# Dell™ Deployment Pack for Microsoft® System Center Configuration Manager

# User's Guide

# Notes and Cautions

**NOTE:** A NOTE indicates important information that helps you make better use of your computer.

**CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.**

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# Contents

# 1

# About This Document

It is strongly recommended that you read this section, "Dell Deployment Pack Overview," and "Before You Begin With The Dell Deployment Pack" before proceeding further.

## Who Should Read This Document?

This document is for system administrators who are responsible for deploying and configuring Dell systems in their organization.

## How Will This Document Help Me?

This document introduces you to the Dell Deployment Pack for Microsoft System Center Configuration Manager 2007, tells you how to install the Dell Deployment Pack, and how to use the product to deploy and configure your Dell systems.

## What Is The Scope Of This Document?

This document covers the features and functionalities of the Dell Deployment Pack. It also guides you on how to install and use the Dell Deployment Pack in a typical scenario. This document does not cover all the scenarios or ways in which the Dell Deployment Pack can be used.

This document does not cover information on Microsoft® System Center Configuration Manager 2007, its installation, or features and functionalities. See the Microsoft TechNet site at **technet.microsoft.com** for details on the System Center Configuration Manager 2007.

# How Do I Use This Document?

Information in this document is organized as listed in Table 1-1.

**Table 1-1. Organization of Information in This Guide**

| Topic | Where in this Guide |
|---|---|
| Information on this document, its intended audience, purpose, and organization. | "About This Document" |
| Overview of the Dell Deployment Pack and what functionalities it offers. | "Dell Deployment Pack Overview" |
| What you need before proceeding to use the Dell Deployment Pack and where to get other information that you may need while using this product. | "Before You Begin With The Dell Deployment Pack" |
| Information on how to install and uninstall the Dell Deployment Pack. | "Installing and Uninstalling the Dell Deployment Pack" |
| Information on how to use the Dell Deployment Pack to configure and deploy your Dell systems. This document currently documents a user scenario for Dell PowerEdge™ 1950. | "Using The Dell Deployment Pack" |

Now that you have an idea of what this document is about and how to use it to easily access the information you want, see "Dell Deployment Pack Overview" to get an overview of the Dell Deployment Pack.

# 2

# Dell Deployment Pack Overview

This section provides an overview of the Dell™ Deployment Pack. This section helps you to understand the functionalities that the Dell Deployment Pack provides to update and deploy your Dell systems.

## Challenges That System Administrators Face

System administrators need to perform and manage increasingly complex tasks that include:

- deploying a wide variety of operating systems
- deploying standard configurations across multi-generation systems in locations across the globe
- tracking status of deployed operating systems and updates

Organizations usually order for systems without any specific configuration because of their standard in-house configuration. Many organizations order servers without specifying a base configuration, because those configurations might not be finalized at order time. As an administrator you will be applying your organization-standard configuration across hundreds of systems.

If you have ordered "bare-metal" Dell systems (machines that do not have operating systems installed on them at the factory), you not only have to install the operating system, but also need to configure the BIOS, Dell Remote Access Controller (DRAC), Baseboard Management Controller (BMC) or some other components.

Usually, you would use the Dell Deployment Toolkit (DTK) to change your systems' hardware configuration but this involves writing and/or modifying script files or environment variables. This can become a particularly tedious task when the number of systems, configurations and scripts to modify or write increases.

## How Does Dell Deployment Pack Help?

The Dell Deployment Pack is an easy-to-use graphical user interface (GUI) based tool that integrates directly into the Microsoft System Center Configuration Manager 2007 (ConfigMgr) console. It eliminates the need for command-line tools and scripts normally used in the DTK.

To configure and deploy your Dell systems, you need to select configuration options and commands on the GUI using drop-down lists and check boxes (see "Using The Dell Deployment Pack"). This makes your system deployment an easy, automated task.

## Dell Deployment Pack Features Overview

Using the ConfigMgr Task Sequence Editor, you can do the following with the Dell Deployment Pack:

- Configure your system's Baseboard Management Controller (BMC), Dell Remote Access Controller (DRAC), Redundant Array of Independent Disks (RAID), and BIOS. You can configure BIOS and RAID using .ini files. You can configure your system settings using the GUI or Command Line Interface (CLI) options. You can also configure RAID using the Array Builder wizard.
- Create a Dell specific boot image that will be used in the operating system deployment.
- Create and apply driver installation packages for specific Dell systems.

Now that you have an overview of the Dell Deployment Pack, read "Before You Begin With The Dell Deployment Pack" to see what you should have before you begin using Dell Deployment Pack in your environment.

# 3

# Before You Begin With The Dell Deployment Pack

This section lists the prerequisites and requirements to use Dell™ Deployment Pack. It also contains information on other documents that may be needed while using this tool.

## Prerequisites And Requirements

- You should be familiar with deploying operating systems using Microsoft® System Center Configuration Manager (ConfigMgr) 2007 SP1.
- You should have the ConfigMgr 2007 SP1 installed on a system. For details on how to download and install ConfigMgr, see the Microsoft TechNet site at **technet.microsoft.com**.
- Your system should have at least 1 GB of free disk space to install the Dell Deployment Pack.
- To run the ConfigMgr task sequences on your client system, you must configure the **Network Access Account**.
  To do this:

  1. Launch ConfigMgr.
     On the left-hand pane, click **System Center Configuration Manager→ Site Database→ Site Management→ Site Name→ Site Settings→ Client Agents**.
     The **Client Agents** screen displays.
  2. Double click **Computer Client Agent**.
     The **Computer Client Agent Properties** screen displays.
  3. Under **Network Access Account**, click **Set**.
     The **Windows User Account** screen displays.
  4. Enter your user name and password.
     Click **OK**.
  5. Your user name displays in the **Account** field.
     Click **OK**.

## Supported Operating Systems

For the list of operating systems that the Dell Deployment Pack supports, see the **readme.txt** in the **Docs** folder under the **Installation** directory.

## Supported Systems

For the list of Dell systems that can be deployed using Dell Deployment Pack, see the **readme.txt** in the **Docs** folder under the **Installation** directory.

## Are There Other Dell Documents I Might Need?

In addition to this guide and the online help, you might need to refer the following documents to get details on specific Dell OpenManage™ products. These documents are available on the Dell Support website at **support.dell.com**.

- The *Dell Remote Access Controller 4 User's Guide* provides comprehensive information about using the RACADM command line utility to configure a Dell Remote Access Controller (DRAC) 4.
- The *Dell Remote Access Controller 5 Firmware User's Guide* provides comprehensive information about using the RACADM command line utility to configure a DRAC 5.
- The *Dell Chassis Management Controller User's Guide* provides comprehensive information about using the controller that manages all modules in the chassis containing your Dell system.
- The *Integrated Dell Remote Access Controller User's Guide* provides information about installation, configuration, and maintenance of the Integrated Dell Remote Access Controller (iDRAC) on management and managed systems.
- The *Dell Remote Access Controller/Modular Chassis User's Guide* provides information about installation, configuration, and maintenance of the Dell Remote Access Controller/Modular Chassis (DRAC/MC).
- The *Dell Remote Access Controller Racadm User's Guide* provides comprehensive information about using the RACADM command line utility.

- The *Dell Baseboard Management Controller Utilities User's Guide* provides information about configuring a managed system to use the BMC Management Utility to manage your system through its BMC.
- The *Dell OpenManage Deployment Toolkit User's Guide* provides general, best practices procedures that focus on the basic tasks for a successful deployment using Windows Preinstallation Environment (Windows PE) or embedded Linux.
- The *Dell OpenManage Deployment Toolkit Command Line Interface Reference Guide* provides information on the command line utilities to configure system features.
- The *Server Update Utility User's Guide* provides information on how to identify and apply updates to your system.

# 4

# Installing and Uninstalling the Dell Deployment Pack

This section describes the procedure to install and uninstall the Dell™ Deployment Pack.

## Installing the Dell Deployment Pack

Before you proceed, ensure that you are logged in as administrator on the system where you want to install the Dell Deployment Pack.

To install the Dell Deployment Pack:

1. Go to the Dell Support website at **support.dell.com→ Drivers & Downloads**.
2. Download the **Dell_Deployment_Pack_for_ConfigMgr_1.0-Axx.msi** (where **xx** is the Dell Deployment Pack revision number) to the local drive on your system.
3. Double click the **.msi** package.
4. The **Welcome** screen for Dell Deployment Pack displays.
   Click **Next**.
5. The license agreement displays.
   Select **I accept the terms in the license agreement**.
   Click **Next**.
6. The **Setup Type** screen displays.
   Select the type of installation on this screen.

   **NOTE:** Dell recommends that you select the **Complete** option.
7. The **Ready to Install the Program** screen displays.
   Click **Install**.
8. The **Installing Dell Deployment pack for Configuration Manager 2007** progress screen displays.
9. The **Installation Completed Successfully** screen displays.
   Click **Finish**.

The Dell Deployment Pack is installed on your system.

Ensure that you read "Is There Anything I Must Do After The First Time I Install Dell Deployment Pack?" before proceeding further.

## Uninstalling the Dell Deployment Pack

By design, the uninstall process does not remove the Dell Deployment Pack boot images created during installation. This is because they are tied to task sequence packages, and removing the boot image may invalidate working task sequences that you are using. If you are no longer using the boot images created by this product, you may simply delete them from the console.

For more information on how to uninstall Dell Deployment Pack, see the *Administrator Guide* in the **Docs** folder under the **Installation** directory.

# 5

# Using The Dell Deployment Pack

Before you begin configuring your system, ensure you have set up your system and your environment using Microsoft® System Center Configuration Manager (ConfigMgr) 2007 SP1. See the Microsoft TechNet site at **technet.microsoft.com** for details.

This document describes a typical scenario for a Dell™ PowerEdge™ 1950 system. It does not cover all possible scenarios nor does it cover all sequences possible to deploy your system.

## Is There Anything I Must Do After The First Time I Install Dell Deployment Pack?

Ensure that you have distributed and/or updated the appropriate packages to ConfigMgr distribution points. The **Update Distribution Points** operation ensures that all packages of the Dell Deployment Pack that you installed are updated on the distribution points. The **Manage Distribution Points** operation ensures that the packages are available on the distribution points for the client systems to access them.

To add a distribution point, see the ConfigMgr *Online Help*.

### How Do I Update and Manage Distribution Points?

To update and manage distribution points:

1. Go to **ConfigMgr→ Site Database→ Computer Management→ Software Distribution→ Packages→ Dell PowerEdge Deployment**.
2. Under **Dell PowerEdge Deployment**, two packages are available — **Dell PowerEdge Custom Reboot Script** and **Dell PowerEdge Deployment Toolkit Integration**.
   Right-click **Dell PowerEdge Custom Reboot Script**.
   Click **Update Distribution Points**.
3. The **Confirm Update Distribution Points** screen displays.
   Click **Yes** to update the distribution points.

4 Right-click **Dell PowerEdge Custom Reboot Script**.
Click **Manage Distribution Points**.

5 The **Manage Distribution Point Wizard** displays.
Click **Next** and proceed through the wizard to manage the distribution points. (See the online help or the ConfigMgr documentation for details.)

6 Repeat step 1 through step 5 for **Dell PowerEdge Deployment Toolkit Integration** and **ConfigMgr Client Package** (**under Packages**).

7 Next, go to **Operating System Deployment→ Boot Images→ Dell Deployment**.
Right-click **Dell Deployment Boot Image (x86)**.
Click **Manage Distribution Points**.

8 The **Manage Distribution Point Wizard** screen displays. Proceed through the wizard to manage the distribution points.

9 Repeat step 7 and step 8 for **Dell Deployment Boot Image (x64)**.

Similarly, use the **Manage and Update Distribution Points** wizard to update and manage the operating system images to distribution points.

10 Next, insert the *Dell Systems Management Tools and Documentation* DVD version 5.5 (or later) in your system drive. You can download the ISO image of the DVD from **www.support.dell.com**.

11 Go to **ConfigMgr→ Site Database→ Computer Management→ Operating System Deployment→ Driver Packages**.

12 Right-click **Driver Packages**.
The **Import Dell Driver Package Wizard** screen displays. The wizard displays a list of the DVD drives available on your system.
Select the drive in which you inserted the DVD.
Click **Next**.

13 The **Import Dell Driver Package Wizard** screen displays. A list of the driver packages for a combination of the systems and operating systems displays.
Select the required packages.
Click **Finish**.

14 The **Import Dell Driver Package Wizard** progress displays.

**NOTE:** Sections involving importing of drivers may take more time without updating the progress bar.

15 Click **Close**.

16 To update and manage distribution points for the driver packages you imported, go to **Driver Packages→ Dell PowerEdge Driver Packages <Dell OpenManage Version>**
The driver packages window displays.

Right-click each of the newly imported driver packages and perform the update and manage distribution points operations.

### How Do I Enable Command Prompt for Debugging Boot Images?

To enable command prompt to debug boot images:

1 On the left-hand pane, click **Operating System Deployment→ Boot Images→ Dell Deployment**.

2 Right-click **Dell Deployment Boot Image (x86)** and select **Properties**.

3 In the **Properties** window, select **Windows PE** tab and select **Enable Command Prompt** checkbox.

To display the debug console during deployment, press **F8**.

## How Do I Configure My System's Hardware Components?

### Creating a Task Sequence

You can create a task sequence to configure your system in two ways:

- Create a Dell-specific task sequence using **PowerEdge Server Deployment** template.
- Create a custom task sequence.

To create a Dell-specific task sequence using **PowerEdge Server Deployment** template:

1 Launch ConfigMgr by clicking **Start→ Microsoft System Center→ Configuration Manager 2007→ Configuration Manager Console**.
The Configuration Manager Console screen displays.

2 Under the **System Center Configuration Manager** tree on the left hand side, click **Operating System Deployment**.

3 Right-click **Task Sequences**, then **Bare Metal Server Deployment→ Create a PowerEdge Deployment Template**.
The **Create Server Deployment Task Sequence** window displays.

4 Enter the name of the task sequence in **Task Sequence Name** field.

5 Under **Server Hardware Configuration** select the hardware items that you want to configure in this task sequence.

6 Under **Network (Admin) Account**, enter your account name and password.

7 Under **Operating System Installation**, select the operating system installation type. The options are:

- Use an OS WIM image
- Scripted OS install

8 Select an operating system package from the **Operating system package to use** drop-down menu.

9 Select a package with **unattend.xml** from the **Package with unattend.xml info** if you have one in your custom packages. Else, select **<do not select now>**.

10 Click **Create**. A confirmation message displays.

You have successfully created a Dell-specific task sequence using the **PowerEdge Server Deployment** template.

To create a custom task sequence:

1 Launch ConfigMgr by clicking **Start→ Microsoft System Center→ Configuration Manager 2007→ Configuration Manager Console**.
The **Configuration Manager Console** screen displays.

2 Under the **System Center Configuration Manager** tree on the left hand side, click **Operating System Deployment**.

3 Right click **Task Sequences**, then **New→ Task Sequence**.
The **New Task Sequence Wizard** displays.

4 Select **Create a new custom task sequence**.
Click **Next**.

5 Enter name, version number, and comments for the task sequence.

6 Browse for the boot image under **Dell Deployment**, select the appropriate boot image **<Dell Deployment Boot Image>**, and click **Finish**.

A confirmation message displays. You have created a new custom task sequence.

### Editing a Task Sequence

1 Once you have created a new task sequence (or in case of an existing task sequence), right click the task sequence and click **Edit**.
The **Task Sequence Editor** window displays.

2 Click **Add→ Dell Deployment→ PowerEdge Server Configuration**.
This loads the custom action for your Dell system deployment.

3 If you are creating a task sequence for the first time, a message displays asking you whether you are adding any array configuration task to this task sequence.

4 Click **Yes** to use the Dell specific template and avoid any potential Windows Preinstallation Environment (Windows PE) issue.
A description of the potential Windows PE issue displays.

5 Click **OK** to continue or **Cancel** to quit.

6 If you click **OK**, the **Create Server Deployment Task Sequence** window displays.

You can now make changes to the task sequence accordingly.

Next, you can configure your system BIOS, RAID, BMC, and DRAC.

### Reboot To PXE / USB Custom Action

Windows Preinstallation Environment (Windows PE) may have an issue when you add a system hardware configuration action to a task sequence. Windows PE will not correctly recognize any newly-created disk partitions or any significant change to the disk structure created after the initial Windows PE boot. This will cause the task sequence to fail at any task that writes data to the disk (including the standard ConfigMgr reboot task).

To resolve this issue, you must insert custom reboot actions after you create and partition a disk. If you are using Pre-boot eXecution Environment (PXE) instead of boot media, you must reset the PXE advertisement in order to reboot back into PXE.

You can insert the **Reboot to PXE/USB Custom Action** into a task sequence in one of the following ways:

- **Reboot to PXE/USB Custom Action** is created automatically when a task sequence is created using the PowerEdge Server Deployment template.
- **Reboot to PXE/USB Custom Action** is created automatically when you edit a task sequence. For more information, see "Editing a Task Sequence."
- **Reboot to PXE/USB Custom Action** is created manually when from the **Task Sequence Editor** you click **Add→ Dell Deployment→ Reboot to PXE/USB**.

For more information on **Reboot to PXE/USB Custom Action**, see the *Administrator Guide* in the **Docs** folder under the **Installation** Directory.

**CAUTION: It is recommended that you do not move or delete the "Set RebootStep," "Reboot to PXE/USB," and "Reset RebootStep" Custom Action steps in the task sequence.**

**CAUTION: It is recommended that you delete the computer variable for any computer that has failed the task sequence. This ensures that the task sequence restarts from the beginning.**

## Configuring your System BIOS

When you select **PowerEdge Server Configuration** from the **Task Sequence Editor**, the following tabs display:

- Action Settings
- Variable Replacement
- Logs/Return Files

This section explains about the **Action Settings** tab. For information on **Variable Replacement** and **Logs/Return Files** tabs, see the *Administrator Guide* in the **Docs** folder under the **Installation** Directory.

Let us say you want to configure your system BIOS first. Right click the task sequence and click **Edit.**

From the **Task Sequence Editor**, under the **Action Settings** tab, select the following:

**Configuration action type**: **BIOS Config (.ini file)**

**NOTE:** You can also select BIOS Config (command line) if you want configure system using the CLI option. This usage is beyond the scope of this document. See the *Dell OpenManage Deployment Toolkit Command Line Interface Reference Guide* on the Dell support site at **www.dell.com** for details.

**Action**: **Set**

The **Configuration file/ Command line parameters** field is enabled.

There are three options you can choose from:

- **<Create configuration file>**
- **<Import configuration file>**
- Edit **<**syscfg.ini**>**

**CAUTION: When you update or save a new file in the package, it is not automatically updated on all of its distribution points. To ensure the new file is available to systems that need it, you must update the distribution points from the Software Distribution→ Dell Toolkit Packages→ Dell PowerEdge Toolkit Integration 1.0 node.**

**<Create configuration file>**

The **Create** button displays.

1. Click **Create**.
2. The **Configuration File Editor** displays with the following options:
   - **Import File**: Click this button if you want to import an existing **.ini** file from a directory.
   - You can also create an online **.ini** file in the **Configuration File Editor** field and click **OK**. This prompts you to save the **.ini** file you created to a local drive or network share of your choice.
3. If you select the **Save these changes to the existing file in the toolkit package when I click OK** option, your configuration is exported to a file when you click **OK**.

#### <Import configuration file>

The **Import** button displays.

1. Click **Import** to import an existing **.ini** file.

#### Edit <syscfg.ini>

This is a sample BIOS **.ini** file.

The **View** button displays.

1. Click **View** to see the existing syscfg.ini file.
2. In the **Configuration File Editor** window, you can edit the **syscfg.ini** file, select the **Save these changes to the existing file in the toolkit package when I click OK** option and click **OK**.

Once you have created the **.ini** file using any of the options listed above, click **Apply in the Task Sequence Editor** window. The task sequence for **Set BIOS Config (ini file)** is created.

### Configuring RAID Using RAID Config (wizard)

The **RAID Config (wizard)** allows you to either create a new configuration file or import an existing configuration to configure RAID on your systems.

Now, let us say you want to configure RAID by creating a new configuration file using the **RAID Config (wizard)**. From the left hand side of the **Task Sequence Editor**, under **Configure Hardware→ Step 1**, click **Set RAID Config (wizard)**.

Under **Configuration file / Command line parameters** there are three options you can choose from:

- **<Create configuration file>**
- **<Import configuration file>**
- **<sample.xml>**

**<Create configuration file>**

1. Select **<Create configuration file>** from the **Configuration file / Command line parameters** drop-down menu.
   Click **Create**.
   The **Array Builder** wizard displays.
2. Enter the configuration rule name in the **Configuration Rule Name** field.
3. Select the error handling rule from the drop-down menu. You can choose from:
   - **Fail the task if any controller does not match a configuration rule** - reports a failure if any of the detected controllers cannot be configured by a rule.
   - **Fail the task only if the first controller does not match a configuration rule** - reports a failure if the first controller detected (usually the embedded controller) cannot be configured by a rule.
   - **Fail the task if none of the array controllers match a configuration rule** - reports a failure only if all of the controllers in the system fail to match a rule; in other words, none of the controllers are configured.

**<Import configuration file>**

1. Select **<Import configuration file>** from the **Configuration file / Command line parameters** drop-down menu.
   Click **Import**.
2. Specify the location of the configuration file you want to import and click **Open**.

**<sample.xml>**

1. Select **<sample.xml>** from the **Configuration file / Command line parameters** drop-down menu.
2. Click **View**.
   The **Array Builder** wizard for the sample.xml displays.
3. To edit the **sample.xml**, see "**<Create configuration file>**".

## Using the Array Builder

Using **Array Builder**, you can define arrays/disk sets with all available RAID settings, logical drives/virtual disks of varying sizes or use all available space, and assign hot spares to individual arrays or assign global hot spares to the controller.

### How it Works

When you run the task sequence on a target system, the array configuration utility detects the existing controller(s) on the system as well as the disks attached to each controller. The custom action then tries to match the physical configuration(s) the utility detected to the logical configurations you defined in the configuration rules. These array configuration rules are defined using a graphical, logical layout that allows you to visualize how your array controllers will be configured. Rules are processed in the order displayed in the **Array Builder** tree, so you know exactly which rules have priority.

You can define rules to match configurations based on detected slot number that the controller is in (or just the embedded controller, if any), how many disks are attached to the controller, or simply apply a blanket configuration to any controller the **Array Builder** finds. You can also apply configuration rules based on task sequence variables detected on the system. This allows you to define different configurations to different systems even if the detected hardware is identical.

### Controllers

Controller elements contain variable condition elements. Controllers can be one of several configuration types:

- The embedded controller
- A controller in slot "X"
- Any controller with "X" disks
- Any controller with "X" disks or more
- All remaining controllers

When launching **Array Builder** from a **<Create configuration file>** selection in the deployment action, a default embedded controller is created.

When a controller is created, a default variable condition, array and disk(s) are created to ensure a valid configuration. You can choose to leave the controller unconfigured - with disks set to non-RAID, or you can add arrays or do other actions.

### *Adding a Controller*

1. To add a new controller, select a controller from the list, or select an embedded controller. The **Controllers** drop-down menu to your left is enabled.
2. Click **Controllers→ New Controller**.
   The **Controller Configuration** window displays.
3. Under **Controller Selection Criteria**, select from the following options:
   - **Select the controller located in slot** - Enter the slot number of the controller.
   - **Select any controller with** <*exactly, atleast*> <*number of*> **disks attached** - Set a rule to select any controller which matches exactly, or at least the number of disks you have selected.
   - **Select all remaining controllers in the system regardless of configuration**
4. Under **Variable Matching Criteria**, you can set a rule to apply this configuration only if it matches certain criteria that you select. Select **Apply this configuration only when variable** to enable the rule setting options.
   Click **OK**. You have created a new controller.

### *Editing a Controller*

To edit a controller select the controller and click **Controllers→ Edit Controller**. The **Controller Configuration** window displays where you can make changes to your controller.

#### *Deleting a Controller*

1. To delete a controller select the controller and click **Controllers→ Delete Controller**.
   You will receive a warning that all the attached arrays and disks will be deleted.
2. Click **Yes** to delete or **No** to cancel.

**NOTE:** There must be at least one controller present on the system. If there is only one controller and you delete it, a message displays that the default controller was inserted because the last controller was deleted.

### Variable Conditions

To provide the ability to use the same hardware configuration in multiple logical configurations, variable evaluation is provided so that a different configuration for arrays and logical drives can be applied to different situations.

Variable condition elements contain arrays and global hot spares, and are of two types:

- **No variables defined**: This is the default configuration inserted with every controller, and cannot be removed or moved from last in the order.
- **Variables defined**: This is where any variable is compared to a value using one of the pre-defined operators.

#### *Adding a New Variable Condition*

1. To add a new variable condition under an embedded controller, expand **Embedded Controller**, and select [**No variable conditions defined**].
2. Click **Variables→ New Variable Condition**.
   The **Variable Condition Configuration** window displays.
3. Under **Variable Matching Criteria**, you can set a rule to apply this variable only if it matches certain criteria that you select.
4. Click **OK** to apply the variable condition, or **Cancel** to return to **Array Builder**.

### *Editing a Variable Condition*

1. To edit a variable condition, select the variable condition and click **Variables→ Edit Variable Condition**.
   The **Variable Condition Configuration** window displays where you can make changes to your variable condition.
2. Click **OK** to apply the variable condition, or **Cancel** to return to **Array Builder**.

### *Deleting a Variable Condition*

1. To delete a variable condition, select the variable condition and click **Variables→ Delete Variable Condition**.
   A message displays that all the attached arrays and disks will be deleted.
2. Click **Yes** to delete or **No** to cancel.

### Arrays

Array nodes include both RAID arrays and non-RAID disk groups (indicated by the different icons for RAID arrays and non-RAID disks). By default, a non-RAID disk group is created when a controller is created. If the controller configuration specifies the number of disks required, the same number of disks will be added to the non-RAID group.

- Arrays can be added, modified or deleted depending on the controller configuration and number of disks available.
- Array elements contain logical drives and physical disks.

### *Adding a New Array*

1. To add a new array under a variable condition, select a variable condition and click **Arrays→ New Array**.
   The **Array Settings** window displays.
2. Set the required RAID level from the **Desired RAID Level** drop-down menu.
3. Click **OK** to apply the array, or **Cancel** to return to **Array Builder**.

### *Editing an Array*

1. To edit an array, select the array and click **Arrays→ Edit Array**.
   The **Array Settings** window displays. Here you can select a different RAID level for the array.
2. Click **OK** to apply the changes, or **Cancel** to return to **Array Builder**.

### *Deleting an Array*

1. To delete an array, select the array and click **Arrays→ Delete Array**.
   A message displays that all the attached disks will be deleted.
2. Click **Yes** to delete or **No** to cancel.

### Logical Drives (also known as Virtual Disks)

Logical drives can be present on RAID arrays and non-RAID groups. You can configure them by specifying the size (in GB) or to consume all available (or remaining) space in the array. By default, a single logical drive is created for all new arrays and is set to use all the available space.

When specific-size logical drives are defined, the **using all remaining space** logical drive will consume any remaining space after other logical drive(s) are allocated their space on the array.

### *Adding a New Logical Drive*

1. To add a new logical drive under an array, select the array and click **Logical Drives→ New Logical Drive**.
   The **Logical Drive Settings** window displays.
2. Under **Create a logical drive** enter the exact number of gigabytes the logical drive must contain.
3. Click **OK** to create the logical drive, or click **Cancel** to return to **Array Builder**.

### *Editing a Logical Drive*

1. To edit a logical drive, select the logical drive and click **Logical Drives→ Edit Logical Drive**. The **Logical Drive Settings** window displays. Here you can change the size of the logical drive.
2. Click **OK** to apply the changes, or click **Cancel** to return to **Array Builder**.

#### *Deleting a Logical Drive*

1. To delete a logical drive, select the logical drive and click **Logical Drives→ Delete Logical Drive**.
   A message displays to confirm the delete operation.
2. Click **Yes** to delete or **No** to cancel.

### Disks (also known as Array Disks)

Disks can be part of arrays (or the non-RAID disks node) and are of the following types:

- **Standard disks** - these are the basic, non-defined disk type that make up the storage on arrays
- **Hot Spares** - these disks provide online redundancy if a RAID disk fails, and are assigned to a specific array.
- **All Remaining Disks** - these disks provide an option to define an array without specifying the exact number of disks in it.

If the controller configuration specifies a number of disks required, an equivalent number of disks will be added to the non-RAID group. If the controller specifies an exact quantity, disks cannot be added or removed from the controller – they can only be moved from array to array (or the non-RAID group). If the controller specifies a minimum number of disks, you can add or remove disks, but you cannot remove disks below the lower limit of the controller configuration.

#### *Adding a New Disk*

To add a new disk to an array, select the array and click **Disks→ New Disk**.

You can choose from the following:

- Single disk
- Multiple disks
- Hot spare (only for the current array)
- Global hot spare (all arrays)

#### *Changing a Disk*

To change a disk, click on the disk and select **Disks→ Change Disk**.

You can change a disk to:

- Standard disk
- Hot spare (only for the current array)
- Global hot spare (all arrays)

#### *Deleting a Disk*

To delete a disk, click on the disk and select **Disks→ Delete Disk**.

### Exporting to XML

This menu item allows you to save the current configuration in an XML file to a location of your choice. To ensure that this configuration file is used, save it into the package. Else, the configuration will be saved to a variable.

To export the current configuration to an XML file, click **Export to XML**.

### Importing XML

This menu item allows you to search for and import an existing Array Builder XML file. The XML file must be properly formatted. If it is not formatted correctly, ConfigMgr automatically modifies the XML file and sends a notification of the change.

To import an existing Array Builder XML file from another location, click **Import XML**.

### Saving to Package

Select the **Save these changes to the existing file in the toolkit package when I click OK** option and click **OK**. This enables you to save the configuration to an XML file.

**CAUTION: When you update or save a new file in the package, it is not automatically updated on all of its distribution points. To ensure the new file is available for systems that need it, you must update the distribution points from the Software Distribution→ Dell Toolkit Packages→ Dell PowerEdge Toolkit Integration xx (where xx is the revision number) node.**

## Creating Task Sequences for RAID, BMC, and DRAC

From the **Configuration action type** menu you can select the options listed in Table 5-1 to create task sequences for RAID, BMC, BIOS, and DRAC.

**Table 5-1. Options And Suboptions In Configuration Action Type Menu**

| Option | Suboptions | Description |
|---|---|---|
| RAID Configuration (.ini file) | 5i-raid0.ini | Sample file for RAID 0. |
| | 5i-raid1.ini | Sample file for RAID 1. |
| | 5i-raid5.ini | Sample file for RAID 5. |
| | raidcfg.ini | Use the existing **raidcfg.ini** file to configure RAID. See "Edit <syscfg.ini>" for a similar example. |
| RAID Configuration (command line) | None | Use this option if you want to manually configure the RAID tokens using the CLI. |
| BMC Configuration | --identify <seconds> | Typical BMC options available for your supported system. |
| | --loaddefault | |
| | --powerbutton= enable | |
| | --powerbutton= disable | |
| | --powerctl= powerdown | |
| | --powerctl= powercycle | |
| | --powerctl=reset | |
| | --racreset | |

**Table 5-1. Options And Suboptions In Configuration Action Type Menu *(continued)***

| Option | Suboptions | Description |
|---|---|---|
| RAC Configuration (RAC 4) | <Create configuration file> | For a similar example for the BIOS option, see "<Create configuration file>." |
| | <Import configuration file> | For a similar example for the BIOS option, see "<Import configuration file>". |
| | rac4cfg.ini | Use the existing **raccfg.ini** file to configure DRAC 4. See "Edit <syscfg.ini>" for a similar example. |
| RAC Configuration (RAC 5) | <Create configuration file> | See "<Create configuration file>" to see how you do it for the BIOS option. |
| | <Import configuration file> | See "<Import configuration file>" for the BIOS option. |
| | rac5cfg.ini | Use the existing **raccfg.ini** file to configure DRAC 5. See "Edit <syscfg.ini>" for a similar example.<br>**NOTE:** Use RAC configuration (RAC5) to configure Integrated Dell Remote Access Controller (iDRAC) on Dell PowerEdge *xx0x* blade systems. |

Once you finish configuring your system BIOS, RAID, BMC, and DRAC, the Task Sequence Editor displays the hardware component sequences.

# How Do I Import System Information?

## Computer Association

A computer association organizes the migration of user state and settings from a reference computer to a destination system. The reference system is an existing system that is managed by Configuration Manager 2007 SP1. This system contains your system's state and settings that will be migrated. These settings are migrated to a specified destination system.

The **Computer Association** node displays a list of the computer associations that have been created. It also displays specific actions that can be run for that computer association when you select a computer association from the **Computer Association** results pane.

To import computer information:

1. From the left-hand side of the **Configuration Manager Console**, under **Operating System Deployment**, right-click **Computer Association→ Import Computer Information**.
   The **Import Computer Information Wizard** displays.
2. The Select Source window displays the following options:
   - Import computers using a file
   - Import single computer
     Select **Import single computer** and click **Next**.
3. Specify information relating to the computer you are importing in the following fields:
   - Computer name
   - MAC address (12 hex characters)
   - SMBIOS GUID (32 hex characters) - (optional)

   Click **Next**.

**CAUTION: Ensure that the computer name you enter starts with a letter. Else, the deployment will fail.**

4. The **Data Preview** window opens where you can verify the configuration information you have entered. Click **Next**.
5. The **Choose Target Collection** window opens. Here you can choose from the following two options:
   - Add new computers only to the All Systems collection
   - Add computers to the following location
6. Select the **Add computers to the following location** option, specify the location of the computer collection by clicking **Browse**.
7. Click **Next**. The **Summary** window with details of the imported system setting displays.
8. Click **Next** or **Finish** to apply settings.

# How Do I Configure The Task Sequence Steps To Apply Operating System Image And Driver Package?

The scope of this document includes information only on the Dell Deployment Pack feature to apply operating system image and add Dell drivers.

## Operating System Image

**NOTE:** Before you begin this task, ensure that you have the required operating system image file (.wim file) within the **Operating System Images** tree in ConfigMgr.

1. From the left-hand side of the **Task Sequence Editor**, under **Deploy Operating System** click **Apply Operating System Image.**
2. You can choose from the following options:
   - Apply operating system from a captured image
   - Apply operating system from an original installation source
3. Select the appropriate option, browse for the operating system location and click **OK**.

## Adding Drivers

1. From the left hand side of the **Task Sequence Editor**, under **Deploy Operating System** click **Apply Driver Package**.
2. Click **Browse**.
   The **Select a Package** window displays.
3. Click **Dell PowerEdge Driver Packages<OM Version>**.
   The list of driver packages available in the **Dell Deployment Pack** displays.
4. Select a package for Dell PowerEdge system 1950, say, **Dell PE1950-Microsoft Windows 2003x86 OM5.5**.
5. Click **Apply**.

# How Do I Advertise A Task Sequence?

After saving the task sequence, assign it to the collection of systems by advertising it. To advertise a task sequence:

1. Right-click on the task sequence and select **Advertise**.
   The **New Advertisement Wizard** window displays.
2. Refer the ConfigMgr *Online Help* on how to advertise a task sequence.

**NOTE:** In the New Advertisement Wizard, ensure that you check the option **Make this task sequence available to boot media and Preboot Execution Environment (PXE)**.

## Best Practices For Advertising a Task Sequence

- Always configure advertisements with the following settings when using PXE:
  - Make this task sequence available to boot media and PXE
  - Schedule: Mandatory assignment: As soon as possible
  - Schedule: Program rerun behavior: Always rerun program
  - Distribution Points: Access content directly from a distribution point when needed by the running task sequence
  - Interaction: Show task sequence progress
- Always configure Windows PE boot images with the following settings:
  - Windows PE: Enable command support (testing only)

## How Do I Deploy A Task Sequence?

Now that the task sequence is ready, use any of the following methods to deploy the task sequence you have created:

- Deploy through a CD
- Deploy through a USB
- Deploy through PXE

For more information on how to deploy a task sequence using the above methods, see the ConfigMgr *Online Help*.

## Troubleshooting

For troubleshooting information, see the Microsoft TechNet site at **technet.microsoft.com**.

# Glossary

**Array Builder**
Array Builder is a tool that defines rules for configuring array controllers on target systems based on several variable factors. By taking a rules-based approach, you can define standard array configurations for your organization and configure your systems according to these standards, without having to know the exact physical configuration of the array controller and disks before you begin your deployment.

**BIOS**
Acronym for basic input/output system. Your system's BIOS contains programs stored on a flash memory chip. The BIOS controls:

- Communications between the microprocessor and peripheral devices, such as the keyboard and the video adapter
- Miscellaneous functions, such as system messages

**BMC**
Abbreviation for baseboard management controller, which is the controller interface between the RAC and the managed system's ESM.

**config.sys file**
The **config.sys** file is executed when you boot your system (before running any commands in the **autoexec.bat** file). This start-up file contains commands that specify which devices to install and which drivers to use. This file also contains commands that determine how the operating system uses memory and controls files.

**controller**
A chip that controls the transfer of data between the microprocessor and memory or between the microprocessor and a peripheral device such as a disk drive or the keyboard.

**device driver**
A program that allows the operating system or some other program to interface correctly with a peripheral device, such as a printer. Some device drivers—such as network drivers—must be loaded from the **config.sys** file (with a `device= statement`) or as memory-resident programs (usually, from the **autoexec.bat** file). Others—such as video drivers—must load when you start the program for which they were designed.

**directory**
Directories help keep related files organized on a disk in a hierarchical, "inverted tree" structure. Each disk has a "root" directory; for example, a `C:\>` prompt usually indicates that you are at the root directory of hard drive C. Additional directories that branch off the root directory are called subdirectories. Subdirectories may also contain additional directories.

**DRAC 4**
Acronym for Dell™ OpenManage™ Remote Access Controller 4.

**DRAC 5**
Acronym for Dell Remote Access Controller 5.

**ESM**
Abbreviation for embedded systems management, which is a set of instruction coding in system software and firmware that notifies a user about potential hardware problems on a system.

**iDRAC**
Acronym for Integrated Dell Remote Access Controller.

**pre-operating system environment**
A shell environment, such as DOS, used to configure system hardware before a major operating system, such as Microsoft® Windows® or Linux, is installed.

**PXE**
Abbreviation for Pre-boot eXecution Environment. It allows a workstation to boot from a system on a network prior to booting the operating system on the local hard drive.

**RAC**
Acronym for Remote Access Controller.

**RAID**
Acronym for Redundant Array of Independent Disks.

**system.ini file**
A start-up file for the Windows operating system. When you start Windows, it consults the **system.ini** file to determine a variety of options for the Windows operating environment. Among other things, the **system.ini** file records which video, mouse, and keyboard drivers are installed for Windows.

Running the **Control Panel** or **Windows Setup** program may change options in the **system.ini** file. Occasionally, you may need to change or add options to the **system.ini** file manually with a text editor, such as Notepad.

**Windows Preinstallation Environment (Windows PE)**
The Microsoft Windows Preinstallation Environment (Windows PE) is a minimal Win32 subsystem with limited services, based on the Windows kernel running in protected mode. It contains the minimal functionality that you need to run Windows Setup, install an operating system from a network share, automate basic processes, and perform hardware validation.

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