

Best Practices for Setting up NetVault SmartDisk on a DR Disk Backup Appliance

A Dell Technical White Paper

© 2013 Dell Inc. All Rights Reserved. Dell and the Dell logo, and other Dell names and marks are trademarks of Dell Inc. in the US and worldwide. NetVault is a trademark of Dell-Quest.

Table of contents

Int	roduc	ction	4
Exe	ecutiv	e Summary	5
1	Tecł	nnical Setup/configuration Best Practices	6
	1.1	General Setup /configuration Best Practices	6
	1.2	DR4X00 Setup/configuration Best Practices	6
	1.3	NetVault Setup /configuration Best Practices	6
2	Insta	all and Configure the DR4X00	9
3	Con	figure the Backup Server and Install NetVault SmartDisk	16
4	Con	figure NetVault SmartDisk	21
	4.1	Windows	21
	4.2	Linux/Unix	28
5	Set ι	up the DR4X00 Cleaner	35
6	Mon	itoring Dedupe, Compression & Performance	36
Ap	pendi	x A Additional Resources	37

Introduction

The Dell[™] DR4X00 is a high-performance, disk-based backup and recovery appliance that delivers innovative features such as inline deduplication and compression, advanced data protection, and replication. Additionally, the management features, ease of deployment, and an architecture that enables core backup data to remain on disk and online longer can help organizations reduce the complexity associated with backup.

Combined with the power of NetVault SmartDisk, the Dell DR4X00 provides customers with a unique solution stack enabling them to protect data and meet demanding RPO and RTO goals with simplicity and speed.

This not only enables customers to realize lower costs to own and operate data protection functions it also helps customers realize higher and more effective initial investment returns as the integrated solution provides a single point for both software and infrastructure scale and support.

This paper is intended for technical sales, solution architects, backup administrators, system administrators, and IT managers who need to understand how to design and deploy the Dell DR4X00 Advanced Disk Backup & Disaster Recovery Solution with NetVault SmartDisk. Readers should have a working knowledge of DR4X00 disk based backup storage appliance, NetVault Backup, and NetVault SmartDisk software application as well as related backup and disaster recovery operations best practices.

The primary goal of this paper is to provide a step-by step install/configure guide of the DR4X00 with NetVault SmartDisk. In addition, the guide will illustrate key technical considerations and best practices involved in deployment/configuration process of the DR4X00 and NetVault SmartDisk solution.

Executive Summary

This paper provides detailed information about how to set up a Dell[™] DR Series Disk Backup Appliance as a target for NetVault[®] SmartDisk software. In this configuration, NetVault SmartDisk is configured for target object store use for data protection operations. This enables the user to have a simple factoring method for using the storage footprint made available by containers hosted on the DR4X00 backup appliance. See Figure 1 below which illustrates the DR4X00-NetVault SmartDisk Scenario.



Figure 1: DR4X00-NetVault SmartDisk Scenario.

NOTES:

- The DR4X00 build version and screen shots used for this paper may vary slightly, depending on the version of the DR4X00 operating system.
- See NetVault DR Series Backup Appliance Application notes, DR4X00 and NetVault SmartDisk documentation for additional information.

1 Technical Setup/configuration Best Practices

This section highlights key configuration and setup best practices to successfully add the DR backup Disk appliance for the use with NetVault Backup and NetVault SmartDisk. Please review this section carefully before embarking on the DR4X00 and NetVault install/configuration sequences outlined in chapters 2 through 4 of this guide

NOTE: For NetVault SmartDisk, native DR4X00 replication support is not available at this time.

1.1 General Setup /configuration Best Practices

Refer to the manufacture's documentation for additional details on the following prerequisites.

- Ensure cabling configured correctly.
- Configure interfaces, protocol and addressing.
 - Configure Networking infrastructure to support Jumbo Frames (MTU=9000).
- Preconfigured system to run as the NetVault Backup Server and NetVault SmartDisk Server. Alternatively a separate server can be provisioned and configured to host the NetVault SmartDisk software.
- DR4X00 preconfigured for use with the following attributes established:
 - o Proper network connectivity with IP address or DNS name of DR4X00 Backup Appliance.
 - DR4X00 Backup Appliance(s) configured with the appropriate containers needed to host the NetVault SmartDisk instance.
 - For each container defined a network share exported via CIFS or NFS of appropriate permission and size.
 - All authentication requirements fulfilled such as Domain name, username and password for users setup on DR4X00 unit to provide full access to the predefined containers and network share(s) for use as backup repositories.

1.2 DR4X00 Setup/configuration Best Practices

- Each NetVault SmartDisk instance should be created and configured to run within the domain of a single DR4X00 Storage Container. This will allow for easy management of storage consumption therefore each SmartDisk instance should run within its own container.
- Users should be created so that the NetVault Backup server user has full Read/Write access to the container. This is a requirement for NetVault to be able to manage the configuration items and respective objects created within said container during backup, access during recovery, and deletion upon retirement.

1.3 NetVault SmartDisk Setup /configuration Best Practices

• During installation the stage and store spaces should be defined to run from a remote location. This will be configured during installation as the UNC network path of the CIFS share or locally defined mount points for NFS level use over the network.

- After the basic installation of NetVault SmartDisk there are various attributes and settings that need to be made in order to tune the software for use within the DR4X00 Backup Appliance domain. These will include the following attributes post installation and prior to adding the instance to a NetVault Backup domain:
 - Create and configure a Chunk Index and Disk Index directory within the DR4X00 container defined for use. This will be in the same directory structure as the stage and store spaces defined during basic installation.
 - Disable Software DeDuplication. So as to not conflict with the inline deduplication of the DR4X00 this feature must be disabled before the environment is used.
 - Configure Garbage Collection (GC) utility to run anytime. This will enable the reclamation of retired backup segments to occur without the need to predefine windows for this activity.
 - When using CIFS / UNC Paths: Configure the block size to be 512KB.

During installation a stage and store path are defined. These paths will host directory structures needed to operate the SmartDisk software solution.

When prompted for the **stage** and **store** paths input the UNC path of the storage container for Windows systems or the predefined NFS mount for Linux and Unix based systems.

After the initial installation the SmartDisk instance must be configured to run exclusively from the DR4X00 space. By default both the SmartDisk Chunk Index and Disk Index run within predefined directory structures. The goal is to consolidate these two object stores and define them to be hosted within a known space running on the DR4X00 in case a migration or disaster remediation situation occurs. In order to accomplish this, this directory must be manually created and configured for use. It is recommended that an index directory be created within the same directory level as the store and stage directories.

Once this directory is create, following the same guidelines as those outlined for the **stage** and **store** spaces, a set of commands can be issued to configure the SmartDisk instance as follows:

Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --add --volume <Index directory path hosted on the DR4X00 Container> --favour "Chunk Index" --favour "Disk Index" --deny "Staging" --deny "Storage"

Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --update --volume <Store directory path hosted on the DR4X00 Container > --deny "Chunk Index" --deny "Disk Index" --deny "Staging" --favour "Storage"

Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --update --volume <Stage directory path hosted on the DR4X00 Container > --deny "Chunk Index" --deny "Disk Index" --favour "Staging" --deny "Storage"

This will configure the SmartDisk instance to host all the appropriate data segments and indexing information from backup operations in separate and distinct volume locations hosted on the DR4X00 backup appliance.

Once all the appropriate volumes have been defined and attributes configured the rest of the recommended settings should be applied to the SmartDisk instance which will include disabling software deduplication, setting Garbage Collection to run anytime, and configuring block size settings depending on whether the DR4X00 is hosting the SmartDisk instance via CIFS or NFS protocols.

To disable software deduplication, run the following command: Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --dedupe-enable FALSE

To configure the proper space reclamation cycles run the following commands:

Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --add --gc-window Anytime Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --add --dedupe-window Never

Finally if you are configuring SmartDisk on a CIFS / UNC path hosted on the DR4X00 it is recommended that a block size of 512000 be set before data protection operations are conducted from the target configuration. In order to set the block size of the SmartDisk instance run the following command:

Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --update -webdav 37453 --block-size 512000

Note: By default the block size is set to 32 and the webdav port to 37543. These settings should be considered when using the above for reference.

Once the configuration settings have been applied the SmartDisk services should be restarted. Execute the following command as needed:

Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) restart

The newly configured SmartDisk instance should be ready for use within a given NetVault Backup domain. Verification of the newly configurated volumes and attributes should be conducted by running the following command:

Smartdisk Home >> foundation >> bin >> smartdisk(.sh/.bat) config --show

Once all settings have been verified and the configuration has been deemed fit for use the SmartDisk instance can now be added to the NetVault Backup server.

2 Install and Configure the DR4X00

- 1. Rack and cable the DR4X00 appliance, and power it on.
- 2. Log into iDRAC using the default address **192.168.0.1**, user name **root**, and the password **calvin**.

	CONTROLLER (IOTE 6 - ENTERPRISE			Support About Logout
System Dell DR4000 root , Admin	Properties System Summ	Setup Power nary System D	Logs Alerts Console/Media Details System Inventory	vFlash Remote File Share	
System	System S	ummary			= C ?
Batteries Fans Intrusion	Server H	lealth			
Power Supplies	Status C	Component		Virtual Console Preview	
Removable Flash Media Temperatures		Batteries		Options : Settings	
/oltages	F F	Fans			
ower monitoring	I	Intrusion			
	F	Power Supplies			
	F F	Removable Flash I	Media		
	1	Temperatures			
		Voltages		Re	fresh Launch
	Server Inf	formation		Quick Launch Tasks	
	Power Sta	ate	ON	Power ON / OFF	
	System M	lodel	Dell DR4000	Power Cycle System (cold boot)	
	System R	Revision	н	Launch Virtual Console	
	System H	lost Name	DR4000-DKCV6S1.asglab.roundrock	View System Event Log	
	Operating	g System	CentOS	View iDRAC Log	
	Operating	3 System Version	release 5.4 (Final) Kernel 2.6.18-164.e	Update Firmware	
	Service Ta	ag	DKCV6S1	Reset IDRAC	
	Express S	Service Code	29529104401		
	BIOS Vers	sion	1.9.0		
	Firmware	Version	1.80 (Build 17)		

3. Launch the virtual console.

	TED DELL REM	10TE 6 - ENTERPRISE			Support About Logout	
System Dell DR4000 root , Admin	Properties System Summ	Setup Power mary System (Logs Alerts Console/Media Details System Inventory	vFlash Remote File Share		
System IDRAC Settings Batteries	System S	Summary			• C ?	
Fans	Server H	Health				
Power Supplies	Status	Component		Virtual Console Preview		
Removable Flash Media Temperatures	I	Batteries	Options : Settings			
Voltages	I	Fans				
Power Monitoring		Intrusion		 In the second of the second secon second second sec		
	S	Power Supplies				
		Removable Flash	Media			
		Z Temperatures				
		Voltages		Refre	esh Launch	
	Server Inf	formation		Quick Launch Tasks		
	Power St	tate	ON	Power ON / OFF		
	System N	lodel	Dell DR4000	Power Cycle System (cold boot)		
	System R	Revision	н	Launch Virtual Console		
	System H	Host Name	DR4000-DKCV6S1.asglab.roundrock	View System Event Log		
	Operating	g System	CentOS	View iDRAC Log		
	Operating	g System Version	release 5.4 (Final) Kernel 2.6.18-164.e	Update Firmware		
	Service T	ag	DKCV6S1	Resetionad		
	Express	Service Code	29529104401			
	BIOS Ver:	sion	1.9.0			
	Firmware	e Version	1.80 (Build 17)			

4. Once the virtual console is open, log in to the system as user **administrator** and the password **St0r@ge!** (The "0" in the password is the numeral zero.).





5. Set the user-defined networking preferences.



6. View the summary of preferences and confirm that it is correct.

Set Static IP Ad	dress	k
IP Address	: 10.10.86.108	
Network Mask	: 255.255.255.128	
Default Gateway	: 10.10.86.126	
DNS Suffi×	: idmdemo.local	
Primary DNS Server	: 10.10.86.101	
Secondary DNS Server	: 143.166.216.237	
Host Name	: DR4000-5	

7. Log into the DR4X00 administrator console, using the IP address you just provided for the DR4X00, user **administrator** and the password **St0r@ge!** (The "0" in the password is the numeral zero.).

← ← ← https://192.168.22.50/→	Enter User Defined IP Address) 🔲 🕿 ଲ 🏠 🔅
DELL DR4000 DR4000-DKCV6S1	Нер	
Login	Reset Password	
	Please enter your password:	
	Username: administrator Password: StOr@ge! Log in	

8. Join the DR4X00 to Active Directory.

NOTE: if you do not want to add DR4X00 to Active Directory, see the *Owner's Manual* for guest login instructions.

a. Select Active Directory in the tree on the left hand side of the dashboard.



b. Enter your Active Directory credentials.

Active Directory - Windows Internet Explore	er en		_ 8 ×
Co () + - http://10.10.86.107/ad_add.ogi		💌 🔸 🔀 Bing	p -
👷 Favortes 🔢 🕫 🏀 EDRM Enron Email Data	Set Charles Directory 🗙	•	
DELL	DR4000 DR4000-5	Help Lug out	
Dashbuar Aleris Events	Active Directory Configuration	niec.	
Heath Usage Shatsites Statistics	Contumer (FGDN): Username: Contumer Password Repfication	Enter Active Directo	ry Credentials
Storage - Contaireat Repuisado - Comprese - Schedule - Repuisado - Repu	n miter roboti Urozaniga non n nonfogaration settory	Cancel Join Dumain	
- Chair Aver Date & Tin Dis gnostic Software L	te be 19 Jograde		

- 9. Create and mount the container.
- c. Select **Containers** in the tree on the left side of the dashboard, and then click the **Create** link at the top of the page.

D¢	L DR4000 dr4komar							Help Log out
Das Aler Eve	shboard rts ents	Containers				Creat	e idit Delete D	isplay Statistics
Hea	alth	Number of Containers: 2					Container P	ath: /containers
Stat	tistics: Container	Containers	Files	NFS	CIFS	OST	Replication	Select
Stat	tistics: Replication							
Cor	ntainers	£						
-Rep -Cor	plication mpression Level							
Sch	nedules							
Rep	plication Schedule							
Cle	aner Schedule							
Sys	stem Configuration							
Acti	ive Directory							
Em	ail Alerts							
Adn	nin Contact Info							
Em	ail Relay Host							
_ Dat	te and Time							
Sup	oport							
Dia	gnosucs tware Lingrade							
301	ware opgrade							
Copyright (© 2011 - 2012 Dell Inc. All rig	hts reserved.						

d. Enter a Container Name and select the Enable CIFS check box.

DE DR4000 DR4000-DKCV6S1	Help Log out
Dashboard Containers	Create Edit Delete Display Statistics
Choose the type of container to create (NFS and/or CIFS) and add clients that Container Name':	t need access. a no / ≢ or @ Name the Container CIFS CIFS 5 share path: \\192.168.22.50\
Use NFS to backup UNIX or LINUX clients. E Enable NFS Select CIFS or NFS	Use CIFS to backup MS Windows clients.
Client Access: Open Access (all clients have access) Add client (IP or FQDN Hostname): Add	Client Access: Open Access (all clients have access) Add clients (IP or FQDN Hostname) Add
Clients: Enter Backup Ser	Remove
NFS Options: nw insecure ro	
Map root to: -select- *	Cancel Create a New Container

e. Select the client access credentials preferred.

Dashboard Containers	Create Edit Delete Display Statisti
Choose the type of container to create (NFS and/or CIFS) and add clients Container Name [®] :	that need access. *= required fields acters no / # or @ Name the Container
NFS NFS access path: 192.168.22.50/containers Use NFS to backup UNIX or LINUX clients. Enable NFS	CIFS CIFS share path: \\192.168.22.50\ Use CIFS to backup MS Windows clients.
Client Access: Open Access (all clients have access) Add client (IP or FQDN Hostname): Clients: Clients: Remove	Client Access: Open Access (all clients have access) Add clients (IP or FQDN Hostname) Add Remove
NFS Options:	
● ro Map root to: -select- ▼	

For improved security, Dell recommends adding IP addresses for the following (Not all environments will have all components):



- Backup console (NetVault Server)
- Hyper-V hosts (on-host proxy for Hyper-V environments)s
- Off-host proxies (for Hyper-V environments)
- Backup proxies (for vSphere environments)
- f. Click Create a New Container.
- g. Confirm that the container was added.

-	Dashboard -Nerts Events	Containers				Cre	ate Edit Delete D	isplay Statistic
_	-Vsage -Statistics: Container -Statistics: Replication	Message Successfully added o	ontainer 'My_Containe	r_Backup'.				
	Containers	Number of Containers: 2					Container P	ath: /containen
	Replication	Containers	Files	NES	CIFS	OST	Replication	Select
	Compression Level	My_Container_Backup	0	~	1		Not Configured	0
	Active Directory Email Replication System Configuration Networking Active Directory Email Alerts Admin Contact Info Email Relay Most Date and Time Support Diagnostics							

h. Click Edit, and write down the container path, which you will use later to target the DR4X00.

Ľ	хеl	L DR4000 dr4komar		Log out
•	Dashb Alerts Events Health Usage	Containers Edit Container: My_Container_Bacturp Connection Type: None NFS/CIFS OST	Create Edit Delete Displa * • required fields	y Statistics
	Statis Statis Stora	NFS NFS access path: 10.10.112.115/containers/My_Container_Backup	CIFS CIFS share path: \\10.10.112.115My_Container_Backup	O
Ē	Conta Replic Comp	Use NFS to backup UNIX or LINUX clients.	Use CIFS to backup MS Windows clients.	
•	Client Sched Replic Clean	Client Access: Client Access (all clients have access) NFS Options:	Client Access: Ø Open Access (all clients have access)	
	Netwo Active Email	 nv insecure ro 		
	Email Date a Suppo	Map root to: root		
Contra	Diagn Softwa			
(14)	,			
			Cancel Modify this Container	

i. Click **Cancel** to exit.

3 Configure the Backup Server and Install NetVault SmartDisk

- 1. Log into the media server and click on **Start→My Computer**.
- 2. Click Map network drive.



3. For Folder, enter the path to the container on the DR4X00.

G 😪 Map Ne	etwork Drive
What ne	twork folder would you like to map?
Specify the	drive letter for the connection and the folder that you want to connect to:
Drive:	S:
Folder:	\\10.10.112.115\My_Container_Backup Browse
	Example: \\server\share
	✓ Reconnect at logon
	Connect using different credentials
	Connect to a Web site that you can use to store your documents and pictures.
	Finish Cancel

4. Select the Reconnect at logon check box.

- 5. When prompted, enter the DR4X00 login credentials.
- 6. The DR4X00 container is now mounted to your backup server.
- 7. In the DR container, create two folders Stage and Store.

) 🕑 🛛 👱 🔹 Networ	k → swsys-54 → nvsd2 →				👻 🚺 Search nvsd2	
ganize 🔻 New folder						se 🔹 🗖
Favorites	Name *	Date modified	Туре	Size		
🧮 Desktop	🎉 Stage	11/19/2012 11:06 AM	File folder			
Downloads	i Store	11/19/2012 11:06 AM	File folder			
Kecenc Maces						
🖥 Libraries						
Computer						
🚰 Local Disk (C:)						
📮 Network						
N						
2 items						

- 8. Install NetVault SmartDIsk.
- j. Download or copy the NetVault install application to the backup server.
- k. Click install.

😋 🕞 🗸 🗸 Computer	• Local Disk (C:) • NVSD • Que	st_NetVault-SmartDisk-	16-Distribution-for-Wind	ows-x86-64-bit_16 -	, smartdisk
Organize 🔻 🚮 Open N	ew folder				
🔆 Favorites	Name ^		Date modified	Туре	Size
E Desktop	鷆 installfiles		10/26/2012 1:27 PM	File folder	
Downloads) libraries		10/26/2012 1:27 PM	File folder	
🔛 Recent Places	🛃 install		5/31/2012 4:41 PM	Application	
🚍 Libraries	Just Meia upper arion	1.77988	5/31/2012 4-41 DM	Application	
	侵 Quest NetVault Smart	Disk			. 🗵
🛤 Computer	Welcome to the	Quest ® NetV	'ault ®		RE'
🐔 Local Disk (C:)	 SmartDisk Setu 	p Wizard			
📲 Network	The installer will guide you t computer.	through the steps requir	ed to install NetVault Sm	artDisk on your	
	WARNING: This computer Unauthorized duplication or or criminal penalties, and w	program is protected by distribution of this prog ill be prosecuted to the Ca	r copyright law and intern ram, or any portion of it, n maximum extent possible ncel < Back	ational treaties. nay result in severe cir under the law.	al

l. Click Next to start the installation, and select to accept the license agreement.

m. Create a Non- Privileged User. Enter the **User account** name and **Password** of a local user that will be used as a non-privileged account for NetVault SmartDisk.

😽 Quest Net¥ault SmartDisk			
Non-Privileged User		W.	OUEST
To enhance security, most of the NetVau non-privileged user account. This accour account is represented by an empty dom	ılt SmartDisk proces nt will be created if i ain field.	ses will be run us t does not alread	sing an isolated, y exist. A local machine
User account name		Doma	ain
nvsd			
Password			
Retype password			
	Cancel	< Back	Next >

- n. When a warning message states the application will create a new user, select **Yes** and click **Next**.
- o. Select the installation **folder** for SmartDisk.

🗑 Quest NetVault SmartDisk	_ 🗆 ×
Select Installation Folder	
To install NetVault SmartDisk in the default folder, click "Next". To install to below or click "Browse".	a different folder, enter it
NetVault SmartDisk may be installed anywhere that the nvsd user previous) (including that user's home directory).	y selected has access to
Eolder:	
C:\Program Files\Quest Software\NetVault SmartDisk\	
	Browse
	Disk Cost
Cancel < Back	Next>

- p. When prompted, select **Remote** and click **Next**.
- q. Enter the full path to the **Stage** folder that you created in the DR4X00 container, along with the user name and password required to access the folder.

🕞 Luest NetYault SmartDis	ed in	inesi	Net	tan)	t Sr	11516	in Di	E
---------------------------	-------	-------	-----	------	------	-------	-------	---

VARE

s

Select Remote Staging Path Folder

Folder:			
The format of the remote path entered he	ere must correspond	to \\server\path	
\\swsvs-54\nysd2\Stage			
1			
Username			
testad\administrator			
Password			
•••••			
·			
Password confirm			
•••••			
	Cancel	< Back	Next >

r. Enter the full path to the **Store** folder that you created in the DR4X00 container, along with the user name and password required to access the folder.

🙀 Quest Net¥ault SmartDisk			
Select Remote Store Pa	th Folder	<i>W</i>	OUEST SOFTWARE
Folder:			
The format of the remote path entered he	ere must correspond	o \\server\patł	n
\\swsys-54\nvsd2\Store			
Heemene			
Username testadyadministrator			
restad vadministrator			
Password			
•••••			
Password confirm			
••••••			
	Cancel	< Back	Next >

- s. When prompted to enable SmartDisk WebDAV, select Yes.
- t. Enter the non-privileged user information that was created in step D.
- u. Click Next to confirm the installation

installfiles 10/26/2012 1	d Type	Size		0 1	
instalfiles 10/26/2012 1					
Ibraries 10/26/2012 1	1:27 PM File folder 1:27 PM File folder				
r instal 5/31/2012 43 ■ InstMsiA 5/31/2012 43 ■ InstMsiW 5/31/2012 43	:41 PM Application :41 PM Application :41 DM Application	246 KB 1,668 KB 1 770 KR			
RELEASEDEF 5/31/2012 4 Setup 5/31/2012 4	Confirm Installation		QUEST SOFTWARE'		
[] Setup 5(31/2012 4 # maxtdak 5(31/2012 4 # maxtdak, de 5(31/2012 4 # maxtdak, dr 5(31/2012 4 # maxtdak, ja 5(31/2012 4 # maxtdak, ja 5(31/2012 4 # maxtdak, jan_cn 5(31/2012 4	The installer is ready to install Neth	Yault SmartDisk on your computer. n			
					Cancel Cancel Next >

v. Once the installation is complete, click **Close** to exit

<u>]</u> smartdisk						_ 🗆 ×
😋 🕞 🗢 👗 🔹 Comput	er 🔹 Local Disk (C:) 🔹 NWSD 👻 Quest_N	etVault-SmartDisk-16-Distribution-for-Wi	ndows-x86-64-bit_16	i • smartdisk •	👻 🌠 Search smai	tdisk 🗾 🙋
Organize 👻 🔝 Open	New folder					II • 🔟 🛛
🔶 Favorites	Name *	Date modified	Туре	Size		
🧮 Desktop	🎉 installfiles	10/26/2012 1:27 PM	File folder			
Downloads	🎉 libraries	10/26/2012 1:27 PM	File folder			
🕍 Recent Places	😼 install	5/31/2012 4:41 PM	Application	246 KB		
🥽 Libraries	🚰 InstMsiA	5/31/2012 4:41 PM	Application	1,668 KB		
	🚰 InstMsiW	5/31/2012 4-41 PM	Application	1 779 KR		
📜 Computer	RELEASEDEF	5/31/2012 4	SCNCCFAULC SITIAL	ldisk		
🚮 Local Disk (C:)	🖶 Setup	5/31/2012 4 Ins	tallation Com	plete	SOFTWARE	
Se Natural	🔃 Setup	5/31/2012 4				
- HOLWOIK	😼 smartdisk	5/31/2012 4				
) smartdisk_de	5/31/2012 4 NetVi	ault SmartDisk has be	en successfully installed.		
	15 smartdisk_fr	5/31/2012 4 Click	"Close" to exit.			
	j smartdisk_ja	5/31/2012 4				
	is smartdisk_ko	5/31/2012 4				
) smartdisk_zn_cn	5/31/2012 4				
				Cancel	< Back Close	
instal Dat	te modified: 5/31/2012 4:41 PM	Date created: 5/31/2012 4:41 PM				
Application	Size: 245 KB	and a second of a standard to the table				
U" 🛲						



4 Configure NetVault SmartDisk

NOTE: This Chapter assumes that the user has already created the needed CIFS, NFS, CIFS/NFS container and assigned the desired permission(s) as detailed in the Install and Configure the DR4X00 chapter.

4.1 Windows

The steps in this section will require access to the NetVault SmartDisk server and the NetVault NetBackup Server.

1. From a command prompt on the SmartDisk server, cd to the **NetVault** SmartDisk\Foundation\bin folder.



- 2. Run the command **smartdisk.bat config –show** to view the current configuration.
- 3. Run the following command to disable deduplication for the SmartDisk configuration: smartdisk.bat config –dedupe-enable FALSE

an Administrate	or: Command Pi	rompt	
05/31/2012	04:38 PM	384	foundationlicenseinstall.exe.manifest
05/31/2012	04:38 PM	21,939	idptools.sh
05/31/2012	04:38 PM	384	setstanza.exe.manifest
11/19/2012	11:06 AM	414	smartdisk.bat
05/31/2012	04:39 PM	47,064	sqlite3.exe
45/31/2012	04:38 PM	384	sqlite3.exe_manifest
35/31/2012	04:39 PM	2,785	startup.sh.in
45/31/2012	04:39 PM	2,678	trace.sh
05/31/2012	04:37 PM	16,856	tracetoascii.exe
05/31/2012 05/31/2012	04:38 PM	384	tracetoascil.exe.manifest
05/31/2012	04-37 PM	17 400	traceuptoad.sh
05/31/2012 0E/01/0010	04-37 PN 04-30 DM	17,408 204	Winservicerunner.exe
05/31/2012 0E/01/0010	04-30 TH 04-30 DM	10 000	Winservicerumer.exe.wanirest
05/31/2012 05/31/2012	04-30 DM	17,000	white exe manifest
33/ 31/ 2012	42 File((a) 2 0077 17	
	2 Dir(s) 182.562.136.0	64 butes free
_			
C:\Program	Files\Quest	: Software\NetVau	lt SmartDisk\foundation\bin>smartdisk.bat
lsage: snar	tdisk.bat s	tart stop res	start status stats license config logs dump password version help
C:\Program Configurati	Files\Quest on applied	: Software\NetVau	lt SmartDisk\foundation\bin>smartdisk.bat configdedupe-enable FALSE
C:\Program	Files\Quest	Software Netllau	It Cmanthick/foundation/hin/

4. Verify that the value has been set to false by using the command: **smartdisk.bat config –show**



🔤 Administrator: Command Prompt
85/31/2012 04:39 PM 16,855 tracetoascii.exe 85/31/2012 04:38 PM 384 tracetoascii.exe 85/31/2012 04:39 PM 980 traceupload.sh 95/31/2012 04:39 PM 17.408 winserwicerunner.exe 85/31/2012 04:38 PM 384 winserwicerunner.exe.manifest 85/31/2012 04:38 PM 17.400 wput.exe 95/31/2012 04:38 PM 384 wput.exe 2 Dir(s) 182,562
C:\Progran Files\Quest Software\NetVault SmartDisk\foundation\bin≯smartdisk.bat Usage: smartdisk.bat start stop restart status stats license config logs dump password version help
C:\Program Files\Quest Software\NetVault SmartDisk\foundation\bin>smartdisk.bat configdedupe-enable FALSE Configuration applied
C:\Progran Files\Quest Software\NetVault SmartDisk\foundation\bin)smartdisk.bat configshow more Current configuration
LDeduplication:Enable] Jalue = FALSE
[Interface:Data] Block Size = 32706, B Credentials = nvsd:6a2f9f57abaeaee0ee53aaec29f2dcb1 Preferend Contact Address =

- 5. Run the following command to add the license key for SmartDisk: smartdisk.bat license –t tkey>
- Net¥ault Backup _ 🗆 X File View Operations Administration Help NetVault[®] Backup * 🗟 🖨 🕾 🖄 🗶 🖉 👘 🖓 % Client Job Policy Status Reports Backup Management Global Access Device Media Restore Logs Management Notification Control Management Logon: default 11:31
- 6. Add the SmartDisk to the NetVault Backup Server as a library

7. Select **Device Management** and under the **Add Section**, Select **Add NetVault SmartDisk**. Type the name of the SmartDisk server within the **Host** Field.

NVBU Device Management		_ 🗆 ×
Berner Selection SHAWNCW2K303 Device: Device: Device: <td< th=""><th>Add NetVault SmartDisk</th><th>NetVault[®] Backup</th></td<>	Add NetVault SmartDisk	NetVault [®] Backup
SLOT 1: RESERVED SLOT 2: JOC/Y003 SLOT 3: JOC/Y004 SLOT 5: JOC/Y004 SLOT 5: JOC/Y005 SLOT 7: JOC/Y005 SLOT 8: JOC/Y006 	NetVault [®] Backup Server Selection: SHAWNC-W2K8-03 Details Host: shawnc-w2K8-03 Port: 0 [Leave at 0 to use the default port] Force add Selecting this option will forcefully add the target SmartDisk to the server even if it has been added to another NVBU server has been rebuilt.) Insi can be useful if an NVBU server has been rebuilt.) Logon: default [11:52	
		Logon: default 11:32

8. Click on the **Save icon** in the top left corner of the Pop up window above. Once the device is added successfully, then click **OK** to exit.

NVBU Device Management	and a state of the	_ 🗆 X
File Add View Help		
Pier Add View Help Server Selection SHAWNCW2K8.03 ▼ Device: Device Log: Media Requests Server Selection SHAWNCW2K8.03 Version: Server Selection SHAWNCW2K8.03 Version: Server Selection SHAWNCW2K8.03 Version: Server Selection SHAWNCW2K8.03 Version: Server Selection Server Selection	Add NetVault SmartDisk File NetVault* Backupp Server Selection: SHAWNCW2K8:03 Details MBU - Information Host shawnow2k8:0 Operation X Pot: O K Office add OK K Selecting this option will forcefully add the target SmatDisk to the server even if it has CK This can be useful if an NVBU server has been rebuil.) Logan: default 11:34	NetVault [®] Backup
		Logon: default 11:34

9. Authorize the NDAV (WebDAV) from the NetVault Backup Server by using the command: "nvdav.exe –server [NetVault Server Name]"



10. Verify SmartDisk (Foundation) Services has started.

Q Services							
File Action View Help							
🔍 Services (Local)	🔕 Services (Local)						
	Foundation Services ID 464087153	Name 🔺	Description	Status	Startup Type	Log On As	_
		Application Experie	Processes		Manual	Local System	
	Stop the service	🎑 Application Identity	Determines		Manual	Local Service	
	Restart the service	🎑 Application Inform	Facilitates		Manual	Local System	
		🎑 Application Layer G	Provides s		Manual	Local Service	
		🎑 Application Manag	Processes i		Manual	Local System	
		🎑 Background Intellig	Transfers f		Manual	Local System	
		🎑 Base Filtering Engine	The Base F	Started	Automatic	Local Service	
		🎑 Certificate Propag	Copies use	Started	Manual	Local System	
		🎑 CNG Key Isolation	The CNG k		Manual	Local System	
		🎑 COM+ Event System	Supports S	Started	Automatic	Local Service	
		🎑 COM+ System App	Manages t		Manual	Local System	
		🎑 Computer Browser	Maintains a		Disabled	Local System	
		🎑 Credential Manager	Provides s		Manual	Local System	
		🎑 Cryptographic Ser	Provides fo	Started	Automatic	Network S	
		🔍 DCOM Server Proc	The DCOM	Started	Automatic	Local System	
		🧟 Desktop Window M	Provides D	Started	Automatic	Local System	
		🕵 DHCP Client	Registers a	Started	Automatic	Local Service	
		🚳 Diagnostic Policy S	The Diagno	Started	Automatic (D	Local Service	
		👰 Diagnostic Service	The Diagno		Manual	Local Service	
		🖾 Diagnostic System	The Diagno		Manual	Local System	
		🖾 Disk Defragmenter	Provides Di		Manual	Local System	
		Distributed Link Tra	Maintains li	Started	Automatic	Local System	
		🖾 Distributed Transa	Coordinate	Started	Automatic (D	Network S	
		🖾 DNS Client	The DNS Cl	Started	Automatic	Network S	
		Encrypting File Sys	Provides th		Manual	Local System	
		Extensible Authent	The Extens		Manual	Local System	
		Evendation Service		Started	Automatic	Local System	
		Eunction Discovery	The FDPH	Started	Manual	Local Service	
		Eunction Discovery	Publishes t		Manual	Local Service	
		Group Policy Client	The servic	Started	Automatic	Local System	
		Health Key and Ce	Provides X		Manual	Local System	
		Kuman Interface D	Enables ge		Manual	Local System	
		KE and AuthIP IPs	The IKEEX	Started	Automatic	Local System	
		Interactive Service	Enables us		Manual	Local System	-
	Extended Standard						

11. Assign the SmartDisk Library as the target device for NetVault Backup Job. Select **Backup** and on the **Target** Tab, Select the SmartDisk device as the target.





View Accest Help Image: Selection Selection <th>NYBU Backup</th> <th></th> <th> ></th>	NYBU Backup		>
Image: Selection SHAWNE-W2X303 Job Tale No Tale rever Selection SHAWNE-W2X303 Job Tale No Tale rever Selection Stackup Options Selection Stackup Options Image: Selection Stackup Options Selection Stackup Options Stackup Options Selection Stackup Options Image: Selection Options Selection Stackup Options Stackup Options Taget Media Diptions Taget Media Diptions Taget Media Time Diptions Taget Media Tim	e View Accept Help		
aver Selection SHAWNC W2X303 Job Title No Title elections Backup Options Schedule Target Advanced Options Pavice of Specify Device Local Drives Only Arry Device Specify Device Local Drives Drive Local		NetVault	Backup
electors Backup Options Schedde Teget Advanced Options Device options Or Any Device Specify Device Local Drives Only Options 2003 Statistic - shares was 2003 Statistic - shares 2003 Statistic - shares 2003 Statistic - shares 2	ierver Selection SHAWNC-W2K8-03 🔽 Job Title No Title		
Device options	Selections Backup Options Schedule Target Advanced Options		
C May Device I Local Drives Unity Image: Start Disk - tharmow 23:803	Device options		
SinadDak - shawnowd/2403 SinadDak - shawnowd/2403 ORIVE 1 ORIVE 2 Meda Options Target Meda By O Rive 1 SinadDak - shawnowd/2403 Image Meda Dytions O Rive 1 SinadDak - Shawnowd/2403 Image Meda By Any MID Group Label Label Meda Never Any Specify minimum space required on media before backup M Bytes Protect media from further writes after backup Ensure this backup is the first on the media Media Request Timeout Media Request Timeout Target Set Load Save As Delee	C Any Device (Specify Device Local Drives Only		
Media Options Target Media By Any not in a group C Any C MID C Group Label Label Media V Automatically label blank media Reuse Media Reuse Media Never C Any C With same group label as target media General Options Specify minimum space required on media before backup Ensue this backup is the first on the media Media Request Timeout I III IIII Hours: Minutes Target Set Load Save As Delete Modify	Image: SHAWNDW2K803 Naweys105/wwbarwf1/vf1 Image: SHAWNDW2K803 Naweys105/wwbarwf1/vf1 Image: State of the state o		
General Options Specify minimum space required on media before backup Protect media from further writes after backup Ensure this backup is the first on the media Media Request Timeout OO Save As Delete Modify	Media Options Target Media By Any not in a group C Any C MID C Group Label Label Media V Reuse Media Never C Name group label as target media		
Target Set Load Save As Delete Modify	General Options Specify minimum space required on media before backup Image: Specify minimum space required on media before backup Image: Specify minimum space required on media before backup Image: Specify minimum space required on media before backup Image: Specify minimum space required on media before backup Image: Specify minimum space required on media before backup Image: Specify minimum space required on media before backup Image: Specify minimum space required on media Image: Specify minimum specify minim		
	Target Set Load Save As Delete Modify	Loopy default	19.94

12. Finish configuring the rest of the Backup job parameters and then run it.

4.2 Linux/Unix

1. Mount the container via the NFS path to the Linux/Unix SmartDisk client/server. The local mount point will be used for the SmartDisk path.



2. Create non-privilege user account. (Excerpt from the SmartDisk Installation Guide).

Authentication Requirements

- Root-level or administrator account for installation Root-level or administrator credentials are only required for use during the installation process, removal process, and, if necessary, manually restarting the NVSD Services.
- NVSD Non-privileged Group and User Security group with full NVSD configuration and monitoring rights.

To create the NVSD Non-privileged Group and Users, follow these guidelines:

- For Linux and UNIX (the following examples use sdusr and sdgrp for the user and group, respectively):
- 1. If the non-privileged group does not exist, create it.

groupadd sdgrp

If the non-privileged user does not exist, create it and add it to the nonprivileged group.

useradd -G sdgrp sdusr

3. Define the password for the non-privileged user.

passwd sdusr

4. If the non-privileged user does exist, add it to the non-privileged group.

usermod -a -G sdgrp sdusr

3. Install the SmartDisk application. Under the directory that contains the SmartDisk application, launch the installation with the following command: "./install"



4. Select the correct lanaguage when prompted.



5. The Install script will step you through the installation. The non-privilege user that was created in Step 2 above will be added. The CLI will prompt the user for the user account details:

SmartDisk supports Post-process deduplication. If you would like to store the staged data (awaiting dedupe) at a separate location to the SmartDisk application, please enter a path below.

Staging path? [/usr/smartdisk/diskmanager/stage]: /mnt/sw54-nvsd3/Stage

Please choose where you would like SmartDisk to store the data it has deduplicated and the index of that data. You should usually choose a fault tolerant disk for this storage. For the index, good random access performance is also important.

(**Note:** A network share located on a third-party deduplication appliance cannot be used for the Chunk Store).

Store path? [/usr/smartdisk/store] : /mnt/sw54-nvsd3/Store

Would you like to configure WebDAV authentication credentials? (y n) [y] : y You chose Yes

Enter in the non-privilege user for the WebDAV authentication: WebDAV authentication username? : sdusr

Please enter the WebDAV authentication password for SmartDisk: Please confirm password:

- 6. Once the installation is completed the system will report that the installation was successful.
- Disable Deduplication on the SmartDisk. The deduplication feature must be **disabled** when using NetVault on the DR4X00. To disable SmartDisk deduplication, run the following: "cd usr/smartdisk/foundation/bin"





"./smartdisk.sh config --dedupe-enable FALSE "

8. Add the SmartDisk to the NetVault Backup Server as a library



9. Select **Device Management** and under the **Add Section**, Select **Add NetVault SmartDisk**. Type the name of the SmartDisk server within the **Host** Field.

NVBU Device Management		_ 🗆 X
Image: NVBU Device Management File Add View Help Server Selection SHAV/NC-W28-803 ▼ Device: Device Logs Media Requests OF SHAV/NC-W28-803 Varges 105/wdos-v111/v11 (Online) ♥ DRWE 2 (Ide) : JSC/1002 ♥ DRWE 2 (Ide) : JSC/1002 ♥ SLOT 3: JSC/1004 ♥ SLOT 3: JSC/1004 ♥ SLOT 5: JSC/1001 ♥ SLOT 7: JSC/1005 ♥ PORT 1	Add NetVault SmartDisk File View Help NetVault [®] Backup Server Selection: SHAWNC-W2K8-03 Detait Host: dtwmc-w2X8-03 Poit: 0 (Leave at 0 to use the default port) Force add (Selecting this option will forcefully add the target SmartDisk to the server even if it has been added to another NVBU server with the same name. This can be useful if an NVBU server has been rebuilt.)	× NetVault [®] Backup
	Logon: default 11:32 //	
		Logon: default 11:32

10. Click on the **Save icon** in the top left corner of the Pop up window above. Once the device is added successfully, then click **OK** to exit.

NVBU Device Management			_ 🗆 X
Image: NYBU Device Management. File: Add Wew Help Server Selection Shawney Walks (Signed Server Selection) Device: Device Logs: Media Requests Image: Shawney Walks (Signed Server Selection) Image: Shawney Walks (Signed Server Server Selection) Image: Shawney Walks (Signed Server Server Selection) Image: Server S	Add NetVault SmartDisk Fls Vew Help NetVault Backup Server Selection: SHAW/NC-W2K8-03 Details Host shawner w2k84 Flot shawner w2k84 Flot shawner w2k84 Flot or office duty add the target SmartDisk to the server even it it has been added to another NVBU server has been rebuilt.) Loose: default Loose: default 11.54	NetVault [®]	Backup
		Logon: default	11:34

11. Authorize the NDAV (WebDAV) from the NetVault Backup Server by running the command:

"./nvdav -server <smartDisk_Device_name>" from "/usr/netvault/util".



5 Set up the DR4X00 Cleaner

Once all the backup jobs are setup the DR4X00 cleaner must be scheduled. The DR4X00 cleaner should run at least 6 hours per week when backups are not taking place, generally after a backup job has completed.

Performing scheduled disk space reclamation operations are recommended as a method for recovering disk space from system containers in which files were deleted as a result of deduplication.

	DELL DR4000 DR4000-D	KCV6S1			Help Log out
Dashboard Alerts Events Health		Cleaner Schedule Schedule Cleaner System time zone: US/Central, Mon Jan 23 15:18:49 2012 State Stat			Schedule
	Statistics: Container	Day	Start Time	Stop Tim	e
	Statistics: Replication	Sun	-		
-	Storage	Mon		-	
	Containers	Tue			
	Compression	Wed	-		
-	Schedule	Thu	-	-	
	Replication	Fri	-	-	
6	Cleaner	Sat	-	-	
	System Configuration Networking Active Directory Email Alerts Date & Time Support Diagnostics Software Upgrade	Note: When no schedul	ie is set, the cleaner will run as needed.		

Monitoring Dedupe, Compression & Performance

6

36

After backup jobs have run the DR4X00 will track Capacity, Storage Savings and Throughput on the DR4X00 dashboard. This information is valuable in understanding the benefits the DR4X00.

NOTE: Deduplication ratios increase over time, it is not uncommon to see a 2-4x reduction (25-50% total savings) on the initial backup. As additional full backup jobs complete the ratios will increase. As mentioned before backup jobs with 12 week retention will average a 15x ratio in most cases.



Dell

Dell online support resources:

- Dell technical support site: <u>http://support.dell.com</u>
- Dell TechCenter is an online IT community where IT professionals connect with Dell customers and employees to share knowledge, best practices, and other information about Dell products and installations: http://DellTechCenter.com

Dell DR4X00 -NetVault resources:

- Dell DR4X00 manuals/guides: <u>http://support.dell.com/support/edocs/SYSTEMS/DR4X00/en/index.htm</u>
- Dell DR4X00-NetVault Application Notes guide: <u>https://support.guest.com/searchdocumentation.aspx?pr=268446836&k=DR4X00&ActiveTab=3</u>
- Dell Quest NetVault manuals/guide: <u>https://support.guest.com/searchdocumentation.aspx?pr=268446836&k=NetVault&ActiveTab=3</u>