

## Chapter 2

# Complete MPLS Applications Configuration Mode Statements

This chapter shows the complete configuration statement hierarchy for the Multiprotocol Label Switching (MPLS) applications configuration statements, 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.

For a complete list of the JUNOS configuration statements, see the *JUNOS Hierarchy and RFC Reference*.

This chapter is organized as follows:

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## [edit logical-routers] Hierarchy Level

---

The following MPLS protocol statements can be configured at the [edit logical-routers] hierarchy level. This is not a comprehensive list of statements available for logical routers. Only the statements that are also documented in this manual are listed here. For more information about logical routers, see the *JUNOS Routing Protocols Configuration Guide*.

```
logical-routers {
  logical-router-name {
    protocols {
      connections {
        connections-configuration;
      }
      ldp {
        ldp-configuration;
      }
      link-management {
        link-management-configuration;
      }
      mpls {
        mpls-configuration;
      }
      rsvp {
        rsvp-configuration;
      }
    }
  }
}
```

## [edit protocols connections] Hierarchy Level

---

The following statements can also be configured at the [edit logical-routers *logical-router-name*] hierarchy level:

```

protocols {
  connections {
    interface-switch connection-name {
      interface first-interface-name.unit-number;
      interface second-interface-name.unit-number;
    }
    lsp-switch connection-name {
      transmit-lsp label-switched-path;
      receive-lsp label-switched-path;
    }
    p2mp-receive-switch {
      output-interface interface-name.unit-number;
      receive-p2mp-lsp receiving-point-to-multipoint-lsp;
    }
    p2mp-transmit-switch {
      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;
    }
  }
}

```

## [edit protocols ldp] Hierarchy Level

---

The following statements can also be configured at the [edit logical-routers *logical-router-name*] hierarchy level:

```

protocols {
  ldp {
    (deaggregate | no-deaggregate);
    egress-policy [ policy-names ];
    explicit-null;
    export [ policy-names ];
    graceful-restart {
      disable;
      helper-disable;
      maximum-recovery-time seconds;
      recovery-time seconds;
    }
    import [ policy-names ];
    interface (interface-name | all) {
      disable;
      hello-interval seconds;
      hold-time seconds;
      transport-address (interface | router-id);
    }
  }
}

```

```

    keepalive-interval seconds;
    keepalive-timeout seconds;
    log-updown {
        trap disable;
    }
    no-forwarding;
    policing {
        fec fec-address {
            ingress-traffic filter-name;
            transit-traffic filter-name;
        }
    }
    preference preference;
    session address {
        authentication-key md5-authentication-key;
    }
    strict-targeted-hellos;
    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> <no-stamp>
            <world-readable | no-world-readable>;
        interval interval;
        no-penultimate-hop;
    }
    transport-address (address | interface | router-id);
}
}

```

## [edit protocols link-management] Hierarchy Level

---

The following statements can also be configured at the [edit logical-routers *logical-router-name*] hierarchy level:

```

protocols {
  link-management {
    peer peer-name {
      address address;
      control-channel [ control-channel-interfaces ];
      te-link [ te-link-names ];
    }
    te-link te-link-name {
      disable;
      interface interface-name {
        disable;
        local-address address;
        remote-address address;
        remote-id id-number;
      }
      label-switched-path label-switched-path-name;
      local-address address;
      remote-address address;
      remote-id id-number;
    }
  }
  traceoptions {
    file filename <files number> <no-stamp> <replace> <size size>
      <world-readable | no-world-readable>;
    flag flag <flag-modifier> <disable>;
  }
}

```

## [edit protocols mpls] Hierarchy Level

---

The following statements can also be configured at the [edit logical-routers *logical-router-name*] hierarchy level:

```

protocols {
  mpls {
    disable;
    admin-group {
      exclude [ group-names ];
      include-all [ group-names ];
      include-any [ group-names ];
    }
    admin-groups {
      group-name group-value;
    }
    advertisement-hold-time seconds;
    auto-policing {
      class all (drop | loss-priority-high | loss-priority-low);
      class ctnumber (drop | loss-priority-high | loss-priority-low);
    }
    bandwidth bps {
      ct0 bps;
      ct1 bps;
      ct2 bps;
      ct3 bps;
    }
    class-of-service cos-value;
    diffserv-te {
      bandwidth-model {
        extended-mam;
        mam;
        rdm;
      }
      te-class-matrix {
        tnumber {
          priority priority;
          traffic-class ctnumber priority priority;
        }
      }
    }
    explicit-null;
    hop-limit number;
    icmp-tunneling;
    interface (interface-name | all) {
      disable;
      admin-group [ group-names ];
      label-map (default-route | in-label-name) {
        class-of-service cos-value;
        next-hop (address | interface-name | address/interface-name) | (discard |
          reject);
        (pop | swap out-label);
        preference preference;
        swap-push swap-label push-label;
      }
    }
  }
}

```

```

ipv6-tunneling;
label-switched-path lsp-path-name {
  disable;
  adaptive;
  admin-group {
    exclude [ group-names ];
    include-all;
    include-any [ group-names ];
  }
  auto-bandwidth {
    adjust-interval seconds;
    adjust-threshold percent;
    maximum-bandwidth bps;
    minimum-bandwidth bps;
    monitor-bandwidth;
  }
  bandwidth bps {
    ct0 bps;
    ct1 bps;
    ct2 bps;
    ct3 bps;
  }
  class-of-service cos-value;
  description text;
  fast-reroute {
    (bandwidth bps | bandwidth-percent percent);
    (exclude [ group-names ] | no-exclude);
    hop-limit number;
    (include-all [ group-names ] | no-include-all);
    (include-any [ group-names ] | no-include-any);
  }
  from address;
  hop-limit number;
  install {
    destination-prefix/prefix-length <active>;
  }
  ldp-tunneling;
  link-protection;
  lsp-attributes {
    encoding-type (ethernet | packet | pdh | sonet-sdh);
    gpid (ethernet | hdlc | ipv4 | ppp);
    signal-bandwidth type;
    switching-type (fiber | lambda | psc-1 | tdm);
  }
  metric number;
  no-cspf;
  no-decrement-ttl;
  node-link-protection;
  optimize-timer seconds;
  p2mp path-name;
  policing {
    filter filter-name;
    no-automatic-policing;
  }
  preference preference;

```

```

primary path-name {
  adaptive;
  admin-group {
    exclude [ group-names ];
    include-all [ group-names ];
    include-any [ group-names ];
  }
  bandwidth bps {
    ct0 bps;
    ct1 bps;
    ct2 bps;
    ct3 bps;
  }
  class-of-service cos-value;
  hop-limit number;
  no-cspf;
  no-decrement-ttl;
  optimize-timer seconds;
  preference preference;
  priority setup-priority reservation-priority;
  (record | no-record);
  select (manual | unconditional);
}
standby;
}
priority setup-priority reservation-priority;
(random | least-fill | most-fill);
(record | no-record);
retry-limit number;
retry-timer seconds;
revert-timer seconds;
secondary path-name {
  adaptive;
  admin-group {
    exclude [ group-names ];
    include-all [ group-names ];
    include-any [ group-names ];
  }
  bandwidth bps {
    ct0 bps;
    ct1 bps;
    ct2 bps;
    ct3 bps;
  }
  class-of-service cos-value;
  hop-limit number;
  no-cspf;
  no-decrement-ttl;
  optimize-timer seconds;
  preference preference;
  priority setup-priority reservation-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;
    trap-path-up;
}
no-cspf;
no-decrement-ttl;
no-propagate-ttl;
optimize-aggressive;
optimize-timer seconds;
path path-name {
    address | hostname <strict | loose>;
}
}
path-mtu {
    allow-fragmentation;
    rsvp {
        mtu-signaling;
    }
}
}
preference preference;
priority setup-priority reservation-priority;
(record | no-record );
revert-timer seconds;
rsvp-error-hold-time seconds;
standby;
static-path inet {
    prefix {
        class-of-service cos-value;
        double-push bottom-label top-label;
        next-hop (address | interface-name | address/interface-name);
        preference preference;
        push out-label;
        triple-push bottom-label middle-label top-label;
    }
}
}
statistics {
    auto-bandwidth;
    file filename <size size> <files number> <no-stamp> <replace>
        <world-readable | no-world-readable>;
    interval seconds;
}
}

```

```

traceoptions {
  file filename <replace> <size size> <files number> <no-stamp>
    <world-readable | no-world-readable>;
  flag flag;
}
traffic-engineering (bgp | bgp-igp | bgp-igp-both-ribs | mpls-forwarding);
}

```

## [edit protocols rsvp] Hierarchy Level

---

The following statements can also be configured at the [edit logical-routers *logical-router-name*] hierarchy level:

```

protocols {
  rsvp {
    disable;
    fast-reroute {
      optimize-timer seconds;
    }
    graceful-deletion-timeout seconds;
    graceful-restart {
      disable;
      helper-disable;
      maximum-helper-recovery-time seconds;
      maximum-helper-restart-time seconds;
    }
    interface interface-name {
      disable;
      (aggregate | no-aggregate);
      authentication-key key;
      bandwidth bps;
      hello-interval seconds;
      link-protection {
        disable;
        bandwidth bandwidth;
        bypass bypass-name {
          bandwidth bps {
            ct0 bps;
            ct1 bps;
            ct2 bps;
            ct3 bps;
          }
        }
        hop-limit number;
        no-cspf;
        path address <strict | loose>;
        priority setup-priority reservation-priority;
        to address;
      }
      class-of-service cos-value;
      hop-limit number;
      max-bypasses number;
      no-cspf;
      no-node-protection;
      optimize-timer seconds;
      path address <strict | loose>;
    }
  }
}

```

```

    subscription percentage {
        ct0 percentage;
        ct1 percentage;
        ct2 percentage;
        ct3 percentage;
    }
}
(reliable | no-reliable);
subscription percentage{
    ct0 percentage;
    ct1 percentage;
    ct2 percentage;
    ct3 percentage;
}
update-threshold percentage;
}
keep-multiplier number;
load-balance {
    bandwidth;
}
peer-interface peer-interface-name {
    (aggregate | no-aggregate);
    authentication-key key;
    disable;
    hello-interval seconds;
    (reliable | no-reliable);
}
preemption {
    (aggressive | disabled | normal);
    soft-preemption {
        cleanup-timer seconds;
    }
}
refresh-time seconds;
traceoptions {
    file filename <replace> <size size> <files number> <no-stamp>
        <world-readable | no-world-readable>;
    flag flag <flag-modifier> <disable>;
}
tunnel-services {
    devices device-names;
}
}
}

```

