APPENDIX A

# Cisco SME CLI Commands

The commands in this chapter apply to the Cisco MDS 9000 Family of multilayer directors and fabric switches. See the "Command Modes" section to determine the appropriate mode for each command. For more information, refer to the "Command Modes" section of the *Cisco MDS 9000 Family CLI Configuration Guide*.

## SME Commands

This appendix contains an alphabetical listing of commands that are unique to the Cisco SME features.

# auto-volgrp

To configure the automatic volume grouping, use the **auto-volgrp** command. To disable this feature, use the **no** form of the command.

**auto-volgrp**

**no auto-volgrp**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Disabled.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

If Cisco SME recognizes that the tape's barcode does not belong to an existing volume group, then a new volume group is created when automatic volume grouping is enabled.

## Examples

The following example enables automatic volume grouping:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# auto-volgrp
switch(config-sme-cl)#
```

The following example disables automatic volume grouping:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# auto-volgrp
switch(config-sme-cl)#
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays Cisco SME cluster information. |

# clear fc-redirect config

To delete a FC-Redirect configuration on a switch, use the **clear fc-redirect config** command.

**clear fc-redirect config vt** *vt-pwwn* **local-switch-only**

## Syntax Description

| | |
|---|---|
| **vt** *vt-pwwn* | Specifies the virtual target (VT) of the configuration to be deleted. The format is *hh:hh:hh:hh:hh:hh:hh:hh*. |
| **local-switch-only** | Deletes the configuration only on the local switch. |

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

This command deletes configurations (including active configurations) on the FC-Redirect created by applications such as Cisco SME/DMM. This command enables the host server to talk to the storage array, which directly bypasses the individual Intelligent Service Applications (ISAs), and causes data corruption.

You must use this command only as the last option to clear any left-over configurations which cannot be deleted from the application (Cisco SME/DMM).

Use this command while decommissioning the switch.

## Examples

The following example clears the FC-Redirect configuration on the switch:

```
switch# clear fc-redirect config vt 2f:ea:00:05:30:00:71:64
Deleting a configuration MAY result in DATA CORRUPTION.
Do you want to continue? (y/n) [n] y
```

## Related Commands

| Command | Description |
|---|---|
| **show fc-redirect active configs** | Displays all active configurations on the switch. |

# cluster

To configure a cluster feature, use the **cluster** command.

**cluster enable**

## Syntax Description

| | |
|---|---|
| **enable** | Enables or disables a cluster. |

## Defaults

None.

## Command Modes

Configuration mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c)3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example enables the Cisco SME clustering:

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

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about the Cisco SME cluster. |

# debug sme

To enable debugging for the Cisco SME features, use the **debug sme** command. To disable a debug command, use the **no** form of the command.

**debug sme {all | demux vsan** *vsan id* **| deque | error | event vsan** *vsan id* **| ha vsan** *vsan id* **| trace vsan** *vsan id* **| trace-detail vsan** *vsan id* **| warning vsan** *vsan id***}**

**no debug sme {all | demux vsan** *vsan id* **| deque | error | event vsan** *vsan id* **| ha vsan** *vsan id* **| trace vsan** *vsan id* **| trace-detail vsan** *vsan id* **| warning vsan** *vsan id*

## Syntax Description

| | |
|---|---|
| **all** | Enables debugging of all Cisco SME features. |
| **demux** | Enables debugging of Cisco SME message demux. |
| **vsan** *vsan id* | Restricts debugging to a specified VSAN ID. The range is 1 to 4094. |
| **deque** | Enables debugging of Cisco SME message dequeue. |
| **error** | Enables debugging of Cisco SME errors. |
| **event** | Enables debugging of Cisco SME finite state machine (FSM) and events. |
| **ha** | Enables debugging of Cisco SME high availability (HA). |
| **trace** | Enables debugging of Cisco SME trace. |
| **trace-detail** | Enables debugging of Cisco SME trace-detail. |
| **warning** | Enables debugging of Cisco SME warning. |

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example displays the system output from the **debug sme all** command:

```
switch# debug sme all
2007 Sep 23 15:44:44.490796 sme: fu_priority_select:  - setting fd[5] for select
 call
2007 Sep 23 15:44:44.490886 sme: fu_priority_select_select_queue: round credit(8
)
2007 Sep 23 15:44:44.490918 sme:     curr_q - FU_PSEL_Q_CAT_CQ, usr_q_info(2), p
riority(7), credit(4), empty
2007 Sep 23 15:44:44.490952 sme: fu_priority_select: returning FU_PSEL_Q_CAT_MTS
 queue, fd(5), usr_q_info(1)
2007 Sep 23 15:44:44.491059 sme: sme_get_data_from_queue(1031): dequeued mts msg
```

```
 (34916564), MTS_OPC_DEBUG_WRAP_MSG
2007 Sep 23 15:44:44.491096 sme: fu_fsm_engine: line[2253]
2007 Sep 23 15:44:44.492596 sme: fu_fsm_execute_all: match_msg_id(0), log_alread
y_open(0)
```

## Related Commands

| Command | Description |
|---|---|
| **no debug all** | Disables all debugging. |
| **show sme** | Displays all information about Cisco SME. |

# discover

To initiate the discovery of hosts, use the **discovery** command. To disable this feature, use the **no** form of the command.

**discover host** *host port* **target** *target port* **vsan** *vsan id* **fabric** *fabric name*

**no discover**

## Syntax Description

| | |
|---|---|
| **host** *host port* | Identifies the host port WWN. The format is *hh:hh:hh:hh:hh:hh:hh:hh.* |
| **target** *target port* | Identifies the target port WWN. The format is *hh:hh:hh:hh:hh:hh:hh:hh*. |
| **vsan** *vsan id* | Selects the VSAN identifier. The range is 1 to 4093. |
| **fabric** *fabric name* | Specifies the fabric for discovery.The maximum lengthmaximum length is 32 characters. |

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

If the **discover** command is issued on an existing host that could be configured or discovered, then Cisco SME deletes all the existing discovered LUNs, sends out a LOGO notification to the host, and does a discovery again.

## Examples

The following example discovers a host and specifies a target, a VSAN, and a fabric for discovery:

```
switch# config t
switch(config)# sme cluster clustername1
switch(config-sme-cl)# discover host 20:00:00:00:c9:49:28:47 target
21:01:00:e0:8b:29:7e:0c vsan 2345 fabric sw-xyz
```

The following example disables the discovery feature:

```
switch# config t
switch(config)# sme cluster clustername1
switch(config-sme-cl)# no discover
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about the Cisco SME cluster. |

# do

Use the **do** command to execute an EXEC-level show command from any configuration mode or submode.

**do** *command*

## Syntax Description

| | |
|---|---|
| *command* | Specifies the EXEC command to be executed. |

## Defaults

None.

## Command Modes

All configuration modes.

## Command History

| Release | Modification |
|---|---|
| 1.1(1) | This command was introduced. |

## Usage Guidelines

Use this command to execute EXEC level show commands while configuring your switch. After the EXEC command is executed, the system returns to the mode from which you issued the **do** command.

## Examples

The following example displays the information about the cluster tape details in the Cisco SME tape volume configuration submode:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)# tape-device devicename1
switch(config-sme-cl-tape-bkgrp-tapedevice)#do show sme cluster clustername1 tape detail
Tape t1 is online
    Is a Tape Drive
    Model is HP Ultrium 2-SCSI
    Serial Number is HUM4A00184
    Is configured as tape device b1 in tape group b1
    Paths
      Host 12:01:00:e0:8b:a2:08:90 Target 52:06:0b:11:00:20:4c:4c LUN 0x0000
         Is online
```

The following example displays the counters in the interface in the Cisco SME crypto tape volume group configuration submode:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)# tape-volgrp t1
switch(config-sme-cl-tape-bkgrp-volgrp)#do show interface sme 3/1 description
sme3/1
    5 minutes input rate 0 bits/sec, 0 bytes/sec, 0.00 KB/sec
    5 minutes output rate 0 bits/sec, 0 bytes/sec, 0.00 KB/sec
```

```
SME statistics
  input 0 bytes, 5 second rate 0 bytes/sec, 0.00 KB/sec
    clear 0 bytes, encrypt 0 bytes, decrypt 0
    compress 0 bytes, decompress 0 bytes
  output 0 bytes, 5 second rate 0 bytes/sec, 0.00 KB/sec
    clear 0 bytes, encrypt 0 bytes, decrypt 0
    compress 0 bytes, decompress 0 bytes
      compression ratio 0:0
  flows 0 encrypt, 0 clear
  clear luns 0, encrypted luns 0
  errors
     0 CTH, 0 authentication
     0 key generation, 0 incorrect read
     0 incompressible, 0 bad target responses
```

# fabric

To add a fabric to the cluster, use the **fabric** command in the Cisco SME cluster configuration submode.

**fabric** *fabric name*

## Syntax Description

| | |
|---|---|
| *fabric name* | Specifies the fabric name. The maximum length is 32 characters. |

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example adds a fabric named sw-xyz to a cluster:

```
switch# config terminal
switch(config)# sme cluster c1
switch(config-sme-cl)# fabric sw-xyz
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about Cisco SME cluster. |

# fabric-membership

To configure a node to a fabric, use the **fabric-membership** command. To remove the node from the fabric, use the **no** form of the command.

**fabric-membership** *fabric name*

**no fabric-membership** *fabric name*

## Syntax Description

| | |
|---|---|
| *fabric name* | Specifies the fabric name. The maximum length is 32 characters. |

## Defaults

None.

## Command Modes

Cisco SME cluster node configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

Use the **fabric-membership** command to put a node in a fabric.

This command has to be configured before the **interface sme** *slot/port* **[force]** can be accepted. It also cannot be removed if the **interface sme** *slot/port* **[force]** command is enabled.

## Examples

The following example specifies a fabric to which the node belongs:

```
switch# config t
switch(config)# sme cluster clustername1
switch(config-sme-cl)# node local
switch(config-sme-cl-node)# fabric-membership f1
```

## Related Commands

| Command | Description |
|---|---|
| **interface sme** | Configures the Cisco SME interface to a cluster. |
| **shutdown** | Enables or disables an interface. |
| **show interface sme** | Displays interface information. |

# fc-redirect version2 enable

To enable the version2 mode in FC-Redirect, use the **fc-redirect version2 enable** command in configuration mode.

**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

This command is used to increase scalability of FC-Redirect.

Disabling version2 mode after it is enabled in the fabric is not recommended. However, if you want to disable version2 mode, you cannot disable it until all FC-Redirect configurations are deleted. FC-Redirect configurations can be deleted only by deleting all corresponding application configurations.

The SAN-OS 3.2.x switches cannot be added to the fabric after the version2 mode is enabled. If the switches are added, all further FC-Redirect configuration changes will fail across the fabric. This could lead to traffic disruption for applications such as SME and DMM.

Use the **show fc-redirect configs** command to see the list of applications that create FC-Redirect configurations.

If version2 mode is enabled in the fabric and you want to move a switch to a different fabric, use the **clear fc-redirect decommission-switch** command before moving the switch to a different fabric. If not, all switches in the new fabric will be converted to version2 mode automatically.

**Note** All switches in the fabric should be running San-OS version 3.3.x or higher. Ensure that there are no fabric changes or upgrades in progress. Use the **show fc-redirect peer-switches** command (UP state) to see all the switches in the fabric.

## Examples

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

```
switch# fc-redirect version2 enable
Please make sure to read and understand the following implications
before proceeding further:


   1) This is a Fabric wide configuration. All the switches in the
      fabric will be configured in Version2 mode.Any new switches
```

```
      added to the fabric will automatically be configured in version2
      mode.

   2) SanOS 3.2.x switches CANNOT be added to the Fabric after Version2
      mode is enabled. If any 3.2.x switch is added when Version2 mode
      is enabled, all further FC-Redirect Configuration changes will Fail
      across the fabric. This could lead to traffic disruption for
      applications like SME.

   3) If enabled, Version2 mode CANNOT be disabled till all FC-Redirect
      configurations are deleted. FC-Redirect configurations can be
      deleted ONLY after all the relevant application configurations
      are deleted. Please use the command 'show fc-redirect configs'
      to see the list of applications that created FC-Redirect
      configurations.

   4) 'write erase' will NOT disable this command. After 'write erase'
      on ANY switch in the fabric, the user needs to do:
               'clear fc-redirect decommission-switch'
      on that that switch. Without that, if the user moves the switch
      to a different fabric it will try to convert all the switches
      in the fabric to Version2 mode automatically. This might lead
      to Error conditions and hence Traffic disruption.

Do you want to continue? (Yes/No) [No]Yes
Before proceeding further, please check the following:
   1) All the switches in the fabric are seen in the output of
      'show fc-redirect peer-switches' command and are in 'UP' state.

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

   3) 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 |
|---|---|
| **no fc-redirect version2 enable mode** | Disables version2 mode in FC-Redirect. |

# interface sme

To configure the Cisco SME interface on a switch, use the **interface sme** command. To remove the interface, use the **no** form of the command.

**interface sme** *slot /port*

**no interface sme** *slot /port*

## Syntax Description

| | |
|---|---|
| *slot* | Identifies the number of the MPS-18/4 module slot. |
| *port* | Identifies the number of the Cisco SME port. |

## Defaults

Disabled.

## Command Modes

Configuration mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

To use this command, clustering must be enabled using the **cluster enable** command and Cisco SME services must be activated using the **sme enable** command.

Once you have configured the interface, use the **no shutdown** command to enable the interface.

To delete the Cisco SME interface, you must first remove the switch from the cluster. Use the **no sme cluster** command to remove the switch from the cluster and then use the **no interface** command to delete the interface.

The interface commands are available in the **(config-if)** submode.

## Examples

The following example configures and enables the Cisco SME interface on the MPS-18/4 module slot and the default Cisco SME port:

```
switch# config terminal
switch(config)# interface sme 3/1
switch(config-if)# no shutdown
```

## Related Commands

| Command | Description |
|---|---|
| **shutdown** | Enables or disables an interface. |
| **show interface sme** | Displays interface information. |

# interface sme (Cisco SME cluster node configuration submode)

To add Cisco SME interface from a local or a remote switch to a cluster, use the **interface sme** command. To delete the interface, use the **no** form of the command.

**interface sme** (*slot/port*) [**force**]

**no interface sme** (*slot/port*) [**force**]

## Syntax Description

| | |
|---|---|
| *slot* | Identifies the MPS-18/4 module slot. |
| *port* | Identifies the Cisco SME port. |
| **force** | Forcibly clears the previous interface context in the interface. |

## Defaults

Disabled.

## Command Modes

Cisco SME cluster node configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

You have to first configure a node using the **fabric-membership** command before this command can be executed.

To use this command, clustering must be enabled using the **cluster enable** command and Cisco SME services must be activated using the **sme enable** command.

To delete the Cisco SME interface, first remove the switch from the cluster. Use the **no sme cluster** command to remove the switch from the cluster and then use the **no interface** command to delete the interface.

## Examples

The following example specifies the fabric to which the node belongs and then adds the Cisco SME interface (4/1) from a local switch using the **force** option:

```
switch# config t
switch(config)# sme cluster clustername1
switch(config-sme-cl)# node local
switch(config-sme-cl-node)# fabric-membership f1
switch(config-sme-cl-node)# interface sme 4/1 fabric sw-xyz
```

The following example specifies the fabric to which the node belongs and then adds the Cisco SME interface (4/1) from a remote switch using the **force** option:

```
switch# config t
switch(config)# sme cluster clustername1
switch(config-sme-cl)# node 171.71.23.33
switch(config-sme-cl-node)# fabric-membership f1
switch(config-sme-cl-node)# interface sme 4/1 fabric sw-xyz
```

## Related Commands

| Command | Description |
|---|---|
| **fabric-membership** | Adds the node to a fabric. |
| **show interface** | Displays Cisco SME interface details. |

# key-ontape

To configure keys on the tape mode and store the encrypted security keys on the backup tapes, use the **key-ontape** command. To disable this feature, use the **no** form of the command.

**key-ontape**

**no key-ontape**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Disabled.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

This command allows the encrypted security keys to be stored on the backup tapes.

**Note** This feature is supported only for unique keys.

Before using this command, automatic volume grouping should be disabled by using the **auto-volgrp** command.

## Examples

The following example enables the key-ontape feature:

```
switch# config terminal
switch(config)# sme cluster clustername1
switch(config-sme-cl)# key-ontape
```

The following example disables the key-ontape feature:

```
switch# config terminal
switch(config)# sme cluster clustername1
switch(config-sme0-cl)# no key-ontape
```

## Related Commands

| Command | Description |
|---|---|
| **no shared-key** | Specifies unique key mode. |
| **no auto-volgrp** | Disables automatic volume grouping. |
| **show sme cluster key** | Displays information about cluster key database. |
| **show sme cluster tape** | Displays information about tapes. |

# link-state-trap

To enable an Simple Network Management Protocol (SNMP) link state trap on an interface, use the **link-state-trap** command. To disable this feature, use the **no** form of the command.

**link-state-trap**

**no link-state-trap**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

Interface configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example enables the link-state-trap on the SME interface:

```
switch# config t
switch(config)# interface sme 4/1
switch(config-if)# link-state-trap
```

The following example disables the link-state-trap on the SME interface:

```
switch# config t
switch(config)# interface sme 4/1
switch(config-if)# no link-state-trap
```

# load-balancing

To enable cluster reload balancing for all targets or specific targets, use the **load-balancing** command. To disable this command, use the **no** form of the command.

**load-balancing** {**enable** | *target wwn*}

**no load-balancing** {**enable** | *target wwn*}

## Syntax Description

| | |
|---|---|
| **enable** | Enables cluster load balancing. |
| *target wwn* | Specifies the world-wide name (WWN) of the target port. |

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

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

## Usage Guidelines

The reload balancing operation is performed by the Cisco SME administrator for all or specific target ports. This operation first unbinds all the targets from the Cisco SME interfaces. The targets are then associated, one at a time, based on the load-balancing algorithm. For more information on the load-balancing algorithm, see Chapter 1, "Product Overview".

The reload balancing operation can be triggered if the targets remain unconnected due to errors in the prior load balancing opertions in the backend.

## Examples

The following example enables reload balancing in Cisco SME:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# load-balancing enable
switch(config-sme-cl-node)#
```

The following example adds the host to the Cisco SME interface based on the load-balancing policy:

```
switch# config t
switch(config))# sme cluster c1
switch(config-sme-cl)# load-balancing 17:11:34:44:44:12:14:10
switch(config-sme-cl-node)#
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays Cisco SME 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(2c) | 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 node** | Displays Cisco SME node information about a local or remote switch. |

# odrt.bin

To perform offline data recovery of tape encrypted by Cisco SME, use the **odrt.bin** command on Linux-based systems. This command allows you to recover data when the MSM-18/4 module or the Cisco MDS 9222i fabric switch is not available.

**odrt.bin** [--**help**][--**version**]{-**h** | -**l** | -**r** | -**w**}{if=*input_device_or_file* | of=*output_device_or_file* | kf=*key_export_file* | verbose=*level*}

## Syntax Description

| | |
|---|---|
| **--help** | (Optional)Displays information on the tool. |
| **--version** | (Optional)Displays the version of the tool. |
| **-h** | Reads and prints the tape header information on the tape. |
| **-l** | Lists all SCSI devices. |
| **-r** | Reads the tape device and writes data to intermediate file(s). |
| **-w** | Reads the intermediate file(s) on disk and writes data to the tape. |
| **if** | Specifies the input device or file. |
| **of** | Specifies the output device or file |
| **kf** | Specifies the volume group file name. |
| **verbose** | Specifies the level. |

## Defaults

None.

## Command Modes

None. This command runs from the Linux shell.

## Command History

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

## Usage Guidelines

The **odrt.bin** command operates in the following steps:

- Tape-to-disk– In this mode, the **odrt.bin** command reads the encrypted data from the tape and stores it as intermediate files on the disk. This mode is invoked with the '-r' flag. The input parameter is the tape device name and filename on the disk is the output parameter.
- Disk-to-tape– In this mode, the **odrt.bin** command reads intermediate files on the disk, decrypts and decompresses (if applicable) the data and writes the clear-text data to the tape. The decryption key is obtained from the volume group file that is exported from the Cisco Key Management Center (KMC). This mode is invoked with the '-w' flag. The input parameter is the filename on the disk and tape device name is the output parameter. The volume group file name (key export file) is also accepted as a parameter. Key export password needs to be entered at the command prompt.

**Note** For information on exporting volume groups, see Chapter 6, “Cisco SME Key Management.”

## Examples

The following command reads and prints the Cisco tape header information on the tape:

```
odrt -h if=/dev/sg0
```

The following example read the data on tape into intermediate file(s) on disk:

```
odrt -r if=/dev/sg0 of=diskfile
```

The following command reads the encrypted/compressed data in intermediate file(s) and writes back the decrypted/decompressed data to the tape:

```
odrt -w if=diskfile of=/dev/sg0 kf=c1_tb1_Default.dat
```

A sample output of the **odrt** command follows:

```
[root@ips-host06 odrt]# ./odrt.bin -w if=c of=/dev/sg2 kf=sme_L700_IBMLTO3_Default.dat
verbose=3
Log file: odrt30072
Please enter key export password:
Elapsed 0:3:39.28, Read 453.07 MB, 2.07 MB/s, Write 2148.27 MB, 9.80 MB/s
Done
```

# rule

To specify the tape volume group regular expression, use the **rule** command. To disable this feature, use the **no** form of the command.

**rule** {**range** *range* | **regexp** *regular expression*}

**no rule** {**range** *range* | **regexp** *regular expression*}

## Syntax Description

| | |
|---|---|
| **range** *range* | Specifies the crypto tape volume barcode range. The maximum length is 32 characters. |
| **regexp** *regular expression* | Specifies the volume group regular expression. The maximum length is 32 characters. |

## Defaults

None.

## Command Modes

Cisco SME crypto tape volume group configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example specifies the volume group regular expression:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp tbg1
switch(config-sme-cl-tape-bkgrp)# tape-volgrp tv1
switch(config-sme-cl-tape-bkgrp-volgrp)#rule regexp r1
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about Cisco SME cluster. |
| **tape-bkgrp** *groupname* | Configures crypto backup group. |
| **tape-volgrp** *volume groupname* | Configures crypto backup volume group. |

# security-mode

To configure the Cisco SME security settings, use the **security-mode** command. To delete the security settings, use the **no** form of the command.

**security-mode** {**basic** | **standard** | **advanced** {**schema threshold** *threshold* **total** *total* }}

**no security-mode** {**basic** | **standard** | **advanced** {**schema threshold** *threshold* **total** *total* }

## Syntax Description

| | |
|---|---|
| **basic** | Sets the Cisco SME security level to basic. |
| **standard** | Sets the Cisco SME security level to standard. |
| **advanced** | Sets the Cisco SME security level to advanced. |
| **schema** | Configures the recovery schema. |
| **threshold** *threshold* | Configures the recovery schema threshold. The limit is 2 to 3. |
| **total** *total* | Configures the recovery schema total.The limit is 5 to 5. |

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example sets the security mode to basic:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# security-mode basic
```

The following example sets the security mode to advanced:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# security-mode advanced schema threshold 3 total 5
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about the security settings. |

# setup

To run the basic setup facility, use the **setup** command.

**setup ficon | sme**

## Syntax Description

| | |
|---|---|
| **ficon** | Run the basic FICON setup command facility. |
| **sme** | Run the basic Cisco SME setup command facility. |

## Defaults

None.

## Command Modes

EXEC.

## Command History

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

## Usage Guidelines

Use the **setup sme** command to create the sme-admin and sme-recovery roles for Cisco SME.

## Examples

The following example creates the sme-admin and sme-recovery roles:

```
switch# setup sme
Set up two roles necessary for SME, sme-admin and sme-recovery? (yes/no) [no] y
SME setup done
```

## Related Commands

| Command | Description |
|---|---|
| **show role** | Displays information about the various Cisco SME role configurations. |

# shared-keymode

To configure the shared key mode, use the **shared-keymode** command. To specify the unique key mode, use the **no** form of the command.

**shared-keymode**

**no shared-keymode**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

The **shared-keymode** command generates a single key that is used for a group of backup tapes.

The **no shared-keymode** generates unique or specific keys for each tape cartridge.

**Note** The shared unique key mode should be specified if you want to enable the key-ontape feature.

## Examples

The following example specifies the shared key mode:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# shared-keymode
```

The following example specifies the shared unique keymode:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# no shared-keymode
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays Cisco SME cluster information. |

# show debug

To display all Cisco SME related debug commands configured on the switch, use the **show debug** command.

**show debug** {**cluster** { **bypass** | **sap** *sap* } | **sme bypass** }

## Syntax Description

| | |
|---|---|
| **cluster** | Displays all the debugging flags. |
| **bypass** | Displays the bypass flags. |
| **sap** *sap* | Displays all debugging flags of SAP. Specifies the SAP in the range from 1 to 65535 |
| **sme** | Displays all the debugging flags of Cisco SME. |
| **bypass** | Displays all the bypass flags of Cisco SME. |

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example shows all **debug** commands configured on the switch:

```
switch# show debug
ILC helper:
 ILC_HELPER errors debugging is on
 ILC_HELPER info debugging is on
```

## Related Commands

| Commands | Description |
|---|---|
| **debug sme** | Debugs Cisco SME features. |

# show fc-redirect active-configs

To display all active configurations on a switch, use the **show fc-redirect active-configs** command.

**show fc-redirect active-cfgs**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

This command is used to verify if there are active configurations running on the switch during the following procedures:

- Downgrading from 3.2.1 image (supporting FC-Redirect) to an older image where FC-Redirect is not supported.
- Decommissioning a local switch.

**Note** Active configuration implies configurations created by applications running on the current switch or applications created on remote switches, except the targets/hosts connected to the local switch.

## Examples

The following example displays the active configurations running on the switch:

```
switch# show fc-redirect active-cfgs
Config#1
==========
Appl UUID = 0x00D8 (ISAPI CFGD Service)
SSM Slot = 2
SSM Switch WWN = 20:00:00:05:30:00:90:9e (LOCAL)
Vt PWWN = 2f:ea:00:05:30:00:71:64
Tgt PWWN = 21:00:00:20:37:38:63:9e (LOCAL)
Local Host PWWN = 21:00:00:e0:8B:0d:12:c6
Config#2
==========
Appl UUID = 0x00D8 (ISAPI CFGD Service)
SSM Slot = 2
SSM Switch WWN = 20:00:00:05:30:00:90:9e (LOCAL)
Vt PWWN = 2f:ea:00:05:30:00:71:65
Tgt PWWN = 21:00:00:20:37:18:67:2c
Local Host PWWN = 21:00:00:e0:8B:0d:12:c6

Config#3
```

```
==========
Appl UUID = 0x00D8 (ISAPI CFGD Service)
SSM Slot = 2
SSM Switch WWN = 20:00:00:0d:EC:20:13:00 (REMOTE)
Vt PWWN = 2f:ea:00:05:30:00:71:66
Tgt PWWN = 21:00:00:20:37:18:64:92
Local Host PWWN = 21:00:00:e0:8B:0d:12:c6
```

## Related Commands

| Command | Description |
|---|---|
| **clear fc-redirect vt** | Clears the active configurations on the local switch. |

# show fc-redirect peer-switches

To display all the peer switches in the fabric running FC-Redirect, use the **show fc-redirect peer-switches** command.

**show fc-redirect peer-switches**

## Syntax Description

This command has no other keywords or arguments.

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

This command is used for verifying the fabric state and for troubleshooting.

**Note** To find the switch IP address for the list of switch WWNs, use the **show cfs peers** command.

## Examples

The following example displays the peer switches in the fabric running FC-Redirect:

```
switch# show fc-redirect peer-switches
-----------------------------------------------
num         Switch WWN                  State
-----------------------------------------------
1           20:00:00:05:30:00:90:9e     UP
2           21:00:00:05:30:00:90:9f     DOWN
3           22:00:00:05:30:00:90:91     SYNCING
4           23:00:00:05:30:00:90:92     ERROR
```

This table shows FC-Redirect peer switches summaries.

| Field | Description |
|---|---|
| Up | The peer switch is fully synced with the local switch. |
| Down | The communication with peer switch is broken. |
| Syncing | The local switch is syncing its configuration with the peer switch. |
| Error | Connection with peer switch is not available. |

**Related Commands**

| Command | Description |
|---|---|
| **clear fc-redirect vt** | Clears the active configurations on the local switch. |

# show interface sme

To display the information about Cisco SME interface, use the **show interface sme** command.

**show interface sme** *slot/port* {**brief** | **counters** | **description**}

## Syntax Description

| | |
|---|---|
| *slot* | Identifies the number of the MPS-18/4 module slot. |
| *port* | Identifies the number of the Cisco SME port. |
| **brief** | Displays the brief information about Cisco SME interface. |
| **counters** | Displays the interface counters. |
| **description** | Displays the description of the interface. |

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example displays the brief description of the Cisco SME interface:

```
switch# show interface sme 3/1 brief

--------------------------------------------------------------------------------
Interface          Status        Cluster
--------------------------------------------------------------------------------
sme3/1             up            c2
```

The following example displays the counters of the interface:

```
switch# show interface sme 3/1 description
sme3/1
    5 minutes input rate 0 bits/sec, 0 bytes/sec, 0.00 KB/sec
    5 minutes output rate 0 bits/sec, 0 bytes/sec, 0.00 KB/sec
    SME statistics
      input 0 bytes, 5 second rate 0 bytes/sec, 0.00 KB/sec
        clear 0 bytes, encrypt 0 bytes, decrypt 0
        compress 0 bytes, decompress 0 bytes
      output 0 bytes, 5 second rate 0 bytes/sec, 0.00 KB/sec
        clear 0 bytes, encrypt 0 bytes, decrypt 0
        compress 0 bytes, decompress 0 bytes
          compression ratio 0:0
      flows 0 encrypt, 0 clear
      clear luns 0, encrypted luns 0
      errors
```

```
0 CTH, 0 authentication
0 key generation, 0 incorrect read
0 incompressible, 0 bad target responses
```

## Related Commands

| Command | Description |
|---|---|
| **interface sme** | Configures the Cisco SME interface on the switch. |

# show role

To display the description about the various Cisco SME role configurations, use the **show role** command.

**show role**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

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

## Usage Guidelines

Execute the **setup sme** command to set up theCisco SME administrator and Cisco SME recovery roles and then use the **show role** command to display the role details.

## Examples

The following example displays the Cisco SME role configurations:

```
switch# setup sme
Set up two roles necessary for SME, sme-admin and sme-recovery? (yes/no) [no] y
s
SME setup done
switch# show role

Role: network-admin
Description: Predefined Network Admin group. This role cannot be modified
Access to all the switch commands


Role: network-operator
Description: Predefined Network Operator group. This role cannot be modified
Access to Show commands and selected Exec commands


Role: svc-admin
Description: Predefined SVC Admin group. This role cannot be modified
Access to all SAN Volume Controller commands


Role: svc-operator
Description: Predefined SVC Operator group. This role cannot be modified
Access to selected SAN Volume Controller commands


Role: default-role
  Description: This is a system defined role and applies to all users
```

```
  vsan policy: permit (default)
  ---------------------------------------------
  Rule    Type    Command-type      Feature
  ---------------------------------------------
    1.   permit      show              system
    2.   permit      show                snmp
    3.   permit      show              module
    4.   permit      show            hardware
    5.   permit      show         environment


Role: sme-admin
  vsan policy: permit (default)
  ---------------------------------------------
  Rule    Type    Command-type      Feature
  ---------------------------------------------
    1.   permit      show                 sme
    2.   permit    config                 sme
    3.   permit     debug                 sme


Role: sme-recovery
  vsan policy: permit (default)
  ---------------------------------------------
  Rule    Type    Command-type      Feature
  ---------------------------------------------
    1.   permit    configsme-recovery-officer
```

## Related Commands

| Command | Description |
|---|---|
| **setup sme** | Sets up the Cisco SME administrator and Cisco SME recovery roles. |

# show sme cluster

To display the information about the Cisco SME cluster, use the **show sme cluster** command.

**show sme** {**cluster** {*cluster name* {**detail** | **interface** {**node** {{*A.B.C.D* | *X:X::X* | *DNS name*} **sme** *slot/port* }| **sme** *slot/port* | **summary**}| **it-nexus** | **key database** {**detail** | **guid** *guid name* {**detail** | **summary** } | **summary**} | **node** {{*A.B.C.D* | *X:X::X* | *DNS name}* | **summary**} | **recovery officer** {*index* | **detail** *index* | **summary** *index*} | **summary** | **tape** {**detail** | **summary**}| **tape-bkgrp** *tape group name* **volgrp** *volume group name*} | **detail** | **summary**}

## Syntax Description

| | |
|---|---|
| **cluster** *cluster name* | Displays Cisco SME cluster information. The maximum length is 32 characters. |
| **detail** | Displays Cisco SME cluster details. |
| **interface** | Displays information about Cisco SME cluster interface. |
| **node** | Display information about Cisco SME cluster remote interface. |
| *A.B.C.D* | Specifies the IP address of the remote switch in IPv4 format. |
| *X:X::X* | Specifies the IP address of the remote switch in IPv6 format. |
| *DNS name* | Specifies the name of the remote database. |
| **sme** | Specifies the Cisco SME interface. |
| *slot* | Identifies the MPS-18/4 module slot. |
| *port* | Identifies the Cisco SME port. |
| **interface summary** | Displays Cisco SME cluster interface summary. |
| **it-nexus** | Displays the initiator to target connections (IT-nexus) in the Cisco SME cluster. |
| **key database** | Shows the Cisco SME cluster key database. |
| **detail** | Shows the Cisco SME cluster key database details |
| **guid** *guid name* | Displays Cisco SME cluster key database guid. The maximum length is 64. |
| **summary** | Displays Cisco SME cluster key database summary. |
| **node summary** | Displays Cisco SME cluster node summary. |
| **recovery officer detail** | Displays Cisco SME cluster recovery officer detail. |
| **recovery officer summary** | Displays Cisco SME cluster recovery officer summary. |
| *index* | Specifies recovery officer index. The range is 1 to 8. |
| **detail** *index* | Specifies recovery officer detail index. The range is 1 to 8. |
| **summary** *index* | Specifies recovery officer summary index. The range is 1 to 8. |
| **tape detail** | Displays Cisco SME tape detail. |
| **tape summary** | Displays the tape summary. |
| **tape-bkgrp** *tape group name* | Displays the crypto tape backup group name. The maximum length is 32 characters. |
| **volgrp** *volume group name* | Displays tape volume group name.The maximum length is 32 characters. |
| **detail** | Displays Cisco SME cluster details. |
| **summary** | Shows Cisco SME cluster summary. |

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example displays the configuration details about a cluster:

```
switch# show sme cluster c1
Cluster ID is 0x2b2a0005300035e1
 Cluster status is online
 Security mode is advanced
 Total Nodes are 1
 Recovery Scheme is 2 out of 5
 Fabric[0] is Fabric_name-excal10
 KMC server 10.21.113.117:8800 is provisioned, connection state is initializing

 Master Key GUID is 10af119cfd79c17f-ee568878c049f94d, Version: 0
 Shared Key Mode is Not Enabled
 Auto Vol Group is Not Enabled
 Tape Compression is Not Enabled
 Tape Key Recycle Policy is Not Enabled
 Key On Tape is Not Enabled
 Cluster Infra Status : Operational
 Cluster is Administratively Up
 Cluster Config Version : 24
```

The following example displays the cluster interface information:

```
switch# show sme cluster clustername1 interface it-nexus
------------------------------------------------------------------------------
    Host WWN                 VSAN    Status    Switch        Interface
    Target WWN
------------------------------------------------------------------------------

10:00:00:00:c9:4e:19:ed,
2f:ff:00:06:2b:10:c2:e2      4093     online    switch     sme4/1
```

The following example displays the specific recovery officer of a cluster:

```
switch# show sme cluster clustername1 recovery officer
Recovery Officer 1 is set
  Master Key Version is 0
  Recovery Share Version is 0
  Recovery Share Index is 1
  Recovery Scheme is 1 out of 1
  Recovery Officer Label is
  Recovery share protected by a password

Key Type is master key share
    Cluster is clustername1, Master Key Version is 0
    Recovery Share Version is 0, Share Index is 1
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about Cisco SME cluster. |
| **clear sme** | Clears Cisco SME configuration. |

# show sme transport

To display the Cisco SME cluster transport information, use the **show sme transport** command.

**show sme transport cluster** *cluster name*

## Syntax Description

| | |
|---|---|
| **cluster** *cluster name* | Displays the Cisco SME cluster. The maximum length is 32. |

## Defaults

None.

## Command Modes

EXEC mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

None.

## Examples

The following example displays the internal cluster errors:

```
switch# show sme transport cluster c1

SME Cluster is c1
  Cluster ID is
```

## Related CommandsS

| Command | Description |
|---|---|
| **show sme cluster** | Displays all information of Cisco SME cluster. |
| **clear sme** | Clears Cisco SME configuration. |

# show tech-support sme

To display the information for Cisco SME technical support, use the **show tech-support sme** command.

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

EXEC mode

## Command History

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

## Usage Guidelines

None.

## Examples

The following example displays the information for sme technical support.

```
switch# show tech-support sme
'show startup-config'
version 3.3(1)
fcdomain fcid database
  vsan 1 wwn 24:74:00:05:30:00:07:23 fcid 0xef0000 dynamic
  vsan 1 wwn 24:75:00:05:30:00:07:23 fcid 0xef0001 dynamic
  vsan 1 wwn 24:76:00:05:30:00:07:23 fcid 0xef0002 dynamic
  vsan 1 wwn 24:77:00:05:30:00:07:23 fcid 0xef0003 dynamic
  vsan 1 wwn 24:78:00:05:30:00:07:23 fcid 0xef0004 dynamic
  vsan 1 wwn 24:79:00:05:30:00:07:23 fcid 0xef0005 dynamic
  vsan 1 wwn 24:7a:00:05:30:00:07:23 fcid 0xef0006 dynamic
  vsan 1 wwn 24:7b:00:05:30:00:07:23 fcid 0xef0007 dynamic
  vsan 1 wwn 24:7c:00:05:30:00:07:23 fcid 0xef0008 dynamic
  vsan 1 wwn 24:7d:00:05:30:00:07:23 fcid 0xef0009 dynamic
  vsan 1 wwn 24:40:00:05:30:00:07:23 fcid 0xef000a dynamic
  vsan 1 wwn 24:41:00:05:30:00:07:23 fcid 0xef000b dynamic
  vsan 1 wwn 24:7e:00:05:30:00:07:23 fcid 0xef000c dynamic
  vsan 1 wwn 24:7f:00:05:30:00:07:23 fcid 0xef000d dynamic
  vsan 1 wwn 24:80:00:05:30:00:07:23 fcid 0xef000e dynamic
  vsan 1 wwn 24:81:00:05:30:00:07:23 fcid 0xef000f dynamic
  vsan 1 wwn 24:92:00:05:30:00:07:23 fcid 0xef0010 dynamic
  vsan 1 wwn 24:93:00:05:30:00:07:23 fcid 0xef0011 dynamic
  vsan 1 wwn 24:94:00:05:30:00:07:23 fcid 0xef0012 dynamic
```

# shutdown (interface configuration submode)

To disable an Cisco SME interface, use the **shutdown** command. To enable the interface, use the **no** form of the command.

**shutdown**

**no shutdown**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

Interface configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

The default state for Cisco SME interfaces is shutdown. Use the **no shutdown** command to enable the interface to carry traffic.

The **show interface** command shows that the Cisco SME interface is down until the interface is added to a cluster.

## Examples

The following example enables a Cisco SME interface:

```
switch# config t
switch(config)# interface sme 4/1
switch(config-if)# no shutdown
```

The following example disables a Cisco SME interface:

```
switch# config t
switch(config)# interface sme 4/1
switch(config-if)# shutdown
```

## Related Commands

| Command | Description |
|---|---|
| **show interface sme** | Displays information about the Cisco SME interface. |

# shutdown (Cisco SME cluster configuration submode)

To disable a cluster for recovery, use the **shutdown** command. To enable the cluster for recovery, use the **no** form of the command.

**shutdown**

**no shutdown**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

To disable operation of a cluster for the purpose of recovery, use the **shutdown** command. To enable the cluster for normal usage, use the **no shutdown** command.

The default state for clusters is **no shutdown**. Use the **shutdown** command for cluster recovery. See the SME Troubleshooting chapter for additional details about recovery scenarios.

## Examples

The following example restarts the cluster after recovery is complete:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# no shutdown
```

The following example disables the cluster operation in order to start recovery:

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

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about the Cisco SME cluster |

# sme

To enable or disable the Cisco SME services, use the **sme** command.

**sme** {**auto-save** | **cluster** *name* | **enable** | **transport pre-shared key** *key identifier* **cluster** *cluster* }

## Syntax Description

| | |
|---|---|
| **auto-save** | Enables or disables the auto-configuration save after the changes are made. |
| **cluster** *name* | Identifies the cluster name. The maximum length is 32 characters. |
| **enable** | Enables or disables Cisco SME on the crypto mode. |
| **transport** | Configures the transport preshared key (PSK). |
| **pre-shared** | Configures transport PSK. |
| **key** *key identifier* | Specifies the PSK. The maximum length is 64 characters. |
| **cluster** *name* | Identifies the cluster. The maximum length is 64 characters. |

## Defaults

Disabled.

## Command Modes

Configuration mode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

Cisco SME services must be enabled to take advantage of the encryption and security features.

To use this command, you must enable Cisco SME clustering using the **cluster enable** command.

## Examples

The following example shows how to enable the Cisco SME service:

```
switch# config t
switch(config)# sme enable
switch(config)#
```

The following example shows how to disable the Cisco SME service:

```
switch# config t
switch(config)# no sme enable
switch(config)#
```

The following example shows how to enable automatic configuration save after the changes:

```
switch# config t
switch(config)# sme auto-save
switch(config)
```

The following example disables automatic configuration save after changes:

```
switch# config t
switch(config)# no sme auto-save
switch(config)#
```

The following example shows how to configure transport PSK:

```
switch# config t
switch(config)# sme transport pre-shared key keyname cluster clustername
```

## Related Commands

| Command | Description |
|---|---|
| **cluster enable** | Enables Cisco SME clustering. |
| **show sme cluster** | Displays information about Cisco SME cluster. |

# ssl

To configure Secure Sockets Layer (SSL), use the **ssl** command. Use the **no** form of this command to disable this feature.

**ssl kmc**

**no ssl kmc**

## Syntax Description

| | |
|---|---|
| **kmc** | Enables SSL for Key Management Center (KMC) communication. |

## Defaults

None.

## Command Modes

Cisco SME cluster configuration mode submode.

## Command History

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

## Usage Guidelines

None.

## Examples

The following example enables SSL:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# ssl kmc
```

# tape-bkgrp

To configure a crypto tape backup group, use the **tape-bkgrp** command. Use the **no** form of this command to disable this feature.

**tape-bkgrp** *groupname*

**no tape-bkgrp** *groupname*

## Syntax Description

| | |
|---|---|
| *groupname* | Specifies the backup tape group. |

## Defaults

None.

## Command Modes

Cisco SME cluster configuration mode submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

A tape volume group is a group of tapes that are categorized by function. For example, HR1 could be designated tape volume group for all Human Resources backup tapes.

Adding tape groups allows you to select VSANs, hosts, storage devices, and paths that Cisco SME will use for encrypted data. For example, adding a tape group for HR data sets the mapping for Cisco SME to transfer data from the HR hosts to the dedicated HR backup tapes.

## Examples

The following example adds a backup tape group:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)#
```

The following example removes a backup tape group:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# no tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)#
```

## Related Commands

| Command | Description |
|---|---|
| **clear sme** | Clears Cisco SME configuration. |
| **show sme cluster** | Displays information about the Cisco SME cluster. |

# tape-compression

To configure tape compression, use the **tape-compression** command. To disable this feature, use the **no** form of the command.

**tape-compression**

**no tape-compression**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

Use this command to compress encrypted data.

## Examples

The following example enables tape compression

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-compression
```

The following example disables tape compression

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# no tape-compression
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster tape** | Displays information about all tape volume groups or a specific group. |
| **show sme cluster** | Displays information about the Cisco SME cluster. |
| **clear sme** | Clears Cisco SME configuration. |

# tape-device

To configure a crypto tape device, use the **tape-device** command. To disable this feature, use the **no** form of the command.

**tape-device** *device name*

**no tape-device** *device name*

## Syntax Description

| | |
|---|---|
| *device name* | Specifies the name of the tape device. |

## Defaults

None.

## Command Modes

Cisco SME tape volume configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

The tape device commands are available in the **(config-sme-cl-tape-bkgrp-tapedevice)** submode.

## Examples

The following example configures a crypto tape device:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)# tape-device devicename1
switch(config-sme-cl-tape-bkgrp-tapedevice)#
```

The following example removes a crypto tape device:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp group1
switch(config-sme-cl-tape-bkgrp)# no tape-device devicename1
switch(config-sme-cl-tape-bkgrp-tapedevice)#
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster tape** | Displays information about all tape volume groups or a specific group. |
| **show sme cluster** | Displays information about the Cisco SME cluster. |
| **clear sme** | Clears Cisco SME configuration. |

# tape-keyrecycle

To configure tape key recycle policy, use the **tape-keyrecycle** command. To disable this feature, use the **no** form of the command.

**tape-keyrecycle**

**no tape-keyrecycle**

## Syntax Description

This command has no arguments or keywords.

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

Cisco SME allows you to recycle the tape keys. If you enable tape key recycling, all the previous instances of the tape key will be deleted.

## Examples

The following example enables tape key recycling:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-keyrecycle
```

The following example disables tape key recycling:

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# no tape-keyrecycle
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster** | Displays information about the Cisco SME cluster. |
| **clear sme** | Clears Cisco SME configuration. |

# tape-volgrp

To configure the crypto tape volume group, use the **tape-volgrp** command. To disable this command, use the **no** form of the command.

**tape-volgrp** *group name*

**no tape-volgrp** *group name*

## Syntax Description

| | |
|---|---|
| *group name* | Specifies the tape volume group name. |

## Defaults

None.

## Command Modes

Cisco SME crypto backup tape group configuration submode.

## Command History

| Release | Modification |
|---|---|
| 3.2(2c) | This command was introduced. |

## Usage Guidelines

The tape volume group commands are available in the Cisco SME crypto tape volume group **(config-sme-cl-tape-bkgrp-volgrp)** submode.

## Examples

The following example configures a crypto tape volume group:

```
switch# config t
switch(config))# sme cluster c1
switch(config-sme-cl)# tape-bkgrp tbg1
switch(config-sme-cl-tape-bkgrp)# tape-volgrp tv1
switch(config-sme-cl-tape-bkgrp-volgrp)#
```

The following example removes a crypto tape volume group.

```
switch# config t
switch(config)# sme cluster c1
switch(config-sme-cl)# tape-bkgrp tbg1
switch(config-sme-cl-tape-bkgrp)# no tape-volgrp tv1
```

## Related Commands

| Command | Description |
|---|---|
| **show sme cluster tape** | Displays information about tapes. |
| **clear sme** | Clears Cisco SME configuration. |

# tune-timer

To tune the Cisco SME timers, use the **tune-timer** command. To disable this command, use the **no** form of the command.

**tune-timer** {**global_lb_timer** *global_lb_timer_value* | **rscn_suppression_timer** *rscn_suppresion_timer_value* | **tgt_lb_timer** *tgt_lb_timer_value*}

**no tune-timer** {**global_lb_timer** *global_lb_timer_value* | **rscn_suppression_timer** *rscn_suppresion_timer_value* | **tgt_lb_timer** *tgt_lb_timer_value*}

## Syntax Description

| | |
|---|---|
| **global_lb_timer** | Specifies the global load balancing timer value. |
| *global_lb_timer_value* | Identifies the timer value. The range is from 5 to 30 seconds. The default value is 5 seconds. |
| **rscn_suppression_timer** | Specifies the Cisco SME Registered State Change Notification (RSCN) suppression timer value. |
| *rscn_suppresion_timer_value* | Identifies the timer value. The range is from 1 to 10 seconds. The default value is 5 seconds. |
| **tgt_lb_timer** | Specifies the target load balancing timer value. |
| *tgt_lb_timer_value* | Identifies the timer value. The range is from 2 to 30 seconds. The default value is 2 seconds. |

## Defaults

None.

## Command Modes

Cisco SME cluster configuration submode.

## Command History

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

## Usage Guidelines

The **tune-timer** command is used to tune various Cisco SME timers such as the RSCN suppression, global load balancing and target load balancing timers. These timers should be used only in large scaling setups. The timer values are synchronized throughout the cluster.

## Examples

The following example configures a global load balancing timer value:

```
switch# config t
switch(config))# sme cluster c1
switch(config-sme-cl)# tune-timer tgt_lb_timer 6
switch(config-sme-cl)#
```

The following example configures a Cisco SME RSCN suppression timer value:

```
switch# config t
switch(config))# sme cluster c1
```

```
switch(config-sme-cl)# tune-timer rscn_suppression_timer 2
switch(config-sme-cl)#
```

The following example configures a target load balancing timer value:

```
switch# config t
switch(config))# sme cluster c1
switch(config-sme-cl)# tune-timer rscn_suppression_timer 2
switch(config-sme-cl)#
```