

Nexus 7000 OSPF 인접성 문제 해결

목차

[소개](#)

[배경 정보](#)

[OSPF 인접성이 온라인 상태가 아님](#)

[초기화\(INIT\) 상태에서 OSPF 인접 디바이스가 멈춤](#)

[양방향 상태에서 OSPF 인접 디바이스 고착](#)

[Exstart/Exchange에서 OSPF 인접 디바이스 고착](#)

[OSPF 인접 디바이스가 로드 상태에서 고착](#)

소개

이 문서에서는 OSPF(Open Shortest Path First) 인접 디바이스가 예상대로 온라인 상태가 되지 않는 몇 가지 일반적인 시나리오에 대해 설명합니다. Cisco Nexus 7000 Series 스위치에서 이러한 유형의 예기치 않은 동작을 방지하려면 L3(Layer 3) 및 vPC(Virtual Port Channel)에 대한 지침 및 제한 사항을 따라야 합니다.

배경 정보

문제를 해결하기 전에 지침 및 제한이 충족되었는지 확인합니다. [설계 및 구성 가이드](#)를 참조하십시오. L3 및 vPC에 대한 자세한 내용은 [Cisco Nexus 7000 Series 스위치에서 vPC\(Virtual Port Channel\)를 위한 모범 사례](#)를 참조하십시오.

Nexus 7000에서 OSPF 인접성 문제를 해결하기 위해 사용되는 절차는 Cisco IOS®의 절차와 유사하지만, Nexus 7000에는 문제를 쉽게 식별할 수 있도록 더 많은 내장 툴과 필터가 있습니다.

OSPF 인접성이 온라인 상태가 아님

OSPF 인접성이 온라인 상태가 되지 않는 경우가 있습니다. `show ip ospf neighbor` 명령은 인접 디바이스를 표시하지 않습니다.

```
R3#show ip ospf neighbor
```

```
R3#
```

이 문제는 다음과 같은 이유로 인해 발생할 수 있습니다.

- L2/L3 연결 문제
- 인터페이스에서 OSPF가 활성화되지 않음
- 인터페이스는 패시브로 정의됨

- 일치하지 않는 서브넷 마스크
- 일치하지 않는 hello/dead 간격
- 일치하지 않는 인증 키
- 영역 ID가 일치하지 않습니다.
- 불일치 통과/stub/NSSA(Not-So-Stubby Area) 옵션

문제를 조사하려면 연결, 구성 및 ACL(Access Control List)/CoPP(Control Plane Policing)를 확인합니다.

L2/L3 연결 확인

1. ping을 사용하여 유니캐스트 연결을 확인합니다.

연결 문제가 있는 경우 L2 ISP(Internet Service Provider), 물리적 포트, GBIC(Gigabit Interface Converter) 또는 케이블로 인한 것인지 확인합니다.

참고:트래픽을 차단하는 ACL/CoPP가 없다고 가정합니다.문제가 하드웨어 또는 케이블에 결함이 있는 경우 문제를 해결하려면 교체하거나 다른 포트에 이동하십시오.

2. ping을 사용하여 멀티캐스트 연결을 확인합니다.

```
N7K1-RP# ping multicast 224.0.0.5 interface vlan 5
PING 224.0.0.5 (224.0.0.5): 56 data bytes
64 bytes from 5.5.5.2: icmp_seq=0 ttl=254 time=1.739 ms
64 bytes from 5.5.5.2: icmp_seq=1 ttl=254 time=1.253 ms
64 bytes from 5.5.5.2: icmp_seq=2 ttl=254 time=0.866 ms
64 bytes from 5.5.5.2: icmp_seq=3 ttl=254 time=1.045 ms
64 bytes from 5.5.5.2: icmp_seq=4 ttl=254 time=1.89 ms

--- 224.0.0.5 ping multicast statistics ---
5 packets transmitted,
From member 5.5.5.2: 5 packets received, 0.00% packet loss
--- in total, 1 group member responded ---
N7K1-RP#
```

인터페이스가 정상이고 **show int ethernet 1/1** 명령에 삭제 또는 오류가 없는지 확인합니다.

```
N7K1-RP# show int ethernet 1/20 | section RX|TX
RX
 340213 unicast packets  368092 multicast packets  2 broadcast packets
 708307 input packets  233094927 bytes
 0 jumbo packets  0 storm suppression packets
 0 runs  0 giants  0 CRC/FCS  0 no buffer
 0 input error  0 short frame  0 overrun  0 underrun  0 ignored
 0 watchdog  0 bad etype drop  0 bad proto drop  0 if down drop
 0 input with dribble  0 input discard
 0 Rx pause

TX
 1374131 unicast packets  324752 multicast packets  3 broadcast packets
 1698886 output packets  196282264 bytes
 0 jumbo packets
 0 output error  0 collision  0 deferred  0 late collision
 0 lost carrier  0 no carrier  0 babble  0 output discard
 0 Tx pause
N7K1-RP#
```

3. 이러한 기능이 수신 라인 카드, 인터페이스 또는 CPU에서 패킷을 삭제할지 여부를 확인합니

다.

- ACL - 인터페이스의 인바운드/아웃바운드
- QoS(Quality of Service) - 인터페이스에서
- CoPP

QoS

```
N7K1-RP# show policy-map interface ethernet 1/20
```

```
Global statistics status : enabled
```

```
Ethernet1/20
```

```
Service-policy (queuing) input: default-in-policy  
SNMP Policy Index: 301989913
```

```
Class-map (queuing): in-q1 (match-any)  
queue-limit percent 50  
bandwidth percent 80  
queue dropped pkts : 0
```

```
Class-map (queuing): in-q-default (match-any)  
queue-limit percent 50  
bandwidth percent 20  
queue dropped pkts : 0
```

```
Service-policy (queuing) output: default-out-policy  
SNMP Policy Index: 301989922
```

```
Class-map (queuing): out-pq1 (match-any)  
priority level 1  
queue-limit percent 16  
queue dropped pkts : 0
```

```
Class-map (queuing): out-q2 (match-any)  
queue-limit percent 1  
queue dropped pkts : 0
```

```
Class-map (queuing): out-q3 (match-any)  
queue-limit percent 1  
queue dropped pkts : 0
```

```
Class-map (queuing): out-q-default (match-any)  
queue-limit percent 82  
bandwidth remaining percent 25  
queue dropped pkts : 0
```

CoPP

```
show policy-map interface control-plane class test1-copp-class-critical
```

```
Control Plane
```

```
service-policy input test1-copp-policy-lenient
```

```
class-map test1-copp-class-critical (match-any)  
match access-group name test1-copp-acl-bgp  
match access-group name test1-copp-acl-pim  
match access-group name test1-copp-acl-rip
```

```

match access-group name test1-copp-acl-vpc
match access-group name test1-copp-acl-bgp6
match access-group name test1-copp-acl-igmp
match access-group name test1-copp-acl-lisp
match access-group name test1-copp-acl-msdp
match access-group name test1-copp-acl-ospf
match access-group name test1-copp-acl-pim6
match access-group name test1-copp-acl-rip6
match access-group name test1-copp-acl-rise
match access-group name test1-copp-acl-eigrp
match access-group name test1-copp-acl-lisp6
match access-group name test1-copp-acl-ospf6
match access-group name test1-copp-acl-rise6
match access-group name test1-copp-acl-eigrp6
match access-group name test1-copp-acl-otv-as
match access-group name test1-copp-acl-mac-12pt
match access-group name test1-copp-acl-mpls-ldp
match access-group name test1-copp-acl-mpls-oam
match access-group name test1-copp-acl-mpls-rsvp
match access-group name test1-copp-acl-mac-13-isis
match access-group name test1-copp-acl-mac-otv-isis
match access-group name test1-copp-acl-mac-fabricpath-isis
match protocol mpls router-alert
match protocol mpls exp 6
set cos 7
police cir 39600 kbps bc 375 ms
  conform action: transmit
  violate action: drop
module 1:
  conformed 539964945 bytes,
    5-min offered rate 5093 bytes/sec
    peak rate 5213 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
module 2:
  conformed 784228080 bytes,
    5-min offered rate 5848 bytes/sec
    peak rate 7692 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
module 3:
  conformed 5114206 bytes,
    5-min offered rate 41 bytes/sec
    peak rate 6656 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec

```

N7K1#

OSPF 컨피그레이션 확인

OSPF 컨피그레이션(서브넷, hello/dead 간격, 영역 ID, 영역 유형, 인증 키(있는 경우) 및 비 패시브)을 확인하고 양쪽에서 일치하는지 확인하려면 이 명령을 사용합니다.

1. 실행 ospf 표시
2. IP ospf 5 표시 인터페이스
3. IP ospf 5 표시

다음은 첫 번째 명령의 예입니다.

N7K1-RP# **show run ospf**

```
!Command: show running-config ospf
!Time: Thu May 16 11:27:24 2013
```

```
version 6.2(2)
feature ospf

logging level ospf 7

router ospf 5
 router-id 5.5.0.1

interface Vlan5
 ip router ospf 5 area 0.0.0.0

interface loopback5
 ip router ospf 5 area 0.0.0.0
```

N7K1-RP#

다음은 두 번째 명령의 예입니다.

N7K1-RP# **show ip ospf 5 interface**

```
Vlan5 is up, line protocol is up
  IP address 5.5.5.1/24, Process ID 5 VRF default, area 0.0.0.0
  Enabled by interface configuration
  State DR, Network type BROADCAST, cost 40
  Index 2, Transmit delay 1 sec, Router Priority 1
  Designated Router ID: 5.5.0.1, address: 5.5.5.1
  Backup Designated Router ID: 5.5.0.2, address: 5.5.5.2
  1 Neighbors, flooding to 1, adjacent with 1
  Timer intervals: Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello timer due in 00:00:00
  No authentication
  Number of opaque link LSAs: 0, checksum sum 0
loopback5 is up, line protocol is up
  IP address 5.5.0.1/32, Process ID 5 VRF default, area 0.0.0.0
  Enabled by interface configuration
  State LOOPBACK, Network type LOOPBACK, cost 1
  Index 1
```

N7K1-RP#

다음은 세 번째 명령의 예입니다.

N7K1-RP# **show ip ospf 5**

```
Routing Process 5 with ID 5.5.0.1 VRF default
Routing Process Instance Number 3
Stateful High Availability enabled
Graceful-restart is configured
  Grace period: 60 state: Inactive
  Last graceful restart exit status: None
Supports only single TOS(TOS0) routes
Supports opaque LSA
Administrative distance 110
Reference Bandwidth is 40000 Mbps
SPF throttling delay time of 200.000 msec,
  SPF throttling hold time of 1000.000 msec,
  SPF throttling maximum wait time of 5000.000 msec
LSA throttling start time of 0.000 msec,
  LSA throttling hold interval of 5000.000 msec,
  LSA throttling maximum wait time of 5000.000 msec
```

```

Minimum LSA arrival 1000.000 msec
LSA group pacing timer 10 secs
Maximum paths to destination 8
Number of external LSAs 0, checksum sum 0
Number of opaque AS LSAs 0, checksum sum 0
Number of areas is 1, 1 normal, 0 stub, 0 nssa
Number of active areas is 1, 1 normal, 0 stub, 0 nssa
Install discard route for summarized external routes.
Install discard route for summarized internal routes.
Area BACKBONE(0.0.0.0)
  Area has existed for 1d10h
  Interfaces in this area: 2 Active interfaces: 2
  Passive interfaces: 0 Loopback interfaces: 1
  No authentication available
  SPF calculation has run 47 times
  Last SPF ran for 0.000542s
  Area ranges are
  Number of LSAs: 3, checksum sum 0x84d4

```

N7K1-RP#

OSPF 메시지 확인

OSPF 프로세스에서 디버그 메시지가 전송되고 수신되는지 확인하려면 `show ip ospf event-history adjacency` 명령을 입력합니다.

참고: 최신 메시지가 맨 위에 나타납니다.

출력은 OSPF 네이버 간에 교환되는 모든 OSPF 인접성 메시지를 표시합니다. OSPF 인접성이 형성되면 라우터는 인접 디바이스와 완전히 인접하기 전에 여러 상태 변경을 거칩니다. 이 출력에는 모든 상태 변경 및 협상이 표시됩니다. 문제(MTU(Maximum Transition Unit), 연결 문제, 패킷 삭제)가 있으면 출력에 반영됩니다.

N7K1-RP# **show ip ospf 5 event-history adjacency**

```

Adjacency events for OSPF Process "ospf-5"
2013 May 16 10:50:58.121128 ospf 5 [9386]: :   mtu 1600, opts: 0x42, ddbits:
0, seq: 0x6f40fde4
2013 May 16 10:50:58.121124 ospf 5 [9386]: : Sent DBD with 0 entries to 5.5.5.2
on Vlan5
2013 May 16 10:50:58.121114 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.118030 ospf 5 [9386]: : Nbr 5.5.5.2: LOADING --> FULL,
event LDDONE
2013 May 16 10:50:58.115840 ospf 5 [9386]: : Built LS Request packet for 5.5.5.2
with 1 entries
2013 May 16 10:50:58.115835 ospf 5 [9386]: :       Add 5.5.0.2(0x1)5.5.0.2
(0x8000104e)(0x7ef8) (156) to LSR
2013 May 16 10:50:58.115823 ospf 5 [9386]: : Building LS Request packet to
5.5.5.2
2013 May 16 10:50:58.112201 ospf 5 [9386]: : Nbr 5.5.5.2: EXCHANGE --> LOADING,
event EXCHDONE
2013 May 16 10:50:58.112026 ospf 5 [9386]: :   seqnr 0x6f40fde4, dbdbits 0x1,
mtu 1600, options 0x42
2013 May 16 10:50:58.112022 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.111988 ospf 5 [9386]: :   seqnr 0x6f40fde4, dbdbits 0x1,
mtu 1600, options 0x42
2013 May 16 10:50:58.111984 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.110169 ospf 5 [9386]: :   mtu 1600, opts: 0x42, ddbits: 0,
seq: 0x6f40fde3
2013 May 16 10:50:58.110165 ospf 5 [9386]: : Sent DBD with 0 entries to 5.5.5.2
on Vlan5

```

2013 May 16 10:50:58.110155 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.106609 ospf 5 [9386]: : Added 1 out of 1 LSAs to
request list
2013 May 16 10:50:58.106606 ospf 5 [9386]: : Added 5.5.0.2(0x1)5.5.0.2
(0x8000104e) (0x7ef8) (156) to request list
2013 May 16 10:50:58.106586 ospf 5 [9386]: : seqnr 0x6f40fde3, dbdbits 0x3,
mtu 1600, options 0x42
2013 May 16 10:50:58.106582 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 1 entries
2013 May 16 10:50:58.106537 ospf 5 [9386]: : seqnr 0x6f40fde3, dbdbits 0x3,
mtu 1600, options 0x42
2013 May 16 10:50:58.106532 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 1 entries
2013 May 16 10:50:58.104462 ospf 5 [9386]: : Built reply LSU with 2 LSAs for
5.5.5.2 128 bytes
2013 May 16 10:50:58.104439 ospf 5 [9386]: : Added 5.5.5.2(0x2)5.5.0.2
(0x80000045) (0xaf32) (156)
2013 May 16 10:50:58.104431 ospf 5 [9386]: : Added 5.5.0.1(0x1)5.5.0.1
(0x80000ecf) (0xd834) (8)(0)
2013 May 16 10:50:58.104408 ospf 5 [9386]: : Building reply LSU to 5.5.5.2
2013 May 16 10:50:58.104404 ospf 5 [9386]: : 2 requests in LSR (2 left)
2013 May 16 10:50:58.104370 ospf 5 [9386]: : Answering LSR from 5.5.5.2
2013 May 16 10:50:58.100790 ospf 5 [9386]: : Recv LSR from Nbr 5.5.5.2
2013 May 16 10:50:58.099055 ospf 5 [9386]: : mtu 1600, opts: 0x42, ddbits:
0x2, seq: 0x6f40fde2
2013 May 16 10:50:58.099051 ospf 5 [9386]: : Sent DBD with 3 entries to 5.5.5.2
on Vlan5
2013 May 16 10:50:58.099038 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.095072 ospf 5 [9386]: : seqnr 0x6f40fde2, dbdbits 0x7,
mtu 1600, options 0x42
2013 May 16 10:50:58.095068 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.095024 ospf 5 [9386]: : Nbr 5.5.5.2: EXSTART --> EXCHANGE,
event NEGDONE
2013 May 16 10:50:58.094895 ospf 5 [9386]: : We are SLAVE, 5.5.5.2 is master
2013 May 16 10:50:58.094890 ospf 5 [9386]: : seqnr 0x6f40fde2, dbdbits 0x7,
mtu 1600, options 0x42
2013 May 16 10:50:58.094886 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.093037 ospf 5 [9386]: : mtu 1600, opts: 0x42, ddbits: 0x7,
seq: 0x7273409a
2013 May 16 10:50:58.093033 ospf 5 [9386]: : Sent DBD with 0 entries to 5.5.5.2
on Vlan5
2013 May 16 10:50:58.093029 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.092915 ospf 5 [9386]: : Nbr 5.5.5.2: INIT --> EXSTART,
event TWOWAYRCVD
2013 May 16 10:50:58.092862 ospf 5 [9386]: : Nbr 5.5.5.2: TWOWAY --> EXSTART,
event ADJOK
2013 May 16 10:50:58.092763 ospf 5 [9386]: [9446]: Interface Vlan5 ---> BDR
2013 May 16 10:50:58.092757 ospf 5 [9386]: [9446]: Elected 5.5.0.2 as DR,
5.5.0.1 as BDR
2013 May 16 10:50:58.092690 ospf 5 [9386]: [9446]: This nbr 5.5.5.2 promoted
to current dr
2013 May 16 10:50:58.092687 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092683 ospf 5 [9386]: [9446]: Neighbor not declared DR,
ignoring
2013 May 16 10:50:58.092680 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0x93e3524), state SELF
2013 May 16 10:50:58.092676 ospf 5 [9386]: [9446]: DR election starting
2013 May 16 10:50:58.092673 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092670 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092666 ospf 5 [9386]: [9446]: Compare done, new current
bdr 5.5.5.1
2013 May 16 10:50:58.092663 ospf 5 [9386]: [9446]: Current BDR set to this
neighbor

```

2013 May 16 10:50:58.092660 ospf 5 [9386]: [9446]: This neighbor is in
consideration for bdr
2013 May 16 10:50:58.092657 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092654 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0xacl1f7514), state SELF
2013 May 16 10:50:58.092650 ospf 5 [9386]: [9446]: BDR election starting
2013 May 16 10:50:58.092647 ospf 5 [9386]: [9446]: DR/BDR Status of this router
changed, new election run
2013 May 16 10:50:58.092643 ospf 5 [9386]: [9446]: This nbr 5.5.5.2 promoted
to current dr
2013 May 16 10:50:58.092639 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092635 ospf 5 [9386]: [9446]: Neighbor not declared DR,
ignoring
2013 May 16 10:50:58.092632 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0xacl1f7514), state SELF
2013 May 16 10:50:58.092628 ospf 5 [9386]: [9446]: DR election starting
2013 May 16 10:50:58.092625 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092622 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092618 ospf 5 [9386]: [9446]: Compare done, new current
bdr 5.5.5.1
2013 May 16 10:50:58.092613 ospf 5 [9386]: [9446]: Current BDR set to this
neighbor
2013 May 16 10:50:58.092610 ospf 5 [9386]: [9446]: This neighbor is in
consideration for bdr
2013 May 16 10:50:58.092607 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092604 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0xacl1f7514), state SELF
2013 May 16 10:50:58.092597 ospf 5 [9386]: [9446]: BDR election starting
2013 May 16 10:50:58.092573 ospf 5 [9386]: [9446]: Current 0.0.0.0 as DR,
0.0.0.0 as BDR
2013 May 16 10:50:58.092567 ospf 5 [9386]: [9446]: Begin OSPF DR election on
Vlan5
2013 May 16 10:50:58.092432 ospf 5 [9386]: : Nbr 5.5.5.2: DOWN --> INIT,
event HELLORCVD

```

문제 해결

L2/3 연결, 컨피그레이션 및 OSPF 허용 트래픽에 대한 조사가 문제를 찾아내지 못하고 목록에 네이 버가 표시되는 경우 Cisco TAC(Technical Assistance Center) 케이스를 여십시오. 다음 명령을 입력 하고 인접 디바이스 출력의 정보와 함께 TAC를 제공합니다.

- 실행 표시
- 기술 지원 ospf 표시

초기화(INIT) 상태에서 OSPF 인접 디바이스가 멈춤

인접 디바이스가 INIT 상태에 머물러 있는 경우가 있는데, 이는 Nexus 7000이 네이버에서 hello 패 킷을 볼 수 있지만 다음 양방향 상태로 이동하기 위해 hello 패킷에서 해당 라우터-ID를 볼 수 없음을 나타냅니다.

```
router2#show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
170.170.5.1	1	INIT/-	00:00:34	170.170.1.1	ethernet 1/1

router-2#

이 문제는 다음과 같은 이유로 인해 발생할 수 있습니다.

- 한 쪽에서 ACL을 사용하여 hello 패킷을 차단하고 있습니다.
- 한 쪽이 NAT(Network Address Translation)를 사용하여 OSPF hello를 변환하고 있습니다.
- 한쪽의 멀티캐스트 기능이 끊어집니다(L2).

문제를 조사하려면 다음 단계를 완료하십시오.

1. IP 멀티캐스트 컨트롤 플레인이 작동하는지 확인합니다.

```
N7K4# ping multicast 224.0.0.5 interface Ethernet 1/1
```

ping 결과에 인접 디바이스의 IP 주소가 표시되지 않으면 문제가 발생합니다. 양쪽에서 확인해 보세요

2. 네이버에서 HELLO 패킷이 수신되는지 확인합니다.

```
N7K4# show ip ospf 5 event-history adjacency
```

참고:발송 hello 패킷은 표시되지 않습니다.

3. 각 인터페이스에서 OSPF 인접성 디버깅을 활성화하고 hello 패킷이 전송되는지 확인합니다.

```
N7K4# debug logfile debug-ospf size 10000
N7K4# debug-filter ip ospf 5 interface Ethernet 1/1
N7K4# debug ip ospf 5 adjacency detail
```

참고:디버깅을 비활성화하는 것을 잊지 마십시오.

```
N7K4# undebug all
N7K4# no debug-filter all
N7K4# clear debug logfile debug-ospf
```

4. OSPF에서 224.0.0.5로 패킷을 전송하는지 확인합니다.

```
N7K4# debug logfile ospf_vj
N7K4# debug-filter ip mpacket interface e1/5
N7K4# debug-filter ip mpacket direction outbound
N7K4# debug-filter ip mpacket dest 224.0.0.5
N7K4# debug ip ospf 5 hello
```

```
N7K4# show debug logfile ospf_vj
```

```
N7K1-RP# show debug logfile ospf_vj
2013 May 16 11:18:55.202270 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.5
.2 on Vlan5 from 5.5.5.2
2013 May 16 11:19:00.527640 ospf: 5 [9386] (default) LAN hello out, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.
5.2 nbrs 1 on Vlan5 (area 0.0.0.0)
2013 May 16 11:19:03.500785 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.5
```

```
.2 on Vlan5 from 5.5.5.2
2013 May 16 11:19:09.515150 ospf: 5 [9386] (default) LAN hello out, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.
5.2 nbrs 1 on Vlan5 (area 0.0.0.0)
2013 May 16 11:19:10.406800 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 0.0.0.0, bdr 0.0.0
.0 on Vlan5 from 5.5.5.2
2013 May 16 11:19:10.417602 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 0.0.0.0, bdr 0.0.0
.0 on Vlan5 from 5.5.5.2
N7K1-RP#
```

참고: 디버깅을 비활성화하는 것을 잊지 마십시오.

```
N7K4# clear debug logfile ospf_vj
N7K4# undebug all
N7K4# no debug-fil all
no debug-filter ip mpacket interface Ethernet1/5
no debug-filter ip mpacket direction outbound
no debug-filter ip mpacket dest 224.0.0.5
N7K4#
```

5. 패킷이 Ethalyzer에 있는지 확인합니다.

```
N7K4# ethalyzer local interface inband capture-filter "ip proto \ospf"

N7K1# ethalyzer local interface inband capture-filter "ip proto \ospf"
Capturing on inband
50 packets captured
2013-05-16 11:06:34.387196      5.5.5.2 -> 224.0.0.5      OSPF Hello Packet
2013-05-16 11:06:34.397553      5.5.5.2 -> 224.0.0.5      OSPF Hello Packet
2013-05-16 11:06:38.895343      5.5.5.1 -> 224.0.0.5      OSPF Hello Packet
```

참고: 기본 VDC(Virtual Device Context)에 하나가 있어야 합니다.

문제 해결

L2/3 연결, 컨피그레이션 및 OSPF 허용 트래픽에 대한 조사가 문제를 발견하지 못하고 인접 디바이스가 FULL로 전환되었음을 나타내는 경우 TAC 케이스를 엽니다. 다음 명령을 입력하고 인접 디바이스 출력의 정보와 함께 TAC를 제공합니다.

- 실행 표시
- 기술 지원 ospf 표시

양방향 상태에서 OSPF 인접 디바이스 고착

OSPF 인접 디바이스가 양방향 상태로 고정되는 경우가 있습니다. 이 시나리오는 브로드캐스트 네트워크 유형에서 정상적이며, 우선 플러딩의 양을 줄입니다. 이 시나리오는 모든 라우터가 0과 같은 우선 순위로 구성된 경우에도 발생합니다.

참고: DR(Designated Router) 선택에 참여하지 않도록 우선 순위가 0인 로우엔드 라우터만 구성해야 합니다.

show ip ospf neighbor [명령이 Why does the show ip ospf neighbor Revehicle Stuck in Two-Way State를 참조하십시오.](#) 자세한 내용은 을 참조하십시오.

Exstart/Exchange에서 OSPF 인접 디바이스 고착

OSPF 인접 디바이스가 Exstart/Exchange 상태로 고정되는 경우가 있습니다.

OSPF 네이버의 인터페이스 간에 MTU가 일치하지 않거나 전송 미디어로 인해 구성된 MTU의 패킷 크기로 서로 ping할 수 없는 경우 OSPF 네이버는 exstart/exchange 상태로 유지됩니다.

```
router-6# show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
170.170.11.7	1	EXCHANGE/ -	00:00:36	170.170.11.7	Serial2.7

```
router-6#
```

```
router-7# show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
170.170.11.6	1	EXSTART/ -	00:00:33	170.170.11.6	Serial0.6

```
router-7#
```

이 문제는 다음과 같은 이유로 인해 발생할 수 있습니다.

- MTU 불일치 - 한 라우터의 EXCHANGE 및 다른 라우터의 EXSTART
참고:ip ospf mtu-ignore 명령으로 구성할 수 있습니다.
- RID(인접 라우터 ID)가 인접 디바이스의 EXSTART와 같습니다.
- 유니캐스트가 손상되었습니다. EXCHANGE MTU 문제 - 특정 길이 패킷 이상으로 ping할 수 없음ACL 차단 유니캐스트 - 양방향 OSPF가 P2P(Point-to-Point) 링크를 제외한 유니캐스트 패킷을 보낸 후NAT는 유니캐스트 패킷을 변환합니다.

문제를 조사하려면 다음 단계를 완료하십시오.

1. 인터페이스에서 최대 IP MTU를 사용하는 DF(Don't Fragment) 비트의 일반 ping을 확인합니다.

```
N7K4# ping 10.10.12.2 df-bit packet-size 1472
```

참고:Cisco IOS에서 ping x.x.x size <size> 명령을 입력하면 크기는 IP 패킷 크기를 나타냅니다.Linux에서는 Cisco IOS에서와 같이 IP 패킷 크기를 지정하는 대신 ping의 ICMP(Internet Control Message Protocol) 페이로드를 지정합니다.이미 아시다시피 Nexus는 Linux를 기반으로 구축되었습니다.MTU는 여전히 1,500바이트로 설정되어 있습니다. 이 중 20바이트는 IP 헤더이고 다른 8은 ICMP 헤더입니다.1,500-20 - 8 = 1,472바이트 페이로드따라서 실제 IP 데이터그램 크기는 1,500바이트인 Cisco IOS와 동일합니다.

2. show int ethernet 1/1 명령을 사용하여 수신 인터페이스에서 패킷이 삭제되었는지 확인합니다

```
N7K1-RP# show int ethernet 1/20 | section RX|TX
```

```
RX
```

```
340213 unicast packets 368092 multicast packets 2 broadcast packets
708307 input packets 233094927 bytes
0 jumbo packets 0 storm suppression packets
0 runts 0 giants 0 CRC/FCS 0 no buffer
0 input error 0 short frame 0 overrun 0 underrun 0 ignored
0 watchdog 0 bad etype drop 0 bad proto drop 0 if down drop
```

```

0 input with dribble 0 input discard
0 Rx pause
TX
1374131 unicast packets 324752 multicast packets 3 broadcast packets
1698886 output packets 196282264 bytes
0 jumbo packets
0 output error 0 collision 0 deferred 0 late collision
0 lost carrier 0 no carrier 0 babble 0 output discard
0 Tx pause
N7K1-RP#

```

3. CoPP가 show policy-map interface control-plane class test1-copp-class-critical 명령을 사용하여 OSPF 패킷을 삭제하는지 확인합니다.

```

Control Plane
service-policy input test1-copp-policy-lenient

class-map test1-copp-class-critical (match-any)
  match access-group name test1-copp-acl-bgp
  match access-group name test1-copp-acl-pim
  match access-group name test1-copp-acl-rip
  match access-group name test1-copp-acl-vpc
  match access-group name test1-copp-acl-bgp6
  match access-group name test1-copp-acl-igmp
  match access-group name test1-copp-acl-lisp
  match access-group name test1-copp-acl-msdp
  match access-group name test1-copp-acl-ospf
  match access-group name test1-copp-acl-pim6
  match access-group name test1-copp-acl-rip6
  match access-group name test1-copp-acl-rise
  match access-group name test1-copp-acl-eigrp
  match access-group name test1-copp-acl-lisp6
  match access-group name test1-copp-acl-ospf6
  match access-group name test1-copp-acl-rise6
  match access-group name test1-copp-acl-eigrp6
  match access-group name test1-copp-acl-otv-as
  match access-group name test1-copp-acl-mac-l2pt
  match access-group name test1-copp-acl-mpls-ldp
  match access-group name test1-copp-acl-mpls-oam
  match access-group name test1-copp-acl-mpls-rsvp
  match access-group name test1-copp-acl-mac-l3-isis
  match access-group name test1-copp-acl-mac-otv-isis
  match access-group name test1-copp-acl-mac-fabricpath-isis
  match protocol mpls router-alert
  match protocol mpls exp 6
  set cos 7
  police cir 39600 kbps bc 375 ms
    conform action: transmit
    violate action: drop
  module 1:
    conformed 539964945 bytes,
      5-min offered rate 5093 bytes/sec
      peak rate 5213 bytes/sec
    violated 0 bytes,
      5-min violate rate 0 bytes/sec
  module 2:
    conformed 784228080 bytes,
      5-min offered rate 5848 bytes/sec
      peak rate 7692 bytes/sec
    violated 0 bytes,
      5-min violate rate 0 bytes/sec

```

```
module 3:
  conformed 5114206 bytes,
    5-min offered rate 41 bytes/sec
    peak rate 6656 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
```

N7K1#

4. show ip ospf 5 event-history adjacency 명령 또는 debug ip ospf 5 adjacency 명령을 사용하여 OSPF DBD(Database Descriptor) exchange를 확인합니다.

```
N7K1-RP# debug logfile debug-ospf size 10000
N7K1-RP# debug-filter ip ospf 5 interface Vlan 5
N7K1-RP# debug ip ospf 5 adjacency detail
```

예를 들면 다음과 같습니다.

```
N7K1-RP# show debug logfile debug-ospf
2013 May 20 05:36:23.414376 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event HELLORCVD
2013 May 20 05:36:23.414424 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event HELLORCVD
2013 May 20 05:36:23.414438 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event TWOWAYRCVD
2013 May 20 05:36:23.414450 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event TWOWAYRCVD
2013 May 20 05:36:28.832638 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event HELLORCVD
2013 May 20 05:36:28.832674 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event HELLORCVD
2013 May 20 05:36:28.832695 ospf: 5 [8325] (default) Nbr 5.5.5.2: transitioning
to OneWay - did not find ourselves
2013 May 20 05:36:28.832709 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event ONEWAYRCVD
2013 May 20 05:36:28.833073 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state
changed from FULL to INIT, event ONEWAYRCVD
2013 May 20 05:36:28.833120 ospf: 5 [8325] Begin OSPF DR election on Vlan5
2013 May 20 05:36:28.833140 ospf: 5 [8325] Current 5.5.0.1 as DR, 5.5.0.2
as BDR
2013 May 20 05:36:28.833177 ospf: 5 [8325] BDR election starting
2013 May 20 05:36:28.833196 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59188), state SELF
2013 May 20 05:36:28.833211 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:28.833235 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state INIT
2013 May 20 05:36:28.833249 ospf: 5 [8325] DR election starting
2013 May 20 05:36:28.833265 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59188), state SELF
2013 May 20 05:36:28.833281 ospf: 5 [8325] This nbr 5.5.5.1 promoted to
current dr
2013 May 20 05:36:28.833297 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state INIT
2013 May 20 05:36:28.833404 ospf: 5 [8325] Elected 5.5.0.1 as DR,
0.0.0.0 as BDR
2013 May 20 05:36:28.833440 ospf: 5 [8325] Interface Vlan5 ---> DR
2013 May 20 05:36:28.833456 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event ADJOK
2013 May 20 05:36:28.833474 ospf: 5 [8325] (default) Nbr 5.5.5.2: INIT -->
```

```

INIT, event ADJOK
2013 May 20 05:36:28.833492 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
INIT, event ONEWAYRCVD
2013 May 20 05:36:28.843309 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event HELLORCVD
2013 May 20 05:36:28.843339 ospf: 5 [8325] (default) Nbr 5.5.5.2: INIT -->
INIT, event HELLORCVD
2013 May 20 05:36:28.843357 ospf: 5 [8325] (default) Nbr 5.5.5.2: transitioning
to OneWay - did not find ourselves
2013 May 20 05:36:28.843370 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event ONEWAYRCVD
2013 May 20 05:36:28.843386 ospf: 5 [8325] (default) Nbr 5.5.5.2: INIT -->
INIT, event ONEWAYRCVD
2013 May 20 05:36:34.244541 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries
2013 May 20 05:36:34.244567 ospf: 5 [8325] (default) seqnr 0x9247f5e,
dbdbits 0x7, mtu 1600, options 0x42
2013 May 20 05:36:34.244622 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event TWOWAYRCVD
2013 May 20 05:36:34.244798 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state
changed from INIT to EXSTART, event ADJOK
2013 May 20 05:36:34.244859 ospf: 5 [8325] Begin OSPF DR election on Vlan5
2013 May 20 05:36:34.244880 ospf: 5 [8325] Current 5.5.0.1 as DR, 0.0.0.0
as BDR
2013 May 20 05:36:34.244916 ospf: 5 [8325] BDR election starting
2013 May 20 05:36:34.244935 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59288), state SELF
2013 May 20 05:36:34.244949 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:34.244965 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state EXSTART
2013 May 20 05:36:34.244978 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:34.244991 ospf: 5 [8325] This neighbor is in consideration
for bdr
2013 May 20 05:36:34.245004 ospf: 5 [8325] Current BDR set to this neighbor
2013 May 20 05:36:34.245019 ospf: 5 [8325] Compare done, new current
bdr 5.5.5.2
2013 May 20 05:36:34.245033 ospf: 5 [8325] DR election starting
2013 May 20 05:36:34.245049 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59288), state SELF
2013 May 20 05:36:34.245065 ospf: 5 [8325] This nbr 5.5.5.1 promoted to
current dr
2013 May 20 05:36:34.245080 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state EXSTART
2013 May 20 05:36:34.245094 ospf: 5 [8325] Neighbor not declared DR,
ignoring
2013 May 20 05:36:34.245202 ospf: 5 [8325] Elected 5.5.0.1 as DR,
5.5.0.2 as BDR
2013 May 20 05:36:34.245247 ospf: 5 [8325] Interface Vlan5 ---> DR
2013 May 20 05:36:34.245262 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state EXSTART, event ADJOK
2013 May 20 05:36:34.245299 ospf: 5 [8325] (default) Nbr 5.5.5.2:
EXSTART --> EXSTART, event ADJOK
2013 May 20 05:36:34.245318 ospf: 5 [8325] (default) Nbr 5.5.5.2:
INIT --> EXSTART, event TWOWAYRCVD
2013 May 20 05:36:34.245335 ospf: 5 [8325] (default) We are SLAVE,
5.5.5.2 is master
2013 May 20 05:36:34.245348 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state EXSTART, event NEGDONE
2013 May 20 05:36:34.245366 ospf: 5 [8325] (default) Preparing DBD exchange
for nbr 5.5.5.2, 387/5
2013 May 20 05:36:34.245463 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state
changed from EXSTART to EXCHANGE, event NEGDONE

```

2013 May 20 05:36:34.245483 ospf: 5 [8325] (default) Nbr 5.5.5.2: EXSTART -->
EXCHANGE, event NEGDONE

2013 May 20 05:36:34.245843 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries

2013 May 20 05:36:34.245862 ospf: 5 [8325] (default) seqnr 0x9247f5e,
dbdbits 0x7, mtu 1600, options 0x42

2013 May 20 05:36:34.245997 ospf: 5 [8325] (default) Sending DBD to
5.5.5.2 on Vlan5

2013 May 20 05:36:34.246031 ospf: 5 [8325] (default) Add 5.5.0.2(0x1)5.5.0.2
(0x80000084) (0x2c26) (109) to DBD

2013 May 20 05:36:34.246062 ospf: 5 [8325] (default) Add 5.5.0.1(0x1)5.5.0.1
(0x8000007f) (0xa3c7) (5)(0) to DBD

2013 May 20 05:36:34.246078 ospf: 5 [8325] (default) Filled DBD to 5.5.5.2
with 2 entries

2013 May 20 05:36:34.246111 ospf: 5 [8325] (default) Sent DBD with 2 entries to
5.5.5.2 on Vlan5

2013 May 20 05:36:34.246128 ospf: 5 [8325] (default) mtu 1600, opts: 0x42,
ddbbits: 0x2, seq: 0x9247f5e

2013 May 20 05:36:34.258616 ospf: 5 [8325] (default) Recv LSR from Nbr 5.5.5.2

2013 May 20 05:36:34.258634 ospf: 5 [8325] (default) schedule flood

2013 May 20 05:36:34.258674 ospf: 5 [8325] (default) Answering LSR from 5.5.5.2

2013 May 20 05:36:34.258690 ospf: 5 [8325] (default) 1 requests in LSR (1 left)

2013 May 20 05:36:34.258707 ospf: 5 [8325] (default) Building reply LSU to 5.5.5.2

2013 May 20 05:36:34.258726 ospf: 5 [8325] (default) Found requested LSA
5.5.0.1(1)5.5.0.1 for 5.5.5.2

2013 May 20 05:36:34.258791 ospf: 5 [8325] (default) Added 5.5.0.1(0x1)
5.5.0.1 (0x8000007f) (0xa3c7) (5)(0)

2013 May 20 05:36:34.258872 ospf: 5 [8325] (default) Built reply LSU with 1 LSAs
for 5.5.5.2 96 bytes

2013 May 20 05:36:34.286591 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 2 entries

2013 May 20 05:36:34.286615 ospf: 5 [8325] (default) seqnr 0x9247f5f,
dbdbits 0x3, mtu 1600, options 0x42

2013 May 20 05:36:34.286751 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 2 entries

2013 May 20 05:36:34.286784 ospf: 5 [8325] (default) seqnr 0x9247f5f,
dbdbits 0x3, mtu 1600, options 0x42

2013 May 20 05:36:34.286804 ospf: 5 [8325] (default) Found 5.5.5.1(0x2)
5.5.0.1 (0x80000004) (0x46de) (111) in DBD

2013 May 20 05:36:34.286870 ospf: 5 [8325] (default) Added 5.5.5.1(0x2)
5.5.0.1 (0x80000004) (0x46de) (111)(DO) to request li
st

2013 May 20 05:36:34.286889 ospf: 5 [8325] (default) Found 5.5.0.2(0x1)
5.5.0.2 (0x80000085) (0x91d0) (5) in DBD

2013 May 20 05:36:34.286917 ospf: 5 [8325] (default) Added 5.5.0.2(0x1)
5.5.0.2 (0x80000084) (0x2c26) (109) to request list

2013 May 20 05:36:34.286932 ospf: 5 [8325] (default) Added 2 out of 2 LSAs
to request list

2013 May 20 05:36:34.287046 ospf: 5 [8325] (default) Sending DBD to
5.5.5.2 on Vlan5

2013 May 20 05:36:34.287066 ospf: 5 [8325] (default) Filled DBD to
5.5.5.2 with 0 entries

2013 May 20 05:36:34.287101 ospf: 5 [8325] (default) Sent DBD with 0 entries to
5.5.5.2 on Vlan5

2013 May 20 05:36:34.287121 ospf: 5 [8325] (default) mtu 1600, opts: 0x42,
ddbbits: 0, seq: 0x9247f5f

2013 May 20 05:36:34.291760 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries

2013 May 20 05:36:34.291789 ospf: 5 [8325] (default) seqnr 0x9247f60,
dbdbits 0x1, mtu 1600, options 0x42

2013 May 20 05:36:34.291915 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries

2013 May 20 05:36:34.291934 ospf: 5 [8325] (default) seqnr 0x9247f60,
dbdbits 0x1, mtu 1600, options 0x42

```

2013 May 20 05:36:34.291953 ospf: 5 [8325] (default)      Nbr 5.5.5.2 FSM start:
old state EXCHANGE, event EXCHDONE
2013 May 20 05:36:34.292101 ospf: 5 [8325] (default)      Nbr 5.5.5.2 FSM state
changed from EXCHANGE to LOADING, event EXCHDONE
2013 May 20 05:36:34.292124 ospf: 5 [8325] (default) Nbr 5.5.5.2: EXCHANGE -->
LOADING, event EXCHDONE
2013 May 20 05:36:34.293200 ospf: 5 [8325] (default) Building LS Request packet
to 5.5.5.2
2013 May 20 05:36:34.293231 ospf: 5 [8325] (default)      Add 5.5.0.2(0x1)
5.5.0.2 (0x80000084) (0x2c26) (110) to LSR
2013 May 20 05:36:34.293262 ospf: 5 [8325] (default)      Add 5.5.5.1(0x2)
5.5.0.1 (0x80000004) (0x46de) (111)(DO) to LSR
2013 May 20 05:36:34.293281 ospf: 5 [8325] (default) Built LS Request packet for
5.5.5.2 with 2 entries
2013 May 20 05:36:34.297954 ospf: 5 [8325] (default)      Nbr 5.5.5.2 FSM start:
old state LOADING, event LDDONE
2013 May 20 05:36:34.298069 ospf: 5 [8325] (default)      Nbr 5.5.5.2 FSM state
changed from LOADING to FULL, event LDDONE
2013 May 20 05:36:34.298206 ospf: 5 [8325] (default) Nbr 5.5.5.2: LOADING -->
FULL, event LDDONE
2013 May 20 05:36:34.299179 ospf: 5 [8325] (default) Sending DBD to 5.5.5.2
on Vlan5
2013 May 20 05:36:34.299199 ospf: 5 [8325] (default)      Filled DBD to 5.5.5.2
with 0 entries
2013 May 20 05:36:34.299233 ospf: 5 [8325] (default) Sent DBD with 0 entries to
5.5.5.2 on Vlan5
2013 May 20 05:36:34.299253 ospf: 5 [8325] (default)      mtu 1600, opts: 0x42,
ddbits: 0, seq: 0x9247f60
2013 May 20 05:36:38.746942 ospf: 5 [8325] (default)      Nbr 5.5.5.2 FSM start:
old state FULL, event HELLORCVD
2013 May 20 05:36:38.747010 ospf: 5 [8325] (default)      Nbr 5.5.5.2: FULL -->
FULL, event HELLORCVD
2013 May 20 05:36:38.747024 ospf: 5 [8325] (default)      Nbr 5.5.5.2 FSM start:
old state FULL, event TWOWAYRCVD
2013 May 20 05:36:38.747046 ospf: 5 [8325] (default)      Nbr 5.5.5.2: FULL -->
FULL, event TWOWAYRCVD
2013 May 20 05:36:38.747073 ospf: 5 [8325] (default)      Different BDR in hello,
invoking nbrchange
2013 May 20 05:36:38.747090 ospf: 5 [8325] (default)      Neighbor
priority/options/DR/BDR value changed
2013 May 20 05:36:38.747265 ospf: 5 [8325]      Begin OSPF DR election on Vlan5
2013 May 20 05:36:38.747288 ospf: 5 [8325]      Current 5.5.0.1 as DR,
5.5.0.2 as BDR
2013 May 20 05:36:38.747329 ospf: 5 [8325]      BDR election starting
2013 May 20 05:36:38.747348 ospf: 5 [8325]      Walking neighbor 5.5.5.1
(0xaec59478), state SELF
2013 May 20 05:36:38.747362 ospf: 5 [8325]      This neighbor is greater
than 2way
2013 May 20 05:36:38.747648 ospf: 5 [8325]      Walking neighbor 5.5.5.2
(0x9777584), state FULL
2013 May 20 05:36:38.747662 ospf: 5 [8325]      This neighbor is greater
than 2way
2013 May 20 05:36:38.747676 ospf: 5 [8325]      This neighbor is in consideration
for bdr
2013 May 20 05:36:38.747689 ospf: 5 [8325]      Current BDR set to this neighbor
2013 May 20 05:36:38.747705 ospf: 5 [8325]      Compare done, new current bdr
5.5.5.2
2013 May 20 05:36:38.747733 ospf: 5 [8325]      DR election starting
2013 May 20 05:36:38.747750 ospf: 5 [8325]      Walking neighbor 5.5.5.1
(0xaec59478), state SELF
2013 May 20 05:36:38.747766 ospf: 5 [8325]      This nbr 5.5.5.1 promoted to
current dr
2013 May 20 05:36:38.747782 ospf: 5 [8325]      Walking neighbor 5.5.5.2
(0x9777584), state FULL

```



```
2013 May 20 05:36:38.747796 ospf: 5 [8325] Neighbor not declared DR,
ignoring
2013 May 20 05:36:38.747948 ospf: 5 [8325] Elected 5.5.0.1 as DR,
5.5.0.2 as BDR
2013 May 20 05:36:38.748004 ospf: 5 [8325] Interface Vlan5 ---> DR
```

참고: 디버깅을 비활성화하는 것을 잊지 마십시오.

```
N7K1-RP# clear debug logfile debug-ospf
N7K1-RP# undebug all
N7K1-RP# no debug-fil all
```

조사 팁:

일치하지 않는 MTU 메시지를 찾습니다. 시퀀스 번호를 따라 DBD 삭제로 인한 재전송을 찾습니다. 예기치 않은 DBD 시퀀스 번호를 받았는지 확인합니다.

문제 해결

L2/3 연결, 컨피그레이션 및 OSPF 허용 트래픽에 대한 조사가 문제를 발견하지 못하고 인접 디바이스가 온라인 상태를 나타내지 않은 경우 TAC 케이스를 엽니다. 다음 명령을 입력하고 인접 디바이스 출력의 정보와 함께 TAC를 제공합니다.

- 실행 표시
- 기술 지원 ospf 표시

OSPF 인접 디바이스가 로드 상태에서 고착

OSPF 인접 디바이스가 로드 상태로 고정되는 경우가 있습니다.

이 문제는 다음과 같은 이유로 인해 발생할 수 있습니다.

- LS(Link State) 요청이 생성되고 인접 디바이스가 잘못된 패킷 또는 메모리 손상을 전송합니다. 잘못된 LSA(Link State Advertisement)를 보려면 **show IP OSPF bad** 명령을 입력합니다. **show log** 명령은 **OSPF-4-BADLSTYPE** 메시지를 표시합니다. LS 요청이 생성되고 네이버는 요청을 무시합니다.

라우터가 오래되거나 손상되거나 누락된 LSA를 수신하면 OSPF는 로드 상태로 유지되고 **OSPF-4-BADLSA** 오류 메시지를 생성합니다.

다음은 조사하려면 이 명령을 입력합니다.

```
7K1-RP# show ip ospf traffic vlan 5
OSPF Process ID 5 VRF default, Packet Counters (cleared 1d12h ago)
Interface Vlan5, Area 0.0.0.0
Total: 15214 in, 15214 out
LSU transmissions: first 88, rxmit 9(13), for req 0, nbr xmit 289801235
Flooding packets output throttled (IP/tokens): 0 (0/0)
Ignored LSAs: 0, LSAs dropped during SPF: 0
LSAs dropped during graceful restart: 0
Errors: drops in      0, drops out      0, errors in      0,
        errors out    0, hellos in      0, dbds in      0,
        lsreq in      0, lsu in        0, lsacks in     0,
        unknown in    0, unknown out  0, no ospf      0,
        bad version   0, bad crc      0, dup rid      0,
```

```
dup src      0, invalid src      0, invalid dst      0,
no nbr       0, passive        0, wrong area       0,
pkt length   0, nbr changed rid/ip addr 0
bad auth     0
```

```
          hellos      dbds      lsreqs      lsus      acks
In:       14957       42        13         108       94
Out:      14957       46        14         110       87
```

N7K1-RP#

문제 해결

L2/3 연결, 컨피그레이션 및 OSPF 허용 트래픽에 대한 조사가 문제를 발견하지 못하고 인접 디바이스가 온라인 상태임을 나타내지 않은 경우 TAC 케이스를 엽니다. 다음 명령을 입력하고 인접 디바이스 출력의 정보와 함께 TAC를 제공합니다.

- 로그 로그 파일 표시
- 기술 지원 ospf 표시