排除IS-IS鄰接問題

目錄

簡介

本文檔介紹如何對Cisco IOS® XE平台的IS-IS協定進行故障排除。

必要條件

需求

思科建議您瞭解以下主題：

- 中間系統到中間系統(IS-IS)
- Cisco IOS XE

有關這些主題的詳細資訊，請參閱：

- IP路由：ISIS配置指南
- 配置IS-IS鄰接和區域型別

採用元件

本檔案中的資訊是根據Cisco IOS XE軟體。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

IS-IS鄰接關係關閉

本節提供了解決IS-IS關閉這一常見問題的方法。以下網路圖表為範例：

net 49.0001.0000.0000.000a.00　　net 49.0001.0000.0000.000b.00

基線拓撲

IS-IS在DeviceA和DeviceB之間關閉。

<#root>

DeviceA#

show isis neighbors detail

```
System Id       Type Interface     IP Address      State Holdtime Circuit Id
DeviceA#
```

<#root>

DeviceB#

show isis neighbors detail

```
System Id       Type Interface     IP Address      State Holdtime Circuit Id
DeviceA         L1L2 Twe1/0/9      192.0.2.1       DOWN  28       05
  Area Address(es): 49.0001
  SNPA: a84f.b1c3.9484
  State Changed: never
  Format: Phase V
  Remote TID: 0
  Local TID:  0
  Interface name: TwentyFiveGigE1/0/9
  Neighbor Circuit Id: 5
  Adj sync: Full
```

診斷問題：

1.驗證裝置之間的連通性。

<#root>

```
DeviceA#

ping 192.0.2.2 size 1500  df-bit


Type escape sequence to abort.
Sending 5, 1500-byte ICMP Echos to 192.0.2.2, timeout is 2 seconds:
Packet sent with the DF bit set
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
DeviceA#
```

<#root>

```
DeviceB#

ping 192.0.2.1 size 1500  df-bit


Type escape sequence to abort.
Sending 5, 1500-byte ICMP Echos to 192.0.2.1, timeout is 2 seconds:
Packet sent with the DF bit set
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
DeviceB#
```

2.檢視兩端的組態。

<#root>

```
DeviceA#

show running-config | sec router isis

 ip router isis
router isis
 net 49.0001.0000.0000.000a.00
DeviceA#
```

<#root>

```
DeviceB#

show running-config | sec router isis

 ip router isis
router isis
 net 49.0001.0000.0000.000b.00
DeviceB#
```

3.驗證鄰接關係是否在 無連線網路服務(CLNS)。 這會提供連線到您的裝置的鄰居的摘要。

<#root>

DeviceA#

show clns neighbors detail

System Id   Interface   SNPA   State Holdtime Type Protocol
0000.0000.000B Te0/0/4

6c31.0edb.3b5f

Up

    257   IS   ES-IS
  Area Address(es): 49.0001

Uptime: 02:02:11

  Interface name: TenGigabitEthernet0/0/4
DeviceA#

<#root>

DeviceB#

show clns neighbors detail

System Id   Interface   SNPA   State Holdtime Type Protocol
0000.0000.000A Twe1/0/9

a84f.b1c3.9484

Down

   20   L1L2 IS-IS
  Area Address(es): 49.0001
  IP Address(es): 192.0.2.1*

Uptime: 02:02:09

  NSF capable
  Interface name: TwentyFiveGigE1/0/9
DeviceB#

每個CLNS鄰居上列出的MAC地址是與本地裝置對等連線的遠端裝置的MAC地址。

<#root>

```
DeviceA#

show interface TenGigabitEthernet0/0/4

TenGigabitEthernet0/0/4 is up, line protocol is up
  Hardware is 8xSFP+, address is

a84f.b1c3.9484 (bia a84f.b1c3.9484) < mac address appeared on SNPA DeviceB

  Internet address is 192.0.2.1/30
  MTU 1500 bytes, BW 10000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
```

<#root>

```
 DeviceB#

show interface TwentyFiveGigE1/0/9

TwentyFiveGigE1/0/9 is up, line protocol is up (connected)
  Hardware is Twenty Five Gigabit Ethernet, address is

6c31.0edb.3b5f (bia 6c31.0edb.3b5f) < mac address appeared on SNPA DeviceA

  Internet address is 192.0.2.2/30
  MTU 9216 bytes, BW 10000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
```

4.運行命令show clns interface
，以驗證引數是否與對等體匹配。

確保匹配以下值：

- 最大傳輸單位(MTU)
- 電路型別

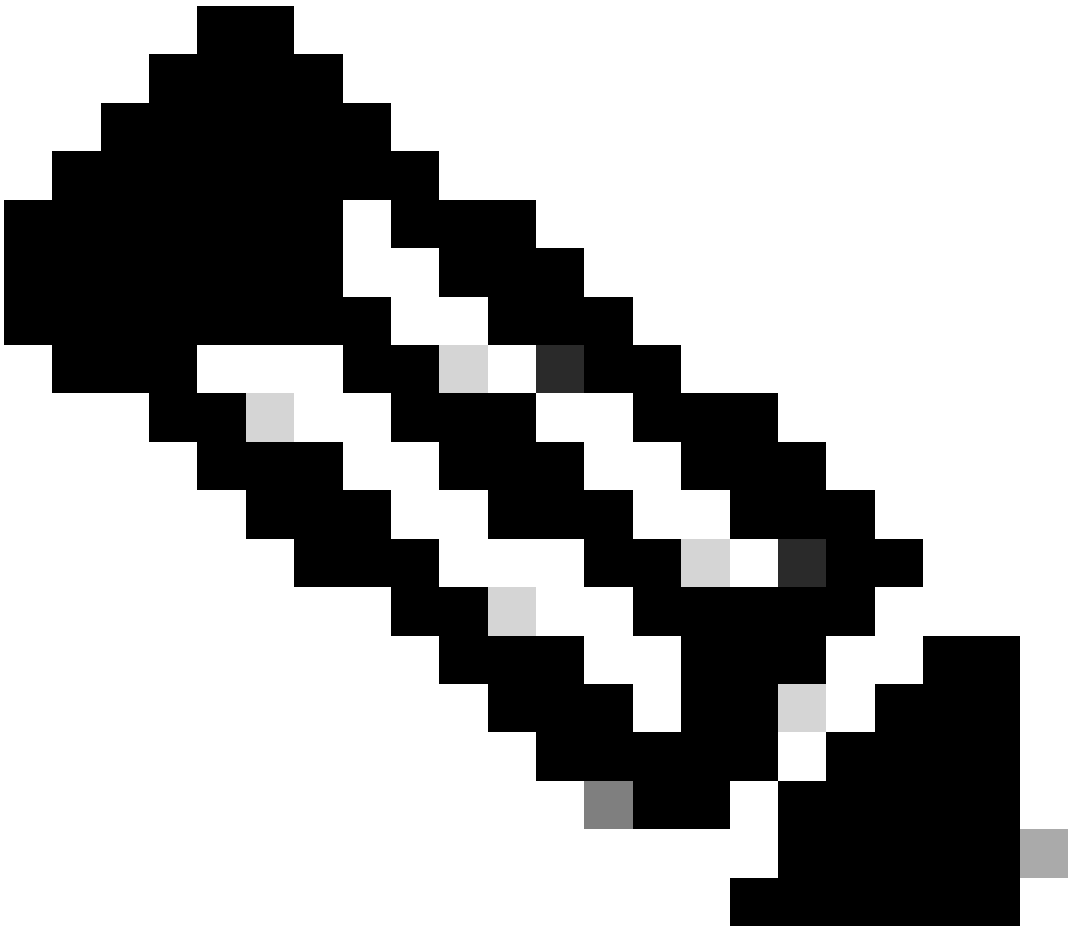
裝置A
<#root> DeviceA# **show clns interface TenGigabitEthernet0/0/4** TenGigabitEthernet0/0/4 is up, line protocol is up Attached to: isis Checksums enabled, **MTU 1497** , Encapsulation SAP ERPDUs enabled, min. interval 10 msec. CLNS fast switching disabled CLNS SSE switching disabled DEC compatibility mode OFF for this interface Next ESH/ISH in 19 seconds

```
Routing Protocol: IS-IS
Circuit Type: level-1-2

Interface number 0x0, local circuit ID 0x5
Neighbor Extended Local Circuit ID: 0x0
Level-1 Metric: 10, Priority: 64, Circuit ID: DeviceA.05
Level-1 IPv6 Metric: 10
Number of active level-1 adjacencies: 0
Level-2 Metric: 10, Priority: 64, Circuit ID: DeviceA.05
Level-2 IPv6 Metric: 10
Number of active level-2 adjacencies: 0
Next IS-IS Hello in 908 milliseconds
if state DOWN
```

裝置B

```
<#root>

DeviceB#
show clns interface TwentyFiveGigE1/0/9

TwentyFiveGigE1/0/9 is up, line protocol is up
Attached to: isis
Checksums enabled,
MTU 9213
, Encapsulation SAP
ERPDUs enabled, min. interval 10 msec.
CLNS fast switching disabled
CLNS SSE switching disabled
DEC compatibility mode OFF for this interface
Next ESH/ISH in 8 seconds
Routing Protocol: IS-IS
Circuit Type: level-1-2

Interface number 0x0, local circuit ID 0xB
Neighbor Extended Local Circuit ID: 0x5
Neighbor System-ID: 0000.0000.000A
P2P retransmit queue size: 0
Level-1 Metric: 10, Priority: 64, Circuit ID: DeviceB.0B
Level-1 IPv6 Metric: 10
Number of active level-1 adjacencies: 0
Level-2 Metric: 10, Priority: 64, Circuit ID: DeviceB.0B
Level-2 IPv6 Metric: 10
Number of active level-2 adjacencies: 0
Next IS-IS Hello in 2 seconds
if state INIT
```

在此案例中，問題與MTU不相符有關。如果無法訪問遠端對等體，**debug isis adj-packets** 可以顯示正在傳送和接收的MTU值。



附註：僅當命令列印時才適**show clns interface**用 if state INIT.

<#root>

DeviceA#

debug isis adj-packets TenGigabitEthernet 0/0/4

IS-IS Adjacency related packets debugging is on for router process null
*Jul 18 23:24:16.598: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 18 23:24:16.599: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN,

length 1496 < MTU sent to the neighbor >

*Jul 18 23:24:25.189: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 18 23:24:25.189: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length
*Jul 18 23:24:34.057: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 18 23:24:34.057: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length

```
*Jul 18 23:24:42.866: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 18 23:24:42.866: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length
*Jul 18 23:24:51.646: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 18 23:24:51.646: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length
*Jul 18 23:24:59.606: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 18 23:24:59.606: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length
```

<#root>

```
DeviceB#
```

debug isis adj-packets twentyFiveGigE 1/0/9

```
*Jul 18 23:53:22.420: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:INIT,
```

length 9212 < MTU sent to the neighbor >

```
*Jul 18 23:53:22.591: ISIS-Adj: Rec serial IIH from a84f.b1c3.9484 (TwentyFiveGigE1/0/9)
*Jul 18 23:53:22.591: ISIS-Adj: cir type L1L2, cir id 05,
```

length 1496   < MTU received from neighbor >

```
*Jul 18 23:53:22.592: ISIS-Adj: rcvd state DOWN, old state INIT, new state INIT, nbr usable TRUE
*Jul 18 23:53:22.592: ISIS-Adj: RCV:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x49000184 Length:5
*Jul 18 23:53:22.592: ISIS-Adj: Nghbr Ckt ID changed: FALSE
*Jul 18 23:53:22.592: ISIS-Adj: newstate:1, state_changed:0, going_up:0, going_down:0
*Jul 18 23:53:22.592: ISIS-Adj: Action = ACCEPT
*Jul 18 23:53:22.592: ISIS-Adj: ACTION_ACCEPT:
...
```

ISIS鄰接關係關閉（與MTU不匹配相關）

IS-IS已關閉，且介面上的MTU匹配。

<#root>

```
DeviceA#
```

show clns neighbors

```
System Id       Interface     SNPA                State  Holdtime  Type Protocol
DeviceA#
```

<#root>

```
DeviceB#
```

show clns neighbors

```
System Id       Interface     SNPA                State  Holdtime  Type Protocol
DeviceB#
```

1. 驗證與對等體匹配的配置。
2. 確保物理介面處於良好狀態可供傳輸（沒有錯誤或指示燈級別問題）。
3. 檢查對等點之間的連線（ping測試是否增加了MTU大小和df-bit）。
4. 驗證對等體之間的CLNS鄰居。
5. 確保兩端的MTU和電路型別與狀態相同。

裝置A
<#root> DeviceA# **show clns interface TenGigabitEthernet 0/0/4**   TenGigabitEthernet0/0/4 is up, line protocol is up Attached to: isis Checksums enabled, **MTU 1497** , Encapsulation SAP ERPDUs enabled, min. interval 10 msec. CLNS fast switching disabled CLNS SSE switching disabled DEC compatibility mode OFF for this interface Next ESH/ISH in 41 seconds Routing Protocol: IS-IS **Circuit Type: level-1-2**   Interface number 0x0, local circuit ID 0x5 Neighbor Extended Local Circuit ID: 0x0 Level-1 Metric: 10, Priority: 64, Circuit ID: DeviceA.05 Level-1 IPv6 Metric: 10 Number of active level-1 adjacencies: 0 Level-2 Metric: 10, Priority: 64, Circuit ID: DeviceA.05 Level-2 IPv6 Metric: 10 Number of active level-2 adjacencies: 0 Next IS-IS Hello in 2 seconds **if state DOWN**
裝置B
<#root> DeviceB# **show clns interface twentyFiveGigE 1/0/9**

```
TwentyFiveGigE1/0/9 is up, line protocol is up
Attached to: isis
Checksums enabled,
MTU 1497
, Encapsulation SAP
ERPDUs enabled, min. interval 10 msec.
CLNS fast switching disabled
CLNS SSE switching disabled
DEC compatibility mode OFF for this interface
Next ESH/ISH in 42 seconds
Routing Protocol: IS-IS
Circuit Type: level-1-2

Interface number 0x0, local circuit ID 0xB
Neighbor Extended Local Circuit ID: 0x0
P2P retransmit queue size: 0
Level-1 Metric: 10, Priority: 64, Circuit ID: DeviceB.0B
Level-1 IPv6 Metric: 10
Number of active level-1 adjacencies: 0
Level-2 Metric: 10, Priority: 64, Circuit ID: DeviceB.0B
Level-2 IPv6 Metric: 10
Number of active level-2 adjacencies: 0
Next IS-IS Hello in 5 seconds
if state DOWN
```

6.啟用**debug isis adj-packet**
並驗證傳送和接收的資料包。

```
<#root>

DeviceA#

debug isis adj-packets TenGigabitEthernet 0/0/4


IS-IS Adjacency related packets debugging is on for router process null
*Jul 19 13:32:52.788: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 19 13:32:52.788: ISIS-Adj:

Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length 1496

*Jul 19 13:33:00.708: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 19 13:33:00.709: ISIS-Adj:

Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length 1496

*Jul 19 13:33:09.726: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 19 13:33:09.726: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length
*Jul 19 13:33:18.376: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 19 13:33:18.376: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length
*Jul 19 13:33:26.132: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
*Jul 19 13:33:26.132: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length
DeviceA#
```

<#root>

DeviceB#

debug isis adj-packets TwentyFiveGigE1/0/9

IS-IS Adjacency related packets debugging is on for router process null
*Jul 19 14:01:32.125: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x0 Length:5
*Jul 19 14:01:32.125: ISIS-Adj:

Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:DOWN, length 1496

*Jul 19 14:01:40.005: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x0 Length:5
*Jul 19 14:01:40.005: ISIS-Adj:

Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:DOWN, length 1496

*Jul 19 14:01:49.602: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x0 Length:5
*Jul 19 14:01:49.602: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:DOWN, length 1496
*Jul 19 14:01:58.284: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x0 Length:5
*Jul 19 14:01:58.284: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:DOWN, length 1496

兩台裝置都在傳送，但是它們沒有收到來自鄰居的Hello資料包。
7.啟用捕獲，以驗證資料包是否已傳送到每個鄰居。完成擷取後，請將其匯出至bootflash或快閃記憶體作為.pcap file，並上傳到TFTP伺服器以瞭解更多詳細資訊。

<#root>

DeviceA#

show monitor cap cap parameter

monitor capture cap interface TenGigabitEthernet0/0/4 BOTH < Interface from where send and receive the H
monitor capture cap control-plane IN < Packets to be process and generated by the CPU >

monitor capture cap access-list TAC < ACL for capture only the IS-IS packets >

monitor capture cap buffer size 10
monitor capture cap limit pps 1000

DeviceA#

show access-list TAC

Extended MAC access list TAC
permit host

a84f.b1c3.9484

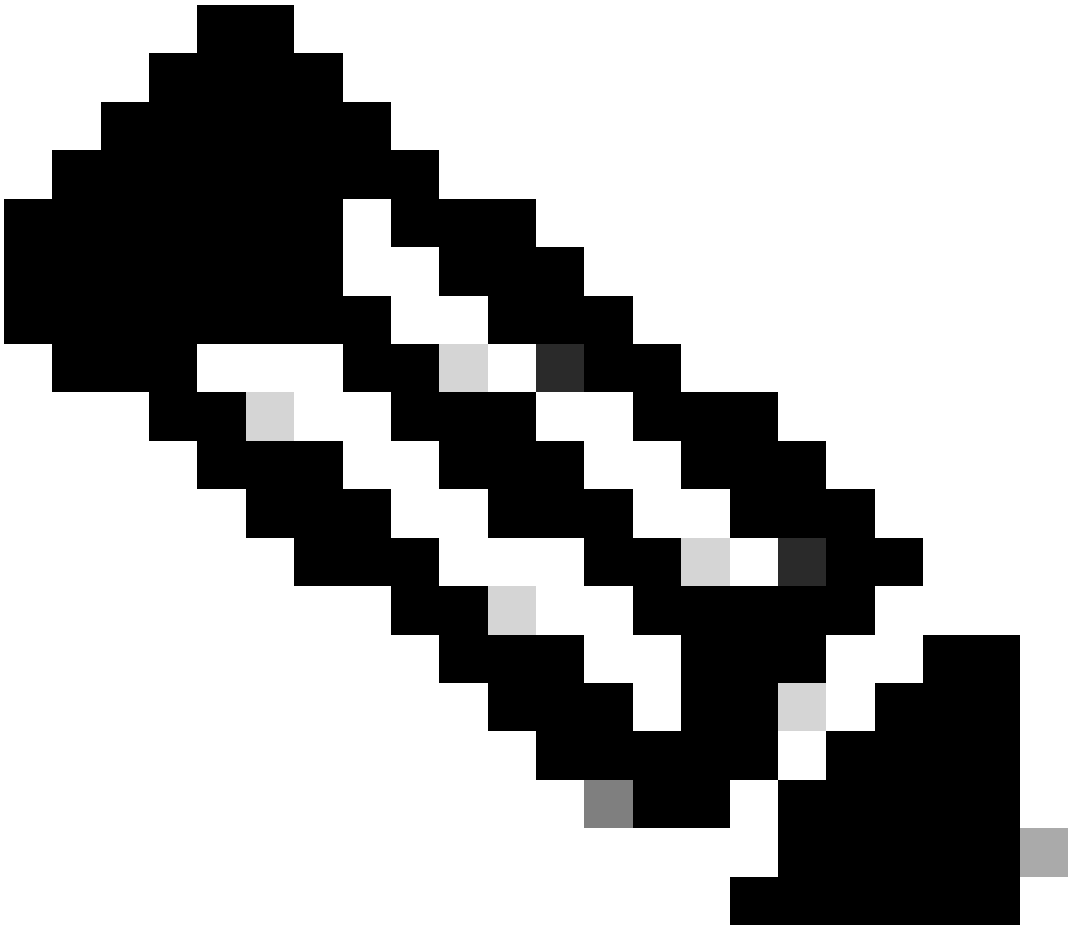
host

0900.2b00.0005 < Local MAC address towards the IS-IS Hello >

permit host

6c31.0edb.3b5f host 0900.2b00.0005 < Remote MAC address towards the IS-IS Hello >

```
<#root>
DeviceB#
show monitor capture cap parameter


 monitor capture cap interface TwentyFiveGigE1/0/9 BOTH < Interface from where send and receive the Hell

 monitor capture cap control-plane BOTH < Packets to be process and generated by the CPU >
   monitor capture
 cap match any < match all the packets on the switch >
   monitor capture cap buffer size 10
```



附註：Catalyst Cisco IOS XE交換機的EPC僅捕獲傳出IS-IS問詢，而不捕獲入口資料包。

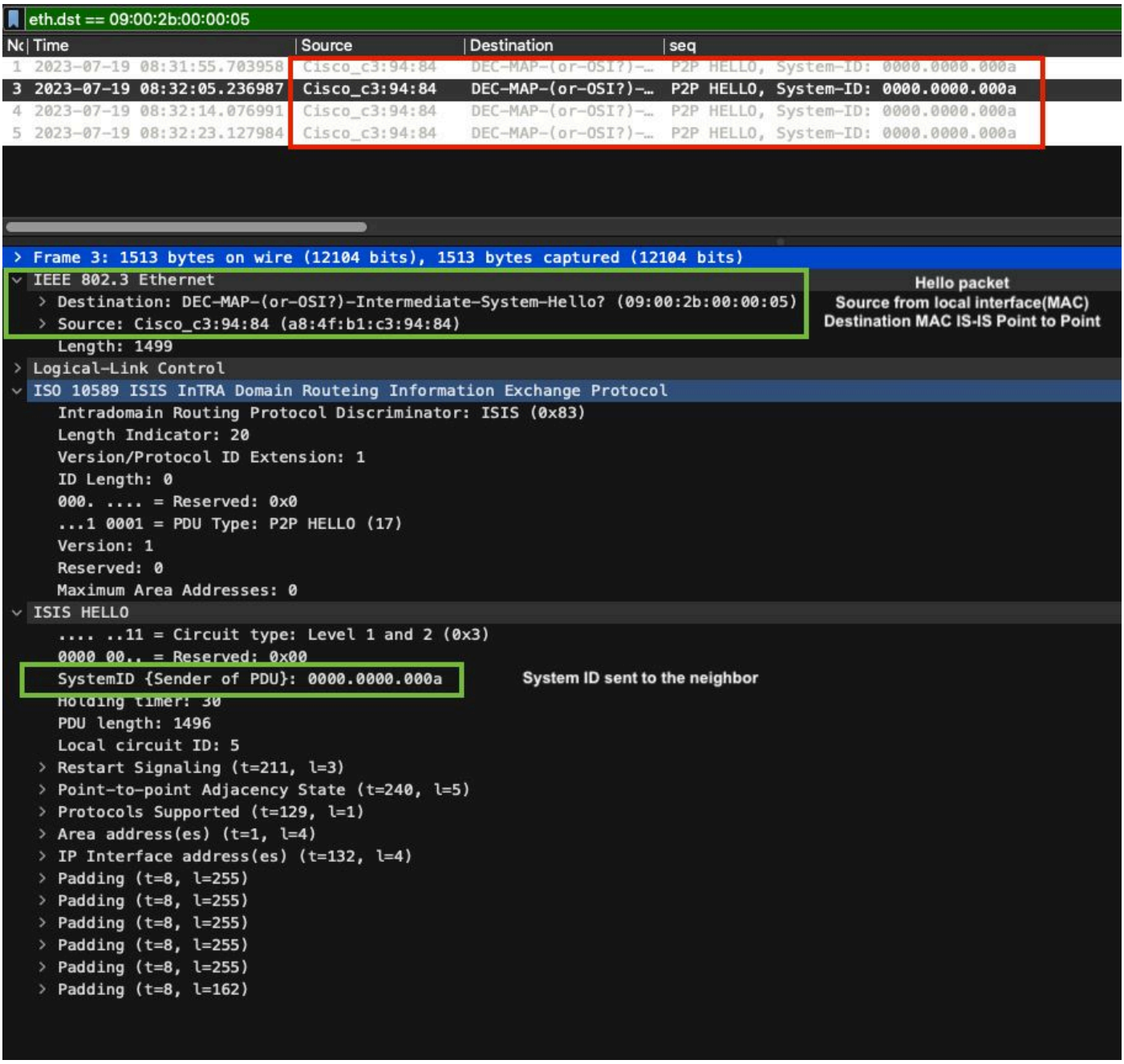
作為替代方法，建議使用SPAN擷取。

下表中顯示了對Hello資料包的引用。

名稱	目的Mac地址
所有L1 IS	0180.c200.0014
所有L2 IS	0180.c200.0015
所有IS	0900.2b00.0005
所有ES	0900.2b00.0004

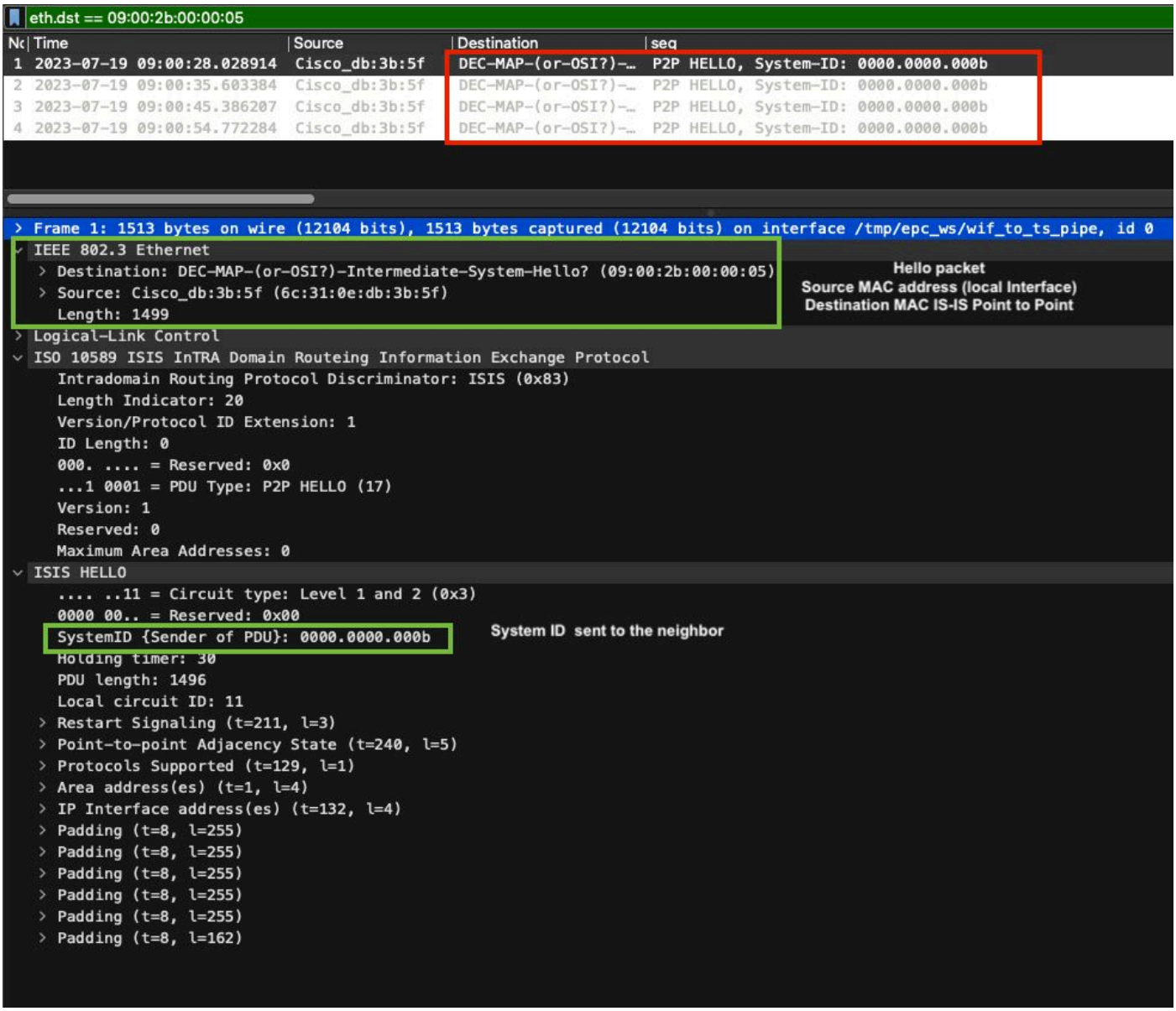
8.檢查匯出的捕獲，並確保在鄰居之間交換hello資料包。

裝置A傳送新增系統ID（紅方形）的hello資料包。 預期它收到其鄰居發來的帶有其系統ID的資料包。在此捕獲中，您可以瞭解到DeviceB不會將這些資料包轉發給對等方。



裝置A ISIS被擊落

DeviceB capture顯示hello資料包被傳送到其鄰居（紅方形）。 但是，與上次捕獲類似，它不會收到來自鄰居的Hello資料包。



DeviceB ISIS已關閉捕獲

此案例中的問題出在中間裝置不允許傳送hello資料包。如果您觀察到類似情況並需要進一步的疑難排解，請開啟Cisco TAC案例。

IS-IS鄰接關係不穩定

本節提供了解決IS-IS襟翼常見問題的方法。

診斷問題：

IS-IS在DeviceA和DeviceB之間不穩定。

<#root>

DeviceA#

show logging

Jul 19 15:05:03.623:

%CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold time expired

Jul 19 15:05:15.075: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Up, new ad
Jul 19 15:07:04.575: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold
Jul 19 15:07:15.759: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Up, new ad
Jul 19 15:09:04.983: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold
Jul 19 15:09:14.835: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Up, new ad

<#root>

DeviceB#

show logging

Jul 19 15:05:02.316:

%CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold time expired

Jul 19 15:05:18.191: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Up, new adjace
Jul 19 15:07:09.280: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold tim
Jul 19 15:07:18.876: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Up, new adjace
Jul 19 15:09:06.080: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold tim
Jul 19 15:09:17.948: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Up, new adjace

1.檢查對等點之間的連線（使用MTU大小和已設定df-bit的ping測試）。

2.確保物理介面處於良好的傳輸狀態（無錯誤或光照級別問題）。

3.使用命令驗證CLNS鄰居相互傳送流**show clns traffic interface**
量。

<#root>

DeviceA#

show clns traffic interface TenGigabitEthernet0/0/4

CLNS: Time since last clear: 00:01:57
CLNS & ESIS Output: 3, Input: 21
Dropped Protocol not enabled on interface: 0
CLNS Local: 0, Forward: 0

Interface TenGigabitEthernet0/0/4:

IS-IS: Time since last clear: 00:01:57
IS-IS: Level-1 Hellos (sent/rcvd): 0/0
IS-IS: Level-2 Hellos (sent/rcvd): 0/0

IS-IS: PTP Hellos   (sent/rcvd): 15/11 < DeviceA sends hello packets and receives less than its sends

IS-IS: Level-1 LSPs flooded (sent/rcvd): 2/2
IS-IS: Level-2 LSPs flooded (sent/rcvd): 2/2

IS-IS: Level-1 CSNPs (sent/rcvd): 1/1
IS-IS: Level-2 CSNPs (sent/rcvd): 1/1
IS-IS: Level-1 PSNPs (sent/rcvd): 1/1
IS-IS: Level-2 PSNPs (sent/rcvd): 1/1
IS-IS: Level-1 DR Elections: 0
IS-IS: Level-2 DR Elections: 0

<#root>

DeviceB#

show clns traffic interface TwentyFiveGigE1/0/9

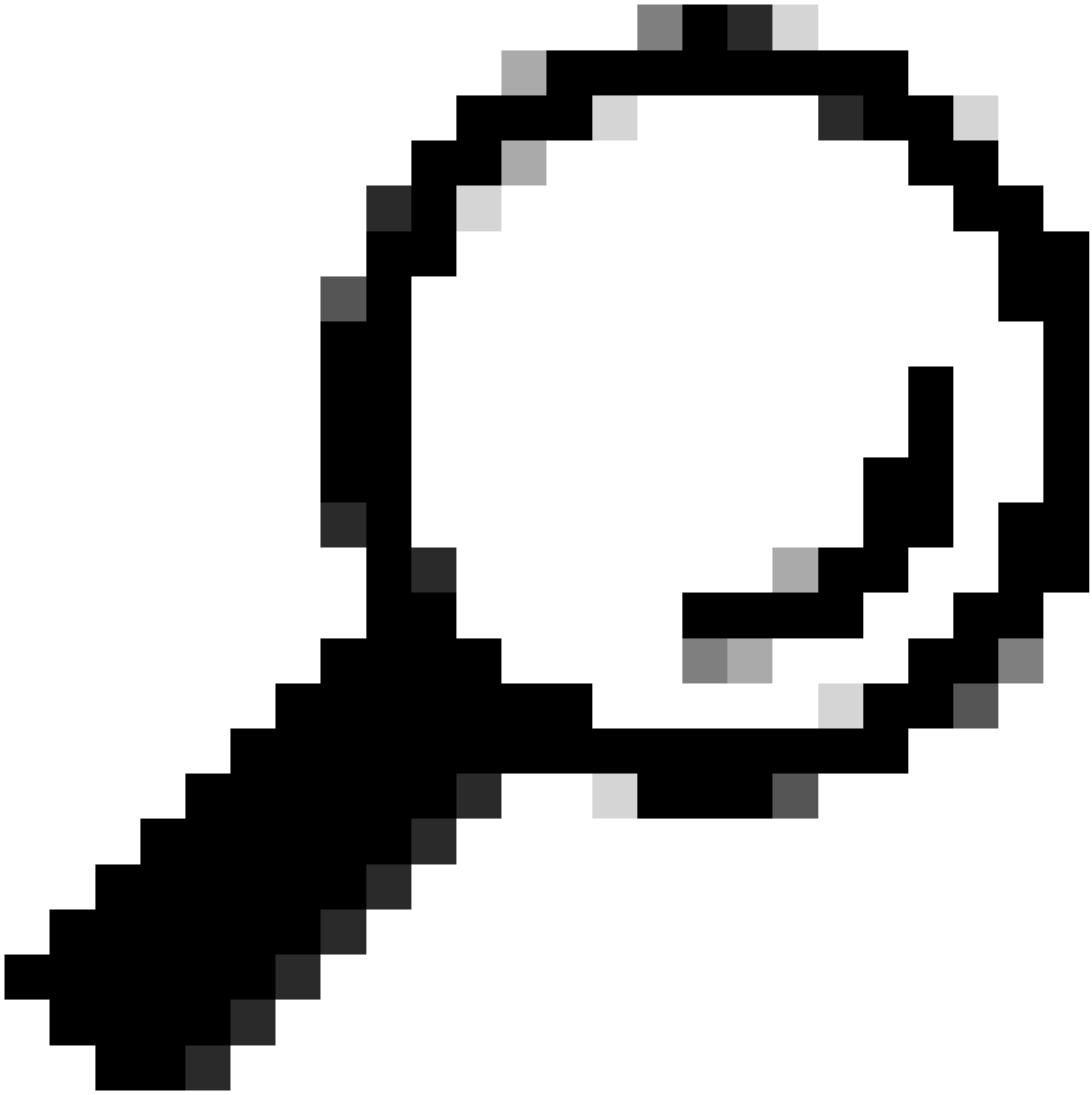
CLNS: Time since last clear: 00:00:27
CLNS queue depth: 0/100, drops: 0, highest: 2
CLNS & ESIS Output: 1, Input: 14
Dropped Protocol not enabled on interface: 0
CLNS Local: 0, Forward: 0

Interface TwentyFiveGigE1/0/9:
IS-IS: Time since last clear: 00:00:27
IS-IS: Level-1 Hellos (sent/rcvd): 0/0
IS-IS: Level-2 Hellos (sent/rcvd): 0/0

IS-IS: PTP Hellos   (sent/rcvd): 4/5 < DeviceB, sends and receives a couple of hellos in comparison w

IS-IS: Level-1 LSPs flooded (sent/rcvd): 2/2
IS-IS: Level-2 LSPs flooded (sent/rcvd): 2/2

IS-IS: Level-1 CSNPs (sent/rcvd): 1/1
IS-IS: Level-2 CSNPs (sent/rcvd): 1/1
IS-IS: Level-1 PSNPs (sent/rcvd): 1/1
IS-IS: Level-2 PSNPs (sent/rcvd): 1/1
IS-IS: Level-1 DR Elections: 0
IS-IS: Level-2 DR Elections: 0



提示：命令clns traffic，根據IS-IS級別和IS-IS網路型別顯示IS-IS Hello。

4.啟用**debug ISIS adj-packets**
以檢視鄰居之間交換的資料包。

<#root>

DeviceA#

show isis adj-packets TenGigabitEthernet0/0/4

< Hellos sent to the DeviceB with no response >

Jul 19 18:58:34.779: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15

```
Jul 19 18:58:34.779: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
Jul 19 18:58:42.719: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 19 18:58:42.719: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
Jul 19 18:58:50.430: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 19 18:58:50.430: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
Jul 19 18:58:58.356: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 19 18:58:58.356: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
```

< IS-IS declares the protocol down >

```
Jul 19 18:59:01.879: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4)
```

Down, hold time expired

< IS-IS sends hellos to the neighbor and receives a response from DeviceB >

```
Jul 19 18:59:01.879: ISIS-Adj: L2 adj count 0
Jul 19 18:59:07.724: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
Jul 19 18:59:07.724: ISIS-Adj:
```

Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length 1496

```
Jul 19 18:59:15.894: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x0 Length:5
Jul 19 18:59:15.894: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:DOWN, length 1
Jul 19 18:59:15.896: ISIS-Adj:
```

Rec serial IIH from 6c31.0edb.3b5f (TenGigabitEthernet0/0/4)

```
Jul 19 18:59:15.896: ISIS-Adj: cir type L2, cir id 0B, length 1496
Jul 19 18:59:15.896: ISIS-Adj:
```

RCV:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15

```
Jul 19 18:59:15.896: ISIS-Adj: Nghbr Ckt ID changed: TRUE
Jul 19 18:59:15.896: ISIS-Adj: received Neighbor System-ID (must be our) 0000.0000.000A
Jul 19 18:59:15.896: ISIS-Adj: received Neighbor ext.circuit ID (must be our) 0x5
Jul 19 18:59:15.896: ISIS-Adj: newstate:1, state_changed:1, going_up:0, going_down:0
Jul 19 18:59:15.896: ISIS-Adj: Action = GOING UP, new type = L2
```

< DeviceA declares that the adjacency is UP and starts to establish the session >

```
Jul 19 18:59:15.896: ISIS-Adj: New serial adjacency
Jul 19 18:59:15.896: ISIS-Adj:
```

rcvd state INIT, old state DOWN, new state INIT, nbr usable TRUE

```
Jul 19 18:59:15.898: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 19 18:59:15.898: ISIS-Adj:
```

Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:INIT, length 1496

```
Jul 19 18:59:15.900: ISIS-Adj: Rec serial IIH from 6c31.0edb.3b5f (TenGigabitEthernet0/0/4)
Jul 19 18:59:15.900: ISIS-Adj: cir type L2, cir id 0B, length 1496
Jul 19 18:59:15.900: ISIS-Adj:
```

rcvd state UP, old state INIT, new state UP, nbr usable TRUE

```
Jul 19 18:59:15.900: ISIS-Adj: RCV:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 19 18:59:15.900: ISIS-Adj: Nghbr Ckt ID changed: FALSE
```

```
Jul 19 18:59:15.900: ISIS-Adj: received Neighbor System-ID (must be our) 0000.0000.000A
Jul 19 18:59:15.900: ISIS-Adj: received Neighbor ext.circuit ID (must be our) 0x5
Jul 19 18:59:15.900: ISIS-Adj: newstate:0, state_changed:1, going_up:1, going_down:0
Jul 19 18:59:15.900: ISIS-Adj: Action = GOING UP, new type = L2
Jul 19 18:59:15.900: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4)
```

Up, new adjacency

<#root>

DeviceB#

debug isis adj-packets TwentyFiveGigE1/0/9

< Hello sent to the DeviceA with no response >

```
Jul 19 18:58:44.105: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 19 18:58:44.105: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496
Jul 19 18:58:51.814: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 19 18:58:51.814: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496
Jul 19 18:58:59.768: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 19 18:58:59.768: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496
```

< IS-IS declares the protocol down >

```
Jul 19 18:59:07.886: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9)
```

Down, hold time expired

< IS-IS sends hellos to the neighbor and receives a response from DeviceA >

```
Jul 19 18:59:07.887: ISIS-Adj: L2 adj count 0
Jul 19 18:59:08.422: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x0 Length:5
Jul 19 18:59:08.422: ISIS-Adj:
```

Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:DOWN, length 1496

```
Jul 19 18:59:16.144: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x0 Length:5
Jul 19 18:59:16.144: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:DOWN, length 1496
Jul 19 18:59:19.001: ISIS-Adj:
```

Rec serial IIH from a84f.b1c3.9484 (TwentyFiveGigE1/0/9)

```
Jul 19 18:59:19.001: ISIS-Adj: cir type L2, cir id 05, length 1496
Jul 19 18:59:19.001: ISIS-Adj:
```

RCV:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0x49000184 Length:5

```
Jul 19 18:59:19.001: ISIS-Adj: Nghbr Ckt ID changed: TRUE
Jul 19 18:59:19.001: ISIS-Adj: newstate:1, state_changed:1, going_up:0, going_down:0
Jul 19 18:59:19.001: ISIS-Adj: Action = GOING UP, new type = L2
```

< DeviceB declares that the adjacency is UP and starts to establish the session >

```
Jul 19 18:59:19.001: ISIS-Adj: New serial adjacency
Jul 19 18:59:19.001: ISIS-Adj:
```

rcvd state DOWN, old state DOWN, new state INIT, nbr usable TRUE

```
Jul 19 18:59:19.002: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 19 18:59:19.002: ISIS-Adj:
```

Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:INIT, length 1496

```
Jul 19 18:59:19.004: ISIS-Adj: Rec serial IIH from a84f.b1c3.9484 (TwentyFiveGigE1/0/9)
Jul 19 18:59:19.004: ISIS-Adj: cir type L2, cir id 05, length 1496
Jul 19 18:59:19.004: ISIS-Adj:
```

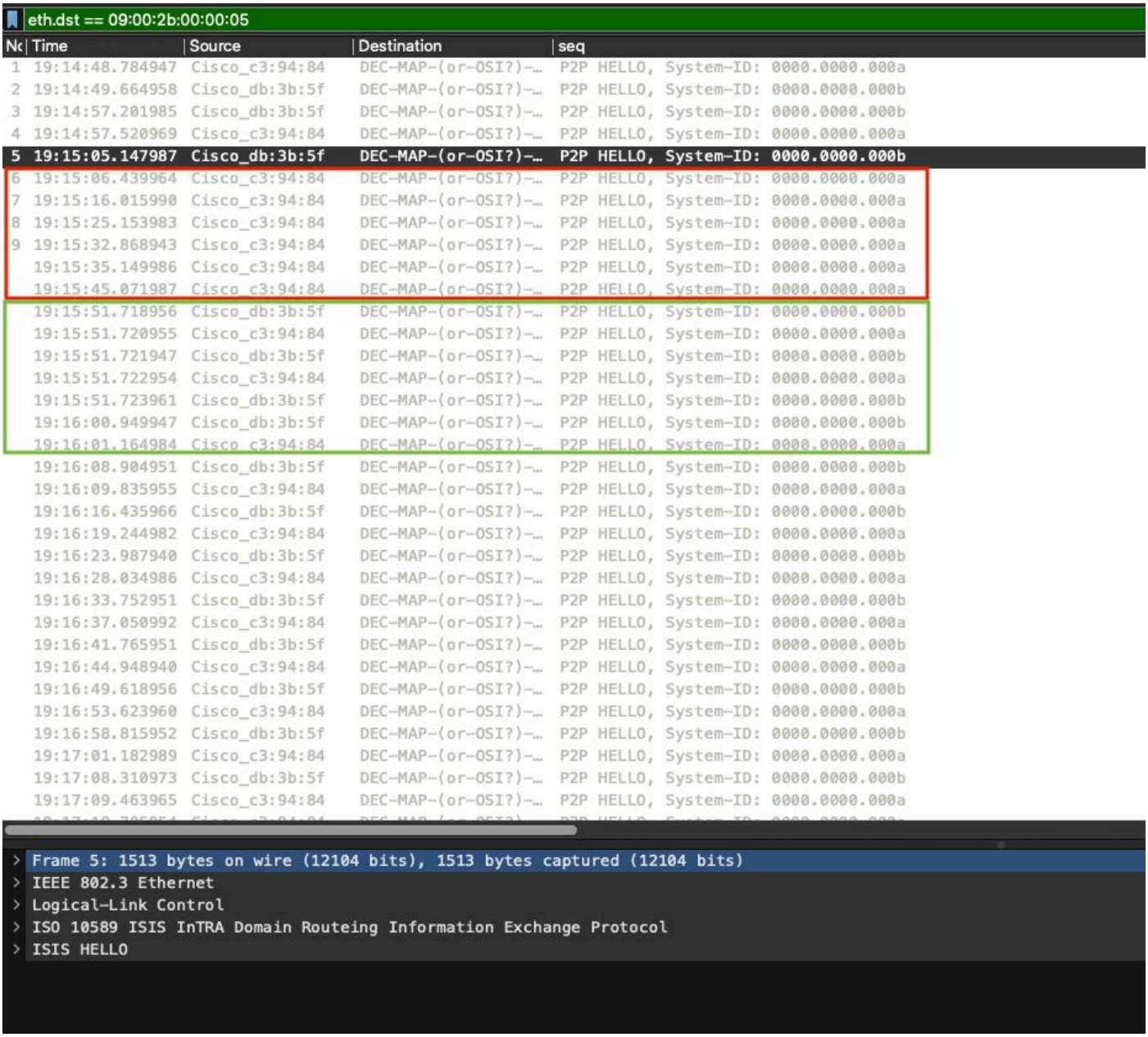
rcvd state INIT, old state INIT, new state UP, nbr usable TRUE

```
Jul 19 18:59:19.004: ISIS-Adj: RCV:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 19 18:59:19.004: ISIS-Adj: Nghbr Ckt ID changed: FALSE
Jul 19 18:59:19.004: ISIS-Adj: received Neighbor System-ID (must be our) 0000.0000.000B
Jul 19 18:59:19.004: ISIS-Adj: received Neighbor ext.circuit ID (must be our) 0xB
Jul 19 18:59:19.004: ISIS-Adj: newstate:0, state_changed:1, going_up:1, going_down:0
Jul 19 18:59:19.004: ISIS-Adj: Action = GOING UP, new type = L2
Jul 19 18:59:19.004: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9)
```

Up, new adjacency

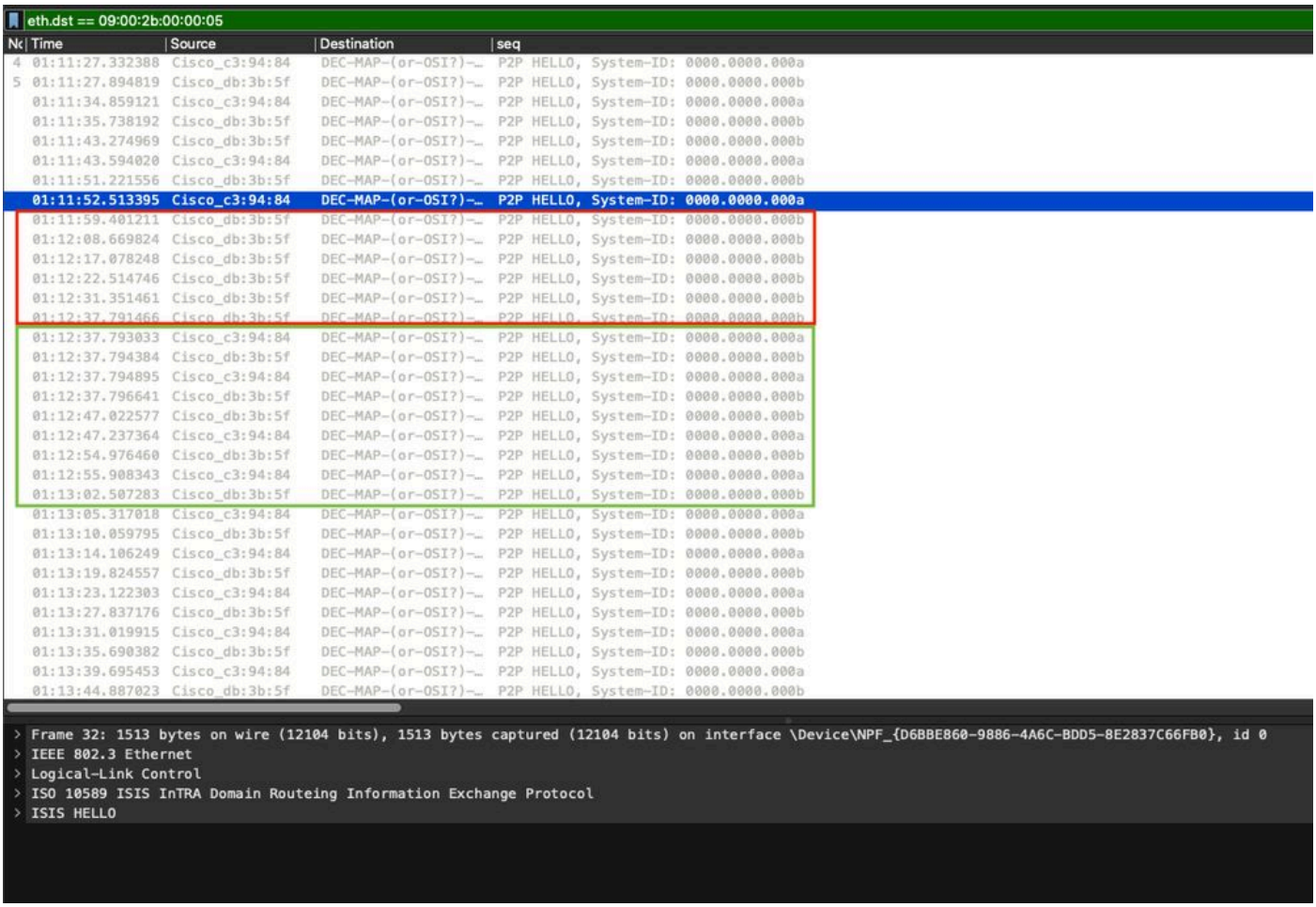
5.啟用捕獲，以驗證資料包是否已傳送到每個鄰居。擷取完成後，將擷取匯出至bootflash作為**.pcap file**上傳到TFTP伺服器以瞭解更多詳細資訊。

收到此資料包後，裝置A收到來自裝置B的資料包(19:15.05)。裝置A傳送其對應的hello，而鄰居沒有任何回覆，直到其達到保持時間（預設情況下為30秒）。
這時，路由器會宣佈鄰接關係關閉。在此時間段之後，DeviceB傳送其hello並由DeviceA接收，這些資料包交換過程沒有問題（綠色方形）。



ISIS不穩定裝置A

從DeviceB捕獲類似於從對等體捕獲症狀。裝置沒有收到來自其鄰居的hello資料包。最後一個資料包從DeviceB傳送，而DeviceA未回覆該資料包，直到它達到30秒保留計時器。此交換器會考慮關閉鄰接關係。出現此故障後，交換機從DeviceA接收hello並啟動鄰居關係。



ISIS不穩定裝置B

傳輸問題到此結束，您必須檢查資料包丟失的原因。

IS-IS鄰接關係不穩定（隨機擺動）

IS-IS在DeviceA和DeviceB之間不穩定。協定遇到隨機擺動。

<#root>

DeviceA#

show logging

```
Jul 21 10:03:38.633: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold
Jul 21 10:05:10.272: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Up, new ad
Jul 21 10:33:41.528: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold
Jul 21 10:35:07.979: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Up, new ad
Jul 21 11:03:42.442: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold
Jul 21 11:05:08.469: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Up, new ad
```

<#root>

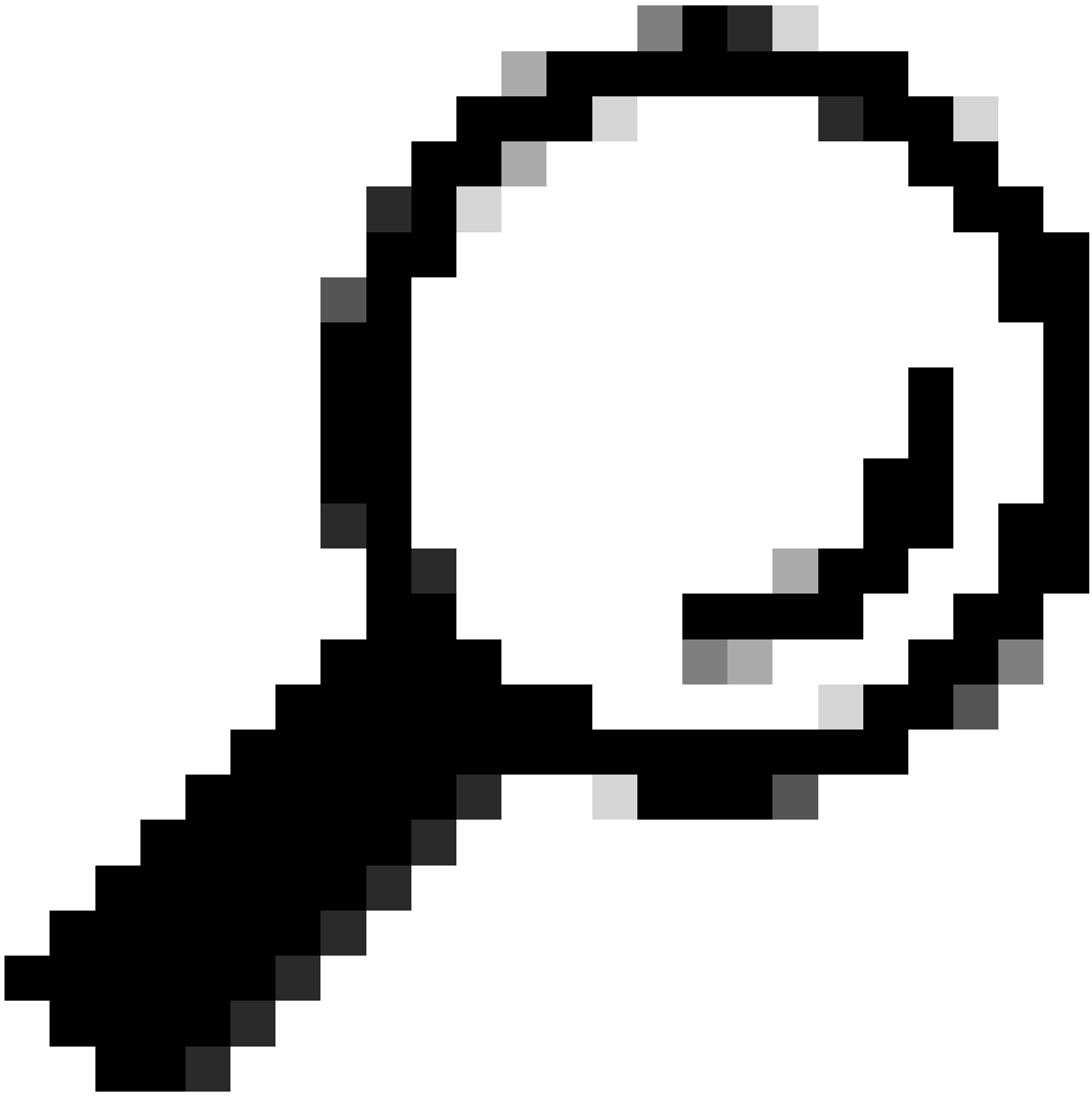
```
DeviceB#
```

show logging

```
Jul 21 10:03:44.535: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold tim
Jul 21 10:05:13.281: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Up, new adjace
Jul 21 10:33:38.408: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold tim
Jul 21 10:35:10.989: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Up, new adjace
Jul 21 11:03:39.291: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold tim
Jul 21 11:05:11.479: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Up, new adjace
```

發生問題時，請確保繼續執行以下操作：

1. 驗證配置是否與對等體匹配。
2. 確保物理介面處於良好狀態可供傳輸（沒有錯誤或指示燈級別問題）。
3. 檢查對等點之間的連線（使用MTU大小和df-bit設定的ping測試）。



提示：由於隨機襟翼的狀況，很難解決此類問題。要解決此問題，請考慮使用指令碼運行必要的命令並繼續排除故障。

4.繼續使用訪問清單配置監控器捕獲，以便更詳細地瞭解故障排除過程。
5.禁用日誌記錄控制檯並啟用debug isis adj-packets
。

<#root>

```
DeviceA(config)#
no logging console

DeviceA(config)#exit
DeviceA#
debug isis adj-packets TenGigabitEthernet0/0/4
```

6.在裝置上啟用資料包捕獲並啟用它。

<#root>

```
DeviceA#
show monitor capture cap parameter

   monitor capture cap interface TenGigabitEthernet0/0/4 BOTH
   monitor capture cap control-plane IN
   monitor capture cap
access-list TAC > match only the packets allowed on the ACL
   monitor capture cap buffer size 100
circular > when the capture reaches the size of 100 MB this overwrite the previous information.
   monitor capture cap limit pps 1000
DeviceA#
show access-lists TAC
Extended MAC access list TAC
    permit
host a84f.b1c3.9484 host 0900.2b00.0005  < Local MAC address towards the IS-IS Hello >
    permit
host 6c31.0edb.3b5f host 0900.2b00.0005  < Remote MAC address towards the IS-IS Hello >


DeviceA#monitor capture cap start
```

7.在思科裝置上配置嵌入式事件管理器(EEM)。一旦問題觸發系統日誌模式，就會生成以檔案形式儲存在快閃記憶體中的日.txt志。如需詳細資訊，請繼續將其上傳到TFTP伺服器。

<#root>

DeviceA#

show running-config | sec event

event manager applet ISIS_Flap authorization bypass

event syslog pattern "%CLNS-5-ADJCHANGE:.*hold time expired"

action 1.0 syslog msg "ISIS down Please wait - capturing the traffic"
action 1.1 cli command "enable"
action 1.2 cli command "show clns interface ten0/0/4 | append bootflash:ISIS_DeviceA.txt"
action 1.3 cli command "show clns traffic interface tenGigabitEthernet 0/0/4 |

append bootflash:ISIS_DeviceA.txt"

action 2.0 cli command "show logging | append bootflash:debug_DeviceA.txt"
action 2.1 cli command "undebug all"
action 2.2 cli command "monitor capture cap stop"
action 3.0 cli command "end"

For switches to append the logs it is neccesary to use the

append flash:

, as example:

event manager applet ISIS_Flap authorization bypass
event syslog pattern "%CLNS-5-ADJCHANGE:.*hold time expired"
action 1.0 syslog msg "ISIS down Please wait - capturing the traffic"
action 1.1 cli command "enable"
action 1.2 cli command "show clns interface ten0/0/4 | append

flash:ISIS_DeviceB.txt"

```
 action 3.0 cli command "end"
```

8.一旦問題觸發，繼續匯出bootflash/flash上的捕獲並確保檔案正確儲存在同一位置.txt。

<#root>

```
DeviceA#
monitor capture cap export bootflash:ISIS_DeviceA.pcap
Exported Successfully
DeviceA#
dir bootflash:*.txt
Directory of bootflash:/*.txt
Directory of bootflash:/
   19  -rw-        6048  Jul 22 2023 13:33:40 +00:00
ISIS_DeviceA.txt
   20  -rw-      103153  Jul 22 2023 13:33:40 +00:00
debug_DeviceA.txt
26975526912 bytes total (20527607808 bytes free)
DeviceB#
monitor capture cap export location flash:ISIS_DeviceB.pcap

Exported Successfully
DeviceB#
dir bootflash:*.txt
Directory of bootflash:/*.txt
Directory of bootflash:/
356939  -rw-         660  Jul 22 2023 13:33:42 +00:00
 ISIS_DeviceB.txt
356943  -rw-      103283  Jul 22 2023 13:33:42 +00:00
debug_DeviceB.txt
```

9.將檔案上傳到TFTP伺服器，以便比較裝置之間的日誌。

<#root>

```
DeviceA#
copy bootflash:ISIS_DeviceA.txt tftp:
Address or name of remote host []?
< TFTP IP address >
Destination filename [
ISIS_DeviceA.txt
]?



!!
18144 bytes copied in 0.095 secs (190989 bytes/sec)
```

10.比較擷取和記錄，以驗證封包是否從兩台路由器傳送和接收。

IS-IS日誌分析：

- 兩個IS-IS介面配置有相同的網路型別L1-L2。
- Interfaces狀態（如果狀態為DOWN）顯示兩個介面均未接收hello資料包。
- IS-IS:PTP Hello在傳送和接收的資料包中存在不匹配。DeviceA傳送205個資料包，並從對等方接收199個資料包，而DeviceB有202個資料包，共202個。這表明傳輸不可靠。

<#root>

DeviceA

```
TenGigabitEthernet0/0/4 is up, line protocol is up
 Attached to: isis
  Checksums enabled, MTU 1497, Encapsulation SAP
  ERPDUs enabled, min. interval 10 msec.
  CLNS fast switching disabled
  CLNS SSE switching disabled
  DEC compatibility mode OFF for this interface
  Next ESH/ISH in 30 seconds
  Routing Protocol: IS-IS


 Circuit Type: level-1-2

    Interface number 0x0, local circuit ID 0x5
    Neighbor Extended Local Circuit ID: 0x0
    Level-1 Metric: 10, Priority: 64, Circuit ID: DeviceA.05
    Level-1 IPv6 Metric: 10
    Number of active level-1 adjacencies: 0
    Level-2 Metric: 10, Priority: 64, Circuit ID: DeviceA.05
    Level-2 IPv6 Metric: 10
    Number of active level-2 adjacencies: 0
    Next IS-IS Hello in 574 milliseconds


  if state DOWN
```

```
CLNS:  Time since last clear: 00:29:37
CLNS & ESIS Output: 33, Input: 241
Dropped Protocol not enabled on interface: 0
CLNS Local: 0, Forward: 0
```

```
Interface TenGigabitEthernet0/0/4:
IS-IS: Time since last clear: 00:29:37
IS-IS: Level-1 Hellos (sent/rcvd): 0/0
IS-IS: Level-2 Hellos (sent/rcvd): 0/0
```

IS-IS: PTP Hellos   (sent/rcvd): 205/199
IS-IS: Level-1 LSPs flooded (sent/rcvd): 2/2
IS-IS: Level-2 LSPs flooded (sent/rcvd): 2/2

```
IS-IS: Level-1 CSNPs (sent/rcvd): 0/0
IS-IS: Level-2 CSNPs (sent/rcvd): 0/0
IS-IS: Level-1 PSNPs (sent/rcvd): 2/2
IS-IS: Level-2 PSNPs (sent/rcvd): 2/2
IS-IS: Level-1 DR Elections: 0
IS-IS: Level-2 DR Elections: 0
```

DeviceB

```
TwentyFiveGigE1/0/9 is up, line protocol is up
 Attached to: isis
  Checksums enabled, MTU 1497, Encapsulation SAP
  ERPDUs enabled, min. interval 10 msec.
  CLNS fast switching disabled
  CLNS SSE switching disabled
  DEC compatibility mode OFF for this interface
  Next ESH/ISH in 20 seconds
  Routing Protocol: IS-IS
```

Circuit Type: level-1-2

```
    Interface number 0x0, local circuit ID 0xB
    Neighbor Extended Local Circuit ID: 0x0
    P2P retransmit queue size: 0
    Level-1 Metric: 10, Priority: 64, Circuit ID: DeviceB.0B
    Level-1 IPv6 Metric: 10
    Number of active level-1 adjacencies: 0
    Level-2 Metric: 10, Priority: 64, Circuit ID: DeviceB.0B
    Level-2 IPv6 Metric: 10
    Number of active level-2 adjacencies: 0
    Next IS-IS Hello in 7 seconds
```

if state DOWN

```
CLNS:  Time since last clear: 00:29:34
CLNS queue depth: 0/100, drops: 0, highest: 1
CLNS & ESIS Output: 34, Input: 243
Dropped Protocol not enabled on interface: 0
CLNS Local: 0, Forward: 0
```

```
Interface TwentyFiveGigE1/0/9:
IS-IS: Time since last clear: 00:29:34
IS-IS: Level-1 Hellos (sent/rcvd): 0/0
IS-IS: Level-2 Hellos (sent/rcvd): 0/0
IS-IS: PTP Hellos     (sent/rcvd): 202/202
IS-IS: Level-1 LSPs flooded (sent/rcvd): 2/2
IS-IS: Level-2 LSPs flooded (sent/rcvd): 2/2
IS-IS: Level-1 CSNPs (sent/rcvd): 0/0
IS-IS: Level-2 CSNPs (sent/rcvd): 0/0
IS-IS: Level-1 PSNPs (sent/rcvd): 2/2
IS-IS: Level-2 PSNPs (sent/rcvd): 2/2
IS-IS: Level-1 DR Elections: 0
IS-IS: Level-2 DR Elections: 0
```

下一步是比較調試和捕獲。

<#root>

DeviceA

```
Jul 22 19:17:24.929: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:24.929: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 1496
Jul 22 19:17:31.685: ISIS-Adj: Rec serial IIH from 6c31.0edb.3b5f (TenGigabitEthernet0/0/4)
Jul 22 19:17:31.685: ISIS-Adj: cir type L1L2, cir id 0B, length 1496
Jul 22 19:17:31.685: ISIS-Adj: rcvd state UP, old state UP, new state UP, nbr usable TRUE
Jul 22 19:17:31.685: ISIS-Adj: RCV:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 22 19:17:31.685: ISIS-Adj: Nghbr Ckt ID changed: FALSE
Jul 22 19:17:31.685: ISIS-Adj: received Neighbor System-ID (must be our) 0000.0000.000A
Jul 22 19:17:31.685: ISIS-Adj: received Neighbor ext.circuit ID (must be our) 0x5
Jul 22 19:17:31.685: ISIS-Adj: newstate:0, state_changed:0, going_up:0, going_down:0
Jul 22 19:17:31.685: ISIS-Adj: Action = ACCEPT
Jul 22 19:17:31.685: ISIS-Adj: ACTION_ACCEPT:
Jul 22 19:17:33.626: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:33.627: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 1496
Jul 22 19:17:42.671: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:42.672: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 1496
Jul 22 19:17:52.008: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:52.008: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
Jul 22 19:18:01.475: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:18:01.475: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
```

Jul 22 19:18:01.685: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold

Jul 22 19:18:01.685: ISIS-Adj: L1 adj count 0
Jul 22 19:18:01.685: ISIS-Adj: L2 adj count 0

DeviceB

Jul 22 19:17:25.693: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15

Jul 22 19:17:25.693: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496

Jul 22 19:17:27.882: ISIS-Adj: Rec serial IIH from a84f.b1c3.9484 (TwentyFiveGigE1/0/9)

Jul 22 19:17:27.882: ISIS-Adj: cir type L1L2, cir id 05, length 1496
Jul 22 19:17:27.882: ISIS-Adj: rcvd state UP, old state UP, new state UP, nbr usable TRUE
Jul 22 19:17:27.882: ISIS-Adj: RCV:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:27.882: ISIS-Adj: Nghbr Ckt ID changed: FALSE
Jul 22 19:17:27.882: ISIS-Adj: received Neighbor System-ID (must be our) 0000.0000.000B
Jul 22 19:17:27.882: ISIS-Adj: received Neighbor ext.circuit ID (must be our) 0xB
Jul 22 19:17:27.882: ISIS-Adj: newstate:0, state_changed:0, going_up:0, going_down:0
Jul 22 19:17:27.882: ISIS-Adj: Action = ACCEPT
Jul 22 19:17:27.882: ISIS-Adj: ACTION_ACCEPT:

Jul 22 19:17:34.637: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15

Jul 22 19:17:34.637: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496

Jul 22 19:17:36.579: ISIS-Adj: Rec serial IIH from a84f.b1c3.9484 (TwentyFiveGigE1/0/9)

Jul 22 19:17:36.579: ISIS-Adj: cir type L1L2, cir id 05, length 1496
Jul 22 19:17:36.579: ISIS-Adj: rcvd state UP, old state UP, new state UP, nbr usable TRUE
Jul 22 19:17:36.579: ISIS-Adj: RCV:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:36.579: ISIS-Adj: Nghbr Ckt ID changed: FALSE
Jul 22 19:17:36.579: ISIS-Adj: received Neighbor System-ID (must be our) 0000.0000.000B
Jul 22 19:17:36.579: ISIS-Adj: received Neighbor ext.circuit ID (must be our) 0xB
Jul 22 19:17:36.579: ISIS-Adj: newstate:0, state_changed:0, going_up:0, going_down:0
Jul 22 19:17:36.579: ISIS-Adj: Action = ACCEPT
Jul 22 19:17:36.579: ISIS-Adj: ACTION_ACCEPT:

Jul 22 19:17:43.270: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15

Jul 22 19:17:43.271: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496

Jul 22 19:17:51.658: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 22 19:17:51.658: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496
Jul 22 19:18:00.248: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 22 19:18:00.248: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496

Jul 22 19:18:06.579: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold time

Jul 22 19:18:06.579: ISIS-Adj: L1 adj count 0
Jul 22 19:18:06.579: ISIS-Adj: L2 adj count 0

IS-IS調試日誌分析：

- 裝置A傳送一個hello資料包（7月22日19:17:24），裝置B響應此資料包（7月22日19:17:25），裝置A接收此響應（7月22日19:17:31）。

裝置A

```
Jul 22 19:17:24.929: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:24.929: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
Jul 22 19:17:31.685: ISIS-Adj: Rec serial IIH from 6c31.0edb.3b5f (TenGigabitEthernet0/0/4)
```

裝置B

```
Jul 22 19:17:25.693: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 22 19:17:25.693: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496
Jul 22 19:17:27.882: ISIS-Adj: Rec serial IIH from a84f.b1c3.9484 (TwentyFiveGigE1/0/9)
```

- 裝置A傳送另一個hello資料包（7月22日19:17:33），裝置B傳送其hello資料包（7月22日19:17:34），兩秒後收到來自對等體的資料包。

裝置A

```
Jul 22 19:17:33.626: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:33.627: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
```

裝置B

```
Jul 22 19:17:34.637: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 22 19:17:34.637: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496
Jul 22 19:17:36.579: ISIS-Adj: Rec serial IIH from a84f.b1c3.9484 (TwentyFiveGigE1/0/9)
```

- 在DeviceA未收到由DeviceB傳送的資料包期間，協定會在30秒後宣告自己已關閉。

裝置A

```
Jul 22 19:17:42.671: ISIS-Adj: SND:3way Adj. Local Ckt ID:0x5 Nghbr Ckt ID:0xB Length:15
Jul 22 19:17:42.672: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
```

```
Jul 22 19:18:01.475: ISIS-Adj: Sending serial IIH on TenGigabitEthernet0/0/4, 3way state:UP, length 149
Jul 22 19:18:01.685: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceB (TenGigabitEthernet0/0/4) Down, hold
```

- 裝置B沒有從其對等裝置接收任何資料包。在預設保持時間段之後，此協定宣告其自身已關閉。

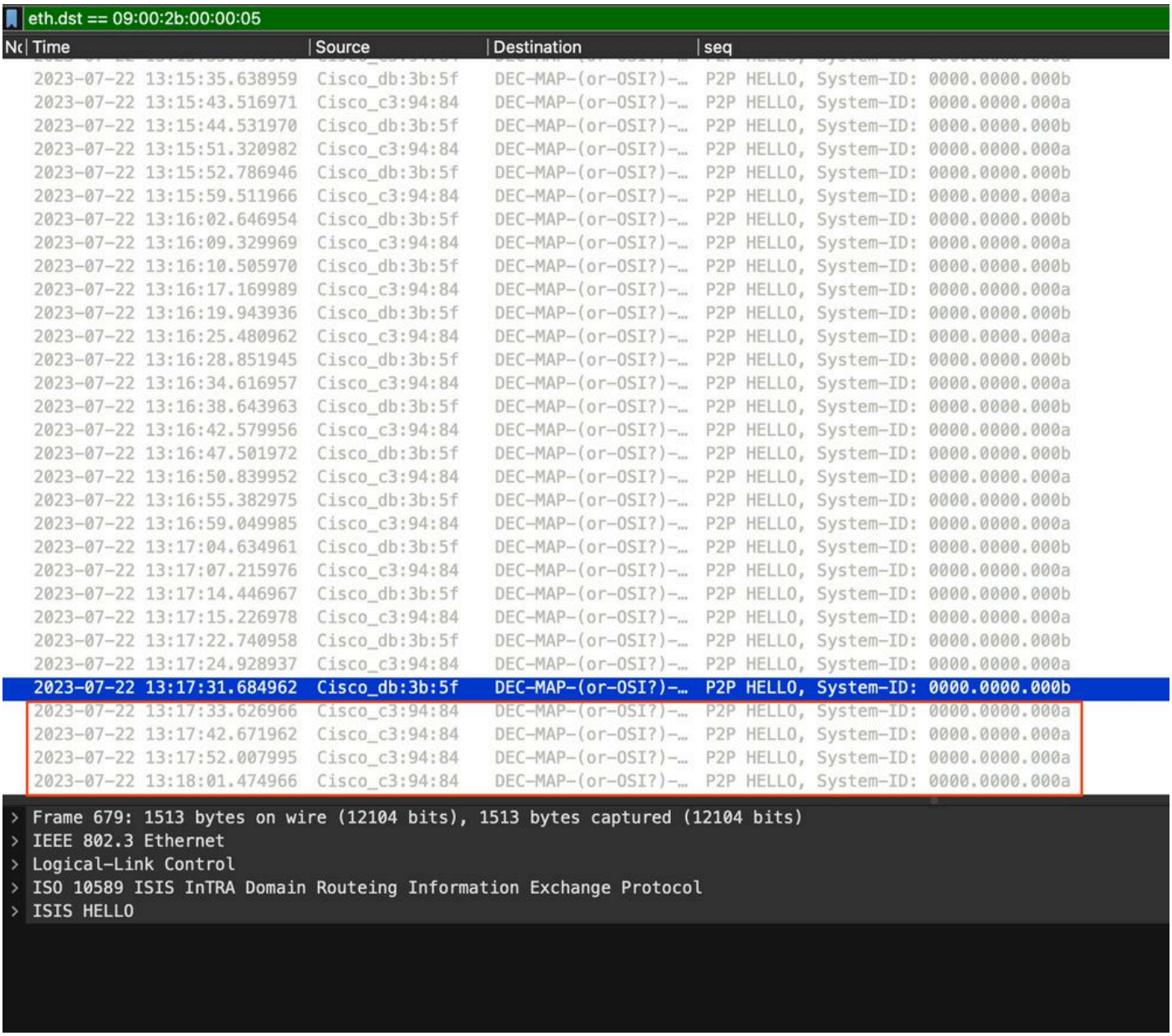
裝置B

```
Jul 22 19:17:43.270: ISIS-Adj: SND:3way Adj. Local Ckt ID:0xB Nghbr Ckt ID:0x5 Length:15
Jul 22 19:17:43.271: ISIS-Adj: Sending serial IIH on TwentyFiveGigE1/0/9, 3way state:UP, length 1496

<snip>

Jul 22 19:18:06.579: %CLNS-5-ADJCHANGE: ISIS: Adjacency to DeviceA (TwentyFiveGigE1/0/9) Down, hold tim
```

捕獲分析：

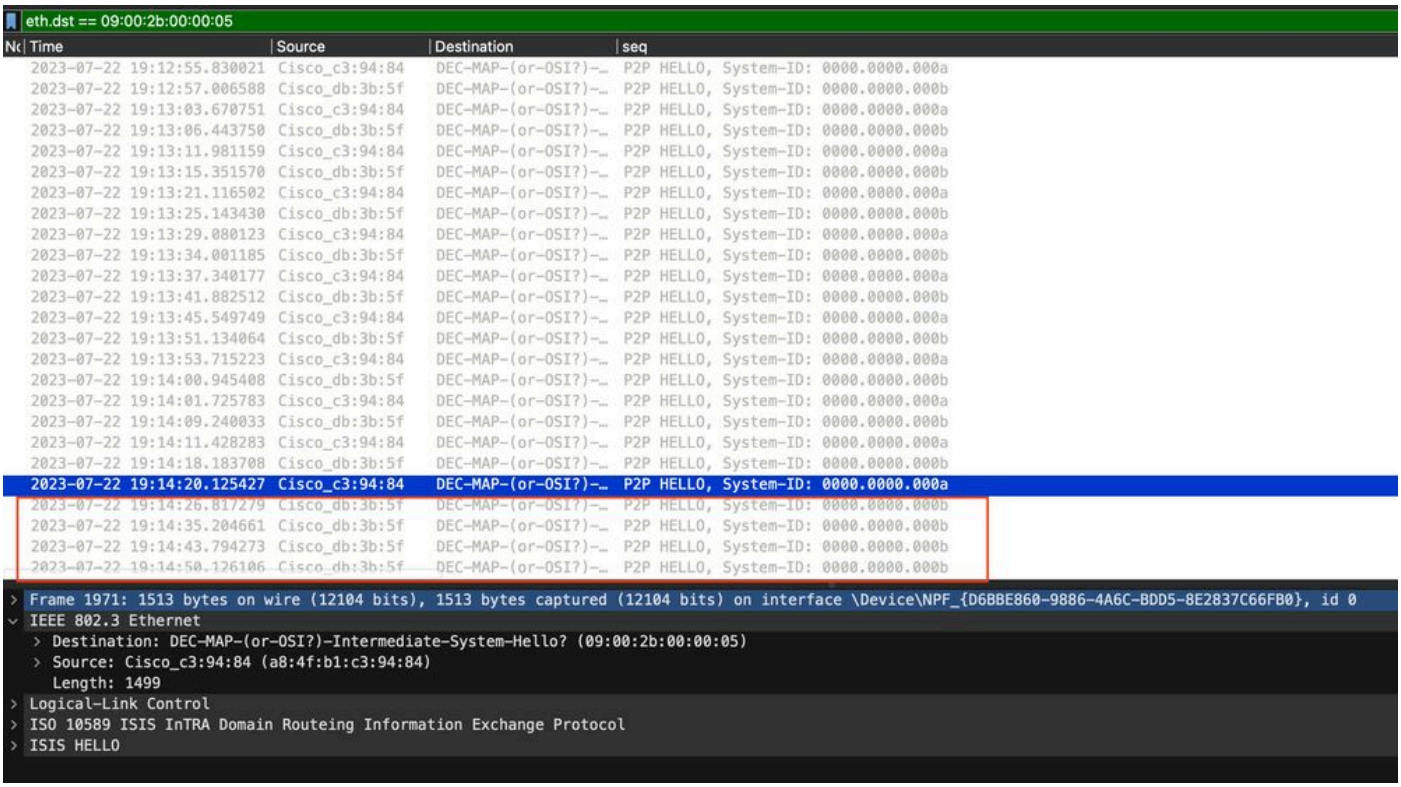
DeviceA從DeviceB收到資料包，但此路由器從對等體收到的最後一個資料包是13:17.31。然後DeviceA傳送Hello資料包

而沒有任何來自對等體的響應。



ISIS隨機襟翼裝置A

DeviceB捕獲顯示類似情況，交換機收到其對等裝置傳送的最後一個hello資料包，但是，DeviceB開始傳送其hello資料包，但無響應。



ISIS不穩定裝置B

在匯出的捕獲中，不會在對等體之間傳送hello資料包。此問題似乎與傳輸有關。

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。