

HP-UX iSCSI Host to MDS/IPS-8 구성 예

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소개

서버에 상주하는 Cisco iSCSI 드라이버는 iSCSI 솔루션의 핵심 구성 요소입니다. 이러한 iSCSI 드라이버는 **SCSI(Small Computer System Interface)** 명령을 가로채고 IP 패킷으로 캡슐화한 다음 Cisco SN 5420, Cisco SN 5428, Cisco SN 5428-2 또는 Cisco MDS/IPS-8.This으로 리디렉션하여 HP-UX iSCSI 호스트를 SN 5428로 구성하는 샘플 구성을 제공합니다.

사전 요구 사항

요구 사항

이 구성을 시도하기 전에 다음 요구 사항을 충족해야 합니다.

- HP-UX 버전과 호환되는 iSCSI 드라이버를 설치합니다. 최신 버전의 드라이버는 Cisco.com의 [Cisco iSCSI 드라이버\(등록된 고객만 해당\)](#) 다운로드 페이지에서 찾을 수 있습니다. README.txt 파일은 드라이버 zip(tar) 파일에 포함되어 있습니다. README에는 라이선스 계약서, 드라이버 설치 및 구성 지침, 드라이버 아키텍처의 기술 개요에 대한 정보가 포함되어 있습니다.
- 운영 체제 요구 사항 및 패치 요구 사항은 [HP-UX 릴리즈 노트](#)의 [Cisco iSCSI Driver](#)의 [시스템 요구 사항](#) 섹션에 설명되어 있습니다.

사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

- HP-UX 9000/800 A500 서버(프로세서 2개 포함)**참고:** 이 Lab 설정에서는 iSCSI용 별도의 이더넷 어댑터가 없으며 사용 중인 어댑터는 100Mb입니다. 실제 환경에서는 iSCSI 개시자로 별도의 기가비트 이더넷(GE) 어댑터가 있습니다.

```
[/]# /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-UX용 Cisco iSCSI 드라이버 3.3.3이 사용되었습니다. HP에서 가장 안정적인 최신 ARPA(Address Resolution Protocol) 전송 누적 패치를 설치하는 것이 좋습니다. 이 문서가 작성되었을 때 PHNE_28538입니다. 이 패치는 여러 종속성이 있으므로 필요한 경우 설치해야 합니다. 자세한 설치 정보는 공식 [HP 지원 사이트](#) ([등록된](#) 고객만 해당)를 참조하십시오.

```
[/]# 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;getdirentries;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 with Software Version 1.2(1a).

```

vatican# show module
Mod  Ports  Module-Type          Model          Status
-----

```

```

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

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

```

* this terminal session

vatican# **show version**

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

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 현재 네트워크가 작동 중인 경우, 모든 명령어의 잠재적인 영향을 미리 숙지하시기 바랍니다.

표기 규칙

이 문서에서 사용되는 Cisco MDS 9000은 MDS 9000 제품군(MDS 9506, MDS 9509, MDS 9216)의 모든 FC(Fibre Channel) 스위치 제품을 나타냅니다. Cisco IPS(Intrusion Prevention System) 블레이드는 IP Storage Services Module을 가리킵니다. 문서 규칙에 대한 자세한 내용은 [Cisco 기술 팁 표기 규칙](#)을 참조하십시오.

배경 정보

Cisco IPS(Intrusion Prevention System) 모듈은 FC(Fibre Channel) 스토리지 디바이스에 대한 IP

호스트 액세스를 제공합니다. IPS 모듈은 DS-X9308-SMIP입니다. 투명한 SCSI 라우팅을 제공합니다. iSCSI 프로토콜을 사용하는 IP 호스트는 FC 네트워크의 iSCSI 대상에 투명하게 액세스할 수 있습니다. IP 호스트는 TCP/IP 연결을 통해 iSCSI PDU(Protocol Data Units)에 캡슐화된 SCSI 명령을 MDS 900 IPS 포트에 전송합니다. IPS 모듈에서 연결은 적절하게 구성된 GE 인터페이스 형식으로 제공됩니다. IPS 모듈을 사용하면 가상 iSCSI 대상을 생성하여 FC SAN에서 사용 가능한 물리적 FC 대상에 매핑할 수 있습니다. 물리적 대상이 IP 네트워크에 연결된 것처럼 IP 호스트에 FC 대상을 표시합니다.

IPS 모듈을 통해 스토리지에 액세스해야 하는 각 iSCSI 호스트에는 호환되는 iSCSI 드라이버가 설치되어 있어야 합니다. iSCSI 프로토콜의 도움을 받아 iSCSI 드라이버를 사용하면 iSCSI 호스트가 IP 네트워크를 통해 SCSI 요청 및 응답을 전송할 수 있습니다. 호스트 운영 체제의 관점에서 iSCSI 드라이버는 호스트의 주변 장치 채널에 대한 FC 드라이버와 유사한 SCSI 전송 드라이버로 나타납니다. 스토리지 디바이스의 관점에서 각 IP 호스트는 FC 호스트로 표시됩니다. IP 호스트에서 FC 스토리지 디바이스로 SCSI를 라우팅하는 작업은 다음과 같은 주요 작업으로 구성됩니다.

- 호스트와 IPS 모듈 간에 IP 네트워크를 통해 iSCSI 요청 및 응답 전송
- IP 네트워크의 호스트와 FC 스토리지 디바이스 간의 SCSI 요청 및 응답 라우팅(iSCSI를 FCP로, FCP를 iSCSI로 변환). 이 라우팅은 IPS 모듈에서 수행됩니다.
- IPS 모듈과 FC 스토리지 디바이스 간에 FCP 요청 또는 응답 전송

IPS 모듈은 기본적으로 FC 대상을 iSCSI로 가져오지 않습니다. IPS 모듈이 FC 대상을 iSCSI 이니시에이터에서 사용할 수 있게 하려면 동적 또는 정적 매핑을 구성해야 합니다. 둘 다 구성되면 정적으로 매핑된 FC 타겟은 구성된 이름을 갖습니다. 이 문서에서는 정적 매핑의 예를 제공합니다. 동적 매핑을 사용하면 iSCSI 호스트가 IPS 모듈에 연결될 때마다 새 FC N 포트가 생성되고 이 N 포트에 할당된 nWWN 및 pWWN이 다를 수 있습니다. IPS 모듈에 연결할 때마다 iSCSI 호스트에 대해 동일한 nWWN 및 pWWN을 가져오려면 고정 매핑 방법을 사용합니다. IPS 모듈에서 정적 매핑을 사용하여 이니시에이터의 pWWN 또는 nWWN을 기반으로 액세스 제어 및 LUN(Logical Unit Number) 매핑 및 마스킹 컨피그레이션이 있는 지능형 FC 스토리지 시스템에 액세스할 수 있습니다.

타겟이 광고되는 특정 IPS 포트 목록을 생성하고 이를 액세스할 수 있는 iSCSI 이니시에이터 노드 이름 목록을 생성하여 정적으로 매핑된 각 iSCSI 대상에 대한 액세스를 제어할 수 있습니다. FC 조닝 (zoning) 기반 액세스 제어 및 iSCSI 기반 액세스 제어는 iSCSI에 대한 액세스 제어를 제공하는 두 가지 메커니즘입니다. 두 메커니즘을 동시에 사용할 수 있습니다. 이 컨피그레이션에서는 특정 VSAN에 대해 기본 영역 지정이 허용됩니다. IPS 모듈은 iSCSI 노드 이름 기반 및 FC 조닝 기반 액세스 제어 목록을 모두 사용하여 iSCSI 검색 및 iSCSI 세션 생성 중에 액세스 제어를 적용합니다.

- **iSCSI 검색:** iSCSI 호스트가 iSCSI 검색 세션을 생성하고 모든 iSCSI 대상에 대해 쿼리하면 IPS 모듈은 액세스 제어 정책에 따라 이 iSCSI 호스트가 액세스할 수 있는 iSCSI 대상 목록만 반환합니다.
- **iSCSI 세션 생성:** IP 호스트가 iSCSI 세션을 시작하면 IPS 모듈은 지정된 iSCSI 대상(세션 로그인 요청)이 정적 매핑된 대상인지 확인하고, true인 경우 IP 호스트의 iSCSI 노드 이름이 대상에 액세스할 수 있는지 확인합니다. IP 호스트에 액세스 권한이 없으면 로그인이 거부됩니다.

그런 다음 IPS 모듈을 통해 이 IP 호스트에 대해 FC 가상 N 포트(N 포트가 이미 있을 수 있음)를 생성하고 IP 호스트에서 액세스하는 FC 대상 pWWN의 FCID에 대해 FC 이름 서버 쿼리를 수행합니다. IP 호스트 가상 N 포트의 pWWN을 이름 서버 쿼리의 요청자로 사용합니다. 따라서 이름 서버는 pWWN에 대해 영역 적용 쿼리를 수행하고 쿼리에 응답합니다. 이름 서버에서 FCID를 반환하면 iSCSI 세션이 수락됩니다. 그렇지 않으면 로그인 요청이 거부됩니다.

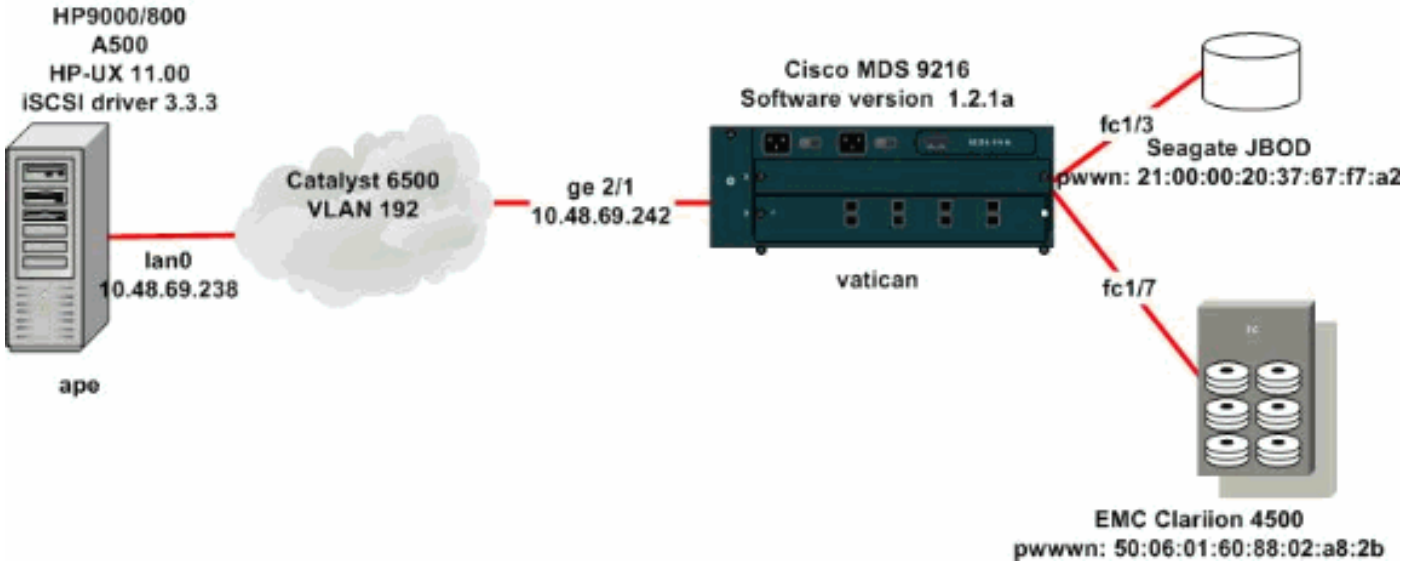
구성

이 섹션에서는 Linux용 MDS 9216 및 Cisco iSCSI 드라이버를 구성하는 방법에 대해 설명합니다.

참고: 이 문서에 사용된 명령에 대한 추가 정보를 보려면 [Cisco MDS 9000 제품군 명령 참조](#) 및 [Cisco MDS 9000 제품군 소프트웨어 구성 가이드](#)를 사용하십시오.

네트워크 다이어그램

이 문서에서는 다음 다이어그램에 표시된 네트워크 설정을 사용합니다.



구성

이 문서에서는 다음과 같은 구성을 사용합니다.

- 테이프(HP 9000/800 A500 HP-UX 11.00)
- 바티칸(MDS 9216)

테이프(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.

```

바티칸(Cisco MDS 9216)

```
!--- If you are starting from the factory default
```

```
configuration, you !--- need to setup the IP address and
mask of the management interface. !--- This would
normally be done during the initial setup . interface
mgmt0 ip address 10.48.69.156 255.255.255.192 !--- In
this configuration example, all the iSCSI targets are in
a single vsan . vsan database vsan 1016 vsan 1016
interface fc1/3 vsan 1016 interface fc1/7 !--- These are
the boot variables. boot system bootflash:/s111a boot
kickstart bootflash:/k111a # Simple IP configuration ip
domain-name cisco.com ip name-server 144.254.10.123 ip
default-gateway 10.48.69.129 !--- Declare that the iSCSI
initiator with the IP address of the host. # It belongs
to the vsan of our choice iscsi authentication none
iscsi initiator ip-address 10.48.69.238 vsan 1016 !---
Define the first virtual target, it is a JBOD. Identify
the target !--- by its pWWN, advertise it on a GE
interface, and allow access to the initiator. iscsi
virtual-target name seagate pWWN 21:00:00:20:37:67:f7:a2
advertise interface GigabitEthernet2/1 initiator ip
address 10.48.69.238 permit !--- The second target is a
Clariion disk array. Since the maximum LUN number that
you !--- can have under HP-UX without additional
software is 7, define a mapping from FC LUN numbers !---
to the iSCSI LUN numbers you are going to present to the
host. iscsi virtual-target name spa-vt pWWN
50:06:01:60:88:02:a8:2b fc-lun 0020 iscsi-lun 0003 pWWN
50:06:01:60:88:02:a8:2b fc-lun 0021 iscsi-lun 0004
advertise interface GigabitEthernet2/1 initiator ip
address 10.48.69.238 permit !--- Permit access to the
targets on the FC level. Create a simple zone
configuration to do this. !--- Alternatively, you could
have simply set the default zoning policy in vsan 1016
to permit. zone name jbod vsan 1016 member pwwn
21:00:00:20:37:67:f7:a2 member symbolic-nodename
10.48.69.238 zone name spa vsan 1016 member pwwn
50:06:01:60:88:02:a8:2b member symbolic-nodename
10.48.69.238 zoneset name iscsidoc vsan 1016 member jbod
member spa zoneset activate name iscsidoc vsan 1016 !---
Set the IP address and mask of the GE interface and
enable it. interface GigabitEthernet2/1 ip address
10.48.69.242 255.255.255.192 iscsi authentication none
no shutdown # Lastly we bring up the iSCSI interface up
interface iscsi2/1 no shutdown
```

다음을 확인합니다.

이 섹션에서는 컨피그레이션이 제대로 작동하는지 확인하고 문제가 발생할 경우 문제를 해결하는 데 사용할 수 있는 정보를 제공합니다.

특정 **show** 명령은 [명령 조회 도구\(등록된 고객만 해당\)](#)에서 지원되므로 **show** 명령 출력의 분석을 볼 수 있습니다.

HP-UX 호스트 명령

- **netstat-n** 또는 **lsof** - TCP 연결을 확인합니다.
- **iscsi-ls**—현재 사용 가능한 디바이스를 표시합니다.
- **dmesg** - 진단 메시지를 수집합니다.

MDS/IPS-8 명령

- **show zone**—영역 정보를 표시합니다.
- **show flogi database**—FLOGI 서버 정보를 표시합니다.
- **show fcns database**—특정 VSAN에 대한 Name Server 정보를 표시합니다.
- **show vsan membership** - 다른 VSAN에 대한 인터페이스 정보를 표시합니다.
- **show iscsi**—다양한 iSCSI 정보를 표시합니다.
- **show ips** - IP 서비스에 대한 다양한 정보를 표시합니다.
- **show scsi-target**—특정 VSAN에 대한 SCSI 디바이스를 표시합니다(FC-LUN을 iSCSI-LUN에 매핑하기 위한 경우).
- **show interface** - 다양한 인터페이스에 대한 정보를 표시합니다.
- **show ip route** - IP 경로 정보를 표시합니다.

문제 해결

이 섹션에서는 컨피그레이션 문제를 해결하는 데 사용할 수 있는 정보를 제공합니다.

이 컨피그레이션과 관련된 문제 해결 정보는 다음과 같습니다:

- Ape(HP 9000/800 A500 HP-UX 11.00)에서 표시
- 바티칸에서 표시(MDS 9216)
- Fabric Manager 및 Device Manager 표시

테이프(HP 9000/800 A500 HP-UX 11.00)

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

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

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

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

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

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

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

```
TARGET NAME      = seagate  
TARGET ID        = 10  
ADDRESS          = 10.48.69.242:3260,128  
STATUS           = CONNECTED 10.48.69.238:49501 <->  
10.48.69.242:3260  
                  9/19/2003 15:40:42  
SESSION          = ISID 00023d000001 TSID 80  
  
LUN      0      = DISK  c255t10d0  'SEAGATE  
ST318203FC      0004'  
                  BLOCKS : 35566479  BLOCKSIZE : 512  
CAPACITY : 17366.00MB
```

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

```
TARGET NAME      = spa-vt  
TARGET ID        = 11  
ADDRESS          = 10.48.69.242:3260,128  
STATUS           = CONNECTED 10.48.69.238:49500 <->  
10.48.69.242:3260  
                  9/19/2003 15:40:42  
SESSION          = ISID 00023d000001 TSID 80  
  
LUN      4      = DISK  c255t11d4  'DGC      RAID 1  
0632'  
                  BLOCKS : 6291419  BLOCKSIZE : 512  
CAPACITY : 3071.00MB  
  
LUN      3      = DISK  c255t11d3  'DGC      RAID 1  
0632'  
                  BLOCKS : 10485607  BLOCKSIZE : 512  
CAPACITY : 5119.00MB
```

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

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

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

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

```

Ping Timeout      = 5 Seconds

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

!--- Here are some of the entries you can expect to
find in the syslog: [/]# dmesg
[...]
iSCSI: session 0x4179b000 target 11 accepted the
preferred value (None) DataDigest=CRC32C
iSCSI: session 0x41a64800 target 10 accepted the
preferred value (None) DataDigest=CRC32C
iSCSI: Direct Access Device found at lun 3 on target 11
Vendor Id   : DGC
Product Id  : RAID 1
Product
Rev: 0632
iSCSI: Direct Access Device found at lun 0 on target 10
Vendor Id   : SEAGATE
Product Id  : ST318203FC
Product
Rev: 0004
iSCSI: Direct Access Device found at lun 4 on target 11
Vendor Id   : DGC
Product Id  : RAID 1
Product
Rev: 0632
iSCSI: iscsi_recv_cmd: session (0x4179b000)
recv_cmd(sc) (0x41844800), Cmd 0x25, status 0x2,
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
```

바티칸에서 표시(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

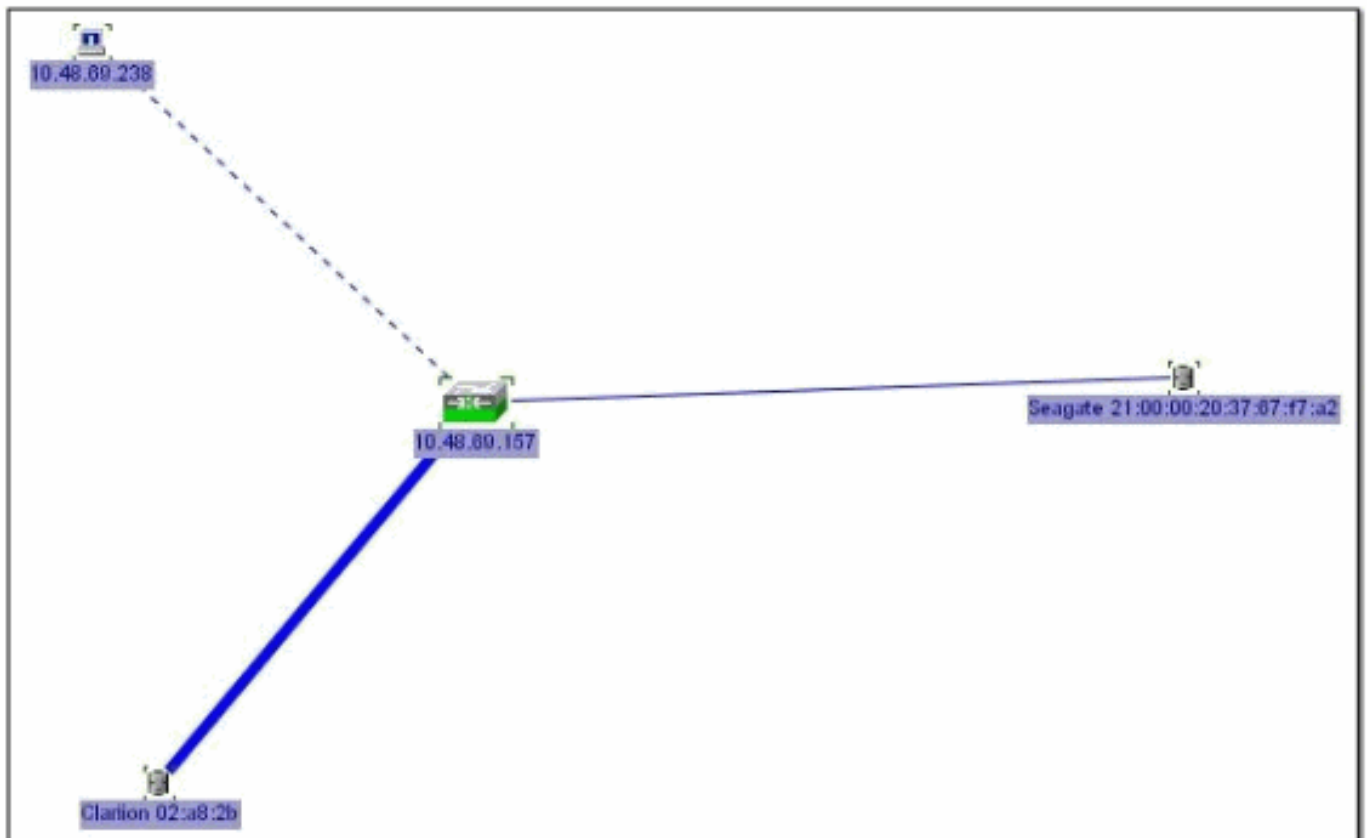
C 10.48.69.192/26 is directly connected,
gigabitethernet2-1
C 10.48.69.128/26 is directly connected, mgmt0

```

[Fabric Manager 및 Device Manager 표시](#)

이 섹션에서는 MDS Fabric Manager 1.2(1a) 및 Device Manager 1.2(1a)의 화면 캡처를 제공합니다.

패브릭 관리자의 토폴로지 다이어그램



장치 관리자



LUN의 pWWN, LUN ID 및 용량을 표시하려면 Device Manager에서 FC- > LUN을 선택합니다.

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)

iSCSI 세션을 표시하려면 Device Manager에서 IP > iSCSI를 선택합니다.

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