HARDWARE COMPATIBILITY GUIDE

Hardware Criteria for the Windows Server 2008 High Availability Program

November 20, 2007

Abstract

This guide is the authoritative source for information about hardware compatibility requirements for server systems and devices that run the Windows Server® 2008 operating system and can be sold and supported under the Windows Server 2008 High Availability Program.

This information applies for the Windows Server 2008 operating system.

References and resources discussed here are listed at the end of this paper.

The current version of this guide is maintained on the Web at:   
 <http://www.microsoft.com/whdc/system/platform/server/haprogram.mspx>

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# Introduction

This document is the authoritative source for information about hardware and test requirements for the Windows Server® 2008 High Availability Program, as published by Microsoft Corporation. Server systems that qualify for this program will be listed in the Windows Server Catalog.

This document focuses exclusively on the hardware configuration and test requirements for server systems running Windows Server 2008 to be part of the High Availability Program. This document does not address licensing, support, services, or other programmatic requirements on original equipment manufacturers (OEMs) and other vendors.

Operating Systems for the High Availability Program. The High Availability Program is available only for 64-bit versions of the operating system, specifically, Windows Server 2008 operating system versions for Enterprise and Datacenter x64 and Intel Itanium-based systems.

High Availability Program and Windows Server Catalog. A system that has qualified for the High Availability Program is indicated by the “High Availability” Additional Qualification notation as part of the server product entry in the Windows Server Catalog.

Customer Participation and Qualifying Systems. To participate in the High Availability Program, a customer must:

* Obtain support from the OEM for the hardware and operating system.
* Obtain change management services from the OEM.
* Have the OEM pre-install a version of the operating system that qualifies for the High Availability Program.
* Have the OEM install and configure all required components.

Highly-Available, Nonparticipating Systems. Servers that meet the requirements for the High Availability Program can offer higher levels of reliability even when not offered with the program, such as:

* Without the support and services offering.
* Without the operating system preinstalled or without the components preconfigured.

However, in these cases, the servers would not be able to participate in the High Availability Program.

Important: Customers are not permitted to use hardware components and systems that are qualified or certified for Windows Server 2008 to assemble an arbitrary configuration to be supported in the High Availability Program. Microsoft or Microsoft OEM partners cannot properly support such an arbitrary configuration through the High Availability Program because that configuration would not have been validated through testing. Customers should work with their OEM partners if they want a specific configuration to be tested, qualified for, and supported through the High Availability Program.

These requirements do not represent the minimum system requirements for running any version of the Windows family of operating systems. For information about Windows Server operating system products, see:  
 <http://www.microsoft.com/windowsserver2008/>

## Requirements for Devices, Systems, and Components

Logo Program requirements for devices and drivers, systems, and components supplied by independent software vendors (ISVs) that an OEM includes in a system that is qualified for the High Availability Program are available through LogoPoint at:  
 <https://winqual.microsoft.com> (a Winqual account is required)

For testing and other requirements for devices and drivers, and systems, download the Windows Driver Kit (WDK) and Windows Logo Kit (WLK), as described at:  
 <http://www.microsoft.com/whdc/DevTools/WDK/WDKpkg.mspx>

Important: For up-to-date digital signature information, see:  
 <http://www.microsoft.com/whdc/winlogo/drvsign/drvsign.mspx>

## Supported Components

Reliable components provide the foundation for reliable servers. Therefore, every kernel-mode component that an OEM includes in a server system that runs Windows Server 2008 and qualifies as a High Availability Program system:

* Must be tested, and
* Must have a Microsoft signature that indicates that testing has been completed for that component.

Any device and driver that has a device category Logo Program that applies to that device:

* Must meet that device category’s Logo Program requirements, and
* Must be tested according to the test requirements for that device category.

Devices and associated drivers for which no device category Logo Program or tests exist:

* Must be tested by using the Unclassified test program, and
* Must receive a Microsoft signature.

Applications or utilities that OEMs include in those systems that have kernel-mode components (such as drivers and DLLs):

* Must undergo the kernel-mode components tested by using the Unclassified test program, and
* Must receive a Microsoft signature.

Note: The High Availability Program does not require that customer- or vendor-developed applications be certified and listed under the Windows Server 2008 Certified Server Applications Program. The only requirement for applications to be supported by the system vendor or Microsoft on systems enrolled in the High Availability Program is to be compatible with Windows Server 2008.

However, Microsoft does recommend that applications and utilities that have been certified for operations on Windows Server 2008 be used if possible, because these products have been tested for reliability and are recommended for customers who want to have the highest possible application or service availability.

For testing and other requirements for ISV-supplied components, see:  
 <http://www.innovateonwindowsserver.com/><http://go.microsoft.com/fwlink/?LinkId=71686>

## Components Not Supported

The High Availability Program does not support some device or driver categories such as image capture or gaming because these drivers are typically client-system focused. Such devices and their associated drivers are not supported in a High Availability Program server system running Windows Server 2008 and should not be included in any High Availability Program configurations that OEMs provide.

Device categories not supported in High Availability Program configurations include the following:

|  |  |
| --- | --- |
| Kernel-mode print drivers1 | Gaming |
| CD audio2 | Bluetooth |
| Broadcast receiver | Infrared Data Association (IrDA) |
| 1394 tape, storage, net, and so on | Asynchronous transfer mode (ATM) |
| USB tape, storage, net, and so on | Cable modem |
| Video capture | Digital subscriber line (DSL) modem |
| Still imaging/Windows Image Acquisition (WIA )—such as cameras | Soft modem |

Notes:   
1The default system policy for Windows Server 2008 is to not load any kernel-mode printer drivers. Thus, printer drivers that do require kernel-mode execution are not supported for systems running Windows Server 2008. The policy setting helps to prevent use of such drivers.

2Audio (miniport, synthesizer, and codec) and Speech Input are supported if the system must be managed by users who cannot use a keyboard or mouse.

Important: This document might not cover future technologies or categories of devices or drivers. Microsoft reserves the right to modify this document and its requirements, as necessary, after consultation with participating OEMs, to include the requirements and standards for any new technologies, features, devices, or drivers as these apply to the Windows Server 2008 operating system.

## Conventions Used in This Document

The following words are used with special meaning in this guide:

must

An indication that the statement applies as a requirement for passing the Windows Server Tests as described in this document.

required; requirement

An indication that the feature must be supported as defined in this document for the hardware to pass the Windows Server Tests as described in this document.

should

An indication that the statement applies as a recommendation or implementation guideline.

Windows tests; Windows testing

Windows test protocols and processes as published by Microsoft and announced on the Windows Logo Program Web site for High Availability Program server system testing at:  
 <http://go.microsoft.com/fwlink/?LinkId=71684>

Windows Logo Program Requirement Citations

Specific requirements for a system or device for the Windows Logo Program for Hardware that appear in this guide in the following format:

[WLP 3: #.#]  
Logo Program requirement reference, where # represents a number defined in Microsoft Windows Logo Program System and Device Requirements, Version 3.11 or later, plus FAQs, available at:  
 <https://winqual.microsoft.com> (a Winqual account is required)

Acronyms and other technical terms are defined at the end of this guide.

# Hardware Requirements

The following system requirements apply for server systems running Windows Server 2008 for the system to be part of the Windows Server 2008 High Availability Program.

1. System hardware and firmware must meet Windows Logo Program version 3.11 or later requirements.

All hardware and firmware components for which logo programs exist must, at a minimum, qualify for the Windows Server 2008 Logo Program, as defined in Microsoft Windows Logo Program System and Device Requirements, available at:  
 <https://winqual.microsoft.com> (a Winqual account is required)

2. System processor and memory must meet minimum requirements for Windows Server.

The following minimum capabilities must be present:

* Support for expansion to at least two processors per sockets.
* System memory of 2 GB of RAM, expandable to at least 4 GB of RAM.

3. System must meet minimum power supply requirements.

These requirements include the following:

* The system must include power supply protection that uses N+1 (meaning that the system has a redundant spare unit).

The system overvoltage and undervoltage protection and power supply switch-over circuitry should be able to regulate according to the system load. For each voltage in the system, the output voltages of the redundant power supplies should be within the range of values that can guarantee the proper operation of the system, no matter which supply is active. Power-supply switch-over should occur swiftly enough to maintain normal server system operation.

* The system must allow a qualified individual in the field to replace the module (or modules) that constitute its source of power. The system must implement hot-swapping capabilities for power supply replacement and power supply redundancy.

4. System must meet minimum fan requirements.

These requirements include the following:

* The system must include fan protection that uses N+1 (spare unit).
* The system must allow a qualified individual in the field to replace the fan module (or modules). The system must implement hot-swapping capabilities.

5. System must meet minimum requirements for the storage subsystem.

These requirements include the following:

* The server can include only one or more of the following: SCSI host controller, Fibre Channel adapter, RAID adapter, SATA adapter, and SAS adapter or iSCSI adapters.

Note: Advanced Technology Attachment (ATA, also known as IDE, EIDE, or ATAPI) controllers and storage devices, to include RAID versions of these devices, cannot be used in High Availability Program server systems for any purpose.

* All storage delivered with the server must include a RAID solution, described as follows:

Software RAID, supplied by either Microsoft or the vendor.

RAID adapter.

RAID array.

**Note:** In all cases, this means that at least the boot, system, and paging disks must be mirrored or otherwise RAID protected.

* The server must include an MPIO solution for any external storage.

Note: Blades that use a single I/O channel to connect to storage, networking, and other devices must have a redundant fabric instead of MPIO.

* The system must include hot-swappable hard drives that:

Have a local indicator that shows which drive or drives require replacement.

Is ejectable without powering off the system or array.

Is ejectable without requiring a system down period.

**Note:** The combination of the RAID requirement on boot, system, and paging devices and of the hot swap requirement for all drives is intended to ensure that customer systems are not required to be rebooted or powered off to replace any hard drive. RAID protection of the boot, system, and paging drives means that removal of a failing drive can be done while the system is on line. Additionally, even if other volumes are not RAID protected, Windows Server 2008 unmount capability allows those drives to be taken off line, if necessary.

6. System must meet minimum requirements for networking.

The server must include a network teaming or load balancing and failover (LBFO) solution.

Note: Blades that use a single I/O channel to connect to storage, networking, and other devices must have a redundant fabric instead of LBFO.

7. System must include failure-alert indicators.

Alert indicators should be provided that indicate failure or imminent failure. The design can use visual, network, paging, fax, or e-mail notifications as the alerting mechanism, depending upon the system design.

Required. The following are required sources of alert indicators for systems to be qualified for the High Availability Program:

* Cooling fan malfunction, including system and power supply fans.
* System and processor over-temperature.
* Power module failure.
* Disk drive error.

1. A hot-swappable drive must have a local indicator that shows which drive or drives are ready for replacement, facilitating the servicing process and improving reliability by reducing possible errors.

This indicator should be on the drive chassis. The device’s “eject” signal can be used to activate a replacement indicator. Designers can choose to use existing light-emitting diodes (LEDs) for dual purposes to fulfill this requirement, but the LED display should clearly show when a drive is ready for removal, as opposed to other information.

2. For systems with multiple drives, an individual replacement indicator should be physically associated with each hot-swappable drive slot.

Recommended. The chassis open (intrusion) source of alert indicators is recommended for servers qualified for the High Availability Program.

8. System must include memory protection that exceeds “standard” ECC

Standard error correction code (ECC) memory protection is defined as the ability to correct a single-bit memory error and to detect a double-bit memory error. Because of the large memory capacities of current and future systems, the system must provide protection for memory contents in excess of that norm for the system to be considered highly available.

Any method or technology that provides a greater level of protection is permissible for servers qualified for the High Availability Program. Examples include such technologies as:

Mirrored or RAID 1 memory protection  
RAID 5 memory protection  
Single Device Data Correction  
Double Device Data Correction

Note that the preceding list is not exclusive and that other memory protection technologies are acceptable for the High Availability Program.

9. System must have a unique name or firmware or BIOS identification.

Server systems with a base model that does not include the features and components that the High Availability Program requires can have a system name (for example, “Model 10000”). If this server is also offered with a High Availability Program configuration, the system name for the configuration must be different from the base model name (for example, “Model 10000-HA”). This ensures that the base model and High Availability Program configuration model of the same server can be uniquely identified.

There is no requirement that High Availability Program systems be identified with new name plates, badges, or other physical identifiers.

Note: All references to “system name” refer to the system name identifier provided by the server’s firmware or BIOS.

# OEM Testing Requirements

This section discusses the requirements for OEM testing of Windows Server 2008 High Availability Program server systems for submission to the program. Submission is done by using the same site as for any Certified for Windows Server 2008 Logo Program system submissions. For more information, see:  
 <https://winqual.microsoft.com/>

Any conflict among I/O adapters and drivers, or any conflict among nonhardware-specific drivers, requires correction to prevent reliability or functionality issues for customers.

Requirements for Initial OEM Submissions. The process for creating initial submissions is the same for the High Availability Program as for the Certified for Windows Server 2008 Logo Program, with the following additional requirements:

* When the company is testing the system for the Windows Server 2008 logo and the High Availability Program Additional Qualifier, the system name that is specific to the High Availability Qualified Configuration must be used in the Test Kit user interface (for example, “Model 10000-HA”). The company system being tested must include all the features and components installed and configured that the High Availability Program requires, , including the following:

2 storage adapters with multipath I/O (MPIO) configured.

2 network adapters with Teaming configured.

RAID 1, RAID 5, or other memory protection enabled and configured.

N+1 and hot-swap power and fans installed and configured.

Alert functionality enabled in BIOS, firmware, or drivers, as appropriate.

RAID protection for boot, system, and paging volumes enabled and configured, which can be one of the following:

* Software-based RAID provided by the operating system or a Windows Server 2008 logo-qualified driver that supports RAID,
* Hardware-based RAID adapters, or
* A storage array supporting RAID.
* The OEM test organization selects the High Availability Program Additional Qualification option as part of the Certified for Windows Server 2008 logo qualification test and completes the required actions as described in the WLK for the High Availability Program.
* If the High Availability Program system configuration under test is built from a base model—that is, a version of the system that does not include the required High Availability Program components, both configurations can be submitted for logo.

The High Availability Program configuration is submitted for the logo with the High Availability Program attribute, and the base model is included as a ”Marketing Name” at the same time.

* The High Availability Program configuration must have a name entered in the submission user interface (UI) that uniquely identifies the High Availability Program configuration of the server (for example, “Model 10000 - HA”).

When the High Availability Program configuration is submitted for the logo and High Availability Program Additional Qualification, the vendor must digitally sign the High Availability Program document that is presented by the Winqual tool user interface. The name entered for the base model must be different from that submitted for the High Availability Program configuration (for example, “Model 10000”).

* Required retests and resubmissions for the High Availability Program version of the computer system can also be used for the base version of the computer system, using the same “Marketing Name” method described earlier.

Note: It is not permitted to submit the base model as a High Availability Program configuration and include the High Availability Program configuration as a “Marketing Name.”

Digitally Signing the High Availability Program Document. Digital signing must be done by the submitting manager on the Winqual site as an affirmation that:

* The submitting company has signed the High Availability Program Agreement.
* The submitted system meets High Availability Program requirements defined in that agreement.
* The system being submitted is uniquely listed or named on the OEM Web site.
* No option exists to remove the features and components required for the High Availability Program from a system configuration listed or quoted as meeting those requirements.

Web Listing of Systems. After the configuration has passed Certified for Windows Server 2008 Logo Program testing and has been submitted for a logo, the vendor can list the configuration on the OEM’s Web site, localized as desired.

# Vendor Infrastructure Testing Requirements

High Availability Infrastructure Vendors (HAIVs) are companies that participate in the Windows Server 2008 High Availability Program by adding their own components and drivers to configurations that an OEM has qualified. These are typically storage or networking components such as disk arrays that may include devices or drivers that are installed on the system. These vendors add their components and drivers to a configuration previously tested by an OEM and then test the resulting new configuration according to this document, submit the test results to Microsoft, and have that configuration listed in the windows Server Catalog and the vendor’s own Web site.

The HAIV must correct any conflict among I/O adapters or drivers that the HAIV has added to a configuration that an OEM has qualified for the High Availability Program. Submissions by HAIVs can be made by using the Winqual Web site.

Requirements for HAIV Submissions. The process for creating HAIV submissions is the same for the High Availability Program as for Certified for Windows Server 2008 system logo submissions, except that HAIVs test their additional adapters or drivers on a system previously qualified for the High Availability Program.

The HAIV test organization selects the High Availability Program Additional Qualification option as part of the Certified Windows Server 2008 Logo Program qualification, and tests and completes the required actions as described in the WLK for the High Availability Program.

HAIV Document Digital Signing. The digital signing that the submitting manager completes on the Winqual site is also affirmation that:

* The submitting company has signed the High Availability Program Agreement.
* The submitted system with HAIV additions meets the High Availability Program requirements that are defined in that agreement.

**HAIV Web Listing.** After the configuration has passed Certified for Windows Server 2008 Logo testing and been submitted for a logo, the HAIV can list the configurations on its Web site, localized as desired.

# Ongoing Vendor Requirements

A system that runs Windows Server 2008 and that is qualified for the Windows Server 2008 High Availability Program includes many components, with many contributing vendors, as follows:

* IHVs that provide adapters that connect the computer system to the network or storage.
* ISVs that provide utilities that run in the Windows kernel address space to provide file system, storage, or security capabilities.
* The OEM that tests, validates, and supports the final configuration.
* HAIVs that provide highly available persistent data storage or networking functionality.

This cooperative effort requires that all parties meet certain standards to provide the high reliability that is expected for systems that are qualified for the High Availability Program. In addition, the standards and programs must also address the life cycle of the system and all the changes that will occur in the future.

Flexibility must be maintained so that the customers can respond to any changes in the business environment or circumstances. To continue highly available operations, the complete solution stack must provide:

* The level of reliability and availability that enterprise customers require for the initial deployment, and
* The flexibility that is required to change the configuration—such as when a hotfix is required—to continue highly available operations over time.

## Ongoing Processes and Responsibilities

This section summarizes the responsibilities of the various vendors OEMs, IHVs, ISVs, and HAIVs whose components constitute the complete configuration regarding test requirements for both hardware and software, including hotfixes, SPs, hardware upgrades, and operating system version upgrades.

### OEM and HAIV Responsibilities for Ongoing Testing

OEMs and HAIVs that deliver Windows Server 2008 solutions that qualify under the High Availability Program are responsible for ongoing testing over the lifetime of the system configuration and must ensure that systems operate correctly.

#### OEM Responsibilities for Ongoing Testing

OEMs must meet the following requirements:

* If the system is clustered, ensure that cluster rolling upgrade is supported with their products for operating system updates (not upgrades), such as from Windows Server 2008 SP1 to Windows Server 2008 SP2.
* Retest existing systems that are qualified for the High Availability Program that have had system changes and resubmit the test results as required by the Windows Server 2008 Refresh Test Policy. These updated submissions will be listed on the Windows Server Catalog.
* Retest existing systems that are qualified for the High Availability Program within 180 days of the final release of the English language version of the SP for Windows Server 2008 and submit the test results to the Windows Logo Program through the Winqual Web site. These updated submissions will be listed on the Windows Server Catalog.

Note: The preceding two retest requirements may be combined.

* Publish the resulting configurations for the High Availability Program on their Web sites until the configuration is announced as being End of Life (EOL), to include updates that are required for Service Pack (SP) releases.
* Participate in the Security Roll-up Pack (SRP) beta—or follow-on program, test for reliable operations of their product with the SRP kernel files, and confirm this testing and correct operation to Microsoft.
* Participate in the SP beta, test for reliable operations of their product with the SP, and confirm this testing and correct operation to Microsoft.
* Complete Windows Server Tests and submit within 210 days from release of the next version of Windows Server for the system to be either logo qualified for the new version of the operating system or supported. The only exception is if the OEM publicly declares, at least 12 months before the release of a major version of the Windows Server operating system, that the server system will not be supported for that version.

#### HAIV Responsibilities for Ongoing Testing

HAIVs must meet the following requirements:

* Retest their additions to the qualified configurations within 60 days after the OEM has submitted a retest due to system changes as required by the Windows Server 2008 Refresh Test Policy.
* After the OEM completes Windows Server Tests and submits its results with the next version of Windows Server, complete their HAIV testing and submission of configurations based on that OEM system within 60 days after the OEM submission.

The only exception is if the HAIV publicly declares, at least 12 months before the release of a major version of the Windows Server operating system, that the server system will not be supported for that version.

### IxV Responsibilities for Ongoing Testing

Adapter vendors (collectively referred to here as IxVs) must comply with the requirements relating to retest and resubmission of their product for quick fix engineering (QFE), as stated in the Windows Logo Program Policy documentation, which is provided through the LogoPoint tool on the Winqual Web site at:  
 <https://winqual.microsoft.com>

Software product vendors with kernel-mode products must comply with the requirements relating to retest as stated in the Windows Server 2008 Application certification document. For details, see Application Support and Certification on Windows Server 2008: Frequently Asked Questions at:  
 [http://www.microsoft.com/windowsserver2008/partners/isvs/cfwfaq.mspx](http://www.microsoft.com/windowsserver2003/partners/isvs/cfwfaq.mspx)

## Retesting for System Hotfixes and QFEs

Server systems running Windows Server 2008 that are part of the High Availability Program are often strictly managed for update installation and enhancements or other changes. These rigorous management procedures are often related to having a service-level agreement with an OEM or another party. Because of this, retest requirements for systems and drivers have been specified to mitigate the risk of change and possible decrease in reliability.

### Hotfixes and Support

High Availability Program server systems occasionally require hotfixes. These hotfixes should be applied according to Microsoft Operations Framework recommendations or those of your OEM partner.

For hotfixes that Microsoft considers critical or recommends, see:  
 <http://update.microsoft.com/microsoftupdate>

If a hotfix is required for a High Availability Program customer, the hotfix provider—whether an IxV, the OEM, an HAIV, Microsoft, or other vendor—must perform specific testing as defined in:

* This criteria document.
* The Windows Server 2008 Application Certification document.
* The Windows Logo Program Logo Policy document.

After the hotfix provider has met testing requirements and the update test results are submitted to Winqual, Microsoft will support the various vendors and their customers.

#### Microsoft-Supplied Hotfixes and OEM Test Requirements

Microsoft will test all hotfixes for systems running Windows Server 2008 according to policies before distributing them through Windows Update or other processes. OEMs and HAIVs are not required to test the hotfix further and are not required to create a new configuration for the hotfixed system.

#### IHV- and ISV-Supplied Hotfixes and OEM Test Requirements

Windows Server 2008 IxVs (including OEMs and HAIVs in that capacity) must test all hotfixes according to policies defined on LogoPoint on the Winqual site, before submitting them to Windows Update. ISVs must test all hotfixes according to policies outlined in Application Support and Certification on Windows Server 2008: Frequently Asked Questions at:  
 [http://www.microsoft.com/windowsserver2008/partners/isvs/cfwfaq.mspx](http://www.microsoft.com/windowsserver2003/partners/isvs/cfwfaq.mspx)

OEMs and HAIVs are not required to test the hotfix further and are not required to create a new configuration for the hotfixed system.

### Emergency Hotfixes and Testing Requirements

A customer’s system that is running Windows Server 2008 as part of the High Availability Program might require a hotfix immediately, that is, even the delay from logo qualification testing and submission might be unacceptable. In this case, a vendor can provide the customer a self-signed hotfix. However, unsigned hotfixes are not permitted. Note that because some party other than Microsoft will sign the provided file, the operating system will notify the customer in a pop-up window during installation of the hotfix that Microsoft has not signed the file.

The party that provides the hotfix must immediately perform any required testing to ensure the stability of the system. The hotfix must be submitted to the Windows Logo Program, if appropriate, after this testing has occurred.

Note: There is no intent to prevent customers from installing drivers not submitted to Microsoft for signature if their business needs require such drivers. This is an action under the control of the customer, although doing so might reduce system reliability, making it more difficult for Microsoft and OEMs to support the system.

## Windows Service Packs and Security Roll-up Packs

### Service Packs and General Requirements

IxVs, HAIVs, and OEMs that participate in the Windows Server 2008 High Availability Program must retest their products at SP milestones by using the relevant Windows Logo Program tests, as follows:

* IxVs must retest within 90 days of the date when Microsoft releases the SP.
* OEMs and HAIVs must update and retest their products as specified in “Ongoing Processes and Responsibilities” earlier in this guide.

This retesting gives the customer high confidence that applying an operating system SP will not cause a subsequent failure due to some incompatibility with a driver that is not included in the Windows Server 2008 product.

Participation Requirements for Service Packs. Vendors must test SP betas to help ensure customer satisfaction with their products. Customers, IxVs, HAIVs, and OEMs can all expect to benefit from this program. Customers should gain greater reliability, availability, and reduced downtime costs. Vendors should gain lower support and service costs.

Vendors must meet the following Beta testing requirements for SPs:

* Be included in the SP beta list. This is by nomination only, which requires the vendor to contact Microsoft through its technical account manager (TAM) or business development manager (BDM) and request inclusion in the SP beta program.
* Test the SP release candidate with their respective products on appropriate server systems or configurations of systems running Windows Server 2008.
* Provide bug reports and feedback to Microsoft if problems occur with the SP, third-party products, or its products and configurations. This allows problems to be resolved before the final SP release.
* Indicate agreement, in an e‑mail message to Microsoft, that the SP is of high quality and operates correctly with its products and supported configurations, at the time of the final release candidate (RC) for the SP. Vendors should send an e‑mail message to the SP beta alias.

Important: Upgrading just a file or component from an SP (the next SP or the latest SP) is harmful to system reliability and is not supported. All files within an SP are compiled and tested as a unit and should therefore be applied only as a unit (the complete SP).

Customers are not required to upgrade to a new Windows SP upon its release. High Availability Program configurations for earlier SPs are valid and supported according to the Microsoft Life Cycle Support policy. However, if resolution of a reported problem requires code changes, those changes might require upgrading to the latest SP as a prerequisite to installing the fix. In addition, at some time after the ”final” SP for an operating system version is released, the policy concerning hotfixes may require that the final SP be installed in the system so that a fix can be provided.

### Security Roll-up Packs and General Requirements

Participation Requirements for SRPs. The purpose of participating in SRP beta testing is to increase customer satisfaction with the vendor’s products. SRP beta testing means that vendors must meet the following requirements:

* Be included in the SRP beta list. This is by nomination only, which requires that vendors (OEMs, IxVs, or HAIVs) must contact Microsoft through their TAM or BDM and request inclusion in the related beta program.
* Test the kernel files of the SRP release candidate with their respective products on appropriate server systems or configurations of systems running Windows Server 2008.
* Provide bug reports and feedback to Microsoft if any problems occur with the SRP and their products. This allows problems to be resolved before the SRP final release.
* Indicate agreement, in an e‑mail message to the SRP beta alias at Microsoft, whether the SRP is of high quality and operates correctly with their products at the time of the final Windows RC for the SRP.

Because SRPs are tested as a unit, they should be applied only as an integrated package. Application of only part of an SRP is unsupported.

Customers are not required to upgrade to new Windows SRPs.

### OEM Testing for Service Packs

For SP testing, OEMs must meet the following requirements:

1. Complete Windows Server 2008 Service Pack testing within 180 days of the final release of the English language version of the SP.

Note: The system must have already passed or met all requirements for the Certified for Windows Server 2008 Logo Program, logo testing, and High Availability Program.

2. Apply all recent or required fixes (for the SP) from other vendors as well as their own fixes for adapters, drivers, BIOS, chipset, firmware, and so on, as well as the final version of the SP.

3. Run the Windows Server Logo tests on their High Availability Program configurations to ensure that any changed IHV and ISV products, plus the SP itself, function together reliably.

Note: If changes to the system have occurred that require a system update test and submission, then this testing can be used for that submission.

4. Submit the test logs to the Windows Logo Program through the Winqual site.

5. Indicate on their Web site, that the configurations have passed SP testing and are supported, and localize the information as desired.

These requirements provide confidence to customers that integration and interoperability have been tested and issues resolved, so that they can migrate to this new version with the associated other changed components.

### HAIV Testing for Service Packs

For SP testing, HAIVs must meet the following requirements:

1. After the OEM has passed the testing described in the preceding section and the system has been listed on the Windows Server Catalog or vendor Web site, complete SP testing within 60 days for any products that the OEM has tested and supported that are additional to that system.

Note: The system must have already passed or met all Windows Server 2008 Logo Program, testing, and High Availability Program requirements.

2. Apply all recent or required fixes (for the SP) from other vendors as well as their own fixes for adapters, drivers, BIOS, chipset, firmware, and so on, as well as the final version of the SP.

3. Run the Windows Server logo test on their High Availability Program configurations to ensure that any changed IHV and ISV products, plus the SP itself, function together reliably.

4. Submit the test logs to the Windows Logo Program through the Winqual site.

5. Indicate on their Web site that the configurations have passed SP testing and are supported and localize the information as desired.

The requirements provide confidence to customers that integration and interoperability have been tested and issues resolved, so that they can migrate to this new version of the operating system with the associated other changed components.

# Resources

This section provides a list of Microsoft resources to help you build hardware that meets the Windows logo requirements and the criteria for the Windows Server 2008 High Availability Program Catalog.

#### References

Windows Logo Program Web site, including testing information

<http://www.microsoft.com/whdc/winlogo/default.mspx>

Feedback on logo requirements

Submit through LogoPoint on the Winqual site, or send e-mail to: <mailto:logofb@microsoft.com>

Windows Logo Program News

Sign up at <http://www.microsoft.com/whdc/newsreq.mspx>

Help and Support for Windows Logo Program

<http://www.microsoft.com/whdc/winlogo/resources.mspx>

Microsoft Technical Security Notification Service

<http://www.microsoft.com/technet/security/bulletin/notify.mspx>

Windows Server 2008 High Availability Program information

<http://go.microsoft.com/fwlink/?LinkId=71684>

Certified for Windows Server Logo Program for Software

<http://www.innovateonwindowsserver.com/>

List of application vendors who meet Certification requirements

<http://www.windowsservercatalog.com/results.aspx?bCatId=1372&ocID=20>

#### Definitions

company system

A company’s computer system products that:

1. Use Windows Server 2008 as their operating system, and

2. Either act as a single server in a client/server environment or can be partitioned at the hardware level to function as one or more separate servers in a client/server environment.

**Note:** Item 2 does not apply to computer system products that act as a server cluster in a client/server environment. A company system includes any required hardware, firmware, or drivers in such a company system.

company system configuration

A specific combination of required hardware, firmware, and/or drivers:

1) That the company actually ships to its customers as a company system,

2) To which the company includes a reference on the company Web site as a company system, and

3) For which the company provides customer support.

A company system configuration can be the initial configuration, the superset configuration, or any derivative subset thereof of the configuration. The subset can include without limitation, the number of CPUs, amount of RAM, hardware, and drivers.

company Web site

The company’s main Web site on the Internet.

customer

A party that has purchased or leased a company system with a qualified configuration that uses Windows Server 2008 as its operating system.

drivers

Various software applications that are required for a company system configuration to work with Windows Server, such as printer drivers, network drivers, and so on. Drivers includes both those software applications that interface directly with devices such as network adapters or storage adapters and those that do not such as antivirus, firewall, backup, encryption, storage management, and other utilities and applications that operate in the operating system kernel space.

EOL

end of life

HAIV

High Availability Program infrastructure vendor

initial configuration

The combination of hardware, firmware, and drivers for a company system that includes the maximum number of CPUs that the company system supports, the maximum amount of RAM that the company system supports, and the minimum number of other hardware, firmware, and driver components that are required to pass the initial test.

initial test

The test on a company system configuration as applicable to Windows Server 2008, as specified in the Windows Logo Kit.

I***x***V

independent vendor of hardware or software

LBFO

load balancing and failover

MPIO

multipath I/O

OEM

original equipment vendor

qualified configuration information

The information that is required to describe a particular qualified configuration, as posted and maintained by a company on the company Web site.

SP

service pack

system configurations files

The files that:

1. Are created upon the successful completion of a test, and

2. Specify the exact hardware and software configuration of the company system configuration as specified in the Windows Logo Kit.

test kit

The Windows Server Tests, which are provided in the applicable Windows Logo Kit for Windows Server 2008, available from the sources listed at:  
 <http://www.microsoft.com/whdc/DevTools/WDK/WDKpkg.mspx>

test logs

The test results files that are created by the test kit upon the successful completion of a test.

update test

The test that is run when a system has had hardware changes that are significant enough that policy requires a retest and resubmission of that system.

Windows Catalog information

For each qualified configuration, the information that is required for online submission for the Windows Catalog List, as maintained on the Winqual site at:   
 <https://winqual.microsoft.com/>

Windows Server Catalog List

The Windows Catalog List that is published by or for Microsoft and is available at:  
 <http://www.windowsservercatalog.com/>

Windows Server 2008

The Microsoft Windows Server 2008 product and any successor versions thereof that may be covered under the Windows Server 2008 High Availability Program.

Winqual

Windows Quality Online Services, the Microsoft Web site at <https://winqual.microsoft.com/> for submitting products to the Windows Logo Program, obtaining Windows Error Reporting data, and updating information in the Driver Distribution Center.