# Granular Recovery Technology

PowerVault DL Backup to Disk Appliance



#### **Executive Summary**

Backup Exec Granular Recovery Technology (GRT) lets you restore individual objects image level backups of Microsoft Exchange, Active Directory, and SharePoint Servers in your environment. In addition, GRT enables the individual file and folder recovery as well as recovery of individual objects from virtualized applications (Exchange, SQL and Active Directory) from image level backups of virtual machines in Microsoft Hyper-V and VMware ESX or VSphere virtual environments. GRT enables the recovery fo the following individual items for each support database/application:

- Active Directory Restore Objects and Attributes.
- Active Directory Application Mode and Active Directory Lightweight Directory Services Restore objects and attributes
- Microsoft Exchange Restore entire mailboxes, individual mailbox contents, mail messages, attachments, and public folders
- Microsoft SharePoint Restore portal sites and their associated databases, Windows SharePoint Services sites and their associated databases, Document library stores, Individual documents, Lists, sites, and subsites
- Microsoft Hyper-V Restore drives, folder and files from virtual machines. In addition perform granular recovery of virtualized instances of Exchange, SQL, and Active Directory
- VMware Restore drives, folder and files from virtual machines. In addition perform granular recovery of virtual instances of Exchange, SQL, and Active Directory

This paper outlines the process of configuring GRT based backups with the PowerVault DL Backup to Disk Appliance.

## **Active Directory**

Perform the following steps to configure GRT based backups of Active Directory:

- 1. License the Active Directory Agent on the PowerVault DL Backup to Disk Appliance
- 2. Install the Remote Agent for Windows System on the system where Active Directory resides. See the Backup Exec Administrator's Guide for detailed steps on installing the remote agent.
- 3. On the navigation bar, click Job Setup.
- 4. Expand the Backup Tasks menu by selecting the arrows.
- 5. Click New Job
- 6. In the selection tree, select the Windows System State of the system running Active Directory (the system state backup includes Active Directory).
- 7. Under the Properties pane, select Active Directory to confirm the job settings for this backup. Make sure





the selection "User Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual objects from Active Directory backups (not supported for Read-Only Domain Controllers)" is enabled.

jource	Microsoft Active Directory	
Selections	Backup method:	
Resource Order	Full - Back up entire Active Directory	-
Resource Credentials	Note: Only full backware of Alative Directory are allowed	
Priority and Availability	Note, Unly full backups of Active Directory are allowed.	
Selection List Notification Preferred Servers	✓ Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual objects from Active Directory backups (not supported for Read-Only Domain Controllers)	
Destination	V Perform consistency check before backup when using Microsoft Volume Shadow Copy Service (VSS) shanshot	
Device and Media	provider (Windows Server 2008)	
ettings	Continue with backup if consistency check fails	
General	I ■ Continue with backup it consistency check fails	
Advanced		
Advanced Disk-based Backup		
Advanced Open File		
Network and Security		
Notification		
Pre/Post Commands		
Archive		
DB2		
Enterprise Vault		
Linux, Unix, and Macintosh		
Lotus Domino		
Microsoft Active Directory		
Microsoft Exchange		
Microsoft Hyper-V		
Microsoft SharePoint		
Microsoft SQL		
NDMP		
NetWare SMS		
Oracle		
VMware		
requency		
Schedule		
	<u>B</u> un Now Cancel	telp

# Figure: Active Directory backup settings

8. Choose a schedule for the backup job by selecting Schedule under the Properties pane. Select Run Now when finished.

#### **Active Directory Agent Requirements**

• The Active Directory Agent must be licensed on the PowerVault DL Backup to Disk Appliance





- The Remote Agent for Windows Systems must be installed on the system where Active Directory resides
- One of the following Operating Systems must be used on the system where Active Directory resides:
  - Windows Xp Profession x64 Edition
  - Windows Server 2000 with SP4 or later
  - Windows Server 2003 with SP1 or later
  - Windows Server 2003 R2
  - Windows Server 2008
  - Windows Server 2008 R2

#### SharePoint

Perform the following steps to configure GRT based backups of SharePoint:

- 1. License the SharePoint Agent on the PowerVault DL Backup to Disk Appliance
- Install the Remote Agent for Windows System on each SharePoint server in the farm that is being protected. In addition, for SharePoint 2003 and 2007, the Remote Agent must be installed on each SQL server in the farm. See the Backup Exec Administrator's Guide for detailed steps on installing the remote agent.
- 2. Create a new backup job that protects the SharePoint server farm.
- 3. On the navigation bar, click Job Setup.
- 4. Expand the Backup Tasks menu by selecting the arrows.
- 5. Click New Job
- 6. In the selection tree, right-click Microsoft SharePoint Server Farms and then click Add Server Farm.
- In the Web server name field, type the name of a Web server that belongs to the SharePoint farm that is to be protected.
- 8. In the Server farm name field, type a name for the farm or use the default name.
- 9. Click Ok.
- 10. Under the Properties pane, select Microsoft SharePoint to confirm the job settings for this backup. Make sure the selection "User Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual documents from the database backup (available for full backups only)" is enabled.





Source	Microsoft SharePoint	
Selections	Backup method:	
Resource Order	Full Deals up option detablished	-
Resource Credentials		
Priority and Availability Selection List Notification	✓ Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual documents from the database backup (available for full backups only)	
Preferred Servers	Release the lock on the SharePoint farm topology if it is set (SharePoint 2003 only)	
Destination		
Device and Media	Perform consistency check before backup of Microsoft SUL databases used by Microsoft SharePoint	
Settings	Continue with backup if consistency check tails	
General		
Advanced		
Advanced Disk-based Backup	Note: These options only apply to Microsoft SharePoint Portal Server 2003 and later.	
Advanced Open File		
Network and Security		
Notification		
Pre/Post Commands		
Archive		
DB2		
Enterprise Vault		
Linux, Unix, and Macintosh		
Microsoft Active Directory		
Microsoft Exchange		
Microsoft SharePoint		
Microsoft SPI		
NDMP		
NetWare SMS		
Oracle		
VMware		
Frequency		
Schedule		

# Figure: SharePoint backup job settings

11. Choose a schedule for the backup job by selecting Schedule under the Properties pane. Select Run Now when finished.

## **SharePoint Agent Requirements**

- The SharePoint Agent must be licensed on the PowerVault DL Backup to Disk Appliance
- The Remote Agent for Windows Systems must be installed on each SharePoint server in the farm that will be protected. In addition, for SharePoint 2003 and 2007, the Remote Agent must be installed on each SQL





server in the farm.

# Exchange

Perform the following steps to configure GRT based backups of Microsoft Exchange:

- 1. License the Exchange Agent on the PowerVault DL Backup to Disk Appliance
- 2. Install the Remote Agent for Windows System on the system where Exchange resides (see Exchange Agent requirements below to see installation requirements). See the Backup Exec Administrator's Guide for detailed steps on installing the remote agent.
- 3. On the navigation bar, click Job Setup.
- 4. Expand the Backup Tasks menu by selecting the arrows.
- 5. Click New Job
- 6. On the Properties pane, under Source, click Selections
- 7. Find the Exchange resources that are to be protected:
  - a. Exchange data that resides on local or remote computers:
    - i. Click the domain name icon or icons that contain the Exchange installations
    - ii. Expand the actual Windows computer icon that contains the Exchange installation
  - b. Exchange data that resides on a cluster:
    - i. On the virtual cluster server name, click the domain name icon or icons that contain the Exchange installations
    - ii. Expand the actual Windows computer icon that contains the Exchange installation
  - c. Exchange 2010 Database Availability Group:
    - i. Expand the Microsoft Exchange Database Availability Groups (DAG) resource
    - ii. Expand the forest that contains the DAG
    - iii. Expand the DAG that contains the Exchange installations
- 8. Select the Exchange components for backup by doing one of the following:
  - a. To Select All Exchange databases for backup, check Microsoft Information Store
  - b. To select specific Exchange 2003/2007 storage groups or Exchange 2010 databases, expand the Microsoft Information Store icon and then select individual storage groups or databases
- 9. If prompted, select a logon account that you can use to connect to the Exchange server.
- 10. Under the Properties pane, select Microsoft Exchange to confirm the job settings for this backup. Make sure the selection "User Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual mailboxes, mail messages, and public folders from Information Store backups. (Incremental backups supported with policy-based jobs only)" is enabled.





**Backup Job Properties** 

Source				
Selections	Information Store Backups			
Resource Urder	Backup <u>m</u> ethod:			
Resource Credentials	Full - Database & Logs (flush committed logs)			
Priority and Availability				
Selection List Notification	Continuously back up transaction logs with Backup Exec Continuous Protection Server			
Preferred Servers				
Destination	Make a recovery point that creates provisable backup sets and 8 🚍 Hours			
Device and Media				
Settings	without recovery points, individual mail messages and rolders can only be recovered from the last full backtion			
General	This Decay.			
Advanced	Use Backup Exec Granular Recovery Technology [LRT] to enable the restore of individual mallboxes, mail proceeding and the factor for the formation of the second second second and the second secon			
Advanced Disk-based Backup	messages, and public folders non-minimation store backups (incremental backups supported with policy-based jobs poly)			
Advanced Open File	Bride Me			
Network and Security				
Notification	Perform consistency check before backup when using Microsoft Volume Shadow Copy Service			
Pre/Post Commands	(VSS) snapshot provider			
Archive	Continue with backup if consistency check fails			
DB2				
Enterprise Vault	High Availability Server (Exchange 2007 or Later)			
Linux, Unix, and Macintosh	Let Backup Exec automatically choose the best copy to back up (recommended)			
Lotus Domino	Nata Darline Functional a second second database & sublishing (Darline Functional second second			
Microsoft Active Directory	Note: backup Exec backs up a passive copy or the backapase, if available, if backup Exec backs that access the a			
Microsoft Exchange	access the database, if necessary. For Exchange 2010, Backup Exec selects the passive copy based on			
Microsoft Hyper-V	your selections in the Preferred Server settings.			
Microsoft SharePoint				
Microsoft SQL				
NDMP				
NetWare SMS				
Oracle				
VMware				
Frequency				
Schedule				

#### Figure: Exchange backup job settings

12. Choose a schedule for the backup job by selecting Schedule under the Properties pane. Select Run Now when finished.

#### **Exchange Agent Requirements**

- The Exchange Agent must be licensed on the PowerVault DL Backup to Disk Appliance
- The Remote Agent for Windows Systems must be installed on the system where Exchange resides
- The Exchange Management Tools for Microsoft Exchange Server 2007 and 2010 must be installed on PowerVault DL Backup to Disk Appliance if Exchange Server 2007 or 2010 is being protected. The Exchange





management tools on the media server must be the same version or later as the Exchange management tools that are on the Exchange 2007 or 2010 server.

- For Exchange Server 2007 the Microsoft Exchange Server MAPI Client and Collaboration Data Objects package must be installed on the Exchange server
- For Exchange Server 2007 and 2010 GRT the Backup Exec User Account must be assigned to the Exchange Organization Administrators role (Exchange 2007) or the Exchange Organization Management role (Exchange 2010).
- For Exchange Server 2010 The Remote Agent for Windows Systems must be installed on all servers in the Database Availability Group. The Remote Agent for Windows Systems must be installed on all Client Access Servers in the site to support Granular Recovery Technology.
- Granular Recovery Technology is not supported when Microsoft Outlook is installed on the same computer with Exchange Server 2003 or Exchange Server 2007 running on a version of Windows earlier than 2003.

# **Microsoft Hyper-V**

Perform the following steps to configure GRT based backups of Microsoft Hyper-V:

- 1. License the Hyper-V Agent on the PowerVault DL Backup to Disk Appliance
- 2. Install the Remote Agent for Windows System on the system where Hyper-V resides (see Hyper-V Agent requirements below to see installation requirements). See the Backup Exec Administrator's Guide for detailed steps on installing the remote agent.
- 3. On the navigation bar, click Job Setup.
- 4. Expand the Backup Tasks menu by selecting the arrows.
- 5. Click New Job
- 6. On the Properties pane, under Source, click Selections. Select the Hyper-V resources that are to be backed up.
- 7. In the Properties pane, under Settings, click Microsoft Hyper-V. Make sure the selection "Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual files and folders from virtual machines" is enabled. Also verify that the Application Granular Recovery Technology Settings are set appropriately if the backups contains virtual machines running Exchange, Active Directory, or SQL.





	indicional in port				
Selections	Backup <u>m</u> ethod:	Backup <u>m</u> ethod:			
Resource Order	Full				
Resource Credentials					
Priority and Availability	Exclude virtual machines that must be put in a saved state to back up				
Selection List Notification Preferred Servers	Eack up virtual machines that are powered off				
Destination Device and Media	<ul> <li>Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual files and folders from virtual machines.</li> <li>Virtual Machine Application Granular Recovery Technology Settings</li> </ul>				
Settings					
General Advanced	You must enable Granular Reco virtual machines.	overy Technology (GRT) to restore individual application items from <u>E</u> dit	25		
Advanced Disk-based Backup Advanced Open File	Microsoft Active Directory:	GRT Enabled - using virtual machine credentials			
Network and Security Notification	Microsoft Exchange:	GRT Enabled - using virtual machine credentials	3		
Pre/Post Commands Archive	Microsoft SQL:	GRT Enabled - using virtual machine credentials			
Enterprise Vault Linux, Unix, and Macintosh Lotus Domino Microsoft Active Directory Microsoft Exchange Microsoft Hyper-V Microsoft SharePoint Microsoft SQL NDMP					
NetWare SMS Oracle VMware Frequency Schedule					

# Figure: Hyper-V backup job settings

1. Choose a schedule for the backup job by selecting Schedule under the Properties pane. Select Run Now when finished.

#### **Hyper-V Agent Requirements**

- The Hyper-V Agent must be licensed on the PowerVault DL Backup to Disk Appliance
- The Remote Agent for Windows Systems must be installed on the Hyper-V system
- VHDMount must be installed on the PowerVault DL Backup to Disk Appliance if the Hyper-V role is not • installed on the PowerVault DL Backup to Disk Appliance.





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- Online backups of virtual machines are supported in the following configurations:
  - Virtual Machines running Windows Server 2008/2003 SP2/Vista SP1/XP SP3 or later
  - Hyper-V Integration Services with Backup (Volume snapshot) must be installed on the virtual machine
  - The virtual machine is in a running state
  - To use Granular Recovery Technology with the following virtualized applications:
    - Exchange A licensed version of the Backup Exec Agent for Exchange must be installed in each Exchange virtual machine
    - SQL A licensed version of the Backup Exec Agent for SQL must be installed in each SQL virtual machine
    - Active Directory A licensed version of the Backup Exec Agent for Active Directory must be installed on each virtual machine running Active Directory

## VMware

Perform the following steps to configure GRT based backups of VMware:

- 1. License the VMware Agent on the PowerVault DL Backup to Disk Appliance. The Agent resides locally on the appliance and there is nothing to install on the VMware ESX or VSphere server.
- 2. Add VMware vCenter, E\$X, or VSphere servers to the Backup Exec selection list using the following steps:
  - a. On the navigation bar, click Job Setup.
  - b. Expand the Backup Tasks menu by selecting the arrows.
  - c. Click New Job
  - d. Right click one of the following items:
    - i. All Resources
    - ii. VMware vCenter and ESX Servers
  - e. Click Manage VMware vCenter and ESX Servers
  - f. In the Name field, type the name of the vCenter or ESX server that you want to add
  - g. Click Add
  - h. Click Close
- 3. Create a Backup job using the following steps:
  - a. On the navigation bar, click Job Setup.
  - b. Expand the Backup Tasks menu by selecting the arrows.
  - c. Click New Job
  - d. On the Properties pane, under Source, click Selections. Expand VMware vCenter and ESX Servers.
  - e. Select one of the following:
    - i. A VMware vCenter or ESX server





ii. One or more of the virtual machines that appear under the name of a VMware vCenter or ESX Server

- f. In the Properties pane, under settings, click VMware. Make sure the selection "Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual files and folders from virtual machines" is enabled. Also verify that the Application Granular Recovery Technology Settings are set appropriately if the backups contains virtual machines running Exchange, Active Directory, or SQL.
- g. Specify additional VMware settings for the backup job

#### **Backup Job Properties**

Source	Thindio					
Selections	Backup <u>m</u> ethod:					
Resource Order	Full					
Resource Credentials	Note: Incremental and Differenti	al backups supported with policy-based jobs only				
Priority and Availability	note, morementariana principinta packaps supported with policy-based jobs only.					
Proferred Servers	Iransport mode priority list:					
Pestination	SAN - Use the SAN to move	virtual disk data.	Move <u>U</u> p			
Device and Media	✓ Hotadd - Use virtual disk files from the Backup Exec server on the virtual machine.					
Settings	■ NBD - Do not encrypt the virtual disk data for over-the-network transfers. Move <u>Down</u>					
General	NBDSSL - Encrypt virtual dis	k data for over-the-network transfers.				
Advanced	<ul> <li>Back up virtual machines that are powered off</li> <li>Use Backup Exec Granular Recovery Technology (GRT) to enable the restore of individual files and folders from virtual machines.</li> </ul>					
Advanced Disk-based Backup Advanced Open File						
Network and Security	Virtual Machine Application Gr	anular Recovery Technology Settings				
Notification	You must enable Granular Bec	overy Technology (GBT) to restore individual application items from				
Pre/Post Commands	virtual machines.		<u>E</u> dit			
Archive						
DB2	Microsoft Active Directory:	GRT Enabled - using virtual machine credentials				
Enterprise vault	Misrosoft Euchange:	GBT Enabled - using virtual machine credentials				
Lotus Domino	Microsoft Exchange.	Carrie Enabled - using virtual machine credentials				
Microsoft Active Directory	Microsoft SQL:	GBT Enabled - using virtual machine credentials				
Microsoft Exchange		1	11			
Microsoft Hyper-V	Colore Det Number 002					
Microsoft SharePoint	vsphere Port Number: 1902					
Microsoft SQL						
NDMP						
NetWare SMS						
Oracle						
VMware						
requency						
Schedule						
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		<u>H</u> un Now Car	icei <u>H</u> elp			





# Figure: VMware backup job properties

4. Choose a schedule for the backup job by selecting Schedule under the Properties pane. Select Run Now when finished

# **VMware Agent Requirements**

- The VMware Agent must be licensed on the PowerVault DL Backup to Disk Appliance
- VMware vCenter Server This component is optional and -used to manage ESX or VSphere servers. Backup Exec Agent for Windows Systems can be installed on the vCenter Server. If installed, the Backup Exec agent will publish information about the virtual environment configuration found in the vCenter Server to the PowerVault DL Backup to Disk appliance so that virtual machine groupings and information are displayed in Backup Exec in the same manner they are displayed in vCenter.
- To use Granular Recovery Technology with the following virtualized applications:
  - Exchange A licensed version of the Backup Exec Agent for Exchange must be installed in each Exchange virtual machine
  - SQL A licensed version of the Backup Exec Agent for SQL must be installed in each SQL virtual machine
  - Active Directory A licensed version of the Backup Exec Agent for Active Directory must be installed on each virtual machine running Active Directory



