

# Setting up Veeam on the Dell<sup>™</sup> DR4000 Disk Backup Appliance

A Dell Technical White Paper

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## **Executive Summary**

This paper provides information about how to set up the Dell DR4000 as a backup to disk target for Veeam<sup>®</sup> Backup & Replication<sup>™</sup> software. This paper is a quick reference guide and does not include all DR4000 deployment best practices.

See the DR4000 documentation other data management application best practices whitepapers for additional information.

**NOTE:** The DR4000 build version and screen shots used for this paper may vary slightly, depending on the version of the DR4000 operating system.

## 1 Install and Configure the DR4000

- 1. Rack and cable the DR4000 appliance, and power it on.
- 2. Log into iDRAC using the default address **192.168.0.1**, user name **root**, and the password **calvin**.



3. Launch the virtual console.

	TED DELL RI CONTROLLE	EMOTE R 6 - ENTERPRISE			Support   About	Logout	
System Dell DR4000 root , Admin	Properties System Su	Setup Power mmary System	r Logs Alerts Console/Media Details System Inventory	vFlash Remote File Share			
System IDRAC Settings Batteries Fans Intrusion	System	Summary			e c	?	
Power Supplies	Status	Component		Virtual Console Preview			
Removable Flash Media Temperatures	<b></b>	Batteries		Options : Settings			
Voltages		Fans			-		
Power Monitoring	<b>V</b>	Intrusion					
		Power Supplies					
	$\checkmark$	Removable Flash	Media				
		Temperatures					
		Voltages		Refres	h Launch		
	Server	Information		Quick Launch Tasks			
	Power	State	ON	Power ON / OFF			
	Syster	n Model	Dell DR4000	Power Cycle System (cold boot)			
	Syster	n Revision	1	Launch Virtual Console			
	Syster	n Host Name	DR4000-DKCV6S1.asglab.roundrock	View System Event Log			
	Opera	ting System	CentOS	View IDRAC Log			
	Opera	Operating System Version 2.6 18-164 e Update Firmware					
	Servic	e Tag	DKCV6S1	Reset IDRAC			
	Expres	s Service Code	29529104401				
	BIOS	/ersion	1.9.0				
	Firmw	are 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.).

Ocarina release 1 (EAR-1.00.00) Build: Kernel 2.6.18-164.el5 on an x86_64	32858
localhost login: administrator Password: StOr@ge!	

5. Set the user-defined networking preferences.



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

IP Address	: 10.10.86.108	
Network Mask	: 255.255.255.128	3
Default Gateway	: 10.10.86.126	
DMS Suffi×	: idmdemo.local	
Primary DNS Ser	ver : 10.10.86.101	
Secondary DNS S	erver : 143.166.216.23	7
Host Name	: DR4000-5	

7. Log into the DR4000 administrator console, using the IP address you just provided for the DR4000, user **administrator** and the password **St0r@ge!** (The "0" in the password is the numeral zero.).

DELL DR4000 DR4000-DKCV6	\$1	Help
Login		Reset Password
	Please enter your password:	
	Username: administrator	
	Password: St0r@gel	
	Log in	
		2

8. Join the DR4000 to Active Directory.

**NOTE:** if you do not want to add DR4000 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 - Windo	ws Internet Explorer				
O ▼ → http://10.10	.86.107(ad_add.ogi		• + <sub>2</sub>   ×	Bing	P -
👷 Fevorkes 🛛 🔹 🍘 E	DRM Enron Email Data Set 🛛 🏀 Login	Active Directory X			
	DELL DR4000 DR4000-5			Help 1 Lug-out	
1	Dashboard Alens Exame	Directory Configuration		Jain	
	Health Dor	nain Name (FQDN): 📐	All fields are required.		
	Usage Statistics: Cuntainer Statistics: Replication	Username: 🔤	Enter Acti	ve Directory Creder	ntials
	<ul> <li>Storage</li> <li>Containers</li> </ul>		Cancel Join Domain		
	- Replication	и, ти, ве, ти пиласкири			
1	Schedule				
1.0	Oarbage Collection				
	System Configuration Networking				
	Active Directory Email Alerts				
	Date & Time				
	Diagnostics Software Upprade				an and a state of the
and the second second					
learnine and					
Second Lines and					11 11

- 9. Create and mount the container.
  - a. 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	CLL DR4000 dr4komar						H	lelp   Log out
	Dashboard Nerts Events	Containers				Creat	e   idit   Delete   Di	splay Statistics
-	lealth	Number of Containers: 2					Container P	ath: /containers
S	Jsage Statistics: Container Statistics: Replication	Containers	Files	NFS	CIFS	OST	Replication	Select
	Storage Containers Replication Compression Level Clients							
F C	Schedules Replication Schedule Cleaner Schedule							
	System Configuration Vetworking Email Alerts Volmin Contact Info Email Relay Host Date and Time Support							
Copyrig	Diagnostics Software Upgrade ht © 2011 - 2012 Dell Inc. All rigi	hts reserved.						



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

DCCLL DR4000 DR4000-DKCV6S1	Help   Log out
Dashboard     Containers     Create New Container:	Create   Edit   Delete   Display Statistics
Choose the type of container to create (NFS and/or CIFS) and add clients that nee Container Name*: Max 32 characters no / NFS NFS access path: 192.168.22.50 /containers Use NFS to backup UNIX or LINUX clients. Enable NFS Client Access: Select CIFS or NFS Client Access (all clients have access) Add client (IP or FQDN Hostname): Add Clients: Enter Backup Server Remove	required fields     Are the Container      CIFS CIFS CIFS CIFS to backup MS Windows clients. Enable CIFS Client Access: Open Access (all clients have access) Add clients (IP or FQDN Hostname) Add Info Remove
NFS Options: w insecure ro Map root to: -select- v	Cancel Create a New Container

c. Select the client access credentials preferred.

DELL DR4000 DR4000-DKCV6S1	Help   Log out
Dashboard     Create New Container:	Create   Edit   Delete   Display Statistics
Choose the type of container to create (NFS and/or CIFS) and add cl Container Name":	ients that need access. 2 characters no /# or <b>Name the Container</b>
NFS     NFS     NFS     Use NFS to backup UNIX or LINUX clients.     Enable NFS     Select CIFS or 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): Add	Client Access: Open Access (all clients have access) Add clients (IP or FQDN Hostname) Add
Clients: Enter Backt	Remove
NFS Options: rw insecure ro	
Map root to: -select-	
	Cancel Create a New Container

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

- Backup console (Veeam Server)
- Hyper-V hosts (on-host proxy for Hyper-V environments)s
- Off-host proxies (for Hyper-V environments)
- Backup proxies (for vSphere environments)

#### d. Click Create a New Container.

e. Confirm that the container was added.

	DECLL DR4000 dr4komar				_		1	Help   Log out
	Dashboard Alerts Events Health Usage Statistics: Container Statistics: Replication	Containers Message Successfully added	container 'My_Container	-Backup'.		Cre	ate   Edit   Delete   D	splay Statistics
-	Containers	Number of Containers: 2					Container P	ath: /containers
	Replication	Containers	Files	NES	CIFS	OST	Replication	Select
	Compression Level Clients	My_Container_Backup	0	~	~		Not Configured	•
	Schedules Replication Schedule Cleaner Schedule System Configuration Networking Active Directory Email Alerts Admin Contact Info Email Relay Host Date and Time Support Diagnostics Software Upgrade							

f. Click **Edit**, and write down the container path, which you will use later to target the DR4000.

Dél	L DR4000 dr4komar	Help	Log out
Dashba Alerts Events Health	Edit Container: My_Container_Backgr	Create   Edit   Delete   Displa	y Statistics
Usage Statis Statis	Connection Type: O None  NFS/CIFS O OST NFS NFS NFS access path: 10.10.112.115/containers.My_Container_Backup	CIFS CIFS share path: \\10.10.112.115Wy_Container_Backup	ielect
Comp Client	Use NFS to backup UNIX or LINUX clients.	Use CIFS to backup MS Windows clients.   Enable CIFS  Client Access:	
Replic Clean System Netwo Active Email	Copen Access (all clients have access)  NFS Options:     Insecure     ro	Open Access (all clients have access)	
Admin Email Date a Suppo Diagn Softwa	Map root to:		
Copyright @ 2			
		Cancel Modify this Container	

g. Click Cancel to exit.

## 2 Configure the Backup Server

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

👔 Computer					
Computer	· •		🔻 🛃 Search		2
File Edit View Tools H	lelp				
🕙 Organize 👻 📗 Views	▼ 1型 System properties	🔄 Uninstall or change a program	🗣 Map network drive	Open Control Panel	0
Favorite Links	Name	Туре 🔶 💌	Total Size 🚽 Free S	ipace 🗐 🚽	
Documents	Hard Disk Drives (2)				E
Pictures	🚢 05 (C:)	Local Disk	221 GB	81.0 GB	
😰 Music	RECOVERY (D:)	Local Disk	10.2 GB	4.37 GB	
More »	Devices with Removab	le Storage (2)			Ξ
Folders 🗸	BVD/CD-RW Drive (E:)	CD Drive			
Deskton	🔀 BD-ROM Drive (G:) S	CD Drive	3.81 GB	0 bytes	
Administrator					
🐌 Public					
Computer					
BECOVERY (D·)					
DVD/CD-RW Drive (					
🛃 BD-ROM Drive (G:) :					
Network					
Control Panel					
DL Logs					

3. For **Folder**, enter the path to the container on the DR4000.

6	😪 Map Net	twork Drive
	What net	work folder would you like to map?
	Drive:	S:
	Folder:	\\10.10.112.115\My_Container_Backup     ▼       Browse
		Reconnect at logon
		Connect using different credentials <u>Connect to a Web site that you can use to store your documents and pictures</u> .
		Finish Cancel

4. Select the **Reconnect at logon** check box.

5. When prompted, enter the DR4000 login credentials.

The DR4000 container is now mounted to your backup server.

### 3 Set up Veeam

- 1. Open the Veeam Backup & Replication console.
- 2. Click the **Backup Infrastructure** section, right-click on **Backup Repositories**, and select **Add Backup Repository.**

3	8	Repository	Tools				Veeam Backu	p & Replication		- 0 X
	Home	Backup Rep	ository							
Add Repositor	Edit Repositor	Remove y Repository	Rescan Repositor	Upgrade V						
м	anage Repo	sitory	1	ools						
Backup	Infrastr	ucture		C Type in an ob	ject name to searc	h far				×
日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日	ackup Prosi scilup Free Applicatio Virtual Lat anaged sen- Virtual Lat anaged sen- Virtual Lat anaged sen- Virtual Lat anaged sen- Microsoft Microsoft Linux	ss r Groups ss rens Sphere Hyper-V Windows		Name CIPS-ExaGnd-C	beduplication in-Deduplication	Type CIPS Linux	Hoat 554-945001.55	Path Ilexendba 64001 (Backupa 110r degy/Staff (Filod. v Joli) enfol (Rackup Rackup (20 stepy/Staff (Filod. vs	Free 330.2 G8 2.2 T8	Description Created by SSArjisk, vanover at 10, Created by SSArjisk, vanover at 10,
Bac File Bac Bac SAA Hist	kup & Rep cual Machin s kup Infras i Infrastru tory	lication nes tructure cture								
				<				HI		> WEEDD
z reposito	ines		6			_		Lice	ise: Enterprise	240 PM
e e										<ul> <li>▲ 10/29/2012</li> </ul>

3. Enter a name that is self-documenting, such as "CIFS-DR4000-Deduplication," to indicate the device, protocol and feature of the repository.

	New Backup Repository	x
Name Type in a name and	l description for this backup repository.	
Name	Na <u>m</u> e:	
Туре	CIFS-DR4000-Deduplication	
	Description:	
Server	Created by SSA\rick.vanover at 10/29/2012 2:41:02 PM.	
Repositoru		
Trepository		
vPower NFS		
2.2		
Review		
Annlu		
	< <u>Previous</u> <u>Next &gt;</u> <u>Finish</u> Ca	incel

4. Select Shared folder.



5. For **Shared folder**, enter in the name of the DR4000 (or TCP/IP address used above) and the share name, and then click **Next**.

	New Backup Repository
Share Type in UNC p write data to th	hath to share (mapped drives are not supported), specify share access credentials and how backup jobs should is share.
Name	Shared folder:
Turne	\\DR4000-SystemName\Share Browse
Share Repository	This share requires access credentials: Username: Browse Browse
vPower NFS	Password:
Review	
Applu	Write data to this share:
- 1997 - 1997 - 1997	<ul> <li>Directly from backup proxy server</li> </ul>
	<ul> <li>Through the following proxying server:</li> </ul>
	This server 🗸
	Use this option when backing up to a shared folder on NAS that is located in remote site over WAN link.
	< Previous Next > Finish Cancel

6. Configure the repository wizard to note that the DR4000 is a deduplication target. Click the advanced button and select the additional option for "Aligning backup file data blocks" (fixed length write). Optionally select the decompress value. The decompress option will make the DR4000 do all of the compression.

All other options for the new repository wizard are independent of anything related to the DR4000.

	New Backup Repository	X
Repository Type in path to t	he folder where backup files should be stored, and set repository load control of	options.
Name Type Share Repository	Location Path to folder: Capacity: Free space:	Populate
rPower NFS Yeview Apply	Load control Running too many concurrent jobs against the same repository redu- may cause stoage I/D operations to timeout. Control repository sate C Limit combined data ingestion rate to:	ices overall performance, and autom with the following MB/s
	< <u>Previous</u> <u>Next</u> >	Deduplicating Storage Compatibility     Deduplicating Storage Compatibility     Align backup file data block:     Align backup file data block:     Align backup file data block backup file data block backup file data block backup file data block backup file backup

7. Create a new backup job in the Veeam Backup console, for either Hyper-V or vSphere; the options specific to the DR4000 are the same.

	New Backup Job	x
Name Type in a name an	d description for this backup job.	
Name	Na <u>m</u> e:	
Virtual Machines	Test Backup Job - DR4000	
Storage	Created by SSA\rick.vanover at 10/29/2012 3:04:41 PM.	
Guest Processing		
Schedule		
Summary		
	< <u>Previous</u> <u>Einish</u> Cancel	



8. Select one or more virtual machines, folders, datastores, resource pools, vApps, SCVMM clusters, etc. for the backup.

Virtual Mach	ines			
Select virtual n	nachines to process via container, or granul w VM into container	arly. Container provides d	lynamic selection t	hat automatically chang
Name	Virtual machines to backup:			
	Name	Туре	Size	<u>A</u> dd
virtual Machines	SSA-VESSDEMO-01	Virtual Mach	14.7 GB	Designed
Storage				Demove
Guest Processing				E <u>x</u> clusions
Schedule				★ Up
Summary				L <b>D</b> own
				Recalculate
				Total size:
				14.7 68

- 9. Ensure that the repository for this job is the DR4000.
- 10. On the storage wizard of the backup job, click the **Advanced** button to check a number of important settings.

	New Backup Job
Storage Specify process job and customi	sing proxy server to be used for source data retrieval, backup repository to store the backup files produced by this ize advanced job settings if required.
Name Virtual Machines	Backup proxy: Automatic selection
Storage Guest Processing Schedule Summary	Backup repository:         CIFS-DR4000-Deduplication (Created by SSA\rick.vanover at 10/29/2012 2:41:1 v)         I 327.5 GB free of 1.8 TB         Map backup         Retention policy         Restore points to keep on disk:         14 ÷         Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other options.
	< Previous     Next >     Einish     Cancel

11. Ensure the backup job is running in **Incremental** mode, and avoid the rollback transformation option. This is a default for new jobs.

	Storage N	lotifications	vSphere	Advance	ed	
Backup	mode					
0 <u>E</u>	eversed ir	ncrementa	I.			
E	ach increme tate. Recom	ntal run pro mended for	duces full n backup to	scovery file general pu	of the m pose dis	iost recent k.
	ocremental		Contraction of the		-	
I	raditional inc	remental ba	ckup with	periodic ful	ls. Recor	nmended for
b	ackup to tap	ie, remote si	te and ded	uplicating :	storage a	ppliances.
	Enable <u>s</u> y	nthetic fulls	(forever-ind	remental)	2	<u>D</u> ays
	Lreate on	: Sature	ay .		a har an Ille	
		rorm previou is to keep o	is ruii back nlu one full	up chains i backun file	nto rollba e on disk	icks to save
	disk :	space. Incre	ases synth	etic full cre	ation tim	e.
Active	ull backup			sller		
∖ctive □ F	iull backup er <u>f</u> orm active	e full backup	os periodica	aliy		
Active	full backup erform active <u>M</u> onthly on	e full backup : First	os periodica	ionday	~	Mo <u>n</u> ths
Active F C	full backup ler <u>f</u> orm active <u>M</u> onthly on <u>W</u> eekly on	e full backup : First selected da	os periodica V N	ionday	~	Mo <u>n</u> ths D <u>a</u> ys
Active F C	full backup er <u>form active</u> <u>M</u> onthly on <u>W</u> eekly on Saturday	e full backup First selected da	os periodica V N ays:	ionday	~	Mo <u>n</u> ths D <u>a</u> ys

12. Change the compression engine to **Dedupe-friendly** in the storage tab of the advanced settings. The deduplication option to local target will perform deduplication by Veeam at 1 MB, landing on the DR4000 for additional deduplication and compression.

		, and	incea or	rungs		
ackup	Storage	Notifications	VSphere	Advan	ced	
Dedup I <u>E</u>	lication nable inlin	ie data dedupli	ication (rec	ommende	ed)	
Compre Leve	ession I:					
Ded	upe-friend	ly				
Storag	e optimizat	ions				
Storag Optin	e optimizat nize for: al target	ions				
Storag Optin Loc Best incre or loc	e optimizat nize for: al target performan mental bac cal storage	ions ce at the cost ckup size. Rec	of lower de ommended	duplicatio for faste	on ratio and st backup	Harger to SAN, DA

**NOTE:** If overall space savings is the overall priority, it is recommended to use both in this fashion.

All other options are independent of the backup target.

# 4 Set up the DR4000 Cleaner

Once all the backup jobs are setup the DR4000 cleaner must be scheduled. The DR4000 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 Usage	Cleaner Sched	dule Central, Mon Jan 23 15:18:49 2012	Schedule Cleaner	Schedule
	Statistics: Container	Day	Start Time	Stop Time	me
	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	e is set, the cleaner will run as needed.		

## Monitoring Dedupe, Compression & Performance

After backup jobs have run the DR4000 will track Capacity, Storage Savings and Throughput on the DR4000 dashboard. This information is valuable in understanding the benefits the DR4000.

**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.





