

By Aarthi M.
Jemilson Pierrelouis, Ph.D.
Narayanan D.
Perumal Raja P.

MIGRATING DELL POWEREDGE SERVERS TO MICROSOFT WINDOWS SERVER 2008

Upgrading to the Microsoft® Windows Server® 2008 OS can offer myriad advantages, including enhanced performance, security, and stability. By following best practices for in-place upgrades and taking advantage of tools such as the Dell™ Windows Server 2008 Readiness Advisor, administrators can help ensure a smooth migration on their Dell PowerEdge™ servers.

Microsoft Windows Server 2008—the first major server OS release from Microsoft in five years—is designed to provide a productive platform for applications, networks, and Web services from the workgroup to data center, and incorporates valuable enhancements to key features and to the base OS itself. Some of the primary areas of improvement include networking, advanced security features, remote application access, centralized server role management, performance and reliability monitoring tools, failover clustering, deployment, and the file system. These enhancements and many others can help organizations maximize server flexibility, availability, and control—for example, Windows Server 2008 introduces Server Core installation, a minimal server installation option that provides a low-maintenance environment capable of acting as a file server, Dynamic Host Configuration Protocol (DHCP) server, Domain Name System (DNS) server, media server, Web server, and Microsoft Active Directory® server.

Dell supports Windows Server 2008 on an array of PowerEdge server platforms across five server generations. Depending on the system, Dell servers can support both 32- and 64-bit versions of Windows Server 2008—including Standard Edition, Enterprise Edition, Datacenter Edition, and Web Edition—except for the 32-bit version of Windows Server 2008 Datacenter

Edition.¹ By following the best practices described in this article when planning, preparing for, and executing a migration to Windows Server 2008, administrators can help ensure a smooth upgrade process.

IDENTIFYING SUPPORTED UPGRADE PATHS

Microsoft server operating systems typically can be upgraded only to an equivalent or higher-level OS. The first step in choosing a suitable version of Windows Server 2008 is to determine the nearest equivalent to the OS that the system is currently running (see Figure 1). As a minimum requirement, servers that administrators plan to upgrade to Windows Server 2008 should be running Windows Server 2003 with Service Pack 1 (SP1) or SP2 or Windows Server 2003 Release 2 (R2). Servers running the released-to-manufacturing (RTM) version of Windows Server 2003 or servers running earlier Microsoft operating systems (such as Windows NT® Server or Windows® 2000 Server) should first be upgraded to one of these three Windows Server 2003 versions before being upgraded to Windows Server 2008.

Administrators should note that because the 64-bit version of Windows Server 2008 Web Edition does not have a direct equivalent in Windows Server 2003, they cannot perform an in-place upgrade to that version of Windows Server 2008.

Related Categories:

- Dell OpenManage
- Dell PowerEdge servers
- Dell Windows Server 2008 Readiness Advisor tool
- Microsoft
- Microsoft Windows Server 2008
- Operating system deployment
- Operating system migration
- Visit DELL.COM/PowerSolutions for the complete category index.

¹ For a list of Dell PowerEdge servers that support Windows Server 2008 and the specific versions each can run, visit www.delltechcenter.com/page/Migrating+Dell+PowerEdge+Servers+to+Microsoft+Windows+Server+2008.

Current Windows Server 2003 version	Windows Server 2008 upgrade path			
	Standard Edition	Enterprise Edition	Datacenter Edition	Web Edition
Standard Edition with SP1 or later	✓	✓		
Enterprise Edition with SP1 or later		✓		
Datacenter Edition with SP1 or later			✓	
Web Edition with SP1 or later				✓

Figure 1. Possible upgrade paths from Microsoft Windows Server 2003 to Windows Server 2008

EVALUATING SYSTEM REQUIREMENTS

As part of confirming hardware compatibility, administrators should verify that the system they plan to migrate to Windows Server 2008 meets the minimum OS system requirements, and ensure that the system has the latest BIOS, firmware, and hardware device driver versions available from the Dell support Web site at support.dell.com. Dell engineering teams have worked with Microsoft to package most of the necessary storage and network controller drivers with the OS installation media; in cases where these drivers are not on the installation media, however, administrators can download them from the Dell support Web site. Unlike in Windows Server 2003 (which required using a floppy disk to install non-native boot drivers during OS installation), Windows Server 2008 allows administrators to browse for driver files on storage media such as CDs, DVDs, and USB drives in addition to floppy disks.²

The Dell Windows Server 2008 Readiness Advisor tool (available as a complimentary download from DELL.COM/WindowsServer2008) automates and centralizes the collection and reporting of information required to determine whether servers running a Windows OS meet the minimum or absolute maximum requirements to run Windows Server 2008. Designed to be easy to learn and use without special training, it helps simplify the

assessment process and identify key requirements by providing graphical wizard-based support while using advanced business logic for completing the inventory process. Dell invested thousands of engineering hours in research and analysis to discover unsupported devices, RAID and storage controllers, and many more components that may affect PowerEdge servers upgrading to Windows Server 2008.

The tool uses Microsoft Active Directory Domain Services, Windows Networking Protocol, and Windows Management Instrumentation (WMI) to perform the assessment, and is designed to produce a very low level of network traffic (typically from 115 KB to 1 MB per server). Running it requires Microsoft .NET Framework 2.0, Microsoft SQL Server® Express Edition, a normal Active Directory user account with local administrator rights to each server, a 1 GHz or faster processor, at least 1 GB of available hard drive space, and at least 512 MB of memory. The tool also requires certain ports to be open as well as certain exceptions using Group Policy Editor.

PERFORMING THE MIGRATION

After administrators have identified and evaluated the servers they want to upgrade, they must choose an appropriate process to carry out the migration. Figure 2 provides a basic flowchart that they can use as a guide.³ Best practices for performing an in-place upgrade also

recommend backing up data using the Windows Server Backup utility, upgrading to version 5.4 of the Dell OpenManage™ systems management suite, using the Dell filter driver removal tool to avoid issues with Adaptec filter drivers, and removing non-Windows-delivered software before performing the upgrade.

Backing up data

In Windows Server 2008, the Windows Server Backup utility replaces the Windows NT Backup utility. This utility supports backup and restore operations using removable media such as CDs and DVDs as well as local or network drives. Because it does not support tape media, organizations migrating from Windows Server 2003 cannot use it to restore data backed up on tape. Windows Server 2008 does support the Windows NT Backup utility in restore mode, however, allowing administrators to use it to restore backups made on Windows Server 2003 to systems running Windows Server 2008. This restore tool is a stand-alone utility, not part of the base OS, and can be downloaded from support.dell.com.

Upgrading to Dell OpenManage 5.4

The Dell OpenManage systems management suite provides proactive monitoring, notification, and remote access for Dell systems. Because Dell OpenManage 5.4 is the first version of this software to support Windows Server 2008, organizations running a previous version of the suite on Windows Server 2003 must upgrade to this version when they upgrade to Windows Server 2008. (Organizations already using Dell OpenManage 5.4 on Windows Server 2003 can upgrade directly to Windows Server 2008.)

When upgrading a system to Dell OpenManage 5.4 and Windows Server 2008, Dell recommends that administrators first uninstall the existing Dell OpenManage software, upgrade the OS to

² For details on unsupported storage and network controllers and the availability of native drivers for storage controllers, visit www.delltechcenter.com/page/Migrating+Dell+PowerEdge+Servers+to+Microsoft+Windows+Server+2008.

³ For more information on replacing a PERC 3/DC, PERC 3/QC, or PERC 3/SC with a PERC 4 as indicated in Figure 2, and on creating a software mirror as a RAID replacement for a PowerEdge CERC SATA 2s, see the "Upgrading from Dell PERC 3 to PERC 4" and "Installing Microsoft Windows Server 2008 and Configuring Operating System RAID on Your Dell System Using Dell CERC SATA 2S as a Boot Controller" documents available at support.dell.com/support/edocs/software/ws2k8.

Windows Server 2008, and then install Dell OpenManage 5.4. For detailed installation instructions, see the *Dell OpenManage Installation and Security User's Guide* available on the Dell Systems Management Tools and Documentation DVD.

Using the Dell filter driver removal tool

The Dell filter driver removal tool, available for download from support.dell.com, uninstalls the Adaptec filter driver from systems with a PowerEdge Expandable RAID Controller (PERC) 3/Di or PowerEdge Cost Effective RAID Controller (CERC) Serial ATA (SATA) 6/Ch to help avoid errors when upgrading to Windows Server 2008. Removing this driver should not typically cause problems or loss of functionality after the OS upgrade is complete. This tool performs no operations on systems that do not have this driver.

Removing non-Windows-delivered software

Microsoft recommends that administrators remove non-Windows-delivered software—defined as any software or software component that was not shipped with Windows Server or delivered through Windows Update, including Microsoft utilities and applications—from Windows Server 2003 systems before upgrading to Windows Server 2008. Performing an in-place upgrade with this software installed may cause it to function incorrectly. (Dell does support upgrading to Windows Server 2008 on systems with Dell OpenManage 5.4 installed, however.)

To verify software compatibility in the Windows Server Catalog of Tested Products and to download other tools and documentation, visit support.microsoft.com/kb/948070.

SUCCESSFULLY MIGRATING TO WINDOWS SERVER 2008

Microsoft Windows Server 2008 introduces major changes and features that can help significantly enhance OS performance, security, and stability. Carefully considering the deployment paths

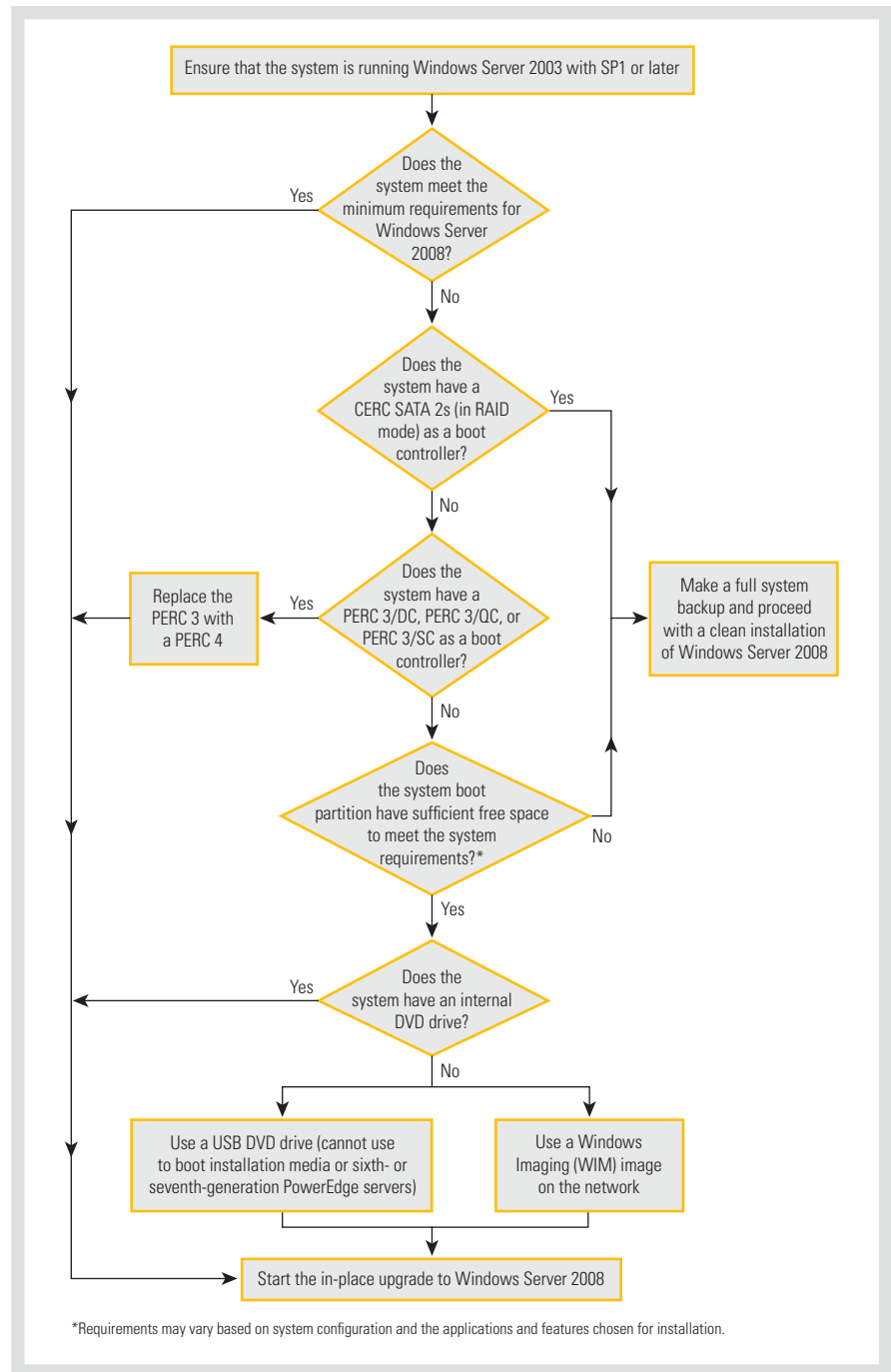


Figure 2. Migration flowchart for Microsoft Windows Server 2008

explored in this article, evaluating hardware compatibility, and addressing potential server management issues can help administrators plan and execute an optimal deployment in their organizations.

Aarthi M. is a senior engineering analyst on the Dell OpenManage Installation team.

Jemilson Pierrelouis, Ph.D., is a senior consultant on the Dell Server OS Engineering team.

Narayanan D. is a senior engineering analyst on the Dell Server OS Engineering team.

Perumal Raja P. is a senior engineering analyst on the Dell Server OS Engineering team.