Upgrade to Microsoft Windows Server 2012 R2 on Dell PowerEdge Servers

Abstract

Microsoft Windows Server 2012 R2, is Microsoft's latest version of Windows for Servers. This R2 release brings exciting new features and enhancements across virtualization, storage, networking, virtual desktop infrastructure, access and information protection, and more. Dell enables this operating system on a wide range of Server products. This document provides comprehensive details about important considerations for upgrading your server to Microsoft Windows Server 2012 R2.

Copyright Information

Author
Tilak Sidduram

Preface

Using Dell™ Twelfth-generation PowerEdge™ server's organizations can quickly reap the benefits of Microsoft Windows Server 2012 R2 and improve the efficiency of their infrastructure.

Audience

This migration guide is intended for system administrators, test engineers, infrastructure consultants or anyone who is considering migration of current infrastructure to Microsoft Windows Server 2012 R2.

Related Documentation

For detailed information about Dell's support for Microsoft operating systems, log in to the Documentation page at the customer support site.

Dell Online Services

You can learn about Dell products and services using this procedure:
1. Visit http://www.dell.com or the URL specified in any Dell product information.
2. 2. Use the locale menu or click on the link that specifies your country or region.

Contents

Revision Information

The following table describes the release history of this White Paper.

Version	Date	Document Revision
1.0	Oct - 2013	Initial Release
1.1	Nov - 2013	Added upgrade options and Role matrix

Executive Summary

Microsoft has taken a big leap into innovation with Microsoft Windows Server 2012 R2.This transformation of Microsoft's server operating system leads to a versatile Server and Cloud platform with new features and enhancements in virtualization, management, storage, networking, virtual desktop infrastructure, access and information protection, the web and application platform, and more. With these enhancements organizations can transform their IT Infrastructure into a more flexible, cost effective and versatile datacenter.

This document describes Dell's support for Microsoft Windows Server 2012 R2 and other important considerations that should be known while upgrading your server from previous Microsoft Operating System to Microsoft Windows Server 2012 R2.

Introduction

Dell has worked extensively with Microsoft during the development phase of this operating system to ensure the best compatibility and performance. The focus was two-fold, first to ensure all the operating system features work seamlessly on our supported platforms and second to provide rich management experience with Dell's OpenManage support for this operating system.

Note: Dell OpenManage support for Windows Server 2012 R2 will be added in the future.

Dell Server support for Microsoft Windows Server 2012 R2

Dell supports Microsoft Windows Server 2012 R2 on a wide array of Dell PowerEdge and Dell PowerEdge C server platforms across four server generations. Dell servers can be categorized under 2 support philosophies, listed below.

Dell Qualified: *Dell™ Engineering has successfully tested and validated the current and immediately preceding released operating system (OS) version on Dell PowerEdge™ Servers. Dell adheres to all published partner test plans to ensure OS compatibility and provides full technical support for the Dell hardware components running on the OS. Dell Qualified systems will have Open Manage support.*

Dell Supported: *Dell™ Engineering has tested this current operating system (OS) version on Dell PowerEdge Servers to ensure OS compatibility. While most OS features work as expected on this platform, some certification tests could not be completed successfully. These findings are documented at Dell.com/ostechsheets. Dell Supported systems may not have OpenManage support. Also updated drivers may not be available from Dell for these systems.*

Dell's 11th and 12th generation of servers are classified under Dell Qualified category, whereas Dell's 9th and 10th generation of server are classified under Dell Supported category. The complete list of servers supported with Microsoft Windows Server 2012 R2 is listed in table below.

Note: You can find the minimum BIOS version required for these servers here.

Dell Qualified PowerEdge Servers for Microsoft Windows Server 2012 R2:

11th Generations Servers	12th Generations Servers
PowerEdge R610	PowerEdge R720
PowerEdge R710	PowerEdge R720XD
PowerEdge T610	PowerEdge R620
PowerEdge M610	PowerEdge T620
PowerEdge M710	PowerEdge M620
PowerEdge R410	PowerEdge R820
PowerEdge T410	PowerEdge M520
PowerEdge T710	PowerEdge M420
PowerEdge T310	PowerEdge R420
PowerEdge R210	PowerEdge R320
PowerEdge T110	PowerEdge R520
PowerEdge R510	PowerEdge T320
PowerEdge R810	PowerEdge T420
PowerEdge M910	PowerEdge M820
PowerEdge R910	
PowerEdge R815	
PowerEdge R715	
PowerEdge M710HD	
PowerEdge M610x	
PowerEdge R415	
PowerEdge R515	
PowerEdge M915	
PowerEdge R210 II	
PowerEdge T110 II	
PowerEdge R310	

Table-1: Dell Qualified PowerEdge Servers

Dell Qualified PowerEdge C Servers for Microsoft Windows Server 2012 R2:

PowerEdge C Servers
PowerEdge C8220
PowerEdge C6220
PowerEdge C6145
PowerEdge C6105
PowerEdge C5220
PowerEdge C6220 II

Table-2: Dell Qualified PowerEdge C Servers

Dell Supported PowerEdge Servers for Microsoft Windows Server 2012 R2:

9th Generation Servers	10th Generation Servers
PowerEdge 6950	PowerEdge R900
PowerEdge 2950 III	PowerEdge R300
PowerEdge 2950	PowerEdge R200
PowerEdge 2900 III	PowerEdge R905v
PowerEdge 2900	PowerEdge R805v
PowerEdge 1950 III	PowerEdge 2970
PowerEdge 1950	PowerEdge T300
PowerEdge 1900	PowerEdge T100
PowerEdge SC1435	PowerEdge T605
PowerEdge 1955MC	PowerEdge T105
PowerEdge M600	
PowerEdge M905	
PowerEdge M805	
PowerEdge M605	

Table-3: Dell Supported PowerEdge Servers

Note: For new addition to the list of servers please refer to [Dell's OS support matrix](.).

Please refer to [Dell's Early Adopters' Guide](.) for a comprehensive list of storage and network controllers which are supported with Microsoft Windows Server 2012 R2; there are a few specific limitations and our recommendations for **Dell's Software RAID support.**

Dell Software RAID Controller Support for Microsoft Windows Server 2012 R2

Dell provides cost effective raid support through PERC S100, S300 & S110. The PERC S100 and S300 controllers are not supported with Microsoft Windows Server 2012 R2 and there are no plans to add support in the future. Dell supports the PERC S110 RAID Controller with R2. Customers using Dell servers with PERC S100 and S300 controllers would need to switch to one of the below alternate options to install Microsoft Windows Server 2012 R2 on their servers.

Option 1: Converting PERC S100 into on-board SATA controller

Note: No data is migrated and this is not a replacement of PERC S100 solution. Data needs to be backed up before following the below steps.

1. Power on the server and press F2 to enter the BIOS settings.
2. Enter the BIOS setup -> SATA settings option and change it to ATA or ACHI mode whichever is available. Refer Figure 1.
3. Save and Exit the setup.
4. Boot from the Microsoft Windows Server 2012 R2 DVD and complete the installation.

Option 2: Switching to on-board SATA controller from PERC S300

Note: No data is migrated and this is not a replacement of PERC S300 solution. Data needs to be backed up before following the below steps.

1. Open the server and remove the internal SATA cables connected to the S300 controller and connect it to the On-Board SATA controller ports of the server.
2. Power on the server and press F2 to enter the BIOS settings.
3. Enter the BIOS setup -> SATA settings option and change it to ATA or ACHI mode whichever is available. *Refer Figure 1.*

```
              Dell Inc. (www.dell.com) - PowerEdge R410
                      BIOS Version 1.11.0

Service Tag: JB7672S                    Asset Tag:


System Time  ......................................... 20:43:30          ▲
System Date  ......................................... Wed Sep 05, 2012

Memory Settings  ..................................... <ENTER>
Processor Settings  .................................. <ENTER>

SATA Settings  ....................................... <ENTER>

Boot Settings  ....................................... <ENTER>

Integrated Devices  .................................. <ENTER>
PCI IRQ Assignment  .................................. <ENTER>

Serial Communication  ................................ <ENTER>
Embedded Server Management  .......................... <ENTER>

Power Management  .................................... <ENTER>          ▼

Up,Down Arrow to select  │  SPACE,+,- to change  │  ESC to exit  │  F1=Help
```
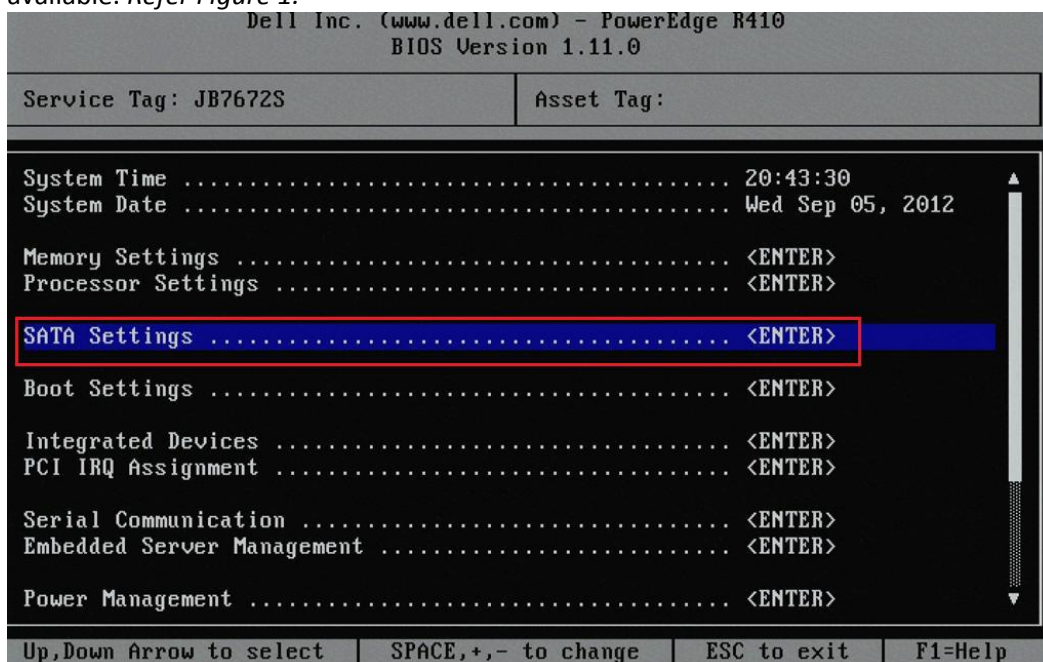
Figure 1: Using BIOS setup to enable installation of Windows Server 2012 R2 on PowerEdge servers configured with PERC S100 or PERC S300

4. Save and Exit the setup.
5. Boot from the Microsoft Windows Server 2012 R2 DVD and complete the installation.

Option 3: Buying a new supported PERC controller from Dell

Purchasing additional supported RAID controllers is possible via the spare parts sales teams with a phone call to Dell or can also be ordered online via the S&P sales catalog. To order online, go to http://accessories.dell.com and search for "PERC".

Microsoft Windows Server 2012 R2 provided RAID solution

Installing Microsoft Windows Server 2012 R2 utilizing the on-board SATA controller doesn't provide data redundancy. To get redundancy, the built-in software RAID functionality is provided by the Microsoft Windows Server 2012 R2 operating system.

1. Go to disk management.
2. Right click on the disks and convert it to dynamic disk.
3. Right click on the volume for which you want redundancy and create "Mirrored Volume" or "RAID-5 volume"

Note: Redundancy can be provided for both data and operating system volumes but the latter supports only "Mirrored Volume". For more information about using the operating system RAID option refer to Microsoft documents

Upgrade options for Windows Server 2012 R2

There are different ways to upgrade to Windows Server 2012 R2. The process of moving to this new Operating system can depend on the current operating system in use.

- **Installation** is the basic method of getting a new operating system on to your hardware. That's specifically, a clean installation**. This method** deletes the previous operating system that is already installed on your system. For information about installing Windows Server 2012 R2, refer to the Dell's Installation Guide for Microsoft Windows Server 2012 R2.

- **Upgrade** means moving from your existing operating system that you are currently on to a more recent release, while staying on the same hardware. For example, if your server is running Windows Server 2012, you can then upgrade it to Windows Server 2012 R2. You can also upgrade from an evaluation version of the operating system to a retail version.

- **License conversion** is an option in some of the newer operating system releases, allowing conversion from a particular edition of the operating system to another edition of the same operating system in a single step and with a simple command and by using the appropriate license key for the edition that you plan to convert to. This is called "license conversion." For example, if you are running Windows Server 2012 R2 Standard, you can convert it to Windows Server 2012 R2 Datacenter.

Microsoft Windows Server 2012 R2 Supported Upgrade Path

Microsoft supports upgrading to Microsoft Windows Server 2012 R2 from Microsoft Windows Server 2008 R2 SP1 or Microsoft Windows Server 2012 according to Table 4 below.

Before upgrading to Windows Server 2012 R2, ensure the server is updated to the minimum supported BIOS & iDRAC Firmware versions. Please refer to the Windows Server 2012 R2 Important Information Guide for the minimum supported BIOS and iDRAC FW versions.

Upgrade from OS Version	Upgrade from Edition	Windows Server 2012 R2		
		Standard	Datacenter	Essentials
Windows Server 2008 R2 SP1	**Web**	F		
	Standard	F	F	
	Enterprise	F	F	
	Datacenter		F	
Windows Server 2012	**Foundation**			F
	Essentials			F
	Standard	F	F	
	Datacenter		F	
Windows Server 2012 R2	**Foundation**			
	Essentials	F		
	Standard	F	F	
	Datacenter			

Table-4: Upgrading existing Windows Server operating systems to specific Windows Server 2012 R2 editions

F – Full Upgrade (Personal data, Settings Applications)

Minimum supported System Requirements

Processor	
Minimum	1.4 GHz x 64 bit
Recommended	2Ghz x 64 bit
Memory	
Minimum	512 MB
Recommended	2GB or Greater
Display	
Monitor	Super VGA(800x600) or higher Resolution Monitor
Available Disk Space	
Minimum	32 GB
Recommended	40 Gb or greater
Peripherals	
Input Device	Keyboard
Pointing Device	Mouse
Drive	
Optical Drive	DVD-ROM Drive

Windows Server Role update matrix

The below matrix provides details on the various server roles that can be upgraded from Windows Server 2012 & Windows Server 2008 R2 SP1 to Windows Server 2012 R2.

Server role	Upgradeable from Windows Server 2012?	Upgradeable from Windows Server 2008 R2 SP1?
Active Directory Certificate Services	Yes	Yes
Active Directory Domain Services	Yes	Yes
Active Directory Federation Services	No	No
Active Directory Lightweight Directory Services	Yes	Yes
Active Directory Rights Management Services	Yes	Yes
Application Server	Yes	Yes
DHCP Server	Yes	Yes
DNS Server	Yes	Yes
Failover Cluster	Not while the server is part of a cluster. Yes, when the server is removed by the cluster for upgrade.	Not while the server is part of a cluster. Yes, when the server is removed by the cluster for upgrade.
Fax Server	No	No
File and Storage Services	Yes	Yes
Hyper-V	Yes	Yes
Network Policy and Access Services	Yes	Yes
Print and Document Services	No, but could be restored	No, but could be restored
Remote Access	Yes, for Direct Access and RRAS	Yes, for Direct Access and RRAS for Windows Server 2008 R2
Remote Desktop Services	Yes, for all sub roles, but mixed mode farm is not supported	RDG and RDL only
Volume Activation Services	Yes	N/A
Web Server (IIS)	Yes	Yes
Windows Deployment Services	Yes	Yes
Windows Fabric	N/A—new feature	N/A—new feature
Windows Server Update Services	Yes, with tasks	No
WS Essentials Experience	N/A—new feature	N/A—new feature

Table-5: Upgrading of server roles.

Dell-provided multilingual experience through factory installed operating system and recovery media

Dell systems ordered with Microsoft Windows Server 2012 & R2 are shipped with a multilingual operating system. This multilingual operating system media provides all Dell supported operating system languages except that Simplified and Traditional Chinese operating system image come in separate media. When upgrading or reinstalling your operating system using this multilingual media, please boot from the media and on the very first screen select the language of choice as shown in Figure-3. The rest of the installation steps are the same as normal Microsoft Windows Server 2012 R2 installation steps. For detailed steps of how to install the operating system on Dell server please refer to Dell's Installation Guide.

Figure-3: Language Selection Screen

Conclusion

With the wide range of products in Dell portfolio, Dell is ready to provide a rich and advance customer experience with Microsoft Windows Server 2012 R2. For a list of known issues and their workaround you can refer to Dell's Important Information Guide and for installation steps you can refer to Dell's Installation Guide.

References

1. Microsoft's Windows Server 2012 R2 site
2. Dell's Windows Server 2012 R2 site
3. Dell's Early Adopters' Guide for Microsoft Windows Server 2012 R2
4. Dell's Important Information Guide for Microsoft Windows Server 2012 R2
5. Dell's Installation Guide for Microsoft Windows Server 2012 R2
6. Dell Documentation for Microsoft Windows Server 2012 R2

Technical Support and Customer Service

Dell support service is available to answer your questions about Windows Server 2012 R2.

Contacting Dell for Technical Support and Customer Service

1. Visit http://support.dell.com
2. Select the appropriate customer type.

   Note: customers who have selected a customer type on a previous visit to support.dell.com will not have to perform this step.

3. Click the Contact Us menu choice at the top right of your screen for details on phone, email, and live chat options for contacting Dell.