

# Tape Backup Integration with VMware VDR

**Title:** Tape Backup Integration with VMware VDR  
**Author(s):** Xtravirt (Peter Grant)  
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**UID:** XD10131

**Content Overview:**

- VMware Data Recovery Introduction
- Setting up VMware Data Recovery
- Moving Data to Tape

## 1.0 Introduction

Many customers require offsite storage of their virtual machines for archive or DR purposes and require the solution to move data to a 3rd backup tier such as tape. VDR doesn't natively support this, however this guide describes how to achieve a level of integration with the use of simple Powershell commands and scripts.

VMware Data Recovery (VDR) is VMware's virtual machine backup product included with the following editions of vSphere:

- Essential Plus
- Advanced
- Enterprise
- Enterprise Plus

VDR utilizes a (Linux CentOS) virtual appliance to process and backup data to a disk repository on either a VMFS volume presented to the appliance as an attached disk or a Windows network share.

VDR supports 'changed block tracking' which is a new feature only found on vSphere, applicable only to virtual machines created with version 7 VM hardware. Version 7 is the ESX 4.0 version and is not downwards compatible with ESX 3.5 hosts. Changed block tracking dramatically decreases the backup time of VM's as the VMDK file no longer needs to be scanned for changed blocks. VMware keeps a track of them so only the blocks that require backing up need to be processed.

**Note:** VDR does support virtual machines created with virtual hardware version 4 (ESX 3.5), however these dramatic speed improvements won't be achieved.

## 2.0 Setting up VDR

VDR has two options for backup targets; either VMFS or Windows network share. This document describes how to move data to tape when backing up to a network share location only.

### Initial VDR Setup

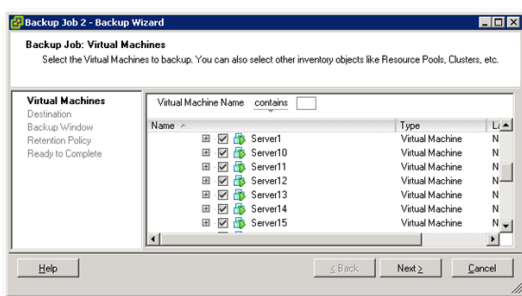
1. Download and Install the VDR plug-in, [http://downloads.vmware.com/d/info/datacenter\\_downloads/vmware\\_vsphere\\_4/4](http://downloads.vmware.com/d/info/datacenter_downloads/vmware_vsphere_4/4)
2. Enable the plug-in within the VI Client
3. Import the backup appliance (also included in the above download)
4. Power on the backup appliance and note the dynamically assigned IP. You can also login to the appliance from the console using the default username: **root**, password: **vmw@re**, and change the IP to a static one.  
**Note:** If you are typing using a UK keyboard the @ symbol and " may be reversed. A suggestion is to type the password in the username field first, just to confirm the correct characters appear, before re-typing in the concealed password field.
5. Within the VI Client navigate to the VDR menu (Home / Solutions and Applications / VMware Data Recovery)
6. Connect to the IP of the VDR appliance
7. Create a new backup job:



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8. Select the servers to backup



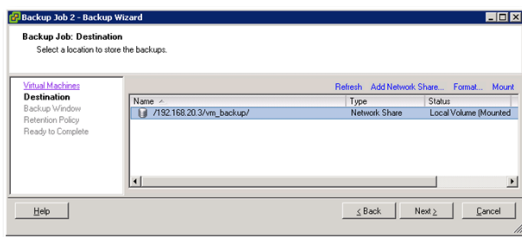
12. Click Next, and then Finish.

VDR will now automatically start backing up the VMs once the backup Window starts. If the backup window expires and some machines still haven't been backed up then they will be first to run at the next available window.

Full installation instructions are found in this VMware document:

[http://www.vmware.com/pdf/vdr\\_10\\_admin.pdf](http://www.vmware.com/pdf/vdr_10_admin.pdf)

9. Add a Network Share:

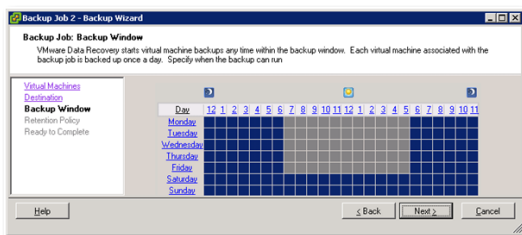


## 3.0 Moving Data to Tape

### 3.1 Introduction

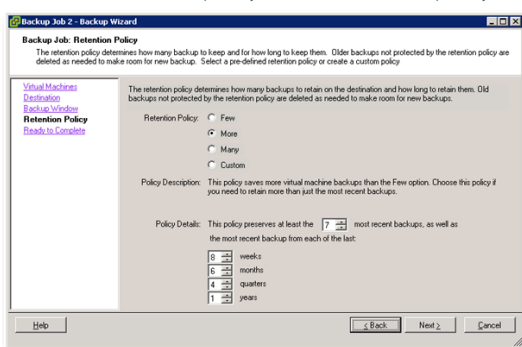
Once the virtual machines have been backed up, the repository will be stored on the network share that was specified. VDR deduplicates the virtual machine files so the actual repository data will store in a format which is only useful to a VDR appliance.

10. Select a Backup Window



The backup folder and files are portable and they can be moved off to tape, restored and reconnected to the same or a new VDR appliance. The repository contains the state of the VDR appliances which means the backup jobs, logs etc are retained, and hence restored if the repository data is copied back from a tape source.

11. Set a Retention policy. Data outside this policy will



As always, there are some points to be aware of. Under this version (1.0.2) the backup repository must be in an 'inactive' state when it is copied to tape (or other media). The repository will be in an active state in conditions such as:

- Performing a backup
- Performing a restore
- During housing keeping tasks such as integrity checks or pruning of old backup restore points

Because of this restriction, the only way to ensure the repository is inactive is to shut down the VDR appliance before copying data to tape.

### 3.2 Automating the Shutdown / Start-up of the VDR appliance

One of the easiest ways to automate this is using the VMware Powershell Commandlets.

#### Pre-requisites

1. Powershell must be installed. This is included in Windows 2008 and Windows 7 or it can be downloaded from here:  
<http://www.microsoft.com/windowsserver2003/technologies/management/powershell/download.msp>
2. VMware Powershell Commandlets must be installed. They can be found here:  
[http://communities.vmware.com/community/vmtn/vsphere/automationtools/windows\\_toolkit](http://communities.vmware.com/community/vmtn/vsphere/automationtools/windows_toolkit)
3. Ensure Powershell '**Remote Execution**' is enabled. This is disabled by default and can be enabled by starting a PowerShell command prompt and typing:

```
Set-ExecutionPolicy RemoteSigned
```

**Note:** This will allow local scripts to run.

### 3.3 Manual Powershell Commands

These manual steps have been included to outline the process that the automated script below follows.

Once the pre-requisites are met, open the VMware Powershell command prompt and run the following commands:

#### Shutdown the VDR Appliance

1. Establish a connection to the vCenter server:

**Note:** The command below should be typed as one line.

```
Connect-VIServer -Server <vCenterIPAddress>  
-Protocol https -User <adminUsername>  
-Password <password>
```

2. Shutdown the OS of the VDR appliance:

```
Shutdown-VMGuest <VDRApplianceName>
```

**Note:** Type "Get-VM" to verify the correct name of the VDR appliance

3. Close the connection

```
Disconnect-VIServer -Confirm:$False
```

At this point the tape backup job can be run. Once complete, the VDR appliance should be started up again as per the following commands.

#### Start up the VDR Appliance

1. Establish a connection to the vCenter server:

**Note:** The command below should be typed as one line.

```
Connect-VIServer -Server <vCenterIPAddress>  
-Protocol https -User <adminUsername>  
-Password <password>
```

2. Start the VDR appliance:

```
Start-VM <VDRApplianceName>
```

**Note:** Type "Get-VM" to verify the correct name of the VDR appliance

3. Disconnect from the vCenter server:

```
Disconnect-VIServer -Confirm:$False
```

### 3.4 Automating with a Batch file

The instructions below show you how to take the manual commands above and put them in a batch file which can then be scheduled using Windows Task Scheduler or called by your tape backup software before and at the end of the tape backup job.

**Note:** This solution assumes the location of the batch files are in C:\

#### Step 1 – Create Shutdown Batch and Powershell files:

Using notepad or similar, create a file called **C:\ShutdownVDR.bat** with the following contents. This batch file can be run by Task Scheduler which will in turn call the Powershell script.

**Note:** The entire text below should be typed as one line.

```
C:\WINDOWS\system32\windowspowershell\  
v1.0\powershell.exe -PSConsoleFile "C:\  
Program Files\VMware\Infrastructure\  
VSphere PowerCLI\vim.psc1" -NoExit  
-Command C:\ShutdownVDR.ps1
```

Next, create a file called **C:\ShutdownVDR.ps1** with the following contents:

**Note:** 3 Multiple lines as shown. Adjust the fields in bold to suit your environment.

```
Connect-VIServer -Server <vCenterIPAddress>  
-Protocol https -User <adminUsername>  
-Password <password>  
  
shutdown-vmguest <VDRApplianceName>  
  
Disconnect-VIServer -Confirm:$False
```

## Step 2 – Create Startup Batch and Powershell files:

Using notepad or similar, create a file called **C:\StartupVDR.bat** with the following contents:

**Note:** The entire text below should be typed as one line.

```
C:\WINDOWS\system32\windowspowershell\v1.0\powershell.exe -PSConsoleFile "C:\Program Files\VMware\Infrastructure\VSpherePowerCLI\vim.psc1" -NoExit -Command C:\ShutdownVDR.ps1
```

Next, create a file called **C:\StartupVDR.ps1** with the following contents:

**Note:** Multiple lines as shown. Adjust the fields in bold to suit your environment.

```
Connect-VIServer -Server <vCenterIPAddress>
-Protocol https -User <adminUsername>
-Password <password>

Start-VM <VDRApplianceName>

Disconnect-VIServer -Confirm:$False
```

## 3.5 Restoring from Tape

In the event that the repository requires restoring from tape, perform the following steps:

1. Restore the repository folder **VMwareDataRecovery** to the root of a network share
2. Point the VDR appliance to this network share (VI Client / VMware Data Recovery / Configuration)
3. Perform an Integrity Check (VI Client / VMware Data Recovery / Configuration)
4. Perform a restore using VDR.

## 4.0 Summary

Backing up to tape using VMware Data Recovery is simply a case of shutting down the VDR appliance, using a 3rd party product to backup the **VMwareDataRecovery** folder to tape and then start the appliance again.

This offers customers with that off-site storage option which many are asking for.

This concludes the guide.

## About Xtravirt

Xtravirt is a knowledge-based company that delivers its expertise in virtualization online and in person. We have developed a reputation for astute leadership and expertise through our work with an impressive array of organisations. It is this real-world experience that drives our ability to provide independent, current and free advice online.

We work with organisations whose IT staff are frustrated with how hard it is to find detailed information and skills around virtualization. We help our clients deliver the true benefits of virtualization, resulting in cost and time savings.

For more information contact:

Dorset House, Regent Park  
297 Kingston Road, Leatherhead  
Surrey KT22 7PL  
t +44 (0) 1372 824 296  
f +44 (0) 1372 824 576  
e [information@xtravirt.com](mailto:information@xtravirt.com)  
w [www.xtravirt.com](http://www.xtravirt.com)

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### References

1. Nil.

### Useful Links

1. VMware Data Recovery download files, [http://downloads.vmware.com/d/info/datacenter\\_downloads/vmware\\_vsphere\\_4/4](http://downloads.vmware.com/d/info/datacenter_downloads/vmware_vsphere_4/4)
2. VMware Data Recovery Admin Guide, [http://www.vmware.com/pdf/vdr\\_10\\_admin.pdf](http://www.vmware.com/pdf/vdr_10_admin.pdf)

3. Windows Powershell, <http://www.microsoft.com/windowsserver2003/technologies/management/powershell/download.mspx>
4. VMware CLI, [http://communities.vmware.com/community/vmtn/vsphere/automationtools/windows\\_toolkit](http://communities.vmware.com/community/vmtn/vsphere/automationtools/windows_toolkit)

### Tags

VMware Data Recovery, VDR, Powershell, VMware CLI, Scripting, Tape backup