



Implementing the Preview build of Microsoft Windows Server 2012 R2 on HP ProLiant servers

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Abstract

This integration note provides guidance and describes the level of support available for the Preview build of Microsoft® Windows® Server 2012 R2 on HP ProLiant servers. Our official support for Windows Server 2012 R2 will align with the commercial release of the OS from Microsoft. This paper contains the list of servers and options that we recommend with the Preview build of the OS and are subject to change until we announce our official support upon the commercial release of the OS.

This integration note applies to the Preview build available in the following editions of the operating system:

- Windows Server 2012 R2 Datacenter - provides unlimited virtual instances, making it ideal for highly virtualized private and hybrid cloud environments.
- Windows Server 2012 R2 Standard - provides two virtual instances, making it ideal for low density or non-virtualized environments.
- Windows Server 2012 R2 Essentials - ideal for up to 25 users and up to 50 devices, and includes single virtual instance, well suited for midsize businesses growing into their virtualized private and hybrid cloud environments. The Essentials edition can also be enabled as a role in Windows Server 2012 R2 Datacenter and Standard Editions.
- Windows Server 2012 R2 Foundation - ideal for up to 15 users in an environment not requiring virtualization.

The differences in virtualization capability and the number of users make each edition appropriate for a different environment. This paper addresses the following key topics:

- Recommended system configurations
- Recommended HP ProLiant servers
- Recommended HP ProLiant server platform options, including:
 - Software and drivers
 - Storage options
 - Network interface controllers (NICs)
- Procedures for a new installation
- Known issues and workarounds
- Links to references and contact information

Windows Server 2012 R2 overview

Windows Server 2012 R2 delivers a dynamic, available, and cost-effective server platform for the private cloud. It offers a scalable, flexible, and multitenant-aware cloud infrastructure. This infrastructure lets you connect across locations securely so that you can respond to your business needs faster and more efficiently.

Windows Server 2012 R2 is a 64-bit server operating system that delivers value in the following areas:

Hyper-V: A virtualized environment lets you scale and secure workloads, build clouds cost-effectively, and connect to cloud services securely. New features include Linux guests on Hyper-V, resize virtual hard disk (VHD) and VHD extended formats (VHDX) dynamically without downtime, live migration of virtual machines (VMs) with increased speed by compressing the VHD/VHDX files, and utilizing the remote direct memory access (RDMA) technologies. Multi-tenant virtual private network (VPN) gateway enables connectivity between physical and virtual networks, enterprise datacenters, hosting organizations and between enterprise networks and Windows Azure.

Improved manageability and diagnostics: Windows Server 2012 R2 includes virtual IP address space management (IPAM) that shows both the physical and the virtual address space in a single view, including tenant IP subnets and address spaces as well as the provider IP address space. Quality of Service (QoS) management is included for service providers to run multi-application servers on a server running Hyper-V with predictable performance. Lastly, resource metering is included to measure and track a series of important data points.

Virtual Desktop Infrastructure (VDI): Storage is key for VDI. Microsoft Remote Desktop Services (RDS) offers lower cost storage options such as SMB-based file shares and Direct Access Storage (DAS) in addition to SAN. Storage de-duplication for VDI allows live VHDs to enable faster read/write times of optimized files, increased VDI storage density, and hence reduced storage cost. Note that any storage functions dependent on Storage Spaces technology are not currently available with HP ProLiant/Smart Array systems.

For detailed information or to download Windows Server 2012 R2, see the Microsoft Windows Server 2012 R2 home page at microsoft.com/en-us/server-cloud/windows-server/windows-server-2012-r2.aspx.

Recommended system configurations

Microsoft has established the recommended system configurations listed in this section for Windows Server 2012 R2 installations. Carefully review this document for the recommended system configurations and possible issues. Do not use this document as the sole source of information. Additional server configuration information is available on the Microsoft website at microsoft.com/en-us/server-cloud/windows-server/windows-server-2012-r2.aspx.

We recommend configuring your server with either of the following processor families:

- Intel® Xeon® Processors with Intel 64 architecture
- Advanced Micro Devices, Inc. (AMD64) Opteron™ Series Processors

Table 1. Recommended system configuration as established by Microsoft.

Component	Requirement.
Processor	<ul style="list-style-type: none"> • Minimum: 1.4 GHz • Recommended: 2 GHz
RAM per processor (socket)	<ul style="list-style-type: none"> • Minimum: 512 MB • Maximum: 4 TB • Recommended: 4 GB
Monitor	<ul style="list-style-type: none"> • SVGA resolution (800x600) or higher
Optical storage	<ul style="list-style-type: none"> • DVD-ROM drive
Peripherals	<ul style="list-style-type: none"> • Keyboard • Microsoft mouse or compatible pointing device
Available disk space (see note)	<ul style="list-style-type: none"> • Minimum: 10 GB • Recommended: 40 GB

Note: Available disk space is the free disk space on the partition that will contain the system files. Additional space is required to copy the Windows Server 2012 R2 DVD contents to the disk during installation. Computers with more than 16 GB of RAM require more disk space for paging and dump files.

Recommended ProLiant servers

Table 2 lists the ProLiant servers and minimum ROM version that we tested with Windows Server 2012 R2. We recommend that you use the ProLiant servers listed in Table 2 as platforms for Windows Server 2012 R2.

IMPORTANT

The information in this document is for the Preview build of Windows Server 2012 R2. We will update the list of recommended servers to include any newly announced servers as we approach commercial availability of this OS.

For a link to the ROM updates, see the HP Support Center at hp.com/go/support.

Table 2. Recommended ProLiant servers.

Platform	ROM family	ROM date (minimum)
ProLiant BL servers		
BL420c Gen8	I30	05/30/12
BL460c G6	I24	09/04/12
BL460c G7	I27	05/05/11
BL460c Gen8	I31	05/30/12

Table 2. Recommended ProLiant servers. (Continued)

Platform	ROM family	ROM date (minimum)
ProLiant BL servers (continued)		
BL465c Gen8	A26	05/15/12
BL660c Gen8	I32	05/30/12
ProLiant DL servers		
DL160 Gen8	J03	05/30/12
DL320e G7	P68	05/05/11
DL360 G6	P64	07/06/11
DL360 G7	P68	01/11/13
DL360p Gen8	P71	05/30/12
DL360e Gen8	P73	06/01/12
DL360p Gen8 SE	P71	03/26/13
DL380 G6	P62	07/06/11
DL380 G7	P67	05/05/11
DL380p Gen8	P70	05/30/12
DL380e Gen8	P73	06/01/12
DL385 Gen8	A28	05/15/12
DL560 Gen8	P77	05/30/12
DL580 G7	P65	05/03/12
DL980 G7	P66	12/28/12
ProLiant ML servers		
ML110 G7	J01	02/01/12
ML350 G6	D22	01/04/13
ML350p Gen8	P72	05/30/12
ML350e Gen8	J02	05/30/12
ProLiant SL line servers		
SL230s Gen8	P75	06/02/12
SL250s Gen8	P75	06/02/12
SL270s Gen8	P75	05/13/13
SL4540 Gen8	P69	05/05/12
ProLiant MicroServers		
ProLiant MicroServer	O41	08/29/11
ProLiant MicroServer Gen8	J08	04/02/13

Recommended ProLiant server platform options

Before you install Windows Server 2012 R2 on a ProLiant server, review the following sections for information on the ProLiant server platform options for which drivers are available and known to work.

IMPORTANT

The information in this document is for the Preview build of Windows Server 2012 R2. We will update the lists of recommended options to include any newly announced options as we approach commercial availability of this OS.

Software and drivers

Although our current publishing method for HP-provided drivers and related software is now the HP Service Pack for ProLiant (HP SPP), an HP SPP will not be available for use with Windows Server 2012 R2 until after the commercial release of the OS. Until then, use the Windows Server 2012 R2 Supplement Release for Service Pack for ProLiant.

Download the Windows Server 2012 R2 Supplement Release for Service Pack for ProLiant at hp.com/pub/softlib2/software1/supportpack-generic/p1215540406/v88252. For details, see the Installing the Windows Server 2012 R2 Supplement for Service Pack for ProLiant section of this paper.

Storage options

We recommend the storage options listed in Table 3 for Windows Server 2012 R2.

Table 3. Recommended HP ProLiant storage controller options.

Option	Driver	Location		
		Web download	Windows media	Windows Server 2012 R2 Supplement for Service Pack for ProLiant
Management drivers				
SAS/SATA Notification Service	CISSESRV.EXE	✓		✓
StorageWorks Fibre Channel Array Notification Driver for Windows 2000/Server 2003	CPQFCAC.SYS	✓		
Smart Array				
B110i	HPAHCISR.SYS	✓		✓
B120i B320i	HPSA2.SYS	✓		✓
P212 P220i P222	HPSAMD.SYS (basic)		✓	

Table 3. Recommended HP ProLiant storage controller options. (Continued)

Option	Driver	Location		
		Web download	Windows media	Windows Server 2012 R2 Supplement for Service Pack for ProLiant
P410 P410i P411 P420 P420i P421 P700m P711m P712m P721m P812 P822	HPCISS2.SYS (full featured)	✓		✓
StorageWorks 1210m	HPCISS2.SYS (full featured)	✓		✓
Host bus adapters				
H220 H221 H222 H210i H220i	LSI_SAS2.SYS		✓	
SC08e SC11Xe	LSI_SAS2.SYS LSI_SCSI.SYS		✓	
Fibre Channel Host Bus Adapters				
Qlogic: 81Q PCIe 82Q PCIe FC1142SR FC1242SR	QL2300.SYS	✓	✓	
Emulex: 81E PCIe 82E PCIe FC2142SR FC2242SR	ELXSTOR.SYS	✓	✓	
Brocade: 81B PCIe 82B PCIe 41B PCIe 42B PCI2	BFAD.SYS	✓	✓	
StorageWorks: DAT Autoloader 72*6 DAT Autoloader 72*10	HPDAT.SYS HPDATCHG.SYS			✓

NICs

We recommend the NICs listed in Table 4 for THE Preview build of Windows Server 2012 R2. Install all NIC drivers from the Windows Server 2012 R2 media. The Windows Server 2012 R2 supplement for Service Pack for ProLiant will include the NIC drivers in the next release, which will occur before the final, commercial release of the OS.

Table 4. Recommended ProLiant network controller options.

NIC	Driver(s)	Location		
		Web download	Windows media	Windows Server 2012 R2 Supplement for Service Pack for ProLiant
331i/T/FLR 332T 330i NC107i NC326i/m	B57ND60A.SYS		✓	
NC382i/T/m	BXVBDA.SYS BXND60a.SYS		✓	
NC365T 361i/FLB/T	E1R63X64.SYS		✓	
NC360T/m NC364T/m	E1E6332E.SYS		✓	
NC112i/T NC362i	E1Q63X64.SYS		✓	
NC532i NC532m 530FLR-SFP+ 530FLB 530M	EVBDA.SYS BXND60A.SYS		✓	
NC542m	MLX4_BUS.SYS MLX4ETH63.SYS		✓	
NC550m/SFP NC551m/i NC553m/i CN1000E CN1100E	OCND63.SYS		✓	
NC522m/SFP NC524SFP NC375i/T NC523SFP CN1000Q	QLXGND64.SYS		✓	

Pre-installation tasks

To prepare for installation, ensure that you complete the following tasks:

1. Make sure that your server and components are recommended for Windows Server 2012 R2:
 - A. Select a server from the recommended system platforms listed in the “Recommended ProLiant servers” section.
 - B. Make sure that the server has a DVD drive (either installed or attached to the server receiving the installation). Note that you need a license key to use iLO virtual media with HP ProLiant ML or DL servers.
 - C. Select additional storage options from the storage options listed in the “Storage options” section.
 - D. Select additional NICs from those listed in the “NICs” section.
2. Make sure that your server is completely configured and up-to-date. If necessary, complete the following:
 - A. Update the ROM to the required version. Use the ROM update for your server. ROM updates are available from the HP Support Center at hp.com/go/support.
 - B. Use the HP ROM-Based Setup Utility (RBSU) to set the date and time and to configure the boot controller order.
 - C. Update iLO firmware to the latest version. To download the latest iLO firmware, see the HP Support Center at hp.com/go/support.
 - D. Update your server using the Windows Server 2012 R2 Supplement for Service Pack for ProLiant. For instructions, see the “Installing the Windows Server 2012 R2 Supplement for Service Pack for ProLiant” section. Components for Windows Server 2012 R2 will be available in the full Service Pack for ProLiant at a later date.

Installing Windows Server 2012 R2 on ProLiant servers

Currently, HP Intelligent Provisioning cannot provision Windows Server 2012 R2, but a future release will add that capability. Until the availability of an update to Intelligent Provisioning, you will need to manually install from the OS from the Microsoft Windows Server 2012 R2 media.

For additional information on Intelligent Provisioning, go to the Server Management home page at hp.com/products/servers/management/unified/gen_8_ip.html.

IMPORTANT

Intelligent Provisioning cannot be used with ProLiant G7 and G6 servers. ProLiant G7 and G6 servers require HP SmartStart, which cannot deploy Windows Server 2012 R2.

To install Windows Server 2012 R2, complete the following steps:

1. Insert the Windows Server 2012 R2 media into the DVD drive and boot the server to the DVD.
2. Follow the steps on the installation screens to complete the OS installation.
3. If the installation does not find the drivers for the storage controller or NIC, download the driver as indicated in the “Where to get drivers” section.

Where to get drivers

To determine what media contains the drivers for your storage options or NICs, refer to the following sections of this paper:

- For storage option driver information, see Table 3 in the “Storage options” section.
- For NIC driver information, see Table 4 in the “NICs” section.

If the installation does not find the driver for your storage option or NIC, you must install the driver from one of the following sources:

- **Windows Server 2012 R2 Supplement for Service Pack for ProLiant:** The Windows Server 2012 R2 Supplement for Service Pack for ProLiant includes drivers and software for all ProLiant servers, with the following exceptions:
 - ProLiant MicroServer
 - Certain ProLiant 100 series servers that were released prior to ProLiant 100 Gen8 series servers

You can download the Windows Server 2012 R2 Supplement for Service Pack for ProLiant from HP at hp.com/pub/softlib2/software1/supportpack-generic/p1215540406/v88252. For instructions on installing the Windows Server 2012 R2 Supplement for Service Pack for ProLiant, see the “Installing the Windows Server 2012 R2 Supplement for Service Pack for ProLiant” section of this paper.
 - **HP ProLiant 100 Series Easy Set-up CD:** The HP ProLiant 100 Series Easy Set-up CD contains drivers for all ProLiant 100 series servers except for ProLiant Gen8 100 series servers and the ProLiant ML110 G7 server, which are included in the Service Pack for ProLiant.
- You can download the HP ProLiant 100 Series Easy Set-up CD from hp.com/products/servers/management/remotemgmt/easy_setup_cd/index.html.
- **HP Business Support Center:** You must obtain drivers for the ProLiant MicroServer from the HP Business Support Center website. Neither the HP SPP nor the Windows Server 2012 R2 Supplement for Service Pack for ProLiant contains drivers for the ProLiant MicroServer.
- You can download the ProLiant MicroServer drivers from the HP Support Center at hp.com/go/support.

Installing the Windows Server 2012 R2 Supplement for Service Pack for ProLiant

Download the Windows Server 2012 R2 Supplement for Service Pack for ProLiant. To download the WS2012 R2 Supplement, complete the following steps:

1. Go to the Preview build Windows Server 2012 R2 webpage at HP at hp.com/pub/softlib2/software1/supportpack-generic/p1215540406/v88252, and then click the **Save** button.
2. Download the ISO image for the Windows Server 2012 R2 Supplement for Service Pack for ProLiant.

After downloading the self-extracting executable file `MSw2k12r2-betasupplement-1.00.win.exe` complete the following steps:

1. Go to the directory where you saved the executable file.
2. Double-click the executable and extract the Supplement to a temporary location. All files must reside in the same directory as the `hpsum.exe` file.
3. Go to the directory where the extracted Supplement is located.
4. Double-click `hpsum.exe` to start the Supplement deployment.
5. The **Source Selection** screen appears. Verify that the directory path in the Directory field has the location of the smart components from the extracted Supplement, and then select **Start Inventory**. HP Smart Update Manager (HP SUM) performs an inventory of the installed hardware and software, and then checks for available updates.
6. After the inventory and discovery finish, the **Select Installation Hosts** screen appears. Select either the local host or one (or more) remote hosts for Supplement deployment.
7. After selecting the host(s), the **Select bundle filter** screen shows the Supplement bundle information. Select the bundle and the appropriate filter options. For remote deployments, additional screens allow you 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:
 - A. Select the components for installation.
 - B. If necessary, configure the components. The **Configure Now** link is not available when running Windows Server 2012 R2 with the Server Core option. To configure components:
 - i. Access the system as a remote host using HP SUM, where HP SUM is running on a system with a recommended Windows OS.
 - ii. Configure the components and resolve any failed dependencies before deploying the OS.
 - C. Review the revision history of the components.

9. After selecting the components, click **Install**. When the installation finishes, the **Installation Results** screen displays. If the Supplement installs successfully, the process is complete if one or more components did not install successfully, complete the following steps:
 - A. Exit HP SUM.
 - B. Make the required update to the environment.
 - C. Restart the Supplement installation.

Known issues and workarounds

We want you to be aware of potential issues that you may encounter with ProLiant servers and Windows Server 2012 R2. We are working to resolve all issues. Future editions of this paper will include any new issues that we find and are working to resolve. Table 5 lists known issues with ProLiant servers and Windows Server 2012 R2.

Table 5. Issues and workarounds with ProLiant servers and Windows Server 2012 R2.

Issue	Description	Workaround / solution
The Device Manager flags HP device drivers with a yellow caution icon (known as a “yellow bang”).	All HP device drivers are not yet signed, so yellow bangs are displayed.	Signed drivers will be available at the time of commercial release of the OS.
After installing Windows Server 2012 R2, the Event Viewer displays errors in the Windows Event Log showing that the license activation failed after providing the Product Key.	<p>After installing Windows Server 2012 R2, the Event Viewer displays the following errors in the Windows Event Log:</p> <p>In the Windows logs, the System information displays a message “Boot-start or system start drivers fail to load.”</p> <p>In the Windows logs, the application information displays a message “License Activation Failed.”</p>	This is not actually a license issue and occurs because the services start in an order that differs from what the OS expects. Actual license activation occurs at final release. All product keys are accepted at this time.
HP System Update Manager (HP SUM) may display the message “Untested Windows version 6.2 detected!”	When starting HPSUM in Windows Server 2012 R2, the following warning may pop-up: “Untested Windows version 6.2 detected!”	This occurs because HP SUM detects the version of Windows incorrectly. You can disregard the warning and continue with the installation. We are working to resolve this issue.
“Windows Server 2012” is displayed instead of “Windows Server 2012 R2” in the Help option under Settings and in the Systems Management Homepage (SMH).	In the Desktop on the top right corner, select Settings and then Help option. The OS name is displayed as “Windows Server 2012” and not “Windows Server 2012 R2.”	We are working with Microsoft to resolve this issue at release.
Installation of the Windows Server 2012 R2 OS fails on the Microserver G7.	After installation of the Windows Server 2012 R2, the Microserver halts when displaying the message “Devices getting ready 84%” and becomes unresponsive.	We are working with Microsoft to resolve the issue at release.

Resources, contacts, or additional links

HP Windows Server 2012 R2 Home Page

hp.com/go/ws2012R2

Microsoft Windows Server 2012 R2 Home Page

microsoft.com/en-us/server-cloud/windows-server/windows-server-2012-r2.aspx

You can report HP-specific issues or send customer feedback about the Preview build of Windows Server 2012 R2 OS on ProLiant platforms to win8svrbeta@hp.com. HP services channels will not support Windows Server 2012 R2 until the commercial release of the OS. We will review issues and provide guidance on a "best effort" basis.

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