

Chapter 16

Monitoring L2TP and L2TP Dial-Out

When you have configured L2TP and L2TP dial-out on your E-series router, you can monitor the active tunnels and sessions.



NOTE: All of the commands in this chapter apply to both the LAC and the LNS.

L2TP and L2TP dial-out topics are described in the following sections:

- Monitoring the Mapping for User Domains and Virtual Routers with AAA on page 364
- Monitoring Configured Tunnel Groups with AAA on page 365
- Monitoring Configuration of Tunnel Parameters with AAA on page 367
- Monitoring Global Configuration Status on E-series Routers on page 368
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Monitoring the Mapping for User Domains and Virtual Routers with AAA

Purpose Display the mapping between user domains and virtual routers.

Action To display the mapping between user domains and virtual routers:

```
host1#show aaa domain-map
```

```
Domain: lac-tunnel; router-name: lac; ipv6-router-name: default
Tunnel
Tag      Tunnel Peer      Tunnel Source      Tunnel Type      Tunnel Medium      Tunnel Password      Tunnel Id
-----
5        192.168.1.1      <null>             l2tp             ipv4             welcome             lac-tunnel

Tunnel      Tunnel      Tunnel      Tunnel      Tunnel
Tag         Client Name Server Name Preference Max Sessions Tunnel RWS
-----
5          lac        boston      5           0           4

Tunnel      Tunnel      Tunnel      Tunnel      Tunnel
Tag         Virtual Router Failover Resync Switch Profile Tx Speed Method
-----
5          <null>     <null>     denver      qos
```

Meaning Table 77 lists the **show aaa domain-map** command output fields.

Table 77: show aaa domain-map Output Fields

Field Name	Field Description
Domain	Name of the domain
router-name	Virtual router to which user domain name is mapped
router-mask	IPv4 mask of the local interface
tunnel-group	Name of the tunnel group assigned to the domain map
ipv6-router-name	IPv6 virtual router to which user domain name is mapped
local-interface	Interface information to use on the local (E-series) side of the subscriber's interface
ipv6-local-interface	IPv6 interface information to use on the local (E-series) side of the subscriber's interface
poolname	Local address pool from which the router allocates addresses for this domain
IP hint	IP hint is enabled
strip-domain	Strip domain is enabled
override-username	Single username used for all users from a domain in place of the values received from the remote client
override-password	Single password used for all users from a domain in place of the values received from the remote client
Tunnel Tag	Tag that identifies the tunnel

Table 77: show aaa domain-map Output Fields (continued)

Field Name	Field Description
Tunnel Peer	Destination address of the tunnel
Tunnel Source	Source address of the tunnel
Tunnel Type	L2TP
Tunnel Medium	Type of medium for the tunnel; only IPv4 is supported
Tunnel Password	Password for the tunnel
Tunnel Id	ID of the tunnel
Tunnel Client Name	Host name that the LAC sends to the LNS when communicating to the LNS about the tunnel
Tunnel Server Name	Host name expected from the peer (the LNS) when during tunnel startup
Tunnel Preference	Preference level for the tunnel
Tunnel Max Sessions	Maximum number of sessions allowed on a tunnel
Tunnel RWS	L2TP receive window size (RWS) for a tunnel on the LAC; displays either the configured value or the default behavior, which is indicated by system chooses
Tunnel Virtual Router	Name of the virtual router to map to the user domain name
Tunnel Failover Resync	L2TP peer resynchronization method
Field descriptions	The actual fields displayed depend on your configuration
Tunnel Switch Profile	Name of the L2TP tunnel switch profile
Tunnel Tx Speed Method	Method that the router uses to calculate the transmit connect speed of the subscriber's access interface: static layer2, dynamic layer2, qos, actual, not set

Related Topics

- [show aaa domain-map command](#)

Monitoring Configured Tunnel Groups with AAA

Purpose Display the currently configured tunnel groups.

Action To display information about currently configured tunnel groups:

```
host1#show aaa tunnel-group
```

```
Tunnel Group: boston
```

Tunnel Tag	Tunnel Peer	Tunnel Source	Tunnel Type	Tunnel Medium	Tunnel Password	Tunnel Id
3	192.168.1.1	<null>	l2tp	ipv4	msn	<null>

Tunnel Tag	Tunnel Client Name	Tunnel Server Name	Tunnel Preference	Tunnel Max Sessions	Tunnel RWS
3	msn.del.com	<null>	2000	0	4

Tunnel Tag	Tunnel Virtual Router	Tunnel Failover Resync	Tunnel Switch Profile	Tunnel Tx Speed Method
3	<null>	<null>	sanjose	qos

Meaning Table 78 lists the **show aaa tunnel-group** command output fields.

Table 78: show aaa tunnel-group Output Fields

Field Name	Field Description
Domain	Name of the domain
router-name	Virtual router to which user domain name is mapped
router-mask	IPv4 mask of the local interface
tunnel-group	Name of the tunnel group assigned to the domain map
ipv6-router-name	IPv6 virtual router to which user domain name is mapped
local-interface	Interface information to use on the local (E-series) side of the subscriber's interface
ipv6-local-interface	IPv6 interface information to use on the local (E-series) side of the subscriber's interface
poolname	Local address pool from which the router allocates addresses for this domain
IP hint	IP hint is enabled
strip-domain	Strip domain is enabled
override-username	Single username used for all users from a domain in place of the values received from the remote client
override-password	Single password used for all users from a domain in place of the values received from the remote client
Tunnel Tag	Tag that identifies the tunnel
Tunnel Peer	Destination address of the tunnel
Tunnel Source	Source address of the tunnel
Tunnel Type	L2TP
Tunnel Medium	Type of medium for the tunnel; only IPv4 is supported
Tunnel Password	Password for the tunnel
Tunnel Id	ID of the tunnel
Tunnel Client Name	Host name that the LAC sends to the LNS when communicating to the LNS about the tunnel
Tunnel Server Name	Host name expected from the peer (the LNS) when during tunnel startup

Table 78: show aaa tunnel-group Output Fields (continued)

Field Name	Field Description
Tunnel Preference	Preference level for the tunnel
Tunnel Max Sessions	Maximum number of sessions allowed on a tunnel
Tunnel RWS	L2TP receive window size (RWS) for a tunnel on the LAC; displays either the configured value or the default behavior, which is indicated by system chooses
Tunnel Virtual Router	Name of the virtual router to map to the user domain name
Tunnel Failover Resync	L2TP peer resynchronization method
Field descriptions	The actual fields displayed depend on your configuration
Tunnel Switch Profile	Name of the L2TP tunnel switch profile
Tunnel Tx Speed Method	Method that the router uses to calculate the transmit connect speed of the subscriber's access interface: static layer2, dynamic layer2, qos, actual, not set

Related Topics

- **show aaa tunnel-group** command
- The information displayed is almost identical to the tunnel information displayed using the **show aaa domain-map** command. See *Monitoring the Mapping for User Domains and Virtual Routers with AAA* on page 364.

Monitoring Configuration of Tunnel Parameters with AAA

Purpose Display configuration of tunnel parameters used for tunnel definitions.

Action To display the configuration of tunnel parameters used for tunnel definitions:

```
host1#show aaa tunnel-parameters
Tunnel password is 3&92k%b#q4
Tunnel client-name is <NULL>
Tunnel nas-port-method is none
Tunnel switch profile is boston
Tunnel tx-connect-speed-method is qos
Tunnel nas-port ignore disabled
Tunnel nas-port-type ignore disabled
Tunnel assignmentId format is assignmentId
Tunnel calling number format is descriptive
Tunnel calling number format fallback is fixed
```

Meaning Table 79 lists the **show aaa tunnel-parameters** command output fields.

Table 79: show aaa tunnel-parameters Output Fields

Field Name	Field Description
Tunnel password	Default tunnel password
Tunnel client-name	Hostname that the LAC sends to the LNS when communicating about the tunnel
Tunnel nas-port-method	Default NAS port type
Tunnel switch profile is	Name of the default L2TP tunnel switch profile
Tunnel tx-connect-speed-method is	Method that the router uses to calculate the transmit connect speed of the subscriber's access interface: static layer2, dynamic layer2, qos, actual, not set
Tunnel nas-port ignore	Whether the router uses the tunnel peer's NAS-Port [5] attribute; enabled or disabled
Tunnel nas-port-type ignore	Whether the router uses the tunnel peer's NAS-Port-Type [61] attribute; enabled or disabled
Tunnel assignmentId format	Value of the tunnel assignment ID that is passed to PPP/L2TP
Tunnel calling number format	Format configured for L2TP Calling Number AVP 22 generated by the LAC
Tunnel calling number format fallback	Fallback format configured for L2TP Calling Number AVP 22 generated by the LAC

Related Topics

- **show aaa tunnel-parameters** command

Monitoring Global Configuration Status on E-series Routers

Purpose Display the global configuration and status for L2TP on E-series routers, including switched sessions.

Action To display the global configuration and status for L2TP on E-series routers, including switched sessions:

```
host1#show l2tp
Configuration
  L2TP administrative state is enabled
  Dynamic interface destruct timeout is 600 seconds
  Data packet checksums are disabled
  Receive data sequencing is not ignored
  Tunnel switching is disabled
  Retransmission retries for established tunnels is 5
  Retransmission retries for not-established tunnels is 5
  Tunnel idle timeout is 60 seconds
  Failover within a preference level is disabled
  Weighted load balancing is disabled
  Tunnel authentication challenge is enabled
  Calling number avp is enabled
  Reject remote transmit address change is enabled for ip address
  Ignore remote transmit address change is disabled
  Disconnect-cause avp generation is enabled
  Default receive window size is system chooses
```

```

Rx speed avp when equal is enabled
Destination lockout timeout is 300 seconds
Destination lockout test is disabled
Failover resync is silent-failover
Sub-interfaces      total      active    failed    auth-errors
Destinations        0         0         0         n/a
Tunnels             0         0         0         0
Sessions            0         0         0         n/a
Switched-sessions  0         0         0         n/a

```

Meaning Table 80 lists the **show l2tp** command output fields.

Table 80: show l2tp Output Fields

Field Name	Field Description
Configuration	Configuration and status for L2TP on E-series routers, including switched sessions
L2TP administrative state	Status of L2TP on the router; enabled or disabled
Dynamic interface destruct timeout	Number of seconds that the router maintains dynamic destinations, tunnels, and sessions after they have terminated
Data packet checksums	Status of checking data integrity via UDP; enabled or disabled
Receive data sequencing	Whether the router processes or ignores sequence numbers in incoming data packets
Tunnel switching	Enabled or disabled
Retransmission retries for established tunnels	Number of retries configured for established tunnels
Retransmission retries for not-established tunnels	Number of retries configured for tunnels not established
Tunnel idle timeout	Length of the tunnel idle timeout, in seconds
Failover within a preference level	Enabled or disabled
Weighted load balancing	Enabled or disabled
Tunnel authentication challenge	Enabled or disabled
Calling number avp	Whether the E-series LAC sends Calling-Station-Id and Called-Station-Id AVPs in ICRQ packets, enabled or disabled
Reject remote transmit address change	Enabled or disabled for IP address, UDP port, or both
Ignore remote transmit address change	Enabled or disabled for IP address, UDP port, or both
Disconnect-cause avp generation	Enabled or disabled
Default receive window size	Default L2TP RWS for a tunnel on both the LAC and the LNS; displays either the configured value or the default behavior, indicated by system chooses
Rx speed avp when equal	Enabled or disabled
Destination lockout timeout	Number of seconds that L2TP destinations remain in the lockout state after they become unavailable
Destination lockout test	Status of the L2TP destination lockout test, enabled or disabled

Table 80: show l2tp Output Fields (continued)

Field Name	Field Description
Failover resync	Global L2TP peer resynchronization configuration
Sub-interfaces	Sub-interface information about L2TP
total	Number of destinations, tunnels, and sessions that the router created
active	Number of operational destinations, tunnels, and sessions
failed	Number of requests that did not reach an operational state
auth-errors	Number of requests that failed because the tunnel password was invalid

Related Topics

- [show l2tp command](#)

Monitoring Detailed Configuration Information for Specified Destinations

Purpose Display detailed configuration information about specified destinations.

Action To display detailed configuration information about specified destinations:

To display information about a specific destination:

```
host1#show l2tp destination ip 172.31.1.98
L2TP destination 1 is Up with 5 active tunnels and 64 active sessions
```

To display information about all destinations:

```
host1#show l2tp destination detail 1
L2TP destination 1 is Up with 5 active tunnels and 64 active sessions
Configuration
  Administrative state is enabled
  SNMP traps are enabled
Destination address
  Transport ipUdp
  Virtual router default
  Local address 192.168.1.230, peer address 172.31.1.98
Destination status
  Effective administrative state is enabled
Sub-interfaces total active failed auth-errors
Tunnels      5      5      0      0
Sessions     64     64      0     n/a
Statistics
  packets      octets      discards      errors
Control rx    69          3251          2          0
Control tx   195         23939          0          0
Data rx      68383456    68383456          0          0
Data tx      68383456    68383456          0          0
```


Meaning Table 81 lists the **show l2tp destination** command output fields.

Table 81: show l2tp destination Output Fields

Field Name	Field Description
Configuration	Configured status of the destination
Administrative state	Administrative status of the destination: <ul style="list-style-type: none"> ■ enabled—No restrictions on creation and operation of sessions and tunnels for this destination ■ disabled—Router disabled existing sessions and tunnels and will not create new sessions or tunnels for this destination ■ drain—Router will not create new sessions or tunnels for this destination
SNMP traps	Whether or not the router sends traps to SNMP for operational state changes
Destination address	Address information for the specified destination
Transport	Method used to transfer traffic
Virtual	Name of the virtual router on which the tunnel is configured
Local and peer addresses	Addresses of the local and remote interfaces
Destination status	Effective administrative state—The more restrictive of the router and destination administrative states. This setting, rather than the administrative state of the destination, determines whether the router can create new sessions or tunnels and whether the sessions or tunnels are disabled for this destination.
Sub-interfaces	Sub-interface information about the L2TP destination
total	Number of sessions or tunnels that the router created for this destination
active	Number of operational sessions or tunnels for this destination
failed	Number of requests that did not reach an operational state for this destination
auth-errors	Number of requests that failed because the tunnel password was invalid for this destination
Statistics	Information about the traffic sent and received

Related Topics

- **show l2tp destination** command

Monitoring Locked Out Destinations

Purpose Display information about the L2TP destinations that are currently locked out.

Action To display information about the L2TP destinations that are currently locked out:

```
host1#show l2tp destination lockout
L2TP destination 36 is waiting for lockout timeout (45 seconds remaining)
L2TP destination 54 is waiting for lockout test start
L2TP destination 76 is waiting for lockout test complete
3 L2TP lockout destinations found
```

Meaning Table 82 lists the `show l2tp destination lockout` command output fields.

Table 82: show l2tp destination lockout Output Fields

Field Name	Field Description
L2TP destination waiting	Name of destination and its lockout status. The status indicates whether the destination is waiting for the lockout timeout to expire (and how much time is left), or waiting for the lockout test to start or finish
L2TP lockout destinations found	Number of destinations that are currently in lockout state

Related Topics

- `show l2tp destination lockout` command

Monitoring Configured Destination Profiles or Host Profiles

Purpose Display either a list of configured L2TP destination profiles or the host profiles defined in a particular profile.

If a nondefault L2TP RWS is configured for a particular host profile, the command displays the RWS setting as an attribute of that host profile. (See Example 2.)

Action To display either a list of configured L2TP destination profiles or the host profiles defined in a particular profile:

```
host1#show l2tp destination profile
L2TP destination profile westford
1 L2TP destination profile found
```

If a nondefault L2TP RWS is configured for a particular host profile, to display the RWS setting as an attribute of that host profile:

```
host1#show l2tp destination profile westford
L2TP destination profile westford
Configuration
Destination address
Transport ipUdp
Virtual router lns
Peer address 192.168.1.99
Destination profile maximum sessions is 5000
```

```

Statistics
  Destination profile current session count is 2
Host profile attributes
  Remote host is remhost22.xyz.com
  Configuration
    Tunnel password is 23erf5
    Interface profile is ebcints
    Bundled group id is 1
    Bundled group id override is enabled
    Maximum sessions is 400
    Failover resync is failover-protocol
  Statistics
    Current session count is 14
Remote host is asciitext
  Configuration
    Bundled group id is 0
    Tunnel password is 222
    Interface profile is ascints
    Default upper binding type mlppp
    Maximum sessions is 250
    Failover resync is failover-protocol
  Statistics
    Current session count is 2
Remote host is mexico
  Configuration
    Local ip address is 10.10.2.2
    Proxy lcp is disabled
    Proxy authenticate is enabled
    mlppp upper binding type
    Disconnect-cause avp is enabled
    Receive window size is 4
    Maximum sessions is 500
    Failover resync is failover-protocol
  Statistics
    Current session count is 14
4 L2TP host profiles found

```

Meaning Table 83 lists the **show l2tp destination profile** command output fields.

Table 83: show l2tp destination profile Output Fields

Field Name	Field Description
Destination profile attributes	Destination profile attributes of L2TP destination
Transport	Method used to transfer traffic
Virtual Router	Method used to transfer traffic
Peer address	IP address of the LAC
Destination profile maximum sessions	Maximum number of sessions allowed for the destination profile
Destination profile current session count	Number of current sessions for the destination profile
Host profile attributes	Host profile attributes of L2TP destination
Remote host	Name of the remote host
Local hostname	Name of the local host
Local IP address	IP address of the local host
Bundled group id	Identifier for bundled sessions

Table 83: show l2tp destination profile Output Fields (continued)

Field Name	Field Description
Tunnel password	Password for the tunnel
Interface profile	Name of the host profile
Proxy lcp	Status of proxy LCP for the remote host
mlppp upper binding type	Default upper binding type
Disconnect-cause avp generation	Status of the disconnect cause generation
Receive window size	Number of packets that the peer can transmit without receiving an acknowledgment from the router
Maximum sessions	Maximum number of sessions allowed for the host profile
Failover resync	L2TP peer resynchronization method for the host profile
Current session count	Number of current sessions for the host profile

Related Topics

- `show l2tp destination profile` command

Monitoring Configured and Operational Status of all Destinations

Purpose Display summary of the configured and operational status of all L2TP destinations.

Action To display a summary of the configured and operational status of all L2TP destinations.:

```

host1#show l2tp destination summary
Administrative status  enabled    drain    disabled
                      0          0         0
Operational status    up        down    lower-down not-present
                      0          0         0          0

```

Meaning Table 84 lists the `show l2tp destination summary` command output fields.

Table 84: show l2tp destination summary Output Fields

Field Name	Field Description
Administrative status	Administrative status of the L2TP destination: <ul style="list-style-type: none"> ■ enabled—No restrictions on creation and operation of sessions and tunnels for this destination ■ drain—Router will not create new sessions or tunnels for this destination ■ disabled—Router disabled existing sessions and tunnels and will not create new sessions or tunnels for this destination

Table 84: show l2tp destination summary Output Fields (continued)

Field Name	Field Description
Operational status	Operational status of the L2TP destination: <ul style="list-style-type: none"> ■ up—Destination is available for tunnels ■ down—Destination is not available for tunnels ■ lower-down—Underlying transport is unavailable; for example, you removed the virtual router ■ not-present—Hardware supporting the destination is unavailable; for example, you removed a required line module

Related Topics

- `show l2tp destination summary` command

Monitoring Statistics on the Cause of a Session Disconnection

Purpose Display statistics for all information the LAC receives from an LNS about the cause of an L2TP session disconnection.

Action To display statistics for all information the LAC receives from an LNS about the cause of an L2TP session disconnection.

```
host1#show l2tp received-disconnect-cause-summary
```

Disconnect Cause (Code)	Global	Peer	Local
no info (0)	0	0	0
admin disconnect (1)	0	0	0
renegotiation disabled (2)	0	0	0
normal disconnect (3)	0	0	0
compulsory encryption refused (4)	0	0	0
lcp failed to converge (5)	0	0	0
lcp peer silent (6)	0	0	0
lcp magic number error (7)	0	0	0
lcp keepalive failure (8)	0	0	0
lcp mlppp endpoint discriminator mismatch (9)	0	0	0
lcp mlppp peer mrru not valid (10)	0	0	0
lcp mlppp peer ssn invalid (11)	0	0	0
lcp callback refused (12)	0	0	0
authenticate timed out (13)	0	0	0
authenticate mlppp name mismatch (14)	0	0	0
authenticate protocol refused (15)	0	0	0
authenticate failure (16)	0	0	0
ncp no negotiation completed (17)	0	0	0
ncp no ncps available (18)	0	0	0
ncp addresses failed to converge (19)	0	0	0
ncp negotiation inhibited (20)	0	0	0

Meaning Table 85 lists the **show l2tp received-disconnect-cause-summary** command details.

Table 85: show l2tp received-disconnect-cause-summary Output Fields

Field Name	Field Description
show l2tp received-disconnect-cause-summary	Display statistics for all information the LAC receives from an LNS about the cause of an L2TP session disconnection.

Related Topics

- **show l2tp received-disconnect-cause-summary** command

Monitoring Detailed Configuration Information about Specified Sessions

Purpose Display detailed configuration information about specified sessions.

Action To display detailed configuration information about specified sessions:

To display L2TP session:

```
host1#show l2tp session
L2TP session 1/1/1 is Up
1 L2TP session found
```

To display L2TP session details:

```
host1#show l2tp session detail
L2TP session 1/1/1 is Up
Configuration
  Administrative state is enabled
  SNMP traps are enabled
Session status
  Effective administrative state is enabled
  State is established
  Local session id is 25959, peer session id is 2
Statistics packets octets discards errors
Data rx  7      237    1      0
Data tx  6      160    0      0

Session operational configuration
  User name is 't1.s1@local'
  Tunneling PPP interface atm 0/0.1
  Call type is lacIncoming
  Call serial number is 0
  Bearer type is none
  Framing type is none
  Proxy LCP was provided
  Authentication method was chap
  Tunnel switch profile is chicago
```

Meaning Table 86 lists the **show l2tp session** command output fields.

Table 86: show l2tp session Output Fields

Field Name	Field Description
Configuration	Configured status of the session
Administrative state	Administrative status of the destination: <ul style="list-style-type: none"> ■ enabled—No restrictions on the operation of this session ■ disabled—Router terminated this session
SNMP traps	Whether or not the router sends traps to Simple Network Management Protocol (SNMP) for operational state changes
Session status	Session status of the destination
Effective administrative state	Most restrictive of the following administrative states: router, destination, tunnel, and session. This setting, rather than the administrative state of the session, determines whether the router can maintain this session or not.
State	Status of the session: idle, connecting, established, or disconnecting
Local and peer session id	Names the router uses to identify the session locally and remotely
Statistics	Information about the traffic for this session
Session operational configuration	Information received from the peer when the session was created

Related Topics

- [show l2tp session command](#)

Monitoring Configured and Operational Summary Status

Purpose Display a summary of the configured and operational status of all L2TP sessions.

Action To display a summary of the configured and operational status of all L2TP sessions:

```

host1#show l2tp session summary
Administrative status  enabled    disabled
                      64         0
Operational status    up      down    lower-down    not-present
                      64         0         0         0

```

Meaning Table 87 lists the **show l2tp session summary** command output fields.

Table 87: show l2tp session summary Output Fields

Field Name	Field Description
Administrative status:	Administrative status of the session: <ul style="list-style-type: none"> ■ enabled—No restrictions on the creation of sessions ■ disabled—Router disabled these sessions
Operational status:	Operational status of the session: <ul style="list-style-type: none"> ■ up—Session is available ■ down—Session is unavailable ■ lower-down—Session is unavailable because the tunnel supporting it is inaccessible ■ not-present—Session is unavailable because the hardware (such as a line module) supporting it is inaccessible

Related Topics

- **show l2tp session summary** command

Monitoring Configured Switch Profiles on Router

Purpose Display information about the L2TP switch profiles configured on the router.

Action To display only the names of the L2TP tunnel switch profiles configured on the router:

```
host1#show l2tp switch-profile
L2TP tunnel switch profile concord
L2TP tunnel switch profile myProfile
2 L2TP tunnel switch profiles found
```

To display information about the settings in a particular L2TP tunnel switch profile:

```
host1#show l2tp switch-profile concord
L2TP tunnel switch profile concord
  AVP bearer type action is relay
  AVP calling number action is relay
  AVP Cisco nas port info action is relay
```

Meaning Table 88 lists the **show l2tp switch-profile** command output fields.

Table 88: show l2tp switch-profile Output Fields

Field Name	Field Description
L2TP tunnel switch profile	Name of the L2TP tunnel switch profile
AVP <i>actionType</i> action is	Indicates the tunnel switching behavior or action type (for example, relay) configured for the specified L2TP AVP type

Related Topics

- `show l2tp switch-profile` command

Monitoring Detailed Configuration Information about Specified Tunnels

Purpose Display detailed configuration information about specified tunnels.

Action To display detailed configuration information about specified tunnel by ip address:

```
host1#show l2tp tunnel virtual router default ip 172.31.1.98
L2TP tunnel 1/xyz is Up with 13 active sessions
L2TP tunnel 1/aol.com is Up with 13 active sessions
L2TP tunnel 1/isp.com is Up with 13 active sessions
L2TP tunnel 1/msn.com is Up with 13 active sessions
L2TP tunnel 1/mv.com is Up with 12 active sessions
5 L2TP tunnels found
```

To display detailed configuration information about specified tunnel:

```
host1#show l2tp tunnel detail 1/xyz
L2TP tunnel 1/xyz is Up with 13 active sessions
Configuration
  Administrative state is enabled
  SNMP traps are enabled
Tunnel address
  Transport ipUdp
  Virtual router default
  Local address 192.168.1.230, peer address 172.31.1.98
  Local UDP port 1701, peer UDP port: 1701
Tunnel status
  Effective administrative state is enabled
  State is established
  Local tunnel id is 14529, peer tunnel id is 34
Sub-interfaces      total    active    failed
Sessions            13      13        0
Statistics  packets    octets      discards    errors
Control rx    14        683          0          0
Control tx    41       4666          0          0
Data rx       67900944   67900944    0          0
Data tx       67900944   67900944    0          0
Control channel statistics
  Receive window size = 4
  Receive ZLB = 17
  Receive out-of-sequence = 0
  Receive out-of-window = 0
  Transmit window size = 4
  Transmit ZLB = 12
  Transmit queue depth = 0
  Retransmissions = 8
Tunnel operational configuration
  Peer host name is 'Juniper-POS'
  Peer vendor name is 'XYZ, Inc.'
  Peer protocol version is 1.1
  Peer firmware revision is 0x1120
  Peer bearer capabilities are digital and analog
  Peer framing capabilities are sync and async
```

Meaning Table 89 lists the **show l2tp tunnel** command output fields.

Table 89: show l2tp tunnel Output Fields

Field Name	Field Description
Configuration	Configured status of the tunnel enabled
Administrative state	Administrative status of the enabled tunnel: <ul style="list-style-type: none"> ■ enabled—No restrictions on creation and operation of sessions for this tunnel ■ disabled—Router disabled existing sessions and will not create new sessions on this tunnel ■ drain—Router will not create new sessions on this tunnel
SNMP traps	Whether or not the router sends traps to SNMP for operational state changes
Tunnel address	Tunnel address information.
Transport	Method used to transfer traffic
Virtual router	Name of the virtual router on which the tunnel is configured
Local and peer addresses	IP addresses of the local and remote ends of the tunnel. If the router is set up to ignore address and port changes in SCCRP packets, both the transmit and receive addresses are listed for the peer.
Local and peer UDP ports	UDP ports for the local and remote ends of the tunnel. If the router is set up to accept address and port changes in SCCRP packets, both the transmit and receive UDP ports are listed for the peer.
Tunnel status	Tunnel status information.
Effective administrative state	Most restrictive of the following administrative states: E-series router, destination, and tunnel. This setting, rather than the administrative state of the tunnel, determines whether the router can create new sessions on a tunnel or whether the sessions on a tunnel are disabled or not.
State	Status of the enabled tunnel: <ul style="list-style-type: none"> ■ idle ■ connecting ■ established ■ disconnecting
Local and peer tunnel id	Names the router used to identify the tunnel locally and remotely
Sub-interfaces:	Sub-interface information for the enabled tunnel: <ul style="list-style-type: none"> ■ total—Number of sessions that the router has created on this tunnel ■ active—Number of operational sessions on the tunnel ■ failed—Number of requests that did not reach an operational state
Statistics	Information about the traffic sent and received
Control channel statistics	Tunnel control channel information

Table 89: show l2tp tunnel Output Fields (continued)

Field Name	Field Description
Receive window size	Number of packets that the peer can transmit without receiving an acknowledgment from the router.
Receive ZLB	Number of acknowledgments that the router has received from the peer.
Receive out-of-sequence	Number of received control packets that were out of order.
Receive out-of-window	Number of packets that arrived at the router outside the receiving window.
Transmit window size	Number of packets that the router can transmit before receiving an acknowledgment from the peer.
Transmit ZLB	Number of acknowledgments that the router has sent to the peer.
Transmit queue depth	Number of packets that the router is waiting to send to the peer, plus the number of packets for which the peer has not yet acknowledged receipt.
Tunnel operation configuration	Information received from the peer when the tunnel was created

Related Topics

- `show l2tp tunnel` command

Monitoring Configured and Operational Status of All Tunnels

Purpose Display a summary of the configured and operational status of all L2TP tunnels.

Action To display a summary of the configured and operational status of all L2TP tunnels:

```
host1#show l2tp tunnel summary
Administrative status  enabled    drain    disabled
                    5          0         0
Operational status    up        down    lower-down  not-present
                    5          0         0         0         0
```

Meaning Table 90 lists the `show l2tp tunnel summary` command output fields.

Table 90: show l2tp tunnel summary Output Fields

Field Name	Field Description
Administrative status	Administrative status of all tunnels: <ul style="list-style-type: none"> ■ enabled—No restrictions on the creation and operation of sessions for this tunnel ■ drain—Router will not create new sessions for this tunnel ■ disabled—Router disabled existing sessions and will not create new sessions for this tunnel

Table 90: show l2tp tunnel summary Output Fields (continued)

Field Name	Field Description
Operational status	Operational status of all tunnels: <ul style="list-style-type: none"> ■ up—Tunnel is available ■ down—Tunnel is unavailable ■ lower-down—Tunnel is unavailable because the destination supporting it is inaccessible ■ not-present—Tunnel is unavailable because the hardware (such as a line module) supporting the tunnel is inaccessible

Related Topics

- [show l2tp tunnel summary command](#)

Monitoring Chassis-wide Configuration for L2TP Dial-out

Purpose To display the chassis-wide configuration, operational state, and statistics for L2TP dial-out.

This command displays aspects of the dial-out state machine and details about the dial-out routes themselves. This section presents sample output. The actual output on your router may differ significantly.

Action To display chassis-wide configuration, operational state, and statistics for L2TP dial-out:

```
host1#show l2tp dial-out
Operational status: inService
Connecting timer value: 30 seconds
Dormant timer value: 300 seconds
```

To display detailed chassis-wide configuration information:

```
host1#show l2tp dial-out detail
Dial-out Chassis Configuration and Operational Status
  Chassis operational status :   inService
  Dormant timeout           :    30 seconds
  Connecting timeout        :    30 seconds

Dial-out Chassis Statistics
  Current sessions:                                0
  Maximum sessions:                                0
  Current sessions in the process of connecting:    0
  Maximum sessions connecting at one time:          0
  Current sessions pending:                         0
  Maximum sessions pending:                         0
  Current targets inhibited:                        0
  Maximum targets inhibited:                        0
  Authentication grant for nonexistent session:      0
  Authentication deny for nonexistent session:       0

Dial-out Virtual router statistics
  Virtual routers active:                            0
  Virtual routers created:                           0
```

```

Virtual routers removed:                0
Virtual routers in init-pending state:   0
Virtual routers in init-failed state:    0
Virtual routers in down state:           0
Virtual routers in in-service state:     0
IP Discarded trigger frames:             0
Trigger frames received for unknown route: 0
Sessions in dormant state:               0
Sessions in pending state:               0
Sessions in authenticating state:        0
Sessions in connecting state:            0
Sessions in in-service state:            0
Sessions in inhibited state:             0
Sessions in post-inhibited state:        0
Sessions in failed state:                0

Dial-out target statistics
Targets active:                          0
Targets created:                         0
Targets removed:                         0
Targets in down state:                   0
Targets in inhibited state:              0
Targets in in-service state:             0
Triggers discarded:                      0
Dial-out session statistics
Sessions active:                         0
Sessions created:                        0
Sessions removed:                        0
Sessions reset:                          0
Triggers received:                       0
Triggers enqueued:                       0
Triggers discarded:                      0
Triggers forwarded:                      0
Triggers max enqueued:                   0
Authentication requests:                 0
No resources for authentication:          0
Authentication grants:                   0
Authentication Denies:                   0
Dial-outs requested:                     0
Dial-outs rejected:                      0
Dial-outs established:                   0
Dial-outs timed out:                     0
Dial-outs torn down:                     0

```

To display summary information for chassis-wide configuration:

```

host1#show l2tp dial-out summary
Virtual routers in init pending state :      0
Virtual routers in init failed state  :      0
Virtual routers in down state         :      0
Virtual routers in inService state    :      0
Targets in down state                  :      0
Targets in inhibited state             :      0
Targets in inService state            :      0
Sessions in dormant state              :      0
Sessions in pending state              :      0
Sessions in authenticating state       :      0
Sessions in connecting state           :      0
Sessions in inService state           :      0
Sessions in inhibited state            :      0
Sessions in postInhibited state        :      0
Sessions in failed state               :      0

```

To display information about the operational or administrative state:

```
host1#show l2tp dial-out state inService
```

Meaning Table 91 lists the **show l2tp dial-out** command output fields.

Table 91: show l2tp dial-out Output Fields

Field Name	Field Description
Operational status	Current operational status of the chassis
Connecting timer value	Configuration of the connecting timeout
Dormant timer value	Configuration of the dormant timeout
Dial-out Chassis Statistics	Statistics at the chassis level
Current sessions	Total number of session currently active on the chassis
Maximum sessions	Highest value of current sessions recorded on the chassis since the last router restart
Current sessions in the process of connecting	Sessions currently in the connecting state
Maximum sessions connecting at one time	Highest number of sessions recorded on the chassis at the same time since the last router restart
Current sessions pending	Sessions in the pending state
Maximum sessions pending	Highest number of sessions recorded in the pending state since the last router restart
Current targets inhibited	Targets currently in the inhibited state
Maximum targets inhibited	Highest value of targets recorded in the inhibited state since the last router restart
Authentication grant for nonexistent session	Number of authentication requests granted to nonexistent sessions
Authentication deny for nonexistent session	Number of authentication requests denied to nonexistent sessions
Dial-out Virtual router statistics	Statistics at the virtual router level
Virtual routers active	VRs in use by the state machine
Virtual routers created	VRs that have been used by the state machine
Virtual routers removed	VRs no longer used by the state machine
Virtual routers in init-pending state	VRs in the initializationPending state
Virtual routers in init-failed state	VRs in the initializationFailed state
Virtual routers in down state	VRs in the down state
Virtual routers in in-service state	VRs in the inService state
IP Discarded trigger frames	Trigger frames that IP discarded
Trigger frames received for unknown route	Trigger frames received for an unknown route
Sessions in dormant state	Sessions on the VR that are in the dormant state
Sessions in pending state	Sessions on the VR that are in the pending state
Sessions in authenticating state	Sessions on the VR that are in the authenticating state

Table 91: show l2tp dial-out Output Fields (continued)

Field Name	Field Description
Sessions in connecting state	Sessions on the VR that are in the connecting state
Sessions in in-service state	Sessions on the VR that are in the inService state
Sessions in inhibited state	Sessions on the VR that are in the inhibited state
Sessions in post-inhibited state	Sessions on the VR that are in the postInhibited state
Sessions in failed state	Sessions on the VR that are in the failed state
Dial-out target statistics	Statistics at the route target level
Targets active	Current active targets
Targets created	All targets created
Targets removed	Targets deleted
Targets in down state	Targets in the down state
Targets in inhibited state	Targets in the inhibited state
Targets in in-service state	Targets in the inService state
Triggers discarded	Trigger packets discarded
Dial-out session statistics	Statistics at the session level
Sessions active	Currently active sessions
Sessions created	All sessions created
Sessions removed	Sessions deleted
Sessions reset	Sessions reset using the l2tp dial-out session reset command
Triggers received	Triggers received for dial-out sessions
Triggers enqueued	Triggers that have been put into the queue
Triggers discarded	Trigger packets discarded
Triggers forwarded	Trigger packets forwarded
Triggers max enqueued	Maximum number of triggers that have been enqueued simultaneously since the last router reset
Authentication requests	Authentication requests received
No resources for authentication	Authentication requests not processed because of insufficient resources
Authentication grants	Authentication requests granted
Authentication Denies	Authentication requests denied
Dial-outs requested	Outgoing calls requested for sessions
Dial-outs rejected	Outgoing call requests that were rejected
Dial-outs established	Successful outgoing calls before the connecting timer expired
Dial-outs timed out	Number of times the connecting timer expired
Dial-outs torn down	Successful outgoing calls that were terminated

Related Topics

- For detailed information about operational states, see *Dial-Out Operational States* on page 350
- **show l2tp dial-out** command
- **show l2tp dial-out virtual-router** command

Monitoring Status of Dial-out Sessions

Purpose Display the status of dial-out sessions.

This command displays aspects of the dial-out state machine and details about the dial-out routes themselves. This section presents sample output. The actual output on your router may differ significantly.

Action To display all sessions within the current virtual router context:

```
host1#show l2tp dial-out session
Session          Status
-----
10.10.1.1        connected
10.10.2.1        dormant
```

To display detailed information about a particular session, specify the trigger IP address for the session:

```
host1#show l2tp dial-out session 10.1.1.1
Session 10.1.1.1
Operational status: dormant
```

To display aggregate counts for dial-out sessions in each of the possible operational and administrative states:

```
host1#show l2tp dial-out session summary
```

To display detailed configuration, state, and statistics:

```
host1#show l2tp dial-out session detail
```

To display information about the operational or administrative state:

```
host1#show l2tp dial-out session state connecting
```

To display dial-out information across all virtual routers

```
host1#show l2tp dial-out session allVirtualRouters
```



NOTE: The level of a user's permission determines the use of the **allVirtualRouters** option. For example, if you have permission to view only the current virtual router, then that is all that is displayed when you enter a command.

Meaning Table 92 lists the **show l2tp dial-out session** command output fields.

Table 92: show l2tp dial-out session Output Fields

Field Name	Field Description
Session	IP address of the session
Status	Current status of the session
Operational status	Current operational status of session

Related Topics

- For detailed information about operational states, see *Dial-Out Operational States* on page 350
- **show l2tp dial-out session** command

Monitoring Dial-out Targets within the Current VR Context

Purpose Display configured dial-out targets within the current virtual router context.

This command displays aspects of the dial-out state machine and details about the dial-out routes themselves. This section presents sample output. The actual output on your router may differ significantly.

Action To display general information for all targets within the virtual router:

```
host1:dialout#show l2tp dial-out target
Target      Status      Active Sessions
-----
10.10.1.1/16 up          14
10.1.1.0/24 up          10
```

To display detailed information about a particular target, specify the target IP address and mask:

```
host1:dialout#show l2tp dial-out target 10.1.1.0/24
Target 10.1.1.0/24
Operational status: up
Active sessions: 10
Total triggers: 127
Failed sessions: 2
Connected sessions: 8
```

To display aggregate counts for targets in each of the possible operational and administrative states:

```
host1:dialout#show l2tp dial-out target summary
```

To display detailed configuration, state, and statistics:

```
host1:dialout#show l2tp dial-out target detail
```

To display information about the operational or administrative state:

```
host1:dialout#show l2tp dial-out target state inService
```

To displays dial-out information across all virtual routers:

```
host1:dialout#show l2tp dial-out target allVirtualRouters
```



NOTE: The level of a user's permission determines the use of the **allVirtualRouters** option. For example, if you have permission to view only the current virtual router, then that is all that is displayed when you enter a command.

Meaning Table 93 lists the **show l2tp dial-out target** command output fields.

Table 93: show l2tp dial-out target Output Fields

Field Name	Field Description
Target	Address of the target
Status	Status of the connection to the target
Active Sessions	Currently active session to the target
Total triggers	Trigger packets received for the target
Failed sessions	Sessions that are currently in the failed state
Connected sessions	Sessions that are currently in the connected state

Related Topics

- For detailed information about operational states, see *Dial-Out Operational States* on page 350
- **show l2tp dial-out target** command

Monitoring Operational Status within the Current VR Context

Purpose Display dial-out state machine operational status and statistics within the current VR context.

This command displays aspects of the dial-out state machine and details about the dial-out routes themselves. This section presents sample output. The actual output on your router may differ significantly.

Action To display dial-out state machine operational status and statistics within the current VR context:

```
host1#show l2tp dial-out virtual-router
Dial-out Virtual Router Configuration and Operational Status
Virtual router host1:
Virtual router operational status: inService
Maximum trigger buffers per session: 0
```

To display aggregate counts for dial-out state machines in each of the possible operational and administrative states:

```
host1:dialout#show l2tp dial-out virtual-router summary
```

To display detailed configuration, state, and statistics:

```
host1:dialout#show l2tp dial-out virtual-router detail
```

To display information about the operational or administrative state:

```
host1:dialout#show l2tp dial-out virtual-router state down
```

To displays dial-out information across all virtual routers:

```
host1:dialout#show l2tp dial-out virtual-router allVirtualRouters
```



NOTE: The level of a user's permission determines the use of the **allVirtualRouters** option. For example, if you have permission to view only the current virtual router, then that is all that is displayed when you enter a command.

Meaning Table 94 lists the **show l2tp dial-out virtual-router** command output fields.

Table 94: show l2tp dial-out virtual-router Output Fields

Field Name	Field Description
Virtual router	Name of VR
Virtual router operational status	Operational status of the VR
Maximum trigger buffers per session	Maximum number of trigger packets held in buffer while the dial-out session is being established

Related Topics

- For detailed information about operational states, see *Dial-Out Operational States* on page 350
- **show l2tp dial-out virtual-router** command

