



# Configuring SME Interfaces

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This chapter describes how to configure and start SME interfaces using DCNM-SAN and Device Manager. After completing the preliminary tasks, you need to configure the SME interface on a Cisco MDS switch with an installed MSM-18/4 module, SSN-16 module, or on a Cisco MDS 9222i switch.

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## Configuring the SME Interface

SME interfaces are configured either by using Device Manager or the CLI.

This section includes the following topics:

### Adding an SME Interface from a Local Switch

To add an SME interface from a local switch, follow these steps:

#### Before you begin

- Before adding an SME interface, be sure to enable clustering, enable SME, start the SME interface on the switch, and add the interface to the cluster.



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**Note** You can add an SME interface from a local switch or from a remote switch.

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**Step 1** switch# **configure terminal**

Enters configuration mode.

**Step 2** switch(config)# **sme cluster** *clustername1*

Specifies the cluster and enters SME cluster configuration submenu.

- Step 3**    `switch(config-sme-cl)# fabric fabricname1`  
Specifies the fabric.
- Step 4**    `switch(config-sme-cl)# node local`  
Enters the SME cluster node submode and specifies the local switch.
- Step 5**    `switch(config-sme-cl-node)# fabric-membership fabricname1`  
Specifies the fabric membership for the cluster.
- Step 6**    `switch(config-sme-cl-node)# interface sme 4/1 force`  
Adds the SME interface (4/1) from a local switch in fabric f1.

## Adding an SME Interface from a Remote Switch

To add an SME interface from a remote switch, follow these steps:

### Before you begin

- Before adding an SME interface, be sure to enable clustering, enable SME, start the SME interface on the switch, and add the interface to the cluster.



**Note** You can add an SME interface from a local switch or from a remote switch.

- Step 1**    `switch# configure terminal`  
Enters configuration mode.
- Step 2**    `switch(config)# sme cluster clustername1`  
Specifies the cluster and enters SME cluster configuration submode.
- Step 3**    `switch(config-sme-cl)# fabric fabricname`  
Specifies the fabric.
- Step 4**    `switch(config-sme-cl)# node A.B.C.D/X::X/DNS name`  
Enters the SME cluster node submode and specifies a remote switch. The format is A.B.C.D | X::X | DNS name.
- Step 5**    `switch(config-sme-cl-node)# fabric-membership fabricname1`  
Specifies the fabric membership for the cluster.
- Step 6**    `switch(config-sme-cl-node)# interface sme 3/1 force`  
Adds the SME interface (3/1) from a remote switch in fabric f2.

## Creating the SME Interface

After enabling the cluster and enabling SME, configure the SME interface on the switch.

Configure the SME interface on the MSM-18/4 module slot and port 1.



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**Note** You must enter the **copy running-config startup-config** CLI command after adding or deleting interfaces or switches from a cluster.

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To configure the SME interface, follow these steps:

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**Step 1** switch# **configure terminal**

Enters configuration mode.

**Step 2** switch(config)# **interface sme x/y**

Configures the SME interface on slot x, port y where x is the MSM-18/4 or SSN16 module slot. For MDS 9222i, for slot 1, the port number is 1. The port y is 1 for MSM 18/4 and 1 to 4 for SSN-16. Enters the interface submenu.

**Step 3** switch(config-if)# **no shutdown**

Enables the interface on slot x, port y.

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### Example

After configuring the SME interface, if you enter a **show int** command, the SME interface is displayed as down until the interface is added to a cluster.

After configuring the SME interface, a message similar to the following is displayed: 2007 Jun 6 21:34:14 switch %DAEMON-2-SYSTEM\_MSG:  
<<%SME-2-LOG\_WARN\_SME\_LICENSE\_GRACE>> No SME Licence. Feature will be shut down after a grace period of approximately 118 days.

## Deleting the SME Interface

To delete the SME interface, follow these steps:

### Before you begin

Before deleting the SME interface, you must remove the switch from the cluster.



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**Note** Deleting an SME interface that is part of a cluster is not allowed. First remove the switch from the cluster by entering the **no sme cluster cluster name** command, and then delete the SME interface.

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**Step 1** switch# **configure terminal**

Enters configuration mode.

**Step 2** switch(config)# **no interface sme x/y**

Removes the SME interface from slot x, port y where x is the MSM-18/4 or SSN-16 module slot. The port y is 1 for MSM 18/4 and 1 to 4 for SSN-16. For MDS 9222i, for slot 1, the port number is 1.

## Viewing SME Interface Information Using the CLI

Use the **show interface sme** CLI command to obtain information about the SME interface configuration and statistics.

```
switch# show interface sme 3/1sme3/1 is upIn fabric Cisco_fabric1
SME                IOs          IO/s          Bytes          Rate
-----
Host Reads         0             0             0             0.00 B/s
Host Writes       270134566    0             35407048474624 0.00 B/s
Host Total        270134566    0             35407048474624 0.00 B/s
Tgt Reads         0             0             0             0.00 B/s
Tgt Writes       540268684    0             232408631520   0.00 B/s
Tgt Total        540268684    0             232408631520   0.00 B/s
Clear            IOs          IO/s          Bytes          Rate
-----
Host Reads         0             0             0             0.00 B/s
Host Writes       3512          0             460324864      0.00 B/s
Host Total        3512          0             460324864      0.00 B/s
Tgt Reads         0             0             0             0.00 B/s
Tgt Writes       3512          0             460324864      0.00 B/s
Tgt Total        3512          0             460324864      0.00 B/s
Compression Ratio  455.11 : 1
SME to Clear      100.00 %
Read to Write     0.00 %
Clear Luns 4, Encrypted Luns 1
Error Statistics
  0 CTH, 0 Authentication 3 Compression
  69 Key Generation, 0 Incorrect Read Size
  0 Overlap Commands, 0 Stale Key Accesses
  0 Overload Condition, 0 Incompressible
  210 XIPC Task Lookup, 0 Invalid CDB
  0 Ili, 88881729 Eom, 0 Filemark, 0 Other
  last error at Wed May 18 09:41:12 2011
```

The below table shows the error statistics of the show interface sme command.

**Table 1: Error Statistics**

Parameters	Description
Authentication	Errors generated during the verification of the tape block integrity. These errors occur when tapes are corrupted.
Bad Target Responses	Errors generated from the target. These errors occur most of the time and include FileMark, Incorrect Length Indicators (ILI) and so on.

Parameters	Description
CTH	Errors associated with the Cisco Tape Header (CTH). The CTH resides at logical block 0 and contains media and other vendor specific information.
Incorrect Read Size	Errors generated when the write size is different from the read size.
Invalid CDB	Errors generated when there are unknown or malformed SCSI commands. The Invalid CDB counter displays read or write commands from hosts that have improper transfer sizes.
Incompressible	Errors generated when there is incompressible data.
Key Generation	Errors associated with the generation of keys.
Overload	Errors that occur when there are overlapping read operations from the host. Simultaneous and multiple read operations to the SME are rejected with a BUSY check condition. These instances are displayed as Overload errors.
Overlap	Errors generated when there are multiple overlapping commands to the same Initiator-Target-LUN (ITL).
Stale Key Access	Errors generated when archived keys are accessed for tape write operations. If a volume group or a cluster is deleted or imported to a new cluster, the keys become archived. These keys should not be used for writing to the tape. The Stale Key Access counter displays the occurrences of such instances.
XIPC Task Lookup	Errors associated with eXtensible Inter-Process Communication (XIPC). These errors are generated when there are exchange lookup failures.

## Verifying SME Interface Configuration

To display SME interface configuration information, perform one of the following tasks:

Command	Purpose
<b>show interface sme</b>	Displays the SME interface configuration and statistics.
<b>show int</b>	Displays if the SME interface is down until the interface is added to a cluster.

For detailed information about the fields in the output from these commands, refer to the *Cisco MDS 9000 Family NX-OS Command Reference*.

## Feature History for SME Interface

The below table lists the release history for this feature.

Table 2: Feature History for SME Interface

Feature Name	Releases	Feature Information
Software change	5.2(1)	In Release 5.2(1), Fabric Manager is changed to DCNM for SAN (DCNM-SAN).
	4.1(1c)	In Release 4.1(1b) and later, the MDS SAN-OS software is changed to MDS NX-OS software. The earlier releases are unchanged and all references are retained.
16-Port Storage Service Node (SSN-16) module	4.2(1)	The Cisco MDS 9000 Family 16-Port Storage Services Node is new hardware that provides a high-performance, unified platform for deploying enterprise-class disaster recovery and business continuance solutions with future support for intelligent fabric applications.
Configuring and starting SME interface	3.3(1c)	Users should create SME interfaces using Device Manager or the CLI, before using Fabric Manager to create the interfaces.