

# System recovery on HP ProLiant Storage Servers upgraded to Windows Storage Server 2003 R2 white paper



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# Executive summary

This document describes the processes that need to be followed to perform a restore of an HP ProLiant Storage Server (PSS) that has been upgraded from Microsoft® Windows® Storage Server 2003 (WSS 2003) to Windows Storage Server 2003 R2 (WSS 2003 R2). A disaster is defined in this document as a need to restore the operating system for the server in question. Restoring user data is not described. User data should be backed up separately and on a regular basis dictated by the data being stored on the server and the needs of the customer.

## Preparation

### Create a backup of the system

Users should create a backup of their system disks from a server that is not online. This step will ensure that no system files are open and thus not backed up. This step should be done after the upgrade to WSS 2003 R2. A complete backup of the system can be accomplished by using one of several different systems. Each system can be from multiple vendors and these guidelines are not designed to give the specifics of any particular vendor's product.

#### **Disk imaging**

The advantage to taking a disk image and storing the file on an external source is that in the event of a disaster, there is an image of a working system with all of the configuration data in tact. The disadvantage is that the server must be offline to capture. This step ensures that the system is in a state ready to have power added to it. Getting subsequent images can be time-consuming and difficult to manage in an environment where a server is expected to be up continually. To capture the image, follow the instructions of the disk imaging software.

#### **Tape backup**

Recovering from tape is a mature and well-understood process. Users should make full backups whenever they feel it is in their best interest and following the guidelines provided by any governing bodies or corporate policies. The best practice is to make a backup of the system while it is offline. Doing so will guarantee a consistent system state. Unfortunately, backing up is rarely done. Most backups are taken while the system is up. In this case, the system state should be backed up so that the most current information can be restored at the time of restore.

## Scenarios

### Disk imaging software

This method is the easiest and most efficient way to get the system back to a known good state after a disaster. When used with standard backup methods, the system can be back online in the least amount of time of all the scenarios.

The steps to restore are:

1. Restore the disk image as the manufacturer of the disk imaging software recommends.
2. Boot off the newly restored disks.
3. Restore the system settings that have changed since the image was taken by restoring from a tape or other backup device.

Following these steps will result in the system being returned to a useful configuration in the shortest time possible.

## Full backup after the upgrade

If a backup was taken while the system was offline, follow these steps:

1. Boot the system as per the backup vendor's suggestion.
2. Restore the OS.

Any software installed on the system after the backup was created will need to be applied to return the system to pre-disaster status. Installed software would include Service Releases, Service Packs, Windows updates, and applications.

## Recover using original recovery DVD

If only a system state backup is available (no offline backup available), follow these steps:

1. Run the recovery disk that came with the system originally. This will put the original version of the OS back on the disks.

The only exceptions to this would be if you are upgrading HP StorageWorks NAS 1200s, HP StorageWorks NAS 1500s (HP ProLiant DL100 G1 Storage Server), HP StorageWorks NAS 2000s, HP StorageWorks NAS 4000s, or the HP StorageWorks NAS 9000s. These versions will restore the R2 version because their original operating systems were not upgradeable. Users can skip to step 4.

2. Verify the system has Windows 2003 SP1 installed. Update to SP1 using the Windows Storage Server Service Release 5.6 update DVD if necessary.
3. Update the system to R2 using the R2 software upgrade DVD.
4. Restore any Service Releases or Service Packs that were installed at the time the backup was made. This step will allow the correct drivers to be updated in a way that is consistent.
5. Restore the OS from the backup including the system state.

Any software installed on the system after the backup was created will need to be applied to return the system to pre-disaster status. Installed software would include Service Releases, Service Packs, Windows updates, and applications.

## Last complete backup before upgrade or no backup

If a backup was taken while the system was offline, follow these steps:

1. Boot the system as per the backup vendor's suggestion.
2. Restore the OS.
3. Upgrade the system to SR 5.6 if necessary. If the original was earlier than version 5.6, then this step is critical to get Windows Service Release 1 on the system. This is a requirement for the upgrade to R2.
4. Run the upgrade software to upgrade to R2.
5. Restore any Service Releases or Service Packs that were installed at the time the backup was made. This step will allow the correct drivers to be updated in a way that is consistent.
6. Restore any Service Releases or Service Packs that were installed after the backup was made. This step will bring the server back to date.
7. Run windows update.

If a backup was taken while the system was online, follow these steps:

1. Run the recovery disk that came with the system originally. This step will put the original version of the OS back on the disks.

The only exceptions to this would be if you are upgrading HP StorageWorks NAS 1200s, HP StorageWorks NAS 1500s (HP ProLiant DL100 G1 Storage Server), HP StorageWorks NAS 2000s, HP StorageWorks NAS 4000s, or the HP StorageWorks NAS 9000s. These versions will restore the R2 version because their original operating systems were not upgradeable. Users can skip to step 4.

2. Upgrade the system to SR 5.6 if necessary. If the original was earlier than version 5.6, then this step is critical to get Windows Service Release 1 on the system. This is a requirement for the upgrade to R2.
3. Run the upgrade software to upgrade to R2.
4. Restore any Service Releases or Service Packs that were installed at the time the backup was made. This step will allow the correct drivers to be updated in a way that is consistent.
5. Restore any Service Releases or Service Packs that were installed after the backup was made. This will bring the server back to date.
6. Run windows update.

## Summary

The fastest way back to productivity in a disaster recovery scenario is to use disk imaging technology when the system is offline. If this cannot be accomplished, then there are several ways outlined to help restore a system to R2.

A thorough and practiced backup strategy is essential in recovering from a disaster. A disaster recovery should also be tested before any real disaster.

The quickest way of recovering from a disaster is by using a disk imaging tool. The limitation to a disk imaging utility is the system downtime due to having the system offline to properly image the OS drive. A full system backup also has the limitation of requiring the system to be offline to back up necessary OS files, and has the additional limitation of using a time-consuming (usually tape) device as a storage media. A system state backup can be accomplished with the system online. The limitation of a system state restore is the OS must be returned to the OS Service Pack level (that is, SP1 or R2) using the original install disks before applying the system state backup.

Users may also choose a combination of the preceding methods of recovery to ensure system uptime while also minimizing downtime following a disaster. One example is to take a full offline system backup or disk image created on every Service Pack or major update and then have system state backups done at pre-determined intervals.

## For more information

For more information, visit: <http://www.hp.com/go/storageservers>

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