

Chapter 4

Interfaces Configuration Statements

When configuring the interfaces, you can configure the interfaces that are currently present in the router (that is, the PICs that are already installed in the router) as well as interfaces that you might be adding at some future time (that is, PICs that you plan to install). To determine which interfaces are currently installed in the router, use the `show interfaces terse` command from the top-level CLI. If an interface is listed in the output, it is installed in the router. If an interface is not listed, it is not present.

The router software automatically configures the router's management Ethernet interface, `fxp0`, which is an out-of-band management interface, and the internal Ethernet interface, `fxp1`, which connects the Routing Engine to the control board (System Control Board (SCB), System and Switch Board (SSB), Forwarding Engine Board (FEB), or Switching and Forwarding Module (SFM)). The JUNOS software also automatically configures one loopback interface (`lo0`). If your router has a Tunnel PIC, the JUNOS software automatically configures one multicast tunnel interface (`mt`) for each VPN you configure. You do not need to configure multicast tunnel interfaces.

Complete Interfaces Configuration Statements

To configure router interfaces, you include statements at the `[edit interfaces]` hierarchy level of the configuration:

```
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;
  compatibility-mode (digital-link | kentrox | larscom) <subrate value>;
  fcs (32 | 16);
  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;
  (flow-control | no-flow-control);
  (loopback | no-loopback);
  source-address-filter {
    mac-address;
  }
  (source-filtering | no-source-filtering);
  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 ];
}
(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;
  (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 discard;
  rate percentage;
  threshold bytes;
}
(traps | no-traps);
vlan-tagging;
unit logical-unit-number {
  accept-source-mac {
    mac-address mac-address {
      policer {
        input policer-name;
        output policer-name;
      }
    }
  }
}
accounting-profile name;
allow-any-vci;
bandwidth rate;
cell-bundle-size cells;
description text;
disable;
dlci dlci-identifier;
drop-timeout milliseconds;
encapsulation type;
epd-threshold cells;
fragment-threshold bytes;
input-vlan-map {
  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;
point-to-point;
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;
  source source-address;
  destination destination-address;
  routing-instance {
    destination routing-instance-name;
  }
  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;

```


Minimum Interface Configuration

For your router to function properly, you must configure each PIC interface that is present in the router. No PIC interfaces are preconfigured.