

升级在Firepower伊莱克斯的一个ASA HA对

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简介

本文描述一个高性能的(HA)对的升级程序可适应在火力硬件设备(ASA)安装的安全工具。

先决条件

要求

Cisco 建议您了解以下主题：

- ASA管理
- ASA故障切换

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 2个x FP4150运行代码2.0.1-86
- ASA 9.6.2.1 (升级对9.6.2.3)

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。如果您的网络实际，请保证您了解所有命令潜在影响。

背景信息

在Firepower设备安装的ASA模块的升级程序(FPR4100， FPR9300等)，当HA配置时(活动/等待或

主动/主动)在Firepower可扩展操作系统的(FXO)配置指南描述。这是相关部分：

Updating the Image Version for a Logical Device

Before You Begin

Download the application image you want to use for the logical device from Cisco.com (see [Downloading Images from Cisco.com](#)) and then upload that image to the FXOS chassis (see [Uploading an Image to the Firepower Security Appliance](#)).

If you are upgrading both the Platform Bundle image and one or more Application images, you must upgrade the Platform Bundle first.

Note You cannot directly upgrade a Firepower Threat Defense logical device. To upgrade a Firepower Threat Defense logical device, you must delete the existing device and then create a new one using the updated image.

Procedure

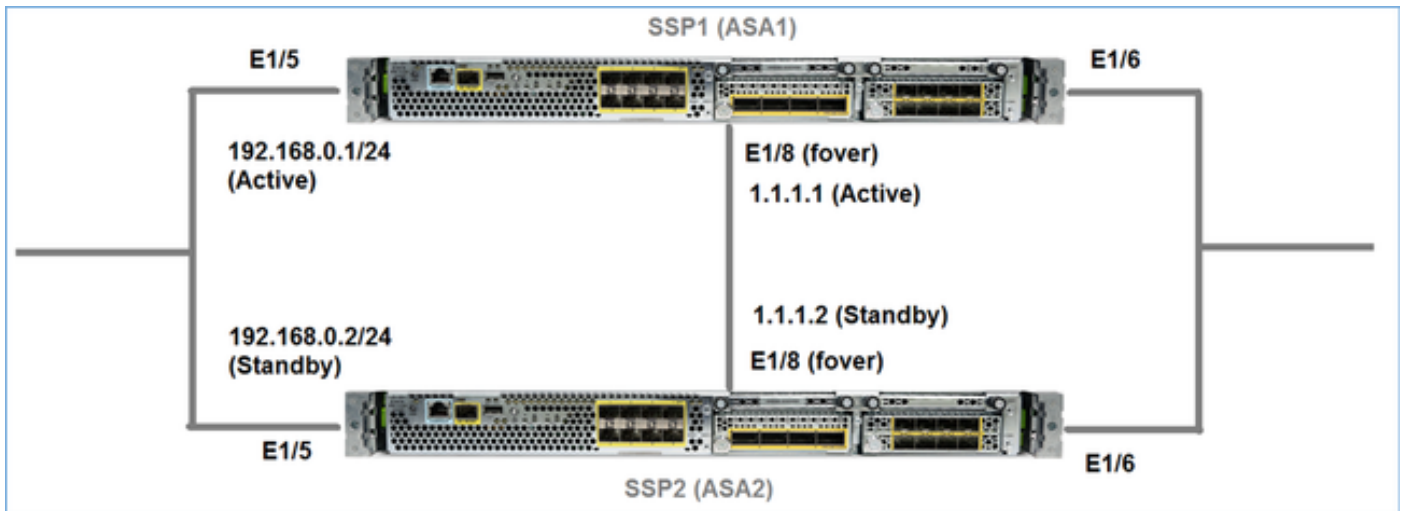
- Step 1** Choose **Logical Devices** to open the Logical Devices page. The Logical Devices page shows a list of configured logical devices on the chassis. If no logical devices have been configured, a message stating so is shown instead.
- Step 2** Click **Update Version** for the logical device that you want to update to open the **Update Image Version** dialog box.
- Step 3** For the **New Version**, choose the software version to which you want to update.
- Step 4** Click **OK**.

本文目标是提供有点升级进程的更多详细概要在HA环境的。

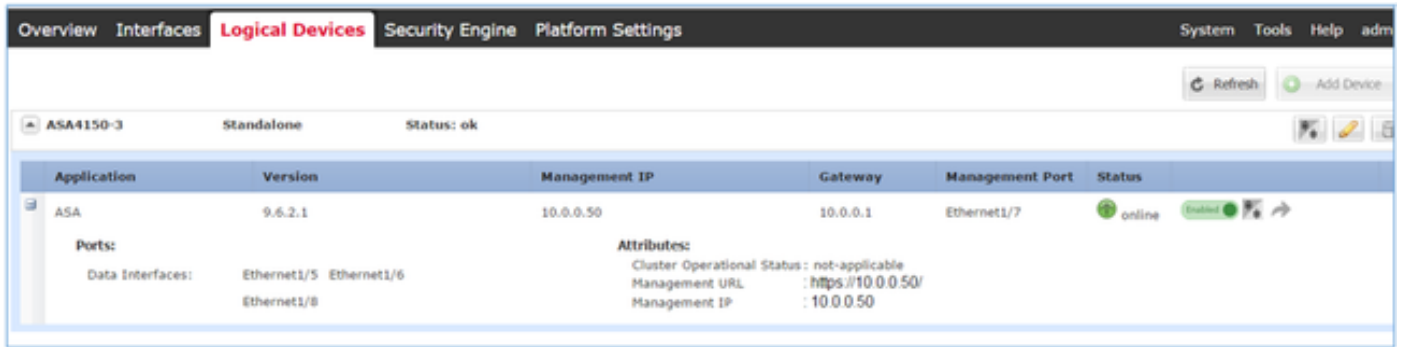
Note: 本文假设，目标ASA版本是与存在的FXO版本兼容，因此FXO在此方案捆绑升级没有必要。总是请检查FXO兼容性矩阵确认目标ASA版本是否是FXO镜像兼容。否则，首先然后请升级FXO镜像正如FXO版本注释所描述。

配置

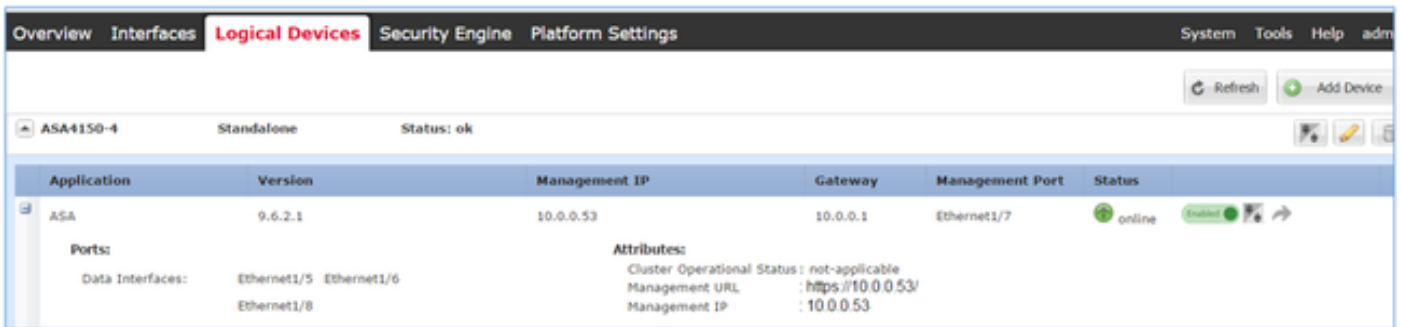
网络图



ASA1，当在Firepower机箱管理器(FCM) UI被看到：

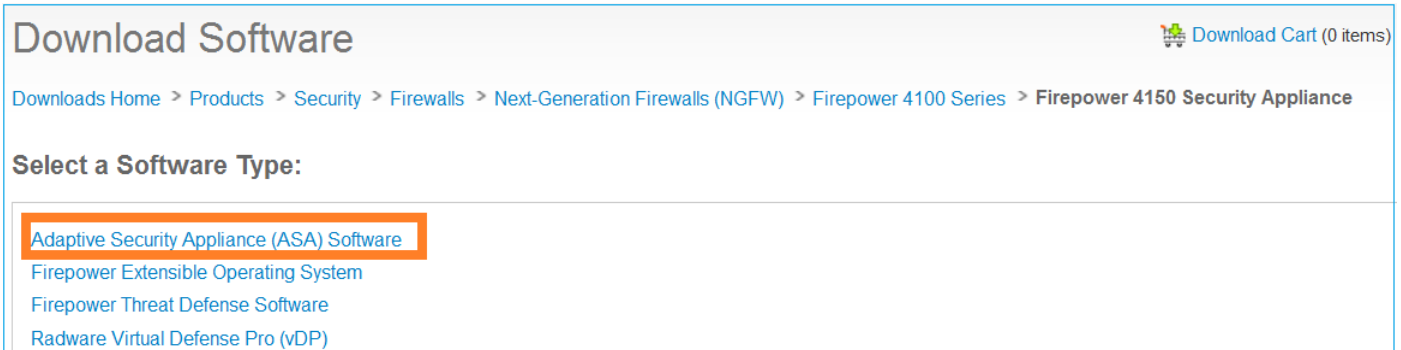


ASA2 :



任务1.下载从Cisco软件下载页的ASA镜像

导航对[下载霍姆](#)>[产品](#)>[Security](#)>[防火墙](#)>[下一代防火墙\(NGFW\)](#)并且选择HW平台(即4100 , 9000个等)如镜像所显示。

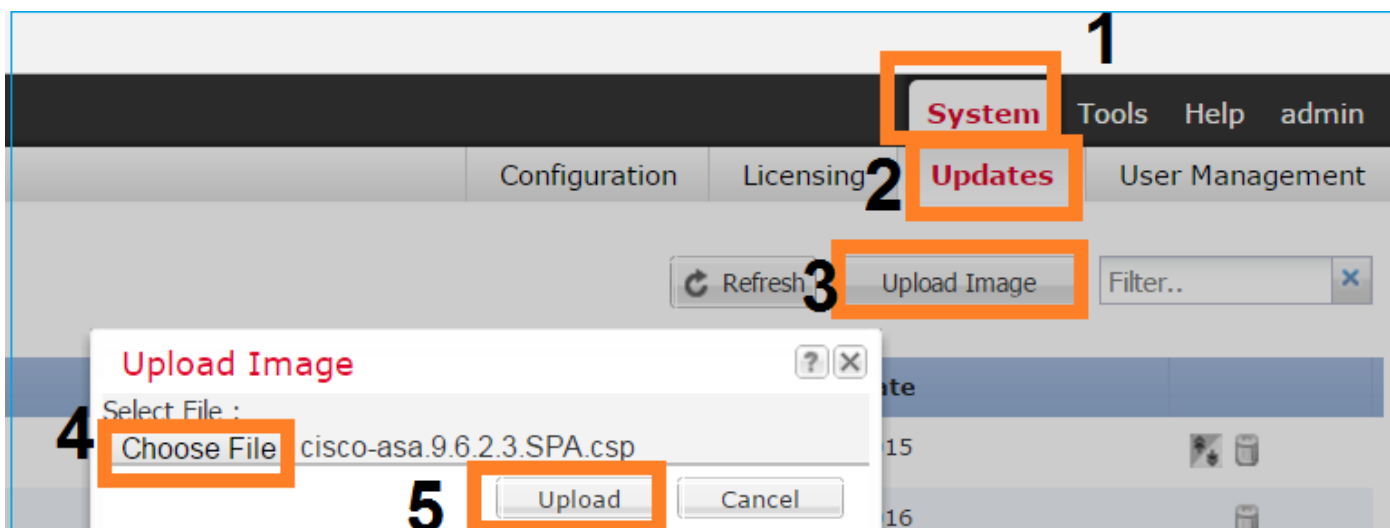


任务2.加载对Firepower机箱管理器的ASA镜像

上载ASA镜像到Firepower机箱。这可以从Firepower机箱管理器(FCM) UI或FXO命令行界面(CLI)执行。

ASA从FCM UI制作镜像的方法1.加载。

导航对[系统](#)>[更新](#)。选择[加载镜像](#)，指定文件名并且选择[加载](#)：



ASA从FXO CLI制作镜像的方法2.加载。

您能上载从FTP、SCP、SFTP或者TFTP server的镜像。为了验证机箱管理接口和远程服务器之间的连接请执行如显示：

```
FPR4100# connect local-mgmt
FPR4100(local-mgmt)# ping 10.48.40.70
PING 10.48.40.70 (10.48.40.70) from 10.62.148.88 eth0: 56(84) bytes of data.
64 bytes from 10.48.40.70: icmp_seq=1 ttl=61 time=34.4 ms
64 bytes from 10.48.40.70: icmp_seq=2 ttl=61 time=34.3 ms
64 bytes from 10.48.40.70: icmp_seq=3 ttl=61 time=34.3 ms
```

为了转换ASA镜像请导航对此范围并且运行下载镜像命令：

```
FPR4100# scope ssa
FPR4100 /ssa # scope app-software
FPR4100 /ssa/app-software # download image ftp://ftp_username@ 10.48.40.70/cisco-asa.9.6.2.3.SPA.csp
Password:
```

为了监控图像传送进度请运行detail命令显示的下载任务：

```
FPR4100 /ssa/app-software # show download-task detail

Downloads for Application Software:
  File Name: cisco-asa.9.6.2.3.SPA.csp
  Protocol: Ftp
  Server: 10.48.40.70
  Port: 0
  Userid: anonymous
  Path:
  Downloaded Image Size (KB): 94214
  Time stamp: 2016-12-08T10:21:56.775
  State: Downloading
  Transfer Rate (KB/s): 450.784698
  Current Task: downloading image cisco-asa.9.6.2.3.SPA.csp from 10.48.40.70(FSM-STAGE:sam:dme:ApplicationDownloaderDownload:Local)
```

您能也使用此命令验证成功的转移：

```
FPR4100 /ssa/app-software # show download-task
```

Downloads for Application Software:

File Name	Protocol	Server	Port	Userid	State
cisco-asa.9.6.2.2.SPA.csp	Ftp	10.48.40.70		0 anonymous	Downloaded

关于其他详细信息：

```
FPR4100 /ssa/app-software # show download-task fsm status expand
```

```
File Name: cisco-asa.9.6.2.3.SPA.csp
```

FSM Status:

```
Affected Object: sys/app-catalogue/dnld-cisco-asa.9.6.2.3.SPA.csp/fsm
Current FSM: Download
Status: Success
Completion Time: 2016-12-08T10:26:52.142
Progress (%) : 100
```

FSM Stage:

Order	Stage Name	Status	Try
1	DownloadLocal	Success	1
2	DownloadUnpackLocal	Success	1

ASA镜像在机箱信息库显示：

```
FPR4100 /ssa/app-software # exit
```

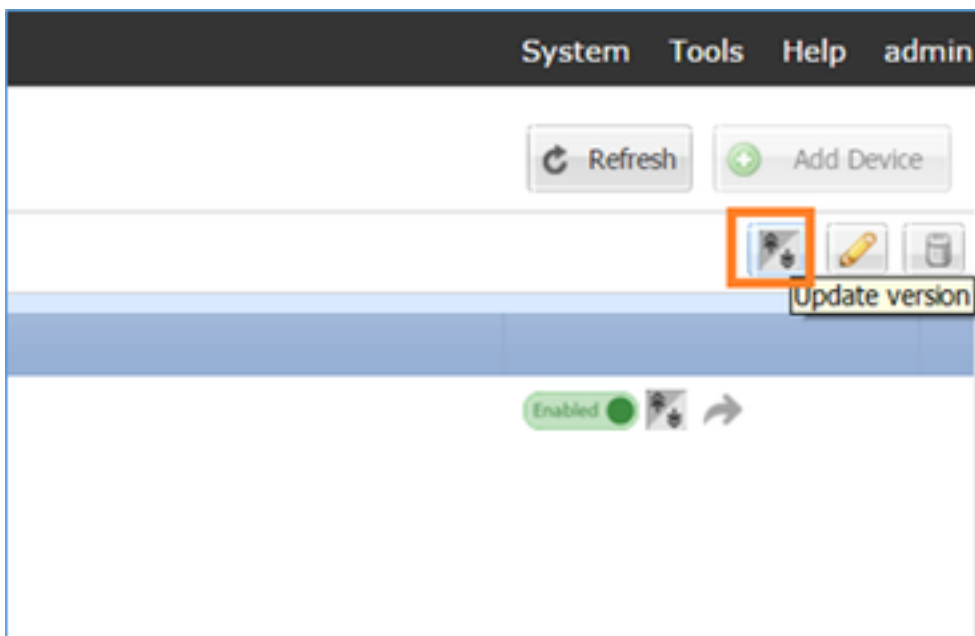
```
FPR4100 /ssa # show app
```

Application:

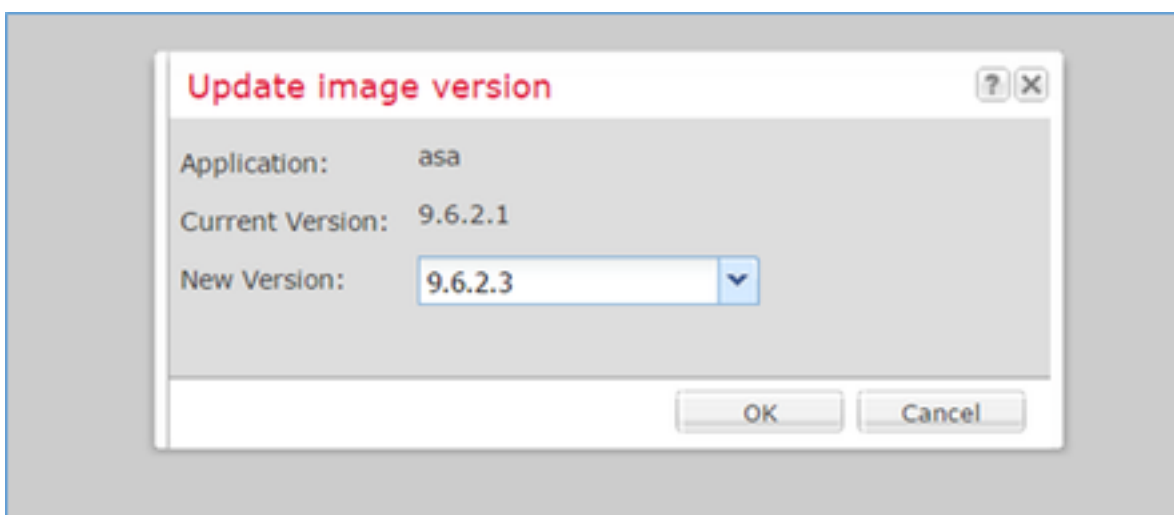
Name	Version	Description	Author	Deploy Type	CSP Type	Is Default	App
asa	9.6.2.1	N/A	cisco	Native	Application	No	
asa	9.6.2.3	N/A	cisco	Native	Application	No	

任务3.升级第一个ASA单元

如镜像所显示，升级首先待机ASA单元：

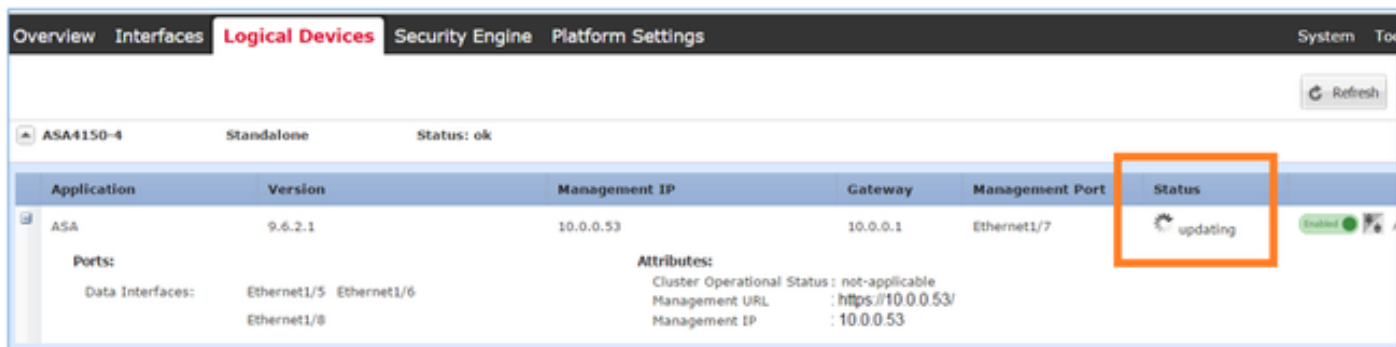


指定新的镜像和挑选OK在orderto开始升级：

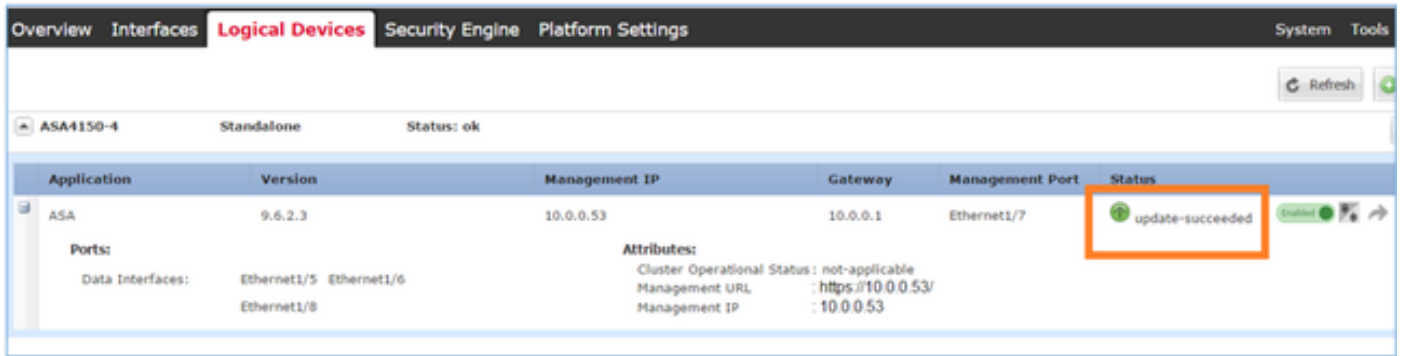


验证

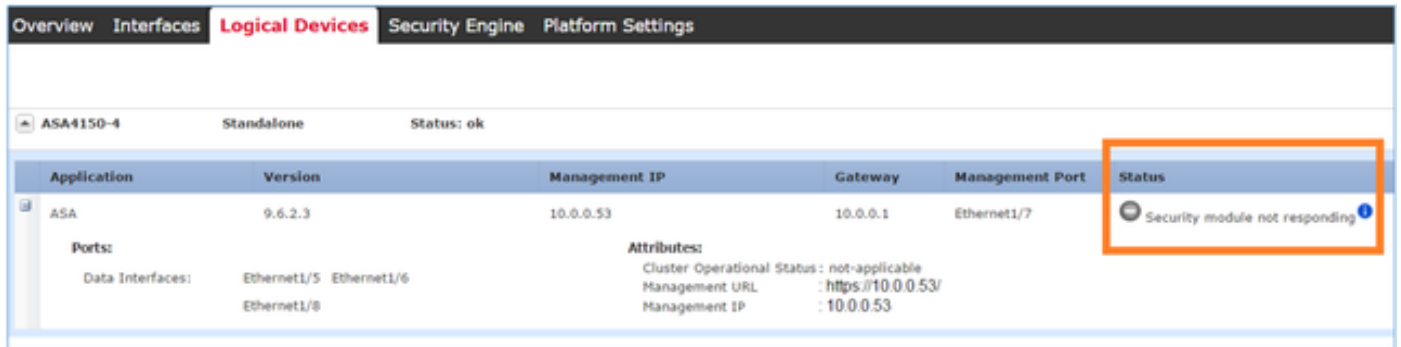
从FCM GUI的ASA升级进度：



在1-2分钟之后FCM UI显示：



ASA模块重新加载：



从Firepower机箱CLI的ASA升级进程。

CLI显示逻辑设备(ASA)重新启动。从模块引导CLI的整个升级进程在此输出中：

```
asa/sec/stby(config)#
[screen is terminating]
Disconnected from asa console!
Firepower-module1>
INIT: SwitchingStopping OpenBSD Secure Shell server: sshdstopped /usr/sbin/sshd (pid 5738)
.
Stopping Advanced Configuration and Power Interface daemon: stopped /usr/sbin/acpid (pid 5742)
acpid: exiting

acpid.
Stopping system message bus: dbus.
Stopping ntpd: stopped process in pidfile '/var/run/ntp.pid' (pid 6186)
done
Stopping crond: OK
Deconfiguring network interfaces... done.
Sending all processes the TERM signal...
SIGKILL_ALL will be delayed for 1 + 5 secs
Sending all processes the KILL signal...
Deactivating swap...
Unmounting local filesystems...
Rebooting... [ 1679.605561] Restarting system.

Cisco Systems, Inc.
Configuring and testing memory..

Cisco Systems, Inc.
Configuring and testing memory..
Configuring platform hardware...
Bios Version : FXOSSM1.1.2.1.3.031420161207
Platform ID : FXOSSM1
Processor(s) Intel(R) Xeon(R) CPU E5-2699 v4 @ 2.20GHz
```

Total Memory = 256 GB Effective Memory = 256 GB
Memory Operating Speed 2400 Mh

Please wait, preparing to boot..

.....
.....
UEFI Interactive Shell v2.0. UEFI v2.40 (American Megatrends, 0x0005000B). Revision 1.02

Mapping table

fs0: Alias(s):HD17a65535a1:;blk1:

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)/HD(1,MBR,0x000EC692,0x800,0xEE6800)

blk0: Alias(s):

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)

blk2: Alias(s):

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)/HD(2,MBR,0x000EC692,0xEE7000,0x3BA000)

blk3: Alias(s):

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)/HD(3,MBR,0x000EC692,0x12A1000,0x950000)

blk4: Alias(s):

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)/HD(4,MBR,0x000EC692,0x1BF1000,0x2CD20800)

blk5: Alias(s):

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)/HD(4,MBR,0x000EC692,0x1BF1000,0x2CD20800)/HD(1,MBR,0x00000000,0x1BF1800,0x5D22000)

blk6: Alias(s):

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)/HD(4,MBR,0x000EC692,0x1BF1000,0x2CD20800)/HD(2,MBR,0x00000000,0x7914000,0x26FFD800)

To launch ROMMON.

CpuFrequency = 2200002 KHz

Cisco FXOSSM1 Blade Rommon 1.2.1.3, Mar 14 2016 12:11:29

Platform: SSPXRU

INFO: enic_identify: Enabling Cruz driver...

INFO: enic_identify: Cruz driver enabled.

INFO: init_spi_interface: HSFS_BERASE_4K.

INFO: enic_init: bar[0].vaddr 0xc6e00000.

INFO: enic_init: bar[2].vaddr 0xc6e10000.

INFO: enic_init: eNic port MTU is 1500.

INFO: enic_init: eNic bsize 1500 ring size 512.

INFO: enic_init: Waiting for Cruz link...

INFO: enic_init: Cruz link detected.

INFO: nb_eth_app_init: MAC address for interface 0: 00 15 a5 01 01 00

INFO: nb_eth_app_init: IP address 127.128.1.254

Start communicating with MIO in blade slot 1...

INFO: Allocated 1000 bytes of memory for cmd at 0x78a7d018.

INFO: Allocated 1000 bytes of memory for status at 0x76d34918.

INFO: Allocated 196608 bytes of memory for key file at 0x76d03018.

INFO: Status code 1: 'rommon initialize is completed'.

INFO: tftp_open: '/rommon/status_1.txt'@127.128.254.1 via 127.128.254.1

!

INFO: nb_tftp_upload: 31 bytes sent.

tftpget 0x78a7d018 1000

INFO: tftp_open: '/rommon/command_1.txt'@127.128.254.1 via 127.128.254.1

Received 154 bytes

WARNING: retrieve_mio_cmd_info: Invalid checksum 0x0.

tftpget 0x76d03018 196608

INFO: tftp_open: 'rommon/key_1.bin'@127.128.254.1 via 127.128.254.1

!

Received 131072 bytes

INFO: Status code 8: 'rommon succeeds to retrieve key file'.


```
INFO: tftp_open: '/rommon/status_1.txt'@127.128.254.1 via 127.128.254.1
!
INFO: nb_tftp_upload: 31 bytes sent.
INFO: Primary keys in flash are up-to-date.
INFO: Backup keys in flash are up-to-date.
continue check local image
the image file path: installables/chassis/fxos-lfbff-k8.9.6.2.2.SPA
the image file name only: fxos-lfbff-k8.9.6.2.2.SPA
local_image_file: fs0:fxos-lfbff-k8.9.6.2.2.SPA
INFO: File 'fs0:fxos-lfbff-k8.9.6.2.2.SPA' has 104831328 bytes.
local_image_file_size 104831328
Found image fs0:fxos-lfbff-k8.9.6.2.2.SPA in local storage, boot local image.
set pboot_image fxos-lfbff-k8.9.6.2.2.SPA
INFO: File 'fs0:fxos-lfbff-k8.9.6.2.2.SPA' has 104831328 bytes.
INFO: 'fs0:fxos-lfbff-k8.9.6.2.2.SPA' has 104831328 bytes
INFO: Booting LFBFF image...
INFO: Status code 7: 'rommon about to verify image signature from local disk'.
INFO: tftp_open: '/rommon/status_1.txt'@127.128.254.1 via 127.128.254.1
!
INFO: nb_tftp_upload: 31 bytes sent.
INIT: version 2.88 booting
Starting udev
Configuring network interfaces... done.
Populating dev cache
rw console=ttyS0,38400 loglevel=2 auto kstack=128 reboot=force panic=1
ide_generic.probe_mask=0x1 ide1=noprobe pci=nocrs processor.max_cstate=1 iommu=pt
platform=sspxru boot_img=disk0:/fxos-lfbff-k8.9.6.2.2.SPA ciscodmasz=786432 cisconrsvsz=2359296
hugepagesz=1g hugepages=24 ssp_mode=0
No Partitions for HDD2.. Creating partition..
mount: special device /dev/sdb1 does not exist
rw console=ttyS0,38400 loglevel=2 auto kstack=128 reboot=force panic=1
ide_generic.probe_mask=0x1 ide1=noprobe pci=nocrs processor.max_cstate=1 iommu=pt
platform=sspxru boot_img=disk0:/fxos-lfbff-k8.9.6.2.2.SPA ciscodmasz=786432 cisconrsvsz=2359296
hugepagesz=1g hugepages=24 ssp_mode=0
Create libvirt group
Start libvirtd Service
 * Starting virtualization library daemon: libvirtd
no /usr/bin/dnsmasq found; none killed
2016-12-07 12:47:24.090+0000: 4373: info : libvirt version: 1.1.2
2016-12-07 12:47:24.090+0000: 4373: warning : virGetHostname:625 : getadd[ ok ]failed for
'cisoasa': Name or service not known
Disable the default virtual networks
Network default destroyed

Done with libvirt initialization
rw console=ttyS0,38400 loglevel=2 auto kstack=128 reboot=force panic=1
ide_generic.probe_mask=0x1 ide1=noprobe pci=nocrs processor.max_cstate=1 iommu=pt
platform=sspxru boot_img=disk0:/fxos-lfbff-k8.9.6.2.2.SPA ciscodmasz=786432 cisconrsvsz=2359296
hugepagesz=1g hugepages=24 ssp_mode=0
+++++ BOOT CLI FILES COPIED +++++
rw console=ttyS0,38400 loglevel=2 auto kstack=128 reboot=force panic=1
ide_generic.probe_mask=0x1 ide1=noprobe pci=nocrs processor.max_cstate=1 iommu=pt
platform=sspxru boot_img=disk0:/fxos-lfbff-k8.9.6.2.2.SPA ciscodmasz=786432 cisconrsvsz=2359296
hugepagesz=1g hugepages=24 ssp_mode=0
Turbo Boost is UNSUPPORTED on this platform.
Configuration Xml found is /opt/cisco/csp/applications/configs/cspCfg_cisco-
asa.9.6.2.3__asa_001_JAD201200C64A93395.xml
INIT: Entering runlevel: 3
rw console=ttyS0,38400 loglevel=2 auto kstack=128 reboot=force panic=1
ide_generic.probe_mask=0x1 ide1=noprobe pci=nocrs processor.max_cstate=1 iommu=pt
platform=sspxru boot_img=disk0:/fxos-lfbff-k8.9.6.2.2.SPA ciscodmasz=786432 cisconrsvsz=2359296
hugepagesz=1g hugepages=24 ssp_mode=0
Starting system message bus: dbus.
Starting OpenBSD Secure Shell server: sshd
```

```

generating ssh RSA key...
generating ssh ECDSA key...
generating ssh DSA key...
done.
Starting Advanced Configuration and Power Interface daemon: acpid.
acpid: starting up

acpid: 1 rule loaded

acpid: waiting for events: event logging is off

Starting ntpd: done
Starting crond: OK
Cisco Security Services Platform
Type ? for list of commands
Firepower-module1>
Firepower-module1>show services status
Services currently running:
Feature | Instance ID | State | Up Since
-----|-----|-----|-----
asa | 001_JAD201200C64A93395 | RUNNING | :00:00:20
Firepower-module1>

```

整个程序花费大约5分钟。

您能也使用从机箱CLI的显示APP实例命令验证ASA应用程序有来的联机：

```

FPR4100# scope ssa
FPR4100 /ssa # show app-instance
Application Name      Slot ID   Admin State      Operational State  Running Version  Startup
Version Cluster Oper State
-----|-----|-----|-----|-----|-----
asa                   1         Enabled          Online             9.6.2.3          9.6.2.3
Not Applicabl

```

ASA模块互相发现：

```

asa/sec/actNoFailover>
*****WARNING****WARNING****WARNING***** Mate version 9.6(2)1
is not identical with ours 9.6(2)3
*****WARNING****WARNING****WARNING*****
.
    Detected an Active mate
Beginning configuration replication from mate.
End configuration replication from mate.

asa/sec/stby>

```

验证

```

FPR4100# connect module 1 console
Telnet escape character is '~'.
Trying 127.5.1.1...
Connected to 127.5.1.1.
Escape character is '~'.

```

```
CISCO Serial Over LAN:
Close Network Connection to Exit
```

```
Firepower-module1> connect asa
asa> enable
Password:
asa/sec/stby# show failover
Failover On
Failover unit Secondary
Failover LAN Interface: fover Ethernet1/8 (up)
Reconnect timeout 0:00:00
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 5 seconds, holdtime 25 seconds
Interface Policy 1
Monitored Interfaces 2 of 1041 maximum
MAC Address Move Notification Interval not set
Version: Ours 9.6(2)3, Mate 9.6(2)1
Serial Number: Ours FLM2006EQFW, Mate FLM2006EN9U
Last Failover at: 12:48:23 UTC Dec 7 2016
This host: Secondary - Standby Ready
  Active time: 0 (sec)
  slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)3) status (Up Sys)
    Interface INSIDE (192.168.0.2): Normal (Not-Monitored)
    Interface OUTSIDE (192.168.1.2): Normal (Monitored)
    Interface management (0.0.0.0): Normal (Waiting)
Other host: Primary - Active
  Active time: 10320 (sec)
  slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)1) status (Up Sys)
    Interface INSIDE (192.168.0.1): Normal (Not-Monitored)
    Interface OUTSIDE (192.168.1.1): Normal (Monitored)
    Interface management (10.0.0.50): Normal (Waiting)
...
```

要确认在ASA单元之间的适当的故障切换操作请运行这些命令：

- show conn count
- show xlate计数
- show crypto ipsec sa

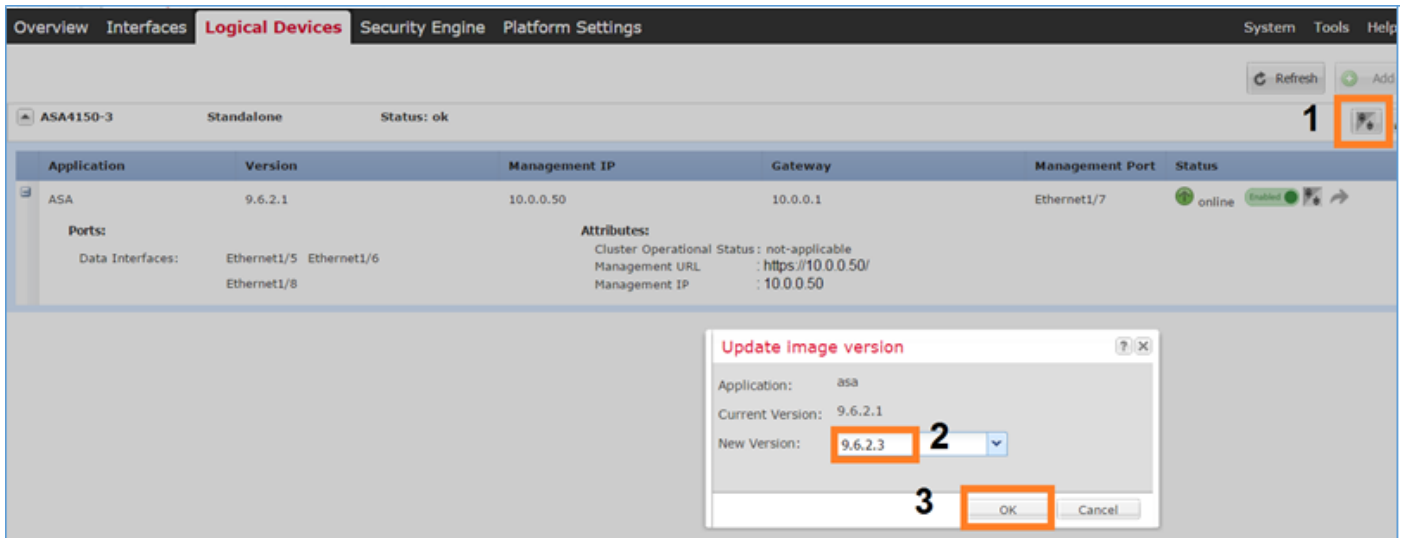
任务4.升级第二个ASA单元

交换故障切换对等体并且升级主要的ASA：

```
asa/sec/stby# failover active

Switching to Active
asa/sec/act#
```

指定新的镜像并且开始升级：



在5分钟之后，升级完成。

验证

从机箱CLI请验证ASA应用程序有来的联机：

```
FPR4100# scope ssa
FPR4100 /ssa # show app-instance
```

Application Name	Slot ID	Admin State	Operational State	Running Version	Startup Version
asa	1	Enabled	Online	9.6.2.3	9.6.2.3
Not Applicable					

从ASA模块请验证故障切换操作：

```
asa/pri/stby# show failover
```

```
Failover On
Failover unit Primary
Failover LAN Interface: fover Ethernet1/8 (up)
Reconnect timeout 0:00:00
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 5 seconds, holdtime 25 seconds
Interface Policy 1
Monitored Interfaces 2 of 1041 maximum
MAC Address Move Notification Interval not set
Version: Ours 9.6(2)3, Mate 9.6(2)3
Serial Number: Ours FLM2006EN9U, Mate FLM2006EQFW
Last Failover at: 14:35:37 UTC Dec 7 2016
```

```

This host: Primary - Standby Ready
  Active time: 0 (sec)
  slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)3) status (Up Sys)
    Interface INSIDE (192.168.0.2): Normal (Not-Monitored)
    Interface OUTSIDE (192.168.1.2): Normal (Waiting)
    Interface management (0.0.0.0): Normal (Waiting)

Other host: Secondary - Active
  Active time: 656 (sec)
  slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)3) status (Up Sys)
    Interface INSIDE (192.168.0.1): Failed (Not-Monitored)

```

```
Interface OUTSIDE (192.168.1.1): Normal (Waiting)
Interface management (10.0.0.50): Normal (Waiting)
```

Stateful Failover Logical Update Statistics

```
Link : fover Ethernet1/8 (up)
Stateful Obj   xmit      xerr      rcv        rerr
General        7          0          8          0
```

...

交换上一步故障切换有主要的/激活，第二/待机：

```
asa/pri/stby# failover active
```

```
Switching to Active
```

```
asa/pri/act#
```

故障排除

目前没有针对此配置的故障排除信息。

相关信息

- [FXO配置指南](#)
- [FXOS-ASA兼容性指南](#)
- [FXO版本注释](#)
- [技术支持和文档 - Cisco Systems](#)