CHAPTER 1

Advanced Services Module Commands

The commands in this chapter are specific to the Advanced Services Module (ASM) used in the Cisco MDS 9216 Switch and the Cisco MDS 9500 Series. All commands are shown here in alphabetical order regardless of command mode.

See the "About the CLI Command Modes" section on page 1-3 to determine the appropriate mode for each command. For more information on virtualization using the ASM, see the "Related Documentation" section on page lxvii.

attach module—show fcdd

To display the Fibre Channel Device Discovery (FCDD) information, use the **show fcdd** command.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt.

attach module *slot-number*

show fcdd *option*

Syntax Description

attach module *slot-number*	Attaches to the ASM module.
show fcdd	Displays FCDD information.
option	**eventlog**—Displays information of various state machines **history**—Displays FCDD history buffer **nvp**—Displays FCDD for the virtual Nx port (NVP) **pid**—Displays Path Ids **rescan**—Displays FCDD disk rescan information **target**—Displays Disk/VM VSAN FC targets

Command Modes

EXEC (attach module mode).

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Access the ASM using the **attach module** command to obtain VEC-specific configuration information You cannot configure the ASM using this command. After you connect to the image on the module using the **attach module** command, the prompt changes to `module-number#`.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example displays target FCDD information for the ASM in slot 2.

```
module-2# show fcdd history
1) Event:E_DEBUG, length:67, at 617784 usecs after Thu Sep 18 17:55:04 2003
    [103] fcdd_demux(*event=0x7ffffb90,**ret_fsm_event_list=0x7ffff920)
2) Event:E_DEBUG, length:48, at 617759 usecs after Thu Sep 18 17:55:04 2003
    [103] fcdd_mts_dequeue_event(*ret_ev=0x7ffffb90)
3) Event:E_DEBUG, length:71, at 617751 usecs after Thu Sep 18 17:55:04 2003
    [103] fcdd_get_data_from_queue(*q_entry=0x2d8ea000, *ret_ev=0x7ffffb90)
4) Event:E_DEBUG, length:52, at 617739 usecs after Thu Sep 18 17:55:04 2003
    [103] fcdd_dequeue_event: Data Rcvd, Total ticks - 0
5) Event:E_DEBUG, length:20, at 511016 usecs after Thu Sep 18 17:54:57 2003
    [103]
...
```

```
module-2# show fcdd nvp vsan 3
FCDD NVP INFO:
VSAN    pWWN                    FCID        LPI DPP SI      IF_INDEX    NUM_ZONE
--------------------------------------------------------------------------------
   3    24:0a:00:05:30:00:94:a00x650009   1   1   0x0031  0x01091000 0

ZONE_CNT    ZONE_NAME
-----------------------

module-2# show fcdd pid
CNT  PID    MINOR  VSAN  TGT_WWN                  LUN_ID                   STATE
--------------------------------------------------------------------------------
0    0x0011 272    3     21:00:00:20:37:46:78:97  00:00:00:00:00:00:00:00 INV_PD
1    0x0012 288    3     21:00:00:20:37:5b:cf:b9  00:00:00:00:00:00:00:00 INV_PD
2    0x0013 304    3     21:00:00:20:37:18:6f:90  00:00:00:00:00:00:00:00 INV_PD
3    0x0014 320    3     21:00:00:20:37:36:0b:4d  00:00:00:00:00:00:00:00 INV_PD
4    0x0015 336    3     21:00:00:20:37:39:90:6a  00:00:00:00:00:00:00:00 INV_PD
5    0x0016 352    3     21:00:00:20:37:18:d2:45  00:00:00:00:00:00:00:00 INV_PD
6    0x0017 368    3     21:00:00:20:37:38:a7:c1  00:00:00:00:00:00:00:00 INV_PD
7    0x0018 384    3     21:00:00:20:37:18:17:d2  00:00:00:00:00:00:00:00 INV_PD
8    0x0019 400    4     22:00:00:20:37:46:78:97  00:00:00:00:00:00:00:00 ACTIV
9    0x001a 416    4     22:00:00:20:37:5b:cf:b9  00:00:00:00:00:00:00:00 ACTIV
10   0x001b 432    4     22:00:00:20:37:18:6f:90  00:00:00:00:00:00:00:00 ACTIV

module-2# show fcdd target vsan 3
=====================================
All existing disks in VSAN    3:
=====================================
TGT_CNT pWWN                    FCID     SCSI_ID NUM_ZONE REDISC_TMR PERIOD(S) LAST_ACCESS
================================================================================================
0       21:00:00:20:37:18:17:d2 0x7200c9 7       0               YES 600       Thu Sep 18
18:00:32 2003

LUN_NUM LUN_ID                   MINOR  PID     TGT_WWN                 STATE    PERIOD(S)
TIMER_STARTED
------------------------------------------------------------------------------------------------
     0       00:00:00:00:00:00:00:00  384    0x0018  21:00:00:20:37:18:17:d2  ACTIVE   0
TGT_CNT pWWN                    FCID     SCSI_ID NUM_ZONE REDISC_TMR PERIOD(S) LAST_ACCESS
================================================================================================
1       21:00:00:20:37:18:d2:45 0x7200c5 5       0               YES 600       Thu Sep 18
18:00:32 2003

LUN_NUM LUN_ID                   MINOR  PID     TGT_WWN                 STATE    PERIOD(S)
TIMER_STARTED
------------------------------------------------------------------------------------------------
     0       00:00:00:00:00:00:00:00  352    0x0016  21:00:00:20:37:18:d2:45  ACTIVE   0
TGT_CNT pWWN                    FCID     SCSI_ID NUM_ZONE REDISC_TMR PERIOD(S) LAST_ACCESS
================================================================================================
2       21:00:00:20:37:5b:cf:b9 0x7200b6 1       0               YES 600       Thu Sep 18
18:00:32 2003
...
```

attach module—show npc

To display the virtual N port creator (NPC) information, use the **show npc** command.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt.

attach module *slot-number*

show npc *option*

Syntax Description

attach module *slot-number*	Attaches to the ASM module.
show npc	Displays NPC information.
option	**history** — Displays NPC history buffer **nvp** — Displays NPC information for the virtual N port

Command Modes

EXEC (attach module mode).

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Access the ASM using the **attach module** command to obtain VEC-specific configuration information You cannot configure the ASM using this command. After you connect to the image on the module using the **attach module** command, the prompt changes to `module-number#`.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example displays target FCDD information for the ASM in slot 2.

```
module-2# show npc history
module-2# show npc history
1) Event:E_DEBUG, length:66, at 123862 usecs after Thu Sep 18 18:24:50 2003
    [103] npc_demux(*event=0x7ffffb60,**ret_fsm_event_list=0x7ffff8f0)
2) Event:E_DEBUG, length:71, at 123849 usecs after Thu Sep 18 18:24:50 2003
    [105] 0x000000D0: 00 00 00 00 ...
3) Event:E_DEBUG, length:82, at 123818 usecs after Thu Sep 18 18:24:50 2003
    [105] 0x000000C0: 00 00 00 0C 00 00 00 00 00 00 00 00 00 00 00 00 ...
4) Event:E_DEBUG, length:82, at 123766 usecs after Thu Sep 18 18:24:50 2003
    [105] 0x000000B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ...
5) Event:E_DEBUG, length:82, at 123714 usecs after Thu Sep 18 18:24:50 2003
    [105] 0x000000A0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ...

module-2# show npc nvp
COUNT VSAN pWWN                     FCID     LPI DPP SI     IF_INDEX   TCAM_TYPE
STATE       U_CNT USERS
--------------------------------------------------------------------------------
```

```
-----------------------
0        2 10:00:00:00:5e:00:01:01 0x6f0000  17   1 0x0030 0x01090000 0x0205
ESTABLISHED   1   [ 31 ]
1        2 10:00:00:05:30:00:59:20 0x6f0002  17   1 0x0030 0x01090000 0x0205
ESTABLISHED   1   [ 31 ]
2        2 23:00:00:05:30:00:59:20 0x6f000b  19   1 0x0032 0x01092000 0x0206
ESTABLISHED   1   [ 918 ]
3        2 23:02:00:05:30:00:59:20 0x6f0003  18   1 0x0031 0x01091000 0x0206
ESTABLISHED   1   [ 918 ]
4        2 23:03:00:05:30:00:59:20 0x6f0004   1   2 0x0020 0x01080000 0x0206
ESTABLISHED   1   [ 918 ]
5        2 23:04:00:05:30:00:59:20 0x6f0005   5   3 0x0024 0x01084000 0x0206
ESTABLISHED   1   [ 918 ]
6        2 23:05:00:05:30:00:59:20 0x6f0006  21   4 0x0034 0x01094000 0x0206
ESTABLISHED   1   [ 918 ]
7        2 23:06:00:05:30:00:59:20 0x6f0007  25   5 0x0038 0x01098000 0x0206
ESTABLISHED   1   [ 918 ]
8        2 23:07:00:05:30:00:59:20 0x6f0008   9   6 0x0028 0x01088000 0x0206
ESTABLISHED   1   [ 918 ]
...

module-2# show npc nvp fsm 23:08:00:05:30:00:59:20 vsan 2
>>>>FSM: <NVP_23:08:00:05:30:00:59:20> has 7 logged transitions<<<<<
1) FSM:<NVP_23:08:00:05:30:00:59:20> Transition at 839998 usecs after Thu Sep 18
 17:57:23 2003
    Previous state: [NPC_NVP_NULL]
    Triggered event: [NPC_NVP_EV_NP_CREATION_REQ]
    Next state: [NPC_NVP_GET_IFINDEX]
2) FSM:<NVP_23:08:00:05:30:00:59:20> Transition at 840179 usecs after Thu Sep 18
 17:57:23 2003
    Previous state: [NPC_NVP_GET_IFINDEX]
    Triggered event: [NPC_NVP_EV_IF_INDEX_OK]
    Next state: [NPC_NVP_FVLOGI_SENT]
...

module-2# show npc nvp vsan 2
COUNT VSAN pWWN                     FCID     LPI DPP SI     IF_INDEX   TCAM_TYPE
STATE       U_CNT USERS
-------------------------------------------------------------------------------
-----------------------
0        2 10:00:00:00:5e:00:01:01 0x6f0000  17   1 0x0030 0x01090000 0x0205
ESTABLISHED   1   [ 31 ]
1        2 10:00:00:05:30:00:59:20 0x6f0002  17   1 0x0030 0x01090000 0x0205
ESTABLISHED   1   [ 31 ]
2        2 23:00:00:05:30:00:59:20 0x6f000b  19   1 0x0032 0x01092000 0x0206
ESTABLISHED   1   [ 918 ]
3        2 23:02:00:05:30:00:59:20 0x6f0003  18   1 0x0031 0x01091000 0x0206
ESTABLISHED   1   [ 918 ]
4        2 23:03:00:05:30:00:59:20 0x6f0004   1   2 0x0020 0x01080000 0x0206
ESTABLISHED   1   [ 918 ]
...
```

attach module—show vec

To display Virtual Enclosure Client (VEC) information, use the **show vec** command.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt.

attach module *slot-number*

show vec *option*

Syntax Description

attach module *slot-number*	Attaches to the ASM module.
show vec	Displays configured VEC information.
option	**asm** — Displays VEC-related ASM information **dip** — Displays Distributed Instantiation Protocol (DIP) information **dpp** — Displays Data Path Processors (DPPs) State **dpp-hostmap** — Displays DPP host maps **dpp-lunmap** — Displays DPP LUN maps **error-statistics** — Displays VEC error statistics **fp-port** — Displays Front panel ports in the ASM **history** — Displays VEC internal history buffer **host** — Displays Logged in hosts **initiator-nports** — Displays Disk/VM VSAN initiator N ports **login** — Displays Disk/VM VSAN process logins **pid** — Displays Path Ids **scsi-init** — Displays SCSI initiator information **scsi-tgt** — Displays SCSI target information **target** — Displays Disk/VM VSAN FC targets **tp** — Displays Trap Port (TP) **vep** — Displays Virtual Enclosure Port (VEP) **ves** — Displays Virtual Enclosure Server(s) (VES) connected to the VEC **vlun** — Displays VLUNs **vlun-statistic** — Displays Vlun error statistics **vmvsan-login** — Displays DIOP logins **volume-owners** — Displays Volume Owners **vsans** — Displays VSANs seen by the VEC **xp-login** — Displays logins (PLOGI/PRLI) to VEPs/TPs (xPs)

Command Modes

EXEC (attach module mode).

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Access the ASM using the **attach module** command to obtain VEC-specific configuration information You cannot configure the ASM using this command. After you connect to the image on the module using the **attach module** command, the prompt changes to `module-number#`.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example displays target VEC information for the ASM in slot 2.

```
module-2# show vec target
vsan I dpp   here there pwwn                      target state
   3 A   0 72000a 720101 21:00:00:20:37:65:1c:cb  83995a8 PRLI_COMPLETE
   3 A   0 72000a 7201e8 21:00:00:20:37:65:1c:e3  839a188 PRLI_COMPLETE
   4 A   0 6b0009 7800ba 22:00:00:20:37:18:6f:90  83a7ce8 PRLI_COMPLETE
   3 A   0 72000a 7202ba 21:00:00:20:37:18:6f:90  83a5540 PRLI_COMPLETE
   4 A   0 6b0009 7800c9 22:00:00:20:37:18:17:d2  83aebd0 PRLI_COMPLETE
   3 A   0 72000a 7202c9 21:00:00:20:37:18:17:d2  83ad410 PRLI_COMPLETE
   2 A   2 6f0005 6f0005 23:04:00:05:30:00:59:20  837de70 PRLI_COMPLETE
   2 A   5 6f0008 6f0005 23:04:00:05:30:00:59:20  83866f8 PRLI_COMPLETE
   3 A   0 72000a 7201ef 21:00:00:20:37:89:ac:7f  839ad68 PRLI_COMPLETE
   4 A   0 6b0009 780100 50:06:04:82:bf:d0:cf:4b  839c998 PRLI_COMPLETE
   4 A   0 6b0009 7800bc 22:00:00:20:37:36:0b:4d  83a94a8 PRLI_COMPLETE
...
```

attach module—show ves

To display Virtual Enclosure Server (VES) information, use the **show ves** command.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt, or type **$.** to forcibly abort the attached session.

attach module *slot-number*

show ves *option*

Syntax Description

attach module *slot-number*	Attaches to the ASM module.
show ves	Displays configured VES information for the ASM.
option	**dg** — Displays VES-related Disk Group information **diop**—Displays Data-path Input Output Protocol (DIOP) information **dip** — Displays Distributed Instantiation Protocol (DIP) **history** — Displays VES internal history buffer **lunmap** — Displays VES lunmap information **pid** — Displays Path Id (PID) information **pid-evlog** — Displays PID event log information **pid_vlun_sg** — Displays PID/VLUN SG Table Information **scsi-tgt** — Displays SCSI Target Module **sg** — Displays Service Group **ve** — Displays Virtual Enclosure (VE) **vec** — Displays Virtual Enclosure Clients (VECs) connected to the VES **vep** — Displays Virtual Enclosure Port (VEP) **vlun** — Displays VLUN Table Information **vlun-counters** — Displays VLUN counters **vlun-evlog** — Displays VLUN event log **vsans** — Displays VSANs seen by the VES

Command Modes

EXEC (attach module mode).

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Access the ASM using the **attach module** command to obtain VEC -specific configuration information You cannot configure the ASM using this command. After you connect to the image on the module using the **attach module** command, the prompt changes to `module-number#`.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example displays the virtual enclosure server's service group information for the ASM in slot 2.

```
module-2# show ves sg

            Virtual Enclosure Server Service Group Info
 ---------------------------------------------------------------------
 No      VR-ID              IP Address
 ---------------------------------------------------------------------
 0         0                    15.0.112.2
 1         1                    15.0.0.10
 2         2                    15.0.0.11

Number of Service Groups : 3...
```

The following examples display DIOP information for the ASM in slot 2.

```
module-2# show ves diop guid
VLUN-ID                 GUID
0000000000000001        c3ef7ce8-1dd1-11b2-a8de-75d21f738aa7
module-2# show ves diop stats
DIOP COUNTER         : Success          Failed

VLUN STRATEGY        : 0x00000000       0x00000000
VLUN DONE            : 0x00000000       0x00000000
DISK REMOTE STRATEGY : 0x00000000       0x00000000
DISK REMOTE DONE     : 0x00000000       0x00000000
DISK LOCAL STRATEGY  : 0x00000000       0x00000000
DISK LOCAL DONE      : 0x00000000       0x00000000
module-2# show ves diop vsvo
vsan    : 2
fcid    : 0x6F000B
dpp     : 0
module-2# show ves diop xp
Hash    VSAN    FCID    pWWN    RefCnt
2       2       6F000B  2300000530005920        1
3       2       6F0007  2306000530005920        1
7       2       6F0008  2307000530005920        1
10      2       6F0003  2302000530005920        1
11      2       6F0009  2308000530005920        1
14      2       6F0004  2303000530005920        1
15      2       6F000A  2309000530005920        1
18      2       6F0005  2304000530005920        1
22      2       6F0006  2305000530005920        1
```

attach module—show version

To display version information for the ASM module, use the **show version** command.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt, or type **$.** to forcibly abort the attached session.

attach module *slot-number*

show version

Syntax Description

This command does not have any options.

Command Modes

EXEC (attach module mode).

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Access the ASM using the **attach module** command to obtain VSHA-specific configuration information You cannot configure the ASM using this command. After you connect to the image on the module using the **attach module** command, the prompt changes to `module-number#`.

Use the **show version** command to verify the integrity of the image before loading the images. This command can be used for ASM images.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example displays the ASM version in slot 2.

```
module-2# show version

Software
  BIOS:      version 1.0.7
  system:    version 1.2(2)


  BIOS compile time:       03/20/03
  system compile Time:     7/11/2003 14:00:00

Hardware
  RAM 963380 kB
  bootflash: 500736 blocks (block size 512b)

  00:05:30:00:AC:AA uptime is 0 days 21 hours 2 minute(s) 32 second(s)
```

attach module—show virt-lookup

To display virtualization lookup tables, use the **show virt-lookup** command.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt, or type **$.** to forcibly abort the attached session.

attach module *slot-number*

show virt-lookup *number* **[d_id | vol-cfg] [entries | masks | keys | stats]**

Syntax Description

attach module *slot-number*	Attaches to the ASM module.
show virt-lookup	Displays virtualization lookup tables.
number	Specifies one of four table instances of the virtualization engine (ranges from 1 to 4).
d_id	Displays DID lookup information.
vol-cfg	Displays volume lookup information.
entries	Displays lookup entries.
keys	Displays lookup keys.
masks	Displays lookup masks.
stats	Displays lookup statistics.

Command Modes

EXEC (attach module mode).

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Access the ASM using the **attach module** command to obtain VSHA-specific configuration information You cannot configure the ASM using this command. After you connect to the image on the module using the **attach module** command, the prompt changes to `module-number#`.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example displays virtual engine 1 details for DID entries.

```
module-2# show virt-lookup 1 d-id entries
   INDEX  V  CL  EG_IDX  RSVD  SW_INDEX  MASK
00000000  1   2      0   000  00000000  0204
00000001  1   2      1   000  00000000  0204
00000400  1   2      0   000  FFFFFFFF  0205
00000401  1   2      0   000  FFFFFFFF  0207
00000402  1   2      0   000  FFFFFFFF  0206
```

```
00000403  1   2     1     000  FFFFFFFF  0206
00000404  1   2     0     000  FFFFFFFF  0206
00000405  1   2     0     000  FFFFFFFF  0206
00000406  1   2     1     000  FFFFFFFF  0206
00000407  1   2     0     000  FFFFFFFF  0206
00000408  1   2     0     000  FFFFFFFF  0206
00000409  1   2     1     000  FFFFFFFF  0206
0000040A  1   2     0     000  FFFFFFFF  0206
```

The following example displays volume lookup mask entries for virtualization engine 2.

```
module-2# show virt-lookup 2 vol-cfg masks
BLKINDEX  FL  V  CL  RESERVED  RESERVED   D_ID    S_ID   B1  B0  IN  PI  VSAN
              1   3  00000000  00000000  FFFFFF  000000  00  00   1   3   FFF
00001C00  3F
```

The following example displays statistics for volume lookup tables.

```
module-2# show virt-lookup 3 vol-cfg stats
TOTAL   USED  USED-DPP0  USED-DPP1
 8192      6          3          3
```

attach module—show vsha

To display volume server high availability (VSHA) information, use the **show vsha** command.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt, or type **$.** to forcibly abort the attached session.

attach module *slot-number*

show vsha *option*

Syntax Description

attach module *slot-number*	Attaches to the ASM module.
show vsha	Displays configured VSHA information.
option	**dg-info** — Displays VSHA SG-Disk_group information **sg-info** — Displays VSHA SG Information **sg-log** — Displays VSHA SG Event Log

Command Modes

EXEC (attach module mode).

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Access the ASM using the **attach module** command to obtain VSHA-specific configuration information You cannot configure the ASM using this command. After you connect to the image on the module using the **attach module** command, the prompt changes to `module-number#`.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example displays VSHA service group information for the ASM in slot 2.

```
module-2# show vsha sg-info
 ------------------------------------------------------------------------
       VSHA SG Table
------------------------------------------------------------------------
System Variables: VmVsan=2, Real_IP=15.0.112.2     , interface_index=0x8080002
------------------------------------------------------------------------
Record:0   VR_ID:1   SG_Name:sg-1   VR_IP:15.0.0.10       Node_ID:1
Record:1   VR_ID:2   SG_Name:sg-2   VR_IP:15.0.0.11       Node_ID:2
------------------------------------------------------------------------
module-4# show vsha sg-info vr_id 1
------------------------------------------------------------------------
VSHA SG Table
------------------------------------------------------------------------
System Variables: VmVsan=2, Real_IP=18.0.0.4       , interface_index=0x8180002
Record: 0
    VR_ID: 1
```

```
    SG_Name: sg1
    VR_IP: 18.0.0.24
    Node_ID:1
    State: VSHA_STANDALONE_MASTER
    Arbitration_disk: 22000020374BB5990003.0000
    Peer_IP: INVALID
    Flags:0x0
------------------------------------------------------------------------

module-4# show vsha dg-info vr_id 1
 ------------------------------------------------------------------------
VSHA-DG info for vr_id 1
 ------------------------------------------------------------------------
Record:0       DG_Name:rahul_dg1                        DG_state:DISK_GROUP_O
NLINE
 ------------------------------------------------------------------------

module-4# show vsha sg-log vr_id 1
>>>>FSM: <VSHA_SG_1> has 35 logged transitions<<<<<

1) FSM:<VSHA_SG_1> Transition at 596109 usecs after Mon Apr  7 22:50:47 1980
    Previous state: [VSHA_NULL]
    Triggered event: [VSHA_EV_ARBITRATION_DISK_CHG]
    Next state: [VSHA_NULL]

2) FSM:<VSHA_SG_1> Transition at 163199 usecs after Mon Apr  7 22:51:13 1980
    Previous state: [VSHA_NULL]
    Triggered event: [VSHA_EV_ONLINE_SERVICE_GRP_AS_MASTER]
    Next state: [VSHA_STANDALONE_MASTER]

3) FSM:<VSHA_SG_1> Transition at 198675 usecs after Mon Apr  7 22:51:13 1980
    Previous state: [VSHA_STANDALONE_MASTER]
    Triggered event: [VSHA_EV_VX_DG_IMPORT_RESP]
    Next state: [VSHA_STANDALONE_MASTER]

4) FSM:<VSHA_SG_1> Transition at 201051 usecs after Mon Apr  7 22:51:23 1980
    Previous state: [VSHA_STANDALONE_MASTER]
    Triggered event: [VSHA_EV_RESOURCE_MONITOR]
    Next state: [VSHA_STANDALONE_MASTER]
```

attach module—terminal

To configure the terminal for the ASM, use the **terminal** command in attach module mode. Use the **no** form of the command to negate a previously-issued command or revert to factory defaults.

To connect to a ASM, use the **attach module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt, or type **$.** to forcibly abort the attach session.

attach module *slot-number*

terminal length *number-of-lines* **| session-timeout | terminal type | width** *integer*]

Syntax Description

length	(Optional) Sets the number of lines on the screen.
number-of-lines	(Optional) Specifies the number of lines on the screen from 0 to 512. Enter 0 to scroll continuously.
session-timeout	(Optional) Specifies the session time out.
terminal-type	(Optional) Sets the terminal type.
width	(Optional) Sets the width of the display terminal, from 0 to 80.
integer	Sets the width of the display terminal, from 0 to 80.

Defaults

The default number of lines for the length is 24. The default width is 80 lines.

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

Remember that all terminal parameter-setting commands are set locally and do not remain in effect after a session is ended. You must perform this task at the EXEC prompt at each session to see the debugging messages.

If the length is not 24 and the width is not 80, then you need to set a length and width.

Examples

The following example attaches to the ASM in slot 2 and exits from the ASM debug mode.

```
switch# attach module 2
Attaching to module 1 ...
To exit type 'exit', to abort type '$.'
module-2#
```

The following example enables the session timeout to 0 (will not time out) for the ASM in slot 2.

```
module-2# terminal session-timeout 0
```

attachpriv module

To connect to a ASM's Linux prompt, use the **attachpriv module** command in EXEC mode. To disconnect, use the **exit** command at the `module-number#` prompt, or type **$.** to forcibly abort the attach session.

attachpriv module *slot-number*

Syntax Description

attachpriv	Attaches to the Linux prompt.
module *slot-number*	Specifies the slot number for the ASM

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

You cannot configure the ASM using this command. After you connect to the image on the module using the **attachpriv module** command, the prompt changes to `vmroot@00:05:30:00:AC:AA:/root#`.

You can only issue Linux-specific commands at this prompt.

This command only works with the ASM, not with any other type of module.

You must log into the supervisor module with admin privileges in order to run this command.

Caution The **attachpriv module** command is for troubleshooting, and should only be used by Cisco or Veritas support personnel. Do not attempt to configure the ASM at the Linux prompt.

Examples

The following example attaches to the ASM in slot 2 and connects to the Linux mode.

```
switch# attachpriv module 2
Attaching to asm 127.1.2.2
To exit type 'exit', to abort type '$.
vmroot@00:05:30:00:AC:AA:/root#
```

asm mgmt-vsan

To assign the management VSAN for the Advanced Services Module (ASM), use the **asm mgmt-vsan** command. To revert to factory defaults or to negate a previously issued command, use the **no** form of the command.

asm mgmt-vsan *vsan-id* **module** *slot-number*

no asm mgmt-vsan *vsan-id* **module** *slot-number*

Syntax Description

asm	Configures the Advanced Services Module (ASM).
mgmt-vsan	Configures the management VSAN.
vsan-id	Specifies the ID of the management VSAN from 1 to 4093.
module *slot-number*	Specifies the slot number of the ASM.

Defaults

None.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

When you specify a management VSAN for the ASM, nine (9) fabric virtual (FV) interfaces are created

If you have configured trunking on both switches, you will see 18 FV interfaces instead of 9 FV interfaces.

After you configure the interface for a host port, you may set any other port-specific parameters, such as port type or mode.

Examples

The following example configures management VSAN 2 for the ASM in slot 2.

```
switch# config terminal
switch(config)# asm mgmt-vsan 2 module 2
```

Related Commands

Command	Description
show vsan	Displays all VSAN configurations.
show asm mgmt-vsan	Displays the configured management VSAN.

interface cpp

To configure a Control Plane Process (CPP) interface on the Cisco MDS 9000 Family of switches, use the **interface cpp** command. To disable a Fibre Channel interface, use the **no** form of the command.

interface cpp *slot_number/processor-number/vsan-id*

Syntax Description

interface	Configures a new interface.
cpp	Specifies the new interface to be a virtualization IPFC interface.
slot-number	Specifies a slot number of the ASM.
processor-number	Specifies the processor number for the IPFC interface. The current processor number is always 1.
vsan-id	Specifies the ID of the management VSAN from 1 to 4093.

Defaults

Disabled.

Command Modes

Configuration mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

You can specify a range of interfaces by issuing a command with the following example format:

interface space fc1/1space-space5space,spacefc2/5space-space7

Examples

The following example configures an IPFC interface for the ASM in slot 2 with a processor ID 1 in management VSAN 2.

```
switch# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# interface cpp 2/1/2
switch(config-if)#
```

Related Commands

Command	Description
show interface	Displays an interface configuration for a specified interface.

show asm

To displays configured information for the ASM, use the **show asm** command. To revert to factory defaults or to negate a previously issued command, use the **no** form of the command.

show asm disk-group | mgmt-vsan

Syntax Description

asm	Configures the Advanced Services Module (ASM).
mgmt-vsan	Configures the management VSAN.
vsan-id	Specifies the ID of the management VSAN from 1 to 4093.
module *slot-number*	Specifies the slot number of the ASM.

Defaults

None.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

None.

Examples

The following example displays the disk groups for the ASM in slot 2. Node refers to the ASM in slot 2 and SII refers to the SCSI index instance. When a disk group is created using the VERITAS Storage Foundation (TM) for Networks application, they are stored in the ASM.

```
switch# show asm disk-group
SII  Node   Disk Group Name
===  ====== ==========================
  3    2    dg1-114
  4    2    dg2-114
  5    2    dg1-112
  6    2    dg2-112
===  ====== ==========================

switch# show asm mgmt-vsan
Module-Id  Management VSAN
=========  ==================
  2            2
=========  ==================
```

Related Commands

Command	Description
asm mgmt-vsan	Configures the management VSAN.

show flogi database

To list all the FLOGI sessions through all interfaces across all VSANs, use the **show flogi database** command.

show flogi database [**fcid** *fcid-id* | **interface** *interface* | **vsan** *vsan-id*]

Syntax Description

fcid *fcid-id*	Displays FLOGI database entries based on the FCID allocated.
interface *interface*	Displays FLOGI database entries based on the logged in interface.
vsan *vsan-id*	Displays FLOGI database entries based on the VSAN ID. The range is 1 to 4093.

Defaults

Displays the entire FLOGI database.

Command Modes

EXEC mode.

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.0(2).

Usage Guidelines

FV interfaces are automatically created when the ASM boots up.

You can issue this command for a specific VSAN (management VSAN or discovery VSAN, or host VSAN using the VSAN ID, or you can use the FCID to view a specific interface's port name and node name. The symbolic port names and node names can only be displayed for a local device.

Examples

The following example displays the virtualization related FV interface information in the FLOGI database.

```
switch# show flogi database vsan 2
--------------------------------------------------------------------------------
INTERFACE  VSAN    FCID           PORT NAME               NODE NAME
--------------------------------------------------------------------------------
sup-fc0    2     0x6f0001  10:00:00:05:30:00:59:1f  20:00:00:05:30:00:59:1e
fv2/1/1    2     0x6f0002  10:00:00:05:30:00:59:20  20:00:00:05:30:00:59:1e
fv2/1/2    2     0x6f0003  23:02:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/1/3    2     0x6f000b  23:00:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/1/8    2     0x6f0000  10:00:00:00:5e:00:01:02  20:00:00:05:30:00:59:1e
fv2/1/9    2     0x6f000c  10:00:00:00:5e:00:01:01  20:00:00:05:30:00:59:1e
fv2/2/1    2     0x6f0004  23:03:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/3/1    2     0x6f0005  23:04:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/4/1    2     0x6f0006  23:05:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/5/1    2     0x6f0007  23:06:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/6/1    2     0x6f0008  23:07:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/7/1    2     0x6f0009  23:08:00:05:30:00:59:20  22:14:00:05:30:00:59:20
fv2/8/1    2     0x6f000a  23:09:00:05:30:00:59:20  22:14:00:05:30:00:59:20
```

show interface

You can check the status of an interface at any time by using the **show interface** command.

show interface
[*interface range*]
[**brief | counters | description**]
[cpp *slot/process-number/vsan-id***] | [fv** *slot/dpp-number/fv-port***]**
[fc *slot/port***] | [fc-tunnel** *tunnel-id***] |**
[fcip *interface-number* **| gigabitethernet | iscsi] |**
mgmt | port-channel *portchannel-number. subinterface-number* **| sup-fc | transceiver | trunk**
vsan [*vsan-id***] | vsan** *vsan-id*

Syntax Description

interface range	Displays the interfaces in the specified range.
brief	Displays brief info of interface.
counters	Displays the interface counter information.
description	Displays a description of interface.
cpp *slot/process-number/ vsan-id*	Displays the virtualization IPFC interface in the specified slot along with the processor number and the VSAN ID.
fv *slot/dpp-number/fv-port*	Displays the virtual F port (FV port) interface in the specified slot along with the data path processor (DPP) number and the FV port number.
fc *slot/port*	Displays the Fibre Channel interface in the specified slot/port.
fc-tunnel *tunnel-id*	Displays description of the specified FC tunnel from 1 to 4095.
fcip *interface-number*	Displays the description of the specified FCIP interface from 1 to 255.
gigabitethernet *slot/port*	Displays the description of the Gigabit Ethernet interface in the specified slot/port.
iscsi *slot/port*	Displays the description of the iSCSI interface in the specified slot/ port.
mgmt	Displays the description of the management interface.
port-channel *portchannel-number. subinterface-number*	Displays the PortChannel interface specified by the PortChannel number followed by a dot (.) indicator and the subinterface number.
sup-fc	Displays the inband interface details.
transceiver	Displays the transceiver information for interface.
trunk vsan	Displays the trunking status of all VSANs.
vsan-id	Displays the trunking status of the specified VSANs.
vsan *vsan-id*	Displays the VSAN interface (brief, counters, or description for a specified interface or a range of interfaces)

Defaults

None

Command Modes

EXEC

Command History

This command was modified in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

The interface range must be in ascending order and nonoverlapping. You can specify a range using a hyphen and several interfaces using commas:

- The interface range format for a FC interface range is **fc***slot*/*port* **-** *port* **,** **fc***slot*/*port* **,** **fc***slot*/*port*
  (For example, **show int fc1/1 - 3 , fc1/5 , fc2/5**)
- The interface range format for a FV interface range is **fv***slot*/*dpp*/*fvport* **-** *fvport* **,** **fv***slot*/*dpp*/*port* **,** **fv***slot*/*dpp*/*port*
  (For example, **show int fv2/1/1 - 3 , fv2/1/5 , fv2/2/5**)
- The interface range format for a CPP interface range is **cpp***slot*/*process*/*vsan-id* **-** *vsan-id* **,** **cpp***slot*/*process*/*vsan-id* **,** **cpp***slot*/*process*/*vsan-id*
  (For example, **show int cpp2/1/2 - 3 , cpp2/1/5 , cpp2/1/7**)
- The format for a PortChannel is **port-channel** *portchannel-number.subinterface-number*
  (For example, **show int port-channel 5.1**)

The CPP interface is configured when the IPFC interface is set up.

Examples

The following example displays the various interface commands.

```
switch# show interface fc1/11
fc1/11 is up
    Hardware is Fibre Channel
    Port WWN is 20:0b:00:05:30:00:59:de
    Admin port mode is ST
    Port mode is ST
    Port vsan is 1
    Speed is 1 Gbps
    Rspan tunnel is fc-tunnel 100
    Beacon is turned off
    5 minutes input rate 248 bits/sec, 31 bytes/sec, 0 frames/sec
    5 minutes output rate 176 bits/sec, 22 bytes/sec, 0 frames/sec
      6862 frames input, 444232 bytes
        0 discards, 0 errors
        0 CRC, 0 unknown class
        0 too long, 0 too short
      6862 frames output, 307072 bytes
        0 discards, 0 errors
      0 input OLS, 0 LRR, 0 NOS, 0 loop inits
      0 output OLS, 0 LRR, 0 NOS, 0 loop inits

switch# show interface fc1/1 - 3 , fc1/5 , fc2/5 brief

--------------------------------------------------------------------------------
Interface  Vsan   Admin  Admin   Status          FCOT   Oper  Oper   Port
                  Mode   Trunk                         Mode  Speed  Channel
                         Mode                                (Gbps)
--------------------------------------------------------------------------------
fc1/1      3      auto   on      up               swl    FL      1    --
fc1/2      1      auto   on      fcotAbsent       --     --           --
fc1/3      1      auto   on      fcotAbsent       --     --           --
fc1/5      3      auto   on      notConnected     swl    --           --
fc2/5      5      FX     --      up               swl    F       2    --
```

```
switch# show interface sup-fc0
sup-fc0 is up
    Hardware is FastEthernet, address is 0000.0000.0000
    MTU 2596 bytes, BW 1000000 Kbit
    66 packets input, 7316 bytes
    Received 0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun 0 fifo
    64 packets output, 28068 bytes, 0 underruns
    0 output errors, 0 collisions, 0 fifo
    0 carrier errors

switch# show interface vsan 2
vsan2 is up, line protocol is up
    WWPN is 10:00:00:05:30:00:59:1f, FCID is 0xb90100
    Internet address is 10.1.1.1/24
    MTU 1500 bytes, BW 1000000 Kbit
    0 packets input, 0 bytes, 0 errors, 0 multicast
    0 packets output, 0 bytes, 0 errors, 0 dropped

switch# show interface description
fc1/1
    no description
fc1/2
    no description
fc1/15
fcAnl

sup-fc0 is up

mgmt0 is up

vsan1 - IPFC interface

port-channel 15
no description

port-channel 98
no description

switch# show interface fc2/1 - 5 brief
--------------------------------------------------------------------------------
Interface  Vsan   Admin   Admin   Status          Oper  Oper    Port-channel
                  Mode    Trunk                   Mode  Speed
                          Mode                          (Gbps)
--------------------------------------------------------------------------------
fc1/1      3      auto    on      up              FL    1       --
fc1/2      1      auto    on      fcotAbsent      --            --
fc1/3      1      auto    on      fcotAbsent      --            --
fc1/4      3      auto    on      up              FL    1       --
fc1/5      3      auto    on      up              F     2       --
fc1/6      1      auto    on      fcotAbsent      --            --
fc1/7      1      auto    on      fcotAbsent      --            --
fc1/8      3      auto    on      fcotAbsent      --            --
fc1/9      1      auto    on      fcotAbsent      --            --
fc1/10     1      auto    on      fcotAbsent      --            --
fc1/11     1      auto    on      fcotAbsent      --            --
fc1/12     1      auto    on      fcotAbsent      --            --
fc1/13     1      auto    on      fcotAbsent      --            --
fc1/14     1      auto    on      fcotAbsent      --            --
fc1/15     1      auto    on      fcotAbsent      --            --
fc1/16     1      auto    on      trunking        TE    2       --
fc2/1      1      FX      --      fcotAbsent      --            --
fc2/2      1      FX      --      fcotAbsent      --            --
fc2/3      1      FX      --      fcotAbsent      --            --
```

```
fc2/4      1      FX     --      fcotAbsent       --           --
fc2/5      5      FX     --      up               F     2      --
...
-------------------------------------------------------------------------------
Interface          Status                            Speed
                                                     (Gbps)
-------------------------------------------------------------------------------
sup-fc0            up                                1

-------------------------------------------------------------------------------
Interface               Status     IP Address        Speed        MTU
-------------------------------------------------------------------------------
mgmt0                   up         172.22.36.112/23  100 Mbps     1500

-------------------------------------------------------------------------------
Interface          Status   IP Address                Speed        MTU
-------------------------------------------------------------------------------
vsan2                 up    15.0.112.0/16             1 Gbps       1500

-------------------------------------------------------------------------------
Interface          Status   IP Address                Speed        MTU
-------------------------------------------------------------------------------
cpp2/1/2              up    15.0.112.2/16             1 Gbps       1500

-------------------------------------------------------------------------------
Interface          VSAN     Status            Oper   Speed    Port-channel
                                              Mode
-------------------------------------------------------------------------------
fv2/1/1            2        up                F      auto     --
fv2/1/2            2        up                F      auto     --
fv2/1/3            2        up                F      auto     --
fv2/1/4            3        up                F      auto     --
fv2/1/5            3        up                F      auto     --
fv2/1/6            4        up                F      auto     --
...
switch# show interface fcip 3 counters
fcip3
    TCP Connection Information
      2 Active TCP connections
        Control connection: Local 43.1.1.2:3225, Remote 43.1.1.1:65532
        Data connection: Local 43.1.1.2:3225, Remote 43.1.1.1:65534
      30 Attempts for active connections, 0 close of connections
    TCP Parameters
      Path MTU 1500 bytes
      Current retransmission timeout is 300 ms
      Round trip time: Smoothed 10 ms, Variance: 5
      Advertised window: Current: 122 KB, Maximum: 122 KB, Scale: 1
      Peer receive window: Current: 114 KB, Maximum: 114 KB, Scale: 1
      Congestion window: Current: 2 KB, Slow start threshold: 1048560 KB
    5 minutes input rate 64 bits/sec, 8 bytes/sec, 0 frames/sec
    5 minutes output rate 64 bits/sec, 8 bytes/sec, 0 frames/sec
      910 frames input, 84652 bytes
         910 Class F frames input, 84652 bytes
         0 Class 2/3 frames input, 0 bytes
         0 Error frames timestamp error 0
      908 frames output, 84096 bytes
         908 Class F frames output, 84096 bytes
         0 Class 2/3 frames output, 0 bytes
         0 Error frames 0 reass frames

switch# show interface counters brief

-------------------------------------------------------------------------------
Interface          Input (rate is 5 min avg)      Output (rate is 5 min avg)
```

```
                    ------------------------------  ------------------------------
                    Rate     Total                  Rate     Total
                    MB/s     Frames                 MB/s     Frames
-------------------------------------------------------------------------------
fc9/1               0        0                      0        0
fc9/2               0        0                      0        0
fc9/3               0        0                      0        0
fc9/4               0        0                      0        0
...
-------------------------------------------------------------------------------
Interface           Input (rate is 5 min avg)      Output (rate is 5 min avg)
                    ------------------------------  ------------------------------
                    Rate     Total                  Rate     Total
                    MB/s     Frames                 MB/s     Frames
-------------------------------------------------------------------------------
iscsi4/1            0        0                      0        0
iscsi4/2            0        0                      0        0
iscsi4/3            0        0                      0        0
iscsi4/4            0        0                      0        0
...
vsan10 is up, line protocol is up
    WWPN is 10:00:00:05:30:00:07:23, FCID is 0xee0001
    Internet address is 10.1.1.5/24
    MTU 1500 bytes, BW 1000000 Kbit
    0 packets input, 0 bytes, 0 errors, 0 multicast
    0 packets output, 0 bytes, 0 errors, 0 dropped


-------------------------------------------------------------------------------
Interface           Input (rate is 5 min avg)      Output (rate is 5 min avg)
                    ------------------------------  ------------------------------
                    Rate     Total                  Rate     Total
                    MB/s     Frames                 MB/s     Frames
-------------------------------------------------------------------------------

port-channel 100    0        0                      0        0

-------------------------------------------------------------------------------
Interface           Input (rate is 5 min avg)      Output (rate is 5 min avg)
                    ------------------------------  ------------------------------
                    Rate     Total                  Rate     Total
                    Mbits/s  Frames                 Mbits/s  Frames
-------------------------------------------------------------------------------

fcip2               0        0                      0        0
fcip3               9        0                      9        0

fcip6               8        0                      8        0
fcip7               8        0                      8        0

switch# show interface fcip 3
fcip3 is trunking
    Hardware is GigabitEthernet
    Port WWN is 20:ca:00:05:30:00:07:1e
    Peer port WWN is 20:ca:00:00:53:00:18:1e
    Admin port mode is auto, trunk mode is on
    Port mode is TE
    vsan is 1
    Trunk vsans (allowed active) (1,10)
    Trunk vsans (operational)    (1)
    Trunk vsans (up)             (1)
    Trunk vsans (isolated)       (10)
    Trunk vsans (initializing)   ()
    Using Profile id 3 (interface GigabitEthernet4/3)
```

```
    Peer Information
      Peer Internet address is 43.1.1.1 and port is 3225
      Special Frame is disabled
    Maximum number of TCP connections is 2
    Time Stamp is disabled
    B-port mode disabled
    TCP Connection Information
      2 Active TCP connections
        Control connection: Local 43.1.1.2:3225, Remote 43.1.1.1:65532
        Data connection: Local 43.1.1.2:3225, Remote 43.1.1.1:65534
      30 Attempts for active connections, 0 close of connections
    TCP Parameters
      Path MTU 1500 bytes
      Current retransmission timeout is 300 ms
      Round trip time: Smoothed 10 ms, Variance: 5
      Advertized window: Current: 122 KB, Maximum: 122 KB, Scale: 1
      Peer receive window: Current: 114 KB, Maximum: 114 KB, Scale: 1
      Congestion window: Current: 2 KB, Slow start threshold: 1048560 KB
    5 minutes input rate 64 bits/sec, 8 bytes/sec, 0 frames/sec
    5 minutes output rate 64 bits/sec, 8 bytes/sec, 0 frames/sec
      866 frames input, 80604 bytes
         866 Class F frames input, 80604 bytes
         0 Class 2/3 frames input, 0 bytes
         0 Error frames timestamp error 0
      864 frames output, 80048 bytes
         864 Class F frames output, 80048 bytes
         0 Class 2/3 frames output, 0 bytes
         0 Error frames 0 reass frames

switch# show interface gigabitethernet 4/1
GigabitEthernet4/1 is up
    Hardware is GigabitEthernet, address is 0005.3000.2e12
    Internet address is 100.1.1.2/24
    MTU 1500 bytes, BW 1000000 Kbit
    Port mode is IPS
    Speed is 1 Gbps
    Beacon is turned off
    5 minutes input rate 32 bits/sec, 4 bytes/sec, 0 frames/sec
    5 minutes output rate 88 bits/sec, 11 bytes/sec, 0 frames/sec
    637 packets input, 49950 bytes
      0 multicast frames, 0 compressed
      0 input errors, 0 frame, 0 overrun 0 fifo
    659 packets output, 101474 bytes, 0 underruns
      0 output errors, 0 collisions, 0 fifo
      0 carrier errors

switch# show interface iscsi 2/1
iscsi2/1 is up
    Hardware is GigabitEthernet
    Port WWN is 20:41:00:05:30:00:50:de
    Admin port mode is ISCSI
    Port mode is ISCSI
    Speed is 1 Gbps
    iSCSI initiator is identified by name
    Number of iSCSI session: 7, Number of TCP connection: 7
    Configured TCP parameters
        Local Port is 3260
        PMTU discover is disabled
        Keepalive-timeout is 1 sec
        Minimum-retransmit-time is 300 ms
        Max-retransmissions 8
        Sack is disabled
        Minimum available bandwidth is 0 kbps
        Estimated round trip time is 0 usec
```

```
    5 minutes input rate 265184 bits/sec, 33148 bytes/sec, 690 frames/sec
    5 minutes output rate 375002168 bits/sec, 46875271 bytes/sec, 33833 frames/sec
    iSCSI statistics
      6202235 packets input, 299732864 bytes
        Command 6189718 pdus, Data-out 1937 pdus, 1983488 bytes, 0 fragments
      146738794 packets output, 196613551108 bytes
        Response 6184282 pdus (with sense 4), R2T 547 pdus
        Data-in 140543388 pdus, 189570075420 bytes

switch# show interface cpp 2/1/2
cpp2/1/2 is up, line protocol is up
    WWPN is 10:00:00:05:30:00:94:a0, FCID is 0x6d0002
    Internet address is 15.0.114.2/16
    MTU 1500 bytes, BW 1000000 Kbit
    4679361 packets input, 568734976 bytes, 0 errors, 1202625 multicast
    5000574 packets output, 584517419 bytes, 1 errors, 10 dropped

switch# show interface transceiver
fc1/1 fcot is present but not supported
    name is IBM
    part number is IBM42P21SNY
    revision is AA20
    serial number is 53P148700109D
    vendor specific data (bytes 96-127)
      0x49 0x42 0x4D 0x20 0x53 0x46 0x50 0x53
      0x20 0x41 0x52 0x45 0x20 0x43 0x4C 0x41
      0x53 0x53 0x20 0x31 0x20 0x4C 0x41 0x53
      0x45 0x52 0x20 0x53 0x41 0x46 0x45 0x20
fc1/2 fcot not present
fc1/3 fcot is present but not supported
    name is IBM
    part number is IBM42P21SNY
    revision is AA20
    serial number is 53P1487000ZXR
    vendor specific data (bytes 96-127)
      0x49 0x42 0x4D 0x20 0x53 0x46 0x50 0x53
      0x20 0x41 0x52 0x45 0x20 0x43 0x4C 0x41
      0x53 0x53 0x20 0x31 0x20 0x4C 0x41 0x53
      0x45 0x52 0x20 0x53 0x41 0x46 0x45 0x20

switch# show interface fc-tunnel 200
fc-tunnel 200 is up
Dest   IP Addr: 200.200.200.7   Tunnel ID: 200
Source IP Addr: 200.200.200.4   LSP ID: 1
Explicit Path Name: Path1

virt-112#  show interface fv 2/2/3
fv2/2/3 is up
    Hardware is Fibre Channel, WWN is 22:13:00:05:30:00:59:20
    Port mode is F
    Speed is auto
    vsan is 4
    Beacon is turned off
    0 packets input, 0 bytes, 0 discards
    0 input errors, 0 CRC, 0 invalid transmission words
        0 address id, 0 delimiter
    Received 0 runts, 0 jabber, 0 too long, 0 too short
        0 EOF abort, 0 fragmented, 0 unknown class
        0 OLS, 0 LRR, 0 NOS, 0 loop inits
    0 packets output, 0 bytes
    Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits


switch# show int fv2/1/2
```

```
fv2/1/2 is up
    Hardware is Fibre Channel, WWN is 22:0b:00:05:30:00:59:20
    Port mode is F
    Speed is auto
    vsan is 2
    Beacon is turned off
    0 packets input, 0 bytes, 0 discards
    0 input errors, 0 CRC, 0 invalid transmission words
        0 address id, 0 delimiter
    Received 0 runts, 0 jabber, 0 too long, 0 too short
        0 EOF abort, 0 fragmented, 0 unknown class
        0 OLS, 0 LRR, 0 NOS, 0 loop inits
    0 packets output, 0 bytes
    Transmitted 0 OLS, 0 LRR, 0 NOS, 0 loop inits
```

show fvport

You can check the status of a virtual F port (FV port) interface at any time by using the **show fvport** command.

show fvport [interface fv *slot/dpp-number/fv-port* | *interface range***]**

Syntax Description

fvport	Displays all FV ports in the switch.
interface	Specifies the FV port interface.
fv *slot/dpp-number/fv-port*	Displays the FV port interface in the specified slot along with the data path processor (DPP) number and the FV port number.
interface range	Displays the interfaces in the specified range.

Defaults

None

Command Modes

EXEC

Command History

This command was introduced in Cisco MDS SAN-OS Release 1.2(2).

Usage Guidelines

The interface range must be in ascending order and nonoverlapping. You can specify a range using a hyphen and several interfaces using commas. The interface range format for a FV interface range is **fv***slot/dpp/fvport* **-** *fvport* **, fv***slot/dpp/port* **, fv***slot/dpp/port*
(For example, **`show fvport int fv2/1/1 - 3 , fv2/1/5 , fv2/2/5`**)

Examples

```
switch# show fvport
fv2/1/1
        The N Port if_index is     0x01090000
        The N Port pwwn is         10:00:00:05:30:00:59:20
        The N Port nwwn is         20:00:00:05:30:00:59:1e
        The vsan is                2
        The FV Port if_index is    0x0e080000
        The FV Port pwwn is        22:0a:00:05:30:00:59:20
        The DPP id is              0
        The NV port type is        IPFC
        The State is               ACTIVE
        Number of create requests
        minus the number of
        delete requests =          1
...

switch# show fvport interface fv2/4/1 , fv2/7/1 - 3
fv2/4/1
        The N Port if_index is     0x01094000
        The N Port pwwn is         23:05:00:05:30:00:59:20
        The N Port nwwn is         23:01:00:05:30:00:59:20
        The vsan is                2
```

```
        The FV Port if_index is    0x0e08c000
        The FV Port pwwn is        23:67:00:05:30:00:59:20
        The DPP id is              3
        The NV port type is        INTERNAL PORT
        The State is               ACTIVE
        Number of create requests
        minus the number of
        delete requests =          1
fv2/7/1
        The N Port if_index is     0x0108c000
        The N Port pwwn is         23:08:00:05:30:00:59:20
        The N Port nwwn is         23:01:00:05:30:00:59:20
        The vsan is                2
        The FV Port if_index is    0x0e098000
        The FV Port pwwn is        23:6a:00:05:30:00:59:20
        The DPP id is              6
        The NV port type is        INTERNAL PORT
        The State is               ACTIVE
        Number of create requests
        minus the number of
        delete requests =          1
fv2/7/2
        The N Port if_index is     0x0108d000
        The N Port pwwn is         23:1a:00:05:30:00:59:20
        The N Port nwwn is         23:46:00:05:30:00:59:20
        The vsan is                3
        The FV Port if_index is    0x0e098001
        The FV Port pwwn is        23:58:00:05:30:00:59:20
        The DPP id is              6
        The NV port type is        INTERNAL PORT
        The State is               ACTIVE
        Number of create requests
        minus the number of
        delete requests =          1
fv2/7/3
        The N Port if_index is     0x0108e000
        The N Port pwwn is         23:2c:00:05:30:00:59:20
        The N Port nwwn is         23:2e:00:05:30:00:59:20
        The vsan is                4
        The FV Port if_index is    0x0e098002
        The FV Port pwwn is        23:61:00:05:30:00:59:20
        The DPP id is              6
        The NV port type is        INTERNAL PORT
        The State is               ACTIVE
        Number of create requests
        minus the number of
        delete requests =          1
```