



Junos[®] OS for EX Series Ethernet Switches

Device Security for EX9200 Switches

Release
12.3



Published: 2013-04-01

Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, California 94089
USA
408-745-2000
www.juniper.net

This product includes the Envoy SNMP Engine, developed by Epilogue Technology, an Integrated Systems Company. Copyright © 1986-1997, Epilogue Technology Corporation. All rights reserved. This program and its documentation were developed at private expense, and no part of them is in the public domain.

This product includes memory allocation software developed by Mark Moraes, copyright © 1988, 1989, 1993, University of Toronto.

This product includes FreeBSD software developed by the University of California, Berkeley, and its contributors. All of the documentation and software included in the 4.4BSD and 4.4BSD-Lite Releases is copyrighted by the Regents of the University of California. Copyright © 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994. The Regents of the University of California. All rights reserved.

GateD software copyright © 1995, the Regents of the University. All rights reserved. Gate Daemon was originated and developed through release 3.0 by Cornell University and its collaborators. Gated is based on Kirton's EGP, UC Berkeley's routing daemon (routed), and DCN's HELLO routing protocol. Development of Gated has been supported in part by the National Science Foundation. Portions of the GateD software copyright © 1988, Regents of the University of California. All rights reserved. Portions of the GateD software copyright © 1991, D. L. S. Associates.

This product includes software developed by Maker Communications, Inc., copyright © 1996, 1997, Maker Communications, Inc.

Juniper Networks, Junos, Steel-Belted Radius, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. The Juniper Networks Logo, the Junos logo, and JunosE are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Products made or sold by Juniper Networks or components thereof might be covered by one or more of the following patents that are owned by or licensed to Juniper Networks: U.S. Patent Nos. 5,473,599, 5,905,725, 5,909,440, 6,192,051, 6,333,650, 6,359,479, 6,406,312, 6,429,706, 6,459,579, 6,493,347, 6,538,518, 6,538,899, 6,552,918, 6,567,902, 6,578,186, and 6,590,785.

Junos® OS for EX Series Ethernet Switches Device Security for EX9200 Switches

Release 12.3

Copyright © 2013, Juniper Networks, Inc.

All rights reserved.

The information in this document is current as of the date on the title page.

YEAR 2000 NOTICE

Juniper Networks hardware and software products are Year 2000 compliant. Junos OS has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

END USER LICENSE AGREEMENT

The Juniper Networks product that is the subject of this technical documentation consists of (or is intended for use with) Juniper Networks software. Use of such software is subject to the terms and conditions of the End User License Agreement ("EULA") posted at <http://www.juniper.net/support/eula.html>. By downloading, installing or using such software, you agree to the terms and conditions of that EULA.

Table of Contents

	About the Documentation	vii
	Documentation and Release Notes	vii
	Supported Platforms	vii
	Using the Examples in This Manual	vii
	Merging a Full Example	viii
	Merging a Snippet	viii
	Documentation Conventions	ix
	Documentation Feedback	xi
	Requesting Technical Support	xi
	Self-Help Online Tools and Resources	xi
	Opening a Case with JTAC	xii
Part 1	Overview	
Chapter 1	Rate Limiting	3
	Configuring the Junos OS ICMPv4 Rate Limit for ICMPv4 Routing Engine Messages	3
	Configuring the Junos OS ICMPv6 Rate Limit for ICMPv6 Routing Engine Messages	3
Part 2	Configuration	
Chapter 2	Configuration Statements	7
	[edit system] Hierarchy Level	7
	icmpv4-rate-limit	21
	icmpv6-rate-limit	22

List of Tables

About the Documentation	vii
Table 1: Notice Icons	ix
Table 2: Text and Syntax Conventions	ix

About the Documentation

- Documentation and Release Notes on page vii
- Supported Platforms on page vii
- Using the Examples in This Manual on page vii
- Documentation Conventions on page ix
- Documentation Feedback on page xi
- Requesting Technical Support on page xi

Documentation and Release Notes

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <http://www.juniper.net/books>.

Supported Platforms

For the features described in this document, the following platforms are supported:

- EX Series

Using the Examples in This Manual

If you want to use the examples in this manual, you can use the **load merge** or the **load merge relative** command. These commands cause the software to merge the incoming configuration into the current candidate configuration. The example does not become active until you commit the candidate configuration.

If the example configuration contains the top level of the hierarchy (or multiple hierarchies), the example is a *full example*. In this case, use the **load merge** command.

If the example configuration does not start at the top level of the hierarchy, the example is a *snippet*. In this case, use the **load merge relative** command. These procedures are described in the following sections.

Merging a Full Example

To merge a full example, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration example into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following configuration to a file and name the file **ex-script.conf**. Copy the **ex-script.conf** file to the **/var/tmp** directory on your routing platform.

```
system {
  scripts {
    commit {
      file ex-script.xml;
    }
  }
}
interfaces {
  fxp0 {
    disable;
    unit 0 {
      family inet {
        address 10.0.0.1/24;
      }
    }
  }
}
```

2. Merge the contents of the file into your routing platform configuration by issuing the **load merge** configuration mode command:

```
[edit]
user@host# load merge /var/tmp/ex-script.conf
load complete
```

Merging a Snippet

To merge a snippet, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration snippet into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following snippet to a file and name the file **ex-script-snippet.conf**. Copy the **ex-script-snippet.conf** file to the **/var/tmp** directory on your routing platform.

```
commit {
  file ex-script-snippet.xml; }
```

2. Move to the hierarchy level that is relevant for this snippet by issuing the following configuration mode command:


```
[edit]
user@host# edit system scripts
[edit system scripts]
```

3. Merge the contents of the file into your routing platform configuration by issuing the **load merge relative** configuration mode command:

```
[edit system scripts]
user@host# load merge relative /var/tmp/ex-script-snippet.conf
load complete
```

For more information about the **load** command, see the CLI User Guide.

Documentation Conventions

Table 1 on page ix defines notice icons used in this guide.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

Table 2 on page ix defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the configure command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active

Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces or emphasizes important new terms. Identifies book names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> A policy <i>term</i> is a named structure that defines match conditions and actions. <i>Junos OS System Basics Configuration Guide</i> RFC 1997, <i>BGP Communities Attribute</i>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# set system domain-name <i>domain-name</i>
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> To configure a stub area, include the stub statement at the [edit protocols ospf area area-id] hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Enclose optional keywords or variables.	stub <default-metric <i>metric</i> >;
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	broadcast multicast (<i>string1</i> <i>string2</i> <i>string3</i>)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[] (square brackets)	Enclose a variable for which you can substitute one or more values.	community name members [<i>community-ids</i>]
Indentation and braces ({ })	Identify a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
J-Web GUI Conventions		
Bold text like this	Represents J-Web graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> In the Logical Interfaces box, select All Interfaces. To cancel the configuration, click Cancel.
> (bold right angle bracket)	Separates levels in a hierarchy of J-Web selections.	In the configuration editor hierarchy, select Protocols>Ospf .

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version (if applicable)

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>

- Join and participate in the Juniper Networks Community Forum:
<http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/>.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting-support.html>.

PART 1

Overview

- [Rate Limiting on page 3](#)

CHAPTER 1

Rate Limiting

- [Configuring the Junos OS ICMPv4 Rate Limit for ICMPv4 Routing Engine Messages on page 3](#)
- [Configuring the Junos OS ICMPv6 Rate Limit for ICMPv6 Routing Engine Messages on page 3](#)

Configuring the Junos OS ICMPv4 Rate Limit for ICMPv4 Routing Engine Messages

To limit the rate at which ICMPv4 messages can be generated by the Routing Engine and sent to the Routing Engine, include the **icmpv4-rate-limit** statement at the **[edit system internet-options]** hierarchy level:

icmpv4-rate-limit bucket-size *bucket-size* packet-rate *packet-rate*;

The bucket size is the number of seconds in the rate-limiting bucket. The packet rate is the rate-limiting packets earned per second. Specify a **bucket-size** from 0 through 4294967295 seconds. The default value is 5 seconds. Specify a **packet-rate** from 0 through 4,294,967,295. The default value is 1000.

Related Documentation

- [Configuring the Junos OS ICMPv6 Rate Limit for ICMPv6 Routing Engine Messages on page 3](#)

Configuring the Junos OS ICMPv6 Rate Limit for ICMPv6 Routing Engine Messages

To limit the rate at which ICMPv6 messages are sent, include the **icmpv6-rate-limit** statement at the **[edit system internet-options]** hierarchy level:

icmpv6-rate-limit bucket-size *bucket-size* packet-rate *packet-rate*;

The bucket size is the the number of seconds in the rate-limiting bucket. The packet rate is the rate-limiting packets earned per second. Specify a **bucket-size** from 0 through 4294967295 seconds. The default value is 5 seconds. Specify a **packet-rate** from 0 through 4294967295. The default value is 1000.

Related Documentation

- [Configuring the Junos OS ICMPv4 Rate Limit for ICMPv4 Routing Engine Messages on page 3](#)

PART 2

Configuration

- [Configuration Statements on page 7](#)

CHAPTER 2

Configuration Statements

- [\[edit system\] Hierarchy Level on page 7](#)

[\[edit system\] Hierarchy Level](#)

```
system {
  accounting {
    destination {
      radius {
        server {
          server-address {
            accounting-port port-number;
            max-outstanding-requests
            port port-number;
            retry number;
            secret password;
            source-address address;
            timeout seconds;
          }
        }
      }
    }
    tacplus {
      server {
        server-address {
          port port-number;
          secret password;
          single-connection;
          source-address address;
          timeout seconds;
        }
      }
    }
  }
  events [ change-log interactive-commands login ];
}
allow-6pe-traceroute;
allow-v4mapped-packets;
archival {
  configuration {
    archive-sites {
      ftp://<username>:<password>@<host>:<port>/<url-path>;
      scp://<username>:<password>@<host>:<port>/<url-path>;
    }
  }
}
```

```

    }
    transfer-interval interval;
    transfer-on-commit;
  }
}
arp {
  aging-timer minutes;
  gratuitous-arp-delay;
  gratuitous-arp-on-ifup;
  interfaces {
    logical-interface-name {
      aging-timer minutes;
    }
  }
  passive-learning;
  purging;
}
authentication-order [ authentication-methods ];
auto-configuration {
  traceoptions {
    file <filename> <files number> <match regular-expression> <size size>
      <world-readable | no-world-readable>;
    flag <all | auth | configuration | ;interfaces | io | rtsock | ui>
    level level;
    no-remote-trace;
  }
}
backup-router address <destination [ destination-addresses ]>;
commit {
  fast-synchronize;
  synchronize;
  server {
    commit-interval number;
    days-to-keep-error-logs number;
    maximum-aggregate-pool number;
    maximum-entries number;
    traceoptions {
      file <filename> <files number> <match regular-expression> <size size>
        <world-readable | no-world-readable>;
      flag <all | auth | configuration | ;interfaces | io | rtsock | ui>
      level level;
      no-remote-trace;
    }
  }
}
(compress-configuration-files | no-compress-configuration-files);
ddos-protection {
  global {
    disable-fpc;
    disable-logging;
    disable-routing-engine;
    flow-detection;
    flow-report-rate;
    violation-report-rate;
  }
  protocols protocol-group (aggregate | packet-type) {

```

```

bandwidth packets-per-second;
burst size;
disable-fpc;
disable-logging;
disable-routing-engine;
fpc {
    bandwidth-scale percentage;
    burst-scale percentage;
    disable-fpc;
}
priority level;
recover-time seconds;
flow-detection {
    flow-detect-time detect-period;
    no-flow-logging;
    timeout-active-flows enable-period;
    flow-level-bandwidth;
    flow-level-control (all | keep-all | police);
    flow-detection-mode (always-on | automatic | disabled);
    physical-interface;
    flow-recover-time recover-period;
    flow-timeout-time timeout-period;
    subscriber;
}
}
}
traceoptions{
    file filename <files number> <match regular-expression > <size maximum-file-size>
        <world-readable | no-world-readable>;
    flag flag;
    level (all | error | info | notice | verbose | warning);
    no-remote-trace;
}
}
default-address-selection;
diag-port-authentication (encrypted-password "password" | plain-text-password);
dynamic-profile-options {
    versioning;
}
domain-name domain-name;
domain-search [ domain-list ];
do-not-disable-ip6op-ondad;
extensions {
    providers {
        provider-id {
            license-type license deployment-scope [ deployments ];
        }
    }
}
resource-limits {
    package package-name {
        resources {
            cpu {
                priority number;
                time seconds;
            }
            file {
                core-size bytes;
            }
        }
    }
}

```

```
        open number;  
        size bytes;  
    }  
    memory {  
        data-size bytes;  
        locked-in bytes;  
        resident-set-size bytes;  
        socket-buffers bytes;  
        stack-size bytes;  
    }  
}  
}  
process process-ui-name {  
    resources {  
        cpu {  
            priority number;  
            time seconds;  
        }  
        file {  
            core-size bytes;  
            open number;  
            size bytes;  
        }  
        memory {  
            data-size bytes;  
            locked-in bytes;  
            resident-set-size bytes;  
            socket-buffers bytes;  
            stack-size bytes;  
        }  
    }  
}  
}  
}  
fips {  
    level level;  
}  
host-name hostname;  
inet6-backup-router ipv6-address <destination address>;  
internet-options {  
    (gre-path-mtu-discovery | no-gre-path-mtu-discovery);  
    icmpv4-rate-limit bucket-size number packet-rate rate;  
    icmpv6-rate-limit bucket-size number packet-rate rate;  
    (ipip-path-mtu-discovery | no-ipip-path-mtu-discovery);  
    (ipv6-path-mtu-discovery | noipv6-path-mtu-discovery);  
    ipv6-path-mtu-discovery-timeout;  
    no-tcp-rfc1323-paws;  
    no-tcp-rfc1323;  
    (path-mtu-discovery | no-path-mtu-discovery);  
    source-port upper-limit port-number;  
    (source-quench | no-source-quench);  
    tcp-drop-synfin-set;  
}  
kernel-replication;  
license {  
    autoupdate {
```

```

    url URL;
    password password;
}
renew before-expiration number;
interval number
traceoptions {
    file <filename> <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
    flag flag;
    no-remote-trace;
}
}
location {
    altitude feet;
    building name;
    country-code code;
    floor number;
    hcoord horizontal-coordinate;
    lata service-area;
    latitude degrees;
    longitude degrees;
    npa-nxx number;
    postal-code postal-code;
    rack number;
    vcoord vertical-coordinate;
}
login {
    announcement "text";
    class class-name {
        access-end "hh<:mm:<ss>>";
        access-start "hh<:mm:<ss>>";
        allow-commands "regular-expression";
        ( allow-configuration | allow-configuration-regexps ) "regular expression 1" "regular
            expression 2";
        allowed-days [ sunday monday tuesday wednesday thursday friday saturday ];
        configuration-breadcrumbs;
        deny-commands "regular-expression";
        ( deny-configuration | deny-configuration-regexps ) "regular expression 1" "regular
            expression 2";
        idle-timeout minutes;
        logical-system logical-system-name;
        login-alarms;
        login-script filename;
        login-tip;
        permissions [ permissions ];
        security-role [ security-role ] ;
    }
    deny-sources ( address address | apply-groups | apply-groups-except ) ;
    message "text";
    password {
        change-type ( character-sets | set-transitions );
        format ( des | md5 | sha1 );
        maximum-length length;
        minimum-changes number;
        minimum-length length;
        minimum-lower-cases number;
    }
}

```

```
    minimum-numeric number;  
    minimum-punctuations number;  
    minimum-upper-cases number;  
  }  
  retry-options {  
    backoff-factor number;  
    backoff-threshold number;  
    maximum-time number;  
    minimum-time number;  
    tries-before-disconnect number;  
  }  
  user username {  
    authentication {  
      (encrypted-password "password" | plain-text-password);  
      load-key-file filename;  
      ssh-dsa "public-key" <from hostname>;  
      ssh-ecdsa "public-key" <from hostname>;  
      ssh-rsa "public-key" <from hostname>;  
    }  
    class class-name;  
    full-name "complete-name";  
    uid uid-value;  
  }  
}  
max-configurations-on-flash number;  
mirror-flash-on-disk;  
name-server {  
  address;  
}  
nd-maxmcast-solicit  
nd-retransmit-timer  
no-multicast-echo;  
no-neighbor-learn;  
no-ping-record-route;  
no-ping-time-stamp;  
no-redirects;  
no-redirects-ipv6;  
ntp {  
  authentication-key key-number type md5 value password;  
  boot-server address;  
  broadcast <address> <key key-number> <ttl value> <version value>;  
  broadcast-client;  
  multicast-client <address>;  
  peer address <key key-number> <prefer> <version value>;  
  server address <key key-number> <prefer> <version value>;  
  source-address source-address;  
  trusted-key [ key-numbers ];  
}  
pic-console-authentication {  
  (encrypted-password "encrypted-password" | plain-text-password);  
}  
ports {  
  auxiliary {  
    disable;  
    insecure;  
    type (ansi | small-xterm | vt100 | xterm);
```



```

    port-type (mini-usb | rj45) ;
  }
}
console {
  disable;
  insecure;
  log-out-on-disconnect;
  type (ansi | small-xterm | vt100 | xterm);
}
}
processes {
  process-name (enable | disable) failover (alternate-media | other-routing-engine);
  command path;
  timeout seconds;
}
proxy {
  password password;
  port port-number;
  server (hostname | ip-address);
  username username;
}
radius-options {
  attributes {
    nas-ip-address address;
  }
  password-protocol mschap-v2;
}
radius-server {
  server-address {
    accounting-port port-number;
    max-outstanding-requests number;
    port port-number;
    retry number;
    secret password;
    source-address source-address;
    timeout seconds;
  }
}
root-authentication {
  (encrypted-password "password" | plain-text-password);
  load-key-file filename;
  ssh-dsa "public-key" <from hostname>;
  ssh-ecdsa "public-key" <from hostname>;
  ssh-rsa "public-key" <from hostname>;
}
(saved-core-context | no-saved-core-context);
saved-core-files number;
scripts {
  load-scripts-from-flash;
  commit {
    allow-transients;
    direct-access;
    file filename.xml {
      checksum (md5 | sha-256 | sha1) hash;
      optional;
      refresh;
    }
  }
}

```

```

        refresh-from url;
        source url;
    }
    max-datasize
    refresh;
    refresh-from url;
    traceoptions {
        file <filename> <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
        flag flag;
        no-remote-trace;
    }
}
op {
    file filename.xsl {
        arguments {
            argument-name {
                description descriptive-text;
            }
        }
        checksum (md5 | sha-256 | sha1) hash;
        command filename-alias;
        description descriptive-text;
        refresh;
        refresh-from url;
        source url;
    }
    max-datasize
    no-allow-url
    refresh;
    refresh-from url;
    traceoptions {
        file <filename> <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
        flag flag;
        no-remote-trace;
    }
}
static-host-mapping {
    hostname {
        alias [ aliases ];
        inet [ addresses ];
        inet6 [ addresses ];
        sysid system-identifier;
    }
}
syslog {
    allow-duplicates;
    archive <binary-data | no-binary-data> <files number> <size size> <world-readable |
    no-world-readable>;
    console {
        any | authorization | change-log | conflict-log | daemon | dfc | external | firewall | ftp
        | interactive-commands | kernel | ntp | pfe | security | user) (alert | any | critical |
        emergency | error | info | none | notice | warning);
    }
}

```

```

file filename {
    facility severity;
    allow-duplicates;
    any (alert | any | critical | emergency | error | info | none | notice | warning);
    archive <archive-sites {ftp-url <password password>}> <files number> <size size>
        <start-time "YYYY-MM-DD.hh:mm"> <transfer-interval minutes> <world-readable |
        no-world-readable>;
    authorization (alert | any | critical | emergency | error | info | none | notice | warning);
    change-log (alert | any | critical | emergency | error | info | none | notice | warning);
    conflict-log (alert | any | critical | emergency | error | info | none | notice | warning);
    daemon (alert | any | critical | emergency | error | info | none | notice | warning);
    dfc (alert | any | critical | emergency | error | info | none | notice | warning);
    explicit-priority;
    external (alert | any | critical | emergency | error | info | none | notice | warning);
    firewall (alert | any | critical | emergency | error | info | none | notice | warning);
    ftp (alert | any | critical | emergency | error | info | none | notice | warning);
    interactive-commands (alert | any | critical | emergency | error | info | none | notice
        | warning);
    kernel (alert | any | critical | emergency | error | info | none | notice | warning);
    match "regular-expression";
    ntp (alert | any | critical | emergency | error | info | none | notice | warning);
    pfe (alert | any | critical | emergency | error | info | none | notice | warning);
    security (alert | any | critical | emergency | error | info | none | notice | warning);
    structured-data {
        brief
    }
}
host (hostname | other-routing-engine | scc-master) {
    facility severity;
    authorization (alert | any | critical | emergency | error | info | none | notice | warning);
    change-log (alert | any | critical | emergency | error | info | none | notice | warning);
    conflict-log (alert | any | critical | emergency | error | info | none | notice | warning);
    daemon (alert | any | critical | emergency | error | info | none | notice | warning);
    dfc (alert | any | critical | emergency | error | info | none | notice | warning);
    explicit-priority;
    external (alert | any | critical | emergency | error | info | none | notice | warning);
    facility-override facility;
    firewall (alert | any | critical | emergency | error | info | none | notice | warning);
    ftp (alert | any | critical | emergency | error | info | none | notice | warning);
    interactive-commands (alert | any | critical | emergency | error | info | none | notice
        | warning);
    kernel (alert | any | critical | emergency | error | info | none | notice | warning);
    log-prefix string;
    match "regular-expression";
    ntp (alert | any | critical | emergency | error | info | none | notice | warning);
    pfe (alert | any | critical | emergency | error | info | none | notice | warning);
    security (alert | any | critical | emergency | error | info | none | notice | warning);
    source-address source-address;
    structured-data {
        brief
        user (username | *) {
    }
    }
    log-rotate-frequency minutes;
    server;
    source-address address;
    time-format (year | millisecond | year millisecond);
    user (username | *) {

```

```

        facility severity;
        match "regular-expression";
    }
}
tacplus-options {
    (exclude-cmd-attribute | no-cmd-attribute-value);
    service-name service-name;
}
tacplus-server {
    server-address {
        port port-number;
        secret password;
        single-connection;
        source-address source-address;
        timeout seconds;
    }
}
time-zone (GMT | GMT+hour-offset | GMT-hour-offset | zone-name);
tracing destination-override syslog host address;
use-imported-time-zones;
}
}
system {
    services {
        database-replication {
            traceoptions {
                file <filename> <files number> <match regular-expression>
                <size maximum-file-size> <world-readable | no-world-readable>;
                flag flag;
                no-remote-trace;
            }
        }
    }
    dhcp-local-server {
        authentication {
            password password;
            username-include {
                circuit-type;
                delimiter delimiter-character;
                domain-name domain-name;
                logical-system-name;
                mac-address;
                option-60;
                option-82 <circuit-id> <remote-id>;
                routing-instance-name;
                user-prefix user-prefix;
            }
        }
    }
    duplicate-clients-on-interface;
    dynamic-profile (profile-name | junos-default-profile) <aggregate-clients <merge |
        replace> | use-primary primary-profile-name>;
    forward-snooped-clients (all-interfaces | configured-interfaces |
        non-configured-interfaces);
    group group-name {
        dynamic-profile (profile-name | junos-default-profile) <aggregate-clients <merge |
            replace> | use-primary primary-profile-name>;
        interface interface-name {

```

```

        exclude;
        overrides {
            ...same statements as at the [edit system services dhcp-local-server overrides]
              hierarchy level ...
        }
        trace;
        upto upto-interface-name;
    }
}
overrides {
    client-discover-match <option60-and-option82>;
    interface-client-limit number;
    no-arp;
    process-inform {
        pool pool-name;
    }
}
pool-match-order {
    external-authority;
    ip-address-first;
    option-82;
}
reconfigure {
    attempts attempt-count;
    clear-on-abort;
    strict;
    timeout timeout-value;
    token token-value;
    trigger {
        radius-disconnect;
    }
}
traceoptions {
    file <filename> <files number> <match regular-expression>
      <size maximum-file-size> <world-readable | no-world-readable>;
    flag flag;
    no-remote-trace;
}
}
dhcpv4-profiles profile-name {
    bind-interface interface-name;
    dead-server-retry-interval interval-in-seconds;
    dead-server-successive-retry-attempt number-of-attempts;
    dhcp-server-selection-algorithm (highest-priority-server | round-robin);
    lease-time time-in-seconds;
    pool-name pool-name;
    retransmission-attempt number-of-attempts;
    retransmission-interval interval-in-seconds;
    servers ip-address {
        priority value;
    }
}
}
dhcpv6-profiles profile-name {
    bind-interface interface-name;
    lease-time time-in-seconds;
    pool-name pool-name;
}

```

```
    retransmission-attempt number-of-attempts;  
    retransmission-interval interval-in-seconds;  
  }  
  traceoptions {  
    file <filename> <files number> <match regular-expression>  
      <size maximum-file-size> <world-readable | no-world-readable>;  
    flag flag;  
    no-remote-trace;  
  }  
}  
finger {  
  connection-limit limit;  
  rate-limit limit;  
}  
flow-tap-dtcp {  
  ssh {  
    connection-limit limit;  
    rate-limit limit;  
  }  
}  
ftp {  
  connection-limit limit;  
  rate-limit limit;  
}  
local-policy-decision-function {  
  statistics {  
    aacl-statistics-profile profile-name {  
      aacl-fields {  
        address;  
        all-fields;  
        application;  
        application-group;  
        input-bytes;  
        input-interface;  
        input-packets;  
        ipv6-address  
        ipv6-prefix-length  
        mask;  
        output-bytes;  
        output-packets;  
        subscriber-name;  
        timestamp;  
        vrf-name;  
      }  
      file filename;  
      record-type (delta | interim);  
    }  
    file filename {  
      archive-sites {  
        url;  
      }  
      files number;  
      size bytes;  
      transfer-interval minutes;  
    }  
    record-type (data | interim);  
  }  
}
```

```

    }
    traceoptions {
        file <filename> <files number> <match regular-expression>
        <size maximum-file-size> <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
    }
}
netconf {
    ssh {
        connection-limit limit;
        port port;
        rate-limit limit;
    }
    traceoptions {
        file <filename> <files number> <match regular-expression> <size size>
        <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
        on-demand;
    }
}
outbound-ssh {
    client client-id {
        address {
            port port-number;
            retry number;
            timeout seconds;
        }
        device-id device-id;
        keep-alive {
            retry number;
            timeout seconds;
        }
        reconnect-strategy (in-order | sticky);
        secret secret;
        services netconf;
    }
    traceoptions {
        file <filename> <files number> <match regular-expression>
        <size maximum-file-size> <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
    }
}
resource-monitor {
    resource-category jtree {
        resource-type free-dwords {
            low-watermark number;
            high-watermark number;
        }
        resource-type free-pages {
            low-watermark number;
            high-watermark number;
        }
    }
}
}

```

```
no-throttle;
no-logging;
high-threshold number;
traceoptions {
  file filename <files number> <match regular-expression> <size maximum-file-size>
    <world-readable | no-world-readable>;
  flag flag;
  no-remote-trace;
}
}
service-deployment {
  local-certificate certificate-name;
  servers {
    server-address {
      port port-number;
      security-options {
        (ssl3 | tls);
      }
      user username;
    }
  }
  source-address source-address;
  traceoptions {
    flag flag;
  }
}
ssh {
  ciphers [ cipher-1 cipher-2 cipher-3 ...]
  client-alive-count-max seconds;
  client-alive-interval seconds;
  connection-limit limit;
  hostkey-algorithm limit;
  key-exchange limit;
  macs limit;
  max-sessions-per-connection number;
  no-tcp-forwarding;
  protocol-version [v1 v2];
  rate-limit limit;
  root-login (allow | deny | deny-password);
}
subscriber-management {
  enforce-strict-scale-limit-license;
  gres-route-flush-delay;
  maintain-subscriber {
    interface-delete;
  }
  traceoptions {
    file filename <files number> <match regular-expression> <size maximum-file-size>
      <world-readable | no-world-readable>;
    flag flag;
    no-remote-trace;
  }
}
}
traceoptions {
  file filename <files number> <match regular-expression> <size maximum-file-size>
    <world-readable | no-world-readable>;
```



```

        flag flag;
        no-remote-trace;
    }
    telnet {
        connection-limit limit;
        rate-limit limit;
    }
    tftp-server {
        connection-limit limit;
        rate-limit limit;
    }
    xnm-clear-text {
        connection-limit limit;
        rate-limit limit;
    }
    xnm-ssl {
        connection-limit limit;
        local-certificate certificate-name;
        rate-limit limit;
    }
}

```

Related Documentation

- Notational Conventions Used in Junos OS Configuration Hierarchies

icmpv4-rate-limit

Syntax	<pre> icmpv4-rate-limit { bucket-size <i>seconds</i>; packet-rate <i>pps</i>; } </pre>
Hierarchy Level	[edit system internet-options]
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Configure rate-limiting parameters for ICMPv4 messages sent.
Options	<p>bucket-size <i>seconds</i>—Number of seconds in the rate-limiting bucket.</p> <p>Range: 0 through 4294967295 seconds</p> <p>Default: 5</p> <p>packet-rate <i>pps</i>—Rate-limiting packets earned per second.</p> <p>Range: 0 through 4294967295 pps</p> <p>Default: 1000</p>
Required Privilege Level	<p>admin—To view this statement in the configuration.</p> <p>admin-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring the Junos OS ICMPv4 Rate Limit for ICMPv4 Routing Engine Messages on page 3

icmpv6-rate-limit

Syntax	<code>icmpv6-rate-limit { bucket-size <i>seconds</i>; packet-rate <i>packet-rate</i>; }</code>
Hierarchy Level	[edit system internet-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.
Description	Configure rate-limiting parameters for ICMPv6 messages sent.
Options	bucket-size <i>seconds</i> —Number of seconds in the rate-limiting bucket. Range: 0 through 4294967295 seconds Default: 5 packet-rate <i>pps</i> —Rate-limiting packets earned per second. Range: 0 through 4294967295 pps Default: 1000
Required Privilege Level	admin—To view this statement in the configuration. admin-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring the Junos OS ICMPv6 Rate Limit for ICMPv6 Routing Engine Messages on page 3