

HP-UX iSCSI-host naar MDS/IPS-8 configuratievoorbeeld

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Cisco iSCSI-stuurprogramma's, die op de server aanwezig zijn, zijn een belangrijk onderdeel van een iSCSI-oplossing. Deze iSCSI-stuurprogramma's onderscheppen **SCSI-interface (Small Computer System Interface)**, kapselen deze in IP-pakketten in en sturen deze opnieuw naar Cisco SN 5420, Cisco SN 5428, Cisco SN 5428-2 of Cisco MDS/IPS-8. This document biedt voorbeeldconfiguraties voor de HP-UX iSCSI-host naar SN 5428.

[Voorwaarden](#)

[Vereisten](#)

Zorg er voordat u deze configuratie probeert voor dat u aan deze vereisten voldoet:

- Installeer het iSCSI-stuurprogramma dat compatibel is met uw HP-UX versie. De meest recente versie van het stuurprogramma is te vinden op de downloadpagina van [Cisco iSCSI driver](#) ([alleen geregistreerde](#) klanten) op Cisco.com. Het bestand README.txt is in het zip-bestand (tar) van het stuurprogramma opgenomen. LEZEN bevat informatie over de licentieovereenkomst, de installatie- en configuratie-instructies van de bestuurder, en een technisch overzicht van de bestuurdersarchitectuur.
- De systeemvereisten en de patchvereisten worden beschreven in het gedeelte

Gebruikte componenten

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

- HP-UX 9000/800 A500 server met twee processors. **N.B.:** In dit laboratorium is er geen afzonderlijke Ethernet-adapter voor iSCSI en is de adapter in gebruik 100 Mb. In een realistische omgeving hebt u een afzonderlijke Gigabit Ethernet (GE) adapter(s) als uw iSCSI-initiator(en).

```
[/]# /opt/ignite/bin/print_manifest[...]
```

System Hardware

```
Model:          9000/800/A500-5X
Main Memory:    1024 MB
Processors:     2
OS mode:       64 bit
LAN hardware ID: 0x00306E1B6F51
Software ID:    586760518
Keyboard Language: Not_Applicable
```

Storage devices	HW Path	Interface
SEAGATE ST318404LC 17366 Mb	0/0/1/1.15.0	SCSI C896 Ultra Wide Single-Ended
SEAGATE ST318203LC 17366 Mb	0/0/2/1.15.0	SCSI C875 Ultra Wide Single-Ended

I/O Interfaces

Class	H/W Path	Driver	Description
lan	0/0/0/0	btlan3	HP PCI 10/100Base-TX Core
ext_bus	0/0/1/0	c720	SCSI C896 Ultra Wide LVD
ext_bus	0/0/1/1	c720	SCSI C896 Ultra Wide Single-Ended
ext_bus	0/0/2/0	c720	SCSI C875 Fast Wide Single-Ended
ext_bus	0/0/2/1	c720	SCSI C875 Ultra Wide Single-Ended
tty	0/0/4/0	asio0	PCI Serial (103c1048)
tty	0/0/5/0	asio0	PCI Serial (103c1048)
fc	0/2/0/0	td	HP Tachyon XL2 Fibre Channel Mass Storage

Adapter

Installed Software

Your system was installed with HP-UX version B.11.00.

Your system has the following software products installed and configured on the system disk drive(s).

Product	Revision	Description
A6795A	B.11.00.10	PCI Tachyon TL/TS/XL2 Fibre Channel
BUNDLE	B.11.00	Patch Bundle
HPUXEng64RT	B.11.00.01	English HP-UX 64-bit Runtime Environment
HWE1100	B.11.00.0203.5	Hardware Enablement Patches for HP-UX 11.00, March 2002
OnlineDiag	B.11.00.20.09	HPUX 11.0 Support Tools Bundle, Mar 2002
UXCoreMedia	B.11.00.02	HP-UX Media Kit (Reference Only. See Description)
UnlimUserLic	B.11.00.02	HP-UX Unlimited-User License
XSWG1100	B.11.00.47.08	General Release Patches, November 1999 (ACE)

[...]

- Cisco iSCSI driver 3.3.3 voor HP-UX is gebruikt. Aanbevolen wordt om ook (ten minste) het laatste stabiele Protocol voor adresresolutie (ARPA) te installeren Cumulatieve Patch van HP. Toen dit document geschreven werd, was dit PHNE_28538. Dit stopcontact heeft verschillende afhankelijkheden, zodat u ze zo en wanneer nodig moet installeren. Ga voor

meer installatie-informatie naar de officiële [HP Support Site](#) (alleen [geregistreerde](#) klanten) .

```
[/]# swlist
# Initializing...
# Contacting target "ape"...
#
# Target:  ape:/
#
#
# Bundle(s):
#
A6795A                B.11.00.10      PCI Tachyon TL/TS/XL2 Fibre Channel
BUNDLE                B.11.00         Patch Bundle
HPUXEng64RT          B.11.00.01      English HP-UX 64-bit Runtime Environment
HWE1100              B.11.00.0203.5  Hardware Enablement Patches for HP-UX 11.00,
March 2002
OnlineDiag           B.11.00.20.09   HPUX 11.0 Support Tools Bundle, Mar 2002
QPK1100              B.11.00.56.5    Quality Pack for HP-UX 11.00, March 2002
UXCoreMedia          B.11.00.02      HP-UX Media Kit (Reference Only. See
Description)
UnlimUserLic         B.11.00.02      HP-UX Unlimited-User License
XSWGR1100            B.11.00.47.08   General Release Patches, November 1999 (ACE)
#
# Product(s) not contained in a Bundle:
#
ISCSI                 3.3.3           ISCSI software
bison                 1.875           bison
flex                  2.5.4a          flex
gcc                   3.2.3           gcc
gettext               0.11.5          gettext
less                  376             less
libiconv              1.9             libiconv
make                  3.80            make
ncurses               5.2             ncurses
termcap               1.3.1           termcap
zsh                   4.0.7           zsh

[/]# swlist BUNDLE
# Initializing...
# Contacting target "ape"...
#
# Target:  ape:/
#
#
# BUNDLE                B.11.00         Patch Bundle
BUNDLE.PHCO_23651      1.0             fsck_vxfs(1M) cumulative patch
BUNDLE.PHKL_28496      1.0             SCSI IO Subsystem Cumulative Patch
BUNDLE.PHKL_27980      1.0             VxFS 3.1 cumulative patch: CR_EIEM
BUNDLE.PHKL_22840      1.0             IDS/9000; syscalls related to file/socket
BUNDLE.PHCO_28505      1.0             user/group(add/mod/del)(1M) cumulative patch
BUNDLE.PHKL_28150      1.0             LVM Cumulative Patch w/Performance Upgrades
BUNDLE.PHNE_28538      1.0             cumulative ARPA Transport patch
BUNDLE.PHNE_28143      1.0             LAN product cumulative patch
BUNDLE.PHNE_27902      1.0             Cumulative STREAMS Patch
BUNDLE.PHKL_29434      1.0             POSIX AIO;getdirent;MVFS;rcp;mmap/IDS;
BUNDLE.PHKL_28766      1.0             Probe, IDDS, PM, VM, PA-8700, AIO, T600, FS, PDC, CLK
BUNDLE.PHKL_28004      1.0             Fibre Channel Mass Storage Driver Patch
BUNDLE.PHKL_27729      1.0             ioscan -u incorrect display (kernel patch).
BUNDLE.PHKL_24187      1.0             ioscan performance gain for SCSI Subsystem
BUNDLE.PHKL_24165      1.0             Kernel Patch For "ioscan -k" Performance
BUNDLE.PHKL_23409      1.0             NFS, Large Data Space, kernel memory leak
```

```

BUNDLE.PHKL_20016      1.0          2nd CPU not recognized in G70/H70/I70
BUNDLE.PHKL_18543      1.0          PM/VM/UFS/async/scsi/io/DMAPI/JFS/perf patch
BUNDLE.PHCO_27818      1.0          ioscan(1M) cumulative patch
BUNDLE.PHCO_27375      1.0          cumulative SAM/ObAM patch

```

- Cisco MDS 9216 met softwareversie 1.2(1a).

```
vatican# show module
```

```

Mod  Ports  Module-Type          Model          Status
-----
1    16     1/2 Gbps FC/Supervisor  DS-X9216-K9-SUP  active *
2     8     IP Storage Module      DS-X9308-SMIP    ok
Mod  Sw          Hw          World-Wide-Name(s) (WWN)
-----
1    1.2(1a)    1.0        20:01:00:0c:30:57:5e:c0 to 20:10:00:0c:30:57:5e:c0
2    1.2(1a)    0.2        20:41:00:0c:30:57:5e:c0 to 20:48:00:0c:30:57:5e:c0

```

```

Mod  MAC-Address(es)          Serial-Num
-----
1    00-0b-be-f8-7f-00 to 00-0b-be-f8-7f-04  JAB070804Q3
2    00-05-30-00-a8-56 to 00-05-30-00-a8-62  JAB070205AM

```

* this terminal session

```
vatican# show version
```

```

Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: http://www.cisco.com/tac
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Andiamo Systems, Inc. and/or other third parties and are used and
distributed under license.

```

Software

```

BIOS:      version 1.0.8
loader:    version 1.1(2)
kickstart: version 1.2(1a)
system:    version 1.2(1a)

```

```

BIOS compile time:      08/07/03
kickstart image file is: bootflash:/k121a
kickstart compile time: 9/1/2003 17:00:00
system image file is:   bootflash:/s121a
system compile time:    9/1/2003 17:00:00

```

Hardware

```
RAM 963108 kB
```

```
bootflash: 500736 blocks (block size 512b)
slot0:      0 blocks (block size 512b)

```

```
vatican uptime is 1 days 6 hours 17 minute(s) 25 second(s)
```

```
Last reset at 955065 usecs after Wed Sep 10 08:13:50 2003
```

```
Reason: Reset Requested by CLI command reload
```

```
System version: 1.1(2)
```

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u de potentiële impact van elke opdracht begrijpen.

Conventies

De Cisco MDS 9000 die in dit document wordt gebruikt, verwijst naar een product van Fibre

Channel (FC)-switch in de MDS 9000-reeks (MDS 9506, MDS 9509, MDS 9216). Het snijpad van Cisco Inbraakpreventiesysteem (IPS) verwijst naar IP-opslagservicesmodule. Raadpleeg [Cisco Technical Tips Conventions](#) (Conventies voor technische tips van Cisco) voor meer informatie over documentconventies.

Achtergrondinformatie

De module Cisco Inbraakpreventiesysteem (IPS) biedt IP-hosts toegang tot Fibre Channel (FC) opslagapparaten. De IPS-module is DS-X9308-SMIP. Dit biedt transparante SCSI-routing. IP-hosts die gebruik maken van iSCSI-protocol kan op transparante wijze toegang krijgen tot iSCSI-doelstellingen op het FC-netwerk. De IP-host stuurt SCSI-opdrachten die zijn ingekapseld in iSCSI Protocol Data Units (PDU's) naar een MDS 9000 IPS-poort via een TCP/IP-verbinding. Op de IPS-module wordt connectiviteit geboden in de vorm van GE-interfaces die correct zijn geconfigureerd. Met de IPS-module kunt u virtuele iSCSI-doelstellingen maken en deze in kaart brengen naar fysieke FC-doelen die in de FC SAN's beschikbaar zijn. Het presenteert de FC doelstellingen aan IP gastheren alsof de fysieke doelstellingen aan het IP netwerk verbonden waren.

Bij elke iSCSI-host die toegang tot opslag via de IPS-module vereist, moet een compatibel iSCSI-stuurprogramma worden geïnstalleerd. Dankzij het iSCSI-protocol kan het iSCSI-stuurprogramma een iSCSI-host verzenden via een IP-netwerk. Vanuit het perspectief van een host-besturingssysteem lijkt het iSCSI-stuurprogramma een SCSI-transportstuurprogramma te zijn, vergelijkbaar met een FC-stuurprogramma voor een perifeer kanaal in de host. Vanuit het perspectief van het opslagapparaat, verschijnt elke IP-host als een FC-host. Routing SCSI van de IP-host naar het FC-opslagapparaat bestaat uit deze hoofdacties:

- iSCSI-verzoeken en -reacties via een IP-netwerk tussen hosts en de IPS-module transporteren
- Routing SCSI-verzoeken en reacties tussen hosts op een IP-netwerk en het FC-opslagapparaat (converteren van iSCSI naar FCP en FCP naar iSCSI). Deze routing wordt uitgevoerd door de IPS-module.
- FCP-verzoeken of -reacties verzenden tussen de IPS-module en FC-opslagapparaten

De IPS-module importeert geen FC-doelstellingen standaard voor iSCSI. Ofwel dynamische of statische mapping moet worden geconfigureerd voordat de IPS-module FC-doelstellingen beschikbaar maakt voor iSCSI-initiators. Wanneer beide zijn ingesteld, hebben de in kaart gebrachte FC-doelen een geconfigureerde naam. Dit document geeft een voorbeeld van statische mapping. Bij dynamische plattegronden wordt elke keer dat de iSCSI-host zich verbindt met de IPS-module een nieuwe FC N-poort gecreëerd en kunnen de WWN's en WWN's die voor deze N-poort zijn toegewezen, verschillen. Gebruik de statische kaartmethode als u dezelfde WWNs en WWNs voor de iSCSI-host moet verkrijgen telkens wanneer deze met de IPS-module wordt verbonden. Statische mapping kan worden gebruikt op de IPS-module voor toegang tot intelligente FC-opslagarrays met LUN-mapping (toegangscontrole en logische eenheden) en maskerende configuraties op basis van de WWN's of nWWN's van de initiator.

U kunt de toegang tot elk statistisch in kaart gebracht iSCSI-doel controleren door een specifieke lijst te maken van IPS-poorten waarop het doel wordt geadverteerd en door een lijst te maken met iSCSI-initiator-knooppunten die toegang tot dit doel hebben. Op FC zoning-gebaseerde toegangscontrole en op iSCSI gebaseerde toegangscontrole zijn de twee mechanismen waardoor toegangscontrole voor iSCSI kan worden geboden. Beide methoden kunnen gelijktijdig worden gebruikt. In deze configuratie is de standaardindeling voor specifieke VSAN's toegestaan. IPS-modules gebruiken zowel op iSCSI-knooppunt gebaseerde als op FC-indeling gebaseerde toegangscontrolelijsten om toegangscontrole tijdens de creatie van iSCSI-sessies af te dwingen.

- **iSCSI-detectie:** Wanneer een iSCSI-host een iSCSI-ontdekkingssessie en vragen voor alle iSCSI-doelstellingen creëert, retourneert de IPS-module alleen de lijst met iSCSI-doelen die deze iSCSI-host mag benaderen op basis van het toegangscontrolebeleid.
- **iSCSI-sessies:** Wanneer een IP-host een iSCSI-sessie initieert, verifieert de IPS-module of het gespecificeerde iSCSI-doel (in het sessielinlogverzoek) een statisch in kaart gebracht doel is, en indien dit waar is, verifieert zij of de iSCSI-knoopnaam van de IP-host het doel mag bereiken. Als de IP-host geen toegang heeft, wordt de inlognaam ervan afgewezen.

De IPS module maakt dan een FC virtuele N poort (de N poort kan al bestaan) voor deze IP host en doet een FC name server query voor de FCID van het FC target-WWN dat door de IP-host wordt benaderd. Het gebruikt de pWWN van de IP-host virtuele N-poort als de zoekopdracht van de nameserver. Zodoende doet de naamserver een zone-handhavingsvraag voor de pWWN en reageert de query. Als de FCID door de naamserver wordt teruggegeven, wordt de iSCSI-sessie geaccepteerd. Anders wordt de inlogaanvraag afgewezen.

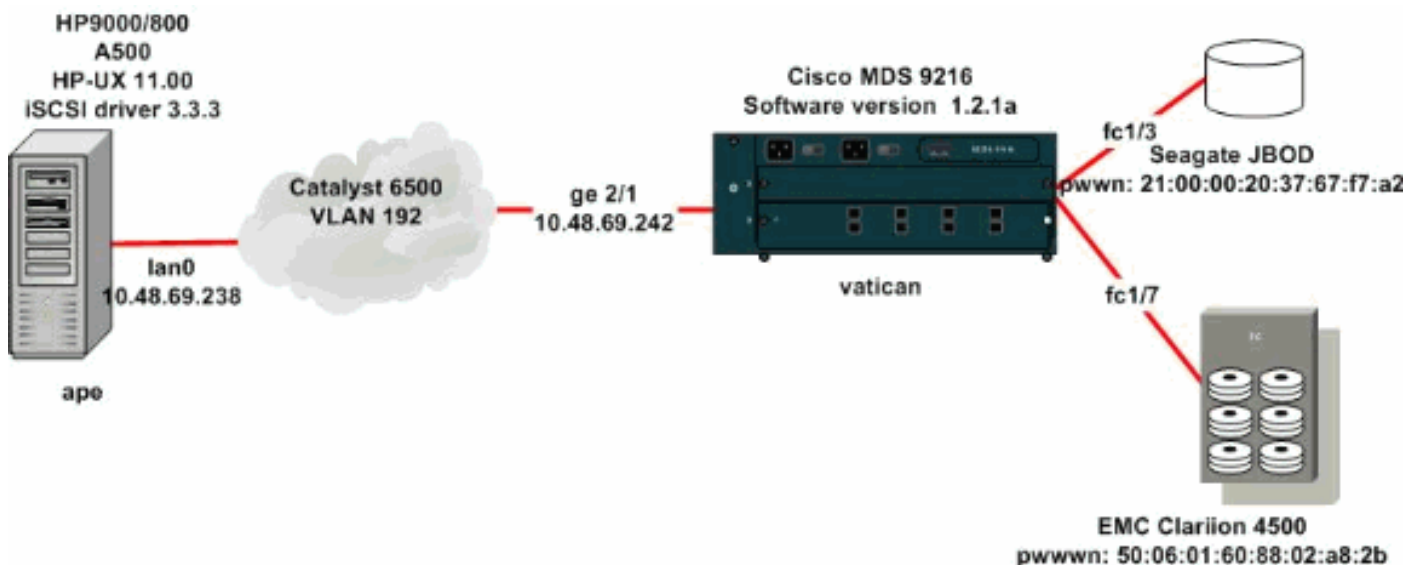
Configureren

In dit gedeelte krijgt u de informatie om de MDS 9216 en Cisco iSCSI-stuurprogramma voor Linux te configureren.

N.B.: Als u aanvullende informatie wilt vinden over de opdrachten die in dit document worden gebruikt, gebruikt u de [Cisco MDS 9000-reeks](#) en de [Cisco MDS 9000 Series softwareconfiguratiegids](#).

Netwerkdigram

Dit document gebruikt de netwerkinstellingen die in dit diagram worden weergegeven:



Configuratie

Dit document gebruikt de configuraties die hier worden weergegeven:

- April (HP 9000/800 A500 HP-UX 11.00)
- Vaticaan (MDS 9216)

April (HP 9000/800 A500 HP-UX 11.00)

On the HP-UX host only the file /etc/iscsi.conf has to be modified:

```
[/]# cat /etc/iscsi.conf
# iSCSI configuration file - see iscsi.conf(4)
# DiscoveryAddress Settings
# -----
# Add "DiscoveryAddress=xxx" entries for each iSCSI
router instance.
# The driver attempts to discover iSCSI targets at that
address
# and make as many targets as possible available for
use.
# 'xxx' can be an IP address or a hostname. A TCP port
number can be
# specified by appending a colon and the port number to
the address.
# All entries have to start in column one and must not
contain any
# whitespace.
#
# Example:
#
# DiscoveryAddress=scsirouter1
DiscoveryAddress=10.48.69.242

!--- Configure the IP address of the GE interface that
accepts iSCSI request from your host.

# The DiscoveryAddress Settings can take following
entry.
#
# 1) Authentication Settings
# 2) ConnectionTimeout Settings

!--- Other required driver parameters could be changed
in the iscsi.conf file.

.....

[/]# cat /etc/iscsi.bindings
# iSCSI bindings, file format version 1.0.
# NOTE: this file is automatically maintained by the
iSCSI daemon.
# You do not need to edit this file under most
circumstances.
# If iSCSI targets in this file have been permanently
deleted, you
# may wish to delete the bindings for the deleted
targets.
#
# Format:
# bus   target  iSCSI
# id    id      TargetName
#
[...]
```

0	10	seagate
0	11	spa-vt

!--- The iSCSI driver discovery daemon process looks up each discovered !--- target in the /etc/iscsi.bindings file. If an entry exists in the file for the target, !--

- the corresponding SCSI target ID is assigned to the target. If no entry !--- exists for the target, the smallest available SCSI target ID is assigned !--- and an entry is written to the /etc/iscsi.bindings file for this target. !--- Note that the /etc/iscsi.bindings file permanently contains entries !--- for all iSCSI targets ever logged into from this host. If a target is !--- no longer available to a host, you can manually edit the file and remove !--- entries so that the obsolete target no longer consumes a SCSI target ID. !--- If you know the iSCSI target name of a target in advance, and you want !--- it to be assigned a particular SCSI target ID, you can add an entry !--- manually. You must stop the iSCSI driver before editing the !--- /etc/iscsi.bindings file. The maximum number of targets is 14. !--- Enter [/]#**/sbin/init.d/iscsi** start to manually start the iSCSI driver.

!--- Enter [/]#**/sbin/init.d/iscsi** stop to manually stop the iSCSI driver.

Vaticaan (Cisco MDS 9216)

!--- If you are starting from the factory default configuration, you !--- need to setup the IP address and mask of the management interface. !--- This would normally be done during the initial setup . interface mgmt0 ip address 10.48.69.156 255.255.255.192 !--- In this configuration example, all the iSCSI targets are in a single vsan . vsan database vsan 1016 vsan 1016 interface fc1/3 vsan 1016 interface fc1/7 !--- These are the boot variables. boot system bootflash:/s111a boot kickstart bootflash:/k111a # Simple IP configuration ip domain-name cisco.com ip name-server 144.254.10.123 ip default-gateway 10.48.69.129 !--- Declare that the iSCSI initiator with the IP address of the host. # It belongs to the vsan of our choice iscsi authentication none iscsi initiator ip-address 10.48.69.238 vsan 1016 !--- Define the first virtual target, it is a JBOD. Identify the target !--- by its pWWN, advertise it on a GE interface, and allow access to the initiator. iscsi virtual-target name seagate pWWN 21:00:00:20:37:67:f7:a2 advertise interface GigabitEthernet2/1 initiator ip address 10.48.69.238 permit !--- The second target is a Clariion disk array. Since the maximum LUN number that you !--- can have under HP-UX without additional software is 7, define a mapping from FC LUN numbers !--- to the iSCSI LUN numbers you are going to present to the host. iscsi virtual-target name spa-vt pWWN 50:06:01:60:88:02:a8:2b fc-lun 0020 iscsi-lun 0003 pWWN 50:06:01:60:88:02:a8:2b fc-lun 0021 iscsi-lun 0004 advertise interface GigabitEthernet2/1 initiator ip address 10.48.69.238 permit !--- Permit access to the targets on the FC level. Create a simple zone configuration to do this. !--- Alternatively, you could have simply set the default zoning policy in vsan 1016 to permit. zone name jbod vsan 1016 member pwwn 21:00:00:20:37:67:f7:a2 member symbolic-nodename 10.48.69.238 zone name spa vsan 1016 member pwwn 50:06:01:60:88:02:a8:2b member symbolic-nodename 10.48.69.238 zoneset name iscsidoc vsan 1016 member jbod


```
member spa zoneset activate name iscsidoc vsan 1016 !---  
Set the IP address and mask of the GE interface and  
enable it. interface GigabitEthernet2/1 ip address  
10.48.69.242 255.255.255.192 iscsi authentication none  
no shutdown # Lastly we bring up the iSCSI interface up  
interface iscsi2/1 no shutdown
```

Verifiëren

Deze sectie verschaft informatie die u kunt gebruiken om te bevestigen dat uw configuratie correct werkt en probleemoplossing voor het geval u problemen opmerkt.

Bepaalde **show** opdrachten worden ondersteund door de [Opdrachtplanningtool](#) (alleen [geregistreerde](#) klanten), waarmee u een analyse van **show**-opdrachtoutput kunt bekijken.

HP-UX host-opdrachten

- **netstat-n** of **lsof-lof** verifieert de TCP verbindingen.
- **iscsi-ls**-toont de apparaten die momenteel beschikbaar zijn.
- **dmesg** verzamelt diagnostische berichten.

MDS/IPS-8 opdrachten

- **toon zone**—geeft zone informatie weer.
- **Flogi database** weergeven—geeft informatie over FLOGI server weer.
- **FCns database**-displays Naam Server informatie voor een specifiek VSAN
- **vsan lidmaatschap tonen**—geeft interfaceinformatie voor verschillende VSAN's weer.
- **TiSCSI**-geeft verschillende iSCSI-informatie weer.
- **toon IPS** - toont verschillende informatie over IP diensten.
- **SCSI-target-tonen** SCSI-apparaten voor specifieke VSAN's (voor het in kaart brengen van FC-LUN's aan iSCSI-LUN's).
- **toon interface**-toont informatie over verschillende interfaces.
- **Toon ip route**-toont IP routeinformatie.

Problemen oplossen

Deze sectie bevat informatie waarmee u problemen met de configuratie kunt oplossen.

Hier vindt u informatie over probleemoplossing die relevant is voor deze configuratie:

- Informatie van Ape (HP 9000/800 A500 HP-UX 11.00)
- Informatie over Vaticaan (MDS 9216)
- Fabric Manager- en apparaatbeheer

April (HP 9000/800 A500 HP-UX 11.00)

```
# /sbin/init.d/iscsi stop  
Waiting for iscsid to terminate .....  
Waiting for iscsid to terminate .....  
Waiting for iscsid to terminate .....
```

```
Waiting for iscsid to terminate .....
Waiting for iscsi_[tr]x_threads to terminate .....
```

```
[/]# /sbin/init.d/iscsi start
```

```
Number of indices in scsi_isc table used by System: 5
Index used by iSCSI controller: 255
Number of free indices: 251
[/]# netstat -n | grep '10.48.69.242'
tcp        0      0 10.48.69.238.49501 10.48.69.242.3260 ESTABLISHED
tcp        0      0 10.48.69.238.49500 10.48.69.242.3260 ESTABLISHED
tcp        0      0 10.48.69.238.49499 10.48.69.242.3260 ESTABLISHED
```

```
!--- If you have lsof, you can also try the following:
```

```
[/]# lsof -i @10.48.69.242
```

```
COMMAND PID USER  FD  TYPE          DEVICE SIZE/OFF NODE
NAME
iscsid  2836 root   lu  inet 0x41aa9268   0t1300 TCP
ape.cisco.com:49499->10.48.69.242:3260 (ESTABLISHED)
```

```
!--- Note that ioscan does not report iSCSI devices. To
see the list
!--- of available iSCSI devices from the host, issue the
iscsi-ls command.
```

```
[/]# iscsi-ls -l
```

```
#####
#####
```

```
TARGET NAME      = seagate
TARGET ID        = 10
ADDRESS          = 10.48.69.242:3260,128
STATUS           = CONNECTED 10.48.69.238:49501 <->
10.48.69.242:3260
                  9/19/2003 15:40:42
SESSION          = ISID 00023d000001 TSID 80

LUN      0      = DISK  c255t10d0  'SEAGATE
ST318203FC    0004'
                  BLOCKS : 35566479  BLOCKSIZE : 512
CAPACITY : 17366.00MB
```

```
#####
#####
```

```
TARGET NAME      = spa-vt
TARGET ID        = 11
ADDRESS          = 10.48.69.242:3260,128
STATUS           = CONNECTED 10.48.69.238:49500 <->
10.48.69.242:3260
                  9/19/2003 15:40:42
SESSION          = ISID 00023d000001 TSID 80

LUN      4      = DISK  c255t11d4  'DGC      RAID 1
0632'
                  BLOCKS : 6291419  BLOCKSIZE : 512
CAPACITY : 3071.00MB

LUN      3      = DISK  c255t11d3  'DGC      RAID 1
```

```
0632'
          BLOCKS : 10485607  BLOCKSIZE : 512
CAPACITY : 5119.00MB
```

!--- To see detailed statistics for currently established iSCSI sessions, use this:

```
[/]# iscsi-ls -c
```

```
#####
#####
```

```
TARGET NAME      = seagate
TARGET ID        = 10
ADDRESS          = 10.48.69.242:3260,128
STATUS           = CONNECTED 10.48.69.238:49501 <->
10.48.69.242:3260
                9/19/2003 15:40:42
SESSION          = ISID 00023d000001 TSID 80
InitialR2T      = Yes
FirstBurstLength = 262144 Bytes
MaxBurstLength  = 16776192 Bytes
Header Digest   = 1
Data Digest     = 1
Login Timeout   = 15 Seconds
Auth Timeout    = 45 Seconds
Active Timeout  = 5 Seconds
Idle Timeout    = 60 Seconds
Ping Timeout    = 5 Seconds
```

```
#####
#####
```

```
TARGET NAME      = spa-vt
TARGET ID        = 11
ADDRESS          = 10.48.69.242:3260,128
STATUS           = CONNECTED 10.48.69.238:49500 <->
10.48.69.242:3260
                9/19/2003 15:40:42
SESSION          = ISID 00023d000001 TSID 80
InitialR2T      = Yes
FirstBurstLength = 262144 Bytes
MaxBurstLength  = 16776192 Bytes
Header Digest   = 1
Data Digest     = 1
Login Timeout   = 15 Seconds
Auth Timeout    = 45 Seconds
Active Timeout  = 5 Seconds
Idle Timeout    = 60 Seconds
Ping Timeout    = 5 Seconds
```

!--- Here are some of the entries you can expect to find in the syslog: [/]# **dmesg**

```
[...]
iSCSI: session 0x4179b000 target 11 accepted the
preferred value (None) DataDigest=CRC32C
iSCSI: session 0x41a64800 target 10 accepted the
preferred value (None) DataDigest=CRC32C
iSCSI: Direct Access Device found at lun 3 on target 11
Vendor Id   : DGC
Product Id  : RAID 1
Product
Rev: 0632
iSCSI: Direct Access Device found at lun 0 on target 10
Vendor Id   : SEAGATE
Product Id  : ST318203FC
Product
Rev: 0004
```

```

iSCSI: Direct Access Device found at lun 4 on target 11
  Vendor Id   : DGC
  Product Id  : RAID 1
  Product
Rev: 0632
iSCSI: iscsi_recv_cmd: session (0x4179b000)
recv_cmd(sc) (0x41844800), Cmd 0x25, status 0x2,
  senselen 18, sense key 06, ASC/ASCQ 29/00,
task (0x40718b00) to (host 255 target 11 lun 3),
  TargetAlias spa-vt
  Sense 70000600 0000000a 00000000 29000000 0000

READ_CAPACITY result = 0x2 Target = 0xb LUN = 0x3
iSCSI: iscsi_recv_cmd: task (0x40718b00) itt 9 to (host
255 target 11 lun 3), Cmd 0x25,
  U(Overflow/Underflow) underflow, received
0(task->rxdata), residual 8, expected 8
iSCSI: iscsi_recv_cmd: session (0x4179b000)
recv_cmd(sc) (0x41844800), Cmd 0x25, status 0x2,
senselen 18,
  sense key 06, ASC/ASCQ 29/00, task
(0x40718c00) to (host 255 target 11 lun 4), TargetAlias
spa-vt
  Sense 70000600 0000000a 00000000 29000000 0000

READ_CAPACITY result = 0x2 Target = 0xb LUN = 0x4
iSCSI: iscsi_recv_cmd: task (0x40718c00) itt 11 to
(host 255 target 11 lun 4), Cmd 0x25,
  U(Overflow/Underflow) underflow, received
0(task->rxdata), residual 8, expected 8

```

Informatie over Vaticaan (MDS 9216)

```

vatican# show zone status vsan 1016
VSAN: 1016 default-zone: deny distribute: active only
Interop: Off
Full Zoning Database :
  Zonesets:1 Zones:3 Aliases: 0
Active Zoning Database :
  Name: iscsidoc Zonesets:1 Zones:3
Status: Activation completed at Wed Sep 17 13:03:56
2003

```

```

vatican# show zone active vsan 1016
zone name jbod vsan 1016
* fcid 0x7902e8 [pwn 21:00:00:20:37:67:f7:a2]
* fcid 0x790100 [symbolic-nodename 10.48.69.238]

zone name spa vsan 1016
* fcid 0x790104 [pwn 50:06:01:60:88:02:a8:2b]
* fcid 0x790100 [symbolic-nodename 10.48.69.238]

zone name spb vsan 1016
* fcid 0x790105 [pwn 50:06:01:68:88:02:a8:2b]
* fcid 0x790100 [symbolic-nodename 10.48.69.238]

```

```

vatican# show flogi database vsan 1016

```

```

-----
INTERFACE VSAN FCID PORT NAME
NODE NAME
-----
fc1/3 1016 0x7902e8 21:00:00:20:37:67:f7:a2

```

```
20:00:00:20:37:67:f7:a2
fc1/7      1016  0x790104  50:06:01:60:88:02:a8:2b
50:06:01:60:11:02:a8:2b
fc1/11     1016  0x790105  50:06:01:68:88:02:a8:2b
50:06:01:60:11:02:a8:2b
iscsi2/1   1016  0x790100  20:03:00:0c:30:57:5e:c2
20:02:00:0c:30:57:5e:c2
```

Total number of flogi = 4.

```
vatican# show fcns database vsan 1016
```

```
VSAN 1016:
```

```
-----
FCID          TYPE  PWWN                               (VENDOR)
FC4-TYPE:FEATURE
-----
0x790100      N     20:03:00:0c:30:57:5e:c2 (Cisco)
scsi-fcp:init isc..w
0x790104      N     50:06:01:60:88:02:a8:2b (Clariion)
scsi-fcp:target
0x790105      N     50:06:01:68:88:02:a8:2b (Clariion)
scsi-fcp:target
0x7902e8      NL    21:00:00:20:37:67:f7:a2 (Seagate)
scsi-fcp:target
Total number of entries = 4
```

--- FCID 0X790100 is the virtual N port(HBA) for the iSCSI host.

```
vatican# show fcns database detail vsan 1016
```

```
-----
VSAN:1016 FCID:0x790100
-----
```

```
port-wwn (vendor)      :20:03:00:0c:30:57:5e:c2 (Cisco)
node-wwn                :20:02:00:0c:30:57:5e:c2
class                   :2,3
node-ip-addr            :10.48.69.238
ipa                     :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:init iscsi-gw
symbolic-port-name     :
symbolic-node-name     :10.48.69.238
port-type               :N
port-ip-addr           :0.0.0.0
fabric-port-wwn        :20:41:00:0c:30:57:5e:c0
hard-addr               :0x000000
```

```
-----
VSAN:1016 FCID:0x790104
-----
```

```
port-wwn (vendor)      :50:06:01:60:88:02:a8:2b
(Clariion)
node-wwn                :50:06:01:60:11:02:a8:2b
class                   :3
node-ip-addr            :0.0.0.0
ipa                     :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:target
symbolic-port-name     :
symbolic-node-name     :
port-type               :N
port-ip-addr           :0.0.0.0
fabric-port-wwn        :20:07:00:0c:30:57:5e:c0
hard-addr               :0x000000
```

VSAN:1016 FCID:0x790105

port-wwn (vendor) :50:06:01:68:88:02:a8:2b
(Clariion)
node-wwn :50:06:01:60:11:02:a8:2b
class :3
node-ip-addr :0.0.0.0
ipa :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:target
symbolic-port-name :
symbolic-node-name :
port-type :N
port-ip-addr :0.0.0.0
fabric-port-wwn :20:0b:00:0c:30:57:5e:c0
hard-addr :0x000000

VSAN:1016 FCID:0x7902e8

port-wwn (vendor) :21:00:00:20:37:67:f7:a2
(Seagate)
node-wwn :20:00:00:20:37:67:f7:a2
class :3
node-ip-addr :0.0.0.0
ipa :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:target
symbolic-port-name :

symbolic-node-name :
port-type :NL
port-ip-addr :0.0.0.0
fabric-port-wwn :20:03:00:0c:30:57:5e:c0
hard-addr :0x000000

Total number of entries = 4

vatican# **show iscsi initiator**

iSCSI Node name is 10.48.69.238
iSCSI Initiator name: iqn.1987-
05.com.cisco.01.a06c4e2b8b247cadceb8af1a8474dale
iSCSI alias name: ape
Node WWN is 20:02:00:0c:30:57:5e:c2 (dynamic)
Member of vsans: 1016
Number of Virtual n_ports: 1
Virtual Port WWN is 20:03:00:0c:30:57:5e:c2
(dynamic)
Interface iSCSI 2/1, Portal group tag: 0x80
VSAN ID 1016, FCID 0x790100

vatican# **show iscsi initiator configured**

iSCSI Node name is 10.48.69.238
Member of vsans: 1016

vatican# **show iscsi initiator detail**

iSCSI Node name is 10.48.69.238
iSCSI Initiator name: iqn.1987-
05.com.cisco.01.a06c4e2b8b247cadceb8af1a8474dale
iSCSI alias name: ape
Node WWN is 20:02:00:0c:30:57:5e:c2 (dynamic)
Member of vsans: 1016
Number of Virtual n_ports: 1

Virtual Port WWN is 20:03:00:0c:30:57:5e:c2

```

(dynamic)
  Interface iSCSI 2/1, Portal group tag is 0x80
  VSAN ID 1016, FCID 0x790100
  2 FC sessions, 2 iSCSI sessions
  iSCSI session details
    Target: spa-vt
    Statistics:
      PDU: Command: 10, Response: 10
      Bytes: TX: 416, RX: 0
      Number of connection: 1
    TCP parameters
      Local 10.48.69.242:3260, Remote
10.48.69.238:49500
      Path MTU: 1500 bytes
      Retransmission timeout: 300 ms
      Round trip time: Smoothed 62 ms, Variance:
3
      Advertized window: Current: 256 KB,
Maximum: 256 KB, Scale: 3
      Peer receive window: Current: 576 KB,
Maximum: 576 KB, Scale: 4
      Congestion window: Current: 4 KB
    Target: seagate
    Statistics:
      PDU: Command: 4, Response: 4
      Bytes: TX: 304, RX: 0
      Number of connection: 1
    TCP parameters
      Local 10.48.69.242:3260, Remote
10.48.69.238:49501
      Path MTU: 1500 bytes
      Retransmission timeout: 300 ms
      Round trip time: Smoothed 62 ms, Variance:
3
      Advertized window: Current: 256 KB,
Maximum: 256 KB, Scale: 3
      Peer receive window: Current: 576 KB,
Maximum: 576 KB, Scale: 4
      Congestion window: Current: 4 KB

  FCP Session details
    Target FCID: 0x790104 (S_ID of this session:
0x790100)
      pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
      Session state: LOGGED_IN
      1 iSCSI sessions share this FC session
      Target: spa-vt
      Negotiated parameters
      RcvDataFieldSize 1024 our_RcvDataFieldSize
1392
      MaxBurstSize 0, EMPD: FALSE
      Random Relative Offset: FALSE, Sequence-in-
order: Yes
      Statistics:
      PDU: Command: 0, Response: 10
      Target FCID: 0x7902e8 (S_ID of this session:
0x790100)
      pWWN: 21:00:00:20:37:67:f7:a2, nWWN:
20:00:00:20:37:67:f7:a2
      Session state: LOGGED_IN
      1 iSCSI sessions share this FC session
      Target: seagate
      Negotiated parameters

```

```
RcvDataFieldSize 1392 our_RcvDataFieldSize
1392
MaxBurstSize 0, EMPD: FALSE
Random Relative Offset: FALSE, Sequence-in-
order: Yes
Statistics:
PDU: Command: 0, Response: 4

vatican# show iscsi initiator iscsi-session detail
iSCSI Node name is 10.48.69.238
iSCSI Initiator name: iqn.1987-
05.com.cisco.01.a06c4e2b8b247cadceb8af1a8474dale
iSCSI alias name: ape
Node WWN is 20:02:00:0c:30:57:5e:c2 (dynamic)
Member of vsans: 1016
Number of Virtual n_ports: 1
Virtual Port WWN is 20:03:00:0c:30:57:5e:c2
(dynamic)
Interface iSCSI 2/1, Portal group tag is 0x80
VSAN ID 1016, FCID 0x790100
2 FC sessions, 2 iSCSI sessions
iSCSI session details
Target: spa-vt
Statistics:
PDU: Command: 10, Response: 10
Bytes: TX: 416, RX: 0
Number of connection: 1
TCP parameters
Local 10.48.69.242:3260, Remote
10.48.69.238:49500
Path MTU: 1500 bytes
Retransmission timeout: 300 ms
Round trip time: Smoothed 62 ms, Variance:
2
Advertized window: Current: 256 KB,
Maximum: 256 KB, Scale: 3
Peer receive window: Current: 576 KB,
Maximum: 576 KB, Scale: 4
Congestion window: Current: 4 KB
Target: seagate
Statistics:
PDU: Command: 4, Response: 4
Bytes: TX: 304, RX: 0
Number of connection: 1
TCP parameters
Local 10.48.69.242:3260, Remote
10.48.69.238:49501
Path MTU: 1500 bytes
Retransmission timeout: 300 ms
Round trip time: Smoothed 62 ms, Variance:
2
Advertized window: Current: 256 KB,
Maximum: 256 KB, Scale: 3
Peer receive window: Current: 576 KB,
Maximum: 576 KB, Scale: 4
Congestion window: Current: 4 KB

vatican# show iscsi initiator fcp-session detail
iSCSI Node name is 10.48.69.238
iSCSI Initiator name: iqn.1987-
05.com.cisco.01.a06c4e2b8b247cadceb8af1a8474dale
iSCSI alias name: ape
Node WWN is 20:02:00:0c:30:57:5e:c2 (dynamic)
Member of vsans: 1016
```



```

Number of Virtual n_ports: 1
Virtual Port WWN is 20:03:00:0c:30:57:5e:c2
(dynamic)
  Interface iSCSI 2/1, Portal group tag is 0x80
  VSAN ID 1016, FCID 0x790100
  2 FC sessions, 2 iSCSI sessions
  FCP Session details
    Target FCID: 0x790104 (S_ID of this session:
0x790100)
      pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
      Session state: LOGGED_IN
      1 iSCSI sessions share this FC session
      Target: spa-vt
      Negotiated parameters
        RcvDataFieldSize 1024 our_RcvDataFieldSize
1392
        MaxBurstSize 0, EMPD: FALSE
        Random Relative Offset: FALSE, Sequence-in-
order: Yes
      Statistics:
        PDU: Command: 0, Response: 10
      Target FCID: 0x7902e8 (S_ID of this session:
0x790100)
        pWWN: 21:00:00:20:37:67:f7:a2, nWWN:
20:00:00:20:37:67:f7:a2
        Session state: LOGGED_IN
        1 iSCSI sessions share this FC session
        Target: seagate
        Negotiated parameters
          RcvDataFieldSize 1392 our_RcvDataFieldSize
1392
          MaxBurstSize 0, EMPD: FALSE
          Random Relative Offset: FALSE, Sequence-in-
order: Yes
        Statistics:
          PDU: Command: 0, Response: 4

vatican# show iscsi virtual-target configured
target: seagate
  * Port WWN 21:00:00:20:37:67:f7:a2
  === The "*" means you have both discovery and target
session. If there
  is no "*" in front of the pWWN, it means you only have
discovery session.
  Configured node
    No. of LU mapping: 1
      iSCSI LUN: 0000, FC LUN: 0000
    No. of advertised interface: 1
      GigabitEthernet 2/1
    No. of initiators permitted: 1
      initiator 10.48.69.238/32 is permitted
      all initiator permit is disabled
target: spa-vt
  * Port WWN 50:06:01:60:88:02:a8:2b
  Secondary PWWN 50:06:01:68:88:02:a8:2b
  Configured node
    No. of LU mapping: 2
      iSCSI LUN: 0003, FC LUN: 0020
      iSCSI LUN: 0004, FC LUN: 0021
    No. of advertised interface: 1
      GigabitEthernet 2/1
    No. of initiators permitted: 1
      initiator 10.48.69.238/32 is permitted

```

all initiator permit is disabled

vatican# **show iscsi stats iscsi 2/1**

iscsi2/1

5 minutes input rate 16 bits/sec, 2 bytes/sec, 0 frames/sec

5 minutes output rate 16 bits/sec, 2 bytes/sec, 0 frames/sec

iSCSI statistics

50932 packets input, 60370640 bytes

Command 3659 pdus, Data-out 41069 pdus, 56533832 bytes, 2476 fragments

output 115926 packets, 112863536 bytes

Response 3374 pdus (with sense 206), R2T 1897 pdus

Data-in 103999 pdus, 106404584 bytes

vatican# **show ips arp interface gigabitethernet 2/1**

Protocol	Address	Age (min)	Hardware Addr
----------	---------	-----------	---------------

Type	Interface
------	-----------

Internet	10.48.69.200	0	0008.e21e.c7bc
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.201	5	0202.3d30.45c9
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.206	5	0202.3d30.45ce
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.209	3	0202.3d30.45d1
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.226	2	0060.08f6.bc1a
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.229	4	0800.209e.edab
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.231	1	0002.b3c1.7dab
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.233	0	0010.4200.7d5b
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.238	0	0030.6e1b.6f51
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.239	10	0030.6e1c.a00b
----------	--------------	----	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.241	0	000b.cdaf.b4c3
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.248	4	0202.3d30.45f8
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.48.69.252	1	0202.3d30.45fc
----------	--------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

Internet	10.10.2.28	7	0202.3d0a.021c
----------	------------	---	----------------

ARPA	GigabitEthernet2/1
------	--------------------

vatican# **show ips stats tcp interface gigabitethernet 2/1 detail**

TCP Statistics for port GigabitEthernet2/1

TCP send stats

261205 segments, 117757220 bytes

140632 data, 51907 ack only packets

2655 control (SYN/FIN/RST), 0 probes, 2639 window updates

63382 segments retransmitted, 90885612 bytes

63382 retransmitted while on ethernet send queue, 1 packets split

13327 delayed acks sent

TCP receive stats

249073 segments, 72669 data packets in sequence, 61525764 bytes in sequence

```

2335 predicted ack, 68605 predicted data
0 bad checksum, 0 multi/broadcast, 0 bad offset
0 no memory drops, 0 short segments
4396 duplicate bytes, 205 duplicate packets
0 partial duplicate bytes, 0 partial duplicate
packets
0 out-of-order bytes, 2625 out-of-order packets
0 packet after window, 0 bytes after window
0 packets after close
80504 acks, 117762158 ack bytes, 0 ack toomuch,
96274 duplicate acks
0 ack packets left of snd_una, 7 non-4 byte
aligned packets
54199 window updates, 0 window probe
6343 pcb hash miss, 709 no port, 6 bad SYN, 0
paws drops
TCP Connection Stats
0 attempts, 2718 accepts, 2718 established
2716 closed, 15 drops, 0 conn drops
3 drop in retransmit timeout, 10 drop in
keepalive timeout
0 drop in persist drops, 0 connections drained
TCP Miscellaneous Stats
37062 segments timed, 41787 rtt updated
817 retransmit timeout, 1 persist timeout
22654 keepalive timeout, 22643 keepalive probes
TCP SACK Stats
0 recovery episodes, 0 data packets, 0 data bytes
0 data packets retransmitted, 0 data bytes
retransmitted
0 connections closed, 0 retransmit timeouts
TCP SYN Cache Stats
2720 entries, 2718 connections completed, 0
entries timed out
0 dropped due to overflow, 2 dropped due to RST
0 dropped due to ICMP unreachable, 0 dropped due to
bucket overflow
0 abort due to no memory, 2 duplicate SYN, 183
no-route SYN drop
0 hash collisions, 0 retransmitted
TCP Active Connections
Local Address      Remote Address     State
Send-Q  Recv-Q
10.48.69.242:3260  10.48.69.238:49499
ESTABLISH 0      0
10.48.69.242:3260  10.48.69.238:49500
ESTABLISH 0      0
10.48.69.242:3260  10.48.69.238:49501
ESTABLISH 0      0
0.0.0.0:3260      0.0.0.0:0
LISTEN 0      0
vatican# discover scsi-target local
discovery started

vatican# show scsi-target devices vsan 1016
-----
VSAN      FCID      PWWN      VENDOR
MODEL      REV
-----
1016      0x790104  50:06:01:60:88:02:a8:2b  DGC
RAID 0      0632
1016      0x7902e8  21:00:00:20:37:67:f7:a2  SEAGATE

```

```

ST318203FC          0004
vatican# show scsi-target lun vsan 1016

- RAID from DGC (Rev 0632)
FCID is 0x790104 in VSAN 1016, PWWN is
50:06:01:60:88:02:a8:2b
-----
-----
LUN      Capacity  Status  Serial Number  Device-Id
      (MB)
-----
-----
0x0      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
da:05:b6:a9:b6:9d:7b:00
C:1 A:0
T:0 00:00:00:00
0x1      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
6a:66:0d:74:cb:33:88:6c
C:1 A:0
T:0 00:01:00:00
0x2      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
ec:81:5b:a2:c4:43:0d:8a
C:1 A:0
T:0 00:02:00:00
0x3      2147      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
e0:47:b3:be:3b:00:e0:d5
C:1 A:0
T:0 00:03:00:00
0x4      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
00:51:5b:7f:3d:9a:7b:ce
C:1 A:0
T:0 00:04:00:00
0x5      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
ab:b1:ae:80:59:c0:fc:f0
C:1 A:0
T:0 00:05:00:00
0x6      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
ad:91:58:af:d2:fd:c7:47
C:1 A:0
T:0 00:06:00:00
0x7      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
bl:ef:e7:6c:44:5c:16:97
C:1 A:0
T:0 00:07:00:00
0x8      1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
84:4f:09:60:30:1e:fc:50

```

				C:1 A:0
T:0 00:08:00:00	0x9 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
aa:6d:e2:0e:ce:7a:cc:21				
				C:1 A:0
T:0 00:09:00:00	0xa 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
5b:66:67:89:6c:f2:d1:56				
				C:1 A:0
T:0 00:0a:00:00	0xb 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
a9:32:bd:04:4a:bb:3d:9b				
				C:1 A:0
T:0 00:0b:00:00	0xc 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
cd:d9:96:f7:57:3f:07:0c				
				C:1 A:0
T:0 00:0c:00:00	0xd 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
0c:e5:ba:39:68:ca:d6:f0				
				C:1 A:0
T:0 00:0d:00:00	0xe 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
60:6e:ee:76:98:fc:ab:97				
				C:1 A:0
T:0 00:0e:00:00	0xf 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
8b:58:80:7b:12:fb:6b:12				
				C:1 A:0
T:0 00:0f:00:00	0x10 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
a1:2f:6d:b0:c3:d6:c2:46				
				C:1 A:0
T:0 00:10:00:00	0x11 1074	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
2c:48:c4:74:25:4b:26:dd				
				C:1 A:0
T:0 00:11:00:00	0x20 5369	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				
ba:18:6a:40:22:40:94:75				
				C:1 A:0
T:0 00:20:00:00	0x21 3221	Online	f60004202091	C:1 A:0 T:3
60:06:01:60:88:02:a8:2b				

74:d2:42:9e:31:8d:ff:86

C:1 A:0

T:0 00:21:00:00

- ST318203FC from SEAGATE (Rev 0004)

FCID is 0x7902e8 in VSAN 1016, PWWN is

21:00:00:20:37:67:f7:a2

```
-----  
-----  
LUN      Capacity  Status  Serial Number  Device-Id  
      (MB)  
-----  
-----  
0x0      18210      Online  LRE8091500007039 C:1 A:0 T:3  
20:00:00:20:37:67:f7:a2
```

vatican# **show interface iscsi 2/1**

iscsi2/1 is up

Hardware is GigabitEthernet

Port WWN is 20:41:00:0c:30:57:5e:c0

Admin port mode is ISCSI

Port mode is ISCSI

Speed is 1 Gbps

iSCSI initiator is identified by name

Number of iSCSI session: 0, Number of TCP

connection: 0

Configured TCP parameters

Local Port is 3260

PMTU discover is enabled, reset timeout is 3600

sec

Keepalive-timeout is 60 sec

Minimum-retransmit-time is 300 ms

Max-retransmissions 4

Sack is disabled

Maximum allowed bandwidth is 500000 kbps

Minimum available bandwidth is 500000 kbps

Estimated round trip time is 10000 usec

5 minutes input rate 16 bits/sec, 2 bytes/sec, 0
frames/sec

5 minutes output rate 16 bits/sec, 2 bytes/sec, 0
frames/sec

iSCSI statistics

Input 50920 packets, 60370032 bytes

Command 3659 pdus, Data-out 41069 pdus,
56533832 bytes fragments 2476

Output 115914 packets, 112862928 bytes

Response 3374 pdus (with sense 206), R2T 1897
pdus

Data-in 103999 pdus, 106404584 bytes

vatican# **show interface gigabitethernet 2/1**

GigabitEthernet2/1 is up

Hardware is GigabitEthernet, address is
0005.3000.a85a

Internet address is 10.48.69.242/26

MTU 1500 bytes

Port mode is IPS

Speed is 1 Gbps

Beacon is turned off

Auto-Negotiation is turned on

iSCSI authentication: NONE

```
5 minutes input rate 440 bits/sec, 55 bytes/sec, 0
frames/sec
5 minutes output rate 80 bits/sec, 10 bytes/sec, 0
frames/sec
850346 packets input, 127958119 bytes
6488 multicast frames, 0 compressed
0 input errors, 0 frame, 0 overrun 0 fifo
289960 packets output, 201600774 bytes, 0 underruns
0 output errors, 0 collisions, 0 fifo
0 carrier errors

vatican# show ip route

Codes: C - connected, S - static

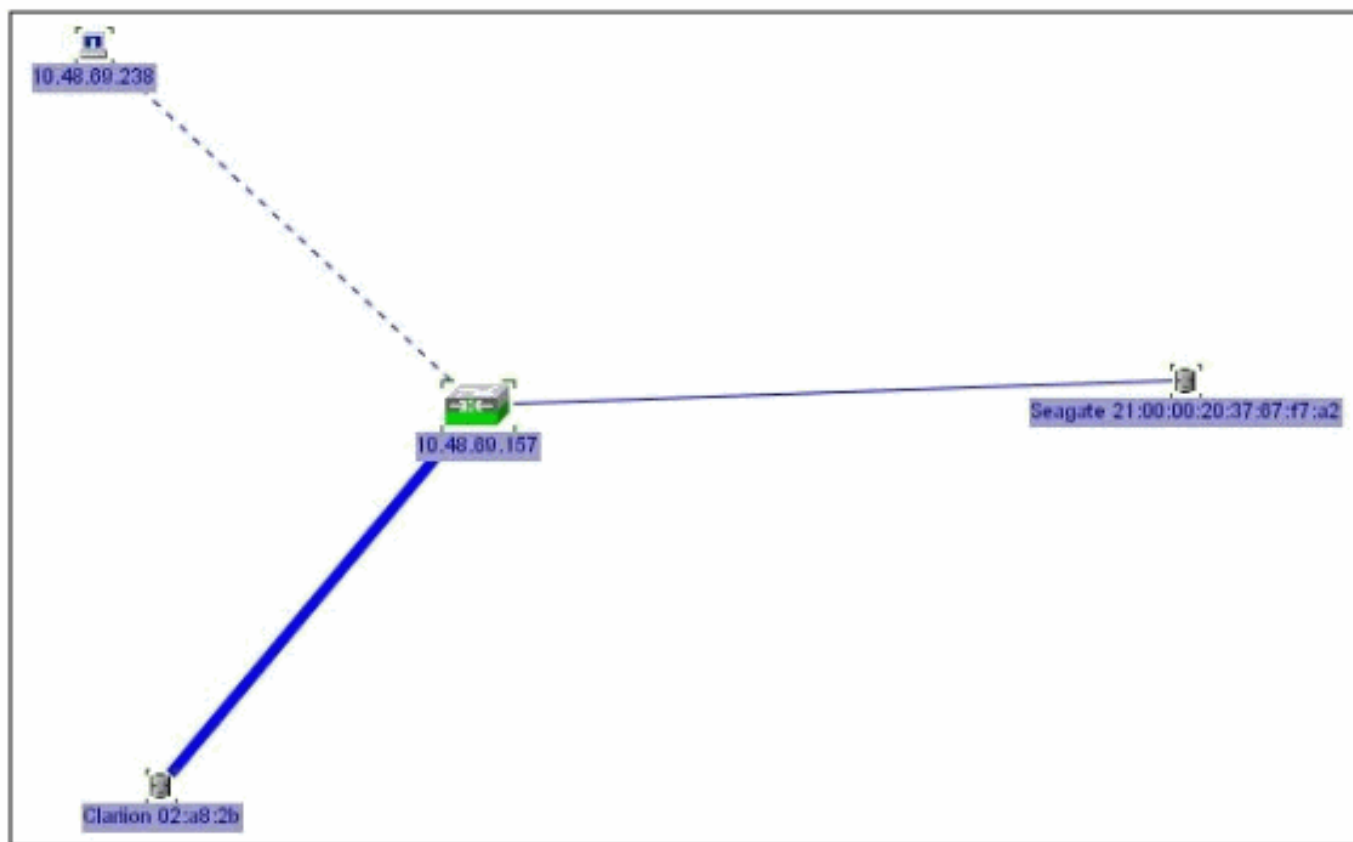
Default gateway is 10.48.69.129

C 10.48.69.192/26 is directly connected,
gigabitethernet2-1
C 10.48.69.128/26 is directly connected, mgmt0
```

Fabric Manager- en apparaatbeheer

Deze sectie verschaft schermopnamen van MDS Fabric Manager 1.2(1a) en Apparaatbeheer 1.2(1a).

Topologische diagram van Fabric Manager



Apparaatbeheer



Selecteer **FC** -> **LUN's** in Apparaatbeheer om de WWN's, LUN-id's en de capaciteit van uw LUN's weer te geven.

vatican - LUN

Discover Targets LUNs

VsanId, Port WWN	Id	Capacity (MB)	SerialNum
1016, Clariion 50:06:01:60:88:02:a8:2b	0x0	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x1	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x2	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x3	2147	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x4	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x5	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x6	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x7	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x8	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x9	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0xa	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0xb	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0xc	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0xd	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0xe	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0xf	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x10	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x11	1074	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x20	5369	f60004202091
1016, Clariion 50:06:01:60:88:02:a8:2b	0x21	3221	f60004202091
1016, Seagate 21:00:00:20:37:67:f7:a2	0x0	18210	LRE8091500007039HLT6

Refresh Help Close

21 row(s)

Selecteer IP > iSCSI in apparaatbeheer om de iSCSI-sessies weer te geven.

vatican - iSCSI

Initiators Targets Sessions Sessions Detail Session Statistics

Name or IpAddress	TargetName	Immediate Data	Ready To Transfer		Burst Size		Data InOrder		Connection Number	Recovery Level
			Initial	MaxOutstanding	First	Max	Sequence	PDU		
10.48.69.238		false	true	1	0	0	false	false	1	0
10.48.69.238	spa-vt	false	true	1	0	0	false	false	1	0
10.48.69.238	seagate	false	true	1	0	0	false	false	1	0

Refresh Help Close

Data retrieved at 17:49:36