This chapter lists and provides syntax and examples for the CLI de, debug, mm, phy, and ptrace commands.

**About the Diagnostic Commands**

You can enter the diagnostic commands at the Privileged EXEC CLI level. The following tables list the diagnostic commands and contains page references to descriptions of each command.

**Diagnostic Commands**

Unless otherwise noted, the following diagnostic commands are supported on Routing Switches that support IPv6.

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<tr>
<td>ptrace pim none</td>
<td>3-53</td>
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</tbody>
</table>
Diagnostic Commands – Syntax Descriptions

The following commands are available at the Privileged EXEC level of the CLI for HP devices, except where noted.

**de**

Displays information about CPU buffer allocations.

**EXAMPLE:**

```
ProCurveRS# de
GADDR = 043a1588 TOT_IN = 260 TOT_OUT = 259
CPU_R = 85 GET_B = 175
SNOOP_M = 175 SNOOP = 28
FREE_B = 56 FREE_B_M = 0
Dram(buf = 63 No-bufs = 0
```

The following table describes the output from the **de** command:

<table>
<thead>
<tr>
<th>This Field...</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>GADDR</td>
<td>Address of g_sw_sys</td>
</tr>
<tr>
<td>TOT_IN</td>
<td>Total number of CPU buffer allocations.</td>
</tr>
<tr>
<td>TOT_OUT</td>
<td>Total number of CPU buffer deallocations.</td>
</tr>
<tr>
<td>CPU_R</td>
<td>CPU read queue buffers.</td>
</tr>
<tr>
<td>GET_B</td>
<td>CPU buffers allocated by BM_GET_BUFFER.</td>
</tr>
<tr>
<td>SNOOP</td>
<td>Number of snoop operations.</td>
</tr>
</tbody>
</table>
### Table 3.1: Output from the de command (Continued)

<table>
<thead>
<tr>
<th>This Field...</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNOOP_M</td>
<td>Number of management snoop operations.</td>
</tr>
<tr>
<td>FREE_B</td>
<td>Number of buffers freed using BM_FREE_BUFFER or BM_FREE_BUFFER_MGMT.</td>
</tr>
<tr>
<td>FREE_B_M</td>
<td>Additional counter indicating number of buffers freed using just BM_FREE_BUFFER_MGMT.</td>
</tr>
<tr>
<td>Dram buf</td>
<td>Amount of available packet processing memory. This number should always be close to 64.</td>
</tr>
<tr>
<td>No-bufs</td>
<td>Number of times the CPU was unsuccessful in obtaining packet processing memory. This number should be 0 under normal operation.</td>
</tr>
</tbody>
</table>

**Syntax:** de  
**Possible values:** N/A  
**Default value:** N/A

### debug all

Activates all debugging functions on the device. The no form of the command deactivates all debugging functions.

**NOTE:** Activating all debugging functions can generate a lot of output and greatly slow the operation of the device.

**EXAMPLE:**

ProCurveRS# debug all

**Syntax:** [no] debug all  
**Possible values:** N/A  
**Default value:** N/A

### debug appletalk

Displays the number of timer events dropped and insufficient zone allocations in an Appletalk configuration.

**EXAMPLE:**

ProCurveRS# debug appletalk  
Timer event Dropped: 0  
Insufficient zone allocation: 0

**Syntax:** [no] debug appletalk  
**Possible values:** N/A  
**Default value:** N/A

### debug destination

Specifies a destination for debugging output. You can send debugging output to the console, Syslog buffer, a Telnet session, or an SSH session.

**EXAMPLE:**

ProCurveRS# debug destination ssh 1

**Syntax:** debug destination console | logging | telnet <num> | ssh <num>  
**Possible values:** Specify one of the following destinations:  
**console** Directs debugging output to the system console.
logging  Directs debugging output to the Syslog buffer and also to the Syslog server, if configured.

telnet <num>  Directs debugging output to the specified Telnet session.

ssh <num>  Directs debugging output to the specified SSH session.

Default value: By default, debugging output is sent to the Console.

debug gvrp packets
Displays GVRP information.

EXAMPLE:
ProCurveRS# debug gvrp packets

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug gvrp packets command.

GVRP: Port 2/1 RCV
GVRP: 0x2095ced4:  01 80 c2 00 00 21 00 0e 00 52 ab 87 40 00 28 42 42
GVRP: 0x2095cee4:  03 00 01 01 04 02 03 e9 04 01 03 eb 04 01 03 ec
GVRP: 0x2095cef4:  04 01 03 ef 04 01 03 f1 04 01 05 dd 04 01 09 cb
GVRP: 0x2095cf04:  04 01 0f a1 00 00
GVRP: Port 2/1 TX
GVRP: 0x207651b8:  01 80 c2 00 00 21 00 04 80 2c 0e 20 00 3a 42 42
GVRP: 0x207651c8:  03 00 01 01 02 00 04 05 03 e9 04 05 03 eb 04 05 05
GVRP: 0x207651d8:  04 01 00 0b 00 00
GVRP: 0x207651e8:  09 cb 04 05 0f a1 04 02 00 02 04 01 00 07 04 01
GVRP: 0x207651f8:  00 09 04 01 00 0b 00 00
GVRP: Port 2/1 TX
GVRP: 0x207651b8:  01 80 c2 00 00 21 00 04 80 2c 0e 20 00 18 42 42
GVRP: 0x207651c8:  03 00 01 01 04 02 00 02 04 01 00 07 04 01 00 09
GVRP: 0x207651d8:  04 01 00 0b 00 00

Syntax: [no] debug gvrp packets
Possible values: N/A
Default value: N/A

debug ip arp
Displays information about ARP messages sent and received by the device.

EXAMPLE:
ProCurveRS# debug ip arp

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug arp command.

<table>
<thead>
<tr>
<th>[A]</th>
<th>[B]</th>
<th>[C]</th>
<th>[D]</th>
<th>[E]</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP ARP: rcvd 192.168.4.56 000034ab67bd , 192.168.4.32 00cdeba23ab</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP ARP: sent 192.168.4.32 000034ab67bd , 192.168.4.4 00cdeba23ab</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.2 describes the contents of debug ip arp messages. The letters in brackets do not appear in the actual output.

### Table 3.2: Output from the debug ip arp command

<table>
<thead>
<tr>
<th>This Field...</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>rcvd or sent</td>
<td>Indicates whether the packet was sent or received.</td>
</tr>
<tr>
<td>[A] 192.168.4.56</td>
<td>Source IP address.</td>
</tr>
<tr>
<td>[B] 000034ab67bd</td>
<td>Source MAC address.</td>
</tr>
<tr>
<td>[C] 192.168.4.32</td>
<td>Destination IP address.</td>
</tr>
<tr>
<td>[D] 00cdefba23ab</td>
<td>Destination MAC address.</td>
</tr>
<tr>
<td>[E] 9</td>
<td>Port number.</td>
</tr>
</tbody>
</table>

**Syntax:** [no] debug ip arp  
**Possible values:** N/A  
**Default value:** N/A

debug ip bgp <address> updates  
Displays BGP update information for a specific neighbor.

**EXAMPLE:**  
ProCurveRS# debug ip bgp 1.1.1.192 updates

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip bgp <address> updates command.

```
BGP: 1.1.1.192 rcvd UPDATE about 1.1.1.0/24 -- withdrawn  
BGP: 1.1.1.192 rcvd UPDATE 5.5.5.0/24  
BGP: 1.1.1.192 rcvd UPDATE about 5.5.5.0/24 -- withdrawn
```

**Syntax:** [no] debug ip bgp <ip-addr> updates  
**Possible values:** Valid IP address  
**Default value:** N/A

debug ip bgp dampening  
Displays BGP dampening information

**EXAMPLE:**  
ProCurveRS# debug ip bgp dampening
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip bgp dampening` command.

```
BGP: (1.1.1.1) dampening - route down 3.3.3.0/24
    Old Dampening: state was <\,*>, reuse_list_index=38, penalty=929, time=48,
        flaps=1
    New state <\,>, penalty=1893, reuse_list_index=43, offset=44
BGP: (1.1.1.1) Dampening - Route 3.3.3.0/24 up
    State was <\,>, penalty=1893, time=390, flaps=2
    New state <*> penalty=1396, reuse_list_index=82, curr_offset=83
BGP: (1.1.1.100) Free Dampening 3.3.3.0/24
```

Syntax: `no debug ip bgp dampening`

Possible values: N/A

Default value: N/A

debug ip bgp events
Displays messages when BGP-related events occur. BGP-related events include starting or stopping a peer and opening or closing a BGP TCP connection.

```
EXAMPLE:
ProCurveRS# debug ip bgp events
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip bgp events` command.

```
BGP: 3.3.3.1 start peer
BGP: 3.3.3.1 stop peer
BGP: 3.3.3.1 BGP-TCP Connection opened
BGP: 3.3.3.1 TCP_OPEN done
BGP: 3.3.3.1 keep alive timer expired
```

Syntax: `no debug ip bgp events`

Possible values: N/A

Default value: N/A

debug ip bgp in
Displays BGP inbound information.

```
EXAMPLE:
ProCurveRS# debug ip bgp in
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip bgp in` command.

```
BGP: rcvd message KEEPALIVE_MESSAGE from peer 1.1.1.100, length (incl. header) 19
BGP: rcvd message UPDATE from peer 1.1.1.100, length (incl. header) 27
BGP: rcvd message OPEN_MESSAGE from peer 1.1.1.100, length (incl. header) 29
```

Syntax: `no debug ip bgp in`
Possible values: N/A
Default value: N/A

debug ip bgp keepalives
Displays BGP keepalive information

EXAMPLE:
ProCurveRS# debug ip bgp keepalives

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip bgp keepalives command.

BGP: send keepalives to peer 3.3.3.100

Syntax: [no] debug ip bgp keepalives
Possible values: N/A
Default value: N/A

debug ip bgp out
Displays BGP outbound information.

EXAMPLE:
ProCurveRS# debug ip bgp out

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip bgp out command.

BGP: send UPDATE message to peer 1.1.1.100, length (incl. header) 19
BGP: send KEEPALIVE_MESSAGE message to peer 1.1.1.100, length (incl. header) 19
BGP: send OPEN_MESSAGE message to peer 1.1.1.100, length (incl. header) 19

Syntax: [no] debug ip bgp out
Possible values: N/A
Default value: N/A

debug ip bgp updates
Displays BGP update information for all neighbors or those specified in an IP prefix list.

EXAMPLE:
ProCurveRS# debug ip bgp updates

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip bgp updates command.

BGP: 3.3.3.100 rcvd UPDATE 4.4.4.0/24
BGP: 3.3.3.100 rcvd UPDATE about 4.4.4.0/24 -- withdrawn

Syntax: [no] debug ip bgp updates [<prefix-list>]
Possible values: The <prefix-list> parameter specifies an IP prefix list. Only the routes permitted by the prefix list are displayed.
Default value: N/A
**debug ip dvmrp detail**

Displays detailed messages about DVMRP events, including sending reports, updating the forwarding table, and inserting table entries.

**EXAMPLE:**

ProCurveRS# debug ip dvmrp detail

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the *no debug ip dvmrp detail* command.

DVMRP: send report DVMRP report to 224.0.0.4
DVMRP: send report DVMRP report to 2.2.2.1
DVMRP: updating fwd table due to a child is deleted
DVMRP: updating fwd table due to an entry is deleted
DVMRP: updating fwd table due to adding entry
DVMRP: insert entry source 1.1.1.0 group 239.255.162.2

**Syntax:** [no] debug ip dvmrp detail

Possible values: N/A

Default value: N/A

**debug ip dvmrp in**

Displays messages related to inbound DVMRP information.

**EXAMPLE:**

ProCurveRS# debug ip dvmrp in

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the *no debug ip dvmrp in* command.

DVMRP: accept report. src ip 2.2.2.1 dest ip 224.0.0.4 group 0.6.5.3 port 7
DVMRP: accept probe. src ip 2.2.2.1 dest ip 224.0.0.4 group 0.6.5.3 port 7
DVMRP: accept prune. src ip 2.2.2.1 dest ip 2.2.2.100 group 0.6.5.3 port 7

**Syntax:** [no] debug ip dvmrp in

Possible values: N/A

**debug ip dvmrp out**

Displays messages related to outbound DVMRP information.

**EXAMPLE:**

ProCurveRS# debug ip dvmrp out

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the *no debug ip dvmrp out* command.

DVMRP: send report. src ip 2.2.2.1 dest ip 224.0.0.4
DVMRP: send probe. src 2.2.2.1 dest 2.2.2.100 port 7

**Syntax:** [no] debug ip dvmrp out

Possible values: N/A
**debug ip dvmrp pruning**
Displays DVMRP pruning information.

**EXAMPLE:**
ProCurveRS# debug ip dvmrp pruning

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ip dvmrp pruning** command.

DVMRP: delete entry 00000003 idx 273
DVMRP: delete all entries for source 1.1.1.0
DVMRP: update fwd table by adding group 239.255.162.1 router 3.3.3.100 interface 9
DVMRP: update fwd table by adding group 239.255.162.2 router 3.3.3.100 interface 9
DVMRP: update fwd table by deleting group 239.255.162.1 router 3.3.3.100 interface 9
DVMRP: dvmrp delete prune state: Int6 Index 255 Prune Index 3

**Syntax:** [no] debug ip dvmrp pruning
**Possible values:** N/A
**Default value:** N/A

**debug ip icmp events**
Displays messages when ICMP events, including sending and receiving ICMP echo requests, occur.

**EXAMPLE:**
ProCurveRS# debug ip icmp events

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ip icmp events** command.

ICMP: rcvd echo request packet of length 40 from 1.1.1.2
ICMP: send echo request packet of length 60 to 1.1.1.2

**Syntax:** [no] debug ip icmp events
**Possible values:** N/A
**Default value:** N/A

**debug ip icmp packets**
Displays information related to ICMP packets sent or received on the device.

**EXAMPLE:**
ProCurveRS# debug ip icmp packets

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ip icmp packets** command.

ICMP: dst (1.2.3.4), src (0.0.0.0) echo request type

**Syntax:** [no] debug ip icmp packets
**Possible values:** N/A
**Default value:** N/A
debug ip igmp
Displays IGMP related information.

EXAMPLE:
ProCurveRS# debug ip igmp
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip igmp command.

IGMP: send message to 1.1.1.1 port ethernet 1 type 17 size 28
IGMP: send query to all port. type 17 port ethernet 7 ver 2
IGMP: rcvd v2 membership report from 1.1.1.2 group address 239.255.162.1 port ethernet 1 size 8
IGMP: rcvd membership query from 2.2.2.100 group address 0.0.0.0 port ethernet 7 size 8
IGMP: rcvd pim from 2.2.2.100 group address 16.0.0.0 port ethernet 7 size 12

debug ip msdp alarms
Displays information about MSDP alarms.

EXAMPLE:
ProCurveRS# debug ip msdp alarms
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip msdp alarms command.

MSDP: S=xxxxxxxx P=0 Initiate Transport Connection to MSDP peer

Syntax: [no] debug ip msdp alarms
Possible values: N/A
Default value: N/A

debug ip msdp events
Displays messages when significant MSDP events occur.

EXAMPLE:
ProCurveRS# debug ip msdp events
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip msdp events command.

MSDP: 172.16.2.4: Closing session
MSDP: 172.16.2.4: Peer back to IDLE state
MSDP: (172.16.2.4) START peer
MSDP: 172.16.2.4: Closing session
MSDP: 172.16.2.4: Peer back to IDLE state
MSDP: Originating SA
MSDP: (172.16.2.4) START peer
MSDP: 172.16.2.4: TCP Connection to Remote Peer is Open
MSDP: 172.16.2.4: MSDP-TCP Connection opened
MSDP: 172.16.2.4: TCP_OPEN DONE, State 4
MSDP: Remote Peer closed TCP connection

Syntax: [no] debug ip msdp events
Possible values: N/A
Default value: N/A
**debug ip msdp message**
Displays information when MSDP messages are sent or received on the device.

**EXAMPLE:**
ProCurveRS# debug ip msdp message

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip msdp message` command.

```
MSDP: 172.16.2.4: send keepalive message
MSDP: 172.16.2.4: TLV 4 Send Message to peer. length=3
MSDP: P=0 MSDP Header Rcvd: Len=3 Type=4
MSDP: 172.16.2.4: KEEP_ALIVE Received Type 00000004 State=4 Length=3
MSDP: 172.16.2.4: send keepalive message
MSDP: 172.16.2.4: TLV 4 Send Message to peer. length=3
MSDP: P=0 MSDP Header Rcvd: Len=3 Type=4
MSDP: 172.16.2.4: KEEP_ALIVE Received Type 00000004 State=4 Length=3
```

**Syntax:** `[no] debug ip msdp message`

**Possible values:** N/A

**Default value:** N/A

**debug ip nat icmp**
Displays information about ICMP packets whose source or destination matches a specified IP address.

**EXAMPLE:**
ProCurveRS# debug ip nat icmp 10.10.100.18

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip nat icmp` command.

```
NAT: icmp src 10.10.100.18 => trans 192.168.2.79 dst 204.71.202.127
NAT: 192.168.2.79 204.71.202.127 ID 35768 len 60 txfid 13 icmp (8/0/512/519)
NAT: 204.71.202.127 10.10.100.18 ID 11554 len 60 txfid 15 icmp (0/0/512/519)
```

**Syntax:** `[no] debug ip nat icmp <ip-addr>`

**Possible values:** A valid IP address. An IP address of 0.0.0.0 matches any ICMP packet.

**Default value:** N/A

**debug ip nat udp**
Displays information about UDP packets whose source or destination matches a specified IP address.

**EXAMPLE:**
ProCurveRS# debug ip nat udp 10.10.100.18

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip nat udp` command.

```
NAT: udp src 10.10.100.18:1561 => trans 192.168.2.79:65286 dst 192.168.3.11:53
NAT: 192.168.2.79:65286 192.168.3.11:53 ID 35512 len 58 txfid 13
NAT: 192.168.3.11:53 10.10.100.18:1560 ID 8453 len 346 txfid 15
```

**Syntax:** `[no] debug ip nat udp <ip-addr>`

**Possible values:** A valid IP address. An IP address of 0.0.0.0 matches any UDP packet.
**Default value:** N/A

**debug ip nat tcp**

Displays information about TCP packets whose source or destination matches a specified IP address.

**EXAMPLE:**

```plaintext
ProCurveRS# debug ip nat tcp 10.10.100.18
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip nat tcp` command.

```
NAT: tcp src 10.10.100.18:1473 => trans 192.168.2.78:8016 dst 192.168.2.158:53
NAT: 192.168.2.78:8016 192.168.2.158:53 flags S ID 57970 len 44 txfid 13
NAT: 192.168.2.158:53 10.10.100.18:1473 flags S A ID 22762 len 44 txfid 15
NAT: 192.168.2.78:8016 192.168.2.158:53 flags A ID 58226 len 40 txfid 13
NAT: 192.168.2.158:53 10.10.100.18:1473 flags A ID 23018 len 42 txfid 15
NAT: 192.168.2.78:8016 192.168.2.158:53 flags A ID 58482 len 77 txfid 13
NAT: 192.168.2.158:53 10.10.100.18:1473 flags A ID 58738 len 40 txfid 13
NAT: 192.168.2.78:8016 192.168.2.158:53 flags A ID 23274 len 131 txfid 15
NAT: 192.168.2.158:53 10.10.100.18:1473 flags A ID 23530 len 42 txfid 15
NAT: 192.168.2.78:8016 192.168.2.158:53 flags FA ID 59250 len 40 txfid 13
```

**Syntax:** `[no] debug ip nat tcp <ip-addr>`

**Possible values:** A valid IP address. An IP address of 0.0.0.0 matches any TCP packet.

**Default value:** N/A

**debug ip nat transdata**

Displays information about network translation requests and responses.

**EXAMPLE:**

```plaintext
ProCurveRS# debug ip nat transdata
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip nat transdata` command.

```
NAT: icmp src 10.10.100.18:2048 => trans 192.168.2.78:8016 dst 204.71.202.127
NAT: udp src 10.10.100.18:1561 => trans 192.168.2.78:65286 dst 192.168.3.11:53
NAT: tcp src 10.10.100.18:1473 => trans 192.168.2.78:8016 dst 192.168.2.158:53
```

**Syntax:** `[no] debug ip nat transdata`

**Possible values:** N/A

**Default value:** N/A

**debug ip ospf adj**

Displays information related to OSPF adjacency events. Adjacency events include adding or removing an interface, receiving hello messages from an adjacency, and broadcasting hello messages to an adjacency.

**EXAMPLE:**

```plaintext
ProCurveRS# debug ip ospf adj
```
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip ospf adj` command.

OSPF: 1.1.1.100 is added to interface neighbor list
OSPF: 4.4.4.101 is removed from interface neighbor list
OSPF: rcvd hello from 207.95.6.146 area 1 from 207.9
OSPF: broadcast hello to area 1 of all neighbors of 207.95.6.52

**Syntax:** [no] debug ip ospf adj

**Possible values:** N/A

**Default value:** N/A

d** debug ip ospf events**
Displays messages when significant OSPF events occur. These events include backup designated router (BDR) election, designated router (DR) election, and receiving and sending database description (DBD) packets.

**EXAMPLE:**
ProCurveRS# debug ip ospf events

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip ospf events` command.

OSPF: DR/BDR election for 1.1.1.1 on ve 2
OSPF: elect BDR (backup designated router): Router ID 1.1.1.10 IP interface 1.1.1.10
OSPF: elect DR (designated router): Router ID 1.1.1.1, IP interface 1.1.1.1
OSPF: rcvd DBD from 1.1.1.1 on ve 2 flag 0x0 len 32 mtu 1500
OSPF: send DBD to 1.1.1.1 on ve 2 flag 0x0 len 232

**Syntax:** [no] debug ip ospf events

**Possible values:** N/A

**Default value:** N/A

d** debug ip ospf flood**
Displays OSPF link state advertisement (LSA) flooding information.

**EXAMPLE:**
ProCurveRS# debug ip ospf flood

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip ospf flood` command.

OSPF: flooding 1 advertisement out interface 207.95.6.52
OSPF: attempting to flood rcvd LSA area = 00000001 interface type = 1
OSPF: flood advertisement throughout the entire autonomous system

**Syntax:** [no] debug ip ospf flood

**Possible values:** N/A

**Default value:** N/A

d** debug ip ospf lsa-generation**
Displays information related to OSPF link state advertisements (LSAs).
**EXAMPLE:**

ProCurveRS# ip ospf lsa-generation

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip ospf lsa-generation` command.

```
OSPF: rcvd LSA type = 5, router ID 207.95.6.0  seq_num = 80000058
OSPF: ospf ls acknowledgement packet received!
OSPF: processing advertisement
```

**Syntax:** [no] debug ip ospf lsa-generation

**Possible values:** N/A

**Default value:** N/A

**debug ip ospf packet**

Displays information about OSPF packets sent and received on the device

**EXAMPLE:**

ProCurveRS# debug ip ospf packet

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip ospf packet` command.

```
OSPF: rcvd. v:2 t:1 l:48 rid:207.95.6.146
    aid:207.95.6.146 chk:00007920 aut:0 auk:00000000 00000000
OSPF: send v:2 t:1 l:48 rid:1.1.1.1
    aid:1.1.1.1 chk:0000F630 aut:0 auk:00000000 00000000
```

Table 3.3 describes the contents of `debug ip ospf packet` messages.

<table>
<thead>
<tr>
<th>This Field...</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>rcvd. or send</td>
<td>Indicates whether the packet was sent or received.</td>
</tr>
<tr>
<td>v:</td>
<td>OSPF version.</td>
</tr>
<tr>
<td>t:</td>
<td>OSPF packet type. Possible packet types are:</td>
</tr>
<tr>
<td></td>
<td>1 – Hello</td>
</tr>
<tr>
<td></td>
<td>2 – Data description</td>
</tr>
<tr>
<td></td>
<td>3 – Link state request</td>
</tr>
<tr>
<td></td>
<td>4 – Link state update</td>
</tr>
<tr>
<td></td>
<td>5 – Link state acknowledgment</td>
</tr>
<tr>
<td>l:</td>
<td>OSPF packet length in bytes.</td>
</tr>
<tr>
<td>rid:</td>
<td>OSPF router ID.</td>
</tr>
<tr>
<td>aid:</td>
<td>OSPF area ID.</td>
</tr>
<tr>
<td>chk:</td>
<td>OSPF checksum.</td>
</tr>
</tbody>
</table>
Table 3.3: Output from the `debug ip ospf packet` command (Continued)

<table>
<thead>
<tr>
<th>This Field</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>aut:</td>
<td>OSPF authentication type. Possible authentication types are:</td>
</tr>
<tr>
<td></td>
<td>0 – No authentication</td>
</tr>
<tr>
<td></td>
<td>1 – Simple password</td>
</tr>
<tr>
<td></td>
<td>2 – MD5</td>
</tr>
<tr>
<td>auk:</td>
<td>OSPF authentication key.</td>
</tr>
</tbody>
</table>

**Syntax:** `[no] debug ip ospf packet

**Possible values:** N/A

**Default value:** N/A

**debug ip ospf retransmission**

Displays OSPF retransmission related events.

**EXAMPLE:**

`ProCurveRS# debug ip ospf retransmission`

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip ospf retransmission` command.

OSPF: examine each neighbor and add advertisement to the retransmission list if necessary
OSPF: remove current database copy from all neighbors retransmission lists

**Syntax:** `[no] debug ip ospf retransmission

**Possible values:** N/A

**Default value:** N/A

**debug ip ospf spf**

Displays information about shortest path first (SPF) or Dijkstra algorithm related OSPF events. This command lists new routing table entries when they are added, as well as the updated routing table.

**EXAMPLE:**

`ProCurveRS# debug ip ospf spf`
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip ospf spf` command.

OSPF: Running dijkstra for area 1
OSPF: Adding routing table entry for transit network 207.95.6.146
OSPF: adding stub networks for area 1

OSPF: New routing table:
OSPF: ---Entry #1
OSPF: destination 1.1.1.0, mask 255.255.255.0, type 0
OSPF: area 0.0.0.1 path cost 1, type 0
OSPF: next hop router 15.212.4.123, outgoing interface loopback 22
OSPF: advertising router 1.1.1.1

OSPF: ---Entry #2
OSPF: destination 4.4.4.0, mask 255.255.255.0, type 0
OSPF: area 0.0.0.1 path cost 1, type 0
OSPF: next hop router 16.148.4.123, outgoing interface loopback 22
OSPF: advertising router 1.1.1.1

(remaining routing table entries omitted)

**Syntax:** [no] debug ip ospf spf

**Possible values:** N/A

**Default value:** N/A

dbg ip pim <address>

Displays information about PIM related traffic. Messages are displayed when hello, join, graft, and prune messages are sent or received.

**EXAMPLE:**

ProCurveRS# debug ip pim 239.255.162.6

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip pim <address>` command.

PIM: send prune e7, source 1.1.1.2 group 239.255.162.6 nbr 2.2.2.1
PIM: rcvd prune e7, Source 1.1.1.2 group 239.255.162.6
PIM: send graft e7, source 1.1.1.2 group 239.255.162.6 nbr 2.2.2.1
PIM: rcvd graft e7, source 3.3.3.1 group 239.255.162.6

**Syntax:** [no] debug ip pim [<ip-addr>]

**Possible values:** Valid PIM group address.

**Default value:** N/A

dbg ip pim events

Displays messages when PIM events, including deleting and adding group entries, occur.

**EXAMPLE:**

ProCurveRS# debug ip pim events
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip pim events` command.

```
PIM: BEGIN Periodic join-prune msgs
PIM: END Periodic join-prune msgs
PIM: delete group 239.255.162.2
PIM: Begin sending Join/Prune msg to e7
PIM: delete group entry 239.255.162.2 port ethernet 1
```

**Syntax:** `[no] debug ip pim events`  
**Possible values:** N/A  
**Default value:** N/A

**debug ip rip**  
Displays information about RIP routing transactions.  

**EXAMPLE:**  
ProCurveRS# debug ip rip  
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip rip` command.

```
RIP: sending updates(periodic) to 1.1.1.255 via ethernet 7 (1.1.1.100)
RIP: sending updates(triggered) to 1.1.1.255 via ethernet 7 (1.1.1.100)
RIP: rcvd updates from 1.1.1.100 on ethernet 7
```

**Syntax:** `[no] debug ip rip`  
**Possible values:** N/A  
**Default value:** N/A

**debug ip rip database**  
Displays information about routes imported from other routing protocols, such as OSPF and BGP.

**EXAMPLE:**  
ProCurveRS# debug ip rip database
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip rip database` command.

RIP: process response packet
   header: type:RESPONSE PACKET, version:1

RIP: remove imported route

<table>
<thead>
<tr>
<th>Network Address</th>
<th>NetMask</th>
<th>Gateway</th>
<th>Port</th>
<th>Cost</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.7.7.0</td>
<td>255.255.255.0</td>
<td>*2.2.2.100</td>
<td>v3</td>
<td>2</td>
<td>O</td>
</tr>
<tr>
<td>7.7.7.0</td>
<td>255.255.255.0</td>
<td>3.3.3.100</td>
<td>v4</td>
<td>2</td>
<td>O</td>
</tr>
</tbody>
</table>

RIP: add imported OSPF route

Total number of IP routes: 14
Start index: 1  B:BGP D:Connected  R:RIP  S:Static  O:OSPF  *:Candidate default

<table>
<thead>
<tr>
<th>Destination</th>
<th>NetMask</th>
<th>Gateway</th>
<th>Port</th>
<th>Cost</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1.0.0.0</td>
<td>255.0.0.0</td>
<td>207.95.6.146</td>
<td>v8</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>2 1.1.1.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>v2</td>
<td>1</td>
<td>D</td>
</tr>
<tr>
<td>3 2.0.0.0</td>
<td>255.0.0.0</td>
<td>1.1.1.100</td>
<td>v2</td>
<td>2</td>
<td>R</td>
</tr>
<tr>
<td>4 2.2.2.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>v3</td>
<td>1</td>
<td>D</td>
</tr>
<tr>
<td>5 3.0.0.0</td>
<td>255.0.0.0</td>
<td>1.1.1.100</td>
<td>v2</td>
<td>2</td>
<td>R</td>
</tr>
<tr>
<td>6 3.3.3.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>v4</td>
<td>1</td>
<td>D</td>
</tr>
<tr>
<td>7 4.0.0.0</td>
<td>255.0.0.0</td>
<td>207.95.6.146</td>
<td>v8</td>
<td>0</td>
<td>B</td>
</tr>
<tr>
<td>8 4.4.4.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>9</td>
<td>1</td>
<td>D</td>
</tr>
<tr>
<td>9 6.0.0.0</td>
<td>255.0.0.0</td>
<td>1.1.1.100</td>
<td>v2</td>
<td>2</td>
<td>R</td>
</tr>
<tr>
<td>10 6.6.6.0</td>
<td>255.255.255.0</td>
<td>*2.2.2.100</td>
<td>v3</td>
<td>2</td>
<td>O</td>
</tr>
<tr>
<td>6.6.6.0</td>
<td>255.255.255.0</td>
<td>3.3.3.100</td>
<td>v4</td>
<td>2</td>
<td>O</td>
</tr>
<tr>
<td>11 7.0.0.0</td>
<td>255.0.0.0</td>
<td>1.1.1.100</td>
<td>v2</td>
<td>2</td>
<td>R</td>
</tr>
<tr>
<td>12 7.7.7.0</td>
<td>255.255.255.0</td>
<td>*2.2.2.100</td>
<td>v3</td>
<td>2</td>
<td>O</td>
</tr>
<tr>
<td>7.7.7.0</td>
<td>255.255.255.0</td>
<td>3.3.3.100</td>
<td>v4</td>
<td>2</td>
<td>O</td>
</tr>
<tr>
<td>13 192.192.192.0</td>
<td>255.255.255.0</td>
<td>207.95.6.146</td>
<td>v8</td>
<td>20</td>
<td>O</td>
</tr>
<tr>
<td>14 207.95.6.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>v8</td>
<td>1</td>
<td>D</td>
</tr>
</tbody>
</table>

**Syntax:** `[no] debug ip rip database`

**Possible values:** N/A

**Default value:** N/A

**debug ip rip events**

Displays information about RIP events, including aged-out routes and replies sent to other routers.

**EXAMPLE:**

ProCurveRS# debug ip rip events
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip rip events` command.

RIP: route to 6.0.0.0 via next hop 1.1.1.100 aged out
RIP: send all routes reply to 1.1.1.100
RIP: received response from 1.1.1.100: 164 bytes
    route entry: family:2, target:6.0.0.0, metric:1
    route entry: family:2, target:207.95.6.0, metric:1

RIP: New routing table
Total number of IP routes: 6

<table>
<thead>
<tr>
<th>Destination</th>
<th>NetMask</th>
<th>Gateway</th>
<th>Flag</th>
<th>Port</th>
<th>Cost</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0.0.0</td>
<td>255.0.0.0</td>
<td>207.95.6.146</td>
<td>v8</td>
<td>0</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>1.1.1.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>v2</td>
<td>1</td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>2.0.0.0</td>
<td>255.0.0.0</td>
<td>207.95.6.146</td>
<td>v8</td>
<td>0</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>2.2.2.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>v3</td>
<td>1</td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>3.0.0.0</td>
<td>255.0.0.0</td>
<td>1.1.1.100</td>
<td>v2</td>
<td>2</td>
<td></td>
<td>R</td>
</tr>
<tr>
<td>3.3.3.0</td>
<td>255.255.255.0</td>
<td>0.0.0.0</td>
<td>v4</td>
<td>1</td>
<td></td>
<td>D</td>
</tr>
</tbody>
</table>

**Syntax:** `[no] debug ip rip events`

**Possible values:** N/A

**Default value:** N/A

**debug ip rip trigger**

Displays information about RIP events triggered by adding or deleting a route.

**EXAMPLE:**

```
ProCurveRS# debug ip rip trigger
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip rip trigger` command.

RIP: adding route to target:3.0.0.0 via gateway:1.1.1.9, metric: 2, port: 8, bits: 8
RIP: deleting route to target:3.0.0.0 via gateway:1.1.1.9
RIP: build route header: type:RESPONSE PACKET, version:1
RIP: build route entry: family:2, target:207.95.6.0, metric:1
RIP: periodic update sent on port 18

**Syntax:** `[no] debug ip rip trigger`

**Possible values:** N/A

**Default value:** N/A

**debug ip ssh**

Displays the status of SSH session negotiation.

**EXAMPLE:**

```
ProCurveRS# debug ip ssh
```
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ip ssh** command.

SSH: Server successfully sent to client its version number
SSH: Server received client's version number
SSH: client's version number SSH-1.5
SSH: Server version number matches client's version number
SSH: Server sent its host and server public keys to the client
SSH: Server received session key from the client
SSH: Server received client's name
SSH: Server authenticated the client with password
SSH: Client requested compression
SSH: Secure Shell is established!

**Syntax:** [no] debug ip ssh

**Possible values:** N/A

**Default value:** N/A

d debug ip tcp <address>

Displays information about TCP packets from a specified IP address.

**EXAMPLE:**

ProCurveRS# debug ip tcp 192.168.9.210

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ip tcp <address>** command.


packet: syn:0,ack:1,rst:0,fin:1,hlen:5,chksum:00006fdf,seqn:2423494362,ackn:211

packet: syn:0,ack:0,rst:1,fin:0,hlen:5,chksum:0000b93d,seqn:21521,ackn:0

**Syntax:** [no] debug ip tcp <address>

**Possible values:** IP address

**Default value:** N/A

d debug ip tcp driver

Displays information about TCP driver related events, such as opening, closing, and aborting a TCP connection, or discarding TCP packets.

**EXAMPLE:**

ProCurveRS# debug ip tcp driver

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ip tcp driver** command.

TCP: aborting connection 1.1.1.1:23 -> 1.1.1.2:2559
TCP: closing connection 1.1.1.1:23 -> 1.1.1.2:2559
TCP: opening connection 207.95.6.52:3456 -> 207.95.6.146:23

**Syntax:** [no] debug ip tcp driver
Possible values: N/A
Default value: N/A

debug ip tcp memory

The `debug ip tcp memory` command causes messages to be displayed when memory is allocated or deallocated to the internal TCP buffers.

**EXAMPLE:**

```
ProCurveRS# debug ip tcp memory
```

For example, when a user establishes a Telnet session with the device, an then terminates it, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip tcp memory` command.

```
TCP TCB ALLOCATED 210de822
TCP SEND BUFFER ALLOCATED 2111ec80
TCP SEND QUEUE BUFFER ALLOCATED 210d88dc
TCP SEND BUFFER ALLOCATED 2113695c
TCP SEND QUEUE BUFFER ALLOCATED 210d9714
TCP SEND BUFFER ALLOCATED 2111f838
TCP SEND QUEUE BUFFER ALLOCATED 210d894c
TCP SEND BUFFER ALLOCATED 21117174
TCP SEND QUEUE BUFFER ALLOCATED 210d8444
TCP SEND BUFFER ALLOCATED 210f4aac
TCP SEND QUEUE BUFFER ALLOCATED 210d6f8e
TCP SEND BUFFER ALLOCATED 210f5088
TCP SEND QUEUE BUFFER ALLOCATED 210d6f8e
TCP SEND BUFFER FREED 2111ec80
TCP QUEUE BUFFER FREED 210d6f8e
TCP RECEIVE QUEUE BUFFER ALLOCATED 210d6f8e
TCP RECEIVE BUFFER ALLOCATED 21151530
TCP RECEIVE BUFFER FREED 21151530
TCP QUEUE BUFFER FREED 210d6f8e
TCP RECEIVE QUEUE BUFFER ALLOCATED 210d6f8e
TCP RECEIVE BUFFER ALLOCATED 21151530
TCP RECEIVE BUFFER FREED 21151530
TCP QUEUE BUFFER FREED 210d6f8e
TCP TCB FREED 210de822
```

**Syntax:** `[no] debug ip tcp memory`

**NOTE:** Output from this command appears only on the console or syslog. The output is suppressed when sent to a Telnet or SSH session.

Possible values: N/A
Default value: N/A

debug ip tcp packet

Displays information about received and sent TCP packets.

**EXAMPLE:**

```
ProCurveRS# debug ip tcp packet
```
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip tcp packet` command.

```
TCP: rcvd packet (len=20) 1.1.1.2:2526 -> 1.1.1.1:23
    packet: syn:0,ack:1,rst:0,fin:0,hlen:5,chksum:0000c34e,seqn:55807198,ackn:548539276
TCP: sent packet (len=20) 207.95.6.52:8104 -> 207.95.6.146:179
    packet: syn:0,ack:1,rst:0,fin:0,hlen:5,chksum:00008b4a,seqn:36182260,ackn:2027586739
```

**Syntax:** `[no] debug ip tcp packet`  
**Possible values:** N/A  
**Default value:** N/A

`debug ip tcp sack`  
Displays information about TCP Selective-ACK packets.

**EXAMPLE:**
```
ProCurveRS# debug ip tcp sack
```
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip tcp sack` command.

```
TCP: process ACK, tcp state tcp_syn_recvd
TCP: nothing to ACK, sequence number 21521, tcp is in sequence
TCP: process ACK, tcp state tcp_close_wait
```

**Syntax:** `[no] debug ip tcp sack`  
**Possible values:** N/A  
**Default value:** N/A

`debug ip tcp transactions`  
Displays information about TCP transactions, including state changes and packet retransmissions.

**EXAMPLE:**
```
ProCurveRS# debug ip tcp transactions
```
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ip tcp transactions` command.

```
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change LISTEN -> SYN-RECEIVED
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change SYN-RECEIVED -> ESTABLISHED
TCP: retransmitted segment
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change ESTABLISHED -> FIN-WAIT-1
TCP: retransmitted segment
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change FIN-WAIT-1 -> FIN-WAIT-2
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change FIN-WAIT-2 -> TIME-WAIT
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change TIME-WAIT -> CLOSED
```

**Syntax:** `[no] debug ip tcp transactions`  
**Possible values:** N/A  
**Default value:** N/A
debug ip udp
Displays information about UDP packets.

**EXAMPLE:**
ProCurveRS# debug ip udp
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip udp command.

UDP: sent src 1.1.1.168.192(port 161) -> dest 181.1.1.168.192(port 162), length:71
UDP: rcvd src 234.1.168.192(port 138) -> dest 255.1.1.168.192(port 138), length:209

**Syntax:** [no] debug ip udp
**Possible values:** N/A
**Default value:** N/A

debug ip vrrp events
Displays information about VRRP events, such as when a backup router transitions to a master, a router transitions to a backup router, a VRID is deleted, or a VRRP packet is dropped.

**EXAMPLE:**
ProCurveRS# debug ip vrrp events
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip vrrp events command.

TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change LISTEN -> SYN-RECEIVED
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change SYN-RECEIVED -> ESTABLISHED
TCP: retransmitted segment
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change ESTABLISHED -> FIN-WAIT-1
TCP: retransmitted segment
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change FIN-WAIT-1 -> FIN-WAIT-2
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change FIN-WAIT-2 -> TIME-WAIT
TCP: 1.1.1.1:23 -> 1.1.1.2:2537: state change TIME-WAIT -> CLOSED

**Syntax:** [no] debug ip vrrp events
**Possible values:** N/A
**Default value:** N/A

debug ip vrrp packet
Displays information about VRRP packets and the IP addresses of backup routers.

**EXAMPLE:**
ProCurveRS# debug ip vrrp packet
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ip vrrp events command.

VRRP: rcvd ver:2 type:l vrid:1 pri:255 #ip:1 aut:0 adv:lv:1 chk:56825
    Num of ip addr 1
    1.1.1.1 from sender 1.1.1.1
VRRP: send advertise! ver:2 type:l vrid:1 pri:255 #ip:1 aut:0 adv:lv:1 chk:56825
    Num of ip addr 1
    1.1.1.1
Table 3.4 describes the contents of **debug ip vrrp packet** messages.

### Table 3.4: Output from the debug ip vrrp packet command

<table>
<thead>
<tr>
<th>This Field...</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>rcvd. or send</td>
<td>Indicates whether the packet was sent or received.</td>
</tr>
<tr>
<td>ver:</td>
<td>VRRP version; RFC 2338 defines version 2.</td>
</tr>
<tr>
<td>type:</td>
<td>VRRP packet type. Possible packet types are:</td>
</tr>
<tr>
<td></td>
<td>1 Advertisement</td>
</tr>
<tr>
<td>vrid:</td>
<td>Virtual Router Identifier.</td>
</tr>
<tr>
<td>pri:</td>
<td>Priority of the VRRP router.</td>
</tr>
<tr>
<td>#ip:</td>
<td>The number of IP addresses contained in this VRRP advertisement.</td>
</tr>
<tr>
<td>aut:</td>
<td>VRRP authentication type. Possible authentication types are:</td>
</tr>
<tr>
<td></td>
<td>0 No authentication</td>
</tr>
<tr>
<td></td>
<td>1 Simple text password</td>
</tr>
<tr>
<td></td>
<td>2 IP Authentication Header</td>
</tr>
<tr>
<td>adv:</td>
<td>VRRP checksum.</td>
</tr>
<tr>
<td>chk:</td>
<td>VRRP checksum.</td>
</tr>
<tr>
<td>Num of ip addr</td>
<td></td>
</tr>
</tbody>
</table>

**Syntax:** [no] debug ip vrrp packet

**Possible values:** N/A

**Default value:** N/A

### debug ipv6 address

Displays information about packets with a source or destination address that matches the specified IPv6 address.

Entering the **debug ipv6 address** command also enables the debugging of IPv6 packets. For more information about debugging IPv6 packets, see “debug ipv6 packet” on page 3-42.

**EXAMPLE:**

ProCurveRS# debug ipv6 address 3000:1::2

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 address** command.

IPv6_TX: 3000:1::2 => 3000:1::6 (00e0.52da.c347)  
NextHeader:58, size:32 (72), vlan:1, Port: 136 (136)

**Syntax:** [no] debug ipv6 address <ipv6-address>

**Possible values:** A valid IPv6 address.

**Default value:** N/A
debug ipv6 cache
Displays information when an IPv6 cache entry is added, deleted, or updated. The IPv6 cache contains an IPv6 host table that has indices to the next hop gateway and the router interface on which the route was learned.

**EXAMPLE:**
ProCurveRS debug ipv6 cache

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 cache` command.

IPv6RT0: Deleted cache for fe80::204:80ff:fe2c:c048 on port 3/9 Local
IPv6RT0: Deleted cache for 3000:1::2 on port 3/9 Local
IPv6RT0: update cache entries for parent route 3000:1::/6 route 3000:1::/64
IPv6RT0: Added cache for 3000:1::2 on port 3/9 Local
IPv6RT0: Added cache for fe80::204:80ff:fe2c:c048 on port 3/9 Local

**Syntax:** [no] debug ipv6 cache

**Possible values:** N/A

**Default value:** N/A

debug ipv6 icmp
Displays information when an HP device that supports IPv6 receives and transmits ICMP request, response, error, and redirect packets.

**EXAMPLE:**
ProCurveRS debug ipv6 icmp

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 icmp` command.

ICMPv6:Sending Echo Request to 3000:1::6, length 24
ICMPv6:Received Echo Reply from 3000:1::6, length 24

**Syntax:** [no] debug ipv6 icmp

**Possible values:** N/A

**Default value:** N/A

debug ipv6 nd
Displays information when an HP device that supports IPv6 sends and receives neighbor solicitation and advertisement messages, which verify the existence of a new neighbor or an existing neighbor that has become unreachable.

**EXAMPLE:**
ProCurveRS debug ipv6 nd

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 nd` command.

ICMPv6-ND: STALE->DELAY: 3000:1::6 on 3/9
ICMPv6-ND: Received NS for 3000:1::2 on 3/9 from 3000:1::6
ICMPv6-ND: Sending NA for 3000:1::2 on 3/9

**Syntax:** [no] debug ipv6 nd
Possible values: N/A
Default value: N/A

debug ipv6 ospf ism
Displays comprehensive information about the status changes of OSPF version 3 interfaces. The `debug ipv6 ospf ism-status` command displays status change messages only. For more information, see “debug ipv6 ospf ism-status” on page 3-29.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf ism

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf ism` command.

```
OSPFv3 ISM[137]: InterfaceUp
OSPFv3 ISM[137]: Status change Down -> Waiting (Priority > 0)
OSPFv3 ISM[137]: BackupSeen
OSPFv3 ISM[137]: Status change Waiting -> BDR (BackupSeen:DR Election)
OSPFv3 ISM[137]: {dr:0.0.0.0,bdr:0.0.0.0} -> {dr:2.2.2.2,bdr:1.2.3.4}
```

**Syntax:** `[no] debug ipv6 ospf ism
Possible values: N/A
Default value: N/A

debug ipv6 ospf ism-events
Displays information when an event related to an OSPF version 3 interface, for example, an interface coming up, occurs.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf ism-events

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf ism-events` command.

```
OSPFv3 ISM[137]: InterfaceUp
OSPFv3 ISM[137]: BackupSeen goes up
```

**Syntax:** `[no] debug ipv6 ospf ism-events
Possible values: N/A
Default value: N/A

debug ipv6 ospf ism-status
Displays status change messages only related to OSPF version 3 interfaces. The `debug ipv6 ospf ism` command displays more comprehensive information about OSPF version 3 interface status changes. For more information, see "debug ipv6 ospf ism" on page 3-29.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf ism-status
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf ism-status** command.

```
OSPFV3 ISM[137]: Status change Down -> Waiting (Priority > 0)
OSPFV3 ISM[137]: Status change Waiting -> BDR (Backup Seen:DR Election)
OSPFV3 ISM[137]: {dr:0.0.0.0,bdr:0.0.0.0} -> {dr:2.2.2.2,bdr:1.2.3.4}
```

**Syntax:** `[no] debug ipv6 ospf ism-status`  
**Possible values:** N/A  
**Default value:** N/A

debug ipv6 ospf lsa  
Displays information when an OSPF version 3 router generates link-state advertisements (LSAs).

**EXAMPLE:**  
ProCurveRS debug ipv6 ospf lsa  
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf lsa** command.

```
OSPFV3 LSA Update Intra-Area-Prefix(Stub): Checking Interface 137
OSPFV3 LSA Update Intra-Area-Prefix(Stub): Interface 137 is down
OSPFV3 :LSA Update Intra-Area-Prefix(Stub): No prefix to advertise for Area 0.0.0.0
OSPFV3 :LSA Update Intra-Area-Prefix(Stub): Area 0.0.0.0
ospf1(config-ospf6-router)# OSPFV3 ISM[137]: Status change Down -> Waiting (Priority > 0)
LSA: Update Router-LSA for area 0.0.0.0
OSPFV3 LSA: Create LSA  Type :Router Id: 0 Advrouter: 1.2.3.4
OSPFV3 LSA Update Intra-Area-Prefix(Stub): Checking Interface 137
OSPFV3 LSA Update Intra-Area-Prefix(Stub): include 3000:1::2/64
OSPFV3 LSA: Create LSA  Type :IntraPrefix Id: 0 Advrouter: 1.2.3.4
OSPFV3 :LSA Update Intra-Area-Prefix(Stub): Area 0.0.0.0
OSPFV3 LSA Update Link: Interface 137
OSPFV3 LSA: Create LSA  Type :Link Id: 137 Advrouter: 1.2.3.4
OSPF6: Inter Area LSA not generated, route is in same area.
OSPFV3 LSA Update Intra-Area-Prefix(Stub): Checking Interface 137
OSPFV3 LSA Update Intra-Area-Prefix(Stub): include 3000:1::2/64
OSPFV3 LSA: Create LSA  Type :IntraPrefix Id: 0 Advrouter: 1.2.3.4
OSPFV3 LSA: Turnover type:IntraPrefix Lsa Id:0.0.0.0 AdvRouter:1.2.3.4: contents not changed
OSPFV3 LSA: Delete LSA Type :IntraPrefix Id: 0.0.0.0 Advrouter:1.2.3.4
OSPFV3 :LSA Update Intra-Area-Prefix(Stub): Area 0.0.0.0
```

**Syntax:** `[no] debug ipv6 ospf lsa`  
**Possible values:** N/A  
**Default value:** N/A

debug ipv6 ospf lsa-flooding  
Displays information when an OSPF version 3 router floods LSAs to neighboring routers to update them about its interfaces.

**EXAMPLE:**  
ProCurveRS debug ipv6 ospf lsa-flooding
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf lsa-flooding` command.

```
OSPFV3:LSA: schedule flooding 2.2.2.2
OSPFV3:LSA: schedule flooding 2.2.2.2
OSPFV3:LSA: schedule flooding 2.2.2.2
OSPFV3:LSA: schedule flooding 2.2.2.2
```

**Syntax:** `[no] debug ipv6 ospf lsa-flooding

**Possible values:** N/A

**Default value:** N/A

### `debug ipv6 ospf lsa-generation`

Displays information when an OSPF version 3 router creates or deletes LSAs from its link state database.

**EXAMPLE:**

```
ProCurveRS debug ipv6 ospf lsa-generation
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf lsa-generation` command.

```
OSPFV3 LSA: Create LSA  Type :Router Id: 0 Advrouter:1.2.3.4
OSPFV3 LSA: Create LSA  Type :IntraPrefix Id: 0 Advrouter: 1.2.3.4
OSPFV3 LSA: Create LSA  Type :Link Id: 137 Advrouter: 1.2.3.4
OSPFV3 LSA: Create LSA  Type :Router Id: 0 Advrouter: 1.2.3.4
OSPFV3 LSA: Delete LSA Type :Router Id: 0.0.0.0 Advrouter: 1.2.3.4
OSPFV3 LSA: Create LSA Header Type :Router Id: 0 Advrouter: 1.2.3.4
OSPFV3 LSA: Create LSA Header Type :Router Id: 0 Advrouter: 2.2.2.2
OSPFV3 LSA: Create LSA Header Type :IntraPrefix Id: 0 Advrouter: 2.2.2.2
OSPFV3 LSA: Create LSA Header Type :Link Id: 136 Advrouter: 2.2.2.2
OSPFV3 LSA: Create LSA Header Type :Link Id: 137 Advrouter: 1.2.3.4
OSPFV3 LSA: Create LSA Header Type :Link Id: 137 Advrouter: 2.2.3.4
OSPFV3 LSA: Delete LSA HEADER Type :Link Id: 0.0.0.137 Advrouter: 1.2.3.4
OSPFV3 LSA: Create LSA  Type :Router Id: 0 Advrouter: 1.2.3.4
OSPFV3 LSA: Delete LSA HEADER Type :Router Id: 0.0.0.0 Advrouter: 1.2.3.4
OSPFV3 LSA: Delete LSA Type :Router Id: 0.0.0.0 Advrouter: 1.2.3.4
OSPFV3 LSA: Create LSA  Type :Router Id: 0 Advrouter: 2.2.2.2
OSPFV3 LSA: Delete LSA HEADER Type :Router Id: 0.0.0.0 Advrouter: 2.2.2.2
OSPFV3 LSA: Create LSA  Type :IntraPrefix Id: 0.0.0.0 Advrouter: 2.2.2.2
OSPFV3 LSA: Create LSA  Type :Link Id: 136 Advrouter: 2.2.2.2
```

**Syntax:** `[no] debug ipv6 ospf lsa-generation

**Possible values:** N/A

**Default value:** N/A

### `debug ipv6 ospf lsa-install`

Displays information when an OSPF version 3 router installs a new LSA in its link state database.

**EXAMPLE:**

```
ProCurveRS debug ipv6 ospf lsa-install
```

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After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf lsa-install** command.

```
OSPFv3 LSA: Turnover type:IntraPrefix Lsa Id:0.0.0.0 AdvRouter:1.2.3.4: contents not changed
OSPFv3 LSA: Turnover type:Router Lsa Id:0.0.0.0 AdvRouter:1.2.3.4: contents not changed
OSPFv3 LSA: Turnover type:Router Lsa Id:0.0.0.0 AdvRouter:1.2.3.4: contents not changed
OSPFv3 LSA: Turnover type:Router Lsa Id:0.0.0.0 AdvRouter:1.2.3.4: contents changed
```

**Syntax:** `[no] debug ipv6 ospf lsa-install

**Possible values:** N/A

**Default value:** N/A

---

**debug ipv6 ospf lsa-maxage**

Displays information when an OSPF version 3 router removes an LSA from its link state database because the router has not received any updates about the LSA in a specified amount of time.

**EXAMPLE:**

```
ProCurveRS debug ipv6 ospf lsa-maxage
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf lsa-maxage** command.

```
OSPFv3 LSA: Premature aging: Type: IntraPrefix, ID : 0, AdvRouter 1.2.3.4
OSPFv3 LSA: Premature aging: Type: IntraPrefix, ID : 0, AdvRouter 1.2.3.4
OSPFv3 LSA: remove MaxAge LSA:IntraPrefix Lsa Id:0.0.0.0 AdvRouter:1.2.3.4:
OSPFv3 LSA: remove MaxAge LSA:IntraPrefix Lsa Id:0.0.0.0 AdvRouter:2.2.2.2:
```

**Syntax:** `[no] debug ipv6 ospf lsa-maxage

**Possible values:** N/A

**Default value:** N/A

---

**debug ipv6 ospf lsa-refresh**

Displays information when a link state database is refreshed with updated information about an existing LSA.

**EXAMPLE:**

```
ProCurveRS debug ipv6 ospf lsa-refresh
```
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf lsa-refresh` command.

```
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Checking Interface 137
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Interface 137 is down
OSPFv3 LSA Update Intra-Area-Prefix(Stub): No prefix to advertise for Area 0.0.0.0
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Area 0.0.0.0
OSPFv3 LSA Update Intra-Area-Prefix(Stub): include 3000:1::2/64
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Area 0.0.0.0
OSPFv3 LSA Update Link: Interface 137
LSA: Update Router-LSA for area 0.0.0.0
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Checking Interface 137
OSPFv3 LSA Update Intra-Area-Prefix(Stub): include 3000:1::2/64
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Area 0.0.0.0
OSPFv3 LSA[2.2.2.2]: request 1.2.3.40 (newer)
OSPFv3 LSA[2.2.2.2]: request Type =8193 ADvRtr =2.2.2.2 ID=0
OSPFv3 LSA[2.2.2.2]: request Type =8201 ADvRtr =2.2.2.2 ID=0
OSPFv3 LSA[2.2.2.2]: request Type =8 ADvRtr =2.2.2.2 ID=136
OSPFv3 : LSA[575305040]: delayed ack
LSA: Update Router-LSA for area 0.0.0.0
OSPFv3 : LSA[575305040]: delayed ack
OSPFv3 : LSA[575305040]: delayed ack
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Checking Interface 137
OSPFv3 LSA Update Intra-Area-Prefix(Stub): Interface 137 is not stub
OSPFv3 LSA Update Intra-Area-Prefix(Stub): No prefix to advertise for Area 0.0.0.0
OSPFv3 : LSA[575305040]: delayed ack
LSA: Update Router-LSA for area 0.0.0.0
OSPFv3 : LSA[575305040]: delayed ack
OSPFv3 : LSA[575305040]: direct ack
OSPFv3 : LSA[575305040]: delayed ack
OSPFv3 : LSA[575305040]: direct ack
OSPFv3 : LSA[575305040]: direct ack
OSPFv3 : LSA[575305040]: delayed ack
```

**Syntax:** `[no] debug ipv6 ospf lsa-refresh`

**Possible values:** N/A

**Default value:** N/A

### debug ipv6 ospf nsm

Displays comprehensive information about the status changes of OSPF version 3 neighbors. The `debug ipv6 ospf nsm-status` command displays status change messages only. For more information, see “debug ipv6 ospf ism-status” on page 3-29.

**EXAMPLE:**

ProCurveRS debug ipv6 ospf nsm
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf nsm** command.

```plaintext
OSPFv3 NSM[2.2.2.2]: HelloReceived
OSPFv3 NSM[2.2.2.2]: Status change [Down]-->[Init](HelloReceived)
OSPFv3 NSM[2.2.2.2]: 2Way-Received
OSPFv3 NSM[2.2.2.2]: Status change [Init]-->[2-way](No Need Adjacency)
OSPFv3 NSM[2.2.2.2]: AdjOK?
OSPFv3 NSM[2.2.2.2]: Status change [2-way]-->[ExStart](Need Adjacency)
OSPFv3 NSM[2.2.2.2]: NegotiationDone
OSPFv3 NSM[2.2.2.2]: Status change [ExStart]-->[ExChange](NegotiationDone)
OSPFv3 NSM[2.2.2.2]: ExchangeDone
OSPFv3 NSM[2.2.2.2]: Status change [ExChange]-->[Loading](Requestlist Not Empty)
OSPFv3 NSM[2.2.2.2]: LoadingDone
OSPFv3 NSM[2.2.2.2]: Status change [Loading]-->[Full](LoadingDone)
```

**Syntax:** [no] debug ipv6 ospf nsm

**Possible values:** N/A

**Default value:** N/A

### debug ipv6 ospf nsm-events

Displays information when an event related to an OSPF version 3 neighbor, for example, the discovery of a new neighbor, occurs.

**EXAMPLE:**

```
ProCurveRS debug ipv6 ospf nsm-events
```

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf nsm-events** command.

```plaintext
OSPFv3 NSM[2.2.2.2]: HelloReceived
OSPFv3 NSM[2.2.2.2]: 2Way-Received
OSPFv3 NSM[2.2.2.2]: AdjOK?
OSPFv3 NSM[2.2.2.2]: NegotiationDone
OSPFv3 NSM[2.2.2.2]: ExchangeDone
OSPFv3 NSM[2.2.2.2]: Status change [ExChange]-->[Loading](Requestlist Not Empty)
OSPFv3 NSM[2.2.2.2]: LoadingDone
OSPFv3 NSM[2.2.2.2]: Status change [Loading]-->[Full](LoadingDone)
```

**Syntax:** [no] debug ipv6 ospf nsm-events

**Possible values:** N/A

**Default value:** N/A

### debug ipv6 ospf nsm-status

Displays status change messages only related to OSPF version 3 neighbors. The **debug ipv6 ospf nsm** command displays more comprehensive information about OSPF version 3 neighbor status changes. For more information, see “debug ipv6 ospf nsm” on page 3-33.

**EXAMPLE:**

```
ProCurveRS debug ipv6 ospf nsm-status
```
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf nsm-status` command.

OSPFv3 NSM[2.2.2.2]: Status change [Down]->[Init](HelloReceived)
OSPFv3 NSM[2.2.2.2]: Status change [Init]->[2-way](No Need Adjacency)
OSPFv3 NSM[2.2.2.2]: Status change [2-way]->[ExStart](Need Adjacency)
OSPFv3 NSM[2.2.2.2]: Status change [ExStart]->[ExChange](NegotiationDone)
OSPFv3 NSM[2.2.2.2]: Status change [ExChange]->[Loading](Requestlist Not Empty)
OSPFv3 NSM[2.2.2.2]: Status change [Loading]->[Full](LoadingDone)

**Syntax:** [no] debug ipv6 ospf nsm-status

**Possible values:** N/A

**Default value:** N/A

d **debug ipv6 ospf packet**

Displays information about OSPF version 3 packets sent and received on an HP device that supports IPv6.

**EXAMPLE:**

ProCurveRS debug ipv6 ospf packet

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf packet` command.

OSPFv3: Snd Hello on ethe 3/9(fe80::204:80ff:fe2c:c048->ff02::5)
RtrID:1.2.3.4 DR:0.0.0.0 BDR:0.0.0.0
OSPFv3: Rcv Hello on ethe 3/9(fe80::2e0:52ff:feda:c347->ff02::5)
RtrID:2.2.2.2 DR:2.2.2.2 BDR:1.2.3.4
OSPFv3: NBR 2.2.2.2 declares 2.2.2.2 as DR
OSPFv3: NBR 2.2.2.2 declare 1.2.3.4 as BDR
OSPFv3: Rcv DbDesc on ethe 3/9(fe80::2e0:52ff:feda:c347->
    fe80::204:80ff:fe2c:c048)

**Syntax:** [no] debug ipv6 ospf packet

**Possible values:** N/A

**Default value:** N/A

d **debug ipv6 ospf packet-dd**

Displays information when an HP device that supports IPv6 sends or receives OSPF version 3 data description packets.

**EXAMPLE:**

ProCurveRS debug ipv6 ospf packet-dd
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the \texttt{no debug ipv6 ospf packet-dd} command.

\texttt{OSPFV3: set dbdesc seqnum 0000ec4a for 2.2.2.2}
\texttt{OSPFV3: Snd DbDesc on ethe 3/9 (fe80::204:80ff:fe2c::c048->fe80::2e0:52ff:fedc:c347)}
\texttt{OSPFV3: Rcv DbDesc on ethe 3/9 (fe80::2e0:52ff:fedc:c347->fe80::204:80ff:fe2c::c048)}
\texttt{OSPFV3: Snd DbDesc on ethe 3/9 (fe80::204:80ff:fe2c::c048->fe80::2e0:52ff:fedc:c347)}
\texttt{Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000001c AGE:4}
\texttt{Type:2002, LSID:00000008 Adv:1.2.3.4 SEQ:80000001c AGE:4}
\texttt{Type:2009, LSID:00000000 Adv:1.2.3.4 SEQ:80000007c AGE:4}
\texttt{Type:2009, LSID:000002a8 Adv:1.2.3.4 SEQ:80000001c AGE:4}
\texttt{Type:0008, LSID:00000088 Adv:1.2.3.4 SEQ:80000003c AGE:35}
\texttt{OSPFV3: Rcv DbDesc on ethe 3/9 (fe80::2e0:52ff:fedc:c347->fe80::204:80ff:fe2c::c048)}
\texttt{Type:2001, LSID:00000000 Adv:2.2.2.2 SEQ:800000025 AGE:3551}
\texttt{Type:2002, LSID:00000008 Adv:2.2.2.2 SEQ:80000001 AGE:3555}
\texttt{Type:2009, LSID:00000000 Adv:2.2.2.2 SEQ:80000007 AGE:4}
\texttt{Type:2009, LSID:000002a8 Adv:2.2.2.2 SEQ:80000001 AGE:3555}
\texttt{Type:0008, LSID:00000088 Adv:2.2.2.2 SEQ:80000003c AGE:35}
\texttt{OSPFV3: Snd DbDesc on ethe 3/9 (fe80::204:80ff:fe2c::c048->fe80::2e0:52ff:fedc:c347)}

\textit{Syntax:} \texttt{[no] debug ipv6 ospf packet-dd}

\textit{Possible values:} N/A

\textit{Default value:} N/A

\textbf{debug ipv6 ospf packet-hello}

Displays information when an HP device that supports IPv6 sends or receives OSPF version 3 hello packets.

\textbf{EXAMPLE:}

\texttt{ProCurveRS debug ipv6 ospf packet-hello}

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the \texttt{no debug ipv6 ospf packet-hello} command.

\texttt{OSPFV3: Snd Hello on ethe 3/9 (fe80::204:80ff:fe2c::c048->ff02::5)}
\texttt{RtrID:1.2.3.4 DR:2.2.2.2 BDR:1.2.3.4}
\texttt{OSPFV3: Rcv Hello on ethe 3/9 (fe80::2e0:52ff:fedc:c347->ff02::5)}
\texttt{RtrID:2.2.2.2 DR:2.2.2.2 BDR:1.2.3.4}

\textit{Syntax:} \texttt{[no] debug ipv6 ospf packet-hello}

\textit{Possible values:} N/A

\textit{Default value:} N/A

\textbf{debug ipv6 ospf packet-lsa-ack}

Displays information when an HP device that supports IPv6 sends or receives OSPF version 3 LSA ack packets.

\textbf{EXAMPLE:}

\texttt{ProCurveRS debug ipv6 ospf packet-lsa-ack}
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf packet-lsa-ack** command.

**OSPFv3:** Snd LSack on ethe 3/9 (fe80::204:80ff:fe2c:c048->fe80::2e0:52ff:fedc:c347)
  Type:2009, LSID:00000000 Adv:2.2.2.2 SEQ:80000001 AGE:3600
**OSPFv3:** Rcv LSack on ethe 3/9 (fe80::2e0:52ff:fedc:c347->fe80::204:80ff:fe2c:c048)
  Type:2009, LSID:00000000 Adv:1.2.3.4 SEQ:80000001 AGE:3600
**OSPFv3:** Rcv LSack on ethe 3/9 (fe80::2e0:52ff:fedc:c347->ff02::5)
  Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000004 AGE:4
  Type:0008, LSID:00000089 Adv:1.2.3.4 SEQ:80000004 AGE:4
**OSPFv3:** Snd LSack on ethe 3/9 (fe80::204:80ff:fe2c:c048->ff02::5)
  Type:0008, LSID:00000088 Adv:2.2.2.2 SEQ:80000003 AGE:248
  Type:2002, LSID:00000088 Adv:2.2.2.2 SEQ:80000003 AGE:5
  Type:2009, LSID:000002a8 Adv:2.2.2.2 SEQ:80000001 AGE:3600
  Type:2001, LSID:00000000 Adv:2.2.2.2 SEQ:80000002a AGE:4
**OSPFv3:** Rcv LSack on ethe 3/9 (fe80::2e0:52ff:fedc:c347->fe80::204:80ff:fe2c:c048)
  Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000001f AGE:1
**OSPFv3:** Rcv LSack on ethe 3/9 (fe80::2e0:52ff:fedc:c347->ff02::5)
  Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000001f AGE:4
  Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000001f AGE:4
**OSPFv3:** Snd LSack on ethe 3/9 (fe80::204:80ff:fe2c:c048->ff02::5)
  Type:2001, LSID:00000000 Adv:2.2.2.2 SEQ:80000002b AGE:5

**Syntax:** [no] debug ipv6 ospf packet-lsa-ack

**Possible values:** N/A

**Default value:** N/A

**debug ipv6 ospf packet-lsa-req**
Displays information when an HP device that supports IPv6 sends or receives OSPF version 3 LSA request packets.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf packet-lsa-req

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ospf packet-lsa-req** command.

**OSPFv3:** Rcv LSReq on ethe 3/9 (fe80::2e0:52ff:fedc:c347->fe80::204:80ff:fe2c:c048)
  Type:2009, LSID:00000000 Adv-Router:1.2.3.4
**OSPFv3:** Snd LSReq on ethe 3/9 (fe80::204:80ff:fe2c:c048->fe80::2e0:52ff:fedc:c347)
  Type:2001, LSID:00000000 Adv-Router:1.2.3.4
  Type:2001, LSID:00000000 Adv-Router:2.2.2.2
  Type:2009, LSID:00000000 Adv-Router:2.2.2.2
  Type:0008, LSID:00000088 Adv-Router:2.2.2.2
  Type:0008, LSID:00000089 Adv-Router:1.2.3.4

**Syntax:** [no] debug ipv6 ospf packet-lsa-req

**Possible values:** N/A

**Default value:** N/A
**debug ipv6 ospf packet-lsa-update**
Displays information when an HP device that supports IPv6 sends or receives OSPF version 3 LSA update packets.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf packet-lsa-update

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ipv6 ospf packet-lsa-update command.

OSPFV3: Snd LSUpdate on ethe 3/9(fe80::204:80ff:fe2c:c048->fe80::2e0:52ff:feda:c347)
Type:2009, LSID:00000000 Adv:1.2.3.4 SEQ:80000001 AGE:1

OSPFV3: Rcv LSUpdate on ethe 3/9(fe80::2e0:52ff:feda:c347->fe80::204:80ff:fe2c:
c048)
Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000021 AGE:77
Type:2001, LSID:00000000 Adv:2.2.2.2 SEQ:80000030 AGE:1
Type:2009, LSID:00000000 Adv:2.2.2.2 SEQ:80000001 AGE:1
Type:0008, LSID:00000088 Adv:2.2.2.2 SEQ:8000003 AGE:854
Type:0008, LSID:00000089 Adv:1.2.3.4 SEQ:80000005 AGE:82

OSPFV3: Snd LSUpdate on ethe 3/9(fe80::204:80ff:fe2c:c048->ff02::5)
Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000022 AGE:1
Type:0008, LSID:00000089 Adv:1.2.3.4 SEQ:80000006 AGE:1

OSPFV3: Rcv LSUpdate on ethe 3/9(fe80::2e0:52ff:feda:c347->ff02::5)
Type:2002, LSID:00000088 Adv:2.2.2.2 SEQ:80000002 AGE:1
Type:2009, LSID:0000002a8 Adv:2.2.2.2 SEQ:80000002 AGE:1

OSPFV3: Snd LSUpdate on ethe 3/9(fe80::204:80ff:fe2c:c048->ff02::5)
Type:2001, LSID:00000000 Adv:1.2.3.4 SEQ:80000023 AGE:1

OSPFV3: Rcv LSUpdate on ethe 3/9(fe80::2e0:52ff:feda:c347->ff02::5)
Type:2009, LSID:00000000 Adv:2.2.2.2 SEQ:80000001 AGE:3600
Type:2009, LSID:00000000 Adv:2.2.2.2 SEQ:80000001 AGE:3600
Type:2001, LSID:00000000 Adv:2.2.2.2 SEQ:80000031 AGE:1

OSPFV3: Snd LSUpdate on ethe 3/9(fe80::204:80ff:fe2c:c048->ff02::5)
Type:2009, LSID:00000000 Adv:1.2.3.4 SEQ:80000001 AGE:3600
Type:2009, LSID:00000000 Adv:1.2.3.4 SEQ:80000001 AGE:3600

**Syntax:** [no] debug ipv6 ospf packet-lsa-update

**Possible values:** N/A

**Default value:** N/A

**debug ipv6 ospf route**
Displays information about routes calculated by a OSPF version 3 router. The router calculates the following route types: external, inter-area, intra-area, Shortest Path First (SPF), and transit.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf route
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ipv6 ospf route command.

OSPFv3: Route calculation started at 69351
OSPFv3 SPF: Calculation for area 0.0.0.0
OSPFv3 SPF: installing vertex 1.2.3.4
OSPFv3 SPF: 2.2.2.2:136 is the first hop
OSPFv3 SPF : 2.2.2.2:136 nexthop :: ifindex 137
OSPFv3 SPF: Examining Vertex: 2.2.2.2:136
OSPFv3 SPF: new node added to candidate list: 2.2.2.2:136
OSPFv3 SPF: installing vertex 2.2.2.2:136
OSPFv3 ROUTE: route created: 2.2.2.2:136
OSPFv3 SPF : 2.2.2.2:0 nexthop fe80::2e0:52ff:feda:c347 ifindex 137
OSPFv3 SPF: Examining Vertex: 2.2.2.2:0
OSPFv3 SPF: new node added to candidate list: 2.2.2.2:0
OSPFv3 SPF: Ignore link description to myself
OSPFv3 SPF: installing vertex 2.2.2.2:0
OSPFv3 ROUTE: route created: 2.2.2.2:0
OSPFv3 SPF: 2.2.2.2:136 inherits 2.2.2.2:0’s nexthop_list
OSPFv3 SPF: Examining Vertex: 2.2.2.2:136
OSPFv3 SPF: already in SPF tree: 2.2.2.2:136
OSPFv3 SPF: Calculation for area 0.0.0.0 done
OSPFv3: Calculating Intra Area routes for area 0.0.0.0
OSPFv3:INTRA AREA ROUTE: Calculating Intra Area Stub Routes
OSPFv3:INTRA AREA ROUTE: Can't find Prefix LSA for id 0.0.0.0 AdvRouter 1.2.3.4
OSPFv3 :INTRA AREA ROUTE: Can't find Prefix LSA for id 0.0.0.0 AdvRouter 2.2.2.2
OSPFv3 :INTRA AREA ROUTE: found Prefix LSA type : IntraPrefix : for Id 0.0.0.136 Advrouter 2.2.2.2
OSPFv3 :INTRA AREA ROUTE: Intra Area route install 3000:1::/64 cost 1
OSPFv3 ROUTE: route changed, new route preferred: 3000:1::/64
OSPFv3: Intra area route calculation finished at 69352
OSPFv3:Inter Area Prefix route calculation finished at 69353
OSPFv3:Inter Area Router route calculation finished at 69354
OSPFv3 : TRANSIT ROUTE: Discarding routes with nexthop unresolved
OSPFv3: Transit route calculation finished at 69355
OSPFv3:External route calculation finished at 69356
OSPFv3: Generating events due to routing table changes.
ROUTE: Validate routing table
OSPFv3 : Validating route 3000:1::/64
OSPFv3 : Route 3000:1::/64 updated in RIB
OSPFv3 Route calculation finished at 69357

Syntax: [no] debug ipv6 ospf route
Possible values: N/A
Default value: N/A

deb ug ipv6 ospf route-calc-external
   Displays information about external routes calculated by an OSPF version 3 router.
   EXAMPLE:
     ProCurveRS debug ipv6 ospf route-calc-external
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ipv6 ospf route-calc-external command.

OSPFv3: EXTERNAL ROUTE INCREMENTAL: Calculating route from external LSA (Id = 2, Advrtr = 1.2.3.4)
OSPFv3: EXTERNAL ROUTE INCREMENTAL: External LSA is self originated

**Syntax:** [no] debug ipv6 ospf route-calc-external

**Possible values:** N/A

**Default value:** N/A

dbgv6 ospf route-calc-inter-area
Displays information about inter-area routes calculated by an OSPF version 3 router.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf route-calc-inter-area

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ipv6 ospf route-calc-inter-area command.

OSPFv3: INTER AREA ROUTE: Inter Area Prefix LSA(I D= 1) is Self-originated:

**Syntax:** [no] debug ipv6 ospf route-calc-inter-area

**Possible values:** N/A

**Default value:** N/A

dbgv6 ospf route-calc-intra-area
Displays information about intra-area routes calculated by an OSPF version 3 router.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf route-calc-intra-area

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the no debug ipv6 ospf route-calc-intra-area command.

OSPFv3: Calculating Intra Area routes for area 0.0.0.0
OSPFv3: INTRA AREA ROUTE: Calculating Intra Area Stub Routes
OSPFv3: INTRA AREA ROUTE: Can't find Prefix LSA for id 0.0.0.0 AdvRouter 3.3.3.3
OSPFv3: INTRA AREA ROUTE: Can't find Prefix LSA for id 0.0.0.0 AdvRouter 2.2.2.2
OSPFv3: INTRA AREA ROUTE: found Prefix LSA type : IntraPrefix : for Id 0.0.0.137 Advrouter 3.3.3.3
OSPFv3: INTRA AREA ROUTE: Intra Area route install 3000:1::/64 cost 1
OSPFv3: Calculating Intra Area routes for area 0.0.0.1
OSPFv3: INTRA AREA ROUTE: Calculating Intra Area Stub Routes
OSPFv3: INTRA AREA ROUTE: found Prefix LSA type : IntraPrefix : for Id 0.0.0.0 Advrouter 3.3.3.3
OSPFv3: INTRA AREA ROUTE: Intra Area route install 3000:2::/64 cost 0

**Syntax:** [no] debug ipv6 ospf route-calc-intra-area

**Possible values:** N/A

**Default value:** N/A
**debug ipv6 ospf route-calc-spf**
Displays information about SPF routes calculated by an OSPF version 3 router.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf route-calc-spf

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf route-calc-spf` command.

```
OSPFv3 SPF: Calculation for area 0.0.0.0
OSPFv3 SPF: installing vertex 1.2.3.4
OSPFv3 SPF: 2.2.2.2:136 is the first hop
OSPFv3 SPF: 2.2.2.2:136 nexthop :: ifindex 137
OSPFv3 SPF: Examining Vertex: 2.2.2.2:136
OSPFv3 SPF: new node added to candidate list: 2.2.2.2:136
OSPFv3 SPF: installing vertex 2.2.2.2:136
OSPFv3 SPF: 2.2.2.2:0 nexthop fe80::2e0:52ff:feda:c347 ifindex 137
OSPFv3 SPF: Examining Vertex: 2.2.2.2:0
OSPFv3 SPF: new node added to candidate list: 2.2.2.2:0
OSPFv3 SPF: Ignore link description to myself
OSPFv3 SPF: installing vertex 2.2.2.2:0
OSPFv3 SPF: 2.2.2.2:136 inherits 2.2.2.2:0's nexthop_list
OSPFv3 SPF: Examining Vertex: 2.2.2.2:136
OSPFv3 SPF: already in SPF tree: 2.2.2.2:136
OSPFv3 SPF: Calculation for area 0.0.0.0 done
OSPFv3 SPF: Calculation for area 0.0.0.1
OSPFv3 SPF: installing vertex 1.2.3.4
OSPFv3 SPF: Calculation for area 0.0.0.1 done
```

**Syntax:** `[no] debug ipv6 ospf route-calc-spf`

**Possible values:** N/A

**Default value:** N/A

**debug ipv6 ospf route-calc-transit**
Displays information about transit routes calculated by an OSPF version 3 router.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf route-calc-transit

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf route-calc-transit` command.

```
OSPFv3 : TRANSIT ROUTE: Discarding routes with nexthop unresolved
```

**Syntax:** `[no] debug ipv6 ospf route-calc-transit`

**Possible values:** N/A

**Default value:** N/A

**debug ipv6 ospf route-install**
Displays information about routes added or removed from the OSPF version 3 route table.

**EXAMPLE:**
ProCurveRS debug ipv6 ospf route-install
After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ospf route-install` command.

OSPFv3 ROUTE: route created: 3000:2::/64
ROUTE: Validate routing table
OSPFv3 : Validating route 3000:1::/64
OSPFv3 : Validating route 3000:2::/64
OSPFv3 : Route 3000:2::/64 added to RIB

Syntax: `[no] debug ipv6 ospf route-install`
Possible values: N/A
Default value: N/A

**debug ipv6 packet**
Displays basic header and port information for IPv6 packets transmitted and received by an HP device that supports IPv6.

**EXAMPLE:**
ProCurveRS debug ipv6 packet

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 packet` command.

IPv6 TX: 3000:1::2 => 3000:1::6 (00e0.52da.c347)
NextHeader:58, size:32 (72), vlan:1, Port: 136 (136)

Syntax: `[no] debug ipv6 packet`
Possible values: N/A
Default value: N/A

**debug ipv6 ra**
Displays information when an HP device that supports IPv6 sends and receives router solicitation and advertisement messages, which verify the existence of a new router or an existing router that has become unreachable.

**EXAMPLE:**
ProCurveRS debug ipv6 ra

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 ra` command.

Periodical RA advertisement (200 seconds by default)
ICMPv6-RA: Sent RA to ff02::1 on port 3/9
ICMPv6-RA: prefix 3000:1::/64, lifetime 2592000/604800, onlink, autoconfig
ICMPv6-RA: Received RA from fe80::2e0:52ff:feda:c347 on port 3/9

Syntax: `[no] debug ipv6 ra`
Possible values: N/A
Default value: N/A
**debug ipv6 rip events**
Displays information when RIP events, such as adding or removing RIP interfaces or routes, changing the setting of RIP timers, and detecting activity on a RIP port, occur.

**EXAMPLE:**
ProCurveRS debug ipv6 rip events

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 ra** command.

RIPng: Removing local connected route 3000:1::2/64 on interface 3/9
RIPng: garbage prefix 3000:1::/64 timer 16, metric 0, tag 0
from :: on interface Ethernet 3/9
RIPng: stop running on interface 3/9
RIPng: Removing local connected route 3000:1::2/64 on interface 3/9

**Syntax:** [no] debug ipv6 rip events

**Possible values:** N/A

**Default value:** N/A

**debug ipv6 rip receive**
Displays information about all RIP packets received by an HP device that supports IPv6 or only those RIP packets received by a specified port or tunnel on the HP device.

**EXAMPLE:**
ProCurveRS debug ipv6 rip receive ethernet 3

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 rip receive** command.

RIPng: received packet from fe80::2e0:52ff:feda:c347 port 521 on interface 3
command response version 1 packet size 24
prefix 3000:1::/64 metric 1 tag 0

**Syntax:** [no] debug ipv6 rip receive ethernet <port-number> | tunnel <number> | ve <number>

**Possible values:** Ethernet port number, tunnel number, or virtual Ethernet (ve) number.

**Default value:** N/A

**debug ipv6 rip transmit**
Displays information about all RIP packets sent by an HP device that supports IPv6 or only those RIP packets sent by a specified port or tunnel on the HP device.

**EXAMPLE:**
ProCurveRS debug ipv6 rip transmit ethernet 3

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the **no debug ipv6 rip transmit** command.

RIPng: Sending update on interface 3/9
src fe80::204:80ff:fe2c:c048, port 521
dest ff02::9 (3/9), port 521
command response version 1 packet size 24
prefix 3000:1::/64 metric 1 tag 0

**Syntax:** [no] debug ipv6 rip transmit ethernet <port-number> | tunnel <number> | ve <number>
Possible values: Ethernet port number, tunnel number, or virtual Ethernet (ve) number.

Default value: N/A

debug ipv6 routing
Displays information when entries in the IPv6 route table are added, removed, and changed.

**EXAMPLE:**
ProCurveRS debug ipv6 routing

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug ipv6 routing` command.

```
IPv6RT0: Remove 3000:1::/64 (connected) from rib
IPv6RT0: un-install (connected)
IPv6RT0: Add 3000:1::/64 (connected) to rib
IPv6RT0: install (connected)
```

**Syntax:** `[no] debug ipv6 routing`

Possible values: N/A
Default value: N/A

debug spanning
Displays information about BPDU packets.

**EXAMPLE:**
ProCurveRS# debug spanning

After you enter this command, messages such as the following appear at the destination specified for debugging output. You can turn off these messages with the `no debug spanning` command.

```
ST: Port 2/1
[A] [B] [C] [D] [E] [F]
0000 00 00 00 800000e052c37d40 00000000

[G] [H] [I] [J] [K] [L] [M]
800000e052c37d40 20 40 0000 0014 0002 000f
```

Table 3.5 describes the contents of `debug spanning` message. Note that the letters in brackets do not appear in the output.

<table>
<thead>
<tr>
<th>This Field...</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST:</td>
<td>Indicates that this is a spanning tree packet</td>
</tr>
<tr>
<td>Port 2/1</td>
<td>Interface receiving the packet</td>
</tr>
<tr>
<td>[A] 0000</td>
<td>Indicates that this is an IEEE BDPU packet.</td>
</tr>
<tr>
<td>[B] 00</td>
<td>Version number.</td>
</tr>
</tbody>
</table>

Table 3.5: Output from the debug spanning command
Table 3.5: Output from the debug spanning command (Continued)

<table>
<thead>
<tr>
<th>This Field...</th>
<th>Displays...</th>
</tr>
</thead>
<tbody>
<tr>
<td>[C] 00</td>
<td>Command mode. This can be one of the following:</td>
</tr>
<tr>
<td></td>
<td>00 Config BPDU</td>
</tr>
<tr>
<td></td>
<td>80 Topology Change Notification BPDU</td>
</tr>
<tr>
<td>[D] 00</td>
<td>Acknowledgement of topology change. This can be one of the following:</td>
</tr>
<tr>
<td></td>
<td>00 No change</td>
</tr>
<tr>
<td></td>
<td>80 Change notification</td>
</tr>
<tr>
<td>[E] 800000e052c37d40</td>
<td>Root ID.</td>
</tr>
<tr>
<td>[F] 00000000</td>
<td>Root path cost.</td>
</tr>
<tr>
<td>[G] 800000e052c37d40</td>
<td>Bridge ID.</td>
</tr>
<tr>
<td>[H] 20</td>
<td>Port priority.</td>
</tr>
<tr>
<td>[I] 40</td>
<td>Port number.</td>
</tr>
<tr>
<td>[J] 0000</td>
<td>Message age in 1/256 seconds.</td>
</tr>
<tr>
<td>[K] 0014</td>
<td>Maximum age in 1/256 seconds.</td>
</tr>
<tr>
<td>[L] 0002</td>
<td>Hello time in 1/256 seconds.</td>
</tr>
<tr>
<td>[M] 000e</td>
<td>Forward delay in 1/256 seconds.</td>
</tr>
</tbody>
</table>

**Syntax:** [no] debug spanning

**Possible values:** N/A

**Default value:** N/A

**ipv6 debug route-table disable-cache**

This command is for HP internal use only.

**ipv6 debug route-table main**

This command is for HP internal use only.

**ipv6 debug route-table rip**

This command is for HP internal use only.

**mm**

Displays the contents of a specified address on every module.

**EXAMPLE:**

```
ProCurveRS# mm 0190044c
(4)0190044c: 0000 0000 0000 0000 0000 0000 0000 0000
(4)0190045c: 0000 0000 0000 0000 0000 0000 0000 0000
(4)0190046c: 0000 0000 0000 0000 0000 0000 0000 0000
(4)0190047c: 0000 0000 0000 0000 0000 0000 0000 0000
1e90044c: 0000044c 00000450 00000454 00000458
1e90045c: 0000045c 00000460 00000464 00000468
1e90046c: 0000046c 00000470 00000474 00000478
1e90047c: 0000047c 00000480 00000484 00000488
```
**Syntax:** mm <address> [<length>]

**Possible values:** <length> can be up to 0x40 bytes.

**Default value:** If you do not specify the <length> parameter, 0x40 bytes are displayed.

**phy**

Displays information about PHY registers for a specified port. This command can be useful for resolving problems with NIC adapters that have linking problems.
EXAMPLE:

ProCurveRS# phy 4/11
BCR reg 0, val = 1100
BSR reg 1, val = 7809
ID1 reg 2, val = 7810
ID2 reg 3, val = 0043
ANA reg 4, val = 01e1
ANLPA reg 5, val = 0000
ANE reg 6, val = 0000
MR reg 16, val = 0c00
IER reg 17, val = 0000
ISR reg 18, val = 4000
CR reg 19, val = 0000
CSR reg 20, val = 048b

/* Register 1: Basic Status Register (PHY_BSR_R) */
#define BSR_100BASE_T4 0x8000
#define BSR_100BASE_TX_FD 0x4000
#define BSR_100BASE_TX_HD 0x2000
#define BSR_10BASE_T_FD 0x1000
#define BSR_10BASE_T_HD 0x0800
#define BSR_AUTO_NEGO_DONE 0x0020
#define BSR_REMOTE_FAULT 0x0010
#define BSR_AUTO_NEGO_ABL 0x0008
#define BSR_LINK_UP 0x0004

/* Register 4: Auto-Negotiation Advertisement (PHY_ANA_R) */
#define ANA_NEXT_PAGE 0x8000
#define ANA_REMOTE_FAULT 0x2000
#define ANA_100BASE_T4 0x0200
#define ANA_100BASE_TX_FD 0x0100
#define ANA_100BASE_TX 0x0080
#define ANA_10BASE_T_FD 0x0040
#define ANA_10BASE_T 0x0020
#define ANA_SELECTOR_FIELD 0x001F

/* Register 5: Auto-Negotiation Link Partner Ability (PHY_ANLPA_R) */
#define ANL_NEXT_PAGE 0x8000
#define ANL_ACK 0x4000
#define ANL_REMOTE_FAULT 0x2000
#define ANL_100BASE_T4 0x0200
#define ANL_100BASE_TX_FD 0x0100
#define ANL_100BASE_TX 0x0080
#define ANL_10BASE_T_FD 0x0040
#define ANL_10BASE_T 0x0020
#define ANL_SELECTOR_FIELD 0x001F

#define BPC_OP_100B_FD 0x0018
#define BPC_OP_ISOLATE 0x001C
#define BPC_MLT3_DISAB 0x0002
#define BPC_SCRAMB_DISAB 0x0001
/* Register 31: BASE-TX PHY Control (PHY_BPC_R) */
#define BPC_DISABLE_REC 0x2000
#define BPC_AUTO_NEG_CPL 0x1000
#define BPC_COMPENSAT_MASK 0x0C00
#define BPC_NO_COMPENSAT 0
#define BPC_HALF_COMPENSAT 0x0400
#define BPC_FULL_COMPENSAT 0x0800
#define BPC_AUTO_COMPENSAT 0x0C00
#define BPC_RLBEN 0x0200
#define BPC_DCREN 0x0100
#define BPC_NRZIEN 0x0080
#define BPC_4B5BEN 0x0040
#define BPC_TX_ISOLATE 0x0020
#define BPC_OPMODE_MASK 0x001C
#define BPC_OP_STILL_NEG 0x0000
#define BPC_OP_10B_HD 0x0004
#define BPC_OP_100B_HD 0x0008
#define BPC_OP_100B_T4 0x0010
#define BPC_OP_10B_FD 0x0014
#define BPC_OP_100B_FD 0x0018
#define BPC_OP_ISOLATE 0x001C
#define BPC_MLT3_DISAB 0x0002
#define BPC_SCRAMB_DISAB 0x0001

**Syntax:** phy <slot/port>

**Possible values:** <slot/port> must be a valid port on the device.

**Default value:** N/A

**ptrace aaa**

Toggles tracing for AAA packets.

**EXAMPLE:**

ProCurveRS# ptrace aaa

**Syntax:** ptrace aaa

**Possible values:** N/A

**Default value:** N/A

**ptrace appletalk aarp**

Toggles tracing for Appletalk Address Resolution Protocol (AARP) packets. When you enable this function, each time an AARP packet is encountered, a message appears on the console indicating whether the packet was transmitted or received, the port on which it was transmitted or received, and the data field of the packet.

**EXAMPLE:**

ProCurveRS# ptrace appletalk aarp

**Syntax:** ptrace appletalk aarp

**Possible values:** N/A

**Default value:** N/A

**ptrace appletalk aep**

Toggles tracing for Appletalk Echo Protocol (AEP) packets. When you enable this function, each time an AEP packet is encountered, a message appears on the console indicating whether the packet was transmitted or received, the port on which it was transmitted or received, and the contents of the packet’s Datagram Delivery Protocol (DDP) header.
EXAMPLE:
ProCurveRS# ptrace appletalk aep

Syntax: ptrace appletalk aep
Possible values: N/A
Default value: N/A

ptrace appletalk nbp
Toggles tracing for Appletalk Name Binding Protocol (NBP) packets. When you enable this function, each time an NBP packet is encountered, a message appears on the console indicating whether the packet was transmitted or received, the port on which it was transmitted or received, and the contents of the packet's DDP header.

EXAMPLE:
ProCurveRS# ptrace appletalk nbp
Syntax: ptrace appletalk nbp
Possible values: N/A
Default value: N/A

ptrace appletalk none
Disables tracing for all Appletalk packets.

EXAMPLE:
ProCurveRS# ptrace appletalk none
Syntax: ptrace appletalk none
Possible values: N/A
Default value: N/A

ptrace appletalk rtmp
Toggles tracing for Appletalk Routing Table Maintenance Protocol (RTMP) packets. When you enable this function, each time an RTMP packet is encountered, a message appears on the console indicating whether the packet was transmitted or received, the port on which it was transmitted or received, and the contents of the packet's DDP header.

EXAMPLE:
ProCurveRS# ptrace appletalk rtmp
Syntax: ptrace appletalk rtmp
Possible values: N/A
Default value: N/A

ptrace appletalk states
Toggles tracing for Appletalk state transition packets.

EXAMPLE:
ProCurveRS# ptrace appletalk states
Syntax: ptrace appletalk states
Possible values: N/A
Default value: N/A
ptrace appletalk zip
Toggles tracing for Appletalk Zone Information Protocol (ZIP) packets. When you enable this function, each time a ZIP packet is encountered, a message appears on the console indicating whether the packet was transmitted or received, the port on which it was transmitted or received, and the contents of the packet's DDP header.

EXAMPLE:
ProCurveRS# ptrace appletalk zip
Syntax: ptrace appletalk zip
Possible values: N/A
Default value: N/A

ptrace arp
Toggles tracing for ARP packets.

EXAMPLE:
ProCurveRS# ptrace arp
Syntax: ptrace arp
Possible values: N/A
Default value: N/A

ptrace bootp
Toggles tracing for BootP packets.

EXAMPLE:
ProCurveRS# ptrace bootp
Syntax: ptrace bootp
Possible values: N/A
Default value: N/A

ptrace dvmrp graft
Toggles tracing for DVMRP graft packets.

EXAMPLE:
ProCurveRS# ptrace dvmrp graft
Syntax: ptrace dvmrp graft
Possible values: N/A
Default value: N/A

ptrace dvmrp graft-ack
Toggles tracing for DVMRP graft-ack packets.

EXAMPLE:
ProCurveRS# ptrace dvmrp graft-ack
Syntax: ptrace dvmrp graft-ack
Possible values: N/A
Default value: N/A

ptrace dvmrp mcache
Toggles tracing for DVMRP mcache packets.
EXAMPLE:
ProCurveRS# ptrace dvmrp mcache

Syntax: ptrace dvmrp mcache
Possible values: N/A
Default value: N/A

cptrace dvmrp message
Toggles tracing for DVMRP message packets.
EXAMPLE:
ProCurveRS# ptrace dvmrp message

Syntax: ptrace dvmrp message
Possible values: N/A
Default value: N/A

cptrace dvmrp none
Disables tracing for DVMRP packets.
EXAMPLE:
ProCurveRS# ptrace dvmrp none

Syntax: ptrace dvmrp none
Possible values: N/A
Default value: N/A

cptrace dvmrp probe
Toggles tracing for DVMRP probe packets.
EXAMPLE:
ProCurveRS# ptrace dvmrp probe

Syntax: ptrace dvmrp probe
Possible values: N/A
Default value: N/A

cptrace dvmrp prune
Toggles tracing for DVMRP prune packets.
EXAMPLE:
ProCurveRS# ptrace dvmrp prune

Syntax: ptrace dvmrp prune
Possible values: N/A
Default value: N/A

cptrace dvmrp route-table
Toggles tracing for DVMRP route-table packets.
EXAMPLE:
ProCurveRS# ptrace dvmrp route-table

Syntax: ptrace dvmrp route-table
Possible values: N/A
Default value: N/A

ptrace icmp
Toggles tracing for ICMP packets.

EXAMPLE:
ProCurveRS# ptrace icmp

Syntax: ptrace icmp
Possible values: N/A
Default value: N/A

ptrace igmp
Toggles tracing for IGMP packets.

EXAMPLE:
ProCurveRS# ptrace igmp

Syntax: ptrace igmp
Possible values: N/A
Default value: N/A

ptrace ip
Toggles tracing for IP packets.

EXAMPLE:
ProCurveRS# ptrace ip

Syntax: ptrace ip
Possible values: N/A
Default value: N/A

ptrace none
Disables all packet tracing.

EXAMPLE:
ProCurveRS# ptrace none

Syntax: ptrace ip
Possible values: N/A
Default value: N/A

ptrace ospf
Toggles tracing for OSPF packets.

EXAMPLE:
ProCurveRS# ptrace ospf

Syntax: ptrace ospf
Possible values: N/A
Default value: N/A

ptrace pim fcache
Toggles tracing for PIM fcache packets.
EXAMPLE:
ProCurveRS# ptrace pim fcache

Syntax: ptrace pim fcache
Possible values: N/A
Default value: N/A

ptrace pim mcache
Toggles tracing for PIM mcache packets.
EXAMPLE:
ProCurveRS# ptrace pim mcache
Syntax: ptrace pim mcache
Possible values: N/A
Default value: N/A

ptrace pim message
Toggles tracing for PIM message packets.
EXAMPLE:
ProCurveRS# ptrace pim message
Syntax: ptrace pim message
Possible values: N/A
Default value: N/A

ptrace pim none
Disables tracing for PIM packets.
EXAMPLE:
ProCurveRS# ptrace pim none
Syntax: ptrace pim none
Possible values: N/A
Default value: N/A

ptrace ppp
Toggles tracing for PPP packets.
EXAMPLE:
ProCurveRS# ptrace ppp
Syntax: ptrace ppp
Possible values: N/A
Default value: N/A

ptrace rarp
Toggles tracing for RARP packets.
EXAMPLE:
ProCurveRS# ptrace rarp
Syntax: ptrace rarp
Possible values: N/A
Default value: N/A

**ptrace rip**
Toggles tracing for RIP packets.

**EXAMPLE:**
ProCurveRS# ptrace rip

**Syntax:** ptrace rip

**Possible values:** N/A

**Default value:** N/A

**ptrace snmp**
Toggles tracing for SNMP packets.

**EXAMPLE:**
ProCurveRS# ptrace snmp

**Syntax:** ptrace snmp

**Possible values:** N/A

**Default value:** N/A

**ptrace switch none**
Disables packet tracing started with the **ptrace switch stp** command.

**EXAMPLE:**
ProCurveRS# ptrace switch none

**Syntax:** ptrace switch none

**Possible values:** N/A

**Default value:** N/A

**ptrace switch stp**
Toggles tracing for STP packets.

**EXAMPLE:**
ProCurveRS# ptrace switch stp

**Syntax:** ptrace switch stp

**Possible values:** N/A

**Default value:** N/A

**ptrace tcp**
Toggles tracing for TCP packets.

**EXAMPLE:**
ProCurveRS# ptrace tcp

**Syntax:** ptrace tcp

**Possible values:** N/A

**Default value:** N/A

**ptrace telnet**
Toggles tracing for Telnet packets.
EXAMPLE:
ProCurveRS# ptrace telnet

*Syntax:* ptrace telnet

*Possible values:* N/A

*Default value:* N/A

**ptrace term**
Sends packet tracing output to the current terminal.

**EXAMPLE:**
ProCurveRS# ptrace term
dump output is now sent to this terminal

*Syntax:* ptrace term

*Possible values:* N/A

*Default value:* Packet tracing output is sent to the console by default.

**ptrace tftp**
Toggles tracing for TFTP packets.

**EXAMPLE:**
ProCurveRS# ptrace tftp

*Syntax:* ptrace tftp

*Possible values:* N/A

*Default value:* N/A

**ptrace udp**
Toggles tracing for UDP packets.

**EXAMPLE:**
ProCurveRS# ptrace udp

*Syntax:* ptrace udp

*Possible values:* N/A

*Default value:* N/A

**show ip bgp debug**
Displays BGP debugging information for the router.
EXAMPLE:

```plaintext
ProCurveRS# show ip bgp debug
BGP4 Debug Information
Pid SBlock TBlocks UBlocks FBlocks EBlocks SAddress CAddress
0 16 10000 26 9973 0 04e6c16a 04e6c372
1 32 10000 9240 758 0 04e9cec2 04ebd0be
2 64 10000 41 9958 0 04ef4d1a 04ef504a
3 150 2002 2 197 0 04f9ad72 04f9ae0c
4 22 67000 64404 2596 0 04fa25da 05030d1e
5 30 144000 131768 12228 0 0514bca2 0537b84e
6 74 67000 65886 1113 0 055f6fba 059d3c25
7 72 10000 9309 6890 0 05af2de2 05b90822
```

Total Memory Use for Route and Attributes Tables : 13894800
Memory Block Not Available Count : 0
Maximum Number of Attribute Entries Supported : 10000
Maximum Number of Routes Supported : 67000
Maximum Number of Peers Supported : 3
BGP Route Table Full Count : 0
Bad Memory Pool ID Count : 0
Bad Memory Address Count : 0
debug ip bgp errors
debug ip bgp event
debug ip bgp state

The following table describes the output from the show ip bgp debug command:

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pid</td>
<td>Memory pool ID 0 – 7</td>
</tr>
<tr>
<td>SBlock</td>
<td>Size of the memory blocks in the memory pool.</td>
</tr>
<tr>
<td>TBlocks</td>
<td>Total number of blocks in the memory pool.</td>
</tr>
<tr>
<td>UBlocks</td>
<td>Number of used blocks in the memory pool.</td>
</tr>
<tr>
<td>FBlocks</td>
<td>Number of free blocks in the memory pool.</td>
</tr>
<tr>
<td>EBlocks</td>
<td>Number of error blocks</td>
</tr>
<tr>
<td>SAddress</td>
<td>Starting address of the memory pool.</td>
</tr>
<tr>
<td>CAddress</td>
<td>Ending address of the memory pool.</td>
</tr>
<tr>
<td>Total Memory Use for Route and Attributes Tables</td>
<td>Amount of memory available for the BGP4 route and attributes tables.</td>
</tr>
<tr>
<td>Memory Block Not Available Count</td>
<td>Number of times that a memory block was not available.</td>
</tr>
<tr>
<td>Maximum Number of Attribute Entries Supported</td>
<td>Number of attribute entries the router’s memory can hold. An attribute entry is a set of route attributes that are associated with one or more routes.</td>
</tr>
<tr>
<td>Maximum Number of Routes Supported</td>
<td>Number of BGP4 routes the router’s memory can hold.</td>
</tr>
</tbody>
</table>
### Table 3.6: Output from the show ip bgp debug command (Continued)

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Number of Peers Supported</td>
<td>Number of BGP4 peers the router can have.</td>
</tr>
<tr>
<td>BGP Route Table Full Count</td>
<td>How many times a route could not be added to the BGP route table because the route table was full.</td>
</tr>
<tr>
<td>Bad Memory Pool ID Count</td>
<td>Number of times a memory pool was reported as bad. If there is a non-zero value in this field, contact HP technical support.</td>
</tr>
<tr>
<td>Bad Memory Address Count</td>
<td>Number of times a memory address was reported as bad. If there is a non-zero value in this field, contact HP technical support.</td>
</tr>
<tr>
<td>debug ip bgp errors</td>
<td>The debug ip bgp options that are currently in effect.</td>
</tr>
<tr>
<td>debug ip bgp event</td>
<td></td>
</tr>
<tr>
<td>debug ip bgp state</td>
<td></td>
</tr>
</tbody>
</table>

**Syntax:** show ip bgp debug

**Possible values:** N/A

**Default value:** N/A

**show debug**

Lists the debugging options currently in effect on the device.
EXAMPLE:

ProCurveRS# debug all
ProCurveRS# show debug
Debug message destination: Console
IP Routing:
    BGP: bgp debugging is on
    BGP: neighbor 0.0.0.0 debugging is on
    BGP: dampening debugging is on
    BGP: events debugging is on
    BGP: inbound information debugging is on
    BGP: keepalives debugging is on
    BGP: outbound information debugging is on
    BGP: updates debugging is on
    OSPF: adjacency events debugging is on
    OSPF: database timer debugging is on
    OSPF: events debugging is on
    OSPF: flooding debugging is on
    OSPF: lsa generation debugging is on
    OSPF: packet debugging is on
    OSPF: retransmission debugging is on
    OSPF: spf debugging is on
    OSPF: tree debugging is on
    RIP: rip debugging is on
    RIP: database debugging is on
    RIP: events debugging is on
    RIP: trigger debugging is on
    VRRP: events debugging is on
    VRRP: packet debugging is on
IP Multicast:
    DVMRP: dvmrp debugging is on
    DVMRP: detail debugging is on
    DVMRP: pruning debugging is on
    PIM: pim debugging is on
    PIM: events debugging is on
    PIM: group 0.0.0.0 debugging is on
    VRRP: events debugging is on
    VRRP: packet debugging is on
    IGMP: IGMP debugging is on
Generic IP:
    TCP: driver debugging is on
    TCP: intercept debugging is on
    TCP: packet debugging is on
    TCP: rcmd debugging is on
    TCP: sack debugging is on
    TCP: transactions debugging is on
    UDP: debugging is on
    IGMP: IGMP debugging is on
    ICMP: events debugging is on
    ICMP: packets debugging is on

**Syntax:** show debug

**Possible values:** N/A

**Default value:** N/A