

# iSCSI-host configureren naar MDS/IPS-8

## Inhoud

[Inleiding](#)

[Voorwaarden](#)

[Vereisten](#)

[Gebruikte componenten](#)

[Conventies](#)

[Achtergrondinformatie](#)

[Configureren](#)

[Netwerkdigram](#)

[Configuraties](#)

[Verifiëren](#)

[Problemen oplossen](#)

[Procedure voor probleemoplossing](#)

[Gerelateerde informatie](#)

## Inleiding

Cisco Small Computer Systems Interface over IP (iSCSI)-stuurprogramma's zijn een belangrijk onderdeel van de iSCSI-oplossing. Deze iSCSI-stuurprogramma's bevinden zich op de server, waar:

- iSCSI-opdrachten onderscheppen.
- Neem de opdrachten in IP-pakketten in.
- Richt de opdrachten terug naar Cisco SN 5420, Cisco SN 5428, Cisco SN 5428-2 of Cisco MDS/IPS-8.

Dit document biedt voorbeeldconfiguraties voor de Solaris iSCSI-host naar Cisco MDS/IPS-8.

## Voorwaarden

### Vereisten

Zorg ervoor dat u aan deze vereisten voldoet voordat u deze configuratie probeert:

- Installeer het iSCSI-stuurprogramma dat compatibel is met uw Solaris-versie en maak vervolgens de iSCSI-configuratie op Cisco MDS 9000. Raadpleeg [Cisco iSCSI-stuurprogramma's](#) (alleen [geregistreeerde](#) klanten) voor de huidige versie van het stuurprogramma (solaris-iscsi-3.3.5.tar.Z). Er is een bestand README.txt opgenomen in het ZIP-bestand (TR) van het stuurprogramma. Het bestand README.txt bevat: Informatie over licentieovereenkomst Installatie- en configuratie-instructies van het stuurprogramma Een

technisch overzicht van de bestuurdersarchitectuur

- Raadpleeg de sectie [Systeemvereisten in Cisco iSCSI-stuurprogramma voor Sun Solaris release Notes](#) voor het besturingssysteem en de patchvereisten.
- Het Cisco iSCSI-stuurprogramma voor Sun Solaris werkt alleen op SPARC-machines. De bestuurder werkt niet met andere processorotypen (bijvoorbeeld x86).

## Gebruikte componenten

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

- SunOS 5.9, SPARC Ultra-4 E450

```
#uname -a
```

```
SunOS baboon 5.9 Generic sun4u sparc SUNW,Ultra-4
```

- Cisco iSCSI-stuurprogramma 3.3.3 voor Solaris

```
#pkginfo -l CSCoiscsi
```

```
PKGINST: CSCoiscsi
NAME: Cisco iSCSI device driver
CATEGORY: system
ARCH: sparc
VERSION: 3.3.3
BASEDIR: /opt/CSCoiscsi
VENDOR: Cisco Systems, Inc.
DESC: Cisco iSCSI device driver 3.3.3
PSTAMP: solaris-920030807170521
INSTDATE: Aug 25 2003 23:41
HOTLINE: For contracted support, 1-800-553-2447,
Cisco Technical Assistance Center (TAC)
EMAIL: For online help, go to http://www.cisco.com/
STATUS: completely installed
FILES:      74 installed pathnames
          16 shared pathnames
          29 directories
          32 executables
          2182 blocks used (approx)
```

```
#iscsi-ls -v
```

```
iSCSI driver version: 3.3.3
```

- Cisco MDS 9216 met software release 1.1.2

```
canterbury#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	1.1(2)	1.0	20:01:00:0c:30:6c:24:40 to 20:10:00:0c:30:6c:24:40
2	1.1(2)	0.3	20:41:00:0c:30:6c:24:40 to 20:48:00:0c:30:6c:24:40

Mod	MAC-Address(es)	Serial-Num
1	00-0b-be-f8-7f-08 to 00-0b-be-f8-7f-0c	JAB070804QK
2	00-05-30-00-ad-e2 to 00-05-30-00-ad-ee	JAB070806SB

\* this terminal session

```
canterbury#show version
```

```
Cisco Storage Area Networking Operating System (SAN-OS) Software  
TAC support: http://www.cisco.com/tac  
Copyright (c) 2002-2003 by Cisco Systems, Inc. All rights reserved.  
The copyright for certain works contained herein are owned by  
Andiamo Systems, Inc. and/or other third parties and are used and  
distributed under license.
```

#### Software

```
BIOS:          version 1.0.7  
loader:        version 1.0(3a)  
kickstart:     version 1.1(2)  
system:        version 1.1(2)
```

```
BIOS compile time:      03/20/03  
kickstart image file is: bootflash:/k112  
kickstart compile time: 7/13/2003 20:00:00  
system image file is:   bootflash:/s112  
system compile time:    7/13/2003 20:00:00
```

#### Hardware

```
RAM 963112 kB
```

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

```
canterbury uptime is 16 days 20 hours 51 minute(s) 36 second(s)
```

```
Last reset at 684726 usecs after Mon Aug 11 13:53:17 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

Raadpleeg [Cisco Technical Tips Conventions \(Conventies voor technische tips van Cisco\) voor meer informatie over documentconventies.](#)

## Achtergrondinformatie

De IP-opslagmodule biedt toegang tot Fibre Channel (FC)-opslagapparaten. De IP-opslagmodule is een DS-X9308-SMIP die transparante iSCSI-routing biedt. IP-hosts die gebruik maken van het iSCSI-protocol kunnen op transparante wijze toegang krijgen tot iSCSI (FC Protocol [FCP])-doelstellingen op het FC-netwerk. De IP-host stuurt iSCSI-opdrachten die in iSCSI-protocolgegevenseenheden (PDU's) zijn ingesloten, naar een Cisco MDS 9000 IP-opslagpoort via een TCP/IP-verbinding. Gigabit Ethernet (GE) interfaces die correct zijn geconfigureerd op de IP-opslagmodule bieden connectiviteit. De IP-opslagmodule:

- hiermee kunt u virtuele iSCSI-doelstellingen maken en deze met fysieke FC-doelstellingen maken die in de FC SAN beschikbaar zijn
- Presence de FC-doelstellingen aan IP-hosts alsof de fysieke doeleinden lokaal aan het IP-netwerk zijn gekoppeld

Elke iSCSI-host die toegang tot opslag via de IP-opslagmodule vereist, moet een compatibel iSCSI-stuurprogramma hebben geïnstalleerd. Met het iSCSI-stuurprogramma kan een iSCSI-host iSCSI-verzoeken en -reacties via een IP-netwerk transporteren met het iSCSI-protocol. Vanuit het perspectief van een host-OS, lijkt het iSCSI-stuurprogramma een iSCSI-transportstuurprogramma te zijn, vergelijkbaar met een FC-stuurprogramma voor een perifeer kanaal in de host. Elke IP-host wordt vanuit het perspectief van het opslagapparaat als een FC-host weergegeven.

Voltooi deze stappen om iSCSI van de IP-host naar het FC-opslagapparaat te verzenden:

- iSCSI-transportverzoeken en -reacties via een IP-netwerk tussen hosts en de IP-opslagmodule.
- Gebruik de IP-opslagmodule om iSCSI-verzoeken en reacties tussen hosts op een IP-netwerk en het FC-opslagapparaat te verzenden (converteer iSCSI naar FCP en omgekeerd).
- FCP-verzoeken of reacties tussen de IP-opslagmodule en FC-opslagapparaten verzenden.

De IP-opslagmodule importeert geen FC-doelstellingen standaard voor iSCSI. U moet dynamische of statische mapping configureren, zodat de IP-opslagmodule FC-doelstellingen beschikbaar maakt voor iSCSI-initiators. Standaard automatisch in kaart gebrachte FC-doelen hebben een ingestelde naam wanneer beide zijn ingesteld. Deze configuratie biedt voorbeelden van statische mapping.

Elke keer dat de iSCSI-host zich met de IP-opslagmodule verbindt met dynamische mapping:

- Er wordt een nieuwe FC N-poort gecreëerd.
- De knooppunt van world wide name (nWWNs) en port wide name (pWWNs) die voor deze N poort worden toegewezen, kunnen verschillend zijn.

Gebruik de statische kaartmethode als u dezelfde WWNs en WWNs voor de iSCSI-host moet verkrijgen telkens wanneer deze met de IP-opslagmodule wordt verbonden. U kunt statische mapping op de IP opslagmodule gebruiken om intelligente FC-opslagarrays te gebruiken die:

- Toegangsbeheer
- Logical Unit number (LUN)-mapping en -maskering van de configuratie die gebaseerd zijn op de WWN's of nWWN's van de initiator

Specificeer deze items om de toegang tot elk statisch toegewezen iSCSI-doel te controleren:

- Een lijst van IP-opslagpoorten waarop ze worden geadverteerd
- Een lijst met knooppunten van iSCSI-initiator die toegang worden verleend

Op FC zoning-gebaseerde toegangscontrole en op iSCSI gebaseerde toegangscontrole zijn de twee mechanismen waardoor toegangscontrole voor iSCSI kan worden geboden. U kunt beide methoden tegelijkertijd gebruiken. Standaard zoning is in deze configuratie toegestaan voor een specifiek Virtual Storage Area Network (VSAN). IP-opslagmodules maken gebruik van zowel op iSCSI-knooppunt gebaseerde als op FC-indeling gebaseerde toegangscontrolelijsten om toegangscontrole af te dwingen tijdens het maken van iSCSI-sessie en iSCSI-sessie.

iSCSI-initiator kan statisch worden gedefinieerd door IP-adres of door iSCSI-gekwalificeerde naam (IQN). Een **proxy-initiator** optie maakt de dynamische creatie van iSCSI-initiators in SAN-IO 1.3 mogelijk voor Cisco MDS-switches.

iSCSI-detectie vindt plaats wanneer een iSCSI-host een iSCSI-ontdekkingssessie en vragen voor alle iSCSI-doelstellingen maakt. Met de IP-opslagmodule wordt alleen de lijst met iSCSI-doelstellingen teruggegeven die met het toegangscontroleregels de iSCSI-host kunnen bereiken.

iSCSI-sessie wordt gemaakt wanneer een IP-host een iSCSI-sessie initieert. De IP-opslagmodule

verifieert:

- Als het gespecificeerde iSCSI-doel (in de sessielogaanvraag) een statisch in kaart gebracht doel is
- Dat de naam van het iSCSI-knooppunt van de IP-host het doel mag bereiken

De inlognaam wordt verworpen als de IP-host geen toegang heeft.

Vervolgens de IP-opslagmodule:

- Maakt een FC virtuele N-poort (de N-poort kan al bestaan) voor deze IP-host
- Doet een FC-naamserver query voor de Fibre Channel ID (FCID) van het FC target-WWN dat de IP-host toegang krijgt

De IP-opslagmodule gebruikt de WWN van de IP-host virtuele N-poort als de vraagsteller van de naamserver. Zodoende doet de naamserver een zone-handhavingsvraag voor de pWWN en reageert de query. De iSCSI-sessie wordt geaccepteerd als de naamserver de FCID teruggeeft. Anders wordt de inlogaanvraag afgewezen.

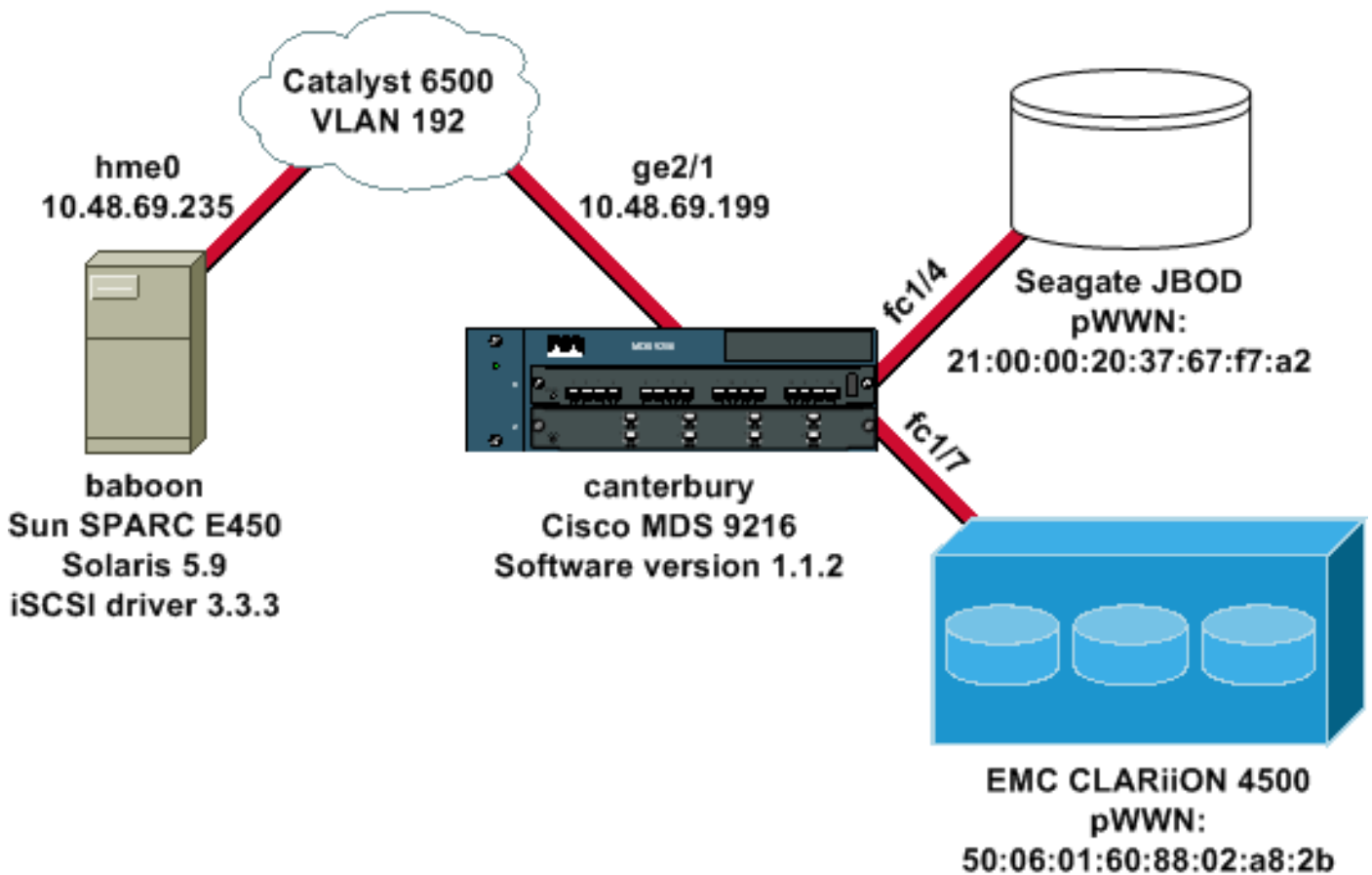
## [Configureren](#)

Deze sectie bevat informatie over het configureren van de functies die in dit document worden beschreven.

**N.B.:** Gebruik het [Opdrachtupgereedschap](#) ([alleen geregistreerde](#) klanten) om meer informatie te vinden over de opdrachten die in dit document worden gebruikt.

## [Netwerkdigram](#)

Het netwerk in dit document is als volgt opgebouwd:



## Configuraties

Dit document gebruikt deze configuraties:

- [baviaan \(SunOS 5.9, SPARC E450\)](#)
- [canterbury \(Cisco MDS 9216\)](#)

### **baviaan (SunOS 5.9, SPARC E450)**

U kunt deze bestanden op de Solaris-host wijzigen:

- /etc/iscsi.conf
- /etc/iscsi.bindings
- /kernel/drv/sd.conf

Dit is een voorbeeldconfiguratie-uitgang:

```
bash-2.05#cat /etc/iscsi.conf

# iSCSI configuration file - see iscsi.conf(4)

# DiscoveryAddress Settings
# -----
# Add "DiscoveryAddress=xxx" entries for each iSCSI
router instance.
# The driver will attempt 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=10.48.69.199
  !--- Configure the IP address of the GE interface that
accepts iSCSI !--- requests from your host. # The
DiscoveryAddress Settings can take following entry. # #
1) Authentication Settings # 2) ConnectionTimeout
Settings !--- Other required driver parameters can be
changed in the iscsi.conf file. !--- Output is
suppressed. bash-2.05#cat /etc/iscsi.bindings

# iSCSI bindings, file format version 1.0.
# NOTE: this file is automatically maintained by the
iSCSI daemon.
# You should 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      0        san-fc-jbod-1
0      1        clariion
0      2        clariion-lun-3-4-5
!--- The iSCSI driver discovery daemon process looks up
each discovered target !--- in the /etc/iscsi.bindings
file. !--- The corresponding iSCSI target ID is assigned
to the target if an entry exists in the file for the
target. !--- The smallest available iSCSI target ID !---
is assigned if no entry exists for the target, 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. !--- You can
manually edit the file and remove !--- entries so that
the obsolete target no longer consumes an iSCSI target
ID if a target is no longer available to a host. !---
Add an entry manually if you know the iSCSI target name
!--- in advance and want it to be assigned a particular
iSCSI target ID. !--- Stop the iSCSI driver before you
edit the /etc/iscsi.bindings !--- file. Issue the !---
/etc/init.d/iscsi start command to manually start the
iSCSI driver. !--- Issue the /etc/init.d/iscsi stop
command to manually stop the iSCSI driver.

bash-2.05#cat /kernel/drv/sd.conf

name="sd" class="scsi" class_prop="ataapi"
target=0 lun=0;

name="sd" class="scsi" target=1 lun=0;
name="sd" class="scsi" target=1 lun=1;
name="sd" class="scsi" target=1 lun=2;

# Start iSCSI auto-generated configuration -- do NOT
alter or delete this line
```

```

# You may need to add additional lines to probe for
additional LUNs
# or targets. You SHOULD delete any lines that represent
iSCSI targets
# or LUNs that are not used.
name="sd" parent="iscsi" target=0 lun=0;
name="sd" parent="iscsi" target=1 lun=0;
name="sd" parent="iscsi" target=1 lun=1;
name="sd" parent="iscsi" target=1 lun=2;
name="sd" parent="iscsi" target=2 lun=3;
name="sd" parent="iscsi" target=2 lun=4;
name="sd" parent="iscsi" target=2 lun=5;
name="sd" parent="iscsi" target=2 lun=0;

# End iSCSI auto-generated configuration -- do NOT alter
or delete this line

!--- The corresponding entries for these devices must
be made in the standard device configuration files !---
if the targets that get discovered by the iSCSI driver
at any point in time !--- do not have a corresponding
entry in the standard device configuration files (for
example, /kernel/drv/sd.conf or /kernel/drv/st.conf). !-
-- Then reboot the system and issue the standard Solaris
administrative commands !--- (devfsadm, drvconfig) once
the system comes up. !--- You do not need to reboot the
system if the entries in the device configuration files
are already present. However, the standard device
configuration !--- commands (devfsadm, drvconfig, and so
on) must be issued to configure the !--- new iSCSI
devices in the system.

```

## canterbury (Cisco MDS 9216)

```

!--- Output is suppressed. vsan database vsan 777 !---
VSAN 777 has been used for iSCSI targets. !--- Output is
suppressed. vsan database vsan 777 interface fc1/4 vsan
777 interface fc1/7 !--- Output is suppressed. boot
system bootflash:/s112 boot kickstart bootflash:/k112 ip
domain-name cisco.com ip name-server 144.254.10.123 ip
default-gateway 10.48.69.129 ip routing iscsi
authentication none iscsi initiator ip-address
10.48.69.235 !--- Identifies the iSCSI initiator based
on the IP address. A virtual N port is !--- created for
each network interface card (NIC) or network interface.
vsan 777 !--- VSAN 777 has been used for iSCSI targets.
Configure the initiator IP address. !--- Targets via
VSAN 777 are accessible by iSCSI initiators. iscsi
virtual-target name san-fc-jbod-1 pWWN
21:00:00:20:37:67:f7:a2 advertise interface
GigabitEthernet2/1 initiator ip address 10.48.69.235
permit !--- Create a static iSCSI virtual target for LUN
0, 1, and 2 of CLARiiON. iscsi virtual-target name
clariion pWWN 50:06:01:60:88:02:a8:2b fc-lun 0000 iscsi-
lun 0000 pWWN 50:06:01:60:88:02:a8:2b fc-lun 0001 iscsi-
lun 0001 pWWN 50:06:01:60:88:02:a8:2b fc-lun 0002 iscsi-
lun 0002 advertise interface GigabitEthernet2/1
initiator ip address 10.48.69.235 permit !--- Create a
static iSCSI virtual target for LUN 3, 4, and 5 of
CLARiiON. iscsi virtual-target name clariion-lun-3-4-5
pWWN 50:06:01:60:88:02:a8:2b fc-lun 0003 iscsi-lun 0003

```



```
pWWN 50:06:01:60:88:02:a8:2b fc-lun 0004 iscsi-lun 0004
pWWN 50:06:01:60:88:02:a8:2b fc-lun 0005 iscsi-lun 0005
advertise interface GigabitEthernet2/1 initiator ip
address 10.48.69.235 permit !--- Output is suppressed.
switchname canterbury !--- Output is suppressed. zone
default-zone permit vsan 777 !--- Output is suppressed.
interface GigabitEthernet2/1 ip address 10.48.69.199
255.255.255.192 iscsi authentication none switchport mtu
2156 no shutdown !--- Output is suppressed. interface
fc1/4 no shutdown !--- Output is suppressed. interface
fc1/7 no shutdown interface mgmt0 ip address
10.48.69.156 255.255.255.192 interface iscsi2/1 no
shutdown
```

## Verifiëren

Gebruik dit gedeelte om te bevestigen dat de configuratie correct werkt.

Het [Uitvoer Tolk](#) ([uitsluitend geregistreeerde](#) klanten) (OIT) ondersteunt bepaalde **show** opdrachten. Gebruik de OIT om een analyse van **tonen** opdrachtoutput te bekijken.

- **netstat -n** —Controleer de TCP verbindingen op de Solaris host.
- **iscsi-ls -l** —Toont de apparatuur die momenteel beschikbaar is op de Solaris-host.
- **Zonestatus tonen** —Geeft informatie over gebieden weer.
- **Fcns database vsan 777** —Geeft serverinformatie voor een specifieke VSAN weer.
- **Geeft flogi database vsan 777** —Toont fabric login (FLOGI) serverinformatie voor een specifieke VSAN.
- **Vsan lidmaatschap tonen** —Toont interface informatie voor verschillende VSAN's.
- **Cisco-initiator details tonen** —Toont informatie over iSCSI-initiator.
- **Sisi-initiator isi-sessiedetails tonen** gedetailleerde informatie voor de iSCSI-initiatorsessie.
- **Cisco-initiator fcp-sessiedetails tonen** gedetailleerde informatie voor de iSCSI-initiator FCP-sessie.
- **toon IPS stats tcp interface gigabitethernet 2/1 detail** —Toont TCP statistieken voor een specifieke GE interface.
- **Cisco virtueel-doel geconfigureerd tonen** —Toont iSCSI virtuele doelstellingen die zijn geconfigureerd op Cisco MDS 9000.
- **Cisco Initiator tonen** — geeft iSCSI-initiators weer die zijn geconfigureerd op Cisco MDS 9000.
- **toon IPS arp interface gigabitethernet 2/1** —Geeft IP opslagadresresolutie protocol (ARP) informatie weer voor een specifieke GE interface.
- **SCSI-doelapparaten tonen vsan 777** —Toont iSCSI-apparaten voor een specifieke VSAN (om FC-LUN's naar iSCSI-LUN's in kaart te brengen).
- **tonen in Cisco 2/1** —Toont iSCSI-interfaces.
- **Cisco status 2/1 tonen** —Toont iSCSI-statistieken.
- **toon in gigabitethernet 2/1** —Toont de GE interface.
- **Toon ip route** —Toont IP routeinformatie.

## Problemen oplossen

Gebruik dit gedeelte om de configuratie van het probleem op te lossen.

## Procedure voor probleemoplossing

- [babbelluitgang](#)
- [Cisco MDS 9216 uitvoer via canterbury](#)
- [Fabric Manager- en apparaatbeheer](#)

### **babbelluitgang**

```
bash-2.05# /etc/init.d/iscsi stop
```

```
iSCSI is stopping.  
Aug 28 09:42:08 baboon iscsimod: iSCSIs: closing  
connection to target 2 at 10.48.69.199  
Aug 28 09:42:08 baboon iscsimod: iSCSIs: closing  
connection to target 1 at 10.48.69.199  
Aug 28 09:42:08 baboon iscsimod: iSCSIs: closing  
connection to target 0 at 10.48.69.199
```

```
bash-2.05# /etc/init.d/iscsi start
```

```
iSCSI is starting.
```

```
bash-2.05# bash-2.05# netstat -n
```

```
TCP: IPv4  
Local Address Remote Address Swind Send-Q  
Rwind Recv-Q State  
-----  
-----  
10.48.69.235.32797 10.48.69.199.3260 65535 0  
49172 0 ESTABLISHED  
10.48.69.235.32798 10.48.69.199.3260 9379072 0  
263152 0 ESTABLISHED  
10.48.69.235.32799 10.48.69.199.3260 9379072 0  
263152 0 ESTABLISHED
```

```
Active UNIX domain sockets
```

```
Address Type Vnode Conn Local Addr  
Remote Addr  
30002d95c88 dgram 30000205828 00000000 /tmp/portal
```

```
/etc/iscsi.bindings
```

```
#  
0 0 san-fc-jbod-1  
0 1 clariion
```

```
bash-2.05# devfsadm
```

```
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0  
tgt 1 lun 0, Cmd 0x4d, Sense:  
Aug 28 09:45:04 baboon iscsimod: 70000500 0000000a  
00000000 20000000 0000  
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0  
tgt 1 lun 0, Cmd 0x5e, Sense:  
Aug 28 09:45:04 baboon iscsimod: 70000500 0000000a  
00000000 20000000 0000  
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0  
tgt 1 lun 1, Cmd 0x00, Sense:  
Aug 28 09:45:04 baboon iscsimod: 70000600 0000000a
```

```

00000000 29000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 1, Cmd 0x4d, Sense:
Aug 28 09:45:04 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 1, Cmd 0x5e, Sense:
Aug 28 09:45:04 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 2, Cmd 0x00, Sense:
Aug 28 09:45:04 baboon iscsimod:      70000600 0000000a
00000000 29000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 2, Cmd 0x4d, Sense:
Aug 28 09:45:04 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 2, Cmd 0x5e, Sense:
Aug 28 09:45:04 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:05 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 0 lun 0, Cmd 0x1c, Sense:
Aug 28 09:45:05 baboon iscsimod:      70000500 0000000a
00000000 35010300 0000

```

**bash-2.05# format output**

```

AVAILABLE DISK SELECTIONS:
    0. c0t0d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
       /pci@1f,4000/scsi@3/sd@0,0
    1. c0t1d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
       /pci@1f,4000/scsi@3/sd@1,0
    2. c3t0d0 <SEAGATE-ST318203FC-0004 cyl 9770 alt 2
hd 12 sec 303>
       /iscsipseudo/iscsi@0/sd@0,0
    3. c3t1d0 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
       /iscsipseudo/iscsi@0/sd@1,0
    4. c3t1d1 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
       /iscsipseudo/iscsi@0/sd@1,1
    5. c3t1d2 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
       /iscsipseudo/iscsi@0/sd@1,2
    6. c3t2d0 <drive not available>
       /iscsipseudo/iscsi@0/sd@2,0

```

*!--- After you add the clariion-lun-3-4-5 virtual target on the Cisco MDS 9216. /etc/iscsi.bindings*

```

0      0      san-fc-jbod-1
0      1      clariion
0      2      clariion-lun-3-4-5

```

**bash-2.05# netstat -n**

```

TCP: IPv4
  Local Address      Remote Address      Swind Send-Q
Rwind Recv-Q  State
-----
10.48.69.235.32797  10.48.69.199.3260  65535      0
49172      0 TIME_WAIT
10.48.69.235.32798  10.48.69.199.3260  9379072    0

```

```
263152      0 ESTABLISHED
10.48.69.235.32799  10.48.69.199.3260    9379072    0
263152      0 ESTABLISHED
10.48.69.235.32800  10.48.69.199.3260    65535      0
49108       0 ESTABLISHED
10.48.69.235.32801  10.48.69.199.3260    9379072    0
263152      0 ESTABLISHED
```

Active UNIX domain sockets

```
Address Type      Vnode      Conn      Local Addr
Remote Addr
30002d95c88 dgram      30000205828 00000000 /tmp/portal
```

**bash-2.05# devfsadm**

```
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 3, Cmd 0x00, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000600 0000000a
00000000 29000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 3, Cmd 0x4d, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 3, Cmd 0x5e, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 4, Cmd 0x00, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000600 0000000a
00000000 29000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 4, Cmd 0x5e, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 5, Cmd 0x00, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000600 0000000a
00000000 29000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 5, Cmd 0x4d, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 5, Cmd 0x5e, Sense:
Aug 28 09:47:58 baboon iscsimod:      70000500 0000000a
00000000 20000000 0000
```

And the **format** output:

```
0. c0t0d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
   /pci@1f,4000/scsi@3/sd@0,0
1. c0t1d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
   /pci@1f,4000/scsi@3/sd@1,0
2. c3t0d0 <SEAGATE-ST318203FC-0004 cyl 9770 alt 2
hd 12 sec 303>
   /iscsipseudo/iscsi@0/sd@0,0
3. c3t1d0 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
   /iscsipseudo/iscsi@0/sd@1,0
4. c3t1d1 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
   /iscsipseudo/iscsi@0/sd@1,1
5. c3t1d2 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
```

```
        /iscsipseudo/iscsi@0/sd@1,2
6. c3t2d0 <drive not available>
        /iscsipseudo/iscsi@0/sd@2,0
7. c3t2d3 <DGC-RAID0-0632 cyl 10920 alt 2 hd 3
sec 128>
        /iscsipseudo/iscsi@0/sd@2,3
8. c3t2d4 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
        /iscsipseudo/iscsi@0/sd@2,4
9. c3t2d5 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
        /iscsipseudo/iscsi@0/sd@2,5
!--- Issue the iscsi-ls -v command to see iSCSI driver
version.
```

```
bash-2.05# iscsi-ls -v
```

```
iSCSI driver version: 3.3.3
!--- Issue the iscsi-ls -l or iscsi-ls commands to see
the devices that are currently available.
```

```
bash-2.05# iscsi-ls -l
```

```
*****
*****
TARGET NAME san-fc-jbod-1
TARGET ID 0:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS = Connected 10.48.69.235:32798<-
>10.48.69.199:3260 8/28/2003 09:43:59
  SESSION = ISID 00023d000001 TSID 128 PID 463
  LUN 0 = DISK c3t0d0 (sd296) 'SEAGATE-ST318203FC-
0004' SERIAL# LRE80915
  BLOCKS: 35566479 BLOCK SIZE: 512
*****
*****
TARGET NAME clariion
TARGET ID 1:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS = Connected 10.48.69.235:32799<-
>10.48.69.199:3260 8/28/2003 09:43:59
  SESSION = ISID 00023d000001 TSID 128 PID 464
  LUN 0 = DISK c3t1d0 (sd297) 'DGC-RAID 0-0632'
SERIAL# 008E080000CL
  BLOCKS: 2097023 BLOCK SIZE: 512
  LUN 1 = DISK c3t1d1 (sd298) 'DGC-RAID 0-0632'
SERIAL# 0127AB0000CL
  BLOCKS: 2097023 BLOCK SIZE: 512
  LUN 2 = DISK c3t1d2 (sd299) 'DGC-RAID 0-0632'
SERIAL# 02E4180000CL
  BLOCKS: 2097023 BLOCK SIZE: 512
*****
*****
TARGET NAME clariion-lun-3-4-5
TARGET ID 2:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS = Connected 10.48.69.235:32801<-
>10.48.69.199:3260 8/28/2003 09:46:42
  SESSION = ISID 00023d000001 TSID 128 PID 482
  LUN 0 : SCSI Inquiry failed - Bad file number
  LUN 3 = DISK c3t2d3 (sd371) 'DGC-RAID 0-0632'
SERIAL# 03E0A1E330CL
  BLOCKS: 4194047 BLOCK SIZE: 512
  LUN 4 = DISK c3t2d4 (sd372) 'DGC-RAID 0-0632'
```

```
SERIAL# 04E9A1E330CL
      BLOCKS: 2097023  BLOCK SIZE: 512
LUN   5 = DISK c3t2d5 (sd373) 'DGC-RAID 0-0632'
SERIAL# 0594B1E330CL
      BLOCKS: 2097023  BLOCK SIZE: 512
*****
*****
!-- Issue the iscsi-ls -c command to see detailed
statistics for currently established iSCSI sessions.

bash-2.05# iscsi-ls -c

*****
*****
TARGET NAME san-fc-jbod-1
TARGET ID 0:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS  = Connected 10.48.69.235:32798<-
>10.48.69.199:3260 8/28/2003 09:43:59
  SESSION = ISID 00023d000001 TSID 128  PID 463
  InitialR2T          = Yes
  MaxRecvDataSegmentLength = 131072 Bytes
  MaxXmitDataSegmentLength = 2048 Bytes
  FirstBurstLength    = 262144 Bytes
  MaxBurstLength      = 16776192 Bytes
  LoginTimeout        = 15 Seconds
  AuthTimeout         = 45 Seconds
  ActiveTimeout       = 5 Seconds
  IdleTimeout         = 60 Seconds
  PingTimeout         = 5 Seconds
  HeaderDigest        = None
  DataDigest          = None
  ConnFailTimeout     = Default
  MultiPath           = None
*****
*****
TARGET NAME clariion
TARGET ID 1:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS  = Connected 10.48.69.235:32799<-
>10.48.69.199:3260 8/28/2003 09:43:59
  SESSION = ISID 00023d000001 TSID 128  PID 464
  InitialR2T          = Yes
  MaxRecvDataSegmentLength = 131072 Bytes
  MaxXmitDataSegmentLength = 2048 Bytes
  FirstBurstLength    = 262144 Bytes
  MaxBurstLength      = 16776192 Bytes
  LoginTimeout        = 15 Seconds
  AuthTimeout         = 45 Seconds
  ActiveTimeout       = 5 Seconds
  IdleTimeout         = 60 Seconds
  PingTimeout         = 5 Seconds
  HeaderDigest        = None
  DataDigest          = None
  ConnFailTimeout     = Default
  MultiPath           = None
*****
*****
TARGET NAME clariion-lun-3-4-5
TARGET ID 2:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS  = Connected 10.48.69.235:32801<-
>10.48.69.199:3260 8/28/2003 09:46:42
  SESSION = ISID 00023d000001 TSID 128  PID 482
```

```

InitialR2T           = Yes
MaxRecvDataSegmentLength = 131072 Bytes
MaxXmitDataSegmentLength = 2048 Bytes
FirstBurstLength     = 262144 Bytes
MaxBurstLength       = 16776192 Bytes
LoginTimeout         = 15 Seconds
AuthTimeout          = 45 Seconds
ActiveTimeout        = 5 Seconds
IdleTimeout          = 60 Seconds
PingTimeout          = 5 Seconds
HeaderDigest         = None
DataDigest           = None
ConnFailTimeout      = Default
MultiPath            = None
*****
*****
!--- You can see these iSCSI connections in the
/var/adm/messages or dmesg:

Aug 28 09:43:59 baboon iscsid[454]: [ID 702911
daemon.notice]
    version 3.3.3 ( 7-Aug-2003)
Aug 28 09:43:59 baboon iscsid[463]: [ID 702911
daemon.notice]
    iSCSI normal session to san-fc-jbod-1 established
Aug 28 09:43:59 baboon iscsid[463]: [ID 702911
daemon.notice]
    logged into target san-fc-jbod-1 -- id 0, Initiator
sid 00023d000001, target sid 128
Aug 28 09:43:59 baboon iscsid[464]: [ID 702911
daemon.notice]
    iSCSI normal session to clariion established
Aug 28 09:43:59 baboon iscsid[464]: [ID 702911
daemon.notice]
    logged into target clariion -- id 1, Initiator sid
00023d000001, target sid 128
Aug 28 09:45:23 baboon iscsi: [ID 318680 kern.notice]
NOTICE:
    tran_start disabled to bus 0, target 2, lun 0
Aug 28 09:46:42 baboon iscsid[482]: [ID 702911
daemon.notice]
    iSCSI normal session to clariion-lun-3-4-5
established
Aug 28 09:46:42 baboon iscsid[482]: [ID 702911
daemon.notice]
    logged into target clariion-lun-3-4-5 -- id 2,
Initiator sid 00023d000001,
target sid 128

```

## Cisco MDS 9216 uitvoer via canterbury

```

canterbury#show zone status

VSAN: 1 default-zone: permit distribute: active only
Interop: Off
Full Zoning Database :
    Zonesets:0 Zones:0 Aliases: 0
Active Zoning Database :
    Database Not Available
Status: Deactivation completed at Fri Aug 22 11:47:53
2003

VSAN: 777 default-zone: permit distribute: active only

```

```
Interop: Off.
Full Zoning Database :
  Zonesets:0 Zones:0 Aliases: 0
Active Zoning Database :
  Database Not Available
Status: Default zoning policy changed to permit at Mon
Aug 25 20:19:31 2003
!--- VSAN 777 has been used for this configuration, and
default-zone behavior has been !--- set to permit.
canterbury#show flogi da vsan 777
```

```
-----
INTERFACE  VSAN    FCID                PORT NAME
NODE NAME
-----
fc1/4      777    0x7000e8  21:00:00:20:37:67:f7:a2
20:00:00:20:37:67:f7:a2
fc1/7      777    0x700103  50:06:01:60:88:02:a8:2b
50:06:01:60:11:02:a8:2b
iscsi2/1   777    0x700100  21:02:00:0c:30:6c:24:42
21:01:00:0c:30:6c:24:42
```

Total number of flogi = 3.

```
canterbury#show fcns database vsan 777
```

```
VSAN 777:
```

```
-----
FCID        TYPE  PWWN                (VENDOR)
FC4-TYPE:FEATURE
-----
0x7000e8    NL    21:00:00:20:37:67:f7:a2 (Seagate)
scsi-fcp:target
0x700100    N     21:02:00:0c:30:6c:24:42 (Cisco)
scsi-fcp:init isc..w
0x700103    N     50:06:01:60:88:02:a8:2b (Clariion)
scsi-fcp:target
```

Total number of entries = 3

```
!--- FCID 0X700100 is the virtual N port (HBA) for the
iSCSI host. canterbury#show fcns database detail vsan
777
```

```
-----
VSAN:777    FCID:0x7000e8
-----
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        :20:04:00:0c:30:6c:24:40
hard-addr              :0x000000
-----
VSAN:777    FCID:0x700100
```



```
-----
port-wwn (vendor)      :21:02:00:0c:30:6c:24:42 (Cisco)
node-wwn               :21:01:00:0c:30:6c:24:42
class                  :2,3
node-ip-addr           :10.48.69.235
ipa                    :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:init iscsi-gw
!--- Virtual N port for host. symbolic-port-name :
symbolic-node-name    :10.48.69.235 port-type :N port-ip-
addr :0.0.0.0 fabric-port-wwn :20:41:00:0c:30:6c:24:40
hard-addr :0x000000 ----- VSAN:777
FCID:0x700103 ----- 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:30:6c:24:40 hard-addr
:0x000000 Total number of entries = 3 canterbury#show
vsan membership
```

```
vsan 777 interfaces:
    fc1/4  fc1/7
```

**canterbury#show iscsi initiator**

```
iSCSI Node name is 10.48.69.235
  iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
  iSCSI alias name: baboon
  Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
  Member of vsans: 777
  Number of Virtual n_ports: 1
  Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
  Interface iSCSI 2/1, Portal group tag: 0x80
  VSAN ID 777, FCID 0x700100
```

**canterbury#show iscsi initiator detail**

```
iSCSI Node name is 10.48.69.235
  iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
  iSCSI alias name: baboon
  Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
  Member of vsans: 777
  Number of Virtual n_ports: 1

  Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
  Interface iSCSI 2/1, Portal group tag is 0x80
  VSAN ID 777, FCID 0x700100
  2 FC sessions, 3 iSCSI sessions
  iSCSI session details
    Target: san-fc-jbod-1
    Statistics:
      PDU: Command: 24, Response: 24
      Bytes: TX: 3504, RX: 0
      Number of connection: 1
    TCP parameters
      Local 10.48.69.199:3260, Remote
10.48.69.235:32798
      Path MTU: 1500 bytes
      Retransmission timeout: 300 ms
```

```
Round trip time: Smoothed 4 ms, Variance: 6
  Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
  Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
  Congestion window: Current: 11 KB
Target: clariion-lun-3-4-5
  Statistics:
  PDU: Command: 73, Response: 73
  Bytes: TX: 9740, RX: 0
  Number of connection: 1
  TCP parameters
  Local 10.48.69.199:3260, Remote
10.48.69.235:32801
  Path MTU: 1500 bytes
  Retransmission timeout: 300 ms
  Round trip time: Smoothed 7 ms, Variance: 13
  Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
  Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
  Congestion window: Current: 11 KB
Target: clariion
  Statistics:
  PDU: Command: 101, Response: 101
  Bytes: TX: 14828, RX: 0
  Number of connection: 1
  TCP parameters
  Local 10.48.69.199:3260, Remote
10.48.69.235:32799
  Path MTU: 1500 bytes
  Retransmission timeout: 300 ms
  Round trip time: Smoothed 2 ms, Variance: 1
  Advertised window: Current: 256 KB, Maximum:
257 KB, Scale: 3
  Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
  Congestion window: Current: 11 KB

  FCP Session details
  Target FCID: 0x7000e8 (S_ID of this session:
0x700100)
  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: san-fc-jbod-1
  Negotiated parameters
  RcvDataFieldSize 2048 our_RcvDataFieldSize
2048
  MaxBurstSize 0, EMPD: FALSE
  Random Relative Offset: FALSE, Sequence-in-
order: Yes
  Statistics:
  PDU: Command: 0, Response: 24
  Target FCID: 0x700103 (S_ID of this session:
0x700100)
  pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
  Session state: LOGGED_IN
  2 iSCSI sessions share this FC session
  Target: clariion-lun-3-4-5
  Target: clariion
  Negotiated parameters
```

```
RcvDataFieldSize 1024 our_RcvDataFieldSize
2048
    MaxBurstSize 0, EMPD: FALSE
    Random Relative Offset: FALSE, Sequence-in-
order: Yes
    Statistics:
        PDU: Command: 0, Response: 174

canterbury#show iscsi initiator iscsi-session detail

iSCSI Node name is 10.48.69.235
    iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
    iSCSI alias name: baboon
    Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
    Member of vsans: 777
    Number of Virtual n_ports: 1

    Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
    Interface iSCSI 2/1, Portal group tag is 0x80
    VSAN ID 777, FCID 0x700100
    2 FC sessions, 3 iSCSI sessions
    iSCSI session details
        Target: san-fc-jbod-1
        Statistics:
            PDU: Command: 24, Response: 24
            Bytes: TX: 3504, RX: 0
            Number of connection: 1
        TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32798
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 4 ms, Variance: 6
            Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
            Congestion window: Current: 11 KB
        Target: clariion-lun-3-4-5
        Statistics:
            PDU: Command: 73, Response: 73
            Bytes: TX: 9740, RX: 0
            Number of connection: 1
        TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32801
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 7 ms, Variance: 13
            Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
            Congestion window: Current: 11 KB
        Target: clariion
        Statistics:
            PDU: Command: 101, Response: 101
            Bytes: TX: 14828, RX: 0
            Number of connection: 1
        TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32799
```

```
Path MTU: 1500 bytes
Retransmission timeout: 300 ms
Round trip time: Smoothed 2 ms, Variance: 1
Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
Congestion window: Current: 11 KB
```

canterbury#**show iscsi initiator fcp-session detail**

```
iSCSI Node name is 10.48.69.235
  iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
  iSCSI alias name: baboon
  Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
  Member of vsans: 777
  Number of Virtual n_ports: 1

  Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
  Interface iSCSI 2/1, Portal group tag is 0x80
  VSAN ID 777, FCID 0x700100
  2 FC sessions, 3 iSCSI sessions

  FCP Session details
  Target FCID: 0x7000e8 (S_ID of this session:
0x700100)
    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: san-fc-jbod-1
    Negotiated parameters
    RcvDataFieldSize 2048 our_RcvDataFieldSize
2048
    MaxBurstSize 0, EMPD: FALSE
    Random Relative Offset: FALSE, Sequence-in-
order: Yes
    Statistics:
    PDU: Command: 0, Response: 24
  Target FCID: 0x700103 (S_ID of this session:
0x700100)
    pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
    Session state: LOGGED_IN
    2 iSCSI sessions share this FC session
    Target: clariion-lun-3-4-5
    Target: clariion
    Negotiated parameters
    RcvDataFieldSize 1024 our_RcvDataFieldSize
2048
    MaxBurstSize 0, EMPD: FALSE
    Random Relative Offset: FALSE, Sequence-in-
order: Yes
    Statistics:
    PDU: Command: 0, Response: 174
```

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

```
TCP Statistics for port GigabitEthernet2/1
TCP send stats
  28621 segments, 4231096 bytes
```

```

15842 data, 12335 ack only packets
168 control (SYN/FIN/RST), 0 probes, 210 window
updates
  66 segments retransmitted, 63724 bytes
  66 retransmitted while on ethernet send queue,
1127 packets split
  480 delayed acks sent
TCP receive stats
  36728 segments, 12911 data packets in sequence,
2668162 bytes in sequence
  0 predicted ack, 12050 predicted data
  0 bad checksum, 0 multi/broadcast, 0 bad offset
  0 no memory drops, 0 short segments
  48 duplicate bytes, 1 duplicate packets
  0 partial duplicate bytes, 0 partial duplicate
packets
  0 out-of-order bytes, 164 out-of-order packets
  0 packet after window, 0 bytes after window
  0 packets after close
  12621 acks, 3486850 ack bytes, 0 ack toomuch,
11652 duplicate acks
  0 ack packets left of snd_una, 6 non-4 byte
aligned packets
  8333 window updates, 0 window probe
  624 pcb hash miss, 79 no port, 0 bad SYN, 0 paws
drops
  TCP Connection Stats
    0 attempts, 231 accepts, 231 established
    227 closed, 14 drops, 0 conn drops
    0 drop in retransmit timeout, 2 drop in keepalive
timeout
    0 drop in persist drops, 0 connections drained
  TCP Miscellaneous Stats
    11761 segments timed, 12027 rtt updated
    51 retransmit timeout, 304 persist timeout
    10452 keepalive timeout, 10450 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
    233 entries, 231 connections completed, 1 entries
timed out
  0 dropped due to overflow, 1 dropped due to RST
  0 dropped due to ICMP unreachable, 0 dropped due to
bucket overflow
  0 abort due to no memory, 4 duplicate SYN, 76 no-
route SYN drop
  0 hash collisions, 0 retransmitted

  TCP Active Connections
    Local Address      Remote Address      State
Send-Q  Recv-Q
  10.48.69.199:3260    10.48.69.235:32798
ESTABLISH 0      0
  10.48.69.199:3260    10.48.69.235:32799
ESTABLISH 0      0
  10.48.69.199:3260    10.48.69.235:32800
ESTABLISH 0      0
  10.48.69.199:3260    10.48.69.235:32801
ESTABLISH 0      0
  0.0.0.0:3260         0.0.0.0:0          LISTEN
0      0

```

```
canterbury#show iscsi virtual-target configured
```

```
target: san-fc-jbod-1
```

```
* Port WWN 21:00:00:20:37:67:f7:a2
```

```
!--- The * means that you have both discovery and target sessions. !--- You only have a discovery session if there is no * in front of the pWWN.
```

```
Configured node
```

```
No. of advertised interface: 1
```

```
GigabitEthernet 2/1
```

```
No. of initiators permitted: 3
```

```
initiator iqn.1987-
```

```
05.com.cisco.02.89451e183581.mcandegew2k1 is permitted
```

```
initiator 10.48.69.235/32 is permitted
```

```
initiator 10.48.69.232/32 is permitted
```

```
all initiator permit is disabled
```

```
target: clariion
```

```
* Port WWN 50:06:01:60:88:02:a8:2b
```

```
Configured node
```

```
No. of LU mapping: 3
```

```
iSCSI LUN: 0000, FC LUN: 0000
```

```
iSCSI LUN: 0001, FC LUN: 0001
```

```
iSCSI LUN: 0002, FC LUN: 0002
```

```
No. of advertised interface: 1
```

```
GigabitEthernet 2/1
```

```
No. of initiators permitted: 1
```

```
initiator 10.48.69.235/32 is permitted
```

```
all initiator permit is disabled
```

```
target: clariion-lun-3-4-5
```

```
* Port WWN 50:06:01:60:88:02:a8:2b
```

```
Configured node
```

```
No. of LU mapping: 3
```

```
iSCSI LUN: 0003, FC LUN: 0003
```

```
iSCSI LUN: 0004, FC LUN: 0004
```

```
iSCSI LUN: 0005, FC LUN: 0005
```

```
No. of advertised interface: 1
```

```
GigabitEthernet 2/1
```

```
No. of initiators permitted: 1
```

```
initiator 10.48.69.235/32 is permitted
```

```
all initiator permit is disabled
```

```
canterbury#show iscsi initiator configured
```

```
iSCSI Node name is 10.48.69.235
```

```
Member of vsans: 777
```

```
canterbury#show ips arp interface gigabitethernet 2/1
```

Protocol	Address	Age (min)	Hardware Addr
Internet	10.48.69.200	0	0008.e21e.c7bc
ARPA	GigabitEthernet2/1		
Internet	10.48.69.206	7	0005.9ba6.95ff
ARPA	GigabitEthernet2/1		
Internet	10.48.69.209	4	0009.7c60.561f
ARPA	GigabitEthernet2/1		
Internet	10.48.69.226	0	0060.08f6.bc1a
ARPA	GigabitEthernet2/1		
Internet	10.48.69.229	15	0800.209e.edab
ARPA	GigabitEthernet2/1		

```

Internet 10.48.69.233 0 0010.4200.7d5b
ARPA GigabitEthernet2/1
Internet 10.48.69.235 9 0800.20b6.6559
ARPA GigabitEthernet2/1
Internet 10.48.69.238 5 0030.6e1b.6f51
ARPA GigabitEthernet2/1
Internet 10.48.69.239 12 0030.6e1c.a00b
ARPA GigabitEthernet2/1
Internet 10.48.69.248 5 0202.3d30.45f8
ARPA GigabitEthernet2/1
Internet 10.48.69.252 1 0202.3d30.45fc
ARPA GigabitEthernet2/1
Internet 10.10.2.28 9 0202.3d0a.021c
ARPA GigabitEthernet2/1

```

canterbury#show scsi-target devices vsan 777

```

-----
VSAN      FCID      PWWN      VENDOR
MODEL          REV
-----
777      0x7000e8  21:00:00:20:37:67:f7:a2  SEAGATE
ST318203FC      0004
777      0x700103  50:06:01:60:88:02:a8:2b  DGC
RAID 0          0632

```

canterbury#show scsi-target lun vsan 777

```

- ST318203FC from SEAGATE (Rev 0004)
  FCID is 0x7000e8 in VSAN 777, 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

```

```

- RAID from DGC (Rev 0632)
  FCID is 0x700103 in VSAN 777, 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				
b1: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

```

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

```

iscsi2/1 is up
  Hardware is GigabitEthernet
  Port WWN is 20:41:00:0c:30:6c:24:40
  Admin port mode is ISCSI
  Port mode is ISCSI
  Speed is 1 Gbps
  iSCSI initiator is identified by name
  Number of iSCSI session: 4, Number of TCP
connection: 4
  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 800000 kbps
    Minimum available bandwidth is 800000 kbps

```

```
Estimated round trip time is 100000 usec
 5 minutes input rate 168 bits/sec, 21 bytes/sec, 0
frames/sec
 5 minutes output rate 728 bits/sec, 91 bytes/sec, 0
frames/sec
 iSCSI statistics
   Input 12209 packets, 2668348 bytes
     Command 3282 pdus, Data-out 1038 pdus, 1989664
bytes
     Output 14762 packets, 3486596 bytes
       Response 3059 pdus (with sense 77), R2T 153 pdus
       Data-in 3215 pdus, 2744116 bytes

canterbury#show iscsi stats iscsi 2/1

iscsi2/1
 5 minutes input rate 168 bits/sec, 21 bytes/sec, 0
frames/sec
 5 minutes output rate 728 bits/sec, 91 bytes/sec, 0
frames/sec
 iSCSI statistics
   12209 packets input, 2668348 bytes
     Command 3282 pdus, Data-out 1038 pdus, 1989664
bytes, 0 fragments
     output 14762 packets, 3486596 bytes
       Response 3059 pdus (with sense 77), R2T 153 pdus
       Data-in 3215 pdus, 2744116 bytes

canterbury#show interface gigabitethernet 2/1

GigabitEthernet2/1 is up
 Hardware is GigabitEthernet, address is
0005.3000.ade6
 Internet address is 10.48.69.199/26
 MTU 2156 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 392 bits/sec, 49 bytes/sec, 0
frames/sec
 5 minutes output rate 64 bits/sec, 8 bytes/sec, 0
frames/sec
 126128 packets input, 12476013 bytes
   2 multicast frames, 0 compressed
   0 input errors, 0 frame, 0 overrun 0 fifo
 43443 packets output, 6256174 bytes, 0 underruns
   0 output errors, 0 collisions, 0 fifo
   0 carrier errors

canterbury#show ip route

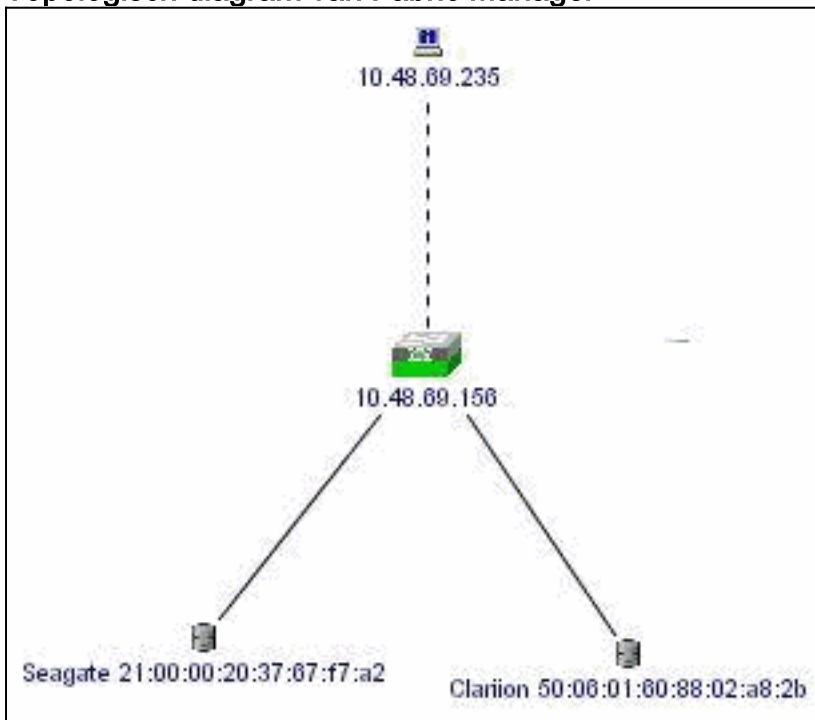
Codes: C - connected, S - static

Gateway of last resort 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
```

Deze sectie verschaft voorbeelduitvoer van MDS Fabric Manager 1.1(2) en Apparaatbeheer 1.1(2).

### Topologisch diagram van Fabric Manager



Dit is een voorbeeldscherm van de ApparaatManager 1.1(2) weergave op de canterbury.



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

canterbury - LUN

Discover Targets LUNs

Vsanid, Port WWN	Id	Capacity (MB)	SerialNum
777, Seagate 21:00:00:20:37:67:17:a2	0x0	18210	LRE8091500007039HLT6
777, Clarion 50:06:01:60:88:02:a8:2b	0x0	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x1	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x2	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x3	2147	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x4	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x5	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x6	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x7	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x8	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x9	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0xa	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0xb	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0xc	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0xd	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0xe	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0xf	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x10	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x11	1074	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x20	5369	f60004202091
777, Clarion 50:06:01:60:88:02:a8:2b	0x21	3221	f60004202091

Refresh Help Close

Data retrieved at 10:03:45

geven.

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

canterbury - iSCSI

Initiators Targets Sessions Sessions Detail Session Statistics

Type	Direction	Initiator			Target		
		Name or IpAddress	Alias	Id	Name	Alias	Id
normal	inbound	10.48.69.235	baboon	00:02:3d:00:00:01	san-fc-ibod-1		128
normal	inbound	10.48.69.235	baboon	00:02:3d:00:00:01	clarion		128
discovery	inbound	10.48.69.235	baboon	00:02:3d:00:00:01			128
normal	inbound	10.48.69.235	baboon	00:02:3d:00:00:01	clarion-lun-3-4-5		128

Connection... Refresh Help Close

4 row(s)

## Gerelateerde informatie

- [Ondersteuning van Small Computer Systems Interface over IP \(iSCSI\)](#)