



Dell DR4000 Disk Backup System

Introduction to the Dell™ DR4000 Restore Manager

A primer for creating and using
a Restore Manager USB flash drive

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1 Introduction

The Dell DR4000 backup appliance Restore Manager (RM) utility is used to restore the DR4000 system software in the event of a non-recoverable error.

The DR4000 has been designed to be highly fault-tolerant incorporating such features as dual redundant power supplies, a RAID 1 (mirror) protected virtual disk for the system software, a RAID 6 protected virtual disk to store backup data, and a global hot spare. Despite this robust design, unforeseen events can occur and render the DR4000 inoperable. Normally, a failure of this magnitude requires repair of one or more hardware components. Once the defective hardware has been replaced, the DR4000 system software may need to be reinstalled to bring the system back to a fully operational state. RM can restore the DR4000 back to a fully operational state effortlessly with a minimal amount of user input. Additionally, because system recovery may include replacing failed hardware components, RM will verify and update, if necessary, the firmware of any replaced components without user interaction.

2 Restore Manager Operating Modes

Before attempting to run the Restore Manager, it is important to understand its two modes of operation:

- **Appliance Recovery Mode** – Restore Manager reinstalls the system software and attempts to recover user settings and user data
- **Factory Reset Mode** – Restore Manager reinstalls the system software and erases all prior user settings and user data

2.1.1 Understanding Recovery Mode

Recovery mode is the most commonly used option to recover after a system failure. This option is used when the system software becomes non-functional, typically as a result of a non-recoverable software failure. The RAID 1 virtual disk resides on the two internal 2.5-inch hard drives and contains the system software. Use Recovery mode when no critical hardware failures have occurred on the internal or external hard drives.

In Recovery mode, Restore Manager reinstalls the system software on the RAID 1 virtual disk and reboots. During this first boot operation, the DR4000 system will attempt to remount the RAID 6 virtual disk residing on the front facing 3.5-inch hard drives. User settings and user data will be recovered if possible. Once the system recovery is complete, the administrator, service, and root passwords are reset back to the factory defaults. Additionally, the root and service accounts are disabled.

2.1.2 Understanding Factory Reset Mode

Factory Reset mode is used only when you do not wish to recover user settings and user data, and it is the only mode that can be used if a non-recoverable failure has occurred on the internal RAID 1 hard drives or the external RAID 6 hard drives. All of the hard drives are erased and reset back to the factory

default state. Therefore, use extreme caution when selecting this mode because all prior user settings and **data will be lost** and cannot be recovered.

Factory Reset mode begins by destroying the existing internal RAID 1 and external RAID 6 virtual disks. New virtual disks are created and the external hard drive in slot 0 is assigned as a global hot spare. The system software is then installed on the internal RAID 1 hard drives.

When the system restore completes, the administrator, service, and root passwords are reset back to the factory defaults. Additionally, the root and service accounts are disabled.

Factory Reset can also be used any time you wish to reset the DR4000 back to initial factory configuration, even if there is no system failure that needs to be repaired. For example, some companies may initially deploy the DR4000 in an IT test environment to gain familiarity of the system prior to deploying into a production setting. At the completion of the test, the Factory Reset mode can be used prior to delivering the DR4000 to the department that will deploy the system in their production environment.

3 Downloading Restore Manger

Dell posts the Restore Manager image at <http://support.dell.com/support/downloads/>. Navigate to this web site and enter the service tag of your DR4000 system to locate the DR4000 Restore Manager download. Alternatively, a DR4000 download page can be located by model found under **Servers and Storage** → **EqualLogic** → **DR4000**.

The Restore Manager image is located on the DR4000 download page under the **IDM** category and is a bootable block-by-block image copy of a USB key. When Restore Manager has downloaded to your system, you must copy it to a USB key. The USB key must be at least 4GB in size. The Restore Manager image may not use all 4GB on the key; however, all data on the key will be erased. See the section below, based on your operating system, for instructions on copying the image to a USB key.

3.1.1 Creating a Restore Manger USB Drive under Windows

Microsoft® Windows® operating systems do not provide a convenient method to perform a block-to-block copy of an image file such as the Restore Manger to a USB key. However, there are freeware and shareware tools readily available on the web to perform this operation. One such tool that has been found to work well and is easy to use is the USB Image Tool found at www.alexpage.de/usb-image-tool/

After installing the USB Image Tool on your Windows system, follow these steps to copy the RM image to your USB key:

1. Insert the USB key into your Windows system.

NOTE: You do not need to format the USB key because the Restore Manager image includes formatting.

2. Right-click the USB Image Tool and select **Run as administrator**.

3. Select **Device mode** in the top-left drop-down menu.
4. Click the USB icon in the left-hand pane.
5. Click the **Options** tab and ensure none of the options are selected.
6. Click the **Restore** button.
7. Browse to the location on your Windows system that contains the Restore Manager image and select that image.
8. Click the **Open** button.
9. Click **Yes** to confirm you wish to copy the image to the USB key.
10. After the image copy is complete, exit the USB Image Tool.
11. Safely eject the USB key.

The Restore Manager USB key creation is complete.

3.1.2 Creating a Restore Manger USB Driver under Linux

1. Copy the downloaded Restore Manager image file to a Linux/Unix system.
2. Insert the USB key into an available USB port on the Linux/Unix system.
3. Make note of the device name that is reported by the operating system (for example, /dev/sdc).

NOTE: Do **NOT** locally mount the USB device to a file system at this time.

4. Copy the RM image to the USB key using the following command:

```
dd if=<path to .img file> of=<usb device> bs=4096k
```

For example:

```
dd if=/root/DR4000-UM-1.0.1.34557.img of=/dev/sdc bs=4096k
```

4 Starting the Restore Manager

To launch Restore Manager, insert the Restore Manager USB key into an available USB port on the DR4000.

NOTE: You can also remotely mount the Restore Manager USB key using the iDRAC virtual media option. See the *Configuring and Using Virtual Media* section of the *Integrated Dell Remote Access Controller 6 (iDRAC6) User's Guide* at support.dell.com/manuals for additional details.

When the system is initially booting, press the <F11> key to enter the BIOS Boot Manager utility. In the BIOS Boot Manager utility, select the USB key as the boot device and press <Enter> and save the changes in the BIOS. Restore Manager will boot off of the USB key and you will be presented with the recovery mode choices as described in Restore Manager Operating Modes.

5 Updating the Restore Manager USB Key

You can update the USB key with new versions of DR4000 system software by downloading the DR4000 upgrade software from: <http://support.dell.com/support/downloads/>

1. Locate and delete the ***.tar.gz** file on the USB key in the `\RMPAYLOAD\UMPAYLOAD\` folder.
2. Copy the new upgrade software ***.tar.gz** file to the USB key in the `\RMPAYLOAD\UMPAYLOAD\` folder.

The Recovery Manger USB Key now contains the updated DR4000 system software.