Windows Server 2008 R2 Hardware Assessment

Summary Report

Version 4.0

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Microsoft

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Executive Overview

This document summarizes the results from the Windows Server 2008 R2 Hardware Assessment generated by the Microsoft Assessment and Planning (MAP) tool. The following Microsoft® Office Excel® workbook accompanies this document:

- **WS2008R2HardwareAssessment-*date-time***. This workbook includes a series of worksheets that provide basic information about the servers in your environment including an assessment of Windows Server 2008 R2 readiness, system hardware details, hardware devices discovered on computers, driver availability, discovered applications, and virtual machine inventory.

This workbook provides detailed information about each inventoried computer on your organization's network, allowing you to perform analysis of your existing computer hardware.

This assessment identifies computers that meet the minimum and recommended requirements for at least one edition of Windows Server® 2008 R2. The actual system requirements vary depending on which edition of Windows Server 2008 R2 is installed and the system resources required by each server to handle user workloads in your organization. For the most up-to-date information, see Windows Server 2008 R2 System Requirements at http://go.microsoft.com/fwlink/?LinkId=155683.

Note This version of the MAP tool cannot detect support for the Windows® BitLocker™ Drive Encryption feature. For more information about requirements for BitLocker, see BitLocker Drive Encryption Technical Overview at http://go.microsoft.com/fwlink/?LinkId=155684.

Inventory results (data, charts, and tables) shown in this summary document report on computers in your environment that are already running a Windows Server operating system, such as Windows 2000 Server, Windows Server 2003, or Windows Server 2008. The total numbers of computers reported with "Insufficient Data" are computers on which the assessment was not performed. This list could include both client and server computers if client computers were targeted for computer discovery by the Assessment Wizard, but a detailed inventory could not be performed.

Where Is Your Organization Now?

The MAP tool found 135 servers. Within this group, the tool was able to complete a detailed assessment on 129 existing server computers. Without any hardware changes to these computers, a total of 0 servers meet the Windows Server 2008 R2 minimum requirements and 0 servers meet the recommended requirements. The detailed assessment could not be completed on 129 servers ("Insufficient Data") due to invalid logon credentials or because the servers were not accessible over the network.

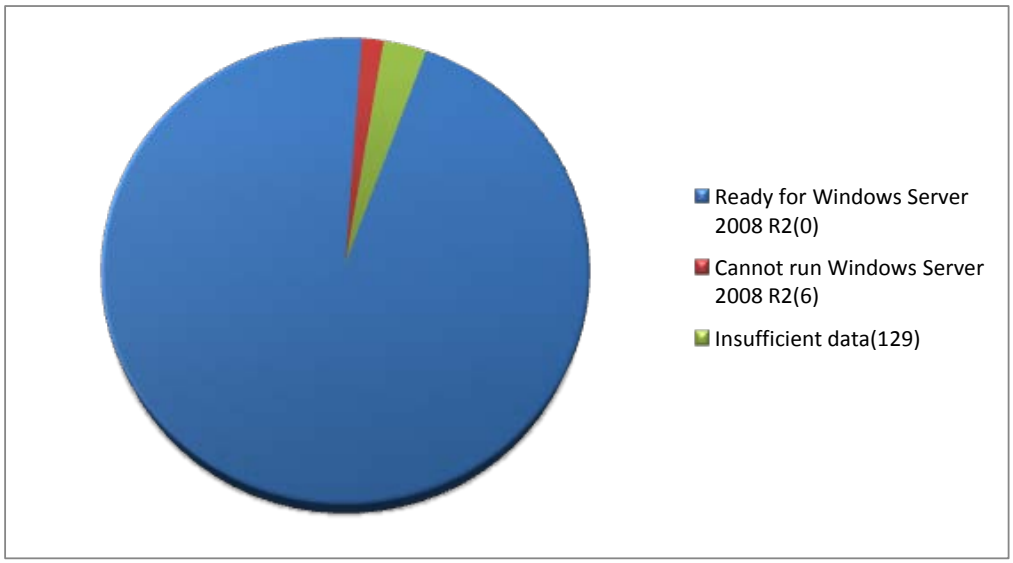

Figure 1. Server readiness for Windows Server 2008 R2

You can upgrade the hardware in some of the computers in your organization to meet the minimum or recommended requirements for Windows Server 2008 R2. Examples of such upgrades include adding more system memory or upgrading a hard drive. This document does not provide specific recommendations for hardware upgrades to existing servers that cannot run Windows Server 2008 R2.

Why Migrate to Windows Server 2008 R2?

Windows Server 2008 R2 builds on the features and capabilities of the current Windows Server 2008 release version, Windows Server 2008 R2 allows you to create solutions that are easier to plan, deploy, and manage than previous versions of Windows Server.

Developing upon the increased security, reliability, and performance provided by Windows Server 2008, Windows Server 2008 R2 extends connectivity and control to local and remote resources. Your organization can benefit from reduced costs and increased efficiencies gained through enhanced management and control over resources across the enterprise.

Windows Server 2008 R2 improvements include:

- Web application platform
- Server and desktop virtualization
- Power management and streamlined management
- Scalability and reliability

Web Application Platform

Windows Server 2008 R2 includes many enhancements that make this release the most robust Windows Server Web application platform yet. It offers an updated Web server role, Internet Information Services (IIS) 7.5, and greater support for .NET on Server Core. Design goals for IIS 7.5 concentrated on improvements that enable Web administrators to more easily deploy and manage Web applications, that increase both reliability and scalability. Additionally, IIS 7.5 has streamlined management capabilities and provides more ways to customize your Web serving environment.

Improvements to IIS and the Windows Web platform include reduced effort to administer and support Web-based applications, enhanced security for Web-based applications, improved file-transfer services, the ability to extend the functionality and features for Web-based applications, and improved availability and performance for Web-based applications and services.

Server and Desktop Virtualization

Virtualization is a major part of today's data centers. The operating efficiencies that virtualization offers allow organizations to dramatically reduce operational effort and power consumption. Windows Server 2008 R2 provides the following virtualization types:

- Client and server virtualization provided by Hyper-V technology
- Presentation virtualization with Remote Desktop Services

Hyper-V virtualizes the system resources of a physical computer allowing you to provide a virtualized environment for operating systems and applications. Remote Desktop Services (formally known as Terminal Services) virtualizes a processing environment and isolates the processing from the graphics and I/O, making it possible to run an application in one location but have it be controlled in another. Presentation virtualization allows users to run a single application, or a complete desktop offering multiple applications.

Power Management and Streamlined Management

With the proliferation of physical computers in data centers, power consumption is of paramount importance. In addition to the cost-saving associated with reducing power consumption, many data centers are constrained by the number of computers they can support in their data center by the actual power available to the data center. Therefore reducing power consumption also allows you to support more physical computers while using the same amount of power, or less power, than before.

The ongoing management of servers in the data center is one of the most time-consuming tasks that IT pros face today. Any management strategy you deploy must support the management of both your physical and virtual environments. To help with this problem, Windows Server 2008 R2 has new features to reduce ongoing management and the administrative effort for common day-to-day operational tasks. These administrative tasks can be performed on the server or remotely.

Scalability and Reliability

Windows Server 2008 R2 is capable of unprecedented workload size, dynamic scalability, and across-the-board availability and reliability. A host of new and updated features will be available, including leveraging sophisticated CPU architectures, increased operating system componentization, and improved performance and scalability for applications and services.

Windows Server 2008 R2 is the first Windows operating system to be offered for only 64-bit processors. Windows Server 2008 R2 can now support up to 256 logical processor cores for a single operating system instance, including enhancements in Hyper-V virtual machines (VMs), which can address up to 32 logical cores in a single VM. These improvements guarantee that you get more from your server hardware investments, and also offer better reliability with fewer locks and greater parallelism.

Assessment Results

The results of the Windows Server 2008 R2 Hardware Assessment can help you make informed decisions about the deployment of Windows Server 2008 R2 in your organization. This section summarizes the results of the assessment conducted on your

network and describes what is required to make Windows Server 2008 R2 work for your organization. The assessment provides information about:

- Windows Server 2008 R2 readiness analysis
- Software and workload analysis

Windows Server 2008 R2 Readiness Analysis

This section provides summary information about those computers on your network that currently run a Windows Server operating system. It identifies servers that meet both the minimum and recommended system requirements for Windows Server 2008 R2. This section uses the term “Windows Server 2008 R2 Ready” to identify servers that meet the minimum or recommended system requirements to run Windows Server 2008 R2.

The Windows Server 2008 R2 Hardware Assessment workbook that accompanies this assessment provides detailed information about each of the servers inventoried.

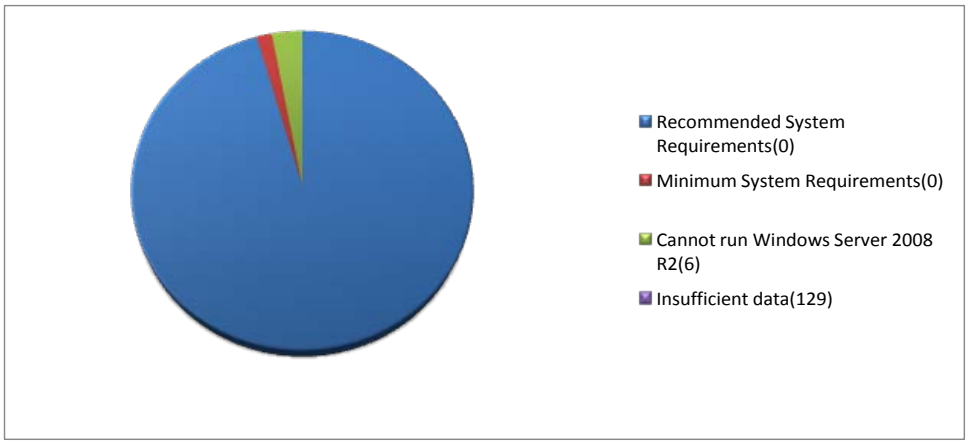

Figure 2: Windows Server 2008 R2 readiness

The following table indicates the percentage of computers that meet or fail to meet the minimum or recommended requirements to run Windows Server 2008 R2.

Table 1. Windows Server 2008 R2 Readiness as a Percentage of the Total Environment

Windows Server 2008 R2 Ready Computers	Count	Percentage
Recommended System Requirements	0	0%
Minimum System Requirements	0	0%
Cannot run Windows Server 2008 R2	6	4%
Insufficient Data	129	96%
Total	135	100%

Software and Workload Analysis

The software analysis provides the following information:

- Device driver summary
- Operating system summary
- Server role summary

- Installed server applications

Device Driver Summary

To ensure that installed devices function properly with Windows Server 2008 R2, compatible device drivers must be loaded on the computer. The assessment distinguishes between four sources of device drivers:

- Drivers that are included on the Windows Server 2008 R2 installation disks.
- Drivers that are available from Microsoft Update.
- Drivers that are available from the device manufacturer (the driver source is unknown or incompatible).
- Drivers that are available from the device manufacturer (the driver source is known)

The following table indicates the number of device drivers that are available through the specified source.

Table 2. Count of Device Drivers by Driver Sources

Source of Device Driver	Hardware Devices	Percentage
Included on the Windows Server 2008 R2 DVD	84	2%
Available from Microsoft Update	0	0%
Contact the Device Manufacturer (unknown driver or incompatible)	3453	98%
Total	3537	100%

Operating System Summary

The following table shows the server operating systems that the assessment found and indicates the number of installations for each operating system.

Table 3. Operating Systems the Assessment Found

Operating System Name and Version	Count	Percentage
Microsoft(R) Windows(R) Server 2003 Enterprise x64 Edition Service Pack 2	1	1%
Microsoft(R) Windows(R) Server 2003, Enterprise Edition Service Pack 1	1	1%
Microsoft(R) Windows(R) Server 2003, Enterprise Edition Service Pack 2	2	1%
Windows 2000 Server Service Pack 4	3	2%
Windows 2000 Server Unknown Service Pack Level	1	1%
Windows Server 2003 Service Pack 1	11	8%
Windows Server 2003 Service Pack 2	111	82%
Windows Server 2003 Unknown Service Pack Level	5	4%
Total	135	100%

Server Role Summary

The following table lists the server roles the assessment identified and indicates the number of servers that fill each role. Note that more than one role can be installed on a particular server. Also, this report shows only those servers that have the role installed

and running at the time of inventory. The accompanying Windows Server 2008 Role Assessment workbook provides a complete list of all roles installed on each server.

Table 4. Server Roles the Assessment Found

Role Name	Count
Active Directory	8
Active Directory Certificate Services	3
DHCP Server	7
DNS Server	10
Remote Access\VPN Server	1
Terminal Server	8
Virtual Server	1
Web Server	77
WINS Server	6
Windows SharePoint Services	8
Windows Server Update Services	3
Terminal Services Licensing Server	2
Total	134

Installed Server Applications

The following table lists the most common applications installed on the servers in your environment in order of prevalence. Note that more than one role can be installed on a single server. The Windows Server 2008 R2 Hardware Assessment workbook provides a complete list of the applications installed on each server.

Table 5. Server Applications the Assessment Found

Application Name	Version	Installations
Symantec AntiVirus	10.1.7000.7	90
Microsoft .NET Framework 2.0	2.0.50727	43
Microsoft .NET Framework 2.0 Language Pack - JPN	2.0.50727	40
Security Update for CAPICOM (KB931906)	2.1.0.2	35
Microsoft .NET Framework 2.0 Service Pack 1	2.1.21022	31
HP Insight Diagnostics	7.4.0	31
J2SE Runtime Environment 5.0 Update 7	1.5.0.70	28
Microsoft Office 2003 Web Components	11.0.6558.0	28
MSXML 4.0 SP2 (KB927978)	4.20.9841.0	28
Microsoft SQL Server Native Client	9.00.3042.00	26
MSXML 6.0 Parser	6.10.1129.0	25
Microsoft SQL Server VSS Writer	9.00.3042.00	25
J2SE Runtime Environment 5.0 Update 12	1.5.0.120	24

Application Name	Version	Installations
Microsoft Visual Studio 2005 Premier Partner Edition - JPN	8.0.50727.42	24
Microsoft SQL Server 2005 Books Online (日本語版)	9.00.1399.06	24
MSXML 4.0 SP2 (KB925672)	4.20.9839.0	22
HP ProLiant インテグレーテッド マネジメント ログ ビューア	5.20.0.0	22
HP ProLiant リモート モニタ サービス	5.20.0.0	22
Symantec Backup Exec Remote Agent for Windows Servers	10.1.5629	21
HP Insight マネジメント エージェント	8.0.0.0	21
Microsoft SQL Server セットアップ サポート ファイル (英語)	9.00.3042.00	20
MSXML 4.0 SP2 (KB936181)	4.20.9848.0	19
HP アレイ診断ユーティリティ	8.0.14.0	19
HP Lights-Out Online Configuration Utility	1.7.1.0	18
Windows Presentation Foundation	3.0.6920.0	18

In addition to evaluating the hardware readiness of your organization's computers, we recommend that you evaluate the application compatibility of the software that your organization uses. To verify compatibility of your software with Windows Server 2008 R2 Full and Server Core installations, contact the vendors who supplied your server applications and the Microsoft Web site (to confirm that Microsoft applications).

Next Steps

This summary report and the accompanying Excel workbooks help you identify which servers in your environment can be migrated to Windows Server 2008 R2. You can use this information and additional resources to determine what hardware upgrades to complete so that additional servers can be migrated to Windows Server 2008 R2. For the more information, see Windows Server 2008 R2 System Requirements at http://go.microsoft.com/fwlink/?LinkId=155683.

To prepare to deploy Windows Server 2008 R2, you will need to do the following:

1. Decide which edition of Windows Server 2008 R2 you intend to deploy.
2. Decide whether to install the Full or Server Core versions of Windows Server 2008 R2.
3. Perform application compatibility analysis to determine the compatibility of commercial software, custom developed applications, and deployed server roles.

   The Windows Server Role Assessment workbook lists which servers in your organization are running common server roles and provides migration information for each role to assist you in planning.
4. Perform any hardware upgrades that may be required. After completing the upgrades, you can run the Windows Server 2008 R2 Hardware Assessment again to verify that computers are ready for the migration.

5. Verify the availability of all required device drivers and confirm their compatibility with Windows Server 2008 R2, using the Windows Server 2008 R2 Hardware Assessment workbook.
6. Decide how to acquire the Windows Server 2008 R2 software licenses, such as through Volume Licensing.
7. Visit the Infrastructure Planning and Design Guide site to download the free planning guidance for deploying a Windows Server 2008 R2 infrastructure at http://go.microsoft.com/fwlink/?LinkId=106686.
8. Start deployment. The Microsoft Deployment Toolkit (MDT) provides comprehensive guidance and tools to help you deploy Windows Server 2008 R2. For more information, see the Windows Server Deployment home page at http://go.microsoft.com/fwlink/?LinkID=105753.
9. Secure your servers. Security is always a consideration in the deployment and configuration of systems. For more information about the secure configuration of Windows Server 2008 R2, see the Windows Server 2008 Security Guide at http://go.microsoft.com/fwlink/?LinkID=105754.
10. Provide antivirus and antispyware protection for your systems. As you plan your Windows Server 2008 R2 deployment, remember to address the virus and spyware protection needs or your organization. Microsoft Forefront Server Security provides unified virus and spyware protection. For more information, see the Microsoft Forefront site at http://go.microsoft.com/fwlink/?LinkID=105631.
11. Ensure that all of your Windows Server-based servers have the latest service packs and updates installed. For more information, see Windows Server Update Services at http://go.microsoft.com/fwlink/?LinkID=105601.

Appendix A: Windows Server 2008 R2 System Requirements

This summary report and the accompanying Excel workbooks used the following hardware configurations and properties to determine the readiness of each machine.

Table 6. Microsoft and User Defined Thresholds

Property	Microsoft Minimum x64	Microsoft Recommended x64	User Defined Recommended x64
Processor (GHz)	1.4	2	2
Memory (MB)	512	2048	2048
Available Disk Space (GB)	32	40	40
Optical Drive	true	true	true

Appendix B: Windows Server 2008 R2 Hardware Assessment Report Worksheets

The following information is provided in the detailed Windows Server 2008 R2 Hardware Assessment Report workbook.

- **Summary**. This worksheet provides a summary of Windows Server 2008 R2 readiness information for computers that are already running a Microsoft Windows server operating system.
- **Assessment Values**. This worksheet shows the system requirements provided by Microsoft in addition to any recommended settings that were used in the assessment.
- **Server Assessment**. This worksheet provides a summary of Windows Server 2008 R2 readiness information for computers that are already running a Microsoft Windows server operating system. For rows that report "Insufficient Data" refer to the WMI Status column for more information about why inventory data could not be collected.
- **Server Inventory**. This worksheet describes the complete inventory and assessment results. This includes the following information: basic information about the computer, Windows Server 2008 R2 readiness information, domain information, asset tracking information, and system hardware details.
- **Server Device Summary**. This worksheet summarizes the hardware devices discovered on computers. It identifies whether a driver is available on the Windows Server 2008 R2 DVD, from Windows Update, or if you need to contact the hardware manufacturer to identify if a driver is available for Windows Server 2008 R2. This summary worksheet has a row for each discovered device and provides the number of computers where the device was found. To identify the specific devices on each computer, refer to the Device Inventory Details Worksheet.
- **Server Device Details**. This worksheet describes the hardware devices discovered on each specific computer. It identifies whether a driver is available on the Windows Server 2008 R2 DVD, from Windows Update, or if you need to contact the hardware manufacturer to identify if a driver is available for Windows Server 2008 R2.
- **Server Discovered Applications**. This worksheet describes up to 60,000 applications discovered through the inventory process on server machines and provides a count of the number of times a particular version of the software was found.