files to be created and the available hard disk space.  When a traffic sampling file named <i>sampling-file</i> reaches the maximum size, it is renamed <i>sampling-file.0</i> . When the <i>sampling-file</i> again reaches its maximum size, <i>sampling-file.0</i> is renamed <i>sampling-file.1</i> and <i>sampling-file</i> is renamed <i>sampling-file.0</i> . This renaming scheme continues until the maximum number of traffic sampling files is reached. Then the oldest traffic sampling file is overwritten.
<b>Options</b>	<i>bytes</i> —Maximum size of each traffic sampling file or trace log file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). <b>Syntax:</b> <i>xk</i> to specify KB, <i>xm</i> to specify MB, or <i>xg</i> to specify GB <b>Range:</b> 10 KB through the maximum file size supported on your router <b>Default:</b> 1 MB for sampling data; 128 KB for log information
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling Output” on page 252 and “Tracing Traffic Sampling Operations” on page 254.
<b>Required Privilege Level</b>	<i>interface</i> —To view this statement in the configuration. <i>interface-control</i> —To add this statement to the configuration.

## stamp

---

<b>Syntax</b>	(stamp   no-stamp);
<b>Hierarchy Level</b>	[edit forwarding-options sampling output file]
<b>Description</b>	Include a timestamp with each line in the output file.
<b>Options</b>	no-stamp—Do not include timestamps. This is the default. stamp—Include a timestamp with each line of packet sampling information. <b>Default:</b> No timestamp is included.
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling Output” on page 252.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## tftp

---

<b>Syntax</b>	tftp { description <i>description-of-service</i> ; server <i>address</i> < [ routing-instance <i>routing-instance-names</i> ] >; interface <i>interface-name</i> { description <i>description-of-interface</i> ; no-listen; server <i>address</i> < [ routing-instance <i>routing-instance-names</i> ] >; } }
<b>Hierarchy Level</b>	[edit forwarding-options helpers]
<b>Description</b>	Enable TFTP request packet forwarding.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configuring DNS and TFTP Packet Forwarding” on page 247.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## traceoptions

---

See the following sections:

traceoptions (DNS and TFTP Packet Forwarding) on page 297

traceoptions (Port Mirroring and Traffic Sampling) on page 298

### ***traceoptions (DNS and TFTP Packet Forwarding)***

**Syntax** traceoptions {  
     file *filename* {  
         files *number*;  
         size *bytes*;  
     }  
     flag *flag*;  
     level *level*;  
 }

**Hierarchy Level** [edit forwarding-options helpers]

**Description** Configure tracing operations.

**Options** flag—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements.

address—Address management

all—All forwarding tracing operations

config—Configuration

fdb—Interface database

io—I/O

main—Main loop

rtsock—Routing socket

trace—Trace tracing

ui—User interface

util—Miscellaneous utility

level—Level at which traceoptions tracks the filter information:

all—Match all levels.

error—Match error conditions.

info—Match informational messages.

notice—Match conditions that should be handled specially.

verbose—Match verbose messages.

warning—Match warning messages.

The remaining statements are explained separately.

**Usage Guidelines** See “Tracing BOOTP, DNS, and TFTP Forwarding Operations” on page 248.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

### ***traceoptions (Port Mirroring and Traffic Sampling)***

**Syntax**

```
traceoptions {
    file filename {
        files number;
        size bytes;
        (world-readable | no-world-readable);
    }
}
```

**Hierarchy Level** [edit forwarding-options port-mirroring],  
[edit forwarding-options sampling]

**Description** Configure traffic sampling tracing operations.

The statements are explained separately.

**Usage Guidelines** See “Tracing Traffic Sampling Operations” on page 254.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

---

### version

**Syntax** *version format;*

**Hierarchy Level** [edit forwarding-options accounting *group-name* output cflowd *hostname*],  
[edit forwarding-options sampling output cflowd *hostname*]

**Description** Specify the version format of the aggregated flows exported to a cflowd server.

**Options** *format*—Format of the flows.

**Values:** 5 or 8

**Default:** 5

**Usage Guidelines** See “Configuring Flow Aggregation (cflowd)” on page 254.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

world-readable

---

<b>Syntax</b>	(world-readable   no-world-readable);
<b>Hierarchy Level</b>	[edit forwarding-options port-mirroring traceoptions file], [edit forwarding-options sampling output file], [edit forwarding-options sampling traceoptions file]
<b>Description</b>	Enable unrestricted file access.
<b>Options</b>	no-world-readable—Restrict file access to owner. This is the default.  world-readable—Enable unrestricted file access.
	<b>Default:</b> no-world-readable
<b>Usage Guidelines</b>	See “Configuring Traffic Sampling Output” on page 252 and “Tracing Traffic Sampling Operations” on page 254.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

