

# **DELL™ PowerEdge™**

## **Deployment Guide**

A Dell Technical White Paper

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## PowerEdge Deployment Guide

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# Introduction

The purpose of this document is to provide tips on deploying Microsoft® operating systems to Dell PowerEdge servers. This document will not cover how to setup a deployment infrastructure, but rather the modifications needed to allow an existing deployment setup to work with the 11<sup>th</sup> Generation PowerEdge servers.

Many deployment related items changed with the introduction of the Broadcom NetXtreme II (5708 based) network adapters which were deployed on the 9<sup>th</sup> and 10<sup>th</sup> Generation PowerEdge servers. These changes were needed in order for the network adapters to support iSCSI and TOE. The 11<sup>th</sup> Generation PowerEdge servers include 5709-based LOMs (LAN-on-motherboard). This document will briefly cover some of the more commonly noticed changes. For a comprehensive discussion, see *Best Practices for Installation of Microsoft Windows on Dell Servers with Broadcom NetXtreme Devices* on [www.support.dell.com](http://www.support.dell.com). This document will also cover advanced procedures such as setting a static IP.

**NOTE:** Dell recommends installing the latest software updates and security patches for your operating system. Failing to do so can result in things such as an unstable server or data loss.

**Drive Lettering Warning:** Since the 11<sup>th</sup> Generation PowerEdge servers contain an embedded storage device, Microsoft Windows 2003 may see this device as a hard drive. Older versions of the Microsoft operating systems are not supported on these servers. This can cause drive lettering issues. For example, the embedded device may get assigned the drive letter C: and the actual hard drive will be assigned drive letter F:. If the hard drive does not contain a partition when the operating system installation is started, the hard drive will be assigned drive letter F:. If you observe this issue, follow the steps below to assign the drive letter C: to the hard drive partition:

1. Create the partition on the hard disk as you normally would in the partition selection part of text-mode setup. You will notice that the drive letter assigned is not C:.
2. Delete the partition that you just created.
3. Create the partition again. It should now have drive letter "C" assigned to it.
4. Select the new partition and press <Enter> to install the operating system on the partition.

**NOTE:** Drive letter changes can only be made during installation.

For more information, see the Microsoft Knowledge Base article 896536 on <http://support.microsoft.com/kb/896536>.

**NOTE:** This same behavior may also be observed if devices such as flash drives or USB drives are attached during operating system deployment.

## Unified Server Configurator (USC) Deployment

The Lifecycle Controller is an embedded system management tool that allows system and storage configuration. The controller is delivered as a part of iDRAC Express in the 11<sup>th</sup> Generation PowerEdge servers. The controller includes 1 GB of managed and persistent storage that embeds systems management features in addition to the iDRAC features. The Unified Server Configurator is the user interface for local access to the Lifecycle Controller features prior to operating system installation. USC allows you to configure your operating system, RAID, and to download drivers and firmware updates. Press the <F10> key within 10 seconds of the Dell logo being displayed during the system boot process. See the Unified Server Configurator documentation on [www.support.dell.com](http://www.support.dell.com) for complete information.

## Dell Systems Build and Update Utility (SBUU)

The SBUU is on the *Systems Management Tools and Documentation* DVD that ships with your system. Using SBUU, you can configure RAID, install an operating system, and update firmware. Boot from the DVD and you will see all of the options in the user interface.

To install an operating system using SBUU:

- 1) Turn on the server.
- 2) At POST, press < F11> when prompted for **BIOS Boot Manager**.
- 3) Highlight the optical drive containing the **Dell Systems Build and Update Utility** and press <Enter>.
- 4) Click **Configure** in the **Server OS Installation**.

SBUU will now ask questions about the installation you wish to perform. The answers to these questions will be used to configure RAID, as well as to customize and to automate the operating system installation process. Click **Continue** after answering each question.

- 5) Select any options you want on the **Operating System Installation Summary** page and click **Apply Now**.

SBUU will now prepare for the installation. Remember that you can place your mouse pointer over the “I” balloons in the SBUU to receive more information about that item.

- 6) When prompted, remove the SBUU DVD and insert the operating system DVD. The installation will continue automatically.

**NOTE:** Windows® Server 2008 will not prompt for the operating system media at this time. The server will reboot, start the operating system installation, and then ask for the operating system DVD.

- 7) The system will reboot when the SBUU completes the initial setup for the installation. The server should boot to the hard drive at this time to start the operating system installation.
- 8) Depending on the operating system you chose to install, other reboots may occur at different times as a part of the operating system installation process.
- 9) The operating system and required drivers should now be installed.

**NOTE:** For additional information on SBUU and the features of the program, [www.support.dell.com](http://www.support.dell.com) for the SBUU documentation.

## Dell OpenManage™ Deployment Toolkit (DTK)

The Dell OpenManage Deployment Toolkit (DTK) is a collection of utilities that can be built into pre-installation environments, such as WinPE and embedded Linux. The DTK also contains sample scripts and help files to aid you in understanding how to use this tool. The DTK not only provides the ability to install an operating system, but also allows you to configure hardware settings such as RAID levels and BIOS settings. For additional information and features, download the DTK from [www.support.dell.com](http://www.support.dell.com) (look in the **Systems Management** section, if searching for a particular server model).

**NOTE:** The DTK does not support 64-bit WinPE at this time; however, Dell plans to add this support in the future.

## Manual Installation of Microsoft Operating Systems

This installation method involves booting to the operating system installation DVD to complete the installation. Depending on the operating system you are installing, the mass storage drivers may not be included, and therefore, the installation will fail since no hard drives will be seen. Operating systems released prior to Microsoft Windows Server 2008 will look for a floppy disk for the mass storage drivers. Since many servers ship without a floppy drive, this may cause a problem. To assist, Dell developed the Dell USB Key F6 Driver Utility. This utility can be downloaded from [www.support.dell.com](http://www.support.dell.com). The utility allows you to provide the mass storage drivers from a USB key by making the USB key appear to the operating system as a floppy drive. Press <F6> when prompted at the beginning of the operating system installation. Please keep in mind that there will likely be other drivers that will need to be installed after the operating system installation is complete. You can determine what devices do not have drivers installed by looking in **Device Manager**. For the 11<sup>th</sup> Generation PowerEdge servers, you will also need to install the chipset, Broadcom NetXtreme II, and Matrox G200 video drivers. You may also use the Unified Server Configurator to update drivers and firmware.

## Microsoft WDS (Legacy Images) / RIS

For this deployment service, you will need to ensure that the mass storage driver for the controller in your server, such as the PERC 6, is added per the Microsoft WDS / RIS documentation. See <http://technet.microsoft.com/en-us/library/cc720099.aspx> for more information. You will also need to add the network adapter driver. See Microsoft Knowledge Base article 315279 on <http://support.microsoft.com/kb/315279>. Remember that starting with the Broadcom NetXtreme II 5709-based adapters, a separate WDS / RIS driver must be used for the text mode portion of the installation due to technology changes needed to support iSCSI and TOE. Dell recommends that the Broadcom drivers be installed using the `drivers setup.exe` and a `cmdlines.txt` file. See the Microsoft documentation for a detailed explanation. This will ensure that the network driver version as well as the Broadcom Advanced Control Suite is in sync. For more information see *Best Practices for Installation of Microsoft Windows on Dell Servers with Broadcom NetXtreme Devices*. Additional information is also available in the Microsoft Knowledge Base article 254078 on <http://support.microsoft.com/kb/254078/en>.

## WinPE

You will need to add the mass storage driver and network driver based on the Microsoft WinPE documentation. Remember that you must use the latest RIS network driver for the Broadcom NetXtreme 5708 and 5709 adapters. See *Best Practices for Installation of Microsoft Windows on Dell Servers with Broadcom NetXtreme Devices* for more information.

## Microsoft Automated Deployment Service (ADS)

Dell has observed a problem with ADS when two Intel™ Xeon™ processors are installed. When booting to the Deployment Agent, ADS gives the following error:

```
Windows could not start due to an error while booting the RAMDISK. Windows failed to build a bootable RAMDISK image. System will reboot in 5 seconds.
```

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This error continues even after ensuring that all needed drivers are added to the PreSystem directory. The solution for this issue is to use WinPE instead of the default deployment agent. See the following Microsoft knowledge base article: <http://support.microsoft.com/?id=970721>

## Using UEFI

For additional information about using UEFI, see *Deploying UEFI-Aware Operating Systems on Eleventh Generation Dell™ PowerEdge™ Servers*.