



## 配置软件 Cluster and storage switches

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# 配置软件

## 准备安装NX-OS软件和参考配置文件

在安装NX-OS软件和参考配置文件(Reference Configuration File、RCF)之前、请遵循此操作步骤。

关于示例

此操作步骤中的示例使用两个节点。这些节点使用两个 10GbE 集群互连端口 e0a 和 e0b。

请参见 "[Hardware Universe](#)" 验证平台上的集群端口是否正确。



根据不同版本的 ONTAP，命令输出可能会有所不同。

此操作步骤中的示例使用以下交换机和节点命名：

- 这两台 Cisco 交换机的名称分别为 cs1 和 cs2。
- 节点名称为 cluster1-01 和 cluster1-02。
- 集群 LIF 名称为 cluster1-01\_clus1 和 cluster1-01\_clus2（对于 cluster1-01）和 cluster1-02\_clus1 和 cluster1-02\_clus2（对于 cluster1-02）。
- cluster1 :: : \* > 提示符指示集群的名称。

关于此任务

操作步骤 要求同时使用 ONTAP 命令和 Cisco Nexus 3000 系列交换机命令；除非另有说明，否则使用 ONTAP 命令。

步骤

1. 如果在此集群上启用了 AutoSupport，则通过调用 AutoSupport 消息禁止自动创建案例：

```
ssystem node AutoSupport invoke -node * -type all -message MAINT=xh
```

其中 x 是维护时段的持续时间，以小时为单位。



AutoSupport 消息会通知技术支持此维护任务，以便在维护窗口期间禁止自动创建案例。

2. 将权限级别更改为高级，在系统提示您继续时输入 \*y\*：

```
set -privilege advanced
```

此时将显示高级提示符（`\*>`）。

3. 显示每个集群互连交换机的每个节点中配置的集群互连接口数量：

```
network device-discovery show -protocol cdp
```

显示示例

```
cluster1::*> network device-discovery show -protocol cdp
```

| Node/<br>Protocol<br>Platform | Local<br>Port | Discovered<br>Device (LLDP: ChassisID) | Interface |      |
|-------------------------------|---------------|--|-----------|------|
| cluster1-02/cdp               | e0a           | cs1                                    | Eth1/2    | N3K- |
| C3132Q-V                      | e0b           | cs2                                    | Eth1/2    | N3K- |
| C3132Q-V                      |               |  |           |      |
| cluster1-01/cdp               | e0a           | cs1                                    | Eth1/1    | N3K- |
| C3132Q-V                      | e0b           | cs2                                    | Eth1/1    | N3K- |
| C3132Q-V                      |               |  |           |      |

4. 检查每个集群接口的管理或运行状态。

a. 显示网络端口属性：

```
network port show - IP 空间集群
```

## 显示示例

```
cluster1::*> network port show -ipspace Cluster
```

Node: cluster1-02

| Health  |         |           |        |      |      | Speed (Mbps) |
|---------|---------|-----------|--------|------|------|--------------|
| Port    | IPspace | Broadcast | Domain | Link | MTU  | Admin/Oper   |
| Status  |         |           |        |      |      |              |
| -----   | -----   | -----     | -----  | ---- | ---- | -----        |
| -----   |         |           |        |      |      |              |
| e0a     | Cluster | Cluster   |        | up   | 9000 | auto/10000   |
| healthy |         |           |        |      |      |              |
| e0b     | Cluster | Cluster   |        | up   | 9000 | auto/10000   |
| healthy |         |           |        |      |      |              |

Node: cluster1-01

| Health  |         |           |        |      |      | Speed (Mbps) |
|---------|---------|-----------|--------|------|------|--------------|
| Port    | IPspace | Broadcast | Domain | Link | MTU  | Admin/Oper   |
| Status  |         |           |        |      |      |              |
| -----   | -----   | -----     | -----  | ---- | ---- | -----        |
| -----   |         |           |        |      |      |              |
| e0a     | Cluster | Cluster   |        | up   | 9000 | auto/10000   |
| healthy |         |           |        |      |      |              |
| e0b     | Cluster | Cluster   |        | up   | 9000 | auto/10000   |
| healthy |         |           |        |      |      |              |

b. 显示有关 LIF 的信息：

```
network interface show -vserver cluster
```

```
cluster1::*> network interface show -vserver Cluster
```

| Current Is  | Logical           | Status     | Network           | Current |
|-------------|-------------------|------------|-------------------|---------|
| Vserver     | Interface         | Admin/Oper | Address/Mask      | Node    |
| Port        | Home              |            |                   |         |
| -----       |                   |            |                   |         |
| -----       |                   |            |                   |         |
| Cluster     |                   |            |                   |         |
|             | cluster1-01_clus1 | up/up      | 169.254.209.69/16 |         |
| cluster1-01 | e0a true          |            |                   |         |
|             | cluster1-01_clus2 | up/up      | 169.254.49.125/16 |         |
| cluster1-01 | e0b true          |            |                   |         |
|             | cluster1-02_clus1 | up/up      | 169.254.47.194/16 |         |
| cluster1-02 | e0a true          |            |                   |         |
|             | cluster1-02_clus2 | up/up      | 169.254.19.183/16 |         |
| cluster1-02 | e0b true          |            |                   |         |

5. 对远程集群 LIF 执行 Ping 操作:

```
cluster ping-cluster -node local
```

```

cluster1::*> cluster ping-cluster -node local
Host is cluster1-02
Getting addresses from network interface table...
Cluster cluster1-01_clus1 169.254.209.69 cluster1-01      e0a
Cluster cluster1-01_clus2 169.254.49.125 cluster1-01      e0b
Cluster cluster1-02_clus1 169.254.47.194 cluster1-02      e0a
Cluster cluster1-02_clus2 169.254.19.183 cluster1-02      e0b
Local = 169.254.47.194 169.254.19.183
Remote = 169.254.209.69 169.254.49.125
Cluster Vserver Id = 4294967293
Ping status:
....
Basic connectivity succeeds on 4 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 4 path(s):
    Local 169.254.19.183 to Remote 169.254.209.69
    Local 169.254.19.183 to Remote 169.254.49.125
    Local 169.254.47.194 to Remote 169.254.209.69
    Local 169.254.47.194 to Remote 169.254.49.125
Larger than PMTU communication succeeds on 4 path(s)
RPC status:
2 paths up, 0 paths down (tcp check)
2 paths up, 0 paths down (udp check)

```

#### 6. 验证是否已在所有集群 LIF 上启用 auto-revert 命令:

```
network interface show - vserver cluster -fields auto-revert
```

```
cluster1::*> network interface show -vserver Cluster -fields auto-revert
```

| Vserver | Logical Interface | Auto-revert |
|---------|-------------------|-------------|
| Cluster | cluster1-01_clus1 | true        |
|         | cluster1-01_clus2 | true        |
|         | cluster1-02_clus1 | true        |
|         | cluster1-02_clus2 | true        |

下一步是什么？

["安装NX-OS软件"](#)。

## 安装 NX-OS 软件

按照此操作步骤 在Nexus 3132Q-V集群交换机上安装NX-OS软件。

### 查看要求

您需要的内容

- 交换机配置的当前备份。
- 一个完全正常运行的集群(日志中没有错误或类似问题)。

建议的文档

- ["Cisco 以太网交换机"](#)。有关支持的ONTAP 和NX-OS版本、请参见交换机兼容性表。
- ["Cisco Nexus 3000 系列交换机"](#)。有关Cisco交换机升级和降级过程的完整文档、请参见Cisco网站上提供的相应软件和升级指南。

### 安装软件

关于此任务

操作步骤 要求同时使用 ONTAP 命令和 Cisco Nexus 3000 系列交换机命令；除非另有说明，否则使用 ONTAP 命令。

请务必在中完成操作步骤 ["准备安装NX-OS软件和参考配置文件"](#)、然后按照以下步骤进行操作。

步骤

1. 将集群交换机连接到管理网络。
2. 使用 ping 命令验证与托管 NX-OS 软件和 RCF 的服务器的连接。



#### 显示示例

```
cs2# ping 172.19.2.1 vrf management
Pingging 172.19.2.1 with 0 bytes of data:

Reply From 172.19.2.1: icmp_seq = 0. time= 5910 usec.
```

3. 使用以下传输协议之一将NX-OS软件复制到Nexus 3132Q-V交换机：FTP、TFTP、SFTP或SCP。有关Cisco命令的详细信息、请参见中的相应指南 ["Cisco Nexus 3000系列NX-OS命令参考指南"](#)。

#### 显示示例

```
cs2# copy sftp: bootflash: vrf management
Enter source filename: /code/nxos.9.3.4.bin
Enter hostname for the sftp server: 172.19.2.1
Enter username: user1

Outbound-ReKey for 172.19.2.1:22
Inbound-ReKey for 172.19.2.1:22
user1@172.19.2.1's password: xxxxxxxx
sftp> progress
Progress meter enabled
sftp> get /code/nxos.9.3.4.bin /bootflash/nxos.9.3.4.bin
/code/nxos.9.3.4.bin 100% 1261MB 9.3MB/s 02:15
sftp> exit
Copy complete, now saving to disk (please wait)...
Copy complete.
```

4. 验证正在运行的 NX-OS 软件版本：

s如何使用版本

```
cs2# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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All rights reserved.
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http://www.opensource.org/licenses/gpl-2.0.php and
http://opensource.org/licenses/gpl-3.0.html and
http://www.opensource.org/licenses/lgpl-2.1.php and
http://www.gnu.org/licenses/old-licenses/library.txt.

Software
  BIOS: version 04.25
  NXOS: version 9.3(3)
    BIOS compile time: 01/28/2020
    NXOS image file is: bootflash:///nxos.9.3.3.bin
      NXOS compile time: 12/22/2019 2:00:00 [12/22/2019
14:00:37]

Hardware
  cisco Nexus 3132QV Chassis (Nexus 9000 Series)
  Intel(R) Core(TM) i3- CPU @ 2.50GHz with 16399900 kB of memory.
  Processor Board ID FOxxxxxxx23

  Device name: cs2
  bootflash: 15137792 kB
  usb1: 0 kB (expansion flash)

Kernel uptime is 79 day(s), 10 hour(s), 23 minute(s), 53 second(s)
```

```
Last reset at 663500 usecs after Mon Nov  2 10:50:33 2020
Reason: Reset Requested by CLI command reload
System version: 9.3(3)
Service:

plugin
Core Plugin, Ethernet Plugin

Active Package(s):
cs2#
```

## 5. 安装 NX-OS 映像。

安装映像文件会导致每次重新启动交换机时加载该映像文件。

```

cs2# install all nxos bootflash:nxos.9.3.4.bin
Installer will perform compatibility check first. Please wait.
Installer is forced disruptive

Verifying image bootflash:/nxos.9.3.4.bin for boot variable "nxos".
[] 100% -- SUCCESS

Verifying image type.
[] 100% -- SUCCESS

Preparing "nxos" version info using image bootflash:/nxos.9.3.4.bin.
[] 100% -- SUCCESS

Preparing "bios" version info using image bootflash:/nxos.9.3.4.bin.
[] 100% -- SUCCESS

Performing module support checks.
[] 100% -- SUCCESS

Notifying services about system upgrade.
[] 100% -- SUCCESS

Compatibility check is done:
Module  bootable          Impact          Install-type  Reason
-----  -
      1      yes          disruptive          reset          default
upgrade is not hitless

Images will be upgraded according to following table:
Module      Image      Running-Version(pri:alt)
New-Version      Upg-Required
-----  -
      1      nxos      9.3(3)
9.3(4)          yes
      1      bios      v04.25(01/28/2020):v04.25(10/18/2016)
v04.25(01/28/2020)  no

Switch will be reloaded for disruptive upgrade.
Do you want to continue with the installation (y/n)?  [n] y

```

```
Install is in progress, please wait.
```

```
Performing runtime checks.
```

```
[ ] 100% -- SUCCESS
```

```
Setting boot variables.
```

```
[ ] 100% -- SUCCESS
```

```
Performing configuration copy.
```

```
[ ] 100% -- SUCCESS
```

```
Module 1: Refreshing compact flash and upgrading  
bios/loader/bootrom.
```

```
Warning: please do not remove or power off the module at this time.
```

```
[ ] 100% -- SUCCESS
```

```
Finishing the upgrade, switch will reboot in 10 seconds.
```

```
cs2#
```

## 6. 在交换机重新启动后验证 NX-OS 软件的新版本：

s如何使用版本

```
cs2# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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http://www.opensource.org/licenses/gpl-2.0.php and
http://opensource.org/licenses/gpl-3.0.html and
http://www.opensource.org/licenses/lgpl-2.1.php and
http://www.gnu.org/licenses/old-licenses/library.txt.

Software
  BIOS: version 04.25
  NXOS: version 9.3(4)
    BIOS compile time: 05/22/2019
    NXOS image file is: bootflash:///nxos.9.3.4.bin
    NXOS compile time: 4/28/2020 21:00:00 [04/29/2020 06:28:31]

Hardware
  cisco Nexus 3132QV Chassis (Nexus 9000 Series)
  Intel(R) Core(TM) i3- CPU @ 2.50GHz with 16399900 kB of memory.
  Processor Board ID FOxxxxxxx23

  Device name: cs2
  bootflash: 15137792 kB
  usb1: 0 kB (expansion flash)

Kernel uptime is 79 day(s), 10 hour(s), 23 minute(s), 53 second(s)
```

```
Last reset at 663500 usecs after Mon Nov  2 10:50:33 2020
Reason: Reset Requested by CLI command reload
System version: 9.3(4)
Service:

plugin
  Core Plugin, Ethernet Plugin

Active Package(s):

cs2#
```

下一步是什么？

"[安装参考配置文件（RCF）](#)"。

## 安装参考配置文件（RCF）

首次设置Nexus 3132Q-V交换机后、按照此操作步骤 安装RCF。您也可以使用此操作步骤 升级 RCF 版本。

### 查看要求

您需要的内容

- 交换机配置的当前备份。
- 一个完全正常运行的集群(日志中没有错误或类似问题)。
- 当前参考配置文件(Reference Configuration File、RCF)。
- 安装RCF时需要与交换机建立控制台连接。
- "[Cisco 以太网交换机](#)"。有关支持的ONTAP 和RCF版本、请参见交换机兼容性表。请注意、RCF中的命令语法与NX-OS版本中的命令语法之间可能存在命令依赖关系。
- "[Cisco Nexus 3000 系列交换机](#)"。有关Cisco交换机升级和降级过程的完整文档、请参见Cisco网站上提供的相应软件和升级指南。

### 安装文件

关于示例

此操作步骤中的示例使用以下交换机和节点命名：

- 这两台 Cisco 交换机的名称分别为 cs1 和 cs2 。
- 节点名称包括 cluster1-01 ， cluster1-02 ， cluster1-03 和 cluster1-04 。
- 集群 LIF 名称为 cluster1-01\_clus1 ， cluster1-01\_clus2 ， cluster1-02\_clus1 ， cluster1-02\_clus2 ， cluster1-03\_clus1 ， cluster1-03\_clus2 ， cluster1-04\_clus1 和 cluster1-04\_clus2 。

- `cluster1 :: : * >` 提示符指示集群的名称。

#### 关于此任务

**操作步骤** 要求同时使用 ONTAP 命令和 Cisco Nexus 3000 系列交换机命令；除非另有说明，否则使用 ONTAP 命令。

在此操作步骤 期间、不需要可操作的交换机间链路(ISL)。这是设计上的原因、因为RCF版本更改可能会暂时影响ISL连接。为了确保集群无中断运行、以下操作步骤 会在对目标交换机执行步骤时将所有集群LIF迁移到运行中的配对交换机。

请务必在中完成操作步骤 "[准备安装NX-OS软件和参考配置文件](#)"、然后按照以下步骤进行操作。

#### 第1步：检查端口状态

1. 显示连接到集群交换机的每个节点上的集群端口：

```
network device-discovery show
```



```
cluster1::*> network device-discovery show
Node/          Local  Discovered
Protocol      Port   Device (LLDP: ChassisID)  Interface
Platform
-----
-----
cluster1-01/cdp
              e0a    cs1                      Ethernet1/7      N3K-
C3132Q-V
              e0d    cs2                      Ethernet1/7      N3K-
C3132Q-V
cluster1-02/cdp
              e0a    cs1                      Ethernet1/8      N3K-
C3132Q-V
              e0d    cs2                      Ethernet1/8      N3K-
C3132Q-V
cluster1-03/cdp
              e0a    cs1                      Ethernet1/1/1    N3K-
C3132Q-V
              e0b    cs2                      Ethernet1/1/1    N3K-
C3132Q-V
cluster1-04/cdp
              e0a    cs1                      Ethernet1/1/2    N3K-
C3132Q-V
              e0b    cs2                      Ethernet1/1/2    N3K-
C3132Q-V
cluster1::*>
```

2. 检查每个集群端口的管理和运行状态。
  - a. 验证所有集群端口是否均已启动且状态正常：
 

```
network port show -ipspace cluster
```

```
cluster1::*> network port show -ipspace Cluster
```

```
Node: cluster1-01
```

```
Ignore
```

|         |         |           |        |       |       | Speed (Mbps) |
|---------|---------|-----------|--------|-------|-------|--------------|
| Health  | Health  |           |        |       |       |              |
| Port    | IPspace | Broadcast | Domain | Link  | MTU   | Admin/Oper   |
| Status  | Status  |           |        |       |       |              |
| -----   | -----   | -----     | -----  | ----- | ----- | -----        |
| -----   | -----   |           |        |       |       |              |
| e0a     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |
| e0d     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |

```
Node: cluster1-02
```

```
Ignore
```

|         |         |           |        |       |       | Speed (Mbps) |
|---------|---------|-----------|--------|-------|-------|--------------|
| Health  | Health  |           |        |       |       |              |
| Port    | IPspace | Broadcast | Domain | Link  | MTU   | Admin/Oper   |
| Status  | Status  |           |        |       |       |              |
| -----   | -----   | -----     | -----  | ----- | ----- | -----        |
| -----   | -----   |           |        |       |       |              |
| e0a     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |
| e0d     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |

```
8 entries were displayed.
```

```
Node: cluster1-03
```

```
Ignore
```

|         |         |           |        |       |       | Speed (Mbps) |
|---------|---------|-----------|--------|-------|-------|--------------|
| Health  | Health  |           |        |       |       |              |
| Port    | IPspace | Broadcast | Domain | Link  | MTU   | Admin/Oper   |
| Status  | Status  |           |        |       |       |              |
| -----   | -----   | -----     | -----  | ----- | ----- | -----        |
| -----   | -----   |           |        |       |       |              |
| e0a     | Cluster | Cluster   |        | up    | 9000  | auto/10000   |
| healthy | false   |           |        |       |       |              |
| e0b     | Cluster | Cluster   |        | up    | 9000  | auto/10000   |
| healthy | false   |           |        |       |       |              |

Node: cluster1-04

Ignore

| Health  | Health  |           |        |       | Speed (Mbps) |            |
|---------|---------|-----------|--------|-------|--------------|------------|
| Port    | IPspace | Broadcast | Domain | Link  | MTU          | Admin/Oper |
| Status  | Status  |           |        |       |              |            |
| -----   | -----   | -----     | -----  | ----- | -----        | -----      |
| e0a     | Cluster | Cluster   |        | up    | 9000         | auto/10000 |
| healthy | false   |           |        |       |              |            |
| e0b     | Cluster | Cluster   |        | up    | 9000         | auto/10000 |
| healthy | false   |           |        |       |              |            |

cluster1::\*>

b. 验证所有集群接口（LIF）是否均位于主端口上：

```
network interface show -vserver cluster
```

```

cluster1::*> network interface show -vserver Cluster

```

| Current<br>Vserver<br>Port | Logical<br>Current Is<br>Interface<br>Home | Status<br>Admin/Oper | Network<br>Address/Mask | Node |
|----------------------------|--|----------------------|-------------------------|------|
| Cluster                    |  |                      |                         |      |
|                            | cluster1-01_clus1                          | up/up                | 169.254.3.4/23          |      |
| cluster1-01                | e0a true                                   |                      |                         |      |
|                            | cluster1-01_clus2                          | up/up                | 169.254.3.5/23          |      |
| cluster1-01                | e0d true                                   |                      |                         |      |
|                            | cluster1-02_clus1                          | up/up                | 169.254.3.8/23          |      |
| cluster1-02                | e0a true                                   |                      |                         |      |
|                            | cluster1-02_clus2                          | up/up                | 169.254.3.9/23          |      |
| cluster1-02                | e0d true                                   |                      |                         |      |
|                            | cluster1-03_clus1                          | up/up                | 169.254.1.3/23          |      |
| cluster1-03                | e0a true                                   |                      |                         |      |
|                            | cluster1-03_clus2                          | up/up                | 169.254.1.1/23          |      |
| cluster1-03                | e0b true                                   |                      |                         |      |
|                            | cluster1-04_clus1                          | up/up                | 169.254.1.6/23          |      |
| cluster1-04                | e0a true                                   |                      |                         |      |
|                            | cluster1-04_clus2                          | up/up                | 169.254.1.7/23          |      |
| cluster1-04                | e0b true                                   |                      |                         |      |

```

cluster1::*>

```

c. 验证集群是否同时显示两个集群交换机的信息：

```
ssystem cluster-switch show -is-monitoring-enabled-Operational true
```

```
cluster1::*> system cluster-switch show -is-monitoring-enabled
-operational true
```

| Switch<br>Model  | Type            | Address  |
|--|-----------------|----------|
| cs1<br>NX3132QV  | cluster-network | 10.0.0.1 |
| Serial Number: FOXXXXXXXXGS                            |                 |          |
| Is Monitored: true                                     |                 |          |
| Reason: None   |                 |          |
| Software Version: Cisco Nexus Operating System (NX-OS) |                 |          |
| Software, Version                                      |                 |          |
| 9.3(4)   |                 |          |
| Version Source: CDP                                    |                 |          |
| cs2<br>NX3132QV  | cluster-network | 10.0.0.2 |
| Serial Number: FOXXXXXXXXGD                            |                 |          |
| Is Monitored: true                                     |                 |          |
| Reason: None   |                 |          |
| Software Version: Cisco Nexus Operating System (NX-OS) |                 |          |
| Software, Version                                      |                 |          |
| 9.3(4)   |                 |          |
| Version Source: CDP                                    |                 |          |

2 entries were displayed.



对于ONTAP 9.8及更高版本、请使用命令 `system switch ethernet show -is-monitoring-enabled-operational true`。

### 3. 在集群 LIF 上禁用自动还原。

```
cluster1::*> network interface modify -vserver Cluster -lif * -auto
-revert false
```

确保在运行此命令后禁用自动还原。

### 4. 在集群交换机 CS2 上，关闭连接到节点集群端口的端口。

```
cs2(config)# interface eth1/1/1-2,eth1/7-8
cs2(config-if-range)# shutdown
```

5. 验证集群端口是否已迁移到集群交换机 CS1 上托管的端口。这可能需要几秒钟的时间。

```
network interface show -vserver cluster
```

显示示例

```
cluster1::*> network interface show -vserver Cluster
```

|             | Logical           | Status     | Network        | Current |
|-------------|-------------------|------------|----------------|---------|
| Current Is  |                   |            |                |         |
| Vserver     | Interface         | Admin/Oper | Address/Mask   | Node    |
| Port        | Home              |            |                |         |
| -----       |                   |            |                |         |
| -----       |                   |            |                |         |
| Cluster     |                   |            |                |         |
|             | cluster1-01_clus1 | up/up      | 169.254.3.4/23 |         |
| cluster1-01 | e0a true          |            |                |         |
|             | cluster1-01_clus2 | up/up      | 169.254.3.5/23 |         |
| cluster1-01 | e0a false         |            |                |         |
|             | cluster1-02_clus1 | up/up      | 169.254.3.8/23 |         |
| cluster1-02 | e0a true          |            |                |         |
|             | cluster1-02_clus2 | up/up      | 169.254.3.9/23 |         |
| cluster1-02 | e0a false         |            |                |         |
|             | cluster1-03_clus1 | up/up      | 169.254.1.3/23 |         |
| cluster1-03 | e0a true          |            |                |         |
|             | cluster1-03_clus2 | up/up      | 169.254.1.1/23 |         |
| cluster1-03 | e0a false         |            |                |         |
|             | cluster1-04_clus1 | up/up      | 169.254.1.6/23 |         |
| cluster1-04 | e0a true          |            |                |         |
|             | cluster1-04_clus2 | up/up      | 169.254.1.7/23 |         |
| cluster1-04 | e0a false         |            |                |         |

```
cluster1::*>
```

6. 验证集群是否运行正常：

```
cluster show
```

## 显示示例

```
cluster1::*> cluster show
Node                Health Eligibility Epsilon
-----
cluster1-01         true   true      false
cluster1-02         true   true      false
cluster1-03         true   true      true
cluster1-04         true   true      false
cluster1::*>
```

## 第2步：配置并验证设置

1. 如果尚未保存当前交换机配置的副本、请将以下命令的输出复制到文本文件中：

### s如何运行配置

2. 清理交换机 CS2 上的配置并执行基本设置。



更新或应用新 RCF 时，必须擦除交换机设置并执行基本配置。您必须连接到交换机串行控制台端口才能重新设置交换机。

- a. 清理配置：

### 显示示例

```
(cs2) # write erase

Warning: This command will erase the startup-configuration.

Do you wish to proceed anyway? (y/n) [n] y
```

- b. 重新启动交换机：

### 显示示例

```
(cs2) # reload

Are you sure you would like to reset the system? (y/n) y
```

3. 使用以下传输协议之一将 RCF 复制到交换机 CS2 的启动闪存：FTP，TFTP，SFTP 或 SCP。有关

Cisco 命令的详细信息，请参见中的相应指南 "《Cisco Nexus 3000 系列 NX-OS 命令参考》" 指南。

显示示例

```
cs2# copy tftp: bootflash: vrf management
Enter source filename: Nexus_3132QV_RCF_v1.6-Cluster-HA-Breakout.txt
Enter hostname for the tftp server: 172.22.201.50
Trying to connect to tftp server.....Connection to Server
Established.
TFTP get operation was successful
Copy complete, now saving to disk (please wait)...
```

4. 将先前下载的 RCF 应用于 bootflash 。

有关 Cisco 命令的详细信息，请参见中的相应指南 "《Cisco Nexus 3000 系列 NX-OS 命令参考》" 指南。

显示示例

```
cs2# copy Nexus_3132QV_RCF_v1.6-Cluster-HA-Breakout.txt running-
config echo-commands
```

5. 检查 `show banner motd` 命令的横幅输出。您必须阅读并按照 \* 重要说明 \* 中的说明进行操作，以确保交换机的配置和操作正确无误。



```

cs2# show banner motd

*****
*****
* NetApp Reference Configuration File (RCF)
*
* Switch   : Cisco Nexus 3132Q-V
* Filename : Nexus_3132QV_RCF_v1.6-Cluster-HA-Breakout.txt
* Date      : Nov-02-2020
* Version   : v1.6
*
* Port Usage : Breakout configuration
* Ports 1- 6: Breakout mode (4x10GbE) Intra-Cluster Ports, int
e1/1/1-4,
* e1/2/1-4, e1/3/1-4,int e1/4/1-4, e1/5/1-4, e1/6/1-4
* Ports 7-30: 40GbE Intra-Cluster/HA Ports, int e1/7-30
* Ports 31-32: Intra-Cluster ISL Ports, int e1/31-32
*
* IMPORTANT NOTES
* - Load Nexus_3132QV_RCF_v1.6-Cluster-HA.txt for non breakout
config
*
* - This RCF utilizes QoS and requires specific TCAM configuration,
requiring
*   cluster switch to be rebooted before the cluster becomes
operational.
*
* - Perform the following steps to ensure proper RCF installation:
*
*   (1) Apply RCF, expect following messages:
*       - Please save config and reload the system...
*       - Edge port type (portfast) should only be enabled on
ports...
*       - TCAM region is not configured for feature QoS class
IPv4...
*
*   (2) Save running-configuration and reboot Cluster Switch
*
*   (3) After reboot, apply same RCF second time and expect
following messages:
*       - % Invalid command at '^' marker
*
*   (4) Save running-configuration again

```

```

*
* - If running NX-OS versions 9.3(5) 9.3(6), 9.3(7), or 9.3(8)
*   - Downgrade the NX-OS firmware to version 9.3(5) or earlier if
*     NX-OS using a version later than 9.3(5).
*   - Do not upgrade NX-OS prior to applying v1.9 RCF file.
*   - After the RCF is applied and switch rebooted, then proceed to
upgrade
*     NX-OS to version 9.3(5) or later.
*
* - If running 9.3(9) 10.2(2) or later the RCF can be applied to the
switch
*   after the upgrade.
*
* - Port 1 multiplexed H/W configuration options:
*   hardware profile front portmode qsfp          (40G H/W port 1/1 is
active - default)
*   hardware profile front portmode sfp-plus      (10G H/W ports 1/1/1
- 1/1/4 are active)
*   hardware profile front portmode qsfp          (To reset to QSFP)
*
*****
*****

```

## 6. 验证 RCF 文件是否为正确的较新版本：

### s如何运行配置

在检查输出以确认您的 RCF 正确无误时，请确保以下信息正确无误：

- RCF 横幅
- 节点和端口设置
- 自定义

输出因站点配置而异。检查端口设置，并参阅发行说明，了解您安装的 RCF 的任何特定更改。



有关在升级RC框架 后如何使10GbE端口联机的步骤、请参见知识库文章 "[Cisco 3132Q集群交换机上的10GbE端口未联机](#)"。

## 7. 验证 RCF 版本和交换机设置是否正确后，将 running-config 文件复制到 startup-config 文件。

有关 Cisco 命令的详细信息，请参见中的相应指南 "《[Cisco Nexus 3000 系列 NX-OS 命令参考](#)》" 指南。

显示示例

```
cs2# copy running-config startup-config
[#####] 100% Copy complete
```

8. 重新启动交换机 CS2。您可以忽略交换机重新启动时在节点上报告的 " 集群端口关闭 " 事件。

显示示例

```
cs2# reload
This command will reboot the system. (y/n)? [n] y
```

9. 应用相同的 RCF 并再次保存运行配置。

显示示例

```
cs2# copy Nexus_3132QV_RCF_v1.6-Cluster-HA-Breakout.txt running-
config echo-commands
cs2# copy running-config startup-config
[#####] 100% Copy complete
```

10. 验证集群上集群端口的运行状况。

- a. 验证集群中所有节点上的集群端口是否均已启动且运行正常：

```
network port show -ipspace cluster
```

```
cluster1::*> network port show -ipspace Cluster
```

```
Node: cluster1-01
```

```
Ignore
```

|         |         |           |        |       |       | Speed (Mbps) |
|---------|---------|-----------|--------|-------|-------|--------------|
| Health  | Health  |           |        |       |       |              |
| Port    | IPspace | Broadcast | Domain | Link  | MTU   | Admin/Oper   |
| Status  | Status  |           |        |       |       |              |
| -----   | -----   | -----     | -----  | ----- | ----- | -----        |
| e0a     | Cluster | Cluster   |        | up    | 9000  | auto/10000   |
| healthy | false   |           |        |       |       |              |
| e0b     | Cluster | Cluster   |        | up    | 9000  | auto/10000   |
| healthy | false   |           |        |       |       |              |

```
Node: cluster1-02
```

```
Ignore
```

|         |         |           |        |       |       | Speed (Mbps) |
|---------|---------|-----------|--------|-------|-------|--------------|
| Health  | Health  |           |        |       |       |              |
| Port    | IPspace | Broadcast | Domain | Link  | MTU   | Admin/Oper   |
| Status  | Status  |           |        |       |       |              |
| -----   | -----   | -----     | -----  | ----- | ----- | -----        |
| e0a     | Cluster | Cluster   |        | up    | 9000  | auto/10000   |
| healthy | false   |           |        |       |       |              |
| e0b     | Cluster | Cluster   |        | up    | 9000  | auto/10000   |
| healthy | false   |           |        |       |       |              |

```
Node: cluster1-03
```

```
Ignore
```

|         |         |           |        |       |       | Speed (Mbps) |
|---------|---------|-----------|--------|-------|-------|--------------|
| Health  | Health  |           |        |       |       |              |
| Port    | IPspace | Broadcast | Domain | Link  | MTU   | Admin/Oper   |
| Status  | Status  |           |        |       |       |              |
| -----   | -----   | -----     | -----  | ----- | ----- | -----        |
| e0a     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |
| e0d     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |

Node: cluster1-04

Ignore

| Health  | Health  |           |        |       |       | Speed (Mbps) |
|---------|---------|-----------|--------|-------|-------|--------------|
| Port    | IPspace | Broadcast | Domain | Link  | MTU   | Admin/Oper   |
| Status  | Status  |           |        |       |       |              |
| -----   | -----   | -----     | -----  | ----- | ----- | -----        |
| e0a     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |
| e0d     | Cluster | Cluster   |        | up    | 9000  | auto/100000  |
| healthy | false   |           |        |       |       |              |

b. 从集群验证交换机运行状况。

```
network device-discovery show -protocol cdp
```

```

cluster1::*> network device-discovery show -protocol cdp
Node/          Local  Discovered
Protocol      Port   Device (LLDP: ChassisID)  Interface
Platform
-----
-----
cluster1-01/cdp
          e0a      cs1                      Ethernet1/7
N3K-C3132Q-V
          e0d      cs2                      Ethernet1/7
N3K-C3132Q-V
cluster01-2/cdp
          e0a      cs1                      Ethernet1/8
N3K-C3132Q-V
          e0d      cs2                      Ethernet1/8
N3K-C3132Q-V
cluster01-3/cdp
          e0a      cs1                      Ethernet1/1/1
N3K-C3132Q-V
          e0b      cs2                      Ethernet1/1/1
N3K-C3132Q-V
cluster1-04/cdp
          e0a      cs1                      Ethernet1/1/2
N3K-C3132Q-V
          e0b      cs2                      Ethernet1/1/2
N3K-C3132Q-V

cluster1::*> system cluster-switch show -is-monitoring-enabled
-operational true
Switch                                Type                Address
Model
-----
-----
cs1                                cluster-network      10.233.205.90
N3K-C3132Q-V
    Serial Number: FOXXXXXXXGD
    Is Monitored: true
    Reason: None
    Software Version: Cisco Nexus Operating System (NX-OS)
    Software, Version
                        9.3(4)
    Version Source: CDP

cs2                                cluster-network      10.233.205.91

```

```
N3K-C3132Q-V
  Serial Number: FOXXXXXXXXGS
    Is Monitored: true
      Reason: None
  Software Version: Cisco Nexus Operating System (NX-OS)
Software, Version
                9.3(4)
  Version Source: CDP

2 entries were displayed.
```



对于ONTAP 9.8及更高版本、请使用命令 `system switch ethernet show -is -monitoring-enabled-operational true`。

根据先前加载在 CS1 交换机控制台上的 RCF 版本，您可能在该交换机控制台上看到以下输出。



```
2020 Nov 17 16:07:18 cs1 %$ VDC-1 %$ %STP-2-
UNBLOCK_CONSIST_PORT: Unblocking port port-channel1 on
VLAN0092. Port consistency restored.
2020 Nov 17 16:07:23 cs1 %$ VDC-1 %$ %STP-2-BLOCK_PVID_PEER:
Blocking port-channel1 on VLAN0001. Inconsistent peer vlan.
2020 Nov 17 16:07:23 cs1 %$ VDC-1 %$ %STP-2-BLOCK_PVID_LOCAL:
Blocking port-channel1 on VLAN0092. Inconsistent local vlan.
```

+



集群节点报告运行状况可能需要长达5分钟的时间。

11. 在集群交换机 CS1 上，关闭连接到节点集群端口的端口。

显示示例

```
cs1(config)# interface eth1/1/1-2,eth1/7-8
cs1(config-if-range)# shutdown
```

12. 验证集群 LIF 是否已迁移到交换机 CS2 上托管的端口。这可能需要几秒钟的时间。

```
network interface show -vserver cluster
```

```
cluster1::*> network interface show -vserver Cluster
```

|              | Logical           | Status     | Network        | Current |
|--------------|-------------------|------------|----------------|---------|
| Current Is   |                   |            |                |         |
| Vserver      | Interface         | Admin/Oper | Address/Mask   | Node    |
| Port         | Home              |            |                |         |
| -----        |                   |            |                |         |
| -----        |                   |            |                |         |
| Cluster      |                   |            |                |         |
|              | cluster1-01_clus1 | up/up      | 169.254.3.4/23 |         |
| cluster1-01  | e0d               | false      |                |         |
|              | cluster1-01_clus2 | up/up      | 169.254.3.5/23 |         |
| cluster1-01  | e0d               | true       |                |         |
|              | cluster1-02_clus1 | up/up      | 169.254.3.8/23 |         |
| cluster1-02  | e0d               | false      |                |         |
|              | cluster1-02_clus2 | up/up      | 169.254.3.9/23 |         |
| cluster1-02  | e0d               | true       |                |         |
|              | cluster1-03_clus1 | up/up      | 169.254.1.3/23 |         |
| cluster1-03  | e0b               | false      |                |         |
|              | cluster1-03_clus2 | up/up      | 169.254.1.1/23 |         |
| cluster1-03  | e0b               | true       |                |         |
|              | cluster1-04_clus1 | up/up      | 169.254.1.6/23 |         |
| cluster1-04  | e0b               | false      |                |         |
|              | cluster1-04_clus2 | up/up      | 169.254.1.7/23 |         |
| cluster1-04  | e0b               | true       |                |         |
| cluster1::*> |                   |            |                |         |

13. 验证集群是否运行正常：

```
cluster show
```



#### 显示示例

```
cluster1::*> cluster show
Node                Health  Eligibility  Epsilon
-----
cluster1-01         true    true         false
cluster1-02         true    true         false
cluster1-03         true    true         true
cluster1-04         true    true         false
4 entries were displayed.
cluster1::*>
```

14. 对交换机CS1重复步骤1到10。

15. 在集群 LIF 上启用自动还原。

#### 显示示例

```
cluster1::*> network interface modify -vserver Cluster -lif * -auto
-revert True
```

16. 重新启动交换机 CS1。执行此操作可触发集群 LIF 还原到其主端口。您可以忽略交换机重新启动时在节点上报告的 " 集群端口关闭 " 事件。

```
cs1# reload
This command will reboot the system. (y/n)? [n] y
```

### 第3步：验证配置

1. 验证连接到集群端口的交换机端口是否已启动。

```
show interface brief | grep up
```

显示示例

```
cs1# show interface brief | grep up
.
.
Eth1/1/1      1      eth  access up      none
10G(D) --
Eth1/1/2      1      eth  access up      none
10G(D) --
Eth1/7        1      eth  trunk  up      none
100G(D) --
Eth1/8        1      eth  trunk  up      none
100G(D) --
.
.
```

## 2. 验证 CS1 和 CS2 之间的 ISL 是否正常运行:

s如何执行端口通道摘要

显示示例

```
cs1# show port-channel summary
Flags:  D - Down          P - Up in port-channel (members)
        I - Individual    H - Hot-standby (LACP only)
        s - Suspended     r - Module-removed
        b - BFD Session Wait
        S - Switched      R - Routed
        U - Up (port-channel)
        p - Up in delay-lacp mode (member)
        M - Not in use. Min-links not met

-----
-----
Group Port-          Type      Protocol  Member Ports
Channel
-----
-----
1      Po1 (SU)      Eth      LACP      Eth1/31 (P)  Eth1/32 (P)
cs1#
```

## 3. 验证集群 LIF 是否已还原到其主端口:

network interface show -vserver cluster

显示示例

```
cluster1::*> network interface show -vserver Cluster
```

|              | Logical           | Status     | Network        | Current |
|--------------|-------------------|------------|----------------|---------|
| Current Is   |                   |            |                |         |
| Vserver      | Interface         | Admin/Oper | Address/Mask   | Node    |
| Port         | Home              |            |                |         |
| -----        |                   |            |                |         |
| -----        |                   |            |                |         |
| Cluster      |                   |            |                |         |
|              | cluster1-01_clus1 | up/up      | 169.254.3.4/23 |         |
| cluster1-01  | e0d               | true       |                |         |
|              | cluster1-01_clus2 | up/up      | 169.254.3.5/23 |         |
| cluster1-01  | e0d               | true       |                |         |
|              | cluster1-02_clus1 | up/up      | 169.254.3.8/23 |         |
| cluster1-02  | e0d               | true       |                |         |
|              | cluster1-02_clus2 | up/up      | 169.254.3.9/23 |         |
| cluster1-02  | e0d               | true       |                |         |
|              | cluster1-03_clus1 | up/up      | 169.254.1.3/23 |         |
| cluster1-03  | e0b               | true       |                |         |
|              | cluster1-03_clus2 | up/up      | 169.254.1.1/23 |         |
| cluster1-03  | e0b               | true       |                |         |
|              | cluster1-04_clus1 | up/up      | 169.254.1.6/23 |         |
| cluster1-04  | e0b               | true       |                |         |
|              | cluster1-04_clus2 | up/up      | 169.254.1.7/23 |         |
| cluster1-04  | e0b               | true       |                |         |
| cluster1::*> |                   |            |                |         |

4. 验证集群是否运行正常：

cluster show

显示示例

```
cluster1::*> cluster show
```

| Node         | Health | Eligibility | Epsilon |
|--------------|--------|-------------|---------|
| -----        | -----  | -----       | -----   |
| cluster1-01  | true   | true        | false   |
| cluster1-02  | true   | true        | false   |
| cluster1-03  | true   | true        | true    |
| cluster1-04  | true   | true        | false   |
| cluster1::*> |        |             |         |

## 5. 对远程集群接口执行 Ping 操作以验证连接:

```
cluster ping-cluster -node local
```

显示示例

```
cluster1::~*> cluster ping-cluster -node local
Host is cluster1-03
Getting addresses from network interface table...
Cluster cluster1-03_clus1 169.254.1.3 cluster1-03 e0a
Cluster cluster1-03_clus2 169.254.1.1 cluster1-03 e0b
Cluster cluster1-04_clus1 169.254.1.6 cluster1-04 e0a
Cluster cluster1-04_clus2 169.254.1.7 cluster1-04 e0b
Cluster cluster1-01_clus1 169.254.3.4 cluster1-01 e0a
Cluster cluster1-01_clus2 169.254.3.5 cluster1-01 e0d
Cluster cluster1-02_clus1 169.254.3.8 cluster1-02 e0a
Cluster cluster1-02_clus2 169.254.3.9 cluster1-02 e0d
Local = 169.254.1.3 169.254.1.1
Remote = 169.254.1.6 169.254.1.7 169.254.3.4 169.254.3.5 169.254.3.8
169.254.3.9
Cluster Vserver Id = 4294967293
Ping status:
.....
Basic connectivity succeeds on 12 path(s)
Basic connectivity fails on 0 path(s)
.....
Detected 9000 byte MTU on 12 path(s):
    Local 169.254.1.3 to Remote 169.254.1.6
    Local 169.254.1.3 to Remote 169.254.1.7
    Local 169.254.1.3 to Remote 169.254.3.4
    Local 169.254.1.3 to Remote 169.254.3.5
    Local 169.254.1.3 to Remote 169.254.3.8
    Local 169.254.1.3 to Remote 169.254.3.9
    Local 169.254.1.1 to Remote 169.254.1.6
    Local 169.254.1.1 to Remote 169.254.1.7
    Local 169.254.1.1 to Remote 169.254.3.4
    Local 169.254.1.1 to Remote 169.254.3.5
    Local 169.254.1.1 to Remote 169.254.3.8
    Local 169.254.1.1 to Remote 169.254.3.9
Larger than PMTU communication succeeds on 12 path(s)
RPC status:
6 paths up, 0 paths down (tcp check)
6 paths up, 0 paths down (udp check)
```

6. 对于 ONTAP 9.8 及更高版本，请使用以下命令启用以太网交换机运行状况监控器日志收集功能以收集交换机相关的日志文件：

`system switch Ethernet log setup-password`和

s系统交换机以太网日志 enable-Collection

- a. 输入：system switch Ethernet log setup-password

显示示例

```
cluster1::*> system switch ethernet log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2

cluster1::*> system switch ethernet log setup-password

Enter the switch name: cs1
RSA key fingerprint is
e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] y

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> system switch ethernet log setup-password

Enter the switch name: cs2
RSA key fingerprint is
57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] y

Enter the password: <enter switch password>
Enter the password again: <enter switch password>
```

- b. 输入 ... system switch ethernet log enable-collection

## 显示示例

```
cluster1::*> system switch ethernet log enable-collection

Do you want to enable cluster log collection for all nodes in the
cluster?
{y|n}: [n] y

Enabling cluster switch log collection.

cluster1::*>
```



如果其中任何一个命令返回错误，请联系 NetApp 支持部门。

7. 对于 ONTAP 9.5P16，9.6P12 和 9.7P10 及更高版本的修补程序，请使用以下命令启用以太网交换机运行状况监控器日志收集功能，以便收集交换机相关的日志文件：

`system cluster-switch log setup-password`和

ssystem cluster-switch log enable-Collection

- a. 输入：ssystem cluster-switch log setup-password

## 显示示例

```
cluster1::*> system cluster-switch log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2

cluster1::*> system cluster-switch log setup-password

Enter the switch name: cs1
RSA key fingerprint is
e5:8b:c6:dc:e2:18:18:09:36:63:d9:63:dd:03:d9:cc
Do you want to continue? {y|n}::[n] y

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> system cluster-switch log setup-password

Enter the switch name: cs2
RSA key fingerprint is
57:49:86:a1:b9:80:6a:61:9a:86:8e:3c:e3:b7:1f:b1
Do you want to continue? {y|n}:: [n] y

Enter the password: <enter switch password>
Enter the password again: <enter switch password>
```

- b. 输入 ... `system cluster-switch log enable-collection`

## 显示示例

```
cluster1::*> system cluster-switch log enable-collection

Do you want to enable cluster log collection for all nodes in the
cluster?
{y|n}: [n] y

Enabling cluster switch log collection.

cluster1::*>
```



如果其中任何一个命令返回错误，请联系 NetApp 支持部门。

## 以太网交换机运行状况监控日志收集

您可以使用日志收集功能在ONTAP 中收集与交换机相关的日志文件。

以太网交换机运行状况监控器(CSHM)负责确保集群和存储网络交换机的运行状况、并收集交换机日志以进行测试。此操作步骤将引导您完成设置和开始从交换机收集详细的\*Support\*日志的过程，并开始每小时收集由AutoSupport收集的\*定期\*数据。

### 开始之前

- 验证是否已使用Cisco 3132Q-V集群交换机\*CLI\*设置环境。
- 必须为交换机启用交换机运行状况监控。通过确保进行验证 Is Monitored: 字段在的输出中设置为\*TRUE\* `system switch ethernet show` 命令：

### 步骤

1. 为以太网交换机运行状况监控器日志收集功能创建密码：

s系统交换机以太网日志设置密码



```
cluster1::*> system switch ethernet log setup-password
Enter the switch name: <return>
The switch name entered is not recognized.
Choose from the following list:
cs1
cs2

cluster1::*> system switch ethernet log setup-password

Enter the switch name: cs1
Would you like to specify a user other than admin for log
collection? {y|n}: n

Enter the password: <enter switch password>
Enter the password again: <enter switch password>

cluster1::*> system switch ethernet log setup-password

Enter the switch name: cs2
Would you like to specify a user other than admin for log
collection? {y|n}: n

Enter the password: <enter switch password>
Enter the password again: <enter switch password>
```

2. 要开始收集日志、请运行以下命令、将device替换为上一命令中使用的交换机。这将开始两种类型的日志收集：详细的\*Support\*日志和每小时收集\*定期\*数据。

```
system switch ethernet log modify -device <switch-name> -log-request true
```

```
cluster1::*> system switch ethernet log modify -device cs1 -log
-request true
```

Do you want to modify the cluster switch log collection
configuration? {y|n}: [n] **y**

Enabling cluster switch log collection.

```
cluster1::*> system switch ethernet log modify -device cs2 -log
-request true
```

Do you want to modify the cluster switch log collection
configuration? {y|n}: [n] **y**

Enabling cluster switch log collection.

等待10分钟、然后检查日志收集是否完成：

```
system switch ethernet log show
```



如果其中任一命令返回错误或日志收集未完成、请联系NetApp支持部门。

故障排除

如果遇到日志收集功能报告的以下任一错误状态(在的输出中可见) system switch ethernet log show)、请尝试相应的调试步骤：

| 日志收集错误状态                   | 分辨率   |
|----------------------------|---|
| <b>RSA</b> 密钥不存在           | 重新生成ONTAP SSH密钥。请联系NetApp支持部门。                            |
| 交换机密码错误                    | 验证凭据、测试SSH连接并重新生成ONTAP SSH密钥。查看交换机文档或联系NetApp支持部门以获取相关说明。 |
| 对于 <b>FIPS</b> ，ECDSA密钥不存在 | 如果启用了FIPS模式、则需要在重试之前在交换机上生成ECDSA密钥。                       |
| 已找到已有日志                    | 删除交换机上先前的日志收集文件。  |
| 交换机转储日志错误                  | 确保交换机用户具有日志收集权限。请参阅上述前提条件。                                |

## 配置SNMPv3

按照此操作步骤配置SNMPv3、此SNMPv3支持以太网交换机运行状况监控(CSHM)。

关于此任务

以下命令可在Cisco 3132Q-V交换机上配置SNMPv3用户名：

- 对于\*no authentication (无身份验证)\*： `snmp-server user SNMPv3_USER NoAuth`
- 对于\*MD5/SHA身份验证\*： `snmp-server user SNMPv3_USER auth [md5|sha] AUTH-PASSWORD`
- 对于采用AES/DES加密的\*MD5/SHA身份验证\*： `snmp-server user SNMPv3_USER AuthEncrypt auth [md5|sha] AUTH-PASSWORD priv aes-128 PRIV-PASSWORD`

以下命令会在ONTAP 端配置SNMPv3用户名： `cluster1::: *> security login create -user-or-group-name SNMPv3用户 -application snmp -authentication-method USM -remote-switch -ipaddress address`

以下命令将使用CSHM建立SNMPv3用户名： `cluster1::*> system switch ethernet modify -device DEVICE -snmp-version SNMPv3 -community-or-username SNMPv3_USER`

步骤

1. 在交换机上设置SNMPv3用户以使用身份验证和加密：

```
show snmp user
```

```

(sw1) (Config) # snmp-server user SNMPv3User auth md5 <auth_password>
priv aes-128 <priv_password>

(sw1) (Config) # show snmp user
-----
-----
                                SNMP USERS
-----
-----

User              Auth              Priv(enforce)    Groups
acl_filter
-----
-----
admin             md5              des(no)          network-admin
SNMPv3User        md5              aes-128(no)      network-operator
-----
-----
NOTIFICATION TARGET USERS (configured for sending V3 Inform)
-----
-----

User              Auth              Priv
-----
-----

(sw1) (Config) #

```

## 2. 在ONTAP 端设置SNMPv3用户：

```

security login create -user-or-group-name <username> -application snmp
-authentication-method usm -remote-switch-ipaddress 10.231.80.212

```

```
cluster1::*> system switch ethernet modify -device "sw1  
(b8:59:9f:09:7c:22)" -is-monitoring-enabled-admin true
```

cluster1::\*> **security login create -user-or-group-name <username>**  
**-application snmp -authentication-method usm -remote-switch**  
**-ipaddress 10.231.80.212**

Enter the authoritative entity's EngineID [remote EngineID]:

Which authentication protocol do you want to choose (none, md5, sha,  
sha2-256)  
[none]: **md5**

Enter the authentication protocol password (minimum 8 characters  
long):

Enter the authentication protocol password again:

Which privacy protocol do you want to choose (none, des, aes128)  
[none]: **aes128**

Enter privacy protocol password (minimum 8 characters long):

Enter privacy protocol password again:

### 3. 将CSHM配置为使用新SNMPv3用户进行监控:

```
system switch ethernet show-all -device "sw1" -instance
```

```

cluster1::*> system switch ethernet show-all -device "sw1" -instance

                                Device Name: sw1
                                IP Address: 10.231.80.212
                                SNMP Version: SNMPv2c
                                Is Discovered: true
                                SNMPv2c Community String or SNMPv3 Username: cshml!
                                Model Number: N3K-C3132Q-V
                                Switch Network: cluster-network
                                Software Version: Cisco Nexus
Operating System (NX-OS) Software, Version 9.3(7)
                                Reason For Not Monitoring: None <---- displays
when SNMP settings are valid
                                Source Of Switch Version: CDP/ISDP
                                Is Monitored?: true
                                Serial Number of the Device: QTFCU3826001C
                                RCF Version: v1.8X2 for

Cluster/HA/RDMA

cluster1::*>
cluster1::*> system switch ethernet modify -device "sw1" -snmp
-version SNMPv3 -community-or-username <username>
cluster1::*>

```

4. 确认要使用新创建的SNMPv3用户查询的序列号与CSHM轮询周期完成后上一步中详述的序列号相同。

```
system switch ethernet polling-interval show
```

```
cluster1::*> system switch ethernet polling-interval show
Polling Interval (in minutes): 5

cluster1::*> system switch ethernet show-all -device "sw1" -instance

Device Name: sw1
IP Address: 10.231.80.212
SNMP Version: SNMPv3
Is Discovered: true
SNMPv2c Community String or SNMPv3 Username: SNMPv3User
Model Number: N3K-C3132Q-V
Switch Network: cluster-network
Software Version: Cisco Nexus
Operating System (NX-OS) Software, Version 9.3(7)
Reason For Not Monitoring: None <---- displays
when SNMP settings are valid
Source Of Switch Version: CDP/ISDP
Is Monitored ?: true
Serial Number of the Device: QTFCU3826001C
RCF Version: v1.8X2 for

Cluster/HA/RDMA

cluster1::*>
```

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