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Manual abstract:

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 TM 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/trialsoftware.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. 3 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-48c4-8da82e27b530eac71033.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. 4 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.mspx. 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.mspx. 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.mspx. 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)] 5 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 W08/21/07 04/06/07 07/16/07 07/16/07 08/21/07 09/20/07 07/19/07 07/19/07 08/21/07 03/01/06 09/20/07 08/02/07 08/10/07 12/07/07 03/22/06 11/21/07 9 Table 2. ProLiant server platforms that support Windows Server 2008 Server platform ProLiant ML350 G4p ProLiant ML350 G5* ProLiant ML370 G4 ProLiant ML370 G5* ProLiant ML570 G3 ProLiant ML570 G4 * WHEA support is enabled for this server. ROM family D19 D21 P50 P57 P37 P60 ROM date (minimum) 07/16/07 08/21/07 07/19/07 08/21/07 02/09/06 08/02/07 **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. 10 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 PSP 8.00 Windows media Management drivers: Notification driver, Smart Array 5x and 6x SAS/SATA Notification Service StorageWorks Fibre Channel Array Notification Driver for Windows 2000/Server 2003 6-Port SATA RAID Controller Internal 4/8 Port SAS HBA Smart Array: E200 E200i E500 P400 P400i 5i 5i Plus 6i 6402 6404 641 642 P600 P800 HPCISSS.SYS or HPCISSS2.SYS (full-feature) HPCISSS.SYS (basic) CPQCISSE.SYS CISSESRV.EXE CPQFCAC.SYS Installation support Full Server Core x86 Supported architecture x64 * AAC.SYS LSI_SAS.SYS 11 Table 3.

Supported ProLiant storage controller options Option Driver Location PSP 8.00 Windows media 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 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 Emulex: FC2143 / FC2243 FC2142SR / FC2242SR A7387A / A7388AFCA2404 / FCA2404DC FCA2409 Lpe1105 c-Class mezz 394588-B21 p-Class mezz 394757-B21 p-Class mezz NOTE: Many of these devices have firmware upgrades available through variations of the Options ROMPaq. @@ELXSTOR.SYS QL2300.SYS SYMMPI.

SYS Installation support Full Server Core x86 Supported architecture x64 * This driver will be available through web download from the server's product page. @@@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-ae8654c9734a53bf1033.

mspx?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. 16 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 dropdown 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 17 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. 18 3. 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: without Windows Server Hyper-V) · Windows Server 2003 R2 Standard Edition · Full installation of Windows Server 2008 Standard (with or · Windows Server 2003 Standard Edition with Service Pack 1 (SP1) · Full installation of Windows Server 2008 Enterprise (with or without Windows Server Hyper-V) · Windows Server 2003 Standard Edition with Service Pack 2 (SP2) Edition · Windows Server 2003 R2 Enterprise · Windows Server 2003 Enterprise Edition with SP1 Full installation of Windows Server 2008 Enterprise (with or without Windows Server Hyper-V) · Windows Server 2003 Enterprise Edition with SP2 Edition · Windows Server 2003 R2 Datacenter · Windows Server 2003 Datacenter Edition with SP1 Full installation of Windows Server 2008 Datacenter (with or without Windows Server Hyper-V) · Windows Server 2003 Datacenter Edition with SP2 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.

19 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. 20 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. screen to complete the following tasks: 8. After selecting the bundle for all hosts being updated, open the "Select Items to be Installed" 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. 21 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. 22 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 Issue 1 Details 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 polices 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 polices 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. @@Description An LSI IDE RAID driver is causing the system to hang. @@@@@Fixed in the G5 NIC drivers available on Windows Server 2008 media. Latest driver is on the PSP Version 8.00. 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 Workaround 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." 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.

24 Table A-2. Known issues with the PSP Issue Details Workaround To install a Windows Server 2008 network adapter interface on Windows Server 2008, complete the following steps: 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. 25 For more information For additional information, refer to the resources listed below.

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