Chapter 3

Complete Configuration Mode Commands and Statements for M-series and T-series Platforms

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

For information about command-line interface (CLI) operational mode commands, see the *JUNOS Protocols, Class of Service, and System Basics Command Reference*. For information about IP version 6 (IPv6) configuration statements, see the *JUNOS Routing Protocols Configur ation Guide*. For information about configuration mode commands and statements for J-series Services Routers, see the “Complete Configuration Mode Commands and Statements for J-series Services Routers” on page 113.

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.

This section is organized as follows:

[edit access] Hierarchy Level

```
access {
    address-pool name {
        address address-or-prefix value;
        address-range low <lower-limit> high <upper-limit >;
    }
    group-profile group-profile-name {
        l2tp {
            interface-id interface-identifier;
            lcp-renegotiation;
            local-chap;
            maximum-sessions-per-tunnel number;
        }
        ppp {
            framed-pool pool-identifier;
            idle-timeout seconds;
            interface-id interface-identifier;
            keepalive seconds;
            primary-dns primary-dns;
            primary-wins primary-win-server;
            secondary-dns secondary-dns;
            secondary-wins secondary-wins;
        }
    }
    profile profile-name {
        authentication-order [ authentication-methods ];
        client client-name {
            chap-secret chap-secret;
            group-profile name;
                l2tp {
                    interface-id interface-identifier;
                    lcp-renegotiation;
                    local-chap;
                    maximum-sessions-per-tunnel number;
                    multilink {
                        drop-timeout time;
                        fragmentation-threshold bytes;
                    }
                    ppp-authentication (chap | pap);
                    shared-secret shared-secret;
                }
                pap-password pap-password;
                ppp {
                    framed-ip-address ip-address;
                    framed-pool framed-pool;
                    idle-timeout seconds;
                    interface-id interface-identifier;
                    keepalive seconds;
                    primary-dns primary-dns;
                    primary-wins primary-win-server;
                    secondary-dns secondary-dns;
                    secondary-wins secondary-wins;
                }
            }
```

```
        radius-disconnect-port port-number {
        radius-disconnect {
            client-address {
                secret password;
            }
        }
        radius-server server-address {
            accounting-port number;
            port number;
            retry number;
            secret password;
            timeout seconds;
        }
        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 file-number;
            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

```
applications {
    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 applications] 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 | trunk trunk);
            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;
            }
            max-queues-per-interface (8 | 4);
            mlfr-uni-nni-bundles number;
            no-concatenate;
        }
    }
    graceful-switchover (disable | enable);
    lcc number {
        fpc slot-number {
            pic pic-number {
                atm-cell-relay-accumulation;
                atm-l2-circuit-mode (cell | aal5 | trunk trunk);
                framing (sdh | sonet);
                idle-cell-format {
                    itu-t;
                    payload-pattern payload-pattern-byte;
                }
                max-queues-per-interface (8 | 4);
                no-concatenate;
            }
        }
```

```
        offline;
        online-expected;
    }
    (packet-scheduling | no-packet-scheduling);
    redundancy {
        failover {
            on-disk-failure;
            on-loss-of-keepalives;
        }
        keepalive-time seconds;
        routing-engine slot-number (master | backup | disabled);
        sfm slot-number (always | preferred);
        ssb slot-number (always | preferred);
    }
    (source-route | no-source-route);
    vrf-mtu-check;
    vtmapping (km | itu-t);
} # End of [edit chassis] hierarchy level
```

[edit class-of-service] Hierarchy Level

```
class-of-service {
    classifiers {
        (dscp | dscp-ipv6 | exp | ieee-802.1 | inet-precedence) classifier-name {
            forwarding-class class-name {
                loss-priority (low | high) code-points [ alias | bits ];
            }
            import (classifier-name | default);
        }
    }
    code-point-aliases {
        (dscp | dscp-ipv6 | 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 {
   class class-name {
      classification-override {
         forwarding-class class-name;
      }
   }
   next-hop-map map-name {
      forwarding-class class-name {
         next-hop [ next-hop-name ];
         lsp-next-hop [ lsp-regular-expression ];
      }
   }
}
interfaces {
   interface-name {
      scheduler-map map-name;
      scheduler-map-chassis map-name;
      unit logical-unit-number {
         classifiers {
            (dscp | dscp-ipv6 | exp | ieee-802.1 | inet-precedence)
                  (classifier-name | default);
         }
         forwarding-class class-name;
         rewrite-rules {
            dscp (rewrite-name | default);
            dscp-ipv6 (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;
         shaping-rate rate;
      }
   }
}
restricted-queues {
   forwarding-class class-name queue queue-number;
}
rewrite-rules {
   (dscp | exp | inet-precedence) rewrite-name {
      import (rewrite-name | default);
      forwarding-class class-name {
         loss-priority level 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 {
    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;
      }
    }
    policer policer-name {
      filter-specific;
      if-exceeding {
        bandwidth-limit bps;
        bandwidth-percent number;
        burst-size-limit bytes;
      }
      then {
        policer-action;
      }
    }
} # End of [edit firewall] hierarchy level
```

[edit forwarding-options] Hierarchy Level

```
forwarding-options {
    accounting group-name {
        flow-active-timeout seconds;
        flow-inactive-timeout seconds;
        interface [ interface-names ] {
            engine-id number;
            engine-type number;
            source-address address;
        }
        output {
            autonomous-system-type (origin | peer);
            cflowd [ host-names ] {
                aggregation {
                    autonomous-system;
                    destination-prefix;
                    protocol-port;
                    source-destination-prefix {
                        caida-compliant;
                    }
                    source-prefix;
                }
            }
            port port-number;
            version format;
        }
    }
    family family-name {
        filter {
            input filter-name;
        }
        flood {
            input filter-name;
        }
    }
    hash-key {
        family inet {
            layer-3;
            layer-4;
        }
        family mpls {
            label-1;
            label-2;
            ip;
            payload;
        }
    }
```

```
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 ];
        }
        server address < [ routing-instance routing-instance-name ] >;
    }
    domain {
        description description-of-service;
        interface interface-name {
            description description-of-interface;
            no-listen;
            server address < [ routing-instance routing-instance-name ] >;
        }
        server address;
    }
    tftp {
        description description-of-service;
        interface interface-name {
            description description-of-interface;
            no-listen;
            server address;
        }
        server address < [ routing-instance routing-instance-name ] >;
    }
    traceoptions {
        file filename;
            files number;
            size bytes;
        }
            flag flag;
        level level;
    }
}
monitoring group-name {
    family inet {
        export-format cflowd-version-5;
        flow-active-timeout seconds;
        flow-inactive-timeout seconds;
        interface [ interface-names ] {
            engine-id number;
            engine-type number;
            input-interface-index number;
            output-interface-index number;
            source-address address;
        }
        output {
            cflowd [ host-names ] {
                port port-number;
        }
    }
```

```
    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);
            port port-number;
            source-address address;
            version format;
        }
        file {
            disable;
            filename filename;
            files number;
            size bytes;
            (stamp | no-stamp);
            (world-readable | no-world-readable);
        }
```

```
            flow-active-timeout seconds;
            flow-inactive-timeout seconds;
            interface [ interface-names ] {
               engine-id number;
               engine-type number;
               source-address address;
            }
         }
         traceoptions {
            file filename {
               files number ;
               size bytes;
               (world-readable | no-world-readable);
            }
         }
      }
} # 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

The following statement hierarchy can also be included at the [edit logical-routers *logical-router-name*] hierarchy level.

```
interfaces {
      interface-name {
         disable;
         accounting-profile name;
         description text;
         aggregated-ether-options {
            (flow-control | no-flow-control);
            lacp mode {
               periodic interval;
            }
            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;
    }
    mpls {
        pop-all-labels {
            required-depth number;
        }
    }
    pic-type (atm1 | atm2);
    plp-to-clp;
    promiscuous-mode {
        vpi vpi-identifier;
    }
    scheduler-maps map-name {
        forwarding-class class-name {
            epd-threshold cells plp1 cells;
            linear-red-profile profile-name;
            priority (low | high);
            transmit-weight (cells number | percent number);
        }
        vc-cos-mode (alternate | strict);
    }
    vpi vpi-identifier {
        maximum-vcs maximum-vcs;
        oam-liveness {
            down-count cells;
            up-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;
description text;
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 (g.751 | g.832);
   idle-cycle-flag value;
   loopback (local | remote);
   (payload-scrambler | no-payload-scrambler);
   start-end-flag value;
   (unframed | no-unframed);
}
encapsulation type;
ether-vpls-over-atm-11c;
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 ae<x>;
   (flow-control | no-flow-control);
   (loopback | no-loopback);
   source-address-filter {
      mac-address;
   }
   (source-filtering | no-source-filtering);
   ethernet-switch-profile {
      (mac-learn-enable | no-mac-learn-enable);
      tag-protocol-id [ tpids ];
      ethernet-policer-profile {
         input-priority-map {
            ieee802.1p premium [ values ];
         }
         output-priority-map {
            classifier {
               premium {
                  forward-class class-name {
                     loss-priority (high | low);
                  }
               }
            }
         }
         policer cos-policer-name {
            aggregate {
               bandwidth-limit bps;
               burst-size-limit bytes;
            }
            premium {
               bandwidth-limit bps;
               burst-size-limit bytes;
            }
         }
      }
   }
}
(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 (discard | tag);
   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;
        switching-mode (bidirectional | unidirectional);
        working-circuit group-name;
    }
```

```
        bytes {
            c2 value;
            e1-quiet value;
            f1 value;
            f2 value;
            s1 value;
            z3 value;
            z4 value;
        }
        fcs (32 | 16);
        loopback (local | remote);
        mpls {
            pop-all-labels {
                required-depth number;
            }
        }
        path-trace trace-string;
        (payload-scrambler | no-payload-scrambler);
        rfc-2615;
        trigger {
            defect ignore;
                hold-time up milliseconds down milliseconds;
            }
        }
        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 value;
        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);
   (loop-timing | no-loop-timing);
   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;
   atm-scheduler-map (map-name | default);
   bandwidth rate;
   cell-bundle-size cells;
   clear-dont-fragment-bit;
   compression {
      rtp {
         f-max-period number;
         queues [queue-numbers];
         port {
            minimum port-number;
            maximum port-number;
         }
      }
   }
```

```
description text;
dial-options {
   l2tp-interface-id name {
      (dedicated | shared);
   }
}
disable;
dlci dlci-identifier;
drop-timeout milliseconds;
encapsulation type;
epd-threshold cells plp1 cells;
fragment-threshold bytes;
input-vlan-map {
   pop;
   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;
   push;
   swap;
   vlan-id number;
   tag-protocol-id tpid;
}
passive-monitor-mode;
peer-unit unit-number;
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);
trunk-bandwidth rate;
trunk-id number;
```

```
tunnel {
   backup-destination address;
   destination destination-address;
   key number;
   routing-instance {
        destination routing-instance-name;
   }
   source source-address;
   ttl number;
}
vci vpi-identifier.vci-identifier;
vpi vpi-identifier;
vlan-id number;
vlan-tag inner tpid.vlan-id outer tpid.vlan-id;
family family {
   accounting {
      destination-class-usage;
      source-class-usage {
         [ input output ];
      }
   }
   bundle interface-name;
   filter {
      input filter-name;
      output filter-name;
      group filter-group-number;
   }
   ipsec-sa sa-name;
   keep-address-and-control;
   mtu bytes;
   multicast-only;
   negotiate-address;
   no-redirects;
   policer {
      arp policer-template-name;
      output policer-template-name;
      group policer-template-name;
   }
   primary;
   proxy inet-address address;
   receive-options-packets;
   receive-ttl-exceeded;
   remote (inet-address address | mac-address address);
   rpf-check <fail-filter filter-name> {
      <mode loose>;
   }
   sampling {
      (input | output | 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);
                unnumbered-address interface-name destination address
                  destination-profile profile-name;
                address address {
                  arp ip-address (mac | multicast-mac) mac-address <publish>;
                  broadcast address;
                  destination destination-address;
                  destination-profile name;
                  eui-64;
                  multipoint-destination destination-address (dlci dlci-identifier |
                    vci vci-identifier);
                  multipoint-destination destination-address {
                    epd-threshold cells plp1 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 {
                    (accept-data | no-accept-data):
                    advertise-interval seconds;
                    authentication-type authentication;
                    authentication-key key;
                    fast-interval milliseconds;
                    (preempt | no-preempt) {
                      hold-time seconds;
                    }
                    priority number;
                    }
                    track {
                      interface interface-name priority-cost cost;
                    }
                    virtual-address [ addresses ];
                  }
                }
              }
            }
            traceoptions {
              file filename <files number> <size size> <(world-readable | no-world-readable)>;
              flag flag <disable>;
            }
          }# End of [edit interfaces] hierarchy level
```

[edit logical-routers] Hierarchy Level

```
logical-routers {
    logical-router-name {
        interfaces {
            interfaces-configuration;
        }
        policy-options {
            policy-options-configuration;
        }
        protocols {
            protocols-configurations;
        }
    routing-instances {
        routing-instances-configuration;
    }
    routing-options {
        routing-options-configuration;
    }
} # End of [edit logical-routers] hierarchy level
```

[edit policy-options] Hierarchy Level

The following statement hierarchy can also be included at the [edit logical-routers *logical-router-name*] 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 {
            default-action (accept | reject);
            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;
    }
}
prefix-list name {
    ip-addresses;
}
} # End of [edit policy-options] hierarchy level
```

[edit protocols] Hierarchy Level

The following statement hierarchy can also be included at the [edit logical-routers *logical-router-name*] hierarchy level.

```
protocols {
```

Bidirectional Forwarding Detection (BFD)

```
    bfd {
        traceoptions {
            file {
                filename;
                files number;
                no-world-readable;
                size bytes;
                world-readable;
            }
        }
        flag {
            adjacency;
            all;
            error;
            event;
            packet;
            pipe;
            state;
            timer;
        }
    } # End of [edit protocols bfd] hierarchy level
```

Border Gateway Protocol (BGP)

```
bgp {
    advertise-inactive;
    advertise-peer-as;
    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 {
            aggregate-label {
                community match-origin;
            }
            explicit-null {
                connected-only;
            }
            prefix-limit {
                maximum number;
                teardown <percentage> <idle-timeout (forever | minutes)>;
            }
            resolve-vpn;
            rib inet.3;
            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-nexthop-change;
    }
    no-advertise-peer-as;
    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;
route-target {
   advertise-default;
   external-paths number;
   prefix-limit {
      maximum number;
      teardown <percentage> <idle-timeout (forever | minutes)>;
      }
   }
}
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;
   advertise-peer-as;
   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) {
         explicit-null {
            connected-only;
         }
         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 inet.3;
         rib-group group-name;
      }
   }
```

```
    route-target {
        advertise-default;
        external-paths number;
        prefix-limit {
            maximum number;
            teardown <percentage> <idle-timeout (forever | minutes)>;
        }
    }
}
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>);
    mtu-discovery;
    multihop <ttl-value>;
    multipath;
    no-advertise-peer-as;
    no-aggregator-id;
    no-client-reflect;
    out-delay seconds;
    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;
        advertise-peer-as;
        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) {
        explicit-null {
          connected-only;
        }
        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 inet.3;
        rib-group group-name;
      }
    }
    route-target {
      advertise-default;
      external-paths number;
      prefix-limit {
        maximum number;
        teardown <percentage> <idle-timeout (forever | minutes)>;
      }
    }
  }
  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-advertise-peer-as;
  no-aggregator-id;
  no-client-reflect;
  out-delay seconds;
  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;
  }
  p2mp-transmit-switch point-to-multipoint-transmit-switch-name {
    input-interface input-interface-name.unit-number;
    transmit-p2mp-lsp transmitting-point-to-multipoint-lsp;
  }
  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
```

Distance Vector Multicast Routing Protocol (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
```

Internet Group Management Protocol (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
```

Intermediate System-to-Intermediate System (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;
      ipv6-multicast-metric number;
      no-csnp-authentication;
      no-hello-authentication;
      no-psnp-authentication;
      preference preference;
      prefix-export-limit num;
      wide-metrics-only;
   }
   lsp-lifetime seconds;
   no-authentication-check;
   no-ipv4-routing;
   no-ipv6-routing;
   overload {
      advertise-high-metrics;
      <timeout seconds>;
   {
   reference-bandwidth reference-bandwidth;
   rib-group group name;
   spf-delay milliseconds;
```

```
    topologies {
        ipv4-multicast;
        ipv6-multicast;
        ipv6-unicast;
    }
    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 {
        disable;
        bfd-liveness-detection {
            minimum-interval milliseconds;
            minimum-receive-interval milliseconds;
            minimum-transmit-interval milliseconds;
            multiplier number;
        }
        checksum;
        csnp-interval (seconds | disable);
        lsp-interval milliseconds;
        mesh-group (value | blocked);
        no--ipv4-multicast;
        no--ipv6-multicast;
        no-ipv6-unicast;
        passive;
        point-to-point;
        level level-number {
            disable;
            hello-authentication-key key;
            hello-authentication-type authentication;
            hello-interval seconds;
            hold-time seconds;
            ipv4-multicast-metric number;
            ipv6-unicast-metric number;
            metric metric;
            passive;
            priority number;
            te-metric metric;
        }
    }
} # End of [edit protocols isis] hierarchy level
```

Layer 2 Circuits

```
l2circuit {
   neighbor address {
      interface interface-name {
         mtu mtu-number;
         protect-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
```

Label Distribution Protocol (LDP)

```
ldp {
   deaggregate | no-deaggregate;
   egress-policy policy-name;
   export policy-name;
   graceful-restart {
      disable;
      helper-disable;
      maximum-recovery-time value;
      recovery-time value;
   }
   import policy-name;
   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);
   }
   keepalive-interval seconds;
   keepalive-timeout seconds;
   no-forwarding;
   preference preference;
   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>;
   }
   track-igp-metric;
   traffic-statistics {
      file filename <replace> <size size> <files number> <(world-readable |
           no-world-readable)>;
      interval interval;
      transport-address (interface | router-id);
   }
} # End of [edit protocols ldp] hierarchy level
```

Link Management

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

Multicast Listener Discovery (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
```

Multiprotocol Label Switching (MPLS)

```
mpls {
    disable;
    admin-groups {
        group-name group-value;
    }
    advertise-hold-time seconds;
    auto-policing {
        class all policer-action;
        class ctnumber (drop | loss-priority-high | loss-priority-low);
    }
    bandwidth bandwidth;
    class-of-service cos-value;
    diffserv-te {
        bandwidth-model {
            extended-mam;
            mam;
        }
        te-class-matrix {
            tenumber {
                priority priority;
                traffic-class {
                    ctnumber priority priority;
                }
            }
        }
    }
    explicit-null;
    hop-limit number;
    icmp-tunneling;
    interface (interface-name | all) {
        disable;
        admin-group {
            group-name;
        }
        label-map {
            in-label {
                class-of-service value;
                (next-hop (address | interface-name | address/interface-name)) | (reject |
                    discard);
                (pop | (swap <out-label>);
                preference preference;
                type type;
            }
            default-route {
                class-of-service value;
                (next-hop (address | interface-name | address/interface-name)) | (reject |
                    discard);
                (pop | (swap <out-label>);
                preference preference;
                type type;
            }
        }
    }
    ipv6-tunneling;
```

```
label-switched-path lsp-path-name {
    disable;
    adaptive;
    admin-group {
        exclude group-names;
        include group-names;
    }
    auto-bandwidth {
        adjust-interval seconds;
        adjust-threshold percent;
        maximum-bandwidth bps;
        minimum-bandwidth bps;
        monitor-bandwidth;
    }
    bandwidth bps;
    class-of-service cos-value;
    description;
    fast-reroute {
        bandwidth bps;
        bandwidth-percent percent;
        (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;
    lsp-attributes {
        gpid (ethernet | hdlc | ipv4 | ppp);
        signal-bandwidth type;
        switching-type type;
    }
    metric number;
    no-cspf;
    no-decrement-ttl;
    node-link-protection;
    optimize-timer seconds;
    policing {
        filter filter-name;
        no-automatic-policing;
    }
    preference preference;
    priority setup-priority hold-priority;
```

```
primary path-name {
    adaptive;
    admin-group {
        exclude group-names;
        include group-names;
    }
    bandwidth bps;
    class-of-service cos-value;
    hop-limit number;
    no-cspf;
    no-decrement-ttl;
    optimize-timer seconds;
    preference preference;
    priority setup-priority hold-priority;
    (record | no-record);
    retry-limit number;
    retry-timer seconds;
    select {
        manual;
        unconditional;
    }
    standby;
}
(random | least-fill | most-fill);
(record | no-record);
revert-timer seconds;
retry-limit number;
retry-timer seconds;
secondary path-name {
    adaptive;
    admin-group {
        exclude group-names;
        include group-names;
    }
    bandwidth bps;
    class-of-service cos-value;
    hop-limit number;
    no-cspf;
    no-decrement-ttl;
    optimize-timer seconds;
    preference preference;
    priority setup-priority hold-priority;
    (record | no-record);
    select {
        manual;
        unconditional;
    }
    standby;
}
soft-preemption {
    cleanup-timer seconds;
}
standby;
to address;
```

```
    traceoptions {
      file filename <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
      flag flag <flag-modifier> <disable>;
    }
  }
  log-updown {
    (syslog | no-syslog);
    (trap | no-trap);
    trap-path-down;
  }
  mtu-signaling;
  no-cspf;
  no-decrement-ttl;
  no-propagate-ttl;
  no-record;
  optimize-aggressive;
  optimize-timer;
  path path-name {
    address <strict | loose>;
  }
  path-mtu {
    allow-fragmentation;
    rsvp {
      mtu-signaling;
    }
  }
  policing filter filter-name;
  preference preference;
  priority setup-priority hold-priority;
  record;
  rsvp-error-hold-time seconds;
  soft-preemption {
    cleanup-timer seconds;
  }
  standby;
  static-path inet {
    prefix {
      class-of-service value;
      next-hop (address | interface-name | address/interface-name);
      push out-label;
      preference preference;
    }
  }
  statistics {
    auto-bandwidth;
    file filename size size files number <no-stamp>;
    interval seconds;
  }
  traceoptions {
    file filename <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);
} # End of [edit protocols mpls] hierarchy level
```

Multicast Source Discovery Protocol (MSDP)

```
msdp {
  active-source-limit {
    maximum number;
    threshold number;
  }
  data-encapsulation <(disable | enable)>;
  disable;
  export [ policy-names ];
  import [ policy-names ];
  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 {
    authentication-key peer-key;
    default-peer;
    disable;
    export [ policy-names ];
    import [ policy-names ];
    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 {
    authentication-key peer-key;
    disable;
    export [ policy-names ];
    import [ policy-names ];
    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; {
      default-peer;
      disable;
      export [ policy-names ];
      import [ policy-names ];
      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
```

Open Shortest Path First (OSPF)

```
ospf {
   disable;
   export [ policy-names ];
   external-preference preference;
   graceful-restart {
      disable;
      helper-disable;
      notify-duration seconds;
      rest-duration seconds;
   }
   import [ policy-names ];
   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;
        bfd-liveness-detection {
            minimum-interval milliseconds;
            minimum-receive-interval milliseconds;
            minimum-transmit-interval milliseconds;
            multiplier number;
        }
        authentication {
            md5 key-id;
            simple-password key-id;
        }
        dead-interval seconds;
        hello-interval seconds;
        interface-type type;
        metric metric;
        neighbor address <eligible>;
        passive;
        p2p;
        poll-interval seconds;
        priority number;
        retransmit-interval seconds;
        te-metric metric;
        transit-delay seconds;
    }
    label-switched-path name metric metric;
    nssa {
        area-range network/masklen <restrict>;
        default-lsa {
            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 {
        md5 key-id;
        simple-password key-id;
      }
      dead-interval seconds;
      disable;
      hello-interval seconds;
      retransmit-interval seconds;
      transit-delay seconds;
    }
  }
} # End of [edit protocols ospf] hierarchy level
```

OSPF Version 3 (OSPFv3)

```
ospfv3 {
  disable;
  export [ policy-names ];
  external-preference preference;
  import [ policy-names ];
  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
```

Pragmatic General Multicast (PGM)

```
  pgm {
    traceoptions {
      file name <replace> <size size> <files number > <no-stamp>
        <(world-readable | no-world-readable)>;
      flag flag <flag-modifier >;
    }
  } # End of [edit protocols pgm] hierarchy level
```

Protocol Independent Multicast (PIM)

```
  pim {
    disable;
    assert-timeout seconds;
    dense-groups {
      addresses;
    }
    graceful-restart {
      disable;
      restart-duration seconds;
    }
    import [ policy-names ];
    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-names ];
      bootstrap-import [ policy-names ];
      bootstrap-priority number;
      embedded-rp {
        maximum-rps limit;
        group-ranges {
          destination-mask;
        }
      }
```

```
    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
```

Routing Information Protocol (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
```

RIP Next Generation (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
```

Resource Reservation Protocol (RSVP)

```
rsvp {
   disable;
   graceful-restart {
      disable;
      helper-disable:
   }
   graceful-teardown-timeout seconds;
   keep-multiplier number;
   preemption (aggressive | disabled | normal) {
      soft-preemption {
         cleanup-timer seconds;
      }
   }
   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>;
            }
            (reliable | no-reliable);
            subscription percentage;
        }
    } # End of [edit protocols rsvp] hierarchy level
```

Session Announcement Protocol / Session Description Protocol (SAP / SDP)

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

Virtual Router Redundancy Protocol (VRRP)

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

[edit routing-instances] Hierarchy Level

The following statement hierarchy can also be included at the [edit logical-routers *logical-router-name*] hierarchy level.

```
routing-instances {
    routing-instance-name {
        description text;
        forwarding-options;
        instance-type (forwarding | l2vpn | no-forwarding | virtual-router | vpls | vrf);
        interface interface-name;
        no-vrf-advertise;
        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 {
                l2vpn-configuration;
            }
            ldp {
                ldp-configuration;
            }
            ospf {
                ospf-configuration;
            }
            ospf3 {
                ospf3-configuration;
            }
            pim {
                pim-configuration;
            }
            rip {
                rip-configuration;
            }
            router-discovery {
                router-discovery-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> {
      independent-domain;
   }
   confederation confederation-autonomous-systems
      members autonomous-system;
   dynamic-tunnels tunnel-name {
      destination-prefix prefix;
      source-address address;
      tunnel-type type-of-tunnel;
   }
   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) {
      import [ import-policies ];
      export {
         lan;
         point-to-point;
      }
   }
   rib-group {
      inet group-name;
      inet6 group-name;
}
martians {
   destination-prefix match-type <allow>;
}
maximum-routes route-limit <log-only | threshold value>;
multicast {
   forwarding-cache {
      threshold (suppress | reuse) value value;
   }
   scope scope-name {
      interface interface-name;
      prefix destination-prefix;
   }
   ssm-groups {
      addresses;
   }
}
options {
   syslog (level level | upto level);
}
resolution {
   rib routing-table-name {
      import [ policy-names ];
      resolution-ribs [ routing-table-names ];
   }
}
```

```
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

The following statement hierarchy can also be included at the [edit logical-routers *logical-router-name*] 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;
dynamic-tunnels tunnel-name {
    destination-networks prefix;
    source-address address;
    tunnel-type tunnel-type;
}
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 {
   forwarding-cache {
      threshold suppress value <reuse value>;
   }
   scope scope-name {
      interface [ interface-names ];
      prefix destination-prefix;
   }
   scope-policy policy-name;
   ssm-groups {
      address;
   }
}
options {
   syslog (level level | upto level);
}
resolution {
   rib routing-table-name {
      import [ policy-names ];
      resolution-ribs [ routing-table-names ];
   }
}
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;
            p2mp-lsp-next-hop {
                metric metric;
                preference preference;
            }
            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);
            enrollment-url url-name;
            file certificate-filename;
            ldap-url url-name;
        }
        enrollment-retry number;
        local certificate-filename;
        maximum-certificates number;
        path-length bytes;
    }
    ike {
        policy ike-peer-address {
            description policy-description;
            encoding (binary | pem);
            identity identity-name;
            local certificate-filename;
            local-key-pair private-public-key-file;
            mode (aggressive | main);
            pre-shared-key (ascii-text key | hexadecimal key);
            proposals [ proposal-names ];
        }
        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;
        }
    }
    ipsec {
        policy ipsec-policy-name {
            perfect-forward-secrecy {
                keys (group1 | group2);
            }
            proposals [ proposal-names ];
        }
        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);
        }
        security-association name {
            dynamic {
                <security-association (32 | 64)>;
                ipsec-policy policy-name;
            }
```

```
            manual {
               direction (inbound | outbound | bi-directional) {
                  authentication {
                     algorithm (hmac-md5-96 | hmac-sha1-96);
                     key (ascii-text key | hexadecimal key);
                  }
                  auxiliary-spi auxiliary-spi-value;
                  encryption {
                     algorithm (des-cbc | 3des-cbc);
                     key (ascii-text key | hexadecimal key);
                  }
                  protocol (ah | esp | bundle);
                  spi spi-value;
               }
            }
            mode (tunnel | transport);
            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 services] hierarchy level

```
services {
   adaptive-services-pics {
      traceoptions {
         flag flag;
      }
   }
   flow-collector {
      analyzer-address address;
      analyzer-id name;
      destinations {
         ftp:url {
            password “password”;
         }
      }
      file-specification {
         variant variant-number {
            data-format format;
            name-format format;
            transfer {
               record-level number;
               timeout seconds;
            }
         }
      }
```

```
    interface-map {
        collector interface-name;
        file-specification variant-number;
        interface-name {
            file-specification variant-number;
            collector interface-name;
        }
    }
    retry number;
    retry-delay seconds;
    transfer-log {
        destinations {
            ftp:url {
                password "password";
                username username;
            }
        }
        filename "filename";
        interval minutes;
        maximum-size number;
    }
}
ids {
    rule rule-name {
        match-direction (input | output | input-output);
        term term-name {
            from {
                applications [ application-names ];
                application-sets [ set-names ];
                destination-address address;
                source-address address;
            }
            then {
                aggregation {
                    destination-prefix prefix-value;
                    source-prefix prefix-value;
                }
            (force-entry | ignore entry);
            logging {
                syslog;
                threshold rate;
            }
            syn-cookie {
                mss value;
                threshold rate;
            }
        }
    }
    rule-set rule-set-name {
        [ rule rule-names ];
    }
}
```

```
ipsec-vpn {
   ike {
      proposal proposal-name {
         authentication-algorithm (md5 | sha1);
         authentication-method (dsa-signatures | pre-shared-keys | rsa-signatures);
         description description;
         dh-group (group1 | group2);
         encryption-algorithm (3des-cbc | des-cbc);
         lifetime-seconds seconds;
      }
      policy policy-name {
         description description;
         local-id {
            fqdn [ values ];
            ipv4_addr [ values ];
            key_id [ values ];
         }
         mode (aggressive | main);
         pre-shared-key (ascii-text key | hexadecimal key);
         proposals [ proposal-names ];
         remote-id {
            fqdn [ values ];
            ipv4_addr [ values ];
            key_id [ values ];
      }
   }
   ipsec {
      proposal proposal-name {
         authentication-algorithm (hmac-md5-96 | hmac-sha1-96);
         description description;
         encryption-algorithm (3des-cbc | des-cbc);
         lifetime-seconds seconds;
         protocol (ah | esp | bundle);
      }
      policy policy-name {
         description description;
         perfect-forward-secrecy {
            keys (group1 | group2);
         }
         proposals [ proposal-names ];
      }
   }
   rule rule-name {
      match-direction (input | output);
      term term-name {
         from {
            destination-address address;
            source-address address;
         }
         then {
            backup-remote-gateway address;
            dynamic {
               ike-policy policy-name;
               ipsec-policy policy-name;
            }
            manual (
               direction (inbound | outbound | bidirectional) {
```

```
                authentication {
                  algorithm (hmac-md5-96 | hmac-sha1-96);
                  key (ascii-text key | hexadecimal key);
                }
                auxiliary-spi spi-value;
                encryption {
                  algorithm (des-cbc | 3des-cbc);
                  key (ascii-text key | hexadecimal key);
                }
                protocol (ah | bundle | esp);
                spi spi-value;
              }
            }
            no-anti-replay;
            remote-gateway address;
            syslog;
          }
        }
      }
      rule-set rule-set-name {
        [ rule rule-names ];
      }
    }
    l2tp {
      tunnel-group name {
        hello-interval seconds;
        hide-avps;
        l2tp-access-profile profile-name;
        local-gateway address address;
        maximum-send-window packets;
        ppp-access-profile profile-name;
        receive-window packets;
        retransmit-interval seconds;
        service-interface interface-name;
        syslog {
          host hostname {
            facility-override facility-name;
            log-prefix prefix-number;
            services priority-level;
          }
        }
        tunnel-timeout seconds;
      }
      traceoptions {
        debug-level level;
        filter {
          protocol name;
        }
        flag flag;
        interfaces interface-name {
          debug-level level;
          flag flag;
        }
      }
    }
```

```
nat {
   pool nat-pool-name {
      address (address | address-range low minimum-value high maximum-value);
      port (automatic | range low minimum-value high maximum-value);
   }
   rule rule-name {
      match-direction (input | output);
      term term-name {
         from {
            applications [ application-names ];
            application-sets [ set-names ];
            destination-address address;
            source-address address;
         }
         then {
            translated {
               destination-pool nat-pool-name;
               source-pool nat-pool-name;
               translation-type (destination type | source type);
            }
            syslog;
         }
      }
   }
   rule-set rule-set-name {
      [ rule rule-names ];
   }
}
rpm {
   probe owner {
      test test-name {
            data-fill data;
            data-size size;
            destination-port port;
            dscp-code-point DSCP bits;
            history-size size;
            probe-count count;
            probe-interval seconds;
            probe-type type;
            routing-instance instance-name;
            source-address address;
            target-url (url | address);
            test-interval interval;
            thresholds thresholds;
            traps traps;
      }
   }
   probe-server {
      tcp port;
      udp port;
   }
   probe-limit limit;
   }
}
```

```
    service-set service-set-name {
        ([ ids-rules rule-names ] | ids-rule-sets rule-set-name);
        ([ipsec-vpn-rules rule-names ] | ipsec-vpn-rule-sets rule-set-name);
        ([ nat-rules rule-names ] | nat-rule-sets rule-set-name);
        ([ stateful-firewall-rules rule-names ] | stateful-firewall-rule-sets rule-set-name);
        interface-service {
            service-interface interface-name;
        }
        ipsec-vpn-options {
            local-gateway address;
        }
        next-hop-service {
            inside-service-interface name.number;
            outside-service-interface name.number;
        }
        syslog {
            host hostname {
                facility-override facility-name;
                log-prefix prefix-number;
                services priority-level;
            }
        }
    }
    stateful-firewall {
        rule rule-name {
            match-direction (input | output | input-output);
            term term-name {
                    from {
                    applications [ application-names ];
                    application-sets [ set-names ];
                    destination-address address;
                    source-address address;
                }
                then {
                    (accept | discard | reject);
                    allow-ip-option { values ]
                    syslog;
                }
            }
        }
        rule-set rule-set-name {
            [ rule rule-names ];
        }
    }
} # End of [edit services] hierarchy level
```

[edit snmp] Hierarchy Level

```
snmp {
    community community-name {
        authorization authorization;
        clients {
            address restrict;
        }
        view view-name;
    }
    contact contact;
    description description;
    engine-id {
        (local engine-id | use-mac-address | use-default-ip-address);
    }
    interface [ interface-name ];
    filter-duplicates;
    location location;
    name name;
    nonvolatile {
        commit-delay seconds;
    }
    rmon {
        alarm index {
            description 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 description;
            type type;
        }
    }
    traceoptions {
        file size size files number;
        flag flag;
    }
    trap-group group-name {
        categories [ categories ];
        destination-port <port-number>;
        targets {
            address;
        }
        version (all | v1 | v2);
    }
    trap-options {
        agent-address outgoing-interface;
        source-address address;
    }
```

```
v3 {
   notify name {
      tag tag-name;
      type trap;
   }
   notify-filter name {
      oid oid (include | exclude);
   }
   snmp-community community-index {
      community-name community-name;
      security-name security-name;
      tag tag-name;
   }
   target-address target-address-name {
      address address;
      address-mask address-mask;
      port port-number;
      tag-list tag-list;
      target-parameters target-parameters-name;
   }
   target-parameters target-parameters-name {
      notify-filter name;
      parameters {
         message-processing-model (v1 | v2c | v3);
         security-model ( usm | v1 | v2c);
         security level (authentication | none | privacy);
         security-name security-name;
      }
   }
   usm {
      local-engine {
         user username {
            authentication-md5 {
               authentication-password password;
            }
            authentication-sha {
               authentication-password password;
            }
            authentication-none;
            privacy-3des {
               privacy-password password;
            }
            privacy-aes128 {
               privacy-password password;
            }
            privacy-des {
               privacy-password password;
            }
            privacy-none;
         }
      }
   }
```

```
        vacm {
            access {
                group group-name {
                    default-context-prefix {
                        security-model (any | usm | v1 | v2c) {
                            security-level (authentication | none | privacy) {
                                notify-view notify-view;
                                read-view read-view;
                                write-view write-view;
                            }
                        }
                    }
                }
            }
            security-to-group {
                security-model (usm | v1 | v2c) {
                    security-name security-name {
                        group group-name;
                    }
                }
            }
        }
        view view-name; {
            oid object-identifier (include | exclude);
        }
    }
} # End of [edit snmp] hierarchy level
```

[edit system] Hierarchy Level

```
system {
    accounting {
        destination {
            tacplus {
                server {
                    server-address {
                        port port-number;
                        secret password;
                        single-connection;
                        timeout seconds;
                    }
                }
            }
        }
        events [ login change-log interactive-commands ];
    }
    archival {
        configuration {
            archive-sites {
                ftp://<username>:<password>@<host>:<port>/<url-path>;
            }
            transfer-interval interval;
            transfer-on-commit;
        }
    }
```

```
authentication-order [ authentication-methods ];
backup-router address <destination destination-address>;
building name;
(compress-configuration-files | no-compression-configuration-files);
default-address-selection;
diag-port-authentication {
    disable;
    maximum-hop-count;
    minimum-wait-time seconds;
    server [ address ];
    interface interface-group {
        no-listen;
        maximum-hop-count;
        minimum-wait-time seconds;
        server [ address ];
    }
}
domain-name domain-name;
domain-search [domain-list];
host-name host-name;
internet-options address <destination destination-address>;
internet-options {
    path-mtu-discovery;
    source-quench;
    source-port upper-limit <upper-limit>;
}
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 {
    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 username {
        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";
        }
    }
}
max-configurations-on-flash number;
mirror-flash-on-disk;
name-server {
    address;
}
no-redirects;
ntp {
    authentication-key key-number type type value password;
    boot-server address;
    broadcast <address> <key key-number> <version value> <ttl 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 ];
}
pic-console-authentication {
    encrypted-password encrypted-password;
    plain-text-password;
}
ports {
    auxiliary {
        type terminal-type;
    }
    console {
        insecure;
        log-out-on-disconnect;
        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);
    timeout seconds;
    watchdog (enable | disable) failover (alternate-media | other-routing-engine);
}
```

```
radius-server server-address {
   port number;
   retry number;
   secret password;
   source-address source-address;
   timeout seconds;
}
root-authentication {
   (encrypted-password "password" | plain-text-password);
   ssh-rsa "public-key";
   ssh-dsa "public-key";
}
(saved-core-context | no-saved-core-context);
saved-core-files saved-core-files;
services {
   finger {
      <connection-limit limit>;
      <rate-limit limit>;
   }
   ftp {
      <connection-limit limit>;
      <rate-limit limit>;
   }
   service-deployment {
      servers server-address {
         port port-number;
      }
      source-address source-address;
   }
   ssh {
      root-login (allow | deny | deny-password);
      protocol-version [v1 v2];
      <connection-limit limit>;
      <rate-limit limit>;
   }
   telnet {
      <connection-limit limit>;
      <rate-limit limit>;
   }
   xnm-clear-text {
      <connection-limit limit>;
      <rate-limit limit>;
   }
   xnm-ssl {
      <connection-limit limit>;
      local-certificate name;
      <rate-limit limit>;
   }
}
static-host-mapping {
   host-name {
      alias [ alias ];
      inet [ address ];
      sysid system-identifier;
   }
}
```

```
        syslog {
            archive {
                files number;
                size size;
                (world-readable | no-world-readable);
            }
            console {
                facility severity;
            }
            file filename {
                facility severity;
                explicit-priority;
                archive {
                    files number;
                    size size;
                    (world-readable | no-world-readable);
                }
            }
            host (hostname | other-routing-engine | scc-master) {
                facility severity;
                explicit-priority;
                facility-override facility;
                log-prefix string;
            }
            source-address source-address;
            time-format (year | millisecond | year millisecond);
            user (username | *) {
                facility level;
            }
        }
        tacplus-options service-name service-name;
        tacplus-server server-address {
            secret password;
            single-connection;
            source-address source-address;
            timeout seconds;
        }
        time-zone time-zone;
    } # End of [edit system] hierarchy level
```