

通过HTTP服务器重新映像APIC控制器的步骤

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简介

本文档介绍如何使用HTTP服务器对APIC进行重新映像。

问题

如果APIC集群发生故障或硬件从L2/M2迁移到L4/M4，则各个APIC设备可能需要重新映像才能恢复功能。此过程概述一种简化的方法，该方法使用HTTP服务器逐一重新映像APIC，从而以最少的中断促进更快的集群恢复。

对需要重新映像的每个APIC设备依次重复此过程。对所有APIC重新映像后，根据需要恢复集群配置，并进行彻底测试以验证功能。

此简明的过程可实现高效的APIC恢复，使管理员能够及时解决集群故障并有效恢复网络运营。

前提条件

1. CIMC必须配置OOB IP地址。
2. 检查APIC版本说明，并确认需要重新映像哪个APIC软件映像。

3. 从software.cisco.com获取软件映像
4. 确认映像的MD5校验和与在Cisco.com上发布的版本匹配
5. 上传APIC映像到HTTP服务器。

解决方案

要使用HTTP服务器重新映像APIC，需要执行以下步骤。

第1步：首先，您需要从Cisco网站下载固件。

打开software.cisco.com/download。

第2步：输入APIC并在此处为ACI选择适当的版本。在此选择4.2(7f)。

例如：



The screenshot shows the Cisco software download page for Application Policy Infrastructure Controller (APIC) version 4.2(7f). The page includes a search bar, a list of versions on the left, and a table of files on the right. The file 'APIC Image for 4.2(7f) Release' is highlighted with a red box.

File Information	Release Date	Size
APIC Image for 4.2(7f) Release col-apic-083.4.2.7f.iso Attributes [?]	16-Mar-2021	5485.41 MB
Yisipic Image for 4.2(7f) Release col-apic-083.4.2.7f.iso Attributes [?]	16-Mar-2021	5261.33 MB

第三步：将APIC软件.iso映像复制到HTTP服务器

示例：- <http://x.x.x.x/iso/>



Not Secure

x.x.x.x/iso

Index of /iso

<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
 Parent Directory		-	
 DCApps/	2024-03-28 11:06	-	
 NAB for ND_NDFC_NDI.pdf	2023-10-21 13:35	401K	
 aci-apic-dk9.2.2.3j.iso	2021-04-16 08:18	2.9G	
 aci-apic-dk9.2.2.3l.iso	2020-11-11 17:31	2.9G	
 aci-apic-dk9.2.2.4r.iso	2020-11-11 17:34	3.1G	
 aci-apic-dk9.3.0.2k.iso	2020-11-26 13:56	3.3G	
 aci-apic-dk9.3.2.3n.iso	2020-10-26 11:56	3.5G	
 aci-apic-dk9.3.2.4d.iso	2021-02-26 13:41	3.3G	
 aci-apic-dk9.3.2.7f.iso	2020-12-08 08:55	2.7G	
 aci-apic-dk9.3.2.7k.iso	2024-03-07 20:58	2.7G	
 aci-apic-dk9.3.2.8d.iso	2020-09-24 16:41	3.0G	
 aci-apic-dk9.3.2.9h.iso	2020-11-10 22:07	3.2G	
 aci-apic-dk9.4.2.3l.iso	2020-04-20 18:19	5.1G	
 aci-apic-dk9.4.2.4k.iso	2020-09-18 14:21	5.6G	
 aci-apic-dk9.4.2.4o.iso	2020-07-29 13:21	5.6G	
 aci-apic-dk9.4.2.5k.iso	2020-09-24 16:08	5.6G	
 aci-apic-dk9.4.2.5l.iso	2024-03-15 10:08	5.6G	
 aci-apic-dk9.4.2.5n.iso	2020-11-02 17:20	5.6G	
 aci-apic-dk9.4.2.6d.iso	2020-12-03 19:30	0	
 aci-apic-dk9.4.2.6h.iso	2023-07-26 13:53	6.0G	
 aci-apic-dk9.4.2.7f.iso	2021-03-26 18:32	5.6G	

第四步：通过SSH/控制台连接到思科集成管理控制器

- 从终端窗口登录到CIMC控制台

```
<#root>  
# ssh admin@cimc_ip
```

其中cimc_ip是CIMC IP地址。例如：

```
<#root>  
# ssh admin@x.x.x.x  
  
admin@x.x.x.x's password:  
  
system#
```

- 将范围更改为虚拟介质：

```
<#root>  
system# scope vmedia  
  
system /vmedia #
```

- 将.iso映像映射到HTTP服务器

```
<#root>  
system /vmedia # map-www volume_name http://http_server_ip_and_path iso_file_name
```

其中：

- volume_name是卷的名称。
- http_server_ip_and_path是HTTP服务器的IP地址和.iso文件位置的路径。
- iso_filename是.iso文件的名称。

注意：http_server_ip_and_path与iso_filename之间存在空格

例如：

```
system /vmedia # map-www apic http://x.x.x.x/iso/ aci-apic-dk9.4.2.7f.iso
Server username: admin
Server password:
Confirm password:
```

注意：/*如果此处不需要身份验证，请按Enter键

- 检查映射状态：

<#root>

```
system /vmedia #
show mappings detail
```

映射状态必须显示为正常。

例如:

<#root>

```
system /vmedia #
show mappings detail
```

Volume apic:

```
Map-Status: OK
Drive-Type: CD
Remote-Share: http://x.x.x.x/iso/

Remote-File: aci-apic-dk9.4.2.7f.iso
Mount-Type: www
Mount-Options: noauto,username=admin,password=*****3
system /vmedia #
```

- 连接到SOL以监控安装过程：

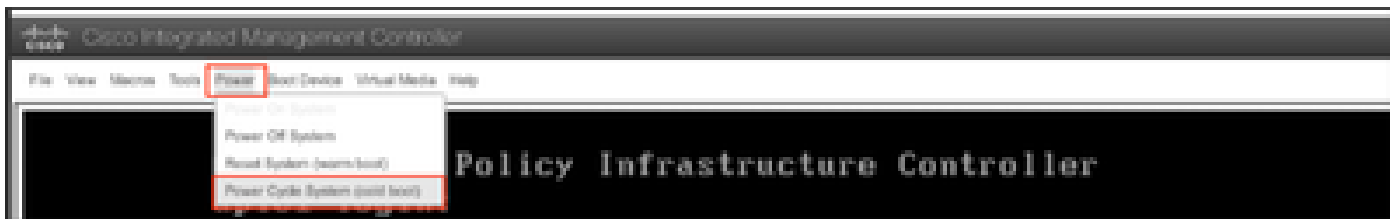
<#root>

```
system /vmedia #
connect host
```

CISCO Serial Over LAN:
Press Ctrl+x to Exit the session

第五步：从CIMC GUI的KVM控制台重新通电

选择Power (电源) > Power Cycle System (cold boot)以重启控制器



从SOL控制台：在引导过程中观察屏幕，准备在适当的时间按F6以进入引导选择菜单。

例如：



按F6之后

注意：如果错过机会并且无法在适当的时刻按F6，请返回第5步对控制器重新通电并重复此过程，直到可以按F6进入引导选择菜单。



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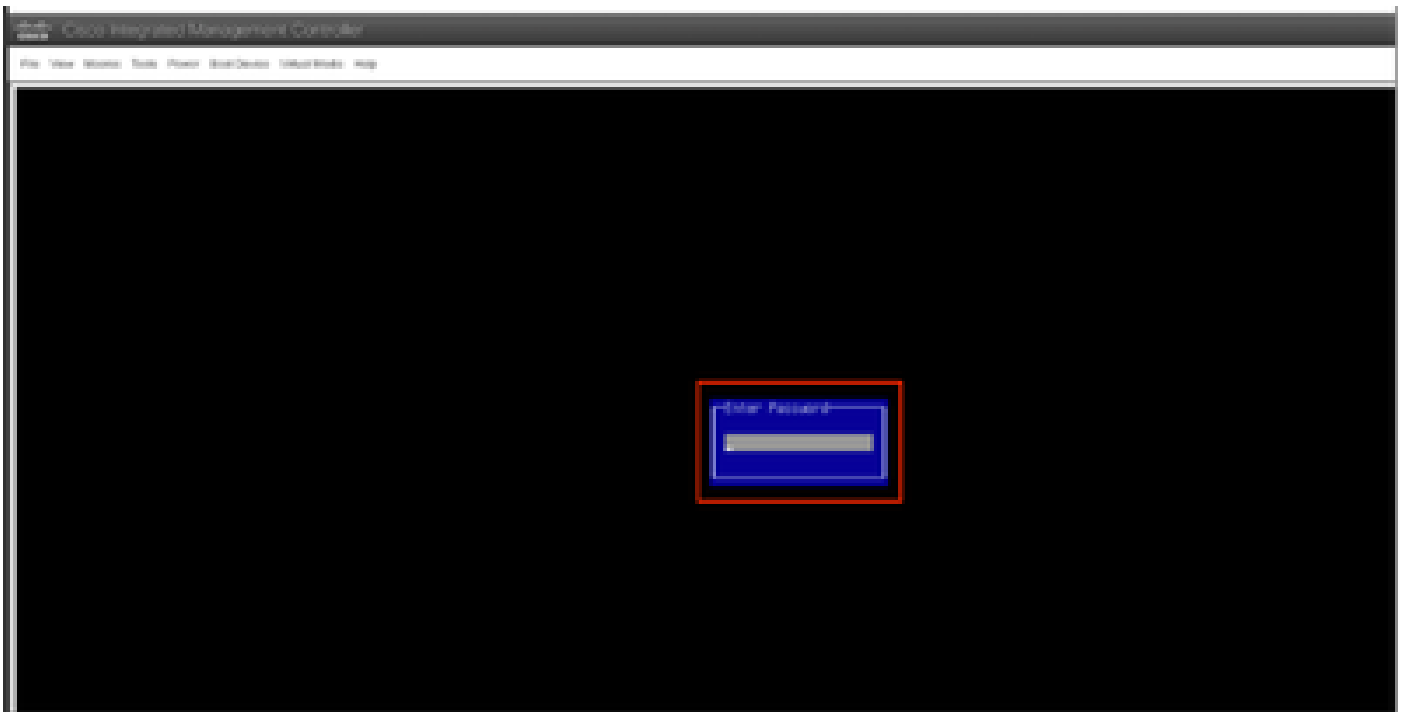
Press <F2> BIOS Setup : <F6> Boot Menu : <F7> Diagnostics
Press <F8> CIMC Setup : <F12> Network Boot
Bios Version : C220H5.4.0.ic.0.0627180916
Platform ID : C220H5

Processor(s) Intel(R) Xeon(R) Silver 4110 CPU @ 2.10GHz
Total Memory = 192 GB Effective Memory = 192 GB
Memory Operating Speed 2400 Mhz
H.2 SHRaid configuration is not detected. Switching to AHCI mode.

Cisco IMC IPv4 Address :
Cisco IMC MAC Address : :

Entering Boot Menu ...

您还必须输入BIOS密码。默认密码是password



在引导选择菜单中，选择Cisco CIMC映射的vDVD1.22选项作为一次性引导设备。

Please select boot device:

(Bus 05 Dev 00)PCI RAID Adapter
UNIGEN PHF16H0CM1-ETG PMAP
IBA GE Slot 0100 v1585
IBA GE Slot 0101 v1585
UEFI: Built-in EFI Shell
Cisco vKVM-Mapped vDVD1.22
Cisco vKVM-Mapped vHDD1.22
Cisco vKVM-Mapped vFDD1.22
Cisco CIMC-Mapped vDVD1.22
Cisco CIMC-Mapped vHDD1.22
Enter Setup

↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults

第六步：返回CIMC CLI并监控“连接主机”的输出结果。

监控CIMC cli时，收到消息“要加速安装，请在接下来的10分钟内输入iso url”，然后输入http服务器URL和APIC映像。


```
<#root>
```

```
++ grep /run/install/repo
++ cut -f 1 -d ' '
++ tr -d '[:digit:]'
+ usbdevice=/dev/sr
+ mkdir /mnt/usbdata
+ mount /dev/sr2 /mnt/usbdata
mount: special device /dev/sr2 does not exist
+ true
+ '[' -f /mnt/usbdata/ifabric.iso ']'
+ mountpoint -q /mnt/usbdata
+ true
+ echo 'INFO: found second partition on install media but did not find ifabric.iso. '
INFO: found second partition on install media but did not find ifabric.iso.
+ echo 'Continuing on to ISO URL prompt.'
Continuing on to ISO URL prompt.
+ '[' 0 -eq 0 ']'
+ read_iso_url
+ true,,
+ echo

'To speed up the install, enter iso url in next ten minutes

: '

<< Enter the http server URL with apic image >>
```

```
To speed up the install, enter iso url in next ten minutes:
+ read -t 600 -p '? ' url
?
```

```
<#root>
```

```
http://x.x.x.x/iso/aci-apic-dk9.4.2.7f.iso
```

```
5:program-log
```

```
<< Enter the http server details >>
```

```
[anaconda] 1:main* 2:shell 3:log 4:storage-l0> Switch tab: Alt+Tab | Help: F1
```

注意：http_server_ip_and_path与iso_filename之间没有空格。

第7步：输入HTTP URL后，引导过程将继续。

注意：如果选择静态选项，系统将提示您输入接口名称、管理IP地址和网关。

```
<#root>
```

```
+ '[' 0 -eq 0 ']'
+ read_iso_url
+ true
+ echo 'To speed up the install, enter iso url in next ten minutes: '
```

```

To speed up the install, enter iso url in next ten minutes:
+ read -t 600 -p '? ' url
?
[ahttp://x.x.x.x/iso/aci-apic-dk9.4.2.7f.iso 5:program-log
++ awk -F '/|:' '{print $4}'
+ urlip=x.x.x.x
+ '[' -z http://x.x.x.x/iso/aci-apic-dk9.4.2.7f.iso ']'
+ '[' -z x.x.x.x ']'
+ break
+ '[' -n http://x.x.x.x/iso/aci-apic-dk9.4.2.7f.iso ']'
+ set +e
+ configured=0
+ '[' 0 -eq 0 ']'
+ echo 'Configuring network interface'
Configuring network interface
+ echo

'type static, dhcp, bash for a shell to configure networking,
or url to re-enter the url: '
>>
<< Type static and configure the APIC OOB IP address with it's gateway>>

type static, dhcp, bash for a shell to configure networking, or url to re-enter the url:
+ read -p '? ' ntype

```

```
<#root>
```

```

?
static
.
<< Enter the static to configure the networking >>
[anaconda] 1:main* 2:shell 3:log 4:storage-l0> Switch tab: Alt+Tab | Help: F1

```

注：键入静态命令后，它将列出CIMC接口，选择正确的接口。如果选择了错误的接口，则丢包率为100%，然后ping尝试三次失败后，它将再次要求选择正确的接口，直到丢包率为0。如果您不知道接口，请依次选择所有接口。

例如：

```

<#root>
+ case $ntype in
+ configure_static
+ echo 'Available interfaces'
Available interfaces
+ ls -l /sys/class/net
total 0
lrwxrwxrwx. 1 root root 0 May  3 07:08
enp11s0

```

```
-> ../../devices/pci0000:00/0000:00:03.0/0000:06:00.0/0000:07:01.0/0000:09:00.0/0000:0a:00.0/0000:0b:00.0
lrwxrwxrwx. 1 root root 0 May  3 07:08
```

enp12s0

```
-> ../../devices/pci0000:00/0000:00:03.0/0000:06:00.0/0000:07:01.0/0000:09:00.0/0000:0a:01.0/0000:0c:00.0
lrwxrwxrwx. 1 root root 0 May  3 07:08
```

enp1s0f0

```
-> ../../devices/pci0000:00/0000:00:01.0/0000:01:00.0/net/enp1s0f0
lrwxrwxrwx. 1 root root 0 May  3 07:08
```

enp1s0f1

```
-> ../../devices/pci0000:00/0000:00:01.0/0000:01:00.1/net/enp1s0f1
lrwxrwxrwx. 1 root root 0 May  3 07:08 lo -> ../../devices/virtual/net/lo
+ read -p 'Interface to configure: ' interface
```

<#root>

Interface to configure:

enp1s0f0

<< select the correct interface >>

[anaconda] 1:main* 2:shell 3:log 4:storage-1o>

第8步：检查正确的接口

进入接口后，它将尝试ping http服务器，如果所选接口正确，则数据包丢失率必须为0%，并开始从http服务器获取映像。

例如：在输入正确的接口后，数据包丢失率为0%。

<#root>

```
+ read -p 'Interface to configure: ' interface
Interface to configure:
```

enp1s0f0

```
+ read -p 'address: ' addr
address: x.x.x.x/24
+ read -p 'gateway: ' gw
gateway: x.x.x.x
+ ip addr add x.x.x.x/24 dev enp1s0f0
+ ip link set enp1s0f0 up
+ ip route add default via x.x.x.x
++ seq 1 2
+ for count in '${seq 1 2}'
+ ping -c 1 x.x.x.x
```

```

PING x.x.x.x (x.x.x.x) 56(84) bytes of data.
64 bytes from x.x.x.x: icmp_seq=1 ttl=64 time=55.0 ms
--- x.x.x.x ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 55.056/55.056/55.056/0.000 ms
+ configured=1
+ break
+ '[' 1 -eq 0 ']'
+ echo 'Fetching http://x.x.x.x/iso/aci-apic-dk9.4.2.7f.iso'

```

```

Fetching http://x.x.x.x/iso/aci-apic-dk9.4.2.7f.iso

```

```

>> started fetching the apic image from HTTP server

```

```

+ wget -o /dev/null -O /tmp/cdrom.iso http://x.x.x.x/iso/aci-apic-dk9.4.2.7f.iso

```

如果您选择了错误的接口，则数据包将丢失100%，在三次尝试ping失败后，它将再次要求选择正确的接口。

例如：在进入错误接口后，100%的数据包丢失

```

<#root>

```

```

+ read -p 'Interface to configure: ' interface
Interface to configure:

```

```

enp11s0

```

```

+ read -p 'address: ' addr
address: x.x.x.x/24
+ read -p 'gateway: ' gw
gateway: x.x.x.x
+ ip addr add x.x.x.x/24 dev enp11s0
+ ip link set enp11s0 up
+ ip route add default via x.x.x.x
++ seq 1 2
+ for count in '${seq 1 2}'
+ ping -c 1 x.x.x.x
PING x.x.x.x (x.x.x.x) 56(84) bytes of data.
From x.x.x.x icmp_seq=1 Destination Host Unreachable

```

```

--- x.x.x.x ping statistics ---
1 packets transmitted, 0 received, +1 errors, 100% packet loss, time 0ms

```

```

+ sleep 20
+ for count in '${seq 1 2}'
+ ping -c 1 x.x.x.x
PING x.x.x.x (x.x.x.x) 56(84) bytes of data.
From x.x.x.x icmp_seq=1 Destination Host Unreachable

```

```

--- x.x.x.x ping statistics ---
1 packets transmitted, 0 received, +1 errors, 100% packet loss, time 0ms

```

```

+ sleep 20
+ '[' 0 -eq 0 ']'
+ echo 'Configuring network interface'

```

Configuring network interface

+

```
echo 'type static, dhcp, bash for a shell to configure networking, or url to re-enter the url: '
```

```
<<Asking again to select the interface after selecting the type i,e static >>
```

```
type static, dhcp, bash for a shell to configure networking, or url to re-enter the url:
```

```
+ read -p '? ' ntype
```

```
?
```

保持监控CIMC CLI并等待约40-50分钟，您将在cli上获得以下输出。

```
[anaconda] 1:main* 2:shell 3:log 4:storage-l0> Switch tab: Alt+Tab | Help: F1
[ OK ] Started Show Plymouth Power Off Screen.
[ OK ] Stopped Availability of block devices.
       Stopping Logout off all iSCSI sessions on shutdown...
       Stopping LVM2 metadata daemon...
[ OK ] Stopped LVM2 metadata daemon.
[ OK ] Stopped Logout off all iSCSI sessions on shutdown.
[ OK ] Stopped target Network.
[ OK ] Stopped Remount Root and Kernel File Systems.
       Stopping Remount Root and Kernel File Systems...
[ OK ] Started Restore /run/initramfs.
[ OK ] Reached target Shutdown.
dracut Warning: Killing all remaining processes
Powering off.
reboot: Power down
```

第9步：关闭电源后退出SOL

等待，直到您在SOL控制台中看到消息poweroff，然后按下Ctrl和x(Ctrl+x)退出SOL，再次登录CIMC并再次更改范围。

(i) Change the scope to virtual media again:

```
system# scope vmedia
```

```
system /vmedia #
```

(ii) Unmap the .iso image that you mapped in 2.c:

```
system /vmedia # unmap volume_name
```

At the Save mapping prompt, enter yes if you want to save the mapping or no if you do not want to save

```
system /vmedia # unmap apic
```

Save mapping? Enter 'yes' or 'no' to confirm (CTRL-C to cancel) → yes

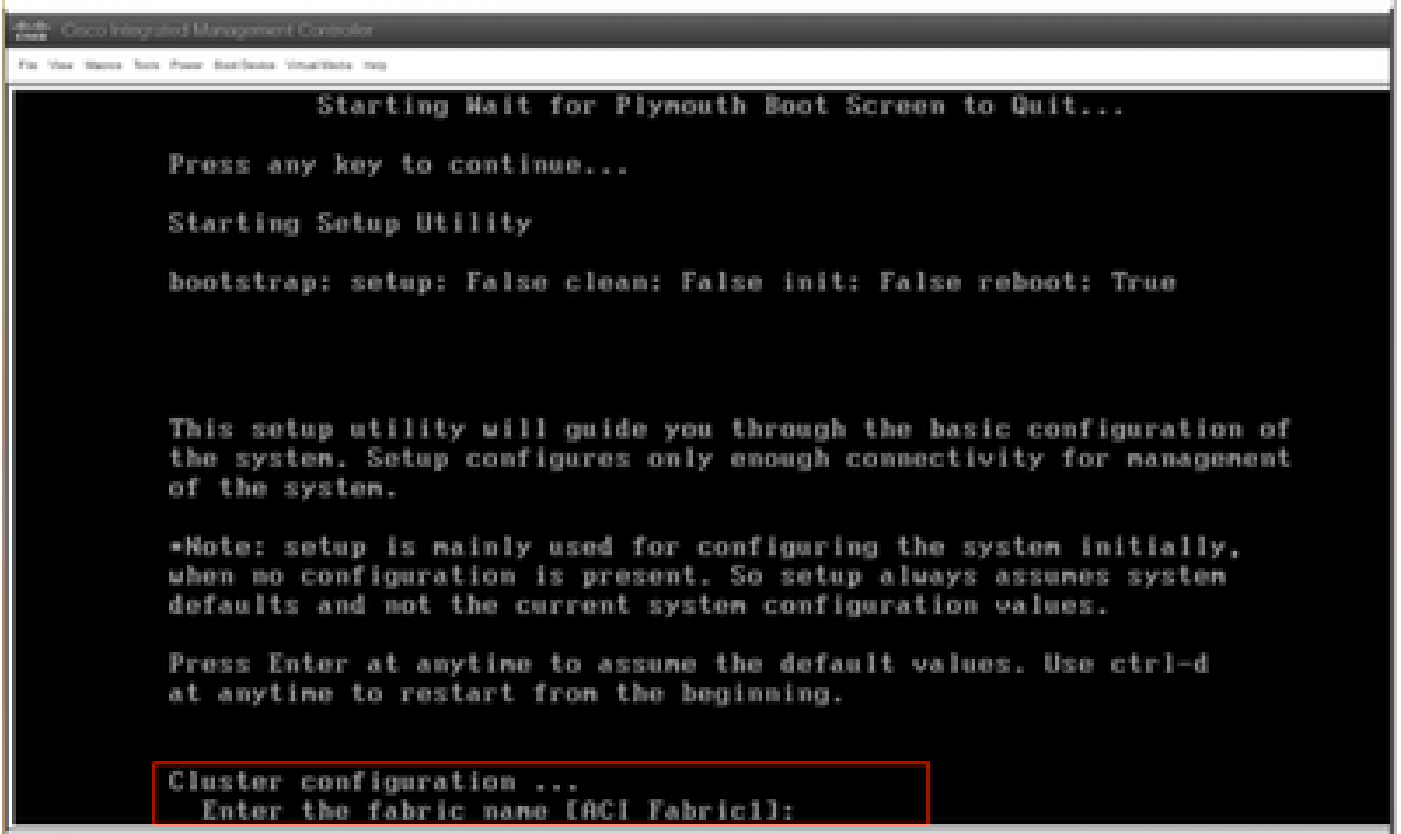
```
system /vmedia #
```

(iii) Connect back to SOL again:

```
system /vmedia # connect host
```

第10步：初始配置

从KVM控制台：依次选择Power (电源) > Power on System (开机系统) ，打开控制器和Sunch KVM的电源，系统将要求APIC初始配置



```
iCoco Integrated Management Controller
File View Home Help Power Services Virtualize Help

Starting Wait for Plymouth Boot Screen to Quit...

Press any key to continue...

Starting Setup Utility

bootstrap: setup: False clean: False init: False reboot: True

This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.

*Note: setup is mainly used for configuring the system initially,
when no configuration is present. So setup always assumes system
defaults and not the current system configuration values.

Press Enter at anytime to assume the default values. Use ctrl-d
at anytime to restart from the beginning.

Cluster configuration ...
Enter the fabric name [OC1 Fabric1]:
```

关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

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