

Chapter 4

MPLS Configuration Statements

To configure Multiprotocol Label Switching (MPLS), you can include the following statements in the configuration:

```
disable;
admin-group [ 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 (in-label | default-route) {
    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 [ group-names ];
    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 metric;
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 value;

        next-hop (address | interface-name | address/interface-name);
        preference preference;
        push out-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);

```

You can configure these statements at the following hierarchy levels:

- [edit logical-routers *logical-router-name* protocols mpls]
- [edit protocols mpls]

Minimum MPLS Configuration

To enable MPLS on the router, you must include at least the following statements. This minimum configuration enables MPLS on a logical interface. All other MPLS configuration statements are optional. Note that this configuration does nothing more than enable MPLS on the router and on the specified interface.

Include the family `mpls` statement:

```
family mpls;
```

You can include this statement at the following hierarchy levels:

- [edit interfaces *interface-name* unit *logical-unit-number*]
- [edit logical-routers *logical-router-name* interfaces *interface-name* unit *logical-unit-number*]

Include the interface in the MPLS and Resource Reservation Protocol (RSVP) protocol configuration:

```

mpls {
  interface (interface-name | all); # Required to enable MPLS on the interface
}
rsvp {
  interface interface-name; # Required for RSVP-signaled MPLS only
}

```

You can configure these statements at the following hierarchy levels:

- [edit protocols]
- [edit logical-routers *logical-router-name* protocols]

For every interface you enable, two special routes are installed automatically in the MPLS forwarding table. One route has a label value of 0, and the second has a label value of 1. (For information about these labels, see “Special Labels” on page 27.)

