Firepower eXtensible Operating System (FXOS) Technical FAQ

Inhoud

Inleiding

Dit document beschrijft de meest frequent AskedQ (Vragen in verband met FXOS-platforms) (bijv. Firepower 9300, Firepower 41xx, etc.), ook bekend als Security Services Processors (SSP). De FXOS is het besturingssysteem dat het chassis beheert.

V. Hoe kan Tech uit het FXOS-systeem worden gegenereerd?

Vanaf versie 2.8.x wordt het **formulier** afgekeurd. Zo ondersteunt FXOS 2.8.x alleen chassis- en bladeswitch-technologie.

```
KSEC-FPR4115-2-1(local-mgmt)# show tech-support fprm detail
WARNING: show tech-support fprm detail command is deprecated.
Please use show tech-support chassis 1 detail command instead.
```

- chassis: Bevat logbestanden voor het chassis, de blade, de adapter, de Baseboard Management Controller (BMC) en Cisco Integrated Management Controller (CIMC)
- module: Bevat logbestanden voor de blade/module waar het logische apparaat, adaptieve security applicatie (ASA) of Firepower Threat Defense (FTD) verblijft. Dit omvat logbestanden voor onderdelen zoals appAgent)

In pre-2.8.x releases biedt FXOS 3 verschillende **show-technologie-**outputs. De FPRM-bundel bevat logbestanden voor Management I/O (MIO) - de Supervisor Engine - en de Service Manager)

Normaal gesproken genereert u alle 3 bundels. Gebruik het **detail** van de **show tech-support <optie>** om de 3 verschillende logbundels voor de TAC-analyse te genereren:

```
FPR4140-A# connect local-mgmt
FPR4140-A(local-mgmt)# show tech-support fprm detail
FPR4140-A(local-mgmt)# show tech-support chassis 1 detail
FPR4140-A(local-mgmt)# show tech-support module 1 detail
```

- Als u de detailoptie niet specificeert, krijgt u de uitvoer op het scherm
- De detailoptie maakt een tar-bestand

U controleert de gegenereerde bestandsnamen als volgt:

```
FPR4140-A(local-mgmt)# dir techsupport/
1 15595520 Apr 09 17:29:10 2017 20170409172722_FPR4140_FPRM.tar
1   962560 Apr 09 17:32:20 2017 20170409172916_FPR4140_BC1_all.tar
1  7014400 Apr 09 18:06:25 2017 Firepower-Module1_04_09_2017_18_05_59.tar
```

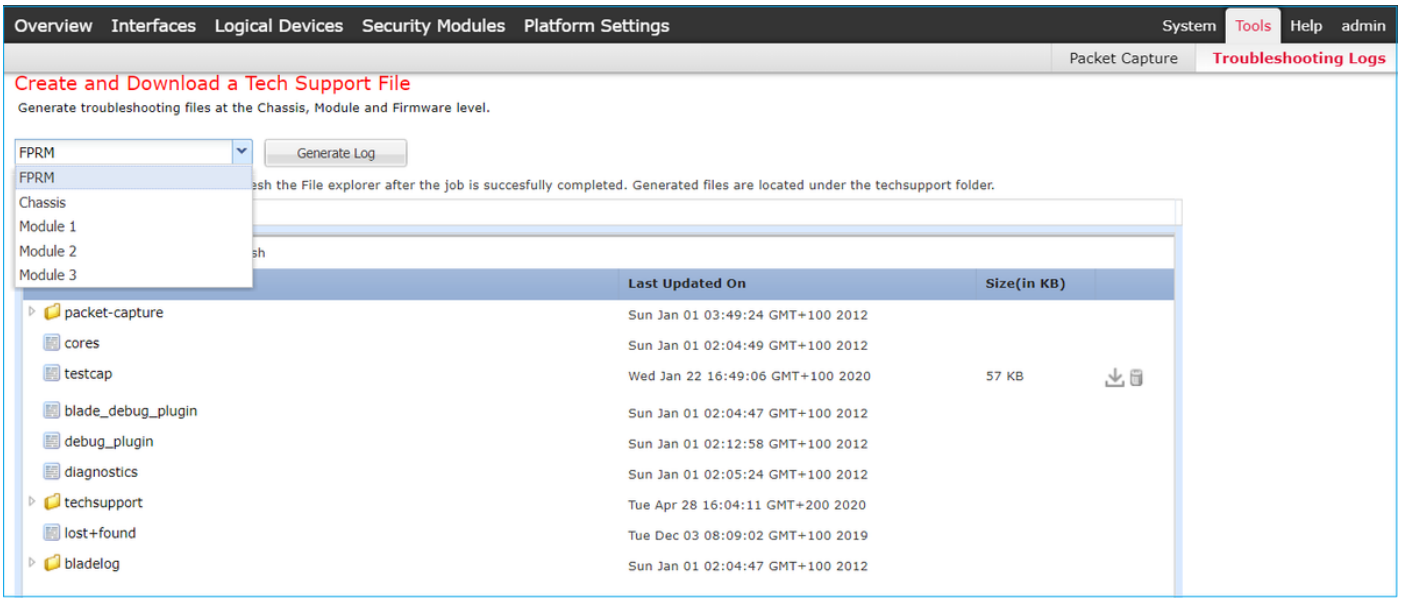
Zo exporteert u een bundel van CLI:

```
FPR4140-A(local-mgmt)# copy workspace:///techsupport/20170409172722_FPR4140_FPRM.tar
ftp|tftp|scp|sftp://username@192.168.0.1/
```

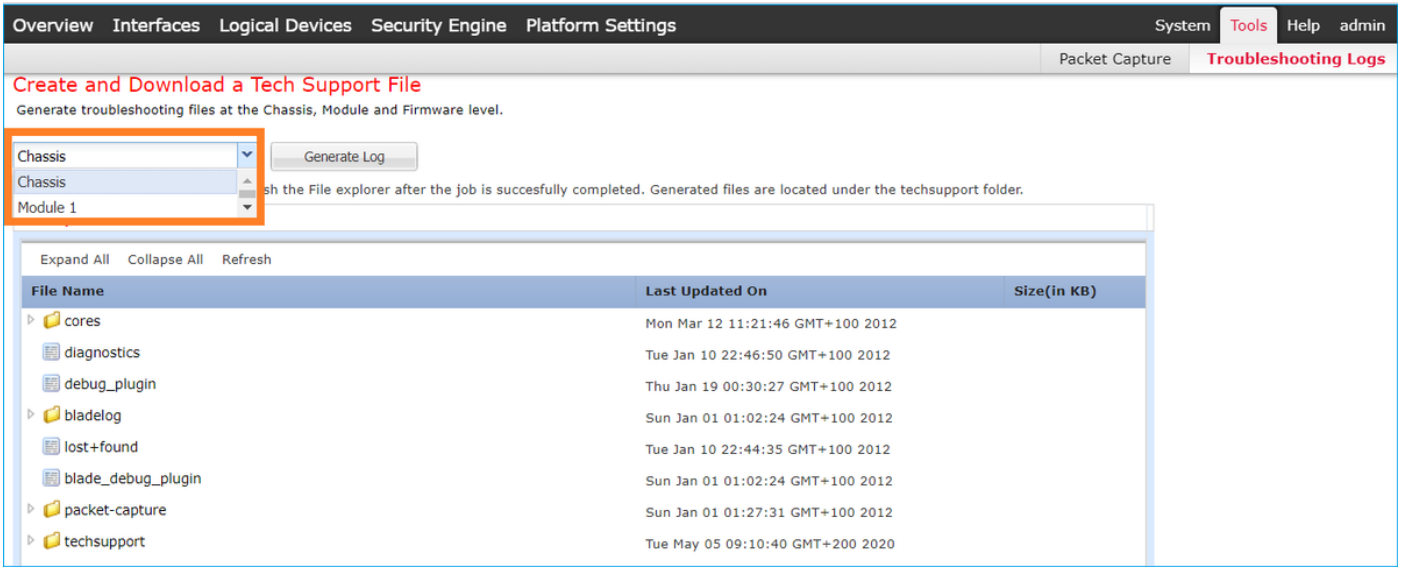
> Opmerking: Naast de FXOS-show tonen ook de technologische uitgangen van de logische apparaten zoals ASA en/of FTD hun eigen aparte show-technologie. In het geval van Multi-Instance (MI) heeft elke instantie ook een eigen set-tech bundel. Tenslotte worden MI-show-techneuten niet ondersteund op FCM

Om te beginnen met FXOS 2.6, wordt de generatie en de download van technische ondersteuning van FXOS beschikbaar gesteld bij Firepower Chassis Manager (FCM) UI onder **Gereedschappen > Problemen opsporen en verhelpen**

Over het KP9300:



Over FP41xx:



V. Hoe kan het IP-adres, netwerkmasker en gateway van het Chassis beheer worden geverifieerd en gewijzigd?

Er zijn een paar manieren om de configuratie van de beheerinterface te controleren:

```
FPR4115-2-1# show fabric-interconnect

Fabric Interconnect:
    ID   OOB IP Addr     OOB Gateway     OOB Netmask     OOB IPv6 Address OOB IPv6 Gateway
Prefix Operability Ingress VLAN Group Entry Count (Current/Max) Switch Forwarding Path Entry
Count (Current/Max)
    ---- --------------- --------------- --------------- --------------- --------------- -----
- ----------- ------------------------------------------- ------------------------------------
-----------
    A    10.62.184.19    10.62.184.1     255.255.255.0   ::              ::              64
Operable    0/500                                       14/1021
```

of

```
FPR4115-2-1# scope fabric-interconnect a
FPR4115-2-1 /fabric-interconnect # show

Fabric Interconnect:
    ID   OOB IP Addr     OOB Gateway     OOB Netmask     OOB IPv6 Address OOB IPv6 Gateway
Prefix Operability Ingress VLAN Group Entry Count (Current/Max) Switch Forwarding Path Entry
Count (Current/Max)
    ---- --------------- --------------- --------------- --------------- --------------- -----
- ----------- ------------------------------------------- ------------------------------------
-----------
    A    10.62.184.19    10.62.184.1     255.255.255.0   ::              ::              64
Operable    0/500                                       14/1021
FPR4115-2-1 /fabric-interconnect # show detail

Fabric Interconnect:
    ID: A
```

```
    Product Name: Cisco FPR-4115-SUP
    PID: FPR-4115-SUP
    VID: V01
    Vendor: Cisco Systems, Inc.
    Serial (SN): JAD12345NY6
    HW Revision: 0
    Total Memory (MB): 8074
    OOB IP Addr: 10.62.184.19
    OOB Gateway: 10.62.184.1
    OOB Netmask: 255.255.255.0
    OOB IPv6 Address: ::
    OOB IPv6 Gateway: ::
    Prefix: 64
    Operability: Operable
    Thermal Status: Ok
    Ingress VLAN Group Entry Count (Current/Max): 0/500
    Switch Forwarding Path Entry Count (Current/Max): 14/1021
    Current Task 1:
    Current Task 2:
    Current Task 3:
```

U kunt de IP-instellingen als volgt wijzigen:

```
FPR4115-2-1# scope fabric-interconnect a
FPR4115-2-1 /fabric-interconnect # set out-of-band
  gw       Gw
  ip       Ip
  netmask  Netmask
KSEC-FPR4115-2-1 /fabric-interconnect # set out-of-band ip 10.62.184.19 netmask 255.255.255.0 gw
10.62.184.1
KSEC-FPR4115-2-1 /fabric-interconnect* # commit-buffer
```

Opmerking: Over de verbintenis:

```
FPR4115-2-1 /fabric-interconnect # commit-buffer verify-only    ! verify the change for error
FPR4115-2-1 /fabric-interconnect # commit-buffer                ! commit the change
FPR4115-2-1 /fabric-interconnect # discard-buffer               ! cancel the change
```

Kijk voor meer informatie:

Cisco Firepower 4100/9300 FXOS-opdrachtreferentie

V. Hoe voert u een FXOS Ping Test uit?

Navigeren naar lokaal toegewezen CLI-bereik en gebruik de ping-opdracht:

```
FPR4115-2-1# connect local-mgmt
FPR4115-2-1(local-mgmt)# ping 10.62.184.1
PING 10.62.184.1 (10.62.184.1) from 10.62.184.19 eth0: 56(84) bytes of data.
64 bytes from 10.62.184.1: icmp_seq=1 ttl=255 time=0.602 ms
64 bytes from 10.62.184.1: icmp_seq=2 ttl=255 time=0.591 ms
64 bytes from 10.62.184.1: icmp_seq=3 ttl=255 time=0.545 ms
64 bytes from 10.62.184.1: icmp_seq=4 ttl=255 time=0.552 ms
```

Q. Hoe kan het Mac-adres van de out-of-band beheerinterface worden geverifieerd?

Navigeren naar lokaal toegewezen CLI-bereik en gebruik deze opdracht:

```
FPR4115-2-1# connect local-mgmt
FPR4115-2-1(local-mgmt)# show mgmt-ip-debug | begin eth0
eth0      Link encap:Ethernet  HWaddr 78:bc:1a:e7:a4:11
          inet addr:10.62.184.19  Bcast:10.62.184.255  Mask:255.255.255.0
          inet6 addr: fe80::7abc:1aff:fee7:a411/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:3420589 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2551231 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:419362704 (399.9 MiB)  TX bytes:1530147643 (1.4 GiB)
```

Q. Hoe kan ik controleren of de out-of-band beheerinterface omhoog is?

Naast operabel onder scope fabric-interconnect a > show, kunt u deze opdracht gebruiken:

```
FPR4115-2-1# connect local-mgmt
FPR4115-2-1(local-mgmt)# show mgmt-port
eth0      Link encap:Ethernet  HWaddr 78:bc:1a:e7:a4:11
          inet addr:10.62.184.19  Bcast:10.62.184.255  Mask:255.255.255.0
          inet6 addr: fe80::7abc:1aff:fee7:a411/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:3422158 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2552019 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:419611452 (400.1 MiB)  TX bytes:1530247862 (1.4 GiB)
```

U kunt deze opdracht ook gebruiken. Het gedeelte Toepassingsgebied geeft een link op. Merk op dat UP in de volgende regel wordt weergegeven:

```
FPR4115-2-1# connect local-mgmt
FPR4115-2-1(local-mgmt)# show mgmt-ip-debug | begin eth0
eth0      Link encap:Ethernet  HWaddr 78:bc:1a:e7:a4:11
          inet addr:10.62.184.19  Bcast:10.62.184.255  Mask:255.255.255.0
          inet6 addr: fe80::7abc:1aff:fee7:a411/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:3420589 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2551231 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:419362704 (399.9 MiB)  TX bytes:1530147643 (1.4 GiB)
```

> Opmerking: De status UP is de beheerstatus van de interface. De status blijft UP, zelfs als u de fysieke kabel of de SFP module uit het stopcontact haalt. Een ander belangrijk punt is de RUNNING status, wat betekent dat de link operationeel is (het lijnprotocol is omhoog).

Zo verlaagt u de logische status van de interface:

```
FPR4100-3-A(local-mgmt)# mgmt-port shut
FPR4100-3-A(local-mgmt)# show mgmt-ip-debug ifconfig | b eth0
eth0      Link encap:Ethernet  HWaddr 58:97:BD:B9:76:EB
          inet addr:10.62.148.88  Bcast:10.62.148.127  Mask:255.255.255.128
          BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:3685870 errors:0 dropped:0 overruns:0 frame:0
          TX packets:7068372 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:295216623 (281.5 MiB)  TX bytes:1049391193 (1000.7 MiB)
```

Zo stelt u het opnieuw op:

```
FPR4100-3-A(local-mgmt)# mgmt-port no-shut
FPR4100-3-A(local-mgmt)# show mgmt-ip-debug ifconfig | b eth0
eth0      Link encap:Ethernet  HWaddr 58:97:BD:B9:76:EB
          inet addr:10.62.148.88  Bcast:10.62.148.127  Mask:255.255.255.128
          inet6 addr: fe80::5a97:bdff:feb9:76eb/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:3685885 errors:0 dropped:0 overruns:0 frame:0
          TX packets:7068374 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:295218130 (281.5 MiB)  TX bytes:1049391353 (1000.7 MiB)
```

> Opmerking: Er is een **show interface**-opdracht en **show interfacemt 0** onder **fxos** mode die de GMT0-interface als respectievelijk down en Admin Down weergeeft. Gebruik dit niet als referentie dat het beneden is.

```
FPR-4110-A# connect fxos
FPR-4110-A(fxos)# shpw interface brief | include mgmt0
mgmt0  --           down   172.16.171.83                          --       1500
FPR-4110-A(fxos)# show interface mgmt 0
mgmt0 is down (Administratively down)
  Hardware: GigabitEthernet, address: 5897.bdb9.212d (bia 5897.bdb9.212d)
  Internet Address is 172.16.171.83/24
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec
  reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  auto-duplex, auto-speed
  EtherType is 0x0000
  1 minute input rate 3080 bits/sec 2 packets/sec
  1 minute output rate 0 bits/sec 0 packets/sec
  Rx
    977 unicast packets 12571 multicast packets 5229 broadcast packets
    18777 input packets 2333662 bytes
  Tx
    0 unicast packets 0 multicast packets 0 broadcast packets
    0 output packets 0 bytes
```

Als u een **show run interface mgmt0** doet onder fxos mode, zul je merken dat **shutdown kracht** onder die interface valt. Nogmaals, gebruik dit niet als referentie dat het is neergezet:

```
FPR4115-2-1(fxos)# show run interface mgmt0

!Command: show running-config interface mgmt0
!Time: Tue May  5 14:19:42 2020
```

```
version 5.0(3)N2(4.81)

interface mgmt0
  shutdown force
  ip address 10.62.184.19/24
```

Q. Hoe controleert u de FXOS-routingtabel?

Het out-of-band beheer is alleen afhankelijk van de standaard gateway set. Zorg er daarom voor dat de gekozen standaardgateway verbinding met klanten mogelijk maakt die toegang tot het systeem vereist.

Er is een **show ip route vrf** onder **connect fxos,** maar dit wordt niet gebruikt voor out-of-band beheer.

Q. Hoe controleert u de FXOS ARP-tabel?

De ARP-tabel is zichtbaar vanaf de FXOS CLI. U kunt ook pakketvastlegging onder fxos-modus (ethanalyzer) gebruiken om ARP-waarden op te nemen en/of het verkeer van/naar het beheer te controleren.

Dit is een voorbeeld om ARP-pakketten op te nemen. U kunt het opnamefilter in alles wijzigen. Dat filter is vergelijkbaar met het filter van de pomp:

```
fp9300-A# connect fxos

fp9300-A(fxos)# ethanalyzer local interface mgmt capture-filter arp
Capturing on eth0
2016-10-14 18:04:57.551221 00:50:56:85:be:44 -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.240?
Tell 172.16.171.101
2016-10-14 18:04:57.935562 00:12:80:85:a5:49 -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.112?
Tell 172.16.171.1
2016-10-14 18:04:58.167029 00:50:56:85:78:4e -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.205?
Tell 172.16.171.100
2016-10-14 18:04:59.156000 00:50:56:9f:b1:43 -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.1? Tell
172.16.171.151
2016-10-14 18:04:59.165701 00:50:56:9f:b1:43 -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.1? Tell
172.16.171.151
2016-10-14 18:04:59.166925 00:50:56:85:78:4e -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.205?
Tell 172.16.171.100
2016-10-14 18:04:59.268168 00:50:56:9f:b1:43 -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.151?
Tell 0.0.0.0
2016-10-14 18:05:00.150217 00:50:56:85:78:4e -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.204?
Tell 172.16.171.100
2016-10-14 18:05:00.268369 00:50:56:9f:b1:43 -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.151?
Tell 0.0.0.0
2016-10-14 18:05:01.150243 00:50:56:85:78:4e -> ff:ff:ff:ff:ff:ff ARP Who has 172.16.171.204?
Tell 172.16.171.100
10 packets captured
Program exited with status 0.
fp9300-A(fxos)#
```

Daarnaast kunt u de opname in een bestand opslaan en deze vervolgens exporteren naar een

externe server:

```
FPR4140-A# connect fxos
FPR4140-A(fxos)# ethanalyzer local interface mgmt capture-filter arp limit-captured-frames 0
write workspace:///ARP.pcap
FPR4140-A# connect local-mgmt
FPR4140-A(local-mgmt)# dir
1 23075 Jan 12 13:13:18 2020 ARP.pcap
FPR4140-A(local-mgmt)# copy  workspace:///ARP.pcap ftp://anonymous@10.48.40.70/ARP.pcap
```

V. Hoe controleren we FXOS-foutmeldingen?

Gebruik de opdracht **fout** tonen:

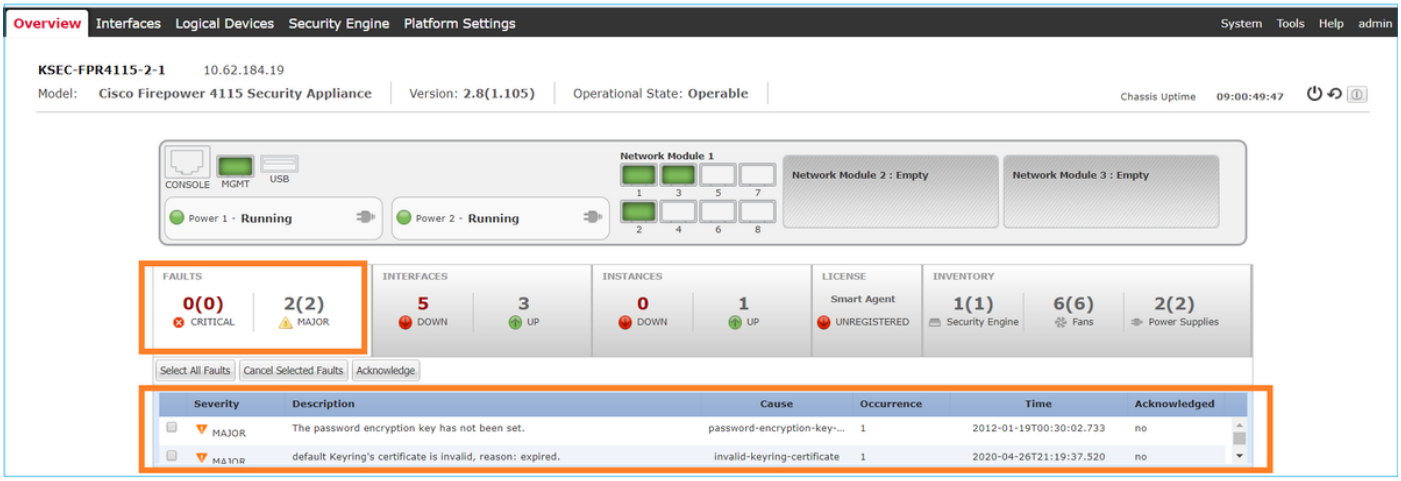
```
FPR4115-2-1# show fault
Severity  Code     Last Transition Time     ID       Description
--------- -------- ----------------------- -------- -----------
Major     F0909    2020-04-26T21:19:37.520    554924 default Keyring's certificate is invalid,
reason: expired.
Major     F1769    2012-01-19T00:30:02.733    323268 The password encryption key has not been
set.
Minor     F1437    2012-01-19T00:30:02.732     32358 Config backup may be outdated
```

U kunt de fouten ook filteren op basis van de ernst van de vervuiling:

```
FPR4115-2-1# show fault ?
  0-18446744073709551615  ID
  <CR>
  >                       Redirect it to a file
  >>                      Redirect it to a file in append mode
  cause                   Cause
  detail                  Detail
  severity                Severity
  suppressed              Fault Suppressed
  |                       Pipe command output to filter


FPR4115-2-1# show fault severity major
Severity  Code     Last Transition Time     ID       Description
--------- -------- ----------------------- -------- -----------
Major     F0909    2020-04-26T21:19:37.520    554924 default Keyring's certificate is invalid,
reason: expired.
Major     F1769    2012-01-19T00:30:02.733    323268 The password encryption key has not been
set.
```

Dezelfde fouten worden ook zichtbaar gemaakt in het FXOS UI-**Overzicht > FAULTS-**dashboard:



V. Hoe kan de naam van het systeem worden gewijzigd?

U gebruikt de opdracht **naam instellen** onder de systeemscope:

```
KSEC-FPR4115-2-1# scope system
KSEC-FPR4115-2-1 /system # set name new-name
Warning: System name modification changes FC zone name and redeploys them non-disruptively
KSEC-FPR4115-2-1 /system* # commit-buffer
KSEC-FPR4115-2-1 /system # exit
new-name#
```

Q. Wat is de "Compute Mismatch" onder de uitvoer van de show server?

Een nieuw geïnstalleerde veiligheidsmodule moet worden erkend en opnieuw worden geïnitialiseerd voordat deze kan worden gebruikt. Dit is zelfs waar als u een eenheid vervangt via RMA.

```
FPR9300# show server status
Server  Slot Status                     Overall Status        Discovery
------- -------------------------------- --------------------- ---------
1/1     Mismatch                         Compute Mismatch      Complete
1/2     Equipped                         Ok                    Complete
1/3     Empty
FPR9300#
```

Computer mismatch kan deze foutmelding veroorzaken:

```
Service profile ssp-sprof-1 configuration failed due to compute-unavailable,insufficient-
resources
```

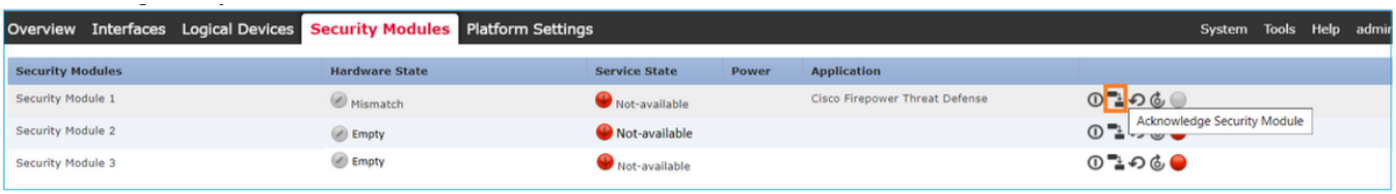
De **show service-profile status** geeft **niet geassocieerd** weer alsof de module er niet is.

Stappen om te erkennen van de CLI:

```
scope chassis 1
 acknowledge slot <slot#>
```

```
commit-buffer
```

U kunt ook de module van Chassis Manager UI gebruiken om te erkennen:



Q. Wat is de betekenis van "Token Mismatch" in uitvoer van de toonsleuf?

Dit geeft aan dat de veiligheidsmodule nog niet herinitialiseerd is nadat ze erkend is:

```
FPR9300# scope ssa
FPR9300 /ssa # show slot

Slot:
    Slot ID    Log Level Admin State  Operational State
    ---------- --------- ------------ -----------------
    1          Info      Ok           Token Mismatch
    2          Info      Ok           Online
    3          Info      Ok           Not Available
FPR9300 /ssa #
```

Stappen om te herinitialiseren via CLI:

```
scope ssa
scope slot <#>
reinitialize
commit-buffer
```

Op Firepower 41xx kan dit ook betekenen dat de SSD ontbreekt of dat deze niet voldoet. Controleer of de SSD nog steeds bestaat via **show-voorraadopslag** onder scope server 1/1:

```
FPR4140-A# scope ssa
FPR4140-A /ssa # show slot 1

Slot:
   Slot ID    Log Level Admin State  Oper State
   ---------- --------- ------------ ----------
   1          Info      Ok           Token Mismatch

FPR4140-A /ssa # show fault severity critical
Severity  Code     Last Transition Time     ID       Description
--------- -------- ----------------------- -------- -----------
Critical  F1548    2018-03-11T01:22:59.916     38768 Blade swap detected on slot 1

FPR4140-A /ssa # scope server 1/1
FPR4140-A /chassis/server # show inventory storage
Server 1/1:
   Name:
   User Label:
   Equipped PID: FPR4K-SM-36
```

```
Equipped VID: V01
Equipped Serial (SN): FLM12345KL6
Slot Status: Equipped
Acknowledged Product Name: Cisco Firepower 4100 Series Extreme Performance Security Engine
Acknowledged PID: FPR4K-SM-36
Acknowledged VID: V00
Acknowledged Serial (SN): FLM12345KL6
Acknowledged Memory (MB): 262144
Acknowledged Effective Memory (MB): 262144
Acknowledged Cores: 36
Acknowledged Adapters: 2
Motherboard:
    Product Name: Cisco Firepower 4100 Series Extreme Performance Security Engine
    PID: FPR4K-SM-36
    VID: V01
    Vendor: Cisco Systems Inc
    Serial (SN): FLM12345KL6
    HW Revision: 0

    RAID Controller 1:
        Type: SATA
        Vendor: Cisco Systems Inc
        Model: CHORLEYWOOD
        Serial: FLM12345KL6
        HW Revision:
        PCI Addr: 00:31.2
        Raid Support:
        OOB Interface Supported: No
        Rebuild Rate: N/A
        Controller Status: Unknown

        Local Disk 1:
            Vendor:
            Model:
            Serial:
            HW Rev: 0
            Operability: N/A
            Presence: Missing
            Size (MB): Unknown
            Drive State: Unknown
            Power State: Unknown
            Link Speed: Unknown
            Device Type: Unspecified

        Local Disk Config Definition:
            Mode: No RAID
            Description:
            Protect Configuration: No
```

Q. Hoe stelt u de tijdzone, NTP en DNS in via CLI?

Dit wordt ingesteld onder de instellingen van het FXOS-platform. Volg de instructies van dit document: FXOS-platform instellingen

Zo verifieert u de chassistijd-instellingen:

```
KSEC-FPR4115-2-1# show clock
Tue May  5 21:30:55 CEST 2020
KSEC-FPR4115-2-1# show ntp

    NTP Overall Time-Sync Status: Time Synchronized
```

U kunt de module/bladtijd vanaf de module met de blote CLI als volgt instellen:

```
Firepower-module1>show ntp peerstatus
     remote           local      st poll reach  delay   offset    disp
==============================================================================
*203.0.113.126   203.0.113.1      2   64  377 0.00006  0.000018 0.02789

remote 203.0.113.126, local 203.0.113.1
hmode client, pmode mode#255, stratum 2, precision -20
leap 00, refid [171.68.38.65], rootdistance 0.19519, rootdispersion 0.17641
ppoll 6, hpoll 6, keyid 0, version 4, association 43834
reach 377, unreach 0, flash 0x0000, boffset 0.00006, ttl/mode 0
timer 0s, flags system_peer, config, bclient, prefer, burst
reference time:      dbef8823.8066c43a  Mon, Dec  5 2016  8:30:59.501
originate timestamp: 00000000.00000000  Mon, Jan  1 1900  2:00:00.000
receive timestamp:   dbefb27d.f914589d  Mon, Dec  5 2016 11:31:41.972
transmit timestamp:  dbefb27d.f914589d  Mon, Dec  5 2016 11:31:41.972
filter delay:  0.00008  0.00006  0.00008  0.00009
               0.00008  0.00008  0.00008  0.00009
filter offset: 0.000028 0.000018 0.000034 0.000036
               0.000033 0.000036 0.000034 0.000041
filter order:  1        2        6        0
               4        5        3        7
offset 0.000018, delay 0.00006, error bound 0.02789, filter error 0.00412

Firepower-module1>show ntp association
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
*203.0.113.126   171.68.38.65     2 u   37   64  377    0.062    0.018   0.017


ind assid status  conf reach auth condition  last_event cnt
===========================================================
  1 43834  961d   yes   yes  none  sys.peer              1

associd=43834 status=961d conf, reach, sel_sys.peer, 1 event, popcorn,
srcadr=203.0.113.126, srcport=123, dstadr=203.0.113.1, dstport=123,
leap=00, stratum=2, precision=-20, rootdelay=195.190, rootdisp=176.407,
refid=171.68.38.65,
reftime=dbef8823.8066c43a  Mon, Dec  5 2016  8:30:59.501,
rec=dbefb27d.f91541fc  Mon, Dec  5 2016 11:31:41.972, reach=377,
unreach=0, hmode=3, pmode=4, hpoll=6, ppoll=6, headway=22, flash=00 ok,
keyid=0, offset=0.018, delay=0.062, dispersion=0.778, jitter=0.017,
xleave=0.011,
filtdelay=     0.08    0.06    0.08    0.10    0.08    0.09    0.08    0.10,
filtoffset=    0.03    0.02    0.03    0.04    0.03    0.04    0.03    0.04,
filtdisp=      0.00    0.03    1.04    1.07    2.06    2.09    3.09    3.12

Firepower-module1>show ntp sysinfo
associd=0 status=0618 leap_none, sync_ntp, 1 event, no_sys_peer,
version="ntpd 4.2.6p5@1.2349-o Fri Oct  7 17:08:03 UTC 2016 (2)",
processor="x86_64", system="Linux/3.10.62-ltsi-WR6.0.0.27_standard",
leap=00, stratum=3, precision=-23, rootdelay=195.271, rootdisp=276.641,
refid=203.0.113.126,
reftime=dbefb238.f914779b  Mon, Dec  5 2016 11:30:32.972,
clock=dbefb2a7.575931d7  Mon, Dec  5 2016 11:32:23.341, peer=43834, tc=6,
mintc=3, offset=0.035, frequency=25.476, sys_jitter=0.003,
clk_jitter=0.015, clk_wander=0.011

system peer:          203.0.113.126
system peer mode:     client
```

```
leap indicator:       00
stratum:              3
precision:            -23
root distance:        0.19527 s
root dispersion:      0.27663 s
reference ID:         [203.0.113.126]
reference time:       dbefb238.f914779b  Mon, Dec  5 2016 11:30:32.972
system flags:         auth monitor ntp kernel stats
jitter:               0.000000 s
stability:            0.000 ppm
broadcastdelay:       0.000000 s
authdelay:            0.000000 s

time since restart:     1630112
time since reset:       1630112
packets received:       157339
packets processed:      48340
current version:        48346
previous version:       0
declined:               0
access denied:          0
bad length or format:   0
bad authentication:     0
rate exceeded:          0
Firepower-module1>
```

Controleer dit document voor meer informatie over NTP-verificatie en probleemoplossing: Instellingen Network Time Protocol (NTP) instellen, controleren en probleemoplossing bij FirePOWER FXOS-applicaties

Q. Hoe kan ik slimme licentiëring en HTTP-proxy instellen?

Smart Licensing is nodig op FXOS chassis in het geval van ASA logisch apparaat. Controleer dit document voor meer informatie: Licentiebeheer voor de ASA

Hier wordt een voorbeelduitvoer van de licentiestatus weergegeven

```
FPR4115-2-1# scope license
FPR4115-2-1 /license # show license all

Smart Licensing Status
======================

Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: BU Production Test
  Virtual Account: TAC-BETA
  Export-Controlled Functionality: Not Allowed
  Initial Registration: SUCCEEDED on Dec 15 14:41:55 2015 PST
  Last Renewal Attempt: SUCCEEDED on Dec 23 09:26:05 2015 PST
  Next Renewal Attempt: Jun 21 07:00:21 2016 PST
  Registration Expires: Dec 23 06:54:19 2016 PST
```

```
License Authorization:
  Status: AUTHORIZED on Apr 07 15:44:26 2016 PST
  Last Communication Attempt: SUCCEEDED on Apr 07 15:44:26 2016 PST
  Next Communication Attempt: May 07 15:44:25 2016 PST
  Communication Deadline: Jul 06 15:38:24 2016 PST

License Usage
==============

No licenses in use

Product Information
===================
UDI: PID:FPR9K-SUP,SN:JAD123456AB

Agent Version
=============
Smart Agent for Licensing: 1.4.1_rel/31
```

of, als alternatief:

```
fp9300-A# conn local-mgmt
fp9300-A(local-mgmt)# show license all

Smart Licensing Status
======================

Smart Licensing is ENABLED

Registration:
 Status: REGISTERED
 Smart Account: Cisco Internal
 Virtual Account: Escalations
 Export-Controlled Functionality: Allowed
 Initial Registration: SUCCEEDED on Feb 10 18:55:08 2016 CST
 Last Renewal Attempt: SUCCEEDED on Oct 09 15:07:25 2016 CST
 Next Renewal Attempt: Apr 07 15:16:32 2017 CST
 Registration Expires: Oct 09 15:10:31 2017 CST

License Authorization:
 Status: AUTHORIZED on Sep 20 07:29:06 2016 CST
 Last Communication Attempt: SUCCESS on Sep 20 07:29:06 2016 CST
 Next Communication Attempt: None  Communication Deadline: None
Licensing HA configuration error:
   No Reservation Ha config error

License Usage
==============

No licenses in use

Product Information
===================
UDI: PID:FPR9K-SUP,SN:JAD190800VU

Agent Version
=============
Smart Agent for Licensing: 1.6.7_rel/95
```

V. Hoe moet Syslog geconfigureren via CLI?

Controleer deze documenten:

- Syslog configureren op FirePOWER FXOS-applicaties
- Guide FXOS-configuratie: Instellingen platform

Q. Hoe kan SNMP op FirePOWER-applicaties configureren?

Controleer dit document: SNMP configureren op FirePOWER NGFW-applicaties

V. Hoe installeert u een SSL-certificaat dat door de Chassis Manager wordt gebruikt?

Volg dit document: Installeer een betrouwbaar certificaat voor FXOS Chassis Manager

V. Hoe kan probleemoplossing bij verkeersstroom door het FPR9300-chassis?

Controleer deze documenten:

- Firepower Data Path Problemen opsporen en verhelpen fase 1: PacketIngress
- Firepower Data Path: probleemoplossing: Overzicht
- Firepower Firewall Captures analyseren om netwerkproblemen effectief op te lossen

Q. Hoe wordt de Mac-adrestabel van het chassis weergegeven?

Gebruik voor FP41xx en FP93xx platforms een van deze opdrachten:

```
FPR4115-2-1# connect fxos
FPR4115-2-1(fxos)# show l2-table
Ingress      MAC             Vlan Class VlanGrp   Status  Dst
Eth1/1       78bc.1ae7.a45e  101  1     0         present 1
Veth776      78bc.1ae7.a45e  101  1     0         present 1
Po1          0100.5e00.0005  1001 1     0         present 1
Po1          0100.5e00.0006  1001 1     0         present 1
Po1          78bc.1ae7.a44e  1001 1     0         present 1
Po1          ffff.ffff.ffff  1001 63    0         present 1

FPR4115-2-1(fxos)# show mac address-table
Legend:
        * - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
        age - seconds since first seen,+ - primary entry using vPC Peer-Link
   VLAN     MAC Address      Type      age     Secure NTFY   Ports/SWID.SSID.LID
---------+-----------------+--------+---------+------+----+------------------
* 1001     0100.5e00.0005    static    0          F    F  Eth1/1
```

```
* 1001     0100.5e00.0006    static    0          F    F  Eth1/1
* 1001     78bc.1ae7.a44e    static    0          F    F  Eth1/1
* 1001     ffff.ffff.ffff    static    0          F    F  Eth1/1
* 101      78bc.1ae7.a45e    static    0          F    F  Eth1/1
* 101      78bc.1ae7.a46f    static    0          F    F  Veth776
* 4047     0015.a501.0100    static    0          F    F  Veth864
* 4047     0015.a501.0101    static    0          F    F  Veth1015
* 4043     78bc.1ae7.b000    static    0          F    F  Eth1/10
* 4043     78bc.1ae7.b00c    static    0          F    F  Eth1/9
* 1        0015.a500.001f    static    0          F    F  Veth887
* 1        0015.a500.002f    static    0          F    F  Veth1018
* 1        0015.a500.01bf    static    0          F    F  Veth905
* 1        0015.a500.01ef    static    0          F    F  Veth1019
```

Q. Hoe kunt u de Mac-adressen van de Chassis Interfaces bekijken?

Gebruik deze opdracht:

```
FPR4115-2-1# connect fxos
FPR4115-2-1(fxos)# show interface mac-address

------------------------------------------------------------------------------
Interface                   Mac-Address     Burn-in Mac-Address
------------------------------------------------------------------------------
Ethernet1/1                 78bc.1ae7.a417  78bc.1ae7.a418
Ethernet1/2                 78bc.1ae7.a417  78bc.1ae7.a419
Ethernet1/3                 78bc.1ae7.a417  78bc.1ae7.a41a
Ethernet1/4                 78bc.1ae7.a417  78bc.1ae7.a41b
Ethernet1/5                 78bc.1ae7.a417  78bc.1ae7.a41c
Ethernet1/6                 78bc.1ae7.a417  78bc.1ae7.a41d
Ethernet1/7                 78bc.1ae7.a417  78bc.1ae7.a41e
Ethernet1/8                 78bc.1ae7.a417  78bc.1ae7.a41f
Ethernet1/9                 78bc.1ae7.a417  78bc.1ae7.a420
Ethernet1/10                78bc.1ae7.a417  78bc.1ae7.a421
Ethernet1/11                78bc.1ae7.a417  78bc.1ae7.a422
Ethernet1/12                78bc.1ae7.a417  78bc.1ae7.a423
port-channel1               78bc.1ae7.a417  78bc.1ae7.a41a
port-channel48              78bc.1ae7.a417  0000.0000.0000
mgmt0                       78bc.1ae7.a411  78bc.1ae7.a411
Vethernet690                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet691                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet692                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet693                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet694                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet695                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet696                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet697                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet698                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet699                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet700                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet774                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet775                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet776                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet777                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet778                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet779                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet861                78bc.1ae7.a417  78bc.1ae7.a417
Vethernet862                78bc.1ae7.a417  78bc.1ae7.a417
```

```
Vethernet863              78bc.1ae7.a417  78bc.1ae7.a417
Vethernet864              78bc.1ae7.a417  78bc.1ae7.a417
Vethernet887              78bc.1ae7.a417  78bc.1ae7.a417
Vethernet905              78bc.1ae7.a417  78bc.1ae7.a417
Vethernet906              78bc.1ae7.a417  78bc.1ae7.a417
Vethernet1015             78bc.1ae7.a417  78bc.1ae7.a417
Vethernet1018             78bc.1ae7.a417  78bc.1ae7.a417
Vethernet1019             78bc.1ae7.a417  78bc.1ae7.a417
Vethernet1020             78bc.1ae7.a417  78bc.1ae7.a417
Vethernet1021             78bc.1ae7.a417  78bc.1ae7.a417
```

Q. Hoe doet u Wachtwoordherstel op FXOS supervisor (MIO)?

Voor wachtwoordherstelprocedures voor FP41xx en FP9300 dient u dit document te volgen: [Wachtwoordherstelprocedure voor FirePOWER 9300/1400 Series applicaties]

Vraag. Hoe werkt Wachtwoordherstel op ASA of FTD Logisch Apparaat?

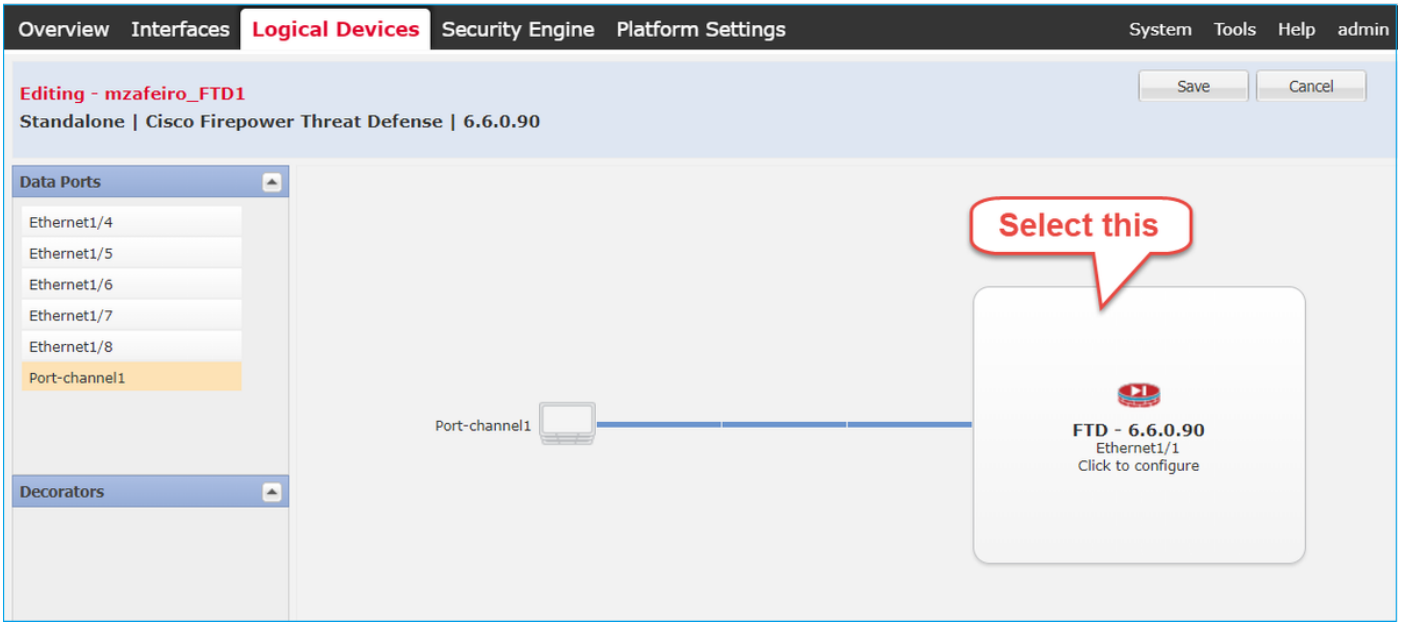
Om het logische wachtwoord te herstellen moet u het apparaat opnieuw opstarten. Met het proces voor bootstrap noodherstel kunt u een van deze items wijzigen:

- ASA/FTD's management IP - IP, netmasker, gateway, IPv6, prefix lengte
- ASA-wachtwoord
- Registratiesleutel, wachtwoord, FMC IP, zoekdomeinen, firewallmodus, DNS-servers, FQD
- ASA's cluster IP-pool, netmasker, gateway, voorvoegsellengte, virtuele IP.

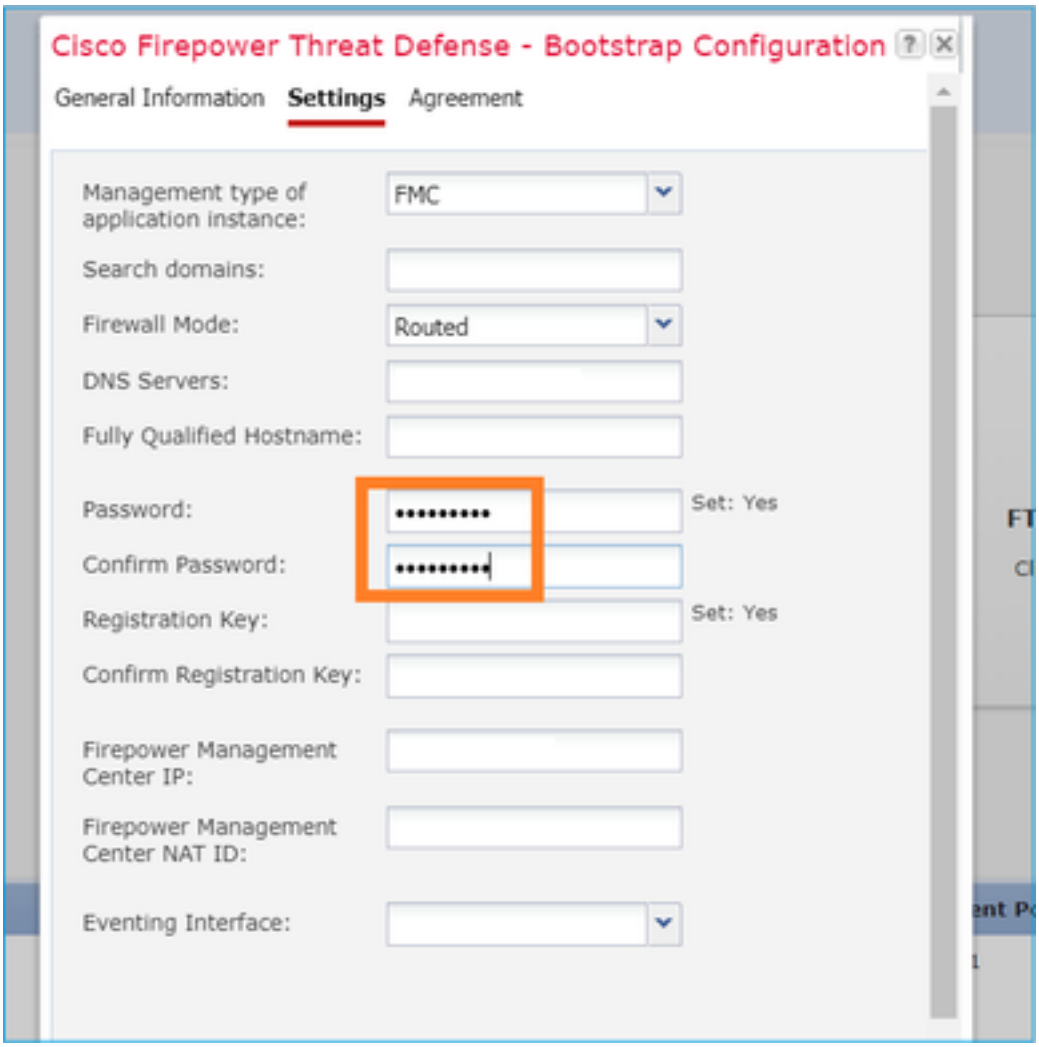
> Opmerking: Het bootstrap-herstelproces moet worden uitgevoerd in een onderhoudspad (MW), omdat het een logische herbelasting van het apparaat vereist

Voorbeeld 1

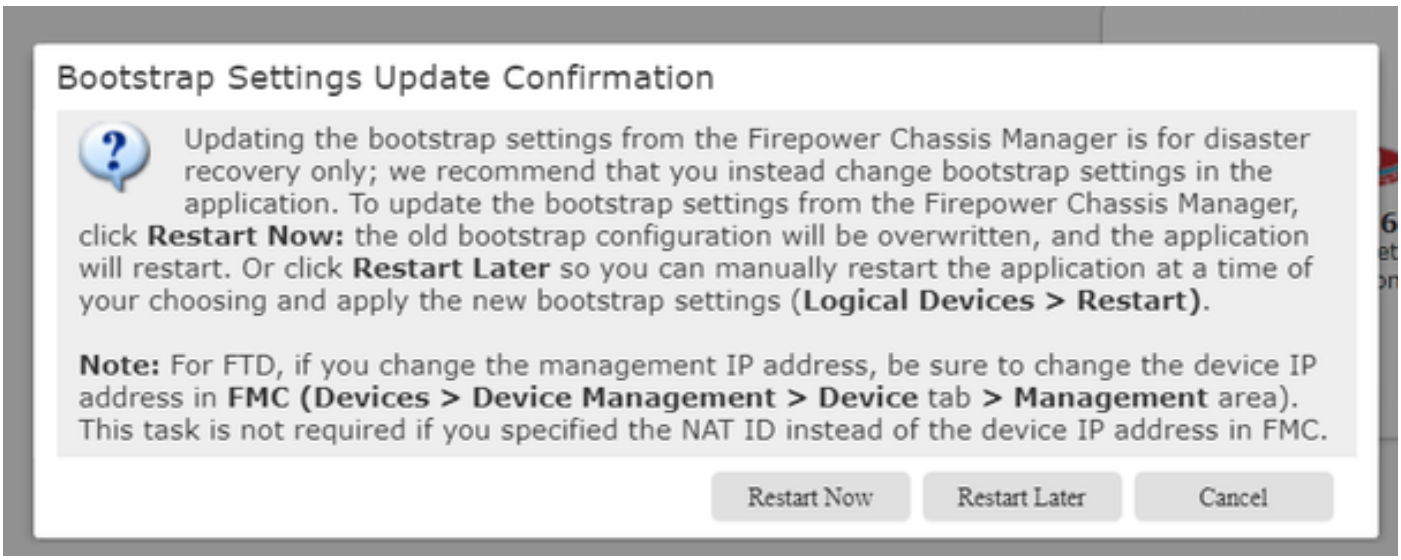
U kunt de FXOS UI gebruiken om de bootstrap-instellingen van een logisch apparaat te bewerken. Navigeren in op het tabblad **Logische apparaten**, een apparaat **bewerken**



Wachtwoord instellen:



Zodra u dit bericht **hebt opgeslagen**, verschijnt:



Voorbeeld 2

Dit is een voorbeeld van ASA om wachtwoordverandering/herstel mogelijk te maken:

```
FP4110-A# scope ssa
```

```
FP4110-A /ssa # show logical-device

Logical Device:
   Name       Description Slot ID    Mode       Oper State
Templa                                                          te Name
   ---------- ----------- ---------- ---------- ------------------------ ------
                                                              -------
   asa                    1          Standalone Ok                       asa

FP4110-A /ssa # scope logical-device asa
FP4110-A /ssa/logical-device # scope mgmt-bootstrap asa
FP4110-A /ssa/logical-device/mgmt-bootstrap # show config
 enter mgmt-bootstrap asa
    create bootstrap-key-secret PASSWORD
 !       set value
    exit
    enter ipv4 1 default
        set gateway 172.16.171.1
        set ip 172.16.171.226 mask 255.255.255.0
    exit
 exit

FP4110-A /ssa/logical-device/mgmt-bootstrap # enter bootstrap-key-secret PASSWORD
FP4110-A /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret # set value
Value:




Warning: Bootstrap changes are not automatically applied to app-instances. To apply the changes,
please do clear-mgmt-bootstrap, and restart each app-instance.

FP4110-A /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret* # commit-buffer
FP4110-A /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret # top
FP4110-A# scope ssa
FP4110-A /ssa # scope slot 1
FP4110-A /ssa/slot # scope app-instance asa
FP4110-A /ssa/slot/app-instance # clear-mgmt-bootstrap
Warning: Clears the application management bootstrap. Application needs to be restarted for this
action to be effective.
FP4110-A /ssa/slot/app-instance* # commit-buffer
FP4110-A /ssa/slot/app-instance # restart
FP4110-A /ssa/slot/app-instance* # commit-buffer
```

Controleer of de ASA online is voordat u verbinding maakt met de ASA en gebruik het nieuwe Enable wachtwoord.

```
FP4110-A /ssa/slot/app-instance # show

Application Instance:
    App Name   Admin State Oper State       Running Version Startup Version Profile Name Cluster
State   Cluster Role
    ---------- ----------- --------------- --------------- --------------- ------------ -------
-------- ------------
    asa        Enabled     Online          9.9.1.76        9.9.1.76                     Not
Applicable  None
FP4110-A /ssa/slot/app-instance #
```

V. Hoe wijzigt u het huidige wachtwoord van een FXOS-gebruiker (bijvoorbeeld admin)?

Volg deze procedure:

```
FP4110-1-A# scope security
FP4110-1-A /security # show local-user
User Name       First Name      Last name
--------------- --------------- ---------
admin
FP4110-1-A /security # enter local-user admin
FP4110-1-A /security/local-user # set password
Enter a password: Confirm the password: FP4110-1-A /security/local-user* # commit-buffer
FP4110-1-A /security/local-user #
```

Vraag: Hoe FXOS-systemen moeten worden afgebroken?

De afwaardering van FXOS-afbeeldingen wordt niet officieel ondersteund. De enige door Cisco ondersteunde methode om een beeldversie van FXOS te downloaden is om een compleet opnieuw beeld van het apparaat uit te voeren. Dit is gedocumenteerd in FirePOWER 4100/9300 upgrade-pad

V. Hoe kan een ASA-logisch apparaat downloaden/upgraden?

ASA-versie downloaden/upgraden via Chassis Manager: De beeldversie voor een logisch apparaat uploaden

Om via CLI te veranderen, volg deze configuratie gids sectie: De beeldversie voor een logisch apparaat uploaden

> Opmerking: Zodra je een buffer op CLI aanlegt, start het de module opnieuw. Op dezelfde manier begint de module zodra je op OK klikt. Het hoeft niet handmatig opnieuw te worden opgestart.

Vraag. Hoe controleert u de FXOS-upgrade-status via CLI?

De upgrade is voltooid zodra alle onderdelen in de **Klaar**-status zijn:

```
FP9300# scope system
FP9300 /system # show firmware monitor
FPRM:
   Package-Vers: 2.0(1.37)
   Upgrade-Status: Ready

Fabric Interconnect A:
   Package-Vers: 2.0(1.23)
   Upgrade-Status: Upgrading

Chassis 1:
   Server 1:
       Package-Vers: 2.0(1.23)
       Upgrade-Status: Ready
   Server 2:
       Package-Vers: 2.0(1.23)
       Upgrade-Status: Upgrading
```

Overige nuttige opdrachten

```
FP9300 /firmware/auto-install # show fsm status
FP9300 /firmware/auto-install # show fsm status expand
```

V. Hoe controleert u de Uptime en de laatste herladen van het FXOS-chassis?

FXOS uptime-controle is handig voor het geval dat er een FXOS-traceringstool is. U kunt FXOS zien vanuit de UI (FCM) of CLI:

```
FPR9K-1-A# connect fxos
FPR9K-1-A(fxos)# show system uptime
System start time: Sun Sep 25 09:57:19 2016
System uptime: 28 days, 9 hours, 38 minutes, 14 seconds
Kernel uptime: 28 days, 9 hours, 38 minutes, 41 seconds
Active supervisor uptime: 28 days, 9 hours, 38 minutes, 14 seconds
```

Gebruik deze opdracht bovendien om de laatst geannuleerde reden te bepalen:

```
FPR9K-1-A(fxos)# show system reset-reason
----- reset reason for Supervisor-module 1 (from Supervisor in slot 1) ---
1) At 212883 usecs after Fri Oct 21 22:34:35 2016
 Reason: Kernel Panic
Service:
Version: 5.0(3)N2(3.02)

2) At 106690 usecs after Thu May 26 16:07:38 2016
 Reason: Reset Requested by CLI command reload
Service:
Version: 5.0(3)N2(3.02)
```

Doe dit voor FPR2100 uptime:

1. Pak de bundel 'show tech-support fprm-details'.

2. Trek de inhoud van de bundel af

3. Controleer het bestand tmp/inventory_manager.xml

Er is een punt dat de uptime in seconden toont:

```
tmp/inventory_manager.xml:
<uptime>151</uptime>
```

V. Hoe controleert u de beschikbare schijfruimte op FXOS?

Wordt ook 'werkruimte' genoemd:

```
FPR9K-1-A# connect local-mgmt
FPR9K-1-A(local-mgmt)# dir
```

```
1       29 Sep 25 09:56:22 2016 blade_debug_plugin
1       19 Sep 25 09:56:22 2016 bladelog
1       16 Aug 05 15:41:05 2015 cores
1  2841476 Apr 26 14:13:12 2016 d
2     4096 Dec 01 10:09:11 2015 debug_plugin/
1       31 Aug 05 15:41:05 2015 diagnostics
1  2842049 Feb 23 03:26:38 2016 dp
1 18053120 Feb 23 11:10:19 2016 fpr9k-1-0-sam_logs_all.tar
1 18176000 Feb 23 11:10:43 2016 fpr9k-1-1-sam_logs_all.tar
1 19302400 Feb 23 11:11:07 2016 fpr9k-1-2-sam_logs_all.tar
1 16312320 Feb 23 11:06:53 2016 fpr9k-1-3-sam_logs_all.tar
1  2841476 Feb 22 18:47:00 2016 fxos-dplug.5.0.3.N2.3.13.67g.gSSA
2     4096 Aug 05 15:38:58 2015 lost+found/
1       25 Dec 01 11:11:50 2015 packet-capture
1 18493440 Feb 23 10:44:51 2016 sam_logs_all.tar
2     4096 Sep 14 11:23:11 2016 techsupport/

Usage for workspace://
4032679936 bytes total
324337664 bytes used
3503489024 bytes free
```

```
FPR9K-1-A(local-mgmt)# dir volatile:/

1 66 Oct 27 08:17:48 2016 xmlout_5816

Usage for volatile://
251658240 bytes total
4096 bytes used
251654144 bytes free
```

Om de vrije ruimte van de laars te controleren. Merk op dat deze uitvoer ook de werkruimte en het gebruik toont:

```
FPR9K-1-A# scope fabric-interconnect a
FPR9K-1-A /fabric-interconnect # show storage

Storage on local flash drive of fabric interconnect:
    Partition        Size (MBytes)    Used Percentage
    ---------------- ---------------- --------------
    bootflash 106490 9
    opt              3870             2
    spare            5767             1
    usbdrive         Nothing          Empty
    workspace 3845 9
```

V. Hoe kan de configuratie van FXOS worden teruggezet op fabrieksinstellingen?

Gebruik deze opdracht:

```
FPR9K-1-A# connect local-mgmt
FPR9K-1-A(local-mgmt)# erase configuration
```

> Opmerking: Hierdoor wordt het systeem opnieuw opgestart en wordt de gehele configuratie gewist, inclusief het IP-adres van de beheerder. Zorg er daarom voor dat er een console is

aangesloten. Nadat het systeem is opgestart, voert de setup-toepassing uit en kunt u de informatie over de beheerconfiguratie opnieuw invoeren.

Voorbeeld

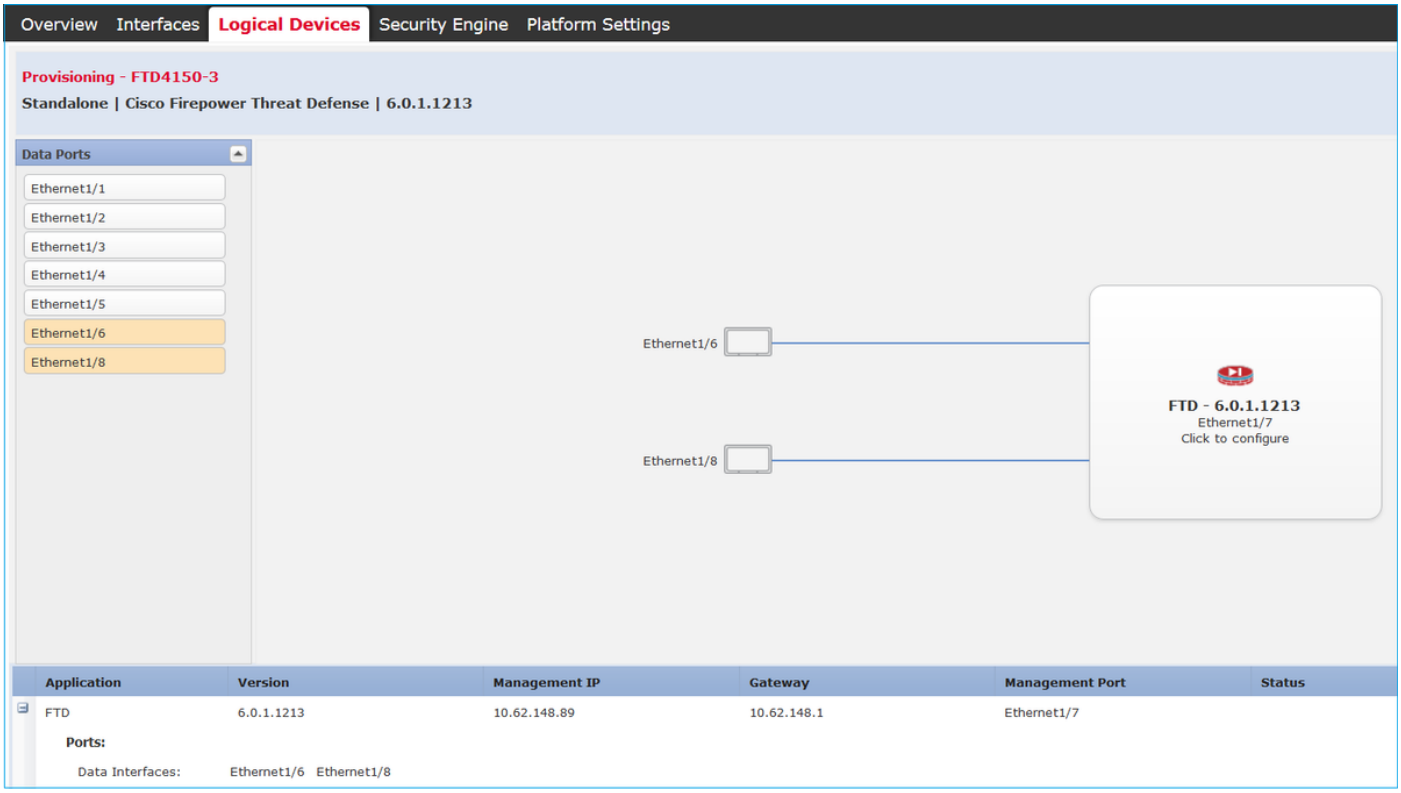
```
FPR9K-1# connect local-mgmt
FPR9K-1(local-mgmt)# erase configuration
All configurations will be erased and system will reboot. Are you sure? (yes/no): yes
Removing all the configuration. Please wait....
/bin/rm: cannot remove directory `/bootflash/sysdebug//tftpd_logs': Device or resource busy
sudo: cannot get working directory
sudo: cannot get working directory
Configurations are cleaned up. Rebooting....
...
System is coming up ... Please wait ...
System is coming up ... Please wait ...
2016 Oct 28 06:31:00  %$ VDC-1 %$ %USER-0-SYSTEM_MSG: Starting bcm_attach - bcm_usd
System is coming up ... Please wait ...
2016 Oct 28 06:31:06  %$ VDC-1 %$ %USER-0-SYSTEM_MSG: Finished bcm_attach... - bcm_usd
2016 Oct 28 06:31:07  %$ VDC-1 %$ %USER-0-SYSTEM_MSG: Enabling Filter on CPU port  - bcm_usd
System is coming up ... Please wait ...
2016 Oct 28 06:31:11 switch %$ VDC-1 %$ %VDC_MGR-2-VDC_ONLINE: vdc 1 has come online
System is coming up ... Please wait ...
nohup: appending output to `nohup.out'
           ---- Basic System Configuration Dialog ----
  This setup utility will guide you through the basic configuration of
  the system. Only minimal configuration including IP connectivity to
  the Fabric interconnect and its clustering mode is performed through these steps.
  Type Ctrl-C at any time to abort configuration and reboot system.
  To back track or make modifications to already entered values,
  complete input till end of section and answer no when prompted
  to apply configuration.
 You have chosen to setup a new Security Appliance. Continue? (y/n):
```

Q. Hoe te om de Bootstrap Configuratie (toegewezen interfaces, versie, enz.) van een Logisch apparaat van de FXOS CLI te controleren?

```
FPR4100-3-A# scope ssa
FPR4100-3-A /ssa # show configuration
 scope ssa
     enter logical-device FTD4150-3 ftd 1 standalone
         enter external-port-link Ethernet16_ftd Ethernet1/6 ftd
             set decorator ""
             set description ""
             set port-name Ethernet1/6
         exit
         enter external-port-link Ethernet17_ftd Ethernet1/7 ftd
             set decorator ""
             set description ""
             set port-name Ethernet1/7
         exit
         enter external-port-link Ethernet18_ftd Ethernet1/8 ftd
             set decorator ""
             set description ""
             set port-name Ethernet1/8
         exit
```

```
        enter mgmt-bootstrap ftd
            enter bootstrap-key DNS_SERVERS
                set value 173.38.200.100
            exit
            enter bootstrap-key FIREPOWER_MANAGER_IP
                set value 10.62.148.57
            exit
            enter bootstrap-key FIREWALL_MODE
                set value routed
            exit
            enter bootstrap-key FQDN
                set value FTD4150-3.lab.com
            exit
            enter bootstrap-key SEARCH_DOMAINS
                set value lab.com
            exit
            enter bootstrap-key-secret PASSWORD
!               set value
            exit
            enter bootstrap-key-secret REGISTRATION_KEY
!               set value
            exit
            enter ipv4 1 firepower
                set gateway 10.62.148.1
                set ip 10.62.148.89 mask 255.255.255.128
            exit
        exit
        set description ""
        set res-profile-name ""
    exit
    scope slot 1
        enter app-instance ftd
            enable
            set startup-version 6.0.1.1213
        exit
        set log-level info
    exit
    scope app asa 100.15.17.33
        set-default
    exit
    scope app ftd 6.0.1.1213
        accept-license-agreement
        set-default
    exit
exit
```

Dit staat gelijk aan:



Opmerking: Als u alle configuratie van FXOS wilt zien dan voeg het sleutelwoord "all" (de output is meerdere pagina's lang) toe:

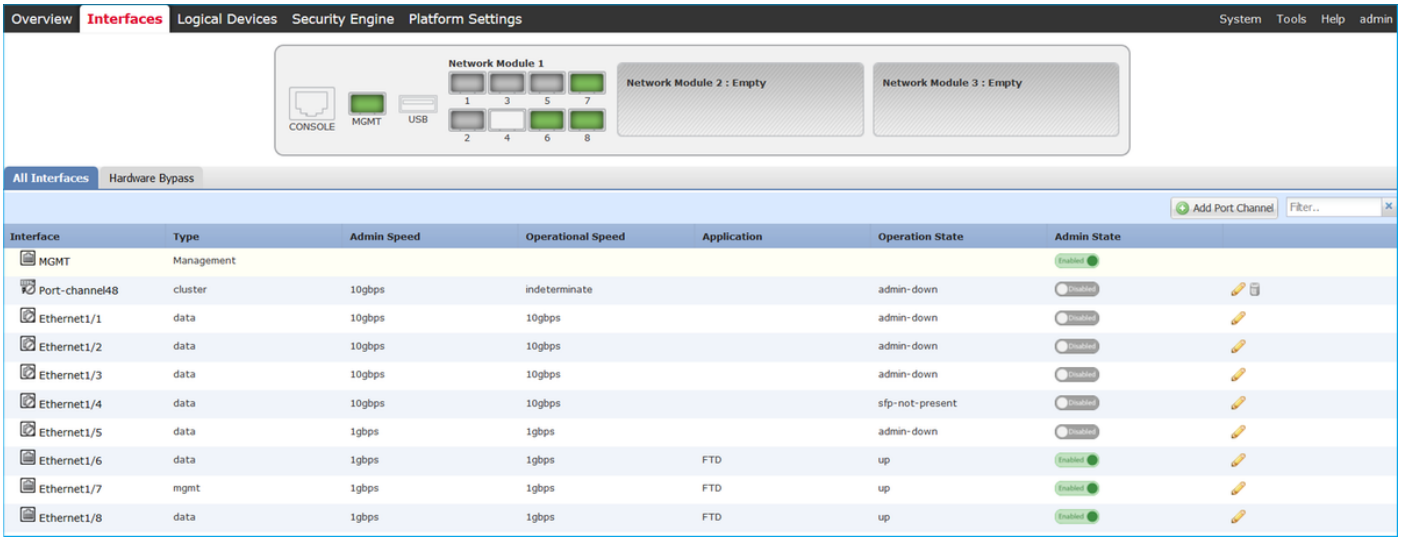
```
FPR4100-3-A /ssa # show configuration all
```

Q. Hoe te controleren de Status (poorttype, staat) van de FXOS interfaces?

```
FPR4100-3-A# scope eth-uplink
FPR4100-3-A /eth-uplink # scope fabric a
FPR4100-3-A /eth-uplink/fabric # show interface

Interface:
    Port Name       Port Type          Admin State Oper State       State Reason
    --------------- ------------------ ----------- ---------------- ------------
    Ethernet1/1     Data               Disabled    Admin Down       Administratively down
    Ethernet1/2     Data               Disabled    Admin Down       Administratively down
    Ethernet1/3     Data               Disabled    Admin Down       Administratively down
    Ethernet1/4     Data               Disabled    Sfp Not Present  Unknown
    Ethernet1/5     Data               Disabled    Admin Down       Administratively down
    Ethernet1/6     Data               Enabled     Up
    Ethernet1/7     Mgmt               Enabled     Up
    Ethernet1/8     Data               Enabled     Up
FPR4100-3-A /eth-uplink/fabric #
```

Het bovenstaande is gelijk aan:



V. Hoe controleert u de CPU's en het geheugengebruik op het chassis?

```
FPR9K-2-A# connect fxos
FPR9K-2-A(fxos)# show system resources
Load average:   1 minute: 1.60   5 minutes: 1.30   15 minutes: 1.15
Processes    :   967 total, 1 running
CPU states   :   1.8% user,   1.1% kernel,   97.1% idle
Memory usage:   16326336K total,   4359740K used,   11966596K free
```

> Opmerking: Het **totaal** dat in de uitvoer wordt getoond kan zelfs verschillend zijn voor 2 apparaten die tot hetzelfde model behoren. Het **totaal** wordt met name afgeleid uit de **gratis** opdrachtoutput die op zijn beurt wordt ontleend aan de /proc/meminfo.

U controleert het geheugen als volgt:

```
FPR4100-8-A /fabric-interconnect # show detail

Fabric Interconnect:
    ID: A
    Product Name: Cisco FPR-4140-SUP
    PID: FPR-4140-SUP
    VID: V02
    Vendor: Cisco Systems, Inc.
    Serial (SN): FLM12345KL6
    HW Revision: 0
    Total Memory (MB): 8074
    OOB IP Addr: 10.62.148.196
    OOB Gateway: 10.62.148.129
    OOB Netmask: 255.255.255.128
    OOB IPv6 Address: ::
    OOB IPv6 Gateway: ::
    Prefix: 64
    Operability: Operable
    Thermal Status: Ok
```

```
    Current Task 1:
    Current Task 2:
    Current Task 3:
```

Zo verifieert u de controle van het geheugen per proces (RES = fysiek geheugen):

```
FPR4100-2-A-A# connect local-mgmt
FPR4100-2-A-A(local-mgmt)# show processes
Cpu(s):  8.0%us,  4.2%sy,  3.9%ni, 83.8%id,  0.0%wa,  0.0%hi,  0.1%si,  0.0%st
Mem:   8267648k total,  3866552k used,  4401096k free,      288k buffers
Swap:        0k total,        0k used,        0k free,  1870528k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 5024 root      -2   0  354m 114m  34m R   43  1.4   7976:51 /isan/bin/bcm_usd
 1096 root      20   0 10352 3992 3332 S    0  0.0   0:00.28 sshd: admin@pts/1
 1140 root      20   0  117m  78m  53m S    0  1.0   0:00.42 /isan/bin/ucssh --ucs-mgmt -p admin
 1856 root      20   0  2404  632  512 S    0  0.0   2:29.32 /nuova/bin/cmcmon -f
/etc/cmcmon.conf
 1859 root      20   0 23804 1932 1532 S    0  0.0   1427:47 dmserver -F
 1860 root      20   0  2244  472  404 S    0  0.0   0:00.01 /sbin/hotplug2 --persistent --set-
rules-file /etc/automount.rules --set-worker /lib/worker_single.so
 1861 root      20   0 57116  10m 6552 S    0  0.1   7:28.76 /isan/sbin/sysmgr -V
 1864 root      20   0 14044 4136 1072 S    0  0.1   1:06.19 rsyslogd -c3 -
i/var/run/rsyslogd.pid
 4909 root      20   0  3568 1100  876 S    0  0.0   0:00.48 /isan/sbin/xinetd -syslog local7 -
loop 250 -stayalive -reuse -dontfork
 4911 root      20   0 58232  12m 6152 S    0  0.2  18:39.24 /isan/sbin/syslogd -d -n -m 0 -r
 4912 root      20   0 20076 3532 2368 S    0  0.0   0:00.02 /isan/bin/sdwrapd
 4913 root      21   1  2756  300  192 S    0  0.0   0:00.04 /usr/sbin/in.tftpd -l -c -s
/bootflash
 4914 root      20   0 58312  17m 8724 S    0  0.2  13:45.34 /isan/bin/pfm
 4937 root      20   0  2208  332  272 S    0  0.0   0:00.01 /sbin/klogd -2 -x -c 1
 4939 root      20   0 26692 4656 3620 S    0  0.1   0:24.01 /isan/bin/vshd
...
```

Tip:

1. Verzamel de uitvoer van het **showproces**-geheugen
2. Plakt de uitvoer naar een bestand op een Linux-machine (kat > top.log)
3. Sorteer het bestand op basis van de RES-kolom

Dit toont de GBytes, boven de MBytes, enz.

```
mzafeiro@MZAFEIRO-JA2YS:$ cat top.log | sort -V -k 6
 1954 root      20   0 1645m 1.6g 1372 S  0.0 20.7 793:32.99 dmserver
 7556 root      20   0  207m 9.8m 6184 S  0.0  0.1  73:52.25 udld
 5563 root      20   0  333m 9.8m 7032 S  0.0  0.1   5:08.65 cdpd
 5523 root      20   0  327m 103m  28m S  0.0  1.3   0:12.38 afm
24040 daemon    23   3  592m 115m  33m S  0.0  1.5  74:56.57 httpd
 5329 root      -2   0  384m 132m  29m S  9.4  1.7  27130:09 bcm_usd
 5317 root      20   0  401m 150m  35m S  0.0  1.9  33:19.05 fwm
 5625 root      24   4  450m 179m  35m S  0.0  2.3 275:38.25 svc_sam_statsAG
 5614 root      23   3  495m 247m  54m S  0.0  3.2 355:59.95 svc_sam_dme
21688 root      20   0  2672 1080 880 S  0.0  0.0   3:15.29 ntpd
 8819 root      35  15  2408 1084 748 R  5.6  0.0   0:00.06 top
```

V. Hoe controleert u het type chassis interfacetransceiver?

Gebruik deze opdracht:

```
FPR9K-2-A# connect fxos
FPR9K-2-A(fxos)# show interface e1/3 transceiver details
Ethernet1/3
    transceiver is present
    type is 1000base-T
    name is CISCO-METHODE
    part number is SP7041-R
    revision is
    serial number is FLM12345KL6
    nominal bitrate is 1300 MBit/sec
    Link length supported for copper is 100 m
    cisco id is --
    cisco extended id number is 4

DOM is not supported

FPR9K-2-A(fxos)#
```

Als het om een vezel gaat, wordt de uitvoer weergegeven:

```
FPR4100-1-A(fxos)# show interface e1/1 transceiver details
Ethernet1/1
    transceiver is present
    type is 10Gbase-SR
    name is CISCO-JDSU
    part number is PLRXPL-SC-S43-CS
    revision is 1
    serial number is FLM12345KL6
    nominal bitrate is 10300 MBit/sec
    Link length supported for 50/125um OM2 fiber is 82 m
    Link length supported for 62.5/125um fiber is 26 m
    Link length supported for 50/125um OM3 fiber is 300 m
    cisco id is --
    cisco extended id number is 4

    Calibration info not available
```

V. Hoe controleert u de informatie over module/blade/server/netwerk (HW-type/PID/SN/Memory/Cores enz.)?

Deze opdracht toont de Product-ID (PID) en het Serienummer (SN) van het chassis en de modules (netwerken)

```
FP4110-7-A# connect fxos
FP4110-7-A(fxos)# show inventory
NAME: "Chassis", DESCR: "Firepower 41xx Security Appliance"
PID: FPR-4110-SUP      , VID: V02 , SN:FLM12345KL6 <--- Chassis SN

NAME: "Module 1", DESCR: "Firepower 41xx Supervisor"
PID: FPR-4110-SUP , VID: V02 , SN: FLM12345KL6 <--- Embedded module on FPR4100 NAME: "Module 3",
DESCR: "Firepower 6x10G FTW SFP+ SR NM"
PID: FPR-NM-6X10SR-F   , VID: V00 , SN:FLM12345KL6 <--- FTW Netmode SN
```

FPR4110 heeft twee slots voor netwerkmodules (2 en 3) en het apparaat in het voorbeeld heeft

een FTW-netwerk geïnstalleerd in sleuf 3.

```
FPR9K-1-A# scope chassis 1
FPR9K-1-A /chassis # show inventory server
Chassis 1:
    Servers:
        Server 1/1:
            Equipped Product Name: Cisco Firepower 9000 Series High Performance Security Module
            Equipped PID: FPR9K-SM-36
            Equipped VID: V01
            Equipped Serial (SN): FLM12345KL6
            Slot Status: Equipped
            Acknowledged Product Name: Cisco Firepower 9000 Series High Performance Security
Module
            Acknowledged PID: FPR9K-SM-36
            Acknowledged VID: V01
            Acknowledged Serial (SN): FLM12345KL6
            Acknowledged Memory (MB): 262144
            Acknowledged Effective Memory (MB): 262144
            Acknowledged Cores: 36
            Acknowledged Adapters: 2

       Server 1/2:
            Equipped Product Name: Cisco Firepower 9000 Series High Performance Security Module
            Equipped PID: FPR9K-SM-36
            Equipped VID: V01
            Equipped Serial (SN): FLM12345KL6
            Slot Status: Equipped
            Acknowledged Product Name: Cisco Firepower 9000 Series High Performance Security
Module
            Acknowledged PID: FPR9K-SM-36
            Acknowledged VID: V01
            Acknowledged Serial (SN): FLM12345KL6
            Acknowledged Memory (MB): 262144
            Acknowledged Effective Memory (MB): 262144
            Acknowledged Cores: 36
            Acknowledged Adapters: 2

        Server 1/3:
            Equipped Product Name: Cisco Firepower 9000 Series High Performance Security Module
            Equipped PID: FPR9K-SM-36
            Equipped VID: V01
            Equipped Serial (SN): FLM12345KL6
            Slot Status: Equipped
            Acknowledged Product Name: Cisco Firepower 9000 Series High Performance Security
Module
            Acknowledged PID: FPR9K-SM-36
            Acknowledged VID: V01
            Acknowledged Serial (SN): FLM12345KL6
            Acknowledged Memory (MB): 262144
            Acknowledged Effective Memory (MB): 262144
            Acknowledged Cores: 36
            Acknowledged Adapters: 2
```

Server1/1 = module/blad 1

Server 1/2 = module/mes 2

Server 1/3 = module/blad 3

FPR41x model-PID's:

- FPR4K-SM-12 = FPR4110
- FPR4K-SM-24 = FPR4120
- FPR4K-SM-36 = FPR4140
- FPR4K-SM-44 = FPR4150
- FPR4K-SM-24S = FPR4115
- FPR4K-SM-32S = FPR4125
- FPR4K-SM-44S = FPR4145

U kunt ook andere informatie krijgen onder scope server <chassis-id/lem-id>:

```
FP9300-A# scope server 1/1
FP9300-A /chassis/server # show inventory
 <CR>
 >        Redirect it to a file
 >>       Redirect it to a file in append mode
 adapter  Adapter
 bios     Bios
 board    Board
 cpu      Cpu
 detail   Detail
 expand   Expand
 memory   Memory
 mgmt     Mgmt
 storage  Storage
 |        Pipe command output to filter


FP9300-A /chassis/server # show inventory storage
Server 1/1:
   Name:
   User Label:
   Equipped PID: FPR9K-SM-36
   Equipped VID: V01
   Equipped Serial (SN): FLM12345PBD
   Slot Status: Equipped
   Acknowledged Product Name: Cisco Firepower 9000 Series High Performance Security Module
   Acknowledged PID: FPR9K-SM-36
   Acknowledged VID: 01
   Acknowledged Serial (SN): FLM67890PBD
   Acknowledged Memory (MB): 262144
   Acknowledged Effective Memory (MB): 262144
   Acknowledged Cores: 36
   Acknowledged Adapters: 2
   Motherboard:
       Product Name: Cisco Firepower 9000 Series High Performance Security Module
       PID: FPR9K-SM-36
       VID: V01
       Vendor: Cisco Systems Inc
       Serial (SN): FLM12345KL6
       HW Revision: 0

       RAID Controller 1:
           Type: SAS
           Vendor: Cisco Systems Inc
           Model: UCSB-MRAID12G
           Serial: FLM12345KL6
           HW Revision: C0
           PCI Addr: 01:00.0
```

```
Raid Support: RAID0, RAID1
OOB Interface Supported: Yes
Rebuild Rate: 30
Controller Status: Optimal

Local Disk 1:
    Product Name:
    PID:
    VID:
    Vendor: TOSHIBA
    Model: PX02SMF080
    Vendor Description:
    Serial: FLM12345KL6
    HW Rev: 0
    Block Size: 512
    Blocks: 1560545280
    Operability: Operable
    Oper Qualifier Reason: N/A
    Presence: Equipped
    Size (MB): 761985
    Drive State: Online
    Power State: Active
    Link Speed: 12 Gbps
    Device Type: SSD

Local Disk 2:
    Product Name:
    PID:
    VID:
    Vendor: TOSHIBA
    Model: PX02SMF080
    Vendor Description:
    Serial: FLM12345KL6
    HW Rev: 0
    Block Size: 512
    Blocks: 1560545280
    Operability: Operable
    Oper Qualifier Reason: N/A
    Presence: Equipped
    Size (MB): 761985
    Drive State: Online
    Power State: Active
    Link Speed: 12 Gbps
    Device Type: SSD

Local Disk Config Definition:
    Mode: RAID 1 Mirrored
    Description:
    Protect Configuration: Yes

Virtual Drive 0:
    Type: RAID 1 Mirrored
    Block Size: 512
    Blocks: 1560545280
    Operability: Operable
    Presence: Equipped
    Size (MB): 761985
    Lifecycle: Allocated
    Drive State: Optimal
    Strip Size (KB): 64
    Access Policy: Read Write
    Read Policy: Normal
    Configured Write Cache Policy: Write Through
    Actual Write Cache Policy: Write Through
```

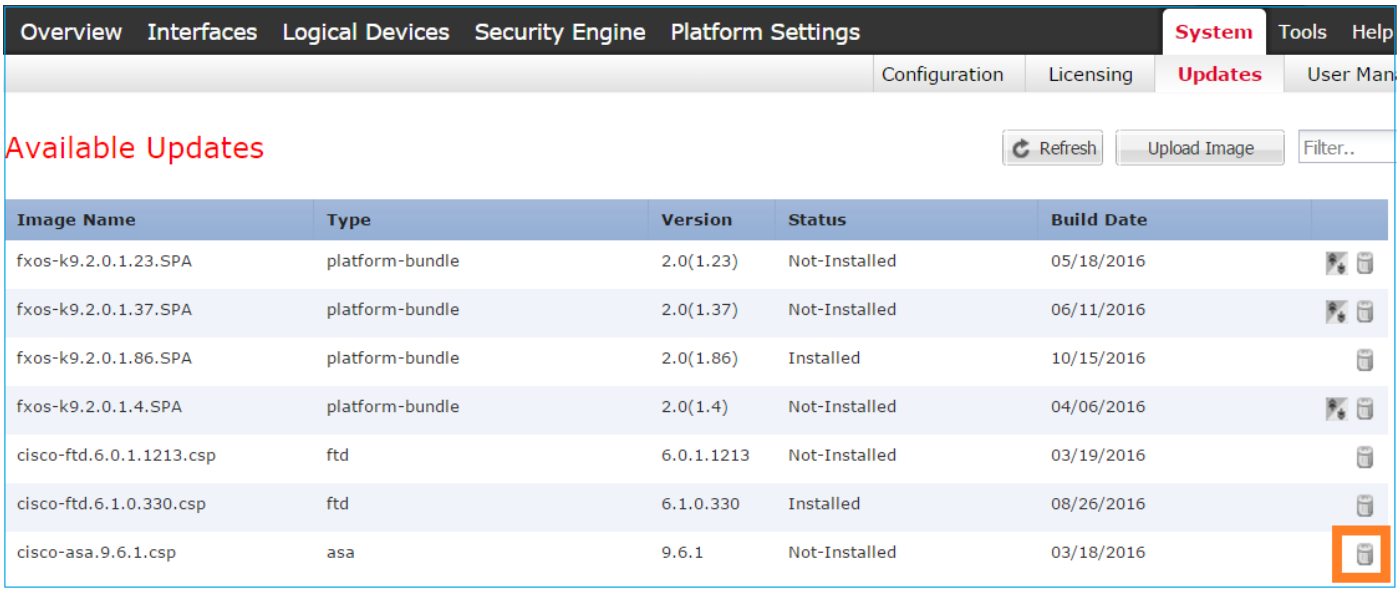
```
                IO Policy: Direct
                Drive Cache: No Change
                Bootable: True
FP9300-A /chassis/server #
```

Merk op dat op FP41xx-platforms, aangezien ze geen RAID gebruiken, de tooninventarisopslag de **controllerstatus als Onbekend** weergeeft. De belangrijkste reden dat zij geen RAID zijn, is dat de tweede SSD wordt gebruikt voor andere functies zoals MSP (Malware Storage Pack) op een FTD logisch apparaat.

V. Hoe kan een ASA of FTD Afbeelding verwijderen van FXOS GUI en CLI?

Van FCM GUI

U verwijdert de **afbeelding** vanuit de GUI naar **Systeem > updates** en verwijdert de afbeelding als volgt:



Van FXOS CLI

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

Application:
    Name    Version    Description Author     Deploy Type CSP Type    Is Default App
    ------ ---------- ----------- ---------- ----------- ----------- --------------
    asa     9.6.1      N/A         cisco      Native      Application Yes
    ftd     6.0.1.1213 N/A         cisco      Native      Application No
    ftd     6.1.0.330  N/A         cisco      Native      Application Yes
FPR4100 /ssa # delete app asa 9.6.1
FPR4100 /ssa* # commit
FPR4100 /ssa # show app

Application:
    Name       Version    Description Author     Deploy Type CSP Type    Is Default App
    ---------- ---------- ----------- ---------- ----------- ----------- --------------
    ftd        6.0.1.1213 N/A         cisco      Native      Application No
```

```
    ftd         6.1.0.330  N/A          cisco       Native      Application Yes
```

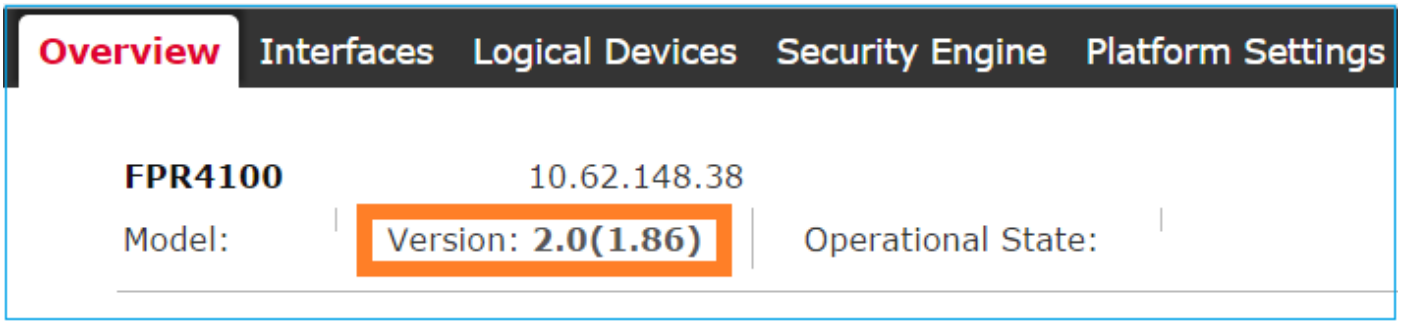
V. Hoe controleert u de FXOS-versie van de CLI?

Er zijn een paar manieren om dit te doen.

Way 1

```
FPR4100# show fabric-interconnect firmware
Fabric Interconnect A:
    Running-Kern-Vers: 5.0(3)N2(4.01.65)
    Running-Sys-Vers: 5.0(3)N2(4.01.65)
    Package-Vers: 2.0(1.86)
    Startup-Kern-Vers: 5.0(3)N2(4.01.65)
    Startup-Sys-Vers: 5.0(3)N2(4.01.65)
    Act-Kern-Status: Ready
    Act-Sys-Status: Ready
    Bootloader-Vers:
```

Dit is hetzelfde als wat u kunt zien op basis van de FCM GUI:



Way 2

```
FP4145-1# show version
    Version: 2.6(1.192)
    Startup-Vers: 2.6(1.192)
```

V. Hoe controleert u de MTU op de FXOS-interfaces?

Firepower 4100/9300 chassis heeft ondersteuning voor jumboframes die standaard ingeschakeld zijn. U kunt de interface MTU met deze opdracht controleren:

```
FPR9K-1-A# connect fxos
FPR9K-1-A(fxos)# show hardware internal bcm-usd info phy-info all
+-----------------+-------------------------------------------------------------+
| port phy info                                                                 |
+-----------------+-------------------------------------------------------------+
          front-port :   1           asic-port : 125      sfp installed : yes
              enable : ena               speed :  1G            autoneg :  on
           interface : (10)XFI           duplex: half          linkscan : sw
            pause_tx : 0x0            pause_rx : 0x0          max frame : 9216
        local_advert : 0x20       remote_advert : 0x420    port_40g_enable : 0
```

```
        local_fault : 0x1       remote_fault : 0x0
       xcvr sfp type : (1)PHY_SFP_1G_COPPER
TSC4 registers:
        txfir(0xc252):0x0000      txdrv(0xc017):0x0000      lane(0x9003):0x1b1b
Asic 56846 Registers
     signal_detect(1.0x81d0):0x0000      link_status(1.0x81d1):0x0000
       rx_link_state(1.0x0):0x0000      pcs_rx_tx_fault(1.0x0008):0x0000
       pcs_block_status_0x20(1.0x20) :0x0000
       pcs_block_status_0x21(1.0x021) : 0x0000
        transmitter_reg(1.0x8000):0x0000      micro_ver(1.0x81f0):0x0000
```

V. Hoe controleert u welke toepassing is geïnstalleerd op de chassis security/server-blade(s) van het chassis?

Van de chassis CLI gebruik de opdracht **scope ssa** en **toon sleuf expo detail**

Dezelfde informatie is te vinden op file **sam_techsupportinfo** binnen de technische bundel van de chassis show.

```
`scope ssa`
`show slot expand detail`

Slot:
    Slot ID: 1
    Log Level: Info
    Admin State: Ok
    Operational State: Online
    Disk State: Ok
    Clear Log Data: Available

    Application Instance:
        Application Name: asa
        Admin State: Enabled
        Operational State: Online
        Running Version: 9.6.2 Startup Version: 9.6.2
        Hotfixes:
        Externally Upgraded: No
        Cluster Oper State: Not Applicable
        Current Job Type: Start
        Current Job Progress: 100
        Current Job State: Succeeded
        Clear Log Data: Available
        Error Msg:
        Current Task:

        App Attribute:
            App Attribute Key: mgmt-ip
            Value: 0.0.0.0

            App Attribute Key: mgmt-url
            Value: https://0.0.0.0/

        Heartbeat:
            Last Received Time: 2017-03-15T10:25:02.220
            Heartbeat Interval: 1
            Max Number of Missed heartbeats Permitted: 3

        Resource:
            Allocated Core NR: 46
```

```
        Allocated RAM (KB): 233968896
        Allocated Data Disk (KB): 20971528
        Allocated Binary Disk (KB): 174964
        Allocated Secondary Disk (KB): 0

Heartbeat:
    Last Received Time: 2017-03-15T10:25:00.447
    Heartbeat Interval: 5
    Max Number of Missed heartbeats Permitted: 3

Monitor:
    OS Version: 9.6(1.150)
    CPU Total Load 1 min Avg: 48.110001
    CPU Total Load 5 min Avg: 48.110001
    CPU Total Load 15 min Avg: 48.110001
    Memory Total (KB): 264377600
    Memory Free (KB): 236835112
    Memory Used (KB): 27542488
    Memory App Total (KB): 233968896
    Disk File System Count: 5
    Blade Uptime: up 1 day,  6:56
    Last Updated Timestamp: 2017-03-15T10:24:10.306

    Disk File System:
        File System: /dev/sda1
        Mount Point: /mnt/boot
        Disk Total (KB): 7796848
        Disk Free (KB): 7694456
        Disk Used (KB): 102392

        File System: /dev/sda2
        Mount Point: /opt/cisco/config
        Disk Total (KB): 1923084
        Disk Free (KB): 1734420
        Disk Used (KB): 90976

        File System: /dev/sda3
        Mount Point: /opt/cisco/platform/logs
        Disk Total (KB): 4805760
        Disk Free (KB): 4412604
        Disk Used (KB): 149036

        File System: /dev/sda5
        Mount Point: /var/data/cores
        Disk Total (KB): 48061320
        Disk Free (KB): 43713008
        Disk Used (KB): 1906892

        File System: /dev/sda6
        Mount Point: /opt/cisco/csp
        Disk Total (KB): 716442836
        Disk Free (KB): 714947696
        Disk Used (KB): 1495140
```

V. Hoe controleert u de poortconfiguratie van FXOS CLI?

Opdrachten voor poortcontrole

Controleer 1

Om te controleren welke poortkanalen op dit moment op het chassis zijn ingericht:

```
FPR9K-1-A# connect fxos
FPR9K-1-A(fxos)# 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
        S - Switched    R - Routed
        U - Up (port-channel)
        M - Not in use. Min-links not met
--------------------------------------------------------------------------------
Group Port-       Type     Protocol  Member Ports
      Channel
--------------------------------------------------------------------------------
11 Po11(SU) Eth LACP Eth1/4(P) Eth1/5(P) 15 Po15(SD) Eth LACP Eth1/6(D) 48 Po48(SU) Eth LACP
Eth1/2(P) Eth1/3(P)
```

Controleer 2

Om de aan een logisch apparaat toegewezen poortkanalen te verifiëren:

```
FPR9K-1-A# scope ssa
FPR9K-1-A /ssa # show configuration
 scope ssa
     enter logical-device ftd_682021968 ftd "1,2,3" clustered
         enter cluster-bootstrap
             set chassis-id 1
             set ipv4 gateway 0.0.0.0
             set ipv4 pool 0.0.0.0 0.0.0.0
             set ipv6 gateway ::
             set ipv6 pool :: ::
             set virtual ipv4 0.0.0.0 mask 0.0.0.0
             set virtual ipv6 :: prefix-length ""
 !           set key
             set mode spanned-etherchannel
             set name 682021968
             set site-id 0
         exit
         enter external-port-link Ethernet11_ftd Ethernet1/1 ftd
             set decorator ""
             set description ""
             set port-name Ethernet1/1
         exit
         enter external-port-link PC11_ftd Port-channel11 ftd
             set decorator ""
             set description ""
             set port-name Port-channel11
         exit
         enter external-port-link PC48_ftd Port-channel48 ftd
             set decorator ""
             set description ""
             set port-name Port-channel48
         exit
```

Controleer 3

U kunt de verkeersstatistieken per poort als volgt controleren:

```
FPR9K-1-A(fxos)# show port-channel traffic interface port-channel 11
ChanId      Port Rx-Ucst Tx-Ucst Rx-Mcst Tx-Mcst Rx-Bcst Tx-Bcst
------ --------- ------- ------- ------- ------- ------- -------
```

```
    11    Eth1/4  62.91%    0.0%  58.90%  49.99% 100.00%    0.0%
    11    Eth1/5  37.08%    0.0%  41.09%  50.00%    0.0%    0.0%
```

Controleer 4

Zo controleert u de details van een specifiek poortkanaal:

```
FPR9K-1-A(fxos)# show port-channel database interface port-channel 11
port-channel11
    Last membership update is successful
    2 ports in total, 2 ports up
    First operational port is Ethernet1/4
    Age of the port-channel is 0d:20h:26m:27s
    Time since last bundle is 0d:18h:29m:07s
    Last bundled member is Ethernet1/5
    Ports: Ethernet1/4 [active ] [up] * Ethernet1/5 [active ] [up]
```

Controleer 5

Zo controleert u de lokale id van het LACP-systeem:

```
FPR9K-1-A(fxos)# show lacp system-identifier
32768,b0-aa-77-2f-81-bb
```

Controleer 6

Om het LACP-systeem-ID van de stroomopwaarts gerichte apparatuur samen met de LACP-statusvlaggen te controleren:

```
FPR9K-1-A(fxos)# show lacp neighbor
Flags:  S - Device is sending Slow LACPDUs F - Device is sending Fast LACPDUs
       A - Device is in Active mode       P - Device is in Passive mode
port-channel11 neighbors
Partner's information
            Partner               Partner                     Partner
Port        System ID             Port Number     Age         Flags
Eth1/4 32768,4-62-73-d2-65-0  0x118           66828      FA

            LACP Partner          Partner                     Partner
            Port Priority         Oper Key                    Port State
            32768                 0xb                         0x3d

Partner's information
            Partner               Partner                     Partner
Port        System ID             Port Number     Age         Flags
Eth1/5 32768,4-62-73-d2-65-0  0x119           66826       FA

            LACP Partner          Partner                     Partner
            Port Priority         Oper Key                    Port State
            32768                 0xb                         0x3d
```

Controleer 7

U kunt de historie van de Port-Channel-gebeurtenis als volgt controleren:

```
FPR9K-1-A(fxos)# show port-channel internal event-history all
Low Priority Pending queue: len(0), max len(1) [Thu Apr  6 11:07:48 2017]
High Priority Pending queue: len(0), max len(16) [Thu Apr  6 11:07:48 2017]
```

```
PCM Control Block info:
pcm_max_channels        : 4096
pcm_max_channel_in_use  : 48
pc count                : 3
hif-pc count            : 0
Max PC Cnt              : 104
Load-defer timeout      : 120
================================================
PORT CHANNELS:
2LvPC PO in system : 0

port-channel11
channel       : 11
bundle        : 65535
ifindex       : 0x1600000a
admin mode    : active
oper mode     : active
fop ifindex   : 0x1a003000
nports     : 2
active     : 2
pre cfg    : 0
ltl        : 0x0 (0)
lif        : 0x0
iod        : 0x78 (120)
global id  : 3
flag       : 0
lock count : 0
num. of SIs: 0
ac mbrs    : 0 0
lacp graceful conv disable   : 0
lacp suspend indiv disable   : 1
pc min-links                 : 1
pc max-bundle                : 16
pc max active members        : 32
pc is-suspend-minlinks       : 0
port load defer enable       : 0
lacp fast-select-hot-standby disable   : 0
ethpm bundle lock count : 0
bundle res global id    : 2
Members:
Ethernet1/4 [bundle_no = 0]
Ethernet1/5 [bundle_no = 0]
port-channel external lock:
Lock Info: resource [eth-port-channel 11]
  type[0] p_gwrap[(nil)]
      FREE @ 246108 usecs after Wed Apr  5 14:18:10 2017
  type[1] p_gwrap[(nil)]
      FREE @ 436471 usecs after Wed Apr  5 16:15:30 2017
  type[2] p_gwrap[(nil)]
      FREE @ 436367 usecs after Wed Apr  5 16:15:30 2017
0x1600000a
internal (ethpm bundle) lock:
Lock Info: resource [eth-port-channel 11]
  type[0] p_gwrap[(nil)]
      FREE @ 246083 usecs after Wed Apr  5 14:18:10 2017
  type[1] p_gwrap[(nil)]
      FREE @ 610546 usecs after Wed Apr  5 16:19:04 2017
  type[2] p_gwrap[(nil)]
      FREE @ 610437 usecs after Wed Apr  5 16:19:04 2017
0x1600000a


>>>>FSM: <eth-port-channel 11> has 194 logged transitions<<<<<
```

1) FSM:

Controleer 8

debug lacp produceert een zeer groot resultaat :

```
FPR9K-1-A(fxos)# debug lacp all
2017 Jul 11 10:42:23.854160 lacp: lacp_pkt_parse_pdu(569): lacp_pkt_parse_pdu: got packet from
actorport=220a partnerport= 43 2017 Jul 11 10:42:23.854177 lacp:
lacp_pkt_compute_port_params(1163): Ethernet1/3(0x1a002000): pa aggregatable state=1 ac
aggregatable state=1 pkt sync=1 port_stateactive=1 2017 Jul 11 10:42:23.854190 lacp:
lacp_pkt_compute_port_params(1170): p_el=(8000, 2-0-0-0-0-1, 136, 8000, 220a) 2017 Jul 11
10:42:23.854198 lacp: lacp_pkt_compute_port_params(1172): p_el_pkt=(8000, 2-0-0-0-0-1, 136,
8000, 220a) 2017 Jul 11 10:42:23.854207 lacp: lacp_utils_get_obj_type_from_ifidx(390):
lacp_utils_get_obj_type_from_ifidx: For if-index 1a002000 , if_type =26 2017 Jul 11
10:42:23.854218 lacp: Malloc in fu_fsm_event_new@../utils/fsmutils/fsm.c[5317]-
ty[1]0x9bf719c[124] 2017 Jul 11 10:42:23.854228 lacp: lacp_utils_cr_fsm_event(572): Called from
lacp_utils_create_fsm_event_with_params: Create event 0x9bf719c 2017 Jul 11 10:42:23.854237
lacp: Malloc in fu_fsm_event_pair_new@../utils/fsmutils/fsm.c[5327]-ty[2]0x9bf730c[132] 2017 Jul
11 10:42:23.854248 lacp: fu_fsm_execute_all: match_msg_id(0), log_already_open(0) 2017 Jul 11
10:42:23.854257 lacp: Malloc in fu_fsm_event_new@../utils/fsmutils/fsm.c[5317]-
ty[1]0x9bf719c[124] 2017 Jul 11 10:42:23.854268 lacp: fu_fsm_execute: (Ethernet1/3) 2017 Jul 11
10:42:23.854275 lacp: current state [LACP_ST_PORT_MEMBER_COLLECTING_AND_DISTRIBUTING_ENABLED]
2017 Jul 11 10:42:23.854283 lacp: current event
[LACP_EV_PARTNER_PDU_IN_SYNC_COLLECT_ENABLED_DISTRIBUTING_ENABLED] 2017 Jul 11 10:42:23.854291
lacp: next state [FSM_ST_NO_CHANGE] 2017 Jul 11 10:42:23.854304 lacp: lacp_proto_get_state(969):
IF Ethernet1/3(0x1a002000): end PartnerEnd(2): state TimeOut(1): enable_flag False 2017 Jul 11
10:42:23.854314 lacp: lacp_proto_record_pdu(2266): Recording PDU for LACP pkt on IF
Ethernet1/3(0x1a002000) 2017 Jul 11 10:42:23.854325 lacp: lacp_proto_set_state(900): IF
Ethernet1/3(0x1a002000): Set end ActorEnd(1): state Defaulted(6) from False to False 2017 Jul 11
10:42:23.854335 lacp: lacp_proto_get_state(969): IF Ethernet1/3(0x1a002000): end PartnerEnd(2):
state TimeOut(1): enable_flag False 2017 Jul 11 10:42:23.854344 lacp:
lacp_proto_update_ntt(2211): updateNTT called for IF Ethernet1/3(0x1a002000) 2017 Jul 11
10:42:23.854355 lacp: lacp_proto_get_state(969): IF Ethernet1/3(0x1a002000): end ActorEnd(1):
state TimeOut(1): enable_flag True 2017 Jul 11 10:42:23.854362 lacp:
lacp_timer_start_w_chgd_time(681): lacp_timer_start_w_chgd_time: starting timer with time in ms
= 15000 2017 Jul 11 10:42:23.854377 lacp: lacp_timer_start(637): Timer Started: Timer_Arg ([rid
type IF-Rid: ifidx 0x1a002000: ch_num 0: event_id LACP_EV_RECEIVE_PARTNER_PDU_TIMED_OUT(17):
timer_id 426092: type PartnerTimedOut: active True: period_in_ms 15000]) 2017 Jul 11
10:42:23.854386 lacp: lacp_timer_start(638): Timer period=15 seconds 2017 Jul 11 10:42:23.854396
lacp: Free ptr in fu_fsm_execute@../utils/fsmutils/fsm.c[1091] for addr 0x9bf719c 2017 Jul 11
10:42:23.854408 lacp: fu_fsm_execute_all: done processing event
LACP_EV_PARTNER_PDU_IN_SYNC_COLLECT_ENABLED_DISTRIBUTING_ENABLED 2017 Jul 11 10:42:23.854419
lacp: fu_mts_drop ref 0x9bf7320 opc 90117 2017 Jul 11 10:42:23.854434 lacp: fu_fsm_execute_all:
MTS_OPC_NET_L2_RX_DATA_HDR(msg_id 2623696) dropped 2017 Jul 11 10:42:23.854445 lacp:
fu_fsm_engine_post_event_processing 2017 Jul 11 10:42:23.854453 lacp: end of while in
fu_fsm_engine 2017 Jul 11 10:42:23.854461 lacp: fu_handle_process_hot_plugin_msg: Entered the
function line 143 2017 Jul 11 10:42:23.854468 lacp: begin fu_fsm_engine: line[2357] 2017 Jul 11
10:42:24.361501 lacp: lacp_pkt_encode_pdu_helper(770): lacp_pkt_encode_pdu_helper:
pkt_len=LACP_PDU_LEN=110 periodic_rate:1 2017 Jul 11 10:42:24.361530 lacp:
lacp_pkt_encode_pdu_helper(797): lacp_pkt_encode_pdu_helper: if_idx=Ethernet1/3(0x1a002000)
partner-mac=0-a6-ca-f3-c7-83 port_num=43 2017 Jul 11 10:42:24.361542 lacp:
lacp_debug_wrapper_tl(1718): Executing [mcecm_api_is_pc_mcec] 2017 Jul 11 10:42:24.361551 lacp:
lacp_debug_wrapper_tl(1718): input: if_index = [0x16000000] 2017 Jul 11 10:42:24.361559 lacp:
lacp_debug_wrapper_tl(1718): Executing [mcecm_cache_is_pc_mcec] 2017 Jul 11 10:42:24.361568
lacp: lacp_debug_wrapper_tl(1718): output:0 2017 Jul 11 10:42:24.361589 lacp:
lacp_pkt_encode_pdu_helper(842): 0x1a002000: Set short_timeout to periodic_rate:1 2017 Jul 11
```

```
10:42:24.361599 lacp: lacp_pkt_encode_pdu_helper(879): lacp_pkt_encode_pdu_helper: actor-port-
state=3f agg=1 insync=1 coll=1 dis=1 active=1 short_timeout=1 2017 Jul 11 10:42:24.361612 lacp:
lacp_pkt_encode_pdu_helper(906): lacp_pkt_encode_pdu_helper: if_idx=Ethernet1/3(0x1a002000)
partner-port-state=3d agg=1 insync=1 coll=1 dis=1 active=1 short-timeout=0 2017 Jul 11
10:42:24.361624 lacp: lacp_pkt_encode_pdu_helper(910): lacp_pkt_encode_pdu_helper:
if_idx=Ethernet1/3(0x1a002000) partner-mac=2-0-0-0-0-1 port_num=220a 2017 Jul 11 10:42:24.361636
lacp: lacp_net_tx_data(206): lacp_net_tx_data: Sending buffer with length 110 2017 Jul 11
10:42:24.361648 lacp: lacp_net_tx_data(215): 01 01 01 14 ffff 2017 Jul 11 10:42:24.361658 lacp:
lacp_net_tx_data(215): ffff 2017 Jul 11 10:42:24.361668 lacp: lacp_net_tx_data(215): 00 00 00 02
14 ffff 2017 Jul 11 10:42:24.361678 lacp: lacp_net_tx_data(215): ffff 2017 Jul 11
10:42:24.361689 lacp: lacp_net_tx_data(215): 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2017 Jul 11 10:42:24.361700 lacp: lacp_net_tx_data(215): 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 2017 Jul 11 10:42:24.361710 lacp: lacp_net_tx_data(215): 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 2017 Jul 11 10:42:24.361721 lacp: lacp_net_tx_data(247):
Ethernet1/3(0x1a002000): Tx LACP PDU len: 110 As:3f, Ps:3d 2017 Jul 11 10:42:24.361753 lacp:
lacp_proto_get_state(969): IF Ethernet1/3(0x1a002000): end PartnerEnd(2): state TimeOut(1):
enable_flag False 2017 Jul 11 10:42:24.361764 lacp: lacp_proto_restart_tx_timer(1802):
lacp_proto_restart_tx_timer: got enable flag=0 before sending on interface
Ethernet1/3(0x1a002000) 2017 Jul 11 10:42:24.361773 lacp: lacp_proto_restart_tx_timer(1825):
lacp_proto_restart_tx_timer: flag 0 interface Ethernet1/3(0x1a002000) periodic_timer is fast
2017 Jul 11 10:42:24.361782 lacp: lacp_timer_start_w_chgd_time(681):
lacp_timer_start_w_chgd_time: starting timer with time in ms = 1000 2017 Jul 11 10:42:24.361798
lacp: lacp_timer_start(637): Timer Started: Timer_Arg ([rid type IF-Rid: ifidx 0x1a002000:
ch_num 0: event_id LACP_EV_PERIODIC_TRANSMIT_TIMER_EXPIRED(19): timer_id 400214: type
PDUSendTime: active True: period_in_ms 1000]) 2017 Jul 11 10:42:24.361807 lacp:
lacp_timer_start(638): Timer period=1 seconds 2017 Jul 11 10:42:24.361820 lacp:
lacp_pkt_encode_pdu_helper(770): lacp_pkt_encode_pdu_helper: pkt_len=LACP_PDU_LEN=110
periodic_rate:1 2017 Jul 11 10:42:24.361833 lacp: lacp_pkt_encode_pdu_helper(797):
lacp_pkt_encode_pdu_helper: if_idx=Ethernet1/4(0x1a003000) partner-mac=0-a6-ca-f3-c7-83
port_num=44 2017 Jul 11 10:42:24.361841 lacp: lacp_debug_wrapper_tl(1718): Executing
[mcecm_api_is_pc_mcec] 2017 Jul 11 10:42:24.361849 lacp: lacp_debug_wrapper_tl(1718): input:
if_index = [0x16000000] 2017 Jul 11 10:42:24.361857 lacp: lacp_debug_wrapper_tl(1718): Executing
[mcecm_cache_is_pc_mcec] 2017 Jul 11 10:42:24.361865 lacp: lacp_debug_wrapper_tl(1718): output:0
2017 Jul 11 10:42:24.361879 lacp: lacp_pkt_encode_pdu_helper(842): 0x1a003000: Set short_timeout
to periodic_rate:1 2017 Jul 11 10:42:24.361888 lacp: lacp_pkt_encode_pdu_helper(879):
lacp_pkt_encode_pdu_helper: actor-port-state=7f agg=1 insync=1 coll=1 dis=1 active=1
short_timeout=1 2017 Jul 11 10:42:24.361899 lacp: lacp_pkt_encode_pdu_helper(906):
lacp_pkt_encode_pdu_helper: if_idx=Ethernet1/4(0x1a003000) partner-port-state=0 agg=0 insync=0
coll=0 dis=0 active=0 short-timeout=0 2017 Jul 11 10:42:24.361910 lacp:
lacp_pkt_encode_pdu_helper(910): lacp_pkt_encode_pdu_helper: if_idx=Ethernet1/4(0x1a003000)
partner-mac=0-0-0-0-0-0 port_num=0 2017 Jul 11 10:42:24.361920 lacp: lacp_net_tx_data(206):
lacp_net_tx_data: Sending buffer with length 110 2017 Jul 11 10:42:24.361930 lacp:
lacp_net_tx_data(215): 01 01 01 14 ffff 2017 Jul 11 10:42:24.361940 lacp: lacp_net_tx_data(215):
ffff 2017 Jul 11 10:42:24.361950 lacp: lacp_net_tx_data(215): 00 00 00 02 14 00 00 00 00 00 00
00 00 00 00 00 00 2017 Jul 11 10:42:24.361960 lacp: lacp_net_tx_data(215): 00 00 00 00 00 00 03
10 00 00 00 00 00 00 00 00 00 2017 Jul 11 10:42:24.361971 lacp: lacp_net_tx_data(215): 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 2017 Jul 11 10:42:24.361981 lacp:
lacp_net_tx_data(215): 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 2017 Jul 11
10:42:24.361991 lacp: lacp_net_tx_data(215): 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
2017 Jul 11 10:42:24.362001 lacp: lacp_net_tx_data(247): Ethernet1/4(0x1a003000): Tx LACP PDU
len: 110 As:7f, Ps:00 2017 Jul 11 10:42:24.362022 lacp: lacp_proto_get_state(969): IF
Ethernet1/4(0x1a003000): end PartnerEnd(2): state TimeOut(1): enable_flag False 2017 Jul 11
10:42:24.362032 lacp: lacp_proto_restart_tx_timer(1802): lacp_proto_restart_tx_timer: got enable
flag=0 before sending on interface Ethernet1/4(0x1a003000) 2017 Jul 11 10:42:24.362042 lacp:
lacp_proto_restart_tx_timer(1825): lacp_proto_restart_tx_timer: flag 0 interface
Ethernet1/4(0x1a003000) periodic_timer is fast 2017 Jul 11 10:42:24.362050 lacp:
lacp_timer_start_w_chgd_time(681): lacp_timer_start_w_chgd_time: starting timer with time in ms
= 1000 2017 Jul 11 10:42:24.362062 lacp: lacp_timer_start(637): Timer Started: Timer_Arg ([rid
type IF-Rid: ifidx 0x1a003000: ch_num 0: event_id LACP_EV_PERIODIC_TRANSMIT_TIMER_EXPIRED(19):
timer_id 399340: type PDUSendTime: active True: period_in_ms 1000])
```

Tip

Controleer of u LACP-pakketten van de peer ontvangt. Bijvoorbeeld, de Ethernet1/3 interface

ontvangt LACP pakketten, maar Ethernet1/4 nee:

```
2017 Jul 11 10:42:25.641920 lacp: lacp_net_get_pkt_info(746): Packet received on phy_if_idx
Ethernet1/3(0x1a002000): log_if_idx Ethernet1/3(0x1a002000): pkt_len 124 l2 header len 14
2017 Jul 11 10:42:25.641937 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
```

Controleer 9

In deze uitvoer is de interface Ethernet1/4 een lid van Port-Channel, maar bevindt zich in de Individuele modus (geschorst aan de switchkant):

```
ciscofcm01-A(fxos)# show lacp internal event-history interface ethernet 1/4


>>>>FSM: <Ethernet1/4> has 549 logged transitions<<<<<

1) FSM:<Ethernet1/4> Transition at 385779 usecs after Wed Jul  5 13:13:03 2017
    Previous state: [LACP_ST_PORT_IS_DOWN_OR_LACP_IS_DISABLED]
    Triggered event: [LACP_EV_CLNUP_PHASE_II]
    Next state: [LACP_ST_PORT_IS_DOWN_OR_LACP_IS_DISABLED]

2) FSM:<Ethernet1/4> Transition at 955546 usecs after Wed Jul  5 13:13:03 2017
    Previous state: [LACP_ST_PORT_IS_DOWN_OR_LACP_IS_DISABLED]
    Triggered event: [LACP_EV_LACP_ENABLED_AND_PORT_UP]
    Next state: [LACP_ST_DETACHED_LAG_NOT_DETERMINED]

3) FSM:<Ethernet1/4> Transition at 962224 usecs after Wed Jul  5 13:13:10 2017
    Previous state: [LACP_ST_DETACHED_LAG_NOT_DETERMINED]
    Triggered event: [LACP_EV_RECEIVE_PARTNER_PDU_TIMED_OUT]
    Next state: [FSM_ST_NO_CHANGE]

4) FSM:<Ethernet1/4> Transition at 963838 usecs after Wed Jul  5 13:13:13 2017
    Previous state: [LACP_ST_DETACHED_LAG_NOT_DETERMINED]
    Triggered event: [LACP_EV_RECEIVE_PARTNER_PDU_TIMED_OUT]
    Next state: [FSM_ST_NO_CHANGE]

5) FSM:<Ethernet1/4> Transition at 964002 usecs after Wed Jul  5 13:13:13 2017
    Previous state: [LACP_ST_DETACHED_LAG_NOT_DETERMINED]
    Triggered event: [LACP_EV_RECEIVE_PARTNER_PDU_TIMED_OUT_II_INDIVIDUAL]
    Next state: [LACP_ST_INDIVIDUAL_OR_DEFAULT]

6) FSM:<Ethernet1/4> Transition at 735923 usecs after Wed Jul  5 13:13:36 2017
    Previous state: [LACP_ST_INDIVIDUAL_OR_DEFAULT]
    Triggered event: [LACP_EV_UNGRACEFUL_DOWN]
    Next state: [LACP_ST_PORT_IS_DOWN_OR_LACP_IS_DISABLED]
```

Controleer 10

In deze output is de interface Ethernet1/3 operationeel en lid van PortChannel1 terwijl Ethernet1/4 hoewel lid van PortChannel1 is in de Individuele modus. Merk op dat Ethernet1/3 (tx) pakketten verstuurt en ontvangt (rx) pakketten, maar Ethernet1/4 stuurt alleen (rx) geen belasting:

```
ciscofcm01-A(fxos)# debug lacp pkt
ciscofcm01-A(fxos)# 2017 Jul 11 11:04:05.278736 lacp: lacp_net_process_rx_data(480):
Ethernet1/3(0x1a002000): Rx LACP PDU len: 124 As:3f, Ps:3d
2017 Jul 11 11:04:05.602855 lacp: lacp_net_tx_data(247): Ethernet1/3(0x1a002000): Tx LACP PDU
len: 110 As:3f, Ps:3d
2017 Jul 11 11:04:05.983134 lacp: lacp_net_tx_data(247): Ethernet1/4(0x1a003000): Tx LACP PDU
```

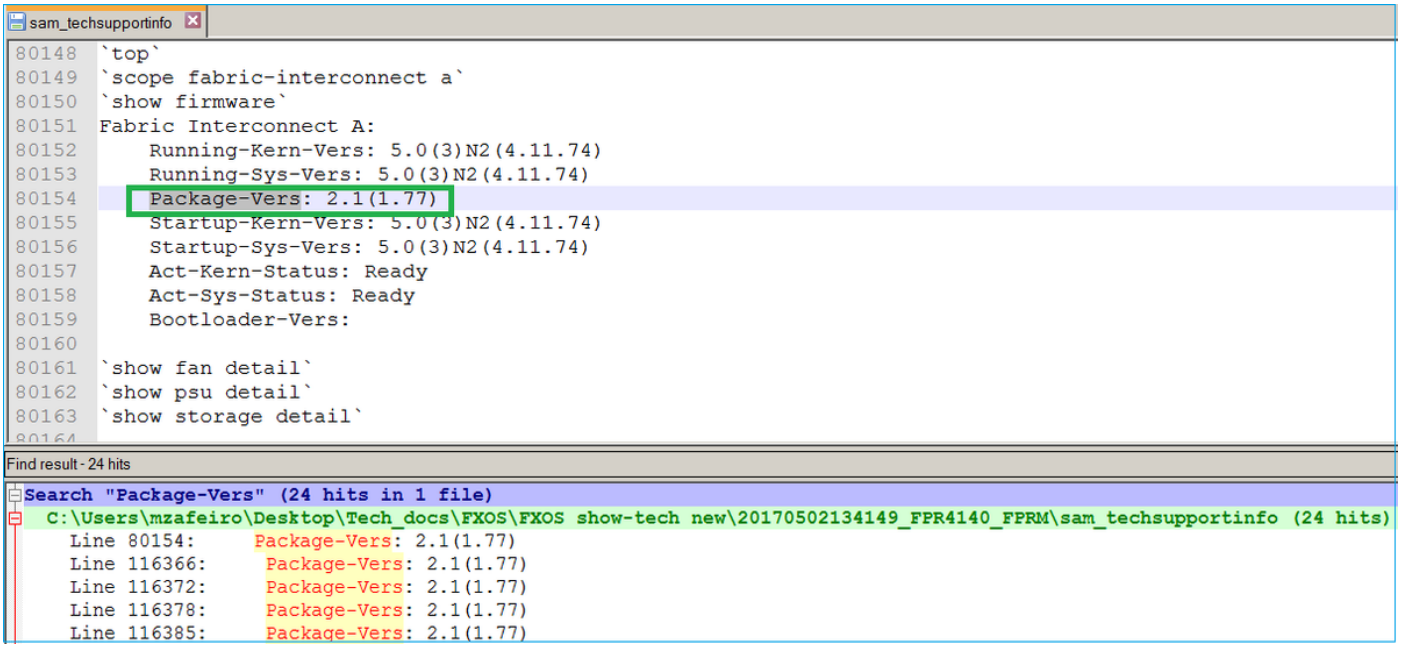
```
len: 110 As:7f, Ps:00
2017 Jul 11 11:04:06.249929 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
2017 Jul 11 11:04:06.602815 lacp: lacp_net_tx_data(247): Ethernet1/3(0x1a002000): Tx LACP PDU
len: 110 As:3f, Ps:3d
2017 Jul 11 11:04:06.992812 lacp: lacp_net_tx_data(247): Ethernet1/4(0x1a003000): Tx LACP PDU
len: 110 As:7f, Ps:00
2017 Jul 11 11:04:07.163780 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
2017 Jul 11 11:04:07.602814 lacp: lacp_net_tx_data(247): Ethernet1/3(0x1a002000): Tx LACP PDU
len: 110 As:3f, Ps:3d
2017 Jul 11 11:04:08.002817 lacp: lacp_net_tx_data(247): Ethernet1/4(0x1a003000): Tx LACP PDU
len: 110 As:7f, Ps:00
2017 Jul 11 11:04:08.102006 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
2017 Jul 11 11:04:08.612810 lacp: lacp_net_tx_data(247): Ethernet1/3(0x1a002000): Tx LACP PDU
len: 110 As:3f, Ps:3d
2017 Jul 11 11:04:09.002811 lacp: lacp_net_tx_data(247): Ethernet1/4(0x1a003000): Tx LACP PDU
len: 110 As:7f, Ps:00
2017 Jul 11 11:04:09.091937 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
2017 Jul 11 11:04:09.622810 lacp: lacp_net_tx_data(247): Ethernet1/3(0x1a002000): Tx LACP PDU
len: 110 As:3f, Ps:3d
2017 Jul 11 11:04:10.002807 lacp: lacp_net_tx_data(247): Ethernet1/4(0x1a003000): Tx LACP PDU
len: 110 As:7f, Ps:00
2017 Jul 11 11:04:10.004411 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
2017 Jul 11 11:04:10.632806 lacp: lacp_net_tx_data(247): Ethernet1/3(0x1a002000): Tx LACP PDU
len: 110 As:3f, Ps:3d
2017 Jul 11 11:04:10.854094 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
2017 Jul 11 11:04:11.002789 lacp: lacp_net_tx_data(247): Ethernet1/4(0x1a003000): Tx LACP PDU
len: 110 As:7f, Ps:00
2017 Jul 11 11:04:11.642807 lacp: lacp_net_tx_data(247): Ethernet1/3(0x1a002000): Tx LACP PDU
len: 110 As:3f, Ps:3d
2017 Jul 11 11:04:11.714199 lacp: lacp_net_process_rx_data(480): Ethernet1/3(0x1a002000): Rx
LACP PDU len: 124 As:3f, Ps:3d
```

Controleer dit document voor meer informatie:

V. Hoe de FXOS-bundelversie te vinden in de technische uitvoer van de show?

Way 1

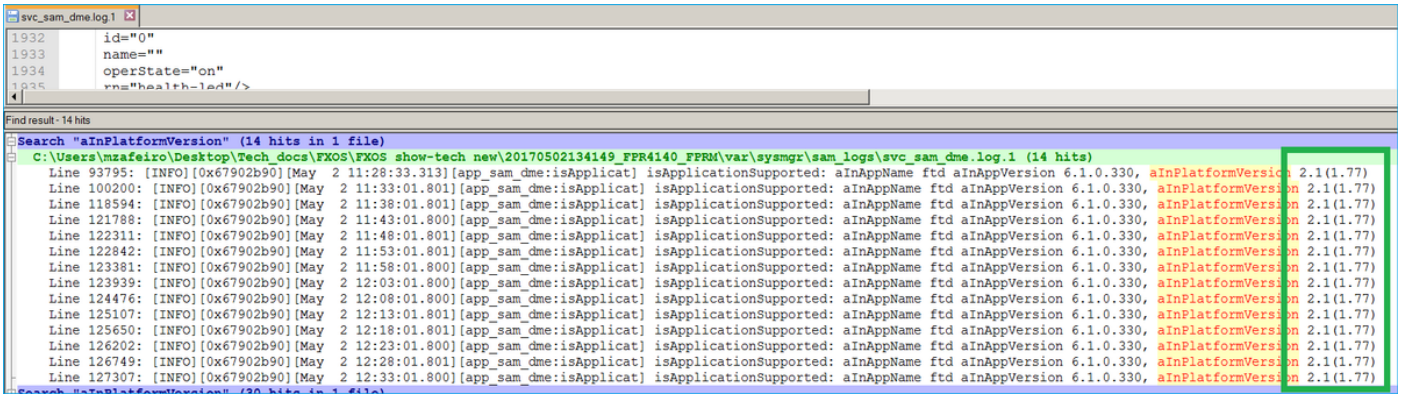
Haal in FPRM tar bestand de inhoud van het FPRM_A_TechSupport.tar.gz bestand. Open vervolgens het bestand **sam_techsupportinfo** en zoek naar **Package-Vers:**




```
FPR4140-A# show fabric-interconnect firmware
Fabric Interconnect A:
    Running-Kern-Vers: 5.0(3)N2(4.11.74)
    Running-Sys-Vers: 5.0(3)N2(4.11.74)
    Package-Vers: 2.1(1.77)
    Startup-Kern-Vers: 5.0(3)N2(4.11.74)
    Startup-Sys-Vers: 5.0(3)N2(4.11.74)
    Act-Kern-Status: Ready
    Act-Sys-Status: Ready
    Bootloader-Vers:
```

Way 2

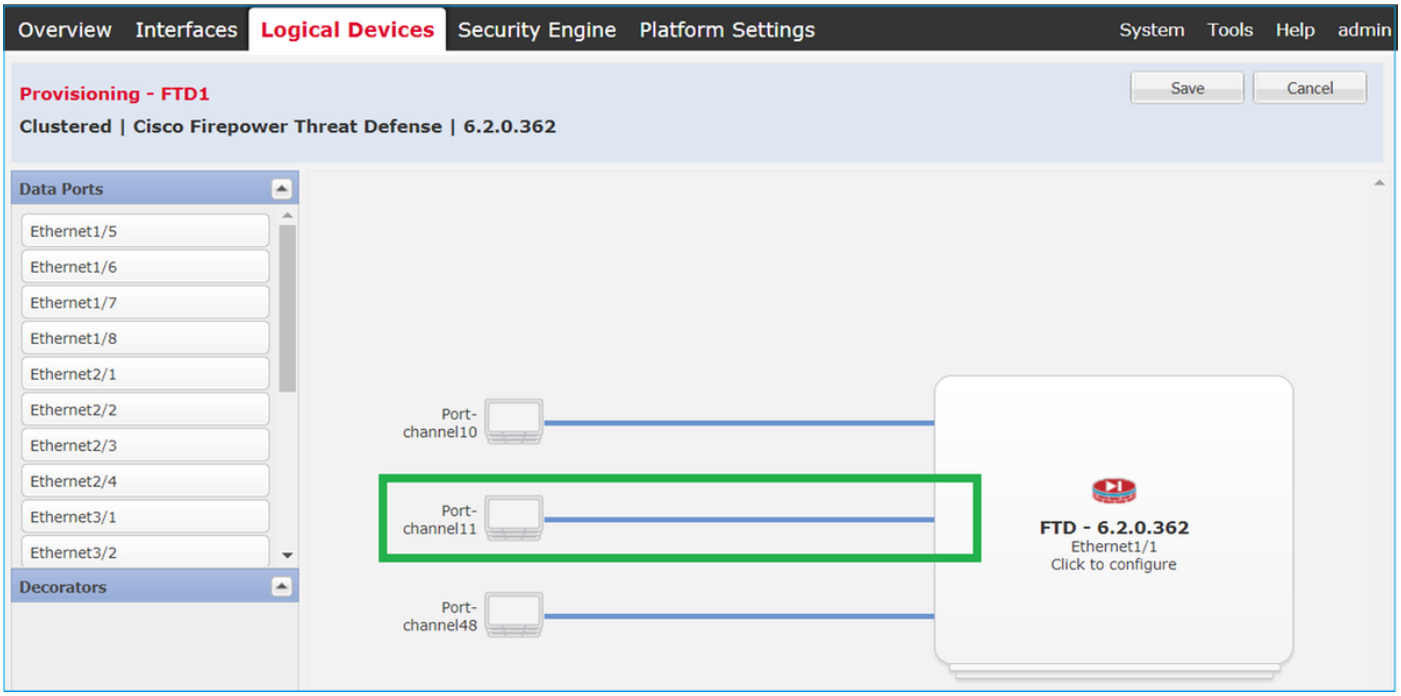
Haal in FRPM tar bestand de inhoud van het FPRM_A_TechSupport.tar.gz bestand. Open vervolgens het **/var/sysmgr/sam_logs/svc_sam_dme.log-**bestand en zoek naar **een**trefwoord voor **InPlatformVersie**:



Q. Hoe verspreidt de MIO interface-informatie (toevoeging/verwijdering) naar de bladetoepassing (FTD, ASA)?

Het gebruikt de MIO app-agent component.

Bijvoorbeeld wanneer een nieuw Port-Channel aan de FTD wordt toegewezen van MIO:



FTD app-agent debug toont:

```
firepower# debug app-agent 255

appagent : part 0 : ftd_001_JAD19500BAB0Z690F2.interfaceMapping.update
appagent : part 1 : ssp-xml:3
appagent : part 2 : 7
appagent : part 3 : appAG
appagent : part 4 : <interfaceMappingConfigUpdateRequest>




appagent : Process the request message
appagent : It is an update request command
appagent : Invoke request msg handler for cmd interfaceMapping.update
appagent : Processing InterfaceMapping Update Message
appagent : Creating Interface Mapping Structure.
appagent : Processing the tag externalPort.
appagent : ================================
appagent : PortName=Port-channel11
appagent : ftw capability=0
appagent : no available ftw peers
appagent : cleaning external_port_ftw_peers_t
appagent : Sending Response message for Interface Mapping update Message
appagent : Send response message to appAG
appagent : resp_msg->cmdName =appAG.interfaceMapping.update
appagent : resp_msg->content_version =ssp-xml:3
appagent : resp_msg->msgId =7
appagent : resp_msg->statuscode =100
appagent : resp_msg->data =<interfaceMappingConfigUpdateResponse>
  <response>
   100
    <message>Request success</message>
  </response>
</interfaceMappingConfigUpdateResponse>
appagent : part 0 : ftd_001_JAD19500BAB0Z690F2.interfaceStatus.update
appagent : part 1 : ssp-xml:3
appagent : part 2 : 8
```

```
appagent : part 3 : appAG
appagent : part 4 : <interfaceStatusUpdateRequest><interface><interfaceName>Port-
channel11</interfaceName><externalOperationalStatus>down</externalOperationalStatus><internalOpe
rationalStatus>up</internalOperationalStatus></interface></interfaceStatusUpdateRequest>
appagent : Process the request message
appagent : It is an update request command
appagent : Invoke request msg handler for cmd interfaceStatus.update
appagent : Processing Interface Status Update Request.
appagent : The Fxos version is 2.1.1 or newer
appagent : Parsing interface status update request message for FXOS > 211
appagent : Parsing Interface Status Req.
appagent : Interface Status Successfully Updated.
appagent : Sending Response for Interface Status Update Request
appagent : Send response message to appAG
appagent : resp_msg->cmdName =appAG.interfaceStatus.update
appagent : resp_msg->content_version =ssp-xml:3
appagent : resp_msg->msgId =8
appagent : resp_msg->statuscode =100
appagent : resp_msg->data =<interfaceStatusUpdateResponse>
  <response>
    100
    <message>Request success</message>
  </response>
</interfaceStatusUpdateResponse>
```

Q. Welk serienummer (SN) moet worden gebruikt in het geval van RMA van het FirePOWER-chassis?

Het brandweerchassis heeft meerdere SN's. Het voor een RMA-verzoek gebruikte formulier kan van deze uitgangen worden afgeleid:

```
FP4120-5-A# scope chassis 1
FP4120-5-A /chassis # show inventory
Chassis    PID             Vendor            Serial (SN) HW Revision
---------- --------------- ----------------- ----------- -----------
         1 FPR-4120-K9     Cisco Systems Inc FLM12345KL6 0
```

of

```
FP4120-5-A# connect local-mgmt
FP4120-5-A(local-mgmt)# show license all

Smart Licensing Status
======================

Smart Licensing is ENABLED

Registration:
  Status: UNREGISTERED
  Export-Controlled Functionality: Not Allowed

License Authorization:
```

```
  Status: No Licenses in Use

License Usage
==============

No licenses in use

Product Information
===================
UDI: PID:FPR-4120-SUP,SN:JAD19500BAB
```

of

```
FP4120-5-A# scope license
FP4120-5-A /license # show license all

Smart Licensing Status
======================

Smart Licensing is ENABLED

Registration:
  Status: UNREGISTERED
  Export-Controlled Functionality: Not Allowed

License Authorization:
  Status: No Licenses in Use

License Usage
==============

No licenses in use

Product Information
===================
UDI: PID:FPR-4120-SUP,SN:JAD19500BAB
```

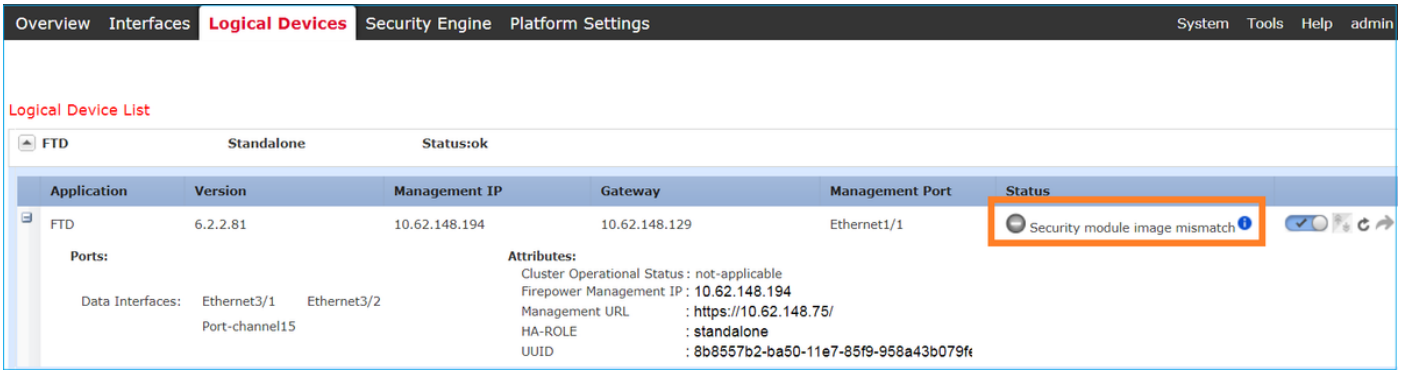
Q. Kan u SSD1 verwisselen tussen 2 verschillende FXOS-chassis?

Het korte antwoord is nee. Het SSD1 bevat de toepassingsafbeelding (bijvoorbeeld FTD of ASA). Als u SSD1 uit het chassis haalt en in een ander chassis steekt, komt de module niet omhoog en worden deze fouten weergegeven:

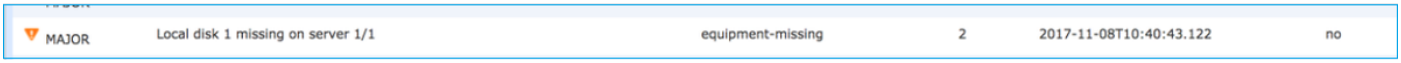
Kritisch F1548 2017-11-08T11:36:40.095 427280 bladeswap gedetecteerd in sleuf 1

Severity	Description	Cause	Occurrence	Time	Acknowledged
CRITICAL	Blade swap detected on slot 1	blade-swap	1	2017-11-08T11:36:40.095	no

Onjuist maken van afbeelding van beveiligingsmodule



Lokale schijf 1 ontbreekt op server 1/1



V. Hoe controleert u het stroomverbruik van het chassis?

Vanaf de versie FXOS 2.2.1 kunt u de opdracht **Show omgevingssamenvatting** gebruiken

```
FPR4100-1 /chassis # show environment summary

Chassis INFO :
    Total Power Consumption: 440.000000
    Inlet Temperature (C): 21.000000
    CPU Temperature (C): 39.000000
    Last updated Time: 2018-07-01T09:39:55.157

    PSU 1:
        Type: AC
        Input Feed Status: Ok
        12v Output Status: Ok
        Overall Status: Operable
    PSU 2:
        Type: AC
        Input Feed Status: N/A
        12v Output Status: N/A
        Overall Status: Removed

    FAN 1
        Fan Speed RPM (RPM): 12110
        Speed Status: Ok
        Overall Status: Operable
    FAN 2
        Fan Speed RPM (RPM): 12110
        Speed Status: Ok
        Overall Status: Operable
    FAN 3
        Fan Speed RPM (RPM): 12100
        Speed Status: Ok
        Overall Status: Operable
```

Voor meer informatie:

Monitoring Chassis Health

V. Hoe controleert u de versie van Bootloader?

```
FPR-4110-7-A# scope chassis 1
FPR-4110-7-A /chassis # scope server 1
FPR-4110-7-A /chassis/server # scope adapter 1
FPR-4110-7-A /chassis/server/adapter # show version detail
Adapter 1:
Running-Vers: 5.3(1.91)
Package-Vers: 2.3(1.88)
Update-Status: Ready
Activate-Status: Ready
Bootloader-Update-Status: Ready
Startup-Vers: 5.3(1.91)
Backup-Vers: 5.3(1.48)
Bootloader-Vers: MF-111-234949
```

Gerelateerde informatie

- Cisco Firepower 4100/9300 FXOS-configuratiegids voor FirePOWER-chassis, 2.8(1)
- Cisco Firepower 4100/9300 FXOS CLI-configuratiegids, 2.8(1)
- Cisco Firepower 4100/9300 FXOS-opdrachtreferentie