Migrating from Dell OpenManage Array Manager to Dell OpenManage Server Administrator Storage Management

As storage needs grow, organizations often require enhanced data availability and reliability. To help meet these requirements, system administrators can deploy RAID or other storage systems. Storage management software can enable administrators to create, configure, and monitor redundant virtual disks and manage physical disks.

Since 1999, Dell has offered Dell OpenManage Array Manager as its primary enterprise-level storage management software. In 2004, Dell introduced the Dell OpenManage Server Administrator Storage Management suite as a follow-on to Array Manager. This article examines the differences between these two products and explains the features and capabilities of Storage Management. In addition, this article discusses best practices for installing these two storage management applications and for migrating from Array Manager to Storage Management.

Identifying differences between Array Manager and Storage Management

Although Array Manager and Storage Management are both designed to help manage storage devices, several differences exist between the user interfaces and feature sets of these two tools. From a user perspective, there are two major differences. First, Array Manager can be installed with other Dell OpenManage applications or as a stand-alone tool, while the Storage Management architecture is integrated into the Dell OpenManage suite and thus is installed only as part of the Dell OpenManage suite.

The second major difference is the user interface. Because Storage Management plugs into the Dell OpenManage suite, it uses the Dell OpenManage Web server interface (see Figure 1). Array Manager has its own user interface that can be launched independent of other Dell OpenManage applications. Also, in environments running the Microsoft® Windows® 2000 OS, Array Manager is a Microsoft Management Console and can be used in place of Windows Logical Disk Manager.

Besides user interaction, Storage Management and Array Manager differ in the environments they support—including OS, storage controllers, platforms, and other configurations. Figure 2 compares the products and capabilities that these two tools support.
While both storage management tools can run on 32-bit Windows operating systems, only Storage Management offers support for the 64-bit Windows OS. Array Manager is available for the Novell® NetWare® OS, and Storage Management is available for the Red Hat® Enterprise Linux® OS.

Both products support Dell PowerEdge™ RAID Controller 2 (PERC 2), PERC 3, PERC 4, and Cost Effective RAID Controller (CERC) product families as well as Dell-supported SCSI controllers. Future releases of RAID controllers will be managed through Storage Management.

The support of storage management software also differs based on the server platform. Future Dell server platforms may support only Storage Management. Also, for organizations that have Dell PowerVault™ storage area network (SAN) systems or Fibre Channel devices, only Array Manager is available for storage management. For PowerVault network attached storage (NAS) systems, Array Manager is supported.

Another difference between Array Manager and Storage Management is in the Simple Network Management Protocol (SNMP) feature. The SNMP trap IDs of these two applications are different—so if an administrator has configured triggers on specific trap IDs for Array Manager, new event triggers will need to be created after migrating to Storage Management.

Exploring enhanced capabilities of Storage Management

Storage Management provides enhanced features for configuring and managing a system’s locally attached disk storage. Using Storage Management, administrators can protect data by configuring data redundancy, assigning hot spares, or rebuilding failed drives. This tool enables administrators to perform controller and enclosure management functions for supported RAID and non-RAID controllers and enclosures from a single graphical user interface (GUI) or command-line interface (CLI). The Web-based GUI offers features for novice and advanced users along with detailed online help. The CLI is fully featured and scriptable. This section describes Storage Management features accessed through the GUI; however, the CLI can also be used to run such management tasks.

Monitoring storage status and tasks. When Storage Management is installed as part of the Dell OpenManage suite, the Storage object in the Dell OpenManage Server Administrator tree view expands to display the storage components attached to the system. A quick way to review the overall status of storage components is to select the Storage tree view object and view the Health tab (shown in Figure 1). The Health tab displays the current status of the storage components and their lower-level objects. Clicking the controller name on the Health tab displays additional health information about the controller, including the status of its array disks, virtual disks, and so on. Many storage components also have an Information/Configuration tab, which displays property information and may have drop-down menus and buttons for launching tasks and wizards.

Managing controllers. Controllers read data from disks and write data to disks. A RAID controller handles the logic needed to help protect data by making it redundant—while minimizing the additional CPU time needed for RAID calculations. When a controller is selected in the Server Administrator tree view, the drop-down menu on the Information/Configuration tab displays the controller’s tasks (see Figure 3). Because different models of RAID controllers have different

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Figure 2. Comparing the products and capabilities supported by Array Manager and Storage Management
Managing virtual disks. A virtual disk consists of one or more array disks. RAID controllers use RAID algorithms to store data on virtual disks. Different RAID levels provide varying degrees of redundancy and performance. Storage Management has an Express Wizard and an Advanced Wizard for creating virtual disks. These wizards are designed to assist administrators in creating virtual disks that effectively utilize disk space and provide sufficient data protection.

If data capacity or protection requirements change, administrators may need to either expand the virtual disk by adding array disks or change the virtual disk’s RAID level. The Reconfigure Virtual Disk Wizard is designed to assist in these tasks.

Another example of a virtual disk task available through the Storage Management tool is Check Consistency. If the virtual disk is configured with a redundant RAID level, the Check Consistency task enables administrators to verify the accuracy of the redundant information and correct it if necessary. Administrators can also modify the virtual disk’s performance characteristics by using the Change Policy task to change the virtual disk’s read, write, and cache policies.

Installing Dell storage management software

Since March 2005, Array Manager and Storage Management have been available as components of the Dell OpenManage Systems Management CD and have been able to take advantage of the native installation strategy. Using the Dell OpenManage Systems Management CD, administrators can install the full version of Array Manager that includes the Node and Console components. The Array Manager Console can also be installed independent of the Array Manager Node through the Dell OpenManage Management Station CD. Installing the Array Manager Console can be useful in environments where both Array Manager- and Storage Management–managed systems exist. In subsequent references to installation and migration in this article, the term Array Manager refers to the Array Manager Node and Console package.

Beginning with the March 2005 Dell OpenManage release, Windows-based installations use Windows Installer technology, Linux-based installations use Red Hat Package Manager (RPM) technology, and NetWare-based installations use IPS scripts. Previously, Dell OpenManage components were installed using the
Dell OpenManage installation framework that was consistent across operating systems.

In version 4 or earlier of the Dell OpenManage suite, Array Manager is the available option for storage management. Array Manager can be installed either as a stand-alone product or as part of the Dell OpenManage suite. In the express installation of Dell OpenManage, Array Manager is installed.

Dell OpenManage 4.1 introduces Dell OpenManage Server Administrator Storage Management, which can be installed only through the Dell OpenManage suite. Both Array Manager and Storage Management are available beginning in version 4.1, but only one of these applications can be installed on a system. In versions 4.1 and 4.2, the default installation is Array Manager—which means that, during an express installation, Array Manager will be installed as the storage management software; Storage Management must be installed through the custom installation option in versions 4.1 and 4.2.

Beginning with Dell OpenManage 4.3, Storage Management is the default installation for storage management software. If no storage management software is installed on the system, Storage Management will be installed in an express installation. It is also the default in a custom installation; administrators must use the custom installation option to install Array Manager in 4.3.

**Migrating from Array Manager to Storage Management**

To migrate systems from Array Manager to Storage Management, administrators can choose from several methods, depending on whether the native installation or Dell OpenManage installation framework is used.

For systems running a version of Array Manager earlier than version 3.1.1, a direct migration to Storage Management is not possible. To preserve metadata such as virtual disk names, administrators can upgrade to the latest Array Manager version and then migrate the system according to the procedure discussed later in this section. Alternatively, administrators can manually uninstall Array Manager before installing Storage Management, but metadata will not be preserved.

The next upgrade scenario comprises systems running Array Manager version 3.1.1 to 3.6 that are being upgraded to Storage Management through Dell OpenManage 4.1 or 4.2. In this case, administrators can migrate the system directly through the Dell OpenManage upgrade process. When performing the upgrade, administrators should use the custom installation option and select Storage Management as the storage management software.

For systems running Array Manager version 3.1.1 to 3.6 that are being upgraded through Dell OpenManage 4.3 (or later), administrators can run the native installation through the Dell OpenManage Systems Management CD. Because Array Manager is already installed on the system, the express (default) installation is Array Manager. To install Storage Management, administrators must perform a custom installation. In this case, Array Manager will automatically be removed from the system and metadata will be preserved.

In organizations that have previously upgraded or installed Array Manager through Dell OpenManage 4.3 (or later) and plan to migrate their systems to Storage Management, administrators can use the modify feature of Windows Installer. Administrators should modify the installation to include Storage Management and remove Array Manager.

**Implementing integrated storage management software**

A system’s storage architecture comprises many components. To use storage resources effectively, administrators must choose a well-suited management tool. Dell OpenManage Server Administrator Storage Management is designed to ease storage management and enable organizations to optimize their storage resources. Using Dell OpenManage tools, administrators are enabled to easily and effortlessly migrate systems from Array Manager to Storage Management. In addition, Storage Management is seamlessly integrated into the Dell OpenManage Server Administrator suite, allowing administrators to use one consolidated approach for managing Dell enterprise platforms.

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**FOR MORE INFORMATION**

**Dell OpenManage Server Administrator Storage Management User’s Guide:**
support.dell.com/support/edocs/software/OMSS10UG

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