Setting Up the Dell™ DR Series System on Symantec™ Backup Exec™

Dell Engineering
July 2015
Revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2014</td>
<td>Initial release</td>
</tr>
<tr>
<td>August 2014</td>
<td>Added screenshots where new functionality is introduced in 2014</td>
</tr>
<tr>
<td>April 2015</td>
<td>Added screenshots for updates to DR Series system functionality for v3.2</td>
</tr>
<tr>
<td>July 2015</td>
<td>Consolidated content for various container types and updated cleaner</td>
</tr>
</tbody>
</table>

THIS WHITE PAPER IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

© 2015 Dell Inc. All rights reserved. Reproduction of this material in any manner whatsoever without the express written permission of Dell Inc. is strictly forbidden. For more information, contact Dell.


Trademarks used in this text:

Dell™, the Dell logo, and PowerVault™ are trademarks of Dell Inc. Other Dell trademarks may be used in this document. Microsoft®, Windows®, Windows Server®, Internet Explorer®, MS-DOS®, Windows Vista® and Active Directory® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Symantec™ and Backup Exec™ are trademarks owned by Symantec Corporation or its affiliates in the U.S. and other countries. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and/or names or their products and are the property of their respective owners. Dell disclaims proprietary interest in the marks and names of others.
# Table of contents

Executive summary ................................................................................................................................................................................... 5

1 Installing and configuring the DR Series system ................................................................................................................................. 6

2 Configuring the DR Series system as a backup to disk target on Symantec Backup Exec ................................................................. 10
   2.1 Creating a CIFS Container for use with Symantec Backup Exec 2012, 2014, and 2015 ................................................................. 10
   2.2 Adding the DR Series system container share as a disk storage device on Backup Exec 2012/2014/2015 .............................. 13
   2.3 Creating a new backup job with the DR Series system as a target ............................................................................................... 17
   2.4 Setting up DR Series system replication and restore from the replication target ........................................................................... 25
      2.4.1 Creating the replication session ........................................................................................................................................... 25
      2.4.2 Restoring from the replication target ........................................................................................................................................ 28

3 Configuring VTL ........................................................................................................................................................................................... 31
   3.1 Creating a VTL container ................................................................................................................................................................. 31
   3.2 Setting the iSCSI target CHAP credentials ..................................................................................................................................... 33
   3.3 Configuring the iSCSI target – Windows ........................................................................................................................................ 34
   3.4 Configuring the iSCSI target – Linux .............................................................................................................................................. 38
   3.5 Adding additional media to the VTL container ................................................................................................................................. 39
   3.6 Configuring the DR Series system VTL in Backup Exec ................................................................................................................ 41
   3.7 Performing backup and restore using DR VTL ................................................................................................................................. 46
   3.8 Restoring from tape ............................................................................................................................................................................. 58

4 Configuring an OST container on the DR Series system for use with Symantec Backup Exec Server 2014/2015 .............................. 65
   4.1 Creating an OST container ............................................................................................................................................................... 65
   4.2 Installing the OST plugin ................................................................................................................................................................. 67
   4.3 Configuring the OST device in Backup Exec ............................................................................................................................... 70
   4.4 Performing backup and restore using the DR Series system OST device ..................................................................................... 76
   4.6 Restoring data ................................................................................................................................................................................... 86

5 Setting up the DR Series system cleaner ........................................................................................................................................... 93

6 Monitoring deduplication, compression, and performance .................................................................................................................. 94

A Setting data expiration for Backup Exec 2012/2014/2015 ...................................................................................................................... 95

B Installing Backup Exec Agent on Linux client (RALUS) ........................................................................................................................ 96

C VTL configuration guidelines ................................................................................................................................................................. 97
   C.1 Installing latest Backup Exec service packs for the DR Series system iSCSI VTL capability ........................................................... 97
   C.2 Managing VTL media and space use .............................................................................................................................................. 97
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.2.1 General performance guidelines for DMA configuration</td>
<td>97</td>
</tr>
<tr>
<td>C.2.2 Physical DR space sizing and planning</td>
<td>97</td>
</tr>
<tr>
<td>C.2.3 Logical VTL geometry and media sizing</td>
<td>98</td>
</tr>
<tr>
<td>C.2.4 Media retention and grouping</td>
<td>99</td>
</tr>
<tr>
<td>C.2.5 VTL media count guidelines</td>
<td>99</td>
</tr>
<tr>
<td>C.2.6 Space reclamation guidelines</td>
<td>100</td>
</tr>
</tbody>
</table>
Executive summary

This document provides information about how to set up the Dell DR Series system for Symantec Backup Exec, including:

- Configuring the DR Series system as a backup to disk target for Symantec Backup Exec 2012, 2014, and 2015
- Configure a virtual tape library (VTL) of the DR Series System into Backup Exec Server 2014/2015
- Configuring an OST container on the DR Series system for use with Symantec Backup Exec Server 2014/2015

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/Symantec Backup Exec build version and screenshots used for this paper may vary slightly, depending on the version of the DR Series system/Symantec Backup Exec software version you are using.
1. Rack and cable the DR Series appliance, 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 system.

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

3. Launch the virtual console.
4. After 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**).

5. Set the user-defined networking preferences.

6. View the summary of preferences and confirm that it is correct.
8. Log on to DR Series system administrator console using the IP address you just provided for the DR Series system, with username administrator and password St0r@ge! (The “0” in the password is the numeral zero).

9. Join the DR Series system to Active Directory.

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. Select Active Directory from the left navigation area of the DR Series system GUI.
b. Enter your Active Directory credentials.
2 Configuring the DR Series system as a backup to disk target on Symantec Backup Exec

2.1 Creating a CIFS Container for use with Symantec Backup Exec 2012, 2014, and 2015

1. Create a container by selecting **Containers** in the left navigation area, and then clicking **Create** at the top of the page.

2. Enter a Container Name, and then click **Next**.
3. Select **NAS (NFS, CIFS)** and click **Next**.

4. For the CIFS access protocol, select **CIFS** and click **Next**.

5. Select **Open** to allow all clients access or enter client details for client access. Click **Next**.
6. Click **Create a New Container** on the summary page.

![Create a New Container screenshot]

7. Verify the container creation.

![Verify container creation screenshot]
2.2 Adding the DR Series system container share as a disk storage device on Backup Exec 2012/2014/2015

1. Open the Backup Exec console. In the Storage pane, click **Configure Storage**.

2. Select **Disk-based storage**, and click **Next**.
3. Select Disk Storage, and click Next.

4. Enter a name for the DR Series system disk device, add a description, and click Next.
5. Enter the DR container CIFS share path, and click **Next**.

6. For Backup Exec 2014/2015 - set how many concurrent write operations are allowed. Click **Next**.

Note: The DR Series system supports the following number of concurrent writes to CIFS Storage:
- DR4x00 – 32
- DR6000 – 64
- DR2000V – 8
To change this number later at any time, go to the **Storage** tab, select the required Storage device and see the details. In the **Properties** page, there is an option to update concurrent operations.
6. In the Storage Configuration Summary window, click **Finish**.

For Backup Exec 2014/2015, the summary page will include additional details.
7. Verify that the Disk Storage Device is attached to the server.

2.3 Creating a new backup job with the DR Series system as a target

1. If the required source client server is not added in Backup Exec, it can be added by selecting the Backup and Restore pane and then clicking the Add button.
2. Follow the wizard by selecting the required type of server and continue.

3. In the Backup and Restore pane, click **Backup > Back Up to Disk**.
4. In the backup source selection pane, click **Edit**. Select the backup data set.

5. For Backup Exec 2014, backup data sets can be selected from multiple servers within the same job. To add an additional server, click the “+” button.
6. For Backup Exec 2014/2015, follow the wizard and add the Server with the selected backup data. The Source Dataset will appear. Click OK to continue.
7. In the backup target selection pane, click **Edit** to define the backup strategy.

8. Click **Schedule**. Define the backup mode and select schedule options.

For Backup Exec 2014/2015 the screen includes additional information.
9. Click **Storage** and then select the Disk Storage Device pointing to the DR container share. Define other backup options as needed, and then click **OK**.

10. Enter a job **Name**, and click **OK**.
11. To run the job, select an **Agent**, and click **OK**. The **Jobs** window shows the job queue status.
12. For Backup Exec 2014, select the required server from the drop down, select the job recently created, and click **Run Now**.
2.4 Setting up DR Series system replication and restore from the replication target

**Note:** For the steps in this procedure, assume DR1 is the replication source DR Series system, and DR2 is the replication target DR system. ‘source’ is the replication source container, and ‘target’ is the replication target container.

2.4.1 Creating the replication session

1. Create a CIFS container ‘source’ on DR1; create a second CIFS container ‘target’ on DR2. For each of the containers, on the Backup Exec media server, configure a corresponding Disk Storage Device.
2. For Backup Exec 2014/2015, after adding the target DR CIFS container, check that the device was added.

![Image showing the DR1 GUI with replication options]

3. From the DR1 GUI, on the **Replication** page, click **Create**. Set the ‘source’ container as the replication source, set the DR2 ‘target’ container as the replication target. Start the replication session.

![Image showing the DR replication setup in Backup Exec]
4. Schedule and run backup jobs to the source Disk Storage Device.

For Backup Exec 2014/2015, view the Job History screen.
2.4.2 Restoring from the replication target

1. Under **Storage > Storage Operations**, right-click the replication target device, and select **Inventory and Catalog**.

For Backup Exec 2014/2015, the following screen appears.

![Backup Exec 2014/2015 Screen](image-url)
2. After the Inventory and Catalog job is done, check the Backup Sets shown in target storage device.

3. Disable source storage under **Storage > State**, right-click the source storage device, and select **Disable**.
4. Schedule and run a restore job from the target device.
3 Configuring VTL

The latest release of the DR Series system (v3.2) adds Virtual Tape Library (VTL) support. This functionality can be accessed by Backup Exec via iSCSI. Basic workflow includes:

1. DR Series system initial setup  
2. Creation of VTL container  
3. Setting iSCSI target CHAP credentials  
4. Connecting windows Initiator to DR-VTL (See Appendix)  
5. Installing Driver/Patch for Library (See Appendix)  
6. Configuring DR Series system VTL into Backup Exec  
7. Performing the backup  
8. Performing a restore  
9. Monitoring deduplication, compression and performance

3.1 Creating a VTL container

1. Select Containers in the left navigation area of the GUI, and then click Create at the top of the page.

2. Enter the container name, select the Virtual Tape Library (VTL) option, and click Next.
3. Select the **iSCSI** Access Protocol. Specify the DMA Access Control by providing the storage node / media node IP Address, IQN or FQDN. For NetVault, you must also specify **Auto** as the Marker Type. Click **Next**.

4. Finalize VTL creation by clicking **Create a New Container**.
3.2 Setting the iSCSI target CHAP credentials

By default the iSCSI username is "iscsi_user" and can be confirmed by reviewing the output of the iscsi –show user command. For example:

```
# iscsi --show --user
user : iscsi_user
```

The default iSCSI password is "St0r@ge!iscsi"

1. You can modify the password by navigating to Clients in the DR Series system GUI and selecting the iSCSI tab.
2. Select Edit CHAP Password and enter the new password as needed.

**NOTE:** iSCSI CHAP Passwords must be between 12 and 16 characters long

Alternatively you can use the "iscsi --setpassword" CLI command to change the iSCSI CHAP Password setting. For example:

```
> iscsi --setpassword

WARNING: All existing iSCSI sessions will be terminated upon submission.

Enter new CHAP password:################
Re-type CHAP password:################
```
3.3 Configuring the iSCSI target – Windows

1. Configure the iSCSI Initiator Software for Windows by providing the IP or FQDN of the DR Series system in the Quick Connect, Target field. Click Quick Connection to open the Quick Connect dialog box, which indicates a connection was made but is set as inactive.
2. Close the dialog box and proceed by selecting the newly discovered target. This target will have an Inactive Status as it requires authentication parameters to be provided for iSCSI logon. Select the Target from the list, click the **Connect** button, and then in the Connect To Target dialog box, click the **Advanced** button.
3. In Advanced Settings, select to **Enable CHAP log on** and enter the User Name and Target Secret / Password. Select **OK**. Refer to Appendix A for further details about accounts and credentials.
The iSCSI target should now appear as connected, and device discovery can now proceed.

4. Open the Server Manager Snap-in and verify that the newly connected devices show up in the Device Manager. Verify that the STK Library and IBM Ultrium-TD4 Device Drivers are installed.

**Note:** Refer to the article at [http://catalog.update.microsoft.com/v7/site/home.aspx](http://catalog.update.microsoft.com/v7/site/home.aspx) for information about acquiring Microsoft Device Drivers, e.g., StorageTek Library Drivers.
3.4 Configuring the iSCSI target – Linux

Before you begin this procedure, ensure that the iSCSI initiator is installed (iscsi-initiator-utils). For example:

```bash
yum install iscsi-initiator-utils ; /etc/init.d/iscsi start
```

To configure the iSCSI target for Linux, follow these steps.

1. Add the CHAP Authentication details for the DR Series system on the Linux Initiator as follows:
   a. Edit `/etc/iscsi/iscsid.conf` and un-comment the following line:
      ```bash
      node.session.auth.authmethod = CHAP
      ```
   b. Modify the following lines:
      ```bash
      # To set a CHAP username and password for initiator
      # authentication by the target(s), uncomment the following lines:
      node.session.auth.username = iscsi_user
      node.session.auth.password = St0r@ge!iscsi
      ```

2. Set the Discovery Target Node(s) by using this command:

   ```bash
   iscsiadm -m discovery -t st -p <IP or IQN of DR>
   ````
   For example:

   ```bash
   iscsiadm -m discovery -t st -p 10.8.230.108```
3. Enable logon to the DR Series system iSCSI VTL target(s) by using the following command:

```
iscsiadm -m node --portal <IP or IQN of DR:PORT> --login
```

For example:

```
iscsiadm -m node --portal "10.8.230.108:3260" --login
```

4. Display the open session(s) with DR VTL(s) by using the following command:

```
iscsiadm -m session
```

For example:

```
```

5. Review dmesg or /var/log/messages for details about the tape devices created upon adding the DR Series system iSCSI VTL.

### 3.5 Adding additional media to the VTL container

**Note:** With a VTL container, it is very easy to add additional tapes when required. It is recommended to add tapes in the increments of 50 and 100 to facilitate easy inventory from Backup Exec. Check the Backup Exec recommendations for the maximum number of tapes supported.

1. To add media to an existing VTL container click **Containers** in the DR Series system GUI.
2. Select and edit the target VTL container.
3. In the resulting dialog box, in the field **Add More Tape (no of Tape)**, enter the number of tapes to add to the VTL container.
Alternatively you can use the “vtl –update_carts” cli command for this operation. For example:

```bash
> vtl –update_carts --name TEST_VTL_LALA –add –no_of_tapes 10
Created 10 cartridges
```

### 3.6 Configuring the DR Series system VTL in Backup Exec

Before you configure the DR Series system VTL in Backup Exec, you need to present the DR Series system VTL to the Windows host through iSCSI. See the preceding section, “Configuring the iSCSI target – Windows” for more information.

After the DR Series system VTL has been connected to the Windows host running Backup Exec, do the following steps.

1. Restart Backup Exec Services to discover the newly attached VTL container.
2. Go to the **Storage** tab to monitor the VTL discovery.
After discovery, the VTL and all drives are listed on the Storage tab.

There are four supported VTL types supported in the DR Series system, and they can be configured with Backup Exec. The different VTLs can be identified by comparing the **Serial** number from Backup Exec and VTL container.

3. You can identify the VTL by locating the serial number in the DR Series system GUI by navigating to Container Statistics, selecting the container name and clicking the Library tab.
Or, on the Backup Exec Server, on the Storage Tab go to **Library > Details**.

4. Run the Inventory to mount the media in the drive and read the media label by right-clicking **Library > Inventory > Inventory Now**.
5. To see slot level details before running Inventory, on the Storage tab, select Details > Select Slots.

After Inventory –
3.7 Performing backup and restore using DR VTL

This section describes file-based backup and restore. To get starting, you should install/push the Backup Exec agent on the client that has the files that need to be protected.

1. On the Backup and Restore tab, click the Add button to add the client machine.

2. In the Add a Server window, select the type of client to add – Windows/Linux/NDMP.

**NOTE:** For a Linux client addition, you need to install the RALUS package. See Appendix B for information about installing the RALUS package on the Linux client.
3. Using the Default settings, click **Next** to proceed.

4. Provide the access credentials for the server you want to add. Select from the drop down or create new logon details as required.
5. Using the default settings, click **Next** to proceed.
6. On the final summary screen, click **Install**.

The following screen shows the successful installation of a Remote Backup Exec Agent on the server.
The Backup and Restore tab shows the newly added server and details as shown in following screen.

7. On the Backup and Restore tab, select the server that contains the data to back up and go to Details.
8. Select **Backup > Back up to Tape.**
9. Enter a name for the policy and click **Edit** to select the server file systems.

![](image)

10. Browse and select the data to back up and click **OK** to continue.
11. Click the **Edit** button to update backup settings and provide the storage location.
12. Click the **Storage** link on the left pane and select the required tape library as the storage unit.

![Diagram of Storage Configuration]

**NOTE**: Ensure that Encryption is turned off by setting it to “None”. The DR Series system provides an encryption mechanism which should be enabled from within the DR Series system GUI or CLI. See the *DR Series System Administration Guide* for more information about enabling encryption.

13. Review the final selections and click **OK**.

![Diagram of Backup Definition Properties]
14. To run a backup job, select the backup policy (FULL schedule) and click **Run Now**.

The backup progress can be seen in the Backup and Restore as well as the tape drive being used for the job.
15. Go to the Storage tab to see the tape drive in use and the media ID used for writing data.

The capacity details can also be seen on the Storage tab against Slots.
16. Go to **Slots > Details** to see the media available and media loaded in drive.

17. You can monitor the job status on the Job Monitor tab.
3.8 Restoring from tape

1. On the Backup and Restore tab, click the **Restore** button.

2. Using the default options, click **Next**.
3. Using the default options or settings, click **Next**.

4. Select the data to restore from the appropriate snapshot and click **Next** to proceed.
5. Select the default settings if you are restoring to the original location of the data, or specify the new location and click Next.
6. Using the default settings, click Next.

7. Using the default settings, click **Next** to proceed.
8. Using the default settings, click **Next** to proceed.
9. Enter a name for the restore job and schedule it as required, or select Run now to start the restore job immediately. Click Next.

11. On the Job Monitor tab you can see the restore status.
4 Configuring an OST container on the DR Series system for use with Symantec Backup Exec Server 2014/2015

4.1 Creating an OST container

1. Select Containers in the left navigation area of the DR Series system GUI, and then click Create at the top of the page.

2. Enter a Container Name and then click Next.
3. Select **Symantec OpenStorage (OST)** as the access protocol and click **Next**.

4. Set the capacity of the OST LSU as needed, and click **Next**.
5. Review the configuration Summary page, and then click **Create a New Container**.

![Configuration Summary](image)

4.2 Installing the OST plugin

1. Launch the Backup Exec Admin Console. Click **Home**, and then select **Configuration and Settings > Backup Exec Services**.

![Backup Exec Admin Console](image)
2. On the Services Manager page, click **Stop all Services**.

You now can install the OST Plugin (after all Backup Exec services have been stopped). You can get the installation packages from the list of binaries provided by Dell, Inc.

3. In the Dell Storage Plugin Installation dialog box, click **Next**.
4. Accept the License agreement and click **Next**.

5. Click the **Install** button to proceed with installation.
6. Click **Finish** to complete the installation of the OST plugin.

4.3 Configuring the OST device in Backup Exec

1. Launch the Backup Exec Admin Console. Click **Home**, and then select **Configuration and Settings** > **Backup Exec Services**.
2. On the Services Manager page, click **Start all Services**.

![Backup Exec Services Manager](image1)

3. On the Storage tab, select **Configure Storage**.

![Configure Storage](image2)
4. Select **Network Storage**, and click **Next**.

5. Select **OpenStorage**, and click **Next**.
6. Enter the name and description for the configured OST device, and click Next.

7. Select Dell as the provider and click Next.
8. Enter the Server name (IP or FQDN) and select the **Backup_user** as the logon account.

9. Select the created OST container from the list and click **Next**.
10. Enter the number of concurrent operations to run on the OST device and click **Next**.

![Configure storage on PRVN-WN2K12R2](image)

**How many concurrent operations do you want to let run at the same time on this OpenStorage device?**

Concurrent operations: 2

![Warning](image)

This setting determines how many jobs can run at the same time on this device. The number of jobs that this device can handle varies depending on your hardware and environment, so you may need to adjust this setting later. Symantec recommends that you set it low enough to avoid overloading your system, but high enough to process your jobs in a timely manner.

11. Click **Finish** on the configuration summary page.

![Configure storage on PRVN-WN2K12R2](image)

**Storage configuration summary**

<table>
<thead>
<tr>
<th>Storage category</th>
<th>Network storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage type</td>
<td>OpenStorage</td>
</tr>
<tr>
<td>Name and description for the OpenStorage device</td>
<td>BE OST</td>
</tr>
<tr>
<td>Provider name</td>
<td>DELL</td>
</tr>
<tr>
<td>Connection information</td>
<td>et-leaf!</td>
</tr>
<tr>
<td>Logical storage unit</td>
<td>BE OST</td>
</tr>
</tbody>
</table>

12. When prompted, click **Yes** to restart the Backup Exec Services.
4.4 Performing backup and restore using the DR Series system OST device

This procedure describes how to perform file-based backup and restore. You need to install/push the Backup Exec agent on the client on which files needs to be protected.

1. On the Backup and Restore tab, click Add to add the client machine.

2. In the Add a Server dialog box, select the type of client to add as Windows/Linux/NDMP.

   **Note:** If you are adding a Linux client, you need to install the RALUS package before adding.
3. With the Default settings, click **Next** to proceed.

4. Provide the access credentials for the server you want to add. Select from the drop down or create new logon details if required.
5. With Default settings, click **Next** to proceed.

6. Click **Install** on the final summary screen.
A notification appears of the successful installation of Remote Backup Exec Agent on the server.

The Backup and Restore tab shows the newly added server and related details.
7. On the Backup and Restore tab, select the server with the data to back up and go to Details.

8. Select **Backup > Back up to Deduplication Disk Storage.**
9. Enter a name for the policy and click **Edit** to select the server file systems.

10. Browse and select the data to back up and click **OK** to continue.
11. Click **Edit** to update backup settings and to provide the storage location.

12. Click **Storage** in the left pane and select the required tape library for the storage unit.
13. Review the final selections and click **OK** to proceed.

14. To run a backup job, select the backup policy (FULL schedule) and click **Run Now**.
You can view the backup progress in the Backup and Restore tab.

You can see the job status on the Job Monitor tab.
4.6 Restoring data

1. On the Backup and Restore tab, click **Restore backup sets created by this job**.

2. With the default options, click **Next**.
3. With the default options, click **Next** to proceed.

4. Select the data to restore from the appropriate snapshot and click **Next** to proceed.
5. Select the default setting if restoring to the original location or specify a different location as needed, and click **Next**.

6. With the default settings, click **Next** to proceed.
7. With the default settings, click **Next** to proceed.

8. With the default settings, click **Next** to proceed.
9. Enter a name for the restore job and schedule it if required; or select **Run now** to start the restore job immediately. Click **Next** to proceed.
10. Click **Finish** on the Restore Summary page.

On the Job Monitor tab, you can view the restore status.
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 system 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 example 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.
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.
Setting data expiration for Backup Exec 2012/2014/2015

Backup images are deleted by Backup Exec after image expiration if more backups have run (At least two full backups of the same data set). Refer to the following article for more information:
http://www.symantec.com/business/support/index?page=content&id=TECH187957

For more information about image expiration, refer to the Backup Exec 2012 Administration Guide chapter, “About Backup Job Settings.” If you want to keep the backup set, refer to the topic, “About Keeping Backup Sets.”

You can change data expiration settings by editing the specific backup job, under Backups > About backup job settings > Storage > Keep for.
B Installing Backup Exec Agent on Linux client (RALUS)

Detailed information is available at following Symantec’s link –
http://www.symantec.com/business/support/index?page=content&id=tech46461
C VTL configuration guidelines

C.1 Installing latest Backup Exec service packs for the DR Series system iSCSI VTL capability

The following Service Pack 2 from Symantec is required on the Backup Exec 2014 Server for smooth integration between Dell DR’s iSCSI-VTL and the BE server: Backup Exec 2014 revision 1786 Service Pack 2

Backup Exec 2015 server by default supports the Dell DR Series system iSCSI-VTL capability.

C.2 Managing VTL media and space use

C.2.1 General performance guidelines for DMA configuration

- The DR Series system (version 3.2 and later) provides inline VTL deduplication, compression, and encryption at rest functionality. Backup applications (such as Dell NetVault, Symantec BackupExec, Symantec NetBackup, and so on) should be configured so that any multiplexing, pre-compression, software-side deduplication, or encryption is disabled. Enabling any of these features may adversely affect the space savings and ingest performance of the DR Series system VTL feature.
- Slots and media should be configured so as to accommodate the environment backup requirements. Initially, the logical capacity of a VTL should be no more than twice the physical size of the DR Series system. If the initial VTL setup is over-subscribed at higher than a 2:1 ratio without proper planning the DR Series system could fill up prematurely and cause unexpected system outage. It is highly advisable to configure the DR Series system VTL feature such that the media count be made to accommodate your initial data protection requirements. and then media be added as the deduplication statistics become available to ascertain growth, media, and space requirements.
- Media Type selection will depend on a number of factors including the DMA used, the backup cycles, data sources, and more. As a general rule, using smaller tapes is better than using larger tapes so as to allow for a higher level of control over space usage by backup operations. This also allows for easier handling in the event of a system running out of physical space as well as the normal data cleanup procedures.
- Adding media to an existing DR Series system VTL is painless and should be leveraged to incrementally add media as needed. Although this may require a higher level of involvement in managing the media usage, it will result in better performance and avoid unplanned outages.

C.2.2 Physical DR space sizing and planning
Various factors such as total data footprint, change rate, backup frequency and data lifecycle policies will dictate how much physical space will be needed to accommodate the Virtual Tape Libraries within a DR Series environment. In addition, if other container types are hosted these two must be factored into space requirement calculations. As a general rule the following can be used as a reference architecture to determine the basic capacity needed for a given virtual tape library container:

1. Determine Existing Data Set
2. Determine the change rate (Differential)
3. Determine the retention period
4. Calculate the data footprint during the retention period for existing data sets based on a 10:1 deduplication ratio
5. Calculate the data footprint during the retention period for change rate data sets based on a 10:1 deduplication ratio
6. Calculate the ratios within the retention period for each of the data sets
7. Determine the lowest ratio data set to be retired within the retention period and create media of size that closest matches this data footprint so that when a retention period is met the most amount of media is recycled to invoke data reclamation alignment and optimizing media consumption.

IMPORTANT: If other containers are being configured to host CIFS/ NFS / RDA or OST, these must also be factored into the planning and management of space.

C.2.3 Logical VTL geometry and media sizing

The logical size of the VTL including media size and media count should be made such so as to accommodate the existing data footprint targeted for protection. The calculation for such should include the initial footprint, change rate and retention period. It should also take in account the size of both full and incremental data sets. Using the smallest iteration of the data sets to dictate the logical size of the VTL media affords users the ability to retire media in smaller increments which results in high levels of use and also provides the users the ability to conduct operations across smaller objects which results in higher levels of flexibility such as when a restore is needed during backup operations.

We can review a typical full weekly plus incremental daily example to demonstrate one method of conducting this calculation. In our example the total logical foot print for the customer environment is 20TB and with a 10% change within a weekly recovery point objective period for a complete weeks’ worth of protection we calculate that we will require 22TB of total logical media to retain the data footprint for the given environment for one week. In order to allow for disparities we also include a 10% increase to allow for flexibility in the deployment and use of the VTL which results in a 24.2TB total virtual media requirement for a single weekly retention period.

Important Note: Media can always be added as needed. Media cannot however be deleted so care must be taken in order to avoid creating too many media items.
In the previous example at the end of the 5-week cycle the 1st week retires and frees up media to be reused or recycled which once processed will allow the DR to reclaim the physical space associated with the virtual media. Since the smallest data set footprint resulting from the change rate is 2TB in each incremental iteration we create our media at 800GB increments and add as we grow. For this example the initial Virtual Tape Library would be created with 152 (121TB divided by 800GB) pieces of media at 800GB for each piece media.

**20TB Total initial footprint with a 10% change rate**

<table>
<thead>
<tr>
<th>Week</th>
<th>Logical Size</th>
<th>Logical Full Metrics</th>
<th>10% Change Rate Logical Incremental Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24.2TB</td>
<td>20TB</td>
<td>2TB</td>
</tr>
<tr>
<td>2</td>
<td>24.2TB</td>
<td>20TB</td>
<td>2TB</td>
</tr>
<tr>
<td>3</td>
<td>24.2TB</td>
<td>20TB</td>
<td>2TB</td>
</tr>
<tr>
<td>4</td>
<td>24.2TB</td>
<td>20TB</td>
<td>2TB</td>
</tr>
<tr>
<td>5</td>
<td>24.2TB</td>
<td>20TB</td>
<td>2TB</td>
</tr>
<tr>
<td>Total</td>
<td>121TB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C.2.4 Media retention and grouping

Due to the nature of Virtual Tape Libraries media must be managed in order to insure that physical capacity is reclaimed in an orderly fashion to avoid running out of space and disrupting operations. Media must be grouped within the data management application, such as NetVault Backup, in a way that full data sets are targeted to separate media as incremental data and they in turn are grouped by data sets that expire within the same period or that share the same recovery point objective. This ensures that media can be reused effectively so that when full all incremental data expire the logical space can be reconciled thus enabling the physical space to be reclaimed.

C.2.5 VTL media count guidelines

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Max number of Tapes supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTO-4</td>
<td>800GiB</td>
<td>2000</td>
</tr>
<tr>
<td>LTO-3</td>
<td>400GiB</td>
<td>4000</td>
</tr>
<tr>
<td>Type</td>
<td>Capacity</td>
<td>Max number of Tapes supported</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>LTO-2</td>
<td>200GiB</td>
<td>8000</td>
</tr>
<tr>
<td>LTO-1</td>
<td>100Gib</td>
<td>10000</td>
</tr>
<tr>
<td>LTO-1</td>
<td>50Gib</td>
<td>10000</td>
</tr>
<tr>
<td>LTO-1</td>
<td>10GiB</td>
<td>10000</td>
</tr>
</tbody>
</table>

**Note:** With a VTL container, it is very easy to add additional tapes as and when required. It is recommended to add tapes in the increments of 50 and 100 to facilitate easy inventory from Backup Exec. Check the Backup Exec recommendations for the maximum number of tapes supported.

## C.2.6 Space reclamation guidelines

The DR Series system v3.2 Virtual Tape Library feature is presented to operating systems and data management applications alike as devices either through iSCSI or NDMP protocol connectivity. The DMA interfaces with the virtual tape library and all its underlying components including the drives and media though these specific protocols.

The DMA must interact with the virtual tape media during a recycle, reuse or media initialization process in order for the DR to be able to reclaim space during its own cleaning cycle.

This two-step process is required so that the backup software can reconcile the space by marking the media as expired then reusing it, consolidating space across volumes/tapes or by simply recycling the media into a scratch pool. Once these operations have been completed the DRs own cleaning cycle should be used to reclaim that virtual tape media space which in turn will free up physical space on the DR unit.

Implementing proper media pool, groups and recycling practices will allow the virtual tape media to be used at optimal levels and that the underlying physical space be reclaimed accordingly by the scheduled DR reclamation.

**Note:** In general the guidelines provided above should be sufficient for normal operations to insure proper reclamation of space is conducted preemptively. Refer your individual DMA applications for best practices and guidelines regarding tape reuse.