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APPENDIX **A**

Cisco DMM CLI Commands

The Cisco MDS DMM feature provides a CLI suitable for scripting and advanced operations.

This appendix contains an alphabetical listing of commands that are unique to the Cisco MDS DMM feature.

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attributes (DMM job configuration submode)

To set the attributes of a data migration job, use the **attributes** command in DMM job configuration submode. To remove the attributes of a data migration job, use the **no** form of the command.

attributes job_type {1 | 2} job_mode {1 | 2} job_rate {1 | 2 | 3 | 4} job_method {1 | 2}

no attributes job_type {1 | 2} job_mode {1 | 2} job_rate {1 | 2 | 3 | 4} job_method {1 | 2}

Syntax Description	job_type 1 2	Specifies the job type. Specify 1 for a server type job and 2 for a storage type job.
	job_mode 1 2	Specifies the job mode. Specify 1 for an online job and 2 for an offline job.
	job_rate 1 2 3 4	Specifies the job rate. Specify 1 for the default rate, 2 for a slow rate, 3 for a medium rate, and 4 for a fast rate.
	job_method 1 2	Specifies the job method. Specify 1 for Method 1 and 2 for Method 2.

Defaults None.

Command Modes DMM job configuration submode.

Command History	Release	Modification
	3.3(1a)	This command was introduced.

Usage Guidelines None.

Examples The following example sets the job type to storage, the job mode to online, and the job rate to fast:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# dmm module 3 job 1 create
Started New DMM Job Configuration.
Do not exit sub-mode until configuration is complete and committed
switch(config-dmm-job)# attributes job_type 2 job_mode 1 job_rate 4 job_method 1
switch(config-dmm-job)#
```

Related Commands	Command	Description
	show dmm job	Displays job information.
	show dmm svr-vt-login	Displays server VT login information.

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commit (DMM job configuration submode)

To commit a DMM job, use the **commit** command in DMM job configuration submode. To remove the DMM job, use the **no** form of the command.

commit

no commit

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	DMM job configuration submode.
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Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	You need to configure server HBA ports, storage ports, and job attributes before you commit the job.
-------------------------	--

Examples	The following example shows how to commit a data migration job: <pre>switch# config t Enter configuration commands, one per line. End with CNTL/Z. switch(config)# dmm module 3 job 1 destroy switch(config-dmm-job)#</pre>
-----------------	--

Related Commands	Command	Description
	show dmm job	Displays job information.
	show dmm srvr-vt-login	Displays server VT login information.

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debug dmm-debug

To enable debugging for DMM, use the **debug dmm-debug** command.

```
debug dmm-debug {all | common-err | common-ev | fsm | init | itl-err | itl-ev | job-err | job-ev |
  msghdlr-err | msghdlr-ev | p2p-err | p2p-ev | timer | vi-lun-err | vi-lun-ev | vi-tgt-err |
  vi-tgt-ev}
```

Syntax Description		
	all	Enables all DMM debug options.
	common-err	Enables debugging for DMM common errors.
	common-ev	Enables debugging for DMM common events.
	fsm	Enables debugging for DMM FSM.
	init	Enables debugging for DMM initialization.
	itl-err	Enables debugging for DMM initiator-target-LUN-triplet (ITL) errors.
	itl-ev	Enables debugging for DMM ITL events.
	job-err	Enables debugging for DMM job errors.
	job-ev	Enables debugging for DMM job events.
	msghdlr-err	Enables debugging for DMM message handler errors.
	msghdlr-ev	Enables debugging for DMM message handler events.
	p2p-err	Enables debugging for DMM peer-to-peer (P2P) errors.
	p2p-ev	Enables debugging for DMM P2P events.
	timer	Enables debugging for the DMM timer.
	vi-lun-err	Enables debugging for VI LUN errors.
	vi-lun-ev	Enables debugging for VI LUN events.
	vi-tgt-err	Enables debugging for VI and target errors.
	vi-tgt-ev	Enables debugging for VI and target events.

Defaults	Disabled.
-----------------	-----------

Command Modes	EXEC mode.
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Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	You must connect to an SSM, MSM-18/4 module, or MDS 9222i switch on your switch to execute DMM debug commands. Use the show module command to determine the slot number of an SSM, MSM-18/4 module, or MDS 9222i switch on your switch. Use the attach module command to connect to the SSM, MSM-18/4 module, or MDS 9222i switch.
-------------------------	--

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Examples

The following example enables all the DMM debug options:

```
switch# debug dmm-debug all
```

Related Commands

Command	Description
dmm module	Configures DMM.
show dmm srvr-vt-login	Displays server VT login information.

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dmm module

To specify default DMM values for migration block size, number of migration blocks and fast migration speed, use the **dmm module** command in configuration mode.

dmm module *mod-id* **rate-of-migration** **fast** *migration-rate* **medium** *migration-rate* **slow** *migration-rate*

Syntax Description	<i>mod-id</i>	Specifies the module ID.
	rate-of-migration	Migration rate can be configured as slow, medium or fast.
	fast <i>migration-rate</i>	Specifies the rate for fast migration. Units are megabytes per second (MB/s).
	medium <i>migration-rate</i>	Specifies the rate for medium migration. Units are MB/s.
	slow <i>migration-rate</i>	Specifies the rate for slow migration. Units are MB/s.

Defaults None.

Command Modes Configuration mode.

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines None.

Examples The following example shows how to set the fast migration rate to 100 MB/s, the medium migration rate to 50 MB/s, and slow migration rate to 10 MB/s:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.

switch(config) dmm module 3 rate_of_migration fast 100 medium 50 slow 10
```

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Related Commands	Command	Description
	show dmm ip-peer	Displays a DMM port's IP peer.
	show dmm job	Displays job information.

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dmm module job

To configure a data migration job, use the **dmm module job** command in configuration mode.

```
dmm module mod-id job job-id { create | destroy | finish | get-vi vsan vsan-id | modify rate |
schedule { { hour hour min minute day day month month year year | now | reset } } | session |
set-vi portwwn nodewwn vsan vsan-id | start | stop | validate | verify }
```

Syntax Description

module <i>mod-id</i>	Specifies the module ID.
job <i>job-id</i>	Specifies the job ID. The range is 0 to 18446744073709551615.
create	Creates the job and enters DMM job configuration submode.
destroy	Deletes the DMM job.
finish	Moves the Method 2 data migration job to completed state.
get-vi	Retrieves the virtual initiator (VI) for the DMM job.
vsan <i>vsan-id</i>	Specifies the VSAN ID. The range is 1 to 4093.
modify	Modifies the DMM job attributes.
rate	Specifies the rate of the job attribute. The range is from 1 to 4. Specify 1 for a default value, 2 for slow, 3 for medium and 4 for fast rates.
schedule	Schedules the DMM job.
hour <i>hour</i>	Specifies the hour the DMM job starts. The range is 0 to 23.
min <i>minute</i>	Specifies the minute the DMM job starts. The range is 0 to 59.
day <i>day</i>	Specifies the day the DMM job starts. The range is 1 to 31.
month <i>month</i>	Specifies the month the DMM job starts. The range is 1 to 12.
year <i>year</i>	Specifies the year the DMM job starts. The range is 2000 to 2030.
now	Resets the schedule to start the DMM job immediately.
reset	Resets the DMM job to unscheduled.
session	Enables the Session Configuration submode.
set-vi	Sets the VI for the storage based job.
<i>portwwn</i>	Specifies the port WWN. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
<i>nodewwn</i>	Specifies the node WWN. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
vsan <i>vsan-id</i>	Specifies the VSAN ID. The range is 1 to 4093.
start	Starts the DMM job session.
stop	Stops the DMM job.
validate	Validates the DMM job data.
verify	Verifies the data migration for the specified job.

Defaults

None.

Command Modes

Configuration mode.

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Command History	Release	Modification
	3.3(1a)	The finish keyword is introduced.
	4.1.(1b)	The set-vi and modify rate keywords were introduced.

Usage Guidelines

DMM must be enabled before you can create DMM jobs. Use the **ssm enable feature dmm** command to enable DMM.

The data migration job stops executing if it encounters any errors. To restart the migration, enter the **validate** command to validate the job configuration, then enter the **restart** command to restart the job.

Before creating a storage based data migration job, use the **show dmm module vi-list** command to choose the VI for migrating the data and then use the **set-vi** command to specify the VI.

Examples

The following example shows how to create a job with a schedule. The job is scheduled to start on Sunday, January 6, 2008 at 11:00 P.M.

```
switch# config t  
Enter configuration commands, one per line. End with CNTL/Z.  
switch(config)# dmm module 3 job 1 schedule hour 23 min 0 day 6 month 1 year 2008
```

Related Commands	Command	Description
	show dmm ip-peer	Displays the IP peers that the DMM port is connected to.
	show dmm job	Displays DMM job information.
	show dmm module vi-list	Displays the list of VIs.

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peer (DMM job configuration submode)

To add peer SSM, MSM-18/4 module, or MDS 9222i switch information to a job, use the **peer** command in DMM job configuration submode. To remove the peer SSM, MSM-18/4 module, or MDS 9222i switch information from a job, use the **no** form of the command.

peer *ip-address*

no peer *ip-address*

Syntax Description

<i>ip-address</i>	Specifies the peer SSM, MSM-18/4 module, or MDS 9222i switch IP address. The format for the IP address is <i>A.B.C.D</i> .
-------------------	--

Defaults

None.

Command Modes

DMM job configuration submode.

Command History

Release	Modification
3.2(1)	This command was introduced.

Usage Guidelines

In a dual-fabric topology, the migration job runs on an SSM, MSM-18/4 module, or MDS 9222i switch in each fabric. The two SSMs, MSM-18/4 modules, or MDS 9222i switches exchange messages over the management IP network, so each SSM, MSM-18/4 module, or MDS 9222i switch needs the IP address of the peer.

Examples

The following example shows how to add peer SSM, MSM-18/4 module, or MDS 9222i switch information to a job:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# dmm module 3 job 1 create
Started New DMM Job Configuration.
Do not exit sub-mode until configuration is complete and committed
switch(config-dmm-job)# peer 224.2.1.2
switch(config-dmm-job)#
```

Related Commands

Command	Description
show dmm ip-peer	Displays the IP peer of a DMM port.
show dmm job	Displays job information.

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server (configure session submode)

To configure a data migration session, use the **server** command in session configuration submode. To remove the data migration session, use the **no** form of the command.

```
server pwwn src_tgt pw-wn src_lun src-lun dst_tgt pwwn dst_lun dst-lun
```

```
no server pwwn src_tgt pw-wn src_lun src-lun dst_tgt pwwn dst_lun dst-lun
```

Syntax Description		
pwwn		Specifies the pWWN of the server. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
src_tgt pwwn		Specifies the pWWN of the source target. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
src_lun src-lun		Specifies the source LUN number in hex notation. The range is 0x0 to 0xff.
dst_tgt pwwn		Specifies the pWWN of the destination target. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
dst_lun dst-lun		Specifies the destination LUN in hex notation. The range is 0x0 to 0xff.

Defaults	None.
----------	-------

Command Modes	Configure session submode.
---------------	----------------------------

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	None.
------------------	-------

Examples	The following example shows how to configure a source target, source LUN, destination target, and destination LUN in a session:
----------	---

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# dmm module 3 job 1 session
switch(config-session)# server 12:13:1d:1c:2d:2d:3f:3a src_tgt 12:13:1d:1c:2d:2d:3f:3a
src_lun 0x1 dst_tgt 12:13:1d:1c:2d:2d:3f:3a dst_lun 0x5
```

Related Commands	Command	Description
	show dmm ip-peer	Displays job information.
	show dmm srvr-vt-login	Displays server VT login information.

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server (DMM job configuration submode)

To add a server HBA port to the DMM job, use the **server** command in DMM job configuration submode. To remove the server HBA port, use the **no** form of the command.

server vsan *vsan-id* **pwwn** *port-wwn*

no server vsan *vsan-id* **pwwn** *port-wwn*

Syntax Description	vsan <i>vsan-id</i>	Specifies the VSAN ID. The range is 1 to 4093.
	pwwn <i>port-wwn</i>	Specifies the port worldwide name of the server HBA port. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.

Defaults	None.
-----------------	-------

Command Modes	DMM job configuration submode.
----------------------	--------------------------------

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	None.
-------------------------	-------

Examples	The following example shows how to add server information to a DMM job:
-----------------	---

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# dmm module 3 job 1 create
Started New DMM Job Configuration.
Do not exit sub-mode until configuration is complete and committed
switch(config-dmm-job)# server vsan 3 pwwn 1d:22:3a:21:3c:44:3b:51
switch(config-dmm-job)#
```

Related Commands	Command	Description
	show dmm ip-peer	Displays job information.
	show dmm srvr-vt-login	Displays server VT login information.

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show dmm discovery-log

To display SCSI device discovery logs, use the **show dmm discovery-log** command in EXEC mode.

show dmm discovery-log {all | error}

Syntax Description	all	Displays all entries in the device discovery SCSI log.
	error	Displays error entries in the device discovery SCSI log.

Defaults	None.
----------	-------

Command Modes	EXEC mode.
---------------	------------

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	You must connect to an SSM, MSM-18/4 module, or MDS 9222i switch on your switch to execute DMM show commands. Use the show module command to determine the slot number of an SSM, MSM-18/4 module, or MDS 9222i switch on your switch. Use the attach module command to connect to the SSM, MSM-18/4 module, or MDS 9222i switch.
------------------	--

Examples	The following example displays error entries:
----------	---

```
switch# attach module 3
Attaching to module 3 ...
To exit type 'exit', to abort type '$.'
Bad terminal type: "ansi". Will assume vt100.
module-3# show dmm discovery-log error
005 State: 3
CDB: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Sts:0x02 SnsKey:0x02 AscAscq:0x0403
Time:    5 (ms)

LogIndex:26 HostPWWN:2c:fc:00:05:30:01:9e:88 TargetPWWN:50:06:01:62:30:60:36:64
OPC: 0x00 Lun:0x0000000000000006 State: 3
CDB: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Sts:0x02 SnsKey:0x02 AscAscq:0x0403
Time:    4 (ms)
```

Related Commands	Command	Description
	dmm module	Enables DMM configuration on a module.
	show dmm srvr-vt-login	Displays server VT login information.

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show dmm fp-port

To display front panel ports on a line card, use the **show dmm fp-port** command in EXEC mode.

show dmm fp-port

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	You must connect to an SSM, MSM-18/4 module, or MDS 9222i switch on your switch to execute DMM show commands. Use the show module command to determine the slot number of an SSM, MSM-18/4 module, or MDS 9222i switch on your switch. Use the attach module slot command to connect to the SSM, MSM-18/4 module, or MDS 9222i switch.
-------------------------	---

Examples	The following example displays front panel ports:
-----------------	---

```
switch# attach module 3
Attaching to module 3 ...
To exit type 'exit', to abort type '$.'
Bad terminal type: "ansi". Will assume vt100.
module-3# show dmm fp-port
Cisco DMM Front Panel Port Map
```

Port	Index	Mirage Id	DPP Id
1	0	1	2
2	1	1	2
3	2	1	2
4	3	1	2
5	4	2	3
6	5	2	3
7	6	2	3
8	7	2	3
9	8	3	6
10	9	3	6
11	10	3	6
12	11	3	6
13	12	4	7
14	13	4	7
15	14	4	7
16	15	4	7
17	16	1	1

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18	17	1	1
19	18	1	1
20	19	1	1
21	20	2	4
22	21	2	4
23	22	2	4
24	23	2	4
25	24	3	5
26	25	3	5
27	26	3	5
28	27	3	5
29	28	4	8
30	29	4	8
31	30	4	8
32	31	4	8

Related Commands

Command	Description
dmm module	Enables DMM configuration on a module.
show dmm srvr-vt-login	Displays server VT login information.

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show dmm ip-peer

To display information about the IP peers the DMM interface is connected to, use the **show dmm ip-peer** command in EXEC mode.

show dmm ip-peer

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Defaults	None.
-----------------	-------

Command Modes	EXEC mode.
----------------------	------------

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	You must connect to an SSM, MSM-18/4 module, or MDS 9222i switch on your switch to execute DMM show commands. Use the show module command to determine the slot number of an SSM, MSM-18/4 module, or MDS 9222i switch on your switch. Use the attach module slot command to connect to the SSM, MSM-18/4 module, or MDS 9222i switch.
-------------------------	---

Examples	The following example displays DMM IP peer information:
-----------------	---

```
switch# attach module 3
Attaching to module 3 ...
To exit type 'exit', to abort type '$.'
Bad terminal type: "ansi". Will assume vt100.
module-3# show dmm ip-peer
```

Cisco DMM IP Peer Table

No	Type	SD	IP Address	TCP State
1	CONFIG_STATION	23	10.100.2.1	DOWN
2	PEER_SSM	22	10.100.1.20	UP
3	CONFIG_STATION	19	10.100.2.1	DOWN

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show dmm job

To display DMM job information, use the **show dmm job** command in EXEC mode.

```
show dmm job job-id { detail | job-fsm-eventlog | job-infra-fsm-eventlog | lun_tokens token
tok-pwwn | session | [session_id sess-id] [session-event-log] | storage [tgt-pwwn tgt-pwwn]
{ vi-pwwn vi-pwwn } [lun-event-log lun-id] | tgt-event-log }
```

Syntax Description	
<i>job-id</i>	Specifies the job ID. The range is 0 to 18446744073709551615.
detail	Displays detailed job information.
job-fsm-eventlog	Displays the job FSM Event Log.
job-infra-fsm-eventlog	Displays the job Infra FSM Event Log.
lun_tokens	Displays a list of job LUN tokens.
token <i>tok-pwwn</i>	Specifies the storage port worldwide name.
session	Displays job session information.
session_id <i>sess-id</i>	(Optional) Specifies the job session. The range is 0 to 255.
session-event-log	(Optional) Displays the Session FSM event log.
storage	Displays the storage ports discovered by DMM.
tgt-pwwn <i>tgt-pwwn</i>	(Optional) Specifies the storage port worldwide name. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
vi-pwwn <i>vi-pwwn</i>	Specifies the VI port worldwide name. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
lun-event-log <i>lun-id</i>	(Optional) Displays the VI and target LUN FSM event log and specifies the LUN ID.
tgt-event-log	(Optional) Displays the VI and target FSM event log.

Defaults None.

Command Modes EXEC mode.

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines You must connect to an SSM, MSM-18/4 module, or MDS 9222i switch on your switch to execute DMM **show** commands. Use the **show module** command to determine the slot number of an SSM, MSM-18/4 module, or MDS 9222i switch on your switch. Use the **attach module slot** command to connect to the SSM, MSM-18/4 module, or MDS 9222i switch.

Examples The following example shows how to display a summary of all the jobs:

```
show dmm job
```

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```
switch# show dmm job job-id 1205450497 detail
```

```
=====
Data Mobility Manager Job Details
=====
Job Identifier : 1205450497
Job Name      : admin_2008/03/13-16:21
Job Type      : SERVER
Job Rate      : Default, no rate limiting
Job Mode      : ONLINE
Job Method    : METHOD-2
Job DPP       : 7
Peer SSM IP   : NOT_APPLICABLE
DMM GUI IP    : 10.1.0.25
Job FSM       : READY
Job Infra FSM : DONE
-----
Job Schedule Information
-----
Date          : 0/ 0/0 [Month/Day/Year]
Time          : 0:0    [Hour:Min]
-----
Server Port List (Num Ports :1)
-----
Num  VSAN  Server pWWN          Virtual Initiator pWWN
-----
1   100    21:01:00:e0:8b:28:5e:3e 20:40:00:0d:ec:0e:f4:03
-----
Storage Port List (Num Ports :2)
-----
Num  VSAN  Storage pWWN          Type  Virtual Target pWWN
-----
1   100    50:06:0e:80:04:2c:5c:54 NS    20:44:00:0d:ec:0e:f4:03
2   100    50:06:0e:80:04:2c:5c:74 ES    20:42:00:0d:ec:0e:f4:03
-----
DMM GUI PDU History
-----
Num  PDU Opcode          GUI IP  Rx          Tx
-----
1   DM_JOB_CREATE_REQ    10.1.0.25 Thu Mar 13 23:21:39 2008 Thu Mar 13 23:21:39
2008
2   DM_JOB_INFRA_CREATE_REQ 10.1.0.25 Thu Mar 13 23:21:40 2008 Thu Mar 13 23:21:44
2008
3   DM_JOB_LUNMAP_REQ     10.1.0.25 Thu Mar 13 23:21:45 2008 Thu Mar 13 23:21:45
2008
4   DM_JOB_SESSION_ADD_REQ 10.1.0.25 Thu Mar 13 23:21:52 2008 Thu Mar 13 23:21:52
2008
5   DM_JOB_SESSION_ADD_REQ 10.1.0.25 Thu Mar 13 23:21:53 2008 Thu Mar 13 23:21:53
2008
6   DM_JOB_SESSION_ADD_REQ 10.1.0.25 Thu Mar 13 23:21:54 2008 Thu Mar 13 23:21:54
2008
7   DM_JOB_SESSION_ADD_REQ 10.1.0.25 Thu Mar 13 23:21:55 2008 Thu Mar 13 23:21:55
2008
8   DM_JOB_QUERY_REQ     10.1.0.25 Thu Mar 13 23:21:59 2008 Thu Mar 13 23:21:59
2008
-----
Job Timing Information [since the last start operation]
-----
Create Time      :Thu Mar 13 23:21:39 2008
Scheduled Time   :Not Applicable
```

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```
Start Time           :Not Applicable
Finish-request Time  :Not Applicable
Completed Time       :Not Applicable
Failed Time          :Not Applicable
Stopped Time         :Not Applicable
Verify Start Time    :Not Applicable
Verify Completed Time :Not Applicable
Verify Failed Time   :Not Applicable
```

Related Commands

Command	Description
dmm module	Enables DMM configuration on a module.
show dmm srvr-vt-login	Displays server VT login information.

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show dmm module

To display DMM module information use the **show dmm module** command.

show dmm module *module-id* **vi-list**

Syntax Description	<i>module-id</i>	Specifies the module ID. The range is 1 to 13.
	vi-list	Displays the VI list.

Defaults	None.
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Command Modes	EXEC mode.
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Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines	The show dmm module command displays the list of VIs assigned to each data movement engine. A storage based data migration job uses one of these VIs. Use the command to choose the VI, and then use the dmm module job set-vi command to specify the VI.
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Examples	The following example shows how to display a summary of all the jobs:
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```
switch# attach module 3
Attaching to module 3 ...
To exit type 'exit', to abort type '$.'
Bad terminal type: "ansi". Will assume vt100.
module-3# show dmm vt
=====
Data Mobility Manager VT Information
=====
Id Job Id VT pWWN VSAN FCID IF-IDX PORT STATE
=====
1 1177009472 2f:00:00:05:30:01:9e:88 3 0xee00a0 0x1110000 0x10 VT_UP
2 1177009472 2c:fe:00:05:30:01:9e:88 3 0xee00a1 0x1110000 0x10 VT_UP
Number of VTs :2
```

Related Commands	Command	Description
	dmm module	Enables DMM configuration on a module.
	dmm module job set-vi	Specifies the VI for the storage based job.
	show dmm srvr-vt-login	Displays server VT login information.

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show dmm srvr-vt-login

To display server virtual target login information, use the **show dmm srvr-vt-login** command in EXEC mode.

```
show dmm srvr-vt-login [job-id job-id] server-pwwn srvr-pwwn vt-pwwn vt-pwwn
{fc_rdrtr-fsm-eventlog | login-fsm-eventlog}
```

Syntax Description		
job-id <i>job-id</i>	(Optional) Specifies the job ID. The range is 0 to 18446744073709551615.	
server-pwwn <i>srvr-pwwn</i>	Specifies the server port world-wide name. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.	
vt-pwwn <i>vt-pwwn</i>	Specifies the VT port worldwide name. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.	
fc_rdrtr-fsm-eventlog	Displays the server VT FC-Redirect FSM event log.	
login-fsm-eventlog	Displays the server VT FSM event log.	

Defaults None.

Command Modes EXEC mode.

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines You must connect to an SSM, MSM-18/4 module, or MDS 9222i switch on your switch to execute DMM **show** commands. Use the **show module** command to determine the slot number of an SSM, MSM-18/4 module, or MDS 9222i switch on your switch. Use the **attach module** command to connect to the SSM, MSM-18/4 module, or MDS 9222i switch.

Examples The following example shows how to display the server VT login summary:

```
switch# show dmm srvr-vt-login
=====
Data Mobility Manager Server VT Login Information
=====
  Id  Job Id   VSAN  Srvr  pWWN                Srvr  FCID  VT  pWWN                VT  FCID
State (FC Redirect/Login)
=====
  1   1187978941   1   21:32:00:0d:ec:02:2d:82   0x660000   21:36:00:0d:ec:02:2d:82
0x660003   (READY/WAITING_PLOGI)
  2   1187978941   1   21:32:00:0d:ec:02:2d:82   0x660000   21:34:00:0d:ec:02:2d:82
0x66000a   (READY/WAITING_PLOGI)

Number of Logins :2
```

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The following example shows how to display the event log for a specified VT:

```
switch# show dmm srvr-vt-login job-id 1187978941 server-pwvn 21:32:00:0d:ec:02:2d:82
vt-pwvn 21:36:00:0d:ec:02:2d:82 login-fsm-e
=====
Server/VT Login FSM Event Log -> Job Id : 1187978941 Server : 21:32:00:0d:ec:02:2d:82 VT
: 21:36:00:0d:ec:02:2d:82
=====

Log Entry: 1 time: Fri Aug 24 11:09:19 2007
Curr state: DMM_SRVR_VT_LOGIN_S_NULL
Triggered event: DMM_SRVR_VT_LOGIN_E_START_ACTION

Log Entry: 2 time: Fri Aug 24 11:09:19 2007
Curr state: DMM_SRVR_VT_LOGIN_S_WAITING_PLOGI
Triggered event: DMM_SRVR_VT_LOGIN_E_LOGIN_DONE_OK
```

Related Commands

Command	Description
dmm module	Enables DMM configuration on a module.
show dmm srvr-vt-login	Displays server VT login information.

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show dmm vt

To display virtual target information, use the **show dmm vt** command in EXEC mode.

show dmm vt *vt-job-id job-id* *pwwn vt-pwwn* *vt-fsm-eventlog*

Syntax Description		
vt-job-id <i>job-id</i>		Specifies the virtual target job ID. The range is 0 to 18446744073709551615.
pwwn <i>vt-pwwn</i>		Specifies the virtual target port worldwide name. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
vt-fsm-eventlog		Displays the VT FSM event log.

Defaults None.

Command Modes EXEC mode.

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines You must connect to an SSM, MSM-18/4 module, or MDS 9222i switch on your switch to execute DMM **show** commands. Use the **show module** command to determine the slot number of an SSM, MSM-18/4 module, or MDS 9222i switch on your switch. Use the **attach module slot** command to connect to the SSM, MSM-18/4 module, or MDS 9222i switch.

Examples The following example shows how to display the virtual target information:

```
switch# attach module 3
Attaching to module 3 ...
To exit type 'exit', to abort type '$.'
Bad terminal type: "ansi". Will assume vt100.
module-3# show dmm vt
=====
Data Mobility Manager VT Information
=====
  Id Job Id      VT pWWN                VSAN FCID      IF-IDX      PORT      STATE
=====
   1 1177009472  2f:00:00:05:30:01:9e:88    3    0xee00a0    0x1110000    0x10      VT_UP
   2 1177009472  2c:fe:00:05:30:01:9e:88    3    0xee00a1    0x1110000    0x10      VT_UP
Number of VTs :2
```

Related Commands	Command	Description
	dmm module	Enables DMM configuration on a module.
	show dmm srvr-vt-login	Displays server VT login information.

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ssm enable feature dmm

To enable DMM, use the **ssm enable feature dmm** command in configuration mode. To disable DMM, use the **no** form of the command.

ssm enable feature dmm {**force** {**interface fc slot/port** | **module slot**} | **interface fc slot/port** | **module slot**}

no ssm enable feature dmm {**force** {**interface fc slot/port** | **module slot**} | **interface fc slot/port** | **module slot**}

Syntax Description	force	Forces a switching module reload.
	interface	Specifies the interface.
	fc slot/port	Specifies the Fibre Channel slot and port numbers.
	module slot	Specifies the SSM, MSM-18/4 module, or MDS 9222i switch slot number.

Defaults Disabled.

Command Modes Configuration mode.

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines Starting with NX-OS 4.1(1b), DMM must be enabled using the **ssm enable feature dmm** command before using the SLD tool.

Examples The following example shows how to enable DMM on a module:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ssm enable feature dmm module 1
```

The following example shows how to enable DMM on an interface:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ssm enable feature dmm interface fc 1/1 - 4
```

The following example shows how to force a reload on some of the ports on a module:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# ssm enable feature dmm force interface fc 1/1 - 8, fc 1/13 - 16
```

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Related Commands	Command	Description
	show dmm ip-peer	Displays DMM job information.
	show ssm provisioning	Displays information about features provisioned on the SSM, MSM-18/4 module, or MDS 9222i switch.

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storage (DMM job configuration submode)

To add a storage port to a DMM job, use the **storage** command in DMM job configuration submode.

storage vsan *vsan-id* **pwwn** *port-wwn* {**existing** | **new**}

Syntax Description	vsan <i>vsan-id</i>	Specifies the VSAN ID. The range is 1 to 4093.
	pwwn <i>port-wwn</i>	Specifies the world-wide name of the storage port. The format is <i>hh:hh:hh:hh:hh:hh:hh:hh</i> , where <i>h</i> is a hexadecimal number.
	existing	Specifies a port on the existing storage.
	new	Specifies a port on the new storage.

Defaults None.

Command Modes DMM job configuration submode.

Command History	Release	Modification
	3.2(1)	This command was introduced.

Usage Guidelines None.

Examples The following example shows how to add storage information to a DMM job:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# dmm module 3 job 1 create
Started New DMM Job Configuration.
Do not exit sub-mode until configuration is complete and committed
switch(config-dmm-job)# storage vsan 3 pwwn 1d:22:3a:21:3c:44:3b:51 existing
switch(config-dmm-job)#
```

Related Commands	Command	Description
	show dmm ip-peer	Displays job information.
	show dmm srvr-vt-login	Displays server VT login information.