



Setting Up the Dell™ DR Series System on Veeam

Dell Engineering
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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® Backup & Replication™ 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.

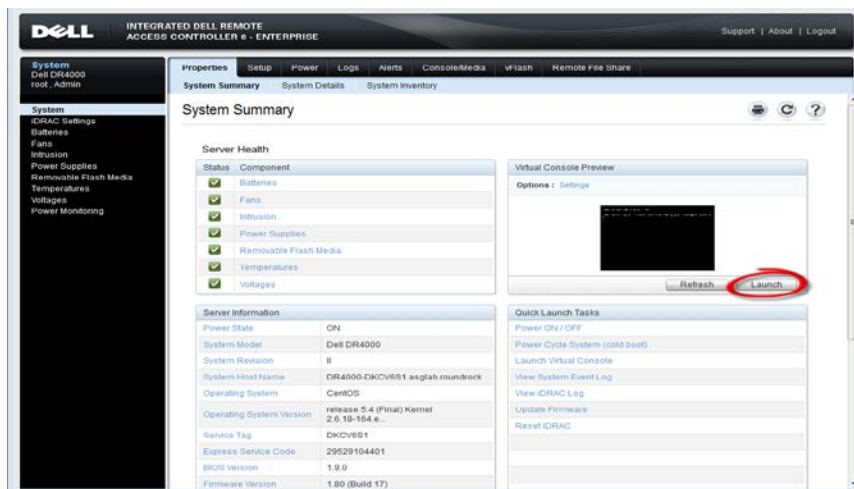


1 Installing and configuring the DR Series system

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.



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:
```

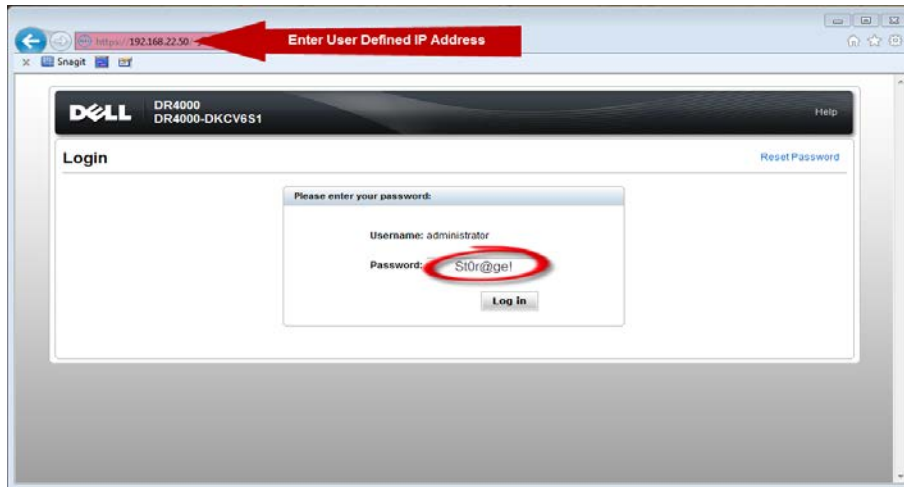
5. View the summary of preferences and confirm that it is correct.

```
=====
                          Set Static IP Address
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) ? _
```



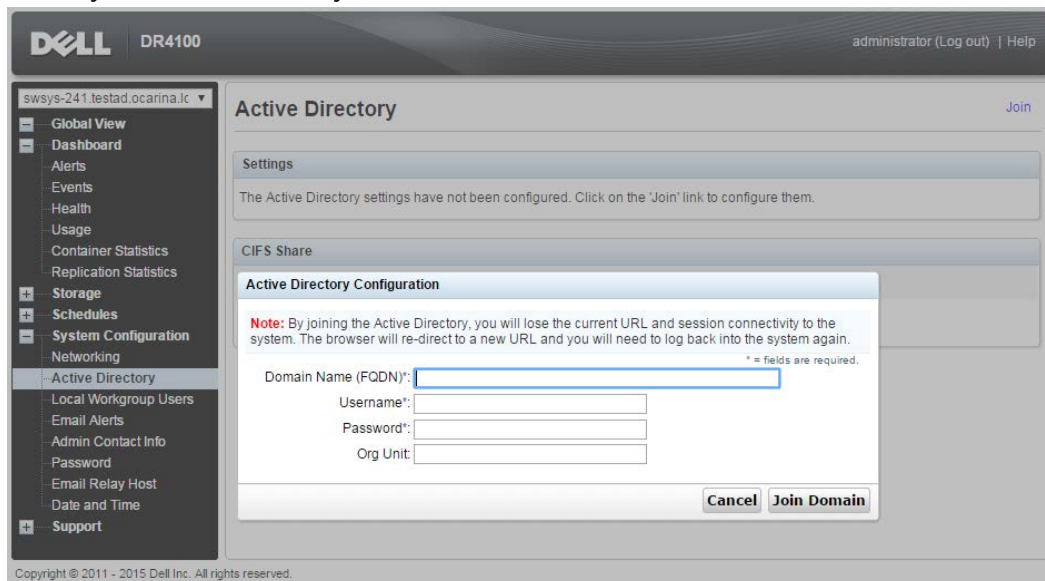
6. Log on to the DR Series System administrator console, using the IP address you just provided for the DR Series System, with the username **administrator** and password **St0r@ge!** (The "0" in the password is the numeral zero).



7. Join the DR into Active Directory domain.

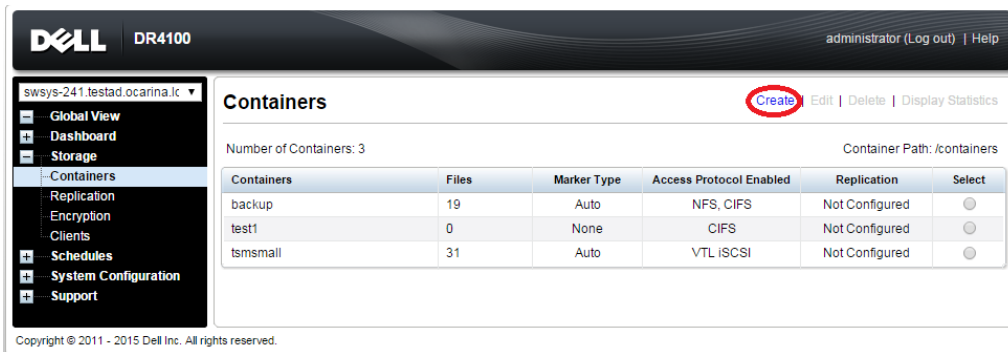
Note: if you do not want to add the DR Series System to Active Directory, see the *DR Series System Owner's Manual* for guest logon instructions.

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

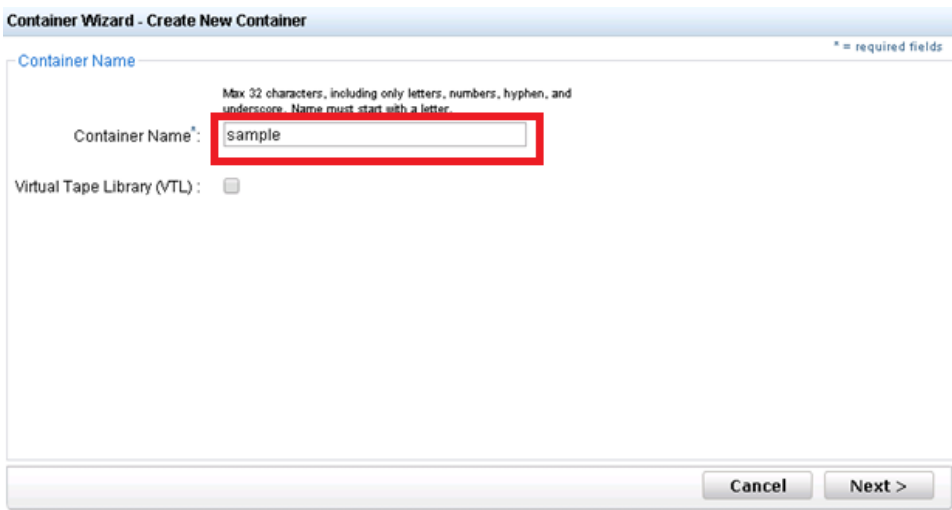


8. To create and mount the container, in the left navigation area, click **Containers** and then click the **Create** link at the top of the page.

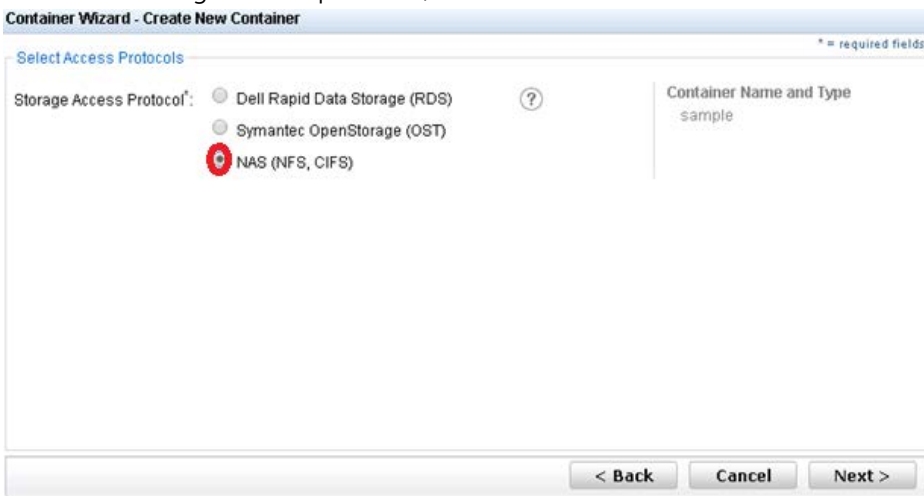




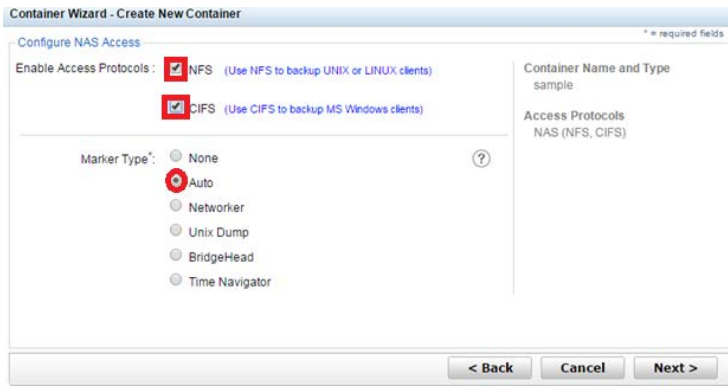
9. Enter a Container Name, and click **Next**.



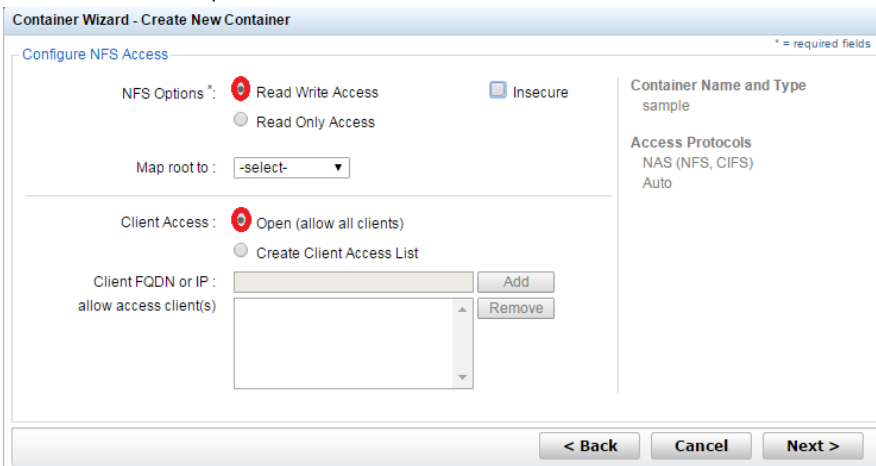
10. Select the storage access protocol, and click **Next**.



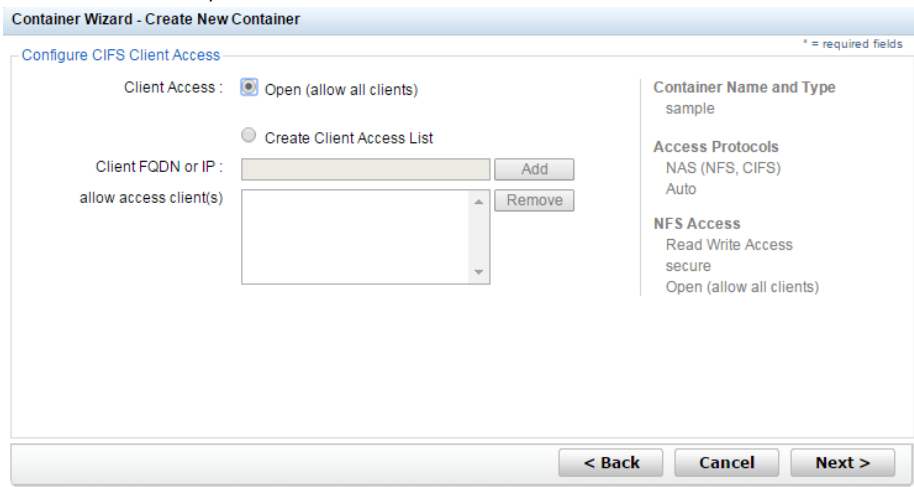
11. Select the access protocols as needed (CIFS, NFS), set the marker type as **Auto**, and then click **Next**.



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



13. For CIFS, set the preferred client access credentials, and then click **Next**.



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



Container Wizard - Create New Container * = required fields

Configuration Summary

<p>Container Name and Type Container Name: sample</p> <p>Access Protocols Access Protocol: NAS (NFS, CIFS) Marker Type: Auto</p>	<p>NFS Access Access Option: Read Write Access Insecure: No Open (allow all clients):</p> <p>CIFS Access Open (allow all clients):</p>
--	--

16. Confirm that the container is successfully added.

DELL DR4100
administrator (Log out) | Help

swws-241.testad.ocarina.lc

- Global View
- Dashboard
- Storage
- Containers
- Replication
- Encryption
- Clients
- Schedules
- System Configuration
- Support

Containers

[Create](#) | [Edit](#) | [Delete](#) | [Display Statistics](#)

Message

- Successfully added container "sample".
- Successfully added NFS connection for container "sample".
- Successfully added CIFS connection for container "sample".
- Successfully enabled container "sample" with the following marker(s) "Auto".

Number of Containers: 4 Container Path: /containers

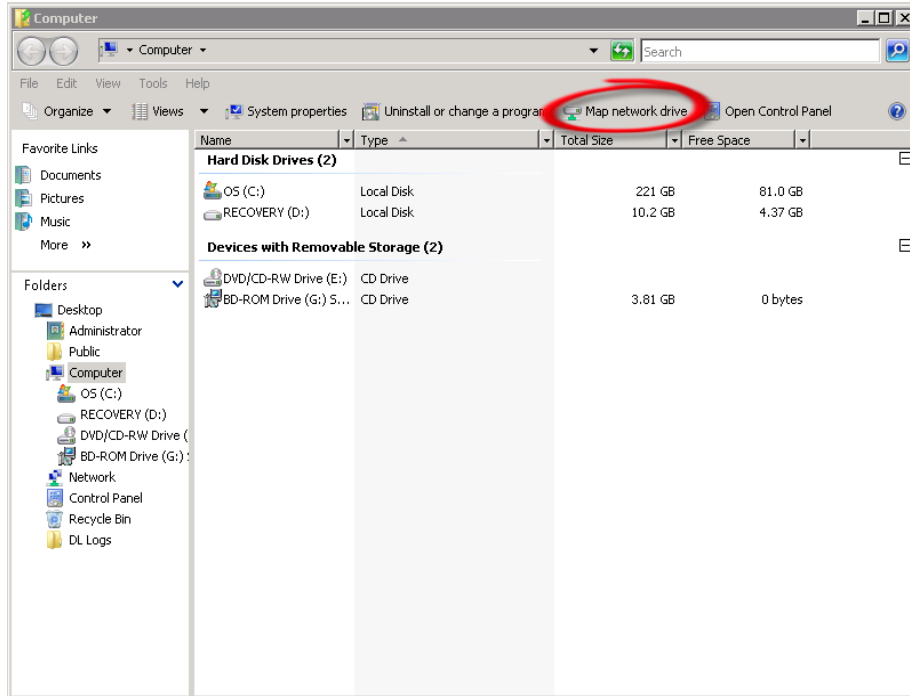
Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
backup	19	Auto	NFS, CIFS	Not Configured	<input type="radio"/>
sample	0	Auto	NFS, CIFS	Not Configured	<input type="radio"/>
test1	0	None	CIFS	Not Configured	<input type="radio"/>
tsmsmall	31	Auto	VTL iSCSI	Not Configured	<input type="radio"/>

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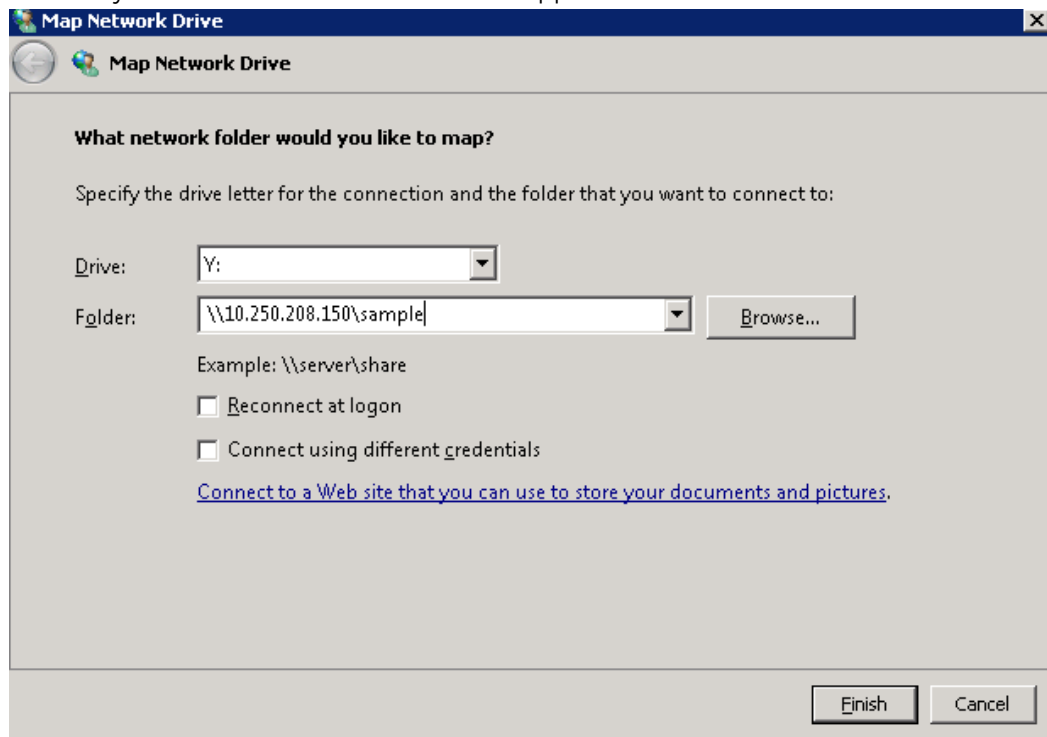


2 Configuring the backup proxy

1. Log on to the backup proxy server by clicking **Start > My Computer**.
2. Click **Map network drive**.



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.



3 Setting up Veeam

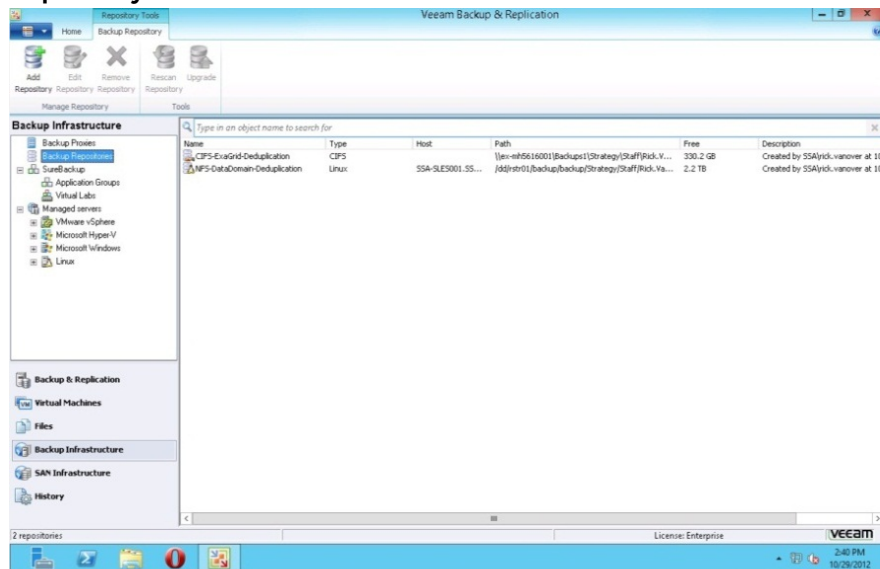
Notes:

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**.

The screenshot shows the 'New Backup Repository' wizard window. The title bar reads 'New Backup Repository'. The main heading is 'Name' with a sub-instruction: 'Type in a name and description for this backup repository.' On the left, a vertical navigation pane lists 'Name', 'Type', 'Server', 'Repository', 'vPower NFS', 'Review', and 'Apply', with 'Name' selected. The 'Name' field contains the text 'Backup Repository 8'. The 'Description' field contains the text 'Created by TESTAD\administrator at 4/27/2015 11:09 PM.'. At the bottom, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'. The 'Next >' button is highlighted in blue.

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

The screenshot shows the 'New Backup Repository' wizard window. The title bar reads 'New Backup Repository'. The main heading is 'Type' with a sub-instruction: 'Choose type of backup repository you want to create.' On the left, a vertical navigation pane lists 'Name', 'Type', 'Server', 'Repository', 'vPower NFS', 'Review', and 'Apply', with 'Type' selected. The main area contains four radio button options: 'Microsoft Windows server (recommended)', 'Linux server (recommended)', 'Shared folder', and 'Deduplicating storage appliance'. The 'Shared folder' option is selected. Below each option is a brief description. At the bottom, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'. The 'Next >' button is highlighted in blue.

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**.

The screenshot shows the 'New Backup Repository' dialog box with the 'Share' tab selected. The 'Shared folder' field contains the UNC path '\\10.250.241.80\sample1'. The checkbox 'This share requires access credentials:' is checked, and the 'Credentials' field shows 'administrator (administrator, last edited: 4/27/2)'. The 'Gateway server' section has 'Automatic selection' selected. At the bottom, there are buttons for '< Previous', 'Next >', 'Finish', and 'Cancel'.

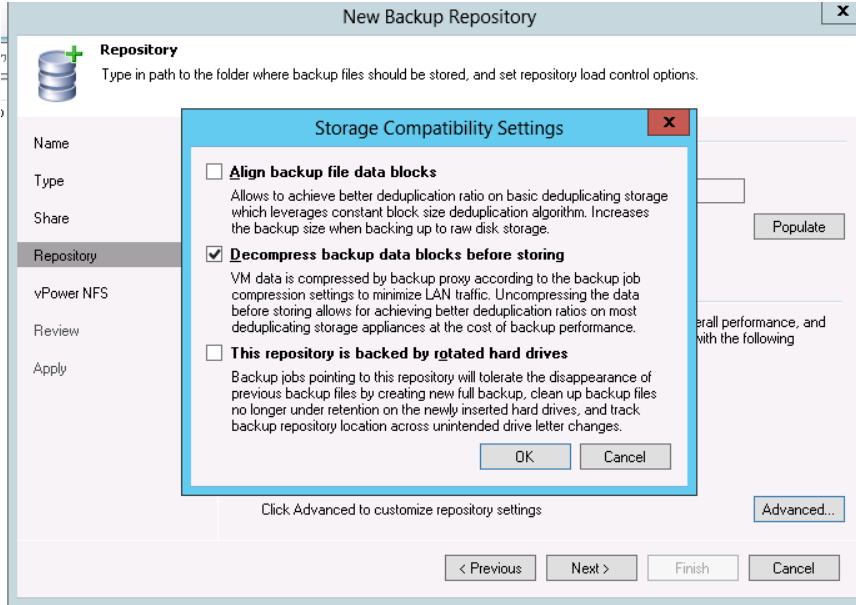
6. To customize the repository settings, click **Advanced**.

The screenshot shows the 'New Backup Repository' dialog box with the 'Repository' tab selected. The 'Path to folder' field contains '\\10.250.241.80\sample1'. The 'Capacity' is 15.8 TB and 'Free space' is 15.6 TB. The 'Load control' section has 'Limit maximum concurrent tasks to:' checked and set to 4. At the bottom, there is an 'Advanced...' button. At the bottom of the dialog, there are buttons for '< Previous', 'Next >', 'Finish', and 'Cancel'.

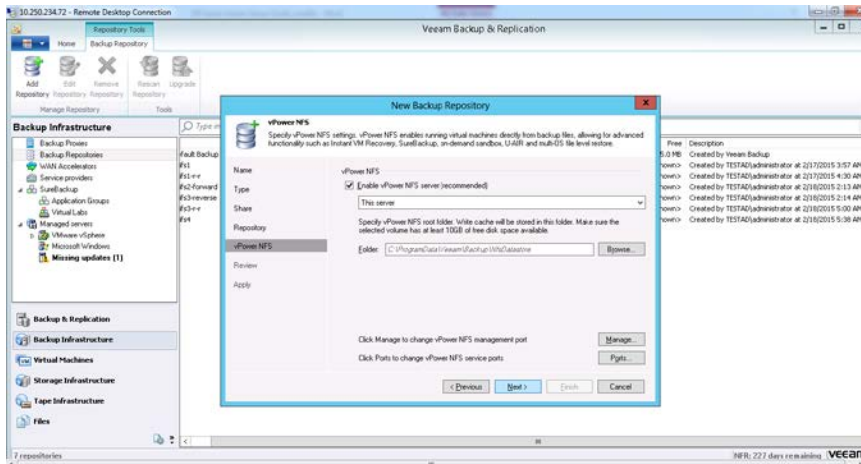


7. Select the option, **Decompress backup data blocks before storing**.

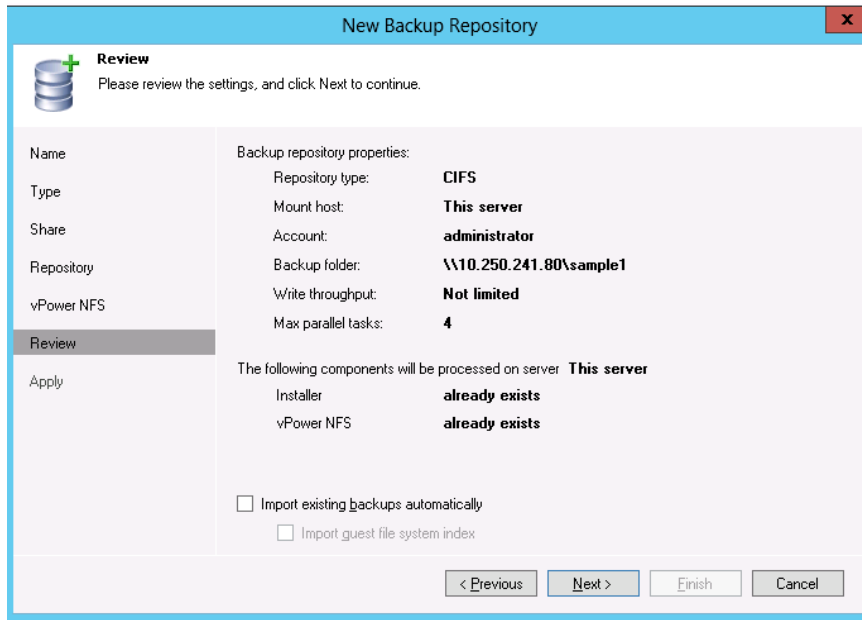
Note: Deselecting the **Decompress backup data blocks before storing** option can increase your overall deduplication storage capacity usage. It is not recommended to switch these settings after the data has been written to the DR.



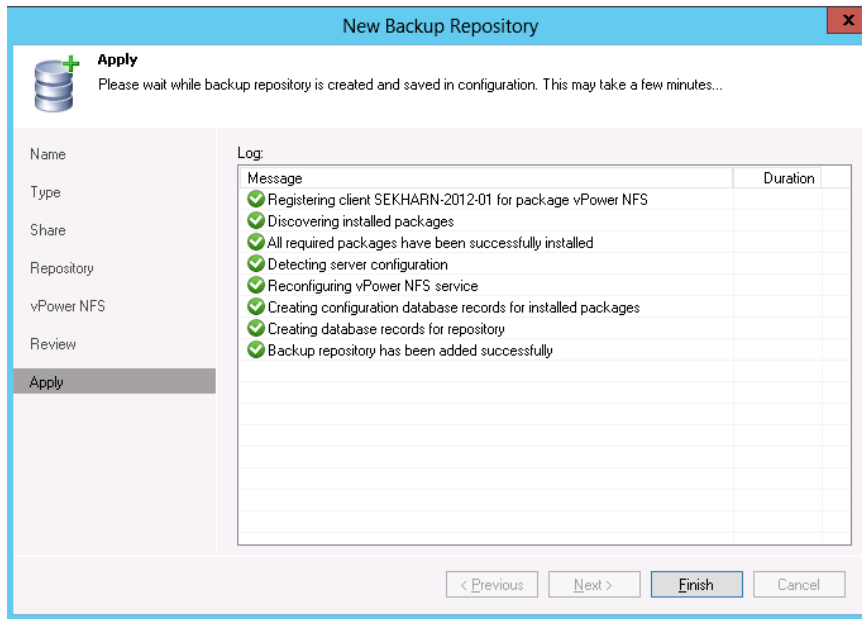
8. De-select the option, **Aligning backup file data blocks**. De-selecting this option is recommended since the DR Series system uses variable block deduplication.
9. Click **Next**.



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



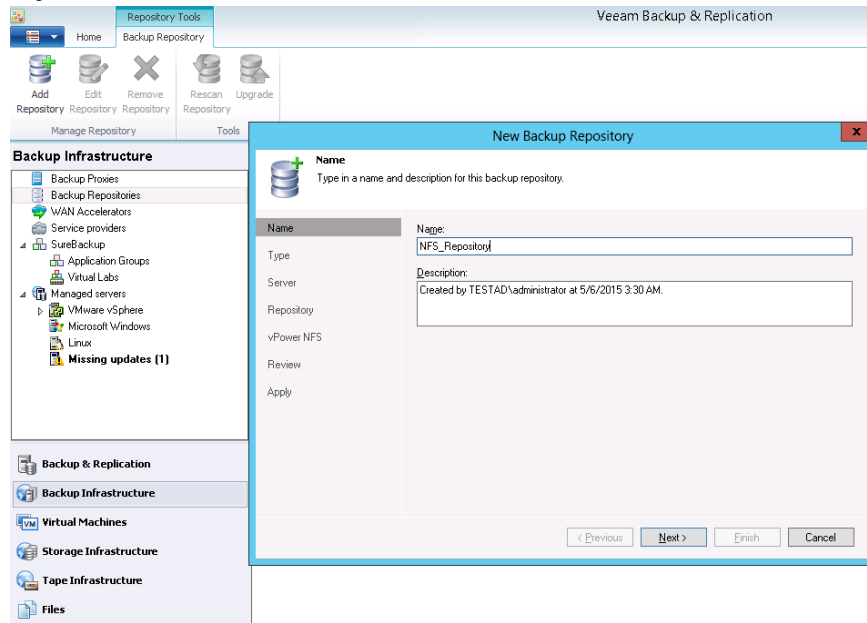
11. Click **Finish**.



3.2 Backing up in Unix/Linux environments

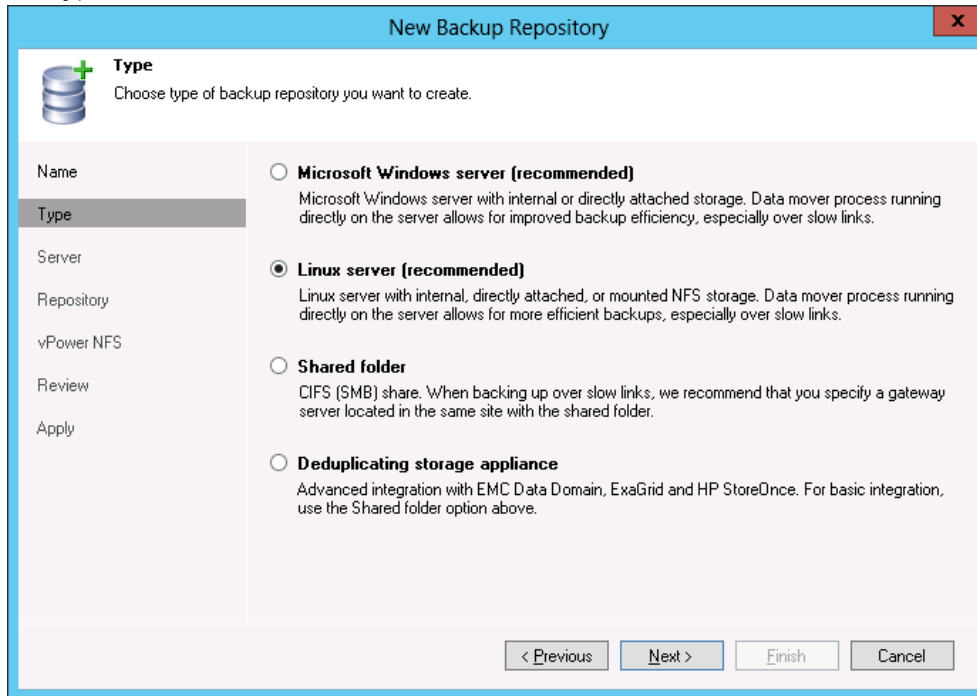
Note: Before performing this procedure, make sure that you can mount/verify the NFS share from the UNIX/Linux client system.

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

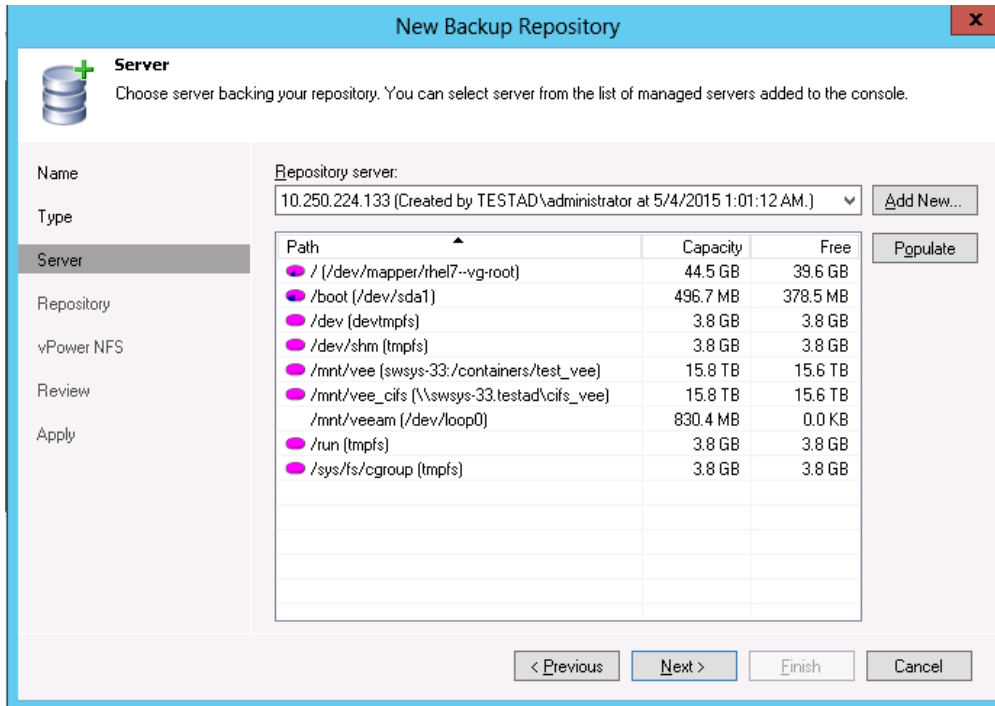


2. Enter a repository name, and click **Next**.

- For type, select Linux server.

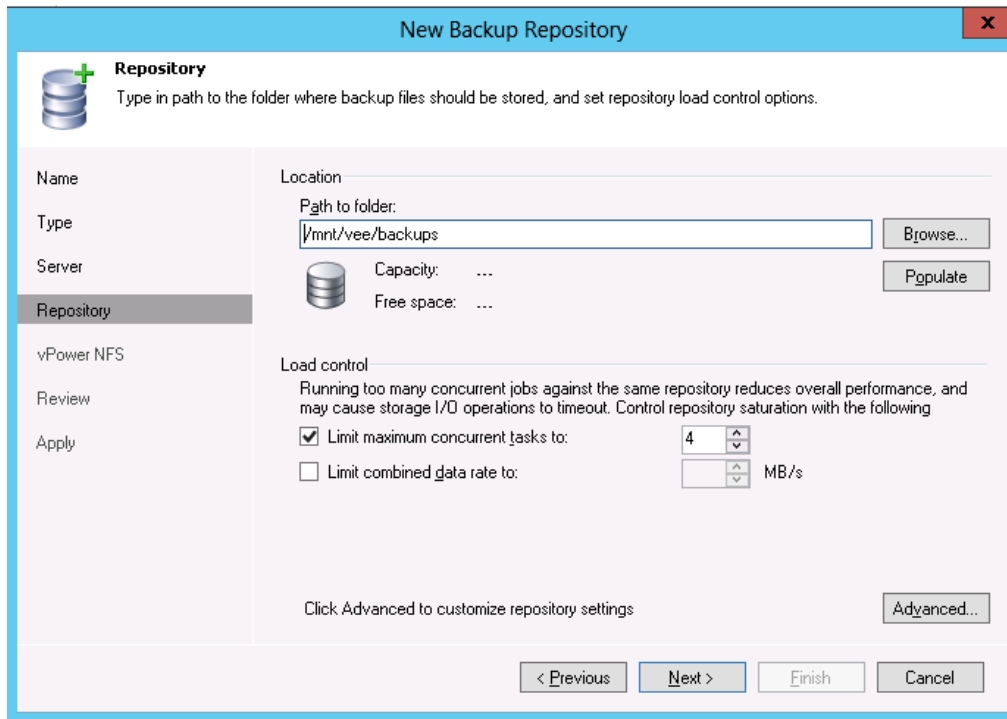


- Add a New Repository Server, and click **Next**. (Click **Add New** and enter the credentials of the Linux host on which the DR container is mounted. Click **Populate** to view all of the mount points.)

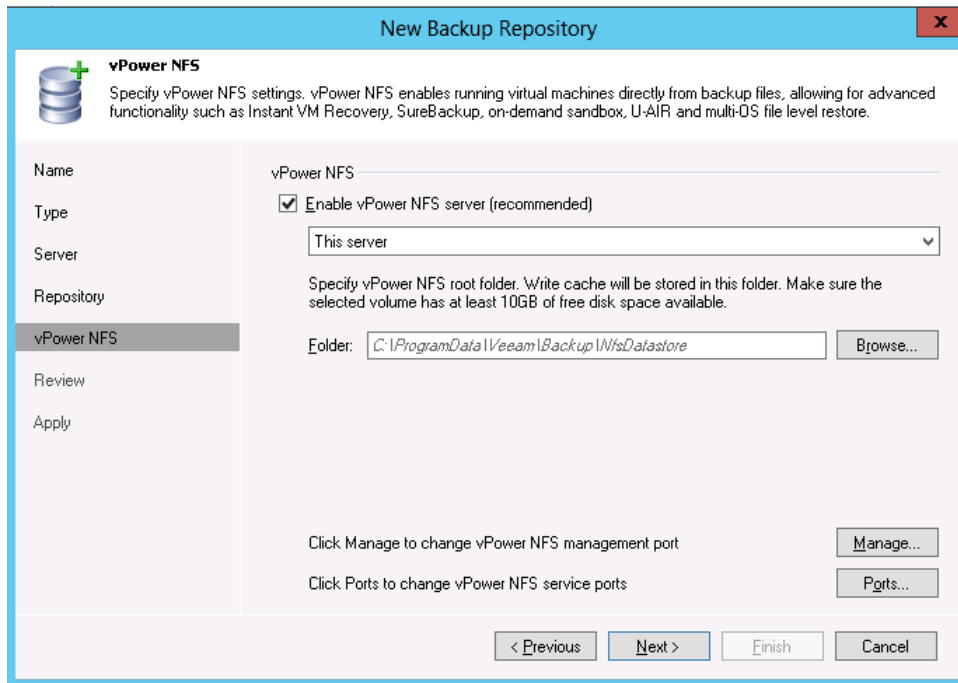


- Select the path and click **Next**.

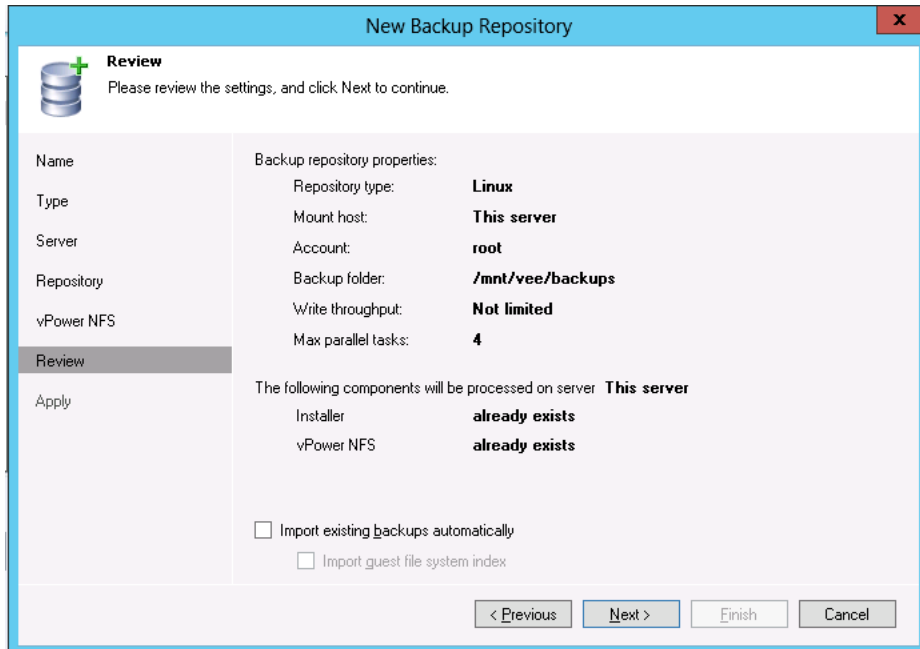




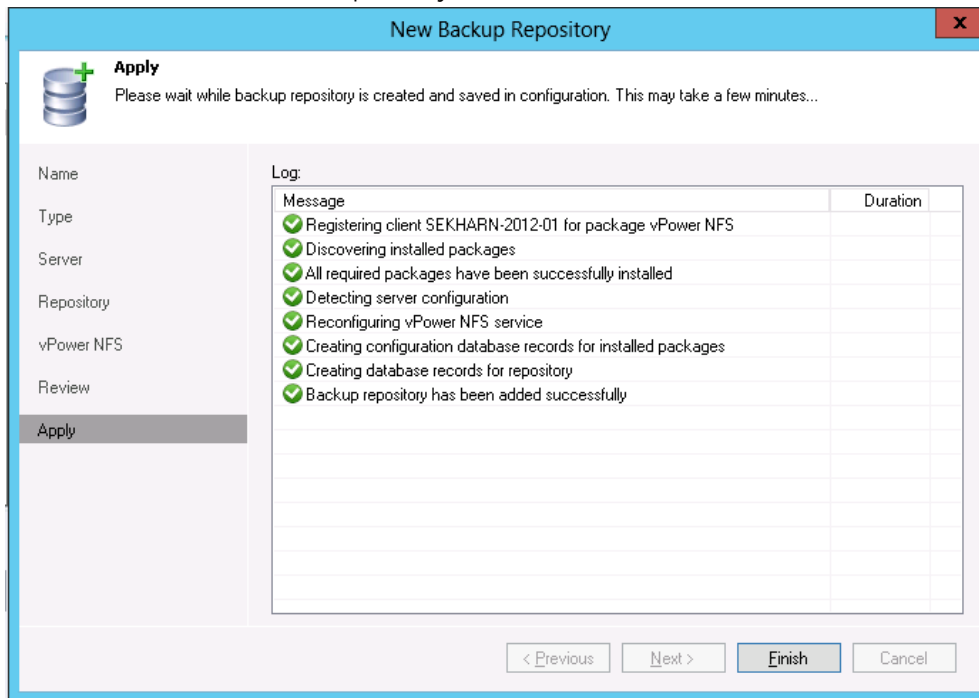
6. Select Enable vPower NFS server and then click **Next**.



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

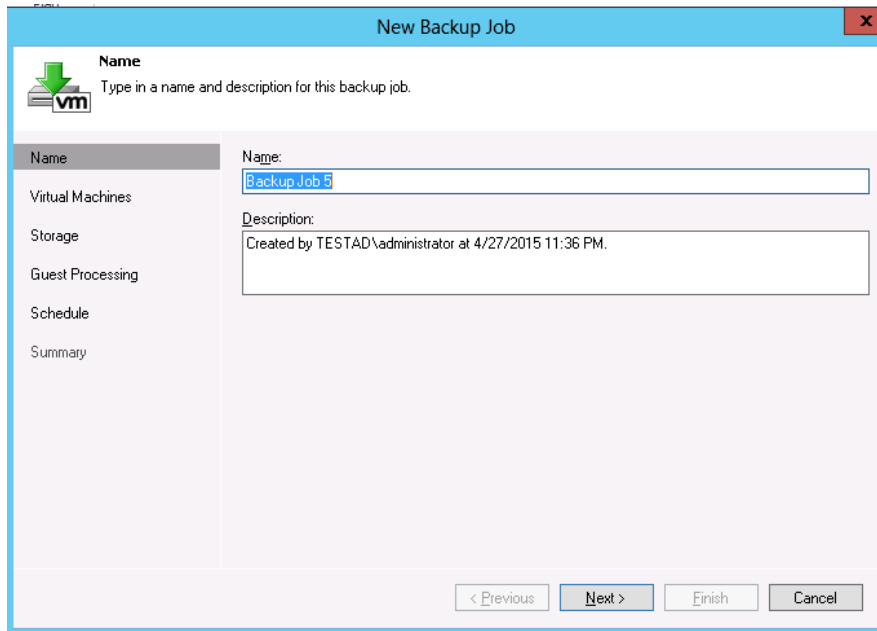


8. Click **Finish** to create the repository.



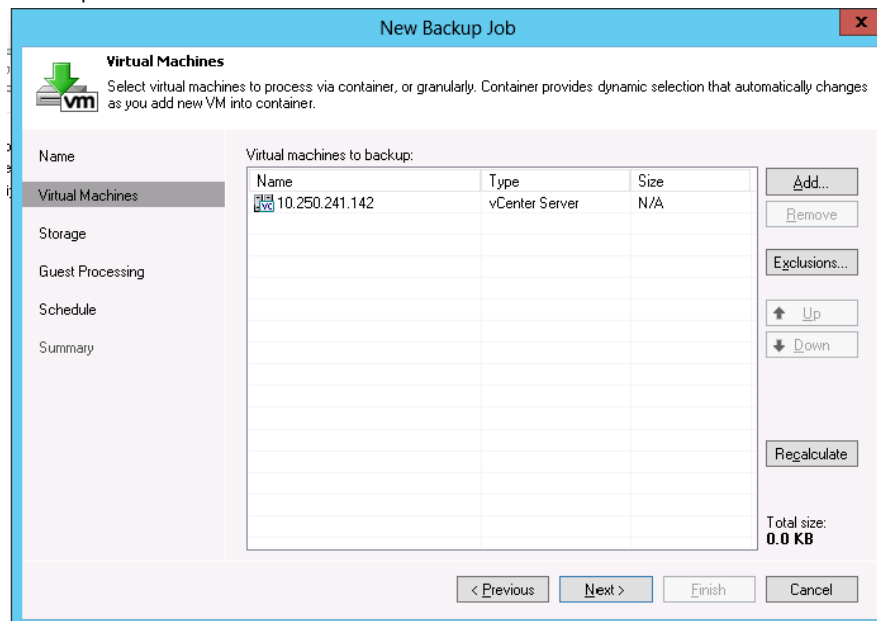
3.3 Starting backup jobs

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



The screenshot shows the 'New Backup Job' dialog box with the 'Name' tab selected. The dialog has a title bar with a close button (X). Below the title bar is a green arrow icon pointing down to a 'vm' icon, followed by the text 'Type in a name and description for this backup job.' On the left side, there is a vertical navigation pane with the following items: 'Name' (selected), 'Virtual Machines', 'Storage', 'Guest Processing', 'Schedule', and 'Summary'. The main area contains two text input fields: 'Name:' with the text 'BackupJob 5' and 'Description:' with the text 'Created by TESTAD\administrator at 4/27/2015 11:36 PM.' At the bottom of the dialog, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

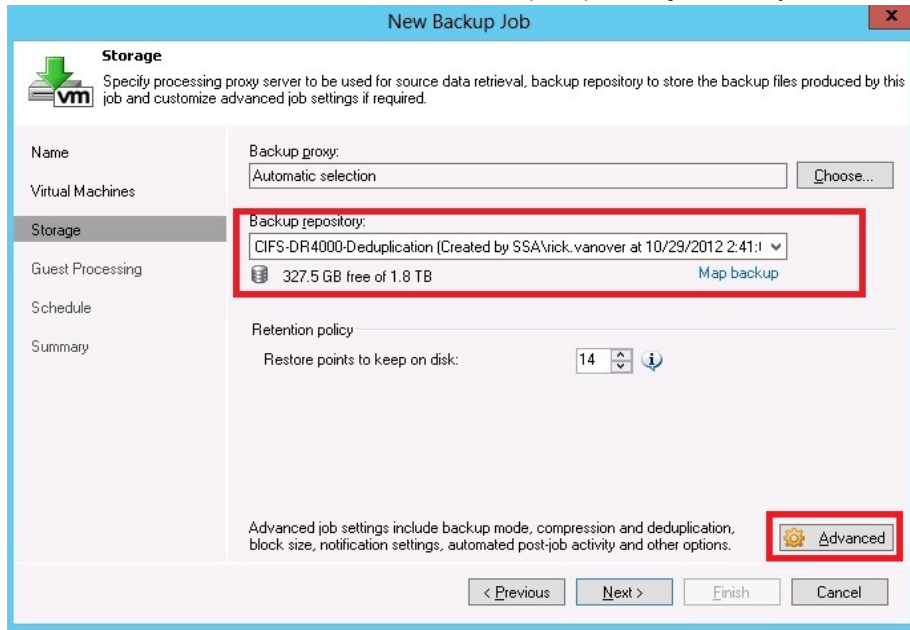
2. Select one or more virtual machines, data stores, resource pools, vApps, SCVMM clusters, etc. for backup.



The screenshot shows the 'New Backup Job' dialog box with the 'Virtual Machines' tab selected. The dialog has a title bar with a close button (X). Below the title bar is a green arrow icon pointing down to a 'vm' icon, followed by the text 'Select virtual machines to process via container, or granularly. Container provides dynamic selection that automatically changes as you add new VM into container.' On the left side, there is a vertical navigation pane with the following items: 'Name', 'Virtual Machines' (selected), 'Storage', 'Guest Processing', 'Schedule', and 'Summary'. The main area contains a table titled 'Virtual machines to backup:' with the following columns: 'Name', 'Type', and 'Size'. The table has one row with the following data: '10.250.241.142', 'vCenter Server', and 'N/A'. To the right of the table are several buttons: 'Add...', 'Remove', 'Exclusions...', 'Up', 'Down', and 'Recalculate'. Below the table, there is a label 'Total size:' followed by '0.0 KB'. At the bottom of the dialog, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

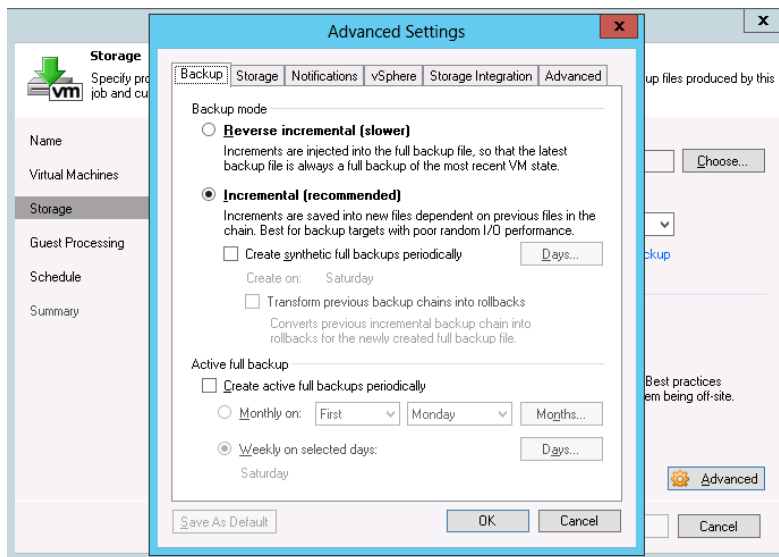
Name	Type	Size
10.250.241.142	vCenter Server	N/A

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

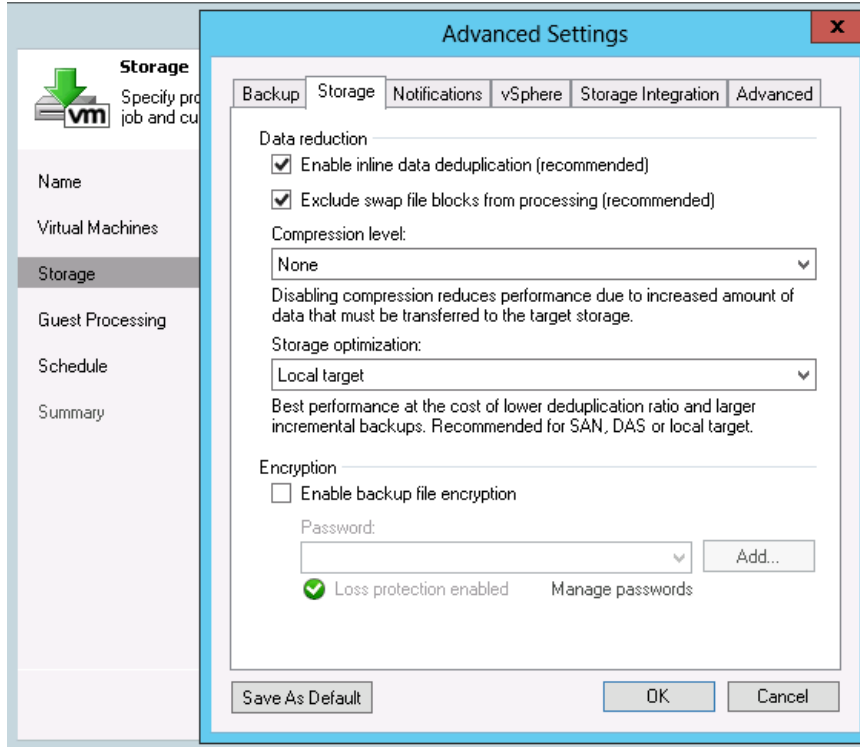


4. On the **Backup** tab, make sure **Incremental** is selected.

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



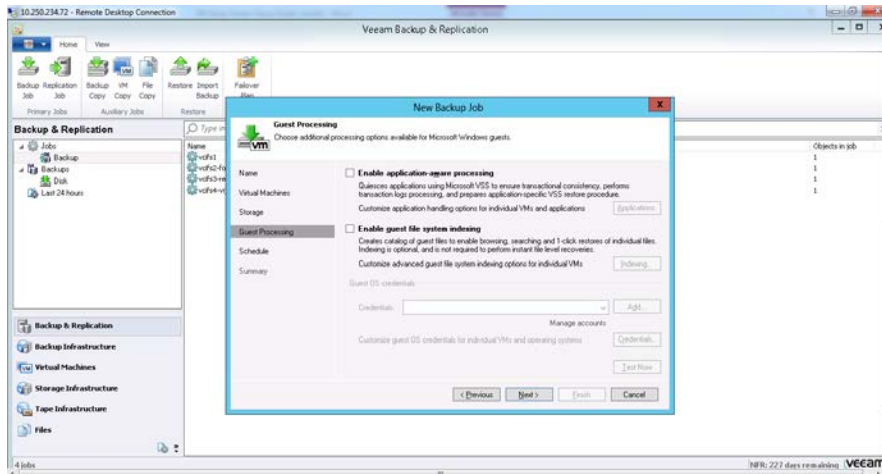
5. On the **Storage** tab, do the following:
 - a. Under **Deduplication**, select **Enable inline data deduplication**.
 - b. Under **Compression**, set the **Level** to **None**.
 - c. Under **Storage optimizations**, set **Optimize for** to **Local target**.



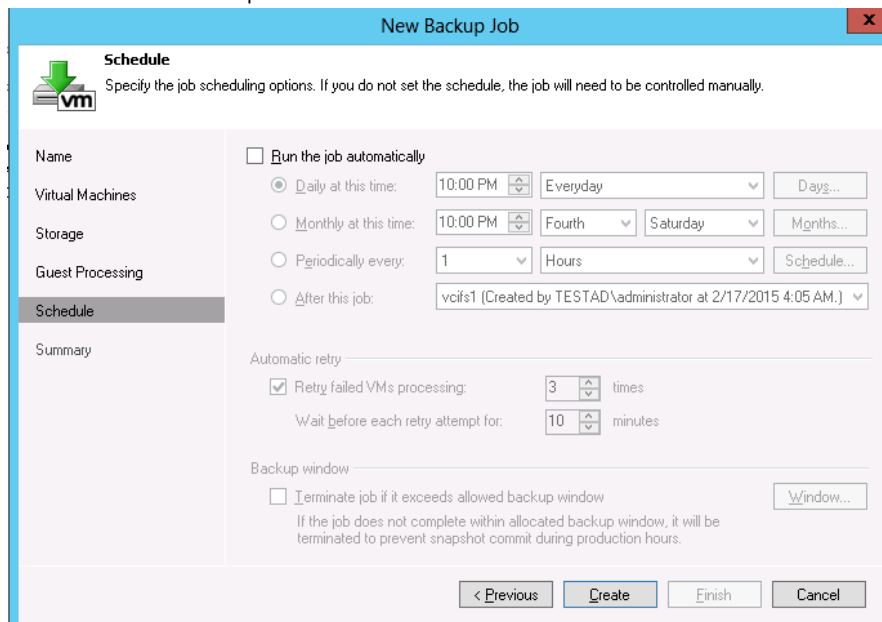
Note: For Advanced Settings, between backup performance and deduplication savings, if overall space/storage savings is the focus, it is recommended to choose the options for all of the backup jobs.

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**.

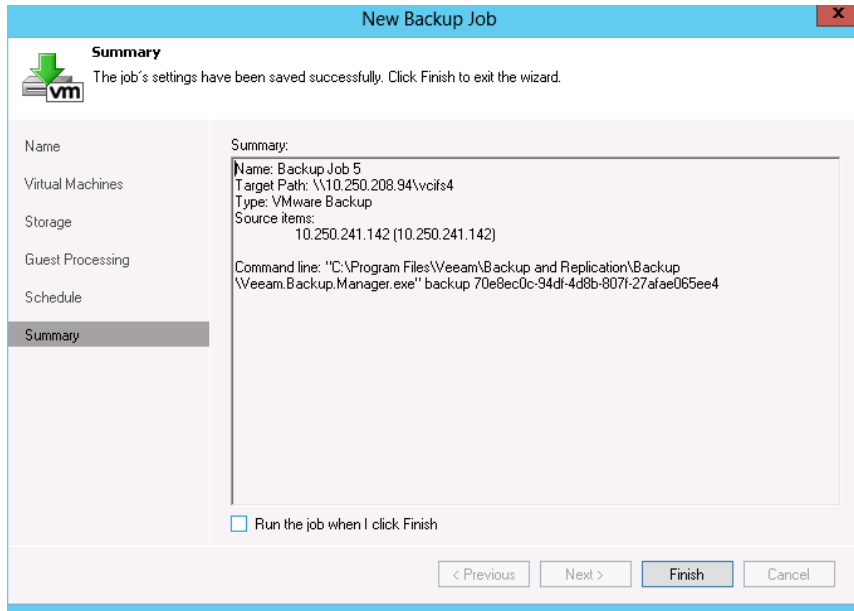


- Schedule the backup and click **Create**.



- Click **Finish**.

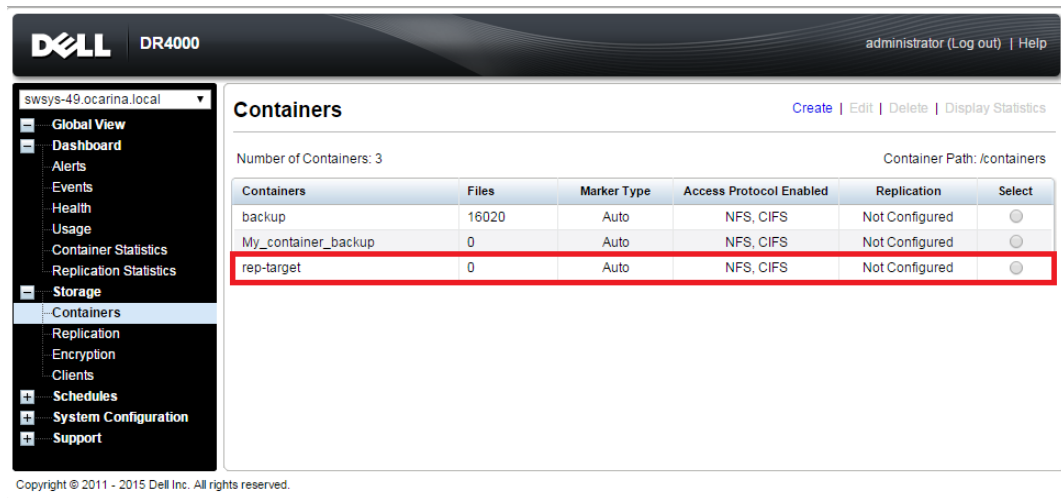




4 Setting up DR Series native replication and restore from a replication target container

4.1 Building replication relationship between DR Series systems

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

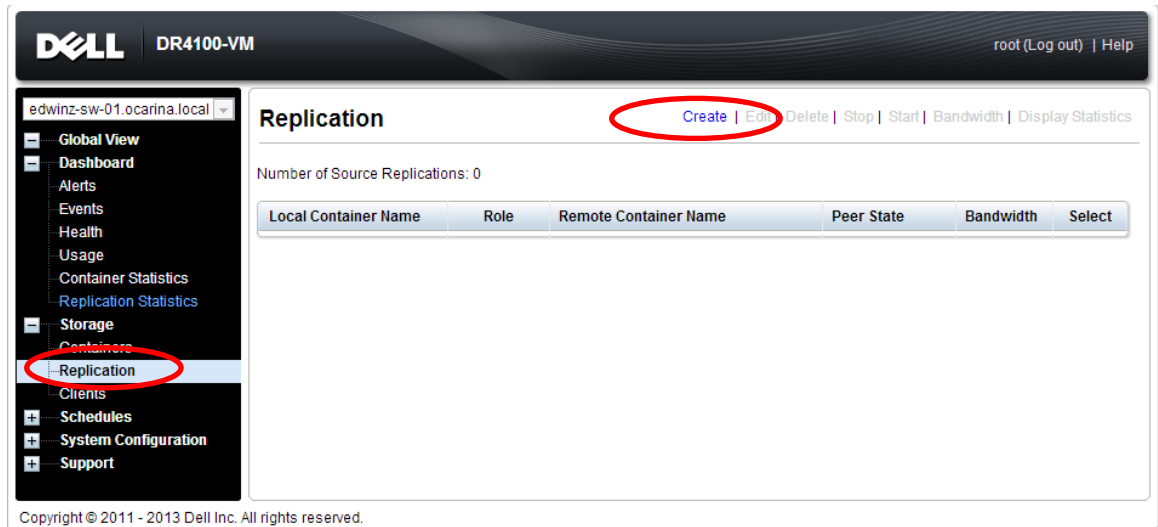


The screenshot shows the Dell DR4000 web interface. The top navigation bar includes the Dell logo, the model number 'DR4000', and the user 'administrator (Log out) | Help'. The left sidebar shows a navigation menu with 'Containers' selected. The main content area is titled 'Containers' and includes a 'Create | Edit | Delete | Display Statistics' link. Below this, it states 'Number of Containers: 3' and 'Container Path: /containers'. A table lists the containers:

Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
backup	16020	Auto	NFS, CIFS	Not Configured	<input type="radio"/>
My_container_backup	0	Auto	NFS, CIFS	Not Configured	<input type="radio"/>
rep-target	0	Auto	NFS, CIFS	Not Configured	<input type="radio"/>

The 'rep-target' row is highlighted with a red border. At the bottom, there is a copyright notice: 'Copyright © 2011 - 2015 Dell Inc. All rights reserved.'

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.



The screenshot shows the Dell DR4100-VM web interface. The top navigation bar includes the Dell logo, the model number 'DR4100-VM', and the user 'root (Log out) | Help'. The left sidebar shows a navigation menu with 'Replication' selected and circled in red. The main content area is titled 'Replication' and includes a 'Create | Edit | Delete | Stop | Start | Bandwidth | Display Statistics' link, with 'Create' circled in red. Below this, it states 'Number of Source Replications: 0'. A table lists the source replications:

Local Container Name	Role	Remote Container Name	Peer State	Bandwidth	Select
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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**.

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

NOTE:

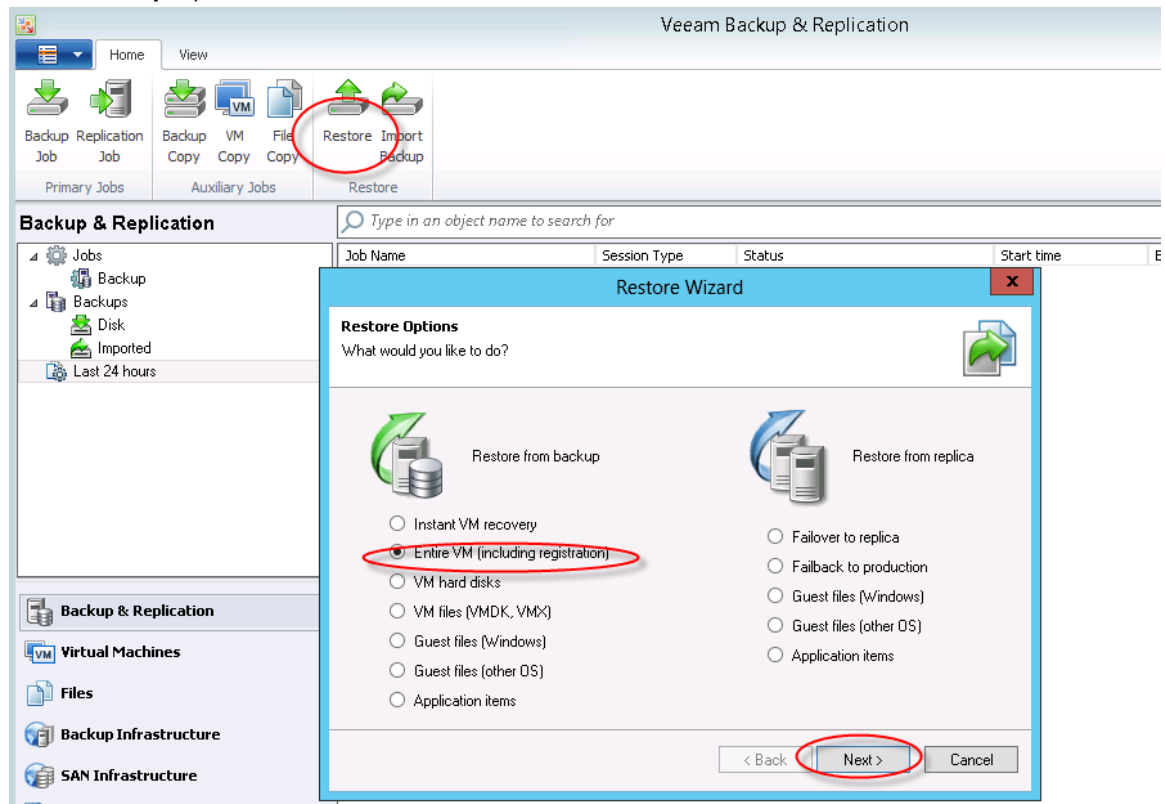
Make sure the replication session has **Peer Status** as **Online**. If restore from replication target is needed, Make sure the replication is in **INSYNC** state from Replication Statistics menu, and Stop or Delete the replication.
 Make sure the replication target has **CIFS/NFS** connection(s) enabled when restoring from it.



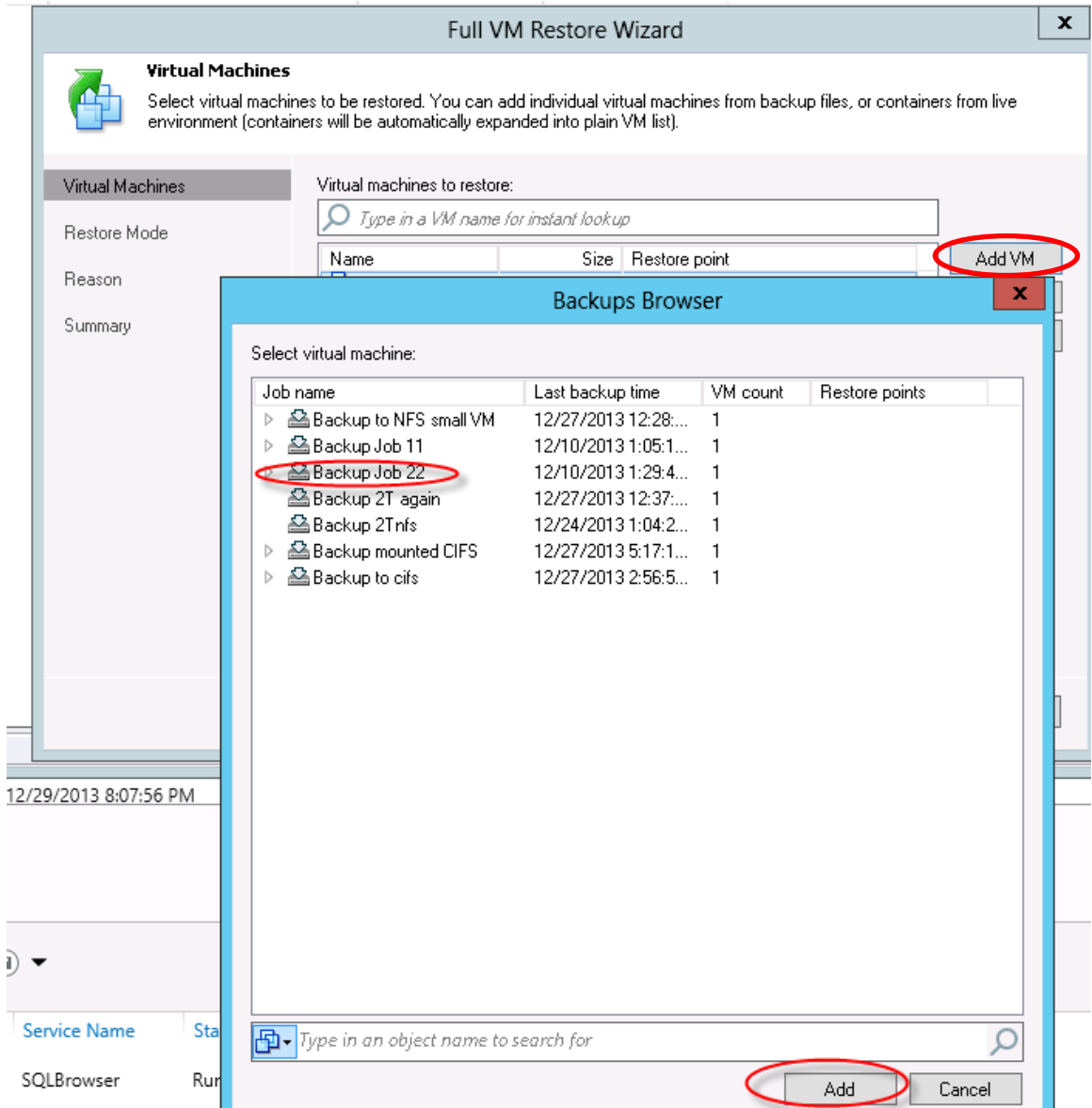
4.2 Restoring data from the target DR Series system

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.

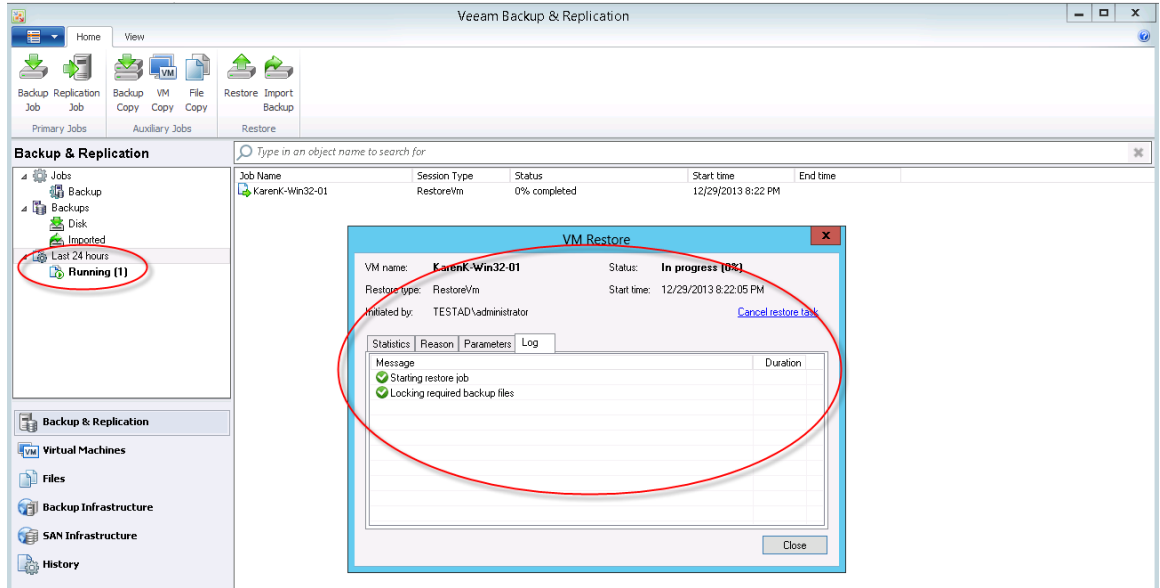
1. Add the target DR Series system container to the Veeam repository. For instructions, see the section, Setting up Veeam.
2. Update all backup jobs that use the source DR Series system container as a repository and change them to use the target DR Series system container as the backup repository.
3. 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**.



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



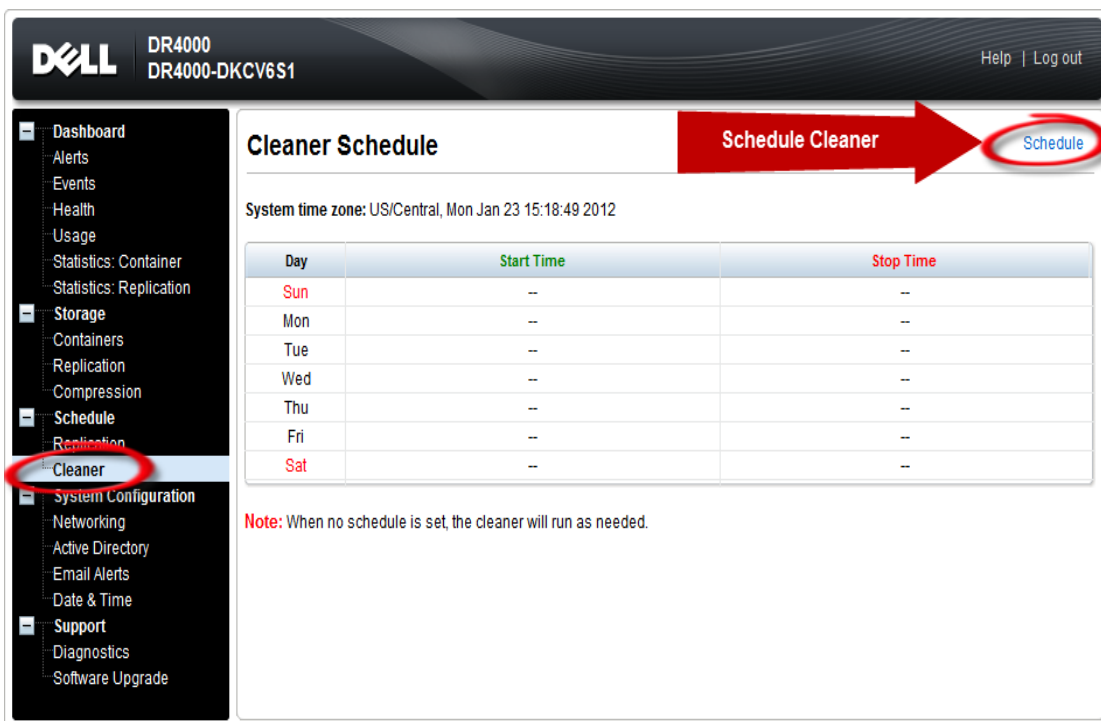
5 Setting up the DR Series system cleaner

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.



Cleaner Schedule

System time zone: US/Central, Mon Jan 23 15:18:49 2012

Day	Start Time	Stop Time
Sun	--	--
Mon	--	--
Tue	--	--
Wed	--	--
Thu	--	--
Fri	--	--
Sat	--	--

Note: When no schedule is set, the cleaner will run as needed.

6 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.

