

HP Integrity Servers with Microsoft® Windows Server™ 2008 for Itanium-based Systems Recovering Windows Server 2008 on HP Integrity Servers

HP Part Number: 5992-4472
Published: April 2008



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About This Document

This document describes how to use the system recovery features available on HP Integrity servers running Windows Server 2008.

The document printing date and part number indicate the document's current edition. The printing date changes when a new edition is printed. Minor changes may be made at reprint without changing the printing date. The document part number changes when extensive changes are made.

Document updates may be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, you should subscribe to the appropriate product support service. See your HP sales representative for details.

The latest version of this document can be found online at <http://docs.hp.com>.

Intended Audience

This document is intended for system administrators and HP support personnel responsible for installing, configuring, and managing HP Integrity servers. This document is not a tutorial.

New and Changed Information in This Edition

This document is entirely new in the 6.0 release.

Document Organization

This document is organized as follows:

"Recovery Options for HP Integrity Servers Running Windows Server 2008" (page 11)

Describes the system recovery options available for HP Integrity servers running Windows Server 2008.

Typographic Conventions

This document uses the following typographical conventions:

WARNING	A warning calls attention to important information that if not understood or followed will result in personal injury or nonrecoverable system problems.
CAUTION	A caution calls attention to important information that if not understood or followed will result in data loss, data corruption, or damage to hardware or software.
IMPORTANT	This alert provides essential information to explain a concept or to complete a task
NOTE	A note contains additional information to emphasize or supplement important points of the main text.
KeyCap	The name of a keyboard key or graphical interface item (such as buttons, tabs, and menu items). Note that Return and Enter both refer to the same key.
Computer output	Text displayed by the computer.
User input	Commands and other text that you type.
Command	A command name or qualified command phrase.
Ctrl+x	A key sequence. A sequence such as Ctrl+x indicates that you must hold down the key labeled Ctrl while you press another key or mouse button.
[]	The contents are optional in command line syntax. If the contents are a list separated by , you must choose one of the items.

- { } The contents are required in command line syntax. If the contents are a list separated by |, you must choose one of the items.
- ... The preceding element can be repeated an arbitrary number of times.
- © Indicates the continuation of a code example.
- | Separates items in a list of choices.

Related Information

You can find more information about HP Integrity servers, server management, and software in the following locations:

- For an overview of the HP Integrity server family: <http://hp.com/go/integrity>
- For other documents supporting Windows Server 2008 on HP Integrity Servers (see the section titled “Windows 64-bit on HP Integrity Servers”): <http://docs.hp.com/en/windows.html>
- For technical support resources (drivers, patches, upgrades, migration issues, to sign up for alerts, and so on): <http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?prodTypeId=15351&prodCatId=321933>
- For information about HP Integrity Virtual Machines (Integrity VM): <http://h71028.www7.hp.com/enterprise/cache/262803-0-0-0-121.html>

Publishing History

The publishing history below identifies the edition dates of this manual. Updates are made to this publication on an unscheduled, as needed, basis. The updates will consist of a complete replacement manual and pertinent online or CD documentation.

Manufacturing Part Number	Supported Operating Systems	Supported SmartSetup Version	Supported Products (Servers)	Publication Date
5992-4472	Microsoft Windows Server 2008 for Itanium-based Systems	Version 6.0	BL860c, BL870c, rx2660, rx3600, rx6600, rx7620, rx7640, rx8620, rx8640, Superdome, Superdome/sx2000	April, 2008

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1 Recovery Options for HP Integrity Servers Running Windows Server 2008

HP Integrity servers running Microsoft® Windows Server™ 2008 for Itanium-based Systems provide multiple options to help you restore the state, data, and configuration of the OS in the event of a problem. Available Windows recovery features and methods, listed in their recommended order of use, include the following:

Table 1-1 Windows Recovery Features

Recovery Feature	Function	Availability
“Last Known Good Configuration” (page 12)	This startup option reverses the most recent driver and registry changes since you last started the OS.	Built-in.
“Safe Mode” (page 13)	This startup option loads a core set of drivers and services to troubleshoot a problem.	Built-in.
“Recovery Console” (page 16)	This console controls services, accesses data, formats drives, and performs other administrative tasks.	Requires the Microsoft Windows Server 2008 CD or the HP Reinstallation DVD.
Back Up	Backs up data before you troubleshoot problems, attempt work arounds, or apply updates, and restores the data if troubleshooting fails.	Built-in.
“Automatic System Recovery (ASR)” (page 19)	ASR offers one-step restoration of the OS, system state, and hardware configuration, and includes two parts: <ul style="list-style-type: none"> ASR Backup: backs up system-state data, system services, and all drives associated with the OS to a target device; creates a diskette that contains information about the backup, disk configurations, and how to perform a restore. ASR restore reads the disk configurations from the floppy disk and restores all of the disk signatures, volumes, and partitions on the disks required to start your system. ASR then installs a simple installation of Windows and starts to restore from the backup. 	Requires the Microsoft Windows Server 2008 CD, a USB diskette device, and a backup target device (such as a DAT drive or hard drive).
“Windows Recovery Environment (Windows RE)”	An extensible recovery platform based on the Windows Preinstallation Environment (WinPE). Windows RE is the starting point for various tools for manual system recovery.	Requires the HP Reinstallation DVD.

Table 1-1 Windows Recovery Features *(continued)*

"ResQme" (page 22)	An advanced support tool designed by HP support to troubleshoot system problems when all other recovery options fail.	Must be run by a local administrator under the guidance of an HP Support Engineer.
Reinstallation	The HP Reinstallation DVD contains an image of the OS, along with HP software such as drivers, management applications, and system utilities. Boot from this DVD and select the Reinstallation option to restore the system to factory condition. This option copies the OS image to the drive—overwriting all existing data—and installs HP drivers and utilities, and edits the registry entries.	Included with all factory-installed HP Integrity servers.

Frequently Asked Questions

Automatic System Recovery (ASR)

Question: Is Automatic System Recovery (ASR) supported by Windows on Integrity servers?

Answer: Yes. To run on Integrity servers, ASR requires the Microsoft Windows Server 2008 CD, a USB diskette drive, and either a tape drive or a hard drive as the backup destination. Any compatible storage medium of sufficient size can serve as a backup destination, but HP has not tested all these configurations and cannot recommend other devices at this time. For detailed instructions, see "Automatic System Recovery (ASR)" (page 19).

Recovery Console

Question: Is Recovery Console supported by Windows on Integrity servers?

Answer: Yes. To run on Integrity servers, Recovery Console requires the use of either the Microsoft Windows Server 2008 Release-to-Manufacturing (RTM) CD or the HP Reinstallation DVD. For detailed instructions, see "Recovery Console" (page 16).

Remote Installation Service

Question: Is Remote Installation Service (RIS) supported by Windows on Integrity servers?

Answer: Yes. To run on Integrity servers, RIS requires a Pre-boot eXecution Environment (PXE)-capable network adapter installed in the server. In addition, you must have Domain Name Service (DNS), Dynamic Host Configuration Protocol (DHCP), and Active Directory Service (ADS) available on the network.

Third-Party Tools

Question: What third-party recovery tools are available for Windows on Integrity servers?

Answer: HP DataProtector is a validated recovery solution. HP is also testing the Veritas Storage Foundation suite. Other products, such as Aurema ARMTech, CA BrightSTOR ARCserve, Legato Networker 7, and SoftLink FastCopy are backed by their vendors, but HP has not tested them.

Last Known Good Configuration

A successful Windows startup includes an initial phase, a boot loader phase, a kernel phase, and a logon phase. If a problem occurs during any of these phases, Windows might not start correctly. It may fail to respond (hang) or display an error message. If the startup problem occurs immediately after you make a change to the server (for example, after you install a new driver), try to start the server using the Last Known Good Configuration (LKGC) feature.

Using LKGC, you can recover from problems such as a newly added driver that may be incorrect for your hardware. The LKGC feature does not solve problems caused by corrupted or missing drivers or files.

To start the server with the LKGC:

1. Click **Start > Shutdown > Restart**, and then click **OK**.
2. When prompted to choose the instance of Windows to boot, press **F8** (GUI console) or **Esc 8** (headless server console). To enter **Esc 8**, press and release the **Esc** key and then within 2 seconds, press and release the **8** key.
3. Use the arrow keys to select **Last Known Good Configuration**, and then press **Enter**.
4. If you are running other operating systems on the server, select **Microsoft Windows Server 2008** from the list, and then press **Enter**.

If you were able to start your server using LKGC, the last change that you made to the server (for example, the installation of a driver) might be the cause of the startup problem. To recover from the problem, either remove or update the driver or program, and then test Windows for correct startup.

Examine the system logs for information about why previous boots failed. Right-click **My Computer**, select **Manage**, and click on **Event Viewer** to see Application, Security, and System logs.



NOTE: When you select LKGC, only the HKLM\System\CurrentControlSet registry settings are restored. All other registry keys remain unchanged, so if failure is related to application files or registry entries, the LKGC feature does not solve the problem.

Safe Mode

When you start the server in Safe mode, Windows loads a minimal set of drivers and services. Use Safe mode to identify and resolve problems caused by faulty drivers, programs, or services that start automatically. If the servers starts in Safe mode but not in normal mode, the system may have a conflict with the hardware settings or the resources. There might also be incompatibilities between programs, services, or drivers, or there might be registry damage. In Safe mode, you can disable or remove a program, service, or device driver that prevents the server from starting.

To start the server in Safe mode:

1. Click **Start > Shutdown > Restart**, and then click **OK**.
2. When prompted to select the operating system to start, on a GUI console, press **F8**, or on a headless console, **Esc 8**.
3. Use the arrow keys to select **Safe Mode**, and then press **Enter**.
4. If you are running other operating systems on the server, select **Microsoft Windows Server 2008** from the list, and then press **Enter**.

If the server does not start in Safe mode, try starting it using the Recovery Console (see “Recovery Console” (page 16)). If you still cannot start the computer, look for possible hardware problems, such as defective devices, installation problems, cabling problems, or connector problems. Remove any newly added hardware, and then restart the server.

If the server does start in Safe mode, use the following tools to troubleshoot the problem:

- **Event Viewer:** The event logs in Event Viewer can help you identify and diagnose the cause of the startup problem. To start the Event Viewer, click **Start > Administrative Tools > Event Viewer**. In the Event Viewer, click the System log or the Application log to view the events recorded in the logs.
- **System Information:** The System Information tool displays a comprehensive view of the computer's hardware, system components, and software environment. Use this tool to help identify possible problem devices and device conflicts. To run System Information and look

for problem devices or device conflicts, click **Start > Run**, type `msinfo32`, and then click **OK**.

- **Safe Mode Boot Log File:** This log file is located in the `%SystemRoot%` folder (by default, this is the Windows folder). The log file lists devices and services that load (and do not load) when you start the computer in Safe mode. You can use a text editor to open and view the log file. Use the list of drivers and services that did not load at startup to help identify the possible cause of the startup problem.
- **Device Manager:** Device Manager displays a graphical view of the hardware that is installed on your computer. Use this tool to resolve any possible device conflicts or to identify incompatible devices that might be the cause of the startup problem. To start Device Manager, click **Start >** and right-click **My Computer >** and select **Manage**. Expand **System Tools** and then select **Device Manager**.

If you identify a problem device, driver, or service, disable the device, uninstall the driver, or stop the service, and then restart the server in normal mode. Contact the component manufacturer for support.

Add Safe Mode to the EFI Boot Option Menu

When you are troubleshooting a startup problem, you might need to return to Safe mode several times before the problem is identified and resolved. Each time you enter Safe mode, you must press the **F8** key or the **Esc 8** keys at precisely the right time during boot. If you have trouble starting Safe mode by pressing **F8** or **Esc 8**, you might find it easier to add a boot entry to the startup options and then select this entry during boot.

On HP Integrity servers, the firmware is based on the Extensible Firmware Interface (EFI) specification. EFI stores boot options in nonvolatile random access memory (NVRAM), a storage medium that can be edited, but retains its state even after you power off the server. You can edit boot options in EFI NVRAM using two utilities provided by Windows Server 2008: `bootcfg` and `nvrboot`.

Using `bootcfg` to Edit Boot Options

The `bootcfg` command enables you to edit boot options while the OS is running. You can use `bootcfg` to add, delete, and change the values of all valid boot options. You can also use `bootcfg` commands in a script or a batch file to set boot options (or to reset them) after you replace or upgrade an operating system.

To add two Safe modes — Minimal and Network — to the EFI boot option menu using `bootcfg`:

1. At the command prompt, type the following command:

```
c:\>bootcfg
```

The command displays the following output:

```
Boot Options
-----
Timeout: 20
Default:
\Device\HarddiskDmVolumes\PhysicalDmVolumes\BlockVolume1\WINDOWS
CurrentBootEntryID: 1

Boot Entries
-----
Boot entry ID: 1
OS Friendly Name: Windows Server 2008
OsLoadOptions: /redirect
BootFilePath:
\Device\HarddiskVolume1\EFI\Microsoft\WINNT50\ia64ldr.efi
OsFilePath:
\Device\HarddiskDmVolumes\PhysicalDmVolumes\BlockVolume1\WINDOWS

Boot entry ID: 2
OS Friendly Name: Internal Bootable DVD

Boot entry ID: 3
OS Friendly Name: EFI Shell [Built-in]
```

2. Copy the default boot entry (boot entry 1) using the following command:

```
C:\>bootcfg /copy /d "Safe Mode Minimal" /id 1
```

The system indicates that it successfully copied boot entry 1. The new entry is appended to the list. In the example, the new boot entry is assigned ID 4.

3. Change the options of the new boot entry by entering the following command:

```
C:\>bootcfg /raw "/safeboot:minimal /sos /bootlog /redirect" /id 4
```

4. Copy the default boot entry to another boot entry (ID 5) using the following command:

```
C:\>bootcfg /copy /d "Safe Mode Network" /id 1
```

The system indicates that it successfully copied boot entry 1. The new entry is appended to the list. In the example, the new boot entry is assigned ID 5.

5. Change the options of the new boot entry by entering the following command:

```
C:\>bootcfg /raw "/safeboot:network /sos /bootlog /redirect" /id 5
```

Using nvrboot to Edit Boot Options

The `nvrboot` command (`nvrboot.efi`) runs an EFI-based boot entry editor that you can run while the OS is shut down. Using `nvrboot`, you can edit, export backup copies, and import backup copies of boot entries into NVRAM. You can access `nvrboot` from the EFI shell in the `msutil` directory of the system partition (`fsN:/msutil/nvrboot.efi`, where `N` is the number of the file system).

To add to the EFI boot option menu using `nvrboot`:

1. From the EFI shell, navigate to the `msutil` directory and execute the `nvrboot.efi` command:

```
fs1:\> dir
fs1:\> cd msutil
fs1:\MSUtil> nvrboot
NVRBOOT: OS Boot Options Maintenance Tool [Version 5.1.3550]
*1. Windows Server 2008
  2. Internal Bootable DVD
  3. EFI Shell [Built-in]
(D)isplay (M)odify (C)opy E(X)port (I)mport (E)rase (P)ush (H)elp (Q)uit
```

2. To copy boot entry 1, select **C** and enter **1**.
3. To modify the new boot entry, select **M** and enter **4**.
 - To change the identifier, `LoadIdentifier=Safe Mode Minimal`, enter **1**.
 - To change the options, `OSLoadOptions=/safeboot:minimal /sos /bootlog /redirect`, enter **2**.
4. To copy boot entry 1 (for the safe mode network entry), select **C** and enter **1**.
5. To modify the new boot entry, select **M** and enter **5**.
 - To change the identifier, `LoadIdentifier=Safe Mode Network`, enter **1**.
 - To change the options, `OSLoadOptions=/safeboot:network /sos /bootlog /redirect`, enter **2**.

Recovery Console

Recovery Console is a command-line environment you can use to enable and disable services, format drives, read and write data on a local drive, and perform other administrative tasks. Recovery Console is particularly useful if you must repair your system by copying a file from a disk or CD-ROM to your hard drive, or if you must reconfigure a service that is preventing your system from booting. Use Recovery Console only if startup options such as Normal or Safe mode fail to start the server.



NOTE: Recovery Console does not support original equipment manufacturer (OEM) boot controllers not integrated into the core OS. For example, HP Smart Setup 3.40 provides drivers for the HP Smart Array 6400 and Emulex Fibre Channel controllers that are not on the Microsoft OS CD. However, Recovery Console does not support these boot controllers.

The Windows GUI is not available from the Recovery Console. Use Recovery Console if you are an advanced user who can execute low-level commands to identify and locate problem drivers and files.

There are two ways to start the Recovery Console:

- If you are unable to start the server, you can run Recovery Console from the Windows Server 2008 OS Setup CD.
- If the server can boot to Windows, you can install the Recovery Console on the server to make it available in case you are unable to restart Windows. You can then select the Recovery Console option from the list of available operating systems when you start the system.



NOTE: The Microsoft Windows Server TechNet page, “Install the Recovery Console as a startup option” (January 21, 2005) states that you cannot install Recovery Console on Itanium-based computers. However, this information is not current. You can use the HP Reinstallation DVD to install the Recovery Console on HP Integrity servers. The HP Reinstallation DVD is provided with all servers running a factory-installed operating system.

Starting Recovery Console from the Microsoft Windows Server 2008 CD

To start Recovery Console from the Microsoft Windows Server 2008 CD:

1. Insert the Windows CD in the DVD drive of the server and reboot.
2. From the EFI Boot Manager menu, select **Bootable DVD**; when prompted, press any key to boot from the Windows CD.
3. When the text-based part of Windows Setup begins, follow the prompts.
4. At the Welcome to Setup screen, press **R** to repair the installation, and then press **C** to start Recovery Console.
5. When prompted, select the Windows installation you want to repair (typically #1).
6. Follow the instructions on screen; when prompted, enter the password for the administrator account. Recovery Console uses the Administrator password created when you installed the OS. Password changes made after installation do not apply to Recovery Console.

Starting Recovery Console from the HP Reinstallation DVD

Installing the Recovery Console on an operational server can save you time and trouble later on. If you already have Recovery Console installed, and your server does not boot to the LKGC or Safe mode, you can select Recovery Console from the list of operating system instances to boot.

On a Headless Server Running Windows Server 2008:

1. Insert the HP Reinstallation DVD in the DVD drive of the Integrity server.
2. Log in from a Remote Desktop session.
3. Browse the DVD to locate the `\wnetsource\ia64` directory and double-click the file `winnt32.exe`. The related procedure on x86 systems includes the `/cmdcons` option; **DO NOT** use this option on Integrity servers.
4. Select **New Installation** and then click **Next** to accept the default installation mode.
5. Enter your Windows Server 2008 product key.
6. Select the language, installation, and accessibility options. Accept the default for other prompts.
7. After the file copy completes, the server reboots automatically and runs Windows Setup.
8. When the Windows Setup displays a text-mode menu, press **R** to repair a Windows installation using Recovery Console.
9. Select the Windows installation you want to repair.
10. Follow the instructions on-screen; when prompted, enter the password for the Administrator account.

From a GUI Console:

1. Insert the HP Reinstallation DVD in the DVD drive of the Integrity server and reboot.
2. After the server boots from the DVD, click **Advanced** to launch the command console.
3. Verify that the C: drive is mounted. If it is not, run the following command:

```
diskpart /s \ia64\addins\assign.txt
```
4. Change the directory to `\wnetsource\ia64` and run the `winnt32` command. The related procedure on x86 systems includes the `/cmdcons` option; **DO NOT** use this option on Integrity servers.
5. Choose **New Installation** and then click **Next** to accept the default installation mode.
6. Enter your Windows Server 2008 product key.
7. Accept the default for all subsequent prompts.
8. After the file copy completes, enter `Exit` to close the window, and then `Exit` again to reboot. The server reboots and runs Windows Setup.
9. When the Windows Setup displays a text-mode menu, press **R** to repair a Windows installation using Recovery Console.
10. Select the Windows installation you want to repair.

11. Follow the instructions on-screen; when prompted, enter the password for the Administrator account. Recovery Console uses the Administrator password created when you installed the OS. Password changes made after installation do not apply to Recovery Console.

Recovery Console Commands

From the Recovery Console, you can run commands to perform simple operations (such as changing to a different directory or viewing a directory) or complex tasks (such as repairing the boot sector). At the system prompt, enter the commands. For a list of commands, enter `help`; or enter `help <commandname>` for help on a specific command.

Recovery Console provides the following commands:

<code>attrib</code>	changes attributes on one file or folder.
<code>batch</code>	executes commands that you specify in the <code>InputFile.txt</code> file. The <code>OutputFile</code> contains the output of each batch command. If you omit the <code>OutputFile</code> argument, output is displayed on the screen.
<code>cd</code>	(<code>chdir</code>) operates only on system directories in the current Windows installation, removable media, the root directory of any hard drive partition, or the local installation sources.
<code>chkdsk</code>	The <code>/p</code> switch runs <code>Chkdsk</code> even if the drive is not flagged as dirty. The <code>/r</code> switch locates bad sectors and recovers readable information (this switch implies <code>/p</code>). <code>Chkdsk</code> requires <code>Autochk</code> . <code>Chkdsk</code> automatically looks for <code>Autochk.exe</code> in the startup folder or in the boot folder. If <code>Chkdsk</code> cannot find the file in the startup folder, it looks for the Windows Server 2008 installation CD. If <code>Chkdsk</code> cannot find the installation CD, it prompts the user for the location of <code>Autochk.exe</code> .
<code>cls</code>	clears the screen.
<code>copy</code>	copies one file to a target location. By default, the target cannot be removable media, and you cannot use wildcard characters. Copying a compressed file from the Windows Server 2008 installation CD automatically decompresses the file.
<code>del</code>	deletes one file. The <code>Del</code> command operates on the system directories of the current Windows installation, removable media, the root directory of any hard drive partition, or the local installation sources. By default, you cannot use wildcard characters.
<code>dir</code>	displays a list of all files, including hidden and system files.
<code>disable</code>	disables a system service or device driver.
<code>diskpart</code>	manages partitions on hard drive volumes. <ul style="list-style-type: none">• The <code>/add</code> option creates a new partition.• The <code>/delete</code> option deletes an existing partition.• The device-name argument is the device name for a new partition. One example of a device name for a new partition is <code>\device\harddisk0</code>.• The drive-name argument is the drive letter for a partition you are deleting, such as drive D.• Partition-name is the partition-based name for a partition you are deleting, and can be used instead of the drive-name argument. One example of a partition-based name is <code>\device\harddisk0\partition1</code>.• The size argument is the size in megabytes of a new partition.
<code>enable</code>	enables a system service or device driver.
<code>exit</code>	quits the Recovery Console and restarts the computer.
<code>expand</code>	expands a compressed file. The source argument is the file you want to expand. By default, you cannot use wildcard characters. The destination argument is the directory for the new file. By default, the destination cannot be removable

	media or read-only media. You can use the <code>attrib</code> command to remove the read-only attribute from the destination directory. The option <code>/f:filespec</code> is required if the source contains more than one file. This option permits wildcard characters. The <code>/y</code> switch disables the overwrite confirmation prompt. The <code>/d</code> switch specifies that the files should not be expanded and displays a directory of the files in the source.
<code>format</code>	formats a disk. The <code>/q</code> switch performs a quick format. The <code>/fs:file-system</code> switch specifies the file system.
<code>help</code>	lists all the commands that the Recovery Console supports. For more information about a specific command, type <code>help <command name></code> or <code><command name> /?</code> .
<code>listsvc</code>	lists the services and drivers available on the server.
<code>logon</code>	displays detected installations of Windows and requests the local Administrator password for those installations. Use this command to move to another installation or subdirectory.
<code>map</code>	displays the drive letter mappings.
<code>md</code>	creates a directory. The command operates only on the system directories of the current Windows installation, removable media, the root directory of any hard disk partition, or in the local installation sources.
<code>more/type</code>	displays the specified text file to the screen.
<code>rd</code>	removes a directory. The command operates only on the system directories of the current Windows installation, removable media, the root directory of any hard drive partition, or the local installation sources.
<code>ren</code>	renames a single file. The command operates only on the system directories of the current Windows installation, removable media, the root directory of any hard disk partition, or the local installation sources. You cannot specify a new drive or path as the target.
<code>set</code>	displays and sets the Recovery Console environment variables.
<code>systemroot</code>	sets the current directory to <code>%systemroot%</code> .

The `fixmbr` and `fixboot` commands that are available on Windows Server 2008 versions for x86 systems are not relevant for HP Integrity servers because Itanium-based systems do not have disks with a master boot record (MBR).

Automatic System Recovery (ASR)

ASR includes ASR Backup and ASR Restore:

- You can access ASR Backup through the ASR Preparation Wizard located in Backup. The ASR Preparation Wizard backs up system state data, system services, and all disks associated with the operating system components. The wizard also writes to a disk that contains information about the backup, the disk configurations (including basic and dynamic volumes), and how to perform a restore.



IMPORTANT: ASR Backup does not back up data files. You must back up your data files separately on a regular basis so you can restore them after the system is operational.

- You can access ASR Restore by pressing **F2** when prompted in the text mode portion of the setup. ASR reads the disk configurations from the diskette and restores all disk signatures, volumes, and partitions on the disks that are necessary to start your server. (ASR does attempt to restore all of the disk configurations; however, in some circumstances, it might not be able to). ASR then installs a simple installation of Windows and automatically starts it to restore from backup using the ASR Backup set.



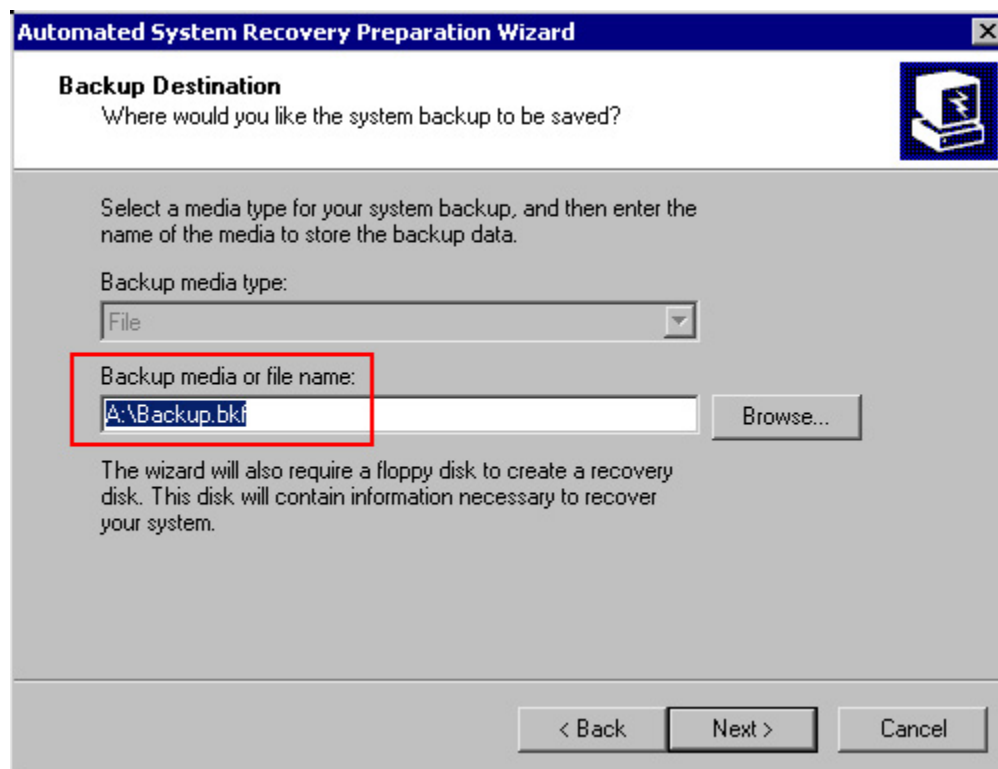
NOTE: ASR cannot be run from a headless server console.

Backing Up an ASR Set

To create an ASR set:

1. Open Backup (by clicking **Start > All programs > Accessories > System Tools > Backup**). The Backup or Restore Wizard starts by default, unless it is disabled.
2. Click the **Advanced Mode** link on the Backup or Restore Wizard.
3. On the Tools menu, click **ASR Wizard**.
4. Set the ASR Backup destination to the tape drive (4mm digital data storage), the recommended method, or another hard disk:

Figure 1-1 Backup Destination screen



5. Follow the instructions on-screen.

After creating the ASR set, label this floppy disk and backup media carefully and keep them together. To use the backup media, you must have the floppy disk that you created with that set of media. You cannot use a floppy disk created at a different time or with a different set of media. You must also have your Windows Server 2008 CD available at the time you perform Automated System Recovery.

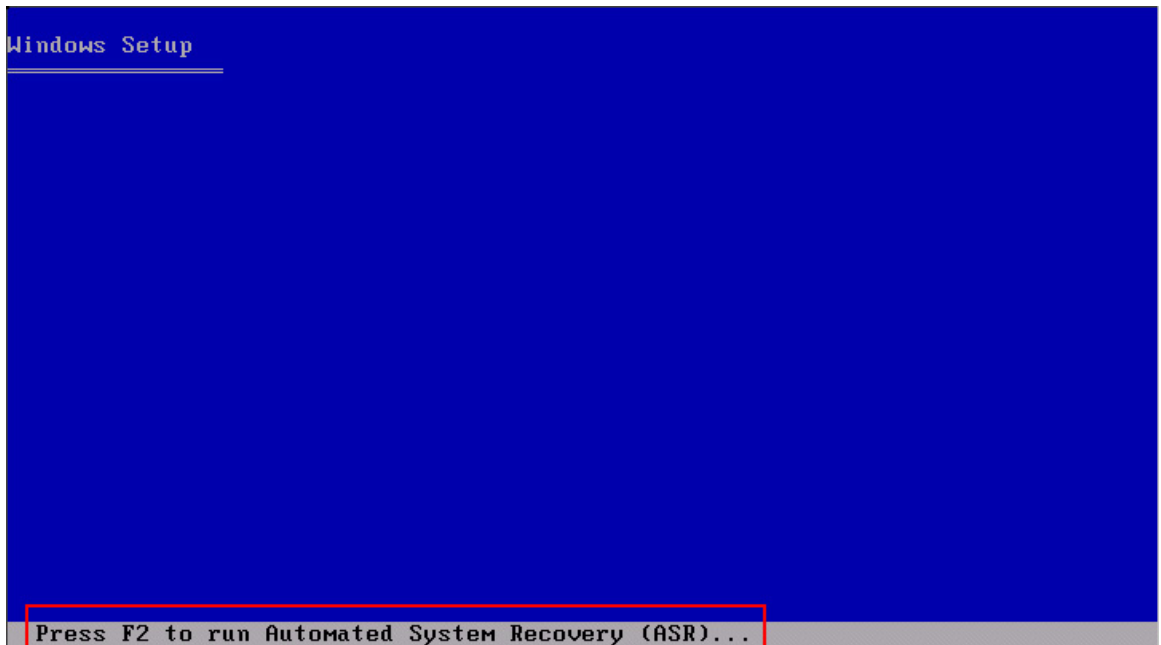
Recovering from a System Failure Using an ASR Set

To recover from a system failure using ASR:

1. Ensure that you have the following items available before you begin the recovery procedure:
 - Your previously created ASR diskette.
 - Your previously created backup media.
 - The Windows Installation CD.
2. Insert the Windows Installation CD into your CD drive.

3. Restart your server.
4. If you are prompted to press a key to start the server from CD, press the appropriate key.
5. If you have a separate driver file, use the driver as part of Setup by pressing **F6** when prompted.
6. When prompted at the beginning of the text-only mode section of Windows Setup, press **F2**.

Figure 1-2 Windows Setup screen



7. When prompted, insert the ASR diskette and follow the directions on the screen.

Figure 1-3 Windows Setup screen



Windows Setup proceeds to format the C: drive. Setup then installs a minimal operating system on the C: drive and restores information stored on the back up target device. If you backed up

the ASR set to a hard drive, wait for the first reboot before connecting that hard drive to the server.

Windows Recovery Environment (Windows RE)

Windows Recovery Environment (Windows RE) is an extensible recovery platform based on the Windows Preinstallation Environment (Win PE). Windows RE is the starting point for several system recovery tools. Some of the benefits of these tools include:

- reduced support costs
- diagnostics and repair logs
- their usefulness as part of a recovery platform

Starting Windows RE using the HP Reinstallation Media

To start Windows RE from the HP Reinstall media, complete the following steps:

1. Insert the HP Reinstallation media into the system's DVD drive.
2. Restart system and boot from the DVD drive into the WinPE environment.
3. Click the **Advanced** button to start a command prompt.
4. Enter **N** (for No) at the "Start Networking" prompt (to disallow network connections).
5. Go to this directory: `x:\sources\recovery`
6. Run `recenv.exe`.
7. Select **Keyboard Localization** at the System Recovery Options panel.
8. Choose the operating system to repair and click **Next**.
9. Select the desired recovery tool from the list displayed. Available tools include:
 - Startup Repair (run `startrep.exe`)
 - System Restore (restore point required)
 - Windows Complete PC Restore (backup required)
 - Command Prompt (run `cmd.exe`)
10. Select **Shutdown** or **Restart** when done.

Using Windows RE with the Microsoft Product Support Services (PSS) Wizard

The Windows RE provides a Microsoft Product Support Services (PSS) wizard that can be used with the Microsoft PSS support team. To run this PSS wizard, complete the following steps:

1. Insert the HP Reinstallation media into the system's DVD drive.
2. Restart system and boot from the DVD drive into the WinPE environment.
3. Click the **Advanced** button to start a command prompt.
4. Enter **Y** (for Yes) at the "Start Networking" prompt (to allow a network connection to Microsoft PSS).
5. Go to this directory: `x:\sources\recovery`
6. Run `psswiz.exe`.
7. Follow the on-screen instructions and connect to the MS help desk as needed.

ResQme

ResQme is an advanced support tool designed by HP support to troubleshoot system problems when all other recovery options fail. ResQme enables HP Support to gather critical information even if the system is down and cannot be booted.

ResQme is an extensible job handler written in Python that runs in the "Advanced Console." Each job is an independent operation that collects and displays data pertaining to the failed system. These jobs include inspecting disks, accessing registry data, and gathering files to perform troubleshooting operations.

ResQme is intended to be run by a local administrator under the guidance of an HP Support Engineer. This support tool is not designed to function as an administrative utility. Please contact an HP support representative before using this tool.

For More Information

For more information, refer to: <http://www.hp.com/go/integrity>

To download the latest drivers, management agents, and other software — including the Smart Setup CD, the SmartUpdate CD, and the Offline Diagnostics CD — refer to:

<http://www.hp.com/support/itaniumservers>

To download the latest documentation, refer to: <http://docs.hp.com/en/windows.html>