

Chapter 2

Interfaces and Class of Service Configuration Statements

This chapter 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 chapter is organized as follows:

[edit class-of-service] Hierarchy Level on page 5

[edit interfaces] Hierarchy Level on page 7

[edit logical-routers] Hierarchy Level on page 18

[edit protocols connections] Hierarchy Level on page 21

[edit protocols vrrp] Hierarchy Level on page 22

[edit class-of-service] Hierarchy Level

```
class-of-service {
  classifiers {
    (dscp | dscp-ipv6 | exp | ieee-802.1 | inet-precedence) classifier-name {
      import (classifier-name | default);
      forwarding-class class-name {
        loss-priority level {
          code-points [ aliases ] [ 6-bit-patterns ];
        }
      }
    }
  }
  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 [ values ];
      fill-level [ values ];
    }
  }
}
fabric {
  scheduler-map {
    priority (high | low) scheduler scheduler-name;
  }
}
forwarding-classes {
  queue queue-number class-name priority (high | low);
}
forwarding-policy {
  next-hop-map map-name {
    forwarding-class class-name {
      next-hop [ next-hop-name ];
      lsp-next-hop [ lsp-regular-expression ];
    }
  }
  class class-name {
    classification-override {
      forwarding-class class-name;
    }
  }
}
interfaces interface-name {
  scheduler-map map-name;
  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 (rewrite-name | 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 | dscp-ipv6 | exp | ieee-802.1 | 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 (any | high | low) protocol (any | non-tcp | tcp);
    drop-profile profile-name;
    priority priority-level;
    transmit-rate (rate | percent percentage | remainder) <exact>;
  }
}

```

[edit interfaces] Hierarchy Level

The statements at the [edit interfaces *interface-name* unit *logical-unit-number*] hierarchy level can also be configured at the [edit logical-routers *logical-router-name* interfaces *interface-name* unit *logical-unit-number*] hierarchy level.

```

interfaces {
  traceoptions {
    file filename <files number> <size size> <(world-readable | no-world-readable)>;
    flag flag <disable>;
  }
  interface-name {
    accounting-profile name;
    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 (high | low);
      transmit-weight (cells number | percent number);
    }
    vc-cos-mode (alternate | strict);
  }
  vpi vpi-identifier {
    maximum-vcs maximum-vcs;
    oam-liveness {
      up-count cells;
      down-count cells;
    }
    oam-period (disable | seconds);
    shaping {
      (cbr rate | rtvbr peak rate sustained rate burst length |
       vbr peak rate sustained rate burst length);
      queue-length number;
    }
  }
}
clocking clock-source;
dce;
description text;
disable;
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;
  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;
es-options {
  backup-interface es-fpc/pic/port;
}
fastether-options {
  802.3ad aex;
  (flow-control | no-flow-control);
  ingress-rate-limit rate;
  (loopback | no-loopback);
  source-address-filter {
    mac-address;
  }
  (source-filtering | no-source-filtering);
}
gigether-options {
  802.3ad aex;
  (flow-control | no-flow-control);
  (loopback | no-loopback);
  source-address-filter {
    mac-address;
  }
  (source-filtering | no-source-filtering);
}

```



```

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;
}
services-options {
  inactivity-timeout seconds;
  open-timeout seconds;
  syslog {
    host hostname {
      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-flag (flags | ones);
  invert-data;
  line-encoding (ami | b8zs);
  loopback (local | payload | remote);
  remote-loopback-respond;
  start-end-flag (shared | filler);
  timeslots time-slot-range;
}

```

```

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 discard;
  rate percentage;
  threshold bytes;
}
(traps | no-traps);
vlan-tagging;
unit logical-unit-number {
  accept-source-mac {
    mac-address mac-address {
      policer {
        input cos-policer-name;
        output cos-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;
plp-to-clp;
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 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-tags inner tpid.vlan-id outer tpid.vlan-id;
family family {
  accounting {
    destination-class-usage;
    source-class-usage {
      (input | output | 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;
  input policer-template-name;
  output 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 address;
  destination-profile name;
  eui-64;
  multipoint-destination address (dlci dlci-identifier |
    vci vci-identifier);
  multipoint-destination address {
    epd-threshold cells plp1 cells;
    inverse-arp;
    oam-liveness {
      up-count cells;
      down-count cells;
    }
    oam-period (disable | seconds);
    shaping {
      (cbr rate | rtvbr peak rate sustained rate burst length |
        vbr peak rate sustained rate burst length);
      queue-length number;
    }
  }
  vci vpi-identifier.vci-identifier;
}
preferred;
primary;

```



```

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;
plp-to-clp;
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 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-tags inner tpid.vlan-id outer tpid.vlan-id;
family family {
  accounting {
    destination-class-usage;
    source-class-usage {
      (input | output | 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;
no-redirects;
policer {
  arp policer-template-name;
  input policer-template-name;
  output 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> ];
  }
}
}

```


[edit protocols vrrp] Hierarchy Level

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