

Diagnose OSPF Session Establishment Problems

Action To trace OSPF messages in detail, follow these steps:

1. In configuration mode, go to the following hierarchy level:

```
[edit]
user@host# edit protocols ospf traceoptions
```

2. Configure OSPF hello messages:

```
[edit protocols ospf traceoptions]
user@host# set flag hello detail
```

3. Verify the configuration:

```
user@host# show
```

For example:

```
[edit protocols ospf traceoptions]
user@host# show
file ospf size 5m world-readable;
flag hello detail;
```

4. Commit the configuration:

```
user@host# commit
```

5. View the contents of the file containing the detailed messages:

```
user@host# run show log filename
```

For example:

```
user@host# run show log ospf

Dec 2 16:14:24 Version 2, length 44, ID 10.0.0.6, area 1.0.0.0
Dec 2 16:14:24 checksum 0xf01a, authtype 0
Dec 2 16:14:24 mask 0.0.0.0, hello_ivl 10, opts 0x2, prio 128
Dec 2 16:14:24 dead_ivl 40, DR 0.0.0.0, BDR 0.0.0.0
Dec 2 16:14:24 OSPF sent Hello (1) -> 224.0.0.5 (so-1/1/2.0)
Dec 2 16:14:24 Version 2, length 44, ID 10.0.0.6, area 1.0.0.0
Dec 2 16:14:24 checksum 0xf01a, authtype 0
Dec 2 16:14:24 mask 0.0.0.0, hello_ivl 10, opts 0x2, prio 128
Dec 2 16:14:24 dead_ivl 40, DR 0.0.0.0, BDR 0.0.0.0
Dec 2 16:14:26 OSPF rcvd Hello 10.10.10.33 -> 224.0.0.5 (so-1/1/1.0)
Dec 2 16:14:26 Version 2, length 48, ID 10.10.134.12, area 0.0.0.0
Dec 2 16:14:26 checksum 0x99b8, authtype 0Dec 2 16:14:26 mask
255.255.255.252, hello_ivl 10, opts 0x2, prio 1
ec 2 16:14:26 dead_ivl 40, DR 0.0.0.0, BDR 0.0.0.0
Dec 2 16:14:29 OSPF rcvd Hello 10.10.10.29 -> 224.0.0.5 (so-1/1/0.0)
Dec 2 16:14:29 Version 2, length 48, ID 10.108.134.11, area 0.0.0.0
Dec 2 16:14:29 checksum 0x99b9, authtype 0Dec 2 16:14:29 mask
255.255.255.252, hello_ivl 10, opts 0x2, prio 1
Dec 2 16:14:29 dead_ivl 40, DR 0.0.0.0, BDR 0.0.0.0
```

Meaning Table 1 lists OSPF tracing flags and presents example output for some of the flags.

Table 1: OSPF Protocol Tracing Flags

Tracing Flags	Description	Example Output
database-description	All database description packets	Dec 2 15:44:51 RPD_OSPF_NBRDOWN: OSPF neighbor 10.10.10.29 (so-1/1/0.0) state changed from Full to Down Dec 2 15:44:51 RPD_OSPF_NBRDOWN: OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Full to Down Dec 2 15:44:55 RPD_OSPF_NBRUP: OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Init to ExStart Dec 2 15:44:55 OSPF sent DbD (2) -> 224.0.0.5 (so-1/1/1.0) Dec 2 15:44:55 Version 2, length 32, ID 10.0.0.6, area 0.0.0.0 Dec 2 15:44:55 checksum 0xf76b, authtype 0 Dec 2 15:44:55 options 0x42, i 1, m 1, ms 1, seq 0xa009eee, mtu 4470 Dec 2 15:44:55 OSPF rcvd DbD 10.10.10.33 -> 224.0.0.5 (so-1/1/1.0) Dec 2 15:44:55 Version 2, length 32, ID 10.10.134.12, area 0.0.0.0 Dec 2 15:44:55 checksum 0x312c, authtype 0 Dec 2 15:44:55 options 0x42, i 1, m 1, ms 1, seq 0x2154, mtu 4470
error	OSPF errored packets	Dec 2 15:49:34 OSPF packet ignored: no matching interface from 172.16.120.29 Dec 2 15:49:44 OSPF packet ignored: no matching interface from 172.16.120.29 Dec 2 15:49:54 OSPF packet ignored: no matching interface from 172.16.120.29 Dec 2 15:50:04 OSPF packet ignored: no matching interface from 172.16.120.29 Dec 2 15:50:14 OSPF packet ignored: no matching interface from 172.16.120.29
event	OSPF state transitions	Dec 2 15:52:35 OSPF interface ge-2/2/0.0 state changed from DR to DR Dec 2 15:52:35 OSPF interface ge-3/1/0.0 state changed from DR to DR Dec 2 15:52:35 OSPF interface ge-3/2/0.0 state changed from DR to DR Dec 2 15:52:35 OSPF interface ge-4/2/0.0 state changed from DR to DR Dec 2 15:53:21 OSPF neighbor 10.10.10.29 (so-1/1/0.0) state changed from Full to Down Dec 2 15:53:21 RPD_OSPF_NBRDOWN: OSPF neighbor 10.10.10.29 (so-1/1/0.0) state changed from Full to Down Dec 2 15:53:21 OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Full to Down Dec 2 15:53:21 RPD_OSPF_NBRDOWN: OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Full to Down Dec 2 15:53:25 OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Down to Init Dec 2 15:53:25 OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Init to ExStart Dec 2 15:53:25 RPD_OSPF_NBRUP: OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Init to ExStart Dec 2 15:53:25 OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from ExStart to Exchange Dec 2 15:53:25 OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Exchange to Full Dec 2 15:53:25 RPD_OSPF_NBRUP: OSPF neighbor 10.10.10.33 (so-1/1/1.0) state changed from Exchange to Full

Table 1: OSPF Protocol Tracing Flags (continued)

Tracing Flags	Description	Example Output
flooding	Link-state flooding packets	<pre>Dec 2 15:55:21 OSPF LSA Summary 10.218.0.0 10.0.0.6 flooding on so-1/1/0.0 Dec 2 15:55:21 OSPF LSA Summary 10.218.0.0 10.0.0.6 flooding on so-1/1/1.0 Dec 2 15:55:21 OSPF LSA Summary 10.218.0.0 10.0.0.6 on no so-1/1/2.0 reemit lists, no flood Dec 2 15:55:21 OSPF LSA Summary 10.218.0.0 10.0.0.6 on no so-1/1/3.0 reemit lists, no flood Dec 2 15:55:21 OSPF LSA Summary 10.245.0.1 10.0.0.6 on no so-1/1/2.0 reemit lists, no flood Dec 2 15:55:21 OSPF LSA Summary 10.245.0.1 10.0.0.6 on no so-1/1/3.0 reemit lists, no flood</pre>
hello	Hello packets	<pre>Dec 2 15:57:25 OSPF sent Hello (1) -> 224.0.0.5 (ge-3/1/0.0) Dec 2 15:57:25 Version 2, length 44, ID 10.0.0.6, area 2.0.0.0 Dec 2 15:57:25 checksum 0xe43f, authtype 0 Dec 2 15:57:25 mask 255.255.0.0, hello_ivl 10, opts 0x2, prio 128 Dec 2 15:57:25 dead_ivl 40, DR 10.218.0.1, BDR 0.0.0.0 Dec 2 15:57:25 OSPF rcvd Hello 10.10.10.33 -> 224.0.0.5 (so-1/1/1.0) Dec 2 15:57:25 Version 2, length 48, ID 10.10.134.12, area 0.0.0.0 Dec 2 15:57:25 checksum 0x99b8, authtype 0 Dec 2 15:57:25 mask 255.255.255.252, hello_ivl 10, opts 0x2, prio 1 Dec 2 15:57:25 dead_ivl 40, DR 0.0.0.0, BDR 0.0.0.0 Dec 2 15:57:27 OSPF sent Hello (1) -> 224.0.0.5 (ge-3/2/0.0) Dec 2 15:57:27 Version 2, length 44, ID 10.0.0.6, area 2.0.0.0 Dec 2 15:57:27 checksum 0xe4a5, authtype 0 Dec 2 15:57:27 mask 255.255.0.0, hello_ivl 10, opts 0x2, prio 128 Dec 2 15:57:27 dead_ivl 40, DR 10.116.0.1, BDR 0.0.0.0 Dec 2 15:57:28 OSPF rcvd Hello 10.10.10.29 -> 224.0.0.5 (so-1/1/0.0) Dec 2 15:57:28 Version 2, length 48, ID 10.10.134.11, area 0.0.0.0 Dec 2 15:57:28 checksum 0x99b9, authtype 0 Dec 2 15:57:28 mask 255.255.255.252, hello_ivl 10, opts 0x2, prio 1 Dec 2 15:57:28 dead_ivl 40, DR 0.0.0.0, BDR 0.0.0.0</pre>
lsa-ack	Link-state acknowledgment packets	<pre>Dec 2 16:00:11 OSPF rcvd LSAck 10.10.10.29 -> 224.0.0.5 (so-1/1/0.0) Dec 2 16:00:11 Version 2, length 44, ID 10.10.134.11, area 0.0.0.0 Dec 2 16:00:11 checksum 0xcdbf, authtype 0 Dec 2 16:00:11 OSPF rcvd LSAck 10.10.10.33 -> 224.0.0.5 (so-1/1/1.0) Dec 2 16:00:11 Version 2, length 144, ID 10.10.134.12, area 0.0.0.0 Dec 2 16:00:11 checksum 0x73bc, authtype 0 Dec 2 16:00:16 OSPF rcvd LSAck 10.10.10.33 -> 224.0.0.5 (so-1/1/1.0) Dec 2 16:00:16 Version 2, length 44, ID 10.10.134.12, area 0.0.0.0 Dec 2 16:00:16 checksum 0x8180, authtype 0</pre>
lsa-request	Link-state request packets	<pre>Dec 2 16:01:38 OSPF rcvd LSReq 10.10.10.29 -> 224.0.0.5 (so-1/1/0.0) Dec 2 16:01:38 Version 2, length 108, ID 10.10.134.11, area 0.0.0.0 Dec 2 16:01:38 checksum 0xe86, authtype 0</pre>

Table 1: OSPF Protocol Tracing Flags (continued)

Tracing Flags	Description	Example Output
lsa-update	Link-state update packets	Dec 2 16:09:12 OSPF built router LSA, area 0.0.0.0 Dec 2 16:09:12 OSPF built router LSA, area 1.0.0.0 Dec 2 16:09:12 OSPF built router LSA, area 2.0.0.0 Dec 2 16:09:13 OSPF sent LSUUpdate (4) -> 224.0.0.5 (so-1/1/0.0) Dec 2 16:09:13 Version 2, length 268, ID 10.0.0.6, area 0.0.0.0 Dec 2 16:09:13 checksum 0x8047, authtype 0 Dec 2 16:09:13 adv count 7 Dec 2 16:09:13 OSPF sent LSUUpdate (4) -> 224.0.0.5 (so-1/1/1.0) Dec 2 16:09:13 Version 2, length 268, ID 10.0.0.6, area 0.0.0.0 Dec 2 16:09:13 checksum 0x8047, authtype 0 Dec 2 16:09:13 adv count 7
packets	All OSPF packets	Not available.
packet-dump	Dump the contents of selected packet types	Not available.
spf	SPF calculations	Dec 2 16:08:03 OSPF full SPF refresh scheduled Dec 2 16:08:04 OSPF SPF start, area 1.0.0.0 Dec 2 16:08:04 OSPF add LSA Router 10.0.0.6 distance 0 to SPF list Dec 2 16:08:04 SPF elapsed time 0.000525s Dec 2 16:08:04 Stub elapsed time 0.000263s Dec 2 16:08:04 OSPF SPF start, area 2.0.0.0 Dec 2 16:08:04 OSPF add LSA Router 10.0.0.6 distance 0 to SPF list Dec 2 16:08:04 SPF elapsed time 0.000253s Dec 2 16:08:04 Stub elapsed time 0.000249s Dec 2 16:08:04 OSPF SPF start, area 0.0.0.0 Dec 2 16:08:04 OSPF add LSA Router 10.0.0.6 distance 0 to SPF list Dec 2 16:08:04 OSPF add LSA Router 10.10.134.11 distance 1 to SPF list Dec 2 16:08:04 IP nexthop so-1/1/0.0 0.0.0.0 Dec 2 16:08:04 OSPF add LSA Router 10.10.134.12 distance 1 to SPF list Dec 2 16:08:04 IP nexthop so-1/1/1.0 0.0.0.0

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