

## Verifying Path Protection in an MPLS Network

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To verify that path protection is working correctly on EX-series switches, perform the following tasks:

1. Verifying the Primary Path on page 1
2. Verifying the RSVP-Enabled Interfaces on page 2
3. Verifying a Secondary Path on page 2

### Verifying the Primary Path

**Purpose** Verify that the primary path is operational.

**Action** user@switch> show mpls lsp extensive ingress

```
Ingress LSP: 2 sessions

127.1.8.8
  From: 127.1.9.9, State: Up, ActiveRoute: 0, LSPname: lsp_to_240
  ActivePath: primary_path_lsp_to_240 (primary)
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary primary_path_lsp_to_240 State: Up
    Priorities: 7 0
    SmartOptimizeTimer: 180
    Exclude: red
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 2)
  10.3.3.2 S 10.3.4.2 S
    Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt
  20=Node-ID):
      10.3.3.2 10.3.4.2
    6 Mar 11 23:58:01.684 Selected as active path: due to 'primary'
    5 Mar 11 23:57:00.750 Record Route: 10.3.3.2 10.3.4.2
    4 Mar 11 23:57:00.750 Up
    3 Mar 11 23:57:00.595 Originate Call
    2 Mar 11 23:57:00.595 CSPF: computation result accepted 10.3.3.2 10.3.4.2
    1 Mar 11 23:56:31.135 CSPF failed: no route toward 10.3.2.2[25 times]
  Standby secondary_path_lsp_to_240 State: Up
  Standby secondary_path_lsp_to_240 State: Up
    Priorities: 7 0
    SmartOptimizeTimer: 180
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 1)
  10.3.5.2 S
    Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt
  20=Node-ID):
      10.3.5.2
    7 Mar 11 23:58:01.684 Deselected as active: due to 'primary'
    6 Mar 11 23:46:17.298 Selected as active path
    5 Mar 11 23:46:17.295 Record Route: 5.5.5.2
    4 Mar 11 23:46:17.287 Up
    3 Mar 11 23:46:16.760 Originate Call
    2 Mar 11 23:46:16.760 CSPF: computation result accepted 10.3.5.2
    1 Mar 11 23:45:48.095 CSPF failed: no route toward 10.5.5.5[2 times]
```

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[Output truncated]

**Meaning** As indicated by the ActivePath in the output, the LSP primary\_path\_lsp\_to\_240 is active.

## Verifying the RSVP-Enabled Interfaces

**Purpose** Verify the status of Resource Reservation Protocol (RSVP)-enabled interfaces and packet statistics.

**Action** user@switch> **show rsvp interfaces**

```
RSVP interface: 1 active
Interface  State  Active Subscr- Static   Available   Reserved   Highwater
ge-0/0/20.0 Up      resv   iption  BW         BW          BW          mark
                2    100%  1000Mbps  1000Mbps   0bps       0bps
```

**Meaning** This output verifies that RSVP is enabled and operational on interface ge-0/0/20.0.

## Verifying a Secondary Path

**Purpose** Verify that a secondary path is established.

**Action** Deactivate a switch that is critical to the primary path and then issue the following command:

user@switch> **show mpls lsp extensive**

```
Ingress LSP: 1 sessions
127.0.0.8
  From: 127.0.0.1, State: Up, ActiveRoute: 0, LSPname: lsp_to_240
  ActivePath: secondary_path_lsp_to_240 (secondary)
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  Primary primary_path_lsp_to_240 State: Dn
  Priorities: 7 0
  SmartOptimizeTimer: 180
  Exclude: red
  Will be enqueued for recomputation in 8 second(s).
  51 Mar  8 12:23:31.268 CSPF failed: no route toward 127.0.0.11[11420 times]
  50 Mar  4 15:35:25.610 Clear Call: CSPF computation failed
  49 Mar  4 15:35:25.610 CSPF: link down/deleted:
127.0.0.2(127.0.0.1:0)(127.0.0.1)->
0.0.0.0(127.0.0.20:0)(127.0.0.20)
  48 Mar  4 15:35:25.576 Deselected as active
  47 Mar  4 15:35:25.550 No Route toward dest
  46 Mar  4 15:35:25.550 ?????
  45 Mar  4 15:35:25.549 127.0.0.12: Down
  44 Mar  4 15:33:29.839 Selected as active path
  43 Mar  4 15:33:29.837 Record Route: 127.0.0.20 127.0.0.40
  42 Mar  4 15:33:29.835 Up
  41 Mar  4 15:33:29.756 Originate Call
  40 Mar  4 15:33:29.756 CSPF: computation result accepted 127.0.0.20 127.0.0.40
  39 Mar  4 15:33:00.395 CSPF failed: no route toward 127.0.0.11[7 times]
```

```

38 Mar  4 15:30:31.412 Clear Call: CSPF computation failed
37 Mar  4 15:30:31.412 CSPF: link down/deleted:
127.0.0.2(127.0.0.1:0)(127.0.0.1)->
0.0.0.0(127.0.0.20:0)(127.0.0.20)
36 Mar  4 15:30:31.379 Deselected as active
35 Mar  4 15:30:31.350 No Route toward dest
34 Mar  4 15:30:31.350 ?????
33 Mar  4 15:30:31.349 127.0.0.12: Down
32 Mar  4 15:29:05.802 Selected as active path
31 Mar  4 15:29:05.801 Record Route:  127.0.0.20 127.0.0.40
30 Mar  4 15:29:05.801 Up
29 Mar  4 15:29:05.686 Originate Call
28 Mar  4 15:29:05.686 CSPF: computation result accepted  127.0.0.20 127.0.0.40

27 Mar  4 15:28:35.852 CSPF failed: no route toward 127.0.0.11[132 times]
26 Mar  4 14:25:12.113 Clear Call: CSPF computation failed
25 Mar  4 14:25:12.113 CSPF: link down/deleted:
0.0.0.0(127.0.0.20:0)(127.0.0.20)->
0.0.0.0(10.10.10.10:0)(10.10.10.10)
*Standby  secondary_path_lsp_to_240 State: Up
  Priorities: 7 0
  SmartOptimizeTimer: 180
  Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 1)
[Output truncated]

```

**Meaning** As indicated by the `ActivePath` in the output, the LSP `secondary_path_lsp_to_240` is active.

- Related Topics**
- Configuring Path Protection in an MPLS Network (CLI Procedure)
  - Understanding MPLS and Path Protection on EX-series Switches
  - For information on the `show mpls lsp` and `show rvsp interfaces` commands, see the *JUNOS Software MPLS Applications Configuration Guide* at <http://www.juniper.net/techpubs/software/junos/junos95/index.html>.

