

# NCS4000系统ECU到ECU2的CLI迁移过程

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## 简介

本文档介绍成功交换安装在NCS4016系统中的在用外部连接单元(ECU)并替换为ECU 2所需的信息。该过程提供了拆卸/安装ECU的步骤。

## 先决条件

### 要求

Cisco 建议您了解以下主题：

- 用于Cisco NCS4000系列的CLI Cisco IOS®
- 思科NCS4000系列，包括NCS4016/NCS4009

### 使用的组件

本文档中的信息基于在开始此过程之前运行6.5.26或更高版本软件的NCS4016系统。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

## 背景信息

本文档中详述的过程不会影响流量。它假设NCS4000机箱是4016或4009机架。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

## 建立与NCS4K的连接并验证6.5.26的最低软件版本

开始之前，请确保已设置与NCS 4016的笔记本电脑连接，且笔记本电脑符合硬件和软件要求。

步骤1.从连接到NCS 4016机架的计算机启动终端仿真程序 ( 如putty ) 并登录NCS4016系统。

步骤2.在命令提示符下 , 执行**show version** , 并验证软件版本是否为6.5.26 , 如图所示。

```
RP/0/RP0:Node_Name#show version
Thu Nov 14 13:44:09.282 CST
Cisco IOS XR Software, Version 6.5.26
Copyright (c) 2013-2019 by Cisco Systems, Inc.

Build Information:
  Built By      : ahoang
  Built On     : Fri Sep 13 13:33:51 PDT 2019
  Built Host   : iox-lnx-060
  Workspace    : /auto/srcarchive11/prod/6.5.26/ncs4k/ws
  Version     : 6.5.26
  Location    : /opt/cisco/XR/packages/

cisco NCS-4000 () processor
System uptime is 2 weeks 5 days 21 hours 42 minutes
```

步骤3.如果软件不在6.5.26或更高版本上 , 请停止该过程并将软件升级到6.5.26 , 然后再继续。

步骤4.验证并记录图中所示的所有警报。

```
RP/0/RP0:Node_Name#show alarms brief system active
Thu Nov 14 13:53:08.689 CST

-----
Active Alarms
-----
Location          Severity      Group         Set Time      Description
-----
0/12              Critical     Environ      10/20/2019 21:30:42 CDT  LC12 - Improper Removal
0/0               Minor       Controller   10/20/2019 21:31:45 CDT  Optics0/0/0/0/5 - Optics Low Transmit Power
0/0               Minor       Controller   10/20/2019 21:31:45 CDT  Optics0/0/0/0/6 - Optics Low Transmit Power
0/6               Minor       Controller   10/20/2019 21:31:53 CDT  Optics0/6/0/6 - Optics Unqualified PPM
0/3               Minor       Controller   10/20/2019 21:31:57 CDT  Optics0/3/0/6 - Optics Unqualified PPM
0/6               Critical    OTN          10/20/2019 21:32:59 CDT  ODU40/6/0/10 - OPUK Client Signal Failure
0/3               Critical    OTN          10/20/2019 21:33:02 CDT  ODU40/3/0/10 - OPUK Client Signal Failure
0/4               Major      Ethernet     10/21/2019 16:41:56 CDT  TenGigECtrlr0/4/0/0/2 - Carrier Loss On The LAN
0/0               Major      Ethernet     10/25/2019 17:11:10 CDT  TenGigECtrlr0/0/0/0/1 - Local Fault
0/3               Critical    OTN          11/01/2019 10:32:48 CDT  OTU40/3/0/11 - Incoming Payload Signal Absent
0/2               Major      Ethernet     10/30/2019 05:41:08 CDT  TenGigECtrlr0/2/0/4/1 - Carrier Loss On The LAN
0/0               Major      Ethernet     10/30/2019 05:41:09 CDT  TenGigECtrlr0/0/0/0/2 - Carrier Loss On The LAN
0/0               Critical    OTN          11/01/2019 10:34:57 CDT  ODU20/0/0/0/1 - OPUK Client Signal Failure
0/0               Critical    OTN          11/01/2019 10:34:59 CDT  ODU20/0/0/0/2 - OPUK Client Signal Failure
RP/0/RP0:Node_Name#
```

步骤5.检验硬盘详细信息。

```

|
sysadmin-vm:0_RP0# sh media
Fri Jun 21 20:21:28.615 UTC
-----
Partition                Size      Used  Percent  Avail
-----
rootfs:                   2.4G     633M    29%     1.6G
log:                      478M     308M    70%     135M
config:                   478M      32M     8%     410M
disk0:                    949M      47M     6%     838M
install:                  3.7G     2.8G    81%     681M
disk1:                    18G      3.0G    18%     14G
-----

rootfs: = root file system (read-only)
log:    = system log files (read-only)
config: = configuration storage (read-only)
install: = install repository (read-only)
sysadmin-vm:0_RP0#

```

步骤6.创建数据库备份。

```

RP/0/RP0:Node_Name# save configuration database disk1:Node_Name_DB_BACKUP
Thu Nov 14 13:59:54.631 CST
Configuration database successfully backed up at:
/harddisk:/disk1:Node Name DB BACKUP.tgz

RP/0/RP0:Node_Name# show run | file disk1:Node_Name_DB_BACKUP
Thu Nov 14 14:00:41.974 CST
Building configuration...

[OK]
RP/0/RP0:Node_Name#

```

步骤7.检验BITS计时。如果NCS4K使用BITS定时，请记录这些命令的输出。如果未使用计时，请跳至步骤8。记录show controller timing controller clock命令的输出，如图示。

```
RP/0/RP0:Node_Name| #show controller timing controller clock
Wed Nov 13 14:53:18.781 CST
```

SYNCEC Clock-Setting: Rack 0

	BITS0-IN	BITS0-OUT	BITS1-IN	BITS1-OUT
Config	: Yes	No	Yes	No
PORT Mode	: T1	-	T1	-
Framing	: ESF	-	ESF	-
Linecoding	: B8ZS	-	B8ZS	-
Submode	: -	-	-	-
Shutdown	: No	No	No	No
Direction	: RX	TX	RX	TX
QL Option	: O2 G1	O2 G1	O2 G1	O2 G1
RX_ssm	: PRS	-	PRS	-
TX_ssm	: -	-	-	-
If_state	: UP	ADMIN_DOWN	UP	ADMIN_DOWN

  

	TE0-E	TE1-E	TE0-W	TE1-W
Config	: NA	NA	NA	NA
PORT Mode	: ICS	ICS	ICS	ICS
Framing	: -	-	-	-
Linecoding	: -	-	-	-
Submode	: -	-	-	-
Shutdown	: No	No	No	No
Direction	: -	-	-	-
QL Option	: O1	O1	O1	O1
RX_ssm	: -	-	-	-
TX_ssm	: -	-	-	-
If_state	: DOWN	DOWN	DOWN	DOWN

如图所示，记录show frequency synchronization clock-interfaces brief命令的输出。

```
RP/0/RP0: Node_Name #show frequency synchronization clock-interfaces brief
Tue Nov 5 16:38:03.711 CST
Flags: > - Up          D - Down          S - Assigned for selection
       d - SSM Disabled s - Output squelched L - Looped back
Node 0/RP0:
=====
Fl  Clock Interface  QLrcv  QLuse  Pri  QLsnd  Output driven by
=====
>S  Rack0-Bits0-In   PRS    PRS    50  n/a    n/a
D   Rack0-Bits0-Out n/a    n/a    n/a  PRS    Rack0-Bits0-In
>S  Rack0-Bits1-In   PRS    PRS    50  n/a    n/a
D   Rack0-Bits1-Out n/a    n/a    n/a  PRS    Rack0-Bits0-In
D   0/TE0-E         n/a    n/a    n/a  n/a    n/a
D   0/TE1-E         n/a    n/a    n/a  n/a    n/a
D   0/TE0-W         n/a    n/a    n/a  n/a    n/a
D   0/TE1-W         n/a    n/a    n/a  n/a    n/a
>S  Internal0       n/a    ST3    255  n/a    n/a
```

步骤8.准备拆除ECU。为了安全地将ECU从服务中移除，请发出detach命令hw-module provision ecu detach disk rack 0，如图所示。

```
RP/0/RP0:Node_Name#hw-module provision ecu detach disk rack 0
Thu Nov 14 14:30:25.864 CST
provision: detach triggered for rack :0
RP/0/RP0:Node_Name#hw-module provision ecu status disk rack 0
Thu Nov 14 14:30:57.139 CST
provision: status triggered for rack :0
detach: operation ongoing
RP/0/RP0:Node_Name#
```

```
RP/0/RP0:Node_Name#show alarms brief system active
Thu Nov 14 14:32:51.469 CST
```

-----  
Active Alarms  
-----

Location	Severity	Group	Set Time	Description
0/RP1	Minor	Software	11/14/2019 14:30:28 CST	disk provision is in progress
0/RP0	Minor	Software	11/14/2019 14:31:57 CST	The detach provision for disk started

```
RP/0/RP0:Node_Name#
```

步骤9.在物理移除ECU模块之前，请确保警报系统上已清除磁盘的分离操作。

```
RP/0/RP0:Node_Name#hw-module provision ecu status disk rack 0
Thu Nov 14 14:36:07.406 CST
provision: status triggered for rack :0
detach: operation completed successfully
```

步骤10.从NCS4K机箱卸下ECU模块：

- a.确保用户佩戴防静电腕带。
  - b.拔下连接到NCS4K-ECU模块的所有电缆。
  - c.移除EMS电缆时，会将所有远程管理丢弃到机架中。在步骤11中重新连接EMS电缆后，它才会恢复。使用控制台端口仍可实现远程访问。
  - e.拔下连接到设备的所有单独定时电缆。
  - f.使用飞利浦螺丝刀拧松ECU单元上的螺钉。
  - g.使用两侧的锁闩将NCS4K-ECU单元拔出。
  - h.从原始NCS4K-ECU中卸下两个2.5英寸SATA驱动器(SSD)。注意ECU中的确切位置（左或右）。
- 我.将从NCS4K-ECU卸下的2.5英寸SATA驱动器插入新的NCS4K-ECU2模块。确保它们安装在与原始ECU相同的位置。

步骤11.安装ECU2模块并重新连接电缆：

- a.将新的NCS4K-ECU2模块（两个2.5英寸SATA驱动器）放入原始ECU插槽中。
- b.将步骤10中移除的所有电缆重新连接到新的ECU2模块。
- c.正确定位锁闩后拧紧螺钉。
- d.确保与NE的远程管理连接再次可用。

e. 确保NE的前面板LCD工作正常。



步骤12.在NCS4K机箱中初始化新的ECU2。等待2到3分钟，NCS4K-ECU2模块初始化。

步骤13.如图所示，在命令提示符下执行attach命令。

```
RP/0/RP0:Node Name#hw-module provision ecu attach disk rack 0
Thu Nov 14 14:47:05.299 CST
provision: attach triggered for rack :0
RP/0/RP0:Node Name#hw-module provision ecu status disk rack 0
Thu Nov 14 14:47:49.869 CST
provision: status triggered for rack :0
attach: operation ongoing
RP/0/RP0:Node Name#hw-module provision ecu status disk rack 0
Thur Nov 14 14:50:13.884 CST
provision: status triggered for rack :0
attach: operation completed successfully
RP/0/RP0:Node_Name#
```

步骤14.一旦ECU成功连接到机箱，ECU从NCS4K-ECU迁移到NCS4K-ECU2完成。

## 过帐检查

### 验证警报

验证警报并确保机架上没有新警报或意外警报。

**注意：**对于RP0和RP1，位置警报的磁盘空间警报可能需要稍长的时间才能空闲，但您可以使用sh media命令验证磁盘是否运行正常。

Num	Ref	New	Date	Object	Eqpt Type	Slot	Unit	Port	Wavelength	Path Width	Sev	ST	SA	Cond	Description	Direction	Location
NA	NA	✓	06/21/19 14:40:34	0/RP0	Route Pr...	RP0	NA	NA	NA	NA	CR	C	NA	DISK1-DISK-SPA...	Disk space alert for location "Sysadmin/mis...	NA	NEAR
NA	NA	✓	06/21/19 14:40:01	0/RP0	Route Pr...	RP0	NA	NA	NA	NA	MN	C	NA	ECU_CAL_DISK_...	disk provision is in progress	NA	NEAR
NA	NA	✓	06/21/19 14:40:00	0/RP0	Route Pr...	RP0	NA	NA	NA	NA	MN	C	NA	ECU_CAL_PROV...	The attach provision for disk started	NA	NEAR

Num	Ref	New	Date	Object	Eqpt Type	Slot	Unit	Port	Wavelength	Path Width	Sev	ST	SA	Cond	Description	Direction	Location
NA	NA	✓	06/21/19 14:40:34	0/RP0	Route Pr...	RP0		NA	NA	NA	CR	C	NA	DISK1-DISK-SPA...	Disk space alert for location "Sysadmin/mis...	NA	NEAR
NA	NA	✓	06/21/19 14:40:01	0/RP0	Route Pr...	RP0		NA	NA	NA	MN	C	NA	ECU_CAL_DISK_...	disk provision is in progress	NA	NEAR
NA	NA	✓	06/21/19 14:40:00	0/RP0	Route Pr...	RP0		NA	NA	NA	MN	C	NA	ECU_CAL_PROV...	The attach provision for disk started	NA	NEAR
NA	NA	✓	06/21/19 14:38:41	0/RP0	Route Pr...	RP0		NA	NA	NA	MN	R	NA	ECU_CAL_PROV...	The attach provision for disk started	NA	NEAR
NA	NA	NA	06/21/19 14:22:31	0/RP1	Route Pr...	RP1		NA	NA	NA	CR	R	NA	DISK1-DISK-SPA...	Disk space alert for location "Sysadmin/mis...	NA	NEAR
NA	NA	NA	06/21/19 14:21:07	0/RP1	Route Pr...	RP1		NA	NA	NA	MN	R	NA	ECU_CAL_DISK_...	disk provision is in progress	NA	NEAR

## 验证介质

验证两个固态硬盘驱动器的插槽是否正确且是否可达，如图所示。

```
sysadmin-vm:0_RP0# sh media
```

```
Fri Jun 21 20:21:28.615 UTC
```

```
-----
Partition                               Size      Used  Percent  Avail
-----
rootfs:                                2.4G      633M    29%     1.6G
log:                                     478M      308M    70%     135M
config:                                 478M       32M     8%     410M
disk0:                                  949M       47M     6%     838M
install:                                3.7G      2.8G    81%     681M
disk1:                                  18G       3.0G    18%     14G
-----
```

```
rootfs: = root file system (read-only)
log:    = system log files (read-only)
config: = configuration storage (read-only)
install: = install repository (read-only)
sysadmin-vm:0_RP0#
```

## BITS计时重新检查

如果已配备BITS定时，并且第1.5节已完成，请在将BITS定时重新连接到ECU2后再次运行命令，并与图中所示的先前结果进行比较。

RP/0/RP0:node\_name#show controller timing controller clock

Wed Nov 13 14:53:18.781 CST

SYNCEC Clock-Setting: Rack 0

	BITS0-IN	BITS0-OUT	BITS1-IN	BITS1-OUT
Config	: Yes	No	Yes	No
PORT Mode	: T1	-	T1	-
Framing	: ESF	-	ESF	-
Linecoding	: B8ZS	-	B8ZS	-
Submode	: -	-	-	-
Shutdown	: No	No	No	No
Direction	: RX	TX	RX	TX
QL Option	: O2 G1	O2 G1	O2 G1	O2 G1
RX_ssm	: PRS	-	PRS	-
TX_ssm	: -	-	-	-
If_state	: UP	ADMIN_DOWN	UP	ADMIN_DOWN

	TE0-E	TE1-E	TE0-W	TE1-W
Config	: NA	NA	NA	NA
PORT Mode	: ICS	ICS	ICS	ICS
Framing	: -	-	-	-
Linecoding	: -	-	-	-
Submode	: -	-	-	-
Shutdown	: No	No	No	No
Direction	: -	-	-	-
QL Option	: O1	O1	O1	O1
RX_ssm	: -	-	-	-
TX_ssm	: -	-	-	-
If_state	: DOWN	DOWN	DOWN	DOWN

RP/0/RP0: Node\_Name #show frequency synchronization clock-interfaces brief

Tue Nov 5 16:38:03.711 CST

Flags: > - Up                    D - Down                    S - Assigned for selection  
      d - SSM Disabled            s - Output squelched      L - Looped back

Node 0/RP0:

```
=====
Fl  Clock Interface  QLrcv  QLuse  Pri  QLsnd  Output driven by
=====
>S  Rack0-Bits0-In   PRS    PRS    50  n/a    n/a
D   Rack0-Bits0-Out n/a    n/a    n/a  PRS    Rack0-Bits0-In
>S  Rack0-Bits1-In   PRS    PRS    50  n/a    n/a
D   Rack0-Bits1-Out n/a    n/a    n/a  PRS    Rack0-Bits0-In
D   0/TE0-E         n/a    n/a    n/a  n/a    n/a
D   0/TE1-E         n/a    n/a    n/a  n/a    n/a
D   0/TE0-W         n/a    n/a    n/a  n/a    n/a
D   0/TE1-W         n/a    n/a    n/a  n/a    n/a
>S  Internal0       n/a    ST3    255  n/a    n/a
=====
```