upgrade van een ASA HA-paar op FirePOWER-applicaties

Inhoud

Inleiding

In dit document wordt de upgradeprocedure beschreven van een hoge beschikbaarheid (HA) paar adaptieve security applicaties (ASA's) die op hardware-apparatuur zijn geïnstalleerd.

Voorwaarden

Vereisten

Cisco raadt kennis van de volgende onderwerpen aan:

- ASA-beheer
- ASA failover

Gebruikte componenten

De informatie in dit document is gebaseerd op de volgende software- en hardware-versies:

- 2 x FP4150-uitvoeringscode 2.0.1-86
- ASA 9.6.2.1 (bijgewerkt tot 9.6.2.3)

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk levend is, zorg er dan voor dat u de mogelijke impact van om het even welke opdracht begrijpt.

Achtergrondinformatie

De upgradeprocedure van een ASA-module die is geïnstalleerd op FirePOWER-apparaten (FPR4100, FPR9300, enz.) wanneer HA is geconfigureerd (Active/Standby of Active/Active) wordt beschreven in de configuratiegids van FirePOWERXtensible Operating System (FXOS). Hier is het relevante deel:

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.

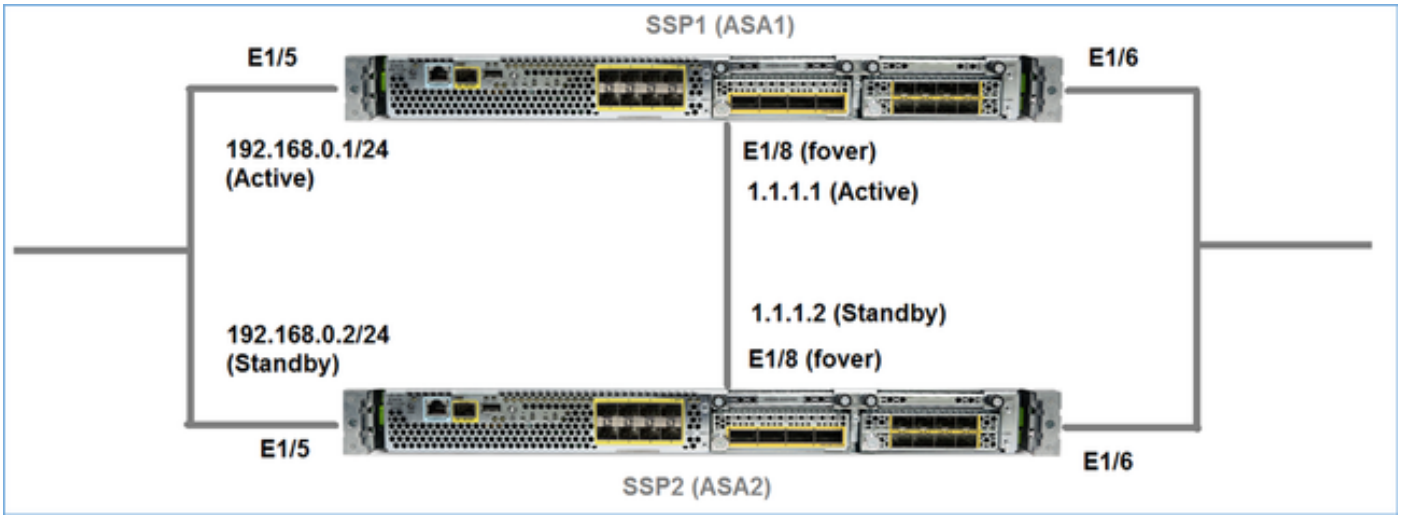
Step 4 Click **OK**.

Het doel van dit document is een wat gedetailleerder overzicht te geven van het upgradeproces in een HA-omgeving.

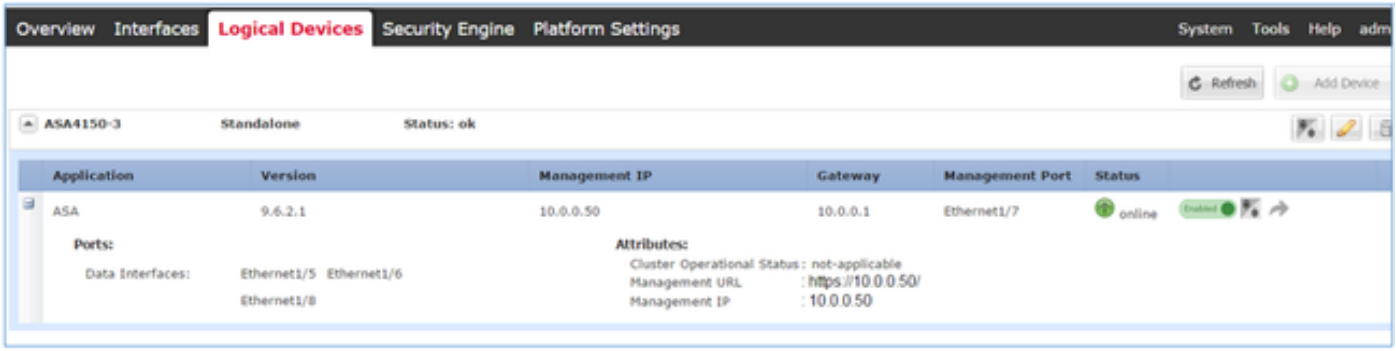
> Opmerking: Het document gaat ervan uit dat de beoogde ASA-versie compatibel is met de FXOS-versie die bestaat, zodat een FXOS-bundelupgrade in dit scenario niet nodig is. Controleer altijd de FXOS-compatibiliteitsmatrix om te bevestigen of de ASA-doelversie compatibel is met de FXOS-afbeelding. Als dit niet het geval is, bevestig dan eerst de FXOS-afbeeldingen zoals beschreven in de FXOS-release Notes.

Configureren

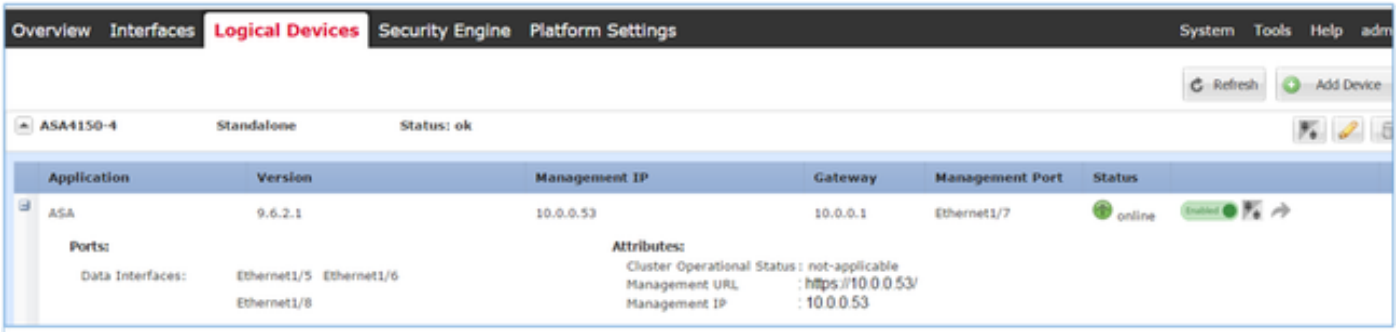
Netwerkdiagram



ASA1 zoals gezien in Firepower Chassis Manager (FCM) UI:

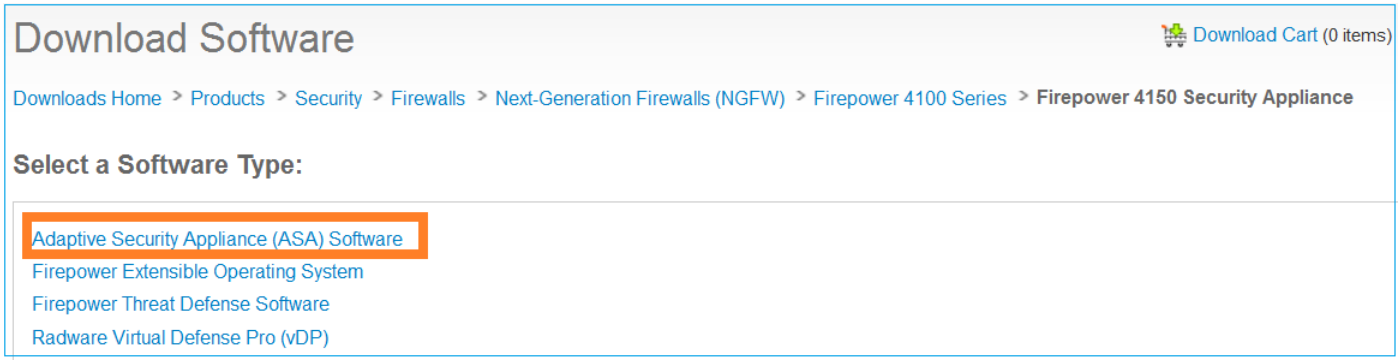


ASA2:



Task 1. Download de ASA Images van Cisco Software Download Pages

Navigeer naar **downloads Home > Producten > Security > Firewalls > Firewalls van de volgende generatie (NGFW)** en selecteer het HW-platform (bijvoorbeeld 4100, 9000 etc.) zoals in de afbeelding.

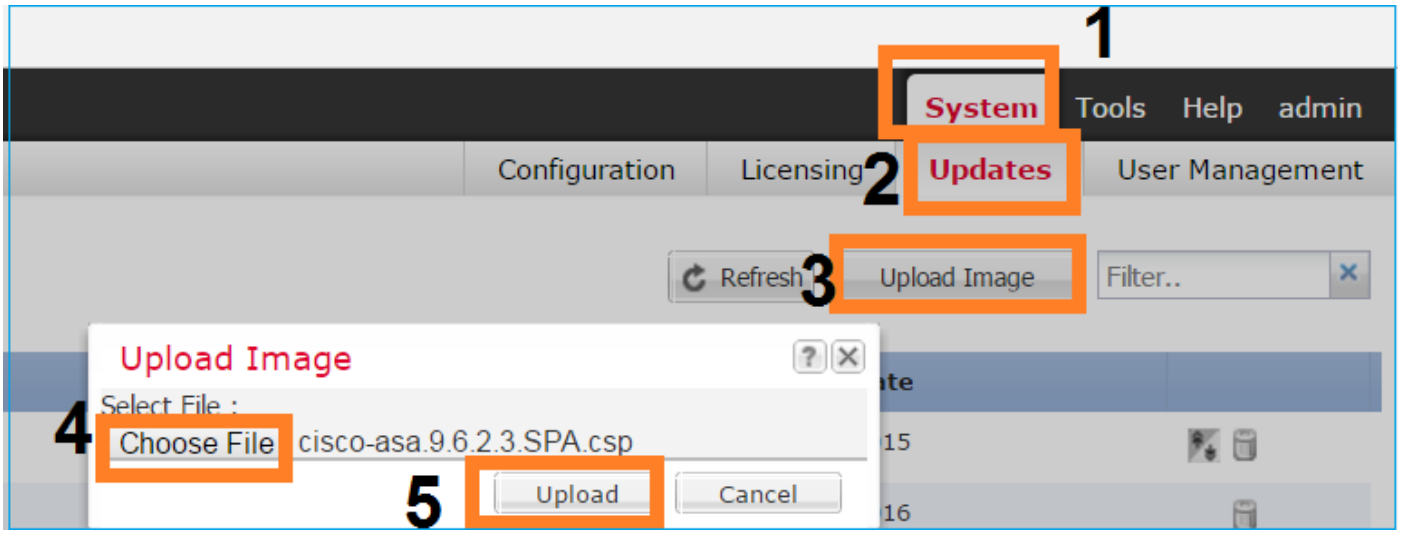


Task 2. De ASA-afbeeldingen uploaden naar de Firepower Chassis Manager

Upload de ASA beelden naar FirePOWER chassis. Dit kan worden gedaan vanuit Firepower Chassis Manager (FCM) UI of de FXOS Opdracht Line Interface (CLI).

Methode 1. Upload de ASA beelden van FCM UI.

Navigeer naar **systeem > updates.** Selecteer **Afbeelding uploaden**, specificeer de bestandsnaam en selecteer **Upload:**



Methode 2. Upload de ASA beelden van FXOS CLI.

U kunt de afbeelding uploaden vanaf een FTP-, SCP-, SFTP- of TFTP-server. Om de connectiviteit tussen de chassisbeheerinterface en de externe server te verifiëren, doet u zoals aangegeven:

```
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
```

Om het ASA-beeld over te brengen navigeer naar deze scope en voer de opdracht **downloadafbeelding** uit:

```
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:
```

U kunt de voortgang bij de overdracht van de afbeelding **bewaken** door **de** opdracht **detail downloaden**:

```
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)
```

U kunt deze opdracht ook gebruiken om de succesvolle overdracht te controleren:

```
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
```

Voor meer informatie:

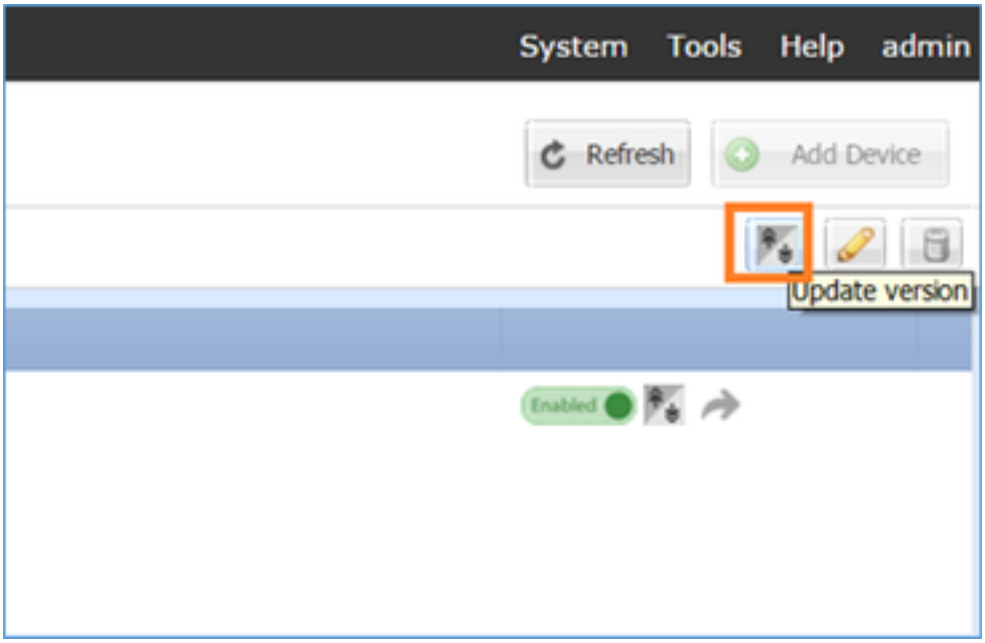
```
FPR4100 /ssa/app-software # show download-task fsm status expand

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
```

Het ASA-beeld wordt getoond in de chassisgegevensbank:

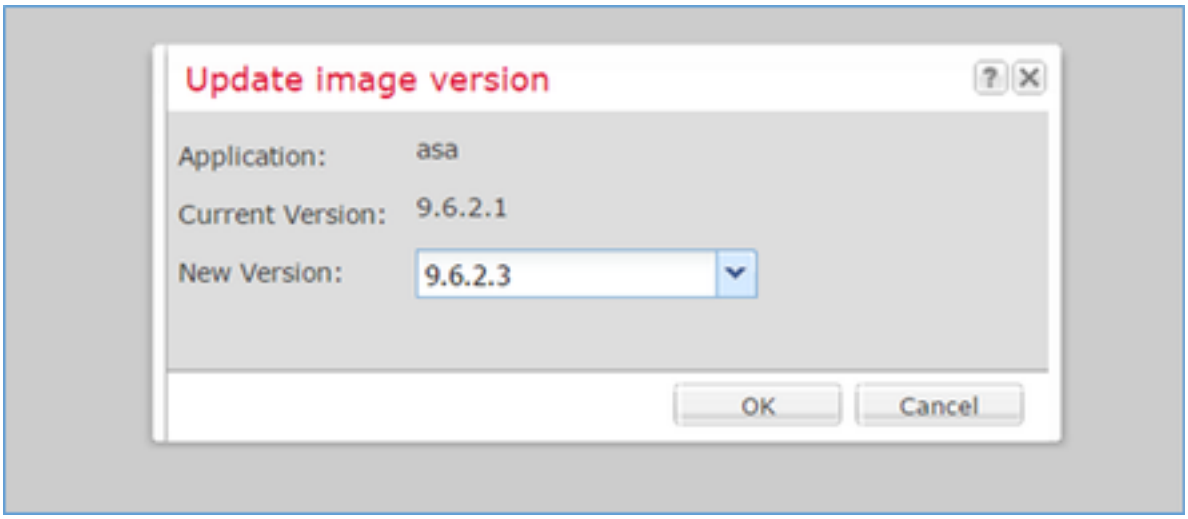
```
FPR4100 /ssa/app-software # exit
FPR4100 /ssa # show app

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
```

Task 3. upgrade van de eerste ASA-eenheid

Upgradeer eerst de Standby ASA-unit zoals in de afbeelding getoond:

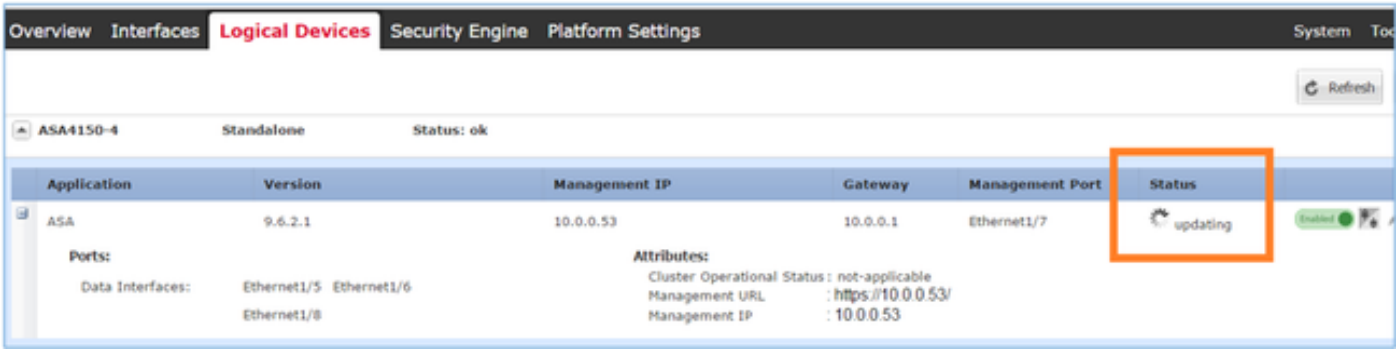


Specificeer de nieuwe afbeelding en selecteer **OK** om de upgrade te kunnen starten:

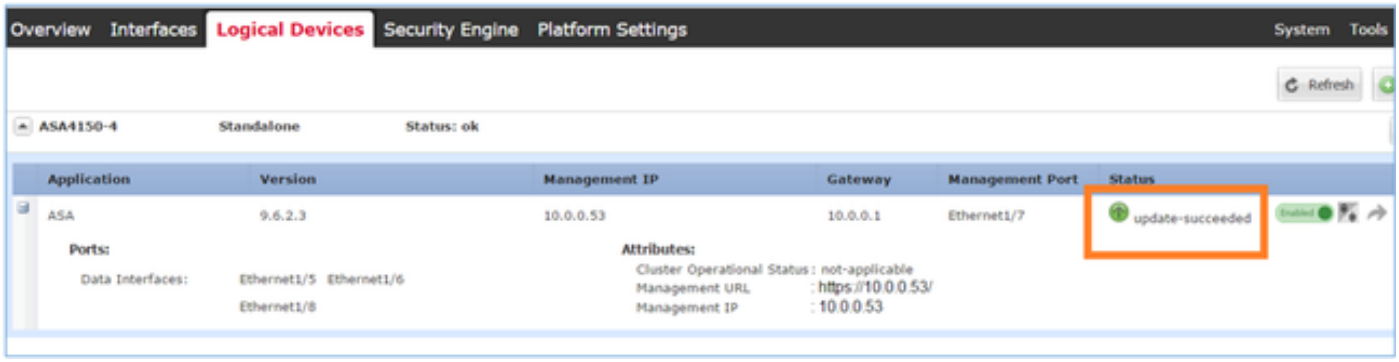


Verificatie

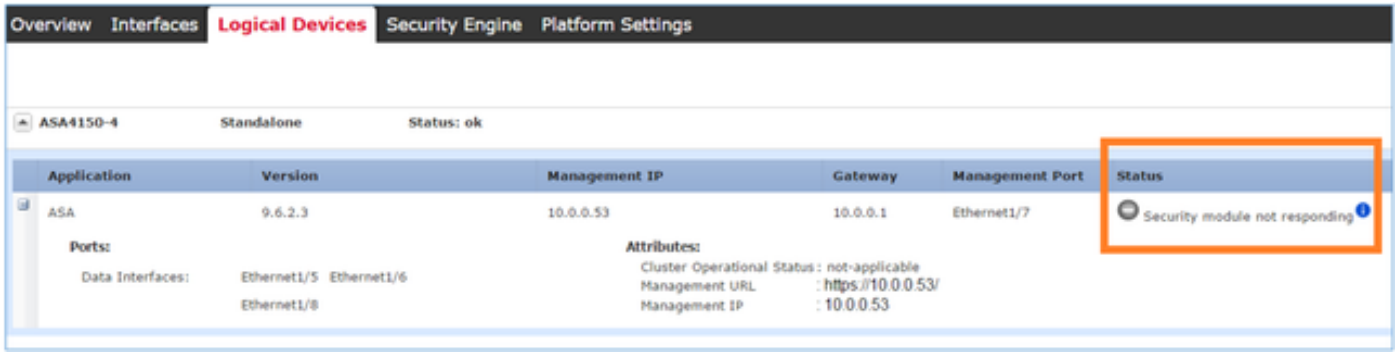
De ASA upgrade voortgang vanaf FCM GUI:



Na 1-2 minuten toont de FCM UI:



De ASA module herladen:



Het ASA-upgradeproces van Firepower Chassis CLI.

De CLI laat zien dat het logische toestel (ASA) opnieuw start. Het gehele upgradeproces vanaf de module Opstarten CLI in deze uitvoer:

```
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,M
BR,0x00000000,0x1BF1800,0x5D22000)
     blk6: Alias(s):

PciRoot(0x0)/Pci(0x1F,0x2)/Sata(0x0,0xFFFF,0x0)/HD(4,MBR,0x000EC692,0x1BF1000,0x2CD20800)/HD(2,M
BR,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
'ciscoasa': 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>
```

De hele procedure duurt ongeveer vijf minuten.

U kunt ook de opdracht **Show app-Instance** van de chassis CLI gebruiken om te verifiëren dat de ASA toepassing **online** is gekomen:

```
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
```

De ASA modules ontdekken elkaar:

```
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>
```

Verificatie

```
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)
...
```

Om te bevestigen dat de ASA-eenheden een goede failover-werking hebben, voert u deze opdrachten uit:

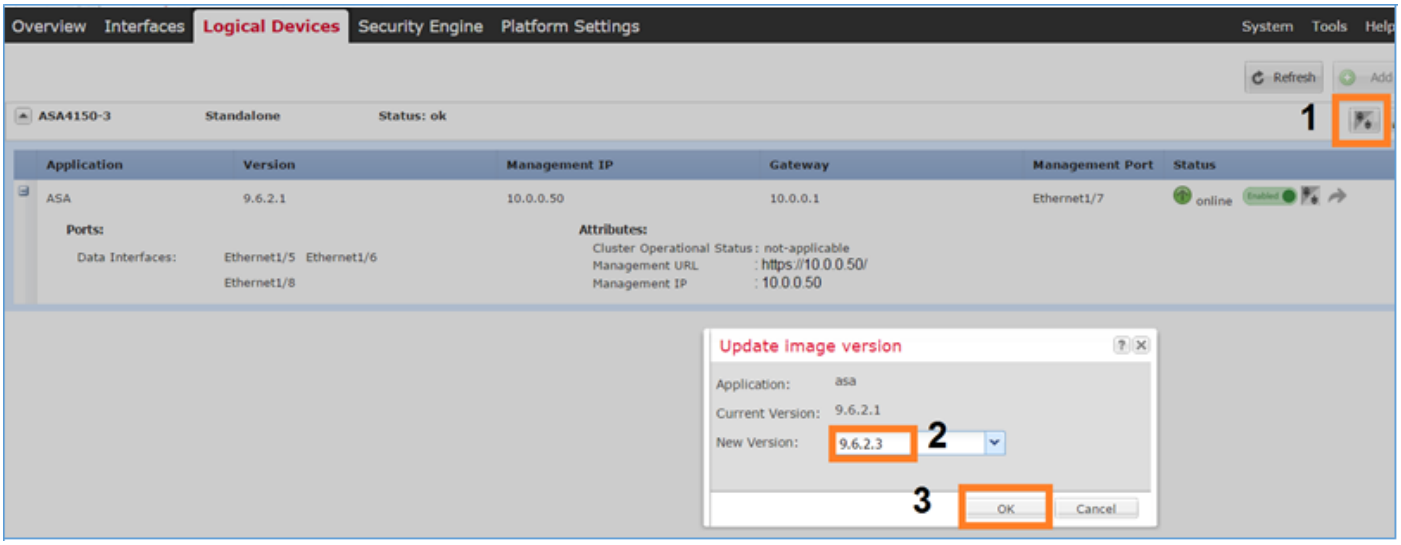
- show conn count
- autopas
- show crypto ipsec sa

Task 4. upgrade van de tweede ASA-eenheid

Schakel de overvalpeers over en upgrade van de primaire ASA:

```
asa/sec/stby# failover active

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

Specificeer de nieuwe afbeelding en start de upgrade:



Na 5 minuten is de upgrade voltooid.

Verifiëren

Controleer vanuit het chassis CLI of de ASA applicatie **online** is gekomen:

```
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 Applicable
```

Van de ASA module verifieer de overvalbediening:

```
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
...
```

Schakel de failover terug om Primair/Active, Secundair/Standby te hebben:

```
asa/pri/stby# failover active

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

Problemen oplossen

Er is momenteel geen specifieke troubleshooting-informatie beschikbaar voor deze configuratie.

Gerelateerde informatie

- FXOS-configuratiegids
- FXOS-ASA compatibiliteitsgids
- Opmerkingen over FXOS-release
- Technische ondersteuning en documentatie – Cisco Systems