Disaster Recovery Guide for Windows 2008 and RHEL 5.x platforms with external disk support

HP Data Protector 6.11

Technical white paper

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1. Assisted Manual Disaster Recovery

This document explains how to prepare and execute an Assisted Manual Disaster Recovery (AMDR) on Windows 2008 and Linux systems.

2. Overview / Procedure

2.1 AMDR for Windows 2008 systems

The general procedure for Assisted Manual Disaster Recovery of a Windows 2008 client is as follows:

Phase 0

- Perform a full host backup and an IDB backup (Cell Manager only).
- Update the SRD (system recovery data) file. Collect information on the original system to enable installation and configuration of the DR OS (disaster recovery operating system).

Phase 1

- Replace the faulty hardware.
- Re-install the operating system. (Create and format the necessary partitions.)
- Re-install the service packs.
- Manually re-partition the disk and re-establish the storage structure with the original drive letter assignments.

Phase 2

- Execute the Data Protector 'drstart' command that will install the DR OS and start the restore of critical volumes.
- The computer must be rebooted after the 'drstart' command finishes.

Phase 3

- Use the Data Protector standard restore procedure to restore user and application data.

2.2 AMDR for Linux systems

Phase 0

- Perform a full client backup and an IDB backup (Cell Manager only).

Phase 1

- Replace the faulty hardware.
- Install the Linux operating system. (Create and format the necessary partitions.)

Phase 2

- Install the Data Protector agents.
- Use the Data Protector standard restore procedure to restore user and application data.
- Reboot the server.

3. Requirements

- The partitions have to be the same size or larger than the partitions on the failed disk. This way, the information stored on the failed disk can be restored to the new disk.
- The hardware configuration of the target system must be the same as that of the original system. This includes the SCSI BIOS settings (sector remapping).
- If volume mount points were created before the disaster event, these mount points must be recreated before starting the disaster recovery procedure. This is because volume mount points are not

restored automatically. If the mount points are not recreated, data might be restored to the wrong location.

4. Guidelines for Creating a Disaster Recovery for Windows 2008 R2 x86-64

4.1 Preparation

To prepare for a successful disaster recovery, you should follow the instructions related to the general preparation procedure together with specific method requirements. Advance preparation is essential to perform the disaster recovery fast and efficiently. You should also give special attention to the disaster recovery preparation of the Cell Manager and the Microsoft Cluster Server.

4.2 Step-by-step procedure

4.2.1 Backup

The backup process includes running a back up session for all the files in the system and updating the SRD file. The SRD file contains information about the file system, and other relevant data.

4.2.2 Backup of all files in the system

A backup is done of all the files which have to be recovered in case of a disaster event. While running the backup process, the following options must be checked in the Data Protector Cell Manager GUI (graphical user interface):

1. Copy the full DR image (Figure 2)

2. Use shadow copy (Figure 3)

3. Detect VTFS hard links (Figure 3)

4.2.3 Update the SRD file

The SRD file is saved in a file location. It contains the information about the layout information of the file system. The data following the layout tag in the SRD file is to be noted down and will be provided as the unique disk ID while installing the Mini OS.

Figure 1: Selecting all the files for backup
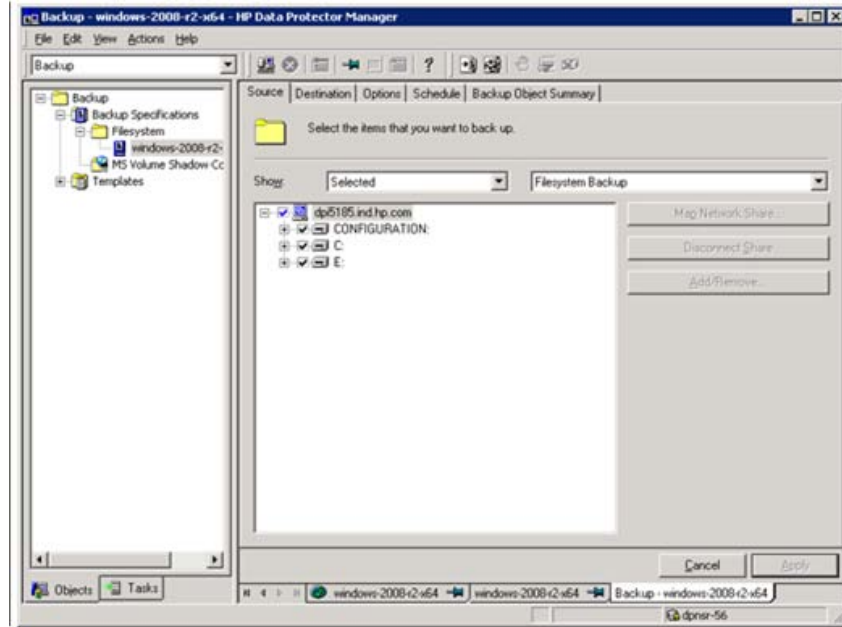
In Filesystem Options, check the option Copy full DR image to disk.

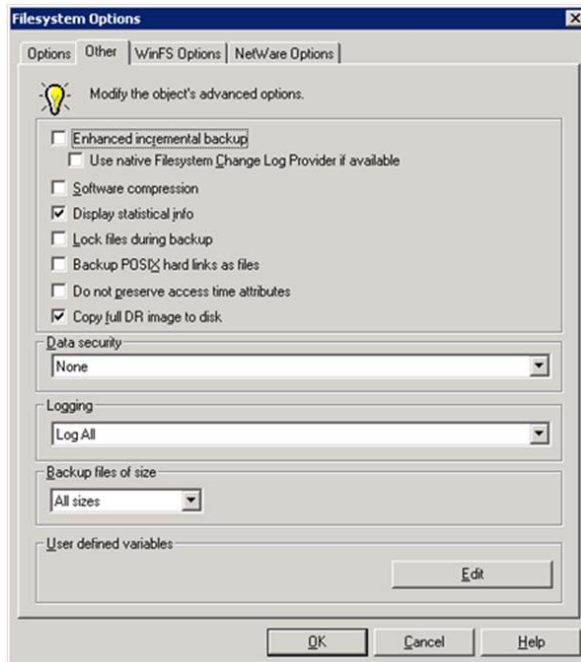**Figure 2:** Check 'Copy full DR image to disk'

Figure 3: Check 'Use Shadow Copy' and 'Detect NTFS hard links'
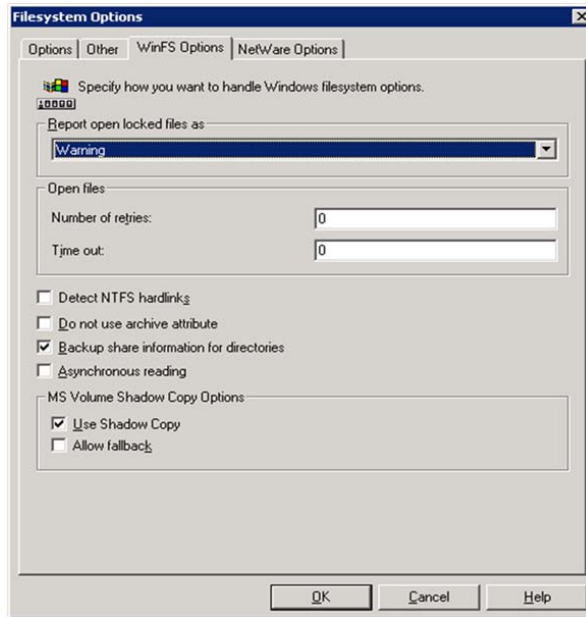

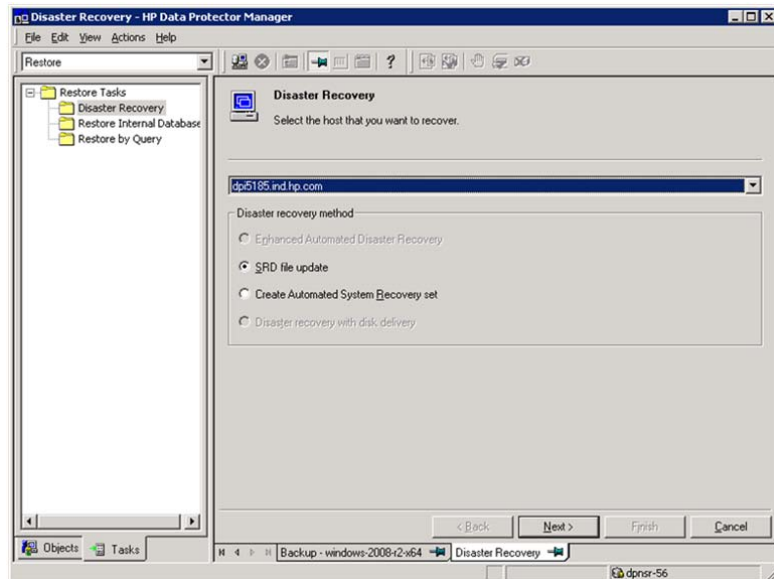**Figure 4:** Updating the SRD file and saving it to a particular location

Figure 5: Saving the SRD file to a particular location
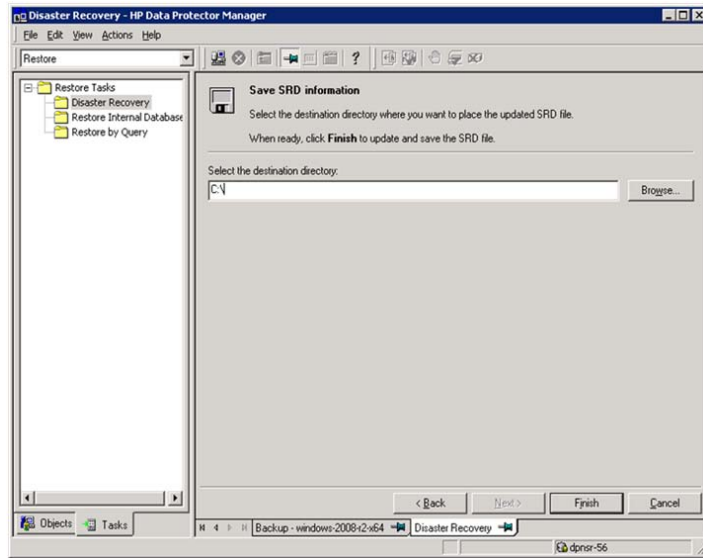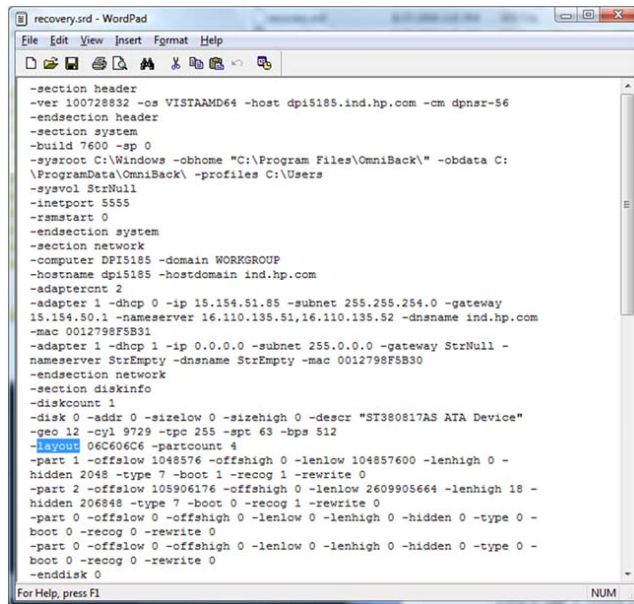

Figure 6: Note down the information about the layout in the SRD file

4.3 Creating a Mini OS

The first scenario (and the recommended one) for creating a Mini OS is to install W7/R2 WAIK on a Windows 2008 client. Then, using the installed WAIK's tools, manually prepare the bootable CD-ROM. This preparation may involve the installation of drivers which support the underlying hardware on the system to be recovered. Check the link for other scenarios for making the Mini OS CD:
http://technet.microsoft.com/en-us/library/dd799278%28WS.10%29.aspx

For step-by-step instructions on creating a Mini OS, see
http://technet.microsoft.com/en-us/library/dd799303%28WS.10%29.aspx

4.4 Recovery process

The process of recovery starts with:
- Replacing the faulty/new hard disk
- Installing the Mini OS
- Configuring the IP
- Preparing the disk partition
- Installing the Mini DP
- Running the restore process

Note:
Mini DP is the name given to the CD containing the installation package which is used to install the Date Protector on the new machine.
Mini OS is the name given to the CD containing the installation package which is used to install the operating system on the new machine.
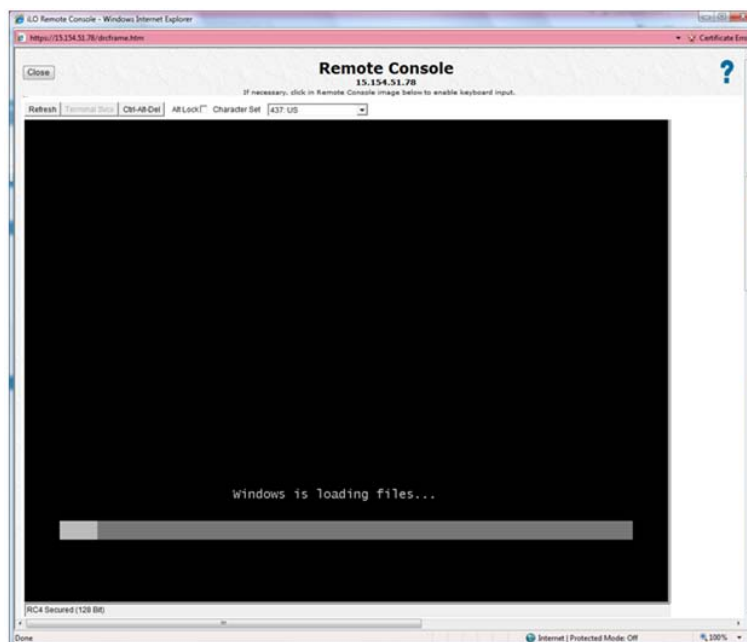
4.4.1 Replacing the faulty / new hard disk
The old or faulty hard disk is replaced with a new hard disk. Files are to be restored to the new hard disk.
4.4.2 Installing the Mini OS
When the new hard disk is installed and available, the Mini OS CD which contains the iso image is inserted and the system is booted.

Figure 7: The boot process with the Mini OS CD inserted

4.4.3 Configuring the IP address

Manually configure the ip:
- netsh interface ip set address name="Local Area Connection" static 15.154.51.85 255.255.254.0 15.154.50.1 1

Manually configure the dns settings:
- netsh interface ip set dns "Local Area Connection" static 16.110.135.51

The IP address information is provided later on, when omnidr.exe recovery module is run manually. Also, the firewall must be disabled to let other systems access the cell to gain access to the Disk Agent/Omnilnet.

4.4.4 Preparing the disk partion

Use 'diskpart' to re-partition the disk(s). Create partitions, format volumes, and assign drive letters. Partition sizes should normally be similar to the original ones. The source of this information is the SRD file. An important step is the assignment of the disk signature to the disk to be recovered. Without this, the system will not boot. Additionally, make the System Reserved partition active/bootable. This also renders the system to be recovered bootable.

4.4.5 Installing the Mini DP

The Mini DP installation CD (containing 'Disk1.iso', along with the previously updated SRD file) is used for the Mini DP installation. The omnidr.exe executable is run manually. The commands to be executed are shown in the following screenshot. Note that the disk ID which was noted from the SRD file is used here as an argument for the 'uniqueid disk' command.
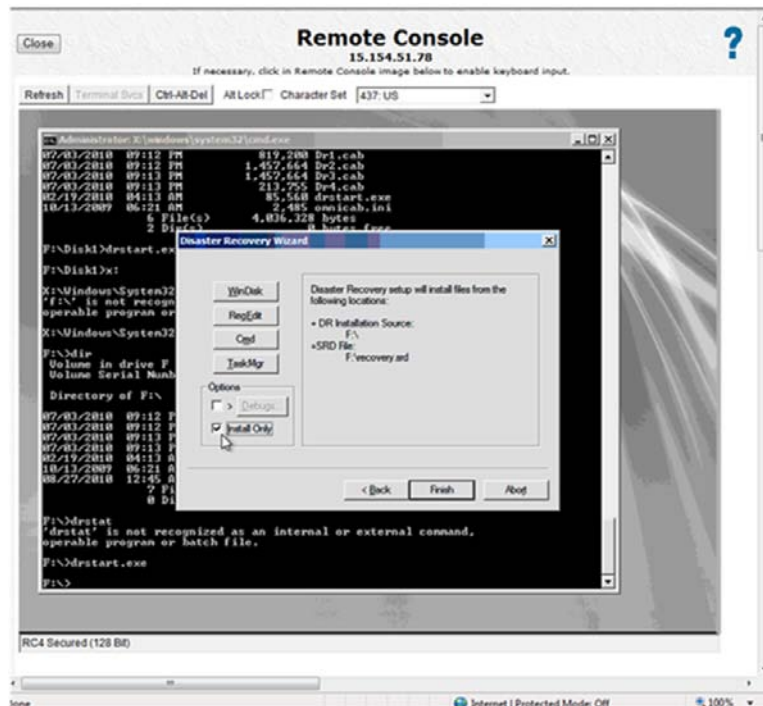

Figure 8: Installation of the Mini DP

4.4.6 Running the restore process

Change directory path to '\Windows\System32\OB2DR\bin'. Run 'omnidr.exe' in Disk Delivery mode (this requires some specific command-line parameters to be specified). The restore session starts after this step. Use the 'Wpeutil' command to restart the machine.

Notes

- Disk Delivery Disaster Recovery is not supported for Microsoft Cluster Server.
- RAID is not supported. This includes software RAIDs (fault-tolerant volumes and dynamic disks).
- Internet Information Server (IIS) Database, Terminal Services Database and Certificate Server Database is not restored automatically during Phase 2. They can be restored on the target system using the standard Data Protector restore procedure.

5. Guidelines for Creating a Disaster Recovery for Linux

5.1 Backup

Perform a full backup of the entire Linux machine.

5.2 Restore

5.2.1 Minimal Red Hat Enterprise Linux 5 install

For a successful installation of the Linux operating system, follow these steps.

5.2.2 Boot from a RHEL 5.5 OS boot CD

A RHEL 5.5 OS boot CD is inserted into the disk drive and the system is booted from the CD.

5.2.3 Preparing the disk partition

The new hard disk is partitioned in a similar way as the old hard disk was partitioned.

5.2.4 Configuring the IP address and completing the installation

The IP address of the new system needs to be configured and the packages can be unpacked. For a minimal installation, uncheck all packages except 'Base' in the 'Base System' category.
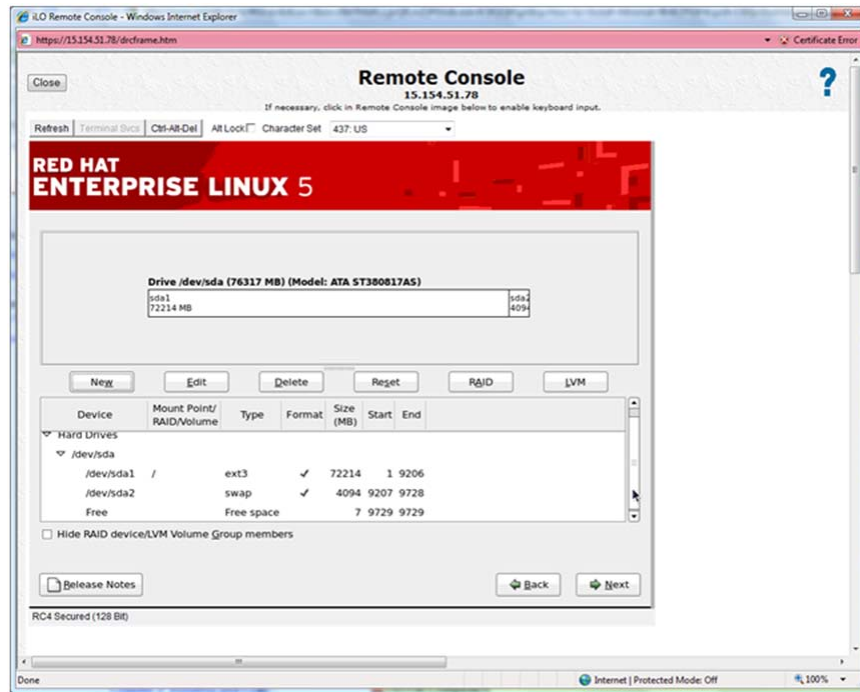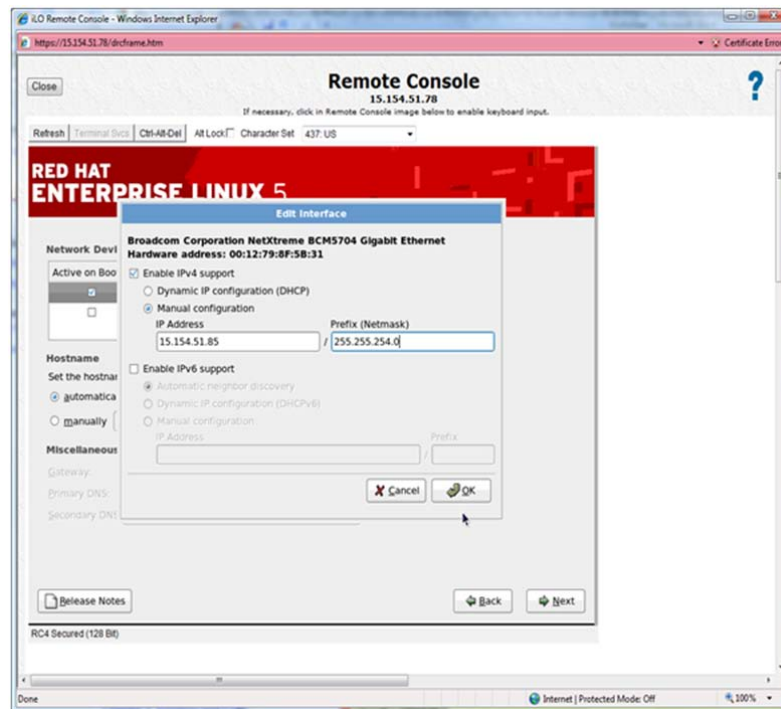
Figure 9: Preparing the disk partition

Figure 10: Configuring the IP address

5.2.5 Installing the Data Protector agents

Installing the Data Protector agents includes:
- Installing the Data Protector Disk Agent (DA)
- Installing the Data Protector Media Agent (MA)
- Importing the client after local installation

5.2.6 Restoring the entire file system

A restore session of the entire file system is now performed and the server is rebooted.

For more information

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