



Implementing Microsoft Windows Server 2008 on HP ProLiant servers

integration note, 2nd edition

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Abstract

This integration note describes the level of support available for Microsoft® Windows® Server 2008 on HP ProLiant servers. The purpose of this paper is to assist customers during installation of the Windows Server 2008 operating system (OS). For more information, visit the HP website: www.hp.com/go/ws2008.

Key topics addressed in this paper:

- Supported configurations of ProLiant servers
- Recommended system configuration and server platforms
- Supported software, storage options, and network adapters
- Procedures for new installations
- Known issues with workarounds

Microsoft provides Windows Server 2008 in the following editions:

- X86 edition
- X64 edition for systems with of the following processors:
 - Intel Xeon® Processors with Intel Extended Memory 64 Technology (EM64T)
 - Advanced Micro Devices, Inc. (AMD64) Opteron™ Series Processors
- Web edition

NOTE

To obtain a trial version of the Windows Server 2008 OS visit Microsoft's website:
<http://www.microsoft.com/windowsserver2008/en/us/trial-software.aspx> .

Introduction to Windows Server 2008

Windows Server 2008 builds on a solid foundation based on the strength and success of preceding Windows server OSs while adding new functionality to the base OS. Designed to power the next generation of network applications and web services, Windows Server 2008 will help administrators manage and deliver a rich, more secure user experience that will help save time and reduce IT infrastructure costs.

IMPORTANT

Windows Server 2008 uses DVD media and requires a server configured with either a USB DVD-ROM or an IDE DVD-ROM for local installations. For customers without IDE DVD-capable servers, copy the Windows Server 2008 media to a network share.

Current iLO firmware contains support for virtual DVD media; however, the installation is much slower than local installations.

Server Core Installations

Windows Server 2008 offers server core as a minimum installation option providing a reduced, more secure OS footprint. Administrators utilize the command line to install select roles and features on a server-core-based server.

For additional information about command line, see the Microsoft website:

<http://technet2.microsoft.com/windowsserver/en/library/552ed70a-208d-48c4-8da8-2e27b530eac71033.mspx?mfr=true>.

Server Core supports the following server role installations:

- Dynamic Host Configuration Protocol (DHCP) server
- Domain Name System (DNS) server
- File server
- Active Directory Domain Services
- Active Directory Lightweight Directory Services (AD LDS)
- Print Server
- Streaming Media Services
- Internet Information Services 7 (IIS7)
- Hyper-V

Server Core installations also support the following optional features:

- Backup
- Bitlocker Drive Encryption
- Failover Clustering
- Multipath I/O
- Network Load Balancing
- Removable Storage
- Subsystem for UNIX-based applications
- Telnet client
- Windows Internet Name Service (WINS)

For additional information about Server Core, see the Microsoft website:

www.microsoft.com/windowsserver2008/servercore.mspx.

NOTE

The Server Core installation is not available for Itanium-based systems.

Server Roles

Server roles allow an administrator to customize a server during the OS installation. After Windows Server 2008 completes the initial setup tasks (partition creation and file copy), the system reboots and presents the administrator with the GUI-based Initial Configuration Tasks wizard. From this wizard, an administrator may set the system password, set up TCP/IP, join a domain, and add server roles to the system. Administrators may utilize Server Manager in Windows Server 2008 for adding server roles and features after initial server installation.

For more information on server roles, as well as other changes, refer to the Microsoft website:

www.microsoft.com/windowsserver2008/servermanagement.mspx.

Read-Only Domain Controllers

Windows Server 2008 introduces a new type of domain controller (DC), the read-only domain controller (RODC). This DC hosts read-only partitions of the Active Directory Domain Services (ADDS) database. An RODC provides a secure solution for DC deployments to remote sites that require fast and reliable authentication but do not necessarily have adequate physical security for the deployed servers.

Additional information is available on the Microsoft website:

<http://technet2.microsoft.com/windowsserver2008/en/servermanager/activedirectorydomainservice.s.aspx>.

Networking requirements

TCP/IP

Microsoft has updated the TCP/IP stack in Windows Server 2008. For more information on the next generation TCP/IP stack in Windows Server 2008, visit the Microsoft website:

www.microsoft.com/technet/community/columns/cableguy/cg0905.aspx.

NDIS 6.0

NDIS 6.0 is the next major version of the Network Driver Interface Specification. HP has updated the Windows Server 2008-capable network adapter drivers to meet the NDIS 6.0 requirements. A list of supported network adapters may be found in Table 5. For more information on NDIS 6.0, visit the Microsoft website: <http://msdn2.microsoft.com/en-us/library/ms795192.aspx>.

IPv6

Windows Server 2008 provides support for the next generation TCP/IP protocol stack known as Internet Protocol version 6 (IPv6). Administrators should be aware that IPv6 support is enabled by default in a Windows Server 2008 installation. It cannot be uninstalled but may be disabled. For more information on IPv6, visit the Microsoft website:

<http://www.microsoft.com/technet/community/columns/cableguy/cg1005.aspx>.

Windows Hardware Error Architecture (WHEA)

Windows Hardware Error Architecture is a new feature added to Windows Server 2008 that provides a common infrastructure for hardware errors on Windows platforms.

The initial implementation of WHEA focuses on platform hardware devices, including processor, memory, cache, and system interconnects such as PCI, PCI-X, and PCI Express. Peripheral device errors remain under the control of their respective device drivers.

WHEA provides several benefits:

- A generic error source discovery mechanism
- A common hardware error record format and error handling flow
- A persistence mechanism for preserving error records
- A hardware error event tracking model based on Event Tracing for Windows (ETW)

Not all HP servers that support Windows Server 2008 will be WHEA compatible. Table 2 lists the WHEA-capable ProLiant servers. HP has updated the following deliverables in support of WHEA:

- System ROMs for specific ProLiant server platforms planned for WHEA support (see Table 2)
- iLO firmware (version 1.42 or later)
- iLO 2 Management Controller Driver for Windows Server 2008 [hpqilo2.sys, Version 1.5 (or later)]

WHEA support is enabled for the following servers. (See Table 2 for ROM details for these servers):

- ProLiant BL servers:
 - ProLiant BL460c
 - ProLiant BL465c
 - ProLiant BL480c
 - ProLiant BL680c G5
 - ProLiant BL685c
- ProLiant DL servers:
 - ProLiant DL360 G5
 - ProLiant DL365
 - ProLiant DL380 G5
 - ProLiant DL385 G2
 - ProLiant DL580 G5
 - ProLiant DL585 G2
- ProLiant ML servers:
 - ProLiant ML350 G5
 - ProLiant ML370 G5

For additional information about WHEA, visit the Microsoft website:
www.microsoft.com/whdc/system/pnppwr/WHEA/default.aspx.

Supported configurations

Windows Server 2008 should load and run on any HP server listed in “Recommended system platform” section of this document when the server meets the recommended hardware configuration established by Microsoft.

Carefully review this document for the recommended system configuration and possible issues that might be encountered. Do not use this paper as the sole source of information. In addition to the websites mentioned throughout this paper, visit the Windows Server 2008 support page:
www.microsoft.com/windowsserver2008/default.aspx.

Recommended system configuration

The recommended system configurations listed in this section are established by Microsoft for Windows Server 2008 base OS installations.

Table 1. Recommended system configuration as established by Microsoft

Component	Requirement
Processor	<ul style="list-style-type: none">• Minimum: 1 GHz• Recommended: 2 GHz
RAM per processor	<ul style="list-style-type: none">• Minimum: 512 MB• Recommended: 2 GB• Optimal: 2 GB (Full) 1GB (Server Core)
Maximum RAM 32 bit systems	<ul style="list-style-type: none">• 4 GB (standard edition)• 64 GB (Enterprise/Datacenter Editions)
Maximum RAM 64 bit systems	<ul style="list-style-type: none">• 32 GB (standard edition)• 2 TB (Enterprise/Datacenter)
Monitor	SVGA resolution (800x600) or higher
Optical storage	DVD drive
Available disk space	<ul style="list-style-type: none">• Minimum: 10 GB• Recommended: 40 GB

NOTE

- Available disk space refers to the free disk space on the partition to contain the system files. Additional space is required to copy the Windows Server 2008 CD contents to the hard disk during installation.
- Refer to the Microsoft website for any system requirement updates:
www.microsoft.com/windowsserver2008/sysreqs.msp.
- Computers with more than 16 GB of RAM will require more disk space for paging and dump files.

Recommended ProLiant server platforms

Table 2 lists the ProLiant servers, ROM version, and ROM date that support Windows Server 2008. Refer to the following web resources to assist in determining the ROM version and family of the supported ProLiant server.

- Software and drivers: <http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp?lang=en&cc=us&taskId=135>.
- Windows on ProLiant support matrix: <http://h10018.www1.hp.com/wwsolutions/windows/index.html>.

IMPORTANT

iLO 2 firmware must be updated to Version 1.29 (or later) before Windows Server 2008 is installed.

Table 2. ProLiant server platforms that support Windows Server 2008

Server platform	ROM family	ROM date (minimum)
ProLiant BL servers:		
ProLiant BL20p G3	I08	07/16/07
ProLiant BL20p G4	I13	11/13/07
ProLiant BL25p	A02	04/14/05
ProLiant BL25p G2	A11	09/20/07
ProLiant BL30p	I10	10/27/05
ProLiant BL35p	A03	03/01/06
ProLiant BL45p	A02	03/01/06
ProLiant BL45p G2	A12	09/20/07
ProLiant BL460c*	I15	08/21/07
ProLiant BL465c*	A13	09/20/07
ProLiant BL480c*	I14	08/21/07
ProLiant BL680c G5*	I17	10/18/07
ProLiant BL685c*	A08	09/20/07
ProLiant DL servers:		
ProLiant DL140 G2	DL140G2	03/31/06
ProLiant DL140 G3	DL140G3	06/18/06
ProLiant DL145 G2	DL145G2	03/23/06

Table 2. ProLiant server platforms that support Windows Server 2008

Server platform	ROM family	ROM date (minimum)
ProLiant DL145 G3	DL145G3	12/01/06
ProLiant DL320 G3	D18	07/16/07
ProLiant DL320 G4	D20	07/16/06
ProLiant DL320 G5	W04	08/21/07
ProLiant DL320s	W04	04/06/07
ProLiant DL360 G4	P52	07/16/07
ProLiant DL360 G4p	P54	07/16/07
ProLiant DL360 G5*	P58	08/21/07
ProLiant DL365*	A10	09/20/07
ProLiant DL380 G4	P51	07/19/07
ProLiant DL380 G4 Packaged Cluster**†	P51	07/19/07
ProLiant DL380 G5*	P56	08/21/07
ProLiant DL385	A05	03/01/06
ProLiant DL385 G2*	A09	09/20/07
ProLiant DL580 G3	P38	08/02/07
ProLiant DL580 G4	P59	08/10/07
ProLiant DL580 G5*	P61	12/07/07
ProLiant DL585	A01	03/22/06
ProLiant DL585 G2*	A07	11/21/07
ProLiant ML servers:		
ProLiant ML110 G2	ML110G2	12/08/05
ProLiant ML110 G3	ML110G3	02/13/06
ProLiant ML110 G4	ML110G4	06/05/06
ProLiant ML115	ML115G1	03/10/07
ProLiant ML310 G4	W03	08/21/07
ProLiant ML350 G4	D17	07/16/07

Table 2. ProLiant server platforms that support Windows Server 2008

Server platform	ROM family	ROM date (minimum)
ProLiant ML350 G4p	D19	07/16/07
ProLiant ML350 G5*	D21	08/21/07
ProLiant ML370 G4	P50	07/19/07
ProLiant ML370 G5*	P57	08/21/07
ProLiant ML570 G3	P37	02/09/06
ProLiant ML570 G4	P60	08/02/07

* WHEA support is enabled for this server.

**Supported when configured with an MSA1000 only. MSA500 G2 packaged clusters are not supported.

†Supported in the Fibre Channel configuration only.

Supported components for ProLiant servers

Software drivers

HP recommends administrators utilize the drivers on the Windows Server 2008 media installation when applicable. HP ProLiant Support Pack for Microsoft Windows Server 2008 Version 8.00 is supported with Windows Server 2008.

Management software

With the initial launch of Windows Server 2008, the HP Insight Control Management Software portfolio for the HP ProLiant and HP BladeSystem infrastructure deploys, monitors, and manages Windows Server 2008 servers. For example, ProLiant servers running Windows Server 2008 can be managed by HP Systems Insight Manager (HP SIM) if the management agents are installed on the server. Also the HP Rapid Deployment Pack (RDP) can deploy Windows Server 2008 servers.

Throughout the summer of 2008, the Insight Control Management Software portfolio will continue to add support for installation and operation on the Windows Server 2008 operating system. Users should review the quickspecs for each management software product to verify Windows Server 2008 support. For more information on the Insight Control Management Software portfolio, visit www.hp.com/go/insightcontrol.

Storage options

Table 3 lists supported ProLiant storage options and recommended driver revisions needed to interface with Windows Server 2008. HP has updated the ProLiant Support Pack 8.00 for Windows Server 2008 with the latest drivers. This package is available on the HP website: www.hp.com/go/ws2008.

NOTE

All storage option drivers have a digital signature.

Table 3. Supported ProLiant storage controller options

Option	Driver	Location		Installation support		Supported architecture	
		PSP 8.00	Windows media	Full	Server Core	x86	x64
Management drivers:							
Notification driver, Smart Array 5x and 6x	CPQCISSE.SYS	✓		✓	✓	✓	✓
SAS/SATA Notification Service	CISSESRV.EXE	✓		✓	✓	✓	✓
StorageWorks Fibre Channel Array Notification Driver for Windows 2000/Server 2003	CPQFCAC.SYS	*		✓	✓	✓	✓
6-Port SATA RAID Controller	AAC.SYS	✓		✓		✓	
Internal 4/8 Port SAS HBA	LSI_SAS.SYS		✓	✓	✓	✓	✓
Smart Array:							
E200 E200i E500	HPCISSS.SYS (basic)		✓				
P400 P400i 5i 5i Plus 6i 6402 6404 641 642 P600 P800	HPCISSS.SYS or HPCISSS2.SYS (full-feature)	✓		✓	✓	✓	✓

Table 3. Supported ProLiant storage controller options

Option	Driver	Location		Installation support		Supported architecture	
		PSP 8.00	Windows media	Full	Server Core	x86	x64
Ultra 320 SCSI:							
Integrated Dual Channel Ultra320 SCSI Controller 64-bit/13-MHz Single Channel Ultra320 SCSI Host Bus Adapter 64-bit/13-MHz Dual Channel Ultra320 SCSI Host Bus Adapter	SYMMPI.SYS		✓	✓	✓	✓	✓
Fibre Channel Host Bus Adapters:							
Qlogic:							
FC1142SR / FC1242SR FC1143 / FC1243 FCA2214 / FCA2214DC QMH2462 c-Class mezz 300874-B21 p-Class mezz 361426-B21 p-Class mezz 354054-B21 p-Class mezz 381881-B21 p-Class mezz	QL2300.SYS		✓	✓		✓	✓
Emulex:							
FC2143 / FC2243 FC2142SR / FC2242SR A7387A / A7388AFCA2404 / FCA2404DC FCA2409 lpe1105 c-Class mezz 394588-B21 p-Class mezz 394757-B21 p-Class mezz	ELXSTOR.SYS		✓	✓		✓	✓
<p>NOTE: Many of these devices have firmware upgrades available through variations of the Options ROMPaq. The latest version of each Options ROMPaq is available on the software and drivers website: http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp?lang=en&cc=us&taskId=135.</p> <p>* This driver will be available through web download from the server's product page. The driver will be added to the next release of the PSP.</p>							

Tape options

Table 4 lists supported ProLiant tape options and recommended driver revisions needed to interface with Windows Server 2008.

NOTE

All tape option drivers have a digital signature.

Table 4. Supported ProLiant tape options

Option	Driver	Location		Installation support		Supported architecture	
		PSP 8.00	Windows media	Full	Server Core	x86	x64
Autoloader:							
StorageWorks 35-GB AIT	POWERFIL.SYS		✓	✓		✓	✓
StorageWorks 8/16 Cartridge DLT	ADICSC.SYS		✓	✓		✓	✓
StorageWorks SSL1016	HP116N32.SYS		✓	✓		✓	✓
Cartridge Library, Compaq DLT 15:							
Model 15/30 Model 20/40 Model 35/70	HPMC.SYS		✓	✓		✓	✓
Mini-Library, StorageWorks:							
M5L5000 Series SSL2020 AIT TL881 DLT TL891 DLT	LIBXPRMC.SYS		✓	✓		✓	✓
Tape drives:							
DAT (all models)	HPDAT.SYS		✓	✓		✓	✓
LTO Ultrium 1, Ultrium-2 & Ultrium 3 (all models)	HPLTO.SYS		✓	✓		✓	✓
StorageWorks: VS80/VS160 SDLT320/SDLT640	DLTTAPE.SYS		✓	✓		✓	✓

Table 4. Supported ProLiant tape options

Option	Driver	Location		Installation support		Supported architecture	
		PSP 8.00	Windows media	Full	Server Core	x86	x64
StorageWorks: DAT Autoloader 72*6 DAT Autoloader 72*10	HPDAT.SYS HPDATCHG.SYS		✓	✓		✓	✓
<p>NOTE: Many of these devices have firmware upgrades available through variations of the Options ROMPaq. The latest version of each Options ROMPaq is available on the software and drivers website: http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp?lang=en&cc=us&taskId=135.</p> <p>NOTE: Drivers that are available on the Windows Server 2008 media may not be available on the PSP; in this case, the value in the "Available on ProLiant Support Pack 7.95" will be "No."</p>							

Network interface controllers

Table 5 lists supported ProLiant network interface controllers (NICs) supported by Windows Server 2008.

All NIC drivers are available on the PSP and have a digital signature. HP-branded drivers are not available on the Windows Server 2008 media. However, corresponding NIC drivers from Intel and Broadcom are on the media and can be used instead. Drivers for HP multi-function adapters are only available on the web, including support for HP ProLiant G5 LOMs and the NC370T/F and NC380T.

Table 5. Supported ProLiant Gigabit Ethernet NICs

Gigabit NIC	Driver	Location		Installation support		Supported architecture	
		PSP 8.00	Windows media	Full	Server Core	x86	x64
NC1020	Q57XP32.SYS	✓	✓	✓	✓	✓	
NC150T NC320m NC320T NC325m NC326m	Q57AMD64.SYS	✓	✓	✓	✓		✓
NC110T	N1000325.SYS	*	✓	✓	✓	✓	
NC310 NC310F NC340T NC6170 NC7170/LP	N1G5132E.SYS	*	✓	✓	✓		✓

Table 5. Supported ProLiant Gigabit Ethernet NICs

Gigabit NIC	Driver	Location		Installation support		Supported architecture	
		PSP 8.00	Windows media	Full	Server Core	x86	x64
NC360T	N1E5132.SYS	✓	✓	✓	✓	✓	
NC360m	N1E5132E.SYS	✓	✓	✓	✓		✓
NC364T							
NC364m							
NC370T/F/i	BXVBDX.SYS	✓	✓	✓	✓	✓	
NC371i	BXVBDA.SYS	✓	✓	✓	✓		✓
NC373T/F/M/i							
NC374M							
NC380T							
NC7761	Q57XP32.SYS	✓	✓	✓	✓	✓	
NC7771	Q57AMD64.SYS	✓	✓	✓	✓		✓
NC7782 PCI-X							
NC7781	Q57XP32.SYS (PCI-X LOM for 32-bit systems)	✓	✓	✓	✓	✓	
	Q57AMD64.SYS	✓	✓	✓	✓		✓

NOTE: Network Interface Controller Drivers for x64 are listed separately.
 * This driver will be available through web download from the server's product page. The driver will be added to the next release of the PSP.

IPMI and WS-Management

Microsoft WS-Management is an extensible web-based standard management protocol for monitoring system hardware. The following are key terms an administrator should recognize when working with WS-Management:

- **Intelligent Platform Management Interface (IPMI)** – A set of common interfaces to computer hardware that is used to monitor and manage system health.
- **Baseboard Management Controller (BMC)** – A micro-controller that monitors the system and allows for intelligent platform management.
- **IPMI Driver** – The driver that enables communication between the BMC device and the OS.
- **IPMI Provider** – As defined by Microsoft, “a user-mode COM DLL that implements a high-level abstraction of the IPMI data using the standard IPMI CIM profile.”

IPMI and WS-Management for the HP ProLiant 100 Series servers

The HP ProLiant 100 Series servers listed in Table 6 contain a Baseboard Management Controller (BMC).

Table 6. Supported ProLiant 100 Series Servers with Baseboard Management Controller

Server platform	ROM family	Minimum ROM date
ProLiant DL140 G2	DL140G2	03/31/06
ProLiant DL140 G3	DL140G3	06/18/06
ProLiant DL145 G2	DL145G2	03/23/06
ProLiant ML110 G3	ML110G3	02/13/06
ProLiant ML110 G4	ML110G4	06/05/06

HP IPMI Provider for HP BladeSystem servers and ProLiant 300 and 500 Series servers

For HP BladeSystem servers and ProLiant 300 and 500 Series servers that do not contain IPMI hardware, the IPMI Provider is required for IPMI functionality. The HP IPMI Provider emulates the Microsoft IPMI Provider by collecting IPMI data from the HP System Management Controller Driver and making it available through the “root\hardware” WMI namespace.

ProLiant 300 and 500 Series G4 servers and older require the IPMI Provider that is included in the Windows Server 2008 PSP 8.00.

Failover Clustering

Failover clustering is available in the Enterprise and Datacenter editions of Windows Server 2008. Installed through the **Add Features** menu in Server Manager, failover clustering allows multiple servers to work together to increase the availability of applications and services. Windows Server 2008 failover clustering does not support parallel SCSI-based storage solutions. Only SCSI-3 command-capable storage functions with Windows Server 2008 failover clustering.

HP delivers intelligent fault resilience with its High Availability Clustering product solutions and kits built on industry standard ProLiant servers running Windows Server 2008 and Smart Array Cluster Storage, or StorageWorks platforms integrated with HP management tools.

Administrators should review the Microsoft documentation for failover clustering at: <http://technet2.microsoft.com/windowsserver2008/en/library/3ce5c4f2-558d-4daf-ae86-54c9734a53bf1033.aspx?mfr=true>.

NOTE

Storage that was compatible with server clusters in Windows Server 2003 might not be compatible with failover clusters in Windows Server 2008.

Storage requirements

Ensure that the following conditions are met for failover clusters:

- Because improvements in failover clusters require that the storage respond correctly to specific SCSI commands, the storage must follow the SCSI Primary Commands-3 (SPC-3) standard. In particular, the storage must support Persistent Reservations as specified in the SPC-3 standard.
- The miniport driver used for the storage must work with the Microsoft Storport storage driver.
- Servers from different clusters must not be able to access the same storage devices (isolate storage devices, one cluster per device). In most cases, a Logical Unit Number (LUN) that is used for one set of cluster servers should be isolated from all other servers through LUN masking or zoning.

NOTE

Before starting, the storage administrator must configure several shared LUNs. It is important that all cluster nodes have access to the LUNs, and that the host connections are configured to follow the SPC-3 standard.

Configuring EVA host connections

Make sure the Windows LH Host mode is enabled for each node on the Enterprise Virtual Array (EVA) through command view. Depending on what command view you have installed, if in the drop-down there is no "Microsoft Windows LH" then choose **custom** and type in the **custom type** field the following HEX number **00000004198009A8** (Figure 1). If the wrong connection type is configured, you cannot share the disks between the cluster nodes and the cluster check will fail with a non-SCSI-3 compliant message.

Figure 1. Configuring EVA host properties

The screenshot displays the StorageWorks Command View EVA interface. On the left, a tree view shows the hierarchy: Storage Systems > EVA Storage Network > ping > eva8kXL > Virtual Disks > Hosts > Blade > b1460c_c71b11_82_bot. The right pane shows the 'Host Properties' configuration for the selected host. The 'General' tab is active, showing the following settings:

Host Properties	
Type:	Fibre channel host
Node name:	b1460c_c71b11_82_bot
IP Address:	<input checked="" type="radio"/> Dynamic IP address <input type="radio"/> Static IP address: N/A
Operating System:	Type: Custom Custom type: 00000004198009A8
UUID:	6005-08b4-0010-7581-0001-0000-0051-0000
Comments:	

Windows Server 2008 installation for 32-bit and 64-bit editions on ProLiant servers

Server deployment of Windows Server 2008 is supported through manual and assisted path installation options. Use the steps below to complete a manual install of Windows Server 2008.

Pre-installation tasks

To prepare for installation, ensure that the following conditions are met:

- The server selected for installation is listed as a recommended system platform in Table 2.
- Any additional storage options added to the server are listed as a supported ProLiant storage options in Table 4.
- Any additional NICs added to the server are listed as a supported ProLiant Gigabit Ethernet NIC in Table 5.
- Go to www.hp.com/go/bizsupport to obtain the supported ROM for Windows Server 2008 installations for the server.
- Use the ROM-Based Setup Utility (RBSU) to set date/time and configure the boot controller order (if necessary).
- Use the Array Configuration Utility to configure the RAID settings for the server.
- Install the HP Insight Management Agents only after SNMP is loaded and started.

NOTE

After installing Windows Server 2008 and before installing the PSP, if installing HP Systems Insight Manager and agents, be sure that SNMP is loaded and the service is started.

- Update iLO 2 firmware to Version 1.29 (or later).

Installation procedure

To install the Windows Server 2008 installation (for 32-bit and 64-bit editions), complete the following steps:

1. Make sure that the server has a DVD drive (either native to the system or attached).

NOTE

A license key may be required to use iLO virtual media with HP ProLiant ML or HP ProLiant DL servers.

2. Place the Windows Server 2008 media into the DVD drive and boot the server to the DVD to begin the installation.

- Follow the on-screen instructions to complete the installation.

IMPORTANT

Unlike other Microsoft OSs, the F6 option for updating drivers is not available during the Windows Server 2008 installation. If a boot controller driver is not found, Microsoft has added the option to inject a driver during install through the “Update Driver” button. The driver may reside on USB media as well as a floppy drive or CD-ROM drive.

Upgrading from Windows Server 2003 to Windows Server 2008

Table 7 details the Microsoft supported upgrade paths for Windows Server 2003 to Windows Server 2008.

Table 7. Supported ProLiant upgrade paths

If you are running:	You can upgrade to:
<ul style="list-style-type: none"> Windows Server 2003 R2 Standard Edition Windows Server 2003 Standard Edition with Service Pack 1 (SP1) Windows Server 2003 Standard Edition with Service Pack 2 (SP2) 	<ul style="list-style-type: none"> Full installation of Windows Server 2008 Standard (with or without Windows Server Hyper-V) Full installation of Windows Server 2008 Enterprise (with or without Windows Server Hyper-V)
<ul style="list-style-type: none"> Windows Server 2003 R2 Enterprise Edition Windows Server 2003 Enterprise Edition with SP1 Windows Server 2003 Enterprise Edition with SP2 	Full installation of Windows Server 2008 Enterprise (with or without Windows Server Hyper-V)
<ul style="list-style-type: none"> Windows Server 2003 R2 Datacenter Edition Windows Server 2003 Datacenter Edition with SP1 Windows Server 2003 Datacenter Edition with SP2 	Full installation of Windows Server 2008 Datacenter (with or without Windows Server Hyper-V)

Application requirements for Windows Server 2003 to Windows Server 2008 upgrades

Review the [Microsoft Knowledge Base 948070 article](#) for application requirements when performing upgrades from Windows Server 2003 to Windows Server 2008.

Upgrade policies

- The minimum upgradeable version of Windows Server is Windows Server 2003 SP1 or higher; upgrades between Windows 2000 and Windows Server 2008 are not supported.
- Cross-architecture upgrades (for example, x86 to x64) are not supported.
- Cross-language upgrades are not supported.
- Upgrades between core installations and non-core installations of Windows Server 2008 are not supported (for example, Windows Server 2008 Standard core installation to Windows Server 2008 Enterprise regular installation).
- There are no supported upgrade paths for Windows Server 2008 for Itanium-Based Systems edition and Windows Web Server 2008 edition.

Installing the ProLiant Support Pack

Getting PSP updates

- PSP updates are available on the HP website: www.hp.com/go/ws2008 or the FTP site at either of the following:
 - For Windows Server 2008 x64 edition:
<ftp://ftp.compaq.com/pub/products/servers/supportsoftware/ZIP/psp-8.00.w2k8.x64.exe>.
 - For Windows Server 2008 x32 edition:
<ftp://ftp.compaq.com/pub/products/servers/supportsoftware/ZIP/psp-8.00.w2k8.i386.exe>.
- SmartStart 7.90 and its corresponding PSP will not support Windows Server 2008 and should not be used in a Windows Server 2008 test environment.
- HP plans to provide PSP updates in conjunction with Windows Server 2008 major milestones. Refer to the official Microsoft schedule for major milestone dates.

NIC Teaming driver

The PSP does contain the NIC Teaming driver including:

- RSS Teaming
- TOE Configuration
- Broadcom Multi-function Diagnostics
- Broadcom Multi-function offload properties exposed
- Intel driver support
- Broadcom Legacy support

NOTES

OEM drivers appear in the NIC Configuration Utility (NCU) but should not be teamed or configured in NCU.

INP is not supported with the Windows Server 2008 NIC teaming driver. INP was also removed from the Windows Server 2003 teaming driver.

Installing the PSP

Once you download the PSP self-extracting executable, complete the following steps:

1. Go to the directory where the PSP executable is saved.

NOTE

When installing the PSP on a system running Server Core, you must execute the executables rather than double-clicking on them. Also, on Server Core systems, you will not be able to specify the location for extracting the PSP files. The files will be extracted to the same location as the PSP self-extracting executable.

2. Double-click the executable and extract the PSP to a desired location.
3. Go to the directory where the extracted PSP is located.
4. Double-click setup.exe to start the PSP deployment.

NOTE

All PSP files must be present in the same directory as the setup.exe program for the PSP to be properly installed.

5. As the PSP deployment starts, it performs an inventory of the available updates and checks the local system to see what hardware and software is installed.
6. After the inventory and discovery processes finish, the "Select Installation Hosts" screen appears. You can select either the local host or one (or more) remote hosts for PSP deployment.
7. After selecting the host(s), the "Select bundle filter" screen appears information about the PSP bundle to be installed. Select the bundle and the appropriate filter options. For remote deployments, additional screens allow users to update information on a per-host basis.
8. After selecting the bundle for all hosts being updated, open the "Select Items to be Installed" screen to complete the following tasks:
 - Select the components to be installed.
 - If necessary, configure the components.

NOTE

The Configure Now link will not be presented when running Microsoft Windows Server 2008 with the Server Core option. To configure components to be deployed on this OS configuration, you must access the system as a remote host using HP Smart Update Manager running on a system with a supported Windows OS and then configure the components before deployment.

- Review failed dependencies before installation.
 - Review the revision history of the components.
9. After selecting the components to install, click **Install** to proceed with the installation. Once the installation completes, the Installation Results screen appears. If the PSP installs successfully, the process is complete.

10. If one (or more) component(s) did not install successfully, complete the following steps:
- Exit HP Smart Update Manager.
 - Make corrections to your environment.
 - Restart the application to install the components that had problems.

Appendix A: known issues and workarounds

ProLiant servers with Windows Server 2008

Table A-1 lists the known issues with ProLiant servers with Windows Server 2008.

Table A-1. Known issues on ProLiant servers (Windows Server 2008 32-bit and x64 editions)

Issue	Details
Issue 1	The write cache and advanced performance drive policies do not stay on Smart Array logical volumes.
Description	If write caching and advanced performance drive policies are set in the device manager for logical volumes on an HP Smart Array controller, these policies are not saved when the device manager is exited.
Workaround	Since write cache on a Smart Array is for the controller and not for individual logical volumes, these policies in device manager do not have any effect. Use the Array Configuration Utility (ACU) to set the write cache characteristics.
Issue 2	Incorrect slot numbers may be reported by certain storage applications for certain storage adapters or NICs.
Description	This issue affects certain storage applications, including storage agents, SAS/SATA event services, and Array Configuration Utility (ACU).
Workaround	Update the ROM to the minimum ROM version listed in Table 2.
Issue 3	A blue screen error may display during installation of Windows Server 2008.
Description	A blue screen displaying a "BUGCODE_USB_DRIVER" error may display upon installation of Windows Server 2008.
Workaround	If this error occurs, download and install iLO 2 firmware Version 1.29 (or later).
Issue 4	Storage drivers do not get loaded during Driver Injection on Windows Server 2008 x64 edition.
Description	During installation, if a driver is injected, no controllers supported by the injected driver are listed.
Workaround	There is no workaround at this time.
Issue 5	On servers booting from Internal 4/8 Port SAS Controller, upgrading from Windows Server 2003 to Windows Server 2008 stops responding (hangs).
Description	An LSI IDE RAID driver is causing the system to hang.
Workaround	Remove lsicsb6.sys from the systems by either removing the lsicsb6.sys file from the \windows\system32\drivers directory (and any other locations) or removing any INF files that reference the lsicsb6 driver.

Windows Server 2008 ProLiant Support Pack (PSP)

Table A-2 provides a list of the known issues with installing the PSP.

Table A-2. Known issues with the PSP

Issue	Details
Issue 1	The G5 NIC drivers are not found on the Windows Server 2008 media.
Description	The drivers were not available at the time of submission for inclusion in the Windows Server 2008 media.
Workaround	Fixed in the G5 NIC drivers available on Windows Server 2008 media. Latest driver is on the PSP Version 8.00.
Issue 2	HP StorageWorks Fibre Channel Array Notification Driver component shows update not required, if a supported MSA controller is not found behind a Fibre Channel HBA.
Description	The installation result states that "Not updated - already current" and the installation log states that " the required hardware is not present.....Installation will not continue."
Workaround	A fix for this issue is targeted for a future release of the PSP.
Issue 3	The System Management Home (SMH) page does not run properly under Windows Server 2008.
Description	The SNMP settings have not been configured.
Workaround	Go to Services/SNMP and configure both the community string and access rights of read/create.
Issue 4	The NIC driver for the CP6316 NIC fails to install.
Description	The NIC driver for the CP6316 NIC fails to install.

Table A-2. Known issues with the PSP

Issue	Details
Workaround	<p>To install a Windows Server 2008 network adapter interface on Windows Server 2008, complete the following steps:</p> <ol style="list-style-type: none">1. Locate cp006316.exe in your PSP folder. Execute this component and select Extract. Remember the name of the directory where the drivers are being placed.2. From the Windows 2008 Start menu, right-click Computer and select Properties.3. On the System Properties page, select Device Manager under Tasks in the upper left corner of the window.4. Locate the multifunction gigabit device. It will be listed under the section called "Other Devices" and will have a yellow exclamation point next to it (indicating no driver has been loaded). The device should be called "Ethernet Controller."5. Right-click the device and select Update Driver Software.6. A window titled "Update Driver Software - Ethernet Controller" should now be displayed. Select Browse my computer for driver software.7. In the following window, enter the directory the component was extracted to (from Step 1) in the text field under Search for driver software in this location: and then click Next.8. Select Install on the resulting "Windows Security" window.9. The Virtual Bus Device is now installed. As a result, the ndis device will be exposed. Windows will respond by displaying a "Found New Hardware" dialog.10. Select Locate and install driver software.11. Select Do not search online on the next window, and then select I do not have the disc. Show me other options. on the following window.12. On the window with the heading "Windows couldn't find driver software for your device" select Browse my computer for driver software (advanced).13. Again, enter the directory from Step 1 in the text edit box and select Next.14. Select Install on the resulting "Windows Security" window.

For more information

For additional information, refer to the resources listed below.

Source	Hyperlink
HP and Microsoft Frontline Partnership website	www.hp.com/go/microsoft
Microsoft website	www.microsoft.com
Windows Server 2008 Home page	www.microsoft.com/windowsserver2008/default.msp

Call to action

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