

HP-UX对MDS/IPS-8配置示例的iSCSI主机

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简介

驻留在服务器上的思科iSCSI驱动程序是iSCSI解决方案的关键组件。这些iSCSI驱动程序会截取小型计算机系统接口(SCSI)命令，将其封装到IP数据包中，并将其重定向到Cisco SN 5420、Cisco SN 5428-2或Cisco MDS/IPS-8。This文档提供HP-UX的示例配置iSCSI主机到SN 5428。

先决条件

要求

在尝试进行此配置之前，请确保满足以下要求：

- 安装与您的HP-UX版本兼容的iSCSI驱动程序。该驱动程序的最新版本可在Cisco.com的[Cisco iSCSI驱动程序\(仅限注册客户\)](#)下载页中找到。README.txt文件包括在驱动程序zip(tar)文件中。README包含关于许可证协议的信息、驱动程序安装和配置说明以及驱动体系结构的技术概要。
- 操作系统要求和补丁要求在“Cisco iSCSI Driver for HP-UX Release Notes”的“System Requirements”部分中进行了说明。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- HP-UX 9000/800 A500服务器，带两个处理器。**注意：**在本实验设置中，没有单独的用于iSCSI的以太网适配器，而且使用的适配器为100 Mb。在任何现实环境中，您都有单独的千兆以太网(GE)适配器作为iSCSI启动器。

```
[/]# /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 |
| XSWG1100 | B.11.00.47.08 | General Release Patches, November 1999 (ACE) |

[...]

- HP-UX的Cisco iSCSI驱动程序3.3.3已使用。建议您还安装 (至少) 来自HP的最新稳定地址解析协议(ARPA)传输累积补丁。在编写本文档时，此修补程序是PHNE_28538。此修补程序具有多个依赖项，因此您必须根据需要安装它们。有关安装详细信息，请访问官方的[HP支持站点 \(仅注册客户\)](#)。

```
[/]# 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
XSWG1100        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

```

• 软件版本为1.2(1a)的思科MDS 9216。

```

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

```

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

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

* this terminal session

vatican# **show version**

Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: <http://www.cisco.com/tac>
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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)
```

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

本文档中使用的Cisco MDS 9000是指MDS 9000系列(MDS 9506、MDS 9509、MDS 9216)中的任何光纤通道(FC)交换机产品。思科入侵防御系统(IPS)刀片是指IP存储服务模块。有关文件规则的更多信息请参见“Cisco技术提示规则”。

背景信息

思科入侵防御系统(IPS)模块提供IP主机对光纤通道(FC)存储设备的访问。IPS模块是DS-X9308-SMIP。它提供透明SCSI路由。使用iSCSI协议的IP主机可以透明地访问FC网络上的iSCSI目标IP主机通过TCP/IP连接将封装在iSCSI协议数据单元(PDU)中的SCSI命令发送到MDS 9000 IPS端口。在IPS模块上，连接以GE接口的形式提供，这些接口已进行了适当配置。IPS模块使您创建虚拟iSCSI目标并且映射他们到在FC SAN上可用的物理FC目标。它将FC目标呈现给IP主机，就像物理

目标连接到IP网络一样。

需要通过IPS模块访问存储的每台iSCSI主机都需要安装兼容的iSCSI驱动程序。借助iSCSI协议，iSCSI驱动程序允许iSCSI主机通过IP网络传输SCSI请求和响应。从主机操作系统的角度，iSCSI驱动看来是SCSI运输驱动程序，与主机中一条外围通道的FC驱动程序相似。从存储设备的角度，每台IP主机出现为一台FC主机。将SCSI从IP主机路由到FC存储设备包括以下主要操作：

- 在主机和IPS模块之间通过IP网络传输iSCSI请求和响应
- 在IP网络上的主机和FC存储设备之间路由SCSI请求和响应（将iSCSI转换为FCP，将FCP转换为iSCSI）。此运输路线由IPS模块执行。
- 在IPS模块和FC存储设备之间传输FCP请求或响应

默认情况下，IPS模块不将FC目标导入iSCSI。在IPS模块使FC目标可用于iSCSI启动器之前，必须配置动态或静态映射。当两个都被配置后，静态被映射的FC目标有一个配置的名称。本文档提供静态映射示例。使用动态映射时，每次iSCSI主机连接到IPS模块时，都会创建一个新的FC N端口，为此N端口分配的nWWN和pWWN可能不同。请使用静态映射方法，如果您需要iSCSI主机每次获得同样nWWN和pWWN，它接到IPS模块。静态映射可用于IPS模块，以访问智能FC存储阵列，这些阵列具有基于启动器的pWWN或nWWN的访问控制和逻辑单元号(LUN)映射和掩码配置。

您可以通过创建特定的IPS端口列表来控制对每个静态映射的iSCSI目标的访问，并创建允许访问该目标的iSCSI启动器节点名称列表。FC基于分区的访问控制和基于iSCSI的访问控制是访问控制可以为iSCSI提供的二个机制。可以同时使用两个方法。在此配置中，允许特定VSAN使用默认分区。IPS模块使用基于iSCSI节点名称的访问控制列表和基于FC分区的访问控制列表，以在iSCSI发现和iSCSI会话创建期间实施访问控制。

- **iSCSI发现**：当iSCSI主机创建一个iSCSI发现会话并询问所有iSCSI目标时，IPS模块返回iSCSI目标列表此iSCSI主机允许基于接入控制策略的接入。
- **iSCSI会话创建**：当IP主机启动iSCSI会话时，IPS模块验证指定的iSCSI目标(在会议登录请求)是否静态映射到目标，如果是，验证IP主机的iSCSI节点名是否允许访问目标。如果IP主机没有权限，其登录被拒绝。

然后，IPS模块为此IP主机创建FC虚拟N端口（N端口可能已存在），并对IP主机访问的FC目标pWWN的FCID执行FC名称服务器查询。它使用IP主机虚拟N端口的pwwn作为名称服务器查询的请求方。因此，名称服务器执行的一次强制的pwwn区域查询并且回应查询。如果名称服务器返回FCID，则接受iSCSI会话。否则，登录请求被拒绝。

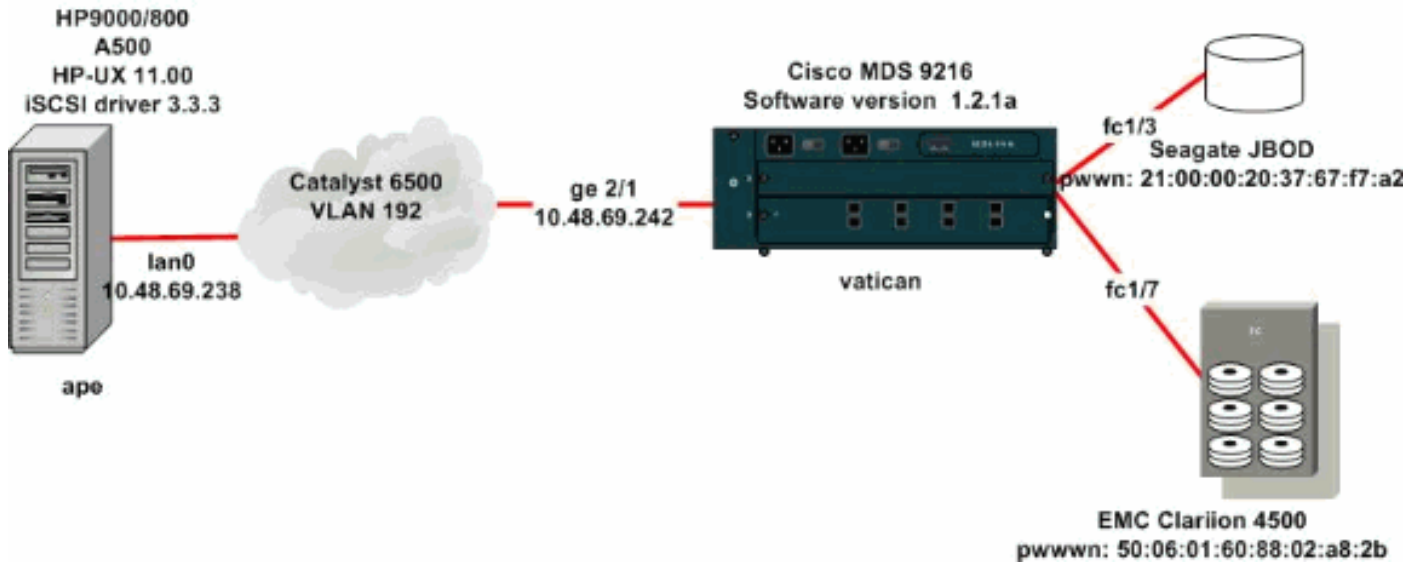
配置

在本节中，您将获得配置MDS 9216和Cisco iSCSI Driver for Linux的信息。

注：要查找有关本文档中使用的命令的其他信息，请使用 [《Cisco MDS 9000系列命令参考》](#) 和 [《Cisco MDS 9000系列软件配置指南》](#)。

网络图

本文档使用此图中所示的网络设置：



配置

本文档使用此处所示的配置：

- Ape(HP 9000/800 A500 HP-UX 11.00)
- 梵蒂冈(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.
```

梵蒂冈 (思科MDS 9216)

```
!--- If you are starting from the factory default
configuration, you !--- need to setup the IP address and
mask of the management interface. !--- This would
normally be done during the initial setup . interface
mgmt0 ip address 10.48.69.156 255.255.255.192 !--- In
this configuration example, all the iSCSI targets are in
a single vsan . vsan database vsan 1016 vsan 1016
interface fc1/3 vsan 1016 interface fc1/7 !--- These are
the boot variables. boot system bootflash:/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
```

验证

本部分提供的信息可用于确认配置工作正常，并排除故障，以防您发现问题。

命令查找工具(仅限[注册的](#)客户)支持某些show命令，这允许您查看对[show](#)命令输出的分析。

HP-UX主机命令

- netstat-n或lsof — 验证TCP连接。
- iscsi-ls — 显示当前可用的设备。
- dmesg — 收集诊断消息。

MDS/IPS-8命令

- show zone — 显示区域信息。
- show flogi database — 显示FLOGI服务器信息。
- show fcns database — 显示特定VSAN的名称服务器信息。
- show vsan membership — 显示不同VSAN的接口信息。
- show iscsi — 显示各种iSCSI信息。
- show ips — 显示有关IP服务的各种信息。

- **show scsi-target** — 显示特定VSAN的SCSI设备 (用于将FC-LUN映射到iSCSI-LUN)。
- **show interface** — 显示有关各种接口的信息。
- **show ip route** -显示Ip route信息。

故障排除

本部分提供的信息可用于对配置进行故障排除。

以下是与此配置相关的故障排除信息：

- 从磁带(HP 9000/800 A500 HP-UX 11.00)显示
- 来自梵蒂冈的显示器(MDS 9216)
- 交换矩阵管理器和设备管理器显示

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 len 18, sense key 06, ASC/ASCQ 29/00,
task (0x40718b00) to (host 255 target 11 lun 3),
TargetAlias spa-vt
Sense 70000600 0000000a 00000000 29000000 0000

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

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

来自梵蒂冈的显示器(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 | 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

- 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

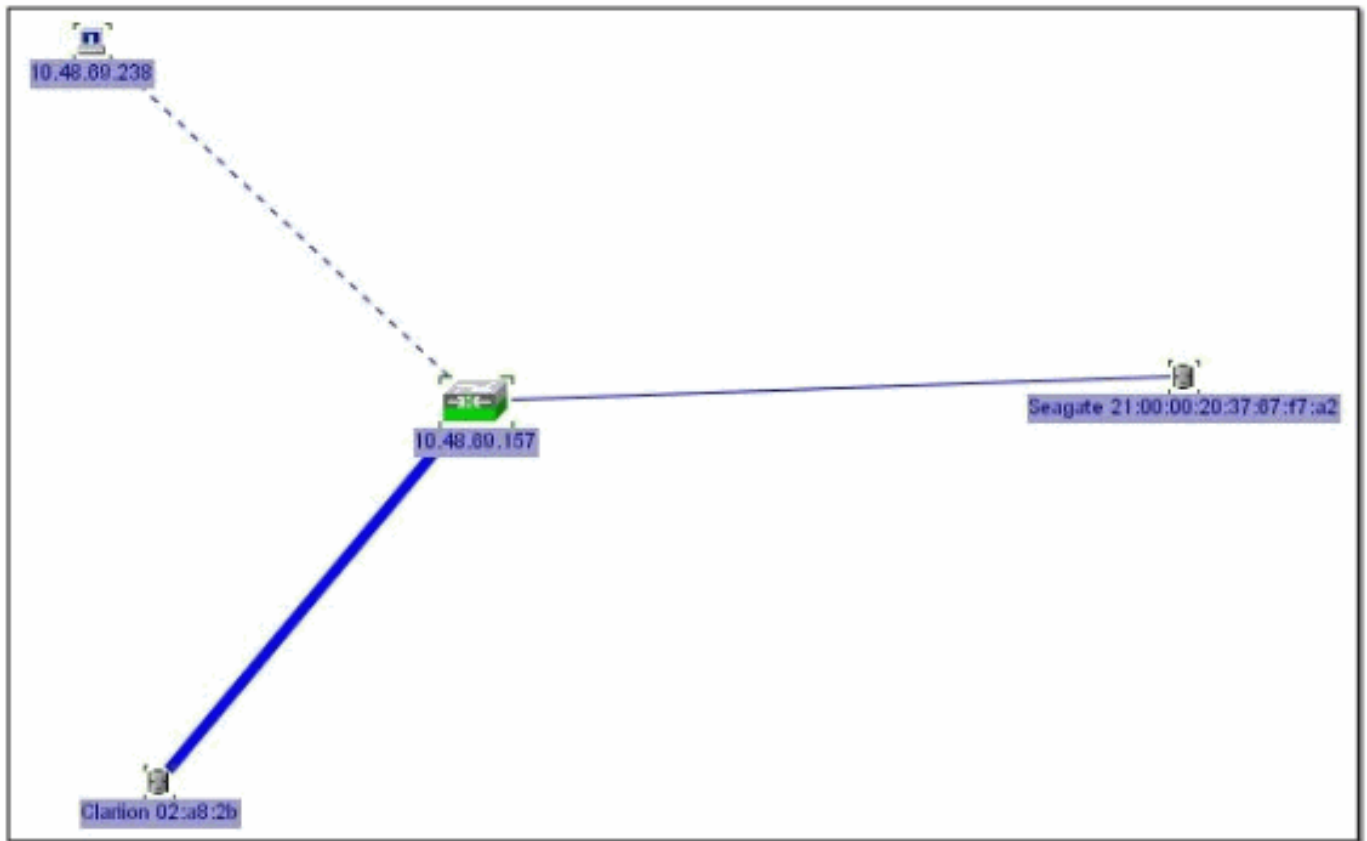
Default gateway is 10.48.69.129

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

[交换矩阵管理器和设备管理器显示](#)

本节提供MDS Fabric Manager 1.2(1a)和Device Manager 1.2(1a)的屏幕截图。

交换矩阵管理器的拓扑图



设备管理器



在设备管理器中选择FC > LUN以显示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“设备管理器”中选择“IP”>“ — iSCSI”以显示iSCSI会话。

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