

Show Commands

admin-group

Syntax	admin-group <i>group-name</i>
Context	show>router>mpls
Description	This command displays MPLS administrative group information.
Parameters	<i>group-name</i> — Specify a group name up to 32 characters.
Output	MPLS Administrative Group Output Fields — The following table describes MPLS administrative group output fields.

Label	Description
Group Name	The name of the group. The name identifies the administrative group within a virtual router instance.
Group Value	The unique group value associated with the administrative group. If the value displays -1, then the group value for this entry has not been set.
No. of Groups	The total number of configured admin groups within the virtual router instance.

Sample Output

```
A:ALA-1# show router mpls admin-group
=====
MPLS Administrative Groups
=====
Group Name                               Group Value
-----
green                                     15
red                                       25
yellow                                    20
-----
No. of Groups: 3
=====
A:ALA-1#
```

auto-lsp

- Syntax** **auto-lsp** [*lsp-name*] **auto-bandwidth**
auto-lsp [*lsp-name*] [**status** {up|down}] [**detail**] [**to** *ip-address*]
auto-lsp [*lsp-name*] [**status** {up|down}] {**mesh-p2p** | **one-hop-p2p**} [**detail**] [**to** *ip-address*]
- Context** show>router>mpls
- Parameters** *lsp-name* — Specifies the LSP name.
Values 80 characters max
up|down — Specifies the state.
mesh-p2p|one-hop-p2p — Specifies the auto LSP type.

Sample Output

```
*A:Dut-C# show router mpls auto-lsp

=====
MPLS Auto-LSP Template
=====
LSP Name                               Type                Fastfail   Admin   Oper
                               Config              State     State
-----
meshP2pLsp3-10.20.1.6-61441           MeshP2P             Yes        Up      Up
meshP2pLsp2-10.20.1.1-61442           MeshP2P             Yes        Up      Up
meshP2pLsp2-10.20.1.2-61443           MeshP2P             Yes        Up      Up
meshP2pLsp2-10.20.1.4-61444           MeshP2P             Yes        Up      Up
meshP2pLsp2-10.20.1.5-61445           MeshP2P             Yes        Up      Up
meshP2pLsp2-10.20.1.6-61446           MeshP2P             Yes        Up      Up
meshP2pLsp10-10.20.1.1-61447          MeshP2P             Yes        Up      Up
meshP2pLsp10-10.20.1.2-61448          MeshP2P             Yes        Up      Up
```

bypass-tunnel

- Syntax** **bypass-tunnel** [**to** *ip-address*] [**protected-lsp** [*lsp-name*]] [**dynamic** | **manual** | **p2mp**] [**detail**]
- Context** show>router>mpls
- Description** If fast reroute is enabled on an LSP and the facility method is selected, instead of creating a separate LSP for every LSP that is to be backed up, a single LSP is created which serves as a backup for a set of LSPs. Such an LSP tunnel is called a bypass tunnel.
- Parameters** *ip-address* — Specify the IP address of the egress router.
lsp-name — Specify the name of the LSP protected by the bypass tunnel.
dynamic — Displays dynamically assigned labels for bypass protection.
manual — Displays manually assigned labels for bypass protection.
detail — Displays detailed information.

p2mp — Displays P2MP bypass tunnel information.

Output MPLS Bypass Tunnel Output Fields — The following table describes MPLS bypass tunnel output fields.

Label	Description
To	The system IP address of the egress router.
State	The LSP's administrative state.
Out I/F	Specifies the name of the network IP interface.
Out Label	Specifies the incoming MPLS label on which to match.
Reserved BW (Kbps)	Specifies the amount of bandwidth in megabits per second (Mbps) reserved for the LSP.

Sample Output

```
*A:Dut-B# show router mpls bypass-tunnel detail

=====
MPLS Bypass Tunnels (Detail)
=====
-----
bypass-node10.20.1.4
-----
To           : 10.20.1.7           State          : Up
Out I/F      : 1/1/4              Out Label     : 131071
Up Time     : 0d 01:17:22        Active Time   : n/a
Reserved BW : 0 Kbps             Protected LSP Count : 1
Type        : Dynamic
Setup Priority : 7                Hold Priority  : 0
Class Type   : 0
Exclude Node : 10.20.1.4         Inter-Area    : True
Computed Hops :
    10.10.8.2(S)                Egress Admin Groups : None
-> 10.10.8.6(SA)                Egress Admin Groups : None
-> 10.20.1.7(L)                 Egress Admin Groups : None
Actual Hops  :
    10.10.8.2(10.20.1.2)        Record Label   : N/A
-> 10.10.8.6(10.20.1.6)        Record Label   : 131071
-> 10.20.1.7(10.20.1.7)        Record Label   : 131068
-> 10.10.22.7                   Record Label   : 131068

=====

*A:Dut-A>config>router>mpls>lsp$ /show router mpls bypass-tunnel detail

=====
MPLS Bypass Tunnels (Detail)
=====
-----
bypass-node10.20.1.2
-----
To           : 10.20.1.4           State          : Up
Out I/F      : 1/1/2              Out Label     : 131070
```

Show Commands

```
Up Time           : 0d 00:00:18      Active Time        : n/a
Reserved BW       : 0 Kbps           Protected LSP Count : 1
Type              : Dynamic
Setup Priority    : 7                 Hold Priority       : 0
Class Type        : 0
Exclude Node      : None              Inter-Area          : False
Computed Hops     :
  10.20.1.1, If Index : 3(S)         Egress Admin Groups : None
-> 10.20.1.3, If Index : 2(S)         Egress Admin Groups : None
-> 10.20.1.4, If Index : 5(S)         Egress Admin Groups : None
Actual Hops       :
  10.20.1.1, If Index : 3             Record Label        : N/A
-> 10.20.1.3, If Index : 2             Record Label        : 131070
-> 10.20.1.4, If Index : 5             Record Label        : 131070
```

```
=====  
B:Dut-B>config>router>mpls>lsp# show router mpls bypass-tunnel detail
```

```
=====  
MPLS Bypass Tunnels (Detail)  
=====
```

```
-----  
bypass-node10.20.1.4  
-----
```

```
To           : 10.10.10.6      State           : Up
Out I/F       : lag-1          Out Label       : 131071
Up Time       : 0d 00:00:06    Active Time     : n/a
Reserved BW   : 0 Kbps         Protected LSP Count : 1
Type          : Dynamic
Setup Priority : 7              Hold Priority    : 0
Class Type    : 0
Exclude Node  : None
Actual Hops   :
  10.10.12.2(S)                Egress Admin Groups:
                                lime
                                olive
                                blue
                                black
                                acqua
-> 10.10.12.3(S)                Egress Admin Groups:
                                olive
                                Unknown Group 9
                                Unknown Group 11
                                black
                                Unknown Group 16
                                Unknown Group 18
-> 10.10.5.5(S)                 Egress Admin Groups:
                                purple
                                Unknown Group 7
                                Unknown Group 11
                                orange
                                acqua
                                Unknown Group 16
                                Unknown Group 19
                                Unknown Group 21
                                Unknown Group 22
                                Unknown Group 26
                                khaki
-> 10.10.10.6(S)                Egress Admin Groups: None
```

```

=====
*A:SRU4>show>router>mpls# bypass-tunnel
=====
MPLS Bypass Tunnels
=====
Legend :  m - Manual      d - Dynamic      p - P2mp
=====
To          State  Out I/F      Out Label    Reserved    Protected    Type
          BW (Kbps)  LSP Count
-----
No Matching Entries Found
=====
*A:SRU4>show>router>mpls#

*A:Dut-B# show router mpls bypass-tunnel detail
=====
MPLS Bypass Tunnels (Detail)
=====
bypass-link10.10.104.4
-----
To          : 10.10.101.4      State          : Up
Out I/F     : 1/1/2:1            Out Label     : 129994
Up Time    : 0d 00:02:33  Active Time    : n/a
Reserved BW : 0 Kbps      Protected LSP Count : 1
Type       : Dynamic
SetupPriority : 7          Hold Priority   : 0
Class Type  : 0
Actual Hops :
    10.10.101.2    -> 10.10.101.4
=====
*A:Dut-B#

*A:Dut-B# show router mpls bypass-tunnel detail
=====
MPLS Bypass Tunnels (Detail)
=====
bypass-link10.10.104.4
-----
To          : 10.10.101.4      State          : Up
Out I/F     : 1/1/2:1            Out Label     : 129994
Up Time    : 0d 00:02:33  Active Time    : n/a
Reserved BW : 0 Kbps      Protected LSP Count : 1
Type       : Dynamic
SetupPriority : 7          Hold Priority   : 0
Class Type  : 0
Actual Hops :
    10.10.101.2    -> 10.10.101.4
=====
*A:Dut-B#

```

interface

Syntax **interface** [*ip-int-name* | *ip-address*] [**label-map** *label*]
interface [*ip-int-name* | *ip-address*] **statistics**

Context show>router>mpls

Description This command displays MPLS interface information.

Parameters *ip-int-name* — The name of the network IP interface. An interface name cannot be in the form of an IP address. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

ip-address — The system or network interface IP address.

label-map *label* — The MPLS label on which to match.

Values 32 — 1048575

statistics — Displays MPLS interface name and the number of packets and octets sent and received on an MPLS interface.

Output **MPLS Interface Output Fields** — The following table describes MPLS interface output fields.

Label	Description
Interface	The interface name.
Port-id	The port ID displayed in the <i>slot/mda/port</i> format.
Adm	Specifies the administrative state of the interface.
Oper	Specifies the operational state of the interface.
Te-metric	Specifies the traffic engineering metric used on the interface.
Srlg Groups	Specifies the shared risk loss group (SRLG) name(s).
Interfaces	The total number of interfaces.
Transmitted	Displays the number of packets and octets transmitted from the interface.
Received	Displays the number of packets and octets received.
In Label	Specifies the ingress label.
In I/F	Specifies the ingress interface.
Out Label	Specifies the egress label.
Out I/F	Specifies the egress interface.
Next Hop	Specifies the next hop IP address for the static LSP.
Type	Specifies whether the label value is statically or dynamically assigned.

Sample Output

```

*A:SRU4>config>router>mpls# show router mpls interface
=====
MPLS Interfaces
=====
Interface                               Port-id           Adm   Opr   TE-metric
-----
system                                  system            Up    Up    None
  Admin Groups                          None
  Srlg Groups                            None
aps-1                                    aps-1             Up    Up    None
  Admin Groups                          None
  Srlg Groups                            3410
aps-2                                    aps-2             Up    Up    None
  Admin Groups                          None
  Srlg Groups                            3420
aps-3                                    aps-3             Up    Up    None
  Admin Groups                          None
  Srlg Groups                            3430
sr4-1                                    1/1/4            Up    Up    None
  Admin Groups                          None
  Srlg Groups                            3440
ess-7-1                                  3/2/4            Up    Up    None
  Admin Groups                          None
  Srlg Groups                            45100
ess-7-2                                  3/2/5            Up    Up    None
  Admin Groups                          None
  Srlg Groups                            45110
...
g7600                                    3/1/2            Up    Up    None
  Admin Groups                          None
  Srlg Groups                            41.80
m160                                      3/2/1            Up    Up    None
  Admin Groups                          None
  Srlg Groups                            420.40
-----
Interfaces : 35
=====
*A:SRU4>config>router>mpls#

*A:SRU4>config>router>mpls# show router mpls interface "hubA"
=====
MPLS Interface : hubA
=====
Interface                               Port-id           Adm   Opr   TE-metric
-----
hubA                                    3/2/8            Up    Up    None
  Admin Groups                          None
  Srlg Groups                            44.200
-----
Interfaces : 1
=====
*A:SRU4>config>router>mpls#

*A:SRU4>config>router>mpls# show router mpls interface "hubA" label-map 203
=====
MPLS Interface : hubA (Label-Map 203)
=====

```

Show Commands

```
In Label  In I/F      Out Label Out I/F      Next Hop      Type      Adm  Opr
-----
203       3/2/8       403          1/1/9       11.22.10.3   Static    Up   Up
-----
Interfaces : 1
=====
*A:SRU4>config>router>mpls#

*A:SRU4>config>router>mpls# show router mpls interface statistics
=====
MPLS Interface (statistics)
=====
Interface      : aps-1
  Transmitted  : Pkts - 76554          Octets - 7930285
  Received     : Pkts - 17068       Octets - 3626842

Interface      : aps-2
  Transmitted  : Pkts - 0          Octets - 0
  Received     : Pkts - 1311       Octets - 219888

Interface      : aps-3
  Transmitted  : Pkts - 0          Octets - 0
  Received     : Pkts - 3          Octets - 234

Interface      : sr4-1
  Transmitted  : Pkts - 0          Octets - 0
  Received     : Pkts - 0          Octets - 0

Interface      : ess-7-1
  Transmitted  : Pkts - 113537     Octets - 15058332
  Received     : Pkts - 13193       Octets - 1091492

Interface      : ess-7-2
  Transmitted  : Pkts - 166133     Octets - 22762482
  Received     : Pkts - 16672       Octets - 1368464

Interface      : ess-7-3
  Transmitted  : Pkts - 122934     Octets - 11033246
  Received     : Pkts - 12256       Octets - 1026826
...

Interface      : m160
  Transmitted  : Pkts - 17188024    Octets - 2183076528
  Received     : Pkts - 677745      Octets - 59367236
=====
*A:SRU4>config>router>mpls#
```

label

Syntax `label start-label [end-label | in-use | owner]`

Context `show>router>mpls`

Description Displays MPLS labels exchanged.

- Parameters**
- start-label* — The label value assigned at the ingress router.
 - end-label* — The label value assigned for the egress router.
 - in-use* — The number of in-use labels displayed.

Output **MPLS Label Output Fields** — The following table describes MPLS label output fields.

Label	Description
Label	Displays the value of the label being displayed.
Label Type	Specifies whether the label value is statically or dynamically assigned.
Label Owner	The label owner.
In-use labels in entire range	The total number of labels being used by RSVP.

Sample Output

```
*A:mlstp-dutA# show router mpls label-range
=====
Label Ranges
=====
Label Type      Start Label      End Label      Aging      Total Available
-----
Static-lsp      32                16415          -           16364
Static-svc      16416             32799          -           16376
Dynamic         32800             131071         0           98268
=====

*A:SRU4>config>router>mpls# show router mpls label 202
=====
MPLS Label 202
=====
Label           Label Type      Label Owner
-----
202             static-lsp      STATIC
-----
In-use labels in entire range      : 5057
=====
*A:SRU4>config>router>mpls#
```

label-range

- Syntax** **label-range**
- Context** show>router>mpls
- Description** This command displays the MPLS label range.

Output **MPLS Label Range Output** — The following table describes the MPLS label range output fields.

Label	Description
Label Type	Displays the information about static-lsp , static-svc , and dynamic label types.
Start Label	The label value assigned at the ingress router.
End Label	The label value assigned for the egress router.
Aging	The number of labels released from a service which are transitioning back to the label pool. Labels are aged 15 seconds.
Total Available	The number of label values available.

Sample Output

```
*A:SRU4>config>router>mpls# show router mpls label-range
=====
Label Ranges
=====
Label Type      Start Label      End Label      Aging      Total Available
-----
Static-lsp      32               1023           -          736
Static-svc      2048             18431          -          16384
Dynamic         32768            131071         258        93232
=====
*A:SRU4>config>router>mpls#
```

lsp

Syntax **lsp** *lsp-name* [**status** {**up**|**down**}] [**from** *ip-address* | **to** *ip-address*] [**detail**]
lsp {**transit** | **terminate**} [**status** {**up** | **down**}] [**from** *ip-address* | **to** *ip-address* | *lsp-name* *name*] [**detail**]
lsp count
lsp *lsp-name* **activepath**
lsp *lsp-name* **path** [*path-name*] [**status** {**up** | **down**}] [**detail**]
lsp [*lsp-name*] **path** [*path-name*] **mbb**

Context show>router>mpls

Description This command displays LSP details.

Parameters **lsp** *lsp-name* — The name of the LSP used in the path.
status up — Displays an LSP that is operationally up.
status down — Displays an LSP that is operationally down.
from ip-address — Displays the IP address of the ingress router for the LSP.
to ip-address — Displays the IP address of the egress router for the LSP.
transit — Displays the number of static LSPs that transit through the router.
terminate — Displays the number of static LSPs that terminate at the router.

lsp count — Displays the total number of LSPs.

activepath — Displays the present path being used to forward traffic.

mbb — Displays make-before-break (MBB) information.

detail — Displays detailed information.

Output MPLS LSP Output — The following table describes MPLS LSP output fields.

Label	Description
LSP Name	The name of the LSP used in the path.
To	The system IP address of the egress router for the LSP.
Adm State	Down — The path is administratively disabled. Up — The path is administratively enabled.
Oper State	Down — The path is operationally down. Up — The path is operationally up.
Oper State	Down — The path is operationally down. Up — The path is operationally up.
LSPs	The total number of LSPs configured.
From	The IP address of the ingress router for the LSP.
LSP Up Time	The length of time the LSP has been operational.
Transitions	The number of transitions that have occurred for the LSP.
Retry Limit	The number of attempts that the software should make to re-establish the LSP after it has failed.
Signaling	Specifies the signaling style.
Hop Limit	The maximum number of hops that an LSP can traverse, including the ingress and egress routers.
Fast Reroute/ FastFail Config	enabled — Fast reroute is enabled. In the event of a failure, traffic is immediately rerouted on the pre-computed detour LSP, thus minimizing packet loss. disabled — There is no detour LSP from each node on the primary path.
ADSPEC	enabled — The LSP will include advertising data (ADSPEC) objects in RSVP messages. disabled — The LSP will not include advertising data (ADSPEC) objects in RSVP messages.
Primary	The preferred path for the LSP.

Label	Description (Continued)
Secondary	The alternate path that the LSP will use if the primary path is not available.
Bandwidth	The amount of bandwidth in megabits per second (Mbps) reserved for the LSP path.
LSP Up Time	The total time in increments that the LSP path has been operational.
LSP Tunnel ID	The value which identifies the label switched path that is signaled for this entry.
To	The IP address of the egress router for the LSP.
LSP Down Time	The total time in increments that the LSP path has not been operational.
Path Changes	The number of path changes this LSP has had. For every path change (path down, path up, path change), a corresponding syslog/trap (if enabled) is generated.
Retry Timer	The time, in seconds, for LSP re-establishment attempts after an LSP failure.
Resv Style	<p><i>se</i> — Specifies a shared reservation environment with a limited reservation scope. This reservation style creates a single reservation over a link that is shared by an explicit list of senders.</p> <p><i>ff</i> — Specifies a shared reservation environment with an explicit reservation scope. Specifies an explicit list of senders and a distinct reservation for each of them.</p>
Negotiated MTU	The size of the maximum transmission unit (MTU) that is negotiated during establishment of the LSP.
FR Hop Limit	The total number of hops a detour LSP can take before merging back onto the main LSP path.
LastResignalAttempt	Displays the system up time when the last attempt to resignal this LSP was made.
MBB Type	Displays an enumerated integer that specifies the type of make-before-break (MBB). If none displays then there is no MBB in progress or no last MBB.
MBB State	Displays the state of the most recent invocation of the make-before-break functionality.
End at	Displays the system up time when the last MBB ended.
Old Metric	Displays the cost of the traffic engineered path for the LSP path prior to MBB.
NextRetryIn	Displays the amount of time remaining, in seconds, before the next attempt is made to retry the in-progress MBB.

Label	Description (Continued)
RetryAttempt	Displays the number attempts for the MBB is in progress.
Failure Code	Displays the reason code for in-progress MBB failure. A value of none indicates that no failure has occurred.
Failure Node	Displays the IP address of the node in the LSP path at which the in-progress MBB failed. When no failure has occurred, this value is none .

Sample Output

```
*A:Dut-A>config>router>mpls>lsp$ /show router mpls lsp "1" path detail

=====
MPLS LSP 1 Path (Detail)
=====
Legend :
  @ - Detour Available          # - Detour In Use
  b - Bandwidth Protected      n - Node Protected
  s - Soft Preemption
  S - Strict                    L - Loose
  A - ABR

=====
-----
LSP 1 Path 1
-----
LSP Name       : 1                      Path LSP ID : 30208
From           : 10.20.1.1              To           : 10.20.1.6
Adm State      : Up                     Oper State   : Up
Path Name      : 1                      Path Type    : Primary
Path Admin     : Up                     Path Oper    : Up
OutInterface   : 1/1/1                  Out Label    : 131071
Path Up Time   : 0d 00:00:05            Path Dn Time : 0d 00:00:00
Retry Limit    : 0                      Retry Timer  : 30 sec
RetryAttempt   : 0                      NextRetryIn  : 0 sec

Adspec        : Disabled                Oper Adspec  : Disabled
CSPF          : Enabled                 Oper CSPF    : Enabled
Least Fill    : Disabled                Oper LeastF* : Disabled
FRR           : Enabled                 Oper FRR     : Enabled
FRR NodePro*  : Enabled                 Oper FRR NP  : Enabled
FR Hop Limit  : 16                      Oper FRHopL* : 16
FR Prop Adm*  : Disabled                 Oper FRProp* : Disabled
Prop Adm Grp  : Disabled                 Oper PropAG  : Disabled
Inter-area    : False

Neg MTU       : 1496                     Oper MTU     : 1496
Bandwidth     : No Reservation           Oper Bw      : 0 Mbps
Hop Limit     : 255                     Oper HopLim* : 255
Record Route  : Record                  Oper RecRou* : Record
Record Label  : Record                  Oper RecLab* : Record
SetupPriori* : 7                        Oper SetupP* : 7
Hold Priori*  : 0                       Oper HoldPr* : 0
Class Type    : 0                        Oper CT      : 0
Backup CT     : None
MainCT Retry  : n/a
Rem          :

```

Show Commands

```
MainCT Retry: 0
  Limit      :
Include Grps:
None
Exclude Grps:
None
Oper InclGr*:
None
Oper ExclGr*:
None

Adaptive      : Enabled
Preference    : n/a
Path Trans    : 1
Failure Code  : noError
ExplicitHops  :
  No Hops Specified
Actual Hops   :
  10.20.1.1, If Index : 2 @ n
-> 10.20.1.2, If Index : 2 @ n
-> 10.20.1.4, If Index : 2
-> 10.20.1.6, If Index : 2
Record Label  : N/A
Record Label  : 131071
Record Label  : 131071
Record Label  : 131071
ComputedHops  :
  10.20.1.1, If Index : 2(S)
-> 10.20.1.2, If Index : 2(S)
-> 10.20.1.4, If Index : 2(S)
-> 10.20.1.6, If Index : 2(S)
ResigEligib* : False
LastResignal : n/a
CSPF Metric  : 3000
```

=====
* indicates that the corresponding row element may have been truncated.

*A:Dut-A# show router mpls lsp "AtoL1" path detail

=====
MPLS LSP AtoL1 Path (Detail)
=====

Legend :

```
@ - Detour Available          # - Detour In Use
b - Bandwidth Protected      n - Node Protected
s - Soft Preemption
S - Strict                    L - Loose
A - ABR
```

LSP AtoL1 Path empty

```
LSP Name      : AtoL1
From          : 10.20.1.1
Adm State     : Up
Path Name     : empty
Path Admin    : Up
OutInterface  : 1/1/1
Path Up Time  : 0d 01:19:46
Retry Limit   : 0
RetryAttempt  : 0
Path LSP ID   : 13316
To           : 10.20.1.12
Oper State    : Up
Path Type     : Primary
Path Oper     : Up
Out Label     : 131069
Path Dn Time  : 0d 00:00:00
Retry Timer   : 20 sec
NextRetryIn  : 0 sec

Adspec       : Disabled
CSPF         : Enabled
Least Fill   : Disabled
FRR          : Enabled
FRR NodePro* : Enabled
FR Hop Limit : 6
FR Prop Adm* : Disabled
Oper Adspec  : Disabled
Oper CSPF    : Enabled
Oper LeastF* : Disabled
Oper FRR     : Enabled
Oper FRR NP  : Enabled
Oper FRHopL* : 6
Oper FRProp* : Disabled
```

```

Prop Adm Grp: Enabled                               Oper PropAG : Enabled
Inter-area   : True

Neg MTU      : 1496                                Oper MTU     : 1496
Bandwidth   : 1 Mbps                              Oper Bw      : 1 Mbps
Hop Limit    : 255                                Oper HopLim* : 255
Record Route: Record                             Oper RecRou* : Record
Record Label: Record                             Oper RecLab* : Record
SetupPriori*: 7                                  Oper SetupP* : 7
Hold Priori*: 0                                  Oper HoldPr* : 0
Class Type   : 0                                  Oper CT      : 0
Backup CT    : None
MainCT Retry: n/a
    Rem      :
MainCT Retry: 0
    Limit    :
Include Grps:                                     Oper InclGr*:
None                                                None
Exclude Grps:                                     Oper ExclGr*:
None                                                None

Adaptive     : Enabled                             Oper Metric  : 1500
Preference   : n/a
Path Trans   : 1                                  CSPF Queries: 3
Failure Code: noError                             Failure Node: n/a
ExplicitHops:
    No Hops Specified
Actual Hops :
    10.10.1.1(10.20.1.1) @ n
-> 10.10.1.2(10.20.1.2) @ n
-> 10.10.5.4(10.20.1.4) @ n
-> 10.20.1.7(10.20.1.7) @ n
-> 10.10.17.7 @ n
-> 10.20.1.9(10.20.1.9) @
-> 10.10.25.9 @
-> 10.20.1.12(10.20.1.12)
-> 10.10.33.12
ComputedHops:
    10.10.1.1(S)
-> 10.10.1.2(S)
-> 10.10.5.4(SA)
-> 10.20.1.12(L)
ResigEligib*: False
LastResignal: n/a                                CSPF Metric  : 1500
=====

```

* indicates that the corresponding row element may have been truncated.

*A:Dut-C# show router mpls lsp detail

```

=====
MPLS LSPs (Originating) (Detail)
=====
-----
Type : Originating
-----
LSP Name      : to_D_10.20.1.4_viaBD
LSP Type      : RegularLsp
From          : 10.20.1.3
Adm State     : Up
LSP Tunnel ID: 1
To           : 10.20.1.4
Oper State    : Up

```

Show Commands

```
LSP Up Time : 0d 00:05:38
Transitions : 1
Retry Limit : 0
Signaling : RSVP
Hop Limit : 255
Adaptive : Enabled
FastReroute : Disabled
CSPF : Enabled
Metric : 0
Include Grps:
None
Least Fill : Disabled

LSP Down Time : 0d 00:00:00
Path Changes : 1
Retry Timer : 30 sec
Resv. Style : SE
Negotiated MTU : 1500
ClassType : 0
Oper FR : Disabled
ADSPEC : Disabled
Use TE metric : Disabled
Exclude Grps :
None

Auto BW : Disabled
LdpOverRsvp : Enabled
IGP Shortcut: Enabled
IGP LFA : Disabled
BGPTransTun : Enabled
Oper Metric : 20
Prop Adm Grp: Disabled

VprnAutoBind : Enabled
BGP Shortcut : Enabled
IGP Rel Metric : -1

Primary(a) : to_D_10.20.1.4_viaBD
Bandwidth : 0 Mbps
Up Time : 0d 00:05:38
=====
*A:Dut-C#

*A:Dut-A# show router mpls lsp "AtoL1" detail

=====
MPLS LSPs (Originating) (Detail)
=====
-----
Type : Originating
-----
-----
LSP Name : AtoL1
LSP Type : RegularLsp
From : 10.20.1.1
Adm State : Up
LSP Up Time : 0d 01:19:30
Transitions : 1
Retry Limit : 0
Signaling : RSVP
Hop Limit : 255
Adaptive : Enabled
FastReroute : Enabled
FR Method : Facility
FR Bandwidth: 0 Mbps
FR Object : Enabled
CSPF : Enabled
Metric : 0
Include Grps:
None
Least Fill : Disabled

LSP Tunnel ID : 1
To : 10.20.1.12
Oper State : Up
LSP Down Time : 0d 00:00:00
Path Changes : 1
Retry Timer : 20 sec
Resv. Style : SE
Negotiated MTU : 1496
ClassType : 0
Oper FR : Enabled
FR Hop Limit : 6
FR Node Protect: Enabled
FR Prop Adm Grp: Disabled
ADSPEC : Disabled
Use TE metric : Disabled
Exclude Grps :
None

Auto BW : Disabled
LdpOverRsvp : Enabled
IGP Shortcut: Enabled
IGP LFA : Disabled
BGPTransTun : Enabled
Oper Metric : 1500

VprnAutoBind : Enabled
BGP Shortcut : Enabled
IGP Rel Metric : Disabled
```

Prop Adm Grp: Enabled

Primary(a) : empty Up Time : 0d 01:19:30
 Bandwidth : 1 Mbps

*A:Dut-A# show router mpls lsp "AtoL1" path detail

MPLS LSP AtoL1 Path (Detail)

Legend :

@ - Detour Available	# - Detour In Use
b - Bandwidth Protected	n - Node Protected
s - Soft Preemption	
S - Strict	L - Loose
A - ABR	

LSP AtoL1 Path empty

LSP Name : AtoL1	Path LSP ID : 13316
From : 10.20.1.1	To : 10.20.1.12
Adm State : Up	Oper State : Up
Path Name : empty	Path Type : Primary
Path Admin : Up	Path Oper : Up
OutInterface: 1/1/1	Out Label : 131069
Path Up Time: 0d 01:19:46	Path Dn Time: 0d 00:00:00
Retry Limit : 0	Retry Timer : 20 sec
RetryAttempt: 0	NextRetryIn : 0 sec

Adspec : Disabled	Oper Adspec : Disabled
CSPF : Enabled	Oper CSPF : Enabled
Least Fill : Disabled	Oper LeastF* : Disabled
FRR : Enabled	Oper FRR : Enabled
FRR NodePro*: Enabled	Oper FRR NP : Enabled
FR Hop Limit: 6	Oper FRHopL*: 6
FR Prop Adm*: Disabled	Oper FRProp*: Disabled
Prop Adm Grp: Enabled	Oper PropAG : Enabled
Inter-area : True	

Neg MTU : 1496	Oper MTU : 1496
Bandwidth : 1 Mbps	Oper Bw : 1 Mbps
Hop Limit : 255	Oper HopLim*: 255
Record Route: Record	Oper RecRou*: Record
Record Label: Record	Oper RecLab*: Record
SetupPriori*: 7	Oper SetupP*: 7
Hold Priori*: 0	Oper HoldPr*: 0
Class Type : 0	Oper CT : 0

Backup CT : None
 MainCT Retry: n/a
 Rem :

MainCT Retry: 0
 Limit :

Include Grps:
 None
 Exclude Grps:
 None

Oper InclGr*:
 None
 Oper ExclGr*:
 None

Adaptive : Enabled Oper Metric : 1500

Show Commands

```
Preference : n/a
Path Trans : 1
Failure Code: noError
ExplicitHops:
    No Hops Specified
Actual Hops :
    10.10.1.1(10.20.1.1) @ n
-> 10.10.1.2(10.20.1.2) @ n
-> 10.10.5.4(10.20.1.4) @ n
-> 10.20.1.7(10.20.1.7) @ n
-> 10.10.17.7 @ n
-> 10.20.1.9(10.20.1.9) @
-> 10.10.25.9 @
-> 10.20.1.12(10.20.1.12)
-> 10.10.33.12
ComputedHops:
    10.10.1.1(S)
-> 10.10.1.2(S)
-> 10.10.5.4(SA)
-> 10.20.1.12(L)
ResigEligib*: False
LastResignal: n/a
CSPF Queries: 3
Failure Node: n/a
CSPF Metric : 1500
```

=====
* indicates that the corresponding row element may have been truncated.

```
A:sim1>config>router>mpls>lsp$ show router mpls lsp path detail
```

```
=====  
Path (Detail)
=====  
Legend :
    @ - Detour Available          # - Detour In Use
    b - Bandwidth Protected      n - Node Protected
    s - Soft Preemption
    S - Strict                    L - Loose
=====  
-----  
LSP 11 Path 1
-----  
LSP Name      : 11                Path LSP ID : 30208  
From          : 10.20.1.1        To           : 10.20.1.3  
Adm State     : Up               Oper State   : Down  
Path Name     : 1                Path Type    :  
Primary  
Path Admin    : Up               Path Oper    : Down  
OutInterface  : n/a              Out Label    : n/a  
Path Up Time  : 0d 00:00:00      Path Dn Time : 0d 00:00:02  
Retry Limit   : 0                Retry Timer  : 30 sec  
RetryAttempt  : 0                NextRetryIn : 7 sec (Fast)  
SetupPriorit*: 7                Hold Priorit*: 0  
Preference    : n/a  
Bandwidth     : No Reservation    Oper Bw      : 0 Mbps  
Hop Limit     : 255               Class Type   : 0  
Backup CT     : None  
MainCT Retry  : n/a               MainCT Retry: 0  
Rem           :                   Limit        :  
Oper CT       : None  
Record Route  : Record           Record Label: Record  
Oper MTU      : 0                Neg MTU      : 0
```

```

Adaptive      : Enabled                      Oper Metric : 65535
Include Grps:                               Exclude Grps:
None                                                None
Path Trans   : 2                            CSPF Queries: 0
Failure Code: noError                         Failure Node: n/a
ExplicitHops:
  10.20.1.2(S)
Actual Hops  :
  No Hops Specified
ResigEligib*: False
LastResignal: n/a                            CSPF Metric : 0

```

```

=====
*A:# show router mpls lsp path detail
=====

```

```

MPLS LSP Path (Detail)
=====

```

```

Legend :

```

```

  @ - Detour Available          # - Detour In Use
  b - Bandwidth Protected      n - Node Protected
  s - Soft Preemption
  S - Strict                    L - Loose

```

```

-----
LSP to_C Path 1000_S
-----

```

```

LSP Name      : to_C                      Path LSP ID : 17926
From          : 10.20.1.2                 To          : 10.20.1.3
Adm State     : Up                        Oper State  : Up
Path Name     : 1000_S                    Path Type   : Standby
Path Admin    : Up                        Path Oper   : Up
OutInterface  : 1/1/2                     Out Label   : 131068
Path Up Time  : 0d 00:06:46               Path Dn Time: 0d 00:00:00
Retry Limit   : 0                          Retry Timer : 20 sec
RetryAttempt  : 0                          NextRetryIn : 0 sec

```

```

Adspec       : Disabled                   Oper Adspec : Disabled
CSPF         : Enabled                     Oper CSPF   : Enabled
CSPF-FL     : Enabled                     Oper CSPF-FL: Enabled
Least Fill   : Disabled                   Oper LeastF*: Enabled
FRR NodePro*: Disabled                   Oper FRR NP : Enabled
Prop Adm Grp: Disabled                   Oper PropAG : Disabled
Neg MTU      : 1496                       Oper MTU    : 1496
Bandwidth    : No Reservation              Oper Bw     : 0 Mbps
Hop Limit    : 255                         Oper HopLim*: 255
Record Route : Record                     Oper RecRou*: Record
Record Label : Record                     Oper RecLab*: Record
SetupPriori*: 7                           Oper SetupP*: 7
Hold Priori*: 0                           Oper HoldPr*: 0
Class Type   : 0
Backup CT    : None                        Oper CT     : 0
MainCT Retry: n/a
  Rem       :
MainCT Retry: n/a
  Limit    :
Include Grps:                               Oper InclGr*:
  silver                                       silver
Exclude Grps:                               Oper ExclGr*:
  None                                         None
Adaptive     : Enabled                       Oper Metric : 2999

```

Show Commands

```
Preference : 255
Path Trans : 0
Failure Code: noError
ExplicitHops:
  No Hops Specified
Actual Hops :
  10.10.4.2(10.20.1.2)
  -> 10.10.4.4(10.20.1.4)
  -> 10.10.6.5(10.20.1.5)
  -> 10.10.5.3(10.20.1.3)
ComputedHops:
  10.10.4.2(S)      -> 10.10.4.4(S)      -> 10.10.6.5(S)
  -> 10.10.5.3(S)
Srlg : Disabled
SrlgDisjoint: False
ResigEligib*: False
LastResignal: n/a
CSPF Queries: 0
Failure Node: n/a
Record Label : N/A
Record Label : 131068
Record Label : 131068
Record Label : 131065
CSPF Metric : 2999
```

```
=====  
*A:Dut-C>config>router>mpls>lsp$ /show router mpls lsp path detail
```

```
=====  
MPLS LSP Path (Detail)  
=====
```

```
Legend :
```

```
@ - Detour Available          # - Detour In Use
b - Bandwidth Protected      n - Node Protected
s - Soft Preemption
S - Strict                    L - Loose
```

```
-----  
LSP 2 Path 1  
-----
```

```
LSP Name      : 2                      Path LSP ID : 54272
From          : 10.20.1.3              To          : 10.20.1.1
Adm State     : Up                     Oper State  : Down
Path Name     : 1                      Path Type   : Primary
Path Admin    : Up                     Path Oper   : In Progress
OutInterface  : n/a                    Out Label   : n/a
Path Up Time  : 0d 00:00:00            Path Dn Time: 0d 00:00:13
Retry Limit   : 0                      Retry Timer : 30 sec
RetryAttempt  : 1                      NextRetryIn: 0 sec
Timeout In   : 19 sec
```

```
Adspec       : Disabled                Oper Adspec : N/A
CSPF         : Disabled                Oper CSPF   : N/A
CSPF-FL      : Disabled                Oper CSPF-FL: N/A
Least Fill   : Disabled                Oper LeastF*: N/A
FRR          : Disabled                Oper FRR    : N/A
FR Hop Limit : 16                      Oper FRHopL*: N/A
Prop Adm Grp: Disabled                Oper PropAG : N/A
```

```
Neg MTU      : 0                      Oper MTU    : N/A
Bandwidth    : No Reservation          Oper Bw     : N/A
Hop Limit    : 255                     Oper HopLim*: N/A
Record Route : Record                  Oper RecRou*: N/A
Record Label : Record                  Oper RecLab*: N/A
SetupPriori* : 7                       Oper SetupP*: N/A
Hold Priori* : 0                       Oper HoldPr*: N/A
Class Type   : 0                       Oper CT     : N/A
```

```

Backup CT      : None
MainCT Retry: Infinite
      Rem      :
MainCT Retry: 0
      Limit    :
Include Grps:      Oper InclGr*:
None              N/A
Exclude Grps:      Oper ExclGr*:
None              N/A

Adaptive       : Enabled           Oper Metric : 65535
Preference     : n/a
Path Trans     : 0                 CSPF Queries: 0
Failure Code: noError             Failure Node: n/a
ExplicitHops:
  10.10.2.1(S)
Actual Hops :
  No Hops Specified
ResigEligib*: False
LastResignal: n/a                 CSPF Metric : 0
=====
* indicates that the corresponding row element may have been truncated.

```

A:sim1>config>router>mpls>lsp\$ show router mpls lsp path detail

```

=====
MPLS LSP Path (Detail)
=====
Legend :
  @ - Detour Available           # - Detour In Use
  b - Bandwidth Protected       n - Node Protected
  s - Soft Preemption
  S - Strict                     L - Loose
=====
-----
LSP 11 Path 1
-----
LSP Name      : 11                Path LSP ID : 30208
From          : 10.20.1.1         To           : 10.20.1.3
Adm State     : Up                Oper State   : Down
Path Name     : 1                 Path Type    : Primary
Path Admin    : Up                Path Oper    : Down
OutInterface: n/a                 Out Label    : n/a
Path Up Time: 0d 00:00:00         Path Dn Time: 0d 00:00:02
Retry Limit   : 0                 Retry Timer  : 30 sec
RetryAttempt: 0                   NextRetryIn : 7 sec (Fast)
SetupPriori*: 7                   Hold Priori*: 0
Preference    : n/a
Bandwidth     : No Reservation     Oper Bw      : 0 Mbps
Hop Limit     : 255                Class Type   : 0
Backup CT     : None
MainCT Retry: n/a                 MainCT Retry: 0
      Rem      :                   Limit        :
Oper CT       : None
Record Route: Record              Record Label: Record
Oper MTU      : 0                  Neg MTU      : 0
Adaptive      : Enabled             Oper Metric  : 65535
Include Grps:      Exclude Grps:
None          None
Path Trans    : 2                  CSPF Queries: 0

```

Show Commands

```

Failure Code: noError                               Failure Node: n/a
ExplicitHops:
  10.20.1.2(S)
Actual Hops :
  No Hops Specified
ResigEligib*: False
LastResignal: n/a                                  CSPF Metric : 0
=====

```

```
*A:SRU4>config>router>mpls# show router mpls lsp path
```

```
=====
MPLS LSP Path (Detail)
=====
```

```
Legend :
```

```

@ - Detour Available          # - Detour In Use
b - Bandwidth Protected      n - Node Protected
s - Soft Preemption
S - Strict                    L - loose
=====

```

```

ExplicitHops:
  10.20.1.3(L)          -> 10.20.1.4(S)
Actual Hops :
  10.10.1.1(10.20.1.1)      Record Label : N/A
-> 10.10.1.2(10.20.1.2)    Record Label : 131071
-> 10.10.5.3(10.20.1.3)    Record Label : 131071
-> 10.10.7.4(10.20.1.4)    Record Label : 131071
-> 10.10.8.5(10.20.1.5)    Record Label : 131071
ComputedHops:
  10.10.1.1(S)          -> 10.10.1.2(S)          -> 10.10.5.3(S)
-> 10.20.1.4(S)        -> 10.20.1.5(L)
=====

```

```
*A:SRU4>config>router>mpls# show router mpls lsp
```

```
=====
MPLS LSPs (Originating)
=====
```

LSP Name	To	Fastfail Config	Adm	Opr
to_110_20_1_1_cspf	110.20.1.1	No	Up	Up
to_110_20_1_2_cspf	110.20.1.2	No	Up	Dwn
to_110_20_1_3_cspf	110.20.1.3	No	Up	Up
to_110_20_1_4_cspf	110.20.1.4	No	Up	Dwn
to_110_20_1_5_cspf	110.20.1.5	No	Up	Up
to_110_20_1_6_cspf	110.20.1.6	No	Up	Dwn
to_110_20_1_110_cspf	110.20.1.110	No	Up	Up
to_10_8_100_15_cspf	10.8.100.15	No	Up	Dwn
to_10_20_1_20_cspf	10.20.1.20	No	Up	Up
to_10_20_1_22_cspf	10.20.1.22	No	Up	Up
to_10_100_1_1_cspf	10.100.1.1	No	Up	Dwn
to_110_20_1_1_cspf_2	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_3	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_4	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_5	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_6	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_7	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_8	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_9	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_10	110.20.1.1	No	Up	Up
to_110_20_1_1_cspf_11	110.20.1.1	No	Up	Up

```

to_110_20_1_1_cspf_12          110.20.1.1          No          Up          Up
to_110_20_1_1_cspf_13          110.20.1.1          No          Up          Up
to_110_20_1_1_cspf_14          110.20.1.1          No          Up          Up
to_110_20_1_1_cspf_15          110.20.1.1          No          Up          Up
...

```

```
-----
LSPs : 201
=====
```

```
*A:SRU4>config>router>mpls#
```

Label	Description
Autobandwidth	Enabled – Auto-bandwidth adjustment is enabled on this LSP. Disabled – Auto-bandwidth adjustment is disabled on this LSP.
Auto BW Min	The minimum bandwidth of the LSP that auto-bandwidth can request
Auto BW Max	The maximum bandwidth of the LSP that auto-bandwidth can request
AB Up Thresh	The percent threshold for increasing LSP bandwidth followed by absolute threshold in ().
AB Down Thresh	The percent threshold for decreasing LSP bandwidth followed by absolute threshold in ().
AB Adj Time	The configured adjust-count times the collection-interval.
AB Sample Time	The configured sample-count times the collection-interval.
AB Last Adj	The system time of the last auto-bandwidth adjustment and the cause: (M) manual (T) normal expiry of adjust-timer (O) overflow (C) VLL CAC
AB Next Adj	The system time when the adjust-timer will expire next [or the remaining adjust-count, if this is not possible].
AB Max AvgR*	The maximum average data rate in any sample interval of the current adjust interval
AB Lst AvgR*	The average data rate measured in the sample interval that ended most recently
AB Oflow Lmt	The configured value of the auto-bandwidth overflow-limit
AB Oflow Count	The number of overflow samples since the last reset
Init BW	The configured bandwidth of the primary path (and used at original establishment of the LSP)
Current BW	The current bandwidth reserved along the primary path

```
*A:SRU4>config>router>mpls# show router mpls lsp detail
=====
```

Show Commands

```
MPLS LSPs (Originating) (Detail)
=====
-----
Type : Originating
-----
LSP Name      : to_110_20_1_1_cspf
LSP Type      : RegularLsp                LSP Tunnel ID : 1
From          : 110.20.1.4
Adm State     : Up                        Oper State     : Up
LSP Up Time   : 0d 01:47:49              LSP Down Time : 0d 00:00:00
Transitions   : 11                        Path Changes   : 11
Retry Limit   : 0                          Retry Timer    : 30 sec
Signaling     : RSVP                       Resv. Style    : SE
Hop Limit     : 255                         Negotiated MTU : 1500
Adaptive      : Enabled                     ClassType      : 0
FastReroute   : Disabled                    Oper FR        : Disabled
CSPF          : Enabled                     ADSPEC         : Disabled
Metric        : 0                          Use TE metric  : Disabled
Include Grps  :                            Exclude Grps   :
None
Least Fill    : Disabled
LdpOverRsvp  : Enabled                      VprnAutoBind  : Enabled
IGP Shortcut  : Enabled
Oper Metric   : 1001

Primary(a)    : to_110_20_1_1              Up Time       : 0d 01:47:49
Bandwidth     : 0 Mbps
-----
...
-----
Type : Originating
-----
LSP Name      : to_10_100_1_1_cspf_20
LSP Type      : RegularLsp                LSP Tunnel ID : 201
From          : 110.20.1.4
Adm State     : Up                        Oper State     : Down
LSP Up Time   : 0d 00:00:00              LSP Down Time : 0d 13:30:49
Transitions   : 0                          Path Changes   : 0
Retry Limit   : 0                          Retry Timer    : 30 sec
Signaling     : RSVP                       Resv. Style    : SE
Hop Limit     : 255                         Negotiated MTU : 0
Adaptive      : Enabled                     ClassType      : 0
FastReroute   : Disabled                    Oper FR        : Disabled
CSPF          : Enabled                     ADSPEC         : Disabled
Metric        : 0                          Use TE metric  : Disabled
Include Grps  :                            Exclude Grps   :
None
Least Fill    : Disabled
LdpOverRsvp  : Enabled                      VprnAutoBind  : Enabled
IGP Shortcut  : Enabled
Oper Metric   : 65535

Primary      : to_10_100_1_1              Down Time     : 0d 13:30:49
Bandwidth    : 0 Mbps
=====
*A:SRU4>config>router>mpls#

*A:SRU4>config>router>mpls# show router mpls lsp path detail
=====
MPLS LSP Path (Detail)
```

Legend :

```

@ - Detour Available          # - Detour In Use
b - Bandwidth Protected      n - Node Protected
s - Soft Preemption

```

LSP to_110_20_1_1_cspf Path to_110_20_1_1

```

-----
LSP Name      : to_110_20_1_1_cspf          Path LSP ID : 12856
From          : 110.20.1.4                  To           : 110.20.1.1
Adm State     : Up                          Oper State   : Up
Path Name     : to_110_20_1_1              Path Type    : Primary
Path Admin    : Up                          Path Oper    : Up
OutInterface  : 3/2/1                       Out Label    : 336302
Path Up Time  : 0d 01:43:19                 Path Dn Time : 0d 00:00:00
Retry Limit   : 0                           Retry Timer  : 30 sec
RetryAttempt  : 0                           NextRetryIn : 0 sec
SetupPriori* : 7                            Hold Priori* : 0
Preference    : n/a
Bandwidth     : No Reservation              Oper Bw      : 0 Mbps
Hop Limit     : 255                         Class Type   : 0
Backup CT     : None
MainCT Retry  : n/a                          MainCT Retry : 0
Rem           :                               Limit        :
Oper CT       : 0
Record Route  : Record                       Record Label : Record
Oper MTU      : 1500                         Neg MTU      : 1500
Adaptive      : Enabled                       Oper Metric  : 1001
Include Grps  :                               Exclude Grps :
None                                                  None
Path Trans    : 13                           CSPF Queries : 56
Failure Code  : noError                       Failure Node  : n/a
ExplicitHops  :
  No Hops Specified
Actual Hops   :
  10.100.30.4(110.20.1.4)                    Record Label : N/A
  -> 10.100.30.20(10.20.1.20)                 Record Label : 336302
  -> 10.100.14.1(110.20.1.1)                  Record Label : 126325
ComputedHops  :
  10.100.30.4 -> 10.100.30.20 -> 10.100.14.1
ResigEligib* : False
LastResignal  : n/a                          CSPF Metric  : 1001
Last MBB      :
  MBB Type    : TimerBasedResignal           MBB State    : Fail
  Ended At    : 03/04/2010 08:53:40         Old Metric    : 0
-----

```

... LSP to_10_100_1_1_cspf_20 Path to_10_100_1_1

```

-----
LSP Name      : to_10_100_1_1_cspf_20       Path LSP ID : 40960
From          : 110.20.1.4                  To           : 10.100.1.1
Adm State     : Up                          Oper State   : Down
Path Name     : to_10_100_1_1              Path Type    : Primary
Path Admin    : Up                          Path Oper    : Down
OutInterface  : n/a                         Out Label    : n/a
Path Up Time  : 0d 00:00:00                 Path Dn Time : 0d 13:26:06
Retry Limit   : 0                           Retry Timer  : 30 sec
RetryAttempt  : 1612                        NextRetryIn : 19 sec
SetupPriori* : 7                            Hold Priori* : 0
Preference    : n/a
-----

```

Show Commands

```
Bandwidth : No Reservation          Oper Bw      : 0 Mbps
Hop Limit  : 255                    Class Type   : 0
Backup CT  : None
MainCT Retry: Infinite              MainCT Retry: 0
  Rem      :                          Limit        :
Oper CT    : None
Record Route: Record                Record Label: Record
Oper MTU   : 0                       Neg MTU      : 0
Adaptive   : Enabled                 Oper Metric  : 65535
Include Grps:                         Exclude Grps:
None                                           None
Path Trans : 0                        CSPF Queries: 0
Failure Code: noCspfRouteOwner         Failure Node: 110.20.1.4
ExplicitHops:
  No Hops Specified
Actual Hops :
  No Hops Specified
ComputedHops:
  No Hops Specified
ResigEligib*: False
LastResignal: n/a                     CSPF Metric  : 0
```

```
=====
* indicates that the corresponding row element may have been truncated.
```

```
*A:SRU4>config>router>mpls#
```

```
*A:SRU4>config>router>mpls# show router mpls lsp "to_110_20_1_1_cspf"
```

```
=====
MPLS LSPs (Originating)
```

LSP Name	To	Fastfail Config	Adm	Opr
to_110_20_1_1_cspf	110.20.1.1	No	Up	Up

```
LSPs : 1
```

```
=====
*A:SRU4>config>router>mpls#
```

```
*A:SRU4>config>router>mpls# show router mpls lsp "to_110_20_1_1_cspf" detail
```

```
=====
MPLS LSPs (Originating) (Detail)
```

```
-----
Type : Originating
```

```
-----
LSP Name      : to_110_20_1_1_cspf
LSP Type      : RegularLsp
From          : 110.20.1.4
Adm State     : Up
LSP Up Time   : 0d 01:47:02
Transitions   : 11
Retry Limit   : 0
Signaling     : RSVP
Hop Limit     : 255
Adaptive      : Enabled
FastReroute   : Disabled
CSPF          : Enabled
Metric        : 0
Include Grps  :

LSP Tunnel ID : 1
Oper State    : Up
LSP Down Time : 0d 00:00:00
Path Changes  : 11
Retry Timer   : 30 sec
Resv. Style   : SE
Negotiated MTU : 1500
ClassType     : 0
Oper FR       : Disabled
ADSPEC        : Disabled
Use TE metric : Disabled
Exclude Grps  :
```

```

None
Least Fill : Disabled
LdpOverRsvp : Enabled
IGP Shortcut: Enabled
Oper Metric : 1001

```

```

None
VprnAutoBind : Enabled

```

```

Primary(a) : to_110_20_1_1
Bandwidth : 0 Mbps
Up Time : 0d 01:47:02

```

```

=====
*A:SRU4>config>router>mpls#

```

```

*A:SRU4>config>router>mpls# show router mpls lsp detail to 110.20.1.2

```

```

=====
MPLS LSPs (Originating) (Detail)
=====

```

```

-----
Type : Originating
-----

```

```

LSP Name      : to_110_20_1_2_cspf
LSP Type      : RegularLsp
From          : 110.20.1.4
Adm State     : Up
LSP Up Time   : 0d 00:01:26
Transitions   : 529
Retry Limit   : 0
Signaling     : RSVP
Hop Limit     : 255
Adaptive      : Enabled
FastReroute   : Disabled
CSPF          : Enabled
Metric        : 0
Include Grps  :
None
Least Fill    : Disabled
LdpOverRsvp   : Enabled
IGP Shortcut  : Enabled
Oper Metric   : 65535

```

```

LSP Tunnel ID : 2
Oper State     : Up
LSP Down Time : 0d 00:00:00
Path Changes   : 529
Retry Timer    : 30 sec
Resv. Style    : SE
Negotiated MTU : 9206
ClassType      : 0
Oper FR        : Disabled
ADSPEC         : Disabled
Use TE metric  : Disabled
Exclude Grps   :
None
VprnAutoBind  : Enabled

```

```

Primary(a) : to_110_20_1_2
Bandwidth : 0 Mbps
Up Time : 0d 00:01:26

```

```

...

```

```

-----
Type : Originating
-----

```

```

LSP Name      : to_110_20_1_2_cspf_20
LSP Type      : RegularLsp
From          : 110.20.1.4
Adm State     : Up
LSP Up Time   : 0d 00:41:15
Transitions   : 431
Retry Limit   : 0
Signaling     : RSVP
Hop Limit     : 255
Adaptive      : Enabled
FastReroute   : Disabled
CSPF          : Enabled
Metric        : 0
Include Grps  :
None

```

```

LSP Tunnel ID : 49
Oper State     : Up
LSP Down Time : 0d 00:00:00
Path Changes   : 431
Retry Timer    : 30 sec
Resv. Style    : SE
Negotiated MTU : 1500
ClassType      : 0
Oper FR        : Disabled
ADSPEC         : Disabled
Use TE metric  : Disabled
Exclude Grps   :
None

```

Show Commands

```
Least Fill : Disabled
LdpOverRsvp : Enabled
IGP Shortcut: Enabled
Oper Metric : 66536
VprnAutoBind : Enabled
```

```
Primary(a) : to_110_20_1_2
Bandwidth : 0 Mbps
Up Time : 0d 00:41:15
```

```
=====
*A:SRU4>config>router>mpls#
```

```
*A:SRU4>config>router>mpls# show router mpls lsp count
```

```
=====
MPLS LSP Count
```

```
=====
-----
Originate Transit Terminate
-----
Static LSPs 0 136 0
Dynamic LSPs 140 421 1620
Detour LSPs 0 0 0
P2MP S2Ls 0 0 0
=====
```

```
*A:SRU4>config>router>mpls#
```

```
*A:SRU4>config>router>mpls# show router mpls lsp path mbb
```

```
=====
MPLS LSP Paths
```

```
-----
LSP to_110_20_1_1_cspf Path to_110_20_1_1
```

```
-----
LastResignal: n/a
Last MBB :
MBB Type : TimerBasedResignal
Ended At : 03/04/2010 09:23:58
CSPF Metric : 1001
MBB State : Fail
Old Metric : 0
```

```
-----
LSP to_110_20_1_2_cspf Path to_110_20_1_2
```

```
-----
LastResignal: 03/04/2010 09:23:58
CSPF Metric : 65535
```

```
-----
LSP to_110_20_1_3_cspf Path to_110_20_1_3
```

```
-----
LastResignal: n/a
Last MBB :
MBB Type : TimerBasedResignal
Ended At : 03/04/2010 09:23:58
CSPF Metric : 1001
MBB State : Fail
Old Metric : 0
```

```
-----
LSP to_110_20_1_4_cspf Path to_110_20_1_4
```

```
-----
LastResignal: n/a
CSPF Metric : 0
```

```
-----
LSP to_110_20_1_5_cspf Path to_110_20_1_5
```

```
-----
...
```

```
-----
LastResignal: n/a
CSPF Metric : 0
```

```
-----
LSP to_10_100_1_1_cspf_19 Path to_10_100_1_1
```

```
-----
LastResignal: n/a
CSPF Metric : 0
```

```

-----
LSP to_10_100_1_1_cspf_20 Path to_10_100_1_1
-----
LastResignal: n/a                               CSPF Metric : 0
=====
*A:SRU4>config>router>mpls#

In Prog MBB :
  MBB Type      : SoftPreemption                NextRetryIn : 19 sec
  Started At    : 12/08/2008 22:21:11          RetryAttempt: 0
  FailureCode   : noError                       Failure Node: n/a
=====
*A:Dut-B#

*A:SRU4>config>router>mpls# show router mpls lsp transit
=====
MPLS LSPs (Transit)
=====
Legend : @ - Active Detour
=====
From          To          In I/F    Out I/F    State LSP Name
-----
110.20.1.5    10.20.1.22  3/2/1     3/2/7     Up    to_10_20_1_22_cspf::to*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_3:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_4:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_2:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_20:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_18:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_19:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_17:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_16:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_15:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_13:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_14:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_12:*
110.20.1.5    10.20.1.20  3/2/7     3/2/1     Up    to_10_20_1_20_cspf_10:*
...
110.20.1.3    10.20.1.22  aps-1     3/2/7     Up    to_10_20_1_22_cspf_6:*
110.20.1.3    10.20.1.22  aps-1     3/2/7     Up    to_10_20_1_22_cspf::to*
110.20.1.3    10.20.1.22  aps-1     3/2/7     Up    to_10_20_1_22_cspf_9:*
-----
LSPs : 520
=====
* indicates that the corresponding row element may have been truncated.
*A:SRU4>config>router>mpls#
*A:SRU4>config>router>mpls# show router mpls lsp terminate
=====
MPLS LSPs (Terminate)
=====
Legend : @ - Active Detour
=====
From          To          In I/F    Out I/F    State LSP Name
-----
110.20.1.5    110.20.1.4  3/2/1     n/a       Up    b4-1::b4-1
110.20.1.5    110.20.1.4  3/2/7     n/a       Up    gsr::gsr
110.20.1.22   110.20.1.4  3/2/7     n/a       Up    gsr2_t10
110.20.1.6    110.20.1.4  3/2/3:10 n/a       Up    1::2
110.20.1.6    110.20.1.4  3/2/3:3   n/a       Up    1::stby
110.20.1.6    110.20.1.4  3/2/3:10 n/a       Up    2::2
110.20.1.6    110.20.1.4  3/2/3:6   n/a       Up    2::stby

```

Show Commands

```
110.20.1.6      110.20.1.4      3/2/3:10 n/a      Up      3::2
110.20.1.6      110.20.1.4      3/2/3:6  n/a      Up      3::stby
...
110.20.1.3      110.20.1.4      aps-1    n/a      Up      to_110_20_1_4_cspf_20:*
110.20.1.3      110.20.1.4      aps-1    n/a      Up      to_110_20_1_4_cspf_4::*
-----
LSPs : 1603
=====
* indicates that the corresponding row element may have been truncated.
*A:SRU4>config>router>mpls#

*A:SRU4>config>router>mpls# show router mpls lsp terminate detail
=====
MPLS LSPs (Terminate) (Detail)
=====
-----
LSP b4-1::b4-1
-----
From          : 110.20.1.5          To          : 110.20.1.4
State         : Up
SetupPriority : 7          Hold Priority : 0
Class Type    : 0
In Interface  : 3/2/1          In Label    : 131071
Previous Hop  : 10.100.30.20
-----
LSP gsr::gsr
-----
From          : 110.20.1.5          To          : 110.20.1.4
State         : Up
SetupPriority : 7          Hold Priority : 0
Class Type    : 0
In Interface  : 3/2/7          In Label    : 128547
Previous Hop  : 160.60.60.2
-----
...
-----
From          : 110.20.1.3          To          : 110.20.1.4
State         : Up
SetupPriority : 7          Hold Priority : 0
Class Type    : 0
In Interface  : aps-1          In Label    : 130409
Previous Hop  : 104.104.0.3
=====
*A:SRU4>config>router>mpls#
```

lsp-egress-stats

Syntax	lsp-egress-stats lsp-egress-stats <i>lsp-name</i>
Context	show>router>mpls
Description	This command displays MPLS LSP egress statistics information.

lsp-ingress-stats

- Syntax** **lsp-ingress-stats**
lsp-ingress-stats *ip-address* **lsp** *lsp-name*
- Context** show>router>mpls
- Description** This command displays MPLS LSP ingress statistics information.

lsp-template

- Syntax** **lsp-template** [*lsp-template-name*] [**detail**]
- Context** show>router>mpls
- Description** This command displays MPLS LSP template information.

Sample Output

```
*A:Dut-C# show router mpls lsp-template detail
=====
MPLS LSP Templates (Detail)
=====
-----
LSP Template : ipmsi
-----
Type                : P2MP                Admin State       : Up
Default Path        : path_ipmsi          Adaptive         : Enabled
Bandwidth           : 0 Mbps              Hop Limit        : 255
CSPF                 : Enabled              Use TE metric    : Disabled
Include Groups      :                    Exclude Groups    :
None                 None
FastReroute         : Enabled
FR Method           : Facility             FR Hop Limit     : 16
Record Route        : Record              Record Label     : Record
Retry Limit         : 0                   Retry Timer      : 30 sec
LSP Count           : 3                   Ref Count       : 3
=====
```

Show Commands

oam-template

- Syntax** oam-template
- Context** show>router>mpls>mpls-tp
- Description** This command displays MPLS-TP OAM template information.

Sample Output

```
*A:mlstp-dutA# show router mpls mpls-tp oam-template

=====
MPLS-TP OAM Templates
=====
Template Name : privatebed-oam-template Router ID      : 1
BFD Template  : privatebed-bfd-template Hold-Down Time: 0 centiseconds
                                           Hold-Up Time  : 20 deciseconds
=====
```

protection-template

- Syntax** protection-template
- Context** show>router>mpls>mpls-tp
- Description** This command displays MPLS-TP protection template information.

Sample Output

```
*A:mlstp-dutA# show router mpls mpls-tp protection-template

=====
MPLS-TP Protection Templates
=====
Template Name : privatebed-protection-template Router ID      : 1
Protection Mode: one2one                               Direction      : bidirectional
Revertive      : revertive                             Wait-to-Restore: 300sec
Rapid-PSC-Timer: 10ms                                 Slow-PSC-Timer : 5sec
=====
```

status

- Syntax** status
- Context** show>router>mpls>mpls-tp
- Description** This command displays MPLS-TP system configuration information.

Sample Output

```
*A:mlstp-dutA# show router mpls mpls-tp status

=====
MPLS-TP Status
=====
Admin Status   : Up
Global ID      : 42
Tunnel Id Min  : 1
Node ID        : 0.0.3.233
Tunnel Id Max  : 4096
=====
```

transit-path

- Syntax** `transit-path [path-name] [detail]`
- Context** `show>router>mpls>mpls-tp`
- Description** This command displays MPLS-TP tunnel information.
- Parameters** *path-name* — Specifies the path name, up to 32 characters max.

Sample Output

```
A:mlstp-dutC# show router mpls mpls-tp transit-path
<path-name>
"tp-32" "tp-33" "tp-34" "tp-35" "tp-36" "tp-37" "tp-38" "tp-39"
"tp-40" "tp-41"
detail

A:mlstp-dutC# show router mpls mpls-tp transit-path "tp-32"

=====
MPLS-TP Transit tp-32 Path Information
=====
Path Name      : tp-32
Admin State    : Up
Oper State     : Up

-----
Path           NextHop           InLabel  OutLabel  Out I/F
-----
FP             2080             2081     CtoB_1
RP             2081             2080     CtoA_1
=====

A:mlstp-dutC# show router mpls mpls-tp transit-path "tp-32" detail

=====
MPLS-TP Transit tp-32 Path Information (Detail)
=====
Path Name      : tp-32
Admin State    : Up
Oper State     : Up

-----
Path ID configuration
Src Global ID  : 42
Src Node ID    : 0.0.3.234
LSP Number     : 2
Dst Global ID  : 42
Dst Node ID    : 0.0.3.233
Dst Tunnel Num: 32
```

Show Commands

```
Forward Path configuration
In Label      : 2080                               Out Label    : 2081
Out Interface : CtoB_1                             Next Hop Addr : n/a

Reverse Path configuration
In Label      : 2081                               Out Label    : 2080
Out Interface : CtoA_1                             Next Hop Addr : n/a
=====
A:mplstp-dutC#
```

p2mp-info

- Syntax** **p2mp-info** [**type** {**originate** | **transit** | **terminate**}] [**s2l-endpoint** *ip-address*]
- Context** show>router>mpls
- Description** This command displays P2MP cross-connect information.
- Parameters** **type** — Specifies the P2MP type.
- Values** **originate** — Specifies to display the static LSPs that originate at this virtual router.
transit — Specifies to display the static LSPs that transit through this virtual router.
terminate — Specifies to display the static LSPs that terminate at this virtual router.

Sample Output

```
*A:Dut-C# show router mpls p2mp-info

=====
MPLS P2MP Cross Connect Information
=====
-----
S2L ipmsi-4000-73729::path_ipmsi
-----
Source IP Address      : 10.20.1.1                Tunnel ID      : 61441
P2MP ID                : 4000                    Lsp ID        : 29696
S2L Name               : ipmsi-4000-73729::pa* To    : 10.20.1.3
In Interface           : 1/1/1                    In Label      : 262129
Num. of S2ls          : 1
-----
S2L ipmsi-65535-73730::path_ipmsi
```

```

-----
Source IP Address      : 10.20.1.1          Tunnel ID       : 61442
P2MP ID               : 65535             Lsp ID         : 30208
S2L Name              : ipmsi-65535-73730::p* To       : 10.20.1.3
In Interface          : 1/1/1             In Label       : 262128
Num. of S2ls         : 1

```

```

-----
S2L ipmsi-1001-73728::path_ipmsi
-----

```

```

Source IP Address      : 10.20.1.1          Tunnel ID       : 61440
P2MP ID               : 1001             Lsp ID         : 35840
S2L Name              : ipmsi-1001-73728::pa* To       : 10.20.1.3
In Interface          : 1/1/1             In Label       : 262127
Num. of S2ls         : 1

```

```

-----
S2L ipmsi-1001-73732::path_ipmsi
-----

```

```

Source IP Address      : 10.20.1.2          Tunnel ID       : 64944
P2MP ID               : 1001             Lsp ID         : 34816
S2L Name              : ipmsi-1001-73732::pa* To       : 10.20.1.3
In Interface          : 1/1/2             In Label       : 262114
Num. of S2ls         : 1

```

```

-----
S2L ipmsi-4000-73729::path_ipmsi
-----

```

```

Source IP Address      : 10.20.1.3          Tunnel ID       : 61441
P2MP ID               : 4000             Lsp ID         : 16384
S2L Name              : ipmsi-4000-73729::pa* To       : 10.20.1.1
Out Interface         : 1/1/1             Out Label      : 262131
Num. of S2ls         : 1

```

Show Commands

S2L ipmsi-4000-73729::path_ipmsi

Source IP Address : 10.20.1.3 Tunnel ID : 61441
P2MP ID : 4000 Lsp ID : 16384
S2L Name : ipmsi-4000-73729::pa* To : 10.20.1.4
Out Interface : 2/1/1 Out Label : 262121
Num. of S2ls : 1

S2L ipmsi-1001-73728::path_ipmsi

Source IP Address : 10.20.1.3 Tunnel ID : 61440
P2MP ID : 1001 Lsp ID : 22016
S2L Name : ipmsi-1001-73728::pa* To : 10.20.1.1
Out Interface : 1/1/1 Out Label : 262129
Num. of S2ls : 1

S2L ipmsi-1001-73728::path_ipmsi

Source IP Address : 10.20.1.3 Tunnel ID : 61440
P2MP ID : 1001 Lsp ID : 22016
S2L Name : ipmsi-1001-73728::pa* To : 10.20.1.2
Out Interface : 1/1/2 Out Label : 262115
Num. of S2ls : 1

S2L ipmsi-1001-73728::path_ipmsi

Source IP Address : 10.20.1.3 Tunnel ID : 61440
P2MP ID : 1001 Lsp ID : 22016
S2L Name : ipmsi-1001-73728::pa* To : 10.20.1.4
Out Interface : 2/1/1 Out Label : 262108

Num. of S2ls : 2

 S2L ipmsi-1001-73728::path_ipmsi

Source IP Address : 10.20.1.3 Tunnel ID : 61440
 P2MP ID : 1001 Lsp ID : 22016
 S2L Name : ipmsi-1001-73728::pa* To : 10.20.1.5
 Out Interface : 2/1/1 Out Label : 262108
 Num. of S2ls : 2

 S2L ipmsi-65535-73730::path_ipmsi

Source IP Address : 10.20.1.3 Tunnel ID : 61442
 P2MP ID : 65535 Lsp ID : 46592
 S2L Name : ipmsi-65535-73730::p* To : 10.20.1.1
 Out Interface : 1/1/1 Out Label : 262130
 Num. of S2ls : 1

 S2L ipmsi-65535-73730::path_ipmsi

Source IP Address : 10.20.1.3 Tunnel ID : 61442
 P2MP ID : 65535 Lsp ID : 46592
 S2L Name : ipmsi-65535-73730::p* To : 10.20.1.4
 Out Interface : 2/1/1 Out Label : 262109
 Num. of S2ls : 1

 P2MP Cross-connect instances : 12

p2mp-lsp

Syntax	<p>p2mp-lsp [<i>lsp-name</i>] [detail] p2mp-lsp [<i>lsp-name</i>] p2mp-instance [<i>p2mp-instance-name</i>] [mbb] p2mp-lsp [<i>lsp-name</i>] p2mp-instance [<i>p2mp-instance-name</i>] s2l [<i>s2l-name</i>] [to <i>s2l-to-address</i>]] [status {up down}] [detail] p2mp-lsp [<i>lsp-name</i>] p2mp-instance [<i>p2mp-instance-name</i>] s2l [<i>s2l-name</i>] [to <i>s2l-to-address</i>]] mbb</p>
Context	show>router>mpls
Description	This command displays MPLS P2MP LSP information.
Parameters	<p><i>lsp-name</i> — Specifies the name of the LSP used in the path.</p> <p>p2mp-instance[<i>p2mp-instance-name</i> — Specifies the administrative name for the P2MP instance which must be unique within a virtual router instance.</p> <p>mbb — Specifies to display make-before-break (MBB) information.</p> <p>s2l — Specifies the source-to-leaf (S2L) name.</p> <p>to <i>s2l-to-address</i> —</p> <p>status — Displays the status of the p2mp LSP.</p> <p style="padding-left: 2em;">Values</p> <p style="padding-left: 4em;">up — Displays the total time that this S2L has been operational.</p> <p style="padding-left: 4em;">down — Displays the total time that this S2L has not been operational.</p>

Sample Output

```
*A:Dut-C# show router mpls p2mp-lsp
- p2mp-lsp [<lsp-name>] [detail]
- p2mp-lsp [<lsp-name>] p2mp-instance [<p2mp-instance-name>] [mbb]
- p2mp-lsp [<lsp-name>] p2mp-instance [<p2mp-instance-name>] s2l [<s2l-name>
  [to <s2l-to-address>]][status {up|down}] [detail]
- p2mp-lsp [<lsp-name>] p2mp-instance [<p2mp-instance-name>] s2l [<s2l-name>
  [to <s2l-to-address>]] <mbb>
- p2mp-lsp using-template [lsp-template <template-name>] [detail]

<lsp-name>           : [64 chars max] - accepts * as wildcard char
<p2mp-instance>     : keyword
<p2mp-instance-name> : [max 32 chars]
<s2l>                : keyword
<s2l-name>          : [max 32 chars]
```

```

<up|down>          : keywords
<detail>           : keyword
<mbb>              : keyword
<s2l-to-address>   : [a.b.c.d]
<using-template>   : keyword
<lsp-template>     : [32 chars max]

```

```
*A:Dut-C# show router mpls p2mp-lsp
```

```

=====
MPLS P2MP LSPs (Originating)
=====

LSP Name                                     Adm  Opr
-----
ipmsi-1001-73728                             Up   Up
ipmsi-4000-73729                             Up   Up
ipmsi-65535-73730                           Up   Up
-----

LSPs : 3

```

```
*A:Dut-C# show router mpls p2mp-lsp detail
```

```

=====
MPLS P2MP LSPs (Originating) (Detail)
=====

Type : Originating
-----

LSP Name      : ipmsi-1001-73728
LSP Type      : P2mpAutoLsp           LSP Tunnel ID : 61440
From          : 10.20.1.3

```

Show Commands

```
Adm State      : Up                               Oper State     : Up
LSP Up Time    : 6d 21:08:37                     LSP Down Time  : 0d 00:00:00
Transitions    : 1                               Path Changes   : 1
Retry Limit    : 0                               Retry Timer    : 30 sec
Signaling      : RSVP                           Resv. Style    : SE
Hop Limit      : 255                             Negotiated MTU : n/a
Adaptive       : Enabled                         ClassType      : 0
FastReroute    : Enabled                         Oper FR        : Enabled
FR Method      : Facility                       FR Hop Limit   : 16
FR Bandwidth   : 0 Mbps                         FR Node Protect: Disabled
FR Object      : Enabled                        ADSPEC         : Disabled
CSPF           : Enabled                         Use TE metric  : Disabled
Metric         : Disabled                       Exclude Grps   :
Include Grps:                                     None
None
Least Fill     : Disabled

Auto BW        : Disabled                       VprnAutoBind  : Disabled
LdpOverRsvp   : Disabled                       BGP Shortcut  : Disabled
IGP Shortcut   : Disabled
BGPTransTun   : Disabled
Oper Metric    : Disabled
Prop Adm Grp   : Disabled                       CSPFFirstLoose : Disabled
P2MPInstance  : 1001                           P2MP-Inst-type : Primary
S2L Cfg Cou*  : 4                               S2L Oper Count*: 4
S21-Name      : path_ipmsi                     To             : 10.20.1.1
S21-Name      : path_ipmsi                     To             : 10.20.1.2
S21-Name      : path_ipmsi                     To             : 10.20.1.4
S21-Name      : path_ipmsi                     To             : 10.20.1.5
```

Type : Originating

```

-----
LSP Name      : ipmsi-4000-73729
LSP Type      : P2mpAutoLsp          LSP Tunnel ID : 61441
From          : 10.20.1.3
Adm State     : Up                   Oper State    : Up
LSP Up Time   : 6d 21:08:38         LSP Down Time : 0d 00:00:00
Transitions   : 1                   Path Changes  : 1
Retry Limit   : 0                   Retry Timer   : 30 sec
Signaling     : RSVP                Resv. Style   : SE
Hop Limit     : 255                 Negotiated MTU : n/a
Adaptive      : Enabled              ClassType     : 0
FastReroute   : Enabled              Oper FR       : Enabled
FR Method     : Facility             FR Hop Limit  : 16
FR Bandwidth  : 0 Mbps               FR Node Protect: Disabled
FR Object     : Enabled
CSPF          : Enabled              ADSPEC        : Disabled
Metric        : Disabled             Use TE metric  : Disabled
Include Grps  :                      Exclude Grps   :
None
Least Fill    : Disabled
Auto BW       : Disabled
LdpOverRsvp  : Disabled              VprnAutoBind  : Disabled
IGP Shortcut  : Disabled             BGP Shortcut   : Disabled
BGPTransTun  : Disabled
Oper Metric   : Disabled
Prop Adm Grp  : Disabled              CSPFFirstLoose : Disabled
P2MPInstance : 4000                 P2MP-Inst-type : Primary
S2L Cfg Cou* : 2                    S2L Oper Count*: 2

```

Show Commands

```
S21-Name      : path_ipmsi                               To           : 10.20.1.1
S21-Name      : path_ipmsi                               To           : 10.20.1.4
-----

Type : Originating
-----

LSP Name      : ipmsi-65535-73730
LSP Type      : P2mpAutoLsp                             LSP Tunnel ID : 61442
From          : 10.20.1.3
Adm State     : Up                                       Oper State     : Up
LSP Up Time   : 6d 21:08:39                             LSP Down Time : 0d 00:00:00
Transitions   : 1                                       Path Changes   : 1
Retry Limit   : 0                                       Retry Timer    : 30 sec
Signaling     : RSVP                                    Resv. Style    : SE
Hop Limit     : 255                                       Negotiated MTU : n/a
Adaptive      : Enabled                                    ClassType      : 0
FastReroute   : Enabled                                    Oper FR        : Enabled
FR Method     : Facility                                  FR Hop Limit   : 16
FR Bandwidth  : 0 Mbps                                    FR Node Protect: Disabled
FR Object     : Enabled
CSPF          : Enabled                                    ADSPEC         : Disabled
Metric        : Disabled                                  Use TE metric  : Disabled
Include Grps  :                                         Exclude Grps   :
None                                                 None
Least Fill   : Disabled

Auto BW       : Disabled
LdpOverRsvp   : Disabled                                VprnAutoBind   : Disabled
IGP Shortcut  : Disabled                                BGP Shortcut   : Disabled
BGPTransTun   : Disabled
Oper Metric   : Disabled
Prop Adm Grp  : Disabled                                CSPFFirstLoose : Disabled
```

```

P2MPInstance: 65535                                P2MP-Inst-type : Primary
S2L Cfg Cou*: 2                                    S2L Oper Count*: 2
S2l-Name      : path_ipmsi                          To           : 10.20.1.1
S2l-Name      : path_ipmsi                          To           : 10.20.1.4

```

=====
* indicates that the corresponding row element may have been truncated.

*A:Dut-C#

*A:sim1>config>router>mpls>lsp\$ show router mpls p2mp-lsp p2mp-instance s2l detail

=====
MPLS LSP S2L (Detail)
=====

Legend :

```

@ - Detour Available          # - Detour In Use
b - Bandwidth Protected      n - Node Protected
S - Strict                   L - Loose
s - Soft Preemption

```

LSP 1 S2L 1

```

LSP Name      : 1                                S2l LSP ID   : 26624
P2MP ID       : 0                                S2l Grp Id   : 0
Adm State     : Up                               Oper State   : Down
S2l State:    : Inactive                          :
S2L Name      : 1                                To           : 10.20.1.3
S2l Admin     : Up                               S2l Oper     : Down
OutInterface  : n/a                              Out Label    : n/a
S2L Up Time   : 0d 00:00:00                      S2L Dn Time  : 0d 00:00:01
RetryAttempt  : 0                                NextRetryIn  : 9 sec (Fast)
S2L Trans     : 8                                CSPF Queries : 4
Failure Code  : noError                          Failure Node  : n/a
ExplicitHops  :
    10.20.1.2(S)
Actual Hops   :
    No Hops Specified
ComputedHops  :
    No Hops Specified
LastResignal  : n/a

```

=====
show router mpls p2mp-lsp p2mp-instance s2l detail

LSP 2 S2L 2

```

LSP Name      : 2                                S2l LSP ID   : 52230

```

Show Commands

```
P2MP ID      : 0
Adm State    : Up
S2L State    : Active
S2L Name     : 2
S2L Admin    : Up
OutInterface : 1/1/1
S2L Up Time  : 0d 00:04:43
RetryAttempt : 0
S2L Trans    : 5
Failure Code : tunnelLocallyRepaired
ExplicitHops :
  10.20.1.2(S)
Actual Hops  :
  10.10.1.1(10.20.1.1)
  -> 10.10.1.2(10.20.1.2) @ #
  -> 10.10.6.3(10.20.1.3)
ComputedHops :
  10.10.1.1(S)      -> 10.10.1.2(S)      -> 10.10.5.3(S)
LastResignal : n/a
In Prog MBB  :
  MBB Type      : GlobalRevert
  Timeout In    : 23 sec
  Started At    : 06/29/2011 11:06:09
  FailureCode   : noError
S2L Grp Id   : 2
Oper State   : Up
To           : 10.20.1.3
S2L Oper     : Up
Out Label    : 131071
S2L Dn Time  : 0d 00:00:00
NextRetryIn  : 0 sec
CSPF Queries : 21
Failure Node  : 10.20.1.2
Record Label  : N/A
Record Label  : 131071
Record Label  : 131068
NextRetryIn  : n/a
RetryAttempt  : 7
Failure Node  : n/a
```

```
=====  
*A:Dut-C>config>router>mpls>lsp$ /show router mpls lsp path detail
```

```
=====  
MPLS LSP Path (Detail)  
=====
```

```
Legend :
```

```
@ - Detour Available          # - Detour In Use
b - Bandwidth Protected      n - Node Protected
s - Soft Preemption
S - Strict                    L - Loose
```

```
-----  
LSP 1 Path 1  
-----
```

```
LSP Name      : 1
From          : 10.20.1.3
Adm State     : Up
Path Name     : 1
Path Admin    : Up
OutInterface  : 1/1/1
Path Up Time  : 0d 00:03:09
Retry Limit   : 0
RetryAttempt  : 0
SetupPriorit : 7
Preference    : n/a
Bandwidth     : No Reservation
Hop Limit     : 255
Backup CT     : None
MainCT Retry  : n/a
Rem          :
Oper CT       : 0
Record Route  : Record
Oper MTU      : 1496
Adaptive      : Enabled
Include Grps :
Path LSP ID   : 56320
To           : 10.10.1.1
Oper State    : Up
Path Type     : Primary
Path Oper     : Up
Out Label     : 131071
Path Dn Time  : 0d 00:00:00
Retry Timer   : 30 sec
NextRetryIn   : 0 sec
Hold Priorit* : 0
Oper Bw       : 0 Mbps
Class Type    : 0
MainCT Retry  : 0
Limit        :
Record Label  : Record
Neg MTU      : 1496
Oper Metric   : 1000
Exclude Grps :
```

```

None
Path Trans : 1
Failure Code: badNode

Oper Values :
Setup Prior*: 7
Record Route: Record
Hop Limit : 255
Adspec : Disabled
CSPF : Enabled
Least Fill : Disabled
Prop Adm Grp: Disabled
Include Grps:
None

None
CSPF Queries: 3
Failure Node: 10.20.1.3

Hold Priori*: 0
Record Label: Record

CSPFToFirst*: Disabled
FR Node Pro*: Disabled

Exclude Grps:
None

ExplicitHops:
  No Hops Specified
Actual Hops :
  10.10.2.3(10.20.1.3) @ #
  -> 10.10.1.1(10.20.1.1)
ComputedHops:
  10.10.2.3(S) -> 10.10.2.1(S)
ResigEligib*: False
LastResignal: n/a
In Prog MBB :
  MBB Type : GlobalRevert
  Timeout In : 22 sec
  Started At : 08/26/2011 23:59:29
  FailureCode: noError
  Signaled BW: 0 Mbps

Record Label : N/A
Record Label : 131071

CSPF Metric : 1000
NextRetryIn : 0 sec
RetryAttempt: 2
Failure Node: n/a

```

=====
 * indicates that the corresponding row element may have been truncated.

show router mpls p2mp-lsp p2mp-instance s2l detail

```

-----
LSP 2 S2L 2
-----
LSP Name      : 2
P2MP ID      : 0
Adm State    : Up
S2l State    : Inactive
S2L Name     : 2
S2l Admin    : Up
OutInterface : n/a
S2L Up Time  : 0d 00:00:00
RetryAttempt : 1
Timeout In   : 21 sec
S2L Trans    : 6
Failure Code : noError
ExplicitHops :
  10.20.1.2(S)
Actual Hops  :
  No Hops Specified
LastResignal : n/a

S2l LSP ID   : 52230
S2l Grp Id   : 4
Oper State   : Down
To           : 10.20.1.3
S2l Oper     : In Progress
Out Label    : n/a
S2L Dn Time  : 0d 00:00:20
NextRetryIn : n/a

CSPF Queries: 27
Failure Node: n/a

```

*A:Dut-C# show router mpls p2mp-lsp

=====
 MPLS P2MP LSPs (Originating)
 =====

Show Commands

```
LSP Name                                     Adm  Opr
-----
ipmsi-1001-73728                             Up   Up
ipmsi-4000-73729                             Up   Up
ipmsi-65535-73730                           Up   Up
-----
```

LSPs : 3

```
=====
*A:Dut-C# show router mpls p2mp-lsp detail
=====
```

MPLS P2MP LSPs (Originating) (Detail)

Type : Originating

```
-----
LSP Name      : ipmsi-1001-73728
LSP Type      : P2mpAutoLsp                LSP Tunnel ID : 61440
From          : 10.20.1.3
Adm State     : Up                        Oper State     : Up
LSP Up Time   : 6d 21:08:37              LSP Down Time : 0d 00:00:00
Transitions   : 1                        Path Changes   : 1
Retry Limit   : 0                        Retry Timer    : 30 sec
Signaling     : RSVP                     Resv. Style    : SE
Hop Limit     : 255                      Negotiated MTU : n/a
Adaptive      : Enabled                   ClassType      : 0
FastReroute   : Enabled                   Oper FR        : Enabled
FR Method     : Facility                  FR Hop Limit   : 16
FR Bandwidth  : 0 Mbps                    FR Node Protect: Disabled
FR Object     : Enabled
CSPF          : Enabled                   ADSPEC         : Disabled
Metric        : Disabled                  Use TE metric  : Disabled
Include Grps  :                           Exclude Grps   :
None
Least Fill   : Disabled
Auto BW      : Disabled
LdpOverRsvp  : Disabled                   VprnAutoBind  : Disabled
IGP Shortcut : Disabled                   BGP Shortcut  : Disabled
BGPTransTun  : Disabled
Oper Metric   : Disabled
Prop Adm Grp : Disabled                   CSPFFirstLoose : Disabled
P2MPInstance : 1001                       P2MP-Inst-type : Primary
S2L Cfg Cou* : 4                           S2L Oper Count*: 4
S2l-Name     : path_ipmsi                 To             : 10.20.1.1
S2l-Name     : path_ipmsi                 To             : 10.20.1.2
S2l-Name     : path_ipmsi                 To             : 10.20.1.4
S2l-Name     : path_ipmsi                 To             : 10.20.1.5
-----
```

Type : Originating

```
-----
LSP Name      : ipmsi-4000-73729
LSP Type      : P2mpAutoLsp                LSP Tunnel ID : 61441
From          : 10.20.1.3
Adm State     : Up                        Oper State     : Up
LSP Up Time   : 6d 21:08:38              LSP Down Time : 0d 00:00:00
Transitions   : 1                        Path Changes   : 1
Retry Limit   : 0                        Retry Timer    : 30 sec
Signaling     : RSVP                     Resv. Style    : SE
Hop Limit     : 255                      Negotiated MTU : n/a
Adaptive      : Enabled                   ClassType      : 0
FastReroute   : Enabled                   Oper FR        : Enabled
FR Method     : Facility                  FR Hop Limit   : 16
-----
```

```

FR Bandwidth: 0 Mbps
FR Object : Enabled
CSPF : Disabled
Metric : Disabled
Include Grps:
None
Least Fill : Disabled
Auto BW : Disabled
LdpOverRsvp : Disabled
IGP Shortcut: Disabled
BGPTransTun : Disabled
Oper Metric : Disabled
Prop Adm Grp: Disabled
P2MPInstance: 4000
S2L Cfg Cou*: 2
S2L-Name : path_ipmsi
S2L-Name : path_ipmsi
FR Node Protect: Disabled
ADSPEC : Disabled
Use TE metric : Disabled
Exclude Grps :
None
VprnAutoBind : Disabled
BGP Shortcut : Disabled
CSPFFirstLoose : Disabled
P2MP-Inst-type : Primary
S2L Oper Count*: 2
To : 10.20.1.1
To : 10.20.1.4

```

Type : Originating

```

LSP Name : ipmsi-65535-73730
LSP Type : P2mpAutoLsp
From : 10.20.1.3
Adm State : Up
LSP Up Time : 6d 21:08:39
Transitions : 1
Retry Limit : 0
Signaling : RSVP
Hop Limit : 255
Adaptive : Enabled
FastReroute : Enabled
FR Method : Facility
FR Bandwidth: 0 Mbps
FR Object : Enabled
CSPF : Enabled
Metric : Disabled
Include Grps:
None
Least Fill : Disabled
Auto BW : Disabled
LdpOverRsvp : Disabled
IGP Shortcut: Disabled
BGPTransTun : Disabled
Oper Metric : Disabled
Prop Adm Grp: Disabled
P2MPInstance: 65535
S2L Cfg Cou*: 2
S2L-Name : path_ipmsi
S2L-Name : path_ipmsi
LSP Tunnel ID : 61442
Oper State : Up
LSP Down Time : 0d 00:00:00
Path Changes : 1
Retry Timer : 30 sec
Resv. Style : SE
Negotiated MTU : n/a
ClassType : 0
Oper FR : Enabled
FR Hop Limit : 16
FR Node Protect: Disabled
ADSPEC : Disabled
Use TE metric : Disabled
Exclude Grps :
None
VprnAutoBind : Disabled
BGP Shortcut : Disabled
CSPFFirstLoose : Disabled
P2MP-Inst-type : Primary
S2L Oper Count*: 2
To : 10.20.1.1
To : 10.20.1.4

```

=====
* indicates that the corresponding row element may have been truncated.

*A:Dut-C#

*A:sim1>config>router>mpls>lsp\$ show router mpls p2mp-lsp p2mp-instance s2l detail

=====
MPLS LSP S2L (Detail)
=====

Legend :

```

@ - Detour Available
b - Bandwidth Protected
S - Strict
# - Detour In Use
n - Node Protected
L - Loose

```

Show Commands

```
s - Soft Preemption
=====
-----
LSP 1 S2L 1
-----
LSP Name      : 1                      S2L LSP ID   : 26624
P2MP ID       : 0                      S2L Grp Id   : 0
Adm State     : Up                     Oper State    : Down
S2L State     : Inactive                :
S2L Name      : 1                      To           : 10.20.1.3
S2L Admin     : Up                     S2L Oper     : Down
OutInterface  : n/a                    Out Label    : n/a
S2L Up Time   : 0d 00:00:00            S2L Dn Time  : 0d 00:00:01
RetryAttempt  : 0                      NextRetryIn  : 9 sec (Fast)
S2L Trans     : 8                      CSPF Queries : 4
Failure Code  : noError                 Failure Node  : n/a
ExplicitHops  :
    10.20.1.2(S)
Actual Hops   :
    No Hops Specified
ComputedHops  :
    No Hops Specified
LastResignal  : n/a
=====
A:ALU-25# show router mpls p2mp-lsp lsp_1
=====
MPLS LSPs (Originating)
=====
LSP Name      To/P2MP ID      Fastfail      Adm  Opr
                Config
-----
lsp_1                18                Yes            Up   Up
-----
LSPs : 1
=====
A:ALU-25#

A:ALU-25# show router mpls p2mp-lsp Test_p2mp detail
=====
MPLS P2MP LSPs (Originating) (Detail)
=====
Type : Originating
-----
LSP Name      : lsp_1                      LSP Tunnel ID : 1
From          : 10.10.1.1                  P2MP ID       : 18
Adm State     : Up                       Oper State     : Down
LSP Up Time   : 0d 00:00:00              LSP Down Time : 0d 20:39:48
Transitions   : 0                        Path Changes   : 0
Retry Limit   : 0                        Retry Timer    : 30 sec
Signaling     : RSVP                      Resv. Style    : FF
Hop Limit     : 255                       Adaptive       : Enabled
FastReroute   : Disabled                 Oper FR        : Disabled
FR Method     : Facility                  FR Hop Limit   : 45
FR Bandwidth  : 0 Mbps                    FR Node Protect : Disabled
FR Object     : Enabled
CSPF          : Disabled                 ADSPEC         : Disabled
Metric        : 1                        Use TE metric  : Disabled
Include Grps  :
None                                               Exclude Grps   :
None
```

```

P2MPinstance:Test_p2mp                               p2mp-inst-type : primary

S2L Name      :Test-s211                               To           : 10.20.1.6
S2L Name      :Test-s212                               To           : 10.20.1.5
S2L Name      :Test-s213                               To           : 10.20.1.4
-----
A:ALU-25#

A:ALU-25# show router mpls p2mp-lsp Test_p2mp
=====
MPLS P2MP Instance (Originating)
=====
-----
Type : Originating
-----
LSP Name      : lsp_1                                  LSP Tunnel ID : 1
P2MP ID       : 18                                    Path LSP ID   : 18
Adm State     : Up                                    Oper State    : Down

P2MPinstance:Test_p2mp                               p2mp-inst-type : primary
Inst Name     : lsp_1                                  P2MP Inst ID  : 1
Adm State     : Up                                    Oper State    : Down
Inst Up Time  : 0d 00:00:00                          Inst Down Time: 0d 20:39:48
Hop Limit     : 255                                   Adaptive      : Enabled
Record Route  : Record                               Record Label  : Record
Include Grps  :                                     Exclude Grps  :
None                                                  None
Bandwidth     : 0 Mbps                               Oper Bw       : 0 Mbps

S2L Name      :Test-s211                               To           : 10.20.1.6
S2L Name      :Test-s212                               To           : 10.20.1.5
S2L Name      :Test-s213                               To           : 10.20.1.4
-----
A:ALU-25#

```

Note that the normal output is in detailed format only. There is no separate detail format.

```

A:ALU-52# show router mpls p2mp-lsp [p2mp-lsp-name] p2mp-instance [p2mp-inst-name]
=====
MPLS P2MP Instance (Originating)
=====
-----
Type : Originating
-----
LSP Name      : lsp_1                                  LSP Tunnel ID : 1
P2MP ID       : 18                                    Path LSP ID   : 18
Adm State     : Up                                    Oper State    : Down

P2MPinstance:Test_p2mp                               p2mp-inst-type : primary
Inst Name     : lsp_1                                  P2MP Inst ID  : 1
Adm State     : Up                                    Oper State    : Down
Inst Up Time  : 0d 00:00:00                          Inst Down Time: 0d 20:39:48
Hop Limit     : 255                                   Adaptive      : Enabled
Record Route  : Record                               Record Label  : Record
Include Grps  :                                     Exclude Grps  :
None                                                  None
Bandwidth     : 0 Mbps                               Oper Bw       : 0 Mbps

S2L Name      :Test-s211                               To           : 10.20.1.6
S2L Name      :Test-s212                               To           : 10.20.1.5

```

Show Commands

```
S2L Name      :Test-s213                               To                : 10.20.1.4
-----
A:ALU-52#

A:ALU-52# show router mpls p2mp-lsp [p2mp-lsp-name] p2mp-instance [p2mp-inst-name]
mbb
=====
MPLS P2MP Instance (Originating)
=====
-----
Type : Originating
-----
-----
LSP Name      : lsp_1                                LSP Tunnel ID   : 1
P2MP ID      : 18                                    Path LSP ID     : 18
Adm State    : Up                                    Oper State      : Down

P2MPinstance:Test_p2mp                               p2mp-inst-type  : primary
Inst Name    : lsp_1                                P2MP Inst ID   : 1
Adm State    : Up                                    Oper State      : Down
Inst Up Time : 0d 00:00:00                          Inst Down Time : 0d 20:39:48
Hop Limit    : 255                                  Adaptive        : Enabled
Record Route: Record                               Record Label    : Record
Include Grps:                                       Exclude Grps    :
None                                                None
Bandwidth    : 0 Mbps                               Oper Bw         : 0 Mbps
Last MBB     :
MBB type     :                                       Mbb State       :
ended at    :                                       Old Metric      :
In Prog MBB  :
MBB type     :                                       Next Retry In   :
Started at  :                                       Retry Attempt   :
Failure code:                                       Failure Node    :

S2L Name      :Test-s211                               To                : 10.20.1.6
S2L Admin    :                                       S2L Oper        :
Failure code:                                       Failure Node    : 10.12.1.1

S2L Name      :Test-s211                               To                : 10.20.1.6
S2L Admin    :                                       S2L Oper        :
Failure code:                                       Failure Node    : 10.12.1.1
-----
A:ALU-52#

A:ALU-52# show router mpls p2mp-lsp [p2mp-lsp-name] p2mp-instance [p2mp-inst-name]
s2l [s2l-name]
=====
MPLS S2Ls (Originating)
=====
-----
S2L Name      To                Next Hop        Adm   Opr
-----
Test-s211     10.20.1.6        10.10.1.2      Up    Up
-----
LSPs : 1
=====
A:ALU-52#

A:ALU-52# show router mpls p2mp-lsp [p2mp-lsp-name] p2mp-instance [p2mp-inst-name]
s2l [s2l-name] detail
```

```

=====
MPLS S2Ls (Originating) (Detail)
=====
-----
Type : Originating
-----
LSP Name      : lsp_1                      LSP Tunnel ID : 1
P2MP ID       : 18                        Path LSP ID   : 18
Adm State     : Up                        Oper State    : Down

P2MP Primary Instance:
Inst Name     : lsp_1                      P2MP Inst ID  : 1
Adm State     : Up                        Oper State    : Down

S2L Name      : Test-s211                  To             : 10.20.1.6
Adm State     : Up                        Oper State     : Down
OutInterface  : 1/1/1                      Out Label      : 131071
S2L Up Time   : 0d 00:00:00                S2L Down Time : 0d 20:39:48
Transitions   : 0                          Path Changes   : 0
Retry Limit   : 0                          Retry Timer    : 30 sec
RetryAttempt  : 0                          NextRetryIn   : 0 sec
Bandwidth     : No Reservation              Oper Bw        : 0 Mbps
Hop Limit     : 255                        Adaptive       : Enabled
Record Route  : Record                     Record Label   : Record
Oper MTU      : 1496                       Neg MTU        : 1496
FastReroute   : Disabled                   Oper FR        : Disabled
FR Method     : Facility                    FR Hop Limit   : 45
FR Bandwidth  : 0 Mbps                      FR Node Protect : Disabled
FR Object     : Enabled
CSPF          : Disabled                    ADSPEC         : Disabled
Metric        : 1                          Use TE metric  : Disabled
Include Grps  :                             Exclude Grps   :
None
CSPF Queries : 9
Failure Code  : noError                     Failure Node   : n/a
ExplicitHops :
  No Hops Specified
Actual Hops  :
  10.10.1.1(10.20.1.1) @
  -> 10.10.1.2(10.20.1.2)
ComputedHops:
  10.10.1.1      -> 10.10.1.2
LastResignal : n/a                          CSPF Metric    : 1000
-----
A:ALU-52#

```

srlg-database

- Syntax** `srlg-database [router-id ip-address] [interface ip-address]`
- Context** `show>router>mpls`
- Description** This command displays MPLS SRLG database information.
- Parameters** `router-id ip-address` — Specifies a 32-bit integer uniquely identifying the router in the Autonomous System. By convention to ensure uniqueness, this may default to the value of one of the router's IPv4 host addresses, represented as a 32-bit unsigned integer, if IPv4 is configured on the router. The router-id can be either the local one or some remote router.

Show Commands

interface *ip-address* — Specifies the IP address of the interface.

path

- Syntax** `path [path-name] [lsp-binding]`
- Context** `show>router>mpls`
- Description** This command displays MPLS paths.
- Parameters** *path-name* — The unique name label for the LSP path.
lsp-binding — Keyword to display binding information.
- Output** **MPLS Path Output** — The following table describes MPLS Path output fields.

Label	Description
Path Name	The unique name label for the LSP path.
Adm	Down — The path is administratively disabled. Up — The path is administratively enabled.
Hop Index	The value used to order the hops in a path.
IP Address	The IP address of the hop that the LSP should traverse on the way to the egress router.
Strict/Loose	Strict — The LSP must take a direct path from the previous hop router to the next router. Loose — The route taken by the LSP from the previous hop to the next hop can traverse through other routers.
LSP Name	The name of the LSP used in the path.
Binding	Primary — The preferred path for the LSP. Secondary — The standby path for the LSP.
Paths	Total number of paths configured.

Sample Output

```
*A:SRU4>config>router>mpls# show router mpls path
=====
MPLS Path:
=====
```

Path Name	Adm	Hop Index	IP Address	Strict/Loose
to_110_20_1_1	Up	no hops	n/a	n/a
to_110_20_1_2	Up	no hops	n/a	n/a
to_110_20_1_3	Up	no hops	n/a	n/a
to_110_20_1_4	Up	no hops	n/a	n/a
to_110_20_1_5	Up	no hops	n/a	n/a

Show Commands

```

to_110_20_1_6                Up    no hops    n/a        n/a
to_110_20_1_110              Up    no hops    n/a        n/a
to_10_8_100_15                Up    no hops    n/a        n/a
to_10_20_1_20                 Up    no hops    n/a        n/a
to_10_20_1_22                 Up    no hops    n/a        n/a
to_10_100_1_1                 Up    no hops    n/a        n/a
-----
Paths : 11
=====
*A:SRU4>config>router>mpls#

*A:SRU4>config>router>mpls# show router mpls path lsp-binding
=====
MPLS Path:
=====
Path Name                      Opr  LSP Name                      Binding
-----
to_110_20_1_1                  Up   to_110_20_1_1_cspf            Primary
                               Up   to_110_20_1_1_cspf_2          Primary
                               Up   to_110_20_1_1_cspf_3          Primary
Up  to_110_20_1_1_cspf_16      Up   to_110_20_1_1_cspf_17          Primary
                               Up   to_110_20_1_1_cspf_18          Primary
                               Up   to_110_20_1_1_cspf_19          Primary
                               Up   to_110_20_1_1_cspf_20          Primary
to_110_20_1_2                  Up   to_110_20_1_2_cspf            Primary
                               Up   to_110_20_1_2_cspf_2          Primary
                               Up   to_110_20_1_2_cspf_3          Primary
                               Up   to_110_20_1_2_cspf_4          Primary
                               Up   to_110_20_1_2_cspf_5          Primary
...
to_10_100_1_1                  Down to_10_100_1_1_cspf            Primary
                               Down to_10_100_1_1_cspf_2          Primary
                               Down to_10_100_1_1_cspf_3          Primary
                               Down to_10_100_1_1_cspf_4          Primary
                               Down to_10_100_1_1_cspf_5          Primary
                               Down to_10_100_1_1_cspf_6          Primary
Down to_10_100_1_1_cspf_13    Down to_10_100_1_1_cspf_14          Primary
                               Down to_10_100_1_1_cspf_15          Primary
                               Down to_10_100_1_1_cspf_16          Primary
                               Down to_10_100_1_1_cspf_17          Primary
                               Down to_10_100_1_1_cspf_18          Primary
                               Down to_10_100_1_1_cspf_19          Primary
                               Down to_10_100_1_1_cspf_20          Primary
-----
Paths : 11
=====
*A:SRU4>config>router>mpls#

```

srlg-group

- Syntax** `srlg-group [group-name]`
- Context** `show>router>mpls`
- Description** This command displays MPLS SRLG groups
- Parameters** *group-name* — Specifies the name of the SRLG group within a virtual router instance.
- Output** **MPLS SRLG Group Output** — The following table describes MPLS SRLG group output fields

Label	Description
Group Name	Displays the name of the SRLG group within a virtual router instance.
Group Value	Displays the group value associated with this SRLG group.
Interface	Displays the interface where the SRLG groups is associated.
No. of Groups	Displays the total number of SRLG groups associated with the output.

Sample Output

```
*A:SRU4>config>router>mpls# show router mpls srlg-group
```

```
=====
```

```
MPLS Srlg Groups
```

```
=====
```

Group Name	Group Value	Interfaces
1432	1432	srl-1
1433	1433	srl-3
1434	1434	aps-8
1435	1435	aps-9
2410	2410	srr-1
2411	2411	srr-2
2412	2412	srr-3
3410	3410	aps-1
3420	3420	aps-2
3430	3430	aps-3
3440	3440	sr4-1
41.80	4180	g7600
41104	41104	germ-1
415.70	41570	gsr1
420.40	42040	m160
422.60	42260	gsr2
44.200	44200	hubA
45100	45100	ess-7-1
45110	45110	ess-7-2
45120	45120	ess-7-3
4651	4651	src-1.1
4652	4652	src-1.2
4653	4653	src-1.3
4654	4654	src-1.4
4655	4655	src-1.5
4656	4656	src-1.6
4657	4657	src-1.7
4658	4658	src-1.8

Show Commands

```
4659                               4659          src-1.9
4660                               4660          src-1.10
-----
No. of Groups: 30
=====
*A:SRU4>config>router>mpls#

*A:SRU4>config>router>mpls# show router mpls srlg-group "1432"
=====
MPLS Srlg Groups
-----
Group Name                          Group Value  Interfaces
-----
1432                                 1432        srl-1
-----
No. of Groups: 1
=====
*A:SRU4>config>router>mpls#
```

static-lsp

Syntax **static-lsp** [*/sp-name*]
static-lsp {**transit** | **terminate**}
static-lsp **count**

Context show>router>mpls

Description This command displays MPLS static LSP information.

Output **MPLS Static LSP Output** — The following table describes MPLS static LSP output fields.

Label	Description
Lsp Name	The name of the LSP used in the path.
To	The system IP address of the egress router for the LSP.
Next Hop	The system IP address of the next hop in the LSP path.
In I/F	The ingress interface.
Out Label	The egress interface.
Out I/F	The egress interface.
Adm	Down — The path is administratively disabled. Up — The path is administratively enabled.
Opr	Down — The path is operationally down. Up — The path is operationally up.
LSPs	The total number of static LSPs.

Sample Output

```
A:ALA-12# show router mpls static-lsp
=====
MPLS Static LSPs (Originating)
=====
Lsp Name           To           Next Hop       Out Label Out I/F  Adm  Opr
-----
NYC_SJC_customer2 100.20.1.10 10.10.1.4     1020     1/1/1   Up   Up

LSPs : 1
=====
A:ALA-12#

*A:SRU4>config>router>mpls# show router mpls static-lsp transit
=====
MPLS Static LSPs (Transit)
=====
In Label   In Port     Out Label   Out Port   Next Hop           Adm  Opr
-----
240        aps-1      440         1/1/10    11.22.11.3        Up   Up
241        aps-1      441         1/1/10    11.22.11.3        Up   Up
242        aps-1      442         1/1/10    11.22.11.3        Up   Up
243        aps-1      443         1/1/10    11.22.11.3        Up   Up
244        aps-1      444         1/1/10    11.22.11.3        Up   Up
245        aps-1      445         1/1/10    11.22.11.3        Up   Up
246        aps-1      446         1/1/10    11.22.11.3        Up   Up
247        aps-1      447         1/1/10    11.22.11.3        Up   Up
248        aps-1      448         1/1/10    11.22.11.3        Up   Up
249        aps-1      449         1/1/10    11.22.11.3        Up   Up
250        aps-1      450         1/1/10    11.22.11.3        Up   Up
251        aps-1      451         1/1/10    11.22.11.3        Up   Up
252        aps-1      452         1/1/10    11.22.11.3        Up   Up
253        aps-1      453         1/1/10    11.22.11.3        Up   Up
...
207        3/2/8     407         1/1/9     11.22.10.3        Up   Up
208        3/2/8     408         1/1/9     11.22.10.3        Up   Up
209        3/2/8     409         1/1/9     11.22.10.3        Up   Up

LSPs : 256
=====
*A:SRU4>config>router>mpls#

A:ALA-12# show router mpls static-lsp terminate
=====
MPLS Static LSPs (Terminate)
=====
In Label   In I/F      Out Label   Out I/F    Next Hop           Adm  Opr
-----
1021       1/1/1      n/a         n/a        n/a                Up   Up

LSPs : 1
=====
A:ALA-12#
```

statistics-summary

Syntax `statistics-summary`

Context `show>router>mpls>statistics-summary`

Description This command displays the number of LSP statistics configured.

Sample Output

```
*A:SRU4>config>router>mpls# show router mpls statistics-summary
=====
Statistics Summary
=====
LSP egress statistics           : 0
LSP ingress statistics         : 0
=====
*A:SRU4>config>router>mpls#
```

status

Syntax	status
Context	show>router>mpls
Description	This command displays MPLS operation information.
Output	MPLS Status Output — The following table describes MPLS status output fields.

Label	Description
Admin Status	Down — MPLS is administratively disabled. Up — MPLS is administratively enabled.
Oper Status	Down — MPLS is operationally down. Up — MPLS is operationally up.
LSP Counts	Static LSPs — Displays the count of static LSPs that originate, transit, and terminate on or through the router. Dynamic LSPs — Displays the count of dynamic LSPs that originate, transit, and terminate on or through the router. Detour LSPs — Displays the count of detour LSPs that originate, transit, and terminate on or through the router.
FR Object	Enabled — Specifies that Fast reroute object is signaled for the LSP. Disabled — Specifies that Fast reroute object is not signaled for the LSP.
Resignal Timer	Enabled — Specifies that the resignal timer is enabled for the LSP. Disabled — Specifies that the resignal timer is disabled for the LSP.
Hold Timer	Displays the amount of time that the ingress node holds before programming its data plane and declaring the LSP up to the service module.

Sample Output

```
*A:bksim3107>show>router>mpls# status
```

```
=====
MPLS Status
=====
Admin Status      : Down          Oper Status      : Down
Oper Down Reason  : adminDown
FR Object         : Enabled       Resignal Timer   : Disabled
Hold Timer        : 1 seconds    Next Resignal    : N/A
Srlg Frr          : Disabled     Srlg Frr Strict  : Disabled
```

Show Commands

```

Admin Group Frr      : Disabled
Dynamic Bypass      : Enabled
Least Fill Min Thd.: 5 percent
Short. TTL Prop Lo*: Enabled
AB Sample Multipli*: 1
Exp Backoff Retry   : Disabled
Lsp Init RetryTime*: 30 seconds
Logger Event Bundl*: Disabled
User Srgl Database : Disabled
LeastFill ReoptiThd: 10 percent
Short. TTL Prop Tr*: Enabled
AB Adjust Multipli*: 288
CSPF On Loose Hop  : Disabled

```

```

P2mp Resignal Timer: Disabled
Sec FastRetryTimer : Disabled
P2P Max Bypass Ass*: 1000
P2PActPathFastRetry: Disabled
In Maintenance Mode: No
MplsTp              : Disabled
P2mp Next Resignal : N/A
Static LSP FR Timer: 30 seconds
P2MP S2L Fast Retry: Disabled

```

LSP Counts	Originate	Transit	Terminate
Static LSPs	0	0	0
Dynamic LSPs	0	0	0
Detour LSPs	0	0	0
P2MP S2Ls	0	0	0
MPLS-TP LSPs	0	0	0

```
*A:Dut-C# show router mpls status
```

MPLS Status

```

Admin Status      : Down
Oper Down Reason  : adminDown
FR Object         : Enabled
Hold Timer        : 1 seconds
Srgl Frr          : Disabled
Dynamic Bypass    : Enabled
Least Fill Min Thd.: 5 percent
Short. TTL Prop Lo*: Enabled
AB Sample Multipli*: 1
Exp Backoff Retry : Disabled
Oper Status       : Down
Resignal Timer    : Disabled
Next Resignal     : N/A
Srgl Frr Strict   : Disabled
User Srgl Database : Disabled
LeastFill ReoptiThd: 10 percent
Short. TTL Prop Tr*: Enabled
AB Adjust Multipli*: 288
CSPF On Loose Hop : Disabled

```

```

P2mp Resignal Timer: Disabled
Sec FastRetryTimer : Disabled
P2P Max Bypass Ass*: 1000
P2P Active Path Fa*: 10
ActiveFastRetryTime: Disabled
P2mp Next Resignal : N/A
Static LSP FR Timer: 30 seconds
P2MP S2l Fast Retr*: 10

```

LSP Counts	Originate	Transit	Terminate
Static LSPs	0	0	0
Dynamic LSPs	0	0	0
Detour LSPs	0	0	0
P2MP S2Ls	0	0	0

```
* indicates that the corresponding row element may have been truncated.
```

```
*A:Dut-C# /show router mpls status
```

MPLS Status

```

Admin Status      : Up                Oper Status       : Up
Oper Down Reason  : n/a
FR Object         : Enabled           Resignal Timer    : Disabled
Hold Timer        : 1 seconds         Next Resignal     : N/A
Srlg Frr         : Disabled           Srlg Frr Strict   : Disabled
Dynamic Bypass    : Disabled           User Srlg Database : Disabled
Least Fill Min Thd.: 5 percent        LeastFill ReoptiThd: 10 percent
Short. TTL Prop Lo*: Enabled          Short. TTL Prop Tr*: Enabled
AB Sample Multipli*: 1                AB Adjust Multipli*: 288
Exp Backoff Retry : Disabled           CSPF On Loose Hop : Disabled
Lsp Init RetryTime*: 30 seconds
  
```

```

P2mp Resignal Timer: Disabled          P2mp Next Resignal : N/A
Sec FastRetryTimer : Disabled          Static LSP FR Timer: 30 seconds
P2P Max Bypass Ass*: 1000
P2PActPathFastRetry: Disabled          P2MP S2L Fast Retry: Disabled
  
```

LSP Counts	Originate	Transit	Terminate
Static LSPs	0	0	0
Dynamic LSPs	3	0	2
Detour LSPs	0	0	0
P2MP S2Ls	0	0	0

* indicates that the corresponding row element may have been truncated.

show router mpls status

MPLS Status

```

Admin Status      : Down              Oper Status       : Down
Oper Down Reason  : adminDown
FR Object         : Enabled           Resignal Timer    : Disabled
Hold Timer        : 1 seconds         Next Resignal     : N/A
Srlg Frr         : Disabled           Srlg Frr Strict   : Disabled
Dynamic Bypass    : Enabled           User Srlg Database : Disabled
Least Fill Min Thd.: 5 percent        LeastFill ReoptiThd: 10 percent
Short. TTL Prop Lo*: Enabled          Short. TTL Prop Tr*: Enabled
AB Sample Multipli*: 1                AB Adjust Multipli*: 288
Exp Backoff Retry : Disabled           CSPF On Loose Hop : Disabled
  
```

```

P2mp Resignal Timer: Disabled          P2mp Next Resignal : N/A
Sec FastRetryTimer : Disabled          Static LSP FR Timer: 30 seconds
P2P Max Bypass Ass*: 1000
P2P Active Path Fa*: 10                P2MP S2l Fast Retr*: 10
ActiveFastRetryTime: Disabled
  
```

LSP Counts	Originate	Transit	Terminate
Static LSPs	0	0	0
Dynamic LSPs	0	0	0
Detour LSPs	0	0	0
P2MP S2Ls	0	0	0

* indicates that the corresponding row element may have been truncated.

*A:SRU4>config>router>mpls# show router mpls status

MPLS Status

```

Admin Status      : Up                Oper Status       : Up
  
```

Show Commands

```

Oper Down Reason      : n/a
FR Object             : Enabled
Hold Timer            : 1 seconds
Srlg Frr              : Enabled
Dynamic Bypass        : Enabled
Least Fill Min Thd.  : 5 percent
Short. TTL Prop Lo*  : Enabled

Resignal Timer        : 30 minutes
Next Resignal         : 13 minutes
Srlg Frr Strict       : Enabled
User Srlg Database    : Disabled
LeastFill ReoptiThd  : 10 percent
Short. TTL Prop Tr*  : Enabled

P2mp Resignal Timer  : Disabled
Sec FastRetryTimer   : Disabled

P2mp Next Resignal   : N/A
Static LSP FR Timer  : 30 seconds

```

LSP Counts	Originate	Transit	Terminate
Static LSPs	0	136	0
Dynamic LSPs	140	499	1626
Detour LSPs	0	0	0
P2MP S2Ls	0	0	0

```

* indicates that the corresponding row element may have been truncated.
*A:SRU4>config>router>mpls#

```

tp-lsp

Syntax **tp-lsp** [*lsp-name*] [**status** {**up** | **down**}] [**from** *ip-address* | **to** *ip-address*] [**detail**]
tp-lsp [*lsp-name*] **path** [**protecting** | **working**] [**detail**]
tp-lsp [*lsp-name*] **protection**

Context show>router>mpls

Parameters *lsp-name* — Specifies the LSP name up to 32 characters; accepts * as a wildcard character
path — Displays LSP path information.
protection — Displays LSP protection information.
up | down — Specifies the state of the LSP.

Output *A:mlstp-dutA# show router mpls tp-lsp
path
protection
to <a.b.c.d>
<lsp-name>
"lsp-32" "lsp-33" "lsp-34" "lsp-35" "lsp-36" "lsp-37" "lsp-38" "lsp-39"
"lsp-40" "lsp-41"
status {up|down}
from <ip-address>
detail

*A:mlstp-dutA# show router mpls tp-lsp "lsp-
"lsp-32" "lsp-33" "lsp-34" "lsp-35" "lsp-36" "lsp-37" "lsp-38" "lsp-39"
"lsp-40" "lsp-41"
*A:mlstp-dutA# show router mpls tp-lsp "lsp-32"

```

=====
MPLS MPLS-TP LSPs (Originating)
=====

```

LSP Name	To	Tun Id	Protect Path	Adm	Opr
----------	----	--------	--------------	-----	-----

```

-----
lsp-32                               0.0.3.234          32          No          Up    Up
-----
LSPs : 1
=====
*A:mlstp-dutA# show router mpls tp-lsp "lsp-32" detail
=====
MPLS MPLS-TP LSPs (Originating) (Detail)
=====
Type : Originating
-----
LSP Name      : lsp-32
LSP Type      : MplsTp
From Node Id  : 0.0.3.233+
Adm State     : Up
LSP Up Time   : 0d 04:50:47
Transitions   : 1
DestGlobalId : 42
LSP Tunnel ID : 32
To Node Id    : 0.0.3.234
Oper State    : Up
LSP Down Time : 0d 00:00:00
Path Changes  : 2
DestTunnelNum : 32
=====
*A:mlstp-dutA# show router mpls tp-lsp path
=====
MPLS-TP LSP Path Information
=====
LSP Name      : lsp-32
Admin State   : Up
To            : 0.0.3.234
Oper State    : Up
-----
Path          NextHop          InLabel  OutLabel  Out I/F          Admin  Oper
-----
Working              32          32          AtoB_1          Up    Down
Protect             2080         2080         AtoC_1          Up    Up
=====
LSP Name      : lsp-33
Admin State   : Up
To            : 0.0.3.234
Oper State    : Up
-----
Path          NextHop          InLabel  OutLabel  Out I/F          Admin  Oper
-----
Working              33          33          AtoB_1          Up    Down
Protect             2082         2082         AtoC_1          Up    Up
=====
LSP Name      : lsp-34
Admin State   : Up
To            : 0.0.3.234
Oper State    : Up
-----
Path          NextHop          InLabel  OutLabel  Out I/F          Admin  Oper
-----
Working              34          34          AtoB_1          Up    Down
Protect             2084         2084         AtoC_1          Up    Up
=====
LSP Name      : lsp-35
Admin State   : Up
To            : 0.0.3.234
Oper State    : Up
-----
Path          NextHop          InLabel  OutLabel  Out I/F          Admin  Oper
-----

```

Show Commands

```

Working          35          35          AtoB_1          Up          Down
Protect         2086         2086         AtoC_1          Up          Up
=====
LSP Name       : lsp-36                               To           : 0.0.3.234
Admin State   : Up                               Oper State   : Up

-----
Path           NextHop           InLabel   OutLabel   Out I/F           Admin   Oper
-----
Working          36          36          AtoB_1          Up          Down
Protect         2088         2088         AtoC_1          Up          Up
=====
LSP Name       : lsp-37                               To           : 0.0.3.234
Admin State   : Up                               Oper State   : Up

-----
Path           NextHop           InLabel   OutLabel   Out I/F           Admin   Oper
-----
Working          37          37          AtoB_1          Up          Down
Protect         2090         2090         AtoC_1          Up          Up
=====
LSP Name       : lsp-38                               To           : 0.0.3.234
Admin State   : Up                               Oper State   : Up

-----
Path           NextHop           InLabel   OutLabel   Out I/F           Admin   Oper
-----
Working          38          38          AtoB_1          Up          Down
Protect         2092         2092         AtoC_1          Up          Up
=====
LSP Name       : lsp-39                               To           : 0.0.3.234
Admin State   : Up                               Oper State   : Up

-----
Path           NextHop           InLabel   OutLabel   Out I/F           Admin   Oper
-----
Working          39          39          AtoB_1          Up          Down
Protect         2094         2094         AtoC_1          Up          Up
=====
LSP Name       : lsp-40                               To           : 0.0.3.234
Admin State   : Up                               Oper State   : Up

-----
Path           NextHop           InLabel   OutLabel   Out I/F           Admin   Oper
-----
Working          40          40          AtoB_1          Up          Down
Protect         2096         2096         AtoC_1          Up          Up
=====
LSP Name       : lsp-41                               To           : 0.0.3.234
Admin State   : Up                               Oper State   : Up

-----
Path           NextHop           InLabel   OutLabel   Out I/F           Admin   Oper
-----
Working          41          41          AtoB_1          Up          Down
Protect         2098         2098         AtoC_1          Up          Up

*A:mlstp-dutA# show router mpls tp-lsp "lsp-32" path working

=====
MPLS-TP LSP Working Path Information

```

```

LSP: "lsp-32"
=====
LSP Name       : lsp-32                To           : 0.0.3.234
Admin State    : Up                    Oper State    : Up
-----
Path           NextHop                InLabel      OutLabel     Out I/F      Admin Oper
-----
Working        32                32           AtoB_1       Up           Down
=====
*A:mlstp-dutA# show router mpls tp-lsp "lsp-32" path protect
=====
MPLS-TP LSP Protect Path Information
  LSP: "lsp-32"
=====
LSP Name       : lsp-32                To           : 0.0.3.234
Admin State    : Up                    Oper State    : Up
-----
Path           NextHop                InLabel      OutLabel     Out I/F      Admin Oper
-----
Protect        2080               2080         AtoC_1       Up           Up
=====
*A:mlstp-dutA# show router mpls tp-lsp "lsp-32" path protect detail
=====
MPLS-TP LSP Protect Path Information
  LSP: "lsp-32" (Detail)
=====
LSP Name       : lsp-32                To           : 0.0.3.234
Admin State    : Up                    Oper State    : Up

Protect path information
-----
Path Type      : Protect                LSP Num      : 2
Path Admin     : Up                    Path Oper    : Up
Out Interface  : AtoC_1                Next Hop Addr : n/a
In Label       : 2080                  Out Label    : 2080
Path Up Time   : 0d 04:52:17           Path Dn Time  : 0d 00:00:00
Active Path    : Yes                    Active Time   : 0d 00:52:56

MEP information
MEP State      : Up                    BFD           : cc
OAM Templ     : privatebed-oam-template CC Status     : inService
CV Status     : unknown
Protect Templ  : privatebed-protection-template WTR Count Down: 0 seconds
RX PDU        : SF (1,1)              TX PDU        : SF (1,1)
Defects       :

=====
*A:mlstp-dutA# show router mpls tp-lsp "lsp-32" path working detail
=====
MPLS-TP LSP Working Path Information
  LSP: "lsp-32" (Detail)
=====
LSP Name       : lsp-32                To           : 0.0.3.234
Admin State    : Up                    Oper State    : Up

Working path information
-----

```

Show Commands

```

Path Type      : Working
Path Admin     : Up
Down Reason    : ccFault ifDn
Out Interface  : AtoB_1
In Label       : 32
Path Up Time   : 0d 00:00:00
Active Path    : No
LSP Num        : 1
Path Oper      : Down
Next Hop Addr  : n/a
Out Label      : 32
Path Dn Time   : 0d 00:53:01
Active Time    : n/a

```

```

MEP information
MEP State      : Up
OAM Templ      : privatebed-oam-template
BFD            : cc
CC Status      : outOfService
CV Status      : unknown

```

```

=====
*A:mlstp-dutA#

```

```

*A:mlstp-dutA# show router mpls tp-lsp protection

```

```

=====
MPLS-TP LSP Protection Information
Legend: W-Working, P-Protect,

```

```

=====
LSP Name                Admin Oper Path   Ingr/Egr    Act. Rx PDU
                        State State  State Label      Path Tx PDU
-----
lsp-32                   Up    Up    W Down    32/32        No  SF (1,1)
                        P Up    2080/2080 Yes SF (1,1)
lsp-33                   Up    Up    W Down    33/33        No  SF (1,1)
                        P Up    2082/2082 Yes SF (1,1)
lsp-34                   Up    Up    W Down    34/34        No  SF (1,1)
                        P Up    2084/2084 Yes SF (1,1)
lsp-35                   Up    Up    W Down    35/35        No  SF (1,1)
                        P Up    2086/2086 Yes SF (1,1)
lsp-36                   Up    Up    W Down    36/36        No  SF (1,1)
                        P Up    2088/2088 Yes SF (1,1)
lsp-37                   Up    Up    W Down    37/37        No  SF (1,1)
                        P Up    2090/2090 Yes SF (1,1)
lsp-38                   Up    Up    W Down    38/38        No  SF (1,1)
                        P Up    2092/2092 Yes SF (1,1)
lsp-39                   Up    Up    W Down    39/39        No  SF (1,1)
                        P Up    2094/2094 Yes SF (1,1)
lsp-40                   Up    Up    W Down    40/40        No  SF (1,1)
                        P Up    2096/2096 Yes SF (1,1)
lsp-41                   Up    Up    W Down    41/41        No  SF (1,1)
                        P Up    2098/2098 Yes SF (1,1)

```

```

-----
No. of MPLS-TP LSPs: 10
=====

```

Show RSVP Commands

interface

Syntax `interface [ip-int-name | ip-address] statistics[detail]`

Context `show>router>rsvp`

Description This command shows RSVP interfaces.

ip-int-name — The name of the network IP interface. An interface name cannot be in the form of an IP address. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

ip-address — The system or network interface IP address.

statistics — Displays the RSVP interface name and counts of various RSVP packets sent and received on the interface.

detail — Displays detailed information.

Output **RSVP Interface Output** — The following table describes RSVP interface output fields.

Label	Description
Interface	The name of the IP interface.
Total Sessions	The total number of RSVP sessions on this interface. This count includes sessions that are active as well as sessions that have been signaled but a response has not yet been received.
Active Sessions	The total number of active RSVP sessions on this interface.
Total BW (Mbps)	The amount of bandwidth in megabits per second (Mbps) available to be reserved for the RSVP protocol on the interface.
Resv BW (Mbps)	The amount of bandwidth in mega-bits per seconds (Mbps) reserved on this interface. A value of zero (0) indicates that no bandwidth is reserved.
Adm	Down — The RSVP interface is administratively disabled. Up — The RSVP interface is administratively enabled.
Bfd	Yes — BFD is enabled on the RSVP interface. No — BFD is disabled on the RSVP interface.
Opr	Down — The RSVP interface is operationally down. Up — The RSVP interface is operationally up.
Port ID	Specifies the physical port bound to the interface.

Show RSVP Commands

Label	Description (Continued)
Active Resvs	The total number of active RSVP sessions that have reserved bandwidth.
Subscription	Specifies the percentage of the link bandwidth that RSVP can use for reservation. When the value is zero (0), no new sessions are permitted on this interface.
Port Speed	Specifies the speed for the interface.
Unreserved BW	Specifies the amount of unreserved bandwidth.
Reserved BW	Specifies the amount of bandwidth in megabits per second (Mbps) reserved by the RSVP session on this interface. A value of zero (0) indicates that no bandwidth is reserved.
Total BW	Specifies the amount of bandwidth in megabits per second (Mbps) available to be reserved for the RSVP protocol on this interface.
Aggregate	Aggregate messages are used to pack multiple RSVP messages into a single packet to reduce the network overhead. When the value is true, RSVP negotiates with each neighbor and gets consensus before sending aggregate messages.
Hello Interval	Specifies the length of time, in seconds, between the hello packets that the router sends on the interface. This value must be the same for all routers attached to a common network. When the value is zero (0), the sending of hello messages is disabled.
Refresh Time	Specifies the interval between the successive Path and Resv refresh messages. RSVP declares the session down after it misses $((\text{keep-multiplier} + 0.5) * 1.5 * \text{refresh-time})$ consecutive refresh messages.
Hello Timeouts	The total number of hello messages that timed out on this RSVP interface.
Neighbors	The IP address of the RSVP neighbor.
Sent	The total number of error free RSVP packets that have been transmitted on the RSVP interface.
Recd	The total number of error free RSVP packets received on the RSVP interface.
Total Packets	The total number of RSVP packets, including errors, received on the RSVP interface.
Bad Packets	The total number of RSVP packets with errors transmitted on the RSVP interface.
Paths	The total number of RSVP PATH messages received on the RSVP interface.
Path Errors	The total number of RSVP PATH ERROR messages transmitted on the RSVP interface.

Label	Description (Continued)
Path Tears	The total number of RSVP PATH TEAR messages received on the RSVP interface.
Resvs	The total number of RSVP RESV messages received on the RSVP interface.
Resv Confirms	The total number of RSVP RESV CONFIRM messages received on the RSVP interface.
Resv Errors	Total RSVP RESV ERROR messages received on RSVP interface.
Resv Tears	Total RSVP RESV TEAR messages received on RSVP interface.
Refresh Summaries	Total RSVP RESV summary refresh messages received on interface.
Refresh Acks	Total RSVP RESV acknowledgement messages received when refresh reduction is enabled on the RSVP interface.
Bundle Packets	Total RSVP RESV bundled packets received on the RSVP interface.
Hellos	Total RSVP RESV HELLO REQ messages received on the interface.

Sample Output

```
*A:Dut-A>config>router>mpls>lsp$ /show router rsvp interface "ip-10.10.1.1" detail
```

```
=====
RSVP Interface (Detailed) : ip-10.10.1.1
=====
-----
Interface : ip-10.10.1.1
-----
Interface          : ip-10.10.1.1
Port ID           : 1/1/1
Admin State       : Up
Oper State        : Up
Active Sessions   : 1
Active Resvs      : 0
Total Sessions    : 1
Subscription      : 100 %
Port Speed        : 100 Mbps
Total BW          : 100 Mbps
Aggregate         : Dsabl
Hello Interval    : n/a
Hello Timeouts    : n/a
Authentication    : Disabled
Auth Rx Seq Num   : n/a
Auth Key Id       : n/a
Auth Tx Seq Num   : n/a
Auth Win Size     : n/a
Refresh Reduc.    : Disabled
Reliable Deli.    : Disabled
Bfd Enabled       : n/a
Graceful Shut.    : Disabled
ImplicitNullLabel : Disabled*
GR helper         : n/a

Percent Link Bandwidth for Class Types*
Link Bw CT0       : 100
Link Bw CT1       : 0
Link Bw CT2       : 0
Link Bw CT3       : 0
Link Bw CT4       : 0
Link Bw CT5       : 0
Link Bw CT6       : 0
Link Bw CT7       : 0

Bandwidth Constraints for Class Types (Kbps)
BC0                : 100000
BC4                : 0
```

Show RSVP Commands

```
BC1          : 0          BC5          : 0
BC2          : 0          BC6          : 0
BC3          : 0          BC7          : 0
```

Bandwidth for TE Class Types (Kbps)

```
TE0-> Resv. Bw : 0          Unresv. Bw : 100000
TE1-> Resv. Bw : 0          Unresv. Bw : 100000
TE2-> Resv. Bw : 0          Unresv. Bw : 100000
TE3-> Resv. Bw : 0          Unresv. Bw : 100000
TE4-> Resv. Bw : 0          Unresv. Bw : 100000
TE5-> Resv. Bw : 0          Unresv. Bw : 100000
TE6-> Resv. Bw : 0          Unresv. Bw : 100000
TE7-> Resv. Bw : 0          Unresv. Bw : 100000
```

IGP Update

```
Up Thresholds(%) : 0 15 30 45 60 75 80 85 90 95 96 97 98 99 100 *
Down Thresholds(%) : 100 99 98 97 96 95 90 85 80 75 60 45 30 15 0 *
IGP Update Pending : No
Next Update       : N/A
Neighbors         : 10.20.1.2
* indicates inherited values
```

```
=====*A:Dut-A>con-
fig>router>mpls>lsp$
```

```
*A:SRU4>show>router>rsvp# interface
```

RSVP Interfaces

Interface	Total Sessions	Active Sessions	Total BW (Mbps)	Resv BW (Mbps)	Adm	Opr
system	-	-	-	-	Up	Up
aps-1	0	0	6012	0	Up	Up
aps-2	0	0	6010	0	Up	Up
aps-3	0	0	6010	0	Up	Up
sr4-1	0	0	6010	0	Up	Up
ess-7-1	9	9	100	0	Up	Up
ess-7-2	7	7	100	0	Up	Up
ess-7-3	4	4	100	0	Up	Up
ess-7-4	0	0	800	0	Up	Up
ess-7-5	0	0	800	0	Up	Up
ess-7-6	0	0	800	0	Up	Up
hubA	0	0	100	0	Up	Up
germ-1	0	0	1000	0	Up	Up
src-1.1	3	3	100	0	Up	Up
src-1.2	2	2	100	0	Up	Up
src-1.3	3	3	100	0	Up	Up
src-1.4	5	5	100	0	Up	Up
...						
g7600	0	0	1000	0	Up	Up
m160	481	481	1000	82	Up	Up

```
Interfaces : 35
```

```
*A:SRU4>show>router>rsvp#
```

```
*A:SRU4>show>router>rsvp# interface statistics
```

```
RSVP Interface (statistics)
```

```

=====
-----
Interface system
-----
Interface          : Up
Total Packets      (Sent) : 0                (Recd.): 0
Bad Packets        (Sent) : 0                (Recd.): 0
Paths              (Sent) : 0                (Recd.): 0
Path Errors        (Sent) : 0                (Recd.): 0
Path Tears         (Sent) : 0                (Recd.): 0
Resvs              (Sent) : 0                (Recd.): 0
Resv Confirms      (Sent) : 0                (Recd.): 0
Resv Errors        (Sent) : 0                (Recd.): 0
Resv Tears         (Sent) : 0                (Recd.): 0
Refresh Summaries  (Sent) : 0                (Recd.): 0
Refresh Acks       (Sent) : 0                (Recd.): 0
Bundle Packets     (Sent) : 0                (Recd.): 0
Hellos             (Sent) : 0                (Recd.): 0
Auth Errors        (Sent) : 0                (Recd.): 0
-----
...
-----
Interface m160
-----
Interface          : Up
Total Packets      (Sent) : 883643           (Recd.): 3052503
Bad Packets        (Sent) : 0                (Recd.): 0
Paths              (Sent) : 592153           (Recd.): 373610
Path Errors        (Sent) : 464              (Recd.): 30716
Path Tears         (Sent) : 29563            (Recd.): 3480
Resvs              (Sent) : 93970            (Recd.): 2518660
Resv Confirms      (Sent) : 0                (Recd.): 0
Resv Errors        (Sent) : 136815           (Recd.): 54115
Resv Tears         (Sent) : 13338            (Recd.): 71922
Refresh Summaries  (Sent) : 0                (Recd.): 0
Refresh Acks       (Sent) : 0                (Recd.): 0
Bundle Packets     (Sent) : 0                (Recd.): 0
Hellos             (Sent) : 17340            (Recd.): 0
Auth Errors        (Sent) : 0                (Recd.): 0
=====
*A:SRU4>show>router>rsvp#

*A:SRU4>show>router>rsvp# interface "sr4-1" statistics
=====
RSVP Interface : sr4-1 (statistics)
=====
-----
Interface sr4-1
-----
Interface          : Up
Total Packets      (Sent) : 33100            (Recd.): 20405
Bad Packets        (Sent) : 0                (Recd.): 0
Paths              (Sent) : 0                (Recd.): 1833
Path Errors        (Sent) : 1783             (Recd.): 9
Path Tears         (Sent) : 0                (Recd.): 1157
Resvs              (Sent) : 76               (Recd.): 0
Resv Confirms      (Sent) : 0                (Recd.): 0
Resv Errors        (Sent) : 0                (Recd.): 0
Resv Tears         (Sent) : 1                (Recd.): 0
Refresh Summaries  (Sent) : 4                (Recd.): 33

```

Show RSVP Commands

```
Refresh Acks          (Sent) : 1520                (Recd.): 4
Bundle Packets       (Sent) : 0                  (Recd.): 0
Hellos               (Sent) : 29716             (Recd.): 17369
Auth Errors          (Sent) : 0                  (Recd.): 0
=====
*A:SRU4>show>router>rsvp#

*A:SRU4>show>router>rsvp#  interface detail
=====
RSVP Interfaces (Detailed)
=====
-----
Interface : system
-----
Interface          : system
Port ID            : system
Admin State        : Up                        Oper State         : Up
Active Sessions    : 0                        Active Resvs       : 0
Total Sessions     : 0
Subscription       : 100 %                    Port Speed         : 0 Mbps
Total BW           : 0 Mbps                    Aggregate          : Dsabl
Hello Interval     : 3000 ms                    Hello Timeouts     : 0
Authentication     : Disabled
Auth Rx Seq Num    : n/a                        Auth Key Id        : n/a
Auth Tx Seq Num    : n/a                        Auth Win Size      : n/a
Refresh Reduc.     : Enabled                    Reliable Deli.     : Disabled
Bfd Enabled        : No                        Graceful Shut.     : Disabled
ImplicitNullLabel  : Disabled*

Percent Link Bandwidth for Class Types*
Link Bw CT0        : 100                       Link Bw CT4        : 0
Link Bw CT1        : 0                         Link Bw CT5        : 0
Link Bw CT2        : 0                         Link Bw CT6        : 0
Link Bw CT3        : 0                         Link Bw CT7        : 0

Bandwidth Constraints for Class Types (Kbps)
BC0                 : 0                         BC4                 : 0
BC1                 : 0                         BC5                 : 0
BC2                 : 0                         BC6                 : 0
BC3                 : 0                         BC7                 : 0

Bandwidth for TE Class Types (Kbps)
TE0-> Resv. Bw      : 0                         Unresv. Bw         : 0
TE1-> Resv. Bw      : 0                         Unresv. Bw         : 0
TE2-> Resv. Bw      : 0                         Unresv. Bw         : 0
TE3-> Resv. Bw      : 0                         Unresv. Bw         : 0
TE4-> Resv. Bw      : 0                         Unresv. Bw         : 0
TE5-> Resv. Bw      : 0                         Unresv. Bw         : 0
TE6-> Resv. Bw      : 0                         Unresv. Bw         : 0
TE7-> Resv. Bw      : 0                         Unresv. Bw         : 0

IGP Update
Up Thresholds(%)   : 0 15 30 45 60 75 80 85 90 95 96 97 98 99 100 *
Down Thresholds(%) : 100 99 98 97 96 95 90 85 80 75 60 45 30 15 0 *
IGP Update Pending : No
Next Update        : N/A
No Neighbors.
-----
Interface : m160
-----
Interface          : m160
```

```

Port ID          : 3/2/1
Admin State      : Up
Active Sessions  : 218
Total Sessions   : 517
Subscription     : 1000 %
Total BW         : 1000 Mbps
Hello Interval   : 3000 ms
Authentication   : Disabled
Auth Rx Seq Num  : n/a
Auth Tx Seq Num  : n/a
Refresh Reduc.   : Enabled
Bfd Enabled      : No
ImplicitNullLabel : Disabled*

Oper State       : Up
Active Resvs     : 0
Port Speed       : 100 Mbps
Aggregate        : Dsabl
Hello Timeouts   : 0
Auth Key Id      : n/a
Auth Win Size    : n/a
Reliable Deli.   : Disabled
Graceful Shut.   : Disabled

```

Percent Link Bandwidth for Class Types*

```

Link Bw CT0      : 100
Link Bw CT1      : 0
Link Bw CT2      : 0
Link Bw CT3      : 0
Link Bw CT4      : 0
Link Bw CT5      : 0
Link Bw CT6      : 0
Link Bw CT7      : 0

```

Bandwidth Constraints for Class Types (Kbps)

```

BC0              : 1000000
BC1              : 0
BC2              : 0
BC3              : 0
BC4              : 0
BC5              : 0
BC6              : 0
BC7              : 0

```

Bandwidth for TE Class Types (Kbps)

```

TE0-> Resv. Bw   : 0
TE1-> Resv. Bw   : 0
TE2-> Resv. Bw   : 0
TE3-> Resv. Bw   : 0
TE4-> Resv. Bw   : 0
TE5-> Resv. Bw   : 0
TE6-> Resv. Bw   : 0
TE7-> Resv. Bw   : 0
Unresv. Bw      : 1000000
Unresv. Bw      : 1000000
Unresv. Bw      : 1000000
Unresv. Bw      : 1000000
Unresv. Bw      : 1000000
Unresv. Bw      : 1000000
Unresv. Bw      : 1000000
Unresv. Bw      : 1000000

```

IGP Update

```

Up Thresholds(%) : 0 15 30 45 60 75 80 85 90 95 96 97 98 99 100 *
Down Thresholds(%) : 100 99 98 97 96 95 90 85 80 75 60 45 30 15 0 *
IGP Update Pending : No
Next Update       : N/A
Neighbors         : 10.100.30.20
* indicates inherited values

```

```

=====
*A:SRU4>show>router>rsvp#

```

neighbor

- Syntax** neighbor [*ip-address*] [*detail*]
- Context** show>router>rsvp
- Description** This command shows neighbor information.
- Parameters** *ip-address* — Displays RSVP information about the specified IP address.

Show RSVP Commands

detail — Displays detailed information. **Sample Output**

```
*A:Dut-A>config>router>mpls>lsp$ /show router rsvp neighbor
=====
RSVP Neighbors
=====
Legend :
  LR - Local Refresh Reduction          RR - Remote Refresh Reduction
  LD - Local Reliable Delivery          RM - Remote Node supports Message ID
  LG - Local Graceful Restart          RG - Remote Graceful Restart
=====
Neighbor      Interface      Hello  Last Oper  Flags
              Change
=====
10.20.1.2     ip-10.10.1.1  N/A   0d 00:00:44
10.20.1.3     ip-10.10.2.1  N/A   0d 00:00:44
-----
Neighbors : 2
-----
*A:Dut-A>config>router>mpls>lsp$
```

```
*A:SR1# show router rsvp neighbor detail
=====
RSVP Neighbors (Detailed)
=====
Legend :
  LR - Local Refresh Reduction          RR - Remote Refresh Reduction
  LD - Local Reliable Delivery          RM - Remote Node supports Message ID
  LG - Local Graceful Restart          RG - Remote Graceful Restart
=====
Neighbor : 30.30.30.2
-----
Interface      : int_SR1_SR3      Hello State      : Up
Last Oper Change : 0d 00:01:02      Flags           :
Source Instance : 0x6c8b7          Dst. Instance   : 0x530f8e0
Hello Refresh Time : 2 secs          Hello Timeout Time : 8 secs
Hello Timeout Cnt : 0              Inst. Mismatch Cnt : 0
Srefresh Time Rem. : 0 secs          Epoch Num Rx    : 0
Max Msg Id Rx     : 0              Out of order Msgs : 0
Retransmitted Msgs : 0          GR Helper       : Disabled
GR Proc Invoked Cnt: 0          GR Helper State  : None
GR Helper Time Rem : N/A          GR Nbr Restart Cap : N/A
GR Nbr Restart Time: N/A          GR Nbr Recvry Time : N/A
=====
```

```
*B:edge13# show router rsvp neighbor
=====
RSVP Neighbors
=====
Legend :
  LR - Local Refresh Reduction          RR - Remote Refresh Reduction
  LD - Local Reliable Delivery          RM - Remote Node supports Message ID
  LG - Local Graceful Restart          RG - Remote Graceful Restart
=====
Neighbor      Interface      Hello  Last Oper  Flags Change
              Change
=====
10.11.101.2   e13c2_1       Up    1d 00:52:56  LR RR LD RM
-----
LG RG
```

```

10.11.102.2      e13c2_2          Up    1d 00:52:56    LR RR LD RM
10.11.103.3      e13s1_1          Up    1d 00:52:54    LR RR LD RM

LG
10.11.104.3      e13s1_2          Up    1d 00:52:56
10.11.105.4      e13s2_1          Up    1d 00:52:56
10.11.106.4      e13s2_2          Up    1d 00:52:56

```

```
-----
Neighbors : 6
```

session

Syntax `session session-type [from ip-address | to ip-address] lsp-name name [status {up | down}] [detail]`

Context `show>router>rsvp`

Description This command shows RSVP session information.

Parameters `session session-type` — Specifies the session type.

Values originate, transit, terminate, detour, detour-transit, detour-terminate, bypass-tunnel

from ip-address — Specifies the IP address of the originating router.

to ip-address — Specifies the IP address of the egress router.

lsp-name name — Specifies the name of the LSP used in the path.

status up — Specifies to display a session that is operationally up.

status down — Specifies to display a session that is operationally down.

detail — Displays detailed information.

Output **RSVP Session Output** — The following table describes RSVP session output fields.

Label	Description
From	The IP address of the originating router.
To	The IP address of the egress router.
Tunnel ID	The IP address of the tunnel's ingress node supporting this RSVP session.
LSP ID	The ID assigned by the agent to this RSVP session.
Name	The administrative name assigned to the RSVP session by the agent.
State	Down — The operational state of this RSVP session is down. Up — The operational state of this RSVP session is up.

Sample Output

```
*A:SRU4>show>router>rsvp# session
```

Show RSVP Commands

```

=====
RSVP Sessions
=====
From          To            Tunnel LSP   Name                               State
            ID          ID
-----
110.20.1.5    110.20.1.4    18     27648 b4-1::b4-1                        Up
110.20.1.5    110.20.1.4    1       37902 gsr::gsr                          Up
110.20.1.5    10.20.1.22    11     53760 to_10_20_1_22_cspf::to_10_2*    Up
110.20.1.4    10.20.1.20    146    17920 to_10_20_1_20_cspf_3::to_10*    Up
110.20.1.4    10.20.1.20    145    34816 to_10_20_1_20_cspf_2::to_10*    Up
110.20.1.4    10.20.1.20    147    45056 to_10_20_1_20_cspf_4::to_10*    Up
110.20.1.4    10.20.1.20    148    6656  to_10_20_1_20_cspf_5::to_10*    Up
110.20.1.4    10.20.1.20    149    58880 to_10_20_1_20_cspf_6::to_10*    Up
110.20.1.4    10.20.1.20    150    13312 to_10_20_1_20_cspf_7::to_10*    Up
110.20.1.4    10.20.1.20    152    40448 to_10_20_1_20_cspf_9::to_10*    Up
110.20.1.4    10.20.1.20    154    27648 to_10_20_1_20_cspf_11::to_1*    Up
110.20.1.4    10.20.1.20    155    12288 to_10_20_1_20_cspf_12::to_1*    Up
110.20.1.4    10.20.1.20    151    46080 to_10_20_1_20_cspf_8::to_10*    Up
110.20.1.4    10.20.1.20    153    512   to_10_20_1_20_cspf_10::to_1*    Up
110.20.1.4    10.20.1.22    164    62464 to_10_20_1_22_cspf_2::to_10*    Up
110.20.1.4    10.20.1.20    156    37888 to_10_20_1_20_cspf_13::to_1*    Up
110.20.1.4    10.20.1.20    157    24064 to_10_20_1_20_cspf_14::to_1*    Up
110.20.1.4    10.20.1.20    158    19968 to_10_20_1_20_cspf_15::to_1*    Up
110.20.1.4    10.20.1.20    161    59904 to_10_20_1_20_cspf_18::to_1*    Up
...
110.20.1.3    110.20.1.4    54     23088 to_110_20_1_4_cspf_4::to_11*    Up
=====

```

Sessions : 1976

* indicates that the corresponding row element may have been truncated.

*A:SRU4>show>router>rsvp#

A:ALA-12# **show router rsvp session lsp-name A_C_2::A_C_2 status up**

```

=====
RSVP Sessions
=====
From          To            Tunnel LSP   Name                               State
            ID          ID
-----
10.20.1.1     10.20.1.3     2       40   A_C_2::A_C_2                      Up
=====

```

Sessions : 1

A:ALA-12#

*A:SRU4>show>router>rsvp# session detail

RSVP Sessions (Detailed)

LSP : b4-1::b4-1

```

-----
From          : 110.20.1.5                To            : 110.20.1.4
Tunnel ID     : 18                          LSP ID        : 27648
Style         : FF                          State         : Up
Session Type  : Terminate
In Interface  : 3/2/1                    Out Interface  : n/a
In Label      : 131071                  Out Label      : n/a

```

```

Previous Hop   : 10.100.30.20      Next Hop      : n/a
SetupPriority  : 7                 Hold Priority  : 0
Class Type    : 0
SubGrpOrig ID : 0                 SubGrpOrig Addr: 0.0.0.0
P2MP ID       : 0

```

```

Path Recd     : 7497              Path Sent     : 0
Resv Recd     : 0                 Resv Sent     : 1757

```

Summary messages:

```

SPath Recd    : 0                 SPath Sent    : 0
SResv Recd    : 0                 SResv Sent    : 0

```

LSP : gsr::gsr

```

From          : 110.20.1.5        To            : 110.20.1.4
Tunnel ID     : 1                 LSP ID       : 37902
Style         : FF                State         : Up
Session Type  : Terminate
In Interface  : 3/2/7             Out Interface : n/a
In Label      : 128547           Out Label     : n/a
Previous Hop  : 160.60.60.2      Next Hop     : n/a
SetupPriority  : 7                 Hold Priority  : 0
Class Type    : 0
SubGrpOrig ID : 0                 SubGrpOrig Addr: 0.0.0.0
P2MP ID       : 0

```

```

Path Recd     : 5225              Path Sent     : 0
Resv Recd     : 0                 Resv Sent     : 1741

```

Summary messages:

```

SPath Recd    : 0                 SPath Sent    : 0
SResv Recd    : 0                 SResv Sent    : 0

```

...

```

From          : 110.20.1.3        To            : 110.20.1.4
Tunnel ID     : 54                LSP ID       : 23088
Style         : SE                State         : Up
Session Type  : Terminate
In Interface  : aps-1             Out Interface : n/a
In Label      : 130409           Out Label     : n/a
Previous Hop  : 104.104.0.3      Next Hop     : n/a
SetupPriority  : 7                 Hold Priority  : 0
Class Type    : 0
SubGrpOrig ID : 0                 SubGrpOrig Addr: 0.0.0.0
P2MP ID       : 0

```

```

Path Recd     : 1                 Path Sent     : 0
Resv Recd     : 0                 Resv Sent     : 1

```

Summary messages:

```

SPath Recd    : 840              SPath Sent    : 0
SResv Recd    : 0                 SResv Sent    : 850

```

=====
*A:SRU4>show>router

*A:Dut-B# show router rsvp session detour detail

=====
RSVP Sessions (Detailed)

Show RSVP Commands

```
=====
LSP : tof919::1_detour
-----
From          : 10.20.1.2          To          : 10.20.1.4
Tunnel ID     : 919              LSP ID     : 15441
Style        : SE                State      : Up
Session Type  : Originate (Detour)
In Interface  : n/a              Out Interface : 1/1/2:1
In Label     : n/a              Out Label   : 129865
Previous Hop  : n/a              Next Hop    : 10.10.101.4
SetupPriority : 4                Hold Priority : 4
Class Type   : 5
SugGrpOrig ID : 0                SubGrpOrig Addr: 0.0.0.0
P2MP ID      : 0

Path Recd    : 0                Path Sent   : 106
Resv Recd    : 113             Resv Sent   : 0

Summary messages:
SPath Recd   : 0                SPath Sent  : 0
SResv Recd   : 0                SResv Sent  : 0
=====
*A:Dut-B#

*A:Dut-C# show router mpls lsp transit detail
=====
MPLS LSPs (Transit) (Detail)
-----
LSP tof1::sec2
-----
From          : 10.20.1.2          To          : 10.20.1.4
State        : Up
SetupPriority : 5                Hold Priority : 5
Class Type   : 5
In Interface  : lag-1:0          In Label    : 131068
Out Interface : 2/1/2            Out Label   : 131068
Previous Hop  : 10.10.12.2      Next Hop    : 10.10.11.4
Reserved BW   : 1000 Kbps
=====
*A:Dut-C#

*A:Dut-B# show router rsvp session detour-terminate detail
=====
RSVP Sessions (Detailed)
=====
LSP : tof878::1_detour
-----
From          : 10.20.1.2          To          : 10.20.1.4
Tunnel ID     : 878              LSP ID     : 14929
Style        : SE                State      : Up
Session Type  : Terminate (Detour)
In Interface  : lag-1:0          Out Interface : 1/1/2:8
In Label     : 131069           Out Label   : 127951
Previous Hop  : 10.10.12.3      Next Hop    : 10.10.108.4
SetupPriority : 4                Hold Priority : 4
Class Type   : 5
SugGrpOrig ID : 0                SubGrpOrig Addr: 0.0.0.0
P2MP ID      : 0
```

```

Path Recd      : 128          Path Sent      : 0
Resv Recd     : 125          Resv Sent     : 124

```

Summary messages:

```

SPath Recd    : 0           SPath Sent    : 0
SResv Recd    : 0           SResv Sent    : 0

```

```

=====
*A:Dut-B#

```

```

*A:Dut-B# show router rsvp session bypass-tunnel detail

```

```

=====
RSVP Sessions (Detailed)
=====

```

```

LSP : bypass-link10.10.108.4
-----

```

```

From          : 10.20.1.2          To          : 10.10.109.4
Tunnel ID     : 4003              LSP ID     : 6
Style        : FF                 State      : Up
Session Type  : Bypass Tunnel
In Interface  : n/a              Out Interface : 1/1/2:9
In Label     : n/a              Out Label   : 124069
Previous Hop  : n/a              Next Hop    : 10.10.109.4
SetupPriority : 7                 Hold Priority : 0
Class Type   : 0
SugGrpOrig ID : 0                 SubGrpOrig Addr: 0.0.0.0
P2MP ID      : 0

```

```

Path Recd      : 0          Path Sent      : 3
Resv Recd     : 4          Resv Sent     : 0

```

Summary messages:

```

SPath Recd    : 0           SPath Sent    : 0
SResv Recd    : 0           SResv Sent    : 0

```

```

=====
*A:Dut-B#

```

```

*A:Dut-B# show router rsvp session detour detail

```

```

=====
RSVP Sessions (Detailed)
=====

```

```

LSP : tof919::1_detour
-----

```

```

From          : 10.20.1.2          To          : 10.20.1.4
Tunnel ID     : 919              LSP ID     : 15441
Style        : SE                 State      : Up
Session Type  : Originate (Detour)
In Interface  : n/a              Out Interface : 1/1/2:1
In Label     : n/a              Out Label   : 129865
Previous Hop  : n/a              Next Hop    : 10.10.101.4
SetupPriority : 4                 Hold Priority : 4
Class Type   : 5
SugGrpOrig ID : 0                 SubGrpOrig Addr: 0.0.0.0
P2MP ID      : 0

```

```

Path Recd      : 0          Path Sent      : 106
Resv Recd     : 113         Resv Sent     : 0

```

Summary messages:

```

SPath Recd    : 0           SPath Sent    : 0
SResv Recd    : 0           SResv Sent    : 0

```

Show RSVP Commands

```
=====
*A:Dut-B#
```

```
*A:Dut-B# show router rsvp session detour-transit detail
```

```
=====
RSVP Sessions (Detailed)
```

```
-----
LSP : tof919::l_detour
```

```
-----
From           : 10.20.1.2           To           : 10.20.1.4
Tunnel ID      : 919                 LSP ID       : 15441
Style          : SE                  State        : Up
Session Type   : Transit (Detour)
In Interface   : lag-1:0             Out Interface : 1/1/2:6
In Label       : 131071             Out Label    : 127952
Previous Hop   : 10.10.12.3         Next Hop     : 10.10.106.4
SetupPriority  : 4                   Hold Priority : 4
Class Type     : 5
SugGrpOrig ID : 0                   SubGrpOrig Addr: 0.0.0.0
P2MP ID       : 0
```

```
Path Recd      : 119                 Path Sent    : 123
Resv Recd      : 121                 Resv Sent    : 120
```

```
Summary messages:
```

```
SPath Recd     : 0                   SPath Sent   : 0
SResv Recd     : 0                   SResv Sent   : 0
```

```
=====
*A:Dut-B#
```

```
*A:Dut-B# show router rsvp session detour-terminate detail
```

```
=====
RSVP Sessions (Detailed)
```

```
-----
LSP : tof878::l_detour
```

```
-----
From           : 10.20.1.2           To           : 10.20.1.4
Tunnel ID      : 878                 LSP ID       : 14929
Style          : SE                  State        : Up
Session Type   : Terminate (Detour)
In Interface   : lag-1:0             Out Interface : 1/1/2:8
In Label       : 131069             Out Label    : 127951
Previous Hop   : 10.10.12.3         Next Hop     : 10.10.108.4
SetupPriority  : 4                   Hold Priority : 4
Class Type     : 5
SugGrpOrig ID : 0                   SubGrpOrig Addr: 0.0.0.0
P2MP ID       : 0
```

```
Path Recd      : 128                 Path Sent    : 0
Resv Recd      : 125                 Resv Sent    : 124
```

```
Summary messages:
```

```
SPath Recd     : 0                   SPath Sent   : 0
SResv Recd     : 0                   SResv Sent   : 0
```

```
=====
*A:Dut-B#
```

```
*A:Dut-B# show router rsvp session bypass-tunnel detail
```

```

=====
RSVP Sessions (Detailed)
-----
LSP : bypass-link10.10.108.4
-----
From          : 10.20.1.2           To          : 10.10.109.4
Tunnel ID     : 4003                LSP ID      : 6
Style         : FF                  State        : Up
Session Type  : Bypass Tunnel
In Interface  : n/a                 Out Interface : 1/1/2:9
In Label      : n/a                 Out Label    : 124069
Previous Hop  : n/a                 Next Hop     : 10.10.109.4
SetupPriority : 7                   Hold Priority : 0
Class Type    : 0
SugGrpOrig ID : 0                   SubGrpOrig Addr: 0.0.0.0
P2MP ID      : 0

Path Recd     : 0                   Path Sent    : 3
Resv Recd     : 4                   Resv Sent    : 0

Summary messages:
SPath Recd    : 0                   SPath Sent   : 0
SResv Recd    : 0                   SResv Sent   : 0
=====
*A:Dut-B#

```

statistics

Syntax	statistics
Context	show>router>rsvp
Description	This command displays global statistics in the RSVP instance.
Output	RSVP Statistics Output — The following table describes RSVP statistics output fields.

Label	Description
PATH Timeouts	The total number of path timeouts.
RESV Timeouts	The total number of RESV timeouts.

Sample Output

```

*A:SR1# /show router rsvp statistics
=====
RSVP Global Statistics
=====
PATH Timeouts      : 0                RESV Timeouts      : 0
GR Helper PATH Tim*: 0          GR Helper RESV Tim*: 0
=====
* indicates that the corresponding row element may have been truncated.

*A:SRU4>show>router>rsvp# statistics
=====

```

Show RSVP Commands

```
RSVP Global Statistics
=====
PATH Timeouts      : 1026                RESV Timeouts      : 182
=====
*A:SRU4>show>router>rsvp#
```

status

Syntax `rsvp status`

Context `show>router>rsvp`

Description This command displays RSVP status.

Output **RSVP Status** — The following table describes RSVP status output fields.

Label	Description
Admin Status	Down — RSVP is administratively disabled. Up — RSVP is administratively enabled.
Oper Status	Down — RSVP is operationally down. Up — RSVP is operationally up.
Keep Multiplier	Displays the keep-multiplier number used by RSVP to declare that a reservation is down or the neighbor is down.
Refresh Time	Displays the refresh-time interval, in seconds, between the successive Path and Resv refresh messages.
Message Pacing	Enabled — RSVP messages, specified in the max-burst command, are sent in a configured interval, specified in the period command. Disabled — Message pacing is disabled. RSVP message transmission is not regulated.
Pacing Period	Displays the time interval, in milliseconds, when the router can send the specified number of RSVP messages specified in the rsvp max-burst command.
Max Packet Burst	Displays the maximum number of RSVP messages that are sent in the specified period under normal operating conditions.
Soft Preemption Timer	Displays the time, in seconds, a node holds on to a reservation for which it has triggered the soft preemption procedure.
Rapid Retransmit	Displays the value of the rapid retransmission interval.
Rapid Retry Limit	Displays the rapid retry limit.
Graceful Shutdown	Specifies whether graceful shutdown of the RSVP node is enabled.

Sample Output

```

B:# show router rsvp status
=====
RSVP Status
=====
Admin Status      : Down          Oper Status      : Down
Keep Multiplier   : 3              Refresh Time     : 30 sec
Message Pacing    : Disabled       Pacing Period    : 100 msec
Max Packet Burst  : 650 msgs      Refresh Bypass   : Disabled
Rapid Retransmit  : 5 hmsec       Rapid Retry Limit : 3
Graceful Shutdown : Disabled       SoftPreemptionTimer: 300 sec
Implicit Null Label: Disabled     Node-id in RRO   : Exclude
P2P Merge Point Ab*: 10      P2MP Merge Point A*: 10
DiffServTE AdmModel: Basic
Percent Link Bw CT0: 100      Percent Link Bw CT4: 0
Percent Link Bw CT1: 0        Percent Link Bw CT5: 0
Percent Link Bw CT2: 0        Percent Link Bw CT6: 0
Percent Link Bw CT3: 0        Percent Link Bw CT7: 0
TE0 -> Class Type : 0        Priority          : 0
TE1 -> Class Type : 0        Priority          : 1
TE2 -> Class Type : 0        Priority          : 2
TE3 -> Class Type : 0        Priority          : 3
TE4 -> Class Type : 0        Priority          : 4
TE5 -> Class Type : 0        Priority          : 5
TE6 -> Class Type : 0        Priority          : 6
TE7 -> Class Type : 0        Priority          : 7
IgpThresholdUpdate : Disabled
Up Thresholds(%)   : 0 15 30 45 60 75 80 85 90 95 96 97 98 99 100
Down Thresholds(%) : 100 99 98 97 96 95 90 85 80 75 60 45 30 15 0
Update Timer       : N/A
Update on CAC Fail : Disabled
=====
* indicates that the corresponding row element may have been truncated.
=====
RSVP Status
=====
Admin Status      : Down          Oper Status      : Down
Keep Multiplier   : 3              Refresh Time     : 30 sec
Message Pacing    : Disabled       Pacing Period    : 100 msec
Max Packet Burst  : 650 msgs      Refresh Bypass   : Disabled
Rapid Retransmit  : 5 hmsec       Rapid Retry Limit : 3
Graceful Shutdown : Disabled       SoftPreemptionTimer: 300 sec
GR Max Recovery   : 300 sec        GR Max Restart   : 120 sec
Implicit Null Label: Disabled     Node-id in RRO   : Exclude
P2P Merge Point Ab*: Disabled     P2MP Merge Point A*: Disabled
DiffServTE AdmModel: Basic
Percent Link Bw CT0: 100      Percent Link Bw CT4: 0
Percent Link Bw CT1: 0        Percent Link Bw CT5: 0
Percent Link Bw CT2: 0        Percent Link Bw CT6: 0
Percent Link Bw CT3: 0        Percent Link Bw CT7: 0
TE0 -> Class Type : 0        Priority          : 0
TE1 -> Class Type : 0        Priority          : 1
TE2 -> Class Type : 0        Priority          : 2
TE3 -> Class Type : 0        Priority          : 3
TE4 -> Class Type : 0        Priority          : 4
TE5 -> Class Type : 0        Priority          : 5
TE6 -> Class Type : 0        Priority          : 6
TE7 -> Class Type : 0        Priority          : 7
IgpThresholdUpdate : Disabled

```

Show RSVP Commands

```
Up Thresholds(%) : 0 15 30 45 60 75 80 85 90 95 96 97 98 99 100
Down Thresholds(%) : 100 99 98 97 96 95 90 85 80 75 60 45 30 15 0
Update Timer : N/A
Update on CAC Fail : Disabled
```

```
=====
* indicates that the corresponding row element may have been truncated.
```

```
show router rsvp status
```

```
=====
RSVP Status
```

```
=====
Admin Status : Down Oper Status : Down
Keep Multiplier : 3 Refresh Time : 30 sec
Message Pacing : Disabled Pacing Period : 100 msec
Max Packet Burst : 650 msgs Refresh Bypass : Disabled
Rapid Retransmit : 5 hmsec Rapid Retry Limit : 3
Graceful Shutdown : Disabled SoftPreemptionTimer: 300 sec
Implicit Null Label: Disabled Node-id in RRO : Exclude
P2P Merge Point Ab*: 10 P2MP Merge Point A*: 10
DiffServTE AdmModel: Basic
Percent Link Bw CT0: 100 Percent Link Bw CT4: 0
Percent Link Bw CT1: 0 Percent Link Bw CT5: 0
Percent Link Bw CT2: 0 Percent Link Bw CT6: 0
Percent Link Bw CT3: 0 Percent Link Bw CT7: 0
TE0 -> Class Type : 0 Priority : 0
TE1 -> Class Type : 0 Priority : 1
TE2 -> Class Type : 0 Priority : 2
TE3 -> Class Type : 0 Priority : 3
TE4 -> Class Type : 0 Priority : 4
TE5 -> Class Type : 0 Priority : 5
TE6 -> Class Type : 0 Priority : 6
TE7 -> Class Type : 0 Priority : 7
IgpThresholdUpdate : Disabled
Up Thresholds(%) : 0 15 30 45 60 75 80 85 90 95 96 97 98 99 100
Down Thresholds(%) : 100 99 98 97 96 95 90 85 80 75 60 45 30 15 0
Update Timer : N/A
Update on CAC Fail : Disabled
```

```
=====
* indicates that the corresponding row element may have been truncated.
```

```
*A:SRU4>show>router>rsvp# status
```

```
=====
RSVP Status
```

```
=====
Admin Status : Up Oper Status : Up
Keep Multiplier : 3 Refresh Time : 30 sec
Message Pacing : Disabled Pacing Period : 100 msec
Max Packet Burst : 650 msgs Refresh Bypass : Disabled
Rapid Retransmit : 100 hmsec Rapid Retry Limit : 3
Graceful Shutdown : Disabled SoftPreemptionTimer: 300 sec
Implicit Null Label: Disabled
DiffServTE AdmModel: Basic
Percent Link Bw CT0: 100 Percent Link Bw CT4: 0
Percent Link Bw CT1: 0 Percent Link Bw CT5: 0
Percent Link Bw CT2: 0 Percent Link Bw CT6: 0
Percent Link Bw CT3: 0 Percent Link Bw CT7: 0
TE0 -> Class Type : 0 Priority : 0
TE1 -> Class Type : 0 Priority : 1
TE2 -> Class Type : 0 Priority : 2
TE3 -> Class Type : 0 Priority : 3
TE4 -> Class Type : 0 Priority : 4
TE5 -> Class Type : 0 Priority : 5
```

```
TE6 -> Class Type : 0          Priority      : 6
TE7 -> Class Type : 0          Priority      : 7
IgpThresholdUpdate : Disabled
Up Thresholds(%)   : 0 15 30 45 60 75 80 85 90 95 96 97 98 99 100
Down Thresholds(%) : 100 99 98 97 96 95 90 85 80 75 60 45 30 15 0
Update Timer       : N/A
Update on CAC Fail : Disabled
```

```
=====
*A:SRU4>show>router>rsvp#
```

Tools Commands

lspinfo

Syntax	lspinfo
Context	tools>dump>router>mpls
Description	This command dumps LSP information for MPLS.

Sample Output

```
A:PC6-192.168.2.104># /tools dump router mpls lspinfo
LSP "1" LspIdx 1 LspType Dynamic State LSPS_ON_PRIMARY Flags 0x2000
NumPaths 2 NumSdps 0 NumCBFSdps 0
HoldTimeRemaining 0sec ClassType 0 Metric 0 OperMetric 65535
LDPoRsvp Include VprnAutoBind Include IgpShortCut Include BgpShortCut Include
BgpTransTunnel Include IpShCutTtlPropLocal TRUE IpShCutTtlPropTans TRUE
  Path "1" LspId 54322 PathType Primary ActivePath Yes
    Hop No: 1 IngIp 10.254.1.3 EgrIp 0.0.0.0 rtrId 0.0.0.0 HopType 1 Flag 0x0
    Hop No: 2 IngIp 10.254.1.1 EgrIp 0.0.0.0 rtrId 0.0.0.0 HopType 1 Flag 0x1
  LspPath FsmState LSP_PATHS_UP Flags 0x0
  RetryAttempts 0 RetryRemaining -1 RetryInterval 30 NextRetryIn 0secs
  Class Type 0 SetupPri 7 HoldPri 0 Pref 0 HopLimit 20 TotIgpCost 0 Metric 65535
  Oper Values:
    Class Type 0 SetupPri 7 HoldPri 0 HopLimit 20 record route no record label
    Metric 65535 [TE] include 0x25 exclude 0x80
  Last MBB -
    Type Config Change State Successful CspfFailures 0
    Started 2011/03/30 12:21:23.25 UTC
    Ended 2011/03/30 12:21:24.13 UTC
    Pre-MBB IGP Cost 0
```

ftn

Syntax	ftn
Context	tools>dump>router>mpls
Description	This command dumps FTN information for MPLS.

ilm

Syntax	ilm
Context	tools>dump>router>mpls
Description	This command dumps ILM information for MPLS.

memory-usage

Syntax	memory-usage
Context	tools>dump>router>mpls
Description	This command dumps memory usage information for MPLS.

cspf

Syntax	cspf to ip-address
Context	tools>perform>router>mpls

Sample Output

```
*A:Dut-C# /tools perform router mpls cspf to 10.20.1.6
Req CSPF for all ECMP paths
  from: this node to: 10.20.1.6 w/(no Diffserv) class: 0 , setup Priority 7, Hold
Priority 0 TE Class: 7

CSPF Path
To      : 10.20.1.6
Path 1  : (cost 2000)
  Src:   10.20.1.3   (= Rtr)
  Egr:   unnumbered lnkId 4      -> Ingr:   unnumbered lnkId 2
Rtr:    10.20.1.5    (met 1000)
  Egr:   unnumbered lnkId 3      -> Ingr:   unnumbered lnkId 3
Rtr:    10.20.1.6    (met 1000)
  Dst:   10.20.1.6   (= Rtr)

Path 2  : (cost 2000)
  Src:   10.20.1.3   (= Rtr)
  Egr:   unnumbered lnkId 5      -> Ingr:   unnumbered lnkId 5
Rtr:    10.20.1.4    (met 1000)
  Egr:   unnumbered lnkId 3      -> Ingr:   unnumbered lnkId 2
Rtr:    10.20.1.6    (met 1000)
  Dst:   10.20.1.6   (= Rtr)

*A:Dut-C#
```

force-switch-path

Syntax	force-switch-path [lsp lsp-name] [path path-name]
Context	tools>perform>router>mpls
Description	Use this command to move from a standby path to any other standby path regardless of priority. The no form of the command reverts to priority path.

Tools Commands

Parameters *lsp-name* — Specifies an existing LSP name to move.
path-name — Specifies the path name to which to move the specified LSP.

plr

Syntax **plr**

Context tools>dump>router>mpls>bypass-tunnel

Description

Sample Output

```
tools dump router mpls bypass-tunnel plr
=====
MPLS Bypass Tunnels
=====
Legend : m - Manual      d - Dynamic      p - P2mp
=====
To          State  Out I/F      Out Label    Reserved    Protected    Type
           BW (Kbps)  LSP Count
-----
10.10.12.1  Up    1/1/4        124181       0           369          d

To          : 10.10.12.1      State          : Up
Out I/F     : 1/1/4            Out Label      : 124181
Up Time    : 0d 19:24:13    Active Time    : n/a
Reserved BW : 0 Kbps         Protected LSP Count : 369
Type       : Dynamic
SetupPriority : 7              Hold Priority   : 0
Class Type  : 0              Tunnel Id      : 63697
Actual Hops :
    10.10.12.2(S)      -> 10.10.12.1(S)

    Plr List: (Last PlrIdx 2)
    -----
    PLR List Index = 1
    PLR current State = PLRS_CONNECTED
    NextNodeSysId = 8.8.8.8
    AvoidNodeId = 2.2.2.2
    NodeProtect = 2 (Node Protect)
    LSP Count = 197
    PLR List Index = 2
    PLR current State = PLRS_BackupInUse
    NextNodeSysId = 8.8.8.8
    AvoidNodeId = 2.2.2.2
    NodeProtect = 2 (Node Protect)
    LSP Count = 203
```

cspf

Syntax **cspf to ip-addr [from ip-addr] [bandwidth bandwidth] [include-bitmap bitmap] [exclude-bitmap bitmap] [hop-limit limit] [exclude-address excl-addr [excl-addr...(up to 8 max)]]**

[**use-te-metric**] [**strict-srlg**] [**srlg-group** *grp-id...*(up to 8 max)] [**exclude-node** *excl-node-id* [*excl-node-id...*(up to 8 max)]] [**skip-interface** *interface-name*] [**ds-class-type** *class-type*] [**cspf-reqtype** *req-type*] [**least-fill-min-thd** *thd*] [**setup-priority** *val*] [**hold-priority** *val*]

Context	tools>perform>router>mpls
Description	This command computes a CSPF path with specified user constraints.
Default	none
Parameters	<p>to <i>ip-addr</i> — Specify the destination IP address.</p> <p>from <i>ip-addr</i> — Specify the originating IP address.</p> <p>bandwidth <i>bandwidth</i> — Specifies the amount of bandwidth in mega-bits per second (Mbps) to be reserved.</p> <p>include-bitmap <i>bitmap</i> — Specifies to include a bit-map that specifies a list of admin groups that should be included during setup.</p> <p>exclude-bitmap <i>bitmap</i> — Specifies to exclude a bit-map that specifies a list of admin groups that should be included during setup.</p> <p>hop-limit <i>limit</i> — Specifies the total number of hops a detour LSP can take before merging back onto the main LSP path.</p> <p>exclude-address <i>ip-addr</i> — Specifies IP addresses, up to 8, that should be included during setup.</p> <p>use-te-metric — Specifies the use of the traffic engineering metric used on the interface.</p> <p>strict-srlg — Specifies whether to associate the LSP with a bypass or signal a detour if a bypass or detour satisfies all other constraints except the SRLG constraints.</p> <p>srlg-group <i>grp-id</i> — Specifies up to 8 Shared Risk Loss Groups (SRLGs). An SRLG group represents a set of interfaces which could be subject to the same failures or defects and thus share the same risk of failing.</p> <p>Values 0 — 4294967295</p> <p>exclude-node <i>excl-node-id</i> — specifies a list of address that should be excluded when this LSP is setup.</p> <p>skip-interface <i>interface-name</i> — Specifies an interface name that should be skipped during setup.</p> <p>ds-class-type <i>class-type</i> — Specifies the class type (CT) associated with this LSP.</p> <p>Values 0 — 7</p> <p>cspf-reqtype <i>req-type</i> — Specifies the req. type.</p> <p>Values all, random, least-fill</p> <p>least-fill-min-thd <i>thd</i> — Specifies whether the use of the least-fill path selection method for the computation of the path of this LSP is enabled.</p> <p>Values 1 — 100</p> <p>setup-priority <i>val</i> — Specifies the setup priority to use when insufficient bandwidth is available to setup an LSP.</p> <p>Values 0 — 7</p>

hold-priority *val* — Specifies the hold priority value to use when insufficient bandwidth is available to setup an LSP.

Values 0 — 7

resignal

Syntax **resignal** {**lsp** *lsp-name* **path** *path-name* | **delay** *minutes*}
resignal {**p2mp-lsp** *p2mp-lsp-name* **p2mp-instance** *p2mp-instance-name* | **p2mp-delay** *p2mp-minutes*}

Context tools>perform>router>mpls

Description This command resignals a specific LSP path. The *minutes* parameter configures the global timer or all LSPs for resignal. If only *lsp-name* and *path-name* are provided, the LSP will be resignaled immediately.

Parameters *lsp-name* — Specifies an existing LSP name to resignal.
path-name — Specifies an existing path name to resignal.
delay *minutes* — Configures the global timer or all LSPs to resignal.
p2mp-lsp *p2mp-lsp-name* — Specifies an existing point-to-multipoint LSP name.
p2mp-instance *p2mp-instance-name* — Specifies a name that identifies the P2MP LSP instance
p2mp-delay *p2mp-minutes* — Specifies the delay time, in minutes.

Values 0 — 60

switch-path

switch-path [**lsp** *lsp-name*] [**path** *path-name*]

Context tools>perform>router>mpls

Use this command to move from a standby (or an active secondary) to another standby of the same priority. If a new standby path with a higher priority or a primary path comes up after the **tools perform** command is executed, the path re-evaluation command runs and the path is moved to the path specified by the outcome of the re-evaluation.

Parameters *lsp-name* — Specifies an existing LSP name to move.
path-name — Specifies the path name to which to move the specified LSP.

te-lspinfo

Syntax	te-lspinfo [endpoint <i>ip-address</i>] [sender <i>ip-address</i>] [<i>lspid lsp-id</i>] [detail] [p2p p2p-tid <i>tunnel-id</i>] te-lspinfo [endpoint <i>ip-address</i>] [sender <i>ip-address</i>] [<i>lspid lsp-id</i>] [detail] [p2p p2p-tid <i>tunnel-id</i>]{ [phops] [nhops] [s2l <i>ip-address</i>] }
Context	tools>dump>router>mpls
Description	This command displays TE LSP information for MPLS.
Default	none

Sample Output

```

B:Dut-R# tools dump router mpls te-lspinfo
Key P2P: Session(10.10.3.2, 201, 3.3.3.3) Sender(3.3.3.3, 2) PHOP(10.10.3.1), Flags
0x0

Key P2P: Session(10.10.3.1, 1035, 4.4.4.4) Sender(4.4.4.4, 22) PHOP(10.10.11.2),
Flags 0x0

Key P2MP: Session(0.0.0.0, 1, 4.4.4.4) Sender(4.4.4.4, 52226) PHOP(0.0.0.0) Flags
0x10
  S2L [1] Key: endPoint to 2.2.2.2 subGroupId - 1 subGroupOrigId - 4.4.4.4
  S2L [2] Key: endPoint to 10.10.2.2 subGroupId - 3 subGroupOrigId - 4.4.4.4
  S2L [3] Key: endPoint to 10.10.13.2 subGroupId - 4 subGroupOrigId - 4.4.4.4

Key P2MP: Session(0.0.0.0, 2, 4.4.4.4) Sender(4.4.4.4, 51714) PHOP(0.0.0.0) Flags
0x10
  S2L [1] Key: endPoint to 2.2.2.2 subGroupId - 1 subGroupOrigId - 4.4.4.4
  S2L [2] Key: endPoint to 10.10.2.2 subGroupId - 3 subGroupOrigId - 4.4.4.4
  S2L [3] Key: endPoint to 10.10.13.2 subGroupId - 4 subGroupOrigId - 4.4.4.4

Key P2MP: Session(0.0.0.0, 3, 4.4.4.4) Sender(4.4.4.4, 53250) PHOP(0.0.0.0) Flags
0x10

*A:Dut-T# tools dump router mpls te-lspinfo p2mp-tid 102 nhops

  Key P2MP: Session(0.0.0.0, 102, 4.4.4.4) Sender(4.4.4.4, 3074) PHOP(0.0.0.0) Flags
0x10
  -----
  List of NEXT HOPS
  -----

  NextHop [1] =>
  Key: Nhop - isFrr 0, outIf 0, NextHop 0.0.0.0 label - 128843 global Instance 0 is
Leaf node
  -----
  Primary NHLFE => outLabel - 0 and NextHop - 0.0.0.0, outIf 0 (0)
  Port(NONE) NhIdx 0, ProtNhIdx 0, NumS2L 1
  ProtectInstance - 0, ProtectGroup 0
  POP
  No Backup NHLFEs for this Ltn entry
  Mid List : 3428 numS2Ls - 1 (Primary MID),

  NextHop [2] =>
  Key: Nhop - isFrr 0, outIf 3, NextHop 10.10.13.2 label - 128806 global Instance -

```

Tools Commands

```
48747
-----
Primary NHLFE => outLabel - 128806 and NextHop - 10.10.13.2, outIf 3 (126)
    Port(9/1/1) NhIdx 4322, ProtNhIdx 2275, NumS2L 1
    ProtectInstance - 1, ProtectGroup 126
SWAP
Backup NHLFE => outLabel - 130223 and NextHop - 10.10.3.2, outIf 5 (124)
    Port(9/2/3) outPushLabel 128806, NhIdx 5469, ProtNhIdx 0, NumS2L 1
Mid List :    3428 numS2Ls - 1 (Primary MID),

NextHop [3] =>
Key: Nhop - isFrr 0, outIf 4, NextHop 10.10.2.2 label - 128836 global Instance -
48974
-----
Primary NHLFE => outLabel - 128836 and NextHop - 10.10.2.2, outIf 4 (125)
    Port(lag-1) NhIdx 4292, ProtNhIdx 2245, NumS2L 2
    ProtectInstance - 1, ProtectGroup 125
SWAP
Backup NHLFE => outLabel - 130223 and NextHop - 10.10.3.2, outIf 5 (124)
    Port(9/2/3) outPushLabel 128836, NhIdx 5659, ProtNhIdx 0, NumS2L 2
Mid List :    3428 numS2Ls - 1 (Primary MID),    3471 numS2Ls - 1 (Backup MID),

S2L [1] Key: endPoint to 2.2.2.2 subGroupId - 1 subGroupOrigId - 4.4.4.4
S2L [2] Key: endPoint to 3.3.3.3 subGroupId - 2 subGroupOrigId - 4.4.4.4
S2L [3] Key: endPoint to 10.10.2.2 subGroupId - 3 subGroupOrigId - 4.4.4.4
S2L [4] Key: endPoint to 10.10.13.2 subGroupId - 4 subGroupOrigId - 4.4.4.4

Total TeLspInfo Count    : 1
```

psb

Syntax psb

Context tools>dump>router>rsvp

Sample Output

```
*A:Dut-A>config>router>mpls>lsp$ /tools dump router rsvp psb detail
-----
PSB:
P2P: Session (To: 10.20.1.4 - 61441 - 10.20.1.1), Sender (10.20.1.1 - 2) PHop
255.255.255.255

PSB CurrState: BACKUPS_CONNECTED PrevState: BACKUPS_INIT Flags: 0x0
LocalLabel 0 OutLabel 131070
Incoming IfIndex: Interface: Local API(-1)
Refresh interval 0, Send Path refresh in 3 secs, Path Refresh timeout 0 secs
PrevHop: Ctype 1 Addr 255.255.255.255, LIH 0
DnStream Nbr: Addr-> 10.20.1.3 IfIndex ip-10.10.2.1(3)
UpStream Neighbor is NULLP
Session Attribute:
    Session Name: bypass-node10.20.1.2
    HoldPri: 0 SetupPri: 7 Flags: 0x2
    Ctype: 7, IncludeGroup: 0x0 IncludeAllGroup: 0x0 ExcludeGroup: 0x0
ClassType: Absent
TSpec: Flags 0x8000 QOSC 0, PDR (infinity), PBS 0.000 bps, CDR (0.000 bps) MTU: 0
CSPF Hop List: ->
```

```

(1) UnnumIfId 3 RtrId 10.20.1.1 EgrAdmGrp 0x0 (Strict)
(2) UnnumIfId 2 RtrId 10.20.1.3 EgrAdmGrp 0x0 (Strict)
(3) UnnumIfId 5 RtrId 10.20.1.4 EgrAdmGrp 0x0 (Strict)
PSB RRO : ->
(1) * Flags : 0x0 :      U
(1) * UnInf : 10.20.1.1, 3
PSB SENT RRO : ->
(1) * Flags : 0x0 :      U
(1) * UnInf : 10.20.1.1, 3
PSB FILTERSPEC RRO : ->
(1) * Flags : 0x0 :      U
(1) * UnInf : 10.20.1.3, 2
(2) * Flags : 0x1 :      Global
(2) * Label : 131070
(3) * Flags : 0x0 :      U
(3) * UnInf : 10.20.1.4, 5
(4) * Flags : 0x1 :      Global
(4) * Label : 131070
PSB ERO : ->
(1) Unnumbered RouterId 10.20.1.1, LinkId 3, Strict
(2) Unnumbered RouterId 10.20.1.3, LinkId 2, Strict
(3) Unnumbered RouterId 10.20.1.4, LinkId 5, Strict
PSB SENT ERO : ->
(1) Unnumbered RouterId 10.20.1.3, LinkId 2, Strict
(2) Unnumbered RouterId 10.20.1.4, LinkId 5, Strict
SendTempl: Sender:10.20.1.1_2
AdSpec Present - Flags: 0x0
AdSpec General
- Service Break bit          : 0x0
- IS Hop Count               : 0x0
- Path Bandwidth Estimate    : 0x0
- Minimum Path latency       : 0x0
- Composed path MTU          : 0

Num Paths Received   :0
Num Paths Transmitted:5
Num Resvs Received   :8
Num Resvs Transmitted:0

Num Summmary Paths Received   :0
Num Summmary Paths Transmitted:0
Num Summmary Resvs Received   :0
Num Summmary Resvs Transmitted:0
Created at 91359 (26 secs back)
-----
PSB:
P2P: Session (To: 10.20.1.6 - 1 - 10.20.1.1), Sender (10.20.1.1 - 30208) PHop
0.0.0.0

PSB CurrState: PRIMARYS_CONNECTED PrevState: PRIMARYS_INIT Flags: 0x8
LocalLabel 0 OutLabel 131071
Incoming IfIndex: Interface: Local API(-1)
Refresh interval 5, Send Path refresh in 4 secs, Path Refresh timeout 0 secs
PrevHop: Ctype 1 Addr 0.0.0.0, LIH 0
DnStream Nbr: Addr-> 10.20.1.2 IfIndex ip-10.10.1.1(2)
UpStream Neighbor is NULLP
Session Attribute:
  Session Name: 1::1
  HoldPri: 0 SetupPri: 7 Flags: 0x17
  Ctype: 7, IncludeGroup: 0x0 IncludeAllGroup: 0x0 ExcludeGroup: 0x0

```

Tools Commands

```
ClassType: Absent
TSpec: Flags 0x8000 QOSC 1, PDR (infinity), PBS 0.000 bps, CDR (0.000 bps) MTU: 0
CSPF Hop List: ->
  (1) UnnumIfId 2 RtrId 10.20.1.1 EgrAdmGrp 0x0 (Strict)
  (2) UnnumIfId 2 RtrId 10.20.1.2 EgrAdmGrp 0x0 (Strict)
  (3) UnnumIfId 2 RtrId 10.20.1.4 EgrAdmGrp 0x0 (Strict)
  (4) UnnumIfId 2 RtrId 10.20.1.6 EgrAdmGrp 0x0 (Strict)
PSB RRO : ->
  (1) * Flags : 0x9 :      U LP_AVAIL NODE
  (1) * UnInf : 10.20.1.1, 2
PSB SENT RRO : ->
  (1) * Flags : 0x0 :      U
  (1) * UnInf : 10.20.1.1, 2
PSB FILTERSPEC RRO : ->
  (1) * Flags : 0x9 :      U LP_AVAIL NODE
  (1) * UnInf : 10.20.1.2, 2
  (2) * Flags : 0x1 :      Global
  (2) * Label : 131071
  (3) * Flags : 0x1 :      U LP_AVAIL
  (3) * UnInf : 10.20.1.4, 2
  (4) * Flags : 0x1 :      Global
  (4) * Label : 131071
  (5) * Flags : 0x0 :      U
  (5) * UnInf : 10.20.1.6, 2
  (6) * Flags : 0x1 :      Global
  (6) * Label : 131071
PSB ERO : ->
  (1) Unnumbered RouterId 10.20.1.2, LinkId 2, Strict
  (2) Unnumbered RouterId 10.20.1.4, LinkId 2, Strict
  (3) Unnumbered RouterId 10.20.1.6, LinkId 2, Strict
PSB SENT ERO : ->
  (1) Unnumbered RouterId 10.20.1.2, LinkId 2, Strict
  (2) Unnumbered RouterId 10.20.1.4, LinkId 2, Strict
  (3) Unnumbered RouterId 10.20.1.6, LinkId 2, Strict
SendTempl: Sender:10.20.1.1_30208
AdSpec not present
FRR: Flags 0x2 HopLimit 16 SetupPri 7 HoldPri 0 IncludeAny 0x0 ExcludeAny 0x0
IncludeAll 0x0
PLR: Flag (0x166) State PLRS_BYPASS_UP AvoidNodeId 10.20.1.2 inIntf -1 inLabel 0
PLR: FRRRequestCount: 1 CSPFFailures: 0 ProtectionType: NodeProtect

Num Paths Received      :0
Num Paths Transmitted:5
Num Resvs Received      :5
  Num Resvs Transmitted:0

Num Summmary Paths Received      :0
Num Summmary Paths Transmitted:0
Num Summmary Resvs Received      :0
Num Summmary Resvs Transmitted:0
Created at 91359 (28 secs back)
-----
Total PSB Count      : 2
```

rsb

Syntax **rsb****Context** tools>dump>router>rsvp**Sample Output**

```

4)  *A:Dut-A>config>router>mpls>lsp$ /tools dump router rsvp rsb detail
-----
RSB:
  EndPt 10.20.1.4  Tid 61441  XTid 10.20.1.1  Sndr 10.20.1.1  LspId 2  ifIndex 3 NHop
20.20.1.3
  Style FF, refresh in 0 secs
  RSVP NextHop 20.20.1.3, LIH 3 (TLV: RtrId 10.20.1.3 IntfId 2)
  CT Shared Reservation Info:
  No Reservation:
  FlowSpec :Flags 0x8000 QOSC 1, PDR (infinity), PBS 0.000 bps, CDR (0.000 bps)
             CBS 0, EBS 0, RSpecR 0, RSpecS 0 MTU 1500 MPU 20
  FwdFlowspec :Flags 0x0 QOSC 0, PDR (0.000 bps), PBS 0.000 bps, CDR (0.000 bps)
             CBS 0, EBS 0, RSpecR 0, RSpecS 0 MPU 0
  FilterSpec:
  Timeout in : 26 secs, LocLabel: 0  Sender: 10.20.1.1 lspId: 2 OutIfId: 0
  RRO :
    (1) * Flags : 0x0 :      U
    (1) * UnInf : 10.20.1.3, 2
    (2) * Flags : 0x1 :      Global
    (2) * Label : 131070
    (3) * Flags : 0x0 :      U
    (3) * UnInf : 10.20.1.4, 5
    (4) * Flags : 0x1 :      Global
    (4) * Label : 131070
-----
RSB:
  EndPt 10.20.1.6  Tid 1  XTid 10.20.1.1  Sndr 0.0.0.0  LspId 0  ifIndex 2 NHop
20.20.1.2
  Style SE, refresh in 0 secs
  RSVP NextHop 20.20.1.2, LIH 2 (TLV: RtrId 10.20.1.2 IntfId 2)
  CT Shared Reservation Info:
  No Reservation:
  FlowSpec :Flags 0x8000 QOSC 1, PDR (infinity), PBS 0.000 bps, CDR (0.000 bps)
             CBS 0, EBS 0, RSpecR 0, RSpecS 0 MTU 1496 MPU 20
  FwdFlowspec :Flags 0x0 QOSC 0, PDR (0.000 bps), PBS 0.000 bps, CDR (0.000 bps)
             CBS 0, EBS 0, RSpecR 0, RSpecS 0 MPU 0
  FilterSpec:
  Timeout in : 21 secs, LocLabel: 0  Sender: 10.20.1.1 lspId: 30208 OutIfId: 0
  RRO :
    (1) * Flags : 0x9 :      U LP_AVAIL NODE
    (1) * UnInf : 10.20.1.2, 2
    (2) * Flags : 0x1 :      Global
    (2) * Label : 131071
    (3) * Flags : 0x1 :      U LP_AVAIL
    (3) * UnInf : 10.20.1.4, 2
    (4) * Flags : 0x1 :      Global
    (4) * Label : 131071
    (5) * Flags : 0x0 :      U
    (5) * UnInf : 10.20.1.6, 2
    (6) * Flags : 0x1 :      Global

```

```
(6) * Label : 131071
```

```
-----
Total RSB Count   : 2
```

trap-suppress

- Syntax** `trap-suppress number-of-traps time-interval`
- Context** `tools>perform>router>mpls`
- Description** This command modifies thresholds for trap suppression. The *time-interval* parameter is used to suppress traps after a certain number of traps have been raised within a period. By executing this command, there will be no more than *number-of-traps* within *time-interval*.
- Parameters** *number-of-traps* — Specifies to suppress the number of traps raised within a period.
- Values** 100 — 1000, in multiples of 100
- time-interval* — Specifies to suppress a certain number of traps raised within a period.
- Values** 1 — 300

tunnel-interface

- Syntax** `[no] tunnel-interface rsvp-p2mp lsp-name [sender sender-address]`
- Context** `config>router`
`config>router>igmp`
- Description** This command creates a tunnel interface associated with an RSVP P2MP LSP. IPv4 multicast packets are forwarded over the P2MP LSP at the ingress LER based on a static join configuration of the multicast group against the tunnel interface associated with the originating P2MP LSP. At the egress LER, packets of a multicast group are received from the P2MP LSP via a static assignment of the specific <S,G> to the tunnel interface associated with a terminating LSP.
- At ingress LER, the tunnel interface identifier consists of a string of characters representing the LSP name for the RSVP P2MP LSP. The user can create one or more tunnel interfaces and associate each to a different RSVP P2MP LSP.
- At egress LER, the tunnel interface identifier consists of a couple of string of characters representing the LSP name for the RSVP P2MP LSP followed by the system address of the ingress LER. The LSP name must correspond to a P2MP LSP name configured by the user at the ingress LER. The LSP name string must not contain “:” (two :s) nor contain a “.” (single “.”) at the end of the LSP name. However, a “.” (single “.”) can appear anywhere in the string except at the end of the name.
- Default** none
- Parameters** `rsvp-p2mp lsp-name` — Specifies the LSP. The LSP name can be up to 32 characters long and must be unique.
- `sender sender-address` — Specifies system address of the ingress LER for the P2MP RSVP LSP.

update-path

Syntax	update-path { <i>lsp lsp-name path current-path-name new-path new-path-name</i> }
Context	tools>perform>router>mpls
Description	<p>This command enables you to instruct MPLS to replace the path of a primary or secondary LSP. The primary or secondary LSP path is indirectly identified via the <i>current-path-name</i> value. The same path name cannot be used more than once in a given LSP name.</p> <p>This command applies to both CSPF LSP and to a non-CSPF LSP. This command will only work when the specified <i>current-path-name</i> has the adaptive option enabled. The adaptive option can be enabled at the LSP level or the path level.</p> <p>The new path must have been configured in the CLI or provided via SNMP. The CLI command for entering the path is</p> <p>configure router mpls path <i>path-name</i></p> <p>The command fails if any of the following conditions exist:</p> <ul style="list-style-type: none"> • The specified <i>current-path-name</i> of this LSP does not have the adaptive option enabled. • The specified <i>new-path-name</i> value does not correspond to a previously defined path. • The specified <i>new-path-name</i> value exists but is being used by any path of the same LSP, including this one. <p>When you execute this command, MPLS performs the following procedures:</p> <ul style="list-style-type: none"> • MPLS performs a single MBB attempt to move the LSP path to the new path. • If the MBB is successful, MPLS updates the new path <ul style="list-style-type: none"> – MPLS writes the corresponding NHLFE in the data path if this path is the current backup path for the primary. – If the current path is the active LSP path, it will update the path, write the new NHLFE in the data path that will cause traffic to switch to the new path. • If the MBB is not successful, the path retains its current value. • The update-path MBB has the same priority as the manual re-signal MBB.

Clear Commands

interface

- Syntax** `interface ip-int-name [statistics]`
- Context** `clear>router>mpls`
- Description** This command resets or clears statistics for MPLS interfaces.
- Parameters** *ip-int-name* — The name of an existing IP interface. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.
- statistics** — This parameter clears only statistics.

lsp

- Syntax** `lsp lsp-name`
- Context** `clear>router>mpls`
- Description** This command resets and restarts an LSP.
- Parameters** *lsp-name* — The name of the LSP to clear up to 64 characters in length.

ingress-stats

- Syntax** `ingress-statistics`
- Context** `clear>router>mpls`
- Description** This command provides the context for the user to enter the LSP names for the purpose of enabling ingress data path statistics at the terminating node of the LSP (for example, egress LER).
- Default** none

lsp-egress-stats

- Syntax** `lsp-egress-stats`
`lsp-egress-stats lsp-name`
- Context** `clear>router>mpls`
- Description** This command clears MPLS LSP egress statistics information.

lsp-ingress-stats

- Syntax** **lsp-ingress-stats**
lsp-ingress-stats *ip-address* **lsp** *lsp-name*
- Context** clear>router>mpls
- Description** This command clears MPLS LSP ingress statistics information.

interface

- Syntax** **interface** *ip-int-name* **statistics**
- Context** clear>router>rsvp
- Description** This command resets or clears statistics for an RSVP interface.
- Parameters** *ip-int-name* — The name of the IP interface to clear. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.
- statistics** — This parameter clears only statistics.

statistics

- Syntax** **statistics**
- Context** clear>router>rsvp
- Description** This command clears global statistics for the RSVP instance, for example, clears **path** and **resv time-out** counters.

Debug Commands

mpls

Syntax	mpls [lsp <i>lsp-name</i>] [sender <i>source-address</i>] [endpoint <i>endpoint-address</i>] [tunnel-id <i>tunnel-id</i>] [lsp-id <i>lsp-id</i>] [interface <i>ip-int-name</i>] no mpls
Context	debug>router
Description	This command enables and configures debugging for MPLS.
Parameters	<p>lsp <i>lsp-name</i> — Name that identifies the LSP. The LSP name can be up to 32 characters long and must be unique.</p> <p>sender <i>source-address</i> — The system IP address of the sender.</p> <p>endpoint <i>endpoint-address</i> — The far-end system IP address.</p> <p>tunnel-id <i>tunnel-id</i> — The MPLS SDP ID.</p> <p>Values 0 — 4294967295</p> <p>lsp-id <i>lsp-id</i> — The LSP ID.</p> <p>Values 1 — 65535</p> <p>interface <i>ip-int-name</i> — Name that identifies the interface. The interface name can be up to 32 characters long and must be unique. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.</p>

event

Syntax	[no] event
Context	debug>router>mpls debug>router>rsvp
Description	This command enables debugging for specific events. The no form of the command disables the debugging.

all

Syntax	all [detail] no all
Context	debug>router>mpls>event debug>router>rsvp>event
Description	This command debugs all events. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about all events.

frr

Syntax	frr [detail] no frr
Context	debug>router>mpls>event
Description	This command debugs fast re-route events. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about re-route events.

iom

Syntax	iom [detail] no iom
Context	debug>router>mpls>event
Description	This command reports MPLS debug events originating from the XMA. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about MPLS events originating from the XMA.

lsp-setup

Syntax	lsp-setup [detail] no lsp-setup
Context	debug>router>mpls>event
Description	This command debugs LSP setup events. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about LSP setup events.

Debug Commands

mbb

Syntax	mbb [detail] no mbb
Context	debug>router>mpls>event
Description	This command debugs the state of the most recent invocation of the make-before-break (MBB) functionality. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about MBB events.

misc

Syntax	misc [detail] no misc
Context	debug>router>mpls>event debug>router>rsvp>event
Description	This command debugs miscellaneous events. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about miscellaneous events.

XC

Syntax	xc [detail] no xc
Context	debug>router>mpls>event
Description	This command debugs cross connect events. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about cross connect events.

rsvp

Syntax	[lsp lsp-name] [sender source-address] [endpoint endpoint-address] [tunnel-id tunnel-id] [lsp-id lsp-id] [interface ip-int-name] no rsvp
Context	debug>router
Description	This command enables and configures debugging for RSVP.

- Parameters**
- lsp** *lsp-name* — Name that identifies the LSP. The LSP name can be up to 32 characters long and must be unique.
 - sender** *source-address* — The system IP address of the sender.
 - endpoint** *endpoint-address* — The far-end system IP address.
 - tunnel-id** *tunnel-id* — The RSVP tunnel ID.
 - Values** 0 — 4294967295
 - lsp-id** *lsp-id* — The LSP ID.
 - Values** 1 — 65535
 - interface** *ip-int-name* — The interface name. The interface name can be up to 32 characters long and must be unique. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

nbr

- Syntax** **nbr [detail]**
no nbr
- Context** debug>router>rsvp>event
- Description** This command debugs neighbor events.
The **no** form of the command disables the debugging.
- Parameters** **detail** — Displays detailed information about neighbor events.

path

- Syntax** **path [detail]**
no path
- Context** debug>router>rsvp>event
- Description** This command debugs path-related events.
The **no** form of the command disables the debugging.
- Parameters** **detail** — Displays detailed information about path-related events.

resv

- Syntax** **resv [detail]**
no resv
- Context** debug>router>rsvp>event
- Description** This command debugs RSVP reservation events.

Debug Commands

The **no** form of the command disables the debugging.

Parameters **detail** — Displays detailed information about RSVP reservation events.

te-threshold-update

Syntax **te-threshold-update**
no te-threshold-update

Context debug>router>rsvp>event
debug>router>rsvp>ip-int-name>event

Description This command debugs the te-threshold-update events.
The **no** form of this command disables the debugging.

packet

Syntax [**no**] **packet**

Context debug>router>rsvp>

Description This command enters the syntax to debug packets.

all

Syntax **all [detail]**
no all

Context debug>router>rsvp>packet

Description This command debugs all packets.
The **no** form of the command disables the debugging.

Parameters **detail** — Displays detailed information about all RSVP packets.

hello

Syntax **hello [detail]**
no hello

Context debug>router>rsvp>packet

Description This command debugs hello packets.
The **no** form of the command disables the debugging.

Parameters **detail** — Displays detailed information about hello packets.

path

Syntax	path [detail] no path
Context	debug>router>rsvp>packet
Description	This command enables debugging for RSVP path packets. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about path-related events.

patherr

Syntax	patherr [detail] no patherr
Context	debug>router>rsvp>packet
Description	This command debugs path error packets. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about path error packets.

pathtear

Syntax	pathtear [detail] no pathtear
Context	debug>router>rsvp>packet
Description	This command debugs path tear packets. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about path tear packets.

resv

Syntax	resv [detail] no resv
Context	debug>router>rsvp>packet
Description	This command enables debugging for RSVP resv packets. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about RSVP Resv events.

Debug Commands

resvrr

Syntax	resvrr [detail] no resvrr
Context	debug>router>rsvp>packet
Description	This command debugs ResvErr packets. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about ResvErr packets.

resvtear

Syntax	resvtear [detail] no resvtear
Context	debug>router>rsvp>packet
Description	This command debugs ResvTear packets. The no form of the command disables the debugging.
Parameters	detail — Displays detailed information about ResvTear packets.