

# Configurazione dell'host iSCSI Solaris su MDS/IPS-8

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## [Introduzione](#)

I driver Cisco Small Computer Systems Interface over IP (iSCSI) sono un componente chiave della soluzione iSCSI. Questi driver iSCSI risiedono sul server, dove:

- Intercettare i comandi iSCSI.
- Incapsula i comandi in pacchetti IP.
- Reindirizzare i comandi su Cisco SN 5420, Cisco SN 5428, Cisco SN 5428-2 o Cisco MDS/IPS-8.

In questo documento vengono fornite configurazioni di esempio per l'host iSCSI Solaris su Cisco MDS/IPS-8.

## [Prerequisiti](#)

### [Requisiti](#)

Prima di provare questa configurazione, accertarsi di soddisfare i seguenti requisiti:

- Installare il driver iSCSI compatibile con la versione di Solaris in uso, quindi creare la configurazione iSCSI su Cisco MDS 9000. Per la versione più aggiornata del driver (solaris-iscsi-3.3.5.tar.Z), consultare il documento [Cisco iSCSI Drivers](#) (solo utenti [registrati](#)). Il file README.txt è incluso nel file ZIP (TAR) del driver. Il file README.txt contiene: Informazioni

sul contratto di licenza istruzioni per l'installazione e la configurazione dei driver Panoramica tecnica dell'architettura del driver

- Consultare le sezioni relative ai requisiti di sistema nelle [note di rilascio di Cisco iSCSI Driver for Sun Solaris](#) per i requisiti del sistema operativo e delle patch.
- Il driver iSCSI Cisco per Sun Solaris viene eseguito solo sui computer SPARC. Il driver non funziona con altri tipi di processore (ad esempio, x86).

## Componenti usati

Le informazioni fornite in questo documento si basano sulle seguenti versioni software e hardware:

- SunOS 5.9, SPARC Ultra-4 E450

```
#uname -a
```

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

- Driver Cisco iSCSI 3.3.3 per 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 con versione software 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>  
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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)

Le informazioni discusse in questo documento fanno riferimento a dispositivi usati in uno specifico ambiente di emulazione. Su tutti i dispositivi menzionati nel documento la configurazione è stata ripristinata ai valori predefiniti. Se la rete è operativa, valutare attentamente eventuali conseguenze derivanti dall'uso dei comandi.

## Convenzioni

Per ulteriori informazioni sulle convenzioni usate, consultare il documento [Cisco sulle convenzioni nei suggerimenti tecnici](#).

## Premesse

Il modulo di storage IP fornisce agli host IP l'accesso ai dispositivi di storage Fibre Channel (FC). Il modulo di storage IP è un DS-X9308-SMIP che fornisce routing iSCSI trasparente. Gli host IP che utilizzano il protocollo iSCSI possono accedere in modo trasparente alle destinazioni iSCSI (FC Protocol [FCP]) sulla rete FC. L'host IP invia i comandi iSCSI incapsulati nelle PDU (Protocol Data Unit) iSCSI a una porta di archiviazione IP Cisco MDS 9000 su una connessione TCP/IP. Le interfacce Gigabit Ethernet (GE) opportunamente configurate sul modulo di storage IP forniscono connettività. Il modulo di storage IP:

- Consente di creare destinazioni iSCSI virtuali e di mapparle alle destinazioni FC fisiche disponibili nella SAN FC
- Presenta le destinazioni FC agli host IP come se le destinazioni fisiche fossero collegate

localmente alla rete IP

Ogni host iSCSI che richiede l'accesso allo storage tramite il modulo di storage IP deve disporre di un driver iSCSI compatibile installato. Il driver iSCSI consente a un host iSCSI di trasportare le richieste e le risposte iSCSI su una rete IP con il protocollo iSCSI. Dal punto di vista di un sistema operativo host, il driver iSCSI sembra essere un driver di trasporto iSCSI simile a un driver FC per un canale periferica nell'host. Ogni host IP viene visualizzato come host FC dal punto di vista del dispositivo di storage.

Completare la procedura seguente per indirizzare iSCSI dall'host IP al dispositivo di storage FC:

- Trasportare le richieste e le risposte iSCSI su una rete IP tra gli host e il modulo di storage IP.
- Utilizzare il modulo di storage IP per instradare le richieste e le risposte iSCSI tra gli host di una rete IP e il dispositivo di storage FC (convertire iSCSI in FCP e viceversa).
- Trasportare le richieste o le risposte FCP tra il modulo di storage IP e i dispositivi di storage FC.

Per impostazione predefinita, il modulo di storage IP non importa destinazioni FC in iSCSI. È necessario configurare il mapping dinamico o statico in modo che il modulo di storage IP renda le destinazioni FC disponibili agli iniziatori iSCSI. Le destinazioni FC mappate staticamente hanno un nome configurato quando sono configurate entrambe. Questa configurazione fornisce esempi di mapping statico.

Ogni volta che l'host iSCSI si connette al modulo di storage IP con mapping dinamico:

- Viene creata una nuova porta FC N.
- I nomi universali (WWN) dei nodi e i nomi universali (pWWN) delle porte allocati per questa porta N possono essere diversi.

Utilizzare il metodo di mappatura statica se è necessario ottenere gli stessi nWWN e pWWN per l'host iSCSI ogni volta che si connette al modulo di storage IP. È possibile utilizzare la mappatura statica sul modulo di storage IP per accedere ad array di storage FC intelligenti dotati di:

- Controllo degli accessi
- Mapping dei LUN (Logical Unit Number) e configurazione del masking basati sui pWWN o nWWN dell'iniziatore

Specificare questi elementi per controllare l'accesso a ogni destinazione iSCSI mappata staticamente:

- Elenco delle porte di storage IP su cui vengono annunciate
- Elenco di nomi di nodi iniziatore iSCSI a cui è consentito l'accesso

Il controllo degli accessi basato sullo zoning FC e il controllo degli accessi basato su iSCSI sono i due meccanismi attraverso i quali è possibile fornire il controllo degli accessi per iSCSI. È possibile utilizzare entrambi i metodi contemporaneamente. In questa configurazione è stato consentito lo zoning predefinito per una VSAN (Virtual Storage Area Network) specifica. I moduli di storage IP utilizzano elenchi di controllo degli accessi basati su nome nodo iSCSI e su zoning FC per imporre il controllo degli accessi durante il rilevamento iSCSI e la creazione di sessioni iSCSI.

L'iniziatore iSCSI può essere definito in modo statico in base all'indirizzo IP o al nome qualificato iSCSI (IQN). L'opzione **proxy-initiator** consente la creazione dinamica di iniziatori iSCSI in SAN-IO 1.3 per gli switch Cisco MDS.

Il rilevamento iSCSI si verifica quando un host iSCSI crea una sessione di rilevamento iSCSI e esegue query per tutte le destinazioni iSCSI. Il modulo di storage IP restituisce solo l'elenco di destinazioni iSCSI a cui i criteri di controllo di accesso consentono all'host iSCSI di accedere.

La creazione di sessioni iSCSI si verifica quando un host IP avvia una sessione iSCSI. Il modulo di storage IP verifica:

- Se la destinazione iSCSI specificata (nella richiesta di accesso alla sessione) è una destinazione mappata statica
- Il nome del nodo iSCSI dell'host IP è autorizzato ad accedere alla destinazione

Se l'host IP non dispone dell'accesso, l'accesso viene rifiutato.

Il modulo di storage IP:

- Crea una porta FC virtuale N (la porta N può già esistere) per questo host IP
- Esegue una query sul server dei nomi FC per l'ID Fibre Channel (FCID) del nome WWN della destinazione FC a cui accede l'host IP

Il modulo di storage IP utilizza il nome WWN della porta N virtuale dell'host IP come richiedente della query del server dei nomi. Pertanto, il server dei nomi esegue una query applicata a livello di zona per pWWN e risponde alla query. La sessione iSCSI viene accettata se il server dei nomi restituisce l'FCID. In caso contrario, la richiesta di accesso viene rifiutata.

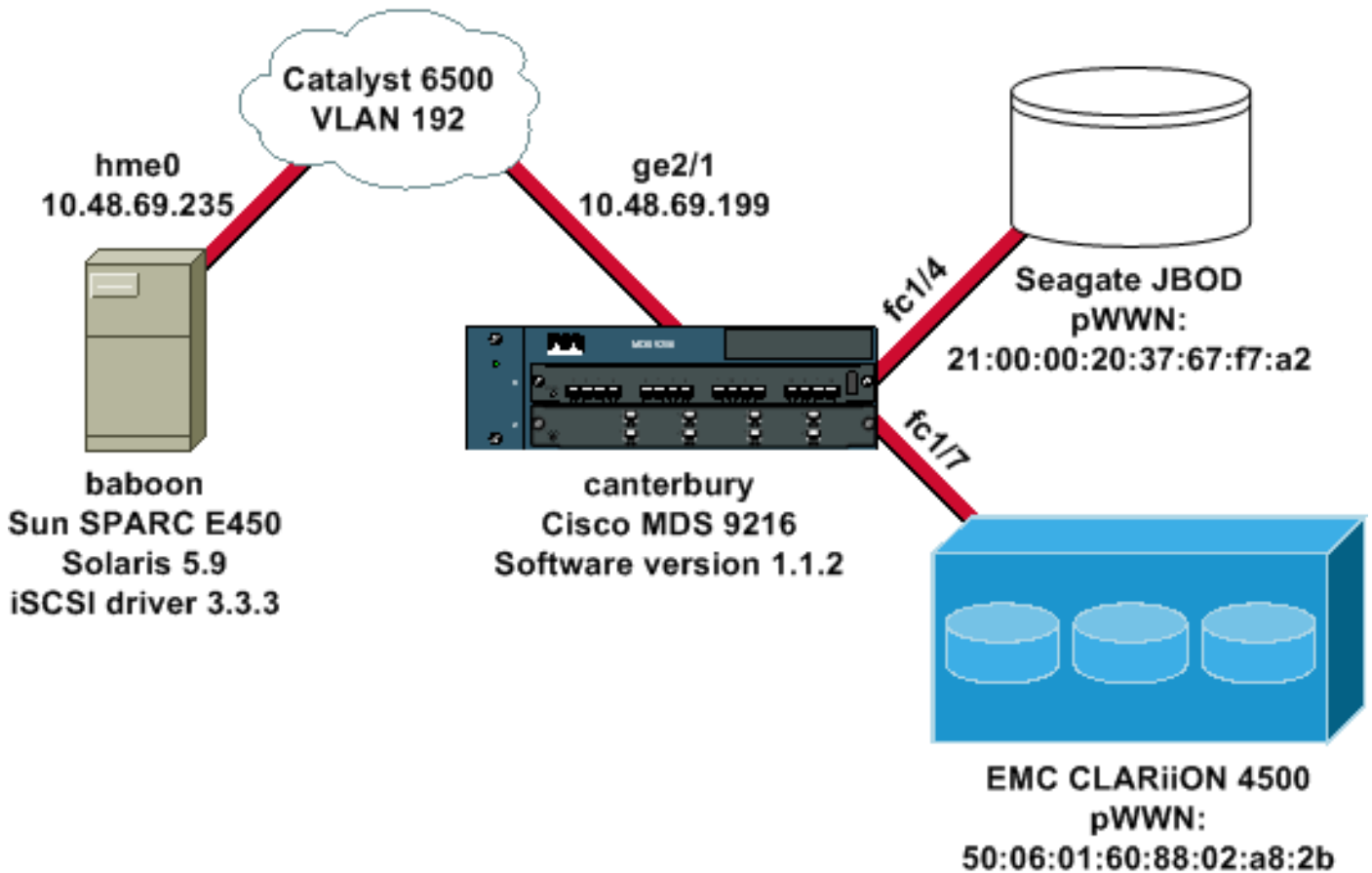
## [Configurazione](#)

In questa sezione vengono presentate le informazioni necessarie per configurare le funzionalità descritte più avanti nel documento.

**Nota:** per ulteriori informazioni sui comandi menzionati in questo documento, usare lo [strumento di ricerca](#) dei comandi (solo utenti [registrati](#)).

## [Esempio di rete](#)

Nel documento viene usata questa impostazione di rete:



## Configurazioni

Nel documento vengono usate queste configurazioni:

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

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

Modificare i seguenti file sull'host Solaris:

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

Di seguito viene riportato un esempio di output della configurazione.

```
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
```

## Verifica

Per verificare che la configurazione funzioni correttamente, consultare questa sezione.

Lo [strumento Output Interpreter](#) (solo utenti [registrati](#)) (OIT) supporta alcuni comandi **show**. Usare l'OIT per visualizzare un'analisi dell'output del comando **show**.

- **netstat -n** —Verifica le connessioni TCP sull'host Solaris.
- **iscsi-ls -l**: visualizza i dispositivi attualmente disponibili sull'host Solaris.
- **show zone status** - Visualizza le informazioni sulla zona.
- **show fcns database vsan 777**: visualizza le informazioni sul server dei nomi per una VSAN specifica.
- **show floppy database vsan 777**: visualizza le informazioni sul server di accesso all'infrastruttura (FLOGI) per una VSAN specifica.
- **show vSAN membership**: visualizza le informazioni di interfaccia per le diverse VSAN.
- **show iscsi initiator detail**: visualizza le informazioni sull'iniziatore iSCSI.
- **show iscsi initiator iscsi-session detail**: visualizza informazioni dettagliate sulla sessione dell'iniziatore iSCSI.
- **show iscsi initiator fcp-session detail**: visualizza informazioni dettagliate sulla sessione FCP dell'iniziatore iSCSI.
- **show ips stats tcp interface gigabitethernet 2/1 detail**: visualizza le statistiche TCP per un'interfaccia GE specifica.
- **show iscsi virtual-target configure**: visualizza le destinazioni virtuali iSCSI configurate su Cisco MDS 9000.
- **show iscsi initiator configure**: visualizza gli iniziatori iSCSI configurati su Cisco MDS 9000.
- **show ips arp interface gigabitethernet 2/1**: visualizza le informazioni ARP (IP storage Address Resolution Protocol) per un'interfaccia GE specifica.
- **show scsi-target devices vsan 777**: visualizza i dispositivi iSCSI per una VSAN specifica (per mappare le LUN FC alle LUN iSCSI).
- **show int iscsi 2/1**: visualizza le interfacce iSCSI.
- **show iscsi stats iscsi 2/1**: visualizza le statistiche iSCSI.
- **show int gigabitethernet 2/1**: visualizza l'interfaccia GE.
- **show ip route**: visualizza le informazioni sulla route IP.

## Risoluzione dei problemi

Utilizzare questa sezione per risolvere i problemi relativi alla configurazione.

## Procedura di risoluzione dei problemi

- [output babbuino](#)
- [Uscita canterbury Cisco MDS 9216](#)
- [Output di Fabric Manager e Device Manager](#)

### output babbuino

```
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#**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
```

## Uscita canterbury Cisco MDS 9216

```
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

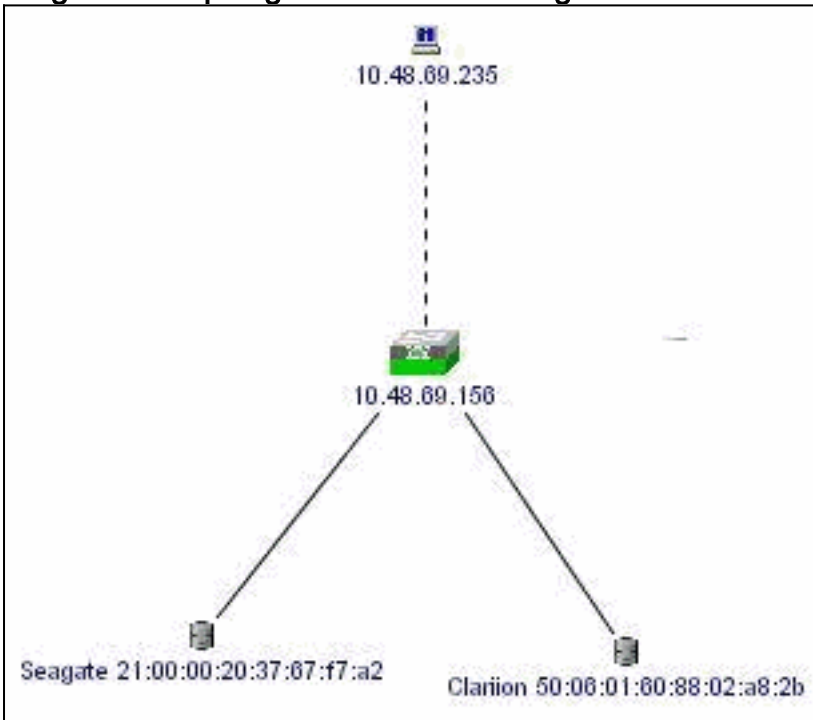
Gateway of last resort is 10.48.69.129

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

## Output di Fabric Manager e Device Manager

In questa sezione vengono forniti output di esempio da MDS Fabric Manager 1.1(2) e Device Manager 1.1(2).

### Diagramma topologico da Fabric Manager



Questa è una schermata di esempio della visualizzazione di Device Manager 1.1(2) su canterbury.



1. Selezionare **FC > LUN** nella finestra Gestione periferiche per visualizzare i nomi WWN, gli ID delle LUN e la capacità delle

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

LUN.

2. Selezionare IP > iSCSI per visualizzare le sessioni iSCSI.

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

4 row(s)

Connection... Refresh Help Close

## Informazioni correlate

- [Supporto della tecnologia iSCSI \(Small Computer Systems Interface over IP\)](#)