

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:

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[edit class-of-service] Hierarchy Level

```
class-of-service {
  classifiers {
    (dscp | exp | ieee-802.1 | inet-precedence) classifier-name {
      import (classifier-name | default);
      forwarding-class class-name {
        loss-priority (low | high) code-points [ alias | bits ];
      }
    }
  }
  code-point-aliases {
    (dscp | exp | ieee-802.1 | inet-precedence) {
      alias-name bits;
    }
  }
  drop-profiles {
    profile-name {
      fill-level percentage drop-probability percentage;
      interpolate {
        drop-probability value;
        fill-level value;
      }
    }
  }
}
```

```

fabric {
  scheduler-map {
    priority (low | high) scheduler scheduler-name;
  }
}
forwarding-classes {
  queue queue-number class-name priority (low | high);
}
forwarding-policy {
  next-hop-map map-name {
    forwarding-class class-name {
      next-hop [ next-hop-name ];
      lsp-next-hop [ lsp-regular-expression ];
    }
  }
  class class-name {
    classification-override {
      forwarding-class class-name;
    }
  }
}
interfaces
  interface-name {
    scheduler-map map-name;
    unit logical-unit-number {
      bandwidth rate;
      classifiers {
        (dscp | exp | ieee-802.1 | inet-precedence) (classifier-name | default)
      }
      forwarding-class class-name;
      rewrite-rules {
        dscp (rewrite-name | default);
        exp (rewrite-name | default) protocol protocol-types;
        exp-push-push-push default;
        exp-swap-push-push default;
        ieee-802.1 default;
        inet-precedence (rewrite-name | default);
      }
      scheduler-map map-name;
    }
  }
}
rewrite-rules {
  (dscp | exp | inet-precedence) rewrite-name {
    import (rewrite-name | default);
    forwarding-class class-name {
      loss-priority (low | high) code-point (alias | bits);
    }
  }
}
scheduler-maps {
  map-name {
    forwarding-class class-name scheduler scheduler-name;
  }
}

```

```

schedulers
  scheduler-name {
    buffer-size (percent percentage | remainder | temporal microseconds);
    drop-profile-map loss-priority (low | high) protocol (non-tcp | tcp | any)
      drop-profile profile-name;
    priority (low | high | strict-high);
    transmit-rate (rate | percent percentage | remainder | exact);
  }
}

```

[edit interfaces] Hierarchy Level

```

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

```

```

vpi vpi-identifier {
  maximum-vcs maximum-vcs;
  oam-liveness {
    up-count cells;
    down-count cells;
  }
  oam-period (disable | seconds);
  shaping {
    (cbr rate | rtvbr peak rate sustained rate burst length |
     vbr peak rate sustained rate burst length);
    queue-length number;
  }
}
}
clocking clock-source;
dce;
ds0-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  byte-encoding (nx64 | nx56);
  fcs (32 | 16);
  idle-cycle-flag (flags | ones);
  invert-data;
  loopback (payload | remote);
  start-end-flag (shared | filler);
}
e1-options {
  bert-error-rate rate;
  bert-period seconds;
  fcs (32 | 16);
  framing (g704 | g704-no-crc4 | unframed);
  idle-cycle-flag (flags | ones);
  invert-data;
  loopback (local | remote);
  start-end-flag (shared | filler);
  timeslots time-slot-range;
}
e3-options {
  atm-encapsulation (direct | PLCP);
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  buildout feet;
  compatibility-mode (digital-link | kentrox | larscom) <subrate value>;
  fcs (32 | 16);
  framing (g751 | g832);
  idle-cycle-flag value;
  loopback (local | remote);
  (payload-scrambler | no-payload-scrambler);
  start-end-flag value;
}
encapsulation type;
es-options {
  backup-interface es-fpc/pic/port;
}

```

```

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

```

```
mlfr-uni-nni-bundle-options {
  acknowledge-retries number;
  acknowledge-timer milliseconds;
  action-red-differential-delay (disable-tx | remove-link);
  drop-timeout milliseconds;
  fragment-threshold bytes;
  hello-timer milliseconds;
  lmi-type (ansi | itu);
  minimum-links number;
  mrru bytes;
  n391 number;
  n392 number;
  n393 number;
  red-differential-delay milliseconds;
  t391 seconds;
  t392 seconds;
  yellow-differential-delay milliseconds;
}
mtu bytes;
multiservice-options {
  boot-command filename
  (core-dump | no-core-dump);
  (syslog | no-syslog);
}
no-gratuitous-arp-request;
no-keepalives;
no-partition {
  interface-type type;
}
partition partition-number oc-slice oc-slice-range interface-type type {
  timeslots time-slot-range;
}
passive-monitor-mode;
per-unit-scheduler;
ppp-options {
  chap {
    access-profile name;
    local-name name;
    passive;
  }
}
receive-bucket {
  overflow (tag | discard);
  rate percentage;
  threshold bytes;
}
```

```

serial-options {
  clock-rate rate;
  clocking-mode (dce | dte | loop);
  control-leads {
    control-signal (assert | de-assert | normal);
    cts (ignore | normal | require);
    dcd (ignore | normal | require);
    dsr (ignore | normal | require);
    dtr signal-handling-option;
    ignore-all;
    indication (ignore | normal | require);
    rts (assert | de-assert | normal);
    tm (ignore | normal | require);
  }
  control-polarity (positive | negative);
  cts-polarity (positive | negative);
  dcd-polarity (positive | negative);
  dsr-polarity (positive | negative);
  dtr-circuit (balanced | unbalanced);
  dtr-polarity (positive | negative);
  encoding (nrz | nrzi);
  indication-polarity (positive | negative);
  line-protocol protocol;
  loopback mode;
  rts-polarity (positive | negative);
  tm-polarity (positive | negative);
  transmit-clock invert;
}
service-options {
  inactivity-timeout seconds;
  open-timeout seconds;
  syslog {
    host host-name {
      facility-override facility-name;
      log-prefix prefix-number;
      [ services priority-level ];
    }
  }
}
sonet-options {
  aggregate asx;
  aps {
    advertise-interval milliseconds;
    authentication-key key;
    force;
    hold-time milliseconds;
    lockout;
    neighbor address;
    paired-group group-name;
    protect-circuit group-name;
    request;
    revert-time seconds;
    working-circuit group-name;
  }
}

```

```

bytes {
  e1-quiet value;
  f1 value;
  f2 value;
  s1 value;
  z3 value;
  z4 value;
}
fcs (32 | 16);
loopback (local | remote);
path-trace trace-string;
(payload-scrambler | no-payload-scrambler);
rfc-2615;
vtmapping (itu-t | klm);
(z0-increment | no-z0-increment);
}
speed (10m | 100m);
stacked-vlan-tagging;
t1-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  buildout (0-132 | 133-265 | 266-398 | 399-531 | 532-655);
  byte-encoding (nx64 | nx56);
  fcs (32 | 16);
  framing (sf | esf);
  idle-cycle-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);
  loopback (local | payload | remote);
  (mac | no-mac);
  (payload-scrambler | no-payload-scrambler);
  start-end-flag value;
}
traceoptions {
  flag flag <flag-modifier> <disable>;
}
transmit-bucket {
  overflow (tag | discard);
  rate percentage;
  threshold bytes;
}
(traps | no-traps);

```

```

vlan-tagging;
unit logical-unit-number {
  accept-source-mac {
    mac-address mac-address {
      policer {
        input policer-name;
        output policer-name;
      }
    }
  }
  accounting-profile name;
  allow-any-vci;
  bandwidth rate;
  cell-bundle-size cells;
  description text;
  disable;
  dlc dlci-identifier;
  drop-timeout milliseconds;
  encapsulation type;
  epd-threshold 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-dlc 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;
  point-to-point;
  service-domain (inside | outside);
  shaping {
    (cbr rate | rtvbr peak rate sustained rate burst length |
     vbr peak rate sustained rate burst length);
    queue-length number;
  }
  short-sequence;
  transmit-weight number;
  (traps | no-traps);

```

```

tunnel {
  backup-destination address;
  destination destination-address;
  routing-instance destination routing-instance-name;
  source source-address;
  ttl number;
}
vci vpi-identifier.vci-identifier;
vlan-id number;
vlan-tag [ tpid.vlan-id ];
family family {
  accounting {
    destination-class-usage;
    source-class-usage {
      (input | output | [input output]);
    }
  }
  bundle (ml-fpc/pic/port | ls-fpc/pic/port);
  filter {
    input filter-name;
    output filter-name;
    group filter-group-number;
  }
  ipsec-sa sa-name;
  keep-address-and-control;
  mtu bytes;
  multicasts-only;
  no-asynchronous-notification;
  no-redirects;
  policer {
    arp policer-template-name;
    input policer-template-name;
    output policer-template-name;
  }
  primary;
  proxy inet-address address;
  remote (inet-address address | mac-address address);
  rpf-check <fail-filter filter-name> {
    <mode loose>;
  }
  sampling {
    [ input output ];
  }
  service {
    input {
      [ service-set service-set-name <service-filter filter-name> ];
      post-service-filter filter-name;
    }
    output {
      [ service-set service-set-name <service-filter filter-name> ];
    }
  }
}
(translate-discard-eligible | no-translate-discard-eligible);
(translate-fecn-and-becn | no-translate-fecn-and-becn);

```


[edit protocols vrrp] Hierarchy Level

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