

# Setting Up the Dell<sup>™</sup> DR Series System on Veeam

Dell Engineering April 2015

# Revisions

Date	Description
January 2014	Initial release
May 2014	Updated to add note to explain purpose of enabling dedupe on Veeam side.
July 2014	Updated to add workflow specific best practices
April 2015	Updated with Veeam 8.0 screenshots

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# **Executive summary**

This paper provides information about how to set up the Dell DR Series system as a backup target for Veeam<sup>®</sup> Backup & Replication<sup>™</sup> software.

For additional information, see the DR Series system documentation and other data management application best practices whitepapers for your specific DR Series system at:

http://www.dell.com/powervaultmanuals

**Note:** The DR Series system and Veeam screenshots used in this document may vary slightly, depending on the DR Series system firmware version and Veeam version you are using.



# 1 Installing and configuring the DR Series system

1. Rack and cable the DR Series system, and power it on.

In the *Dell DR Series System Administrator Guide*, refer to the sections, "iDRAC Connection", "Logging in and Initializing the DR Series System", and "Accessing IDRAC6/Idrac7 Using RACADM" for information about using iDRAC connection and initializing the appliance.

2. Log on to iDRAC using the default address **192.168.0.120**, or the IP address that is assigned to the iDRAC interface. Use the user name and password of "**root/calvin**" and then launch the virtual console.

n Propert tooo System	es Setup Powe Summary System	r Logs Alerts Console/Media Details System Inventory	vFlash Remote File Share		
Syste	m Summary			- C ?	
Settings Set	Server Health				
upplies	tus Component		Virtual Console Preview		
ble Flash Media	Batteries		Options : Settigs		
	Fans				
tonitoring	Intrusion		and the state of t	*** <sup>22</sup>	
6	Power Supplies				
6	Removable Flash	Media			
6	Temperatures			-	
8	Voltages		Retre	sh E Launch	
Se	Server Information		Quick Launch Tasks		
Po	ver State	ON	Power ON / OFF		
By	term Model	Dell DR4000	Power Cycle System (cold boot)		
Sy	tem Revision	1	Launch Virtual Console		
94	dem Hnat Name	DR4000-DKCV6S1 asglab roundrock	View System Flient Log		
Op	erating System	CentOS	View IDRAC Log		
Op	erating System Version	release 5.4 (Final) Kernel 2.6 19-164 e	Opdate Firmware		
50	vice Tag	DKCV651	Reset IDRAC		
Ex	ress Service Code	29529104401			
100	di Version	1.9.0			
		1 00 00 00 00 00			

3. When the virtual console is open, log on to the system as the user **administrator** with the password **St0r@ge!** (The "0" in the password is the numeral zero).



4. Set the user-defined networking preferences as needed.

Would you like to use DHCP (yes/no) ?
Please enter an IP address:
Please enter a subnet mask:
Please enter a default gateway address:
Please enter a DNS Suffix (example: abc.com):
Please enter primary DNS server IP address:
Would you like to define a secondary DNS server (yes/no) ?
Please enter secondary DNS server IP address:

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

IP Address       : 10.10.86.108         Network Mask       : 255.255.255.128         Default Gateway       : 10.10.86.126         DNS Suffix       : idmdemo.local         Primary DNS Server       : 10.10.86.101         Secondary DNS Server       : 143.166.216.237         Host Name       : DR4000-5	Set	static IP Add	Iress
Network Mask       : 255.255.255.128         Default Gateway       : 10.10.86.126         DNS Suffix       : idmdemo.local         Primary DNS Server       : 10.10.86.101         Secondary DNS Server       : 143.166.216.237         Host Name       : DR4000-5         Are the above settings correct (yes/no)?	IP Addres		: 10.10.86.108
Default Gateway : 10.10.86.126 DNS Suffix : idmdemo.local Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _	Network M	ask :	: 255.255.255.128
DNS Suffix : idmdemo.local Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _	Default G	ateway :	10.10.86.126
Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _	DNS Suffi	× :	idmdemo.local
Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _	Primary D	NS Server :	: 10.10.86.101
Host Name : DR4000-5 Are the above settings correct (yes/no) ? _	Secondary	DNS Server :	: 143.166.216.237
Are the above settings correct (yes/no) ? _	Host Name		: DR4000-5
	Are the above settin	gs correct (y	Jes∕no) ? _



6. Log on to the DR Series System administrator console, using the IP address you just provided for the DR Series System, with the username **administrator** and password **St0r@ge!** (The "0" in the password is the numeral zero.).

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

7. Join the DR into Active Directory domain.

**Note:** if you do not want to add the DR Series System to Active Directory, see the *DR Series System Owner's Manual* for guest logon instructions.

- a. Under System Configuration in the left navigation area, click Active Directory.
- b. Enter your Active Directory credentials.

C	CR4100			а	idministrator (Log out)   Help
SWS	sys-241.testad.ocarina.lc V Global View Dashboard	Active Directory			Join
	Alerts	Settings			
	Events Health Usane	The Active Directory settings have not been configured. Click on the 'Join' link	to configu	ire them.	
	Container Statistics	CIFS Share			
H	Replication Statistics Storage	Active Directory Configuration			
+	Schedules System Configuration	Note: By joining the Active Directory, you will lose the current URL and sess system. The browser will re-direct to a new URL and you will need to log bar	sion conne ck into the	ctivity to the system again.	
	Networking	Demain Name (SODN)	1 = 1	fields are required.	
	Active Directory	Domain Name (FQDN)*.			
	Email Alerts	Decements			
	Admin Contact Info	Password"			
	Password				
	Email Relay Host		Cancel	Join Domain	
	-Date and Time Support		cuncer	Join Domai	<u>=</u> ]
	Support				
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8. To create and mount the container, in the left navigation area, click **Containers** and then click the **Create** link at the top of the page.



					(11)	
sys-241.testad.ocarina.lc Global View	Containers			Create	Edit   Delete   Displ	ay Statist
Dashboard Storage	Number of Containers: 3				Container Path:	/containe
Containers	Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
Replication	backup	19	Auto	NFS, CIFS	Not Configured	0
Clients	test1	0	None	CIFS	Not Configured	0
Schedules	tsmsmall	31	Auto	VTL iSCSI	Not Configured	0
System Configuration	<u></u>					
Description of the						

9. Enter a Container Name, and click Next.

		* = required fields
Container Name		
Container Name <sup>®</sup> :	Max 32 characters, including only letters, numbers, hyphen, and underscore. Name must start with a letter. Sample	
Virtual Tape Library (VTL) :		
		Cancel Next >

10. Select the storage access protocol, and click **Next**.

Select Access Protocols -				* = required fiel
Storage Access Protocol <sup>*</sup> :	<ul> <li>Dell Rapid Data Storage (RDS)</li> <li>Symantec OpenStorage (OST)</li> <li>NAS (NFS, CIFS)</li> </ul>	3	Container Name an sample	d Туре
		< Back	Cancel	Next >

11. Select the access protocols as needed (CIFS, NFS), set the marker type as **Auto**, and then click **Next**.

Configure NAS Access				* = required field
nable Access Protocols :	NFS (Use NFS to backup UNIX or LINUX clients)     CIFS (Use CIFS to backup MS Windows clients)		Container Name an sample Access Protocols NAS (NES, CIES)	d Type
Marker Type*:	None	?		
	Networker			
	O Unix Dump			
	BridgeHead			
	Time Navigator			
		< Pack	Cancol	Next>

12. For NFS, set the preferred client access credentials, and click Next.

ure NFS Access			- lequi
NFS Options *:	<ul> <li>Read Write Access</li> <li>Read Only Access</li> </ul>	Insecure	Container Name and Type sample
Map root to :	-select-		NAS (NFS, CIFS) Auto
Client Access :	Open (allow all clients)		
	Create Client Access List		
Client FQDN or IP :		Add	
allow access client(s)		Remove	
		-	

13. For CIFS, set the preferred client access credentials, and then click **Next**. Container Wizard - Create New Container

Configure CIFS Client Access		* = required fields
Client Access :	Open (allow all clients)	Container Name and Type sample
Client FQDN or IP : allow access client(s)	Create Client Access List Add Remove	Access Protocols NAS (NFS, CIFS) Auto NFS Access Read Write Access secure Open (allow all clients)
		< Back Cancel Next >

15. Check the configuration summary, and then click Create a New Container.



ontainer Wizard - Create New Container	
Configuration Summary	* = required field:
Container Name and Type	NFS Access
Container Name: sample	Access Option: Read Write Access
Access Protocols Access Protocol: NAS (NES, CIES)	Insecure: No Open (allow all clients):
Marker Type: Auto	CIFS Access
	Open (allow all clients):
	Cancel Create a New Container

16. Confirm that the container is successfully added.

Ľ	DR4100					administrator (Log	out)   Help
sw:	sys-241.testad.ocarina.lc ▼ Global View Dashboard	Containers			Create	Edit   Delete   Displ	ay Statistics
	Storage Containers Replication Encryption Clients	Message  Successfully add  Suc	ed container "samp ed NFS connection ed CIFS connection bled container "san	le". for container "sample for container "sampl pple" with the followin	e". le". la marker(s) "Auto".		
+	Schedules	Number of Containers: 4				Container Path:	/containers
+	Support	Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
		backup	19	Auto	NFS, CIFS	Not Configured	0
		sample	0	Auto	NFS, CIFS	Not Configured	0
		test1	0	None	CIFS	Not Configured	0
		tsmsmall	31	Auto	VTL iSCSI	Not Configured	0

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# 2 Configuring the backup proxy

1. Log on to the backup proxy server by clicking **Start > My Computer**.

#### 2. Click Map network drive.

📔 Computer					_ 🗆 ×
Computer	•		🔻 🛃 Search		- 2
File Edit View Tools H	łelp				
🕒 Organize 👻 📗 Views	▼ j型 System properties	🛐 Uninstall or change a program	🖙 Map network drive	Open Control Panel	0
Favorite Links	Name -	Туре 🔺 💌	Total Size 🔹 Free	Space 🚽	
	Hard Disk Drives (2)				Ξ
Pictures	🚢 05 (C:)	Local Disk	221 GB	81.0 GB	
Nusic	CRECOVERY (D:)	Local Disk	10.2 GB	4.37 GB	
More »	Devices with Removab	le Storage (2)			
	ADVD/CD-RW Drive (E:)	CD Drive			
Folders V	BD-ROM Drive (G:) 5	CD Drive	3.81 GB	0 bytes	
Administrator					
Public					
Computer					
🚢 OS (C:)					
RECOVERY (D:)					
BD-POM Drive (C)					
Network					
👸 Control Panel					
👿 Recycle Bin					
🍌 DL Logs					



- 3. In the Folder field, enter the DR container share's UNC path, then do the following steps:
  - a. Select the **Reconnect at logon** checkbox.
  - b. When prompted, enter the DR CIFS access credentials.
  - c. Verify that the DR container share is mapped as a network drive.

📲 Ma	Map Network Drive 🔀				
$\bigcirc$	🔏 Map Net	twork Drive			
	What netwo	ork folder would you like to map?			
	Specify the o	drive letter for the connection and the folder that you want to connect to:			
	<u>D</u> rive: F <u>o</u> lder:	Y:			
	_	Fxample: \\server\share			
		Reconnect at logon			
		Connect using different credentials			
		Connect to a web site that you can use to store your documents and pictures.			
		<u>E</u> inish Cancel			



# 3 Setting up Veeam

#### Notes:

To maximize the DR-Veeam deduplication savings, Dell recommends to use the exact settings in this guide for all the data being backed up.

The backup data will change format completely when backup settings are changed. Hence, to get accurate savings numbers, all the data needs to be backed up with same settings.

#### 3.1 Backing up in Windows environments

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





3. Enter a name for the DR container repository and click **Next**.

	New Backup Repository	x
Yame Type in a name and	description for this backup repository.	
Name Type Server Repository vPower NFS Review Apply	Name: Backup Repository 8 Description: Created by TESTAD \administrator at 4/27/2015 11:09 PM.	
	< <u>Previous</u> <u>Next</u> Einish Canc	el

4. Select **Shared folder** as the type of backup repository, and click **Next**.

	New Backup Repository
Choose type of bac	kup repository you want to create.
Name Type Server Repository vPower NFS Review Apply	<ul> <li>Microsoft Windows server (recommended) Microsoft Windows server with internal or directly attached storage. Data mover process running directly on the server allows for improved backup efficiency, especially over slow links.</li> <li>Linux server (recommended) Linux server with internal, directly attached, or mounted NFS storage. Data mover process running directly on the server allows for more efficient backups, especially over slow links.</li> <li>Shared folder CIFS (SMB) share. When backing up over slow links, we recommend that you specify a gateway server located in the same site with the shared folder.</li> <li>Deduplicating storage appliance Advanced integration with EMC Data Domain, ExaGrid and HP StoreOnce. For basic integration, use the Shared folder option above.</li> </ul>
	< <u>Previous</u> <u>Next</u> > <u>Finish</u> Cancel

5. In the **Shared folder** field, enter the DR container share UNC path (or TCP/IP address to replace hostname), select the Gateway Server, and click **Next**.

	New Backup Repository
Share Type in UNC path t write data to this sh	o share (mapped drives are not supported), specify share access credentials and how backup jobs should are.
Name Type Share Repository vPower NFS Review Apply	Shared folder:       \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	< Previous Next > Finish Cancel

6. To customize the repository settings, click **Advanced**.

New Backup Repository					
Repository Type in path to the	folder where backup files should be stored, and set repository load control options.				
Name Type	Location Path to folder: [\\10.250.241.80\sample1]				
Share Repository	Capacity: 15.8 TB Populate Free space: 15.6 TB				
vPower NFS Review Apply	Load control Running too many concurrent jobs against the same repository reduces overall performance, and may cause storage I/D operations to timeout. Control repository saturation with the following				
	Click Advanced to customize repository settings				
	< <u>P</u> revious <u>N</u> ext > <u>F</u> inish Cancel				



7. Select the option, Decompress backup data blocks before storing.

**Note**: Deselecting the **Decompress backup data blocks before storing** option can increase your overall deduplication storage capacity usage. It is not recommended to switch these settings after the data has been written to the DR.

	New Backup Repository
Repository Type in path to	o the folder where backup files should be stored, and set repository load control options.
Name	Storage Compatibility Settings
Type Share	Align backup file data blocks Allows to achieve better deduplication ratio on basic deduplicating storage which leverages constant block size deduplication algorithm. Increases the backup size when backing up to raw disk storage. Populate
Repository	✓ Decompress backup data blocks before storing
vPower NFS Review	VM data is compressed by backup proxy according to the backup job compression settings to minimize LAN traffic. Uncompressing the data before storing allows for achieving better deduptication ratios on most dedupticating storage appliances at the cost of backup performance, and with the following
Apply	This repository is backed by rotated hard drives Backup jobs pointing to this repository will tolerate the disappearance of previous backup files by creating new full backup, clean up backup files no longer under retention on the newly inserted hard drives, and track backup repository location across unintended drive letter changes. OK Cancel
,	Click Advanced to customize repository settings Advanced
	< Previous Next > Finish Cancel

- 8. De-select the option, **Aligning backup file data blocks**. De-selecting this option is recommended since the DR Series system uses variable block deduplication.
- 9. Click Next.



10. On the review page, verify the settings, and click **Next** to apply changes.

	New Bac	kup Repository	x	
Review Please review the s	ettings, and click Next to continue	е.		
Name Type Share Repository vPower NFS Review Apply	Backup repository properties: Repository type: Mount host: Account: Backup folder: Write throughput: Max parallel tasks: The following components will Installer vPower NFS	CIFS This server administrator \\10.250.241.80\sample1 Not limited 4 Ibe processed on server This server already exists already exists		
	Import existing <u>b</u> ackups a	utomatically stem index		
< <u>Previous</u> <u>Next</u> Einish Cancel				

11. Click Finish.

	New Backup Repository	X
Please wait while bar	ckup repository is created and saved in configuration. This may take a few minutes	
Name Type Share Repository vPower NFS Review Apply	Log: Message Segistering client SEKHARN-2012-01 for package vPower NFS Discovering installed packages All required packages have been successfully installed Detecting server configuration Reconfiguring vPower NFS service Creating configuration database records for installed packages Creating database records for repository Backup repository has been added successfully	Duration
	< <u>Previous</u> <u>Next</u> > <u>Finish</u>	Cancel

#### 3.2 Backing up in Unix/Linux environments

**Note**: Before performing this procedure, make sure that you can mount/verify the NFS share from the UNIX/Linux client system.

 Open the Veeam Backup and Replication Console, and select Backup Infrastructure > Add Repository.



2. Enter a repository name, and click Next.



3. For type, select Linux server.



4. Add a New Repository Server, and click **Next**. (Click **Add New** and enter the credentials of the Linux host on which the DR container is mounted. Click **Populate** to view all of the mount points.)

	New Backup Repository			x
Server Choose server back	ing your repository. You can select server from the list of	managed servers a	added to the co	insole.
Name	<u>R</u> epository server:			
Туре	10.250.224.133 (Created by TESTAD\administrator	at 5/4/2015 1:01:1	12 AM.) 🗸 🗸	Add New
	Path	Capacity	Free	Populate
Server	/ (/dev/mapper/rhel7vg-root)	44.5 GB	39.6 GB	
Benositoru	<ul> <li>/boot (/dev/sda1)</li> </ul>	496.7 MB	378.5 MB	
Trepository	/dev (devtmpfs)	3.8 GB	3.8 GB	
vPower NFS	/dev/shm (tmpfs)	3.8 GB	3.8 GB	
	/mnt/vee (swsys-33:/containers/test_vee)	15.8 TB	15.6 TB	
Review	/mnt/vee_cifs (\\swsys-33.testad\cifs_vee)	15.8 TB	15.6 TB	
	/mnt/veeam (/dev/loop0)	830.4 MB	0.0 KB	
Apply	🗢 /run (tmpfs)	3.8 GB	3.8 GB	
	<ul> <li>/sys/fs/cgroup (tmpfs)</li> </ul>	3.8 GB	3.8 GB	
	L			
	< <u>P</u> revious	<u>N</u> ext >	<u>F</u> inish	Cancel

5. Select the path and click Next.

	New Backup Repository	×
Repository Type in path to the	folder where backup files should be stored, and set repository load control options.	
Name	Location	
Туре	P <u>a</u> th to folder: Vmnt/vee/backups Brows	e
Server	Capacity: Popul	ate
Repository	Free space:	
vPower NFS	Load control	
Review	Running too many concurrent jobs against the same repository reduces overall performance, a may cause storage I/O operations to timeout. Control repository saturation with the following	ind
Арріу	<ul> <li>✓ Limit maximum concurrent tasks to:</li> <li>4 </li> <li>↓</li> <li>↓</li></ul>	
	Click Advanced to customize repository settings	ed
	< <u>Previous</u> <u>N</u> ext > <u>Finish</u> Cance	el l

6. Select Enable vPower NFS server and then click Next.

	New Backup Repository
Specify vPower NF5 Specify vPower NF functionality such a	S settings. vPower NFS enables running virtual machines directly from backup files, allowing for advanced s Instant VM Recovery, SureBackup, on-demand sandbox, U-AIR and multi-OS file level restore.
Name Type Server Repository vPower NFS Review Apply	vPower NFS         ✓         Enable vPower NFS server (recommended)         This server         ✓         Specify vPower NFS root folder. Write cache will be stored in this folder. Make sure the selected volume has at least 10GB of free disk space available.         Eolder:       C: 1ProgramData 1Veeam1Backup IW/sDatastore         Browse
	Click Manage to change vPower NFS management port       Manage         Click Ports to change vPower NFS service ports       Ports
	< Previous Next > Einish Cancel

7. Confirm the settings, and then click **Next**.



	New Bac	kup Repository
Review Please review the s	ettings, and click Next to continue	e.
Name Type Server	Backup repository properties: Repository type: Mount host:	Linux This server
	Account: Backup folder: Write throughput:	root /mnt/vee/backups Not limited
Review	Max parallel tasks: The following components wil	4 Il be processed on server This server
мпл	Installer vPower NFS	already exists already exists
	Import existing <u>backups</u> a Import guest file sy	utomatically stem index
		< <u>Previous</u> <u>Next</u> Einish Cancel

8. Click **Finish** to create the repository.

	New Backup Repository	×
Please wait while bar	ckup repository is created and saved in configuration. This may take a few minutes	
Name	Log:	
Тире		Duration
	Registering client SENHARN-2012-01 for package vPower NFS	
Server		
Benository	Solution Server configuration	
	Reconfiguring vPower NFS service	
vPower NFS	Creating configuration database records for installed packages	
Paujau	Creating database records for repository	
11641644	Seckup repository has been added successfully	
Apply		
	< Previous Next > Finish	Cancel



#### 3.3 Starting backup jobs

1. On the **Backup & Replication** menu, go to **Jobs** > **Backup**, and right-click **Backup** to create a new backup job.

	New Backup Job
Name Type in a name and	l description for this backup job.
Name Virtual Machines Storage Guest Processing Schedule Summary	Name: Backup Job 5 Description: Created by TESTAD \administrator at 4/27/2015 11:36 PM.
	< <u>Previous</u> <u>Next</u> > <u>Finish</u> Cancel

2. Select one or more virtual machines, data stores, resource pools, vApps, SCVMM clusters, etc. for backup.

	New	v Backup Job		x
Virtual M Select viri as you ad	<b>1achines</b> tual machines to process via container, or Id new VM into container.	granularly. Container provides d	ynamic selection th	at automatically changes
Name	Virtual machines to backup:			
	Name	Туре	Size	<u>A</u> dd
Virtual Machines	10.250.241.142	vCenter Server	N/A	Bemove
Storage				
Guest Processing				Exclusions
Schedule				t Up
Summary				t <u>D</u> own
				Re <u>c</u> alculate
				Total size:
				0.0 KB
		< <u>P</u> revious <u>N</u> e:	kt >Einis	h Cancel

3. Select the DR container share as the Backup Repository for this job, and click Advanced.

	New Backup Job
Storage Specify processing p job and customize ac	roxy server to be used for source data retrieval, backup repository to store the backup files produced by this dvanced job settings if required.
Name	Backup proxy:
Virtual Machines	Automatic selection
Storage	Backup repository:
Guest Processing	CIFS-DR4000-Deduplication (Created by SSA\rick.vanover at 10/29/2012 2:41:1 v         327.5 GB free of 1.8 TB         Map backup
Schedule	
Summary	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 > Finish Cancel

4. On the **Backup** tab, make sure **Incremental** is selected.

**Note:** Dell recommends **not** to use **Reversed incremental** as this might have negative impact on backup performance and savings.

	Advanced Settings	x
Storage Specify pro job and cu	Backup Storage Notifications vSphere Storage Integration Advanced Backup mode	up files produced by this
Name Virtual Machines Storage	Beverse incremental (slower) Increments are injected into the full backup file, so that the latest backup file is always a full backup of the most recent VM state.      Incremental (recommended) Increments are saved into new files dependent on previous files in the index states are saved into new files dependent on previous files in the	<u>C</u> hoose
Guest Processing	Create synthetic full backups periodically Days	skup
Schedule	Create on: Saturday	
Summary	Transform previous backup chains into rollbacks Converts previous incremental backup chain into rollbacks for the newly created full backup file.	
	Active full backup	Best practices em being off-site.
	Save As Default OK Cancel	Cancel



- 5. On the **Storage** tab, do the following:
  - a. Under Deduplication, select Enable inline data deduplication.
  - b. Under Compression, set the Level to None.
  - c. Under Storage optimizations, set Optimize for to Local target.

	Advanced Settings		
Storage Specify pro job and cu	Backup Storage Notifications vSphere Storage Integration Advanced Data reduction		
Name Virtual Machines	Enable inline data deduplication (recommended)     Exclude swap file blocks from processing (recommended)     Compression level:		
Storage	None 🗸		
Guest Processing	Disabling compression reduces performance due to increased amount of data that must be transferred to the target storage.		
Schedule	Local target		
Summary	Best performance at the cost of lower deduplication ratio and larger incremental backups. Recommended for SAN, DAS or local target.		
	Encryption		
	Password: V Add Cost protection enabled Manage passwords		
	Save As Default OK Cancel		

**Note**: For Advanced Settings, between backup performance and deduplication savings, if overall space/storage savings is the focus, it is recommended to choose the options for all of the backup jobs.

For Veeam deduplication: Normally, Dell recommends turning off encryption, compression, and deduplication in most backup software. However, with Veeam, Dell recommends enabling deduplication. This is because Veeam runs deduplication for data block sizes 1MB or above, and deduplication of these large block sizes does not heavily impact DR Series duplication results. In addition, this reduces network bandwidth utilization when Veeam sends data to the DR Series system, so it benefits the backup practice overall.

6. Click Next.

			Veeam Backup & Replication		- 0
Home Vew					
Image: Secture         Image:	Restore Import Backup Restore	Falover Bao	New Backup Job	X	
ackup & Replication	Q Type in	Guest Proc	essing	1 A A	
a 🔕 Jobs	Name	wm Choose add	fonal processing options available for Microsoft Windows guests.	-	Objects in job
🚮 Backup - 🖓 Backup	Grvefs1 Grvefs2-fa	25110.00			1
A Disk	Covers3re	Name	Enable application against processing Driverse andications union Microsoft VSS to assure hare actional consistence.	and one	i
Last 24 hours	SQ2 vcfs+vr	Virtual Machines	transaction logs processing, and prepares application specific VSS restore proces	dure.	1
		Storage	Customize application handling options for individual VMs and applications	Explications	
		Guest Processing	Enable guest file system indexing		
		Schedule	Creates catalog of guest files to enable browsing, searching and 1-click restores o Indexing is optional, and is not required to perform instant file level recoveries.	of individual files.	
		Summary	Customize advanced guest file system indexing options for individual VMs	Indexed.	
			Gunit (05-credentials		
			Defense		
a Backup & Replication	1773		Manage accounts		
	-		Customer guest 05 condentials for individual VMs and operating systems	Cenderricah.	
Di peccele internetere					
viel Virtual Machines				extNov	
Storage Infrastructure			C Brevious   Next > Frank	Cancel	
ar Tape Infrastructure					
S) Files					

#### 7. Schedule the backup and click **Create**.

New Backup Job				
Schedule Specify the job scheduling options. If you do not set the schedule, the job will need to be controlled manually.				
Name	□ <u>R</u> un the job automatically			
Virtual Machines	Daily at this time: 10:00 PM 😧 Everyday V Days			
Storage	O Monthly at this time: 10:00 PM 💭 Fourth ∨ Saturday ∨ Months			
Guest Processing	O Periodically every: 1 V Hours V Schedule			
Schedule	○ After this job: vcifs1 (Created by TESTAD\administrator at 2/17/2015 4:05 AM.) ∨			
Summary	Automatic retry         ✓ Retry failed VMs processing:       3 <ul> <li>times</li> <li>Wait before each retry attempt for:</li> <li>10 <ul> <li>minutes</li> <li>Backup window</li> <li>I erminate job if it exceeds allowed backup window</li> <li>If the job does not complete within allocated backup window, it will be terminated to prevent snapshot commit during production hours.</li> </ul> <li>Window</li> </li></ul>			
	< Previous Create Enish Cancel			

D¢L

8. Click Finish.

	New Backup Job	x
Summary The job's settings h	ave been saved successfully. Click Finish to exit the wizard.	
Name Virtual Machines Storage Guest Processing Schedule Summary	Summary: Name: Backup Job 5 Target Path: \\10.250.208.94\vcifs4 Type: Wware Backup Source items: 10.250.241.142 (10.250.241.142) Command line: "C:\Program Files\Veeam\Backup and Replication\Backup Command line: "C:\Program Files\Veeam\Backup and Replication\Backup Veeam.Backup.Manager.exe" backup 70e8ec0c-94di-4d8b-807i-27afae065ee4	
	Run the job when I click Finish	
	< Previous Next > Finish Cance	el



# 4 Setting up DR Series native replication and restore from a replication target container

### 4.1 Building replication relationship between DR Series systems

1. Create a target container on the target DR Series system.

DELL DR4000					administrator (Log	out)   Help	
swsys-49.ocarina.local  Global View	Containers			Create	Edit   Delete   Displ	ay Statistics	
Dashboard Alerts	Number of Containers: 3 Container Path: /containers						
Events	Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select	
Health	backup	16020	Auto	NFS, CIFS	Not Configured	0	
Usage Container Statistics	My_container_backup	0	Auto	NFS, CIFS	Not Configured	0	
Replication Statistics	rep-target	0	Auto	NFS, CIFS	Not Configured	0	
Storage Containers Replication Encryption Clients Schedules System Configuration Cupport							

2. On the source DR Series system, in the left navigation area, go to **Storage** > **Replication**, and then click the **Create** link at the top of the page.

DELL DR4100-VI	M				root (Log	out)   Help
edwinz-sw-01.ocarina.local	Replication		Create   Edit	Delete   Stop   Start	Bandwidth   Displ	ay Statistics
Dashboard Alerts	Number of Source Replication	ns: 0				
Events	Local Container Name	Role	Remote Container Name	Peer State	Bandwidth	Select
Health						;
Container Statistics						
Replication Statistics						
- Storage						
Containere						
Replication						
Clients						
+ Schedules						
+ System Configuration						
+ Support						
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3. Select a local container as the source container. Then select **Container from remote system**, enter the target DR Series system related information, click **Retrieve Containers**, select a populated target container from the list, and click **Create Replication**.

Replica Container	C	* = required field
Select container from local system		Select container from local system
- Select a Container -	•	- Select a Container -
Select container from remote system	۲	Select container from remote system
Username <sup>*</sup> : administrator	?	Username*:
Password*:		Password*:
Remote System*: 10.250.232.241	? F	Remote System*:
Retrieve Remote C	ontainer(s)	Retrieve Remote Container(s)
rep-target	•	- N/A - 🔻
- Select a Container -		
My container backup		)
rep-target	ca C	Jontainer
sample	D 1:	28 bit 🔍 256 bit
test1 Bandwidth Spe	ео каце.	
Default	(not limited)	
Vibra (		Phos
	Replica Container         Select container from local system         -Select a Container -         Select container from remote system         Username*: administrator         Password*: ••••••         Password*: ••••••         Remote System*: 10.250.232.241         Retrieve Remote C         rep-target         - Select a Container -         backup         My_container_backup         rep-larget         sample         test1         Bantownour Spe         Image: Part of the system	Replica Container         Select container from local system         -Select a Container -         • Select container from remote system         Username*: administrator         Password*: •••••••         Remote System*: 10.250.232.241         Retrieve Remote Container(s)         rep-target         • Select a Container -         backup         My_container_backup         rep-target         sample         test1         bandwider Speed Rate.         • Default (not limited)

4. Verify that the replication is created successfully, and make sure the **Status checkbox** is marked for the replication session.

Ľ	DELL DR2000v administrator (Log out)   Help							
_	Dashboard Alerts Events	Replication			Create	Edit   Delete   Stop   Start   Disț	play Statistics	
	Usage	Message						
	Container Statistics Replication Statistics Storage Containers Replication	Successfully added replication for container 'sample' - 'rep-target'.     NOTE: Replication connection(s) are being established. Information updates may be briefly delayed until the connection is completed.						
	Clients							
	Schodulos	Source Container	Status	Replica Container	Status	Cascaded Replica Container	Select	
+	System Configuration	sekhar-e5-dr-02 sample		load-test rep-target	$\bigotimes$	Not Configured	•	
Сору	rright © 2011 - 2015 Dell Inc. All rig	* Local container(s) in bold.						

#### NOTE:

Make sure the replication session has **Peer Status** as **Online**. If restore from replication target is needed, Make sure the replication is in **INSYNC** state from Replication Statistics menu, and Stop or Delete the replication.

Make sure the replication target has **CIFS/NFS** connection(s) enabled when restoring from it.

## 4.2 Restoring data from the target DR Series system

**Note**: Before restoring from the target DR Series system, make sure that the replication session state is **INSYNC** on the DR Series system GUI **Replication Statistics** menu. **Stop** or **Delete** the replication session, and make sure that the target DR Series system container has the CIFS/NFS connection(s) enabled.

- 1. Add the target DR Series system container to the Veeam repository. For instructions, see the section, Setting up Veeam.
- 2. Update all backup jobs that use the source DR Series system container as a repository and change them to use the target DR Series system container as the backup repository.
- 3. Under **Backup & Replication**, click **Restore** to create a restore job. Select the appropriate **Restore from backup** option.





4. Click Add VM and select From backup. Select the VM to be restored and click Add.

	Full VM	I Restore Wizard			x
Virtual M. Select virtu environmen	achines ual machines to be restored. You can ac nt (containers will be automatically expan	ld individual virtual machii nded into plain VM list).	nes from back	up files, or containers from live	
Virtual Machines	Virtual machines to restore: <i>P</i> Type in a VM name for	or instant lookup			
Trestore mode	Name	Size Restore	point	Add Vh	M
Reason		Backups Brows	ser	x	
Summary					Ξĥ.
	Select virtual machine:				
	Job name	Last backup time	VM count	Restore points	
	Backup to NFS small VM	12/27/2013 12:28:	1		
	Backup Job 11	12/10/2013 1:05:1	1		
	Backup Job 22	12/10/2013 1:29:4	1		
	Backup 21 again	12/2//2013 12:3/:	1		
	Backup ZThis	12/24/2013 1:04:2	1		
	Backup Inourited CIPS	12/27/2013 3.17.1	1		
		12/21/2010 2:00:0			
_					
12/20/2012 0.07 56 844					
12/29/2013 8:07:56 PM					
) <b>•</b>					
Canica Nama Cha					
service ivame = Sta	Type in an object name to .	search for		Q	
SQLBrowser Rur			$\langle$	Add Cancel	



5. After the restore job has been created, you can run the job and monitor it from the **Backup & Replication** menu.





# Setting up the DR Series system cleaner

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.

The cleaner runs during idle time. If your workflow does not have a sufficient amount of idle time on a daily basis, then you should consider scheduling the cleaner to force it to run during a scheduled time.

If necessary, you can perform the procedure shown in the following screenshot to force the cleaner to run. After all of the backup jobs are set up, the DR Series system cleaner can be scheduled. The DR Series system cleaner should run at least three hours per day when backups are not taking place, and generally after a backup job has completed.

Dell recommends scheduling the cleaner at a separate time from backup and replication jobs.

l	CR4000 DR4000-D	KCV6S1			Help   Log out			
2	Dashboard Alerts	Cleaner Scheo	lule	Schedule Cleaner	Schedule			
	Health Usage	System time zone: US/Central, Mon Jan 23 15:18:49 2012						
	Statistics: Container	Day	Start Time	Stop Time				
	Statistics: Replication	Sun		-				
-	Storage	Mon		-				
	Containers	Tue		-				
	Replication	Wed		-				
	Compression	Thu	-					
	Replication	Fri						
0	Cleaner	Sat						
-	System Configuration							
	Networking	Note: When no schedul	e is set, the cleaner will run as needed.					
	Active Directory							
	Email Alerts							
_	Date & Time							
-	Support							
	Diagnostics Coffuero Llagrada							
	Soliware Opgrade							



# Monitoring deduplication, compression, and performance

After backup jobs have run, the DR Series system tracks capacity, storage savings, and throughput on the DR Series system dashboard. This information is valuable in understanding the benefits of the DR Series system.

**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 are completed, the ratios will increase. Backup jobs with a 12-week retention will average a 15x ratio, in most cases.



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