



# OSPF Enhanced Traffic Statistics for OSPFv2 and OSPFv3

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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.
  
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## 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](http://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

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>

	Command or Action	Purpose
<b>Step 2</b>	<b>show ip ospf</b> [ <i>process-id</i> ] <b>traffic</b> [ <i>interface-type interface-number</i> ]  <b>Example:</b> Device# show ip ospf traffic	Displays OSPFv2 traffic statistics.
<b>Step 3</b>	<b>clear ip ospf traffic</b>  <b>Example:</b> Device# clear ip ospf traffic	Clears OSPFv2 traffic statistics.

## 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

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>show ipv6 ospf</b> [ <i>process-id</i> ] <b>traffic</b> [ <i>interface-type interface-number</i> ]  <b>Example:</b> Device# show ipv6 ospf traffic	Displays OSPFv3 traffic statistics.

	Command or Action	Purpose
Step 3	<b>clear ipv6 ospf traffic</b>  <b>Example:</b> Device# clear ipv6 ospf traffic	Clears OSPFv3 traffic statistics.

## 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 queues 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 Ethernet0/0.1
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 Hello queue size 0, no limit, drops 0, max size 2
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

```

```

Type 0, Length 0, Data 0, Checksum 0,

Summary traffic statistics for process ID 1:
OSPF packets received/sent
Type          Packets          Bytes
RX Invalid    0                  0
RX Hello      24                1148
RX DB des     7                 264
RX LS req     2                 96
RX LS upd     6                 444
RX LS ack     6                 344
RX Total      45                2296
TX Failed     0                  0
TX Hello      31                2448
TX DB des     7                 528
TX LS req     2                 112
TX LS upd    10                1048
TX LS ack     4                 256
TX Total      54                4392
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
Type 0, Length 0, Data 0, Checksum 0,

```

The network administrator can issue the **clear ip ospf traffic** command to reset all counters and restart all statistics collections:

```
Device# clear ip ospf traffic
```

## 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)
OSPFv3 queues statistic for 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

```

```

TX Total          18                900
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
OSPFv3 packets received/sent
  Type          Packets          Bytes
RX Invalid      0                0
RX Hello        6                240
RX DB des       3                144
RX LS req       1                52
RX LS upd       5                372
RX LS ack       2                152
RX Total        17                960
TX Failed       0                0
TX Hello        11                420
TX DB des       9                312
TX LS req       1                52
TX LS upd       5                376
TX LS ack       3                148
TX Total        29                1308
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:
OSPFv3 packets received/sent
  Type          Packets          Bytes
RX Invalid      0                0
RX Hello        11                436
RX DB des       7                316
RX LS req       2                104
RX LS upd       9                692
RX LS ack       4                264
RX Total        33                1812
TX Failed       0                0
TX Hello        19                724
TX DB des       12               456
TX LS req       2                104
TX LS upd       8                628
TX LS ack       6                296
TX Total        47                2208
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,

```

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**

Related Topic	Document Title
OSPF commands	<i>Cisco IOS IP Routing: OSPF Command Reference</i>
OSPF configuration	Configuring OSPF

**Standards**

Standard	Title
None	--

**MIBs**

MIB	MIBs Link
None	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>

**RFCs**

RFC	Title
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**Technical Assistance**

Description	Link
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.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>



## 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 [http://www.cisco.com/go/featurenavigator](#). An account on Cisco.com is not required.

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

Feature Name	Releases	Feature Information
OSPF Enhanced Traffic Statistics for OSPFv2 and OSPFv3	Cisco IOS XE Release 3.3SG Cisco IOS XE Release 3.6E	<p>This document describes the detailed OSPF traffic statistics that are provided when the user enters the new and modified commands <code>show ospf traffic</code> for OSPFv2 and OSPFv3.</p> <p>In Cisco IOS XE Release 3.3 SG, support was added for the Cisco Catalyst 4000 Series Switches.</p> <p>The following commands were introduced or modified: <b>clear ipv6 ospf traffic</b>, <b>show ip ospf traffic</b>, <b>show ipv6 ospf traffic</b>.</p> <p>In Cisco IOS XE Release 3.6E, this feature is supported on Cisco Catalyst 3850 Series Switches.</p>

