

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

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### Revisions

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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.
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# Table of contents

Exe	ecutive	e summary	4
1	Insta	lling and configuring the DR Series system	5
2	Setti	ng up Veeam	13
3	Setti	ng up DR Series native replication and restore from a replication target container	29
	3.1	Building a replication relationship between DR Series systems	29
	3.2	Restoring data from a target DR Series system	
4	Using	g Veeam Instant VM Recovery with the DR Series system	38
	4.1	Instant Recovery for ESX VM backups	
	4.2	Instant Recovery with Hyper-V Server	44
	4.3	Finalizing Instant VM Recovery	51
	4.3.1	Migrating a VM to production	51
	4.3.2	Preminating an Instant VM Recovery session	52
5	Crea	ting a backup copy	53
6	Setti	ng up the DR Series system cleaner	59
7	Moni	itoring deduplication, compression, and performance	60



#### **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/support/home

**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.

 Log on to iDRAC by 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.

System	Properties	Setup Power	r Logs Alerts Console/Media	vFlash Remote File Share			
root , Admin	System Sun	nmary System	Details System Inventory				
System IDRAC Settings Batteries	System	Summary				3	
Fans	Server Health						
Power Supplies Removable Flash Media Temperatures Voltages Power Monitoring	Status	Component		Virtual Console Preview			
		Batteries		Options : Settings			
		Fans					
		Intrusion		and the second s			
	2	Power Supplies					
		Removable Flash	Media				
		Temperatures			-		
		Voltages		Refresh			
	Server	Information		Quick Launch Tasks			
	Power	State	ON	Power DN / OFF			
	Bystem Moder System Rovaion System Host Name		Dell DR4000	Power Cycle System (cold boot)	te System (cold boot)		
			1	Launch Virtual Console View System Frent Log			
			DR4000-DKCV6S1 asglab roundrock				
	Operati	ing System	CentOS	View IORAC Log			
	Operati	ing System Version	release 5.4 (Final) Kernel	Opdate Firmware			
	Control Tax		DKCVER1	Reset IDRAC		_	
	Expres	s Service Code //	29529104401				
	anos v	ersion	1.9.0				
	Firmer	ore Mersion	1.80 (Build 17)				

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.



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

Set Static IP A	ddress <b>k</b>
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
Are the above settings correct	(yes/no) ? _



6. Log on to the DR Series System administrator console with 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-DKCV6S1		Help
Login		Reset Password
	Please enter your password:	
	Username: administrator	
	Password: St0r@gel	
	Log in	

7. Join the DR Series system into the 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.

	CR4100	administrator (Log out)   Help
SW:	sys-241.testad.ocarina.lc 🔻 Global View Dashboard	Active Directory Join
	Alerts Events Health Usage	Settings The Active Directory settings have not been configured. Click on the 'Join' link to configure them.
Ð	Container Statistics Replication Statistics Storage Schedules	CIFS Share Active Directory Configuration Note: By injung the Active Directory, you will lose the current URL and session connectivity to the
	System Configuration Networking Active Directory Local Workgroup Users Email Alerts	system. The browser will re-direct to a new URL and you will need to log back into the system again.  Tomain Name (FQDN)*: Username*: Username*:
	Admin Contact Info Password Email Relay Host Date and Time	Org Unit Cancel Join Domain
Copy	right © 2011 - 2015 Dell Inc. All rig	its reserved.

8. To create the container, in the left navigation area, click **Containers** and then click the **Create** link at the top of the page.

/sys-241.testad.ocarina.lc	Containers			Create	Edit   Delete   Displ	lay Statisi	
Dashboard	Number of Containers: 3	Number of Containers: 3 Container Path: /con					
Containers	Containers	Files	Marker Type	Access Protocol Enabled	Replication	Selec	
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	
	L						

9. Enter a Container Name, and click Next.

Container Name			* = required field
	Max 32 characters, including only letters, numbers, hyphen, and underscore. Name must start with a letter.		
Container Name*:	source		
irtual Tape Library (VTL) :			
		Cancel	Next >



10. Select the access protocol (NAS (NFS, CIFS)).

Container Wizard - Create I	New Container			
Select Access Protocols				* = required fields
Storage Access Protocol*:	<ul> <li>Dell Rapid Data Storage (RDS)</li> <li>Symantec OpenStorage (OST)</li> <li>NAS (NFS, CIFS)</li> </ul>	?	Container Name source	and Type
			< Back Cancel	Next >

11. For CIFS, select the **CIFS** check box, set the marker type as **None**, and then click **Next**. Edit Container: source

Configure NAS Access	* = required fields
Enable Access Protocols : NFS (Use NFS to backup UNIX or LINUX	Container Name and Type     source     Access Protocols     NAS (NFS, CIFS)
Marker Type <sup>*</sup> :  Auto Auto Networker Unix Dump BridgeHead Time Navigator	?
	Cancel Next >



For NFS, select the	NFS	check box	and then	click Next.
---------------------	-----	-----------	----------	-------------

Container Wizard - Create I	New Container			
- Configure NAS Access-			x	= required fields
Enable Access Protocols :	NFS (Use NFS to backup UNIX or LINUX clients)		Container Name and Ty target_nfs	уре
	CIFS (Use CIFS to backup MS Windows clients)		Access Protocols NAS (NFS, CIFS)	
Marker Type*:	None	?		
	Auto			
	Networker			
	Unix Dump			
	BridgeHead			
	Time Navigator			
		< Back	Cancel	Next >

12. 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 source
Client FQDN or IP :	Create Client Access List	Access Protocols NAS (NFS, CIFS)
allow access client(s)	Remove	None
		< Back Cancel Next >

х

nfigure NFS Access			* = required
NFS Options *: Map root to :	Read Write Access     Read Only Access -select-	Insecure	Container Name and Type target_nfs Access Protocols NAS (NFS, CIFS) None
Client Access :	Open (allow all clients) Create Client Access List		
Client FQDN or IP : allow access client(s)		Add	
		•	

For NFS, set the following preferred client access credentials and then click **Next** Container Wizard - Create New Container

13. Check the configuration summary, and then click **Create a New Container**. Container Wizard - Create New Container

Configuration Summany	* = required fields
- coniguration Summary	
Container Name and Type	CIFS Access
Container Name: source	Open (allow all clients):
Access Protocols Access Protocol: NAS (NFS, CIFS) Marker Type: None	
	< Back Cancel Create a New Container

14. Confirm that the container is successfully added.

l	CEL DR4000					root (Log	out)   Help
SW 	sys-06.ocarina.local  Global View Dashboard Alerts Events Health Usage	Containers Message Successfully add Container'source	led container "sourc led CIFS connection 1 e' has the following n	e". for container "source harker(s) None.	Create   e".	Edit   Delete   Displ	ay Statistics
-	Container Statistics Replication Statistics Storage	Number of Containers: 8	Film	Markar Tuna	Access Protocol Enchlad	Container Path	: /containers
+	Containers Replication Encryption Clients Schedules System Configuration Support	backup NBU nbu77-nfs1 prvn-canfs rdcifs rdnfs repNBU source	3 28 36 2 8 8 8 0 0	Auto Auto Auto None None None None None None	NFS, CIFS CIFS NFS CIFS CIFS CIFS CIFS	Not Configured Not Configured Not Configured Not Configured Not Configured Not Configured Not Configured Not Configured	

DELL DR4000					root (Log	out)   Help
swsys-06.ocarina.local  Global View	Containers			Create	Edit   Delete   Displ	ay Statistics
Dashboard     Alerts     Events     Health     Usage	Message           • Successfully adde           • Successfully adde           • Container 'target_	ed container "target_ ed NFS connection fo nfs' has the following	nfs". r container "target_ j marker(s) None.	nfs".		
Replication Statistics	Container Statistics Containers: 2 Container Statistics Container Path: /containers				/containers	
- Storage	Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
Replication	backup	0	Auto	NFS, CIFS	Not Configured	0
Encryption	target_nfs	33743	None	NFS	Not Configured	0



# 2 Setting up Veeam

#### Notes:

To maximize the DR Series system and 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 should be backed up with same settings.

- 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 Series system container repository, and click Next.

	Edit Backup Repository	x
Name Type in a name and	description for this backup repository.	
Name	Name:	_
Туре	source	
Share	Description: Created by RAMATEJA-W12-V6\Administrator at 9/24/2015 9:53 AM.	
Repository		
vPower NFS		
Review		
Apply		
	< Previous Next > Finish Cancel	

- 4. For a CIFS container, do the following:
  - a. 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>
	< Previous Next > Einish Cancel

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

	Edit 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:       It is share requires access credentials:         Image: Init share requires access credentials:       It is share requires access credentials:         Image: Init share requires access credentials:       It is share requires access credentials:         Image: Init share requires access credentials:       It is share requires access credentials:         Image: Init share requires access credentials:       It is share requires access credentials:         Image: Init share requires access credentials:       It is share requires access credentials:         Image: Init share requires access credentials:       It is share requires access credentials:         Image: Init share requires access credentials:       It is server:         Image: Init share requires access credentials:       It is server:         Image: Init share requires access credentials:       It is server:         Image: Init share requires access credentials:       It is server:         Image: Init share requires access credentials:       It is server:         Image: Init share requires access credentials:       It is set of the set of t
	< <u>Previous</u> <u>Next</u> <u>Finish</u> Cancel



5. For an NFS repository (for a Linux server), do the following:

**Note**: The Veeam Server is supported on a Windows platform only; therefore, to configure an NFS container from a DR Series system as a backup repository, you must add the Linux server where the NFS container would be mounted.

a. Select Linux Server (recommended) as the type of Backup Repository, and then click Next.

	New Backup Repository
Choose type of back	cup 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>
	< Previous Next > Finish Cancel

b. Add the New Repository server (Linux), or select a server from the list if one has been added already.

	New Backup F	lepository	x
Server Choose server backin	ng your repository. You can select serve	r from the list of managed servers a	dded to the console.
Name	Repository server:		
Туре	10.250.213.24 (Created by DMA-SE	RVER1\Administrator at 3/22/2016	(5:56 AM 👻 Add New
Server	Path	Capacity	Free Populate
Repository Mount Server Review Apply			
		< Previous Next >	Finish



c. Mount the DR Series system NFS container on this Linux server, and enter the container mount path as the Backup Repository.

	New Backup Repository	x
Repository Type in path to the	folder where backup files should be stored, and set repository load control options.	
Name	Location Path to folder:	
Туре	/mnt/nfs Brow	:e
Server	Popu	late
Repository	Free space:	
vPower NFS	Load control	
Review	Running too many concurrent jobs against the same repository reduces overall performance, may cause storage I/O operations to timeout. Control repository saturation with the following	and
Apply	<ul> <li>✓ Limit maximum concurrent tasks to:</li> <li>4 </li> <li>↓</li> <li>↓</li></ul>	
	Click Advanced to customize repository settings Advan	ced
	< Previous Next > Finish Canc	el

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

	Edit Backup Repository
Repository Type in path to the	folder where backup files should be stored, and set repository load control options.
Name	Location
Туре	Path to folder: \\10.250.241.229\source
Share	Capacity: Populate
Repository	Free space:
vPower NFS	Load control
Review	Running too many concurrent jobs against the same repository reduces overall performance, and may cause storage I/O operations to timeout. Control repository saturation with the following
Арріу	Limit maximum concurrent tasks to: Limit combined data rate to: MB/s
	Click Advanced to customize repository settings Advanced
	< Previous Next > Finish Cancel

**Note**: Refer to the latest *Dell DR Series System Interoperability Guide* for the **maximum concurrent jobs** supported for CIFS/NFS based on the DR Series system model. The maximum concurrent jobs setting also depends on the number of CPU cores in the Veeam server. To run more tasks in parallel, you can add more **Backup proxy servers** to the Veeam server as needed.

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

**Note**: Clearing the selection, **Decompress backup data blocks before storing**, might increase your overall deduplication storage capacity usage. It is not recommended to switch these settings after the data has been written to the DR Series system.

	Edit Backup Repository	x
Repository Type in path	Storage Compatibility Settings	
Name Type	<ul> <li>Align backup file data blocks</li> <li>Allows to achieve better deduplication ratio on deduplicating storage devices leveraging constant block size deduplication. Increases the backup size when backing up to raw disk storage.</li> <li>Decompress backup data blocks before storing</li> </ul>	
Share Repository	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 deduplication ratio on most deduplicating storage appliances at the cost of backup performance.	Populate
Mount Server Review 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 unitended drive letter changes	e overall performance, i the following settings:
	✓ Use per-VM backup files         Per-VM backup files may improve performance with storage devices benefiting from multiple I/D streams. This is the recommended setting when backing up to deduplicating storage appliances.         OK       Cancel	Advanced
	< Previous Next > Fi	nish Cancel

**WARNING**: Dell recommends that you do **not** change the setting for the option, **Align backup file data blocks**, after backups are taken as this could impact the deduplication savings for further backups.

18



8. To create separate backup files for VMs in the job, select the option, **Use Per-VM Backup Files Chains**. This setting makes any backup job that is writing to a repository store each VM's restore point in a dedicated backup file.

If you decide to create separate backup files for VMs in the job, make sure that you also enable parallel data processing.

	Edit Backup Repository	l	x
Repository			
Type in path I	Storage Compatibility Settings		
Name Type Share Repository	<ul> <li>Align backup file data blocks</li> <li>Allows to achieve better deduplication ratio on deduplicating storage devices leveraging constant block size deduplication. Increases the backup size when backing up to raw disk storage.</li> <li>✓ Decompress backup data blocks before storing</li> <li>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 deduplication ratio on most deduplicating storage appliances at the cost of backup performance.</li> </ul>	Populate	•
Mount Server	This repository is backed by rotated hard drives	e overall performance	e.
Review Apply	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.	the following settings	5:
	✓ Use per-VM backup files		
	Per-VM backup files may improve performance with storage devices benefiting from multiple I/O streams. This is the recommended setting when backing up to deduplicating storage appliances.		
	OK Cancel	Advanced	ł
	< Previous Next > Fini	sh Cancel	

**Note:** This setting enables multiple write streams within a single job with parallel processing enabled. Enabling multiple streams dramatically improves overall job backup performance. Dell recommends that you use the per-VM backup files option for better backup throughput.

9. Click Next.

10. For Instant Recovery to work, select the option, **Enable vPower NFS Server**. For CIFS, enable the option as below -

·	Edit Backup Repository	x
Power NF5     Specify vPower NF     functionality such a	S settings. vPower NFS enables running virtual machines directly from backup files, allowing for advanc s Instant VM Recovery, SureBackup, on-demand sandbox, U-AIR and multi-DS file level restore.	ed:
Name	vPower NFS	
Туре	Enable vPower NFS server (recommended)	
Share	This server	~
Repository	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.	
vPower NFS	Folder: F: Iveeam2 Browse	
Review		
Apply		
	Click Manage to change vPower NFS management port	
	Click Ports to change vPower NFS service ports Ports	
	< Previous Next > Finish Cancel	

For NFS, enable the option as below -

	New Backup Repository
Specify a server to backup files, enabli	mount backups to for file-level restores. vPower NFS service allows for running virtual machines directly from ng advanced functionality such as Instant VM Recovery, SureBackup and On-Demand Sandbox.
Name Type	Mount server: DMA-server1.testad.ocarina.local (Backup server) v
Server Repository	Enable vPower NFS service on the mount server (recommended) Specify vPower NFS write cache location on the mount server. Make sure the selected volume has enough free disk space available to store changed disk blocks of instantly recovered VMs.
Mount Server Review	Folder: C: Iveeamdata Browse
Apply	
	Click Ports to change NFS server and backup mount listener ports Ports
	< Previous Next > Finish Cancel



11. On the review page, verify the settings, and click **Next** to apply changes. For a CIFS Container Repository, the Review page will appear similar to the following example.



· · · ·	Edit Back	kup Repository
Review Please review the s	ettings, and click Next to continue	λ.
Name Type Share	Backup repository properties: Repository type: Mount host:	CIFS This server
Repository vPower NFS	Account. Backup folder: Write throughput:	Administrator \\10.250.241.229\source Not limited
Review	Max parallel tasks:	4
Apply	The following components will Installer vPower NFS	be processed on server This server already exists already exists
	Import existing backups at	u <b>tomatically</b> stem index
		< Previous Next > Finish Cancel

For an NFS Container Repository, the Review page will appear similar to the following example.

New Backup Repository				
Review Please review the se	ettings, and click Next to conti	inue.		
Name Type Server Repository Mount Server	Backup repository properti Repository type: Mount host: Account: Backup folder: Write throughput: Max parallel tasks:	es: Linux DMA-server1.testad.ocarina.local root /mnt/veeam Not limited 4		
Apply	The following components Transport vPower NFS Mount Server	will be processed on server DMA-server1.testad.ocarina.local: already exists already exists already exists is automatically system index		
< Previous Next > Finish Cancel				



#### 12. Click Finish.

	Edit Backup Repository	x
Apply Please wait while bac	kup repository is created and saved in configuration. This may take a few minutes	
Name	Log:	
_	Message	Duration
Туре	Segistering client RAMATEJA-W12-V6 for package vPower NFS	
Share	Solution Contract Con	
Share	SAII required packages have been successfully installed	
Repository	Solution Server configuration	
	Seconfiguring vPower NFS service	
vPower NFS	Creating configuration database records for installed packages	
5	Creating database records for repository	
Heview	Sackup repository has been added successfully	
Apply		
	< Previous Next > Finish	Cancel

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

IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII			VEEAM E	BACKUP AND REPLICA	FION		
Backup Replication Job Job Primary Jobs Auxiliary Jobs	ore Import Backup Restore						
BACKUP & REPLICATION	Q Type in an object nam	e to search for		×			
<ul> <li>Instant Recovery (1)</li> <li>Subs</li> <li>Backup</li> <li>B</li></ul>	NAME↓	TYPE VMware Back	OBJECTS 1	STATUS Stopped	LAST RESULT Success	NEXT RUN <not scheduled=""></not>	TARGET source

14. Enter the name for the backup job, and click **Next**.

	New Backup Job	¢
Name Type in a name and	l description for this backup job.	
Name	Name: sourcebackup	]
Virtual Machines Storage	Description: Created by DMA-SERVER1\Administrator at 3/2/2016 1:17 AM.	
Guest Processing		
Summary		
	< Previous Next> Finish Cancel	]

15. For the backup, select one or more virtual machines, data stores, resource pools, vApps, SCVMM clusters, and so on, as needed, and then click **Add**.

X

	Add Objects X	x
Virtual Mac Select virtual as you add n	Select objects:	hat automatically changes
Name Vitual Machines Storage Guest Processing Schedule Summary	▲       Image: 10.250.240.226         ▶       Image: 10.250.240.226         ▶       Image: 10.250.240.226         ▶       Image: 10.250.213.25         Image: 10.250.213.25       Image: 10.250.213.25         Image: 10.250.213.25       Image: 10.250.213.25	Add Remove Exclusions Up Up
	*• Type in an object name to search for Q Add Cancel	Total size: 0.0 KB

16. Select the DR Series system container share as the Backup Repository for this job, and click **Advanced**.

	New Backup Job
Specify processing job and customize a	proxy server to be used for source data retrieval, backup repository to store the backup files produced by this advanced job settings if required.
Name Virtual Machines Storage Guest Processing Schedule Summary	Backup proxy:       Automatic selection       Choose         Backup repository:       source (Created by DMA-SERVER1\Administrator at 3/2/2016 1:09 AM.) <ul> <li>6.0 TB free of 7.8 TB</li> <li>Map backup</li> </ul> Retention policy       Map backup         Restore points to keep on disk:       14 💭 1         Configure secondary destinations for this job       Copy backups produced by this job to another backup repository, or to tape. Best practices recommend maintaining at least 2 backups of production data, with one of them being off-site.         Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings.
	< Previous Next > Finish Cancel

17. On the **Backup** tab, ensure **Incremental** is selected.

	Advanced Settings	x
Storage Specify pro job and cu	Backup Maintenance Storage Notifications vSphere Integration	up files produced by this
Name Virtual Machines Storage	<ul> <li>Reverse 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.     </li> <li>Incremental (recommended)         Increments are saved into new files dependent on previous files in the chain. Best for backup targets with poor random I/O performance.     </li> </ul>	Choose
Guest Processing	Create synthetic full backups periodically Days	pkup
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 Create active full backups periodically O Monthly on: First V Monday V Months	Best practices em being off-site.
	Weekly on selected days: Days     Saturday	🔅 Advanced
	Save As Default OK Cancel	Cancel

**Note:** Dell recommends that you enable **Active Full backups** once a week. The active full backup produces a full backup of a VM just as if you are running the backup job for the first time. The active full backup resets the chain of increments: all subsequent increments use the latest active full backup as a new starting point. A previously used full backup file remains on disk until it is automatically deleted according to the backup retention policy.

- 18. 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 Optimization to LOCAL target.

	Advanced Settings	×
Specify pro job and cu	Backup Maintenance Storage Notifications vSphere Integration	up files produced by this
Name Virtual Machines	<ul> <li>Enable inline data deduplication (recommended)</li> <li>Exclude swap file blocks (recommended)</li> <li>Exclude deleted file blocks (recommended)</li> <li>Compression level:</li> </ul>	Choose
Storage	None Vel	
Guest Processing	Disabling compression reduces performance due to increased amount of data that must be transferred to the target storage. Storage optimization:	skup
Schedule	Local target 🗸 🗸	I
Summary	Best performance at the cost of lower deduplication ratio and larger incremental backups. Recommended for direct-attached storage.  Encryption  Enable backup file encryption  Password:  Add  Add  Cause to Default	Best practices em being off-site.
	Save As Default OK Cancel	Cancel

**Note**: For Advanced Settings, between backup performance and deduplication savings, if overall space/storage savings is the focus, Dell recommends that you select the options for all of the backup jobs.

Generally, Dell recommends turning off encryption, compression, and deduplication settings. However, with Veeam, Dell recommends that you *enable* deduplication. Veeam runs deduplication for data block sizes 512 KB 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.



#### 19. Click Next.

	New Backup Job
Guest Processing Choose guest OS p	g rocessing options available for running VMs.
Name Virtual Machines	Enable application-aware processing Quiesces applications using Microsoft VSS to ensure transactional consistency, performs transaction logs processing, and prepares application-specific VSS restore procedure.
Storage	Customize application handling options for individual VMs and applications Applications.
Guest Processing	Enable guest file system indexing Creates catalog of guest files to enable browsing, searching and 1-click restores of individual files. Indexing is optional, and is not required to perform instant file level recoveries.
Schedule	Customize advanced guest file system indexing options for individual VMs Indexing
Summary	Guest OS credentials
	Add
	Manage accounts
	Customize guest OS credentials for individual VMs and operating systems Credentials.
	Guest interaction proxy:
	Automatic selection Choose
	Test Now
	< Previous Next > Finish Cancel

20. 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	Bun the job automatically						
Virtual Machines	● Daily at this time: 10:00 PM <a> Everyday</a>						
Storage	O Monthly at this time: 10:00 PM ♀ Fourth ∨ Saturday ∨ Months						
Guest Processing	O Periodically every: 1 V Hours V Schedule						
Schedule	O After this job: vcifs1 (Created by TESTAD\administrator at 2/17/2015 4:05 AM.) ♥						
Summary       Automatic retry         Image: Constraint of the second							
	< <u>Previous</u> <u>Create</u> <u>Finish</u> Cancel						



#### 21. Click Finish.

	New Backup Job
Summary The job's settings ha	ave been saved successfully. Click Finish to exit the wizard.
Name Virtual Machines Storage Guest Processing Schedule Summary	Summary: Name: sourcebackup Target Path: \\10.250.241.231\source Type: VMware Backup Source items: dmarthel7-v1 (10.250.240.226) Command line to start the job on backup server: "C:\Program Files\Veeam\Backup and Replication\Backup\Veeam.Backup.Manager.exe" backup 1d1b8598-c4a7-41a0-b942-13e59ac6554d
	Run the job when I click Finish
	< Previous Next > Finish Cancel

22. To run the backup manually, right-click the configured backup job, and select Start.

	JOB TOOLS					BACKUP AND REPLIC	CATION	
E- HOME VIEW	JOB							
Start Stop Retry Active Job Control	Statistics Report	Edit Clone Disable Delete Manage Job						
BACKUP & REPLICATION		Q Type in an object nam	e to search for		×			
Instant Recovery (1)		NAME 4	ТҮРЕ	OBJECTS	STATUS	LAST RESULT	NEXT RUN	TARGET
⊿ %jobs		ourcebackup 🔅	VMware 1	🚯 Start	Stopped	Success	<not scheduled=""></not>	source
Rackup			4	Stop				
Backups     Diak			4	😤 Retry				
Jisk			1	👔 Active Full				
Running (1)				III Statistics	-			
Success				Report				
				Disable	-			
			9	Clone				
			4	🙀 Delete				
			1	Edit				

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

#### 3.1 Building a replication relationship between DR Series systems

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

					administrator (Log	out)   Help
swsys-49.ocarina.local 🔹	Containers			Create	Edit   Delete   Displ	ay Statistics
Global View     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 Containor Statistics	My_container_backup	0	Auto	NFS, CIFS	Not Configured	0
Replication Statistics	rep-target	0	Auto	NFS, CIFS	Not Configured	0
Containers						

24. 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	М				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	is: 0				
Events	Local Container Name	Role	Remote Container Name	Peer State	Bandwidth	Select
Health						j
Container Statistics						
Replication Statistics						
- Storage						
Containere						
Replication						
Clients						
+ Schedules						
+ System Configuration						
+ Support						
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25. 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**.

Edit Replication - ( swsys-06 : source ⇒ swsys-54 : t	arget ⇒ Not Configured )	
NOTE: Only the bandwidth, encryption settings and re	mote container's IP address/host name ("Peer System") of	can be changed, or adding a Cascaded Replica container.
Source container     Select container from local system     source	Replica Container     Select container from local system     Select a Container -	Cascaded Replica Container (Optional)  Select container from local system  - Select a Container -
Select container from remote system	Select container from remote system	Select container from remote system
Username*:	O Username*:	⑦ Username*:
Password*:	Password*:	Password*:
Remote System*:	Remote System*: swsys-54.testad.ocarina.local	? Remote System*:
Retrieve Remote Container(	s) Retrieve Remote Containe	er(s) Retrieve Remote Container(s)
- N/A -	target	▼ - N/A - ▼
- Source Container ⇒ Replica Container	Replica ⇒ Cascaded R	Replica Container
Encryption: 🖲 None 🔍 128 bit 🔍 256 bit	Encryption: 🖲 Non	ne 🔍 128 bit 🔍 256 bit
Bandwidth Speed Rate:	Bandwidth Speed Rate	e:
Default (not limited)	Default (not lim	nited)
Khoa Mhoa Choa	Kbps Mbp	os 🔍 Gbps

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

Ŀ				root (Lo	g out)   Help
	▼ Global View Dashboard Alerts	Replication	Create	Edit   Delete   Stop   Start   Disp	lay Statistics
	Events Health Usage Container Statistics Replication Statistics Storage	Successfully added replication     NOTE: Replication connection connection is completed.  Number of Replications: 1	on for container 'source' - 'target'. n(s) are being established. Information (	updates may be briefly delayed unt	il the
	Containers	Source Container Status	Replica Container Status	Cascaded Replica Container	Select
	Replication Encryption Clients	e-shelf1 🗹	dr4300-jd6ff42 target	Not Configured	•
+	Schedules System Configuration Support	* Local container(s) in bold.			

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#### NOTE:

- Make sure the replication session has a **Peer Status** as **Online** if restore from replication target is needed,



- Make sure the replication is in an **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.

#### 3.2 Restoring data from a target DR Series system

**Note**: Before restoring from a 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.





Select virtual machine:						ontainers from live
Job name	Last restore point	VM count	Rest	ore points count		
🔺 🚢 sourcebackup	3/2/2016 1:25:54 AM	1				
📩 dma-rhel7-v1	less than a day ago (1:2		1			
						Add V
						Point
						Hemov
						sh Cano
🔄 - Tune in an object n	ame to search for				0	
<ul> <li>type in an object n</li> </ul>	and to search for				4	

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



5. Select the Restore Mode and click **Next**.

	Full VM Restore Wizard
Restore Mode Specify whether sel	ected VMs should be restored back to the original location, or to a new location or with different settings.
Virtual Machines	O Restore to the original location
Restore Mode	Quickly initiate restore of selected VMs to the original location, and with the original name and settings. This option minimizes the chance of user input error.
Host	2 Restore to a new location, or with different settings
Resource Pool	Lustomize restored VM location, and change its settings. The wizard will automatically populate all controls with the original VM settings as the default settings.
Datastore	Pick proxy to use
Folder	
Network	
Reason	
Summary	Restore VM tags Select this option to restore VM tags that were assigned to the VM when backup was taken.
	Quick rollback (restore changed blocks only)
	Allows for quick VM recovery in case of guest OS software problem, or user error. Do not use this option when recovering from disaster caused by hardware or storage issue, or power loss.
	< Previous Next > Finish Cancel

6. Provide the Host details as needed, and click **Next**.

Full VM Restore Wizard							
Host By default, original host is selected as restore destination for each VM. You can change host by selecting desired VM and clicking Host. Use multi-select (Ctrl-click and Shift-click) to select multiple VMs at once.							
Virtual Machines	VM location:						
Restore Mode	Name dma-rhel7-v1	Host 10.250.213.25	_				
Host							
Resource Pool							
Datastore							
Folder							
Network							
Reason							
Summary							
	Select multiple VMs and click Host to ap	ply changes in bulk. Host					
	<	Previous Next > Finish Cano	el				

7. Select the resource Pool and click Next.

	Full VM Restore	Nizard	X
Resource Pool By default, original r desired VM and clic	esource pool is selected as restore destinatio king Pool. Use multi-select (Ctrl-click and Shi	n for each VM. You can change resource poc (t-click) to select multiple VMs at once.	ol by selecting
Virtual Machines Restore Mode	VM resource pool: Name	Resource Pool	
Host		nesources	
Resource Pool			
Datastore			
Folder			
Network			
Reason			
Summary			
	Select multiple VMs and click Pool to app	ly changes in bulk.	Pool
	< F	Previous Next > Finish	Cancel

8. Select the datastore and disk type, and click **Next**.

	Full VM Re	estore V	Vizard	×
Datastore By default, original da clicking Datastore or	tastore and disk type are selected Disk Type. Use multi-select (Ctrl-c	l for each \ lick and St	/M file. You can change them by nift-click) to select multiple VMs al	selecting desired VM file, and tonce.
Virtual Machines	Files location:			
Restore Mode	File       Image: Control of the second	Size	Datastore	Disk type
Host	Configuration files		datastore1 [616.9 GB free]	
Resource Pool	Hard disk 1 (dma	160.0	datastore1 [616.9 GB free]	Same as source
Datastore				
Folder				
Network				
Reason				
Summary				
	Select multiple VMs to apply se	ttings in bu	k. Da	tastore Disk Type
		< Pi	evious Next >	Finish Cancel

9. Enter the new name for the restored VM and click **Next**.

	Full VM Restore Wizard	X
Folder By default, origi clicking Folder.	nal VM folder is selected as restore destination for each VM. You can change folder by selecting desired Use multi-select (Ctrl-click and Shift-click) to select multiple VMs at once.	VM and
Virtual Machines	Change Name	
Hestore Mode	Specify how selected VM name should be changed: iscovered virtual matrix Set name to:	3
Resource Pool	dma-rhel7-v1	
Datastore	Add prefix:	
Folder		
Network	Add suffix:	
Reason		
Summary		_
	Select multiple VMs to apply settings change in bulk.	er
	< Previous Next > Finish Can	cel

#### 10. Select the network location and click **Next**.

	Full VM Restore Wizard	x
Network By default, restored V specify how original	/M is connected to the same virtual networks as the origin ocation's networks map to new location's networks.	nal VM. If you are restoring to a different location,
Virtual Machines	Network connections:	
Bestore Mode	Source	Target
Host	▲ 📋 dma-rhel/-v1 San VM Network	VM Network
Resource Pool		
Datastore		
Folder		
Network		
Reason		
Summary		
	Select multiple VMs to apply settings change in bulk.	Network Disconnected
	< Previous	Next > Finish Cancel



11. Enter text that describes the reason for the restore and click **Next**.

	Full VM Restore Wizard	x
Reason Type in the reason reference.	for performing this restore operation. This information will be logged in the restore sessions history for later	r
Virtual Machines Restore Mode Host Resource Pool Datastore Folder Network	Restore reason:	_
Reason		
Summary	Do not show me this page again	
	< Previous Next > Finish Cancel	

12. Click Finish.

	Full VM Restore Wizard
Summary Please review the re corresponding resto	estore settings before continuing. The restore process will being after you click Finish. Navigate to the re session under History node to monitor the progress.
Virtual Machines	Summary:
Restore Mode Host	Proxy: Automatic selection Original Vm name: dma-rhel7-v1 New VM name: new_dma-rhel7-v1_restored Restore point: less than a day ago (1:27 AM Wednesday 3/2/2016) Target best: 10.270.213.25
Resource Pool Datastore	Target flost flost flost flost Target VM folder: Discovered virtual machine Target datastore: datastore1
Folder	Network mapping: VM Network -> VM Network
Network	
Reason	
Summary	
	✓ Power on VM after restoring
	< Previous Next > Finish Cancel



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

	VM Re	estore			X
VM name:	dma-rhel7-v1	Status:	Success		
Restore type:	Full VM Restore	Start time:	3/2/2016 3:19:40 AM		
Initiated by:	DMA-SERVER1\Administrator	End time:	3/2/2016 3:34:04 AM		
Statistics R	eason Parameters Log				
Message				Duration	^
🖉 Using so	urce proxy VMware Backup Proxy [hotad	d]			
🛛 💟 6 files to	restore (160.0 GB)				
🔣 💙 Restoring	g [datastore1] new_dma-rhel7-v1_restore	d/dma-rhel7-v	1.vmx	0:00:02	
🔤 💙 Restoring	g file dma-rhel7-v1.vmxf (0.4 KB)			0:00:01	
📀 Restoring file dma-rhel7-v1.nvram (8.5 KB)			0:00:01		
🔣 📀 Registeri	ing restored VM on host: 10.250.213.25, j	pool: Resourc	es, folder: Discovere	0:00:17	
🖉 💙 Preparing	g for virtual disks restore			0:00:50	
Sestoring Hard disk 1 (160.0 GB); 24.8 GB restored at 38 MB/s			0:11:08		
S Powering on restored VM			0:00:05		
Restore completed successfully				~	
			Close		



# 4 Using Veeam Instant VM Recovery with the DR Series system

Veeam's Instant VM Recovery immediately restores a virtual machine (VM) back into your production environment by running it directly from the backup file.

Instant VM Recovery uses patented vPower® technology to mount a VM image to a production VMware vSphere or Microsoft Hyper-V host directly from a compressed and deduplicated backup file.

By default, all changes to virtual disks that take place while the VM is running are logged to auxiliary redo logs residing on the NFS server (Veeam backup server or backup repository). These changes are discarded as soon as a restored VM is removed, or they are merged with the original VM data when VM recovery is finalized, that is, when VM is migrated back to production storage.

The Veeam vPower NFS service is a Windows service that runs on a windows backup repository server and enables it to act as an NFS server.

#### 4.1 Instant Recovery for ESX VM backups

- 1. To enable instant recovery for ESX VM backups, do the following:
  - a. Create a backup job for the required VM as described previously in Section 3 with the only difference being to set the **vPower NFS Datastore** in the vPower NFS tab.
  - b. On the vPower NFS tab, select the checkbox, **Enable vPower NFS Server**, and select the appropriate folder as the NFS Datastore. You can configure the NFS Datastore on a different Windows server if required. This is done by selecting the drop down and adding the host and associated credentials. Click **Next**.

		Edit Backup Repository
8	<b>vPower NFS</b> Specify vPower NFS functionality such as	S settings. vPower NFS enables running virtual machines directly from backup files, allowing for advanced Instant VM Recovery, SureBackup, on-demand sandbox, U-AIR and multi-OS file level restore.
Name		vPower NFS
Туре		Enable vPower NFS server (recommended)
Share		This server 🗸
Repository	,	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.
vPower N	FS	Folder: F: I veeam2 Browse
Review		
Apply		
		Click Manage to change vPower NFS management port Manage
		Click Ports to change vPower NFS service ports Ports
		< Previous Next > Finish Cancel

2. To perform the instant recovery, click the **Restore Wizard** option. Select the **VMware** option and then select **Instant VM recovery**.

Restore W	fizard X
<b>Restore Options</b> What would you like to do?	
Restore from backup	Restore from replica
<ul> <li>Instant VM recovery</li> </ul>	<ul> <li>Failover to replica</li> </ul>
<ul> <li>Entire VM (including registration)</li> </ul>	<ul> <li>Planned failover</li> </ul>
O VM hard disks	<ul> <li>Failback to production</li> </ul>
O VM files (VMDK, VMX)	<ul> <li>Guest files (Windows)</li> </ul>
<ul> <li>Guest files (Windows)</li> </ul>	<ul> <li>Guest files (other OS)</li> </ul>
<ul> <li>Guest files (other OS)</li> </ul>	<ul> <li>Application items</li> </ul>
Application items	
	< Back Next > Cancel

3. Select the Virtual Machine to be recovered and click **Next**.

Instant Recovery				x	
Virtual Machine Choose the virtual ma	ichine you want to recover.				
Virtual Machine	VM to recover: dma-rhel	17-v1			
Restore Point	Job name	Last restore point	VM count	Restore points count	
Trestore Fornt	🔺 🚢 sourcebackup	3/2/2016 1:25:54 AM	1		
Recovery Mode	📩 dma-rhel7-v1	less than a day ago (1:2		1	
Restore Reason					
Ready to Apply					
Recovery					
	Type in an object n	name to search for			Q
		< Previous	Next >	Finish Canc	el

Dél

4. At the Restore point step, select the point to which you want to restore the VM and then click **Next**.

	Instant Recovery	x
Restore Point Choose restore point	t you want to recover the selected virtual machine to.	
Virtual Machine Restore Point	VM name:         dma-rhel7-v1         Original host:         10.250.240.226           VM size:         76.6 GB         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	
Recovery Mode Restore Reason Ready to Apply Recovery	Available restore points: Created Ty Created Ty Less than a day ago (1:27 AM Wednesday 3/2/2016) Fu	
	< Previous Next > Finish	Cancel

5. At the Restore Mode step, select the option, **Restore to a new location, or with different settings**, and then click **Next**.

	Instant Recovery	x
Restore Mode		
Virtual Machine Restore Point	Restore to the original location Quickly initiate restore of selected VMs to the original location, and with the original name and settings. This option minimizes the chance of user input error.	
Restore Mode	Restore to a new location, or with different settings	
Destination	Customize restored VM location, and change its settings. The wizard will automatically populate all controls with the original VM settings as the default settings.	
Datastore		
Restore Reason		
Ready to Apply		
Recovery		
	< Previous Next > Finish Cance	el

- 6. At the Destination step, do the following:
  - a. Select the ESX(i) host on which the VM should be restored instantly.
  - b. In the Resource pool box, select the resource pool to which the restored VM should belong.
  - c. In the Restored VM name field, add the \_restored suffix to the VM name.
  - d. Click Next.

Instant Recovery				
Destination Choose ESX server to adjust VM settings firs	o run the recovered virtual machine on. You can choose to power on VM automatically, unless you at (such as change VM network).	i need to		
Virtual Machine Restore Point Recovery Mode	Host: 10.250.213.25 Choo VM folder: Discovered virtual machine Choo	se		
Destination	Restored VM name:			
Datastore Restore Reason Ready to Apply Recovery	dmar/hel7-v1_IR			
	< Previous Next > Finish Can	cel		



7. On the Datastore tab, ensure the **Redirect virtual disk updates** check box is not selected, and click **Next**. This will let you use Storage vMotion to migrate the VM to production after the VM is recovered from the backup.

Instant Recovery					
By default, virtual di different datastore.	isk changes of recovered VM are stored on vPower NFS server. You can redirect these changes to a This improves I/O performance, but prevents Storage VMotion on vSphere versions prior to vSphere 5.0				
Virtual Machine	Redirect virtual disk updates				
Restore Point	Datastore:				
Restore Mode	Datastore info				
Destination	Capacity: <i><datastore not="" set=""></datastore></i>				
Datastore	Free space: <datastore not="" set=""></datastore>				
Restore Reason					
Ready to Apply					
Recovery					
	< Previous Next > Finish Cancel				

8. Select the checkboxes **Connect VM to network** and **Power on VM automatically**, and then click **Next**.



9. Click Finish to start the Instant VM Recovery

	Instant Recovery	X
Recovery Please wait while VM	recovery is performed.	
Virtual Machine	Log:	
B 1 B 1	Message	Duration
Restore Point	Starting VM dma-rhel7-v1_IR recovery	
Becoveru Mode	Connecting to host 10.250.213.25	0:00:09
The overy mode	Checking if vPower NFS datastore is mounted on host	0:00:46
Destination	🛇 Locking backup file	
	📀 Publishing VM	0:00:10
Datastore	💙 Updating VM configuration	
	Checking free disk space available to vPower NFS server.	
Hestore Heason	🛇 Registering VM	0:00:46
Beadu to Apolu	Powering on VM	0:00:03
fieldy to Apply	🛇 Updating session history	
Recovery	🛇 dma-rhel7-v1_IR has been recovered successfully	
	SWaiting for user to start migration	
	< Previous Next > Finish	Cancel

10. Open the vSphere client and make sure that the restored VM is started on the ESX host you selected.



Déi

11. In Veeam Backup & Replication, open the Backup & Replication view, select the Instant Recovery node in the inventory pane, and make sure that the Instant VM Recovery session is available and mounted.

RECOVERY TOOLS				VEEAM BACKUP AND	REPLICATION
Migrate to Open VM Production Console Publishing Actions Properties					
BACKUP & REPLICATION	VM NAME	HOST 10.250.213.25	STATUS Mounted	RESTORE POINT 3/2/2016 1:27:12 AM	BACKUP NAME sourcebackup
<ul> <li>Instant Recovery (1)</li> <li>Jobs</li> <li>Backup</li> <li>Backups</li> <li>Disk</li> <li>Backups</li> <li>List 24 hours</li> <li>Running (1)</li> <li>Success</li> </ul>					

#### 4.2 Instant Recovery with Hyper-V Server

- 1. To enable Instant Recovery for HyperV VM backups, do the following:
  - a. Create a backup job for the required VM as described previously in Section 3 with the only difference being to set the vPower NFS Datastore option in the "vPower NFS" tab.
  - b. On the vPower NFS tab, select the checkbox, **Enable vPower NFS Server**.

**Note**: You do not have to provide a folder for the NFS Datastore. In Hyper-V server, cached data is directly stored at the Hyper-V server's datastore location and not to the NFS data store path.



Edit Backup Repository					
Power NF5     Specify vPower NF3     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	vPower NFS				
Share Repository	This server  V 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.				
vPower NFS	Folder: F: Iveeam2 Browse				
Review Apply					
	Click Manage to change vPower NFS management port     Manage       Click Ports to change vPower NFS service ports     Ports				
	< Previous Next > Finish Cancel				

2. To perform Instant Recovery, on the Veeam console, click the **Restore Wizard** option, select **Hyper-V** and then select **Instant VM recovery**.

Restor	e Wizard 🛛 🗶
<b>Restore Options</b> What would you like to do?	
Restore from backup	Restore from replica
<ul> <li>Instant VM recovery</li> </ul>	<ul> <li>Failover to replica</li> </ul>
<ul> <li>Entire VM (including registration)</li> </ul>	<ul> <li>Planned failover</li> </ul>
O VM hard disks	<ul> <li>Failback to production</li> </ul>
O VM files (VMDK, VMX)	<ul> <li>Guest files (Windows)</li> </ul>
<ul> <li>Guest files (Windows)</li> </ul>	<ul> <li>Guest files (other OS)</li> </ul>
<ul> <li>Guest files (other DS)</li> </ul>	<ul> <li>Application items</li> </ul>
<ul> <li>Application items</li> </ul>	
	< Back Next > Cancel



3. Select the Virtual Machine to be recovered.

Backups Browser				
Select virtual machine:				
Job name	Last restore point 9/30/2015 2:02:59 AM 10/6/2015 9:00:53 PM	VM count 1 1	Restore points count	
Type in an object n	ame to search for		Add Ca	ncel

4. Add the VM which need to be recovered.

	Instai	nt VM Reco	overy	X
Virtual Machin Select virtual m. environment (co	<b>nes</b> achines to be restored. You can a ontainers will be automatically expa	dd individual vi nded to plain lit	rtual machines from backup files, or contai xt).	ners from live
Virtual Machines	Virtual machines to restore:			_
Recovery Mode	D Type in a VM name h	or instant looku	p	
_	Name	Size	Restore point	Add VM
Reason	PRAVIN2K12R2	18.8 GB	9/30/2015 Wednesday 2:05 AM	Point
Summary				Remove
		< Pr	evious Next > Finish	Cancel



5. At the Restore Mode step, select **Restore to a new location, or with different settings,** and then click **Next**.

	Instant Recovery
Restore Mode	
Virtual Machine Restore Point	<ul> <li>Restore to the original location</li> <li>Quickly initiate restore of selected VMs to the original location, and with the original name and settings. This option minimizes the chance of user input error.</li> </ul>
Restore Mode	Restore to a new location, or with different settings
Destination	Customize restored VM location, and change its settings. The wizard will automatically populate all controls with the original VM settings as the default settings.
Datastore	
Restore Reason	
Ready to Apply	
Recovery	
	< Previous Next > Finish Cancel

6. Select the Host to which to recover the VM.

Instant VM Recovery					
Host Select the host to re	cover VM to.				
Virtual Machines	VM location:				
Recovery Mode	Name PRAVIN2K12R2	Host	Cluster Resource		
Host	_				
Datastore					
Network					
Name					
Reason					
Summary					
	Select multiple VMs and click H	ost to apply changes in bulk.	Host Resource		
		< Previous Next >	Finish Cancel		

	Select Folder
Select the volume	Folders:
Virtual Machines Recovery Mode	▷         □         Local Disk [L:]           ▷         □         CD-ROM (D:)           ▷         □         Removable [E:)           ▷         □         VM Storage [Z:)
Host	tor. TESTAD\Desktop
Network	
Name Reason	
Summary	
	Type in the path to folder     Path       New Folder     OK     Cancel       Finish     Cancel

7. At the Datastore step, provide the details of cache data that need to be stored.

8. Enter the details of the path where VM cache data is stored.

Instant VM Recovery				
Datastore Select the volumes where VM configuration and virtual disks files should be ultimately restored to.				
Virtual Machines	Files location:			
Decement Made	File	Size	Path	
Recovery Mode	PRAVIN2K12B2			
Host	Configuration files		C:\Users\administrator.TESTAD\Desktop\full	
	PRAVIN2K12R2.vhd	18.8 GB	C:\Users\administrator.TESTAD\Desktop\full	
Datastore				
Network				
Name				
Reason				
Summary				
Select multiple VMs and click Path to apply changes in bulk.				
	<	: Previous	Next > Finish Cancel	

9. Select the Virtual Networks that map to each other between the original and new VM locations.

	Instant VM Recovery		x
Network Select how virtual ne	etworks map to each other between original and new VM	locations.	
Virtual Machines	Network connections:		
Becoveru Mode	Source	Target	
	<ul> <li>PRAVIN2K12R2</li> <li>Virtual Switch II</li> </ul>	Virtual Switch II	_
Host			
Datastore			
Network			
Name			
Reason			
Summary			
	Select multiple VMs to apply settings change in bulk.	Network Disconnec	ted
	< Previous	Next > Finish Cancel	

10. In the Restored VM name field, add the \_restored suffix to the VM name.

	Instant <sup>v</sup>	/M Recovery	x
Specify the new virt	ual machine name, and whether y	ou would like unique identifier preserve	əd.
Virtual Machines	Virtual machines:		
Becoveru Mode	Name	New Name	VM UUID
110001019111000	PRAVIN2K12R2	PRAVIN2K12R2_restored	Lifeate new
Host			
Datastore			
Network			
Name			
Reason			
Summary			
-			
	Select multiple VMs to apply se	attings change in bulk.	Name VM UUID
		< Previous Next >	Finish Cancel

X

11. Click Finish to start the recovery.

	Instant VM Recovery
Summary You can copy this c	onfiguration information for the future reference.
Vitual Machines Recovery Mode Host Datastore Network Name Reason Summary	Summary: Driginal VM name: PRAVIN2K12R2 Target VM name: PRAVIN2K12R2_restored Target host: 10.250.208.73
	✓ Power on VM after restoring
	< Previous Next > Finish Cancel

12. Open the Hyper-v Client and make sure that the restored VM is started on the host you selected.





13. In Veeam Backup & Replication, open the Backup & Replication view, select the Instant Recovery node in the inventory pane and make sure that the Instant VM Recovery session is available and mounted.

RECOVERY TOOLS           Ξ +         HOME           INSTANT VM RECOVERY	VEEAM BACKUP AND REPLICATION				
Migrate to Open VM Stop Production Console Publishing Actions Properties					
BACKUP & REPLICATION	VM NAME	HOST 10.250.213.25	STATUS Mounted	RESTORE POINT 3/2/2016 1:27:12 AM	BACKUP NAME sourcebackup
<ul> <li>Instant Recovery (1)</li> <li>Sobs</li> <li>Backup</li> <li>Backups</li> <li>⇒ Disk</li> <li>⇒ Last 24 hours</li> <li>▶ Running (1)</li> <li>▶ Success</li> </ul>					

#### 4.3 Finalizing Instant VM Recovery

After Instant VM recovery is successfully completed, you can do one of the following:

- **Migrate VM to production** Use this scenario if you have recovered a failed VM to the production ESX(i) host and want to permanently move the VM files to production storage.
- **Terminate the Instant VM recovery session** Use this scenario if you have recovered a VM for testing purpose and want to power it off and remove after testing is completed.

#### 4.3.1 Migrating a VM to production

For VM migration, you can use VMware Storage vMotion, replicate or copy a VM to production with Veeam Backup & Replication, or use Veeam's Quick Migration. When you migrate a VM to production, you move the VM contents from the backup file to the production storage. The VM data is pulled from the backup and consolidated with changes made to the VM (redo logs). As a result, you get the VM in the latest state in your production environment.

To migrate a restored VM with Quick Migration, follow these steps:

- 1. Open the Backup & Replication view in Veeam Backup & Replication.
- 2. In the inventory pane, select Instant Recovery.
- 3. In the working area, right-click the name of the recovered VM and select Migrate to production.



#### 4.3.2 Terminating an Instant VM Recovery session

When you terminate an Instant VM Recovery session, the VM is unpublished from the ESX(i) host and redo logs are cleared from the vPower NFS datastore.

To terminate the current Instant VM recovery session, follow these steps:

- 1. Open the **Backup & Replication** view in Veeam Backup & Replication.
- 2. In the Inventory pane, select Instant Recovery.
- 3. In the working area, right-click the name of the recovered VM and select **Stop publishing**.



# 5 Creating a backup copy

The main purpose of a backup is to protect your data against disasters and VM failures. However, having just one backup does not provide the necessary level of safety. Your primary backup may get destroyed along with your production data, leaving you with no backup to restore from.

The backup copy job is a separate task that needs to be set apart from the backup job. Veeam Backup Copy allows users to copy backup data to secondary storage.

Follow these steps to create a backup copy job.

1. Click the backup copy in Auxiliary jobs, enter a name of the job, and click Next.

E HOME VIEW		
Backup Replication Job Job Auxiliary Jobs BACKUP & REPLICATION	Tore Import Backup Restore Q. Type in an object name to search for	r X
<ul> <li>Instant Recovery (I)</li> <li>Solvup</li> <li>Bockup</li> <li>E Bockup</li> <li>Last 24 hours</li> <li>Running (2)</li> <li>Failed</li> </ul>	NAME↓ ∰ sourcebacku Job Backup cop data. Type in Job Virtual Machines Target Data Transfer Schedule Summay	New Backup Copy Job         w job efficiently creates local and remote copies of your backups, making it easy to maintain multiple copies of your na name and description to the job, and specify backup copy interval.         Name:         Nome:         Description:         Ceased by DMA-SERVER11vadministrator at 3/2/2016 11:42 PM.         Copy every:         1       Day         1       Day         controls how other backup copies are created. Backup Copy to creates a new backup file for each copy interval. and static copies if are created. Backup Copy to creates a new backup file nomediately, or as soon as the new restore point appears in the source backup repository.
		Z Province Next Finish Canad
FILES		



2. Add the Virtual Machine from the backup Jobs.

	New Backup Copy Job							
	Virtual Machines Add virtual machines to the job. Consider using containers (such as backup jobs, or infrastructure folders) ( scope. No matter how you choose to select VMs, the job will always get VM data from the existing backup	or dynamic selec s files.	tion					
lab	Backups Browser							
Virtu	Select virtual machine:	Add						
Targ	Job name Last restore point VM count Restore points count  A Sourcebackup 3/2/2016 11:36:56 PM 1	Remove						
Data	🔁 dma-rhel7-v1 less than a day ago (11: 2	Exclusions						
Sche		Source						
Sum		t Up ↓ Down						
		Recalcula	te					
		Total size: 0.0 KB						
		Cancel						
	Type in an object name to search for Q							
	Add Cancel							



- 3. Select the backup repository, click **Advanced**, and then do the following:
  - a. Select the **Storage** tab.
  - b. Select the Compression level as **None**.
  - c. Click **OK**.

Edit Backup Copy Job [source_ba	ckup_copy]
Target     Specify the target backup repository, amount of most recent restore point     can use map backup functionality to seed the backup files.	ts to keep, and retention policy for full backups. You
Job Virtual Machines  Target  Advanced Settings	nistrator at 3/2/2016 11:57 PM.) Map backup
Maintenance       Storage       Notifications       Scripts         Data reduction       Image: Compression level:       Image: Compression level:       Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Encryption       Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.       Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Encryption       Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Password:       Image: Compression reduces performance due to increased amount of data.         Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Encryption       Image: Compression reduces performance due to increased amount of data.         Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Image: Compression reduces performance due to increased amount of data that must be transferred to the target storage.         Image: Compression reduces performance due to increased amount of data that must be transferred to the target	voses       Schedule         of the month       Schedule         of the quarter       Finish         of the year       Schedule, notifications         oct schedule, notifications       Schedule         Next >       Finish       Cancel         st       1       1         0       I       I



4. Select the type of data transfer and click **Next**.

	New Backup Copy Job	x
Data Transfer Choose how VM da	ta should be transferred from source to target backup repository.	
Job Virtual Machines Target Data Transfer	<ul> <li>Direct         VM data will be sent directly from source to target repository. This mode is recommended for copying backups on-site, and off-site over a fast connection.     </li> <li>Through built-in WAN accelerators         VM data will be sent to target repository through WAN accelerators that must be deployed in     </li> </ul>	both
Schedule Summary	source and target sites. This mode provides for significant bandwidth savings. Source WAN accelerator: Target WAN accelerator:	>
	< Previous Next > Finish Canc	el

5. Schedule the job as needed.

New Backup Copy Job						
Schedule Specify when this job is allowed to transfer data over the network. Backup copy jobs run continuously, starting data transfers according to copy interval and/or as the new VM restore points appear.						
Job Virtual Machines Target Data Transfer	This job can transfer data: Any time (continuously) During the following time periods only: 12 · 2 · 4 · 6 · 8 · 10 · 12 · 2 · 4 · 6 · 8 · 10 · 12 All					
Schedule Summary	Sunday       Image: Constraint of the second s					
	< Previous Create Finish Cancel					



6. Click Finish.

	New Backup Copy Job
Summary Review the settings	and click Finish to save and exit the wizard.
Job Virtual Machines Target Data Transfer Schedule Summary	Summary: Name: source_backup_copy Target Path: \\10.250.241.231\source Type: VMware Backup Copy Source items: dma-rhel7-v1 Enable the job when L click Einish
	< Previous Next > Finish Cancel



- 7. Select the backup, right-click and select one the following operations as needed:
  - **Sync Now** Traditional Veeam backup copy job in which the restore points are sync'ed from source storage to target.
  - Active Full This added feature in Veeam 9.0 helps improve local (on-site) backup copy performance and reduces the load on deduplication appliances by eliminating the data rehydration required to process the backup copy job retention policy, or to create a new GFS (Grandfather-Father-Son) restore point. Enabling this option will disable a full backup transformation (oldest incremental backups will no longer be merged into the full backup file for retention processing). Instead, GFS full backup files will be created by copying the most recent VM state data from the primary backup storage in its entirety.

BACKUP COPY TOOLS				VEEAI	M BACKUP AND R	EPLICATION	
Sync Active Now Full Job Control	Clone Delete						
BACKUP & REPLICATION	Q Type in an object nam	e to search for		×			
📑 Instant Recovery (1)	NAME 🕹	ТҮРЕ	OBJECTS	STATUS	LAST RESULT	NEXT RUN	TARGET
⊿ 🦓 Jobs	🏠 source_backup_copy	VMware Back	1 然 Sime Nau	Idle		<continuous></continuous>	source
報告 Backup 谷 Backup Copy			Active Full				
Backups			Lili Statistics				
Disk			Report				
Last 24 hours			Disable				
			Clone				
🙀 Failed			🙀 Delete				
			🔁 Edit				



#### Setting up the DR Series system cleaner

6

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 40 hours per week 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		KCV6S1			Help   Log out
	Dashboard Alerts Events Health	Cleaner Sched	dule Central, Mon Jan 23 15:18:49 2012	Schedule Cleaner	Schedule
	Usage Statistics: Container Statistics: Replication Storage Containers Replication Compression Schedule Replication Cleaner System Configuration Networking Active Directory Email Alerts Date & Time	Day       Sun       Mon       Tue       Wed       Thu       Fri       Sat	Start Time	Stop Time	
- ·	Support Diagnostics Software Upgrade				



# 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.



7