Dell™ Lifecycle Controller Integration Version 1.1 for Microsoft® System Center Configuration Manager

User's Guide

Notes

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

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About This Document

This document details the usage and features of the Dell™ Lifecycle Controller Integration for Microsoft® System Center Configuration Manager (DLCI for ConfigMgr).

For information on Microsoft System Center Configuration Manager (ConfigMgr) such as installation, features, and functionalities, see the Microsoft TechNet site at **technet.microsoft.com**.

In addition to this guide, there are other product guides and white papers you should have for reference.

You can find the following guides on the Dell Support website at **support.dell.com/manuals**.

- The *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide* provides comprehensive information on setting up and using the Dell Deployment Pack.
- The *Dell Lifecycle Controller User's Guide* provides comprehensive information on managing systems locally and remotely on a network.
- The *Integrated Dell Remote Access Controller 6 User's Guide* provides information about installation, configuration, and maintenance of the Integrated Dell Remote Access Controller 6 (iDRAC6) on management and managed systems.

You can find the following white papers at **www.delltechcenter.com**.

- The *Dell Lifecycle Controller Remote Services Overview* provides comprehensive information about the features, functionalities and usage of the Dell Lifecycle Controller remote services.
- The *Dell Lifecycle Controller Web Services Interface Guideline* provides information about the methods available to deploy an operating system using Web Services Management (WS-MAN).

- The *Dell Auto-Discovery Network Setup Specification* provides information about auto-discovery, auto-discovery error messages, descriptions, and response actions.

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Overview

This chapter provides an overview of Dell™ Lifecycle Controller Integration for Microsoft® System Center Configuration Manager (DLCI for ConfigMgr).

Some of the key features of DCLI for ConfigMgr are:

- Auto-discovery of systems with iDRAC on the network
- Removal of Pre Execution Environment (PXE) dependency
- Usage of drivers from Lifecycle Controller or from ConfigMgr repository
- Deployment of operating systems remotely through vFlash and network ISO
- Maintenance of the executed tasks' status by the Task Viewer component

Features and Functionalities

Auto-Discovery and Handshake

The auto-discovery feature enables automated discovery and provisioning of credentials to unprovisioned systems with iDRAC on the network by management consoles that have integrated the Dell provisioning server. The DLCI for ConfigMgr integrates the provisioning server within ConfigMgr.

NOTE: DLCI for ConfigMgr does not support auto-discovery of modular systems with flex-addressing.

Once a system with iDRAC is discovered, a collection called **All Dell Lifecycle Controller Servers** is created under **Computer Management→ Collections** in the ConfigMgr console. There are two sub-collections within the collection:

- **Managed Dell Lifecycle Controller (OS Deployed)**
- **Managed Dell Lifecycle Controller (OS Unknown)**

After an operating system is deployed on a discovered system with iDRAC, the system moves from **Managed Dell Lifecycle Controller (OS Unknown)** to **Managed Dell Lifecycle Controller (OS Deployed)**.

Removal of PXE Dependency

The removal of PXE dependency feature provides the ability to boot a collection of systems with iDRAC to the task sequence ISO available on a Common Internet File System (CIFS) share. You should provide credentials to access this ISO on the CIFS share.

Driver Maintenance

The Driver Maintenance feature of DLCI for ConfigMgr provides the ability to expose drivers embedded in the Lifecycle Controller to install a particular operating system, and allows fall-back to the ConfigMgr console for drivers, if needed. It also provides the ability to choose drivers from the console repository without depending on the Lifecycle Controller.

Remote Operating System Deployment

Remote operating system deployment is the ability to execute an unattended installation of a target operating system on any auto-discovered system with iDRAC. As a part of this feature, the pre-operating system image is mounted as a virtual media over the network and the drivers for the target host operating system are applied either from the ConfigMgr console repository or the Lifecycle Controller. If you select drivers from the Lifecycle Controller, the list of operating systems supported is based on the current driver pack flashed on the iDRAC. You can also download an ISO image to the vFlash SD card on the target system and boot the system to the downloaded ISO image.

NOTE: vFlash features can only be used on rack and tower servers with iDRAC version 1.3 firmware or newer, or on blade servers with iDRAC version 2.2 or newer.

For more information on remote operating system deployment and staging and booting to operating system image on vFlash, see the *Dell Lifecycle Controller User Guide* on the Dell Support website at **support.dell.com/manuals**.

Task Viewer

The Task Viewer is an asynchronous task execution component that hides in the task bar and executes tasks handled by the DLCI for ConfigMgr. All long-running tasks such as operating system deployment will run in the Task Viewer. It maintains a queue of tasks with twenty executions at one time. The remaining tasks wait for one of the running tasks to complete. It sorts the tasks in the order they are submitted, and executes them in the same order. To view the current tasks in the queue and their status, open the Task Viewer by clicking the Dell icon on the task bar.

What's New in This Release

This release provides the following new features:

- Separate installation of Dell Provisioning Service from the Site Server
- Stage ISO and rebooting to vFlash
- Microsoft System Center Configuration Manager (ConfigMgr) 2007 R2\SP2 support
- ConfigMgr Admin Console support
- GUI based Dell Provisioning Configuration for security

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Setup and Use

This chapter contains information on software prerequisites and requirements to use the Dell™ Lifecycle Controller Integration for Microsoft® System Center Configuration Manager (DLCI for ConfigMgr). It also lists the steps to install and uninstall the plug-in, and some typical console user scenarios.

Before You Begin

To use DLCI for ConfigMgr, you should be familiar with deploying operating systems using **Dell Server Deployment Pack for Microsoft System Center Configuration Manager (DSDP for ConfigMgr) version 1.2** or later.

NOTE: It is recommended that you read the *Dell™ Server Deployment Pack for Microsoft® System Center Configuration Manager User's Guide* on the Dell Support website at **support.dell.com/manuals**.

Configure an Account for Use With Discovery and Handshake

Use the following steps to configure minimal user permissions if you choose not to use an administrator account for the Provisioning Server to access the ConfigMgr server:

1. Create a user account on the domain. It must be a domain account as the Dell Provisioning Server server impersonates this account while writing the Data Discovery Record (DDR) to the Site Server's inbox.
2. Grant the following user permissions for ConfigMgr:
   - **Collection — Read, Modify, Create**
   - **Site — Read, Import computer entry**
3. Use the following steps to configure user to access to Windows Management Instrumentation (WMI) remotely:

   NOTE: Ensure that your system's firewall does not block the WMI connection.

a Using **DCOMCNFG.exe**, grant the Dell Provisioning Server user permissions needed to the **Distributed COM** on this system remotely:

i From the left pane of the ConfigMgr console, right-click **Computers** and select **Properties**.

ii On the **COM Security** tab, click **Edit Limits** and add **Local Launch**, **Remote Launch**, and **Remote Activation** permissions.

iii From **Launch and Activation Permission**, select **Remote Launch** and **Remote Activation**.

iv From **Access Permissions**, select **Remote Access**.

b Using **DCOMCNFG.exe**, grant the Dell Provisioning Server user permissions needed to the **Distributed COM** Windows Management and Integration (WMI) components:

i Expand **My Computer** and expand **Distributed COM**.

ii Right-click **Windows Management and Integration**, and select **Properties**.

iii Open the **Security** tab.

iv From **Launch and Activation Permissions**, select **Remote Launch** and **Remote Activation** permissions.

c Using **WMIMGMT.msc**, grant the following user permissions to the **ROOT\SMS\Site_<*sitecode*> Namespace**: **Execute Methods**, **Provide Write**, **Enable Account**, and **Remote Enable**. Alternatively, the ConfigMgr user becomes a member of the **SMS_Admin** group when created in ConfigMgr, and you can grant **Remote Enable** to the group's existing permissions.

d From the Dell Provisioning Server, use the following steps to validate the permissions on the account:

i Use **WBEMTest** to verify that you can connect via WMI to the Site Server.

NOTE: Ensure that you select **Packet privacy** in the **Authentication level** group box when connecting to the **Site_<*sitecode*> Namespace**.

ii After establishing the connection, run the query `"Select*from SMS_Site"`. If permissions are properly assigned, this command returns a record with the site code.

4 Grant share and folder permissions to write files to the DDR inbox:

a From the left pane of the ConfigMgr console, under **Computer Management**, grant the user permission to write to the SMS_<*sitecode*> **share**.

b Using **File Explorer**, navigate to the share location SMS_<*sitecode*> **share**, and then to the **ddm.box** folder. Grant full control to the domain user.

c Validate these permissions by temporarily mapping a drive from the Dell Provisioning Server using the user credentials, and then creating, writing, modifying, and deleting a new file.

Software Prerequisites and Requirements

- Install the following applications on your system:
  - Microsoft System Center Configuration Manager 2007 (ConfigMgr) R2/SP2. For details on how to download and install ConfigMgr, see the Microsoft TechNet site at **technet.microsoft.com**.
  - Dell Server Deployment Pack for ConfigMgr. For details on how to install DSDP for ConfigMgr, see the *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide*.
  - Microsoft .NET version 3.5 SP1.
  - Windows Remote Management (WinRM) on systems on which provisioning server is running on Microsoft Windows 2003 operating system.
  - Utilities **regsvr32.exe** and **icacls.exe**.

  NOTE: **regsvr32.exe** is installed on the system by default. **icacls.exe** is updated when you apply the hotfix from the Microsoft KB article 947870. The hotfix is available on the Microsoft support site at **support.microsoft.com**.
- Apply the hotfix from the Microsoft KB article 947870 on systems with Microsoft Windows 2003, on which the provisioning server will be installed. The hotfix is available on the Microsoft support site at **support.microsoft.com**.
- Install the WS-Management version 1.1 package from the Microsoft KB article 936059, available on the Microsoft support site at **support.microsoft.com**.
- Ensure that at least 40 MB of free disk space is available on your system.

For more information on prerequisites and requirements, see the *Dell™ Server Deployment Pack for Microsoft® System Center Configuration Manager User's Guide* on the Dell Support website at **support.dell.com/manuals**.

For information on component-specific software prerequisites and requirements, see the "Component-Specific Requirements" section.

Supported Systems and Operating Systems

For information on supported systems and supported Site Server, Dell Provisioning Server, and ConfigMgr Admin Console operating systems, see the **readme.txt** on the Dell Support website at **support.dell.com/manuals**.

Installing and Uninstalling

This section lists the steps to install and uninstall the DLCI for ConfigMgr. The DLCI for ConfigMgr is comprised of two components; Dell Lifecycle Controller Utility and Dell Provisioning Server. Use the **Complete** option to install all the features on your current server. Use the **Custom** option to install the Dell Lifecycle Controller Utility on a Site Server or an Admin Console, and Dell Provisioning Server on any server or Admin Console.

Component-Specific Requirements

DLCI for ConfigMgr verifies the following requirements before installation:

Initial Startup

- Operating system is Microsoft Windows 2003 SP1 or later
- **Regsrv32.exe** is present
- Microsoft .NET version 3.5 SP1 is installed
- Latest WinRM is installed

Dell Lifecycle Controller Utility

- Installation on primary Site Server or ConfigMgr Admin Console
- Dell Server Deployment Pack 1.1 or later is installed
- Windows Automation Install Kit (Windows AIK) is installed

Dell Provisioning Server

- Operating system is not a Workstation
- Operating system is not Microsoft Windows 2003 64-bit
- Operating system is Microsoft Windows 2003 SP2 or later
- Either Internet Information Services (IIS)6 or IIS7 is installed
- IIS WMI compatibility is enabled on IIS7
- IIS6 WMI Metabase compatibility is enabled on IIS7
- **icacls.exe** is present

NOTE: The Dell Provisioning Server does not support Microsoft Windows 2008 R2 operating system and IIS version 7.5.

Installing the DLCI for ConfigMgr

NOTE: After a component(s) is installed, if you need to install another component(s), it is recommended that you uninstall the existing component(s) and reinstall with the required component(s).

NOTE: It is recommended that you read the "Software Prerequisites and Requirements" section before proceeding with the installation.

NOTE: If your system runs out of disk space during the installation, a message appears confirming that there is not enough disk space. It is recommended that you abort the installation and try again, after ensuring that the required disk space is available.

NOTE: DLCI for ConfigMgr does not support upgrading from version 1.0 to version 1.1. Uninstall version 1.0 and install version 1.1.

Use the following steps to install the DLCI for ConfigMgr:

1. Go to the Dell Support website at **support.dell.com→Drivers & Downloads**.
2. Download the appropriate **.msi** package for your operating system to the local drive of your system.
3. Download the **DLCI_1.1.0_Axx.zip** (Where xx is the DLCI version number).

NOTE: If you are installing DLCI for ConfigMgr on a system with User Access Control (UAC) enabled, launch the **MSI** file with **Run As Administrator** access. For more information, see the "Installing on a UAC Enabled System" section.

4 Extract the zip file to the local driver of your system and locate the **.msi** package.

5 Double-click the **.msi** package. The **Welcome** screen appears.

6 Click **Next**. The license agreement appears.

7 Accept the license agreement and click **Next**. The **Setup Type** screen appears.

8 Select one of the following options:

- **Complete** — Select to install all features. For more information, see the "Complete Installation" section.
- **Custom** — Select to install either the Dell Lifecycle Controller Utility or the Dell Provisioning Server, or both. For more information, see the "Custom Installation - Dell Lifecycle Controller Utility and Dell Provisioning Server", "Custom Installation - Dell Lifecycle Controller Utility Only", and "Custom Installation - Dell Provisioning Server Only" sections.

Complete Installation

Use the following steps to install the DLCI for ConfigMgr on a Site Server or Admin Console running on a server operating system. For the list of supported operating systems, see the **Readme** located on the Dell Support site at **support.dell.com**:

1 Follow step 1 through step 8 of the "Installing the DLCI for ConfigMgr" section.

2 Select the **Complete** option and click **Next**. The **Dell Lifecycle Controller Utility User Credentials for ConfigMgr Access** screen appears.

3 On a Site Server, enter the user name and password that will be provisioned on all newly discovered systems with iDRAC, and click **Next**.

Or

On a ConfigMgr Admin Console with IIS, enter the primary site server name, user name, and password that will be provisioned on all newly discovered systems with iDRAC, and click **Next**.

4 Enter the credentials for ConfigMgr and click **Next**. The **Ready to Install the Program** window appears.

5 Click **Install**. A screen displays the progress of the installation. After the installation is complete, the **InstallShield Wizard Completed** message appears.

6 Click **Finish** to close the wizard.

You have successfully installed the DLCI for ConfigMgr.

NOTE: As part of the installation, a provisioning website is created and configured under Internet Information Services (IIS). For more information on configuring the provisioning server manually, see "Configuring Dell Provisioning Web Services on IIS."

Custom Installation - Dell Lifecycle Controller Utility and Dell Provisioning Server

1 Follow step 1 through step 8 of the "Installing the DLCI for ConfigMgr" section.

2 Select the **Custom** option and click **Next**.

3 In the **Custom Setup** screen, select **Dell Lifecycle Controller Utility** and and **Dell Provisioning Server**, and click **Next**. The **Custom Setup Confirmation** screen displays the components that you have selected.

4 Click **Next**. The **Dell Lifecycle Controller Utility User Credentials for ConfigMgr Access** screen appears.

5 On a Site Server, enter the user name and password that will be provisioned on all newly discovered systems with iDRAC, and click **Next**.

Or

On a ConfigMgr Admin Console with IIS, enter the primary site server name, user name, and password that will be provisioned on all newly discovered systems with iDRAC, and click **Next**.

6 In the **Dell Lifecycle Controller Utility Users Credentials for iDRAC Access** screen, enter the user name and password for out-of-band controller management. This account will be provisioned on the iDRAC.

NOTE: This screen appears only if you install DLCI for ConfigMgr on a Site Server.

7 Click **Next**. The **Ready to Install the Program** screen appears.

8 Click **Install**. A screen displays the progress of the installation. After the installation is complete, the **InstallShield Wizard Completed** message appears.

9 Click **Finish** to close the wizard.

Custom Installation - Dell Lifecycle Controller Utility Only

For information on component-specific requirements, see the "Component-Specific Requirements" section.

NOTE: The Dell Lifecycle Controller Utility can be installed either on the Site Server or on the Admin Console. Ensure that you install the Dell Lifecycle Controller Utility on the Site Server before using it on the Admin Console.

Use the following steps to install only the Dell Lifecycle Controller Utility:

1 Follow step 1 through step 8 of the "Installing the DLCI for ConfigMgr" section.

2 Select the **Custom** option.

3 In the **Custom Setup** screen, select **Dell Lifecycle Controller Utility** and click **Next**.

4 The **Custom Setup Confirmation** screen displays the component that you selected. Click **Next**.

5 In the **Dell Lifecycle Controller Utility User Credentials for iDRAC Access** screen, enter the user name and password for out-of-band controller management. This account will be provisioned on the iDRAC.

6 Click **Next**. The **Ready to Install the Program** message appears.

NOTE: This screen appears only if you are installing DLCI for ConfigMgr on a Site Server.

7 Click **Install**. A screen displays the progress of the installation. After the installation is complete, the **InstallShield Wizard Completed** message appears.

8 Click **Finish** to close the wizard.

Custom Installation - Dell Provisioning Server Only

For information on component-specific requirements, see the "Component-Specific Requirements" section.

Use the following steps to install only the Dell Provisioning Server:

1. Follow step 1 through step 8 of the "Installing the DLCI for ConfigMgr" section.
2. Select the **Custom** option.
3. In the **Custom Setup** screen, select **Dell Provisioning Server** and click **Next**.
4. The **Custom Setup Confirmation** screen displays the component that you selected. Click **Next**.
5. In the **Dell Lifecycle Controller Utility User Credentials for ConfigMgr Access** screen, enter the primary site server name or IP of the server, user name and password, and click **Next**. The **Ready to Install the Program** screen appears.
6. Click **Install**. A screen displays the progress of the installation. After the installation is complete, the **InstallShield Wizard Completed** message appears.
7. Click **Finish** to close the wizard.

Installing on a UAC Enabled System

Use the following steps if you are installing DLCI for ConfigMgr on a UAC-enabled system:

1. Right-click on **Command Prompt** and select **Run As Administrator**.
2. Navigate to and run the downloaded **MSI** file.

The minimum permissions required to install/uninstall the Dell Lifecycle Controller Utility feature on a Site Server are:

- You should be a local administrator or a domain admin on the server.
- On a Microsoft Windows 2008 operating system with UAC enabled, launch the MSI file from a command prompt using **Run As Administrator**.
- The minimum permissions on ConfigMgr are:
  - Site = Read
  - Package = Read, Delete, Create

Uninstalling the DLCI for ConfigMgr

Use the following steps to uninstall the DLCI for ConfigMgr:

For Microsoft Windows Server 2003:

1. Click **Start→Control Panel→Add or Remove Programs**.
2. Select **Dell Lifecycle Controller Integration 1.1** and click **Remove**.
3. Follow the instructions to complete the uninstallation.

Or, double-click the **.msi**, select **Remove**, and follow the instructions on the screen.

For Microsoft Windows Server 2008:

1. Click **Start→Control Panel→Programs and Features**.
2. Select **Dell Lifecycle Controller Utility 1.1** and click **Uninstall**.
3. Follow the instructions to complete the uninstallation.

Or, double-click the **.msi**, select **Remove**, and follow the instructions on the screen.

Repairing the DLCI for ConfigMgr

Use the following steps to repair the DLCI for ConfigMgr:

1. Double-click the **.msi** package that you used to install DLCI for ConfigMgr initially. The **Welcome** screen appears.
2. In the **Program Maintenance** screen, select **Repair** and click **Next**. The **Ready to Repair the Program** screen appears.
3. Click **Install**. A progress screen displays the progress of the installation. Once the installation is complete, the **InstallShield Wizard Completed** window appears.
4. Click **Finish** to complete the installation.

Typical User Scenario

This section contains a typical scenario to discover a system with iDRAC and to deploy an operating system remotely. You need to perform the following steps in order to deploy operating systems remotely on the discovered and authenticated systems with iDRAC:

NOTE: By default, the **checkCertificate** value is set to **true**. Ensure that you set the **checkCertificate** value to **false** if you are not using unique certificates. For more information, see "Security Configuration."

1. Ensure that the system is auto-discovered and present in the collection. For more information on auto-discovery, see the "Auto-Discovery and Handshake" section.
2. Create a task sequence. For information on creating a task sequence, see the *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide*.

   NOTE: Select the checkbox **Apply Drivers from Lifecycle Controller** if you want to apply drivers from Lifecycle Controller while deploying operating systems.
3. Create a task sequence media. For more information, see the "Creating a Task Sequence Media (Bootable ISO)" section.
4. Advertise the task sequence for the collection containing the systems with iDRAC. For information on advertising a task sequence, see the *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide*.
5. Create a Lifecycle Controller boot media. This modifies the task sequence media to ensure that the deployment is unattended. For more information, see the "Creating a Lifecycle Controller Boot Media" section.
6. Apply drivers on the task sequence. For more information, see the "Applying Drivers on the Task Sequence" section.
7. Deploy operating systems to the collection by launching the **Config Utility**. For more information, see the "Deploying Operating System Remotely" section.

Creating a Task Sequence Media (Bootable ISO)

Use the following steps to create a task sequence media:

1. On the ConfigMgr console, under **Computer Management→Operating System Deployment**, right-click **Task Sequences** and select **Create Task Sequence Media**. The **Create Task Sequence Media** wizard appears.

   NOTE: Ensure that you manage and update the boot image across all distribution points before starting this wizard.

2. Select **Bootable Media** and click **Next**.
3. Select **CD/DVD Set**, and click **Browse** and select the location to save the ISO image. Click **Next**.
4. Deselect the **Protect Media with a Password** checkbox and click **Next**.
5. Browse and select the boot image **Dell PowerEdge Server Deployment Boot Image**. Select the distribution point from the drop-down menu, and select **Show distribution points from child sites** checkbox.
6. Click **Next**. The **Summary** screen displays the task sequence media information.
7. Click **Next**. A progress bar displays the status of the task sequence media creation.
8. Click **Finish** to complete the task sequence media creation.

You have created a task sequence media.

Creating a Lifecycle Controller Boot Media

Create a Lifecycle Controller boot media to deploy operating systems remotely. Use the following steps to create a Lifecycle Controller boot media:

1. From the left pane of the ConfigMgr console, under **Computer Management→Collections**, right-click on **All Dell Lifecycle Controller Servers** and select **Dell Lifecycle Controller→Launch Config Utility**.

   NOTE: Config Utility can be launched for any collection.

2. The **Dell Lifecycle Controller Configuration Utility** window opens. The left-hand pane of the window lists the following tasks:
   - Create new Lifecycle Controller Boot Media
   - Configure and Reboot to WinPE

- Verify Communication with Lifecycle Controllers
- Modify Credentials on Lifecycle Controllers

3 The default selection is **Create new Lifecycle Controller Boot Media**. Click **Browse** and select the bootable ISO that you created. For information on how to create a bootable image, see the "Creating a Task Sequence Media (Bootable ISO)" section.

4 Specify the path where the Dell Lifecycle Controller boot media needs to be saved.

NOTE: It is recommended that you save the boot media to your local drive and then copy it to a network location, if required.

5 Click **Create**.

You have successfully created a boot media.

Applying Drivers on the Task Sequence

Based on the operating system to be deployed, you can either apply drivers from the Lifecycle Controller or the ConfigMgr repository. The drivers in the ConfigMgr repository can be used as a fall back set.

Applying Drivers From Lifecycle Controller

Use the following steps to apply drivers from the Lifecycle Controller:

1 Edit the task sequence to which drivers will be exposed from the Lifecycle Controller. To edit, right-click on the task sequence and select **Edit** to open the **Task Sequence Editor**. Click **Add→Dell Deployment→Apply Drivers from Lifecycle Controller** and click **Next**.

Or, create a new task sequence if there is no existing task sequence. For information on creating a task sequence, see the *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide*.

NOTE: This step requires a fallback step for the inclusion of either the **Apply Driver Package** or **Auto Apply Drivers** step of ConfigMgr. Ensure that you have one of these steps configured with a condition in the task sequence. For more information on configuring a condition for the fallback step, see the "Viewing the Condition for a Fallback Step" section.

2 A message appears listing objects referenced in the task sequence that cannot be found. Click **OK** to close this message.

3 Select **Apply Operating System Images**.

4 Under the **Apply operating system from a captured image**, reselect and verify the image package and image.

5 Deselect the **Use an unattended or sysprep answer file for a custom installation** checkbox.

6 Select **Apply Windows Settings**. Enter the licensing model, product key, administrator password, and time zone.

NOTE: The default option is for the administrator password to be randomly generated. This may not allow you to log into the system if you do not join the system to a domain. Alternatively, you can select the **Enable the account and specify the local administrator password** option and enter an administrator password.

7 Select **Apply Drivers from Dell Lifecycle Controller** and select an operating system from the drop-down list.

8 Enter a user name and password with administrator credentials to access the ConfigMgr console.

9 Select **Apply Driver Package**. Click **Browse** and select a driver package from the list of driver packages available in ConfigMgr.

NOTE: Depending on the hardware and operating system being deployed, you may need to select a mass storage driver to correctly deploy the operating system. For example, Microsoft Windows 2003 operating system does not carry compatible drivers for the Serial Attached SCSI (SAS) or PowerEdge Expandable RAID Controllers (PERC).

10 Click **OK** to close the **Task Sequence Editor**.

11 Advertise the task sequence that you have edited. For information on how to advertise a task sequence, see the *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide* on the Dell Support website at **support.dell.com/manuals**.

NOTE: It is required that you set the task sequence advertisement to mandatory.

NOTE: If multiple advertisements to the same collection are made mandatory, the choice of advertisement to run is up to ConfigMgr.

12 Create a Lifecycle Controller Boot Media. For more information, see the "Creating a Lifecycle Controller Boot Media" section.

Applying Drivers From the ConfigMgr Repository

Use the following steps to apply drivers from the ConfigMgr repository:

1. Add a **Set Boot Order** step manually before each of the **Reboot to PXE / USB** steps. The **Set Boot Order** step instructs the systems to boot to a virtual CD on the next boot.

   Use the following steps to add a **Set Boot Order** step manually:

   a. Right-click on the task sequence and select **Add→Dell Deployment→PowerEdge Server Configuration**.

   b. Select **Boot Order** from the **Configuration Action Type** drop-down list.

   c. Select **Set** from the **Action** drop-down list.

   d. A new drop-down list for **Configuration file / Command line parameters** appears. Select **—nextboot=virtualcd.slot.1**.

   e. Select **Apply**. The name of the step will change to **Set Boot Order**.

   f. Select and drag the **Set Boot Order** step to just before the **Reboot to PXE / USB** step.

   g. Repeat this process to create a **Set Boot Order** step before each **Reboot to PXE / USB** step.

   h. Click **OK** to close the task sequence.

2. Apply driver packages for the selected operating systems in ConfigMgr. For more information on applying driver packages, see *Dell Server Deployment Pack for Microsoft System Center Configuration Manager User's Guide* on the Dell Support website at **support.dell.com/manuals**.

Deploying Operating System Remotely

Use the following steps to deploy an operating system to the collection remotely:

1. From the left pane of the ConfigMgr console, under **Computer Management→Collections**, right-click on **Managed Dell Lifecycle Controllers (OS Unknown)** and select **Dell Lifecycle Controller→ Launch Config Utility**.

2. From the left pane of the Dell Lifecycle Controller Configuration Utility, select **Configure and Reboot to WinPE**.

3 Under **Select Lifecycle Controller bootable media**, select one of the following options:

- **Boot to Network ISO** — Reboots to the ISO specified by you.
- **Stage ISO to vFlash and Reboot** — Downloads the ISO to vFlash and reboots.
- **Reboot to vFlash (ISO Must be present on vFlash)** — Reboots to vFlash. Ensure that the ISO is present in the vFlash.

4 Select the **Use Network ISO as Fallback** checkbox if you want the network ISO to be a fallback step.

5 Click **Browse** and select the path where the Dell Lifecycle Controller bootable media is saved.

NOTE: If you have set a default share location for the Lifecycle Controller boot media, the default location populates automatically. See the "Setting a Default Share Location for the Lifecycle Controller Boot Media" section for more information.

6 Enter the user name and password for accessing the share where the Dell Lifecycle Controller bootable media is located.

7 Click **Reboot Targeted Collection**. This sends the reboot jobs for each system in the collection to the Task Viewer. To view the current tasks in the queue and their status, open the Task Viewer by clicking the Dell icon on the task bar. For more information on Task Viewer, see the "Task Viewer" section.

Once a system with iDRAC receives the WS-MAN command, it reboots to Windows PE and runs the advertised task sequence. It then automatically boots to the Lifecycle Controller boot media, depending on the boot order you created in the task sequence. Once the deployment is successful, the system with iDRAC moves to the **Managed Dell Lifecycle Controller (OS Deployed)** collection under **Computer Management→Collections→All Dell Lifecycle Controller Servers**.

Additional Features

Viewing the Condition for a Fallback Step

The condition **DriversNotAppliedFromLC** is automatically added by DLCI for ConfigMgr while creating a task sequence. This condition is used as a fallback step if applying drivers from Lifecycle Controller fails.

NOTE: It is recommended not to disable or delete this condition.

Use the following steps to view this condition:

1. From the left pane of the ConfigMgr console, select **Computer Management→Operating System Deployment→Task Sequence**.
2. Right-click on the task sequence and click **Edit**. The **Task Sequence Editor** appears.
3. Select **Apply Driver Package** or **Auto Apply Drivers**.
4. Click the **Options** tab. Here, you can view the condition **DriversNotAppliedFromLC**.

Setting a Default Share Location for the Lifecycle Controller Boot Media

Use the following steps to set a default share location for the Lifecycle Controller boot media:

1. From the left pane of the ConfigMgr console, select **System Center Configuration Manager→Site Database→Site Management→<***site server name***>→Site Settings→Component Configuration**.
2. In the **Component Configuration** window, right-click **Out of Band Management** and select **Properties**. The **Out of Band Management Properties** window appears.
3. Click the **Dell Lifecycle Controller** tab.
4. Under **Default Share Location for Custom Lifecycle Controller Boot Media**, click **Modify** to modify the default share location of the custom Lifecycle Controller boot media.
5. In the **Modify Share Information** window, enter a new share name and share path. Click **OK**.

You have set a default share location for the Lifecycle Controller boot media.

Verifying Communication With Lifecycle Controller

Use the following steps to verify the credentials of the discovered systems with iDRAC:

1. From the left pane of the ConfigMgr console, under **System Center Configuration Manager→Site Database→Computer Management→ Collections**, right-click on **All Dell Lifecycle Controller Servers** and select **Dell Lifecycle Controller→Launch Config Utility**.
2. From the left pane of the **Dell Lifecycle Controller Configuration Utility**, select **Verify Communication with Lifecycle Controllers**.
3. Click **Run Check** to verify communication with the iDRACs of the discovered systems. A list of iDRACs discovered on the network appears along with their communication status.
4. Once the check is complete, click **Export to CSV** to export the results in CSV format. Provide the location on your local drive.

   or

   Click **Copy to Clipboard** to copy the results to the clipboard and save it in plain text format. You need not provide the location on your local drive.

Modifying Local User Account Credentials for Lifecycle Controllers

On systems with iDRAC, use the following steps to verify and/or modify the WS-MAN credentials configured with the Dell Lifecycle Controller Integration for ConfigMgr:

NOTE: It is recommended that you modify the credentials on the Lifecycle Controller as well as the ConfigMgr database simultaneously.

Modifying Credentials on the Dell Lifecycle Controller

1. From the left pane of the ConfigMgr console, under **System Center Configuration Manager→Site Database→Computer Management→ Collections**, right-click on **All Dell Lifecycle Controller Servers** and select **Dell Lifecycle Controller→Launch Config Utility**.
2. From the left pane of the **Dell Lifecycle Controller Configuration Utility**, select **Modify Credentials on Lifecycle Controllers**.
3. Enter the current user name and password, and the new user name and password.

4 Click **Update**. A list of iDRACs that are discovered on the network appears along with their communication status.

   A series of WS-MAN commands are sent to all systems with iDRAC that are in the collection, to change the user name and password credentials, and to indicate the change.

5 After the update is complete, click **Export to CSV** to export the results in CSV format. Provide the location on your local drive.

   or

   Click **Copy to Clipboard** to copy the results to the clipboard and save it in plain text format. You need not provide the location on your local drive.

Modifying Credentials on the ConfigMgr Database

1 From the left pane of the ConfigMgr console, select **System Center Configuration Manager→Site Database→Site Management→<***site server name***>→Site Settings→Component Configuration**.

2 In the **Component Configuration** window, right-click **Out of Band Management** and select **Properties**. The **Out of Band Management Properties** window appears.

3 Click the **Dell Lifecycle Controller** tab.

4 Under **Local User Account on Lifecycle Controllers**, click **Modify**.

5 In the **New Account Information** window, enter the new user name and new password. Confirm the new password and click **OK**.

You have updated the new user name and password credentials in the ConfigMgr Database.

Security Configuration

Validation of a Dell Factory-Issued Client Certificate on the iDRAC for Auto-Discovery

This security option requires that a system being discovered by the provisioning website during the discovery and handshake process has a valid factory-issued client certificate which is deployed to the iDRAC. This feature is enabled by default. It can be disabled from a command prompt by running the following command:

```
[Program Files]\Dell\DPS\Bin\import.exe
–CheckCertificate False
```

Pre-authorization of Systems for Auto-Discovery

This security option checks the service tag of the system being discovered against a list of authorized service tags you have imported. To import the authorized service tags, create a file containing a comma-separated list of service tags, and import the file from a command prompt by running the following command:

`[Program Files]\Dell\DPS\Bin\import.exe -add [file_with_comma_delimited_service_tags]`.

Running the command will create a record for each service tag in the repository file `[Program Files]\Dell\DPS\Bin\Repository.xml`.

This feature is disabled by default. To enable this authorization check, open a command prompt and run the following command:

```
[Program Files]\Dell\DPS\bin\import.exe
–CheckAuthorization False.
```

Changing the Administrative Credentials Used by DLCI for ConfigMgr

Use the following commands to change the administrative credentials for ConfigMgr used by DLCI:

To set the user name:

```
[Program Files]\Dell\DPS\Bin\import.exe –CIuserID
[New Console Integration Admin User ID]
```

To set the password:

```
[Program Files]\Dell\DPS\Bin\import.exe -CIpassword
[New Console Integration Admin Password].
```

Using the Graphical User Interface

You can also use the Graphical User Interface (GUI) to change the security configurations.

Use the following command to open the GUI screen:

```
[Program Files]\Dell\DPS\Bin\import.exe -DisplayUI
```

Troubleshooting

Configuring Dell Provisioning Web Services on IIS

The installer configures the Dell Provisioning Web Services for Internet Information Services (IIS) automatically during installation.

This section contains information to configure Dell Provisioning Web Services for IIS manually.

Dell Provisioning Web Services Configuration for IIS 6.0

Use the following steps to configure Dell provisioning web services for IIS 6:

1. After installing DLCI for ConfigMgr, go to the **C:\Program Files\Dell\DPS\ProvisionWS** directory and verify whether the folder **ProvisionWS** is present along with the files. Reinstall DLCI for ConfigMgr if the folder and files are not present.
2. In **IIS Manager**, create a new application pool called **Provisioning Web Site** and assign it to the website. Use the following steps to assign the application pool to the Provisioning Web Site.
   a. In **IIS Manager**, right-click **Provisioning Web Site**, and select **Properties**.
   b. Click the **Home Directory** tab.
   c. Under **Application Pool**, select **Provisioning Web Site**.
3. In **IIS Manager**, right-click **Provisioning Web Site**, select **Properties**, and click on the **Documents** tab. Set the default document to **handshake.asmx** and remove any other default documents.
4. Using the Certificates MMC plug-in, install the **PS2.pfx** certificate into the system's **Personal** store.
5. Install the **RootCA.pem** into the system's **Trusted Root Certificate Authorities** store.
6. Use the following steps to enforce SSL and client certificates for the website:
   a. Assign the **DellProvisioningServer** certificate to the website.
   b. Set the SSL port to 4433.
   c. Select the required SSL option.

d Select the required client certificates option.

e Create a **Certificate Trust List** with only the **iDRAC RootCA** in the trust list.

NOTE: The certificate files (**SITE_PFX_PASSWORD = "fW7kd2G"**) will be present at the following location after running the installer: **[ConfigMgrPath]\AdminUI\XmlStorage\Extensions\bin\Deployment\Dell\PowerEdge\LC\IISsetup**.

Dell Provisioning Web Services Configuration for IIS 7.0

Use the following steps to configure Dell provisioning web services for IIS 7:

1. On a ConfigMgr console installed with Dell Server Deployment Pack, launch the **Dell_Lifecycle_Controller_Integration_1.1.0.msi** and select the default values. A new virtual website called **Provisioning Web Site** is created.
2. Create a new application pool called **Provisioning Web Site** and assign it to the website.
3. Perform the following steps on **Provisioning Web Site**.
   a. If your system is running on a 64-bit operating system, set **Enable 32 Bit Applications** to **True**.
   b. Set **Managed Pipeline Mode** to **Integrated**.
   c. Set **Identity** to Network **Service**.
4. On the website, set the default document to **handshake.asmx** and remove any other default documents.
5. Using the Certificates MMC plug-in, install the **PS2.pfx** certificate into the system's **Personal** store.
6. Install the **RootCA.pem** into the system's **Trusted Root Certificate Authorities** store.
7. Import the **ProvisioningCTL.stl Certificate Trust List** file to **Intermediate Certificate Authorities**.
8. Create an SSL certificate configuration that applies the imported **Certificate Trust List**. Open the command prompt and paste the following command:

```
netsh http add sslcert ipport=0.0.0.0:4433 appid=
{6cb73250-820b-11de-8a39-0800200c9a66}
```

```
certstorename=MY certhash=
fbcc14993919d2cdd64cfed68579112c91c05027
sslctlstorename=CA sslctlidentifier=
"ProvisioningCTL"
```

9 Use the following steps to enforce SSL and client certificates for the website:

   a Add a SSL binding to set the port to 4433 and to use the **DellProvisioningServer** certificate. A warning displays that the certificate is assigned to another program.

   b Click **OK**.

   c Remove the HTTP binding for port 4431.

   d Select the required SSL option.

   e Select the required client certificates option.

10 Click **Apply**.

Dell Auto-Discovery Network Setup Specification

For information on auto-discovery error messages, descriptions, and response actions, see the *Dell Auto-Discovery Network Setup Specification* document at **www.delltechcenter.com**.

Upgrade/Repair Issues

Use the following steps if you have upgraded or repaired the Dell Server Deployment Pack after installing DLCI for ConfigMgr 1.1:

1 Copy the **CustomReboot.vbs** from **[ConfigMgrRoot]\AdminUI\XmlStorage\Extensions\Bin\Deployment\Dell\PowerEdge\LC** to **[ConfigMgrRoot]\OSD\Lib\Packages\Deployment\Dell\PowerEdge\CustomReboot** Override the file in the destination folder.

2 Copy the **DellPowerEdgeDeployment.xml** from **[ConfigMgrRoot]\AdminUI\XmlStorage\Extensions\Bin\Deployment\Dell\PowerEdge\LC** to **[ConfigMgrRoot]\AdminUI\XmlStorage\Extensions\Bin\Deployment\Dell\PowerEdge** Override the file in the destination folder.

Issues and Resolutions

- *Issue*: Repeated reboots of systems configured in Shared Network mode.

  Resolution: While deploying an operating system on a system with iDRAC configured in a shared network mode, the Windows PE environment startup may fail on the network drivers, causing the system to restart before reaching the task sequence. This is because the network does not assign IP addresses fast enough. To avoid this issue, ensure that you enable *Spanning Tree* and *Fast Link* on the network switch.

- *Issue*: System does not show up in a collection.

  Resolution: If a system does not show up in a collection, verify whether the log file contains the following error message: "Lifecycle Controller in use." If it contains the error message, perform the following steps:

  a Ensure that the system is not in Power On Self Test (POST) state. A system is in POST state after it is powered on and until it boots to an operating system through any media.

  b Power off the system and wait for ten minutes for it to show up in the collection.

- *Issue*: The **Create Lifecycle Controller Boot Media** option fails.

  Resolution: Ensure that the source and destination paths used are local paths. For example, **C:\<folder name>**.

- *Issue*: The **Boot to vFlash** option fails.

  Resolution: On a rack and tower server, ensure that it has iDRAC version 1.3 firmware or newer. On a blade server, ensure that it has iDRAC version 2.2 or newer.

- *Issue*: Advertisements do not appear in the DLCI for ConfigMgr **Reboot to WinPE** screen.

  Resolution: Ensure that you advertise against the exact collection you plan to deploy to, as advertisements against a parent collection will not apply to the child collection(s).

- *Issue*: While deploying Microsoft Windows 2008 R2 from ConfigMgr SP1 R2 with Windows Automated Installation Kit (Windows AIK) 1.1, you receive the error message "*Operation failed with 0X80070002. The system cannot find the file specified*."

Resolution: This issue occurs if you use a Windows PE 2.X based boot image created with Windows AIK 1.X for deploying Microsoft Windows 2008 R2. Ensure that the Task Sequence deploying Microsoft Windows 2008 R2 uses a Windows PE 3.0 or later based boot image created with Windows AIK 2.X or later. For more information, see the Microsoft Technet site at **technet.microsoft.com**.

- *Issue*: The error message "*Installed BIOS version does not support this method*" appears in the DLCTaskManager.log.

  Resolution: Perform a complete reboot of the system (not in POST state), and re-deploy the operating system.

- *Issue*: The error message "*Failure: Lifecycle Controller is being used by another process*" appears in dsp.log.

  Resolution: Ensure that your system's iDRAC is not in POST state.

- *Issue*: Discovery and Handshake fails and the error message "*[Server Name] - Handshake - getCredentialsInternal():[Server Name]: NOT AUTHORIZED: No credentials returned*" appears.

  Resolution: The service tag name is case sensitive. Ensure that the service tag name imported through the **import.exe** utility matches the service tag name in the iDRAC GUI.

- *Issue*: Blue screen or failure occurs when deploying Microsoft Windows Server 2003 with the **Apply Drivers from LC** option.

  Resolution: Use the following steps to resolve this issue:

  a Right-click the task sequence and click **Edit**. The **Task Sequence Editor** window appears.

  b Select **Add→Drivers→Apply Driver Package**.

  c Check the mass storage driver option.

  d Select the applicable SAS or PERC driver.

  e Select the model of the SAS or PERC driver.

  f Save the task sequence and re-deploy the operating system.

- *Issue*: During Discovery and Handshake, the DLC.log shows an empty "*Site code:*" followed by a cryptography exception.

Resolution: Verify the Dell Provisioning Server user permissions and perform a **WBEMTest** connection to validate the account, and then reset and rediscover your systems. This issue occurs when the account entered to access ConfigMgr does not have permissions to query WMI and retrieve the site code, or when the server cannot authenticate to the Site Server or domain controller.

- *Issue*: During Discovery and Handshake, the DLC.log displays numerous "*createDellCollecions() Either Connection Mgr param is NULL or Collection not yet created*" messages.

  Resolution: This issue occurs when the account entered to access ConfigMgr does not have permissions to create collections. For more information on setting permissions, see the "Dell Auto-Discovery Network Setup Specification" section.

- *Issue*: When an account is cloned from an existing account in ConfigMgr, it is not automatically added to the **SMS_Admins** group.

  Resolution: Verify that the account exists in this group. Verify the Dell Provisioning Server user permissions and perform a **WBEMTest** connection to validate your account. Reset and rediscover your systems.

- *Issue*: Installation fails while installing DLCI for ConfigMgr version 1.1 on Microsoft Windows 2008 32-bit SP2 with the User Account Controller (UAC) option turned on.

  Resolution: Turn off UAC and reinstall DLCI for ConfigMgr version 1.1. Alternatively, right-click the command line, select **Run as Administrator**, and install DLCI for ConfigMgr version 1.1 through the command line.

- *Issue*: The **Advertise** option does not appear in an existing task sequence after uninstalling and reinstalling DLCI for ConfigMgr.

  Resolution: Open the task sequence for editing, re-enable the **Apply** option, and click **OK**. The **Advertise** option appears again.

  Use the following steps to re-enable the **Apply** option:

  a Right-click the task sequence and select **Edit**.

  b Select **Restart in Windows PE**. In the **Description** section, type any character and delete it so the change isn't saved.

  c Click **OK**. This re-enables the **Apply** option.