CHAPTER 16

N Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. All commands are shown here in alphabetical order regardless of command mode. See "About the CLI Command Modes" section on page 1-3 to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family CLI Configuration Guide*.

nasb module

To enable Network-Accelerated Serverless Backup (NASB) in a VSAN and map it to the Storage Services Module (SSM) where the feature is enabled, use the **nasb module** command in configuration mode. To disable this feature, use the **no** form of the command.

nasb module *slot-number* **vsan** *vsan-id* [**control [multiple] | multiple [control]**]

no nasb module *slot-number* **vsan** *vsan-id*

Syntax Description

slot-number	Specifies the slot number of the connected module.
vsan *vsan-id*	Configures up to five VSANs to be added to the database. The range is 1 to 4096.
control	Configures a single target LUN that is a Storage Array Controller (Peripheral Device Type 0x0C).
multiple	Configures up to 10 target LUNs that are the default type, Direct Access Device (Peripheral Device Type 0x00).

Defaults

Disabled.

Command Modes

Configuration mode.

Command History

Release	Modification
2.1(1a)	This command was introduced.
2.1(2)	Added the **multiple** option.

Usage Guidelines

This feature must be enabled on the SSM using the **ssm enable feature** command before you can configure NASB.

Examples

The following example configures NASB on the SSM installed in slot 4 with a link to VSAN 1.

```
switch# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config)# nasb module 4 vsan 1
```

The following example configures NASB on the SSM installed in slot 4 with a link to VSAN 10, and enables a single target LUN that is a Storage Array Controller (Peripheral Device Type = 0x0C).

```
switch# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config)# nasb module 4 vsan 10 control
```

The following example configures NASB on the SSM installed in slot 4 with a link to VSAN 10, and enables a single target LUN that is a Storage Array Controller (Peripheral Device Type = 0x0C) and up to 10 target LUNs.

```
switch# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config)# nasb module 4 vsan 10 control multiple
```

Related Commands

Command	Description
ssm enable feature	Enables the NASB feature on the Storage Services Module (SSM).
nasb module	Displays the NASB configuration on the SSM.
nasb rediscover module	Initiates the rediscovery of a target device used for NASB on an SSM where the feature is enabled.

nasb rediscover module

To initiate the rediscovery of a target device, such as a disk or tape device, used for Network-Accelerated Serverless Backup (NASB) in a VSAN on a Storage Services Module (SSM) where the feature is enabled, use the **nasb rediscover module** command in EXEC mode.

nasb rediscover module *slot-number* **vsan** *vsan-id* **target-pwwn** *pwwn-id*

Syntax Description

slot-number	Specifies the slot number of the connected module.
vsan *vsan-id*	Specifies the current VSAN. The range is 1 to 4096.
target-pwwn *pwwn-id*	Specifies the pWWN for the target device. The form is *hh:hh:hh:hh:hh:hh:hh:hh*, where *h* is a hexadecimal number.

Defaults

None.

Command Modes

EXEC mode.

Command History

Release	Modification
2.1(2)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to initiate a rediscovery of a target device.

```
switch# nasb rediscover module 2 vsan 9 target-pwwn 20:02:00:a0:b8:16:a1:5f
nasb rediscovery initiated
switch#
```

Related Commands

Command	Description
nasb module	Enables the NASB feature in configuration mode and allows you to configure the Storage Array Controller and multiple LUNs.
show nasb	Displays the NASB configuration on the SSM.
ssm enable feature	Enables the NASB feature on the SSM.

native-autonomous-fabric-num

To create an IVR persistent FC ID database entry, use the **native-autonomous-fabric-num** command in fcdomain database configuration submode. To delete all IVR persistent FC ID database entries for a given AFID and VSAN, use the **no** form of the command.

native-autonomous-fabric-num *afid-num* **native-vsan** *vsan-id* **domain** *domain-id*

no native-autonomous-fabric-num *afid-num* **native-vsan** *vsan-id* **domain** *domain-id*

Syntax Description

afid-num	Specifies the native AFID. The range is 1 to 64.
native-vsan *vsan-id*	Specifies the native VSAN ID. The range is 1 to 4093.
domain *domain-id*	Specifies the domain ID. The range is 1 to 239.

Defaults

None.

Command Modes

fcdomain database configuration submode.

Command History

Release	Modification
2.1(2)	This command was introduced.

Usage Guidelines

There is only one domain ID associated with an AFID and VSAN. If you change the domain ID, all the associated FC ID mapping records are also changed.

Examples

The following example shows how to create an entry for a native AFID, VSAN, and domain.

```
switch# config t
switch(config)# ivr fcdomain database autonomous-fabric-num 10 vsan 20
switch(config-fcdomain)# native-autonomous-fabric-num 20 native-vsan 30 domain 15
switch(config-fcdomain-fcid)#
```

The following example shows how to remove all entries for a native AFID and VSAN.

```
switch# config t
switch(config)# ivr fcdomain database autonomous-fabric-num 10 vsan 20
switch(config-fcdomain)# no native-autonomous-fabric-num 20 native-vsan 30
```

Related Commands

Command	Description
ivr fcdomain database autonomous-fabric-num	Creates IVR persistent FC IDs.
show ivr fcdomain database	Displays IVR fcdomain database entry information.

node

To configure Cisco SME switch, use the **node** command. To disable this command, use the **no** form of the command.

node {local | {*A.B.C.D* | *X:X::X /n*| *DNS name*}**}**

no node {local | {*A.B.C.D* | *X:X::X /n*| *DNS name*}**}**

Syntax Description

local	Configures the local switch.
A.B.C.D	Specifies the IP address of the remote switch in IPv4 format.
X:X::X/n	Specifies the IP address of the remote switch in IPv6 format.
DNS name	Specifies the name of the remote database.

Defaults

None.

Command Modes

Cisco SME cluster configuration submode.

Command History

Release	Modification
3.2(2)	This command was introduced.

Usage Guidelines

None.

Examples

The following example adds the Cisco SME interface from a local switch:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# node local
switch(config-sme-cl-node)#
```

The following example adds the Cisco SME interface from a remote switch:

```
switch# config t
switch(config))# sme cluster c1
switch(config-sme-cl)# node 171.71.23.33
switch(config-sme-cl-node)#
```

Related Commands

Command	Description
show sme cluster *cluster name* **node**	Displays Cisco SME node information about a local or remote switch.

no fc-redirect version2 enable

To disable the version2 mode in FC-Redirect, use the **no fc-redirect version2 enable** command in configuration mode.

no fc-redirect version2 enable

Syntax Description

This command has no arguments or keywords.

Defaults

None.

Command Modes

Configuration mode

Command History

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

Usage Guidelines

We recommend that you not disable version2 mode in FC-Redirect because it disables version2 mode thoughtout the fabric.

Examples

The following example shows how to disable version2 mode in FC-Redirect.

```
switch# no fc-redirect version2 enable
switch(config)# no fc-redirect version2 enable
WARNING: This command will disable Version2 mode throughout the fabric.
         This is NOT a recommended step.

Do you want to continue? (Yes/No) [No] Yes

Before proceeding further, Please check the following:
   1) There are No FC-Redirect configurations in the fabric.
       You can use the command 'show fc-redirect configs' for the
       purpose.

   2) All the switches in the fabric are seen in the output of
      'show fc-redirect peer-switches' command and are in 'UP' state.

   3) All switches in the fabric are running SanOS version 3.3.x or
      higher.

   4) Please make sure the Fabric is stable ie.,
       No fabric changes/upgrades in progress

Do you want to continue? (Yes/No) [No] Yes
```

Related Commands

Command	Description
fc-redirect version2 enable mode	Enables version2 mode in FC-Redirect.

npiv enable

To enable N Port Identifier Virtualization (NPIV) for all VSANs on a switch, use the **npiv enable** command in configuration mode. To disable NPIV, use the **no** form of the command.

npiv enable

no npiv enable

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled.

Command Modes

Configuration mode.

Command History

Release	Modification
3.0(1)	This command was introduced.

Usage Guidelines

NPIV provides a means to assign multiple port IDs to a single N Port. This feature allows multiple applications on the N Port to use different identifiers and allows access control, zoning, and port security to be implemented at the application level.

You must globally enable NPIV for all VSANs on the MDS switch to allow the NPIV-enabled applications to use multiple N Port Identifiers.

Note All of the N Port Identifiers are allocated in the same VSAN.

Examples

The following example enables NPIV for all VSANs on the switch.

```
switch# config terminal
switch(config)# npiv enable
```

The following example disables NPIV for all VSANs on the switch.

```
switch(config)# no npiv enable
```

Related Commands

Command	Description
show interface	Displays interface configurations.

nport pwwn

To configure the nport pWWN for the SAN extension tuner, use the **nport pwwn** command in SAN extension configuration mode. To revert to the default value, use the **no** form of the command.

nport pwwn *pwwn-id* **vsan** *vsan-id* **interface gigabitethernet** *slot/port*

no nport pwwn *pwwn-id* **vsan** *vsan-id* **interface gigabitethernet** *slot/port*

Syntax Description

pwwn-id	Specifies the port WWN ID. The format is *hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*, where *h* is a hexadecimal number.
vsan *vsan-id*	Specifies the VSAN ID. The range is 1 to 4093.
interface gigabitethernet *slot/port*	Specifies the Gigabit Ethernet interface slot and port.

Defaults

None.

Command Modes

SAN extension configuration mode.

Command History

Release	Modification
2.0(x)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to add an entry to the SAN extension tuner database.

```
switch# san-ext-tuner
switch(san-ext)# nport pwwn 11:22:33:44:55:66:77:88 vsan 1 interface gigabitethernet 1/1
```

Related Commands

Command	Description
san-ext-tuner	Enters SAN extension configuration mode.
show san-ext-tuner	Shows SAN extension tuner information.

npv enable

To enable N Port Virtualization (NPV), use the **npv enable** command in configuration mode. To disable this feature, use the **no** form of the command.

npv enable

no npv enable

Syntax Description

This command has no other arguments or keywords.

Defaults

None.

Command Modes

Configuration mode.

Command History

Release	Modification
3.2(1)	This command was introduced.

Usage Guidelines

When NPV is enabled, all configurations are erased and the switch is rebooted. The switch restarts in the NPV mode. All configuration and verification commands for NPV are available only when NPV is enabled on the switch. When you disable this feature, all related configurations are automatically erased and the switch is rebooted.

Examples

The following example shows how to enable NPV.

```
switch# config
switch(config)# npv enable
```

Related Commands

Command	Description
show npv status	Displays the NPV current status.

npv auto-load-balance disruptive

To enable autoload balance disruptive, use the **npv auto-load-balance disruptive** command in configuration mode. To disable this feature, use the **no** form of the command.

npv auto load-balancing disruptive

no npv auto load-balancing disruptive

Syntax Description

This command has no arguments or keywords.

Defaults

None.

Command Modes

Configuration mode.

Command History

Release	Modification
3.3(1)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to enable autoload balance disruptive.

```
switch(config)# npv auto-load-balance disruptive
Enabling this feature may flap the server intefaces whenever load is not in a ba
lanced state. This process may result in traffic disruption. Do you want to proc
eed? (y/n):
Please enter y or n y
switch(config)#
```

Related Commands

Command	Description
npv traffic-map server interface	Configures server interface traffic enginering.

npv traffic-map server-interface

To configure the server interface based trafic engineering, use the **npv traffic-map server-interface** command in configuration mode. To revert to the default value, use the **no** form of the command.

npv traffic-map server-interface <*if -range*> **external-interface** <*if-range*>

no npv traffic-map server-interface <*if -range*> **external-interface** <*if-range*>

Syntax Description

if-range	Range may vary from <1-1>.

Defaults

None.

Command Modes

Configuration mode.

Command History

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

Usage Guidelines

None.

Examples

The following example shows how to configure NPV traffic map server interface:

```
switch(config)# npv traffic-map server-interface fc1/1 external-interface fc1/2
switch(config)# npv traffic-map server-interface fc1/4-5 external-interface fc1/6-7
switch(config)# no npv traffic-map server-interface fc1/4-5 external-interface fc1/6-7
switch(config)# no npv traffic-map server-interface fc1/1 external-interface fc1/2
switch(config)#
```

Related Commands

Command	Description
show npv-traffic-map	Displays information about the NPV traffic map.

ntp

To configure NTP settings on the switch, use the **ntp** command in configuration mode.

ntp {**peer** *hostname* | **server** | **tstamp-check**}

Syntax Description

peer ***hostname***	The hostname/IP address of the NTP peer (Max Size - 80).
server	The hostname/IP address of the NTP server (Max Size - 80).
tstamp-check	Enables or disables the Timestamp Check.

Defaults

This command has no default settings.

Command Modes

Configuration mode.

Command History

Release	Modification
1.0(2)	This command was introduced.

Usage Guidelines

None.

Examples

This example forms a server association with a server.

```
switch(config)# ntp server 10.10.10.10
switch(config)#
```

This example forms a peer association with a peer. You can specify multiple associations.

```
switch(config)# ntp peer 10.20.10.0
switch(config)#
```

Related Commands

Command	Description
ntp distribute	Enables CFS distribution for NTP.
show ntp	Displays NTP information.

ntp abort

To discard the Network Time Protocol (NTP) Cisco Fabric Services (CFS) distribution session in progress, use the **ntp abort** command **in configuration mode.**

ntp abort

Syntax Description

This command has no other arguments or keywords.

Defaults

None.

Command Modes

Configuration mode.

Command History

Release	Modification
2.0(x)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to configure NTP CFS distribution session in progress.

```
switch# config terminal
switch(config)# ntp abort
```

Related Commands

Command	Description
ntp distribute	Enables CFS distribution for NTP.
show ntp	Displays NTP information.

ntp commit

To apply the pending configuration pertaining to the Network Time Protocol (NTP) Cisco Fabric Services (CFS) distribution session in progress in the fabric, use the **ntp commit** command **in configuration mode.**

ntp commit

Syntax Description

This command has no other arguments or keywords.

Defaults

None.

Command Modes

Configuration mode.

Command History

Release	Modification
2.0(x)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to commit changes to the active NTP configuration.

```
switch# config terminal
switch(config)# ntp commit
```

Related Commands

Command	Description
ntp distribute	Enables CFS distribution for NTP.
show ntp	Displays NTP information.

ntp distribute

To enable Cisco Fabric Services (CFS) distribution for Network Time Protocol (NTP), use the **ntp distribute** command. To disable this feature, use the **no** form of the command.

ntp distribute

no ntp distribute

Syntax Description

This command has no other arguments or keywords.

Defaults

Disabled.

Command Modes

Configuration mode.

Command History

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

Command History

Release	Modification
2.0(x)	This command was introduced.

Usage Guidelines

Before distributing the Fibre Channel timer changes to the fabric, the temporary changes to the configuration must be committed to the active configuration using the **ntp commit** command.

Examples

The following example shows how to distribute the active NTP configuration to the fabric.

```
switch# config terminal
switch(config)# ntp distribute
```

Related Commands

Command	Description
ntp commit	Commits the NTP configuration changes to the active configuration.
show ntp	Displays NTP information.

ntp sync-retry

To retry synchronization with configured servers, use the **ntp sync-retry** command.

ntp sync-retry

Syntax Description

This command has no arguments or keywords.

Defaults

None.

Command Modes

EXEC mode.

Command History

Release	Modification
3.4(1)	Added a note.
3.3(1a)	This command was introduced.

Usage Guidelines

None.

Note .If user changes the mgmt0 ip address, san-os should conditionally do an internal **ntp sync-retry**.

Examples

The following example displays the sup-fc0 message logs:

```
switch# ntp sync-retry
```

Related Commands

Command	Description
ntp distribute	Enables CFS distribution for NTP.
show ntp	Displays NTP information.

nwwn (DPVM database configuration submode)

To add a device to a dynamic port VSAN membership (DPVM) database using the nWWN, use the **nwwn** command in DPVM database configuration submode. To remove a device from a DPVM database using the nWWN, use the **no** form of the command.

nwwn *nwwn-id* **vsan** *vsan-id*

no nwwn *nwwn-id* **vsan** *vsan-id*

Syntax Description

nwwn-id	Specifies the node WWN ID. The format is *hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*, where *h* is a hexadecimal number.
vsan *vsan-id*	Specifies the VSAN ID. The range is 1 to 4093.

Defaults

None.

Command Modes

DPVM database configuration submode.

Command History

Release	Modification
2.0(x)	This command was introduced.

Usage Guidelines

To use this command, DPVM must be enabled using the **dpvm enable** command.

Examples

The following example shows how to add an entry to the DPVM database.

```
switch# config terminal
switch(config)# dpvm database
switch(config-dpvm-db)# nwwn 11:22:33:44:55:66:77:88 vsan 1
```

The following example shows how to delete an entry from the DPVM database.

```
switch(config-dpvm-db)# no nwwn 11:22:33:44:55:66:77:88 vsan 1
```

Related Commands

Command	Description
dpvm database	Configures the DPVM database.
show dpvm	Displays DPVM database information.

nwwn (SAN extension configuration mode)

To configure the nWWN for the SAN extension tuner, use the **nwwn** command in SAN extension configuration submode.

nwwn *nwwn-id*

Syntax Description

nwwn-id	Specifies the nWWN address. The format is *hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*:*hh*, where *h* is a hexadecimal number.

Defaults

None.

Command Modes

SAN extension configuration mode.

Command History

Release	Modification
2.0(x)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to add an entry to the SAN extension tuner database.

```
switch# san-ext-tuner
switch(san-ext)# nwwn 20:42:00:0b:46:79:f1:80
```

Related Commands

Command	Description
san-ext-tuner	Enters SAN extension configuration mode.
show san-ext-tuner	Shows SAN extension tuner information.