

HP-UX iSCSI Host to MDS/IPS-8配置示例

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簡介

駐留在伺服器上的思科iSCSI驅動程式是iSCSI解決方案的關鍵元件。這些iSCSI驅動程式擷取**Small Computer System Interface(SCSI)**命令，將其封裝到IP資料包中，並將其重定向到Cisco SN 5420、Cisco SN 5428、Cisco SN 5428-2或Cisco MDS/IPS-8。This文檔，該文檔提供了HP-UX iSCSI主機到SN 5428的示例配置。

必要條件

需求

嘗試此組態之前，請確保符合以下要求：

- 安裝與HP-UX版本相容的iSCSI驅動程式。最新版本的驅動程式可在Cisco.com上的[Cisco iSCSI驅動程式](#)(僅限註冊客戶)下載頁面上找到。README.txt檔案包含在驅動程式zip(tar)檔案中。自述檔案包含有關許可證協定、驅動程式安裝和配置說明以及驅動程式體系結構技術概述的資訊。
- 在[Cisco iSCSI Driver for HP-UX Release Notes](#)的系統要求一節中介紹了作業系統要求和修補程式要求。

採用元件

本文中的資訊係根據以下軟體和硬體版本：

- 含兩個處理器的HP-UX 9000/800 A500伺服器。註：在本實驗設定中，沒有用於iSCSI的獨立乙太網介面卡，且正在使用的介面卡為100 Mb。在任何現實環境中，您都有單獨的千兆乙太網(GE)介面卡作為iSCSI啟動器。

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

System Hardware

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

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

I/O Interfaces

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

Adapter

Installed Software

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

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

Product	Revision	Description
A6795A	B.11.00.10	PCI Tachyon TL/TS/XL2 Fibre Channel
BUNDLE	B.11.00	Patch Bundle
HPUXEng64RT	B.11.00.01	English HP-UX 64-bit Runtime Environment
HWE1100	B.11.00.0203.5	Hardware Enablement Patches for HP-UX 11.00, March 2002
OnlineDiag	B.11.00.20.09	HPUX 11.0 Support Tools Bundle, Mar 2002
UXCoreMedia	B.11.00.02	HP-UX Media Kit (Reference Only. See Description)
UnlimUserLic	B.11.00.02	HP-UX Unlimited-User License
XSWGR1100	B.11.00.47.08	General Release Patches, November 1999 (ACE)

[...]

- 已使用適用於HP-UX的Cisco iSCSI驅動程式3.3.3。建議同時安裝 (至少) HP提供的最新穩定地址解析協定(ARPA)傳輸累積修補程式。編寫本文檔時為PHNE_28538。此修補程式有幾個依存關係，因此您必須在需要時安裝它們。有關安裝詳細資訊，請訪問官方的[HP支援網站](#) (僅限註冊客戶)。

```
[/]# swlist
```

```
# Initializing...
# Contacting target "ape"...
#
# Target:  ape:/
#
#
# Bundle(s):
#
```

```

A6795A          B.11.00.10    PCI Tachyon TL/TS/XL2 Fibre Channel
BUNDLE          B.11.00      Patch Bundle
HPUXEng64RT     B.11.00.01   English HP-UX 64-bit Runtime Environment
HWE1100         B.11.00.0203.5 Hardware Enablement Patches for HP-UX 11.00,
March 2002
OnlineDiag      B.11.00.20.09 HPUX 11.0 Support Tools Bundle, Mar 2002
QPK1100         B.11.00.56.5 Quality Pack for HP-UX 11.00, March 2002
UXCoreMedia     B.11.00.02   HP-UX Media Kit (Reference Only. See
Description)
UnlimUserLic    B.11.00.02   HP-UX Unlimited-User License
XSWGR1100       B.11.00.47.08 General Release Patches, November 1999 (ACE)

```

```

#
# Product(s) not contained in a Bundle:
#

```

```

ISCSI           3.3.3        ISCSI software
bison           1.875        bison
flex            2.5.4a       flex
gcc             3.2.3        gcc
gettext         0.11.5       gettext
less            376          less
libiconv        1.9          libiconv
make            3.80         make
ncurses         5.2          ncurses
termcap         1.3.1        termcap
zsh             4.0.7        zsh

```

```

[/]# swlist BUNDLE
# Initializing...
# Contacting target "ape"...
#
# Target:  ape:/
#

```

```

# BUNDLE          B.11.00      Patch Bundle
BUNDLE.PHCO_23651 1.0          fsck_vxfs(1M) cumulative patch
BUNDLE.PHKL_28496 1.0          SCSI IO Subsystem Cumulative Patch
BUNDLE.PHKL_27980 1.0          VxFS 3.1 cumulative patch: CR_EIEM
BUNDLE.PHKL_22840 1.0          IDS/9000; syscalls related to file/socket
BUNDLE.PHCO_28505 1.0          user/group(add/mod/del)(1M) cumulative patch
BUNDLE.PHKL_28150 1.0          LVM Cumulative Patch w/Performance Upgrades
BUNDLE.PHNE_28538 1.0          cumulative ARPA Transport patch
BUNDLE.PHNE_28143 1.0          LAN product cumulative patch
BUNDLE.PHNE_27902 1.0          Cumulative STREAMS Patch
BUNDLE.PHKL_29434 1.0          POSIX AIO;getdirenties;MVFS;rcp;mmap/IDS;
BUNDLE.PHKL_28766 1.0          Probe, IDDS, PM, VM, PA-8700, AIO, T600, FS, PDC, CLK
BUNDLE.PHKL_28004 1.0          Fibre Channel Mass Storage Driver Patch
BUNDLE.PHKL_27729 1.0          ioscan -u incorrect display (kernel patch).
BUNDLE.PHKL_24187 1.0          ioscan performance gain for SCSI Subsystem
BUNDLE.PHKL_24165 1.0          Kernel Patch For "ioscan -k" Performance
BUNDLE.PHKL_23409 1.0          NFS, Large Data Space, kernel memory leak
BUNDLE.PHKL_20016 1.0          2nd CPU not recognized in G70/H70/I70
BUNDLE.PHKL_18543 1.0          PM/VM/UFS/async/scsi/io/DMAPI/JFS/perf patch
BUNDLE.PHCO_27818 1.0          ioscan(1M) cumulative patch
BUNDLE.PHCO_27375 1.0          cumulative SAM/ObAM patch

```

• Cisco MDS 9216與軟體版本1.2(1a)。

```

vatican# show module
Mod  Ports  Module-Type          Model          Status
-----
1    16     1/2 Gbps FC/Supervisor DS-X9216-K9-SUP active *
2     8     IP Storage Module    DS-X9308-SMIP  ok

```

```
Mod Sw Hw World-Wide-Name(s) (WWN)
---
1 1.2(1a) 1.0 20:01:00:0c:30:57:5e:c0 to 20:10:00:0c:30:57:5e:c0
2 1.2(1a) 0.2 20:41:00:0c:30:57:5e:c0 to 20:48:00:0c:30:57:5e:c0
```

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

* this terminal session

vatican# **show version**

```
Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: http://www.cisco.com/tac
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 1.0.8
loader: version 1.1(2)
kickstart: version 1.2(1a)
system: version 1.2(1a)
```

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

Hardware

```
RAM 963108 kB
```

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

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

```
Last reset at 955065 usecs after Wed Sep 10 08:13:50 2003
Reason: Reset Requested by CLI command reload
System version: 1.1(2)
```

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

慣例

本文中所用的Cisco MDS 9000是指MDS 9000系列(MDS 9506、MDS 9509、MDS 9216)中的任何光纖通道(FC)交換機產品。思科入侵防禦系統(IPS)刀片指的是IP儲存服務模組。如需文件慣例的詳細資訊，請參閱[思科技術提示慣例](#)。

背景資訊

思科入侵防禦系統(IPS)模組為IP主機提供對光纖通道(FC)儲存裝置的訪問。IPS模組是DS-X9308-SIMP。它提供透明的SCSI路由。使用iSCSI協定的IP主機可以透明地訪問FC網路上的iSCSI目標。IP主機通過TCP/IP連線將封裝在iSCSI協定資料單元(PDU)中的SCSI命令傳送到MDS 9000 IPS埠。在IPS模組上，連線以正確配置的GE介面的形式提供。IPS模組使您能夠建立虛擬iSCSI目標並將它們對映到FC SAN中可用的物理FC目標。它向IP主機顯示FC目標，就像物理目標已連線到IP網路一

樣。

需要通過IPS模組訪問儲存裝置的每個iSCSI主機都需要安裝相容的iSCSI驅動程式。藉助iSCSI協定，iSCSI驅動程式允許iSCSI主機通過IP網路傳輸SCSI請求和響應。從主機作業系統的角度來看，iSCSI驅動程式似乎是SCSI傳輸驅動程式，類似於主機中外圍通道的FC驅動程式。從儲存裝置的角度來看，每個IP主機都顯示為FC主機。將SCSI從IP主機路由到FC儲存裝置包含以下主要操作：

- 通過IP網路在主機和IPS模組之間傳輸iSCSI請求和響應
- 在IP網路上的主機和FC儲存裝置之間路由SCSI請求和響應（將iSCSI轉換為FCP，將FCP轉換為iSCSI）。此路由由IPS模組執行。
- 在IPS模組和FC儲存裝置之間傳輸FCP請求或響應

預設情況下，IPS模組不會將FC目標匯入iSCSI。在IPS模組使FC目標可用於iSCSI啟動器之前，必須配置動態或靜態對映。當兩者都配置時，靜態對映的FC目標具有已配置的名稱。本文提供靜態對映的示例。使用動態對映時，每次iSCSI主機連線到IPS模組時，都會建立一個新的FC N埠，並為此N埠分配的nWWN和pWWN可能不同。如果需要在iSCSI主機每次連線到IPS模組時獲得相同的nWWN和pWWN，請使用靜態對映方法。可以在IPS模組上使用靜態對映來訪問智慧FC儲存陣列，這些儲存陣列具有基於啟動器的pWWN或nWWN的訪問控制和邏輯單元號(LUN)對映和掩蔽配置。

您可以通過建立目標通告所在的IPS埠的特定清單以及建立允許訪問目標的iSCSI啟動器節點名稱清單來控制對每個靜態對映的iSCSI目標的訪問。基於FC分割槽的訪問控制和基於iSCSI的訪問控制是為iSCSI提供訪問控制的兩種機制。這兩種方法可以同時使用。在此配置中，允許特定VSAN的預設分割槽。IPS模組使用基於iSCSI節點名稱的訪問控制清單和基於FC分割槽的訪問控制清單，在iSCSI發現和iSCSI會話建立期間實施訪問控制。

- **iSCSI發現：**當iSCSI主機建立iSCSI發現會話並查詢所有iSCSI目標時，IPS模組僅返回該iSCSI主機根據訪問控制策略被允許訪問的iSCSI目標清單。
- **iSCSI會話建立：**當IP主機發起iSCSI會話時，IPS模組驗證指定的iSCSI目標（在會話登入請求中）是否為靜態對映目標，如果為true，則驗證是否允許IP主機的iSCSI節點名稱訪問目標。如果IP主機沒有存取許可權，則其登入會遭到拒絕。

然後，IPS模組建立此IP主機的FC虛擬N埠（N埠可能已經存在），並執行FC名稱伺服器查詢，以獲取IP主機訪問的FC目標pWWN的FCID。它使用IP主機虛擬N埠的pWWN作為名稱伺服器查詢的請求者。因此，名稱伺服器對pWWN執行區域強制查詢並響應查詢。如果名稱伺服器返回FCID，則接受iSCSI會話。否則，登入請求將被拒絕。

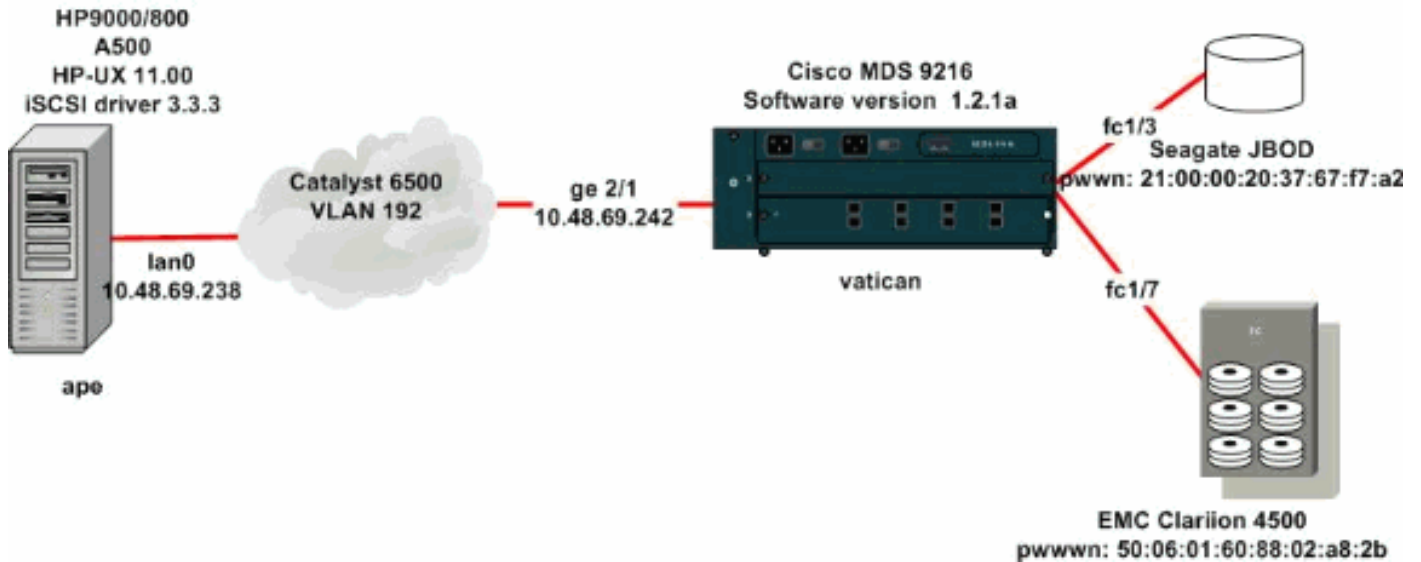
設定

本節提供用於配置MDS 9216和Cisco iSCSI Driver for Linux的資訊。

注意：要查詢有關本文檔中使用的命令的其他資訊，請使用[Cisco MDS 9000系列命令參考](#)和[Cisco MDS 9000系列軟體配置指南](#)。

網路圖表

本檔案會使用下圖所示的網路設定：



組態

本檔案使用如下所示的組態：

- Ape(HP 9000/800 A500 HP-UX 11.00)
- 梵蒂岡(MDS 9216)

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

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

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

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

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

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

```
.....
```

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

0	10	seagate
0	11	spa-vt

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

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

梵蒂网(Cisco MDS 9216)

```
!--- If you are starting from the factory default
configuration, you !--- need to setup the IP address and
mask of the management interface. !--- This would
normally be done during the initial setup . interface
mgmt0 ip address 10.48.69.156 255.255.255.192 !--- In
this configuration example, all the iSCSI targets are in
a single vsan . vsan database vsan 1016 vsan 1016
interface fcl/3 vsan 1016 interface fcl/7 !--- These are
the boot variables. boot system bootflash:/sl11a boot
kickstart bootflash:/kl11a # Simple IP configuration ip
```

```
domain-name cisco.com ip name-server 144.254.10.123 ip
default-gateway 10.48.69.129 !--- Declare that the iSCSI
initiator with the IP address of the host. # It belongs
to the vsan of our choice iscsi authentication none
iscsi initiator ip-address 10.48.69.238 vsan 1016 !---
Define the first virtual target, it is a JBOD. Identify
the target !--- by its pWWN, advertise it on a GE
interface, and allow access to the initiator. iscsi
virtual-target name seagate pWWN 21:00:00:20:37:67:f7:a2
advertise interface GigabitEthernet2/1 initiator ip
address 10.48.69.238 permit !--- The second target is a
Clariion disk array. Since the maximum LUN number that
you !--- can have under HP-UX without additional
software is 7, define a mapping from FC LUN numbers !---
to the iSCSI LUN numbers you are going to present to the
host. iscsi virtual-target name spa-vt pWWN
50:06:01:60:88:02:a8:2b fc-lun 0020 iscsi-lun 0003 pWWN
50:06:01:60:88:02:a8:2b fc-lun 0021 iscsi-lun 0004
advertise interface GigabitEthernet2/1 initiator ip
address 10.48.69.238 permit !--- Permit access to the
targets on the FC level. Create a simple zone
configuration to do this. !--- Alternatively, you could
have simply set the default zoning policy in vsan 1016
to permit. zone name jbod vsan 1016 member pwwn
21:00:00:20:37:67:f7:a2 member symbolic-nodename
10.48.69.238 zone name spa vsan 1016 member pwwn
50:06:01:60:88:02:a8:2b member symbolic-nodename
10.48.69.238 zoneset name iscsidoc vsan 1016 member jbod
member spa zoneset activate name iscsidoc vsan 1016 !---
Set the IP address and mask of the GE interface and
enable it. interface GigabitEthernet2/1 ip address
10.48.69.242 255.255.255.192 iscsi authentication none
no shutdown # Lastly we bring up the iSCSI interface up
interface iscsi2/1 no shutdown
```

驗證

本節提供的資訊可用於確認您的組態是否正常運作，以及排解疑難，以免您發現問題。

[命令查詢工具](#) (僅供[註冊](#)客戶使用) 支援某些show命令，此工具允許您檢視show命令輸出的分析。

HP-UX主機命令

- netstat-n或lsof — 驗證TCP連線。
- iscsi-ls — 顯示當前可用的裝置。
- dmesg — 收集診斷消息。

MDS/IPS-8命令

- show zone — 顯示區域資訊。
- show flogi database — 顯示FLOGI伺服器資訊。
- show fcns database — 顯示特定VSAN的名稱伺服器資訊。
- show vsan membership — 顯示不同VSAN的介面資訊。
- show iscsi — 顯示各種iSCSI資訊。
- show ips — 顯示有關IP服務的各種資訊。

- **show scsi-target** — 顯示特定VSAN的SCSI裝置 (用於將FC-LUN對映到iSCSI-LUN)。
- **show interface** — 顯示有關各種介面的資訊。
- **show ip route** — 顯示IP路由資訊。

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

以下是與此組態相關的疑難排解資訊：

- 從Ape顯示(HP 9000/800 A500 HP-UX 11.00)
- 梵蒂岡顯示器(MDS 9216)
- Fabric Manager和Device Manager顯示

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

```
# /sbin/init.d/iscsi stop
Waiting for iscsid to terminate .....
Waiting for iscsid to terminate .....
Waiting for iscsid to terminate .....
Waiting for iscsid to terminate .....
Waiting for iscsi_[tr]x_threads to terminate .....

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

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

[/]# lsof -i @10.48.69.242
COMMAND  PID  USER   FD   TYPE    DEVICE  SIZE/OFF  NODE
NAME
iscsid   2836 root    1u   inet  0x41aa9268  0t1300  TCP
ape.cisco.com:49499->10.48.69.242:3260 (ESTABLISHED)

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

[/]# iscsi-ls -l

#####
#####

TARGET NAME      = seagate
TARGET ID        = 10
ADDRESS          = 10.48.69.242:3260,128
STATUS           = CONNECTED 10.48.69.238:49501 <->
10.48.69.242:3260

9/19/2003 15:40:42
```

```

SESSION          = ISID 00023d000001 TSID 80

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

#####
#####

TARGET NAME     = spa-vt
TARGET ID       = 11
ADDRESS         = 10.48.69.242:3260,128
STATUS          = CONNECTED 10.48.69.238:49500 <->
10.48.69.242:3260
                9/19/2003 15:40:42

SESSION         = ISID 00023d000001 TSID 80

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

LUN      3      = DISK  c255t11d3  'DGC      RAID 1
0632'
                BLOCKS : 10485607  BLOCKSIZE : 512
CAPACITY : 5119.00MB

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

[/]# iscsi-ls -c

#####
#####

TARGET NAME     = seagate
TARGET ID       = 10
ADDRESS         = 10.48.69.242:3260,128
STATUS          = CONNECTED 10.48.69.238:49501 <->
10.48.69.242:3260
                9/19/2003 15:40:42

SESSION         = ISID 00023d000001 TSID 80
InitialR2T     = Yes
FirstBurstLength = 262144 Bytes
MaxBurstLength  = 16776192 Bytes
Header Digest   = 1
Data Digest     = 1
Login Timeout   = 15 Seconds
Auth Timeout    = 45 Seconds
Active Timeout  = 5 Seconds
Idle Timeout    = 60 Seconds
Ping Timeout    = 5 Seconds

#####
#####

TARGET NAME     = spa-vt
TARGET ID       = 11
ADDRESS         = 10.48.69.242:3260,128
STATUS          = CONNECTED 10.48.69.238:49500 <->
10.48.69.242:3260
                9/19/2003 15:40:42

SESSION         = ISID 00023d000001 TSID 80
InitialR2T     = Yes

```

```
FirstBurstLength = 262144 Bytes
MaxBurstLength   = 16776192 Bytes
Header Digest    = 1
Data Digest      = 1
Login Timeout    = 15 Seconds
Auth Timeout     = 45 Seconds
Active Timeout   = 5 Seconds
Idle Timeout     = 60 Seconds
Ping Timeout     = 5 Seconds
```

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

```
[...]
iSCSI: session 0x4179b000 target 11 accepted the
preferred value (None) DataDigest=CRC32C
iSCSI: session 0x41a64800 target 10 accepted the
preferred value (None) DataDigest=CRC32C
iSCSI: Direct Access Device found at lun 3 on target 11
Vendor Id   : DGC
Product Id  : RAID 1
Product
Rev: 0632
iSCSI: Direct Access Device found at lun 0 on target 10
Vendor Id   : SEAGATE
Product Id  : ST318203FC
Product
Rev: 0004
iSCSI: Direct Access Device found at lun 4 on target 11
Vendor Id   : DGC
Product Id  : RAID 1
Product
Rev: 0632
iSCSI: iscsi_recv_cmd: session (0x4179b000)
recv_cmd(sc) (0x41844800), Cmd 0x25, status 0x2,
sense key 06, ASC/ASCQ 29/00,
task (0x40718b00) to (host 255 target 11 lun 3),
TargetAlias spa-vt
Sense 70000600 0000000a 00000000 29000000 0000

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

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

梵蒂岡顯示器(MDS 9216)

```
vatican# show zone status vsan 1016
VSAN: 1016 default-zone: deny distribute: active only
Interop: Off
Full Zoning Database :
Zonesets:1 Zones:3 Aliases: 0
Active Zoning Database :
```

Name: iscsidoc Zonesets:1 Zones:3
Status: Activation completed at Wed Sep 17 13:03:56
2003

vatican# **show zone active vsan 1016**

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

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

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

vatican# **show flogi database vsan 1016**

```
-----  
INTERFACE  VSAN      FCID          PORT NAME  
NODE NAME  
-----  
fc1/3      1016  0x7902e8  21:00:00:20:37:67:f7:a2  
20:00:00:20:37:67:f7:a2  
fc1/7      1016  0x790104  50:06:01:60:88:02:a8:2b  
50:06:01:60:11:02:a8:2b  
fc1/11     1016  0x790105  50:06:01:68:88:02:a8:2b  
50:06:01:60:11:02:a8:2b  
iscsi2/1   1016  0x790100  20:03:00:0c:30:57:5e:c2  
20:02:00:0c:30:57:5e:c2
```

Total number of flogi = 4.

vatican# **show fcns database vsan 1016**

VSAN 1016:

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

--- FCID 0x790100 is the virtual N port(HBA) for the
iSCSI host.

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

VSAN:1016 FCID:0x790100

```
port-wwn (vendor)      :20:03:00:0c:30:57:5e:c2 (Cisco)  
node-wwn               :20:02:00:0c:30:57:5e:c2  
class                  :2,3
```

```
node-ip-addr      :10.48.69.238
ipa              :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:init iscsi-gw
symbolic-port-name      :
symbolic-node-name     :10.48.69.238
port-type            :N
port-ip-addr         :0.0.0.0
fabric-port-wwn      :20:41:00:0c:30:57:5e:c0
hard-addr           :0x000000
-----
VSAN:1016  FCID:0x790104
-----
port-wwn (vendor)    :50:06:01:60:88:02:a8:2b
(Clariion)
node-wwn            :50:06:01:60:11:02:a8:2b
class              :3
node-ip-addr        :0.0.0.0
ipa                :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:target
symbolic-port-name  :
symbolic-node-name  :
port-type          :N
port-ip-addr       :0.0.0.0
fabric-port-wwn    :20:07:00:0c:30:57:5e:c0
hard-addr          :0x000000
-----
VSAN:1016  FCID:0x790105
-----
port-wwn (vendor)    :50:06:01:68:88:02:a8:2b
(Clariion)
node-wwn            :50:06:01:60:11:02:a8:2b
class              :3
node-ip-addr        :0.0.0.0
ipa                :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:target
symbolic-port-name  :
symbolic-node-name  :
port-type          :N
port-ip-addr       :0.0.0.0
fabric-port-wwn    :20:0b:00:0c:30:57:5e:c0
hard-addr          :0x000000
-----
VSAN:1016  FCID:0x7902e8
-----
port-wwn (vendor)    :21:00:00:20:37:67:f7:a2
(Seagate)
node-wwn            :20:00:00:20:37:67:f7:a2
class              :3
node-ip-addr        :0.0.0.0
ipa                :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:target
symbolic-port-name  :
symbolic-node-name  :
port-type          :NL
port-ip-addr       :0.0.0.0
fabric-port-wwn    :20:03:00:0c:30:57:5e:c0
hard-addr          :0x000000

Total number of entries = 4

vatican# show iscsi initiator
iSCSI Node name is 10.48.69.238
```

```

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

vatican# show iscsi initiator configured
iSCSI Node name is 10.48.69.238
Member of vsans: 1016

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

Virtual Port WWN is 20:03:00:0c:30:57:5e:c2
(dynamic)
    Interface iSCSI 2/1, Portal group tag is 0x80
    VSAN ID 1016, FCID 0x790100
    2 FC sessions, 2 iSCSI sessions
    iSCSI session details
    Target: spa-vt
    Statistics:
        PDU: Command: 10, Response: 10
        Bytes: TX: 416, RX: 0
        Number of connection: 1
    TCP parameters
        Local 10.48.69.242:3260, Remote
10.48.69.238:49500
        Path MTU: 1500 bytes
        Retransmission timeout: 300 ms
        Round trip time: Smoothed 62 ms, Variance:
3
        Advertized window: Current: 256 KB,
Maximum: 256 KB, Scale: 3
        Peer receive window: Current: 576 KB,
Maximum: 576 KB, Scale: 4
        Congestion window: Current: 4 KB
    Target: seagate
    Statistics:
        PDU: Command: 4, Response: 4
        Bytes: TX: 304, RX: 0
        Number of connection: 1
    TCP parameters
        Local 10.48.69.242:3260, Remote
10.48.69.238:49501
        Path MTU: 1500 bytes
        Retransmission timeout: 300 ms
        Round trip time: Smoothed 62 ms, Variance:
3
        Advertized window: Current: 256 KB,
Maximum: 256 KB, Scale: 3
        Peer receive window: Current: 576 KB,
Maximum: 576 KB, Scale: 4
        Congestion window: Current: 4 KB

```

FCP Session details

Target FCID: 0x790104 (S_ID of this session:
0x790100)
pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
Session state: LOGGED_IN
1 iSCSI sessions share this FC session
Target: spa-vt
Negotiated parameters
RcvDataFieldSize 1024 our_RcvDataFieldSize
1392
MaxBurstSize 0, EMPD: FALSE
Random Relative Offset: FALSE, Sequence-in-
order: Yes

Statistics:

PDU: Command: 0, Response: 10

Target FCID: 0x7902e8 (S_ID of this session:
0x790100)

pWWN: 21:00:00:20:37:67:f7:a2, nWWN:
20:00:00:20:37:67:f7:a2
Session state: LOGGED_IN
1 iSCSI sessions share this FC session
Target: seagate
Negotiated parameters
RcvDataFieldSize 1392 our_RcvDataFieldSize
1392
MaxBurstSize 0, EMPD: FALSE
Random Relative Offset: FALSE, Sequence-in-
order: Yes

Statistics:

PDU: Command: 0, Response: 4

vatican# **show iscsi initiator iscsi-session detail**

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

```

Target: seagate
Statistics:
  PDU: Command: 4, Response: 4
  Bytes: TX: 304, RX: 0
  Number of connection: 1
TCP parameters
  Local 10.48.69.242:3260, Remote
10.48.69.238:49501
  Path MTU: 1500 bytes
  Retransmission timeout: 300 ms
  Round trip time: Smoothed 62 ms, Variance:
2
  Advertized window: Current: 256 KB,
Maximum: 256 KB, Scale: 3
  Peer receive window: Current: 576 KB,
Maximum: 576 KB, Scale: 4
  Congestion window: Current: 4 KB

vatican# show iscsi initiator fcp-session detail
iSCSI Node name is 10.48.69.238
  iSCSI Initiator name: iqn.1987-
05.com.cisco.01.a06c4e2b8b247cadceb8af1a8474dale
  iSCSI alias name: ape
  Node WWN is 20:02:00:0c:30:57:5e:c2 (dynamic)
  Member of vsans: 1016
  Number of Virtual n_ports: 1
  Virtual Port WWN is 20:03:00:0c:30:57:5e:c2
(dynamic)
  Interface iSCSI 2/1, Portal group tag is 0x80
  VSAN ID 1016, FCID 0x790100
  2 FC sessions, 2 iSCSI sessions
  FCP Session details
    Target FCID: 0x790104 (S_ID of this session:
0x790100)
      pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
      Session state: LOGGED_IN
      1 iSCSI sessions share this FC session
      Target: spa-vt
      Negotiated parameters
        RcvDataFieldSize 1024 our_RcvDataFieldSize
1392
        MaxBurstSize 0, EMPD: FALSE
        Random Relative Offset: FALSE, Sequence-in-
order: Yes
      Statistics:
        PDU: Command: 0, Response: 10
        Target FCID: 0x7902e8 (S_ID of this session:
0x790100)
          pWWN: 21:00:00:20:37:67:f7:a2, nWWN:
20:00:00:20:37:67:f7:a2
          Session state: LOGGED_IN
          1 iSCSI sessions share this FC session
          Target: seagate
          Negotiated parameters
            RcvDataFieldSize 1392 our_RcvDataFieldSize
1392
            MaxBurstSize 0, EMPD: FALSE
            Random Relative Offset: FALSE, Sequence-in-
order: Yes
          Statistics:
            PDU: Command: 0, Response: 4

vatican# show iscsi virtual-target configured

```



```

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

vatican# show iscsi stats iscsi 2/1
iscsi2/1
  5 minutes input rate 16 bits/sec, 2 bytes/sec, 0
frames/sec
  5 minutes output rate 16 bits/sec, 2 bytes/sec, 0
frames/sec
  iSCSI statistics
    50932 packets input, 60370640 bytes
      Command 3659 pdus, Data-out 41069 pdus,
56533832 bytes, 2476 fragments
      output 115926 packets, 112863536 bytes
      Response 3374 pdus (with sense 206), R2T 1897
pdus
      Data-in 103999 pdus, 106404584 bytes

vatican# show ips arp interface gigabitethernet 2/1
Protocol      Address      Age (min)    Hardware Addr
Type  Interface
Internet      10.48.69.200      0      0008.e21e.c7bc
ARPA GigabitEthernet2/1
Internet      10.48.69.201      5      0202.3d30.45c9
ARPA GigabitEthernet2/1
Internet      10.48.69.206      5      0202.3d30.45ce
ARPA GigabitEthernet2/1
Internet      10.48.69.209      3      0202.3d30.45d1
ARPA GigabitEthernet2/1
Internet      10.48.69.226      2      0060.08f6.bc1a
ARPA GigabitEthernet2/1
Internet      10.48.69.229      4      0800.209e.edab
ARPA GigabitEthernet2/1
Internet      10.48.69.231      1      0002.b3c1.7dab
ARPA GigabitEthernet2/1
Internet      10.48.69.233      0      0010.4200.7d5b
ARPA GigabitEthernet2/1
Internet      10.48.69.238      0      0030.6e1b.6f51
ARPA GigabitEthernet2/1
Internet      10.48.69.239     10      0030.6e1c.a00b

```

```

ARPA GigabitEthernet2/1
  Internet    10.48.69.241      0      000b.cdaf.b4c3
ARPA GigabitEthernet2/1
  Internet    10.48.69.248      4      0202.3d30.45f8
ARPA GigabitEthernet2/1
  Internet    10.48.69.252      1      0202.3d30.45fc
ARPA GigabitEthernet2/1
  Internet    10.10.2.28        7      0202.3d0a.021c
ARPA GigabitEthernet2/1

vatican# show ips stats tcp interface gigabitethernet
2/1 detail
TCP Statistics for port GigabitEthernet2/1
  TCP send stats
    261205 segments, 117757220 bytes
    140632 data, 51907 ack only packets
    2655 control (SYN/FIN/RST), 0 probes, 2639 window
updates
    63382 segments retransmitted, 90885612 bytes
    63382 retransmitted while on ethernet send queue,
1 packets split
    13327 delayed acks sent
  TCP receive stats
    249073 segments, 72669 data packets in sequence,
61525764 bytes in sequence
    2335 predicted ack, 68605 predicted data
    0 bad checksum, 0 multi/broadcast, 0 bad offset
    0 no memory drops, 0 short segments
    4396 duplicate bytes, 205 duplicate packets
    0 partial duplicate bytes, 0 partial duplicate
packets
    0 out-of-order bytes, 2625 out-of-order packets
    0 packet after window, 0 bytes after window
    0 packets after close
    80504 acks, 117762158 ack bytes, 0 ack toomuch,
96274 duplicate acks
    0 ack packets left of snd_una, 7 non-4 byte
aligned packets
    54199 window updates, 0 window probe
    6343 pcb hash miss, 709 no port, 6 bad SYN, 0
paws drops
  TCP Connection Stats
    0 attempts, 2718 accepts, 2718 established
    2716 closed, 15 drops, 0 conn drops
    3 drop in retransmit timeout, 10 drop in
keepalive timeout
    0 drop in persist drops, 0 connections drained
  TCP Miscellaneous Stats
    37062 segments timed, 41787 rtt updated
    817 retransmit timeout, 1 persist timeout
    22654 keepalive timeout, 22643 keepalive probes
  TCP SACK Stats
    0 recovery episodes, 0 data packets, 0 data bytes
    0 data packets retransmitted, 0 data bytes
retransmitted
    0 connections closed, 0 retransmit timeouts
  TCP SYN Cache Stats
    2720 entries, 2718 connections completed, 0
entries timed out
    0 dropped due to overflow, 2 dropped due to RST
    0 dropped due to ICMP unreachable, 0 dropped due to
bucket overflow
    0 abort due to no memory, 2 duplicate SYN, 183
no-route SYN drop

```

0 hash collisions, 0 retransmitted
TCP Active Connections

Local	Address	Remote Address	State
Send-Q	Recv-Q		
10.48.69.242:3260		10.48.69.238:49499	
ESTABLISH	0	0	
10.48.69.242:3260		10.48.69.238:49500	
ESTABLISH	0	0	
10.48.69.242:3260		10.48.69.238:49501	
ESTABLISH	0	0	
0.0.0.0:3260		0.0.0.0:0	
LISTEN	0	0	

vatican# **discover scsi-target local**
discovery started

vatican# **show scsi-target devices vsan 1016**

```
-----  
VSAN      FCID      PWWN      VENDOR  
MODEL          REV  
-----  
1016      0x790104  50:06:01:60:88:02:a8:2b  DGC  
RAID 0          0632  
1016      0x7902e8  21:00:00:20:37:67:f7:a2  SEAGATE  
ST318203FC      0004
```

vatican# show scsi-target lun vsan 1016

- RAID from DGC (Rev 0632)
FCID is 0x790104 in VSAN 1016, PWWN is
50:06:01:60:88:02:a8:2b

```
-----  
LUN      Capacity  Status  Serial Number  Device-Id  
      (MB)  
-----  
0x0      1074      Online  f60004202091  C:1 A:0 T:3  
60:06:01:60:88:02:a8:2b  
da:05:b6:a9:b6:9d:7b:00  
C:1 A:0  
T:0 00:00:00:00  
0x1      1074      Online  f60004202091  C:1 A:0 T:3  
60:06:01:60:88:02:a8:2b  
6a:66:0d:74:cb:33:88:6c  
C:1 A:0  
T:0 00:01:00:00  
0x2      1074      Online  f60004202091  C:1 A:0 T:3  
60:06:01:60:88:02:a8:2b  
ec:81:5b:a2:c4:43:0d:8a  
C:1 A:0  
T:0 00:02:00:00  
0x3      2147      Online  f60004202091  C:1 A:0 T:3  
60:06:01:60:88:02:a8:2b  
e0:47:b3:be:3b:00:e0:d5  
C:1 A:0  
T:0 00:03:00:00  
0x4      1074      Online  f60004202091  C:1 A:0 T:3  
60:06:01:60:88:02:a8:2b
```

00:51:5b:7f:3d:9a:7b:ce				C:1 A:0
T:0 00:04:00:00				
0x5 1074	Online	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	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	f6000420291	C:1 A:0 T:3	

```

60:06:01:60:88:02:a8:2b

8b:58:80:7b:12:fb:6b:12
                                C:1 A:0
T:0 00:0f:00:00
  0x10  1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

a1:2f:6d:b0:c3:d6:c2:46
                                C:1 A:0
T:0 00:10:00:00
  0x11  1074      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

2c:48:c4:74:25:4b:26:dd
                                C:1 A:0
T:0 00:11:00:00
  0x20  5369      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

ba:18:6a:40:22:40:94:75
                                C:1 A:0
T:0 00:20:00:00
  0x21  3221      Online  f60004202091  C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

74:d2:42:9e:31:8d:ff:86
                                C:1 A:0
T:0 00:21:00:00

- ST318203FC from SEAGATE (Rev 0004)
  FCID is 0x7902e8 in VSAN 1016, PWWN is
21:00:00:20:37:67:f7:a2
-----
-----
LUN      Capacity  Status  Serial Number  Device-Id
      (MB)
-----
-----
0x0      18210      Online  LRE8091500007039 C:1 A:0 T:3
20:00:00:20:37:67:f7:a2

vatican# show interface iscsi 2/1
iscsi2/1 is up
  Hardware is GigabitEthernet
  Port WWN is 20:41:00:0c:30:57:5e:c0
  Admin port mode is ISCSI
  Port mode is ISCSI
  Speed is 1 Gbps
  iSCSI initiator is identified by name
  Number of iSCSI session: 0, Number of TCP
connection: 0
  Configured TCP parameters
    Local Port is 3260
    PMTU discover is enabled, reset timeout is 3600
sec
    Keepalive-timeout is 60 sec
    Minimum-retransmit-time is 300 ms
    Max-retransmissions 4
    Sack is disabled
    Maximum allowed bandwidth is 500000 kbps
    Minimum available bandwidth is 500000 kbps
    Estimated round trip time is 10000 usec

```

```
5 minutes input rate 16 bits/sec, 2 bytes/sec, 0
frames/sec
5 minutes output rate 16 bits/sec, 2 bytes/sec, 0
frames/sec
iSCSI statistics
  Input 50920 packets, 60370032 bytes
    Command 3659 pdus, Data-out 41069 pdus,
56533832 bytes fragments 2476
    Output 115914 packets, 112862928 bytes
    Response 3374 pdus (with sense 206), R2T 1897
pdus
    Data-in 103999 pdus, 106404584 bytes

vatican# show interface gigabitethernet 2/1
GigabitEthernet2/1 is up
  Hardware is GigabitEthernet, address is
0005.3000.a85a
  Internet address is 10.48.69.242/26
  MTU 1500 bytes
  Port mode is IPS
  Speed is 1 Gbps
  Beacon is turned off
  Auto-Negotiation is turned on
  iSCSI authentication: NONE
  5 minutes input rate 440 bits/sec, 55 bytes/sec, 0
frames/sec
  5 minutes output rate 80 bits/sec, 10 bytes/sec, 0
frames/sec
  850346 packets input, 127958119 bytes
    6488 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun 0 fifo
  289960 packets output, 201600774 bytes, 0 underruns
    0 output errors, 0 collisions, 0 fifo
    0 carrier errors

vatican# show ip route

Codes: C - connected, S - static

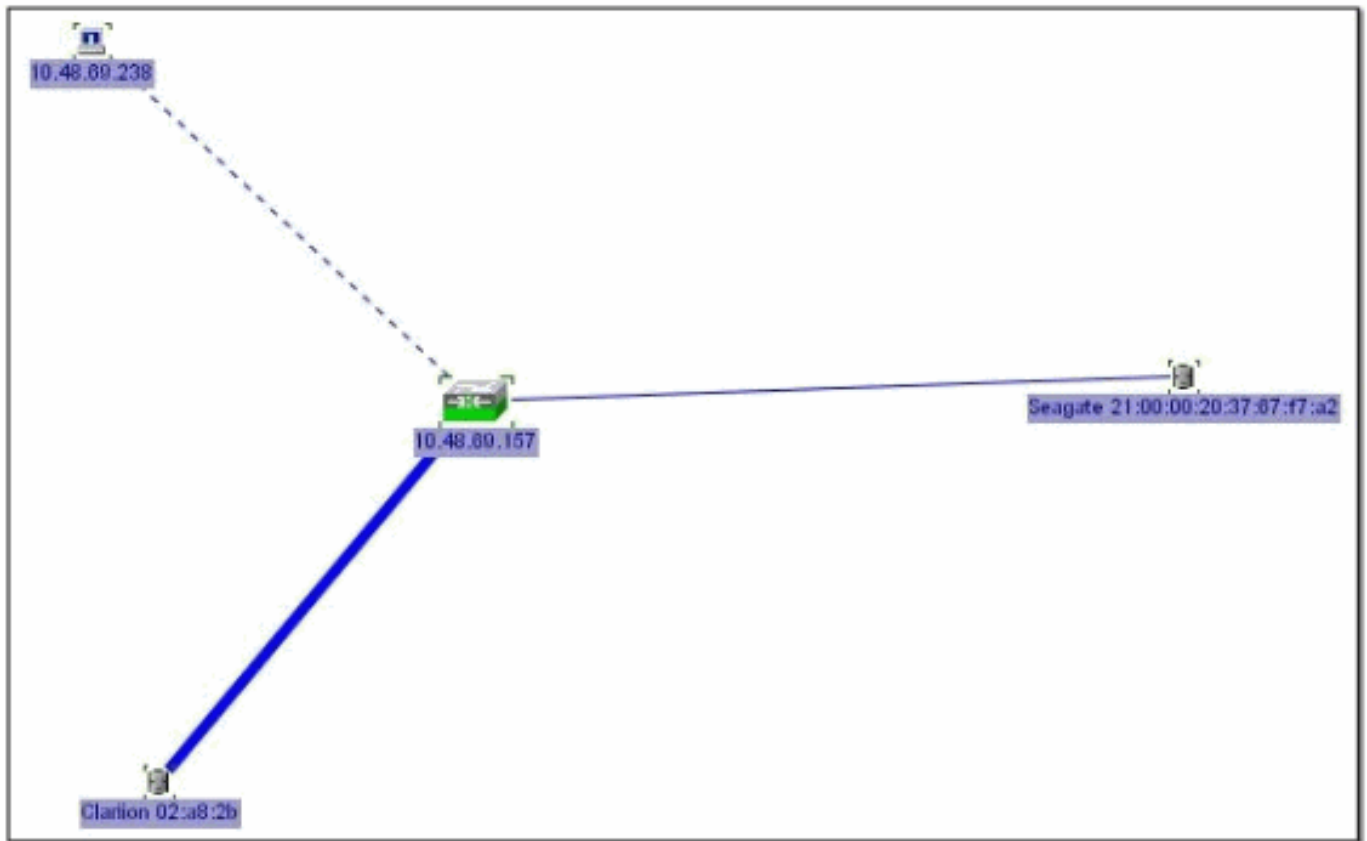
Default gateway is 10.48.69.129

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

[Fabric Manager和Device Manager顯示](#)

本節提供來自MDS交換矩陣管理器1.2(1a)和裝置管理器1.2(1a)的螢幕截圖。

Fabric Manager中的拓撲圖



裝置管理器



在裝置管理器中選擇FC- > LUN，以顯示LUN的pWWN、LUN ID和容量。

vatican - LUN

Discover | Targets | **LUNs**

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

Refresh Help Close

21 row(s)

在裝置管理器中選擇IP > iSCSI以顯示iSCSI會話。

vatican - iSCSI

Initiators | Targets | Sessions | **Sessions Detail** | Session Statistics

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

Refresh Help Close

Data retrieved at 17:49:36