

# Chapter 3

## Complete Configuration Mode Commands and Statements

This chapter shows the complete configuration mode commands and the complete configuration statement hierarchy. Using these commands and statements is described in other chapters.

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Complete Configuration Statement Hierarchy on page 40

For information about CLI operational mode commands, see the *JUNOS Internet Software Operational Mode Command Reference*. For information about IPv6 configuration statements, see the *JUNOS Internet Software Configuration Guide: IPv6*.

### Complete Configuration Mode Commands

The following is the complete list of configuration mode commands, listing all possible commands in the hierarchy.

user@host# ?

Possible completions:

<[Enter]>	Execute this command
activate	Remove the inactive tag from a statement
annotate	Annotate the statement with a comment
commit	Commit current set of changes
copy	Copy a statement
deactivate	Add the inactive tag to a statement
delete	Delete a data element
edit	Edit a sub-element
exit	Exit from this level
help	Provide help information
insert	Insert a new ordered data element
load	Load configuration from an ASCII file
quit	Quit from this level
rename	Rename a statement
rollback	Roll back database to last committed version
run	Run an operational-mode command
save	Save configuration to an ASCII file
set	Set a parameter
show	Show a parameter
status	Display database user status
top	Exit to top level of configuration
up	Exit one level of configuration

## Complete Configuration Statement Hierarchy

This section shows the complete configuration statement hierarchy, listing all possible configuration statements and showing their level in the configuration hierarchy. When you are configuring the JUNOS software, your current hierarchy level is shown in the banner on the line preceding the `user@host#` prompt.

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**[edit access] Hierarchy Level**

```

access {
  profile profile-name {
    authentication-order [ authentication-method ];
    client name chap-secret data;
    client name chap-secret data;
  }
  traceoptions {
    flag all;
    flag authentication;
    flag chap;
    flag configuration;
    flag radius;
  }
} # End of [edit access] hierarchy level

```

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

```

accounting-options {
  class-usage-profile profile-name {
    file filename;
    interval minutes;
    source-classes {
      source-class-name;
    }
  }
  destination-class-profile profile-name {
    destination-class {
      destination-class-name;
    }
    file filename;
    interval minutes;
  }
  file filename {
    archive-sites {
      site-name;
    }
    file filename;
    size bytes;
    transfer-interval minutes;
  }
  filter-profile profile-name {
    counters {
      counter name;
    }
    file filename;
    interval minutes;
  }
  interface-profile profile-name {
    fields {
      field-name;
    }
    file filename;
    interval minutes;
  }
}

```

```

routing-engine-profile profile-name {
  fields {
    field-name;
  }
  file filename;
  interval minutes;
}
}
} # End of [edit accounting-options] hierarchy level

```

### **[edit applications] Hierarchy Level**

```

application application-name {
  application-protocol protocol-name;
  destination-port port-number;
  icmp-code value;
  icmp-type value;
  inactivity-timeout value;
  protocol type;
  rpc-program-number number;
  snmp-command command;
  source-port port-number;
  ttl-threshold value;
  uuid hex-value;
}
}
application-set application-set-name {
  [ application application-name ];
} # End of [edit application] hierarchy level

```

**[edit chassis] Hierarchy Level**

```

chassis {
  aggregated-devices {
    ethernet {
      device-count number;
    }
    sonet {
      device-count number;
    }
  }
  alarm {
    interface-type {
      alarm-name (red | yellow | ignore);
    }
  }
  fpc slot-number {
    pic pic-number {
      atm-cell-relay-accumulation;
      atm-l2circuit-mode (cell | aal5);
      vtmapping number;
      ce1 {
        e1 port-number {
          channel-group group-number timeslots slot-number;
        }
      }
      ct3 {
        port port-number {
          t1 link-number {
            channel-group group-number timeslots slot-number;
          }
        }
      }
    }
    framing (sdh | sonet);
    idle-cell-format {
      itu-t;
      payload-pattern payload-pattern-byte;
    }
    mlfr-uni-nni-bundles number;
    sparse-dlcis;
    no-concatenate;
    vtmapping (km | itu-t);
  }
}
graceful-switchover (disable | enable);
(packet-scheduling | no-packet-scheduling);
vrf-mtu-check;
(source-route | no-source-route);
redundancy {
  failover on-loss-of-keepalives;
  keepalive-time seconds;
  routing-engine slot-number (master | backup | disabled);
  sfm slot-number (always | preferred);
  ssb slot-number (always | preferred);
}
} # End of [edit chassis] hierarchy level

```

**[edit class-of-service] Hierarchy Level**

```

class-of-service {
  classifiers {
    (dscp | exp | ieee-802.1 | inet-precedence) classifier-name {
      import (classifier-name | default);
      forwarding-class class-name {
        loss-priority (low | high) code-points [ alias | bits ];
      }
    }
  }
  code-point-aliases {
    (dscp | exp | ieee-802.1 | inet-precedence) {
      alias-name bits;
    }
  }
  drop-profiles {
    profile-name {
      fill-level percentage drop-probability percentage;
      interpolate {
        drop-probability value;
        fill-level value;
      }
    }
  }
  fabric {
    scheduler-map {
      priority (low | high) scheduler scheduler-name;
    }
  }
  forwarding-classes {
    queue queue-number class-name priority (low | high);
  }
  forwarding-policy {
    next-hop-map map-name {
      forwarding-class class-name {
        next-hop [ next-hop-name ];
        lsp-next-hop [ lsp-regular-expression ];
      }
    }
    class class-name {
      classification-override {
        forwarding-class class-name;
      }
    }
  }
}

```

```

interfaces
  interface-name {
    scheduler-map map-name;
    unit logical-unit-number {
      bandwidth rate;
      classifiers {
        (dscp | exp | ieee-802.1 | inet-precedence) (classifier-name | default) {
        }
      }
      forwarding-class class-name;
      rewrite-rules {
        dscp (rewrite-name | default);
        exp (rewrite-name | default) protocol protocol-types;
        exp-push-push-push default;
        exp-swap-push-push default;
        ieee-802.1 default;
        inet-precedence (rewrite-name | default);
      }
      scheduler-map map-name;
    }
  }
}
rewrite-rules {
  (dscp | exp | inet-precedence) rewrite-name {
    import (rewrite-name | default);
    forwarding-class class-name {
      loss-priority (low | high) code-point (alias | bits);
    }
  }
}
scheduler-maps {
  map-name {
    forwarding-class class-name scheduler scheduler-name;
  }
}
schedulers
  scheduler-name {
    buffer-size ( percent percentage | remainder | temporal microseconds);
    drop-profile-map loss-priority (low | high) protocol (non-tcp | tcp | any) drop-profile
    profile-name;
    priority (low | high | strict-high);
    transmit-rate (rate | percent percentage | remainder | exact);
  }
}
} # End of [edit class-of-service] hierarchy level

```

**[edit firewall] Hierarchy Level**

```

firewall {
  policer policer-name {
    filter-specific
    if-exceeding {
      bandwidth-limit bps;
      bandwidth-percent number;
      burst-size-limit bytes;
    }
    then {
      policer-action;
    }
  }
  family family-name {
    filter filter-name {
      accounting-profile name;
      interface-specific;
    }
    prefix-action name {
      count;
      destination-prefix-length prefix-length;
      policer policer-name;
      source-prefix-length prefix-length;
      subnet-prefix-length prefix-length;
    }
    prefix-policer {
      policer policer-name;
    }
  }
} # End of [edit firewall] hierarchy level

```

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

```

forwarding-options {
  accounting group-name {
    output {
      cflowd [ host-names ] {
        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 num;
        engine-type num;
        source-address address;
      }
    }
  }
  family (inet | inet6 | mpls)
  filter {
    input filter-name;
  }
}
hash-key {
  family inet {
    layer-3;
    layer-4;
  }
  family mpls {
    label-1;
    label-2;
  }
}
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 < [ routing-instance routing-instance-name ] >;
    }
  }
  domain {
    description description-of-service;
    server address;
    interface interface-name {

```

```

        description description-of-interface;
        no-listen;
        server address < [ routing-instance routing-instance-name ] >;
    }
}
tftp {
    description description-of-service;
    server address < [ routing-instance routing-instance-name ] >;
    interface interface-name {
        description description-of-interface;
        no-listen;
        server address;
    }
}
traceoptions {
    file filename;
    files number;
    size bytes;
}
flag flag;
level level;
}
}
monitoring group-name {
    family inet {
        output {
            cflowd [ host-names ] {
                aggregation {
                    autonomous-system;
                    destination-prefix;
                    protocol-port;
                    source-destination-prefix {
                        caida-compliant;
                    }
                    source-prefix;
                }
                autonomous-system-type (origin | peer);
                port port-number;
                version format;
            }
            export-format cflowd-version-5;
            flow-active-timeout seconds;
            flow-inactive-timeout seconds;
            interface [ interface-names ] {
                engine-id num;
                engine-type num;
                input-interface-index num;
                output-interface-index num;
                source-address address;
            }
        }
    }
}
next-hop-group [ group-names ] {
    interface interface-name {
        next-hop [ addresses ];
    }
}
}

```

```

port-mirroring {
  input {
    family inet {
      rate num;
      run-length num;
    }
  }
  output {
    interface interface-name {
      next-hop address;
    }
    no-filter-check;
  }
}

sampling {
  disable;
  input {
    family inet {
      max-packets-per-second number;
      rate number;
      run-length number;
    }
  }
  output {
    cflowd [ host-names ] {
      aggregation {
        autonomous-system;
        destination-prefix;
        protocol-port;
        source-destination-prefix {
          caida-compliant;
        }
        source-prefix;
      }
      autonomous-system-type (origin | peer);
      (local-dump | no-local-dump);
      source-address address;
      port port-number;
      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 num;
      engine-type num;
      source-address address;
    }
  }
}

```

```

    traceoptions {
      file filename {
        files number;
        size bytes;
        (world-readable | no-world-readable);
      }
    }
  }
} # End of [edit forwarding-options] hierarchy level

```

### **[edit groups] Hierarchy Level**

```

groups {
  group-name {
    configuration-data;
  }
} # End of [edit groups] hierarchy level

```

### **[edit interfaces] Hierarchy Level**

```

interfaces {
  traceoptions {
    file filename <files number> <size size> <(world-readable | no-world-readable)>;
    flag flag <disable>;
  }
  interface-name {
    disable;
    accounting-profile name;
    description text;
    aggregated-ether-options {
      (flow-control | no-flow-control);
      link-speed speed;
      (loopback | no-loopback);
      minimum-links number;
      source-address-filter {
        mac-address;
      }
      (source-filtering | no-source-filtering);
    }
    aggregated-sonet options {
      link-speed speed;
      minimum-links number;
    }
    atm-options {
      cell-bundle-size cells;
      ilmi;
      linear-red-profiles profile-name {
        high-plp-max-threshold percent;
        low-plp-max-threshold percent;
        queue-depth cells high-plp-threshold percent low-plp-threshold percent;
      }
      pic-type (atm1 | atm2);
      promiscuous-mode {
        [ vpi vpi-identifier ];
      }
    }
  }
}

```

```

scheduler-maps map-name {
  forwarding-class class-name {
    priority (low | high);
    transmit-weight (cells number | percent number);
    (epd-threshold cells | linear-red-profile profile-name);
  }
  vc-cos-mode (alternate | strict);
}
vpi vpi-identifier {
  maximum-vcs maximum-vcs;
  oam-liveness {
    up-count cells;
    down-count cells;
  }
  oam-period (disable | seconds);
  shaping {
    (cbr rate | rtvbr peak rate sustained rate burst length |
     vbr peak rate sustained rate burst length);
    queue-length number;
  }
}
clocking clock-source;
dce;
ds0-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  byte-encoding (nx64 | nx56);
  fcs (32 | 16);
  idle-cycle-flag (flags | ones);
  invert data;
  loopback (payload | remote);
  start-end-flag (shared | filler);
}
e1-options {
  bert-error-rate rate;
  bert-period seconds;
  fcs (32 | 16);
  framing (g704 | g704-no-crc4 | unframed);
  idle-cycle-flag (flags | ones);
  invert data;
  loopback (local | remote);
  start-end-flag (shared | filler);
  timeslots time-slot-range;
}
e3-options {
  atm-encapsulation (direct | PLCP);
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  buildout feet;
  compatibility-mode (digital-link | kentrox | larscom) <subrate value>;
  fcs (32 | 16);
  framing (g751 | g832);
  idle-cycle-flag value;
  loopback (local | remote);
  (payload-scrambler | no-payload-scrambler);
  start-end-flag value;
}

```

```

encapsulation type;
es-options {
  backup-interface es-fpc/pic/port;
}
fastether-options {
  802.3ad aex;
  (flow-control | no-flow-control);
  ingress-rate-limit rate;
  (loopback | no-loopback);
  source-address-filter {
    mac-address;
  }
  (source-filtering | no-source-filtering);
}
gigether-options {
  802.3ad aex;
  ethernet-switch-profile {
    ethernet-policer-profile {
      ieee802.1-priority-map premium [ bits ];
      policer cos-policer-name {
        aggregate {
          bandwidth-limit rate;
          bandwidth-percent percent;
          burst-size-limit length;
        }
        premium {
          bandwidth-limit rate;
          bandwidth-percent percent;
          burst-size-limit length;
        }
      }
    }
  }
  (mac-learn-enable | no-mac-learn-enable);
  tag-protocol-id [ tpids ];
}
(flow-control | no-flow-control);
(loopback | no-loopback);
source-address-filter {
  mac-address;
}
(source-filtering | no-source-filtering);
}
(gratuitous-arp-reply | no-gratuitous-arp-reply);
hold-time up milliseconds down milliseconds;
keepalives <down-count number> <interval seconds> <up-count number>;
link-mode mode;
lmi {
  lmi-type (ansi | itu);
  n391dte number;
  n392dce number;
  n392dte number;
  n393dce number;
  n393dte number;
  t391dte seconds;
  t392dce seconds;
}
mac mac-address;

```

```

mlfr-uni-nni-bundle-options {
  acknowledge-retries number;
  acknowledge-timer milliseconds;
  action-red-differential-delay (disable-tx | remove-link);
  drop-timeout milliseconds;
  fragment-threshold bytes;
  hello-timer milliseconds;
  lmi-type (ansi | itu);
  minimum-links number;
  mrru bytes;
  n391 number;
  n392 number;
  n393 number;
  red-differential-delay milliseconds;
  t391 seconds;
  t392 seconds;
  yellow-differential-delay milliseconds;
}
mtu bytes;
multiservice-options {
  boot-command filename
  (core-dump | no-core-dump);
  (syslog | no-syslog);
}
no-gratuitous-arp-request;
no-keepalives;
no-partition {
  interface-type type;
}
partition partition-number oc-slice oc-slice-range interface-type type {
  timeslots time-slot-range;
}
passive-monitor-mode;
per-unit-scheduler;
ppp-options {
  chap {
    access-profile name;
    local-name name;
    passive;
  }
}
receive-bucket {
  overflow (tag | discard);
  rate percentage;
  threshold bytes;
}
serial-options {
  clock-rate rate;
  clocking-mode (dce | dte | loop);
  control-leads {
    control-signal (assert | de-assert | normal);
    cts (ignore | normal | require);
    dcd (ignore | normal | require);
    dsr (ignore | normal | require);
    dtr signal-handling-option;
    ignore-all;
    indication (ignore | normal | require);
    rts (assert | de-assert | normal);
    tm (ignore | normal | require);
  }
}

```

```

control-polarity (positive | negative);
cts-polarity (positive | negative);
dcd-polarity (positive | negative);
dsr-polarity (positive | negative);
dtr-circuit (balanced | unbalanced);
dtr-polarity (positive | negative);
encoding (nrz | nrzi);
indication-polarity (positive | negative);
line-protocol protocol;
loopback mode;
rts-polarity (positive | negative);
tm-polarity (positive | negative);
transmit-clock invert;
}
service-options {
  inactivity-timeout seconds;
  open-timeout seconds;
  syslog {
    host host-name {
      facility-override facility-name;
      log-prefix prefix-number;
      [ services priority-level ];
    }
  }
}
sonet-options {
  aggregate asx;
  aps {
    advertise-interval milliseconds;
    authentication-key key;
    force;
    hold-time milliseconds;
    lockout;
    neighbor address;
    paired-group group-name;
    protect-circuit group-name;
    request;
    revert-time seconds;
    working-circuit group-name;
  }
  bytes {
    e1-quiet value;
    f1 value;
    f2 value;
    s1 value;
    z3 value;
    z4 value;
  }
  fcs (32 | 16);
  loopback (local | remote);
  path-trace trace-string;
  (payload-scrambler | no-payload-scrambler);
  rfc-2615;
  vtmapping (itu-t | klm);
  (z0-increment | no-z0-increment);
}
speed (10m | 100m);
stacked-vlan-tagging;

```

```

t1-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  buildout (0-132 | 133-265 | 266-398 | 399-531 | 532-655);
  byte-encoding (nx64 | nx56);
  fcs (32 | 16);
  framing (sf | esf);
  idle-cycle-flags (flags | ones);
  invert-data;
  line-encoding (ami | b8zs);
  loopback (local | payload | remote);
  remote-loopback-respond;
  start-end-flag (shared | filler);
  timeslots slot-number;
}
t3-options {
  atm-encapsulation (direct | PLCP);
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  buildout feet;
  (cbit-parity | no-cbit-parity);
  compatibility-mode (adtran | digital-link | kentrox | larscom | verilink) <subrate value>;
  fcs (32 | 16);
  (feac-loop-respond | no-feac-loop-respond);
  idle-cycle-flag value;
  (long-buildout | no-long-buildout);
  loopback (local |payload | remote);
  (mac | no-mac);
  (payload-scrambler | no-payload-scrambler);
  start-end-flag value;
}
traceoptions {
  flag flag <flag-modifier> <disable>;
}
transmit-bucket {
  overflow (tag | discard);
  rate percentage;
  threshold bytes;
}
(traps | no-traps);
vlan-tagging;
unit logical-unit-number {
  accept-source-mac {
    mac-address mac-address;
    policer {
      input policer-name;
      output policer-name;
    }
  }
}
accounting-profile name;
allow_any_vci;
bandwidth rate;
cell-bundle-size cells;
description text;
disable;
dlci dlci-identifier;
drop-timeout milliseconds;

```

```

encapsulation type;
epd-threshold cells;
fragment-threshold bytes;
input-vlan-map {
    push;
    swap;
    vlan-id number;
    tag-protocol-id tpid;
}
interleave-fragments;
inverse-arp;
minimum-links number;
mrru bytes;
multicast-dlci dlci-identifier;
multicast-vci vpi-identifier.vci-identifier;
multipoint;
oam-liveness {
    up-count cells;
    down-count cells;
}
oam-period (disable | seconds);
output-vlan-map {
    pop;
    swap;
    vlan-id number;
    tag-protocol-id tpid;
}
passive monitor mode;
point-to-point;
service-domain (inside | outside);
shaping {
    (cbr rate | rtvbr peak rate sustained rate burst length |
     vbr peak rate sustained rate burst length);
    queue-length number;
}
short-sequence;
transmit-weight number;
(traps | no-traps);
tunnel {
    backup-destination address;
    destination destination-address;
    routing-instance destination routing-instance-name;
    source source-address;
    ttl number;
}
vci vpi-identifier.vci-identifier;
vlan-id number;
vlan-tag [ tpid.vlan-id ];
family family {

```

```

accounting {
  destination-class-usage;
  source-class-usage {
    (input | output | [input output]);
  }
}
bundle (ml-fpc/pic/port | ls-fpc/pic/port);
filter {
  input filter-name;
  output filter-name;
  group filter-group-number;
}
ipsec-sa sa-name;
keep-address-and-control;
mtu bytes;
multicasts-only;
no-asynchronous-notification;
no-redirects;
policer {
  arp policer-template-name;
  output policer-template-name;
  group policer-template-name;
}
primary;
proxy inet-address address;
remote (inet-address address | mac-address address);
rpf-check<fail-filter filter-name> {
  <mode loose>;
}
sampling {
  [ input output ];
}
service {
  input {
    [ service-set service-set-name <service-filter filter-name> ];
    post-service-filter filter-name; {
  }
  output {
    [ service-set service-set-name <service-filter filter-name> ];
  }
}
(translate-discard-eligible | no-translate-discard-eligible);
(translate-fecn-and-becn | no-translate-fecn-and-becn);
address address {
  arp ip-address (mac | multicast-mac) mac-address <publish>;
  destination destination-address;
  eui-64;
  broadcast address;
  multipoint-destination destination-address (dcli dcli-identifier | vci vci-identifier);
  multipoint-destination destination-address {
    epd-threshold cells;
    inverse-arp;
    oam-liveness {
      up-count cells;
      down-count cells;
    }
    oam-period seconds;
  }
}

```

```

    shaping {
      (cbr rate | rtvbr peak rate sustained rate burst length |
       vbr peak rate sustained rate burst length);
      queue-length number;
    }
    vci vpi-identifier.vci-identifier;
  }
  preferred;
  primary;
  vrrp-group group-number {
    virtual-address [ addresses ];
    priority number;
    (accept-data | no-accept-data);
    advertise-interval seconds;
    authentication-type authentication;
    authentication-key key;
    (preempt | no-preempt);
    track {
      interface interface-name priority-cost cost;
    }
  }
}
}
}
}
} # End of [edit interfaces] hierarchy level

```

### ***[edit policy-options] Hierarchy Level***

```

policy-options {
  as-path name regular-expression;
  as-path-group group-name;
  community name {
    invert-match;
    members [ community-ids ];
  }
  damping name {
    disable;
    half-life minutes;
    max-suppress minutes;
    reuse number;
    suppress number;
  }
  policy-statement policy-name {
    term term-name {
      from {
        family family-name;
        match-conditions;
        policy subroutine-policy-name;
        prefix-list name;
        route-filter destination-prefix match-type <actions>;
        source-address-filter destination-prefix match-type <actions>;
      }
      to {
        match-conditions;
        policy subroutine-policy-name;
      }
      then actions;
    }
  }
}

```

```

        default-action (accept | reject);
    }
}
prefix-list name {
    ip-addresses;
}
} # End of [edit policy-options] hierarchy level

```

## **[edit protocols] Hierarchy Level**

```

protocols {
    BGP    bgp {
        advertise-inactive;
        authentication-key key;
        cluster cluster-identifier;
        damping;
        description text-description;
        disable;
        export [ policy-names ];
        family (inet | inet6 | inet-vpn | inet6-vpn | l2-vpn) {
            (any | multicast | unicast) {
                prefix-limit {
                    maximum number;
                    teardown <percentage> <idle-timeout (forever | minutes)>;
                }
                rib-group group-name;
            }
            labeled-unicast {
                prefix-limit {
                    maximum number;
                    teardown <percentage> <idle-timeout (forever | minutes)>;
                }
                resolve-vpn;
                rib-group group-name;
            }
        }
        graceful-restart {
            disable;
            restart-time seconds;
            stale-routes-time seconds;
        }
        hold-time seconds;
        import [ policy-names ];
        include-mp-next-hop;
        ipsec-sa ipsec-sa;
        keep (all | none);
        local-address address;
        local-as autonomous-system <private>;
        local-preference local-preference;
        log-updown;
        metric-out (metric | minimum-igp <offset> | igp <offset>);
        multihop <ttl-value>;
        no-aggregator-id;
        no-client-reflect;
        out-delay seconds;
        passive;
        path-selection (cisco-non-deterministic | always-compare-med);
    }
}

```

```

peer-as autonomous-system;
preference preference;
remove-private;
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
vpn-apply-export;
group group-name {
  advertise-inactive;
  allow [network/mask-length];
  as-override;
  authentication-key key;
  cluster cluster-identifier;
  damping;
  description text-description;
  export [ policy-names ];
  family (inet | inet6 | inet-vpn | l2-vpn) {
    (any | multicast | unicast) {
      prefix-limit {
        maximum number;
        teardown <percentage> <idle-timeout (forever | minutes)>;
      }
      rib-group group-name;
    }
  }
  labeled-unicast {
    prefix-limit {
      maximum number;
      teardown <percentage> <idle-timeout (forever | minutes)>;
    }
    resolve-vpn;
    rib-group group-name;
  }
}
graceful-restart {
  disable;
  restart-time seconds;
  stale-routes-time seconds;
}
hold-time seconds;
import [ policy-names ];
ipsec-sa ipsec-sa;
keep (all | none);
local-address address;
local-as autonomous-system <private>;
local-preference local-preference;
log-updown;
metric-out (metric | minimum-igp <offset> | igp <offset>);
multihop <t1l-value>;
multipath;
no-agggregator-id;
no-client-reflect;
out-delay seconds;
outbound-route-filtering {
  extended-community {
    accept;
    no-accept;
    vrf-filter;
  }
}

```

```

    }
  }
  passive;
  peer-as autonomous-system;
  preference preference;
  protocol protocol;
  remove-private;
  traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
      <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
  }
  type type;
  vpn-apply-export;
  neighbor address {
    advertise-inactive;
    as-override;
    authentication-key key;
    cluster cluster-identifier;
    damping;
    description text-description;
    export [ policy-names ];
    family (inet | inet6 | inet-vpn | l2-vpn) {
      (any | multicast | unicast) {
        prefix-limit {
          maximum number;
          teardown <percentage> <idle-timeout (forever | time-in-minutes)>;
        }
        rib-group group-name;
      }
      labeled-unicast {
        prefix-limit {
          maximum number;
          teardown <percentage> <idle-timeout (forever | time-in-minutes)>;
        }
        resolve-vpn;
        rib-group group-name;
      }
    }
  }
  graceful-restart {
    disable;
    restart-time seconds;
    stale-routes-time seconds;
  }
  hold-time seconds;
  import [ policy-names ];
  ipsec-sa ipsec-sa;
  keep (all | none);
  local-address address;
  local-as autonomous-system <private>;
  local-interface interface-name;
  local-preference local-preference;
  log-updown;
  metric-out (metric | minimum-igp <offset> | igp <offset>);
  multihop <ttl-value>;
  multipath;
  no-aggregator-id;
  no-client-reflect;
  out-delay seconds;
  outbound-route-filtering {

```

```

        extended-community {
            accept;
            no-accept;
            vrf-filter;
        }
    }
    passive;
    peer-as autonomous-system;
    preference preference;
    remove-private;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    vpn-apply-export;
}
} # End of [edit protocols bgp] hierarchy level

```

```

Connections connections {
    interface-switch connection-name {
        interface interface-name.unit-number;
        interface interface-name.unit-number;
    }
    lsp-switch connection-name {
        transmit-lsp label-switched-path;
        receive-lsp label-switched-path;
    }
    remote-interface-switch connection-name {
        interface interface-name.unit-number;
        transmit-lsp label-switched-path;
        receive-lsp label-switched-path;
    }
} # End of [edit protocols connections] hierarchy level

```

```

DVMRP dvmrp {
    disable;
    export [ policy-names ];
    import [ policy-names ];
    interface interface-name {
        disable;
        hello-interval seconds;
        hold-time seconds;
        metric metric;
        mode (forwarding | unicast-routing);
    }
    rib-group group-name;
    inet;
}
traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
}
} # End of [edit protocols dvmrp] hierarchy level

```

```

IGMP  igmp {
      interface interface-name {
        disable;
        static {
          group group {
            source source;
          }
        }
        version version;
      }
      query-interval seconds;
      query-last-member-interval seconds;
      query-response-interval seconds;
      robust-count number;
      traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
          <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
      }
    } # End of [edit protocols igmp] hierarchy level

IS-IS isis {
      disable;
      export [ policy-names ];
      ignore-attached-bit;
      graceful-restart {
        disable;
        helper-disable;
        restart-duration seconds;
      }
      label-switched-path name level level metric metric;
      level level-number {
        authentication-key key;
        authentication-type authentication;
        external-preference preference;
        no-csnp-authentication;
        no-hello-authentication;
        no-psnp-authentication;
        preference preference;
        prefix-export-limit num;
        wide-metrics-only;
      }
      lsp-lifetime seconds;
      multicast-topology;
      no-authentication-check;
      no-ipv4-routing;
      no-ipv6-routing;
      overload <timeout seconds>;
      reference-bandwidth reference-bandwidth;
      rib-group group name;
      spf-delay milliseconds;
      traceoptions {
        file name <replace> <size size> <files number> <no-stamp>;
          <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
      }
    }

```

```

traffic-engineering {
  disable;
  shortcuts;
}
interface interface-name {
  checksum;
  csnp-interval (seconds | disable);
  disable;
  lsp-interval milliseconds;
  mesh-group (value | blocked);
  passive;
  point-to-point;
  level level-number {
    disable;
    hello-authentication-key key;
    hello-authentication-type authentication;
    hello-interval seconds;
    hold-time seconds;
    metric metric;
    passive;
    priority number;
    te-metric metric;
  }
}
} # End of [edit protocols isis] hierarchy level

```

```

L2circuit l2circuit {
  neighbor address {
    interface interface-name {
      virtual-circuit-id identifier;
    }
  }
  traceoptions {
    file file-name [replace] [size number] [files file-names] [nostamp];
    flag (connections | error | FEC | topology) [detail];
  }
} # End of [edit protocols l2circuit] hierarchy level

```

```

LDP    ldp {
        import policy-name;
        deaggregate | no-deaggregate;
        egress-policy policy-name;
        export policy-name;
        graceful-restart {
            disable;
            helper-disable;
            maximum-recovery-time value;
            recovery-time value;
        }
        keepalive-interval seconds;
        keepalive-timeout seconds;
        preference preference;
        transport-address (interface | loopback);
        interface interface-name {
            disable;
            hello-interval seconds;
            hold-time seconds;
            deaggregate | no-deaggregate;
            transport-address (interface | loopback);
        }
        session address {
            authentication-key authentication-key;
        }
        traceoptions {
            file filename <replace> <size size> <files number> <no-stamp>
              <(world-readable | no-world-readable)>;
            flag flag <flag-modifier> <disable>;
        }
        traffic-statistics {
            file filename <replace> <size size> <files number> <(world-readable | no-world-readable)>;
            interval interval;
        }
    } # End of [edit protocols ldp] hierarchy level

Link Management    link-management {
                    te-link te-link-name {
                        local-address ipv4_address;
                        remote-address ipv4_address;
                        remote-id number;
                        interface interface-name {
                            remote-id number;
                            local-address ipv4_address;
                            remote-address ipv4_address;
                        }
                    }
                } # End of [edit protocols link-management] hierarchy level

MLD    mld {
        interface interface-name {
            disable;
            static {
                group group {
                    source source;
                }
                version version;
            }
        }
        query-interval seconds;
        query-last-member-interval seconds;
    }

```

```

query-response-interval seconds;
robust-count number;
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
} # End of [edit protocols mld] hierarchy level

```

```

MPLS  mpls {
  admin-groups {
    group-name group-value;
  }
  bandwidth bandwidth;
  class-of-service cos-value;
  disable;
  hop-limit number;
  ipv6-tunneling;
  log-updown {
    (syslog | no-syslog);
    (trap | no-trap);
  }
  no-cspf;
  no-decrement-ttl;
  no-propagate-ttl;
  no-record;
  optimize-aggressive;
  path path-name {
    address <strict | loose>;
  }
  preference preference;
  priority setup-priority hold-priority;
  record;
  rvsp-error-hold-time seconds;
  standby;
  statistics {
    auto-bandwidth;
    file filename <size size> <files number> <no-stamp>;
    interval seconds;
  }
  traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
      <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
  }
  traffic-engineering (bgp | bgp-igp | bgp-igp-both-ribs | mpls-forwarding);
  label-switched-path lsp-name {
    adaptive;
    admin-group {
      exclude [ group-names ];
      include [ group-names ];
    }
    autobandwidth {
      adjust-interval seconds;
      maximum-bandwidth bps;
      minimum-bandwidth bps;
      monitor-bandwidth;
    }
    bandwidth bps;
  }
}

```

```

class-of-service cos-value;
description;
disable;
fast-reroute {
    bandwidth bps;
    (exclude group-names | no-exclude);
    hop-limit number;
    (include group-names | no-include);
}
from address;
hop-limit number;
install {
    destination-prefix/prefix-length <active>;
}
ldp-tunneling;
(link-protection | no-link protection);
lsp-attributes {
    gpid gpid;
    signal-type signal-type;
    switching-type switching-type;
}
metric number;
no-cspf;
no-decrement-ttl;
optimize-timer seconds;
preference preference;
priority setup-priority hold-priority;
(random | least-fill | most-fill);
(record | no-record);
retry-limit number;
retry-timer seconds;
standby;
traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
}
primary path-name {
    adaptive;
    admin-group {
        exclude [ group-name ];
        include [ group-name ];
    }
    bandwidth bps;
    class-of-service class-of-service;
    hop-limit number;
    no-cspf;
    no-decrement-ttl;
    optimize-timer seconds;
    preference preference;
    priority setup-priority hold-priority;
    (record | no-record);
    standby;
}
secondary path-name {
    adaptive;
    admin-group {
        exclude [ group-name ];
        include [ group-name ];
    }
}

```

```

        bandwidth bps;
        class-of-service class-of-service;
        hop-limit number;
        no-cspf;
        no-decrement-ttl;
        optimize-timer seconds;
        preference preference;
        priority setup-priority hold-priority;
        (record | no-record);
        standby;
    }
    to address;
}
interface (interface-name | all) {
    disable;
    admin-group {
        group-name;
    }
    label-map in-label {
        (next-hop (address | interface-name | address/interface-name)) | (reject | discard);
        (pop | (swap <out-label>);
        class-of-service class-of-service;
        preference preference;
        type type;
    }
}
static-path inet {
    prefix {
        next-hop (address | interface-name | address/interface-name);
        push out-label;
        class-of-service class-of-service;
        preference preference;
    }
}
} # End of [edit protocols mpls] hierarchy level

```

```

MSDP msdp {
    disable;
    export [ policy-name ];
    import [ policy-name ];
    local address address;
    rib-group group-name;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    peer address {
        disable;
        export [ policy-name ];
        import [ policy-name ];
        local-address address;

        traceoptions {
            file name <replace> <size size> <files number> <no-stamp>
                <(world-readable | no-world-readable)>;
            flag flag <flag-modifier> <disable>;
        }
    }
    group group-name {

```

```

disable;
export [ policy-name ];
import [ policy-name ];
local-address address;
mode <(mesh-group | standard)>;
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
peer address; {
  disable;
  export [ policy-name ];
  import [ policy-name ];
  local-address address;
  traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
      <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
  }
}
} # End of [edit protocols msdp] hierarchy level

```

**Neighbor Discovery**

```

router-advertisement {
  interface interface-name {
    current-hop-limit number;
    default-lifetime seconds;
    (managed-configuration | no-managed-configuration);
    max-advertisement-interval seconds;
    min-advertisement-interval seconds;
    (other-stateful-configuration | no-other-stateful-configuration);
    prefix prefix {
      (autonomous | no-autonomous);
      (on-link | no-on-link);
      preferred-lifetime seconds;
      valid-lifetime seconds;
    }
    reachable-time milliseconds;
    retransmit-timer milliseconds;
    traceoptions {
      file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
      flag flag <detail> <disable>;
    }
  }
} # End of [edit protocols router-advertisement] hierarchy level

```

**OSPF**

```

ospf {
  disable;
  export [ policy-names ];
  external-preference preference;
  graceful-restart {
    disable;
    helper-disable;
    notify-duration seconds;
    rest-duration seconds;
  }
  overload {
    <timeout seconds>;
  }
}

```

```

}
preference preference;
reference-bandwidth reference-bandwidth;
rib-group group-name;
route-type-community (vendor | iana);
spf-delay;
traffic-engineering {
  no-topology;
  shortcuts {
    lsp-metric-into-summary;
  }
}
}
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
}
area area-id {
  area-range network/masklen <restrict>;
  authentication-type authentication;
  interface interface-name {
    disable;
    authentication-key key <key-id identifier>;
    dead-interval seconds;
    hello-interval seconds;
    interface-type type;
    metric metric;
    neighbor address <eligible>;
    passive;
    poll-interval seconds;
    priority number;
    retransmit-interval seconds;
    transit-delay seconds;
  }
  label-switched-path name metric metric;
  nssa {
    area-range network/masklen <restrict>;
    default-isa {
      default-metric metric;
      metric-type type;
      type-7;
    }
    (no-summaries | summaries);
  }
  peer-interface interface-name {
    disable;
    dead-interval seconds;
    hello-interval seconds;
    retransmit-interval seconds;
    transit-delay seconds;
  }
  stub <default-metric metric> <(no-summaries | summaries)>;
  virtual-link neighbor-id router-id transit-area area-id {
    authentication-key key <key-id identifier>;
    dead-interval seconds;
    disable;
    hello-interval seconds;
    retransmit-interval seconds;
    transit-delay seconds;
  }
}

```

```
}  
} # End of [edit protocols ospf] hierarchy level
```

```

OSPFv3  ospfv3 {
            disable;
            export [ policy-names ];
            external-preference preference;
            overload {
                <timeout seconds>;
            }
            preference preference;
            reference-bandwidth reference-bandwidth;
            rib-group group-name;
            spf-delay;
            traceoptions {
                file name <replace> <size size> <files number> <no-stamp>
                    <(world-readable | no-world-readable)>;
                flag flag <flag-modifier> <disable>;
            }
            area area-id {
                area-range network/mask-length <restrict>;
                interface interface-name {
                    disable;
                    dead-interval seconds;
                    hello-interval seconds;
                    metric metric;
                    neighbor address <eligible>;
                    passive;
                    priority number;
                    retransmit-interval seconds;
                    transit-delay seconds;
                }
                nssa {
                    area-range network/mask-length <restrict>;
                    default-lsa {
                        default-metric metric;
                        metric-type type;
                        type-7;
                    }
                    (no-summaries | summaries)
                }
                stub <default-metric metric> <(no-summaries | summaries)>;
                virtual-link neighbor-id router-id transit-area area-id {
                    disable;
                    dead-interval seconds;
                    hello-interval seconds;
                    retransmit-interval seconds;
                    transit-delay seconds;
                }
            }
        } # End of [edit protocols ospfv3] hierarchy level

```

```

PIM pim {
  disable;
  dense-groups {
    addresses;
  }
  import [ policy-name ];
  interface interface-name {
    disable;
    mode (dense | sparse | sparse-dense);
    priority number;
    version version;
  }
  rib-group group-name;
  rp {
    auto-rp (announce | discovery | mapping);
    bootstrap-export [ policy-name ];
    bootstrap-import [ policy-name ];
    bootstrap-priority number;
    local {
      family (inet | inet6) {
        disable;
        address address;
        group-ranges {
          destination-mask;
        }
        hold-time seconds;
        priority number;
      }
    }
  }
  static {
    address address {
      version version;
      group-ranges {
        destination-mask;
      }
      traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
          <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
      }
    }
  }
} # End of [edit protocols pim] hierarchy level

```

```

RIP  rip {
      authentication-key password;
      authentication-type type;
      (check-zero | no-check-zero);
      graceful-restart {
        disable;
        restart-time seconds;
      }
      hold-down seconds;
      import [ policy-names ];
      message-size number;
      metric-in metric;
      receive receive-options;
      rib-group group-name;
      send send-options;
      traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
          <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
      }
      group group-name {
        export [ policy-names ];
        metric-out metric;
        preference preference;
        neighbor neighbor-name {
          authentication-key password;
          authentication-type type;
          (check-zero | no-check-zero);
          import [ policy-names ];
          message-size number;
          metric-in metric;
          receive receive-options;
          send send-options;
        }
      }
    } # End of [edit protocols rip] hierarchy level

```

```

RIPng    ripng {
          graceful-restart {
            disable;
            restart-time seconds;
          }
          holddown seconds;
          import [ policy-names ];
          metric-in metric;
          receive <none>;
          send <none>;
          traceoptions {
            file name <replace> <size size> <files number> <no-stamp>
              <(world-readable | no-world-readable)>;
            flag flag <flag-modifier> <disable>;
          }
          group group-name {
            export [ policy-names ];
            metric-out metric;
            preference number;
            neighbor interface-name {
              import [ policy-names ];
              metric-in metric;
              receive <none>;
              send <none>;
            }
          }
        }
    } # End of [edit protocols ripng] hierarchy level

Router Advertisement    router-advertisement {
                        interface interface-name {
                          current-hop-limit number;
                          default-lifetime seconds;
                          (managed-configuration | no-managed-configuration);
                          max-advertisement-interval seconds;
                          min-advertisement-interval seconds;
                          (other-stateful-configuration | no-other-stateful-configuration);
                          prefix prefix {
                            (autonomous | no-autonomous);
                            (on-link | no-on-link);
                            preferred-lifetime seconds;
                            valid-lifetime seconds;
                          }
                          reachable-time milliseconds;
                          retransmit-timer milliseconds;
                          traceoptions {
                            file name <replace> <size size> <files number> <no-stamp>
                              <(world-readable | no-world-readable)>;
                            flag flag <detail> <disable>;
                          }
                        }
                    } # End of [edit protocols router-advertisement] hierarchy level

```

```

Router Discovery  router-discovery {
                    disable;
                    traceoptions {
                        file name <replace> <size size> <files number> <no-stamp>
                          <(world-readable | no-world-readable)>;
                        flag flag <flag-modifier> <disable>;
                    }
                    interface interface-name {
                        min-advertisement-interval seconds;
                        max-advertisement-interval seconds;
                        lifetime seconds;
                    }
                    address address {
                        (advertise | ignore);
                        (broadcast | multicast);
                        (priority number | ineligible);
                    }
                } # End of [edit protocols router-discovery] hierarchy level

```

```

RSVP             rsvp {
                    disable;
                    graceful-restart {
                        disable;
                        helper-disable;
                    }
                    keep-multiplier number;
                    peer-interface peer-name;
                    preemption (aggressive | disabled | normal);
                    refresh-time seconds;
                    traceoptions {
                        file name <replace> <size size> <files number> <no-stamp>
                          <(world-readable | no-world-readable)>;
                        flag flag <flag-modifier> <disable>;
                    }
                    interface interface-name {
                        disable;
                        (aggregate | no-aggregate);
                        authentication-key key;
                        bandwidth bps;
                        hello-interval seconds;
                        link-protection {
                            bandwidth bandwidth;
                            class-of-service class-of-service-value;
                            disable;
                            path address <strict | loose>;
                        }
                        subscription percentage;
                    }
                } # End of [edit protocols rsvp] hierarchy level

```

```
SDP/SAP  sap {
          disable;
          listen <address> <port port>;
        } # End of [edit protocols sap] hierarchy level
```

```
VRRP     vrrp {
          traceoptions {
            file {
              filename filename;
              files number;
              size size;
              (world-readable | no-world-readable);
            }
          }
          flag flag;
        } # End of [edit protocols vrrp] hierarchy level
```

### ***[edit routing-instances] Hierarchy Level***

```
routing-instances {
  routing-instance-name {
    description text;
    forward-options;
    interface interface-name;
    instance-type (forwarding | l2vpn | no-forwarding | virtual-router | vpls | vrf);
    route-distinguisher (as-number:number | ip-address:number);
    vrf-import [ policy-names ];
    vrf-export [ policy-names ];
    vrf-table-label;
    vrf-target {
      export community name;
      import community name;
    }
  }
  protocols {
    bgp {
      bgp-configuration;
    }
    isis {
      isis-configuration;
    }
    l2vpn {
    }
    ldp {
      ldp-configuration;
    }
    ospf {
      ospf-configuration;
    }
    ospf 3 {
      ospf3-configuration;
    }
    pim {
      pim-configuration;
    }
    rip {
      rip-configuration;
    }
  }
}
```

```

vpls {
  vpls-configuration;
}
}
routing-options {
  aggregate {
    defaults {
      aggregate-options;
    }
    route destination-prefix {
      policy policy-name;
      aggregate-options;
    }
  }
}
auto-export {
  (disable | enable);
  family {
    inet {
      multicast {
        (disable | enable);
        rib-group rib-group;
      }
      unicast {
        (disable | enable);
        rib-group rib-group;
      }
    }
  }
}
}
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
  <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
}
autonomous-system autonomous-system <loops number>;
confederation confederation-autonomous-system members autonomous-system;
fate-sharing {
  group group-name;
  cost value;
  from address {
    to address;
  }
}
forwarding-table {
  export [ policy-names ];
}
generate {
  defaults {
    generate-options;
  }
  route destination-prefix {
    policy policy-name;
    generate-options;
  }
}
}
instance-export [ policy-names ];
instance-import [ policy-names ];

```

```

interface-routes {
  family (inet | inet6) {
    export {
      lan;
      point-to-point;
    }
  }
  rib-group group-name;
}
martians {
  destination-prefix match-type <allow>;
}
maximum-routes route-limit <log-only | threshold value>;
multicast {
  scope scope-name {
    interface interface-name;
    prefix destination-prefix;
  }
  ssm-groups {
    addresses;
  }
}
options {
  syslog (level level | upto level);
}
resolution {
  tracefilter [ filter-policies ];
  traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
      <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
  }
}
rib routing-table-name {
  aggregate {
    defaults {
      aggregate-options;
    }
    route destination-prefix {
      policy policy-name;
      aggregate-options;
    }
  }
  filter {
    input filter-name;
  }
  generate {
    defaults {
      generate-options;
    }
    route destination-prefix {
      policy policy-name;
      generate-options;
    }
  }
  martians {
    destination-prefix match-type <allow>;
  }
}

```

```

static {
  defaults {
    static-options;
  }
  rib-group group-name;
  route destination-prefix {
    lsp-next-hop {
      metric metric;
      preference preference;
    }
    next-hop;
    qualified-next-hop address {
      metric metric;
      preference preference;
    }
    static-options;
  }
}
}
rib-groups {
  group-name {
    import-policy [policy-names];
    import-rib [group-names];
    export-rib [group-names];
  }
}
route-distinguished-id address;
route-record;
router-id address;
static {
  defaults {
    static-options;
  }
  rib-group group-name;
  route destination-prefix {
    lsp-next-hop {
      metric metric;
      preference preference;
    }
    next-hop;
    qualified-next-hop address {
      metric metric;
      preference preference;
    }
    static-options;
  }
}
}
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
}
} # End of [edit routing-instances] hierarchy level

```

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

```

routing-options {
  aggregate {
    defaults {
      aggregate-options;
    }
    route destination-prefix {
      policy policy-name;
      aggregate-options;
    }
  }
  auto-export {
    (disable | enable);
    family {
      inet {
        multicast {
          (disable | enable);
          rib-group rib-group;
        }
        unicast {
          (disable | enable);
          rib-group rib-group;
        }
      }
    }
  }
  traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
      <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
  }
}
autonomous-system autonomous-system <loops number>;
confederation confederation-autonomous-system members autonomous-system;
fate-sharing {
  group group-name;
  cost value;
  from address {
    to address;
  }
}
forwarding-table {
  export [ policy-names ];
  unicast-reverse-paths (active-paths | feasible-paths);
}
generate {
  defaults {
    generate-options;
  }
  route destination-prefix {
    policy policy-name;
    generate-options;
  }
}
graceful-restart {
  disable;
  path-selection-defer-time-limit time limit;
}
instance-export [ policy-names ];

```

```

instance-import [ policy-names ];
interface-routes {
  family (inet | inet6) {
    export {
      lan;
      point-to-point;
    }
  }
  rib-group group-name;
}
martians {
  destination-prefix match-type <allow>;
}
maximum-routes route-limit <log-only | threshold value>;
multicast {
  scope scope-name {
    interface interface-name;
    prefix destination-prefix;
  }
  ssm-groups {
    address;
  }
}
options {
  syslog (level level | upto level);
}
resolution {
  tracefilter [policy-names ];
  traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
      <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
  }
}
rib routing-table-name {
  aggregate {
    defaults {
      aggregate-options;
    }
    rib-group group-name;
    route destination-prefix {
      policy policy-name;
      aggregate-options;
    }
  }
}
filter {
  input filter-name;
}
generate {
  defaults {
    generate-options;
  }
  route destination-prefix {
    policy policy-name;
    generate-options;
  }
}
martians {
  destination-prefix match-type <allow>;
}

```

```

static {
  defaults {
    static-options;
  }
  rib-group group-name;
  route destination-prefix {
    lsp-next-hop {
      metric metric;
      preference preference;
    }
    next-hop;
    qualified-next-hop address {
      metric metric;
      preference preference;
    }
    static-options;
  }
}
}
rib-groups {
  group-name {
    import-policy [ policy-names ];
    import-rib [ group-names ];
    export-rib [ group-names ];
  }
}
route-distinguisher-id address;
route record;
router-id address;
static {
  defaults {
    static-options;
  }
  rib-group group-name;
  route destination-prefix {
    lsp-next-hop {
      metric metric;
      preference preference;
    }
    next-hop;
    qualified-next-hop address {
      metric metric;
      preference preference;
    }
    static-options;
  }
}
}
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
  <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
} # End of [edit routing-options] hierarchy level

```

**[edit security] Hierarchy Level**

```

security {
  certificates {
    cache-size bytes;
    cache-timeout-negative seconds;
    certification-authority ca-profile-name {
      ca-name certificate-authority-name;
      crl file-name;
      encoding (binary | pem);
      file certificate-file-name;
      enrollment-url url-name;
      ldap-url url-name;
    }
    enrollment-retry number;
    local certificate-name;
    maximum-certificates number;
    path-length bytes;
  }
  ike {
    proposal ike-proposal-name {
      authentication-algorithm (md5 | sha1);
      authentication-method (dsa-signatures | pre-shared-keys | rsa-signatures);
      dh-group (group1 | group2);
      encryption-algorithm (3des-cbc | des-cbc);
      lifetime-seconds seconds;
    }
    policy ike-peer-address {
      description policy-description;
      encoding (binary | pem);
      identity identity-name;
      local-certificate certificate-file-name;
      local-key-pair private-public-key-file;
      mode (aggressive | main);
      pre-shared-key (ascii-text key | hexadecimal key);
      proposal [ ike-proposal-names ];
    }
  }
  ipsec {
    proposal ipsec-proposal-name {
      authentication-algorithm (hmac-md5-96 | hmac-sha1-96);
      encryption-algorithm (3des-cbc | des-cbc);
      lifetime-seconds seconds;
      protocol (ah | esp | bundle);
    }
    policy ipsec-policy-name {
      perfect-forward-secret {
        keys (group1 | group2);
      }
    }
    proposal [ipsec-proposal-names];
  }
}

```

```

security-association name {
  mode (tunnel | transport);
  manual {
  direction (inbound | outbound | bi-directional) {
    auxiliary-spi auxiliary-spi-value;
    spi spi-value;
    protocol (ah | esp | bundle);
    authentication {
      algorithm (hmac-md5-96 | hmac-sha1-96);
      key (ascii-text key | hexadecimal key);
    }
    encryption {
      algorithm (des-cbc | 3des-cbc);
      key (ascii-text key | hexadecimal key);
    }
  }
  dynamic {
    <security-association (32 | 64)>;
    ipsec-policy policy-name;
  }
  traceoptions {
    file <files number> <size size>;
    flag all;
    flag database;
    flag general;
    flag ike;
    flag parse;
    flag policy-manager;
    flag routing-socket;
    flag timer;
  }
}
} # End of [edit security] hierarchy level

```

**[edit snmp] Hierarchy Level**

```

snmp {
  access {
    context context-name {
      description description;
      group group-name {
        model usm;
        read-view view-name;
        security-level (none | authentication | privacy);
        write-view view-name;
      }
    }
  }
  group group-name {
    model usm;
    user [ user-names ];
  }
  user [ user-names ] {
    authentication-password authentication-password;
    authentication-type (none | md5 | sha);
    privacy-password privacy-password;
    privacy-type (none | des);
    clients {
      address restrict;
    }
  }
}
community community-name {
  authorization authorization;
  clients {
    address restrict;
  }
  view view-name;
}
contact contact;
description description;
interface [ interface-name ];
location location;
name name;
tracoptions {
  file size size files number;
  flag flag;
}
engine-id {
  local engine-id;
}

```

```

rmon {
  alarm index {
    description text-description;
    falling-event-index index;
    falling-threshold integer;
    interval seconds;
    rising-event-index index;
    rising-threshold integer;
    sample-type (absolute-value | delta-value);
    startup-alarm (falling-alarm | rising-alarm | rising-or-falling-alarm);
    variable oid-variable;
  }
  event index {
    community community-name;
    description text-description;
    type type;
  }
)
traceoptions {
  file size size files number;
  flag flag;
}
trap-group group-name {
  categories category;
  destination-port <port-number>;
  targets {
    address;
  }
  version version;
}
trap-options {
  agent-address outgoing-interface;
  source-address address;
}
view view-name;
  oid object-identifier (include | exclude)
}
} # End of [edit snmp] hierarchy level

```

**[edit system] Hierarchy Level**

```

system {
  accounting {
    events [ login change-log interactive-commands ];
    destination {
      tacplus {
        server {
          server-address {
            server password;
            single-connection;
            timeout seconds;
            port port-number;
          }
        }
      }
    }
  }
  archival {
    configuration {
      transfer-interval interval;
      transfer-on-commit;
      archive-sites {
        ftp://<username>:<password>@<host>:<port>/<url-path>;
      }
    }
  }
  authentication-order [ authentication-methods ];
  backup-router address <destination destination-address>;
  compress-configuration-files;
  default-address-selection;
  diag-port-authentication (encrypted-password "password" | plain-text-password);
  domain-name domain-name;
  domain-search [domain-list];
  host-name host-name;
  location {
    altitude feet;
    country-code code;
    hcoord horizontal-coordinate;
    lata service-area;
    latitude degrees;
    longitude degrees;
    npa-nxx number;
    postal-code postal-code;
    vcoord vertical-coordinate;
  }
  login {
    message text;
    class class-name {
      allow-commands "regular-expression";
      allow-configuration "regular-expression";
      deny-commands "regular-expression";
      deny-configuration "regular-expression";
      idle-timeout minutes;
      permissions [ permissions ];
    }
    user user-name {
      full-name complete-name;
      uid uid-value;
    }
  }
}

```

```

    class class-name;
    authentication {
        (encrypted-password "password" | plain-text-password);
        ssh-rsa "public-key";
        ssh-dsa "public-key";
    }
}
mirror-flash-on-disk;
name-server {
    address;
}
no-redirects;
no-saved-core-context;
ntp {
    authentication-key key-number type type value password;
    boot-server address;
    broadcast <address> <key key-number> <version value> <tll value>;
    broadcast-client;
    multicast-client <address>;
    peer address <key key-number> <version value> <prefer>;
    server address <key key-number> <version value> <prefer>;
    trusted-key [ key-numbers ];
}
ports {
    auxiliary {
        type terminal-type;
    }
    console {
        type terminal-type;
    }
}
processes {
    disk-monitoring (enable | disable);
    inet-process (enable | disable) failover (alternate-media | other-routing-engine);
    interface-control (enable | disable) failover (alternate-media | other-routing-engine);
    mib-process (enable | disable) failover (alternate-media | other-routing-engine);
    ntp (enable | disable) failover (alternate-media | other-routing-engine);
    routing (enable | disable) failover (alternate-media | other-routing-engine);
    snmp (enable | disable) failover (alternate-media | other-routing-engine);
    watchdog (enable | disable) failover (alternate-media | other-routing-engine) timeout
seconds;
}
radius-server server-address {
    port number;
    retry number;
    secret password;
    timeout seconds;
}
root-authentication {
    (encrypted-password "password" | plain-text-password);
    ssh-rsa "public-key";
    ssh-dsa "public-key";
}

```

```

services {
  finger {
    <connection-limit limit>;
    <rate-limit limit>;
  }
  ftp {
    <connection-limit limit>;
    <rate-limit limit>;
  }
  rlogin {
    <connection-limit limit>;
    <rate-limit limit>;
  }
  ssh {
    root-login (allow | deny | deny-password);
    protocol-version [v1 v2];
    <connection-limit limit>;
    <rate-limit limit>;
  }
  telnet {
    <connection-limit limit>;
    <rate-limit limit>;
  }
}
static-host-mapping {
  host-name {
    inet [ address ];
    sysid system-identifier;
    alias [ alias ];
  }
}
syslog {
  file filename {
    facility level;
    archive {
      files number;
      size size;
      (world-readable | no-world-readable);
    }
  }
  host hostname {
    facility level;
    facility-override facility;
    log-prefix string;
  }
  user (username | *) {
    facility level;
  }
  console {
    facility level;
  }
  archive {
    files number;
    size size;
    (world-readable | no-world-readable);
  }
}
tacplus-server server-address {
  secret password;
  single-connection;
}

```

```
    timeout seconds;  
  }  
  time-zone time-zone;  
} # End of [edit system] hierarchy level
```

