

Cisco Storage Media Encryption

Product Overview

Cisco® Storage Media Encryption (SME) protects data at rest on heterogeneous tape drives and virtual tape libraries (VTLs) in a SAN environment using secure IEEE-standard Advanced Encryption Standard (AES) algorithms.

Cisco SME hardware and software are fully integrated with the Cisco MDS 9000 Family. Encryption is performed as a transparent Fibre Channel fabric service, which greatly simplifies deployment and management of sensitive data on SAN attached storage devices. Unlike competitive offerings, Cisco SME requires no downtime to deploy. Cisco SME is built on Federal Information Processing Standards (FIPS) system architecture and offers secure, comprehensive key management, with support for offline media recovery (Figure 1).

Figure 1. Cisco Storage Media Encryption



Features and Benefits

Cisco SME provides a complete, integrated solution for encryption of data at rest on heterogeneous tape drives and VTLs. Storage in any virtual SAN (VSAN) can make full use of Cisco SME, providing exceptional flexibility for provisioning this transparent fabric service. Cisco SME requires no SAN reconfiguration or rewiring, eliminating downtime for deployment.

Cisco SME employs clustering technology to enhance reliability and availability, enable automated load balancing and failover capabilities, and simplify provisioning. To simplify management, this encryption service is provisioned as a single, logical SAN fabric feature rather than as individual switches or modules.

Secure lifecycle key management is included, with essential features such as key archival, shredding, automatic key replication across data centers, high-availability deployments and export and import for single- and multiple-site environments. Cisco SME provisioning and key management are both integrated into Cisco Fabric Manager; no additional software is required for management.

The Cisco SME includes the following features:

- **Rapid, scalable deployment:** Cisco SME performance can easily be scaled up by adding more Cisco MDS 9000 Family switches or modules. The innovative Fibre Channel redirect capabilities in the Cisco MDS 9000 SAN-OS and NX-OS Software enable traffic from any switch port to be encrypted without SAN reconfiguration or rewiring.
- **High availability:** Cisco SME services employ clustering technology to create a highly available solution. The cryptographic cluster formed enhances reliability and availability, enables automated load-balancing and failover capabilities, and simplifies provisioning as a single SAN fabric service rather than as individual switches or modules. Additionally, Cisco Key Management Center (KMC) supports 1+1 high-availability deployments.
- **Secure solution:** Cisco SME uses strong, IEEE-compliant AES 256 encryption algorithms to protect data at rest. Advanced Cisco MDS 9000 SAN-OS and NX-OS Software security features, such as Secure Shell (SSH), SSL, RADIUS, and Fibre Channel Security Protocol (FC-SP) provide the foundation for a secure FIPS architecture.
- **Comprehensive lifecycle key management:** The Cisco KMC provides dedicated key management for Cisco SME, with support for single- and multiple-site deployments, including automatic key replication across data centers and high-availability deployments. Cisco KMC provides essential features such as key archival, secure export and import and translation for distribution, and key shredding. Enterprisewide lifecycle key management is also available using industry-leading software integrated through an open API included with Cisco SME.
- **Integrated management:** Cisco SME is configured and provisioned using the Cisco MDS 9000 Family command-line interface (CLI) or Cisco Fabric Manager; no new management software is needed. In addition to consistent management interfaces, Cisco SME supports role-based access control (RBAC) and RADIUS and TACACS+ servers for unified credentials management.

Additional features and benefits are presented in Table 1.

Table 1. Additional Features and Benefits

Feature	Benefit
VSAN independence	Traffic on any VSAN can fully utilize Cisco SME encryption capabilities, providing outstanding flexibility for provisioning and load balancing.
Data compression	To increase tape media utilization, Cisco SME provides an option to compress tape data before encrypting it.
Smart cards	For increased operational security, smart cards are offered to protect master keys, facilitate master key escrow, and help prevent unauthorized cryptographic cluster formation and key recovery.
Investment protection	In addition to supporting heterogeneous storage devices, the multipurpose hardware used by Cisco SME supports Cisco MDS 9000 Family storage network services and applications, providing solid investment protection.

Product Specifications

Cisco SME is fully integrated with the Cisco MDS 9000 Family hardware and Cisco Fabric Manager software. See Table 2 for product specifications.

Table 2. Product Specifications

Item	Specification
Product compatibility	Cisco MDS 9500 Series Multilayer Directors and MDS 9200 Series Multilayer Switches
Software compatibility	<ul style="list-style-type: none"> • Cisco MDS 9000 SAN-OS Software Release 3.3(1c) or later and NX-OS 4.1(3a) or later • Cisco Fabric Manager Release 3.3(1c) or later and NX-OS 4.1(3a) or later
Protocols	<ul style="list-style-type: none"> • Simple Network Management Protocol Version 3 (SNMPv3) • SSH Version 2 (SSHv2) • SSL and HTTPS • RADIUS and TACACS+ authentication protocols
Approvals and compliance	<ul style="list-style-type: none"> • Common Criteria (CC) EAL-3 • FIPS 140-2 Level 2

System Requirements

Cisco Fabric Manager is used to provision and manage encryption keys for Cisco SME. The Cisco Fabric Manager data sheet lists the system requirements.

Ordering Information

Table 3 lists product ordering information for Cisco SME licenses and components.

Cisco SME also requires Cisco MDS 9000 Family hardware modules or switches that support this feature. The following hardware includes encryption units suitable for Cisco SME:

- Cisco MDS 9222i Multiservice Modular Switch (MMS)
- Cisco MDS 9000 18/4-Port Multiservice Module (MSM)
- Cisco MDS 9000 16-Port Storage Services Node (SSN)

For more information about ordering hardware and about Cisco Fabric Manager requirements, see Cisco MDS 9000 Family product literature at <http://www.cisco.com/en/US/products/hw/ps4159/ps4358/index.html>.

Table 3. Ordering Information

Product Description	Part Number
Storage Media Encryption package for one MSM-18/4 in the Cisco MDS 9500 series	M9500SME1MK9
Storage Media Encryption package for one MSM-18/4 in the Cisco MDS 9200 series	M9200SME1MK9
Storage Media Encryption package for one service engine on SSN-16 in the Cisco MDS 9500 series	M95SMESSNK9=
Storage Media Encryption package for one service engine on SSN-16 in the Cisco MDS 9200 series	M92SMESSNK9=
Storage Media Encryption package for Cisco MDS 9222i Multiservice Modular Switch fixed slot	M9200SME1FK9
Smart Card Reader for Cisco SME	DS-SCR-K9=
Smart Card for Cisco SME	DS-SC-K9=

Note: Cisco MDS 9000 Family switches do not need Cisco Fabric Manager Server license packages to provision Cisco SME or to use the associated key management capabilities.

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For More Information

For more information about Cisco SME, visit <http://www.cisco.com/en/US/products/hw/ps4159/index.html> or contact your local account representative.



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