

# 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 software also automatically configures one loopback interface (`lo0`). If your router has a Tunnel PIC, the 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 {
  interface-name {
    disable;
    access-profile name;
    accounting-profile name;
    description text;
    aggregated-ether-options {
      (flow-control | no-flow-control);
      (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 {
  promiscuous-mode;
  vpi vpi-identifier maximum-vcs maximum-vcs;
  ilmi;
  e3-options {
    atm-encapsulation (direct | PLCP);
    buildout distance (ft | m);
    framing (g751 | g832);
    loopback (local | remote);
    (payload-scrambler | no-payload-scrambler);
  }
  t3-options {
    atm-encapsulation (direct | PLCP);
    buildout distance (ft | m);
    (cbit-parity | no-cbit-parity);
    loopback (local | remote);
    (payload-scrambler | no-payload-scrambler);
  }
}
clocking clock-source;
dce;
e1-options {
  bert-error-rate rate;
  bert-period seconds;
  fcs (32 | 16);
  framing (g704 | g704-no-crc4 | unframed);
  idle-cycle-flag (flags | ones);
  loopback (local | remote);
  start-end-flag (shared | filler);
  timeslots time-slot-number;
}
e3-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  compatibility-mode (digital-link | kentrox) <subrate value>;
  fcs (32 | 16);
  idle-cycle-flag value;
  loopback (local | remote);
  (payload-scrambler | no-payload-scrambler);
  start-end-flag value;
}
encapsulation type;
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);
}

```

```

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;
mtu bytes;
no-keepalives;
no-traps;
ppp-options {
    chap {
        access-profile name;
        local-name name;
        passive;
    }
}
receive-bucket {
    overflow (tag | discard);
    rate percentage;
    threshold number;
}
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;
    (z0-increment | no-z0-increment);
}
speed (10m | 100m);

```

```

t1-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  buildout (0-133 | 133-266 | 266-399 | 399-532 | 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 | remote);
  start-end-flag (shared | filler);
  timeslots time-slot-number;
}
t3-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  (cbit-parity | no-cbit-parity);
  compatibility-mode (digital-link | kentrox | larscom) <subrate value>;
  fcs (32 | 16);
  (feac-loop-respond | no-feac-loop-respond);
  idle-cycle-flag value;
  (long-buildout | no-long-buildout);
  loopback (local | 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 number;
}
vlan-tagging;
unit logical-unit-number {
  accounting-profile name;
  allow_any_vci;
  bandwidth rate;
  description text;
  disable;
  dci dci-identifier;
  drop-timeout milliseconds;
  encapsulation type;
  fragment-threshold bytes;
  inverse-arp;
  minimum-links number;
  mrru bytes;
  multicast-dci dci-identifier;
  multicast-vci vpi-identifier.vci-identifier;
  multipoint;
  no-traps;
  oam-liveness {
    up-count cells;
    down-count cells;
  }
}

```

```

oam-period (disable | seconds);
point-to-point;
shaping {
    (cbr rate | vbr peak rate sustained rate burst length);
    queue-length number;
}
short-sequence;
tunnel {
    source source-address;
    destination destination-address;
    routing-instance {
        destination routing-instance-name;
    }
    ttl number;
}
vci vpi-identifier.vci-identifier;
vlan-id number;
family family {
    bundle ml-fpc/pic/port;
    destination-class-usage;
    filter {
        input filter-name;
        output filter-name;
        group filter-group-number;
    }
    ipsec-sa sa-name;
    mtu bytes;
    multicasts-only;
    no-redirects;
    policer {
        input policer-template-name;
        output policer-template-name;
    }
    primary;
    rpf-check fail-filter filter-name;
    address address {
        arp ip-address (mac | multicast-mac) mac-address <publish>;
        destination destination-address;
        eui-64;
        broadcast address;
        multipoint-destination destination-address (dlci dcli-identifier | vci vci-identifier);
        multipoint-destination destination-address {
            inverse-arp;
            oam-liveness {
                up-count cells;
                down-count cells;
            }
            oam-period seconds;
            shaping {
                (cbr rate | vbr peak rate sustained rate burst length);
                queue-length number;
            }
            vci vpi-identifier.vci-identifier;
        }
    }
    preferred;
    primary;

```

```
vrp-group group-number {  
  virtual-address [addresses];  
  priority number;  
  (accept-data | no-accept-data);  
  advertise-interval seconds;  
  authentication-type authentication;  
  authentication-key key;  
  (preempt | no-preempt);  
  track {  
    interface interface-name priority-cost cost;  
  }  
}
```

## 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.