排除Catalyst 9600管理引擎和線卡上的硬體故障

目錄

簡介

本文說明如何識別、隔離和排除Catalyst 9600管理引擎和線卡上的硬體故障症狀。

必要條件

需求

本文件沒有特定需求。

採用元件

本檔案中的資訊是根據Catalyst 9600系列交換器。

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。

技術

字詞	定義	上下文
主管	Cisco Catalyst 9600系列管理引擎1由三個UADP 3.0	本文檔包含用於隔離

	ASIC和一個x86 CPU處理器供電。三個ASIC與每個ASIC上的3.2-Tbps ASIC互連互連。Sup-1提供9.6 Tbps（4.8 Tbps全雙工）。 使用Cisco Catalyst 9606R機箱時，每個插槽具有2.4 Tbps(Sup-1)。	Supervisor引擎上的硬體故障的命令。
開機自檢(P.O.S.T.)	在開啟電源後初始化管理引擎和線卡後，會執行加電自檢(POST)以確保模組的硬體完整性。線上插拔(OIR)線路卡期間也會執行開機自檢。	Show post命令顯示這些測試的結果。
通用線上診斷子系統(GOLD)	系統聯機後運行GOLD測試。某些測試會作為運行狀況監控測試定期運行。使用者可根據需要運行所有測試。	用於檢測模組硬體故障。
線上插入和刪除(O.I.R.)	此功能可以通過命令列介面(CLI)對給定插槽中的模組重新通電。 當沒有可以實際重新拔插模組的現場資源時，這很有用。	O.I.R.是在模組上執行隔離硬體故障的強大功能。

機箱概述

Catalyst C9606-R
• 6插槽 — 8RU模組化機箱 • 2個管理引擎插槽+ 4個線卡插槽


疑難排解

模組硬體問題的症狀

症狀	可能的根本原因
• 在指定的線卡上，一個或多個介面處於down/down(not connect)狀態。 • Supervisor或Linecard未列在C.L.I.的輸出中，如show module或show inventory。 • Supervisor上沒有控制檯輸出。 • Supervisor或線卡上呈紅色或琥珀色L.E.D（穩定或閃爍）。主管或線卡上沒有LED。	模組未正確安裝、未初始化，或者因POTS失敗而遇到硬體故障。

驗證模組狀態

- 首先檢查機箱是否識別模組，這一點很重要。
- 模組的理想狀態是ok。

模組狀態	可能的根本原因	動作
確定	不適用.	無
失敗後	潛在的硬體故障。	請參閱模組狀態疑難排解。
其他	模組初始化失敗。	請參閱模組狀態疑難排解。
輸出中未列出	未正確安裝或未獲得足夠的電源。	檢查可用的電源預算。 目視檢查模組的LED指示燈狀態。

<#root>

```
Cat9600#
show module
Chassis Type: C9606R
Mod Ports Card Type                                     Model          Serial No.
```

```
---+-----+--------------------------------------+--------------+--------------
1   24   24-Port 40GE/12-Port 100GE                 C9600-LC-24C
2   48   48-Port 10GE / 25GE                        C9600-LC-48YL
3   0    Supervisor 1 Module                        C9600-SUP-1
4   0    Supervisor 1 Module                        C9600-SUP-1

Mod MAC addresses                     Hw   Fw           Sw                  Status
---+--------------------------------+----+------------+-------------------+--------
1   DC8C.37A0.C880 to DC8C.37A0.C8FF 1.0  17.1.1[FC2]   16.12.03
```

post-fail

```
2   DC8C.3773.1E00 to DC8C.3773.1E7F 1.0  17.1.1[FC2]   16.12.03           ok
3   DC8C.379F.ED80 to DC8C.379F.EDFF 1.0  17.1.1[FC2]   16.12.03           ok
4   DC8C.379F.EDF1 to DC8C.379F.EDF9 1.0  17.1.1[FC2]   16.12.03           ok
```

//other example

```
Mod MAC addresses                     Hw   Fw           Sw                  Status
---+--------------------------------+----+------------+-------------------+--------
1   DC8C.37A0.C880 to DC8C.37A0.C8FF 1.3  17.3.1r[FC2]  17.03.05
```

power-deny

```
2   DC8C.37A0.C880 to DC8C.37A0.C8FF 1.3  17.3.1r[FC2]  17.03.05
```

power-deny

```
3   DC8C.37A0.C880 to DC8C.37A0.C8FF 1.4  17.3.1r[FC2]  17.03.05           ok
```

模組狀態故障排除

症狀	動作
未列出模組或狀態不正常。	請繼續後續步驟。

驗證系統日誌

線卡離線

<#root>

```
%IOSXE_OIR-6-OFFLINECARD:
```

Card (rp) offline in slot R1

```
%IOSXE_OIR-6-REMSPA: SPA removed from subslot 6/0, interfaces disabled
%SPA_OIR-6-OFFLINECARD: SPA (C9600-LC-48TX) offline in subslot 6/0
```

電源預算問題

<#root>

```
%CMRP_PFU-3-PWR_MGMT_LC_SHUTDOWN: R0/0: cmand: WARNING: Linecard in slot 6 with priority 0 and a power
%CMRP_PFU-3-PWR_MGMT_ALARM: Chassis 1 R0/0: cmand: WARNING:
```

System does not have sufficient input power for minimum

```
 reliable operation requiring 1161 watts. The system needs 1101 watts of additional power.
```

診斷測試失敗

<#root>

```
 *May 29 02:10:19.523: %PM-4-ERR_DISABLE:
```

diagnostics error detected

```
 on Fo2/0/1, putting Fo2/0/1 in err-disable state
```

檢查模組正常運行時間

- 板載故障記錄(OBFL)可讓您深入瞭解重新載入的原因，例如reload命令、軟體異常、斷電等。
- 檢查可能與模組突然斷電或導致模組停機的外部因素相關的時間戳。

<#root>

```
Cat9600#
```

show logging onboard rp (active|standby) uptime detail

```
--------------------------------------------------------------------------------
UPTIME SUMMARY INFORMATION
--------------------------------------------------------------------------------
First customer power on : 08/28/2021 13:08:41
```

Total uptime : 0 years 41 weeks 2 days 15 hours 10 minutes <-- Total Uptime

```
Total downtime : 0 years 7 weeks 6 days 7 hours 11 minutes
```

Number of resets : 14 <-- Total number of reset

```
Number of slot changes : 0
```

Current reset reason : PowerOn <-- Last reload reason

```
Current reset timestamp : 11/06/2021 17:25:29
Current slot : 3
Chassis type : 55
```

Current uptime : 0 years 39 weeks 1 days 18 hours 5 minutes <-- Current Uptime

```
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
UPTIME CONTINUOUS INFORMATION
--------------------------------------------------------------------------------
Time Stamp          |
```

Reset

```
                      | Uptime
MM/DD/YYYY HH:MM:SS |
```

Reason

```
                     | years weeks days hours minutes
--------------------------------------------------------------------------------
08/28/2021 13:08:41   PowerOn                       0     0     0     0     0
08/28/2021 13:16:29   Reload                        0     0     0     0     0
08/28/2021 13:29:28   Reload                        0     0     0     0     5
08/28/2021 13:42:30   Reload                        0     0     0     0     5
```

08/28/2021 13:55:14 Image Install 0 0 0 0 5

<-- Reset history by reason

<#root>

Cat9600#

show logging onboard slot (1|2|4|5|6|7) uptime detail

```
--------------------------------------------------------------------------------
UPTIME SUMMARY INFORMATION
--------------------------------------------------------------------------------
First customer power on : 08/08/2018 09:30:33
Total uptime            :  0  years  11 weeks  1  days  10 hours  40 minutes
Total downtime          :  4  years  32 weeks  1  days  23 hours  25 minutes
Number of resets        : 81
Number of slot changes  : 5
Current reset reason    : CP_RESET_CPU_GOT_RESET
Current reset timestamp : 05/24/2023 19:35:58
Current slot            : 1
Chassis type            : 30
```

Current uptime : 0 years 2 weeks 0 days 0 hours 0 minutes

```
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
UPTIME CONTINUOUS INFORMATION
--------------------------------------------------------------------------------
Time Stamp          | Reset                       | Uptime
MM/DD/YYYY HH:MM:SS | Reason                      | years weeks days hours minutes
--------------------------------------------------------------------------------
04/26/2021 21:39:45   CP_RESET_CPU_GOT_RESET        0     0     0     0     0
04/27/2021 14:12:04   CP_RESET_POWER_ON             0     0     0     6     0
04/28/2021 14:39:30   CP_RESET_POWER_ON             0     0     0     14    0
```

04/30/2021 12:46:59 CP_RESET_POWER_ON 0 0 0 13 0

驗證POST

失敗的POST示例

```
<#root>

Cat9600#

show post


Stored system POST messages:

Switch C9606R
--------------

Fri May 29 02:10:18 2020 POST: Module: 1 Mac Loopback Begin
Fri May 29 02:10:18 2020 POST: Module: 1 Mac Loopback: loopback Test: End, Status Passed

Fri May 29 02:10:18 2020 POST: Module: 2 Mac Loopback Begin
Fri May 29 02:10:18 2020 POST: Mac Loopback:

Failed

 For Interface :

TwentyFiveGigE2/2/0/38


Fri May 29 02:10:18 2020 POST: Mac Loopback:

Failed

 For Interface :

TwentyFiveGigE2/2/0/39


Fri May 29 02:10:18 2020 POST: Mac Loopback:

Failed

 For Interface :

TwentyFiveGigE2/2/0/40


Fri May 29 02:10:18 2020 POST: Module: 2 Mac Loopback: loopback Test: End,

Status Failed
```

POST通過的示例

```
<#root>

Cat9600#
```

show post

```
Stored system POST messages:

Switch C9606R
--------------

POST: MBIST Tests : Begin
POST: MBIST Tests : End, Status Passed

POST: Module: 3 PHY Loopback: loopback Test: Begin
POST: Module: 3 PHY Loopback: loopback Test: End, Status Passed

POST: Module: 2 PHY Loopback: loopback Test: Begin
POST: Module: 2 PHY Loopback: loopback Test: End, Status Passed
POST: Module: 1 PHY Loopback: loopback Test: Begin
POST: Module: 1 PHY Loopback: loopback Test: End, Status Passed
POST: Module: 5 PHY Loopback: loopback Test: Begin
POST: Module: 5 PHY Loopback: loopback Test: End, Status Passed
```

<#root>

Cat9600#

show platform

```
Chassis type: C9606R

Slot      Type                State                 Insert time (ago)
--------- ------------------- --------------------- -----------------
1         C9600-LC-24C        ok                    02:45:09
 1/0      C9600-LC-24C        ok                    02:43:15
2         C9600-LC-48YL
```

faulty

```
               02:45:09
 2/0      C9600-LC-48YL       ok                    02:43:14
3         C9600-SUP-1         ok                    02:45:09
 3/0      C9600-SUP-1         ok                    02:43:14
4         C9600-SUP-1         ok                    02:45:09
 4/0      C9600-SUP-1         ok                    02:43:14
R0        C9600-SUP-1         ok, active            02:45:09
R1        C9600-SUP-1         init, standby         02:45:09
P1        C9600-PWR-2KWAC     ok                    02:44:21
P2        C9600-PWR-2KWAC     ok                    02:44:21
P3        C9600-PWR-2KWAC     ps, f0, f1, fail      02:44:21
P4        C9600-PWR-2KWAC     ps, f0, f1, fail      02:44:21
P5        C9606-FAN           ok                    02:44:21

Slot      CPLD Version        Firmware Version
--------- ------------------- ---------------------------------------
1         19070619            17.1.1[FC2]
2         19070619            17.1.1[FC2]
3         19041620            17.1.1[FC2]
4         19041620            17.1.1[FC2]
```

金牌測試

- 如果模組的POS失敗或列為故障，則必須收集診斷資訊以獲取故障原因。
- 運行硬體診斷程式，以快速識別線卡或管理引擎中潛在的硬體故障。

診斷測試的型別：

- 運行狀況監控測試 — 預設情況下啟用，並且每隔幾分鐘在後台運行。這些測試不會造成中斷。
- 按需測試 — 由使用者使用CLI運行。其中一些測試具有破壞性。

診斷測試	它是在測試什麼？背景？影響?
TestGoldPktLoopback	此測試與Macloopback測試非常相似。
TestOBFL	驗證板載故障記錄功能。此測試列印診斷消息並登入到OBFL。
TestThermal	驗證感測器的溫度值是否不超過閾值。它是無中斷測試，可以作為運行狀況監控測試運行。
TestPortTx監控	此測試監控已連線介面的TX計數器。此測試驗證連線的連線埠是否能夠傳送封包。它是無中斷測試，可以作為運行狀況監控測試運行。
測試風扇托架	此測試驗證是否已插入風扇托架並在主機板上正常工作。它是無中斷測試，可以作為運行狀況監控測試運行。
TestScratchRegister	暫存器測試監控應用特定積體電路(ASIC)的健康狀況，它會將值寫入暫存器，並從這些暫存器讀回值。它是無中斷測試，可以作為運行狀況監控測試運行。
TestConsistencyCheckMcast	此測試監控以檢查Mcast程式設計是否正確。此測試會與Forwarding object manager進行檢查，以識別到硬體的不完整條目或長時間暫掛配置。

對模組運行按需診斷測試。

<#root>

Cat9600#

diagnostic start switch module 3 test ?

```
Diagnostics test suite attributes:
M/C/* - Minimal bootup level test / Complete bootup level test / NA
B/* - Basic ondemand test / NA
P/V/* - Per port test / Per device test / NA
D/N/* - Disruptive test / Non-disruptive test / NA
S/* - Only applicable to standby unit / NA
X/* - Not a health monitoring test / NA
F/* - Fixed monitoring interval test / NA
E/* - Always enabled monitoring test / NA
A/I - Monitoring is active / Monitoring is inactive

Test Interval Thre-
ID Test Name Attributes day hh:mm:ss.ms shold
==== ================================== ============ =============== =====
1) TestOBFL ------------------------> *B*N*X**I not configured n/a
2) TestFantray ---------------------> *B*N****A 000 00:01:40.00 1
3) TestThermal ---------------------> *B*N****A 000 00:01:30.00 1
4) TestScratchRegister -------------> *B*N****A 000 00:01:30.00 5
5) TestConsistencyCheck ------------> *B*N****A 000 00:01:30.00 1

WORD Test ID list (e.g. 1,3-6) or Test Name

Cat9600#
```

diagnostic start switch 1 module 3 test 2

//syslog prints upon start and finish of diagnostic test.

```
*Mar 24 21:48:47.968: %DIAG-6-TEST_RUNNING: switch 1 module 3: Running TestFantray{ID=2} ...
*Mar 24 21:48:47.969: %DIAG-6-TEST_OK: switch 1 module 3: TestFantray{ID=2} has completed successfully
```

<-- Passed

症狀	動作
模組未通過診斷測試。	執行模組的OIR。

在模組上運行按需OIR

<#root>

```
Cat9600#
```

hw-module subslot 1/0 oir power-cycle

```
Proceed with power cycle of module? [confirm]

*Jun 9 20:39:14.686: %IOSXE_OIR-6-REMSPA: SPA removed from subslot 1/0, interfaces disabled
*Jun 9 20:39:14.721: %SPA_OIR-6-OFFLINECARD: SPA (C9600-LC-24C) offline in subslot 1/0
```

```
*Jun 9 20:39:16.686: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/1, changed state to down
*Jun 9 20:39:16.686: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/2, changed state to down
*Jun 9 20:39:16.687: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/3, changed state to down
*Jun 9 20:39:16.687: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/4, changed state to down
*Jun 9 20:39:16.689: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/5, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/6, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/7, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/8, changed state to down
*Jun 9 20:39:16.690: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/9, changed state to down
*Jun 9 20:39:16.691: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/10, changed state to down
*Jun 9 20:39:16.691: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/11, changed state to down
*Jun 9 20:39:16.693: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/12, changed state to down
*Jun 9 20:39:16.693: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/13, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/14, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/15, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/16, changed state to down
*Jun 9 20:39:16.694: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/17, changed state to down
*Jun 9 20:39:16.695: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/18, changed state to down
*Jun 9 20:39:16.695: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/19, changed state to down
*Jun 9 20:39:16.697: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/20, changed state to down
*Jun 9 20:39:16.697: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/21, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/22, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/23, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface FortyGigabitEthernet1/0/24, changed state to down
*Jun 9 20:39:16.698: %LINK-3-UPDOWN: Interface HundredGigE1/0/25, changed state to down
*Jun 9 20:39:16.699: %LINK-3-UPDOWN: Interface HundredGigE1/0/26, changed state to down
*Jun 9 20:39:16.699: %LINK-3-UPDOWN: Interface HundredGigE1/0/27, changed state to down
*Jun 9 20:39:16.701: %LINK-3-UPDOWN: Interface HundredGigE1/0/28, changed state to down
*Jun 9 20:39:16.701: %LINK-3-UPDOWN: Interface HundredGigE1/0/29, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/30, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/31, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/32, changed state to down
*Jun 9 20:39:16.702: %LINK-3-UPDOWN: Interface HundredGigE1/0/33, changed state to down
*Jun 9 20:39:16.703: %LINK-3-UPDOWN: Interface HundredGigE1/0/34, changed state to down
*Jun 9 20:39:16.703: %LINK-3-UPDOWN: Interface HundredGigE1/0/35, changed state to down
*Jun 9 20:39:16.704: %LINK-3-UPDOWN: Interface HundredGigE1/0/36, changed state to down
*Jun 9 20:39:16.704: %LINK-3-UPDOWN: Interface HundredGigE1/0/37, changed state to down
*Jun 9 20:39:16.705: %LINK-3-UPDOWN: Interface HundredGigE1/0/38, changed state to down
*Jun 9 20:39:16.705: %LINK-3-UPDOWN: Interface HundredGigE1/0/39, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/40, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/41, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/42, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/43, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/44, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/45, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/46, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/47, changed state to down
*Jun 9 20:39:16.713: %LINK-3-UPDOWN: Interface HundredGigE1/0/48, changed state to down
*Jun 9 20:39:44.717: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 1/0
*Jun 9 20:40:15.052: %SPA_OIR-6-ONLINECARD: SPA (C9600-LC-24C) online in subslot 1/0
*interfaces come up again*
```

症狀	動作
模組仍無法執行POS.S.T或show module或show inventory命令輸出中未列出的模組。	• 目測確認並記錄模組的LED狀態；閃爍或穩定的琥珀色或紅燈可能進一步表明硬體問題。

	• 重新拔插模組。 • 從機箱的另一個插槽安裝備用模組或模組，以隔離模組或機箱插槽的故障。

重新拔插模組（當機箱識別模組且模組初始化時，會列印類似的系統日誌）。

```
*May 24 19:32:53.084: %IOSXE_OIR-6-INSCARD: Card (fp) inserted in slot F0
*May 24 19:32:53.084: %IOSXE_OIR-6-INSCARD: Card (cc) inserted in slot 1
*May 24 19:32:53.084: %IOSXE_OIR-6-ONLINECARD: Card (cc) online in slot 1
*May 24 19:32:53.151: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 1/0
```

驗證模組的電源狀態是否被接受。

```
<#root>

Cat9600#

show power module

Power Budget Mode           : Dual Sup

Power

                                  Out of  In
Mod  Model No

State

     Budget  Instantaneous  Peak  Reset   Reset
---  --------------------  --------  ------  -------------  ----  ------  -----
1    C9600-LC-48YL

accepted

  230     0              0     230     10
2    C9600-LC-24C          accepted  200     0              0     200     10
3    C9600-SUP-1           accepted  775     0              0     775     202
4    C9600-SUP-1           accepted  775     0              0     775     202
FM1  C9606-FAN             accepted  450     --             --    450     --
---  --------------------  --------  ------  -------------  ----  ------  -----
Total allocated power:  2430
Total required power:   2430
```

驗證是否有任何故障的電源。

```
<#root>

Cat9600#
```

show power detail

```
Power                                                  Fan States
Supply  Model No              Type  Capacity  Status        1     2
------  --------------------  ----  --------  ------------  ----------
PS1     C9600-PWR-2KWAC       ac    1050 W    active        good  good
PS2     C9600-PWR-2KWAC       ac    2000 W    active        good  good
PS3     C9600-PWR-2KWAC       ac    n.a.
```

fail bad bad

```
PS4     C9600-PWR-2KWAC       ac    n.a.
```

fail bad bad

```
PS Current Configuration Mode : none
PS Current Operating State    : none

Power supplies currently active    : 2
Power supplies currently available : 4

Power Summary          Maximum
 (in Watts)    Used    Available
-------------  ------  ---------
System Power   2905    2990
-------------  ------  ---------
Total          2905    2990
```

<-- total power budget consumed vs maximum available

```
Power Budget Mode           : Dual Sup

                          Power                                  Out of  In
Mod  Model No             State     Budget  Instantaneous  Peak  Reset   Reset
---  -------------------  --------  ------  -------------  ----  ------  -----
1    C9600-LC-48TX        accepted  315     0              0     315     10
2    C9600-LC-48S         accepted  160     0              0     160     10
3    C9600-SUP-1          accepted  775     0              0     775     202
4    C9600-SUP-1          ---       775     --             --    775     0
5    C9600-LC-48YL        accepted  230     0              0     230     10
6    C9600-LC-24C         accepted  200     0              0     200     10
FM1  C9606-FAN            accepted  450     --             --    450     --
---  -------------------  --------  ------  -------------  ----  ------  -----
Total allocated power:  2905
Total required power:   2905
```

軟體和韌體不匹配

- 不同軟體或韌體版本上的管理引擎在高可用性主用/備用角色中無法同步。
- 與Supervisor韌體版本相比，更新韌體版本上的線卡可能無法初始化。
- 升級交換機軟體一節中的說明包含在每個主要軟體系列（如16.12.X、17.3.X和17.6.X）的版本說明中
- 手動升級Supervisor的韌體/載入程式。

> 附註：有關如何手動升級Supervisor的韌體/啟動載入程式的詳細資訊，請參閱Catalyst 9600系列交換機Cisco IOS XE Amsterdan 17.3.X的發行說明。

<#root>

Cat9600#

show firmware version all

Current

Slot Device Name / Model Bundled

Firmware Version

Firmware Version

Mismatch

----- ---------- ---------- ---------- ---------

3 Supervisor Rommon (Active)

17.3.1r[FC2]

N/A N/A

<-- Firmware versions are the same

4 Supervisor Rommon (Standby)

17.3.1r[FC2]

N/A N/A

<-- Firmware versions are the same

- Eth Lan Spi 0x800005d3 N/A N/A
PS5 Fantray 18101008 N/A N/A
3 Supervisor CPLD
IO FPGA 19041620 19041620 No
Flash FPGA 190308b9 190308b9 No
4 Supervisor CPLD
IO FPGA 19041620 19041620 No
Flash FPGA 190308b9 190308b9 No
1 Line Card / C9600-LC-24C
IO FPGA 19070619 19070619 No
PMFPGA 122515 N/A N/A
Phy Firmware 1.56.1772 1.56.2270

Yes

2 Line Card / C9600-LC-48YL
IO FPGA 19070619 19070619 No
PMFPGA 122515 N/A N/A

```
        Phy Firmware                1.56.1772             1.56.2270

Yes


 5    Line Card / C9600-LC-48YL
        IO FPGA                     19070619              19070619              No
        PMFPGA                      122515                N/A                   N/A
        Phy Firmware                1.56.1772             1.56.2270

 Yes


 6    Line Card / C9600-LC-24C
        IO FPGA                     19070619              19070619              No
        PMFPGA                      122515                N/A                   N/A
        Phy Firmware                1.56.1772             1.56.2270

Yes


Slot      Device Name / Model                      Firmware Version
--------- ---------------------------------------- ------------------------------
 PS1       Power Supply (PS PRI, PS_SEC, PS_I2C)   (N/A, N/A, N/A)
 PS2       Power Supply (PS PRI, PS_SEC, PS_I2C)   (N/A, N/A, N/A)
 PS3       Power Supply (PS PRI, PS_SEC, PS_I2C)   (N/A, N/A, N/A)
 PS4       Power Supply (PS PRI, PS_SEC, PS_I2C)   (61.08.03, 61.02.0, N/A)
```

其他疑難排解

附註：硬體驗證狀態僅在交換器重新載入時執行。在物理重新拔插相同或不同插槽上的線卡後，系統不運行，這未必表示有問題。

如果存線上卡的驗證狀態為NOT pass，請執行以下建議步驟：

1. 收集跟蹤存檔，檢視IOSRP、CMCC、platform_mgr和IOMD檔案以獲取有關此問題型別的相關資訊。
2. 可以嘗試檢視受影響元件的物理OIR或交換機重新載入，看其是否恢復。
3. 如果問題仍然存在，請建立TAC案例。

```
<#root>

Cat9600#

show platform hardware authentication status

       Fan Tray Authentication:

pass

    Line Card:1 Authentication:

pass
```

```
    Line Card:2 Authentication:
```

pass

```
            SUP0 Authentication:
```

pass

```
            SUP1 Authentication:
```

pass

```
    Line Card:5 Authentication:  Not Available
    Line Card:6 Authentication:  Not Available
```

<#root>

Cat9600#

show hw-module subslot 1/0 oir internal

```
IOMD for supervisor slot does not appear
WARNING: This command is not intended for production use
and should only be used under the supervision of
Cisco Systems technical support personnel.

sm(spa_oir_tsm subslot 1/0 TSM), running yes, state ready
Admin Status: admin enabled,  Operational Status: ok(1)
Last reset Reason: power up
TSM Context:
configured_spa_type 0xD9A
```

<-- IDPROM is accessible

```
    soft remove fail code 0x0(none)
    last_fail_code 0x0(none)
    timed_fail_count 0, failed_spa_type 0x0
    flags 0x10)
Subslot:
    spa type 0xD9A, active spa type 0xD9A
    subslot flags 0x0, plugin flags 0x0
TSM Parameters:
    wait_psm_ready_timeout 540000 ms, init_timeout 300000 ms
    remove_timeout 120000 ms, recovery_delay 5000 ms
    fail_time_period 1200000 ms, max_fail_count 5
    does not support pre-configuration
```

<#root>

Cat9600#

show platform software iomd redundancy

```
    Configured Redundancy Mode = sso
     Operating Redundancy Mode = sso
                Local RF state = ACTIVE
                 Peer RF state = STANDBY HOT
```

```
slot  PSM STATE   SPA INTF   HA_STATE HA_ACTIVE
   1     ready   started     ready    00:05:54
   2     ready
```

idle

<-- potential issue

```
   3     ready   started     ready    00:05:37 ***active RP
   4     ready   started     ready    00:05:37
```

<#root>

Cat9600#

show idprom module 1 eeprom detail

```
Slot 1 EEPROM data:

        EEPROM version           : 4
        Compatible Type          : 0xFF
        Controller Type          : 3482
        Hardware Revision        : 1.0
        PCB Part Number          : 73-19545-02
        Board Revision           : A0
        Deviation Number         : 0
        Fab Version              : 02
        PCB Serial Number        : CAT2313L2VP
        RMA Test History         : 00
        RMA Number               : 0-0-0-0
        RMA History              : 00
        Top Assy. Part Number    : 068-102161-01
        Top Assy. Revision       : A0
        CLEI Code                : COUIBGRCAA
        Product Identifier (PID) : C9600-LC-24C
        Version Identifier (VID) : V01
       Base MAC Address         : DC 8C 37 A0 C8 80
        MAC Address block size   : 128
        Environment Monitor Data : 06 00 00 00 0C 80 C8 00
                                   A6
        Environment Monitor Data : 00 06 00 FA
        Manufacturing Test Data  : 00 00 00 00 00 00 00 00
        Field Diagnostics Data   : 00 00 00 00 00 00 00 00
        Platform features        : 00 00 00 00 00 00 00 00
                                   00 00 00 00 00 00 00 00
                                   00 00 00 00 00 00 00 00
        Environment Monitor Data :
        Description              : InltFrnt
        Shutdown threshold       : 060
        Critical threshold       : 055
        Major threshold          : 050
        Minor threshold          : 045
        Environment Monitor Data :
        Description              : InltRear
        Shutdown threshold       : 060
        Critical threshold       : 055
        Major threshold          : 050
        Minor threshold          : 045
```

```
        Environment Monitor Data :
        Description              : OtltFrnt
        Shutdown threshold       : 090
        Critical threshold       : 085
        Major threshold          : 080
        Minor threshold          : 075
        Environment Monitor Data :
        Description              : OtltRear
        Shutdown threshold       : 090
        Critical threshold       : 085
        Major threshold          : 080
        Minor threshold          : 075
```

使用lc-portmap命令獲取有關對映到Supervisor中的ASIC/核心的線卡介面的資訊。

<#root>

```
Cat9600#

show platform hardware iomd 1/0 lc-portmap detail

IOMD SUMMARY
==============
 spa_type: 0xd9a
 my_slot: 1
 active-slot: 0
 is_active: 1
 bulk_sync_done: 1
 bulk_sync_in_progress: 0
 bulk_sync_received: 0
 is_plugin_start_done: 1
 Num_ports: 48 num_UDAP 3s: 3

PSM SUMMARY
===============
 PSM state: ready
 ha_state:
 is_spa_ok: 0
 is_power_ok: 0
 psm_flags: 0x0
 bay_flags: 0x0
 plugin_flags: 0x0

Port  fp  asic  core  mac  cntx  asic  speed  xcvr-  xcvr-  run-  phy-  i2c-  xcvr-  if-   SerTune-  Fa
                                  port         pres   type   speed num   ctrl  sm     state Status    Li
=============================================================================================================
0     1   0     0     0    0     0     40G    no     0      unk   0     0     0      0     NOTS      no
1     2   0     0     2    1     8     40G    no     0      unk   0     0     0      0     NOTS      no
2     3   0     0     16   0     16    40G    no     0      unk   1     0     0      0     NOTS      no
3     4   0     0     18   1     24    40G    no     0      unk   1     0     0      0     NOTS      no
4     5   0     1     14   1     8     40G    no     0      unk   2     0     0      0     NOTS      no
5     6   0     1     12   0     0     40G    no     0      unk   2     0     0      0     NOTS      no
6     7   0     1     30   1     24    40G    no     0      unk   3     0     0      0     NOTS      no
7     8   0     1     28   0     16    40G    no     0      unk   3     0     0      0     NOTS      no
8     9   1     0     0    0     0     40G    no     0      unk   4     0     0      0     NOTS      no
9     10  1     0     2    1     8     40G    no     0      unk   4     0     0      0     NOTS      no
10    11  1     0     16   0     16    40G    no     0      unk   5     0     0      0     NOTS      no
11    12  1     0     18   1     24    40G    no     0      unk   5     0     0      0     NOTS      no
12    13  1     1     14   1     8     40G    no     0      unk   6     0     0      0     NOTS      no
```

```
13    14   1     1     12    0     0     40G    no     0      unk   6     0     0     0      NOTS      no
14    15   1     1     30    1     24    40G    no     0      unk   7     0     0     0      NOTS      no
15    16   1     1     28    0     16    40G    no     0      unk   7     0     0     0      NOTS      no
16    17   2     0     0     0     0     40G    no     0      unk   8     1     0     0      NOTS      no
17    18   2     0     2     1     8     40G    no     0      unk   8     1     0     0      NOTS      no
18    19   2     0     16    0     16    40G    no     0      unk   9     1     0     0      NOTS      no
19    20   2     0     18    1     24    40G    no     0      unk   9     1     0     0      NOTS      no
20    21   2     1     14    1     8     40G    no     0      unk   10    1     0     0      NOTS      no
21    22   2     1     12    0     0     40G    no     0      unk   10    1     0     0      NOTS      no
22    23   2     1     30    1     24    40G    no     0      unk   11    1     0     0      NOTS      no
23    24   2     1     28    0     16    40G    no     0      unk   11    1     0     0      NOTS      no
24    25   0     0     0     0     0     100G   no     0      unk   0     0     0     0      NOTS      no
25    26   0     0     0     0     0     100G   no     0      unk   0     0     0     0      NOTS      no
26    27   0     0     16    0     16    100G   no     0      unk   1     0     0     0      NOTS      no
27    28   0     0     16    0     16    100G   no     0      unk   1     0     0     0      NOTS      no
28    29   0     1     12    0     0     100G   no     0      unk   2     0     0     0      NOTS      no
29    30   0     1     12    0     0     100G   no     0      unk   2     0     0     0      NOTS      no
30    31   0     1     28    0     16    100G   no     0      unk   3     0     0     0      NOTS      no
31    32   0     1     28    0     16    100G   no     0      unk   3     0     0     0      NOTS      no
32    33   1     0     0     0     0     100G   no     0      unk   4     0     0     0      NOTS      no
33    34   1     0     0     0     0     100G   no     0      unk   4     0     0     0      NOTS      no
34    35   1     0     16    0     16    100G   no     0      unk   5     0     0     0      NOTS      no
35    36   1     0     16    0     16    100G   no     0      unk   5     0     0     0      NOTS      no
36    37   1     1     12    0     0     100G   no     0      unk   6     0     0     0      NOTS      no
37    38   1     1     12    0     0     100G   no     0      unk   6     0     0     0      NOTS      no
38    39   1     1     28    0     16    100G   no     0      unk   7     0     0     0      NOTS      no
39    40   1     1     28    0     16    100G   no     0      unk   7     0     0     0      NOTS      no
40    41   2     0     0     0     0     100G   no     0      unk   8     1     0     0      NOTS      no
41    42   2     0     0     0     0     100G   no     0      unk   8     1     0     0      NOTS      no
42    43   2     0     16    0     16    100G   no     0      unk   9     1     0     0      NOTS      no
43    44   2     0     16    0     16    100G   no     0      unk   9     1     0     0      NOTS      no
44    45   2     1     12    0     0     100G   no     0      unk   10    1     0     0      NOTS      no
45    46   2     1     12    0     0     100G   no     0      unk   10    1     0     0      NOTS      no
46    47   2     1     28    0     16    100G   no     0      unk   11    1     0     0      NOTS      no
47    48   2     1     28    0     16    100G   no     0      unk   11    1     0     0      NOTS      no
```

<#root>

Cat9600#

show platform software fed [active | standby] ifm mappings

```
Interface                IF_ID    Inst Asic Core Port SubPort Mac  Cntx LPN  GPN  Type Active
TwentyFiveGigE1/0/1      0x9        0   0    0    0      0      0    0    1    101  NIF  Y
TwentyFiveGigE1/0/2      0xa        0   0    0    4      0      1    1    2    102  NIF  Y
TwentyFiveGigE1/0/3      0xb        0   0    0    8      0      2    2    3    103  NIF  Y
TwentyFiveGigE1/0/4      0xc        0   0    0    12     0      3    3    4    104  NIF  Y
TwentyFiveGigE1/0/5      0xd        0   0    0    16     0      16   0    5    105  NIF  Y
TwentyFiveGigE1/0/6      0xe        0   0    0    20     0      17   1    6    106  NIF  Y
TwentyFiveGigE1/0/7      0xf        0   0    0    24     0      18   2    7    107  NIF  Y
TwentyFiveGigE1/0/8      0x10       0   0    0    28     0      19   3    8    108  NIF  Y
TwentyFiveGigE1/0/9      0x11       1   0    1    12     0      15   3    9    109  NIF  Y
TwentyFiveGigE1/0/10     0x12       1   0    1    8      0      14   2    10   110  NIF  Y
TwentyFiveGigE1/0/11     0x13       1   0    1    4      0      13   1    11   111  NIF  Y
TwentyFiveGigE1/0/12     0x14       1   0    1    0      0      12   0    12   112  NIF  Y
TwentyFiveGigE1/0/13     0x15       1   0    1    28     0      31   3    13   113  NIF  Y
TwentyFiveGigE1/0/14     0x16       1   0    1    24     0      30   2    14   114  NIF  Y
TwentyFiveGigE1/0/15     0x17       1   0    1    20     0      29   1    15   115  NIF  Y
TwentyFiveGigE1/0/16     0x18       1   0    1    16     0      28   0    16   116  NIF  Y
TwentyFiveGigE1/0/17     0x19       2   1    0    0      0      0    0    17   117  NIF  Y
```

TwentyFiveGigE1/0/18	0x1a	2	1	0	4	0	1	1	18	118	NIF	Y
TwentyFiveGigE1/0/19	0x1b	2	1	0	8	0	2	2	19	119	NIF	Y
TwentyFiveGigE1/0/20	0x1c	2	1	0	12	0	3	3	20	120	NIF	Y
TwentyFiveGigE1/0/21	0x1d	2	1	0	16	0	16	0	21	121	NIF	Y
TwentyFiveGigE1/0/22	0x1e	2	1	0	20	0	17	1	22	122	NIF	Y
TwentyFiveGigE1/0/23	0x1f	2	1	0	24	0	18	2	23	123	NIF	Y
TwentyFiveGigE1/0/24	0x20	2	1	0	28	0	19	3	24	124	NIF	Y
TwentyFiveGigE1/0/25	0x21	3	1	1	12	0	15	3	25	125	NIF	Y
TwentyFiveGigE1/0/26	0x22	3	1	1	8	0	14	2	26	126	NIF	Y
TwentyFiveGigE1/0/27	0x23	3	1	1	4	0	13	1	27	127	NIF	Y
TwentyFiveGigE1/0/28	0x24	3	1	1	0	0	12	0	28	128	NIF	Y
TwentyFiveGigE1/0/29	0x25	3	1	1	28	0	31	3	29	129	NIF	Y
TwentyFiveGigE1/0/30	0x26	3	1	1	24	0	30	2	30	130	NIF	Y
TwentyFiveGigE1/0/31	0x27	3	1	1	20	0	29	1	31	131	NIF	Y
TwentyFiveGigE1/0/32	0x28	3	1	1	16	0	28	0	32	132	NIF	Y
TwentyFiveGigE1/0/33	0x29	4	2	0	0	0	0	0	33	133	NIF	Y
TwentyFiveGigE1/0/34	0x2a	4	2	0	4	0	1	1	34	134	NIF	Y
TwentyFiveGigE1/0/35	0x2b	4	2	0	8	0	2	2	35	135	NIF	Y
TwentyFiveGigE1/0/36	0x2c	4	2	0	12	0	3	3	36	136	NIF	Y
TwentyFiveGigE1/0/37	0x2d	4	2	0	16	0	16	0	37	137	NIF	Y
TwentyFiveGigE1/0/38	0x2e	4	2	0	20	0	17	1	38	138	NIF	Y
TwentyFiveGigE1/0/39	0x2f	4	2	0	24	0	18	2	39	139	NIF	Y
TwentyFiveGigE1/0/40	0x30	4	2	0	28	0	19	3	40	140	NIF	Y
TwentyFiveGigE1/0/41	0x31	5	2	1	12	0	15	3	41	141	NIF	Y
TwentyFiveGigE1/0/42	0x32	5	2	1	8	0	14	2	42	142	NIF	Y
TwentyFiveGigE1/0/43	0x33	5	2	1	4	0	13	1	43	143	NIF	Y
TwentyFiveGigE1/0/44	0x34	5	2	1	0	0	12	0	44	144	NIF	Y
TwentyFiveGigE1/0/45	0x35	5	2	1	28	0	31	3	45	145	NIF	Y
TwentyFiveGigE1/0/46	0x36	5	2	1	24	0	30	2	46	146	NIF	Y
TwentyFiveGigE1/0/47	0x37	5	2	1	20	0	29	1	47	147	NIF	Y
TwentyFiveGigE1/0/48	0x38	5	2	1	16	0	28	0	48	148	NIF	Y
TwentyFiveGigE2/0/2	0x3a	0	0	0	9	0	9	9	2	202	NIF	Y
TwentyFiveGigE2/0/3	0x3b	0	0	0	10	0	10	10	3	203	NIF	Y
TwentyFiveGigE2/0/4	0x3c	0	0	0	11	0	11	11	4	204	NIF	Y
TwentyFiveGigE2/0/5	0x3d	0	0	0	18	0	24	8	5	205	NIF	Y
TwentyFiveGigE2/0/6	0x3e	0	0	0	25	0	25	9	6	206	NIF	Y
TwentyFiveGigE2/0/7	0x3f	0	0	0	26	0	26	10	7	207	NIF	Y
TwentyFiveGigE2/0/8	0x40	0	0	0	27	0	27	11	8	208	NIF	Y
TwentyFiveGigE2/0/9	0x41	1	0	1	7	0	7	7	9	209	NIF	Y
TwentyFiveGigE2/0/10	0x42	1	0	1	6	0	6	6	10	210	NIF	Y
TwentyFiveGigE2/0/11	0x43	1	0	1	5	0	5	5	11	211	NIF	Y
TwentyFiveGigE2/0/12	0x44	1	0	1	1	0	4	4	12	212	NIF	Y
TwentyFiveGigE2/0/13	0x45	1	0	1	23	0	23	7	13	213	NIF	Y
TwentyFiveGigE2/0/14	0x46	1	0	1	22	0	22	6	14	214	NIF	Y
TwentyFiveGigE2/0/15	0x47	1	0	1	21	0	21	5	15	215	NIF	Y
TwentyFiveGigE2/0/16	0x48	1	0	1	17	0	20	4	16	216	NIF	Y
TwentyFiveGigE2/0/17	0x49	2	1	0	2	0	8	8	17	217	NIF	Y
TwentyFiveGigE2/0/18	0x4a	2	1	0	9	0	9	9	18	218	NIF	Y
TwentyFiveGigE2/0/19	0x4b	2	1	0	10	0	10	10	19	219	NIF	Y
TwentyFiveGigE2/0/20	0x4c	2	1	0	11	0	11	11	20	220	NIF	Y
TwentyFiveGigE2/0/21	0x4d	2	1	0	18	0	24	8	21	221	NIF	Y
TwentyFiveGigE2/0/22	0x4e	2	1	0	25	0	25	9	22	222	NIF	Y
TwentyFiveGigE2/0/23	0x4f	2	1	0	26	0	26	10	23	223	NIF	Y
TwentyFiveGigE2/0/24	0x50	2	1	0	27	0	27	11	24	224	NIF	Y
TwentyFiveGigE2/0/25	0x51	3	1	1	7	0	7	7	25	225	NIF	Y
TwentyFiveGigE2/0/26	0x52	3	1	1	6	0	6	6	26	226	NIF	Y
TwentyFiveGigE2/0/27	0x53	3	1	1	5	0	5	5	27	227	NIF	Y
TwentyFiveGigE2/0/28	0x54	3	1	1	1	0	4	4	28	228	NIF	Y
TwentyFiveGigE2/0/29	0x55	3	1	1	23	0	23	7	29	229	NIF	Y
TwentyFiveGigE2/0/30	0x56	3	1	1	22	0	22	6	30	230	NIF	Y
TwentyFiveGigE2/0/31	0x57	3	1	1	21	0	21	5	31	231	NIF	Y
TwentyFiveGigE2/0/32	0x58	3	1	1	17	0	20	4	32	232	NIF	Y

```
TwentyFiveGigE2/0/33      0x59       4   2   0    2      0      8    8    33   233  NIF  Y
TwentyFiveGigE2/0/34      0x5a       4   2   0    9      0      9    9    34   234  NIF  Y
TwentyFiveGigE2/0/35      0x5b       4   2   0    10     0      10   10   35   235  NIF  Y
TwentyFiveGigE2/0/36      0x5c       4   2   0    11     0      11   11   36   236  NIF  Y
TwentyFiveGigE2/0/37      0x5d       4   2   0    18     0      24   8    37   237  NIF  Y
TwentyFiveGigE2/0/38      0x5e       4   2   0    25     0      25   9    38   238  NIF  Y
TwentyFiveGigE2/0/39      0x5f       4   2   0    26     0      26   10   39   239  NIF  Y
TwentyFiveGigE2/0/40      0x60       4   2   0    27     0      27   11   40   240  NIF  Y
TwentyFiveGigE2/0/41      0x61       5   2   1    7      0      7    7    41   241  NIF  Y
TwentyFiveGigE2/0/42      0x62       5   2   1    6      0      6    6    42   242  NIF  Y
TwentyFiveGigE2/0/43      0x63       5   2   1    5      0      5    5    43   243  NIF  Y
TwentyFiveGigE2/0/44      0x64       5   2   1    1      0      4    4    44   244  NIF  Y
TwentyFiveGigE2/0/45      0x65       5   2   1    23     0      23   7    45   245  NIF  Y
TwentyFiveGigE2/0/46      0x66       5   2   1    22     0      22   6    46   246  NIF  Y
TwentyFiveGigE2/0/47      0x67       5   2   1    21     0      21   5    47   247  NIF  Y
TwentyFiveGigE2/0/48      0x68       5   2   1    17     0      20   4    48   248  NIF  Y
```

為TAC收集的命令

本指南介紹了最常見的硬體問題和驗證命令，並提供了相應的補救步驟。但是，如果此指南未解決您的問題，請收集所示的命令清單，並將它們附加到TAC服務請求。

<#root>

```
show tech-support
show post
show platform hardware authentication status
show platform hardware chassis fantray detail
show platform software iomd redundancy

request platform software trace archive
service internal
```

(for the standby command 'service internal' needs to be enabled first)

```
request platform software trace slot rp standby archive target stby-bootflash
```

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）。