



CHAPTER 4

Configuring Data Migration

This chapter describes how to prepare for a data migration job.

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Information About Data Migration Using MSM-18/4 Module or MDS 9222i Switches

The Cisco MDS DMM feature executes on the MSM-18/4 module or MDS 9222i switch. The DMM feature supports data migration for storage LUNs exposed anywhere on the SAN fabric (that is, the storage port can be connected to the switch hosting the MSM-18/4 module or MDS 9222i switch or to another switch).

If necessary, provision an MSM-18/4 module or MDS 9222i switch in each fabric. We recommend that you install the MSM-18/4 module or the MDS 9222i switch on the switches that are connected to the existing storage ports.

If the existing or new storage port is on a different module or switch than the MSM-18/4 module and MDS 9222i switch, ISL network traffic will increase during the migration. This is because all traffic between the existing and new storage is directed through the MSM-18/4 module or MDS 9222i switch. Also, if the server port is on a different module or switch than the MSM-18/4 module or MDS 9222i switch, ISL network traffic will increase during the migration, as all traffic between the server and the storage is directed through the MSM-18/4 module or MDS 9222i switch.

Ensure that Cisco MDS DMM is the only active intelligent application on the MSM-18/4 module or MDS 9222i switch being used for the data migration job.

This section includes the following topics:

- [About Existing and New Storage Devices, page 4-2](#)
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About Existing and New Storage Devices

Complete the following configuration tasks for the storage devices:

- **New Storage**—Connect the new storage to the SAN. Create LUN maps and LUN masks. Configure access lists for the new storage.
- **Existing Storage**—Check that the LUNs are mapped.
- **VSANs**—Ensure that the existing storage and new storage port pair in each fabric is configured in the same VSAN. Also ensure that for each existing storage port VSAN, there is at least one new storage port and the server port has to be configured in the same VSAN.
- **Zones**—Optionally, you can reconfigure zoning to add new storage. Cisco MDS DMM does not enforce zoning for the new storage. If you do not configure the zoning before migration, you must complete this action before server accesses the new storage.

About Enclosures

If the server ports are not already included in existing enclosures, you need to create enclosures for the server ports. If the server has multiple single-port HBAs, all of these ports need to be included in one enclosure. Enclosures for existing and new storage ports are created automatically.

About SAN Fabric

If the SAN is a heterogeneous SAN, you may need to install new MDS switches or adjust the SAN topology to meet DMM requirements. For additional information about SAN topologies, refer to [Chapter 3, “Understanding DMM SAN Topologies.”](#)

Licensing Requirements for Data Migration

The following table shows the licensing requirements for Data Migration:

License	License Requirement
DMM_FOR_SSM_PKG	Data Migration requires a license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For a complete explanation of the NX-OS licensing scheme, see the <i>Cisco MDS 9000 Family NX-OS Licensing Guide</i> .

Prerequisites for Data Migration

- Prior to performing a data migration job, ensure that the existing storage, the new storage, and the fabric switches are configured as required.
- Before creating a data migration job, you need to ensure that the server and storage ports are included in enclosures.

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- Starting from NX-OS 4.1(1b), Server Lunmap Discovery Module is a part of DMM provisioning. DMM must be enabled using the **ssm enable feature module** command before running the SLD tool.

Configuring Data Migration

Traditional data migration is a complex procedure, which requires coordination of activities that may be performed by vendor representatives and multiple IT groups. Activities may need to occur at specific times to minimize service disruption.

Cisco MDS DMM is designed to minimize the dependency on multiple organizations, and is designed to minimize service disruption. However, even with Cisco MDS DMM, data migration is a complex activity. We recommend that you create a plan to ensure a smooth data migration.

The following sections describe the tasks to be completed:

- [Creating a Data Migration Plan, page 4-3](#)
- [Checking the Storage ASL Status, page 4-4](#)
- [Discovering Server LUN, page 4-5](#)

Creating a Data Migration Plan

Detailed Steps

To create your data migration plan, follow these steps:

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|---------------|--|
| Step 1 | Document the SAN topology for the data migration. Identify and obtain any additional equipment and software licenses. |
| Step 2 | Design the mapping of source LUNs to destination LUNs. <ul style="list-style-type: none">a. Identify the LUNs that need to be migrated and the impacted servers. The Server Lunmap Discovery (SLD) tool provides assistance in identifying this information. (See “Checking the Storage ASL Status” section on page 4-4 for additional information about the SLD tool).b. Calculate the storage requirements of the new LUNs. Identify the LUNs on the new storage subsystem. The new storage LUNs need to be the same size or larger than the matching existing storage LUN. |
| Step 3 | Develop a schedule for the migration job. <ul style="list-style-type: none">a. Identify any required equipment and resources. Availability of external resources (such as a vendor service representative) may impact your schedule.b. Identify periods of low user activity and I/O activity to minimize disruption during the migration. Cisco MDS DMM provides features to minimize user impact. For example, you can schedule the migration to run during non-peak hours or configure a slow migration rate.c. Identify any required premigration configuration changes. (These changes are described in the following sections.)d. Plan for one short window in which service is not be available during server reconfiguration. (This enables you to access the new storage after the data migration is completed). |

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Step 4 As a precaution, ensure that all the critical data on the existing storage have a recent backup.

Checking the Storage ASL Status

The DMM feature contains the Array-Specific Library (ASL), which is a database of information about specific storage array products. DMM uses the ASL to correlate the LUN maps between multipath port pairs.

Restrictions

- Use the Server LUN Discovery (SLD) tool to check the ASL status of LUNs on a storage array port. If the LUNs are all ASL=Yes, the Cisco MDS DMM feature automatically correlates the LUN maps.
- If some or all of the LUNs result in ASL=No, contact Cisco support.

Detailed Steps

The SLD tool is launched from the supervisor module CLI. To check the status of a storage port, follow these steps:

	Command	Purpose
Step 1	<pre>sld module module number vsan vsan no server-pwwn server pwwn target-pwwn target pwwn discover</pre> <p>Example:</p> <pre>switch# sld module 4 vsan 100 server-pwwn 21:00:00:e0:8b:08:5e:3e target-pwwn 50:06:0e:80:04:2c:5c:70 discover</pre>	Runs the SLD tool to discover the LUNs associated with the specified source and destination port pair.
Step 2	<pre>show sld module module number vsan vsan no server-pwwn server pwwn target-pwwn target pwwn [detail]</pre> <p>Example:</p> <pre>switch# show sld module 4 vsan 100 server-pwwn 21:00:00:e0:8b:08:5e:3e target-pwwn 50:06:0e:80:04:2c:5c:70 [detail]</pre>	Displays the ASL status for LUNs associated with the specified source and destination port pair. The detail option displays the detailed output for the source and destination port pair.

Examples

The following example shows how to display ASL status for a storage port:

```
switch# show sld module 4 vsan 100 server-pwwn 21:00:00:e0:8b:08:5e:3e target-pwwn
50:06:0e:80:04:2c:5c:70
=====
Id    LUN Id   Device Type  Size   Vendor Product Id   Serial Number  ASL  Status
=====
1     0x0     DASD         1.95GB VendorA  ModelB5         11356         Yes  Active
2     0x1     DASD         1.95GB VendorA  ModelB5         11356         Yes  Active
3     0x2     DASD         1.95GB VendorA  ModelB5         11356         Yes  Active
4     0x3     DASD         1.95GB VendorA  ModelB5         11356         Yes  Active
=====
```

The SLD tool can also be launched from the DMM GUI.

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Discovering Server LUN

Restrictions

Running the SLD tool on a server storage port pair that is already configured in a DMM job is not recommended.

Detailed Steps

To perform Server LUN Discovery, follow these steps:

Step 1 Choose **Tools > Data Mobility Manager > Server LUN Discovery**.

The Server LUN Discovery window appears.

Step 2 Select the VSAN and then select the host port for which you want to do the discovery and select the storage port on which you have to do the discovery.



Note SLD works on a single fabric. When SAN is selected, the first fabric is selected by default.

Step 3 Click **Discover**.

Check the **Detail** check box to view the detailed ASL status.

Filed Descriptions for Data Migration

LUN Discover

Field	Description
StartDiscovery	If Local, then only the directly attached SCSI target devices/ports and LUNs associated with them on all VSANs will be discovered. If Remote, then all SCSI target devices/ports and LUNs associated with them on all VSANs in the whole fabric, except the directly attached ones, will be discovered.
Type	Selecting targets results in only targets being discovered, without the NS results in both targets and LUNs being discovered.
OS	Specifies the operating system on which the LUNs need to be discovered.

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Field	Description
Status	Indicates the outcome of the LUN discovery on the local switch. Contains the status of the most recent discovery. <ul style="list-style-type: none">• inProgress(1)—Indicates that the discovery is still in progress.• completed(2)—Indicates that the discovery is complete.• failure(3)—Indicates that the discovery encountered a failure.
CompleteTime	When the last discovery was completed. The value will be zero or N/A, if discovery has not been performed since the last system restart.