CHAPTER 25

V 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" to determine the appropriate mode for each command. For more information, refer to the *Cisco MDS 9000 Family CLI Configuration Guide*.

virtual-domain (SDV virtual device configuration submode)

To configure a persistent virtual domain, use the **virtual-domain** command in SDV virtual device configuration submode. To remove a persistent virtual domain, use the **no** form of the command.

virtual-domain *domain-name*

no virtual-domain *domain-name*

Syntax Description

domain-name	Specifies the persistent virtual domain. The range is 1 to 239 or 0x1 to 0xef.

Defaults

No virtual domains are configured by default.

Command Modes

SDV virtual device configuration submode.

Command History

Release	Modification
3.1(2)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to configure a persistent virtual domain:

```
switch# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# sdv virtual-device name sqa1 vsan 1
switch(config-sdv-virt-dev)# virtual-domain 1
```

Related Commands

Command	Description
sdv enable	Enables or disables SAN device virtualization.
show sdv statistics	Displays SAN device virtualization statistics.

virtual-fcid (SDV virtual device configuration submode)

To configure a persistent virtual FC ID, use the **virtual-fcid** command in SDV virtual device configuration submode. To remove a persistent virtual FC ID, use the the **no** form of the command.

virtual-fcid *fc-id*

no virtual-fcid *fc-id*

Syntax Description

fc-id	Specifies the persistent virtual FC ID. The format is *0xhhhhhh,* where *h* is a hexadecimal number.

Defaults

No virtual FC IDs are configured by default.

Command Modes

SDV virtual device configuration submode.

Command History

Release	Modification
3.1(2)	This command was introduced.

Usage Guidelines

None.

Examples

The following example shows how to configure a persistent virtual FC ID:

```
switch# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# sdv virtual-device name sqa1 vsan 1
switch(config-sdv-virt-dev)# virtual-fcid 0xd66e54
```

Related Commands

Command	Description
sdv enable	Enables or disables SAN device virtualization.
show sdv statistics	Displays SAN device virtualization statistics.

vrrp

To enable VRRP, use the **vrrp** command in configuration mode. Use the **no** form of the command to revert to the factory defaults or to negate a command.

vrrp *ipv4-vr-group-number* {**address** *ip-address* [**secondary**] | **advertisement-interval** *seconds* | **authentication** {**md5** *keyname* **spi** *index* | **text** *password*} | **preempt** | **priority** *value* | **shutdown** | **track interface** {**mgmt 0** | **vsan** *vsan-id*} **ipv6** *ipv6-vr-group-number* {**address** *ipv6-address* | **advertisement-interval** *centiseconds* | **preempt** | **priority** *value* | **shutdown** | **track interface** {**mgmt 0** | **vsan** *vsan-id*}} }

vrrp *ipv4-vr-group-number* **address** *ip-address* [**secondary**] | **advertisement-interval** *seconds* | **authentication** {**md5** *keyname* **spi** *index* | **text** *password*} | **preempt** | **priority** *value* | **shutdown** | **track interface** {**mgmt 0** | **vsan** *vsan-id*} **ipv6** *ipv6-vr-group-number* {**address** *ipv6-address* | **advertisement-interval** *centiseconds* | **preempt** | **priority** *value* | **shutdown** | **track interface** {**mgmt 0** | **vsan** *vsan-id*}} }

Syntax Description

ipv4-vr-group-number	Specifies an IPv4 virtual router group number. The range is 1 to 255.
address *ip-address*	Adds or removes an IP address to the virtual router.
secondary	Configures a virtual IP address without an owner.
advertisement-interval *seconds*	Sets the time interval between advertisements. For IPv4, the range is 1 to 255 seconds.
authentication	Configures the authentication method.
md5 *keyname*	Sets the MD5 authentication key. Maximum length is 16 characters.
spi *index*	Sets the security parameter index. The range is 0x0 to 0xffffff.
text *password*	Sets an authentication password. Maximum length is 8 characters.
preempt	Enables preemption of lower priority master.
priority *value*	Configures the virtual router priority. The range is 1 to 254.
shutdown	Disables the VRRP configuration.
track	Tracks the availability of another interface.
interface fc *slot/port*	Adds a member using the Fibre Channel interface to a Cisco MDS 9000 Family switch.
mgmt 0	Specifies the management interface.
vsan *vsan-id*	Specifies a VSAN ID. The range is 1 to 4093.
ipv6 *ipv6-vr-group-number*	Specifies VRRP IPv6 on the interface. The range is 1 to 255.
address *ipv6-address*	Adds or removes an IPv6 address to the virtual router.
advertisement-interval *centiseconds*	Sets the time interval between advertisements. For IPv6, the range is 100 to 4095 centiseconds.

Defaults

Disabled.

Command Modes

Interface configuration mode.

Command History

Release	Modified
1.0(2)	This command was introduced.
3.0(1)	• Added the **IPv6** option. • Added the **address** and **advertisement-interval** options that are specific to IPv6.

Usage Guidelines

You enter the Virtual Router configuration submode to access the options for this command. From the VSAN or mgmt0 (management) interface configuration submode, enter **vrrp** *number* to enter the switch(config-if-vrrp)# prompt. By default, a virtual router is always disabled (**shutdown**). VRRP can be configured only if this state is disabled. Be sure to configure at least one IP address before attempting to enable a virtual router.

The total number of of VRRP groups that can be configured on a Gigabit Ethernet port, including main interfaces and subinterfaces, cannot exceed seven. This limitation applies to both IPv4 and IPv6 groups.

Note If you configure secondary VRRP IPv6 addresses on an IPFC VSAN interface, you must remove the secondary VRRP IPv6 addresses before downgrading to a release prior to Cisco Release 3.0(1). This is required only when you configure IPv6 addresses.

For additional information about VRRP, refer to the *Cisco MDS 9000 Family CLI Configuration Guide*.

Examples

The following example enables VRRP configuration:

```
switch(config-if-vrrp)# no shutdown
```

The following example disables VRRP configuration:

```
switch(config-if-vrrp)# shutdown
```

The following example configures an IPv4 address for the selected VRRP:

```
switch# config terminal
switch(config)# interface vsan 1
switch(config-if)# vrrp 250
switch(config-if-vrrp)# address 10.0.0.10
```

Related Commands

Command	Description
show vrrp	Displays VRRP configuration information.
clear vrrp	Clears all the software counters for the specified virtual router.

vsan (iSCSI initiator configuration and iSLB initiator configuration)

To assign an iSCSI or iSLB initiator to a VSAN other than the default VSAN, use the **vsan** command in iSCSI initiator configuration submode or iSLB initiator configuration submode. To disable this feature, use the **no** form of the command.

vsan *vsan-id*

no vsan *vsan-id*

Syntax Description

vsan-id	Specifies a VSAN ID. The range 1 to 4093.

Defaults

None.

Command Modes

iSCSI initiator configuration submode.
iSLB initiator configuration submode.

Command History

Release	Modification
1.3(2)	This command was introduced.
3.0(1)	Added iSLB initiator configuration submode.

Usage Guidelines

When you configure an iSLB initiator in a VSAN other than VSAN 1(the default VSAN), the initiator is automatically removed from VSAN 1. For example, if you configure an iSLB initiator in VSAN 2 and you also want it to be present in VSAN 1, you must explicitly configure the initiator in VSAN 1.

Examples

The following example assigns an iSCSI initiator to a VSAN other than the default VSAN:

```
switch# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config)# iscsi initiator name iqn.1987-02.com.cisco.initiator
switch(config-iscsi-init)# vsan 40
switch(config-iscsi-init)#
```

The following example assigns an iSLB initiator to a VSAN other than the default VSAN:

```
switch# config t
switch(config)# islb initiator ip-address 100.10.10.10
ips-hac2(config-islb-init)# vsan ?
  <1-4093>  Enter VSAN
ips-hac2(config-islb-init)# vsan 10
```

The following example removes the iSLB initiator:

```
switch (config-islb-init)# no vsan 10
```

Related Commands

Command	Description
iscsi initiator name	Assigns an iSCSI name and changes to iSCSI initiator configuration submode.
show islb initiator	Displays iSLB initiator information.
show iscsi initiator	Displays information about a configured iSCSI initiator.
show iscsi initiator configured	Displays iSCSI initiator information for the configured iSCSI initiator.
show iscsi initiator detail	Displays detailed iSCSI initiator information.
show iscsi initiator summary	Displays iSCSI initiator summary information.
show islb initiator	Displays iSLB initiator information.
show islb initiator configured	Displays iSLB initiator information for the configured iSLB initiator.
show islb initiator detail	Displays detailed iSLB initiator information.
show islb initiator summary	Displays iSLB initiator summary information.

vsan database

To create multiple fabrics sharing the same physical infrastructure, assign ports to VSANs, turn on or off interop mode, load balance either per originator exchange or by source-destination ID, and enter VSAN database submode, enable the load balancing guarantee for the selected VSAN and directs the switch to use the source and destination ID for its path selection process, use the **vsan database** command. To remove a configuration, use the **no** command in VSAN database submode.

vsan database vsan *vsan-id* [**interface fc** *slot/port* | **fcip** *fcip-id* | **fv** *slot/dpp-number/fv-port* | **iscsi** *slot/port* | **port-channel** *portchannel-number.subinterface-number*} | **interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**} | **name** *name* [**interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**} | **suspend [interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **suspend [interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**}]]

no vsan database vsan *vsan-id* [**interface** {**fc** *slot/port* | **fcip** *fcip-id* | **fv** *slot/dpp-number/fv-port* | **iscsi** *slot/port* | **port-channel** *portchannel-number.subinterface-number*} | **interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**} | **name** *name* [**interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**} | **suspend [interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **suspend [interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] | **loadbalancing** {**src-dst-id** | **src-dst-ox-id**}]]

Note On a Cisco Fabric Switch for HP c-Class BladeSystem and on a Cisco Fabric Switch for IBM BladeCenter, the syntax differs as follows:
interface bay *port* | **ext** *port*

Syntax Description

vsan *vsan-id*	Specifies the VSAN ID. The range is 1 to 4093.
interface fc *slot/port*	(Optional) Specifies the Fibre Channel interface by slot and port number on a Cisco MDS 9000 Family switch.
interface bay port | **ext** port	(Optional) Specifies the Fibre Channel interface by port number on a Cisco Fabric Switch for HP c-Class BladeSystem or on a Cisco Fabric Switch for IBM BladeCenter. The range is 0 to 48.
fcip *fcip-id*	(Optional) Specifies the FCIP interface on a Cisco MDS 9000 Family switch.
fv *slot/dpp-number/fv-port*	Configures the virtual F port (FV port) interface in the specified slot along with the data path processor (DPP) number and the FV port number.
iscsi *slot/port*	(Optional) Configures the iSCSI interface in the specified slot/port on a Cisco MDS 9000 Family switch.
port-channel *portchannel-number.subinterface-number*	Configures the PortChannel interface specified by the PortChannel number followed by a dot (.) indicator and the subinterface number.
interop	Turns on interoperability mode.
mode	Specifies the interop mode. The range is 1 to 4.
loadbalancing	Configures load-balancing scheme.

src-dst-id	Sets src-id/dst-id for load-balancing.
src-dst-ox-id	Sets ox-id/src-id/dst-id for load-balancing (default).
name *name*	Assigns a name to the VSAN. Maximum length is 32 characters.
suspend	Suspends the VSAN.

Defaults

None.

Command Modes

Configuration mode.

Command History

Release	Modification
1.2(2)	This command was introduced.
3.0(1)	Increased the interop mode range to 4.
3.1(2)	Added the **interface bay | ext** option.

Usage Guidelines

Change to VSAN database submode to issue this command.

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

- The interface range format for a FC interface range is
  fcslot/port - port , fcslot/port , fcslot/port
  (For example, `show int fc1/1 - 3 , fc1/5 , fc2/5`)
- The interface range format for a FV interface range is
  fvslot/dpp/fvport - fvport , fvslot/dpp/port , fvslot/dpp/port
  (For example, `show int fv2/1/1 - 3 , fv2/1/5 , fv2/2/5`)
- The format for a PortChannel is
  port-channel portchannel-number.subinterface-number
  (For example, `show int port-channel 5.1`)

There are four interop modes:

- Interop mode 1 - Standards based interop mode that requires all other vendors in the fabric to be in interop mode.
- Interop mode 2 - Brocade native mode (Core PID 0).
- Interop mode 3 - Brocade native mode (Core PID 1).
- Interop mode 4 - McData native mode.

Note Before you configure Interop mode 4 (or remove the configuration), you must suspend the VSAN. You should unsuspend the VSAN only after you configure a VSAN-dependent switch WWN with the McData OUI [08:00:88].

Examples

The following examples show how to create multiple fabrics sharing the same physical infrastructure and how to assign ports to VSANs:

```
switch# config terminal
switch(config)# vsan database
switch(config-db)#
switch-config-db# vsan 2
switch(config-vsan-db)# vsan 2 name TechDoc
updated vsan 2
switch(config-vsan-db)# vsan 2 loadbalancing src-dst-id
switch(config-vsan-db)# vsan 2 loadbalancing src-dst-ox-id
switch(config-vsan-db)# vsan 2 suspend
switch(config-vsan-db)# no vsan 2 suspend
switch(config-vsan-db)# vsan 2 interface fv2/8/2
switch(config-vsan-db)# vsan 2 interface iscsi 2/1
switch(config-vsan-db)# end
switch#
```

The following example shows how to suspend a VSAN and enable interop mode 4:

```
switch# config t
switch(config)# vsan database
switch(config-vsan-db)# vsan 100 suspend
switch(config-vsan-db)# vsan 100 interop 4
switch(config-vsan-db)# exit
```

Related Commands

Command	Description
vsan wwn	Configures a WWN for a suspended VSAN that has interop mode 4 enabled.

vsan policy deny

To configure a vsan-based role, use the **vsan policy deny** command in configuration mode. Use the **no** form of this command to delete a configured role.

vsan policy deny permit vsan *vsan-id*

no vsan policy deny permit vsan *vsan-id*

Syntax Description

permit	Remove commands from the role.
vsan *vsan-id*	Specifies the VSAN ID. The range is 1 to 4093.

Defaults

Permit.

Command Modes

Configuration mode—role name submode.

Command History

Release	Modification
1.2(1)	This command was introduced.

Usage Guidelines

You can configure a role so that it only allows commands to be performed for a selected set of VSANs. By default, the VSAN policy of a role is **permit**. In other words, the role can perform commands configured by the **rule** command in all VSANs. In order to selectively allow VSANs for a role, the VSAN policy needs to be set to **deny** and then the appropriate VSANs need to be permitted.

Examples

The following example places you in sangroup role submode:

```
switch# config t
switch(config)# role name sangroup
switch(config-role)#
```

The following example changes the VSAN policy of this role to deny and places you in a submode where VSANs can be selectively permitted:

```
switch(config)# vsan policy deny
switch(config-role-vsan)
```

The following example deletes the configured VSAN role policy and reverts to the factory default (permit):

```
switch(config-role)# no vsan policy deny
```

The following example permits this role to perform the allowed commands for VSANs 10 through 30:

```
switch(config-role)# permit vsan 10-30
```

The following example removes the permission for this role to perform commands for vsan 15 to 20:

```
switch(config-role-vsan)# no permit vsan 15-20
```

vsan suspend

To suspend a VSAN, use the **vsan suspend** command. Use the **no** form of this command to delete a configured role.

vsan *vsan-id* **suspend [interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}] **src-dst-ox-id**}]

no vsan *vsan-id* **suspend [interop** [*mode*] [**loadbalancing** {**src-dst-id** | **src-dst-ox-id**}]

Syntax Description

vsan *vsan-id*	Specifies the VSAN ID. The range is 1 to 4093.
suspend	Suspends the VSAN.
interop	Turns on interoperability mode.
mode	Specifies the interop mode. The range is 1 to 4.
loadbalancing	Configures load-balancing scheme.
src-dst-id	Sets src-id/dst-id for load-balancing.
src-dst-ox-id	Sets ox-id/src-id/dst-id for load-balancing (default).

Defaults

interop mode none and src-dst-ox-id..

Command Modes

Configuration mode—vsan database submode.

Command History

Release	Modification
1.2(1)	This command was introduced.

Usage Guidelines

You can configure a role so that it only allows commands to be performed for a selected set of VSANs. By default, the VSAN policy of a role is **permit**. In other words, the role can perform commands configured by the **rule** command in all VSANs. In order to selectively allow VSANs for a role, the VSAN policy needs to be set to **deny** and then the appropriate VSANs need to be permitted.

Warning **vsan suspend** command done on an active VSAN is a very invasive command that requires a lot of supervisor processing. The supervisor is responsible for logging each device out, deprogramming ACLs, removing FCNS entries, generating RSCNs, etc. Because of this, care should be taken when doing this when there are many devices logged into the switch in the VSAN. After suspending the VSAN a minimum of 5 minutes should elapse prior to doing an no vsan suspend to ensure that all of the prior processing has completed.

Examples

The following example shows how to suspend a VSAN and enable interop mode 4:

```
switch# config t
switch(config)# vsan database
switch(config-vsan-db)# vsan 100 suspend
switch(config-vsan-db)#
```