OSPF Enhanced Traffic Statistics for OSPFv2 and OSPFv3

This document describes new and modified commands that provide enhanced OSPF traffic statistics for OSPFv2 and OSPFv3. The ability to collect and display more detailed traffic statistics increases high availability for the OSPF network by making the troubleshooting process more efficient.

New OSPF traffic statistics are collected and displayed to include the following information:

- OSPF Hello input queue and OSPF process queue status and statistics.
- Global OSPF traffic statistics.
- Per OSPF interface traffic statistics.
- Per OSPF process traffic statistics.

Finding Feature Information, page 1

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.
Prerequisites for OSPF Enhanced Traffic Statistics

OSPFv2 or OSPFv3 must be configured on the router.

Information About OSPF Enhanced Traffic Statistics

The OSPF enhanced traffic statistics are enabled by default and cannot be disabled. The detailed OSPF traffic statistics are especially beneficial for troubleshooting the following types of OSPF instabilities:

• OSPF process queue status and statistical information can help the network administrator determine if an OSPF process can handle the amount of traffic sent to OSPF.
• OSPF packet header errors and LSA errors statistics keep a record of different errors found in received OSPF packets.

OSPF enhanced traffic control statistics also monitor the amount of traffic control exchanged between OSPF processes—an important consideration in network environments with slow links and frequent topology changes.

How to Display and Clear OSPF Enhanced Traffic Statistics

Displaying and Clearing OSPF Traffic Statistics for OSPFv2

Before You Begin

Your network must run IPv4 to collect, display and clear detailed traffic statistics for Hello output, process queue status, global OSPF traffic statistics, per OSPF interface traffic statistics and per OSPF process traffic statistics.

SUMMARY STEPS

1. enable
2. show ip ospf [process-id] traffic[interface-type interface-number]
3. clear ip ospf traffic

DETAILED STEPS

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>Example:</td>
<td>• Enter your password if prompted.</td>
</tr>
<tr>
<td>Router&gt; enable</td>
<td></td>
</tr>
</tbody>
</table>
### Displaying and Clearing OSPF Traffic Statistics for OSPFv3

#### Before You Begin

Your network must run IPv6 to collect, display and clear detailed traffic statistics for Hello output, process queue status, global OSPF traffic statistics, per OSPF interface traffic statistics and per OSPF process traffic statistics.

#### SUMMARY STEPS

1. enable
2. show ipv6 ospf [process-id] traffic[interface-type interface-number]
3. clear ipv6 ospf traffic

#### DETAILED STEPS

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>enable</td>
<td></td>
</tr>
<tr>
<td>Example:</td>
<td>Router&gt; enable</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>Displays OSPFv3 traffic statistics.</td>
</tr>
<tr>
<td>show ipv6 ospf [process-id] traffic[interface-type interface-number]</td>
<td></td>
</tr>
<tr>
<td>Example:</td>
<td>Device# show ipv6 ospf traffic</td>
</tr>
</tbody>
</table>
### Step 3

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>clear ipv6 ospf traffic</code></td>
<td>Clears OSPFv3 traffic statistics.</td>
</tr>
</tbody>
</table>

#### Example:

```
Device# clear ipv6 ospf traffic
```

## Configuration Examples for OSPF Enhanced Traffic Commands

### Displaying and Clearing Enhanced Traffic Statistics for OSPFv2 Example

The following example shows display output for the `show ip ospf traffic` command for OSPFv2:

```
Device# show ip ospf traffic
OSPF statistics:
    Rcvd: 55 total, 0 checksum errors
        22 hello, 7 database desc, 2 link state req
        6 link state updates, 6 link state acks
    Sent: 68 total
        45 hello, 7 database desc, 2 link state req
        10 link state updates, 4 link state acks
    OSPF Router with ID (10.1.1.1) (Process ID 8)
    OSPF queue statistic for process ID 8:
        OSPF Hello queue size 0, no limit, drops 0, max size 0
        OSPF Router queue size 0, limit 200, drops 0, max size 0
    Interface statistics:
        Interface Ethernet0/0/0.1
        OSPF packets received/sent
        Type    Packets    Bytes
        RX Invalid 0 0
        RX Hello 0 0
        RX DB des 0 0
        RX LS req 0 0
        RX LS upd 0 0
        RX LS ack 0 0
        RX Total 0 0
        TX Failed 0 0
        TX Hello 16 1216
        TX DB des 0 0
        TX LS req 0 0
        TX LS upd 0 0
        TX LS ack 0 0
        TX Total 16 1216
    OSPF header errors
    Length 0, Checksum 0, Version 0, Bad Source 0,
    No Virtual Link 0, Area Mismatch 0, No Sham Link 0,
    Self Originated 0, Duplicate ID 0, Hello 0,
    MTU Mismatch 0, Nbr Ignored 0, LLS 0,
    Authentication 0,
    OSPF LSA errors
    Type 0, Length 0, Data 0, Checksum 0,
    Summary traffic statistics for process ID 8:
    OSPF packets received/sent
    Type    Packets    Bytes
    RX Invalid 0 0
    RX Hello 0 0
    RX DB des 0 0
```
RX LS req 0 0
RX LS upd 0 0
RX LS ack 0 0
RX Total 0 0
TX Failed 0 0
TX Hello 16 1216
TX DB des 0 0
TX LS req 0 0
TX LS upd 0 0
TX LS ack 0 0
TX Total 16 1216

OSPF header errors
Length 0, Checksum 0, Version 0, Bad Source 0,
No Virtual Link 0, Area Mismatch 0, No Sham Link 0,
Self Originated 0, Duplicate ID 0, Hello 0,
MTU Mismatch 0, Nbr Ignored 0, LLS 0,
Authentication 0,

OSPF LSA errors
Type 0, Length 0, Data 0, Checksum 0,
OSPF Router with ID (10.1.1.4) (Process ID 1)

OSPF queues statistic for process ID 1:
OSPF Router queue size 0, limit 200, drops 0, max size 2
Interface statistics:
Interface Serial2/0
OSPF packets received/sent
Type Packets Bytes
RX Invalid 0 0
RX Hello 11 528
RX DB des 4 148
RX LS req 1 60
RX LS upd 3 216
RX LS ack 2 128
RX Total 21 1080
TX Failed 0 0
TX Hello 14 1104
TX DB des 3 252
TX LS req 1 56
TX LS upd 3 392
TX LS ack 2 128
TX Total 23 1932

OSPF header errors
Length 0, Checksum 0, Version 0, Bad Source 0,
No Virtual Link 0, Area Mismatch 0, No Sham Link 0,
Self Originated 0, Duplicate ID 0, Hello 0,
MTU Mismatch 0, Nbr Ignored 0, LLS 0,
Authentication 0,

OSPF LSA errors
Type 0, Length 0, Data 0, Checksum 0,
Interface Ethernet0/0
OSPF packets received/sent
Type Packets Bytes
RX Invalid 0 0
RX Hello 13 620
RX DB des 3 116
RX LS req 1 36
RX LS upd 3 228
RX LS ack 4 216
RX Total 24 1216
TX Failed 0 0
TX Hello 17 1344
TX DB des 4 276
TX LS req 1 56
TX LS upd 7 656
TX LS ack 2 128
TX Total 31 2460

OSPF header errors
Length 0, Checksum 0, Version 0, Bad Source 13,
No Virtual Link 0, Area Mismatch 0, No Sham Link 0,
Self Originated 0, Duplicate ID 0, Hello 0,
MTU Mismatch 0, Nbr Ignored 0, LLS 0,
Authentication 0,

OSPF LSA errors
Displaying and Clearing Enhanced Traffic Statistics for OSPFv3 Example

The following example shows display output for the `show ipv6 ospf traffic` command for OSPFv3:

```
Device# show ipv6 ospf traffic

OSPFV3 statistics:
  Rcvd: 32 total, 0 checksum errors
      10 hello, 7 database desc, 2 link state req
      9 link state updates, 4 link state acks
      0 LSA ignored
  Sent: 45 total, 0 failed
      17 hello, 12 database desc, 2 link state req
      8 link state updates, 6 link state acks
OSPFV3 Router with ID (10.1.1.4) (Process ID 6)
Hello queue size 0, no limit, max size 2
Router queue size 0, limit 200, drops 0, max size 2
Interface statistics:
  Interface Serial2/0
OSPFV3 packets received/sent
  Type   Packets  Bytes
  RX Invalid 0       0
  RX Hello  5       196
  RX DB des  4       172
  RX LS req  1       52
  RX LS upd  4       320
  RX LS ack  2       112
  RX Total  16       852
  TX Failed 0       0
  TX Hello  8       304
  TX DB des  3       144
  TX LS req  1       52
  TX LS upd  3       252
  TX LS ack  3       148
```
### OSPFv3 header errors
- Length 0, Checksum 0, Version 0, No Virtual Link 0,
- Area Mismatch 0, Self Originated 0, Duplicate ID 0,
- Instance ID 0, Hello 0, MTU Mismatch 0,
- Nbr Ignored 0, Authentication 0,

### OSPFv3 LSA errors
- Type 0, Length 0, Data 0, Checksum 0,

### Interface Ethernet0/0

<table>
<thead>
<tr>
<th>Type</th>
<th>Packets</th>
<th>Bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RX Invalid</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RX Hello</td>
<td>6</td>
<td>240</td>
</tr>
<tr>
<td>RX DB des</td>
<td>3</td>
<td>144</td>
</tr>
<tr>
<td>RX LS req</td>
<td>1</td>
<td>52</td>
</tr>
<tr>
<td>RX LS upd</td>
<td>5</td>
<td>372</td>
</tr>
<tr>
<td>RX LS ack</td>
<td>2</td>
<td>152</td>
</tr>
<tr>
<td>RX Total</td>
<td>17</td>
<td>960</td>
</tr>
<tr>
<td>TX Failed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TX Hello</td>
<td>11</td>
<td>420</td>
</tr>
<tr>
<td>TX DB des</td>
<td>9</td>
<td>312</td>
</tr>
<tr>
<td>TX LS req</td>
<td>1</td>
<td>52</td>
</tr>
<tr>
<td>TX LS upd</td>
<td>5</td>
<td>376</td>
</tr>
<tr>
<td>TX LS ack</td>
<td>3</td>
<td>148</td>
</tr>
<tr>
<td>TX Total</td>
<td>29</td>
<td>1308</td>
</tr>
</tbody>
</table>

### OSPFv3 packets received/sent

<table>
<thead>
<tr>
<th>Type</th>
<th>Packets</th>
<th>Bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RX Invalid</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RX Hello</td>
<td>11</td>
<td>436</td>
</tr>
<tr>
<td>RX DB des</td>
<td>7</td>
<td>316</td>
</tr>
<tr>
<td>RX LS req</td>
<td>2</td>
<td>104</td>
</tr>
<tr>
<td>RX LS upd</td>
<td>9</td>
<td>692</td>
</tr>
<tr>
<td>RX LS ack</td>
<td>4</td>
<td>264</td>
</tr>
<tr>
<td>RX Total</td>
<td>33</td>
<td>1812</td>
</tr>
<tr>
<td>TX Failed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TX Hello</td>
<td>19</td>
<td>724</td>
</tr>
<tr>
<td>TX DB des</td>
<td>12</td>
<td>456</td>
</tr>
<tr>
<td>TX LS req</td>
<td>2</td>
<td>104</td>
</tr>
<tr>
<td>TX LS upd</td>
<td>8</td>
<td>628</td>
</tr>
<tr>
<td>TX LS ack</td>
<td>6</td>
<td>296</td>
</tr>
<tr>
<td>TX Total</td>
<td>47</td>
<td>2208</td>
</tr>
</tbody>
</table>

### OSPFv3 header errors
- Length 0, Checksum 0, Version 0, No Virtual Link 0,
- Area Mismatch 0, Self Originated 0, Duplicate ID 0,
- Instance ID 0, Hello 0, MTU Mismatch 0,
- Nbr Ignored 0, Authentication 0,

### OSPFv3 LSA errors
- Type 0, Length 0, Data 0, Checksum 0,

### Summary traffic statistics for process ID 6:

<table>
<thead>
<tr>
<th>Type</th>
<th>Packets</th>
<th>Bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RX Invalid</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RX Hello</td>
<td>19</td>
<td>724</td>
</tr>
<tr>
<td>RX DB des</td>
<td>12</td>
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</tr>
<tr>
<td>RX LS upd</td>
<td>8</td>
<td>628</td>
</tr>
<tr>
<td>RX LS ack</td>
<td>6</td>
<td>296</td>
</tr>
<tr>
<td>TX Total</td>
<td>47</td>
<td>2208</td>
</tr>
</tbody>
</table>

### The network administrator can issue the `clear ipv6 ospf traffic` command to reset all counters and restart all statistics collections:

```
Device# clear ipv6 ospf traffic
```

### Additional References

The following sections provide references related to the OSPF Enhanced Traffic Statistics for OSPFv2 and OSPFv3 feature.
### Related Documents

<table>
<thead>
<tr>
<th>Related Topic</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSPF commands</td>
<td>Cisco IOS IP Routing: OSPF Command Reference</td>
</tr>
<tr>
<td>OSPF configuration</td>
<td>Configuring OSPF</td>
</tr>
</tbody>
</table>

### Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>--</td>
</tr>
</tbody>
</table>

### MIBs

<table>
<thead>
<tr>
<th>MIB</th>
<th>MIBs Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a></td>
</tr>
</tbody>
</table>

### RFCs

<table>
<thead>
<tr>
<th>RFC</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>--</td>
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</tbody>
</table>

### Technical Assistance

<table>
<thead>
<tr>
<th>Description</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.</td>
<td><a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a></td>
</tr>
</tbody>
</table>
Feature Information for OSPF Enhanced Traffic Statistics

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to . An account on Cisco.com is not required.

Table 1: Feature Information for OSPF Enhanced Traffic Statistics for OSPFv2 and OSPFv3

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSPF Enhanced Traffic Statistics for OSPFv2 and OSPFv3</td>
<td>Cisco IOS Release 12.4(6)T</td>
<td>This document describes the detailed OSPF traffic statistics that are provided when the user enters the new and modified commands show commands for OSPFv2 and OSPFv3. The following commands were introduced or modified: clear ipv6 ospf traffic, show ip ospf traffic, show ipv6 ospf traffic.</td>
</tr>
</tbody>
</table>