



## Product Highlights

The Cisco<sup>®</sup> MDS Data Mobility Manager (DMM) is a storage area network (SAN) fabric-based software application that enables movement of blocks of data from a source device to a destination device. The Cisco MDS DMM is implemented on the storage services module (SSM) line card of the Cisco MDS 9000 family switch running Cisco MDS 9000 SAN-OS Software Version 3.2 or later.

The Cisco MDS DMM feature is enabled through a separate end-user software license.

The Cisco MDS DMM feature can be introduced transparently without the need to reconfigure or rewire the existing SAN infrastructure, and it can be enabled or disabled using software control from the configuration GUI. No configuration is required on the host as the host initiators do not know that the Cisco MDS DMM service is inserted. Similarly, no reconfiguration is needed on the target as the target also does not know that the Cisco MDS DMM service is inserted in the SAN. There is also no need for any SAN-based configuration such as zoning or virtual SAN (VSAN) configuration. The only requirement is that the target ports of the arrays between which data is to be moved must be connected directly to a Cisco switch that is running Cisco MDS 9000 SAN-OS Software 3.2. These target ports may be connected to a regular Fibre Channel line card. Also, although the best-practice recommendation is that the SSM card be placed in the switches to which the targets are connected, the network designer may install the SSM card in any switch in the SAN.

This transparent insertion of service makes moving data from an existing storage device to a new storage device during upgrades, consolidation, or removal of existing storage devices easy.

The Cisco MDS DMM is competitively priced and offers enterprise-class capabilities. The Cisco MDS DMM is a nonintrusive, online data migration solution (no downtime) that requires no reconfiguration of existing SANs (no host-based agents) and is centrally managed across heterogeneous storage devices.

## Features and Benefits

- **Exceptional flexibility and scalability:** The main component of the Cisco MDS DMM runs on the Cisco MDS 9000 family SSM module. Neither the host initiator nor the target array needs to be directly connected to the SSM card. The SSM module fits into the Cisco MDS 9216 and MDS 9222i Multilayer Fabric Switches and the Cisco MDS 9506, MDS 9509, and MDS 9513 Multilayer Directors. Cisco MDS DMM does not require rewiring or reconfiguration of existing SANs, thereby enabling online migration of block data with minimal downtime. Enhanced scalability can be achieved by transparently adding SSM modules to the switching fabric.
- **Online data migration:** Server application downtime was one of the most important factors considered in defining the Cisco MDS DMM strategy. Prolonged periods of downtime are difficult to schedule because application availability is increasingly crucial to business success. The Cisco MDS DMM is designed to provide transparent online data migration. The existing storage will be available to the server applications when the SSM performs the data migration. During migration, the read operations issued from the server are serviced from the existing storage, and the write operations are mirrored across both existing and new storage.

- **Deployment flexibility:** The Cisco MDS DMM is designed to perform data migration without any additional layer of virtualization between the server and the storage. The virtualization-free design of the Cisco MDS DMM increases deployment flexibility with a nondisruptive SAN rollout that does not require SAN rewiring or reconfiguration.
- **High performance:** The Cisco MDS DMM minimizes server CPU utilization during data migration. Utilization of server CPU cycles for data migration reduces application performance. For example, in server-based migrations using a volume manager, the server I/O bandwidth is utilized to move data from existing to new storage with the involvement of the server CPU. The Cisco MDS DMM is designed to run on the Cisco MDS 9000 family SAN switch, offloading the data movement function to the SAN switch and freeing the server CPU cycles for use by applications.
- **The amount of time required for migrating data across existing and new storage is one of the main considerations in present-day data migration techniques.** Time is especially critical for offline data migration. For such a scenario, the IT manager batches the whole migration effort so that the outage period ranges from about 2 to 6 hours. Any data movement that takes longer requires multiple outage periods. The Cisco MDS DMM is designed for online data migration. However, the 5 terabytes (TB) per hour data movement capability of the SSM substantially reduces the actual data movement period, enabling IT managers to implement more data migration sessions.
- **Unmatched features:** In addition to its basic data migration capability, the Cisco MDS DMM offers several features of interest to a SAN administrator. One feature is the capability to control the rate (slow, medium, or fast) of migration so that the



administrative traffic tied to the migration can be adjusted according to its effect on the applications and targets. Other features include the capability to securely erase the data from the existing target logical unit numbers (LUNs) and a verification option that performs a block-by-block comparison so the administrator can check the accuracy of the migration. The Cisco MDS DMM works in the high-availability configurations typically used in enterprise SANs where the host bus adapters (HBAs) and target ports are attached to two separate networks of SAN switches; the Cisco MDS DMM is essentially transparent to the host multipathing software. The Cisco MDS DMM also can asynchronously migrate the data from an existing storage array to a new storage array, a capability needed when data needs to be migrated across data centers in consolidation scenarios.

- Comprehensive security and availability: Because the Cisco MDS DMM runs on the Cisco MDS 9000 family switches, it inherits all the basic capabilities of the Cisco MDS 9000 family platform such as security using role-based access control (RBAC), required during data migration. RBAC allows the SAN administration functions to be partitioned by user and role to help ensure secure operation and configuration of the SAN. Additionally, when director-class switches are used, the Cisco MDS DMM automatically inherits the high availability features that are intrinsic to this class of switches.
- VSAN support: The Cisco MDS DMM minimizes disruption of the existing production environment. The Cisco MDS DMM is an online process and does not require any rewiring (though the target must be connected to the Cisco MDS 9000 family switch) or reconfiguration of zones or VSANs.

- The Cisco MDS DMM transparently interoperates with existing VSANs, SAN extensions, Inter-VSAN Routing (IVR), etc. in a heterogeneous SAN environment.
- Simplified management: The Cisco MDS DMM can be enabled and disabled using simple software controls issued from a centralized management console integrated with the Cisco MDS 9000 Fabric Manager. The Cisco MDS DMM feature comes with its own configuration wizard that guides the user through a set of simple-to-understand steps, with drop-down menus available to facilitate the selection process. The wizard was designed with ease of use as its primary objective, a focus apparent to even first-time users. Additionally, the tool can be used to monitor the status of migration jobs. The Cisco MDS DMM also includes command-line interface (CLI) commands that advanced users can use to create scripts to configure and monitor their migration tasks.

### Specifications

Table 1 lists the product specifications.

**Table 1 Product Specifications**

Item	Description
<b>Cisco MDS DMM features</b>	<p>Cisco MDS DMM features include the following:</p> <ul style="list-style-type: none"> <li>• SAN fabric-based service that uses SSM cards that can be installed in any open slot in switches in the SAN</li> <li>• No need for physical reconfiguration of the existing Cisco MDS 9000 family SAN other than the inclusion of an SSM card; high-availability SANs encompassing two networks and multipath software on the hosts are supported</li> <li>• Transparent insertion of migration capability so that no reconfiguration is required on the host, target, or SAN</li> <li>• Cisco SAN device virtualization capability so that data can be moved from one array to another array without any server outage</li> <li>• Configuration wizard to facilitate completion of migration tasks</li> <li>• CLI for scripting by advanced users</li> <li>• Migration performed across heterogeneous arrays</li> <li>• Knob to control rate of migration</li> <li>• Secure erase capability</li> <li>• Verification capability</li> <li>• Migration allowed to a larger LUN</li> <li>• Storage array–level migration; administrators who want to complete migration for all LUNs on the array and do not want to do this on a per-server basis can use storage array–level migration as an alternate approach that reduces the number of migration jobs that must be configured</li> <li>• Asynchronous migration for data center consolidation scenario</li> </ul>
<b>Cisco MDS 9000 SAN-OS Software requirements</b>	<p>Cisco MDS 9000 SAN-OS Software 3.2(1) is the first release that supports Cisco MDS DMM.</p>



## Ordering Information

Table 2 provides ordering information.

**Table 2 Ordering Information**

Part Number	Product Description
DS-X9032-SSM	Cisco Storage Services Module (SSM)
M95DMMS1K9	End-user Cisco MDS DMM license (perpetual) for Cisco MDS 9500 Series switches
M92DMMS1K9	End-user Cisco MDS DMM license (perpetual) for Cisco MDS 9200 Series switches
M95DMMS1K9	Service provider Cisco MDS DMM license (180-day expiration) for Cisco MDS 9500 Series switches
M92DMMS1K9	Service provider Cisco MDS DMM license (180-day expiration) for Cisco MDS 9200 Series switches