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

Dell Engineering

July 2015

A Dell Technical White Paper

Revisions

Date	Description
January 2014	Initial release
August 2014	Added screenshots where new functionality is introduced in 2014
April 2015	Added screenshots for updates to DR Series system functionality for v3.2
July 2015	Consolidated content for various container types and updated cleaner recommendation

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Table of contents

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

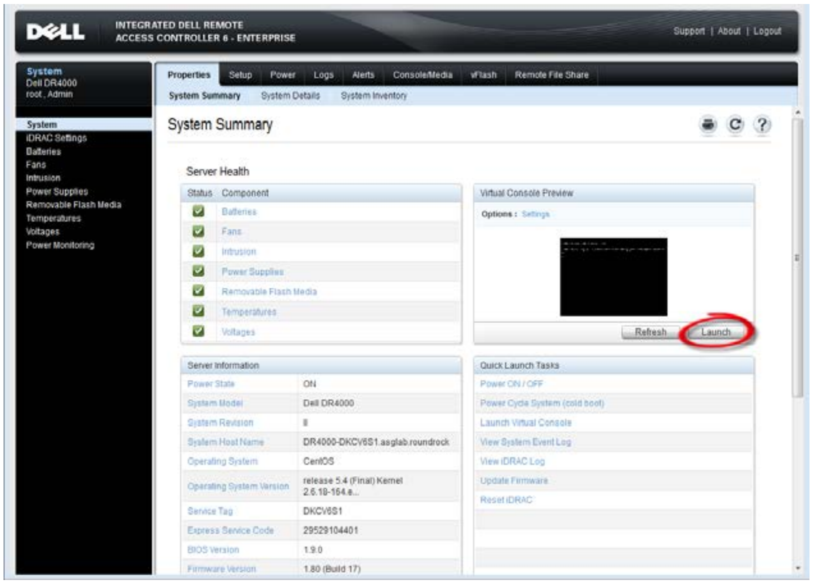
Note: The DR Series system/Symantec Backup Exec build version and screenshots used for this paper may vary slightly, depending on the version of the DR Series system/Symantec Backup Exec software version you are using.

1 Installing and configuring the DR Series system

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**”.



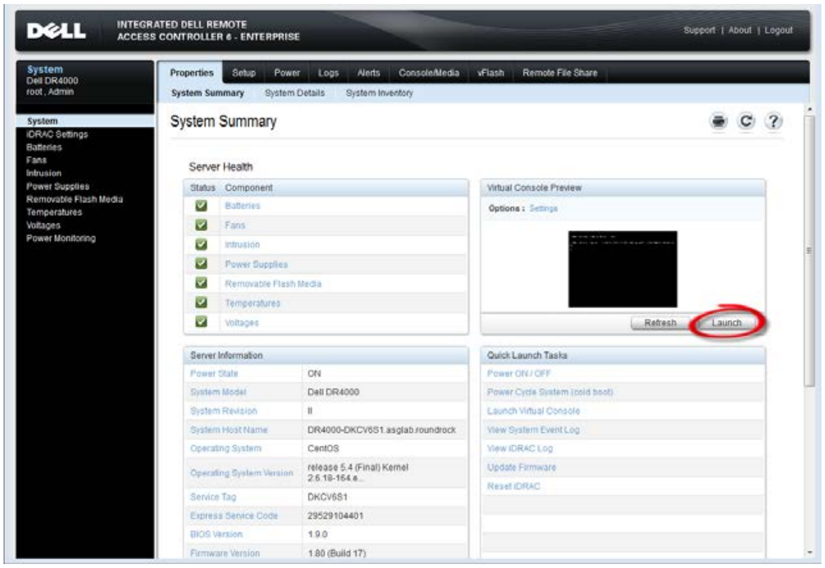
System Summary

Server Health

Status	Component
☑	Batteries
☑	Fans
☑	Intrusion
☑	Power Supplies
☑	Removable Flash Media
☑	Temperatures
☑	Voltages

Server Information	
Power State	ON
System Model	Dell DR4000
System Revision	II
System Host Name	DR4000-DKCV6S1.asglab.roundrock
Operating System	CentOS
Operating System Version	release 5.4 (Final) Kernel 2.6.18-164.e...
Service Tag	DKCV6S1
Express Service Code	29529104401
BIOS Version	1.9.0
Firmware Version	1.80 (Build 17)

3. Launch the virtual console.



System Summary

Server Health

Status	Component
☑	Batteries
☑	Fans
☑	Intrusion
☑	Power Supplies
☑	Removable Flash Media
☑	Temperatures
☑	Voltages

Server Information	
Power State	ON
System Model	Dell DR4000
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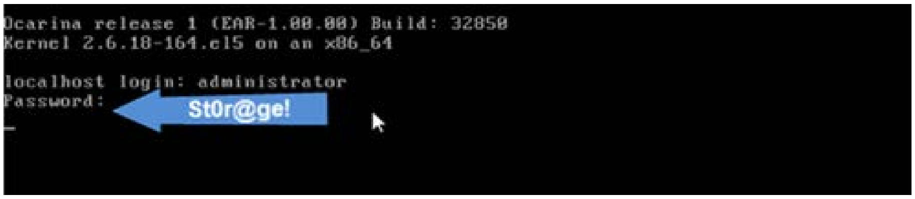
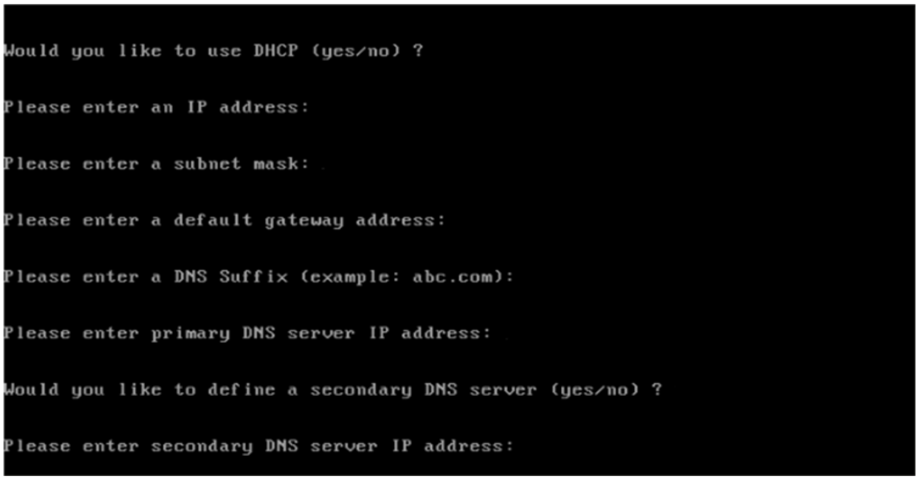
Operating System	CentOS
Operating System Version	release 5.4 (Final) Kernel 2.6.18-164.e...
Service Tag	DKCV6S1
Express Service Code	29529104401
BIOS Version	1.9.0
Firmware Version	1.80 (Build 17)

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**).



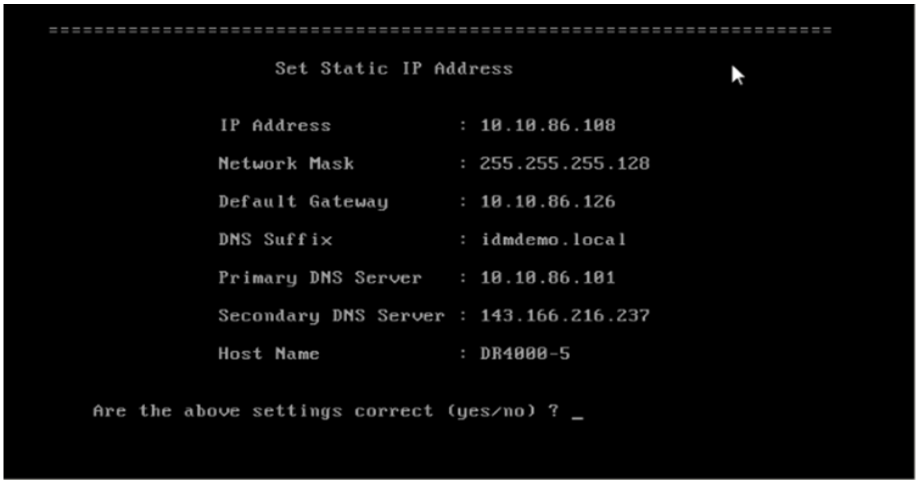
```
Ocarina release 1 (EAR-1.00.00) Build: 32850
Kernel 2.6.18-164.el5 on an x86_64

localhost login: administrator
Password:
_
```

5. Set the user-defined networking preferences.



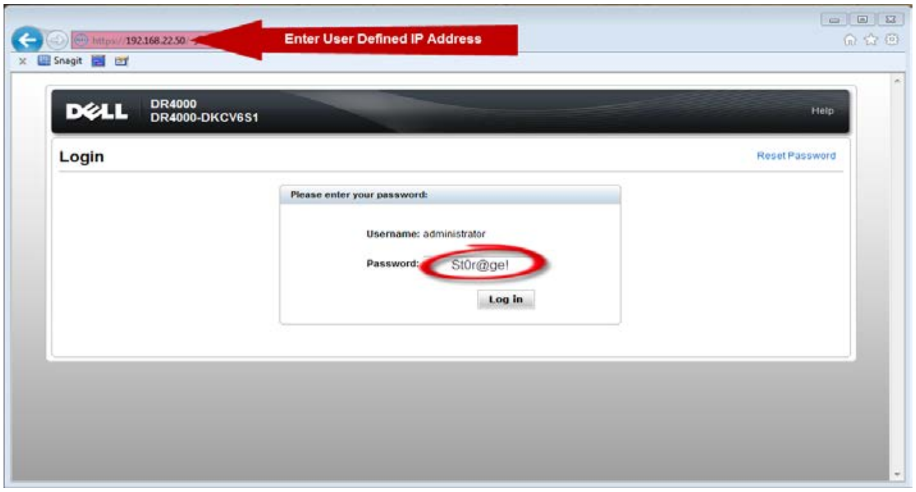
```
Would you like to use DHCP (yes/no) ?

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:
```

6. 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) ? _
```

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**).



Login

Please enter your password:

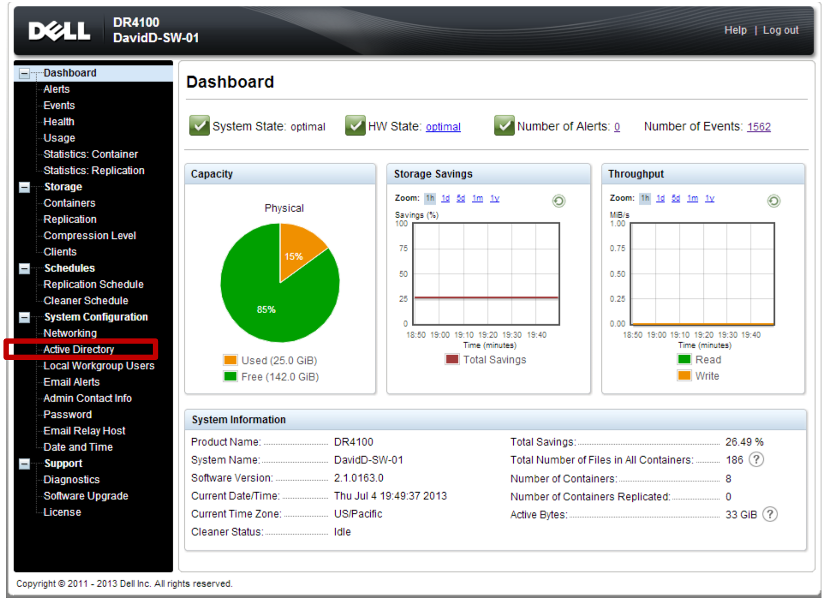
Username: administrator

Password: St0r@ge!

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.



Dashboard

✓ System State: optimal ✓ HW State: optimal ✓ Number of Alerts: 0 Number of Events: 1562

System Information

Product Name:	DR4100	Total Savings:	26.49 %
System Name:	DavidD-SW-01	Total Number of Files in All Containers:	186
Software Version:	2.1.0163.0	Number of Containers:	8
Current Date/Time:	Thu Jul 4 19:49:37 2013	Number of Containers Replicated:	0
Current Time Zone:	US/Pacific	Active Bytes:	33 GiB
Cleaner Status:	Idle		

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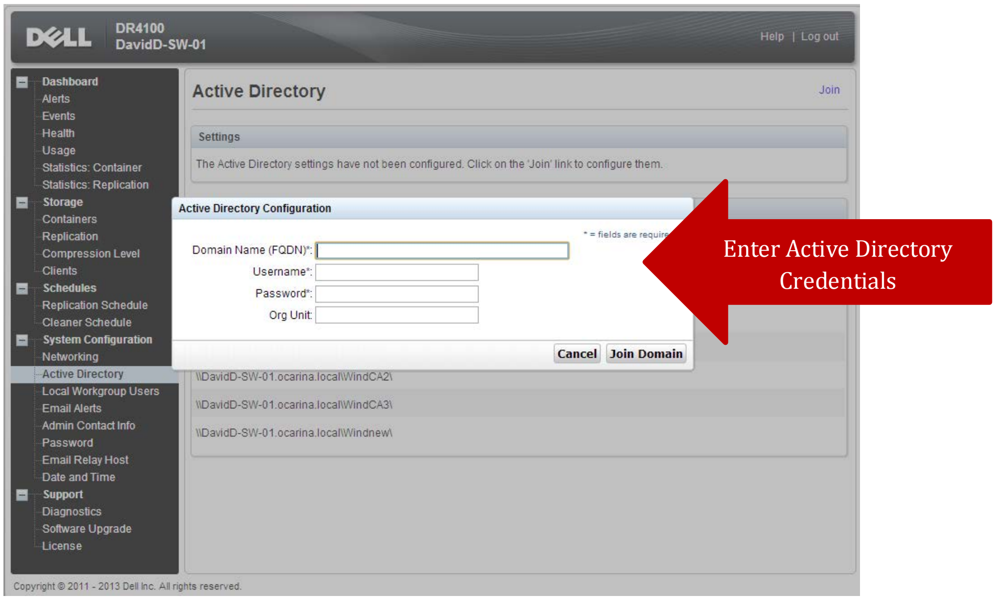
b. Enter your Active Directory credentials.



Active Directory

Settings

The Active Directory settings have not been configured. Click on the 'Join' link to configure them.

Active Directory Configuration

* = fields are require

Domain Name (FQDN)*:

Username*:

Password*:

Org Unit:

\\DavidD-SW-01.ocarina.local\WindCA2\

\\DavidD-SW-01.ocarina.local\WindCA3\

\\DavidD-SW-01.ocarina.local\Windnew\

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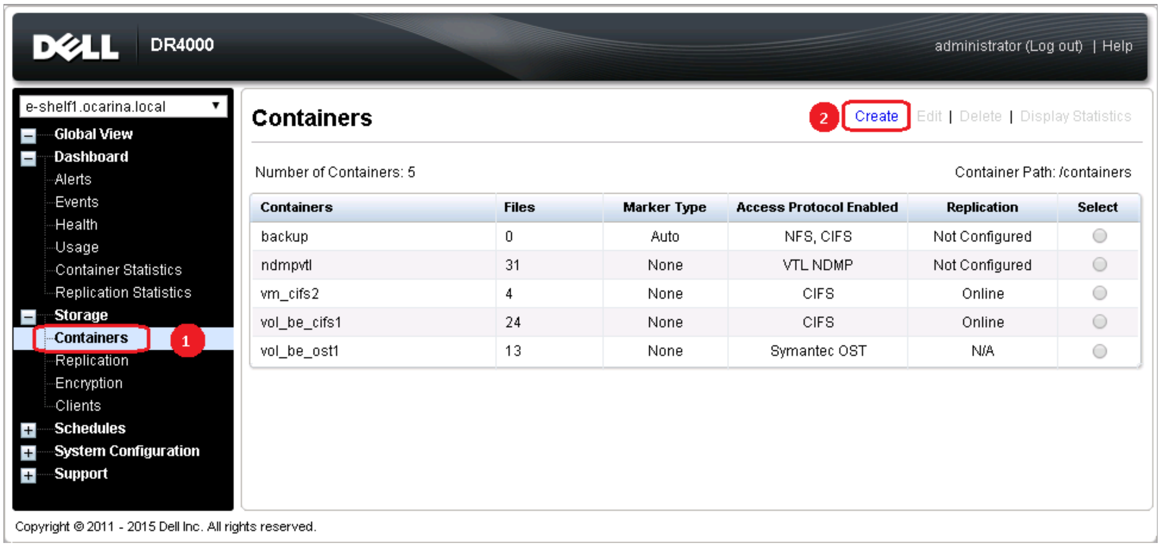
Enter Active Directory Credentials

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.



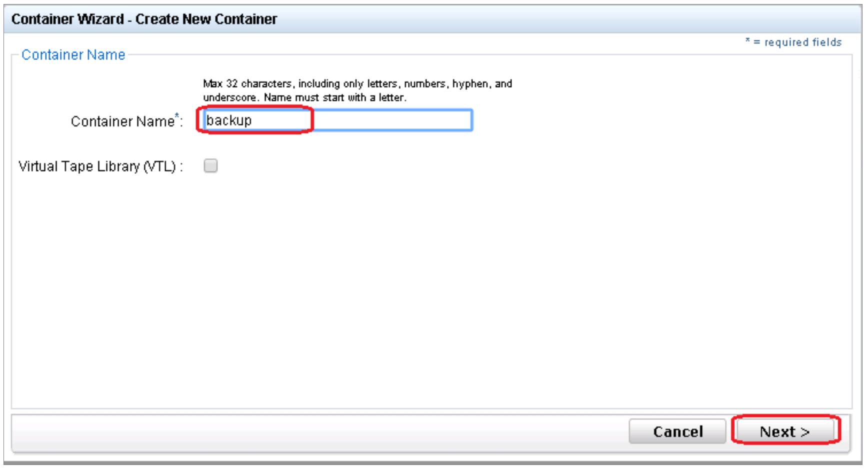
Containers

Number of Containers: 5

Container Path: /containers

Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
backup	0	Auto	NFS, CIFS	Not Configured	○
ndmpvtl	31	None	VTL NDMP	Not Configured	○
vm_cifs2	4	None	CIFS	Online	○
vol_be_cifs1	24	None	CIFS	Online	○
vol_be_ost1	13	None	Symantec OST	N/A	○

2. Enter a Container Name, and then click **Next**.

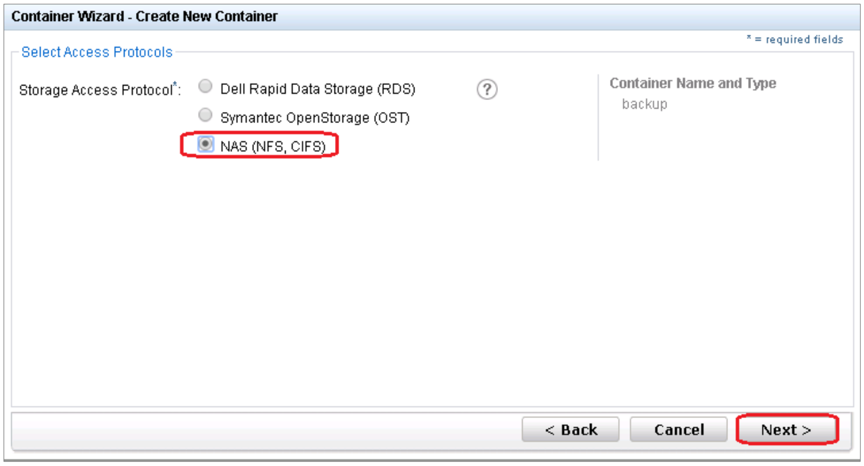


Max 32 characters, including only letters, numbers, hyphen, and underscore. Name must start with a letter.

Container Name*: backup

Virtual Tape Library (VTL) : □

3. Select **NAS (NFS, CIFS)** and click **Next.**



Container Wizard - Create New Container

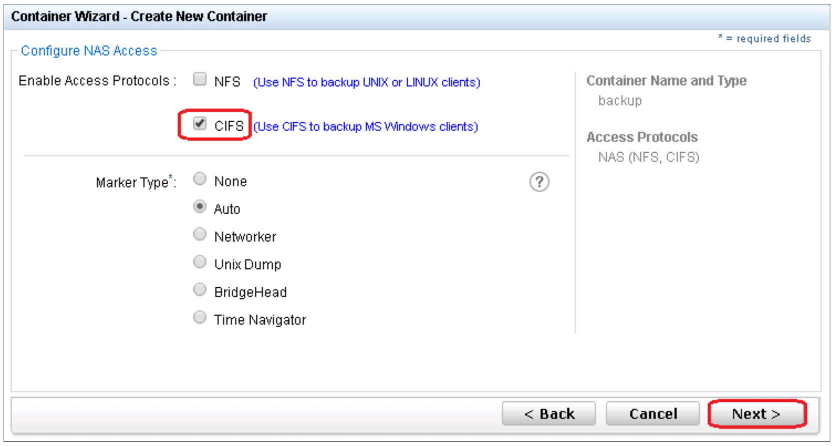
* = required fields

Select Access Protocols

Storage Access Protocol*: ○ Dell Rapid Data Storage (RDS)
○ Symantec OpenStorage (OST)
● NAS (NFS, CIFS)

Container Name and Type
backup

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



Container Wizard - Create New Container

* = required fields

Configure NAS Access

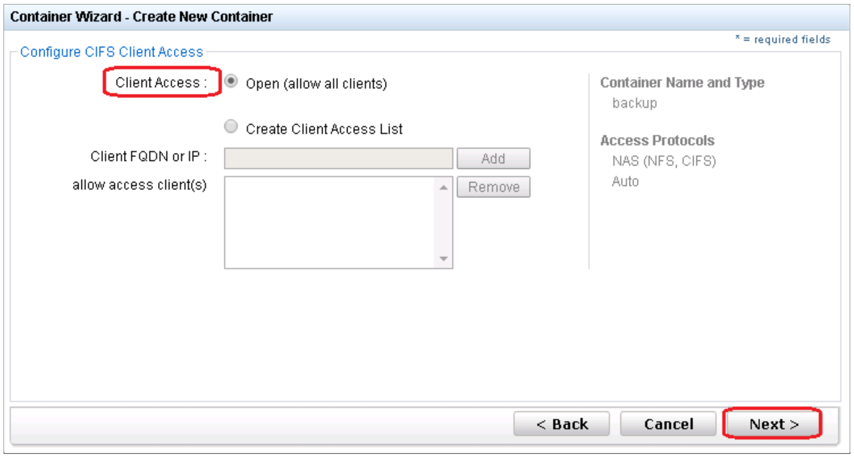
Enable Access Protocols : □ NFS (Use NFS to backup UNIX or LINUX clients)
☑ CIFS (Use CIFS to backup MS Windows clients)

Marker Type*: ○ None
● Auto
○ Networker
○ Unix Dump
○ BridgeHead
○ Time Navigator

Container Name and Type
backup

Access Protocols
NAS (NFS, CIFS)

5. Select **Open** to allow all clients access or enter client details for client access. Click **Next**.



Container Wizard - Create New Container

* = required fields

Configure CIFS Client Access

Client Access : ● Open (allow all clients)
○ Create Client Access List

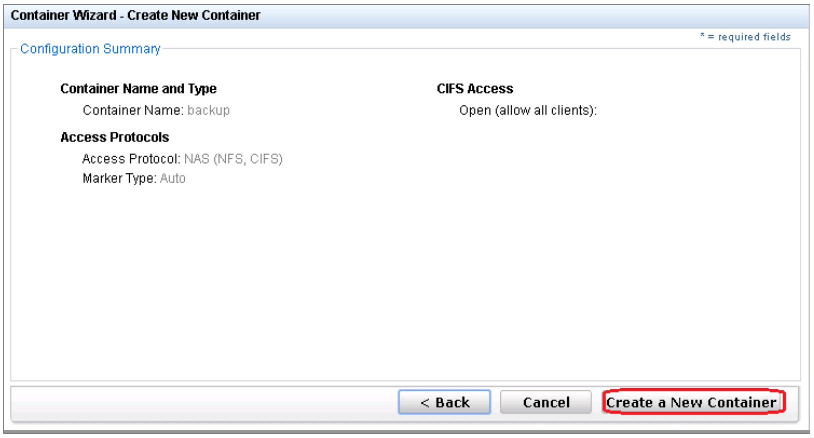
Client FQDN or IP :

allow access client(s)

Container Name and Type
backup

Access Protocols
NAS (NFS, CIFS)
Auto

6. Click **Create a New Container** on the summary page.



Container Wizard - Create New Container

* = required fields

Configuration Summary

Container Name and Type

Container Name: backup

Access Protocols

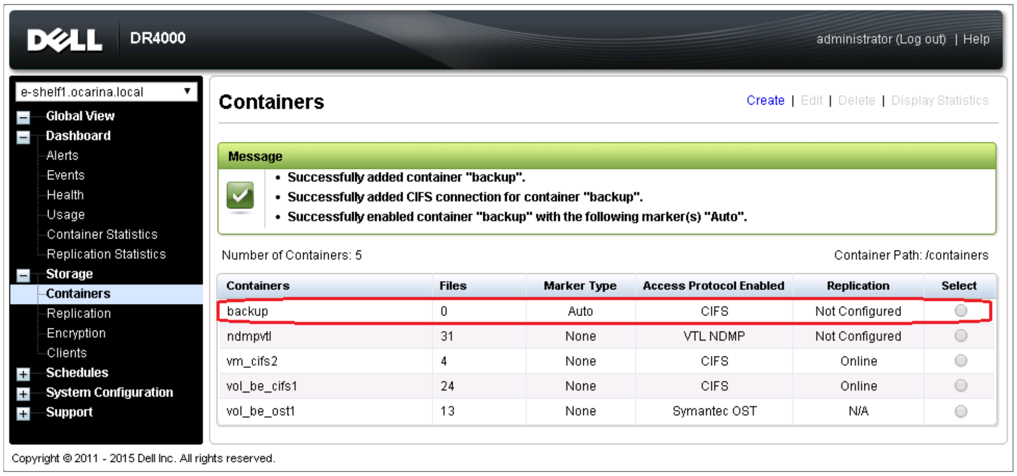
Access Protocol: NAS (NFS, CIFS)

Marker Type: Auto

CIFS Access

Open (allow all clients):

7. Verify the container creation.



Containers

Message

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

Number of Containers: 5

Container Path: /containers

Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
backup	0	Auto	CIFS	Not Configured	○
ndmpvtl	31	None	VTL NDMP	Not Configured	○
vm_cifs2	4	None	CIFS	Online	○
vol_be_cifs1	24	None	CIFS	Online	○
vol_be_ost1	13	None	Symantec OST	N/A	○

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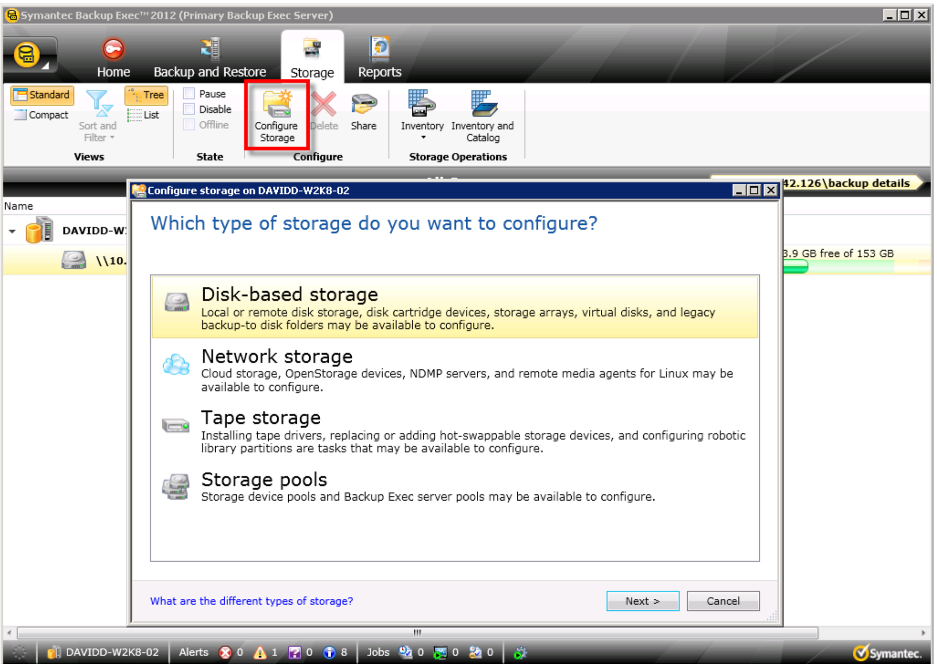
2.2 Adding the DR Series system container share as a disk storage device on Backup Exec 2012/2014/2015

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



Configure storage on DAVIDD-W2K8-02

Which type of storage do you want to configure?

Disk-based storage
Local or remote disk storage, disk cartridge devices, storage arrays, virtual disks, and legacy backup-to disk folders may be available to configure.

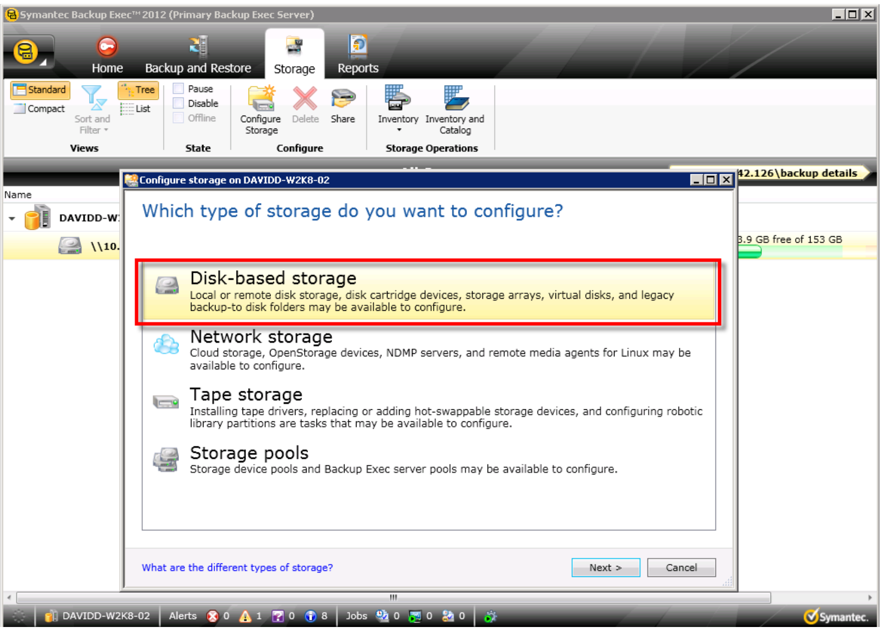
Network storage
Cloud storage, OpenStorage devices, NDMP servers, and remote media agents for Linux may be available to configure.

Tape storage
Installing tape drivers, replacing or adding hot-swappable storage devices, and configuring robotic library partitions are tasks that may be available to configure.

Storage pools
Storage device pools and Backup Exec server pools may be available to configure.

What are the different types of storage?

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



Configure storage on DAVIDD-W2K8-02

Which type of storage do you want to configure?

Disk-based storage
Local or remote disk storage, disk cartridge devices, storage arrays, virtual disks, and legacy backup-to disk folders may be available to configure.

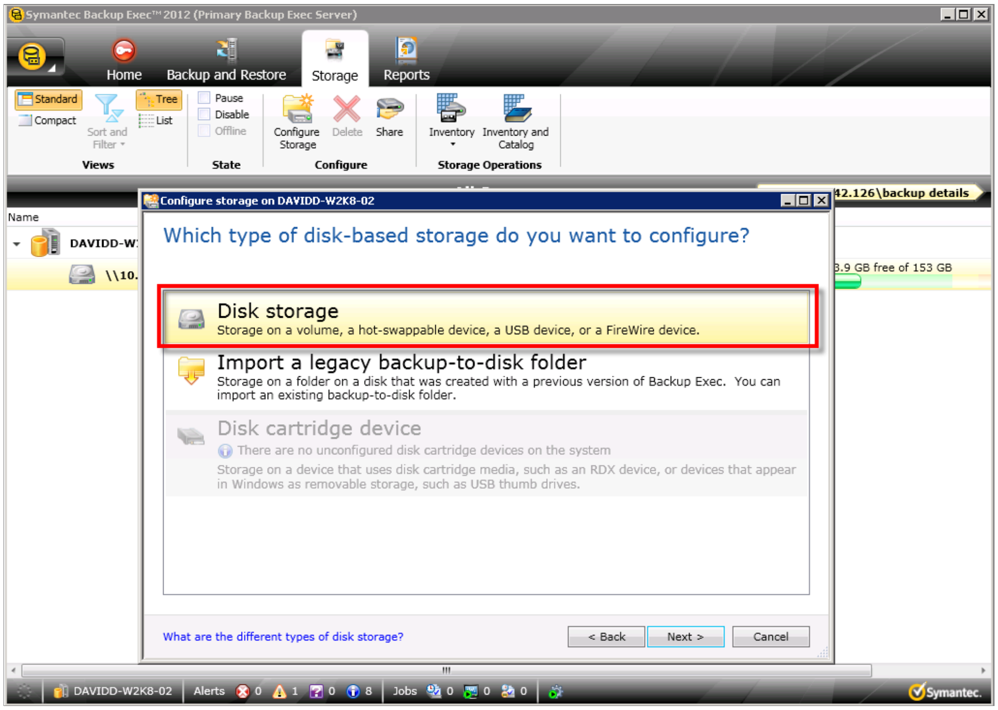
Network storage
Cloud storage, OpenStorage devices, NDMP servers, and remote media agents for Linux may be available to configure.

Tape storage
Installing tape drivers, replacing or adding hot-swappable storage devices, and configuring robotic library partitions are tasks that may be available to configure.

Storage pools
Storage device pools and Backup Exec server pools may be available to configure.

What are the different types of storage?

3. Select **Disk Storage**, and click **Next**.



Configure storage on DAVIDD-W2K8-02

Which type of disk-based storage do you want to configure?

Disk storage
Storage on a volume, a hot-swappable device, a USB device, or a FireWire device.

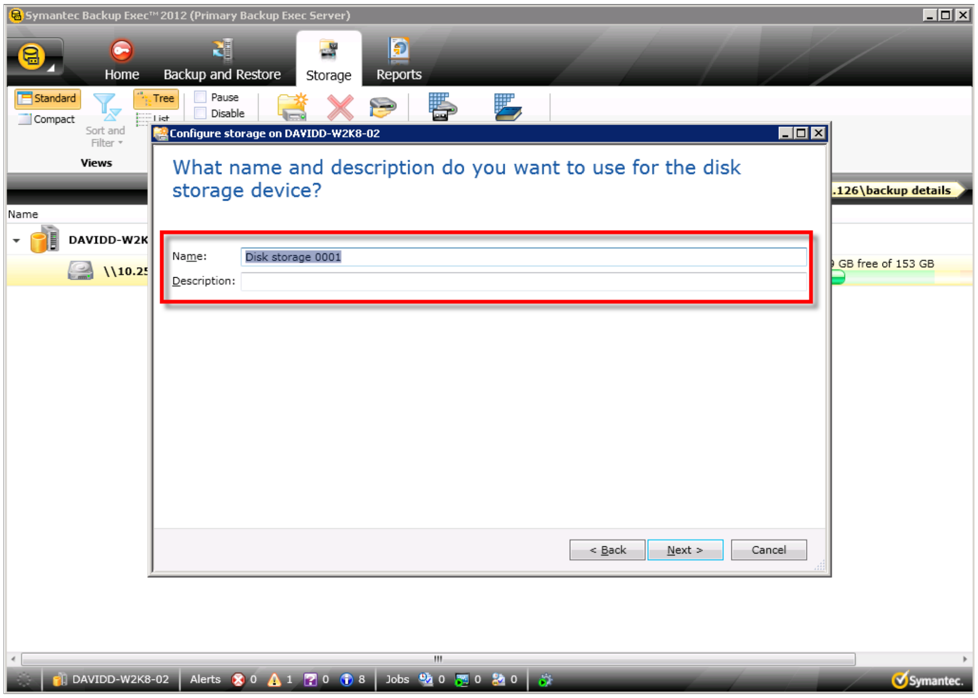
Import a legacy backup-to-disk folder
Storage on a folder on a disk that was created with a previous version of Backup Exec. You can import an existing backup-to-disk folder.

Disk cartridge device
There are no unconfigured disk cartridge devices on the system
Storage on a device that uses disk cartridge media, such as an RDX device, or devices that appear in Windows as removable storage, such as USB thumb drives.

What are the different types of disk storage?

< Back | Next > | Cancel

4. Enter a name for the DR Series system disk device, add a description, and click **Next**.



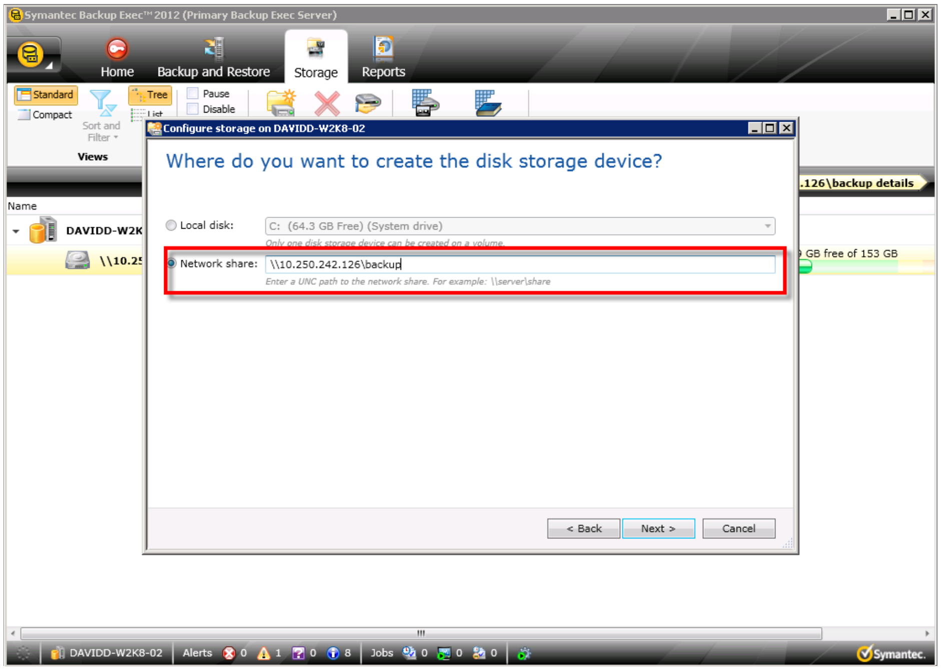
Configure storage on DAVIDD-W2K8-02

What name and description do you want to use for the disk storage device?

Name: Disk storage 0001
Description:

< Back | Next > | Cancel

5. Enter the DR container CIFS share path, and click **Next**.



Configure storage on DAVIDD-W2K8-02

Where do you want to create the disk storage device?

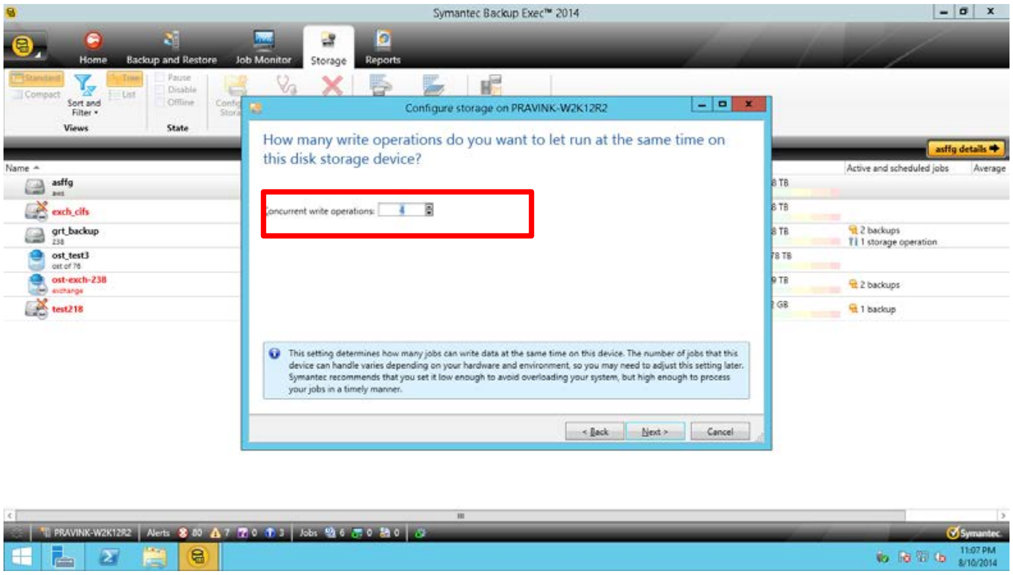
○ Local disk: C: (64.3 GB Free) (System drive)

Only one disk storage device can be created on a volume.

● Network share: \\10.250.242.126\backup

Enter a UNC path to the network share. For example: \\server\share

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



Configure storage on PRAVINK-W2K12R2

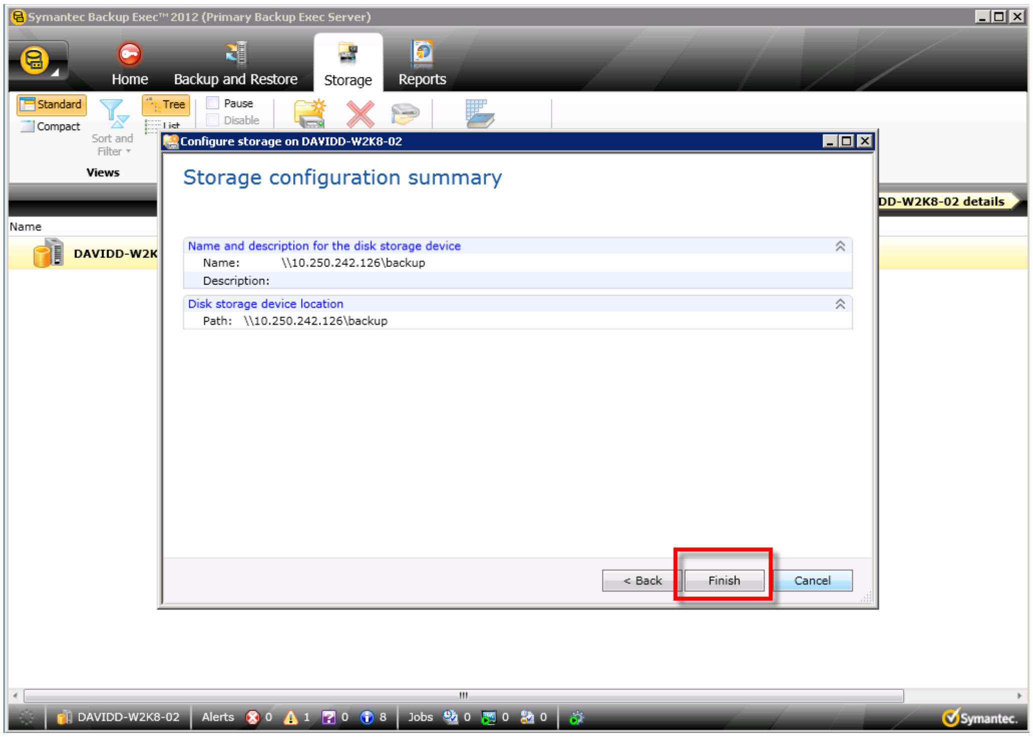
How many write operations do you want to let run at the same time on this disk storage device?

Concurrent write operations: 4

This setting determines how many jobs can write data 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.

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**.



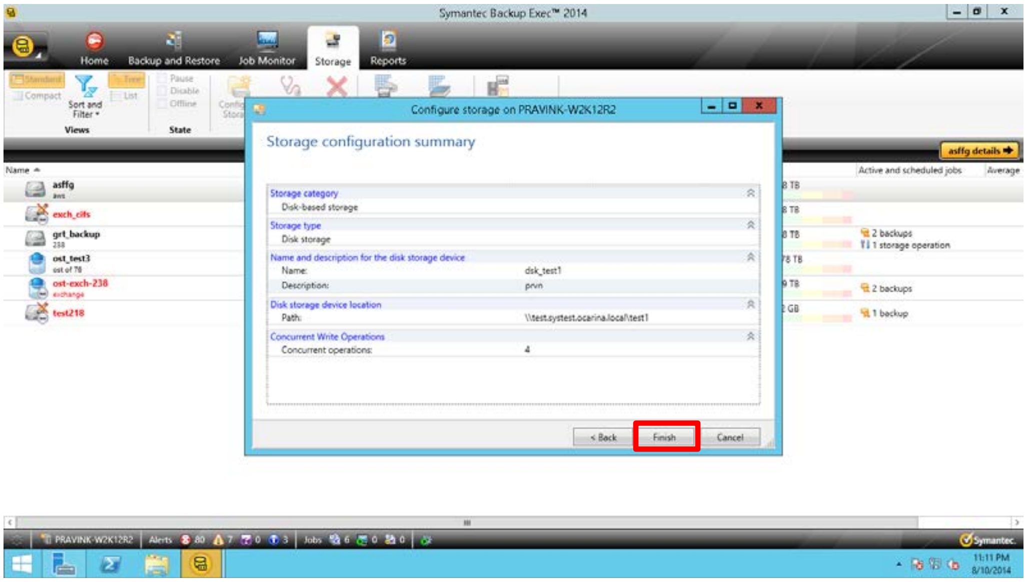
Symantec Backup Exec™ 2012 (Primary Backup Exec Server)
Home
Backup and Restore
Storage
Reports
Configure storage on DAVIDD-W2K8-02
< Back
Finish
Cancel

Storage configuration summary

Name and description for the disk storage device
Name: \\10.250.242.126\backup
Description:

Disk storage device location
Path: \\10.250.242.126\backup

For Backup Exec 2014/2015, the summary page will include additional details.



Storage configuration summary

Storage category
Disk-based storage

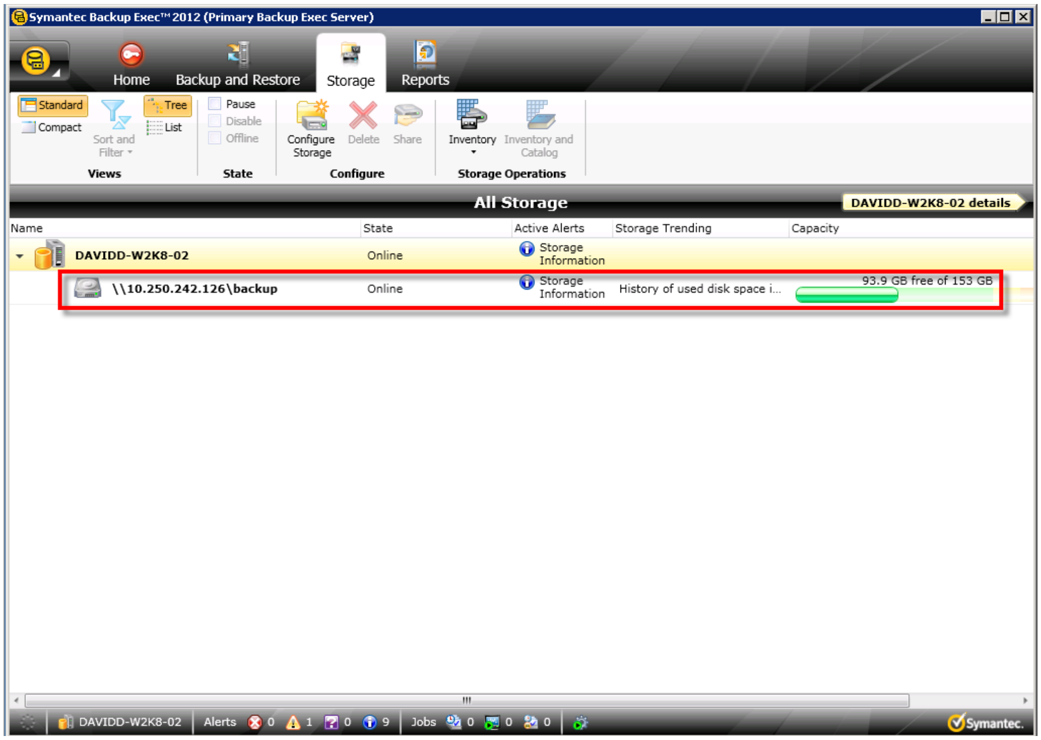
Storage type
Disk storage

Name and description for the disk storage device
Name: dsk_test1
Description: prvn

Disk storage device location
Path: \\test.systest.ocarina.local\test1

Concurrent Write Operations
Concurrent operations: 4

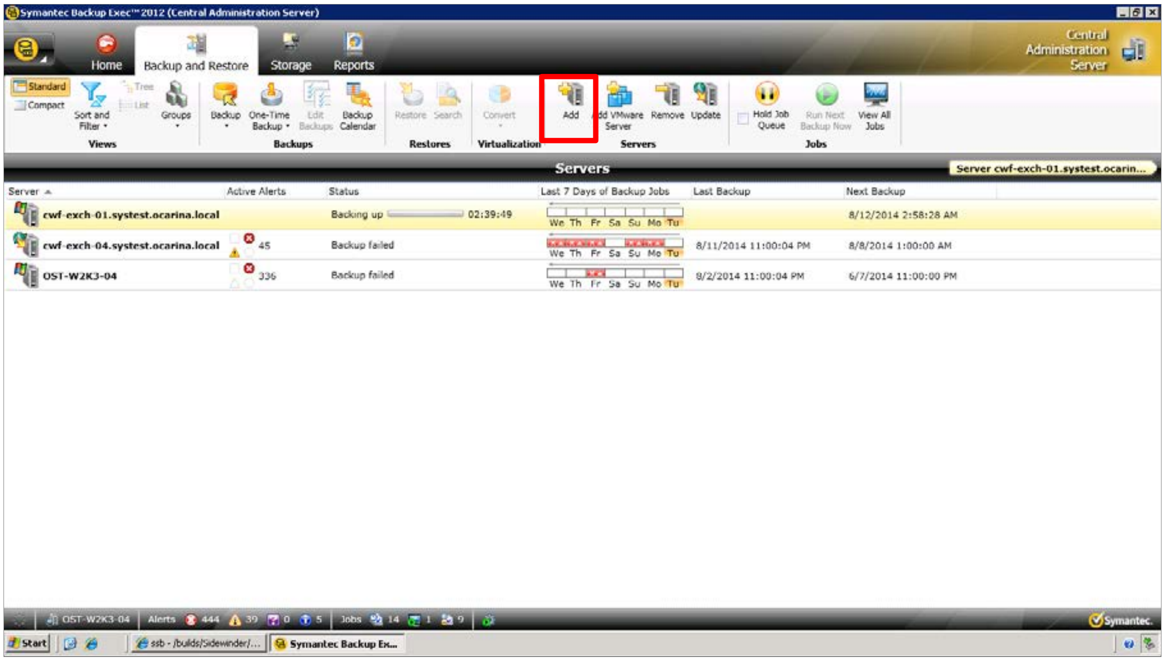
7. Verify that the Disk Storage Device is attached to the server.



Name	State	Active Alerts	Storage Trending	Capacity
DAVIDD-W2K8-02	Online	Storage Information		
\\10.250.242.126\backup	Online	Storage Information	History of used disk space i...	93.9 GB free of 153 GB

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

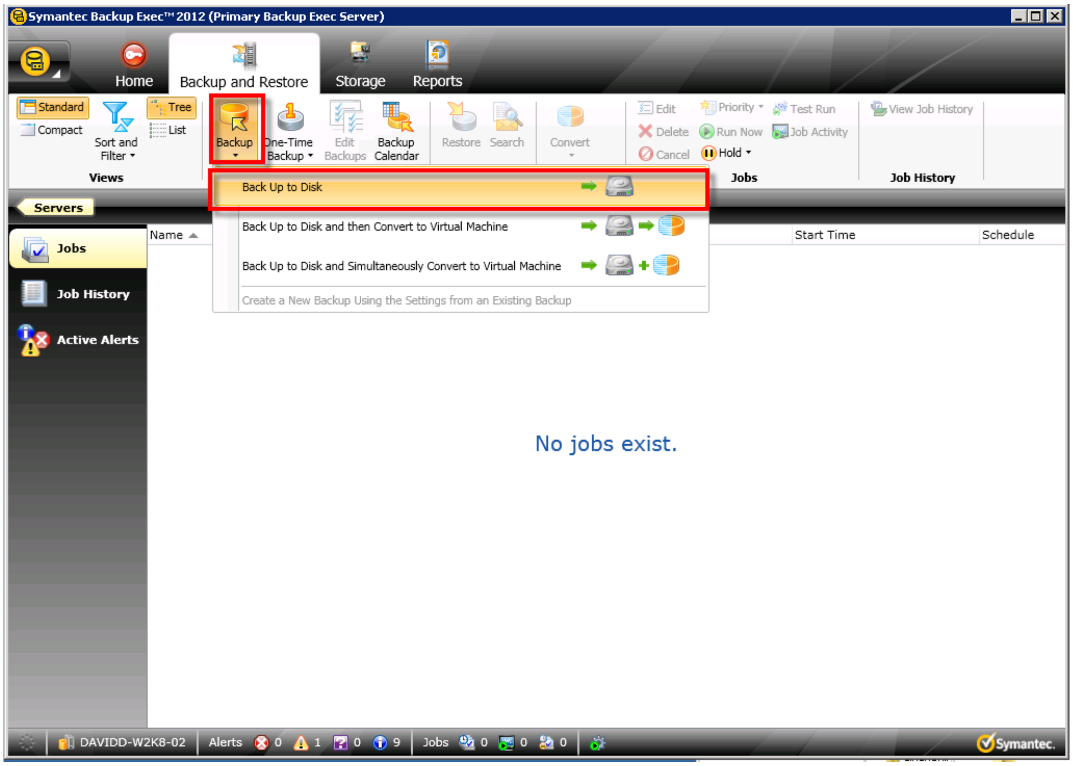
1. If the required source client server is not added in Backup Exec, it can be added by selecting the **Backup and Restore** pane and then clicking the **Add** button.



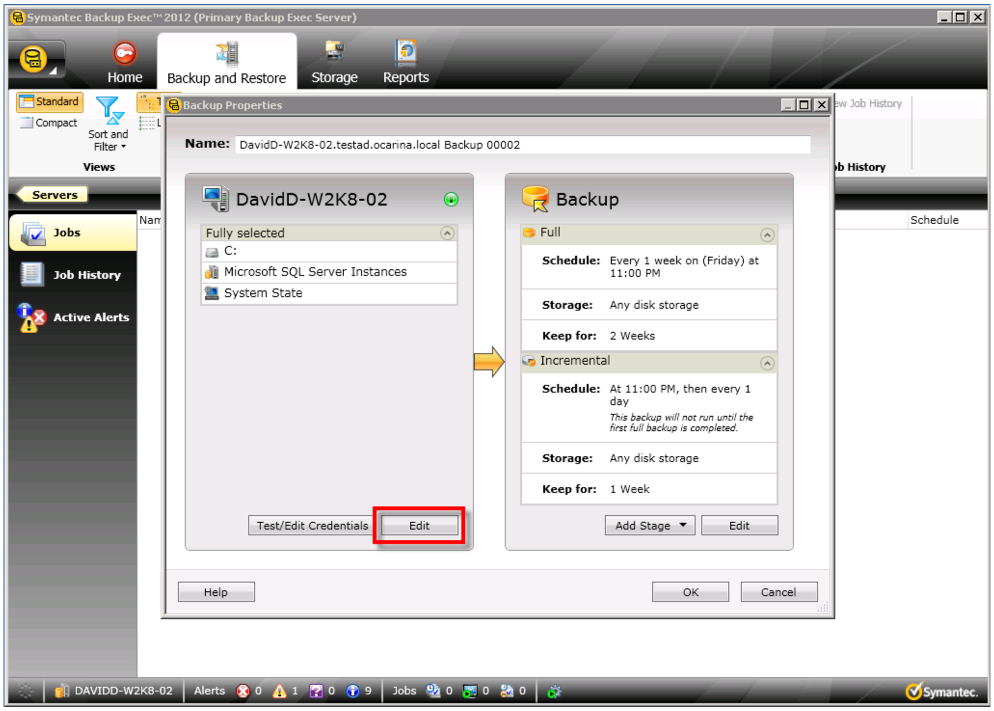
Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
cwf-exch-01.systest.ocarina.local		Backing up 02:39:49	We Th Fr Sa Su Mo Tu		8/12/2014 2:58:28 AM
cwf-exch-04.systest.ocarina.local	45	Backup failed	We Th Fr Sa Su Mo Tu	8/11/2014 11:00:04 PM	8/8/2014 1:00:00 AM
OST-W2K3-04	336	Backup failed	We Th Fr Sa Su Mo Tu	8/2/2014 11:00:04 PM	6/7/2014 11:00:00 PM

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.



Name: DavidD-W2K8-02.testad.ocarina.local Backup 00002

DavidD-W2K8-02

Fully selected
- C:
- Microsoft SQL Server Instances
- System State

Backup

Full

Schedule: Every 1 week on (Friday) at 11:00 PM

Storage: Any disk storage

Keep for: 2 Weeks

Incremental

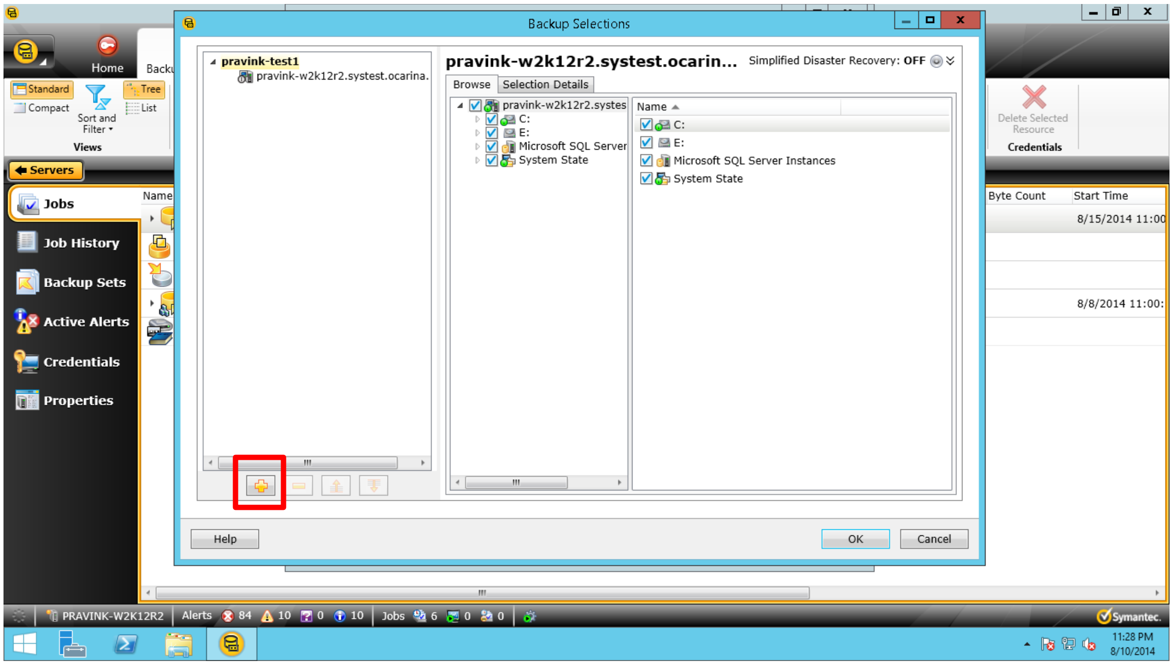
Schedule: At 11:00 PM, then every 1 day

This backup will not run until the first full backup is completed.

Storage: Any disk storage

Keep for: 1 Week

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.



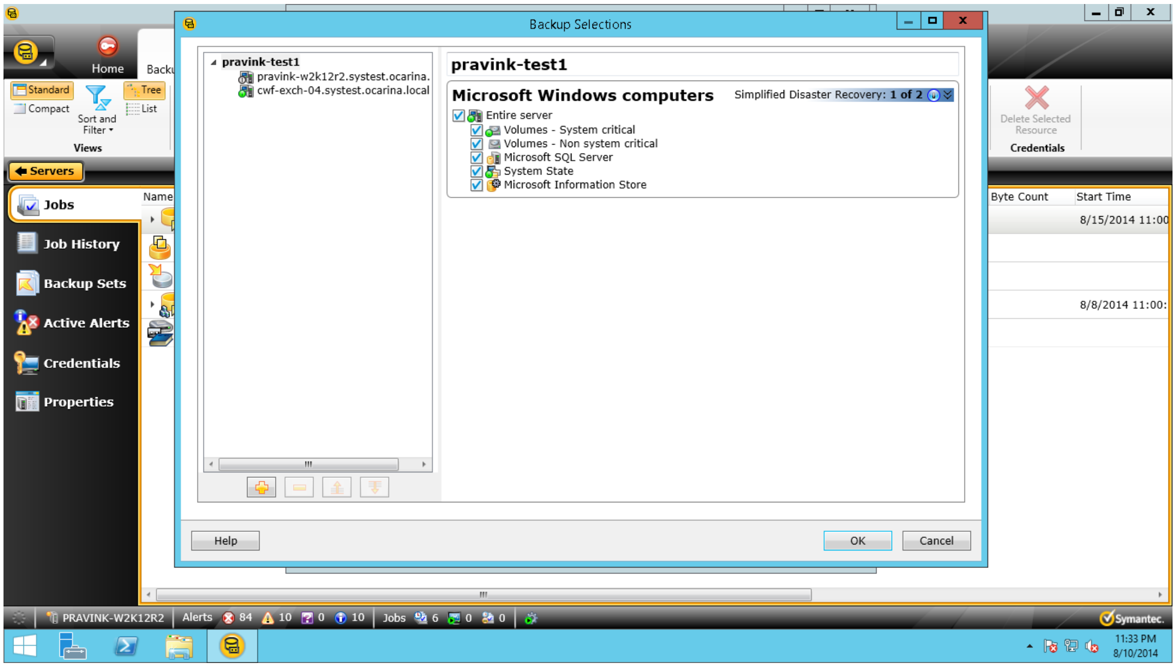
pravink-test1
- pravink-w2k12r2.systest.ocarina.

pravink-w2k12r2.systest.ocarin... Simplified Disaster Recovery: OFF

☑ pravink-w2k12r2.systes
- ☑ C:
- ☑ E:
- ☑ Microsoft SQL Server
- ☑ System State

Name
- ☑ C:
- ☑ E:
- ☑ Microsoft SQL Server Instances
- ☑ System State

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.



Backup Selections

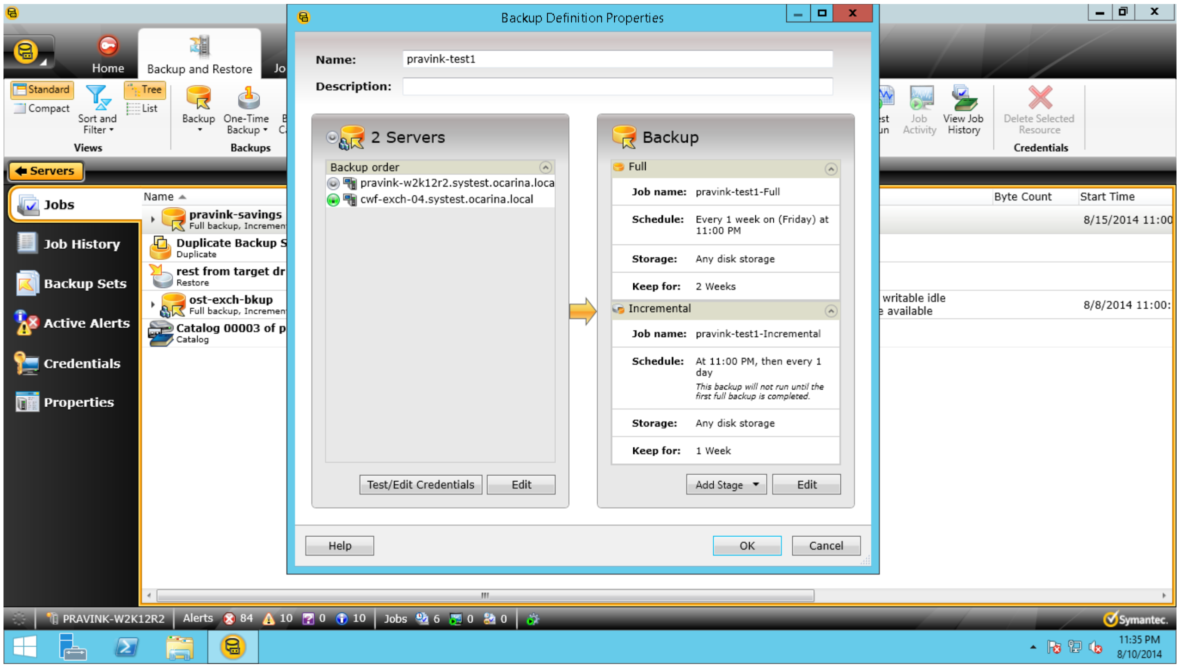
pravink-test1
- pravink-w2k12r2.systest.ocarina.
- cwf-exch-04.systest.ocarina.local

pravink-test1

Microsoft Windows computers Simplified Disaster Recovery: 1 of 2

- ☑ Entire server
  - ☑ Volumes - System critical
  - ☑ Volumes - Non system critical
  - ☑ Microsoft SQL Server
  - ☑ System State
  - ☑ Microsoft Information Store

The final backup selection with two servers is displayed.



Backup Definition Properties

Name: pravink-test1

Description:

2 Servers

Backup order
- pravink-w2k12r2.systest.ocarina.loca
- cwf-exch-04.systest.ocarina.local

Backup

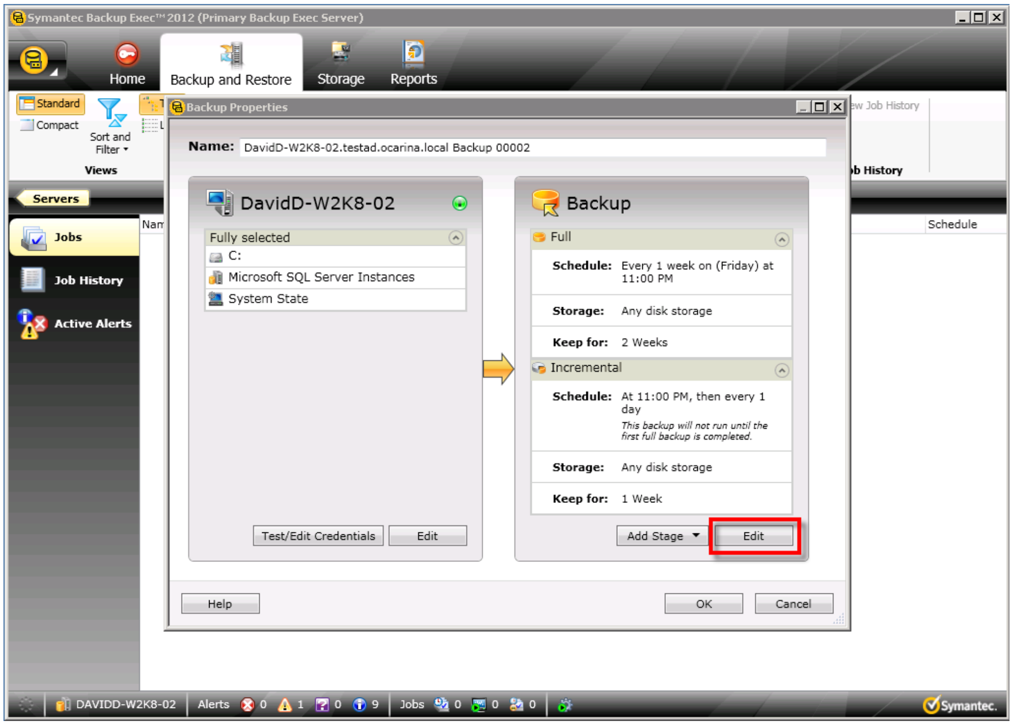
Full

Job name:	pravink-test1-Full
Schedule:	Every 1 week on (Friday) at 11:00 PM
Storage:	Any disk storage
Keep for:	2 Weeks

Incremental

Job name:	pravink-test1-Incremental
Schedule:	At 11:00 PM, then every 1 day *This backup will not run until the first full backup is completed.*
Storage:	Any disk storage
Keep for:	1 Week

7. In the backup target selection pane, click **Edit** to define the backup strategy.



Name: DavidD-W2K8-02.testad.ocarina.local Backup 00002

DavidD-W2K8-02

Fully selected
- C:
- Microsoft SQL Server Instances
- System State

Test/Edit Credentials | Edit

Backup

Full

Schedule: Every 1 week on (Friday) at 11:00 PM

Storage: Any disk storage

Keep for: 2 Weeks

Incremental

Schedule: At 11:00 PM, then every 1 day

This backup will not run until the first full backup is completed.

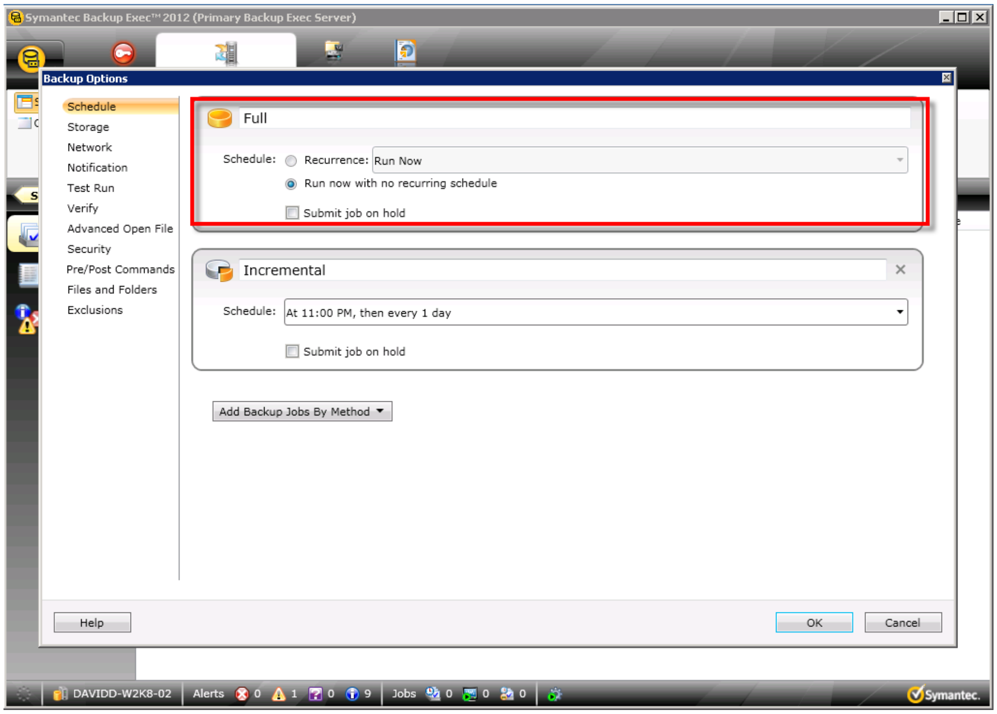
Storage: Any disk storage

Keep for: 1 Week

Add Stage | Edit

Help | OK | Cancel

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



Full

Schedule: ○ Recurrence: Run Now

● Run now with no recurring schedule

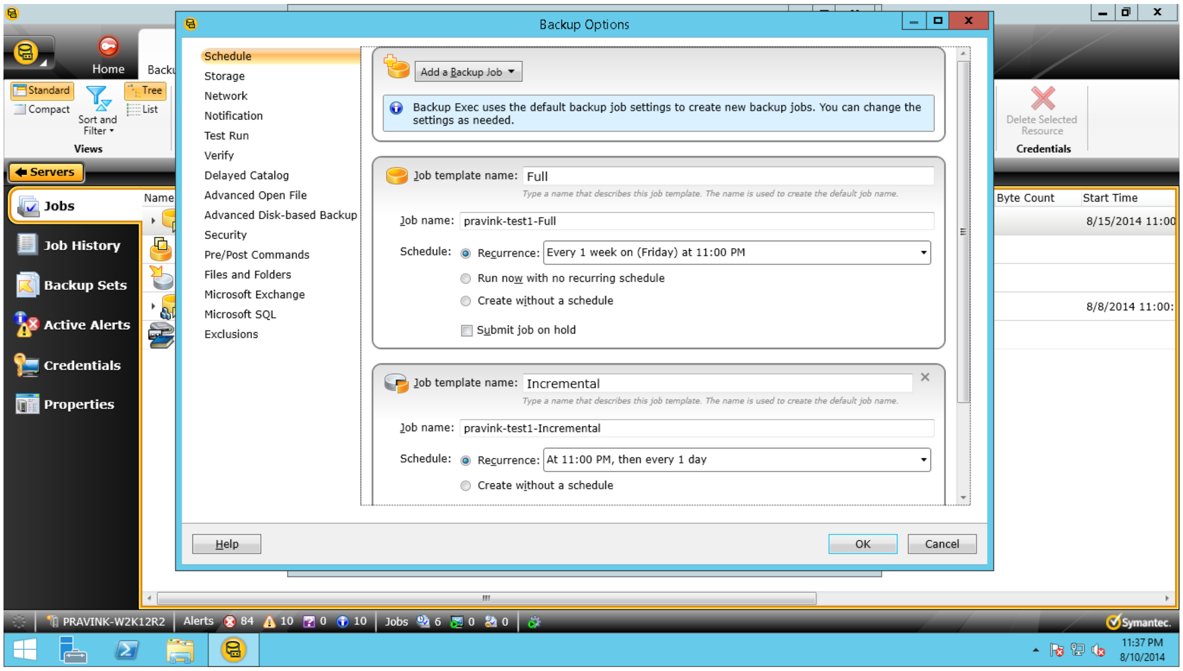
□ Submit job on hold

Incremental

Schedule: At 11:00 PM, then every 1 day

□ Submit job on hold

For Backup Exec 2014/2015 the screen includes additional information.



Backup Options

Schedule
Storage
Network
Notification
Test Run
Verify
Delayed Catalog
Advanced Open File
Advanced Disk-based Backup
Security
Pre/Post Commands
Files and Folders
Microsoft Exchange
Microsoft SQL
Exclusions

Add a Backup Job

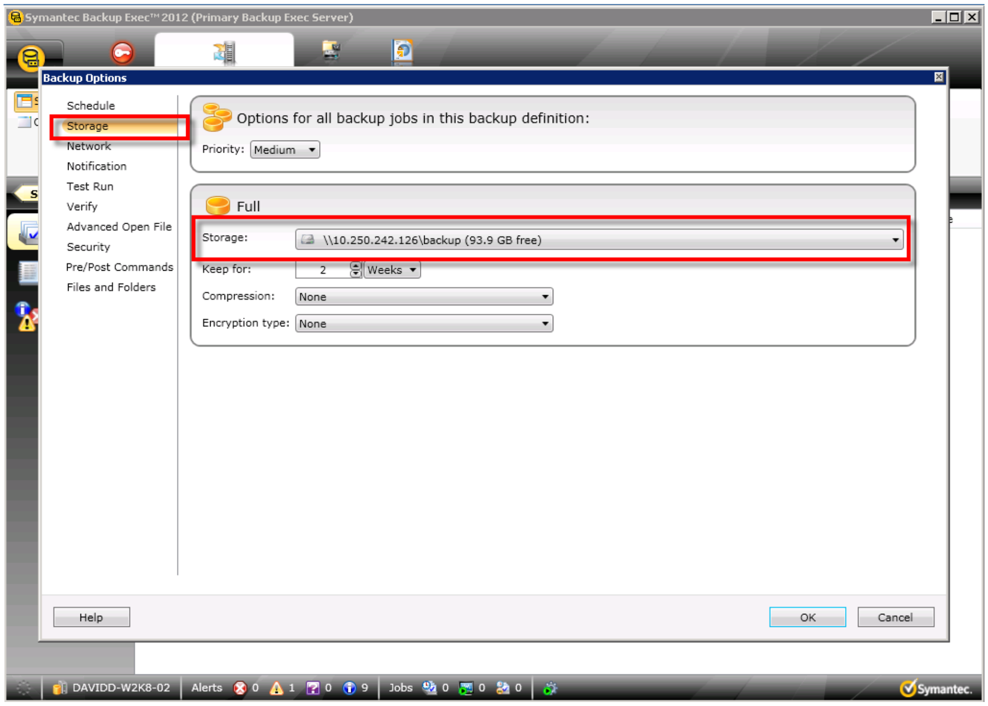
Backup Exec uses the default backup job settings to create new backup jobs. You can change the settings as needed.

Job template name: Full
Type a name that describes this job template. The name is used to create the default job name.
Job name: pravink-test1-Full
Schedule: ● Recurrence: Every 1 week on (Friday) at 11:00 PM
○ Run now with no recurring schedule
○ Create without a schedule
□ Submit job on hold

Job template name: Incremental
Type a name that describes this job template. The name is used to create the default job name.
Job name: pravink-test1-Incremental
Schedule: ● Recurrence: At 11:00 PM, then every 1 day
○ Create without a schedule

Help OK Cancel

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**.



Symantec Backup Exec™ 2012 (Primary Backup Exec Server)

Backup Options

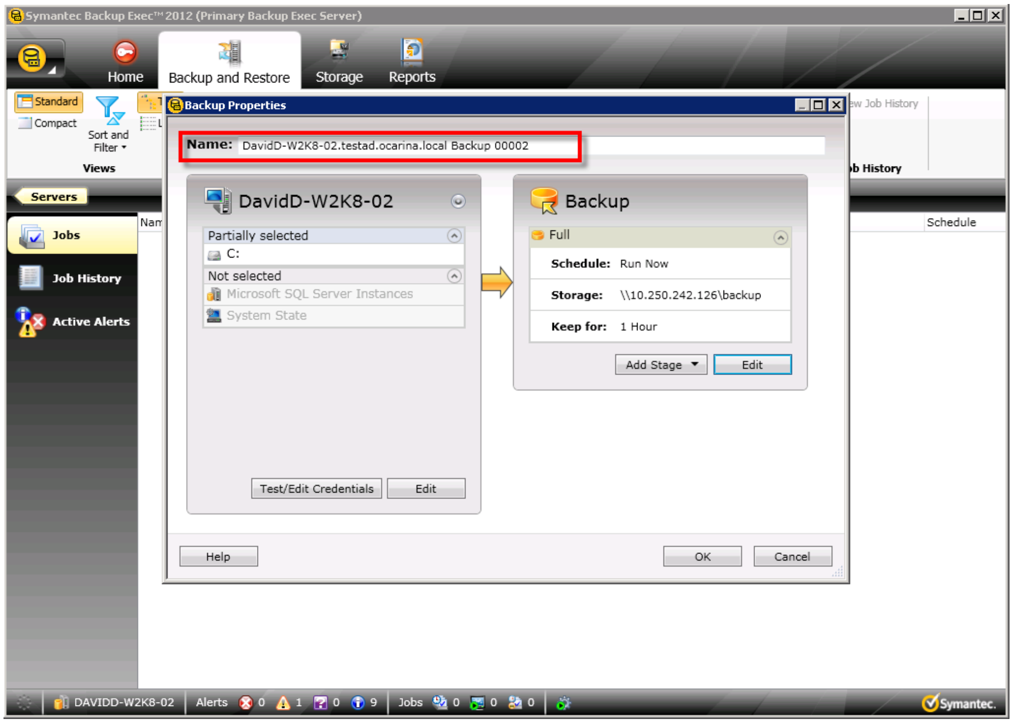
Schedule
Storage
Network
Notification
Test Run
Verify
Advanced Open File
Security
Pre/Post Commands
Files and Folders

Options for all backup jobs in this backup definition:
Priority: Medium

Full
Storage: \\10.250.242.126\backup (93.9 GB free)
Keep for: 2 Weeks
Compression: None
Encryption type: None

Help OK Cancel

10. Enter a job **Name**, and click **OK**.



Backup Properties

Name: DavidD-W2K8-02.testad.ocarina.local Backup 00002

DavidD-W2K8-02

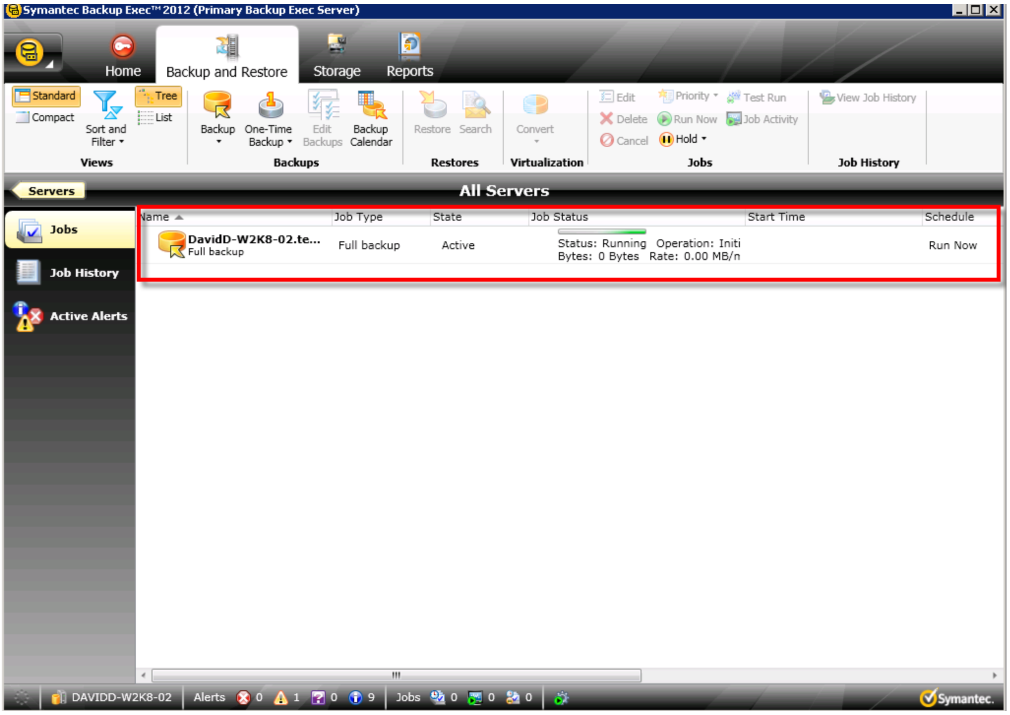
- Partially selected
  - C:
- Not selected
  - Microsoft SQL Server Instances
  - System State

Backup

Full

Schedule:	Run Now
Storage:	\\10.250.242.126\backup
Keep for:	1 Hour

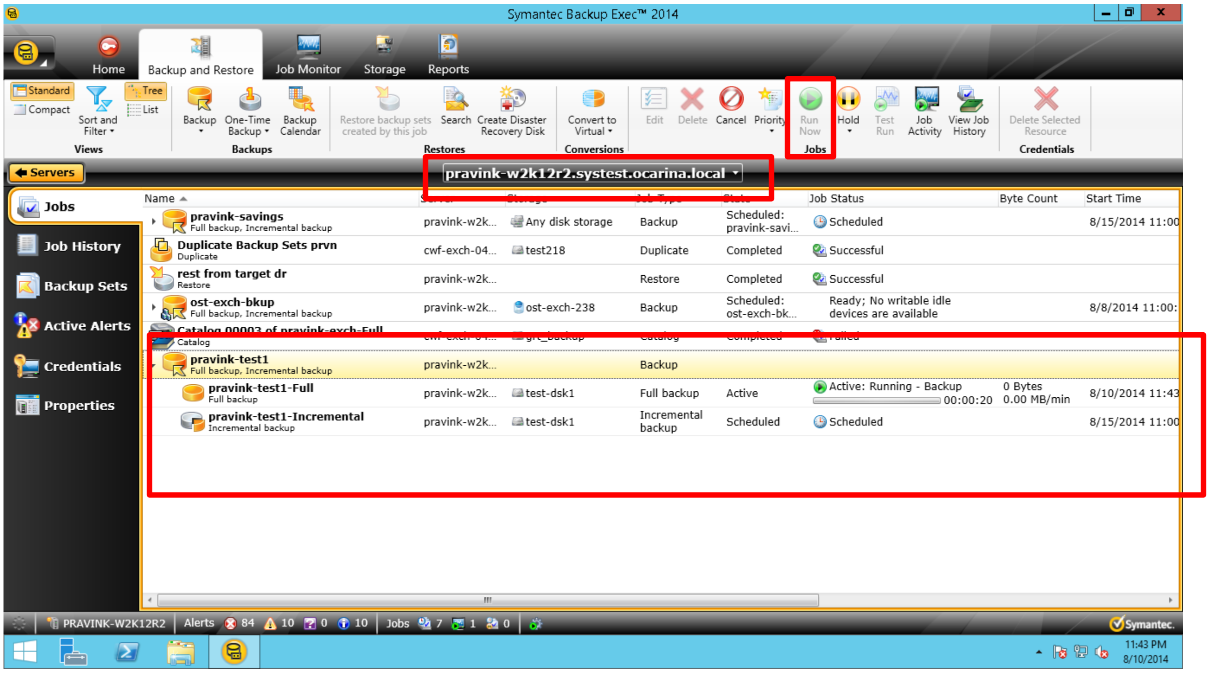
11. To run the job, select an **Agent**, and click **OK**. The **Jobs** window shows the job queue status.



All Servers

Name	Job Type	State	Job Status	Start Time	Schedule
DavidD-W2K8-02.te... Full backup	Full backup	Active	Status: Running Operation: Initi Bytes: 0 Bytes Rate: 0.00 MB/n		Run Now

12. For Backup Exec 2014, select the required server from the drop down, select the job recently created, and click **Run Now**.



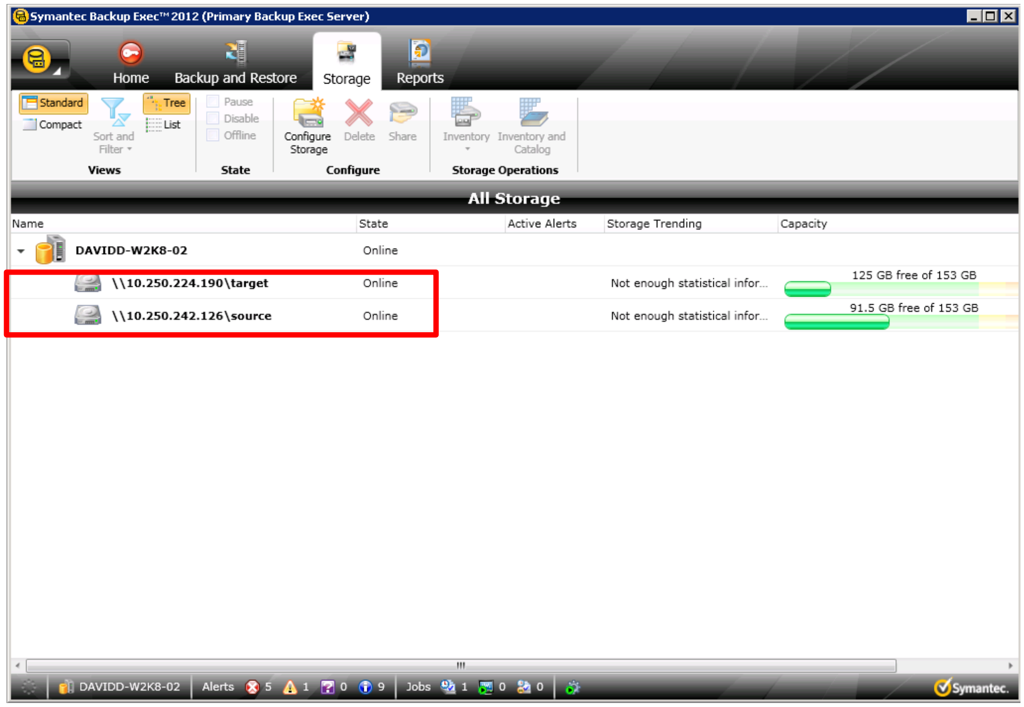
Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time
pravink-savings Full backup, Incremental backup	pravink-w2k...	Any disk storage	Backup	Scheduled: pravink-savi...	Scheduled		8/15/2014 11:00
Duplicate Backup Sets prvn Duplicate	cwf-exch-04...	test218	Duplicate	Completed	Successful		
rest from target dr Restore	pravink-w2k...		Restore	Completed	Successful		
ost-exch-bkup Full backup, Incremental backup	pravink-w2k...	ost-exch-238	Backup	Scheduled: ost-exch-bk...	Ready; No writable idle devices are available		8/8/2014 11:00:
Catalog 00003 of pravink-exch-Full Catalog	cwf-exch-04...	grt_backup	Catalog	Completed	Failed		
pravink-test1 Full backup, Incremental backup	pravink-w2k...		Backup				
pravink-test1-Full Full backup	pravink-w2k...	test-dsk1	Full backup	Active	Active: Running - Backup 00:00:20	0 Bytes 0.00 MB/min	8/10/2014 11:43
pravink-test1-Incremental Incremental backup	pravink-w2k...	test-dsk1	Incremental backup	Scheduled	Scheduled		8/15/2014 11:00

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.

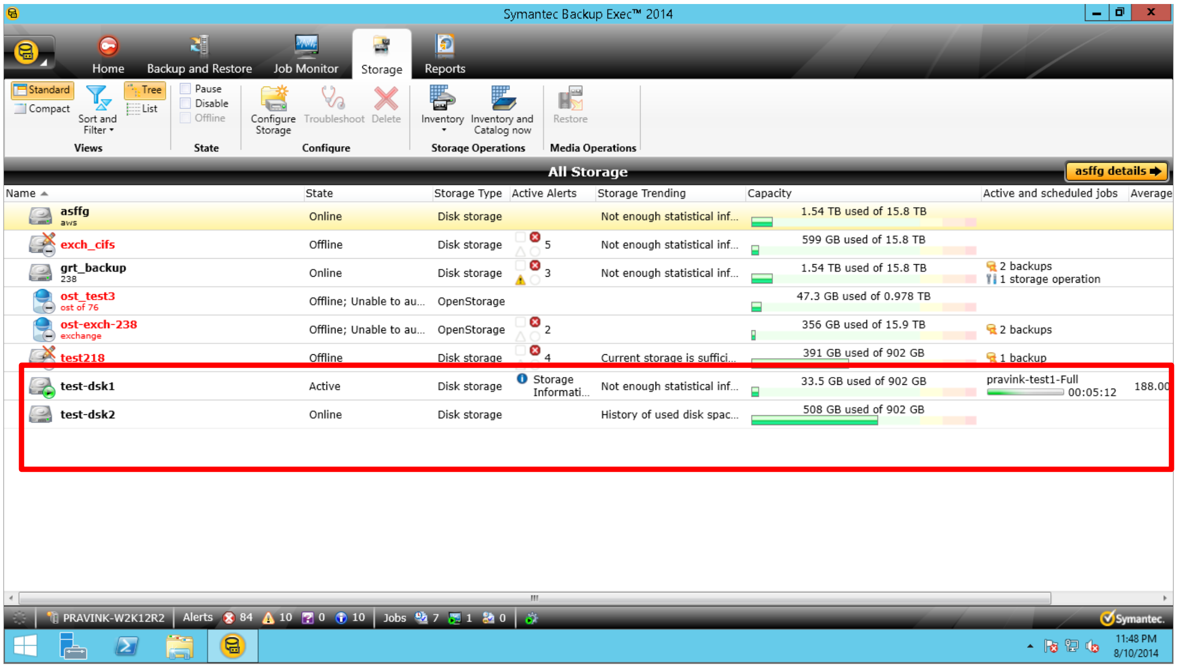
2.4.1 Creating the replication session

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.



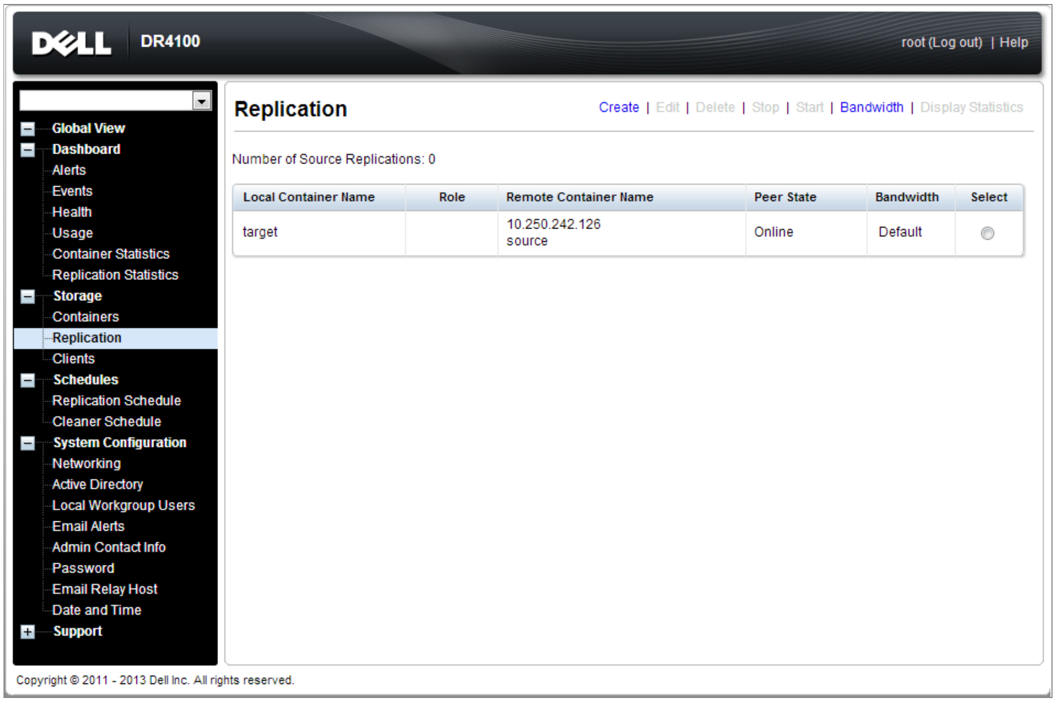
Name	State	Active Alerts	Storage Trending	Capacity
DAVIDD-W2K8-02	Online			
\\10.250.224.190\target	Online		Not enough statistical infor...	125 GB free of 153 GB
\\10.250.242.126\source	Online		Not enough statistical infor...	91.5 GB free of 153 GB

2. For Backup Exec 2014/2015, after adding the target DR CIFS container, check that the device was added.



Name	State	Storage Type	Active Alerts	Storage Trending	Capacity	Active and scheduled jobs	Average
asffg aws	Online	Disk storage		Not enough statistical inf...	1.54 TB used of 15.8 TB		
exch_cifs	Offline	Disk storage	5	Not enough statistical inf...	599 GB used of 15.8 TB		
grt_backup 238	Online	Disk storage	3	Not enough statistical inf...	1.54 TB used of 15.8 TB	2 backups 1 storage operation	
ost_test3 ost of 76	Offline; Unable to au...	OpenStorage			47.3 GB used of 0.978 TB		
ost-exch-238 exchange	Offline; Unable to au...	OpenStorage	2		356 GB used of 15.9 TB	2 backups	
test218	Offline	Disk storage	4	Current storage is suffici...	391 GB used of 902 GB	1 backup	
test-dsk1	Active	Disk storage	Storage Informati...	Not enough statistical inf...	33.5 GB used of 902 GB	pravink-test1-Full 00:05:12	188.00
test-dsk2	Online	Disk storage		History of used disk spac...	508 GB used of 902 GB		

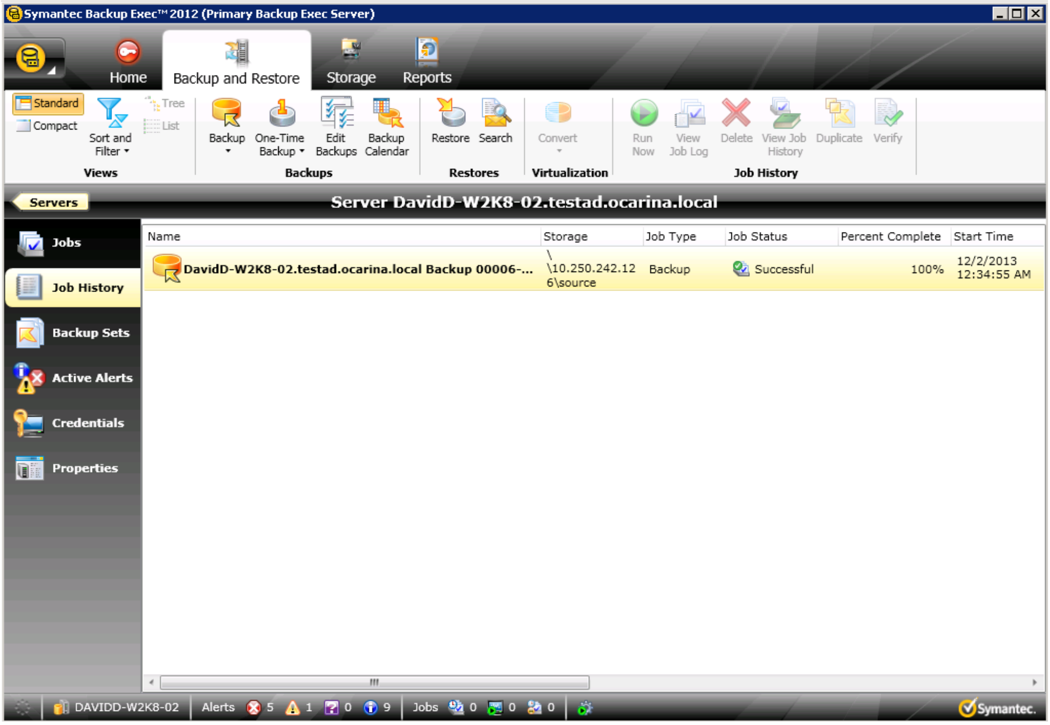
3. From the DR1 GUI, on the **Replication** page, click **Create**. Set the 'source' container as the replication source, set the DR2 'target' container as the replication target. Start the replication session.



Number of Source Replications: 0

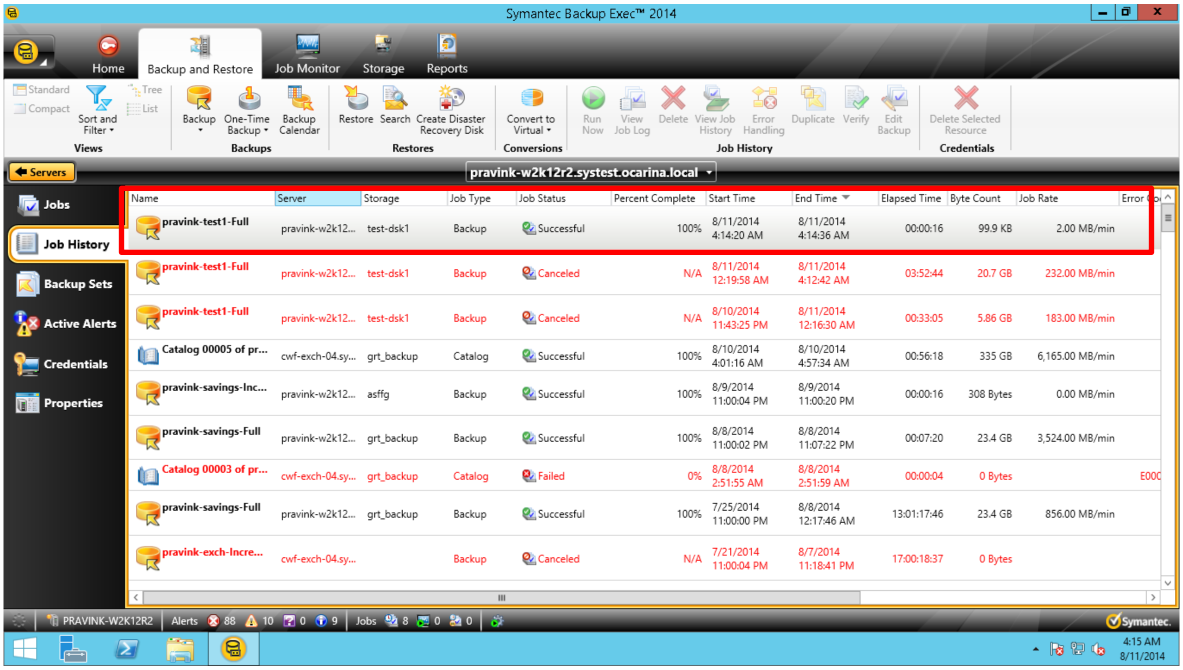
Local Container Name	Role	Remote Container Name	Peer State	Bandwidth	Select
target		10.250.242.126 source	Online	Default	○

4. Schedule and run backup jobs to the source Disk Storage Device.



Name	Storage	Job Type	Job Status	Percent Complete	Start Time
DavidD-W2K8-02.testad.ocarina.local Backup 00006-...	\\10.250.242.126\source	Backup	Successful	100%	12/2/2013 12:34:55 AM

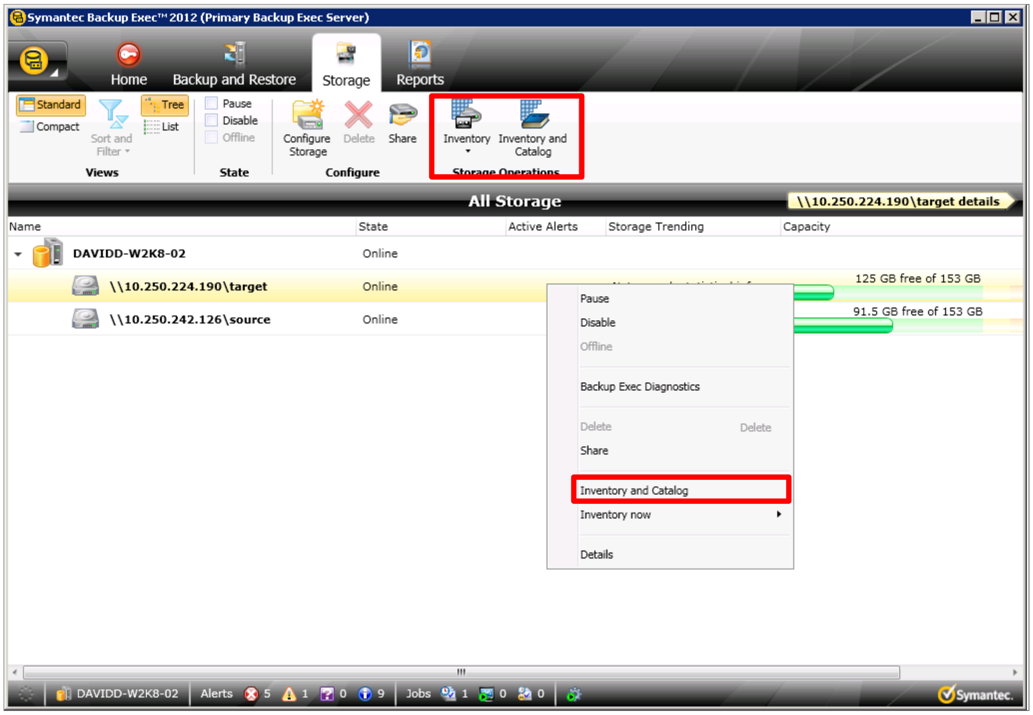
For Backup Exec 2014/2015, view the Job History screen.



Name	Server	Storage	Job Type	Job Status	Percent Complete	Start Time	End Time	Elapsed Time	Byte Count	Job Rate	Error Co
pravink-test1-Full	pravink-w2k12...	test-dsk1	Backup	Successful	100%	8/11/2014 4:14:20 AM	8/11/2014 4:14:36 AM	00:00:16	99.9 KB	2.00 MB/min	
pravink-test1-Full	pravink-w2k12...	test-dsk1	Backup	Canceled	N/A	8/11/2014 12:19:58 AM	8/11/2014 4:12:42 AM	03:52:44	20.7 GB	232.00 MB/min	
pravink-test1-Full	pravink-w2k12...	test-dsk1	Backup	Canceled	N/A	8/10/2014 11:43:25 PM	8/11/2014 12:16:30 AM	00:33:05	5.86 GB	183.00 MB/min	
Catalog 00005 of pr...	cwf-exch-04.sy...	grt_backup	Catalog	Successful	100%	8/10/2014 4:01:16 AM	8/10/2014 4:57:34 AM	00:56:18	335 GB	6,165.00 MB/min	
pravink-savings-Inc...	pravink-w2k12...	asffg	Backup	Successful	100%	8/9/2014 11:00:04 PM	8/9/2014 11:00:20 PM	00:00:16	308 Bytes	0.00 MB/min	
pravink-savings-Full	pravink-w2k12...	grt_backup	Backup	Successful	100%	8/8/2014 11:00:02 PM	8/8/2014 11:07:22 PM	00:07:20	23.4 GB	3,524.00 MB/min	
Catalog 00003 of pr...	cwf-exch-04.sy...	grt_backup	Catalog	Failed	0%	8/8/2014 2:51:55 AM	8/8/2014 2:51:59 AM	00:00:04	0 Bytes		E000
pravink-savings-Full	pravink-w2k12...	grt_backup	Backup	Successful	100%	7/25/2014 11:00:00 PM	8/8/2014 12:17:46 AM	13:01:17:46	23.4 GB	856.00 MB/min	
pravink-exch-Incre...	cwf-exch-04.sy...		Backup	Canceled	N/A	7/21/2014 11:00:04 PM	8/7/2014 11:18:41 PM	17:00:18:37	0 Bytes		

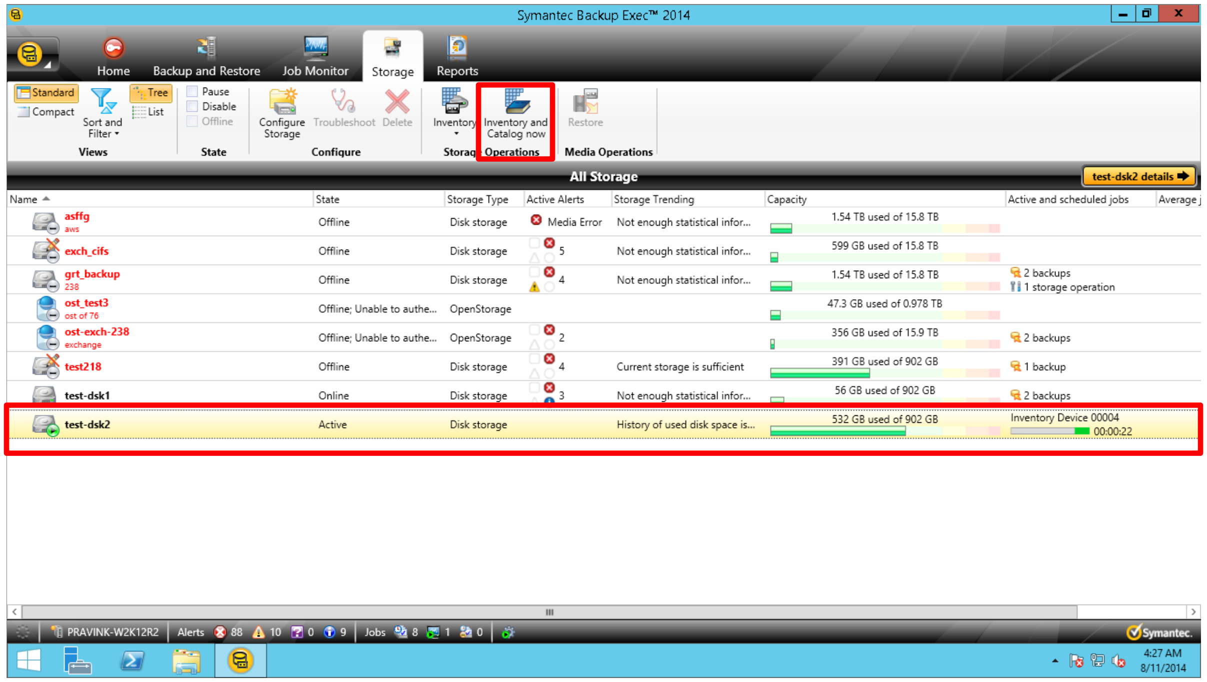
2.4.2 Restoring from the replication target

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



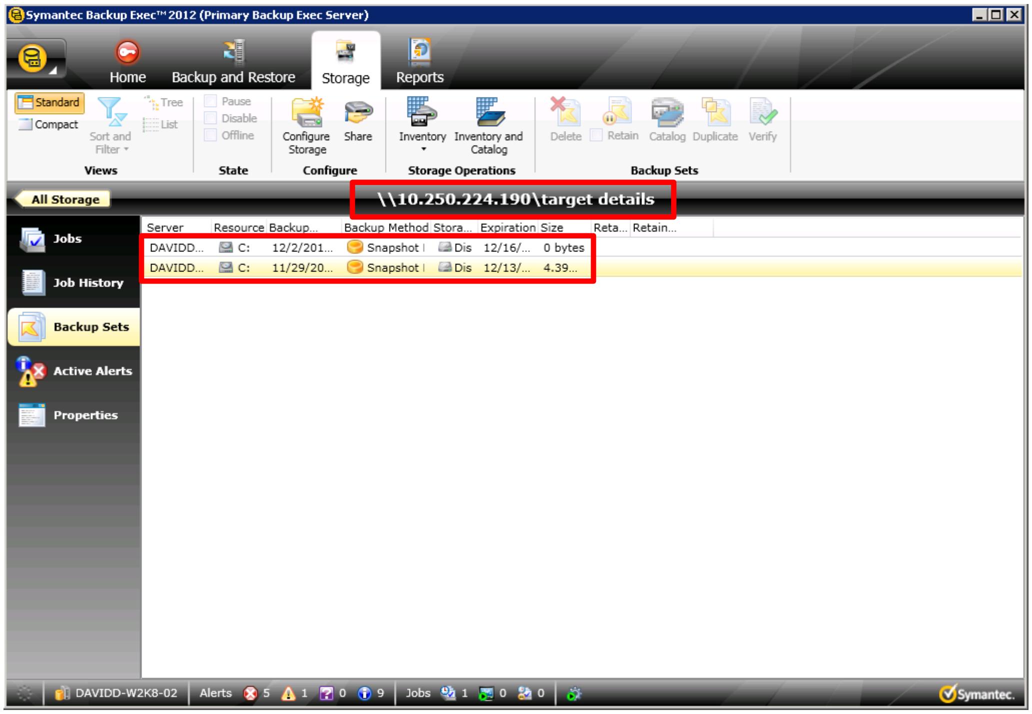
Name	State	Active Alerts	Storage Trending	Capacity
DAVIDD-W2K8-02	Online			
\\10.250.224.190\target	Online			125 GB free of 153 GB
\\10.250.242.126\source	Online			91.5 GB free of 153 GB

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



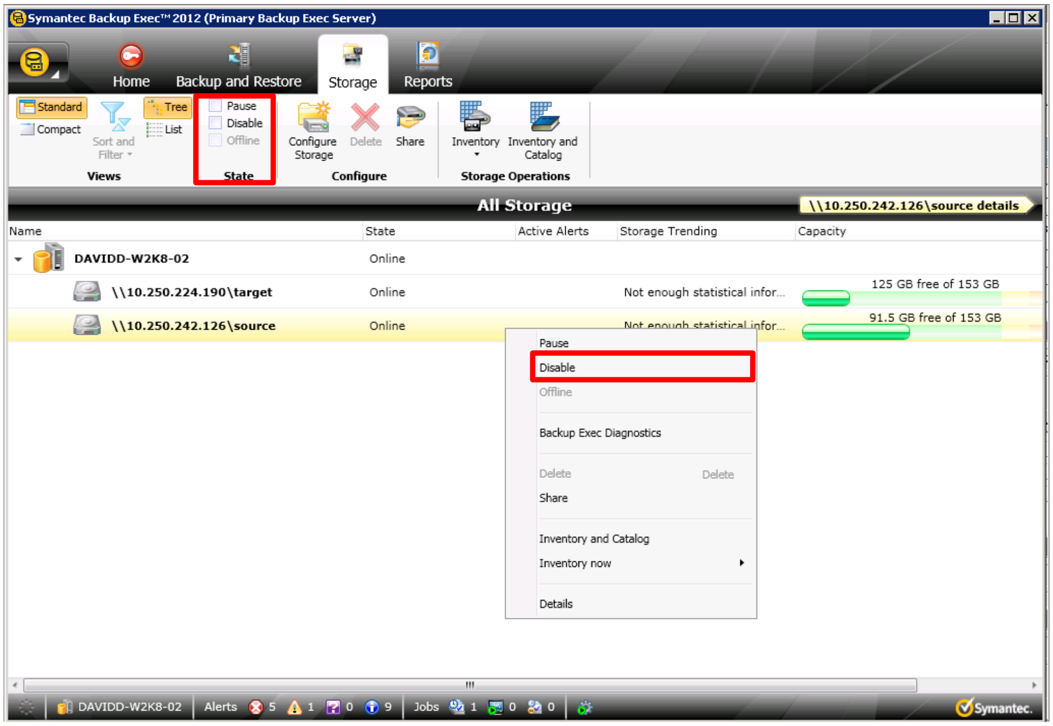
Name	State	Storage Type	Active Alerts	Storage Trending	Capacity	Active and scheduled jobs	Average j
asffg aws	Offline	Disk storage	Media Error	Not enough statistical infor...	1.54 TB used of 15.8 TB		
exch_cifs	Offline	Disk storage	5	Not enough statistical infor...	599 GB used of 15.8 TB		
grt_backup 238	Offline	Disk storage	4	Not enough statistical infor...	1.54 TB used of 15.8 TB	2 backups 1 storage operation	
ost_test3 ost of 76	Offline; Unable to authe...	OpenStorage			47.3 GB used of 0.978 TB		
ost-exch-238 exchange	Offline; Unable to authe...	OpenStorage	2		356 GB used of 15.9 TB	2 backups	
test218	Offline	Disk storage	4	Current storage is sufficient	391 GB used of 902 GB	1 backup	
test-dsk1	Online	Disk storage	3	Not enough statistical infor...	56 GB used of 902 GB	2 backups	
test-dsk2	Active	Disk storage		History of used disk space is...	532 GB used of 902 GB	Inventory Device 00004 00:00:22	

2. After the Inventory and Catalog job is done, check the Backup Sets shown in target storage device.



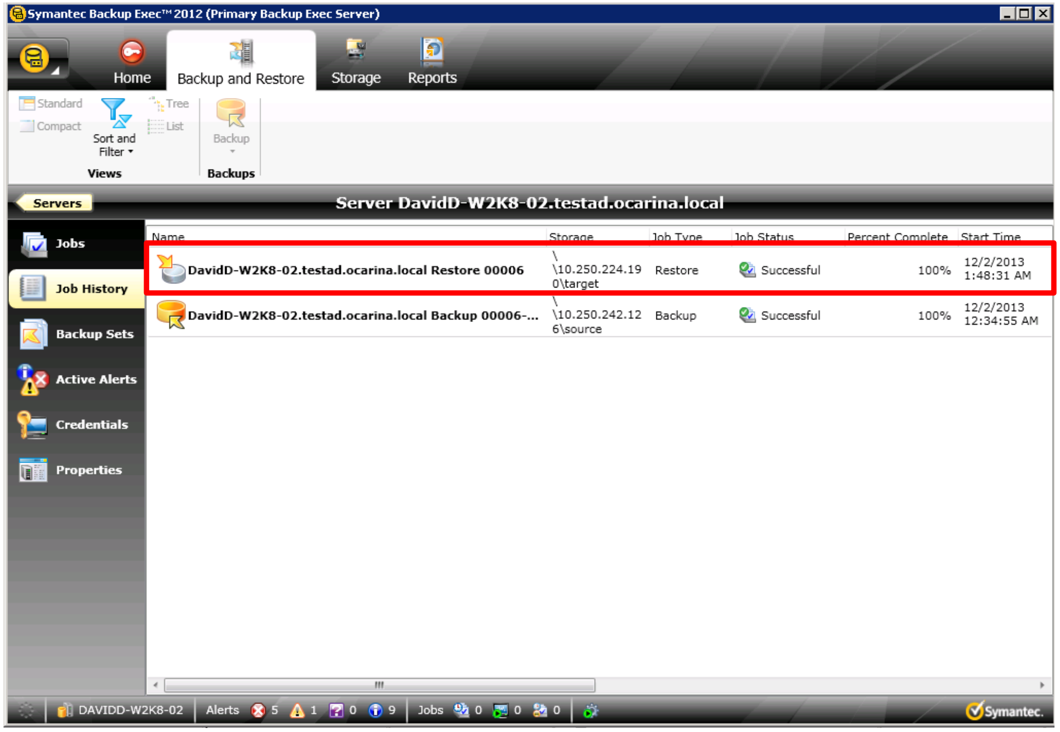
Server	Resource	Backup...	Backup Method	Stora...	Expiration	Size	Reta...	Retain...
DAVIDD...	C:	12/2/201...	Snapshot	Dis	12/16/...	0 bytes		
DAVIDD...	C:	11/29/20...	Snapshot	Dis	12/13/...	4.39...		

3. Disable source storage under **Storage** > **State**, right-click the source storage device, and select **Disable**.



Name	State	Active Alerts	Storage Trending	Capacity
DAVIDD-W2K8-02	Online			
\\10.250.224.190\target	Online		Not enough statistical infor...	125 GB free of 153 GB
\\10.250.242.126\source	Online		Not enough statistical infor...	91.5 GB free of 153 GB

4. Schedule and run a restore job from the target device.



Name	Storage	Job Type	Job Status	Percent Complete	Start Time
DavidD-W2K8-02.testad.ocarina.local Restore 00006	\\10.250.224.190\target	Restore	Successful	100%	12/2/2013 1:48:31 AM
DavidD-W2K8-02.testad.ocarina.local Backup 00006-...	\\10.250.242.126\source	Backup	Successful	100%	12/2/2013 12:34:55 AM

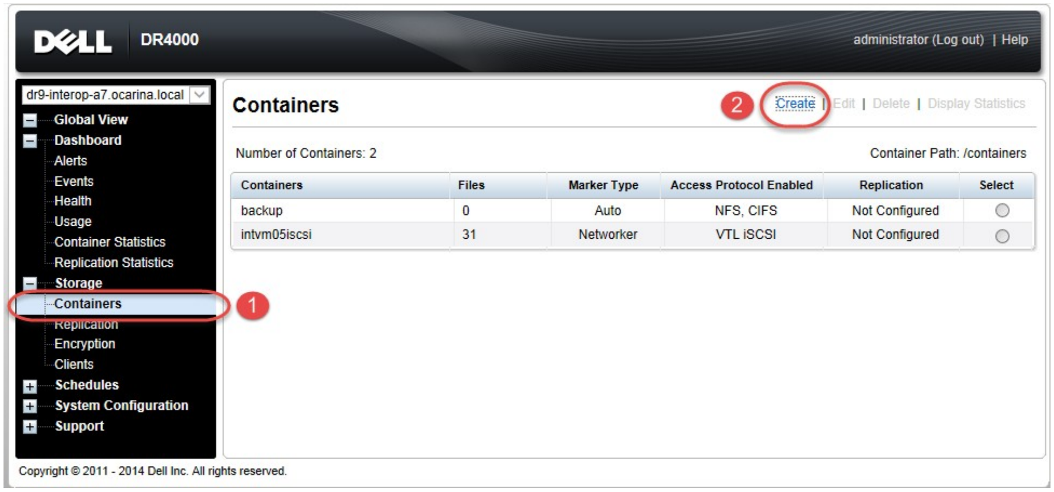
3 Configuring VTL

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.



Containers

Number of Containers: 2

Container Path: /containers

Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
backup	0	Auto	NFS, CIFS	Not Configured	○
intvm05iscsi	31	Networker	VTL iSCSI	Not Configured	○

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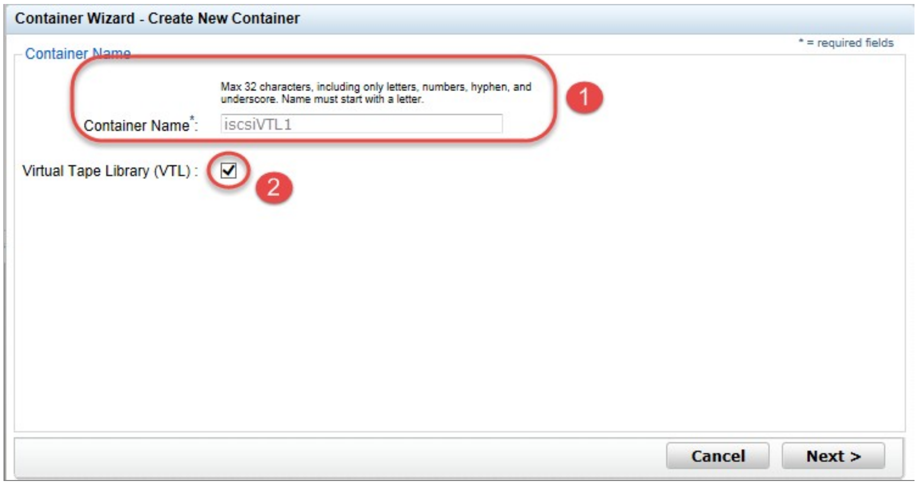
2. Enter the container name, select the **Virtual Tape Library (VTL)** option, and click **Next**.



Container Wizard - Create New Container

* = required fields

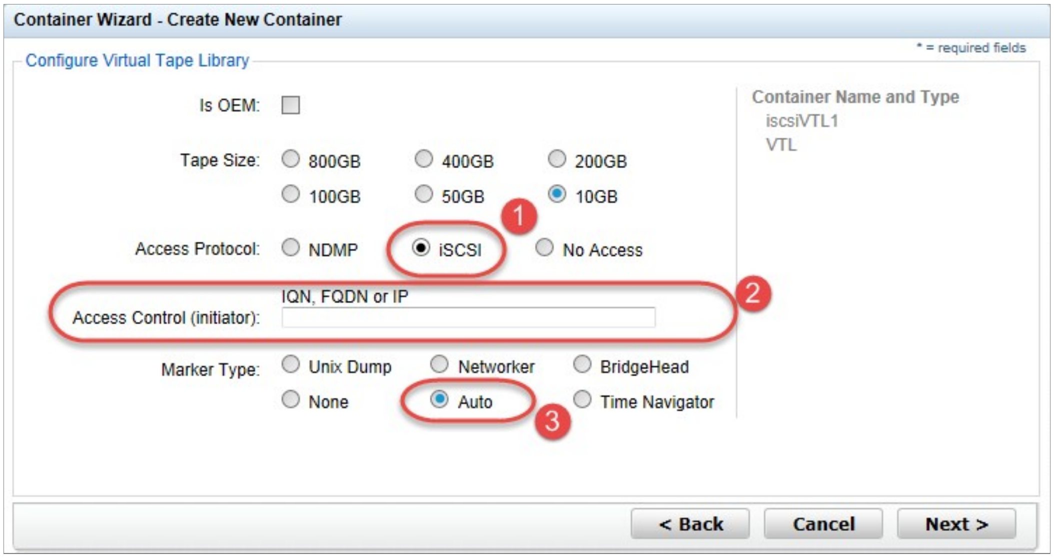
Container Name

Max 32 characters, including only letters, numbers, hyphen, and underscore. Name must start with a letter.

Container Name*: iscsiVTL1

Virtual Tape Library (VTL) : ☑

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 specific **Auto** as the Marker Type. Click **Next**.



Container Wizard - Create New Container

Configure Virtual Tape Library

* = required fields

Is OEM: □

Tape Size: ○ 800GB ○ 400GB ○ 200GB ○ 100GB ○ 50GB ● 10GB

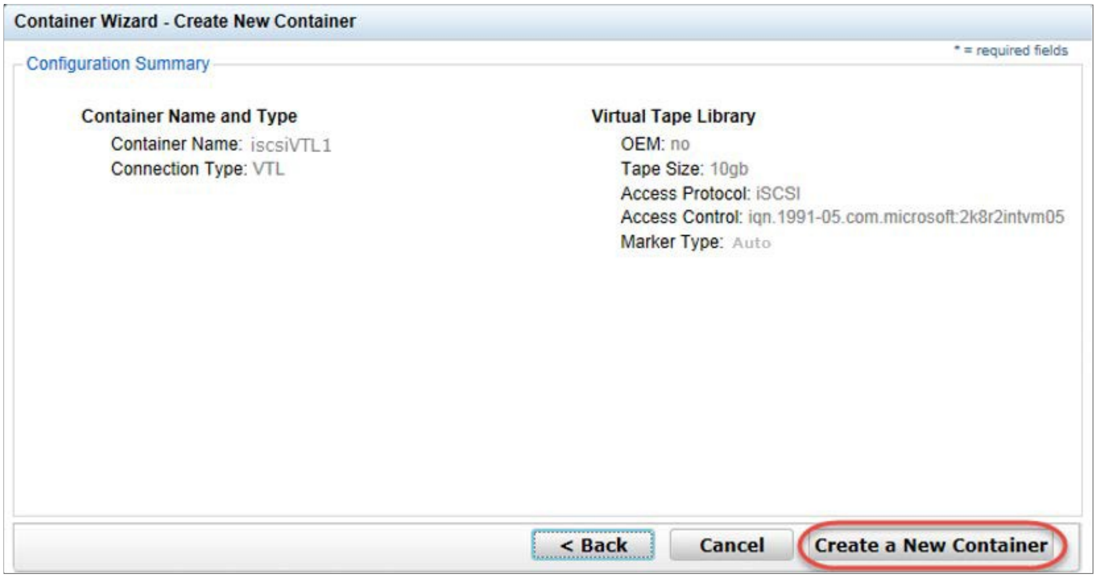
Access Protocol: ○ NDMP ● iSCSI ○ No Access

Access Control (initiator): IQN, FQDN or IP

Marker Type: ○ Unix Dump ○ Networker ○ BridgeHead ○ None ● Auto ○ Time Navigator

Container Name and Type
iscsiVTL1
VTL

4. Finalize VTL creation by clicking **Create a New Container**.



Container Wizard - Create New Container

Configuration Summary

* = required fields

Container Name and Type
Container Name: iscsiVTL1
Connection Type: VTL

Virtual Tape Library
OEM: no
Tape Size: 10gb
Access Protocol: iSCSI
Access Control: iqn.1991-05.com.microsoft:2k8r2intvm05
Marker Type: Auto

3.2 Setting the iSCSI target CHAP credentials

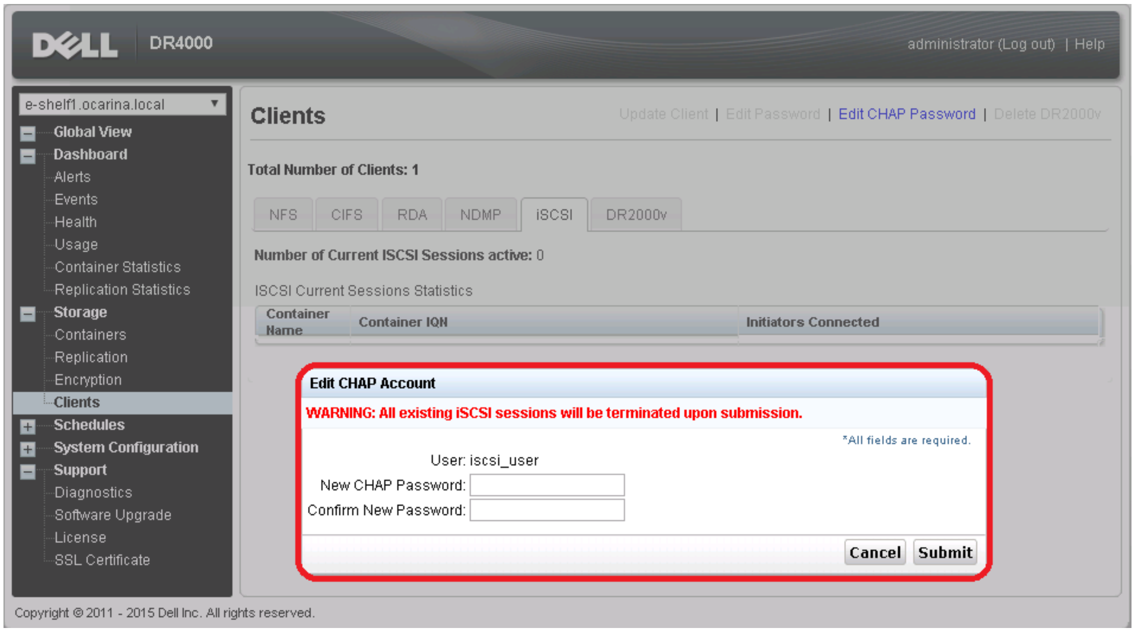
By default the iSCSI username is **"iscsi_user"** and can be confirmed by reviewing the output of the iscsi –show user command. For example:

```
# 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



Total Number of Clients: 1

Number of Current ISCSI Sessions active: 0

ISCSI Current Sessions Statistics

Container Name	Container IQN	Initiators Connected

Edit CHAP Account

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

*All fields are required.

User: iscsi_user

New CHAP Password:

Confirm New Password:

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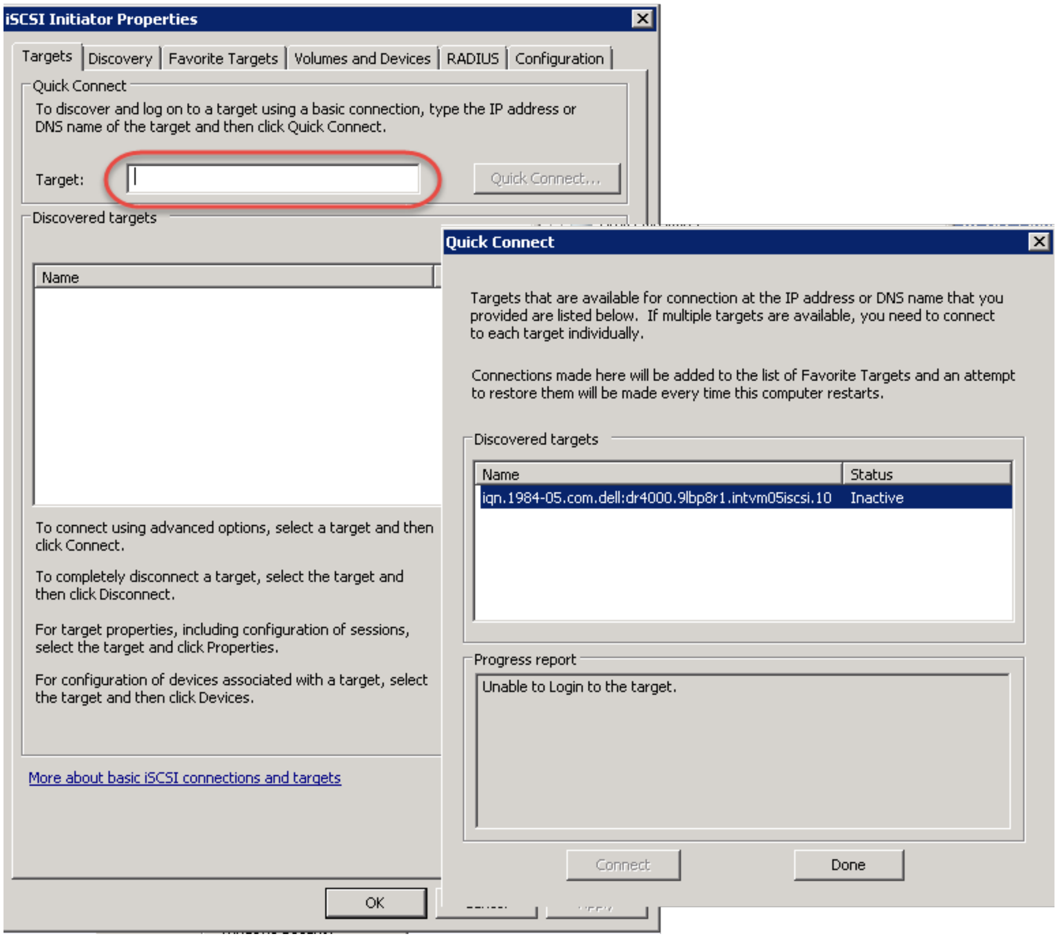
Alternatively you can use the "iscsi –setpassword" CLI command to change the iSCSI CHAP Password setting. For example:

```
> iscsi --setpassword

WARNING: All existing iSCSI sessions will be terminated!

Do you want to continue? (yes/no) [n]?

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.



To discover and log on to a target using a basic connection, type the IP address or DNS name of the target and then click Quick Connect.

To connect using advanced options, select a target and then click Connect.

To completely disconnect a target, select the target and then click Disconnect.

For target properties, including configuration of sessions, select the target and click Properties.

For configuration of devices associated with a target, select the target and then click Devices.

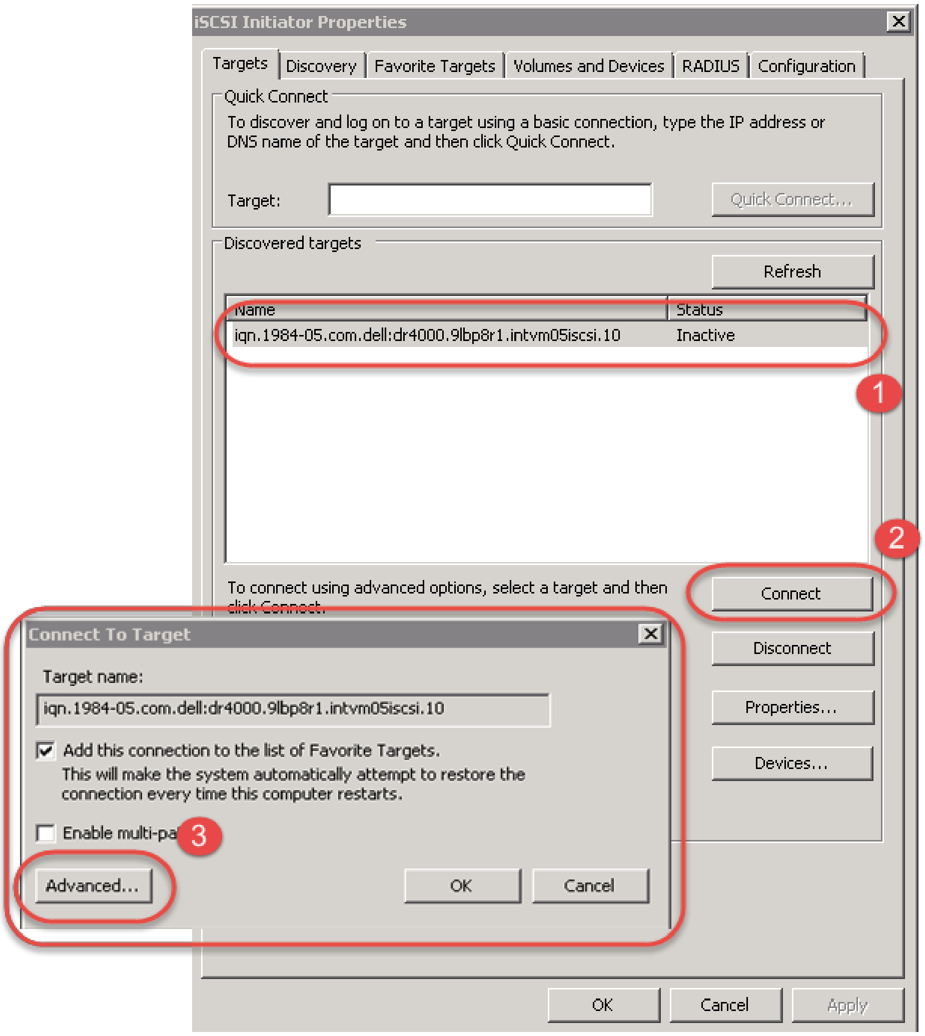
Targets that are available for connection at the IP address or DNS name that you provided are listed below. If multiple targets are available, you need to connect to each target individually.

Connections made here will be added to the list of Favorite Targets and an attempt to restore them will be made every time this computer restarts.

Name	Status
iqn.1984-05.com.dell:dr4000.9lbp8r1.intvm05iscsi.10	Inactive

Unable to Login to the target.

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.



To discover and log on to a target using a basic connection, type the IP address or DNS name of the target and then click Quick Connect.

Name	Status
iqn.1984-05.com.dell:dr4000.9lbp8r1.intvm05iscsi.10	Inactive

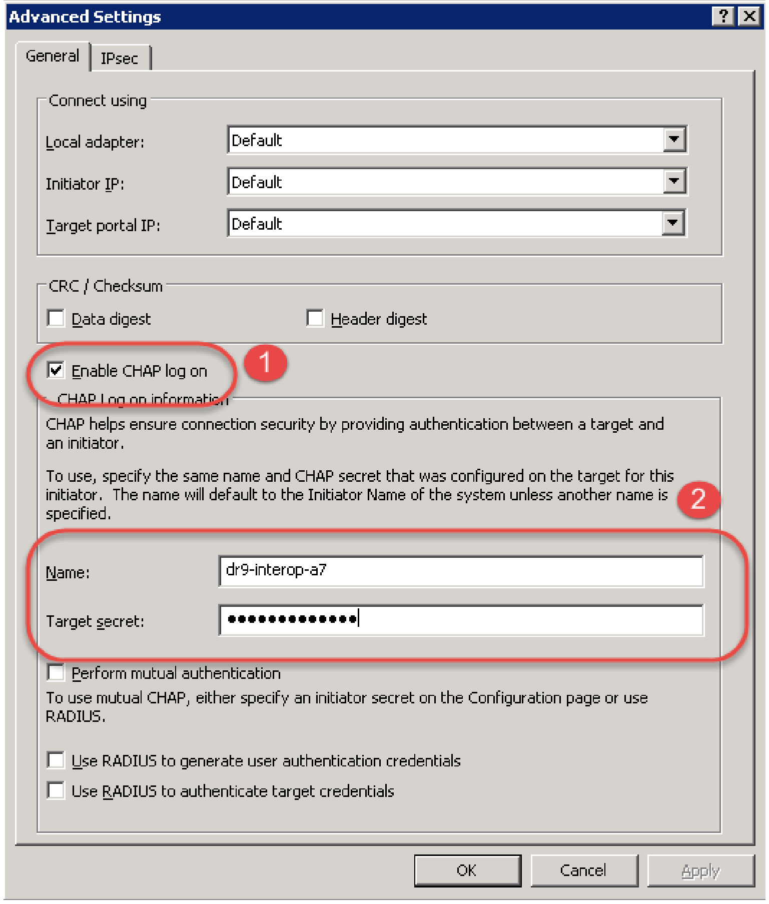
To connect using advanced options, select a target and then click Connect.

Target name:
iqn.1984-05.com.dell:dr4000.9lbp8r1.intvm05iscsi.10

☑ Add this connection to the list of Favorite Targets.
This will make the system automatically attempt to restore the connection every time this computer restarts.

□ Enable multi-pa

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.



Advanced Settings

General | IPsec

Connect using

Local adapter: Default

Initiator IP: Default

Target portal IP: Default

CRC / Checksum

□ Data digest   □ Header digest

☑ Enable CHAP log on

CHAP Log on information

CHAP helps ensure connection security by providing authentication between a target and an initiator.

To use, specify the same name and CHAP secret that was configured on the target for this initiator. The name will default to the Initiator Name of the system unless another name is specified.

Name: dr9-interop-a7

Target secret: ••••••••••••••

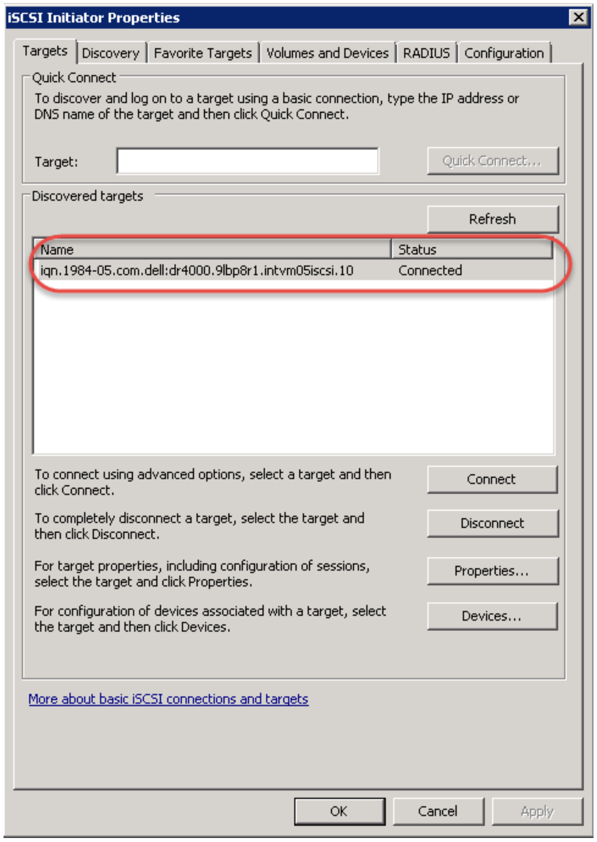
□ Perform mutual authentication

To use mutual CHAP, either specify an initiator secret on the Configuration page or use RADIUS.

□ Use RADIUS to generate user authentication credentials

□ Use RADIUS to authenticate target credentials

The iSCSI target should now appear as connected, and device discovery can now proceed.



To discover and log on to a target using a basic connection, type the IP address or DNS name of the target and then click Quick Connect.

Name	Status
iqn.1984-05.com.dell:dr4000.9lbp8r1.intvm05iscsi.10	Connected

To connect using advanced options, select a target and then click Connect.

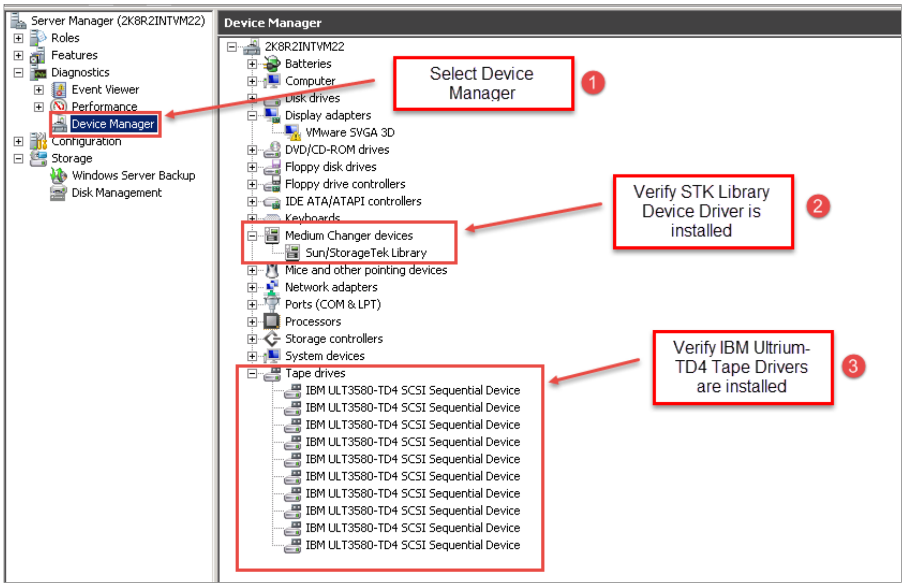
To completely disconnect a target, select the target and then click Disconnect.

For target properties, including configuration of sessions, select the target and click Properties.

For configuration of devices associated with a target, select the target and then click Devices.

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 for information about acquiring Microsoft Device Drivers, e.g., StorageTek Library Drivers.


Server Manager (2K8R2INTVM22)
Roles
Features
Diagnostics
Event Viewer
Performance
Device Manager
Configuration
Storage
Windows Server Backup
Disk Management
Device Manager
2K8R2INTVM22
Batteries
Computer
Disk drives
Display adapters
VMware SVGA 3D
DVD/CD-ROM drives
Floppy disk drives
Floppy drive controllers
IDE ATA/ATAPI controllers
Keyboards
Medium Changer devices
Sun/StorageTek Library
Mice and other pointing devices
Network adapters
Ports (COM & LPT)
Processors
Storage controllers
System devices
Tape drives
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device
IBM ULT3580-TD4 SCSI Sequential Device

1 Select Device Manager

2 Verify STK Library Device Driver is installed

3 Verify IBM Ultrium-TD4 Tape Drivers are installed

3.4 Configuring the iSCSI target – Linux

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

```
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:

   ```
   node.session.auth.authmethod = CHAP
   ```

   b. Modify the following lines:

   ```
   # 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:

   ```
   iscsiadm -m discovery -t st -p <IP or IQN of DR>
   ```

   For example:

   ```
   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:

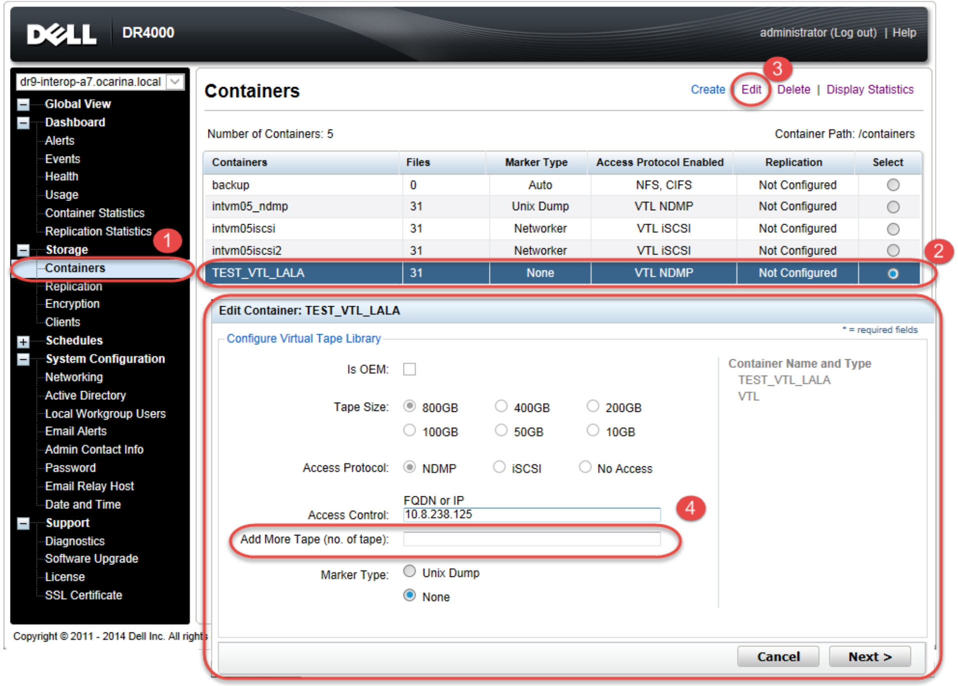
   ```
   iscsiadm -m session = tcp: [8] 10.8.230.108:3260,1 iqn.1984-
   05.com.dell:dr4000.3071067.interoprhel52n1.30
   ```

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.



Containers

Number of Containers: 5

Container Path: /containers

Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
backup	0	Auto	NFS, CIFS	Not Configured	○
intvm05_ndmp	31	Unix Dump	VTL NDMP	Not Configured	○
intvm05iscsi	31	Networker	VTL iSCSI	Not Configured	○
intvm05iscsi2	31	Networker	VTL iSCSI	Not Configured	○
TEST_VTL_LALA	31	None	VTL NDMP	Not Configured	●

Edit Container: TEST_VTL_LALA

* = required fields

Configure Virtual Tape Library

Is OEM: □

Tape Size: ● 800GB ○ 400GB ○ 200GB ○ 100GB ○ 50GB ○ 10GB

Access Protocol: ● NDMP ○ iSCSI ○ No Access

Access Control: FQDN or IP 10.8.238.125

Add More Tape (no. of tape):

Marker Type: ○ Unix Dump ● None

Container Name and Type
TEST_VTL_LALA
VTL

Alternatively you can use the "vtl –update_carts" cli command for this operation. For example:

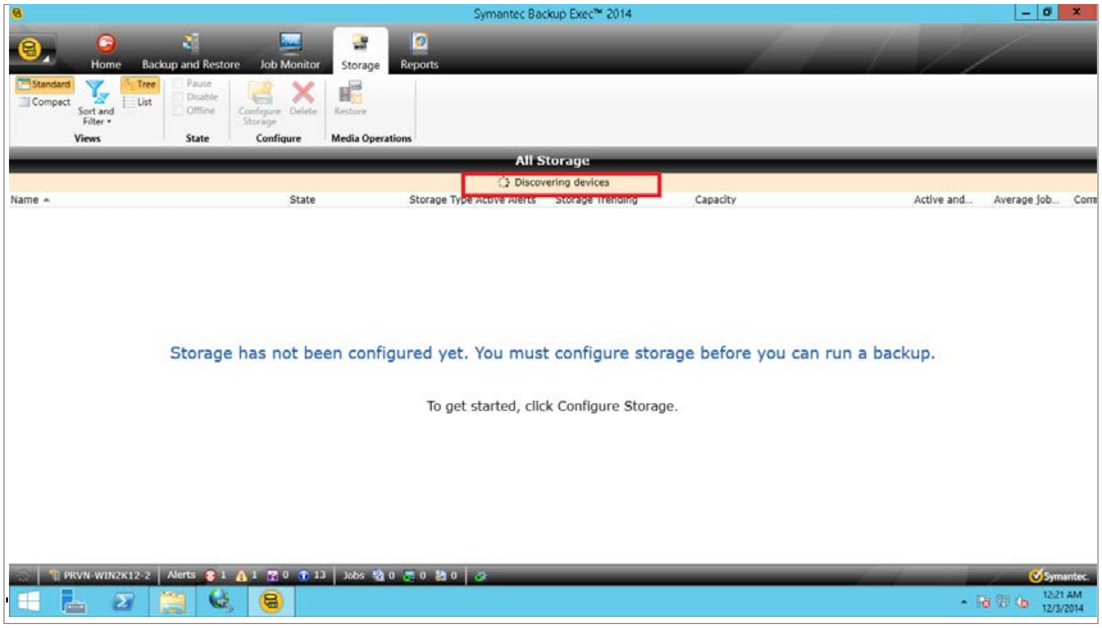
```
> vtl –update_carts --name TEST_VTL_LALA –add –no_of_tapes 10

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.

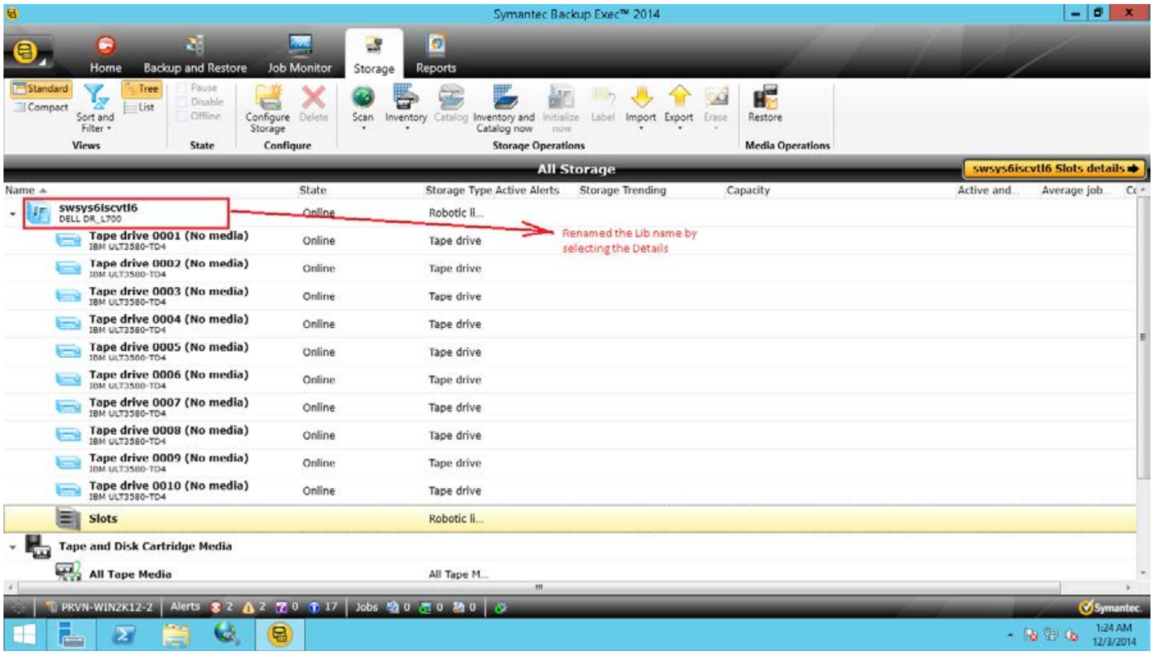
1. Restart Backup Exec Services to discover the newly attached VTL container.
2. Go to the **Storage** tab to monitor the VTL discovery.



Storage has not been configured yet. You must configure storage before you can run a backup.

To get started, click Configure Storage.

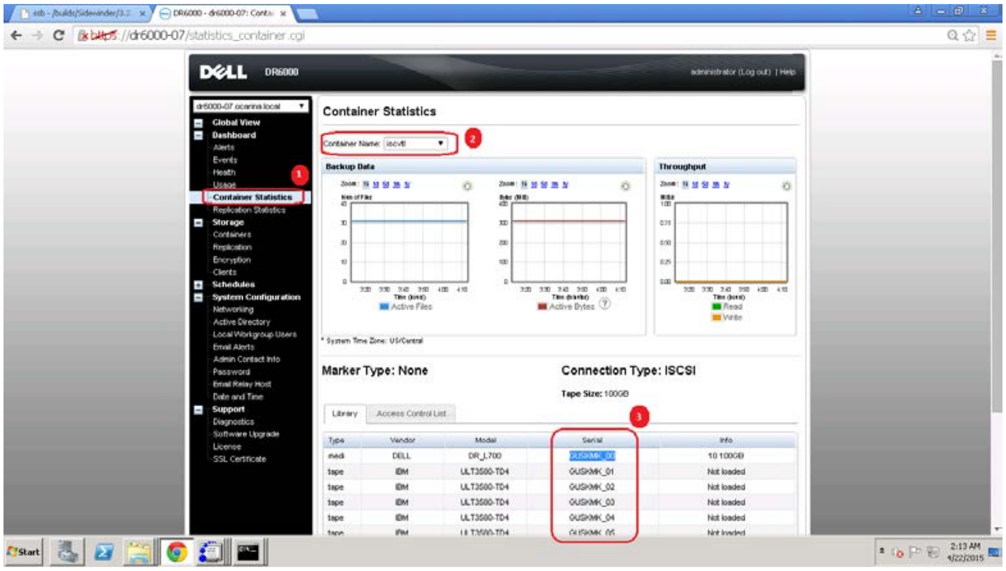
After discovery, the VTL and all drives are listed on the Storage tab.



Name	State	Storage Type
swsys6iscvtl6 DELL DR_L700	Online	Robotic li...
Tape drive 0001 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0002 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0003 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0004 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0005 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0006 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0007 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0008 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0009 (No media) IBM ULT3580-TD4	Online	Tape drive
Tape drive 0010 (No media) IBM ULT3580-TD4	Online	Tape drive
Slots		Robotic li...
Tape and Disk Cartridge Media		
All Tape Media		All Tape M...

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.



Container Statistics

Container Name: iscvtl

* System Time Zone: US/Central

Marker Type: None

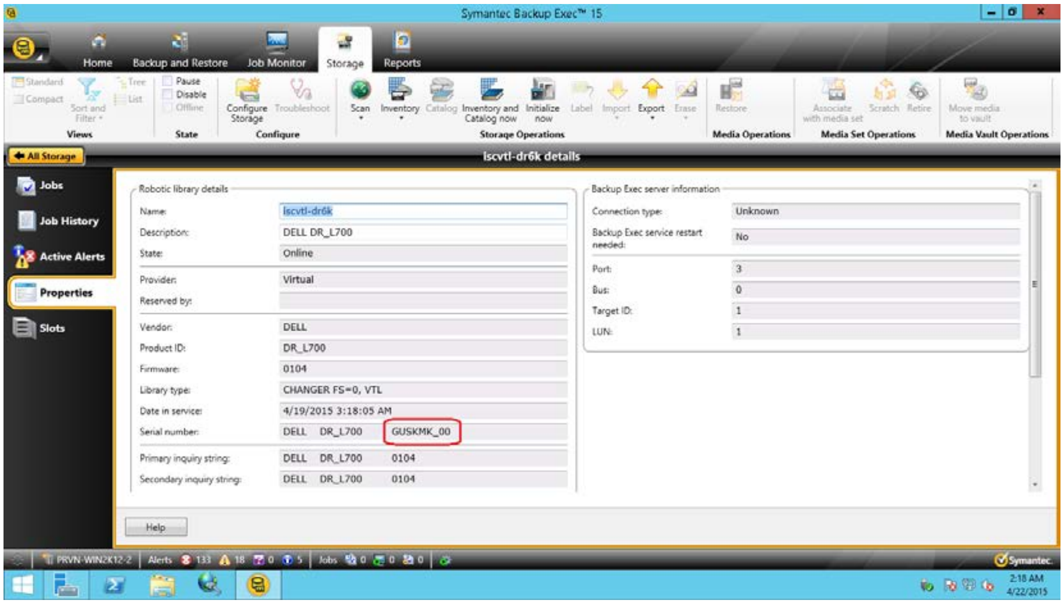
Connection Type: ISCSI

Tape Size: 100GB

Library | Access Control List

Type	Vendor	Model	Serial	Info
medi	DELL	DR_L700	OUSKMK_00	10 100GB
tape	IBM	ULT3580-TD4	OUSKMK_01	Not loaded
tape	IBM	ULT3580-TD4	OUSKMK_02	Not loaded
tape	IBM	ULT3580-TD4	OUSKMK_03	Not loaded
tape	IBM	ULT3580-TD4	OUSKMK_04	Not loaded
tape	IBM	ULT3580-TD4	OUSKMK_05	Not loaded

Or, on the Backup Exec Server, on the Storage Tab go to **Library** > **Details**.



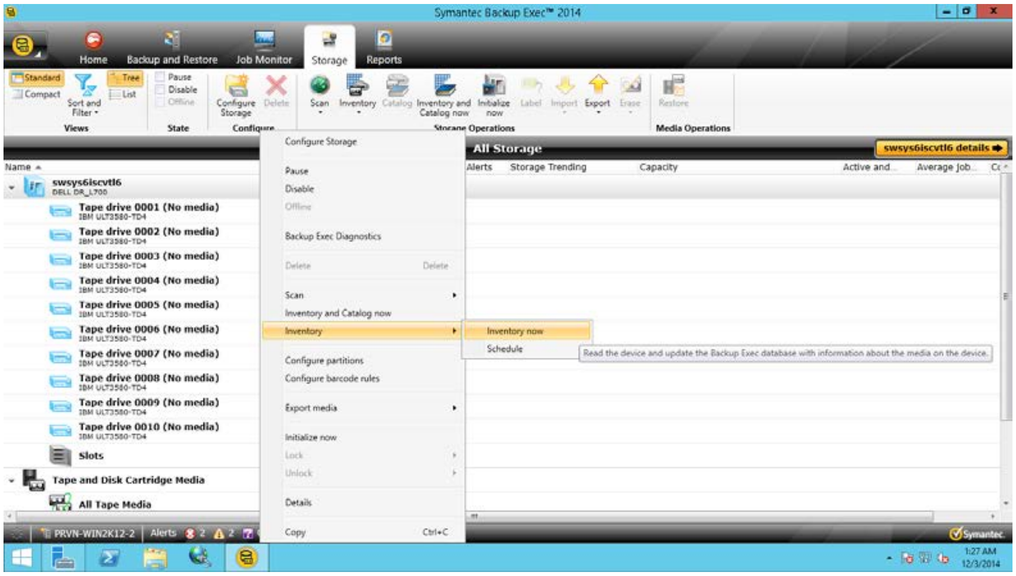
Robotic library details

Name:	iscvtl-dr6k
Description:	DELL DR_L700
State:	Online
Provider:	Virtual
Reserved by:	
Vendor:	DELL
Product ID:	DR_L700
Firmware:	0104
Library type:	CHANGER FS=0, VTL
Date in service:	4/19/2015 3:18:05 AM
Serial number:	DELL DR_L700 GUSKMK_00
Primary inquiry string:	DELL DR_L700 0104
Secondary inquiry string:	DELL DR_L700 0104

Backup Exec server information

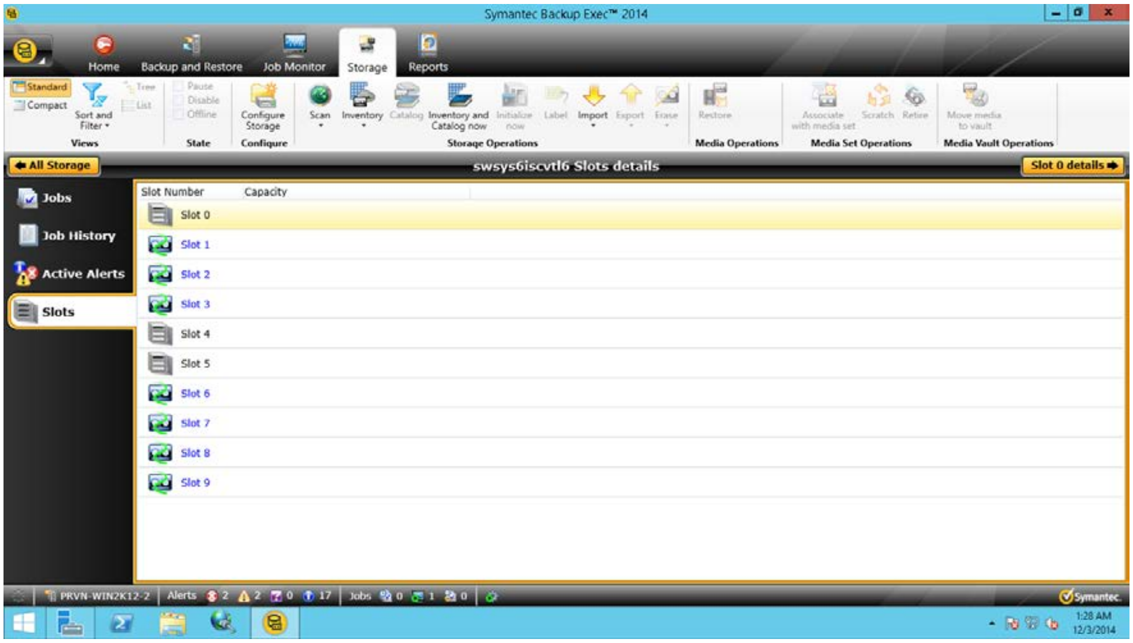
Connection type:	Unknown
Backup Exec service restart needed:	No
Port:	3
Bus:	0
Target ID:	1
LUN:	1

4. Run the Inventory to mount the media in the drive and read the media label by right-clicking **Library** > **Inventory** > **Inventory Now**.



Symantec Backup Exec™ 2014
Home
Backup and Restore
Job Monitor
Storage
Reports
All Storage
swsys6iscvtl6 details
swsys6iscvtl6
DELL DR_L700
Tape drive 0001 (No media)
Tape drive 0002 (No media)
Tape drive 0003 (No media)
Tape drive 0004 (No media)
Tape drive 0005 (No media)
Tape drive 0006 (No media)
Tape drive 0007 (No media)
Tape drive 0008 (No media)
Tape drive 0009 (No media)
Tape drive 0010 (No media)
Slots
Tape and Disk Cartridge Media
All Tape Media
Configure Storage
Pause
Disable
Offline
Backup Exec Diagnostics
Delete
Scan
Inventory and Catalog now
Inventory
Configure partitions
Configure barcode rules
Export media
Initialize now
Lock
Unlock
Details
Copy Ctrl+C
Inventory now
Schedule
Read the device and update the Backup Exec database with information about the media on the device.

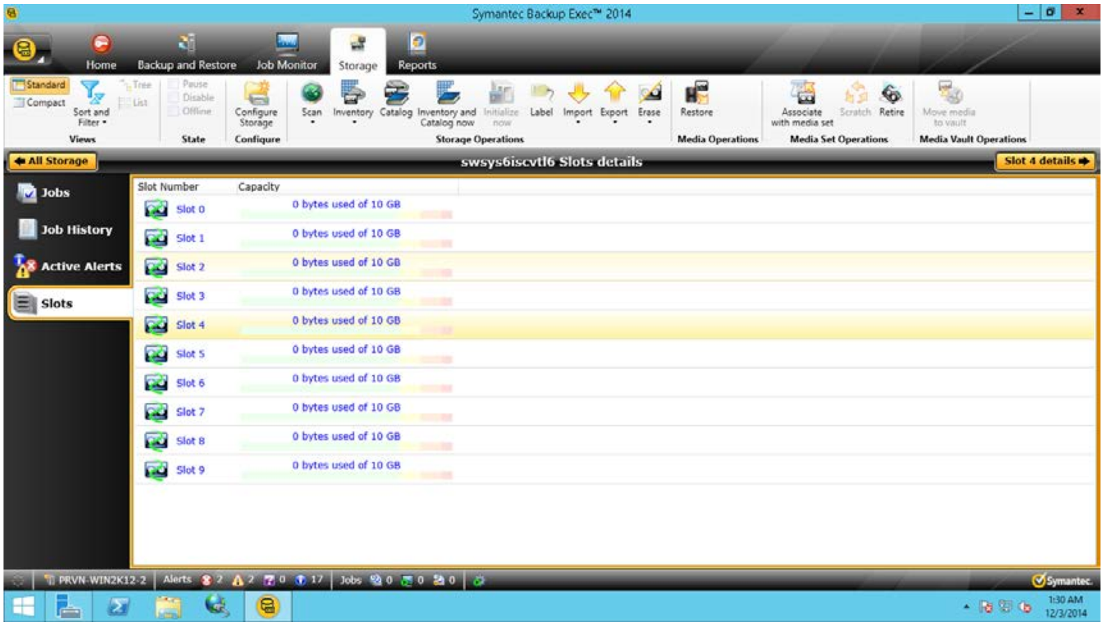
5. To see slot level details before running Inventory, on the Storage tab, select **Details** > **Select Slots**.



swsys6iscvtl6 Slots details

Slot Number	Capacity
Slot 0	
Slot 1	
Slot 2	
Slot 3	
Slot 4	
Slot 5	
Slot 6	
Slot 7	
Slot 8	
Slot 9	

After Inventory –



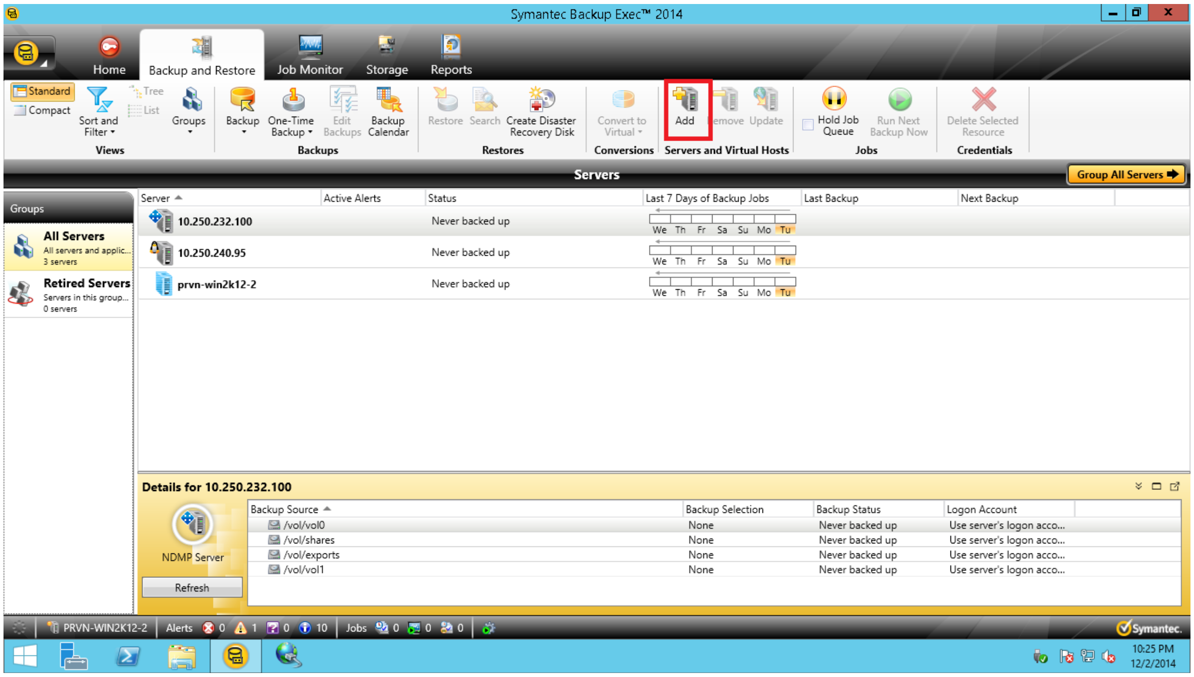
swsys6iscvtl6 Slots details

Slot Number	Capacity
Slot 0	0 bytes used of 10 GB
Slot 1	0 bytes used of 10 GB
Slot 2	0 bytes used of 10 GB
Slot 3	0 bytes used of 10 GB
Slot 4	0 bytes used of 10 GB
Slot 5	0 bytes used of 10 GB
Slot 6	0 bytes used of 10 GB
Slot 7	0 bytes used of 10 GB
Slot 8	0 bytes used of 10 GB
Slot 9	0 bytes used of 10 GB

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.



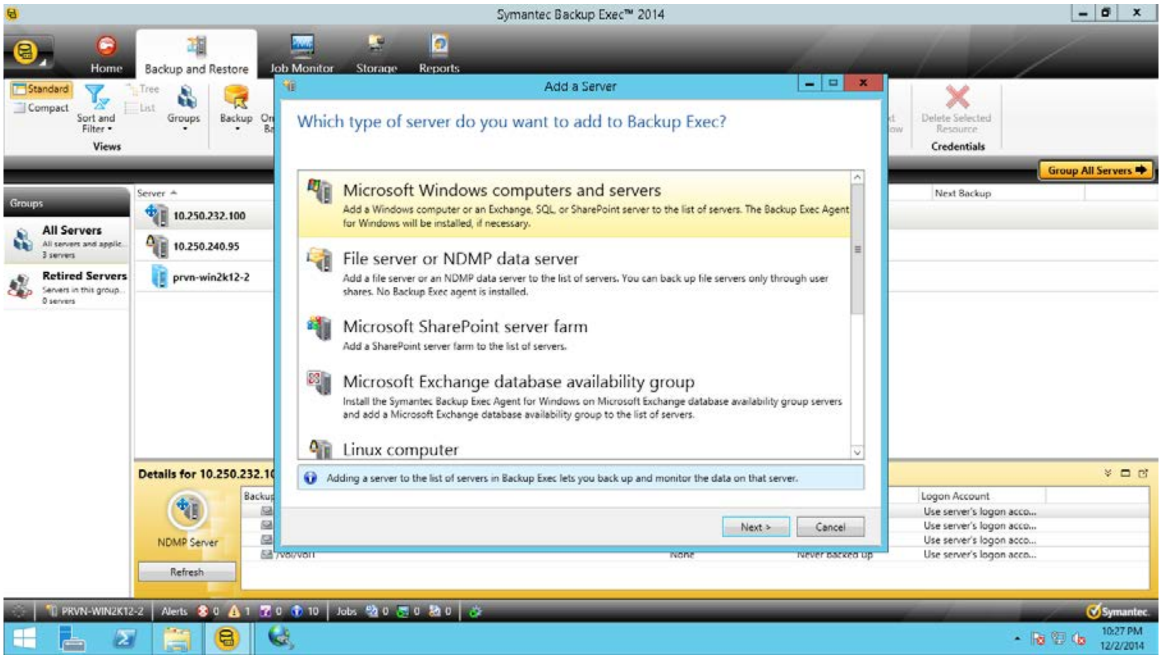
Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
10.250.232.100		Never backed up	We Th Fr Sa Su Mo Tu		
10.250.240.95		Never backed up	We Th Fr Sa Su Mo Tu		
prvn-win2k12-2		Never backed up	We Th Fr Sa Su Mo Tu		

Details for 10.250.232.100

Backup Source	Backup Selection	Backup Status	Logon Account
/vol/vol0	None	Never backed up	Use server's logon acco...
/vol/shares	None	Never backed up	Use server's logon acco...
/vol/exports	None	Never backed up	Use server's logon acco...
/vol/vol1	None	Never backed up	Use server's logon acco...

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.



Add a Server

Which type of server do you want to add to Backup Exec?

Microsoft Windows computers and servers
Add a Windows computer or an Exchange, SQL, or SharePoint server to the list of servers. The Backup Exec Agent for Windows will be installed, if necessary.

File server or NDMP data server
Add a file server or an NDMP data server to the list of servers. You can back up file servers only through user shares. No Backup Exec agent is installed.

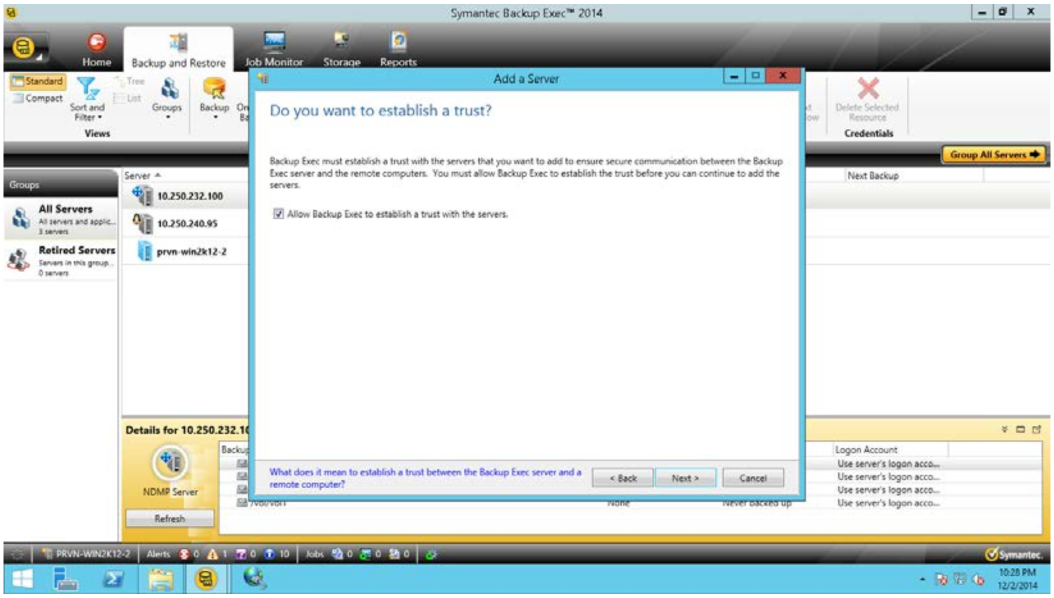
Microsoft SharePoint server farm
Add a SharePoint server farm to the list of servers.

Microsoft Exchange database availability group
Install the Symantec Backup Exec Agent for Windows on Microsoft Exchange database availability group servers and add a Microsoft Exchange database availability group to the list of servers.

Linux computer

Adding a server to the list of servers in Backup Exec lets you back up and monitor the data on that server.

3. Using the Default settings, click **Next** to proceed.



Add a Server

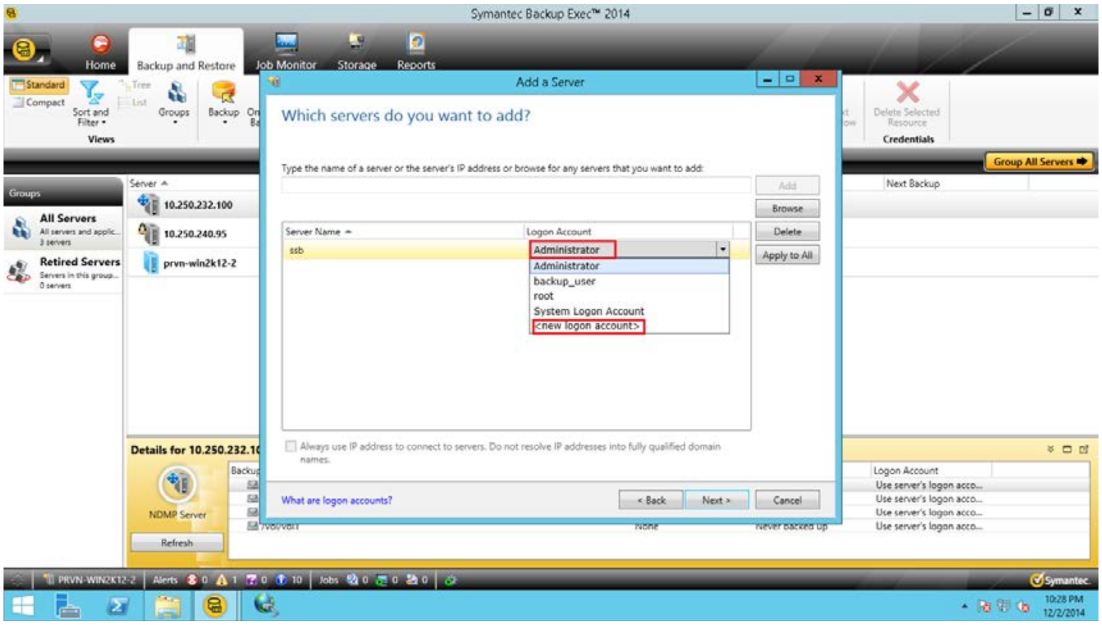
Do you want to establish a trust?

Backup Exec must establish a trust with the servers that you want to add to ensure secure communication between the Backup Exec server and the remote computers. You must allow Backup Exec to establish the trust before you can continue to add the servers.

☑ Allow Backup Exec to establish a trust with the servers.

What does it mean to establish a trust between the Backup Exec server and a remote computer?

4. Provide the access credentials for the server you want to add. Select from the drop drown or create new logon details as required.



Which servers do you want to add?

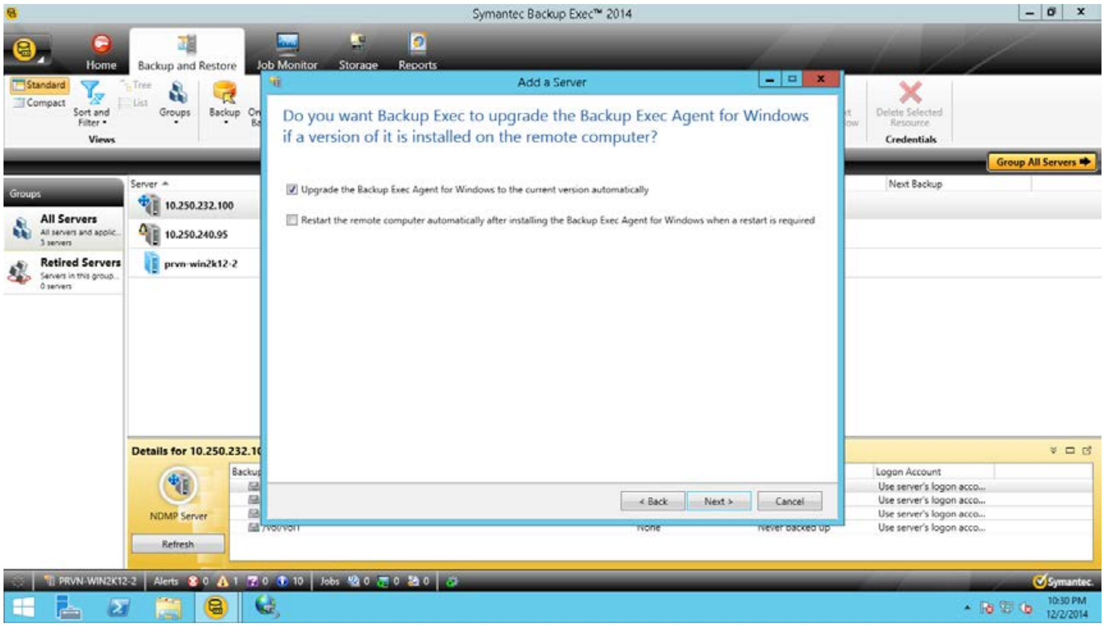
Type the name of a server or the server's IP address or browse for any servers that you want to add:

Server Name	Logon Account
ssb	Administrator

Administrator
backup_user
root
System Logon Account
<new logon account>

□ Always use IP address to connect to servers. Do not resolve IP addresses into fully qualified domain names.

5. Using the default settings, click **Next** to proceed.

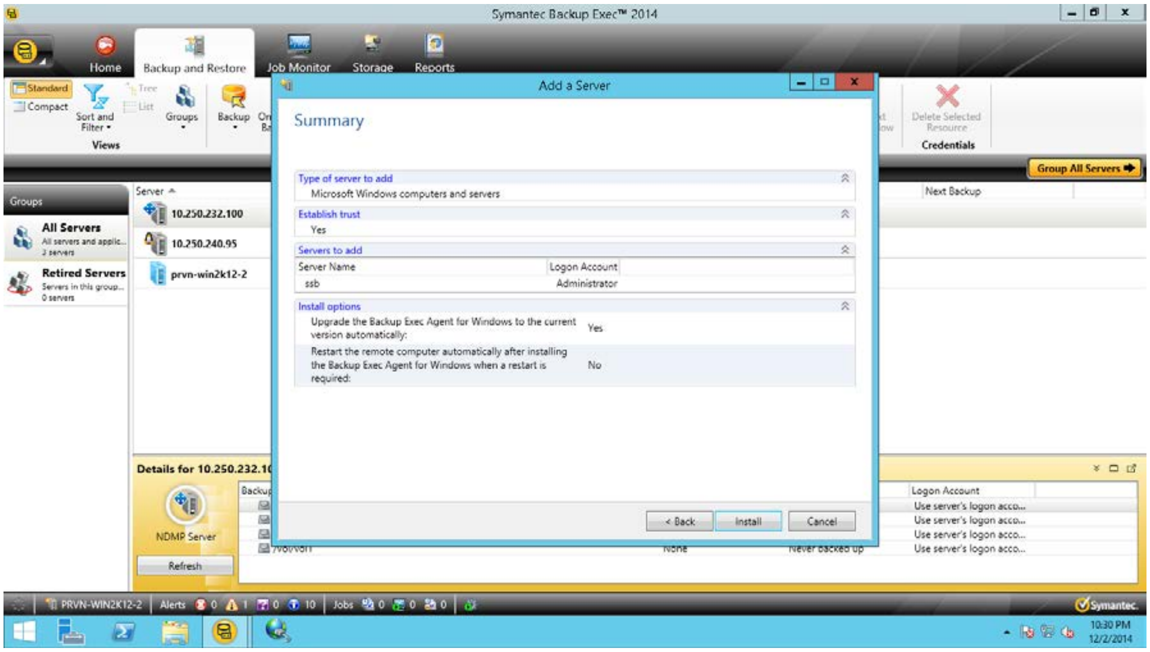


Do you want Backup Exec to upgrade the Backup Exec Agent for Windows if a version of it is installed on the remote computer?

☑ Upgrade the Backup Exec Agent for Windows to the current version automatically

□ Restart the remote computer automatically after installing the Backup Exec Agent for Windows when a restart is required

6. On the final summary screen, click **Install**.



Summary

Type of server to add
Microsoft Windows computers and servers

Establish trust
Yes

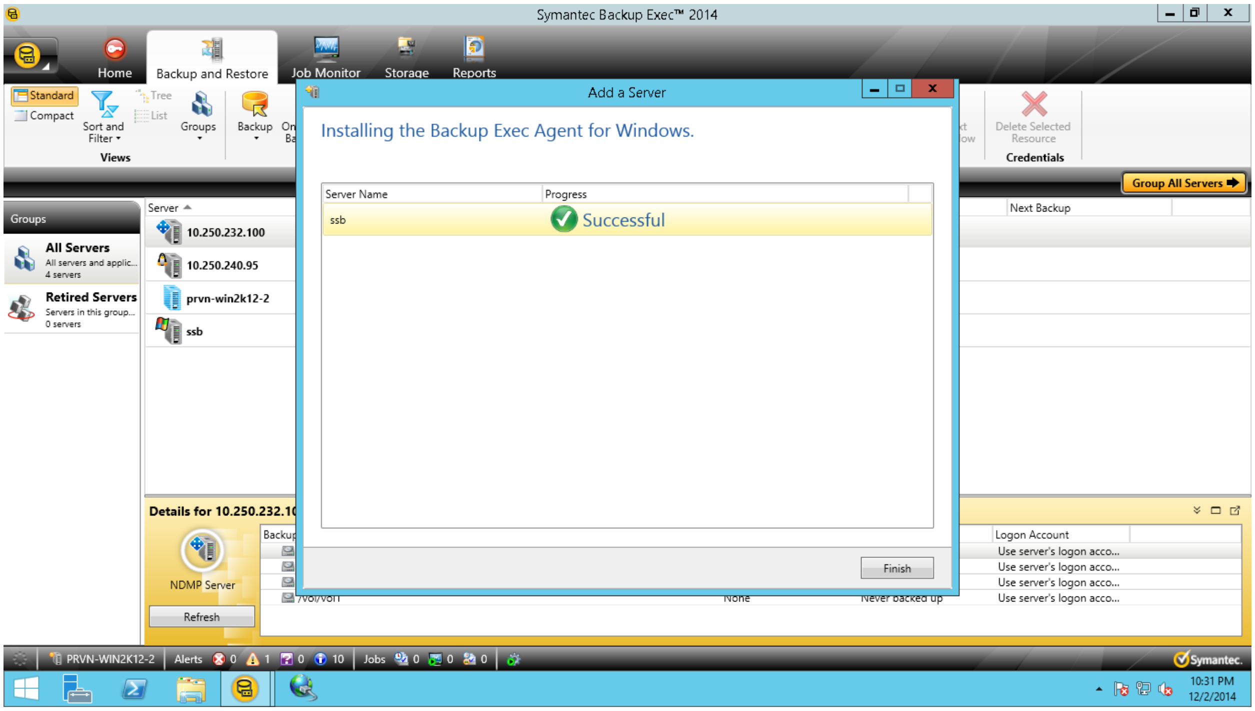
Servers to add

Server Name	Logon Account
ssb	Administrator

Install options

Upgrade the Backup Exec Agent for Windows to the current version automatically:	Yes
Restart the remote computer automatically after installing the Backup Exec Agent for Windows when a restart is required:	No

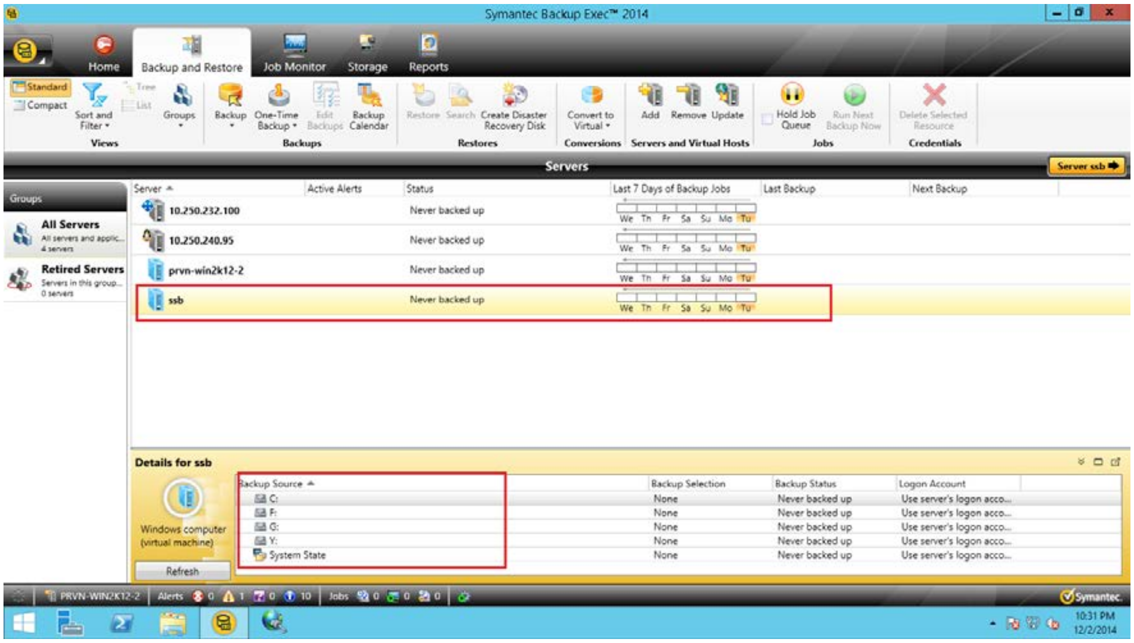
The following screen shows the successful installation of a Remote Backup Exec Agent on the server.



Installing the Backup Exec Agent for Windows.

Server Name	Progress
ssb	✓ Successful

The Backup and Restore tab shows the newly added server and details as shown in following screen.



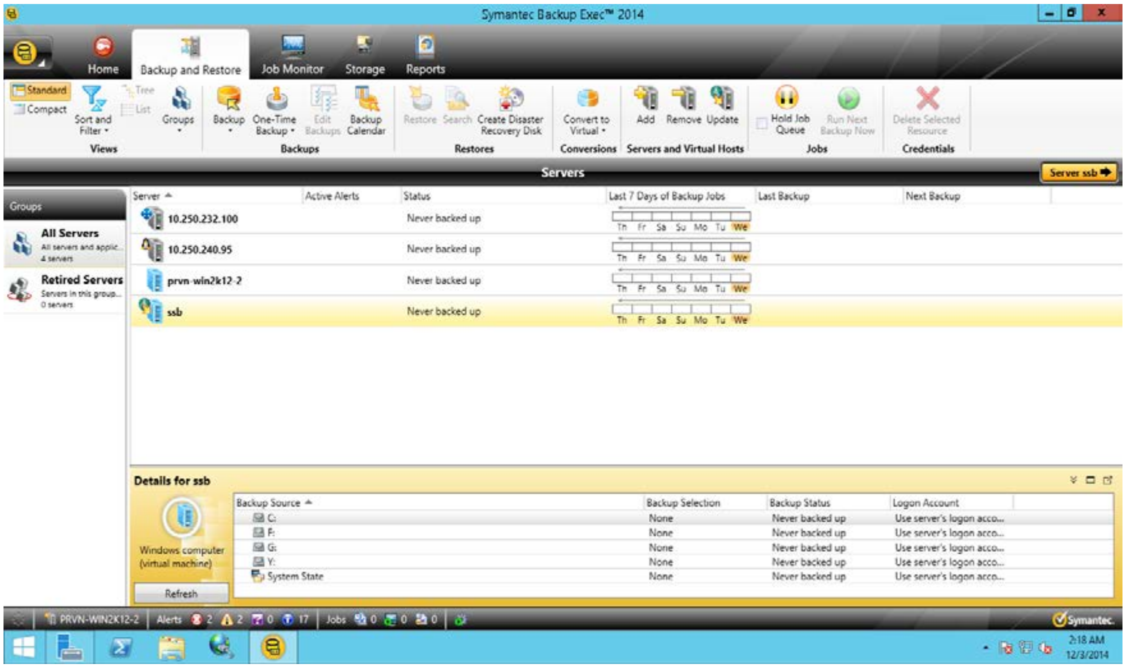
Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
10.250.232.100		Never backed up	We Th Fr Sa Su Mo Tu		
10.250.240.95		Never backed up	We Th Fr Sa Su Mo Tu		
prvn-win2k12-2		Never backed up	We Th Fr Sa Su Mo Tu		
ssb		Never backed up	We Th Fr Sa Su Mo Tu		

Details for ssb

Windows computer (virtual machine)

Backup Source	Backup Selection	Backup Status	Logon Account
C:	None	Never backed up	Use server's logon acco...
F:	None	Never backed up	Use server's logon acco...
G:	None	Never backed up	Use server's logon acco...
Y:	None	Never backed up	Use server's logon acco...
System State	None	Never backed up	Use server's logon acco...

7. On the Backup and Restore tab, select the server that contains the data to back up and go to Details.

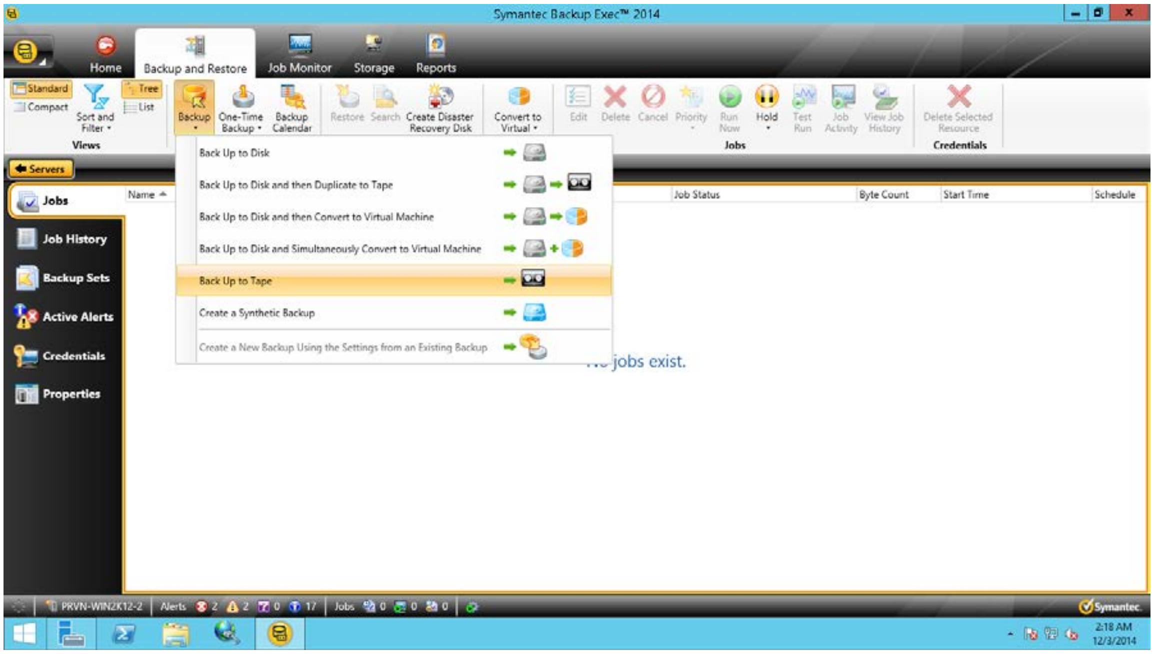


Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
10.250.232.100		Never backed up	Th Fr Sa Su Mo Tu We		
10.250.240.95		Never backed up	Th Fr Sa Su Mo Tu We		
prvn-win2k12-2		Never backed up	Th Fr Sa Su Mo Tu We		
ssb		Never backed up	Th Fr Sa Su Mo Tu We		

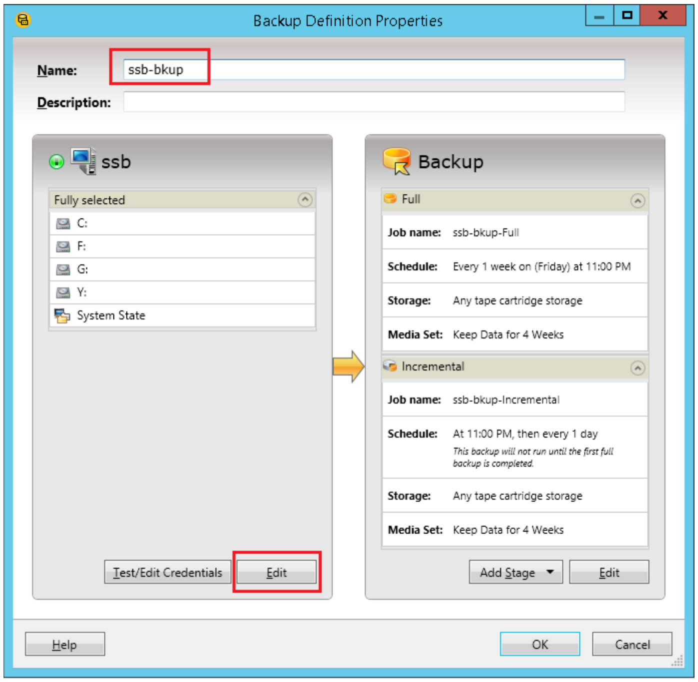
Details for ssb

Backup Source	Backup Selection	Backup Status	Logon Account
C:	None	Never backed up	Use server's logon acco...
F:	None	Never backed up	Use server's logon acco...
G:	None	Never backed up	Use server's logon acco...
Y:	None	Never backed up	Use server's logon acco...
System State	None	Never backed up	Use server's logon acco...

8. Select **Backup** > **Back up to Tape**.



9. Enter a name for the policy and click **Edit** to select the server file systems.



Backup Definition Properties

Name: ssb-bkup

Description:

Job name: ssb-bkup-Full

Schedule: Every 1 week on (Friday) at 11:00 PM

Storage: Any tape cartridge storage

Media Set: Keep Data for 4 Weeks

Job name: ssb-bkup-Incremental

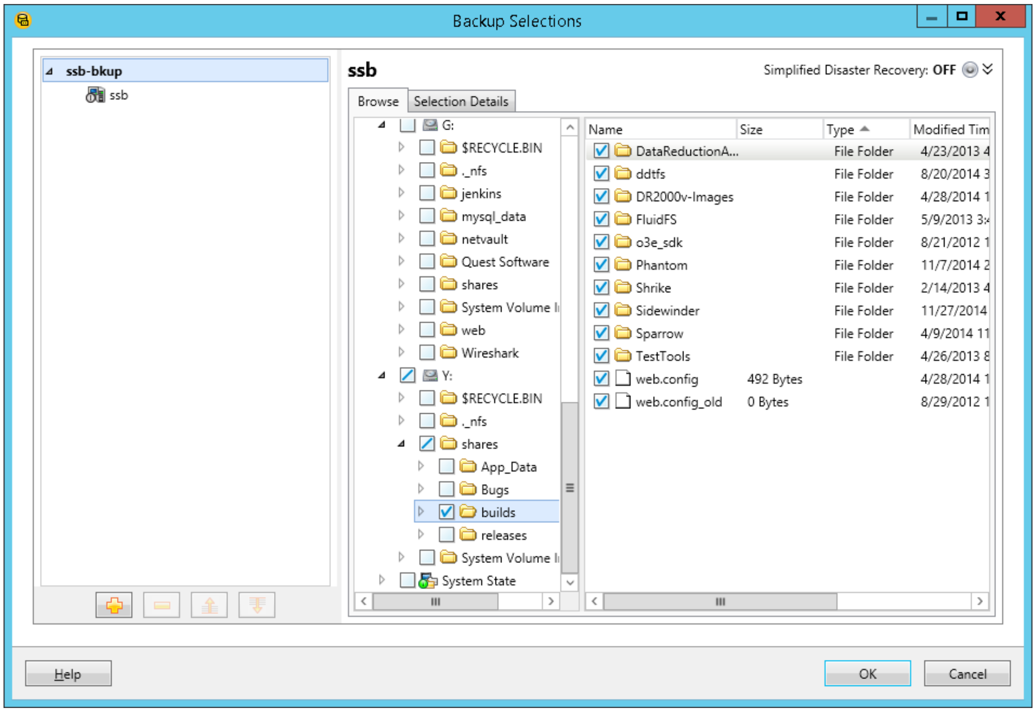
Schedule: At 11:00 PM, then every 1 day

This backup will not run until the first full backup is completed.

Storage: Any tape cartridge storage

Media Set: Keep Data for 4 Weeks

10. Browse and select the data to back up and click **OK** to continue.



Backup Selections

ssb-bkup
ssb

ssb

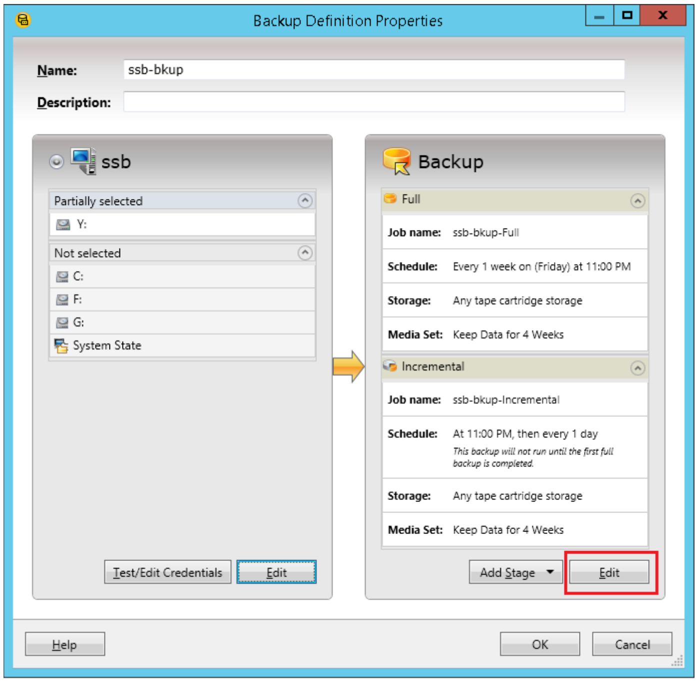
Simplified Disaster Recovery: **OFF**

Browse | Selection Details

- □ G:
  - □ $RECYCLE.BIN
  - □ ._nfs
  - □ jenkins
  - □ mysql_data
  - □ netvault
  - □ Quest Software
  - □ shares
  - □ System Volume I
  - □ web
  - □ Wireshark
- ☑ Y:
  - □ $RECYCLE.BIN
  - □ ._nfs
  - ☑ shares
    - □ App_Data
    - □ Bugs
    - ☑ builds
    - □ releases
  - □ System Volume I
- □ System State

Name	Size	Type	Modified Tim
☑ DataReductionA...		File Folder	4/23/2013 4
☑ ddtfs		File Folder	8/20/2014 3
☑ DR2000v-Images		File Folder	4/28/2014 1
☑ FluidFS		File Folder	5/9/2013 3:
☑ o3e_sdk		File Folder	8/21/2012 1
☑ Phantom		File Folder	11/7/2014 2
☑ Shrike		File Folder	2/14/2013 4
☑ Sidewinder		File Folder	11/27/2014
☑ Sparrow		File Folder	4/9/2014 11
☑ TestTools		File Folder	4/26/2013 8
☑ web.config	492 Bytes		4/28/2014 1
☑ web.config_old	0 Bytes		8/29/2012 1

11. Click the **Edit** button to update backup settings and provide the storage location.



Backup Definition Properties

Name: ssb-bkup

Description:

ssb

Partially selected
Y:

Not selected
C:
F:
G:
System State

Backup

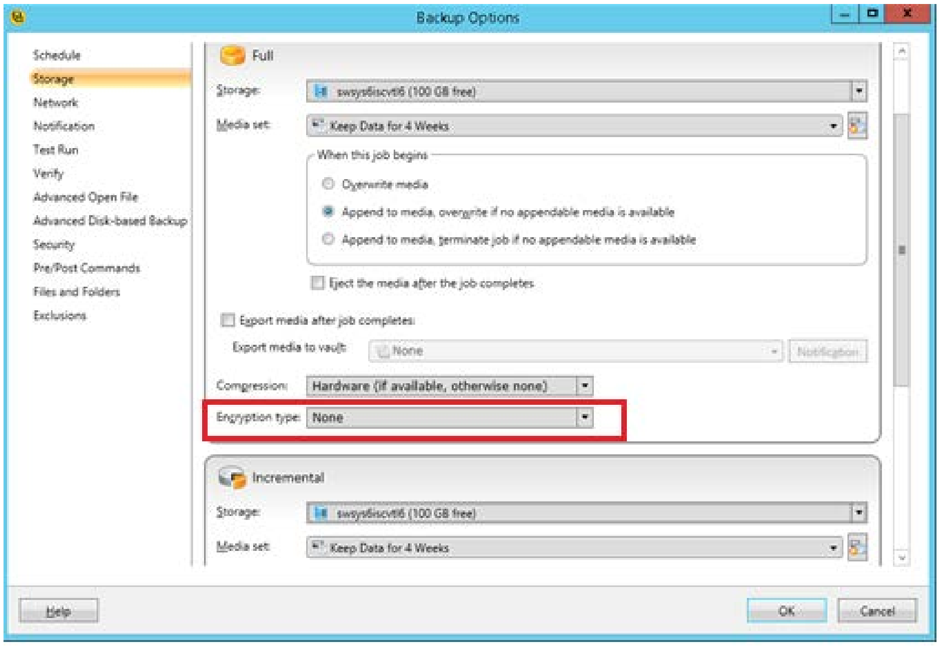
Full

Job name:	ssb-bkup-Full
Schedule:	Every 1 week on (Friday) at 11:00 PM
Storage:	Any tape cartridge storage
Media Set:	Keep Data for 4 Weeks

Incremental

Job name:	ssb-bkup-Incremental
Schedule:	At 11:00 PM, then every 1 day *This backup will not run until the first full backup is completed.*
Storage:	Any tape cartridge storage
Media Set:	Keep Data for 4 Weeks

12. Click the **Storage** link on the left pane and select the required tape library as the storage unit.



Backup Options

Full

Storage: swsys6iscvtl6 (100 GB free)

Media set: Keep Data for 4 Weeks

When this job begins

○ Overwrite media

● Append to media, overwrite if no appendable media is available

○ Append to media, terminate job if no appendable media is available

□ Eject the media after the job completes

□ Export media after job completes:

Export media to vault: None

Compression: Hardware (if available, otherwise none)

Encryption type: None

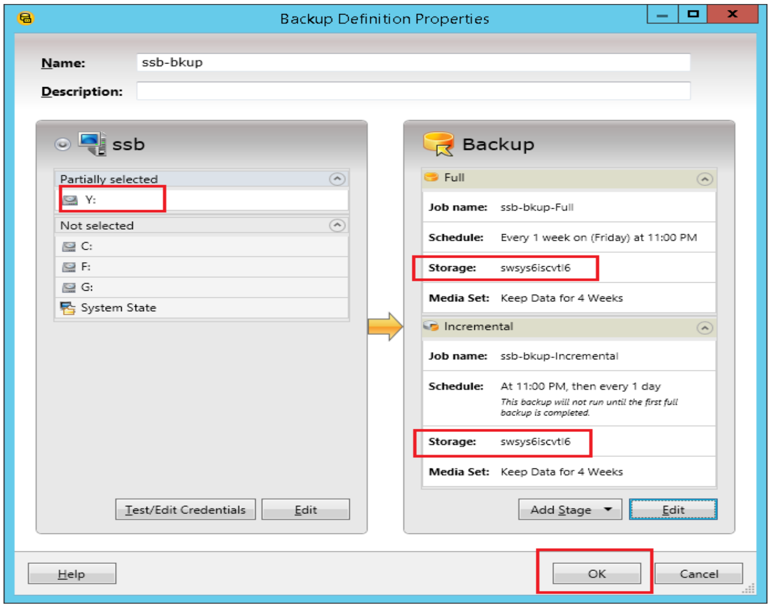
Incremental

Storage: swsys6iscvtl6 (100 GB free)

Media set: Keep Data for 4 Weeks

NOTE: Ensure that Encryption is turned off by setting it to "None". The DR Series system provides an encryption mechanismm 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**.



Backup Definition Properties

Name: ssb-bkup

Description:

ssb

Partially selected

Y:

Not selected

C:

F:

G:

System State

Backup

Full

Job name: ssb-bkup-Full

Schedule: Every 1 week on (Friday) at 11:00 PM

Storage: swsys6iscvtl6

Media Set: Keep Data for 4 Weeks

Incremental

Job name: ssb-bkup-Incremental

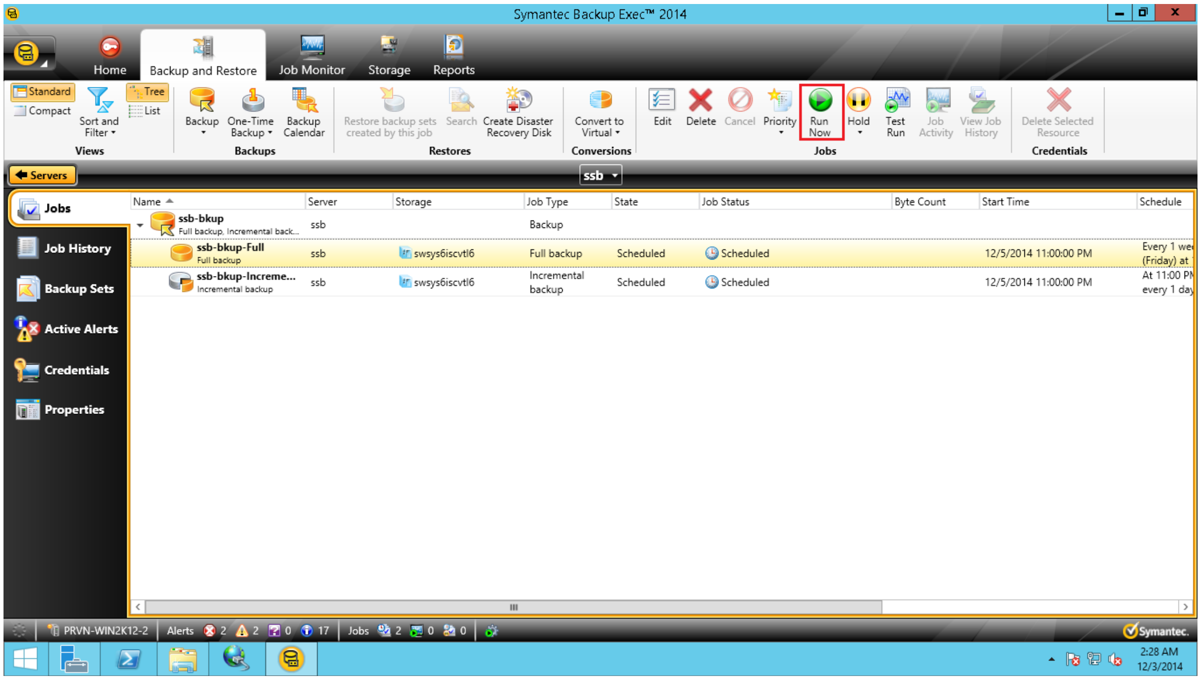
Schedule: At 11:00 PM, then every 1 day

This backup will not run until the first full backup is completed.

Storage: swsys6iscvtl6

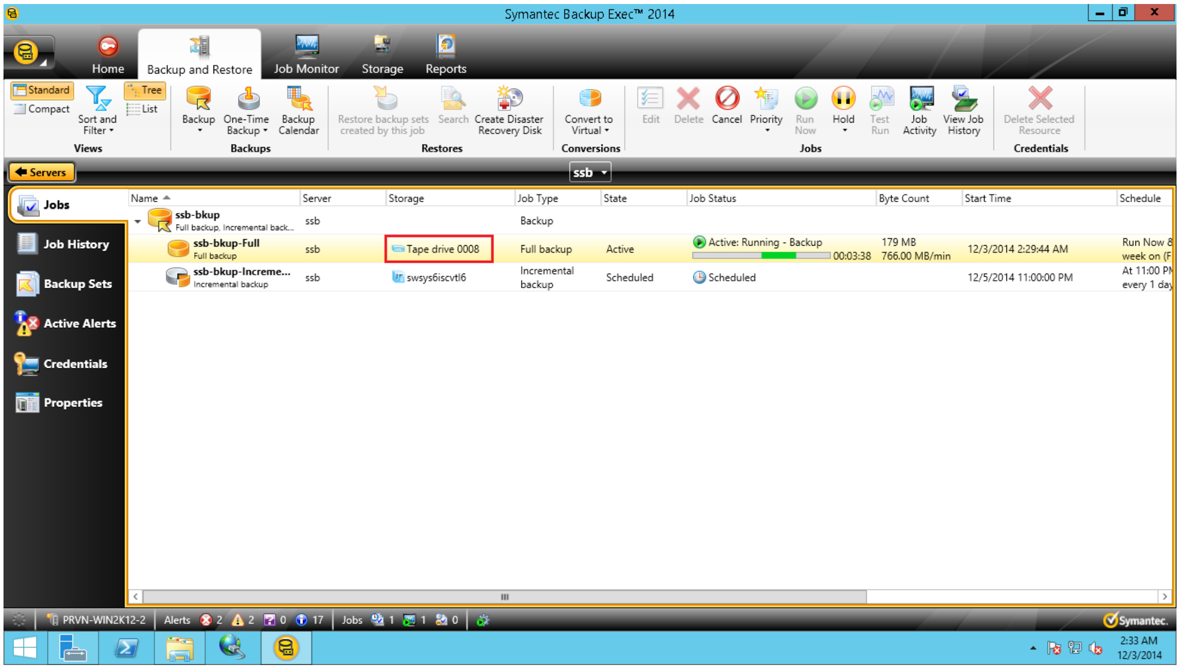
Media Set: Keep Data for 4 Weeks

14. To run a backup job, select the backup policy (FULL schedule) and click **Run Now**.



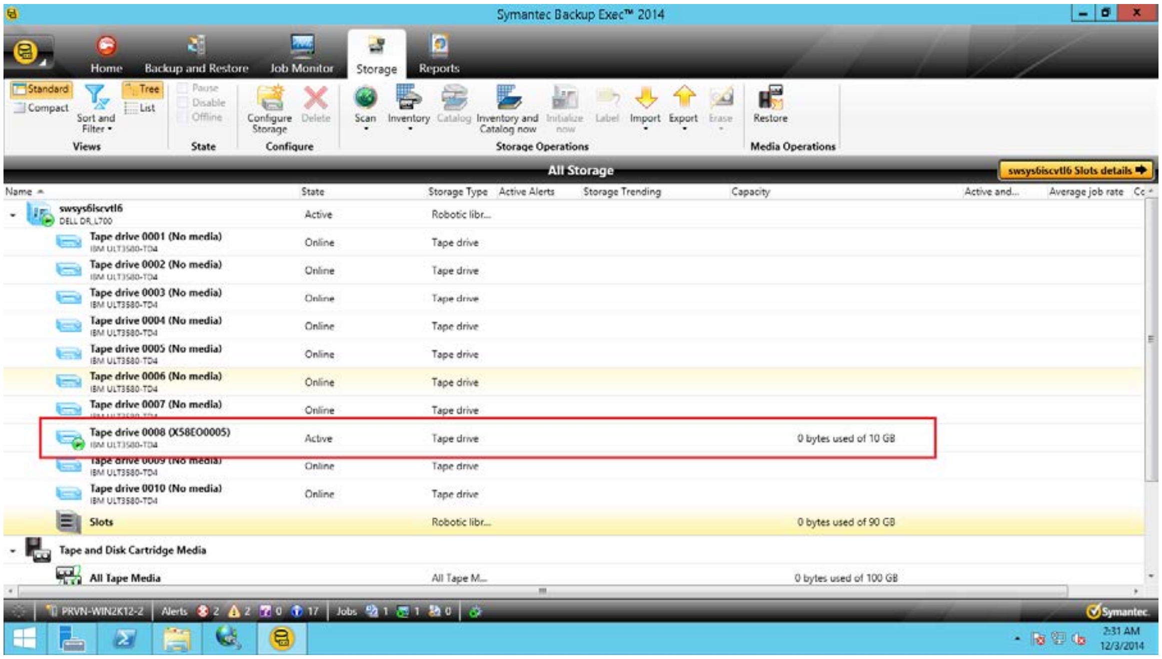
Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time	Schedule
ssb-bkup Full backup, Incremental back...	ssb		Backup					
ssb-bkup-Full Full backup	ssb	swsys6iscvtl6	Full backup	Scheduled	Scheduled		12/5/2014 11:00:00 PM	Every 1 we (Friday) at
ssb-bkup-Increme... Incremental backup	ssb	swsys6iscvtl6	Incremental backup	Scheduled	Scheduled		12/5/2014 11:00:00 PM	At 11:00 Pl every 1 day

The backup progress can be seen in the Backup and Restore as well as the tape drive being used for the job.



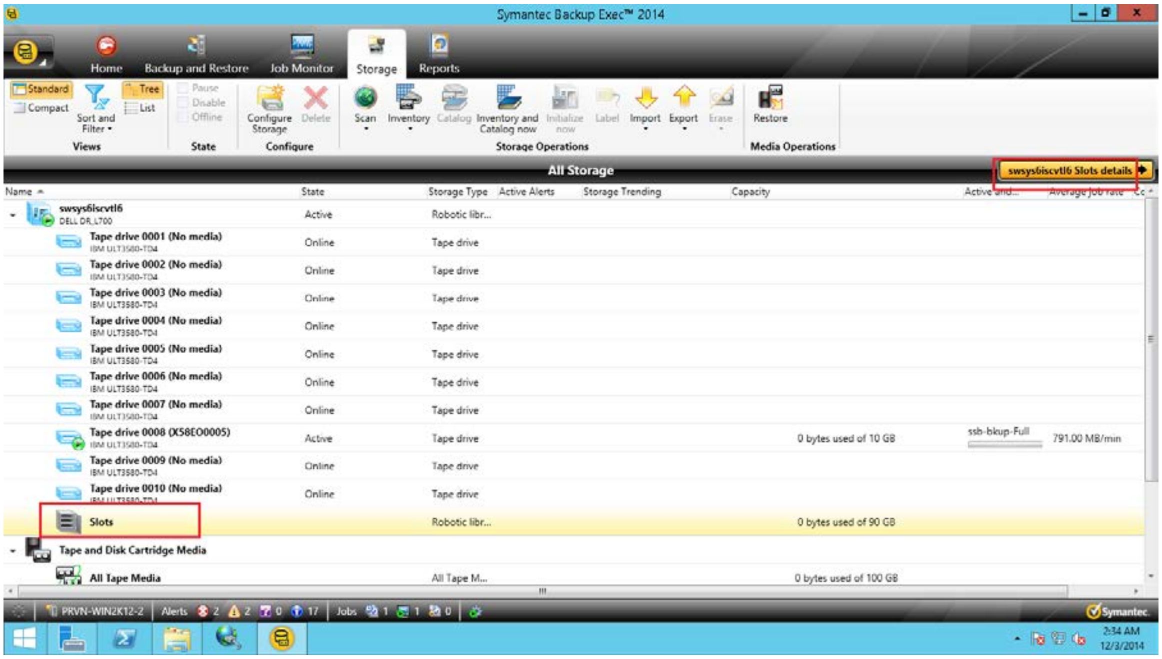
Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time	Schedule
ssb-bkup Full backup, Incremental back...	ssb		Backup					
ssb-bkup-Full Full backup	ssb	Tape drive 0008	Full backup	Active	Active: Running - Backup 00:03:38	179 MB 766.00 MB/min	12/3/2014 2:29:44 AM	Run Now & week on (F
ssb-bkup-Increme... Incremental backup	ssb	swsys6iscvtl6	Incremental backup	Scheduled	Scheduled		12/5/2014 11:00:00 PM	At 11:00 PI every 1 day

15. Go to the Storage tab to see the tape drive in use and the media ID used for writing data.



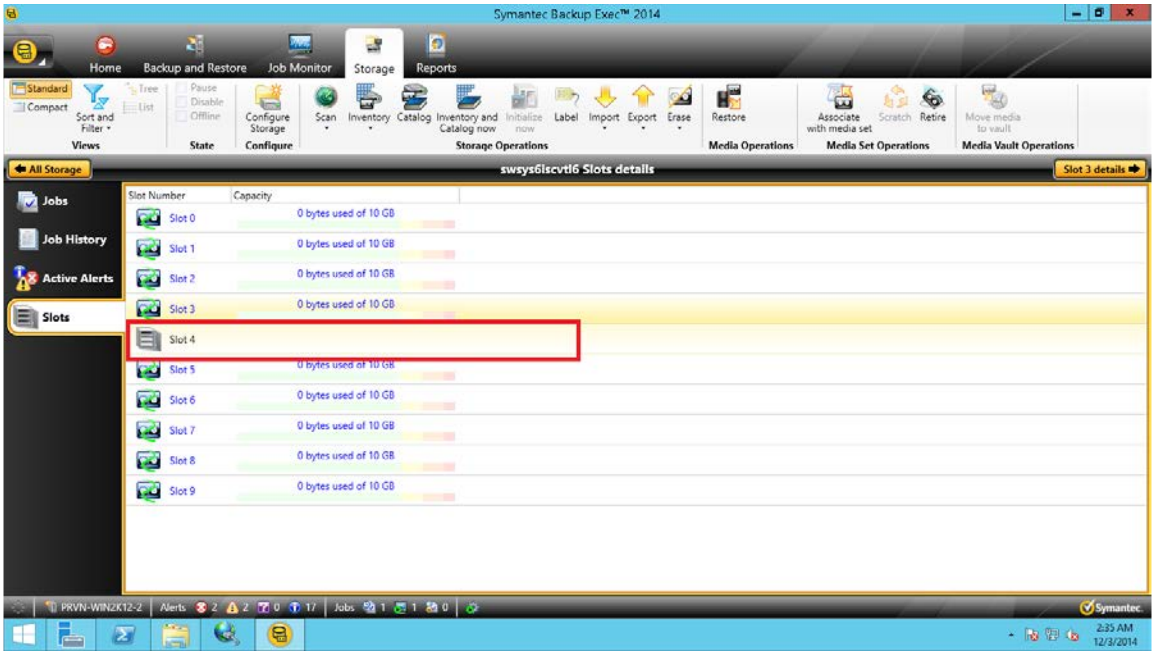
Name	State	Storage Type	Active Alerts	Storage Trending	Capacity	Active and...	Average job rate	Cc
swsys6iscvtl6 DELL DR_L700	Active	Robotic libr...						
Tape drive 0001 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0002 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0003 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0004 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0005 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0006 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0007 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0008 (X58EO0005) IBM ULT3580-TD4	Active	Tape drive			0 bytes used of 10 GB			
Tape drive 0009 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0010 (No media) IBM ULT3580-TD4	Online	Tape drive						
Slots		Robotic libr...			0 bytes used of 90 GB			
Tape and Disk Cartridge Media								
All Tape Media		All Tape M...			0 bytes used of 100 GB			

The capacity details can also be seen on the Storage tab against Slots.



Name	State	Storage Type	Active Alerts	Storage Trending	Capacity	Active and...	Average job rate	Cc
swsys6iscvtl6 DELL DR_L700	Active	Robotic libr...						
Tape drive 0001 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0002 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0003 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0004 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0005 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0006 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0007 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0008 (X58EO0005) IBM ULT3580-TD4	Active	Tape drive			0 bytes used of 10 GB	ssb-bkup-Full	791.00 MB/min	
Tape drive 0009 (No media) IBM ULT3580-TD4	Online	Tape drive						
Tape drive 0010 (No media) IBM ULT3580-TD4	Online	Tape drive						
Slots		Robotic libr...			0 bytes used of 90 GB			
Tape and Disk Cartridge Media								
All Tape Media		All Tape M...			0 bytes used of 100 GB			

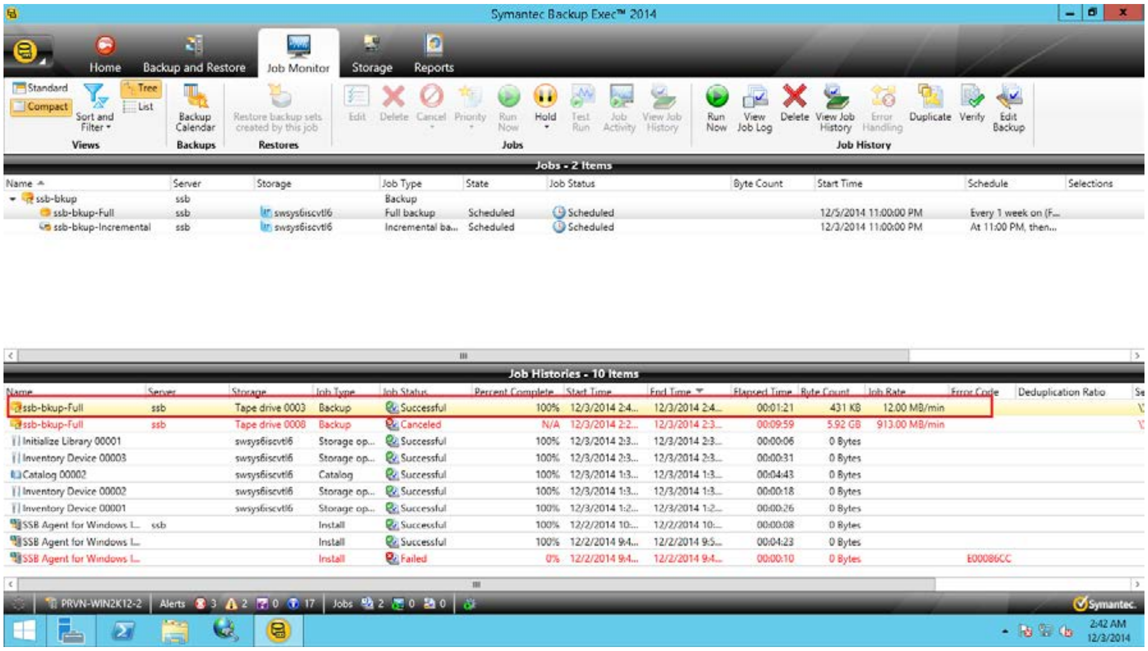
16. Go to **Slots** > **Details** to see the media available and media loaded in drive



swsys6iscvtl6 Slots details

Slot Number	Capacity
Slot 0	0 bytes used of 10 GB
Slot 1	0 bytes used of 10 GB
Slot 2	0 bytes used of 10 GB
Slot 3	0 bytes used of 10 GB
Slot 4	
Slot 5	0 bytes used of 10 GB
Slot 6	0 bytes used of 10 GB
Slot 7	0 bytes used of 10 GB
Slot 8	0 bytes used of 10 GB
Slot 9	0 bytes used of 10 GB

17. You can monitor the job status on the Job Monitor tab.



Jobs - 2 Items

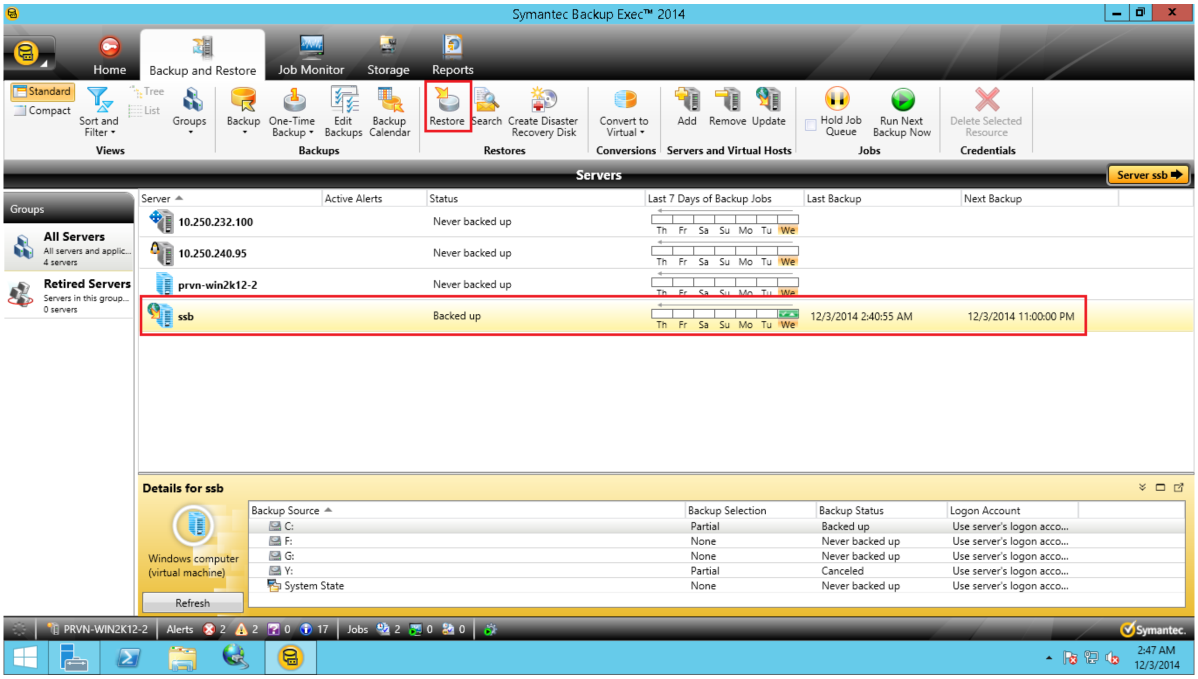
Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time	Schedule	Selections
ssb-bkup	ssb		Backup						
ssb-bkup-Full	ssb	swsys6iscvtl6	Full backup	Scheduled	Scheduled		12/5/2014 11:00:00 PM	Every 1 week on (F...	
ssb-bkup-Incremental	ssb	swsys6iscvtl6	Incremental ba...	Scheduled	Scheduled		12/3/2014 11:00:00 PM	At 11:00 PM, then...	

Job Histories - 10 Items

Name	Server	Storage	Job Type	Job Status	Percent Complete	Start Time	End Time	Elapsed Time	Byte Count	Job Rate	Error Code	Deduplication Ratio	Se
ssb-bkup-Full	ssb	Tape drive 0003	Backup	Successful	100%	12/3/2014 2:4...	12/3/2014 2:4...	00:01:21	431 KB	12.00 MB/min			\
ssb-bkup-Full	ssb	Tape drive 0008	Backup	Canceled	N/A	12/3/2014 2:2...	12/3/2014 2:3...	00:09:59	5.92 GB	913.00 MB/min			\
Initialize Library 00001		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 2:3...	12/3/2014 2:3...	00:00:06	0 Bytes				
Inventory Device 00003		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 2:3...	12/3/2014 2:3...	00:00:31	0 Bytes				
Catalog 00002		swsys6iscvtl6	Catalog	Successful	100%	12/3/2014 1:3...	12/3/2014 1:3...	00:04:43	0 Bytes				
Inventory Device 00002		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 1:3...	12/3/2014 1:3...	00:00:18	0 Bytes				
Inventory Device 00001		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 1:2...	12/3/2014 1:2...	00:00:26	0 Bytes				
SSB Agent for Windows I...	ssb		Install	Successful	100%	12/2/2014 10:...	12/2/2014 10:...	00:00:08	0 Bytes				
SSB Agent for Windows I...			Install	Successful	100%	12/2/2014 9:4...	12/2/2014 9:5...	00:04:23	0 Bytes				
SSB Agent for Windows I...			Install	Failed	0%	12/2/2014 9:4...	12/2/2014 9:4...	00:00:10	0 Bytes		E00086CC		

3.8 Restoring from tape

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

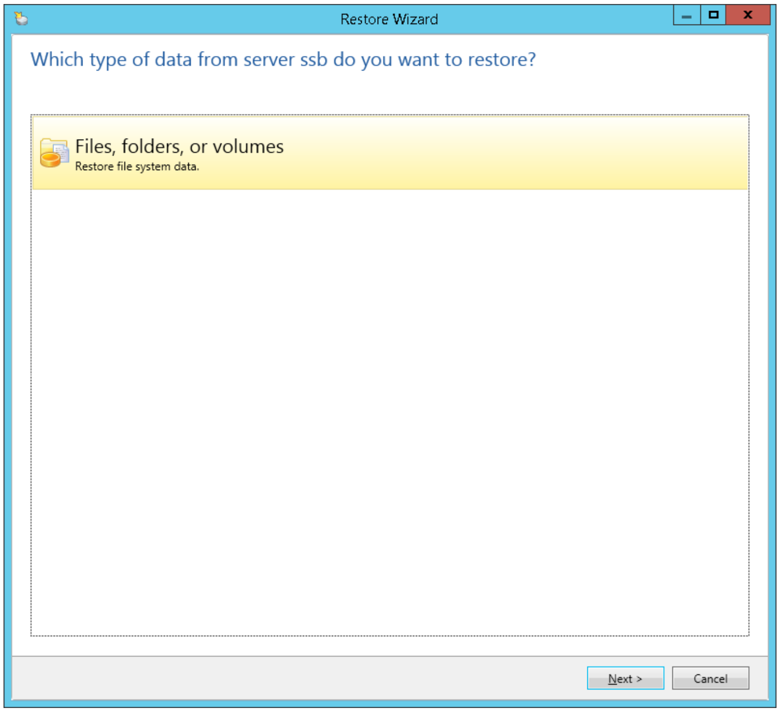


Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
10.250.232.100		Never backed up			
10.250.240.95		Never backed up			
prvn-win2k12-2		Never backed up			
ssb		Backed up		12/3/2014 2:40:55 AM	12/3/2014 11:00:00 PM

Details for ssb

Backup Source	Backup Selection	Backup Status	Logon Account
C:	Partial	Backed up	Use server's logon acco...
F:	None	Never backed up	Use server's logon acco...
G:	None	Never backed up	Use server's logon acco...
Y:	Partial	Canceled	Use server's logon acco...
System State	None	Never backed up	Use server's logon acco...

2. Using the default options, click **Next**.

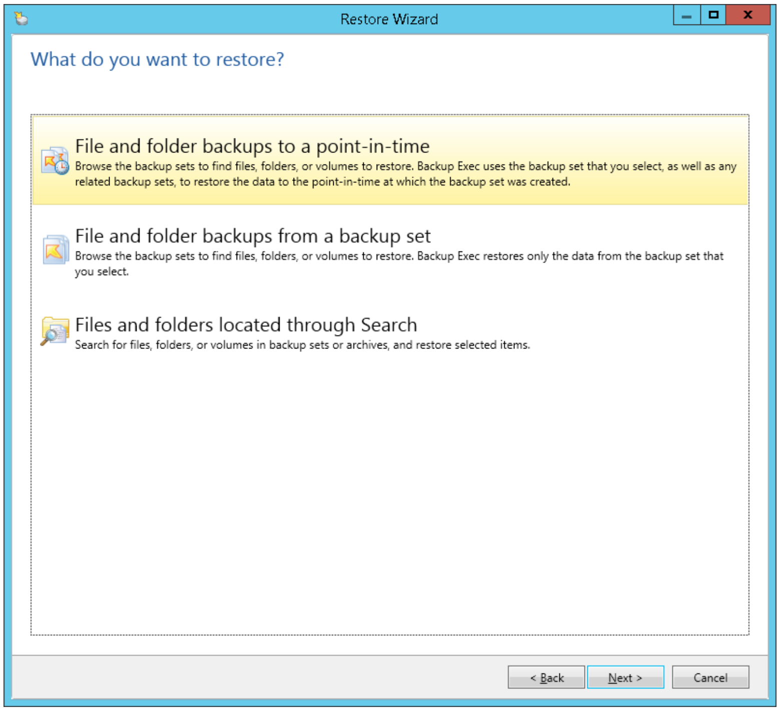


Restore Wizard

Which type of data from server ssb do you want to restore?

Files, folders, or volumes
Restore file system data.

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



Restore Wizard

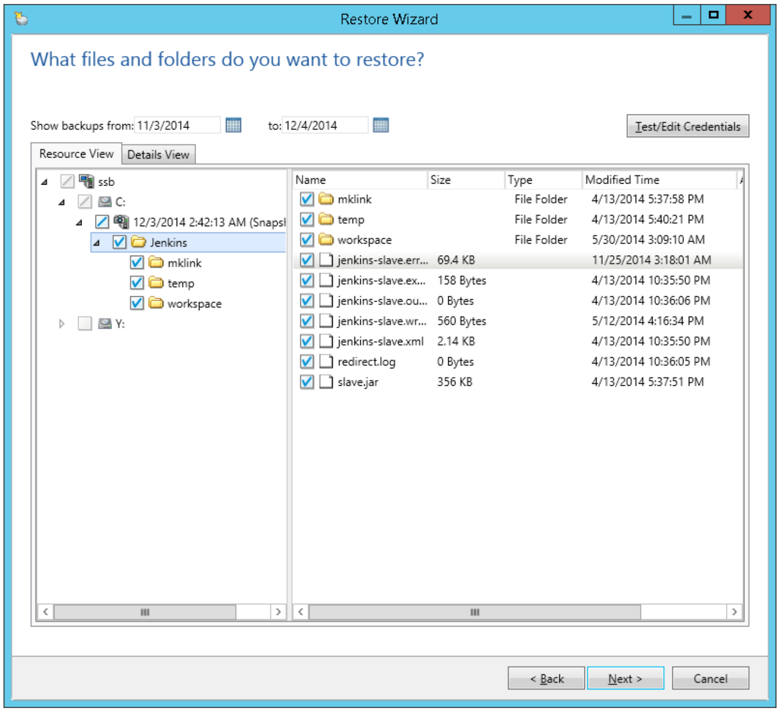
What do you want to restore?

File and folder backups to a point-in-time
Browse the backup sets to find files, folders, or volumes to restore. Backup Exec uses the backup set that you select, as well as any related backup sets, to restore the data to the point-in-time at which the backup set was created.

File and folder backups from a backup set
Browse the backup sets to find files, folders, or volumes to restore. Backup Exec restores only the data from the backup set that you select.

Files and folders located through Search
Search for files, folders, or volumes in backup sets or archives, and restore selected items.

4. Select the data to restore from the appropriate snapshot and click **Next** to proceed.



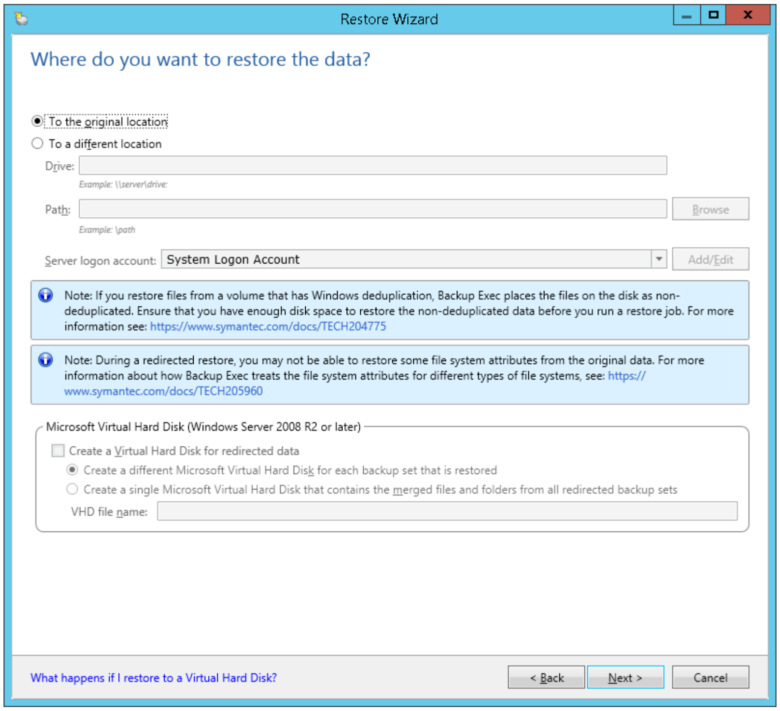
What files and folders do you want to restore?

Show backups from: 11/3/2014 to: 12/4/2014

- ssb
  - C:
    - ☑ 12/3/2014 2:42:13 AM (Snapsl
      - ☑ Jenkins
        - ☑ mklink
        - ☑ temp
        - ☑ workspace
  - ☐ Y:

Name	Size	Type	Modified Time
☑ mklink		File Folder	4/13/2014 5:37:58 PM
☑ temp		File Folder	4/13/2014 5:40:21 PM
☑ workspace		File Folder	5/30/2014 3:09:10 AM
☑ jenkins-slave.err...	69.4 KB		11/25/2014 3:18:01 AM
☑ jenkins-slave.ex...	158 Bytes		4/13/2014 10:35:50 PM
☑ jenkins-slave.ou...	0 Bytes		4/13/2014 10:36:06 PM
☑ jenkins-slave.wr...	560 Bytes		5/12/2014 4:16:34 PM
☑ jenkins-slave.xml	2.14 KB		4/13/2014 10:35:50 PM
☑ redirect.log	0 Bytes		4/13/2014 10:36:05 PM
☑ slave.jar	356 KB		4/13/2014 5:37:51 PM

5. Select the default settings if you are restoring to the original location of the data, or specify the new location and click **Next**.



Where do you want to restore the data?

● To the original location

○ To a different location

Drive:

Example: \\server\drive:

Path:

Example: \path

Server logon account: System Logon Account

Note: If you restore files from a volume that has Windows deduplication, Backup Exec places the files on the disk as non-deduplicated. Ensure that you have enough disk space to restore the non-deduplicated data before you run a restore job. For more information see: https://www.symantec.com/docs/TECH204775

Note: During a redirected restore, you may not be able to restore some file system attributes from the original data. For more information about how Backup Exec treats the file system attributes for different types of file systems, see: https://www.symantec.com/docs/TECH205960

Microsoft Virtual Hard Disk (Windows Server 2008 R2 or later)

☐ Create a Virtual Hard Disk for redirected data

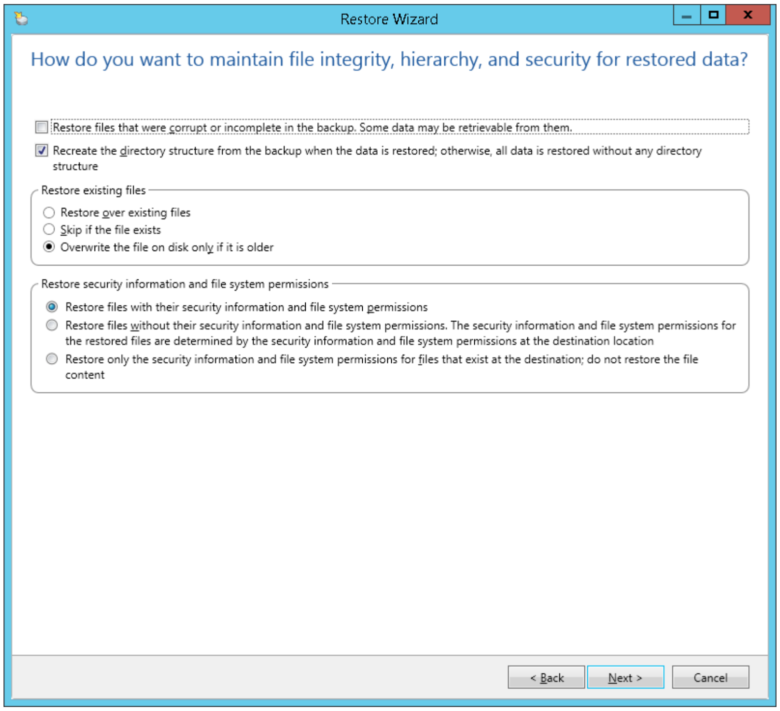
● Create a different Microsoft Virtual Hard Disk for each backup set that is restored

○ Create a single Microsoft Virtual Hard Disk that contains the merged files and folders from all redirected backup sets

VHD file name:

What happens if I restore to a Virtual Hard Disk?

6. Using the default settings, click Next.



How do you want to maintain file integrity, hierarchy, and security for restored data?

□ Restore files that were corrupt or incomplete in the backup. Some data may be retrievable from them.

☑ Recreate the directory structure from the backup when the data is restored; otherwise, all data is restored without any directory structure

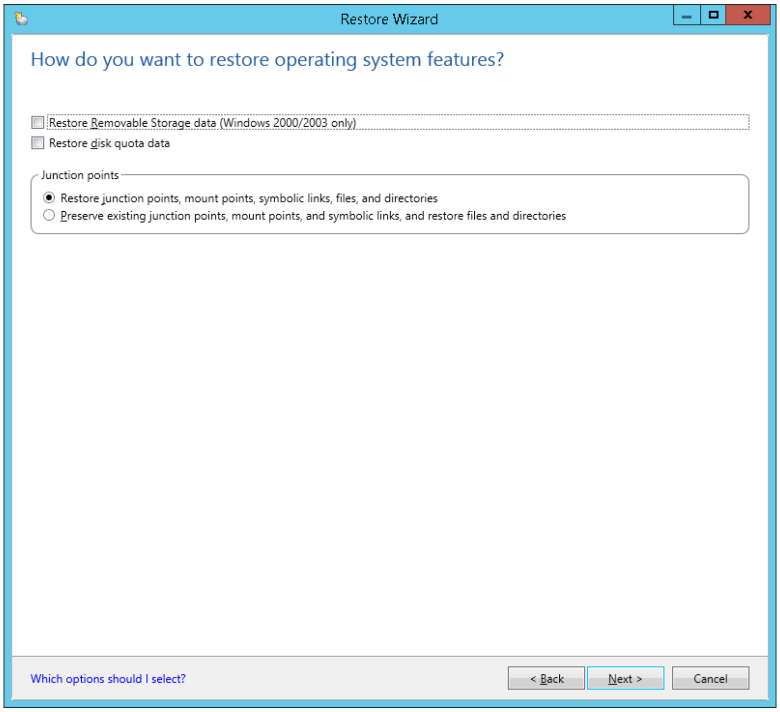
Restore existing files

○ Restore over existing files
○ Skip if the file exists
● Overwrite the file on disk only if it is older

Restore security information and file system permissions

● Restore files with their security information and file system permissions
○ Restore files without their security information and file system permissions. The security information and file system permissions for the restored files are determined by the security information and file system permissions at the destination location
○ Restore only the security information and file system permissions for files that exist at the destination; do not restore the file content

7. Using the default settings, click **Next** to proceed.



Restore Wizard

How do you want to restore operating system features?

☐ Restore Removable Storage data (Windows 2000/2003 only)

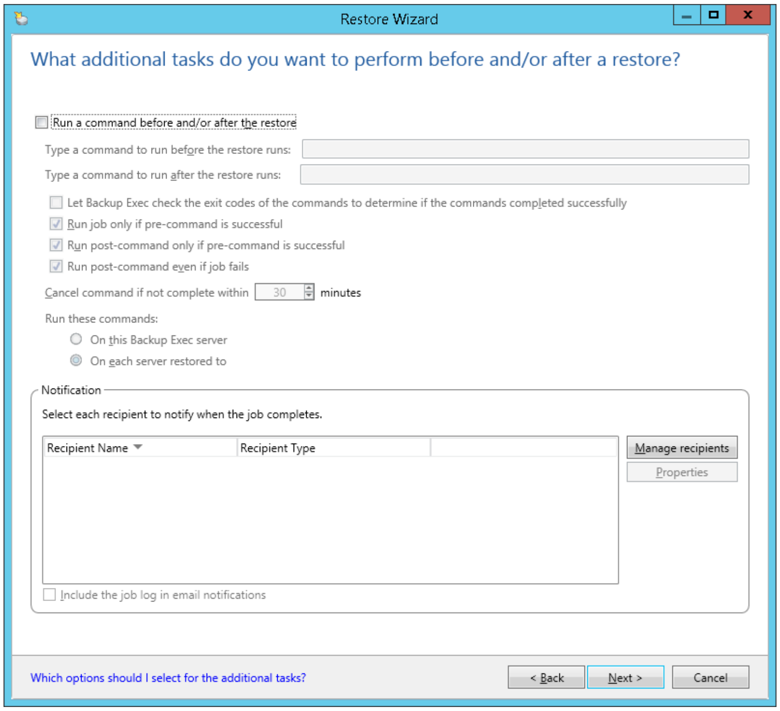
☐ Restore disk quota data

Junction points

● Restore junction points, mount points, symbolic links, files, and directories

○ Preserve existing junction points, mount points, and symbolic links, and restore files and directories

8. Using the default settings, click **Next** to proceed.



Restore Wizard

What additional tasks do you want to perform before and/or after a restore?

☐ Run a command before and/or after the restore

Type a command to run before the restore runs:

Type a command to run after the restore runs:

☐ Let Backup Exec check the exit codes of the commands to determine if the commands completed successfully

☑ Run job only if pre-command is successful

☑ Run post-command only if pre-command is successful

☑ Run post-command even if job fails

Cancel command if not complete within 30 minutes

Run these commands:

○ On this Backup Exec server

● On each server restored to

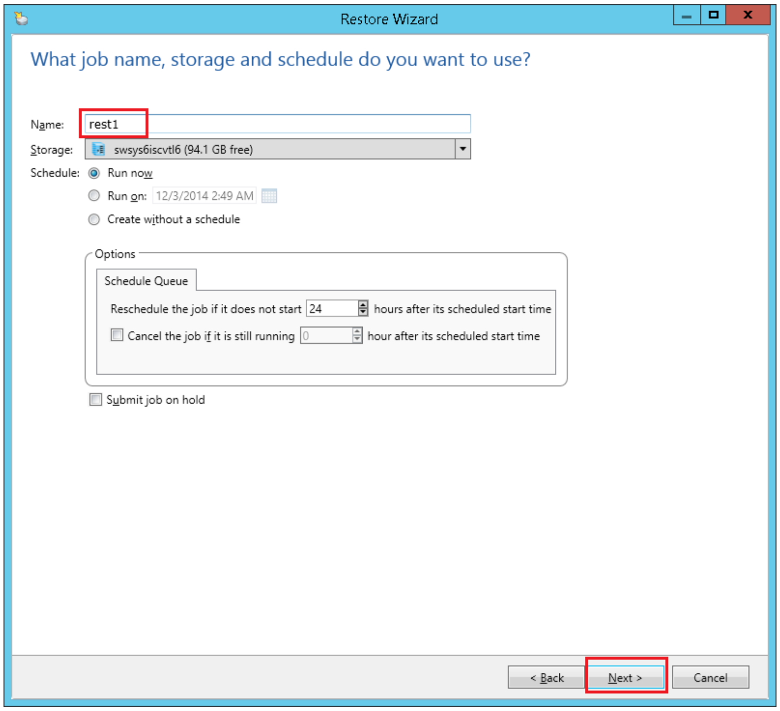
Notification

Select each recipient to notify when the job completes.

Recipient Name	Recipient Type

☐ Include the job log in email notifications

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**.



Restore Wizard

What job name, storage and schedule do you want to use?

Name: rest1

Storage: swsys6iscvtl6 (94.1 GB free)

Schedule:
● Run now
○ Run on: 12/3/2014 2:49 AM
○ Create without a schedule

Options

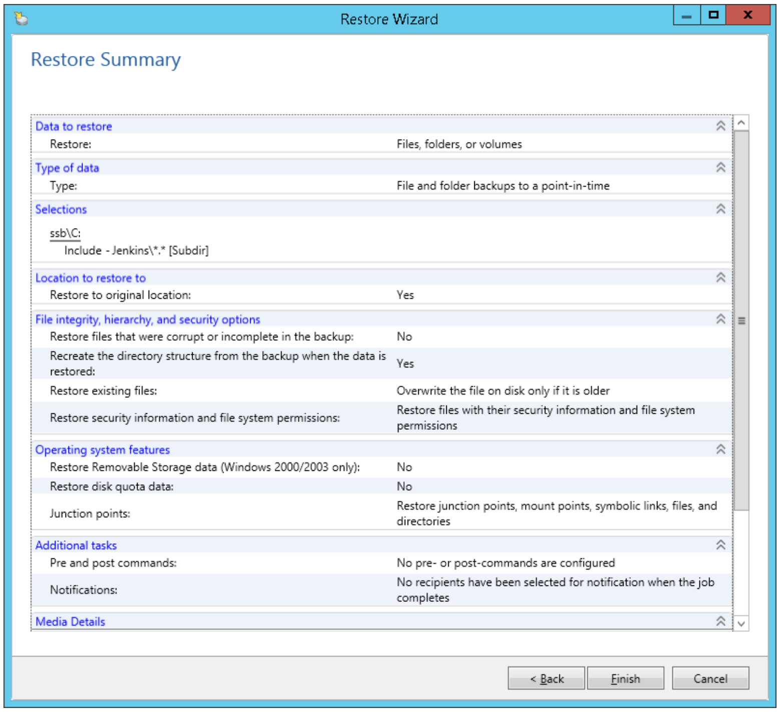
Schedule Queue

Reschedule the job if it does not start 24 hours after its scheduled start time

□ Cancel the job if it is still running 0 hour after its scheduled start time

□ Submit job on hold

10. On the Restore Summary page, click **Finish**.

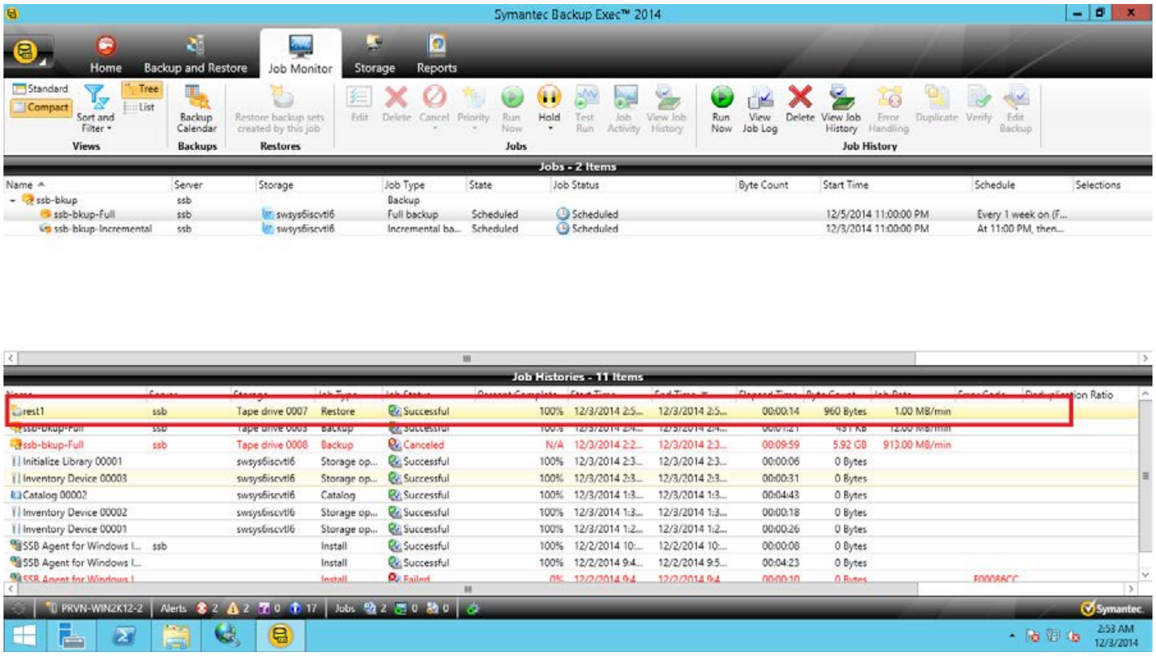


Restore Wizard

Restore Summary

Data to restore	
Restore:	Files, folders, or volumes
Type of data	
Type:	File and folder backups to a point-in-time
Selections	
ssb\C: Include - Jenkins*.* [Subdir]	
Location to restore to	
Restore to original location:	Yes
File integrity, hierarchy, and security options	
Restore files that were corrupt or incomplete in the backup:	No
Recreate the directory structure from the backup when the data is restored:	Yes
Restore existing files:	Overwrite the file on disk only if it is older
Restore security information and file system permissions:	Restore files with their security information and file system permissions
Operating system features	
Restore Removable Storage data (Windows 2000/2003 only):	No
Restore disk quota data:	No
Junction points:	Restore junction points, mount points, symbolic links, files, and directories
Additional tasks	
Pre and post commands:	No pre- or post-commands are configured
Notifications:	No recipients have been selected for notification when the job completes
Media Details	

11. On the Job Monitor tab you can see the restore status.



Jobs - 2 Items

Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time	Schedule	Selections
ssb-bkup	ssb		Backup						
ssb-bkup-Full	ssb	swsys6iscvtl6	Full backup	Scheduled	Scheduled		12/5/2014 11:00:00 PM	Every 1 week on (F...	
ssb-bkup-Incremental	ssb	swsys6iscvtl6	Incremental ba...	Scheduled	Scheduled		12/3/2014 11:00:00 PM	At 11:00 PM, then...	

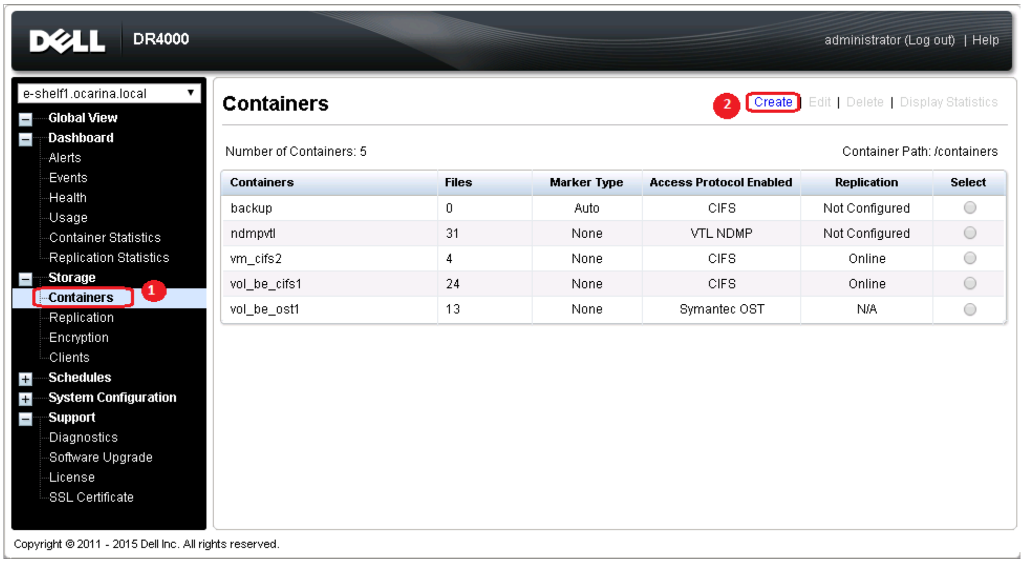
Job Histories - 11 Items

Name	Server	Storage	Job Type	Job Status	Percent Complete	Start Time	End Time	Elapsed Time	Byte Count	Job Rate	Error Code	Deduplication Ratio
rest1	ssb	Tape drive 0007	Restore	Successful	100%	12/3/2014 2:5...	12/3/2014 2:5...	00:00:14	960 Bytes	1.00 MB/min		
ssb-bkup-Full	ssb	Tape drive 0003	Backup	Successful	100%	12/3/2014 2:4...	12/3/2014 2:4...	00:01:21	451 KB	12.00 MB/min		
ssb-bkup-Full	ssb	Tape drive 0008	Backup	Canceled	N/A	12/3/2014 2:2...	12/3/2014 2:3...	00:09:59	5.92 GB	913.00 MB/min		
Initialize Library 00001		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 2:3...	12/3/2014 2:3...	00:00:06	0 Bytes			
Inventory Device 00003		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 2:3...	12/3/2014 2:3...	00:00:31	0 Bytes			
Catalog 00002		swsys6iscvtl6	Catalog	Successful	100%	12/3/2014 1:3...	12/3/2014 1:3...	00:04:43	0 Bytes			
Inventory Device 00002		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 1:3...	12/3/2014 1:3...	00:00:18	0 Bytes			
Inventory Device 00001		swsys6iscvtl6	Storage op...	Successful	100%	12/3/2014 1:2...	12/3/2014 1:2...	00:00:26	0 Bytes			
SSB Agent for Windows I...	ssb		Install	Successful	100%	12/2/2014 10:...	12/2/2014 10:...	00:00:08	0 Bytes			
SSB Agent for Windows I...			Install	Successful	100%	12/2/2014 9:4...	12/2/2014 9:5...	00:04:23	0 Bytes			
SSB Agent for Windows I...			Install	Failed	0%	12/2/2014 9:4...	12/2/2014 9:4...	00:00:10	0 Bytes		E00086CC	

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.



Containers

Number of Containers: 5

Container Path: /containers

Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
backup	0	Auto	CIFS	Not Configured	○
ndmpvtl	31	None	VTL NDMP	Not Configured	○
vm_cifs2	4	None	CIFS	Online	○
vol_be_cifs1	24	None	CIFS	Online	○
vol_be_ost1	13	None	Symantec OST	N/A	○

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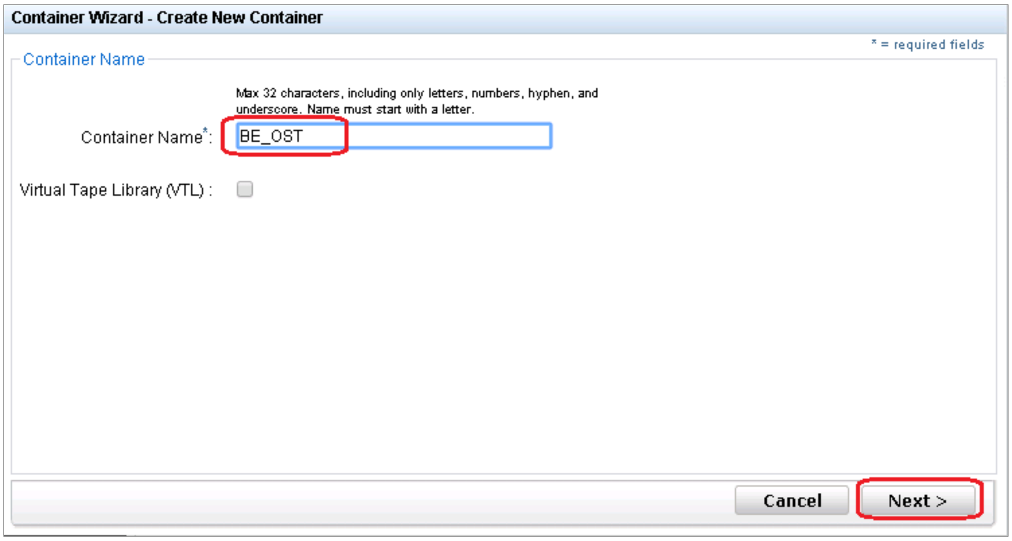
2. Enter a Container Name and then click **Next**.



Container Wizard - Create New Container

* = required fields

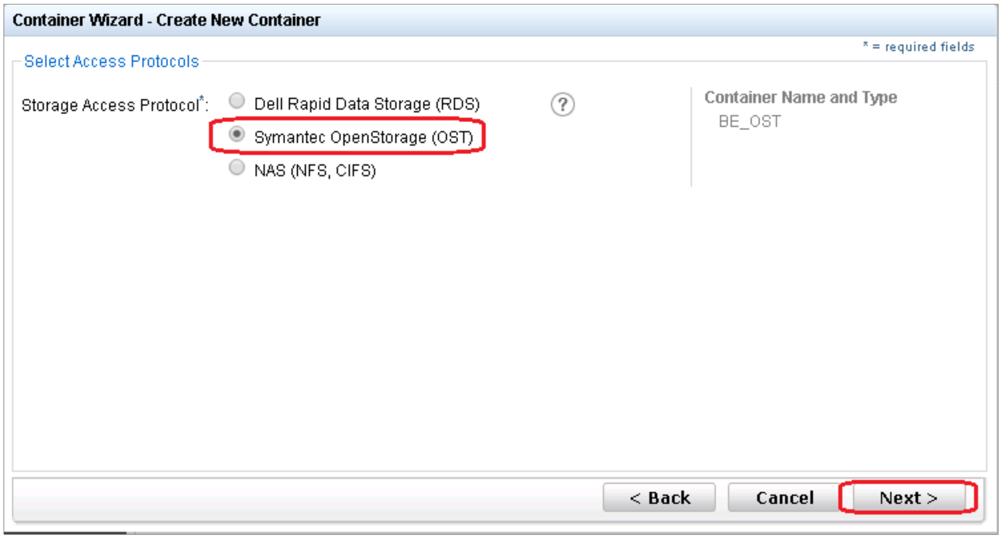
Container Name

Max 32 characters, including only letters, numbers, hyphen, and underscore. Name must start with a letter.

Container Name*: BE_OST

Virtual Tape Library (VTL) : ☐

3. Select **Symantec OpenStorage (OST)** as the access protocol and click **Next.**



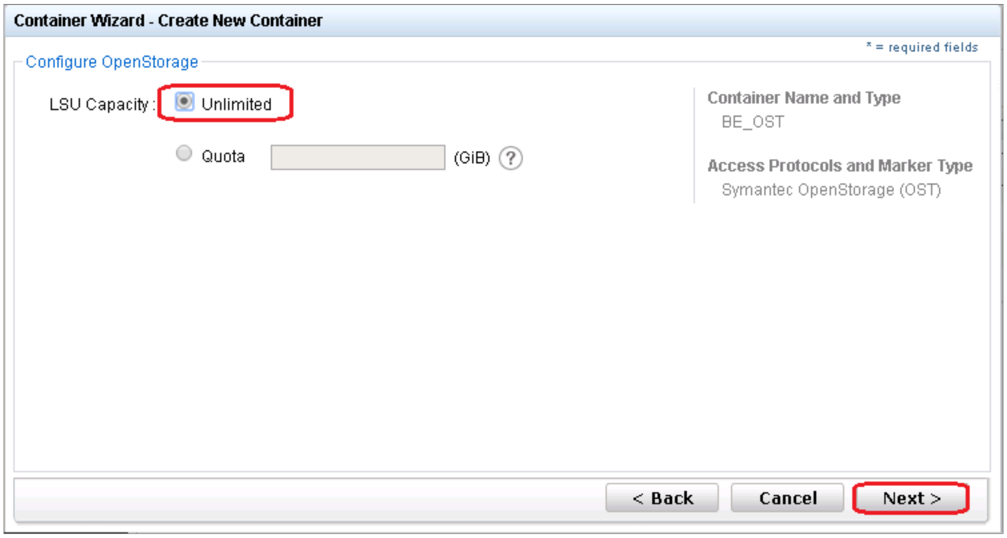
Container Wizard - Create New Container

Select Access Protocols

Storage Access Protocol*: ○ Dell Rapid Data Storage (RDS) ● Symantec OpenStorage (OST) ○ NAS (NFS, CIFS)

Container Name and Type
BE_OST

4. Set the capacity of the OST LSU as needed, and click **Next**.



Container Wizard - Create New Container

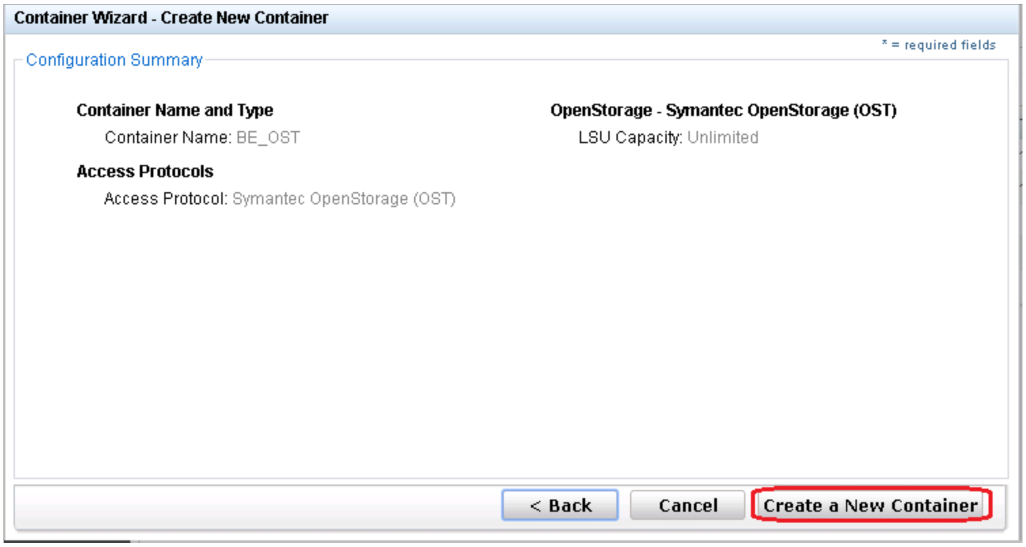
Configure OpenStorage

LSU Capacity: ● Unlimited ○ Quota (GiB)

Container Name and Type
BE_OST

Access Protocols and Marker Type
Symantec OpenStorage (OST)

5. Review the configuration Summary page, and then click **Create a New Container**.



Container Wizard - Create New Container

* = required fields

Configuration Summary

Container Name and Type

Container Name: BE_OST

Access Protocols

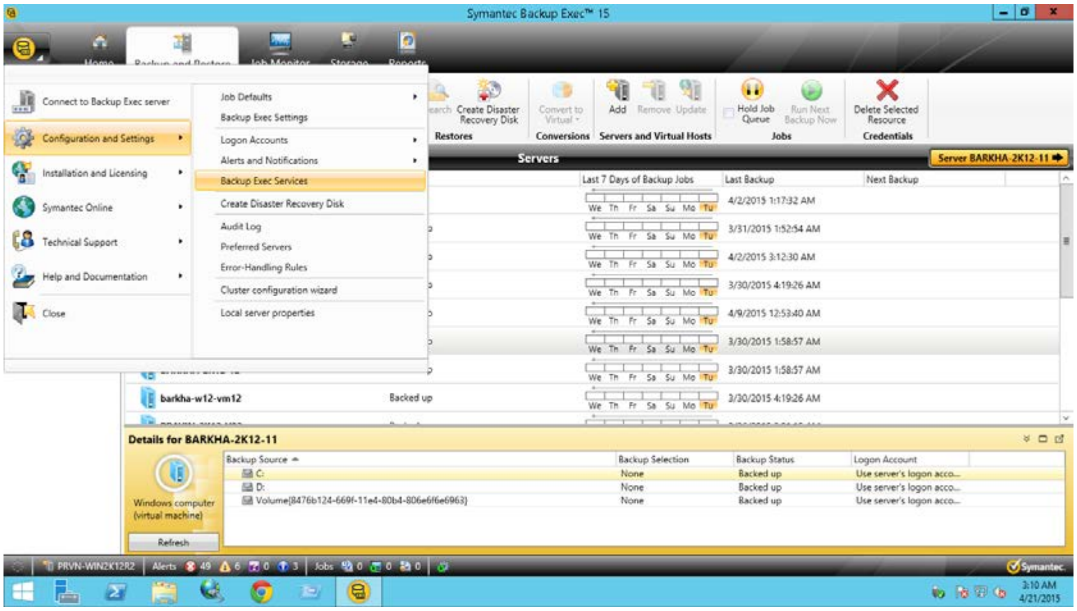
Access Protocol: Symantec OpenStorage (OST)

OpenStorage - Symantec OpenStorage (OST)

LSU Capacity: Unlimited

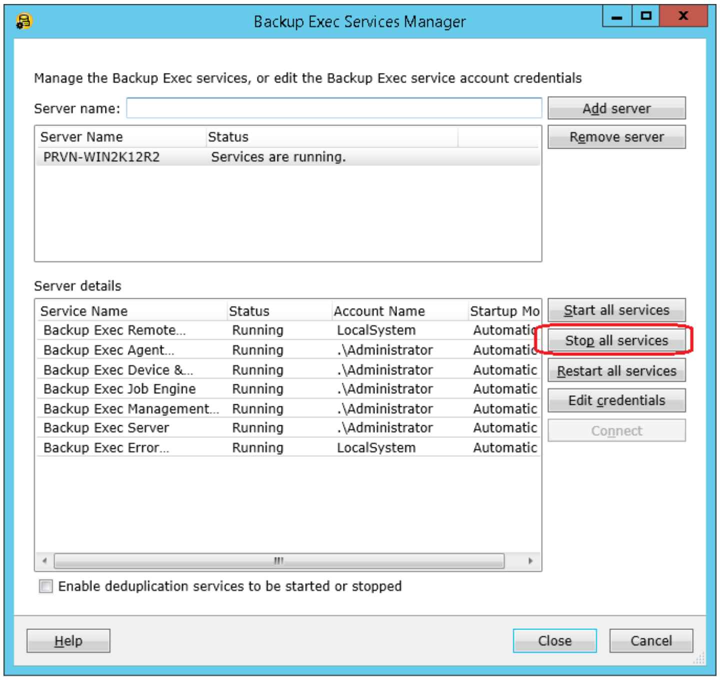
4.2 Installing the OST plugin

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



Backup Source	Backup Selection	Backup Status	Logon Account
C:	None	Backed up	Use server's logon acco...
D:	None	Backed up	Use server's logon acco...
Volume{8476b124-669f-11e4-80b4-806e6f6e6963}	None	Backed up	Use server's logon acco...

2. On the Services Manager page, click **Stop all Services**.



Backup Exec Services Manager

Manage the Backup Exec services, or edit the Backup Exec service account credentials

Server name:

Server Name	Status
PRVN-WIN2K12R2	Services are running.

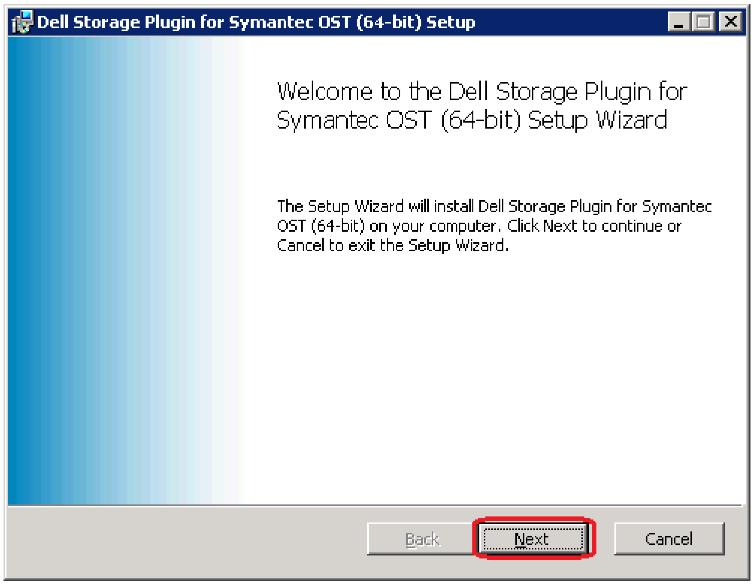
Server details

Service Name	Status	Account Name	Startup Mo
Backup Exec Remote...	Running	LocalSystem	Automatic
Backup Exec Agent...	Running	.\Administrator	Automatic
Backup Exec Device &...	Running	.\Administrator	Automatic
Backup Exec Job Engine	Running	.\Administrator	Automatic
Backup Exec Management...	Running	.\Administrator	Automatic
Backup Exec Server	Running	.\Administrator	Automatic
Backup Exec Error...	Running	LocalSystem	Automatic

□ Enable deduplication services to be started or stopped

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**.

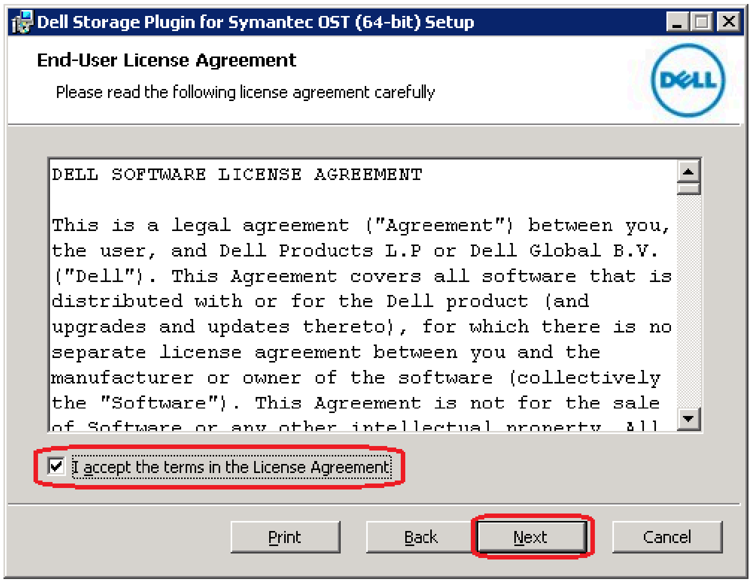


Dell Storage Plugin for Symantec OST (64-bit) Setup

Welcome to the Dell Storage Plugin for Symantec OST (64-bit) Setup Wizard

The Setup Wizard will install Dell Storage Plugin for Symantec OST (64-bit) on your computer. Click Next to continue or Cancel to exit the Setup Wizard.

4. Accept the License agreement and click **Next**.



Dell Storage Plugin for Symantec OST (64-bit) Setup

End-User License Agreement

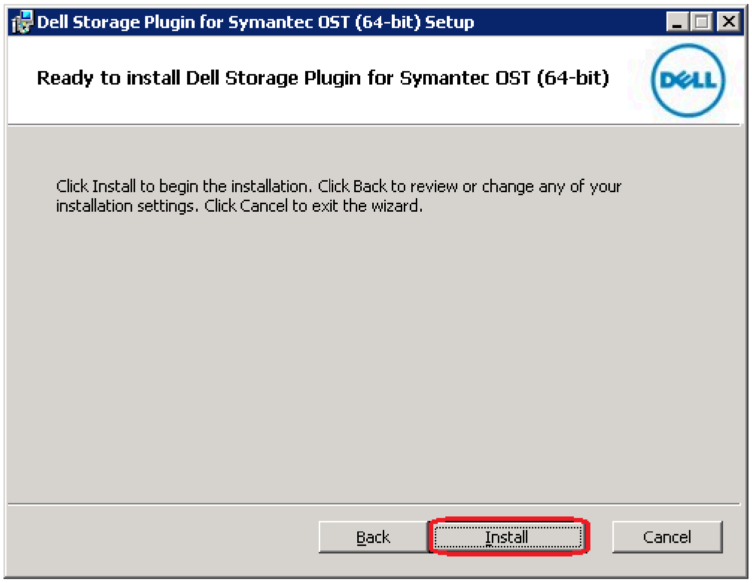
Please read the following license agreement carefully

```
DELL SOFTWARE LICENSE AGREEMENT

This is a legal agreement ("Agreement") between you,
the user, and Dell Products L.P or Dell Global B.V.
("Dell"). This Agreement covers all software that is
distributed with or for the Dell product (and
upgrades and updates thereto), for which there is no
separate license agreement between you and the
manufacturer or owner of the software (collectively
the "Software"). This Agreement is not for the sale
of Software or any other intellectual property. All
```

☑ I accept the terms in the License Agreement

5. Click the **Install** button to proceed with installation.

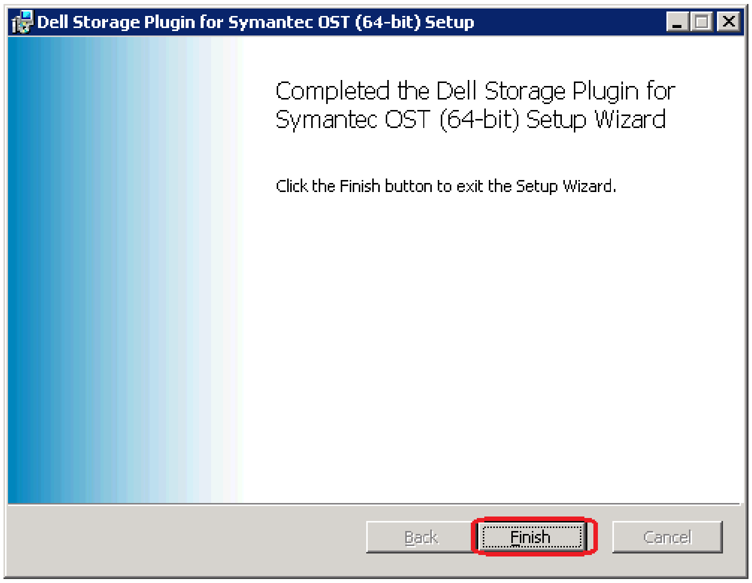


Dell Storage Plugin for Symantec OST (64-bit) Setup

Ready to install Dell Storage Plugin for Symantec OST (64-bit)

Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.

6. Click **Finish** to complete the installation of the OST plugin.



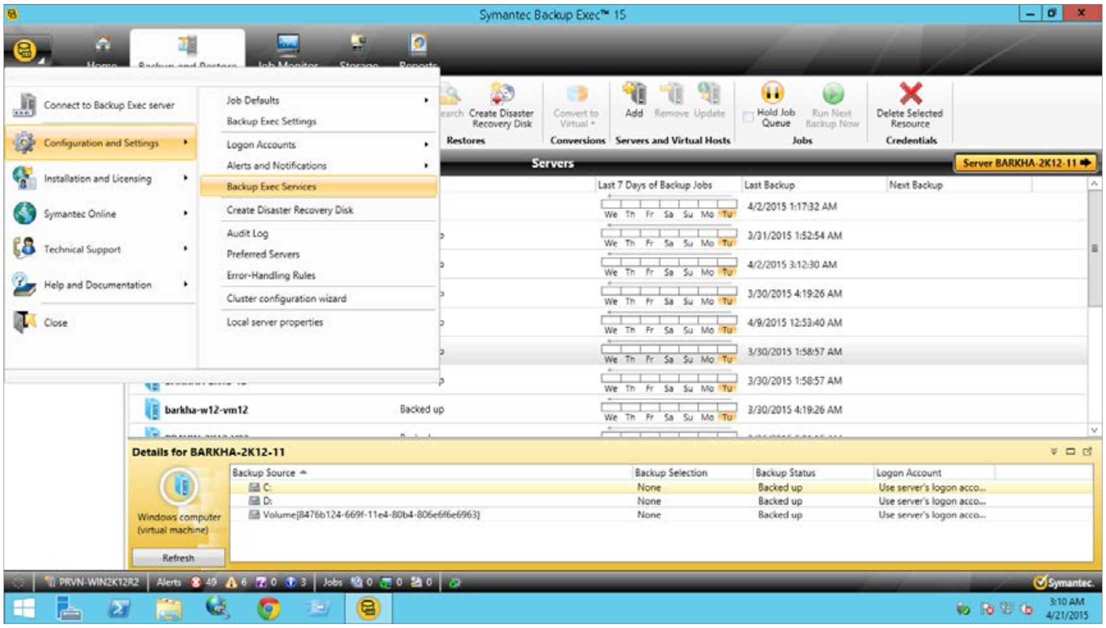
Dell Storage Plugin for Symantec OST (64-bit) Setup

Completed the Dell Storage Plugin for Symantec OST (64-bit) Setup Wizard

Click the Finish button to exit the Setup Wizard.

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**.

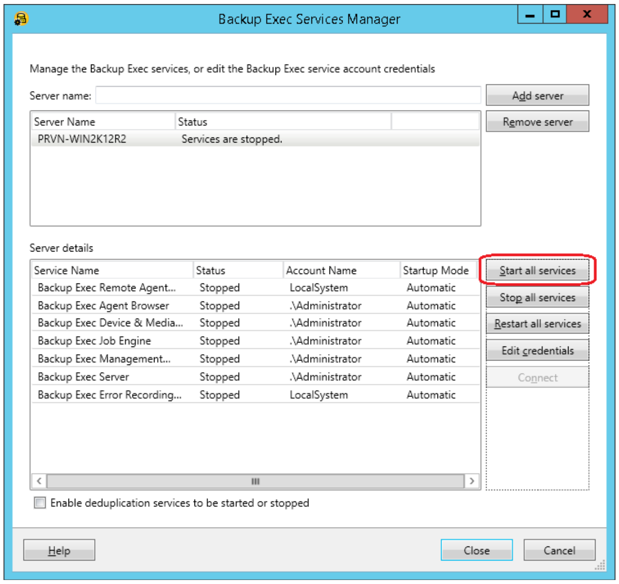


Symantec Backup Exec™ 15

Details for BARKHA-2K12-11

Backup Source	Backup Selection	Backup Status	Logon Account
C:	None	Backed up	Use server's logon acco...
D:	None	Backed up	Use server's logon acco...
Volume{8476b124-669f-11e4-80b4-806e6f6e6963}	None	Backed up	Use server's logon acco...

2. On the Services Manager page, click **Start all Services**.



Manage the Backup Exec services, or edit the Backup Exec service account credentials

Server name:

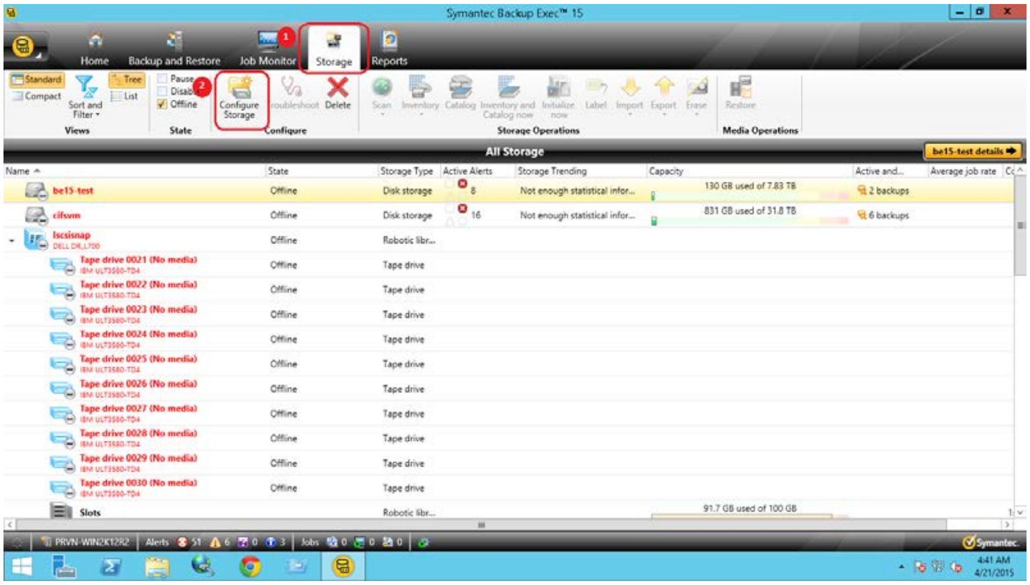
Server Name	Status
PRVN-WIN2K12R2	Services are stopped.

Server details

Service Name	Status	Account Name	Startup Mode
Backup Exec Remote Agent...	Stopped	LocalSystem	Automatic
Backup Exec Agent Browser	Stopped	.\Administrator	Automatic
Backup Exec Device & Media...	Stopped	.\Administrator	Automatic
Backup Exec Job Engine	Stopped	.\Administrator	Automatic
Backup Exec Management...	Stopped	.\Administrator	Automatic
Backup Exec Server	Stopped	.\Administrator	Automatic
Backup Exec Error Recording...	Stopped	LocalSystem	Automatic

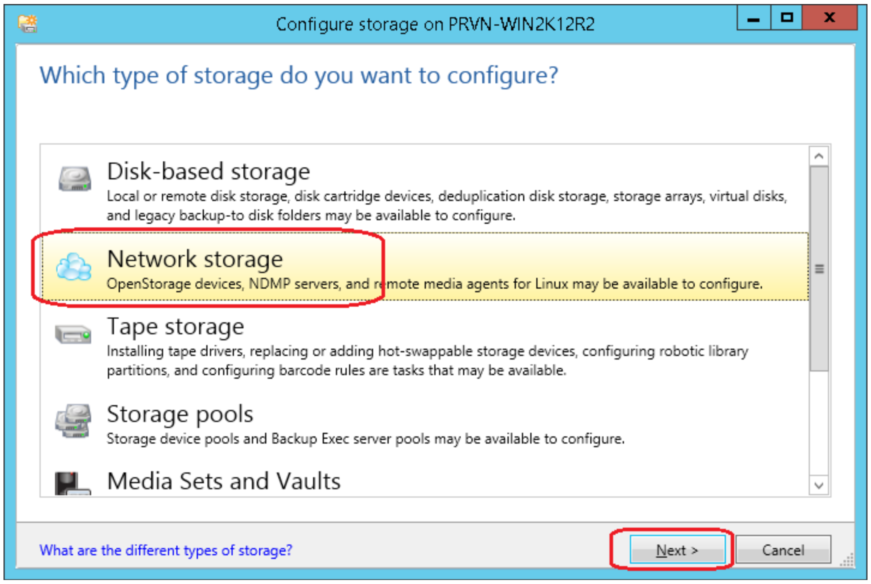
□ Enable deduplication services to be started or stopped

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



Name	State	Storage Type	Active Alerts	Storage Trending	Capacity	Active and...	Average job rate
be15-test	Offline	Disk storage	8	Not enough statistical infor...	130 GB used of 7.83 TB	2 backups	
cifsvm	Offline	Disk storage	16	Not enough statistical infor...	831 GB used of 31.8 TB	6 backups	
Iscsisnap DELL DR_L700	Offline	Robotic libr...					
Tape drive 0021 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0022 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0023 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0024 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0025 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0026 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0027 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0028 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0029 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Tape drive 0030 (No media) IBM ULT3580-TD4	Offline	Tape drive					
Slots		Robotic libr...			91.7 GB used of 100 GB		

4. Select **Network Storage**, and click **Next**.



Configure storage on PRVN-WIN2K12R2

Which type of storage do you want to configure?

Disk-based storage
Local or remote disk storage, disk cartridge devices, deduplication disk storage, storage arrays, virtual disks, and legacy backup-to disk folders may be available to configure.

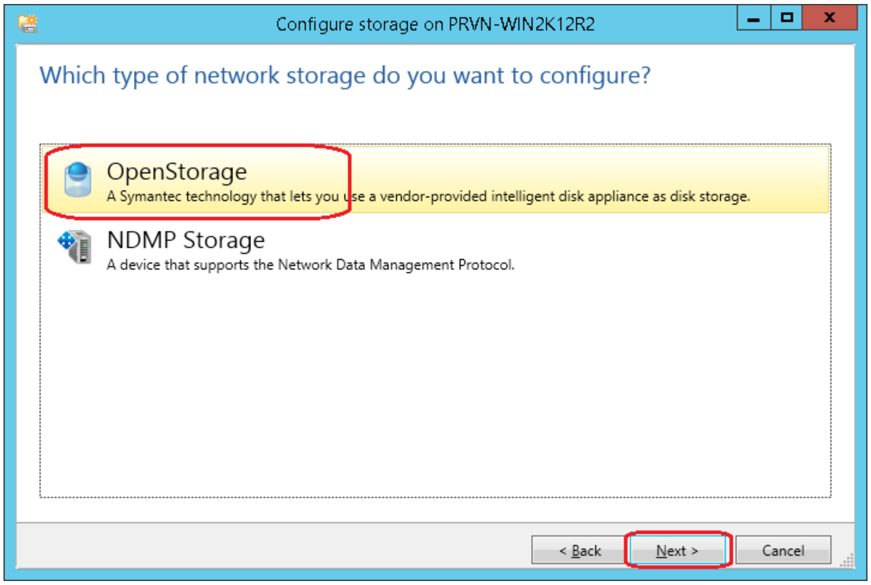
Network storage
OpenStorage devices, NDMP servers, and remote media agents for Linux may be available to configure.

Tape storage
Installing tape drivers, replacing or adding hot-swappable storage devices, configuring robotic library partitions, and configuring barcode rules are tasks that may be available.

Storage pools
Storage device pools and Backup Exec server pools may be available to configure.

Media Sets and Vaults

5. Select **OpenStorage**, and click **Next**.



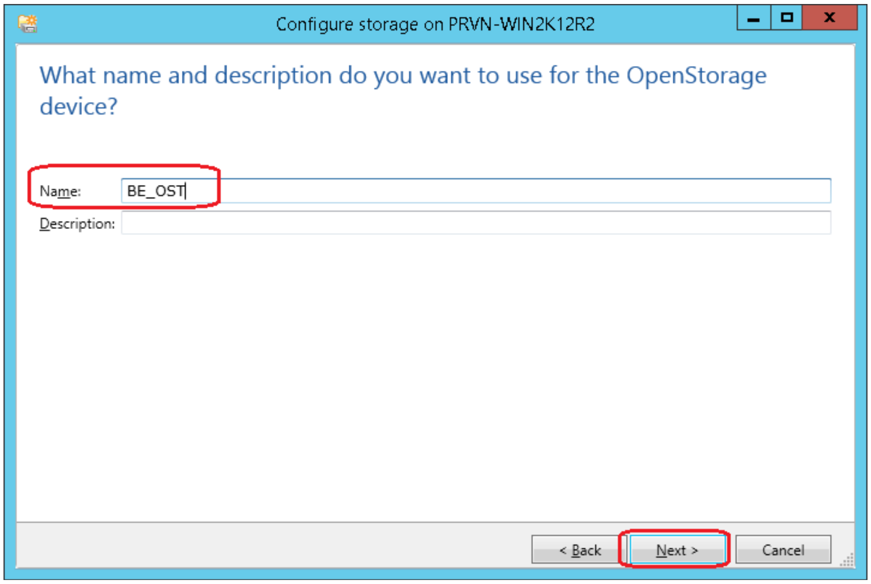
Configure storage on PRVN-WIN2K12R2

Which type of network storage do you want to configure?

OpenStorage
A Symantec technology that lets you use a vendor-provided intelligent disk appliance as disk storage.

NDMP Storage
A device that supports the Network Data Management Protocol.

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



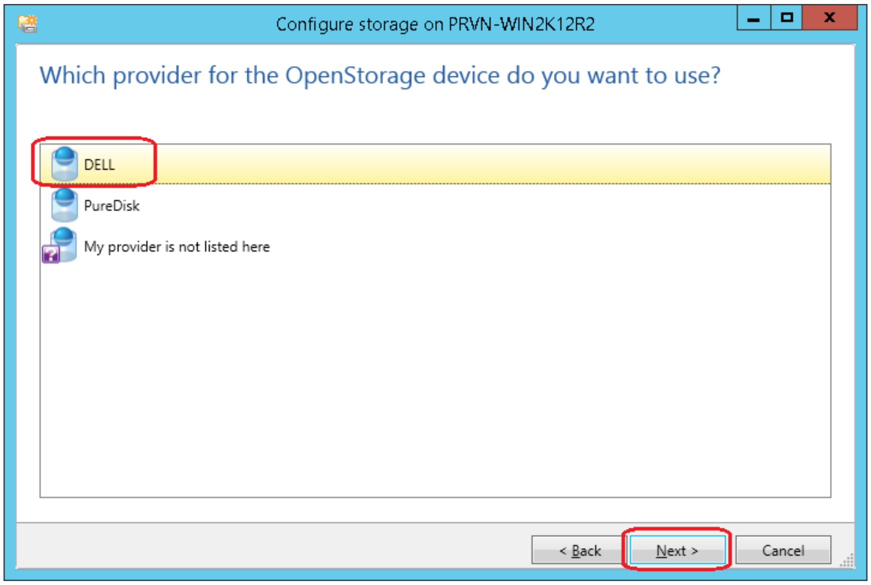
Configure storage on PRVN-WIN2K12R2

What name and description do you want to use for the OpenStorage device?

Name: BE_OST

Description:

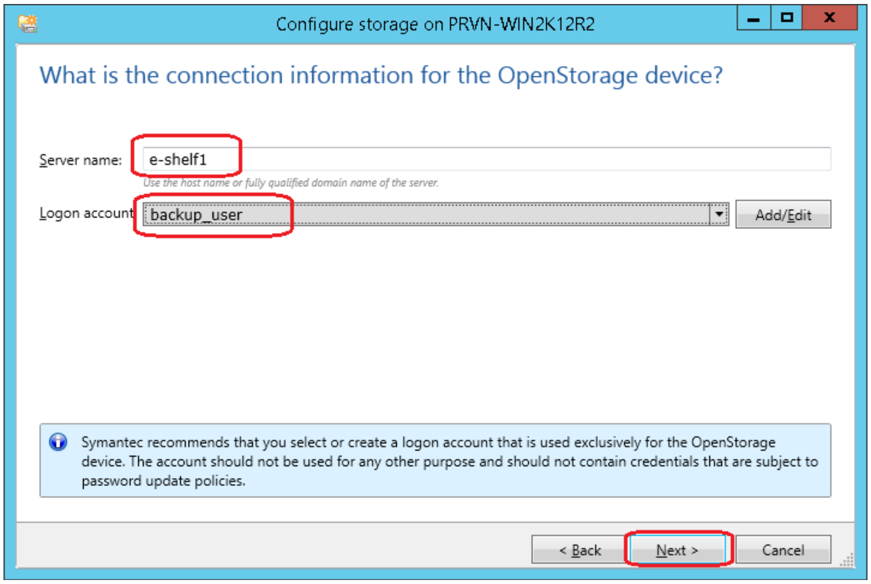
7. Select Dell as the provider and click **Next**.



Configure storage on PRVN-WIN2K12R2

Which provider for the OpenStorage device do you want to use?

8. Enter the Server name (IP or FQDN) and select the **Backup_user** as the logon account.



Configure storage on PRVN-WIN2K12R2

What is the connection information for the OpenStorage device?

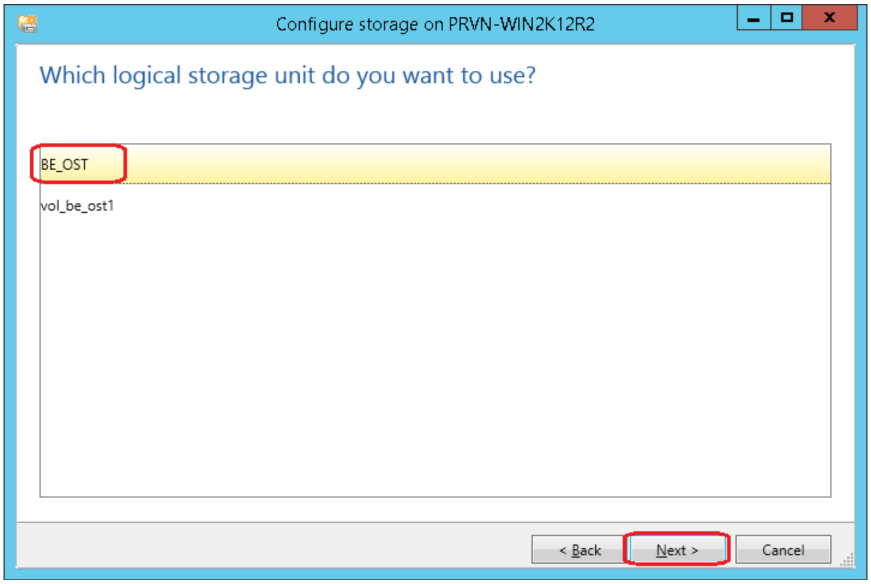
Server name: e-shelf1

Use the host name or fully qualified domain name of the server.

Logon account: backup_user

Symantec recommends that you select or create a logon account that is used exclusively for the OpenStorage device. The account should not be used for any other purpose and should not contain credentials that are subject to password update policies.

9. Select the created OST container from the list and click **Next**.



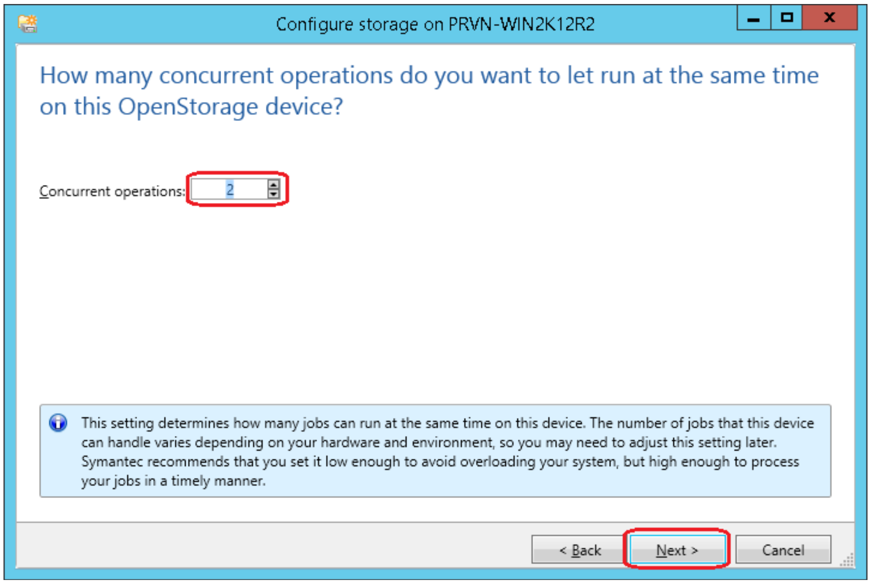
Configure storage on PRVN-WIN2K12R2

Which logical storage unit do you want to use?

BE_OST

vol_be_ost1

10. Enter the number of concurrent operations to run on the OST device and click **Next**.



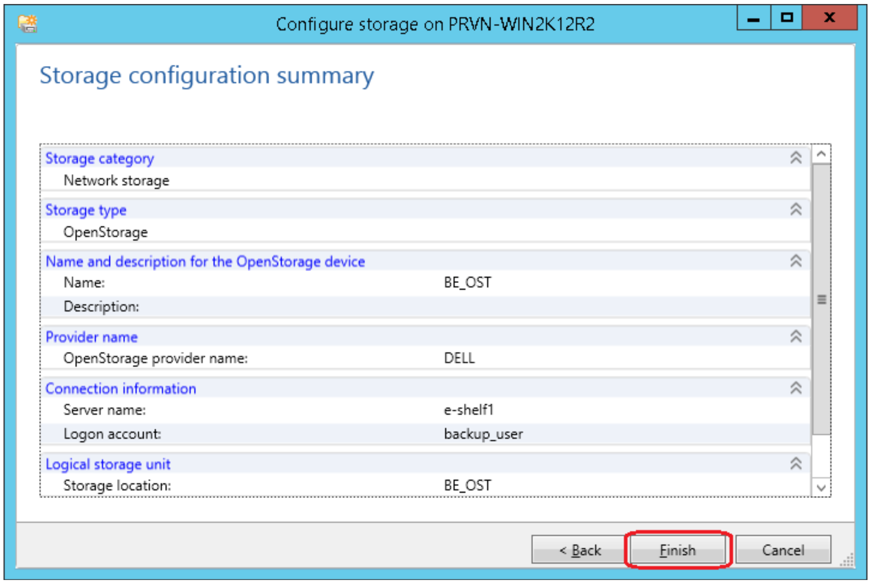
Configure storage on PRVN-WIN2K12R2

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

Concurrent operations: 2

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-WIN2K12R2

Storage configuration summary

Storage category
Network storage

Storage type
OpenStorage

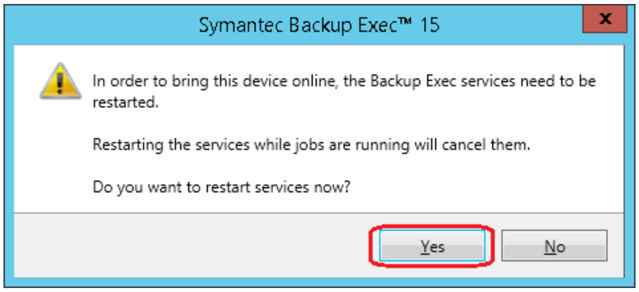
Name and description for the OpenStorage device
Name: BE_OST
Description:

Provider name
OpenStorage provider name: DELL

Connection information
Server name: e-shelf1
Logon account: backup_user

Logical storage unit
Storage location: BE_OST

12. When prompted, click **Yes** to restart the Backup Exec Services.



In order to bring this device online, the Backup Exec services need to be restarted.

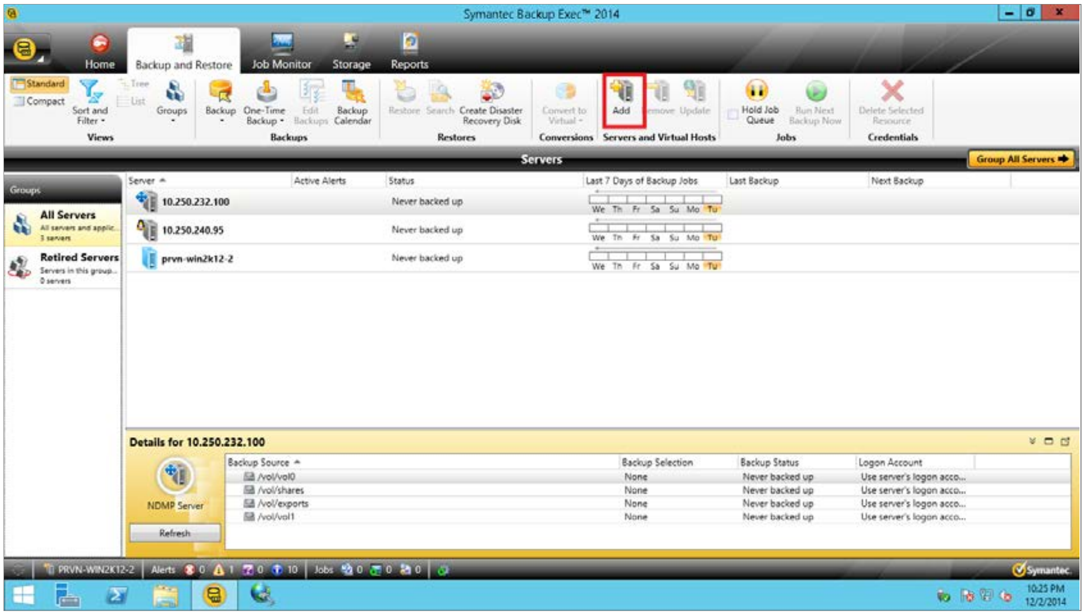
Restarting the services while jobs are running will cancel them.

Do you want to restart services now?

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.



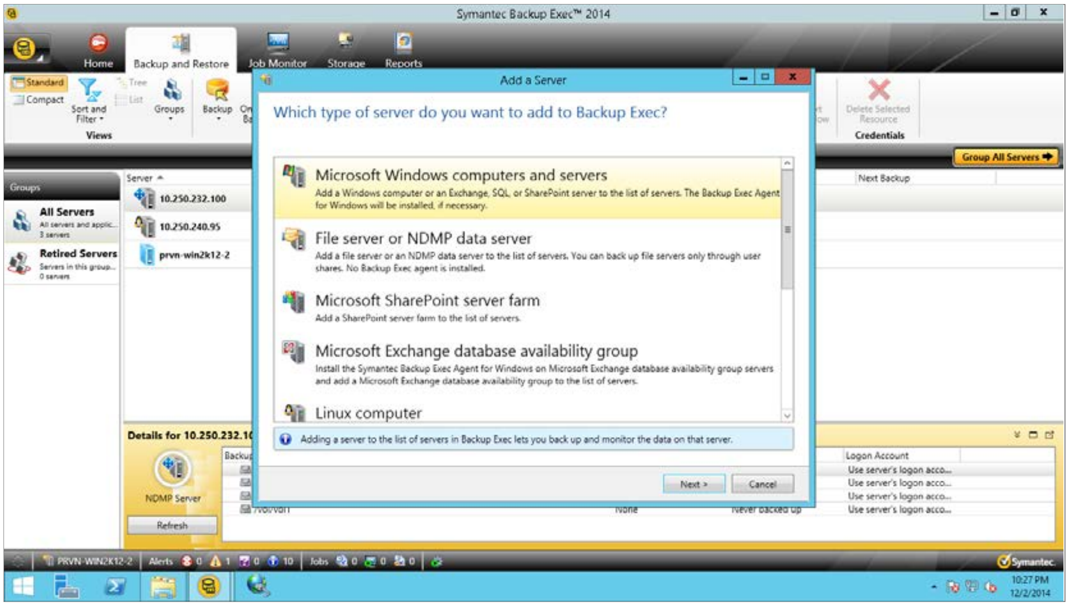
Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
10.250.232.100		Never backed up			
10.250.240.95		Never backed up			
prvn-win2k12-2		Never backed up			

Details for 10.250.232.100

Backup Source	Backup Selection	Backup Status	Logon Account
/vol/vol0	None	Never backed up	Use server's logon acco...
/vol/shares	None	Never backed up	Use server's logon acco...
/vol/exports	None	Never backed up	Use server's logon acco...
/vol/vol1	None	Never backed up	Use server's logon acco...

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.


Add a Server

Which type of server do you want to add to Backup Exec?

Microsoft Windows computers and servers
Add a Windows computer or an Exchange, SQL, or SharePoint server to the list of servers. The Backup Exec Agent for Windows will be installed, if necessary.

File server or NDMP data server
Add a file server or an NDMP data server to the list of servers. You can back up file servers only through user shares. No Backup Exec agent is installed.

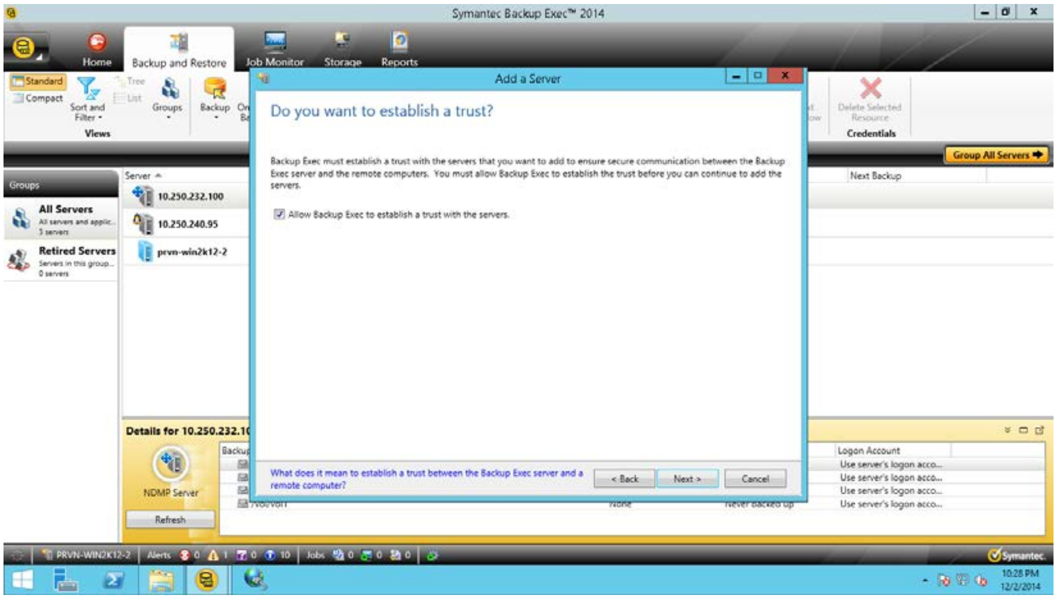
Microsoft SharePoint server farm
Add a SharePoint server farm to the list of servers.

Microsoft Exchange database availability group
Install the Symantec Backup Exec Agent for Windows on Microsoft Exchange database availability group servers and add a Microsoft Exchange database availability group to the list of servers.

Linux computer

Adding a server to the list of servers in Backup Exec lets you back up and monitor the data on that server.

3. With the Default settings, click **Next** to proceed.


Add a Server

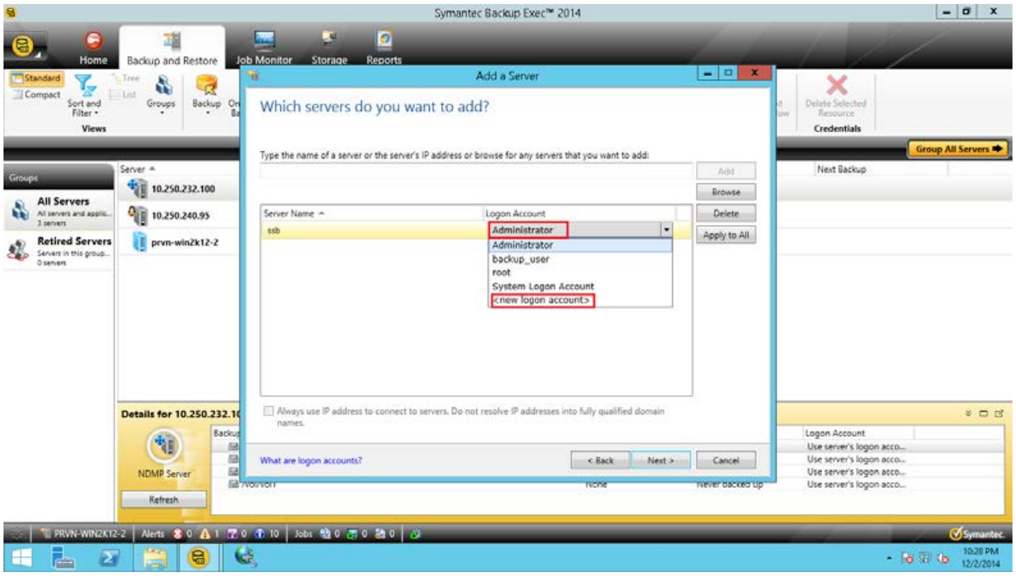
Do you want to establish a trust?

Backup Exec must establish a trust with the servers that you want to add to ensure secure communication between the Backup Exec server and the remote computers. You must allow Backup Exec to establish the trust before you can continue to add the servers.

☑ Allow Backup Exec to establish a trust with the servers.

What does it mean to establish a trust between the Backup Exec server and a remote computer?

4. Provide the access credentials for the server you want to add. Select from the drop drown or create new logon details if required.



Add a Server

Which servers do you want to add?

Type the name of a server or the server's IP address or browse for any servers that you want to add:

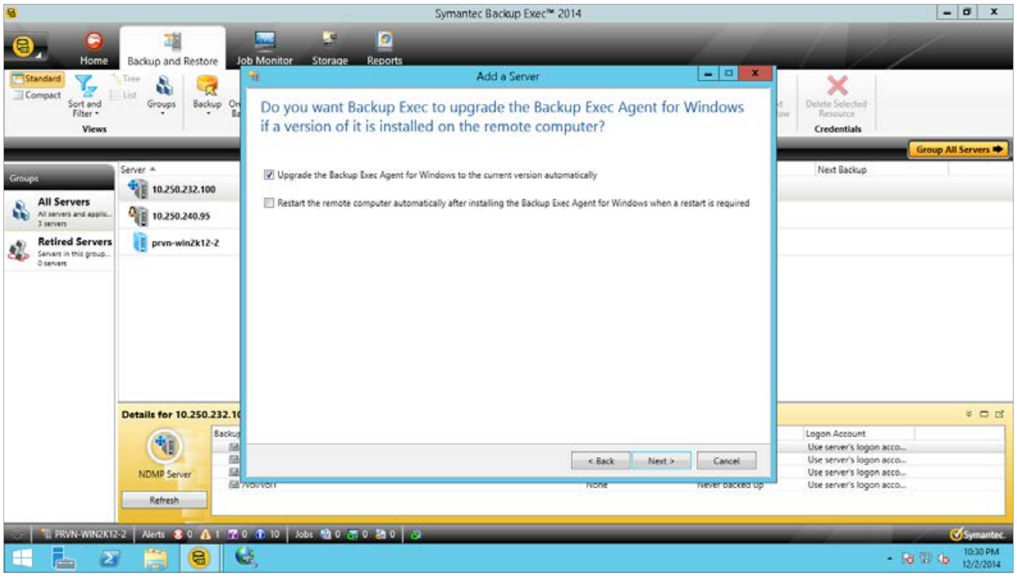
Server Name	Logon Account
ssb	Administrator

Administrator
backup_user
root
System Logon Account
<new logon account>

□ Always use IP address to connect to servers. Do not resolve IP addresses into fully qualified domain names.

What are logon accounts?

5. With Default settings, click **Next** to proceed.



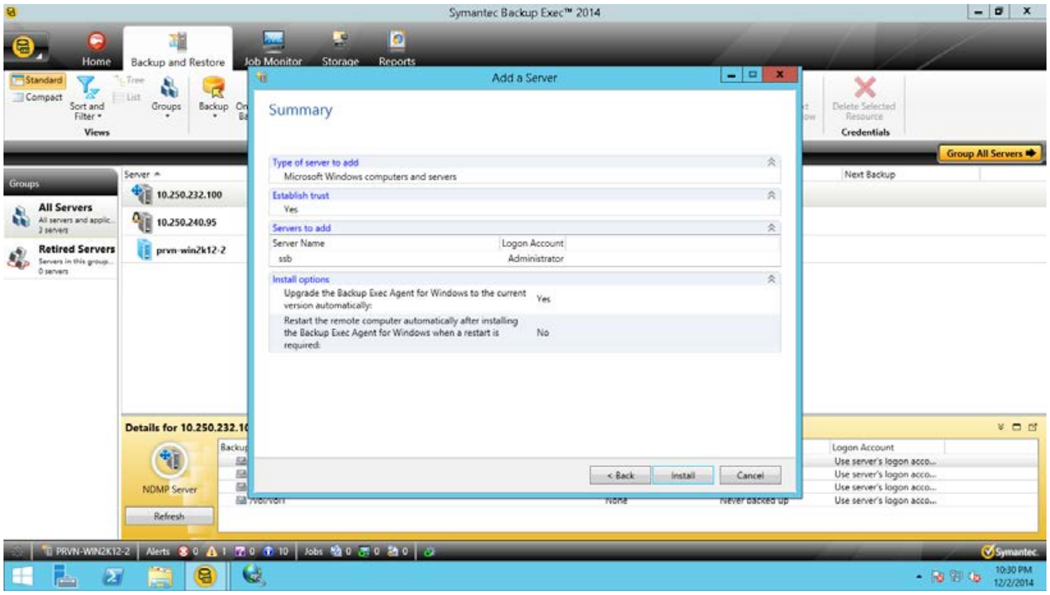
Add a Server

Do you want Backup Exec to upgrade the Backup Exec Agent for Windows if a version of it is installed on the remote computer?

☑ Upgrade the Backup Exec Agent for Windows to the current version automatically

☐ Restart the remote computer automatically after installing the Backup Exec Agent for Windows when a restart is required

6. Click **Install** on the final summary screen.



Add a Server

Summary

Type of server to add
Microsoft Windows computers and servers

Establish trust
Yes

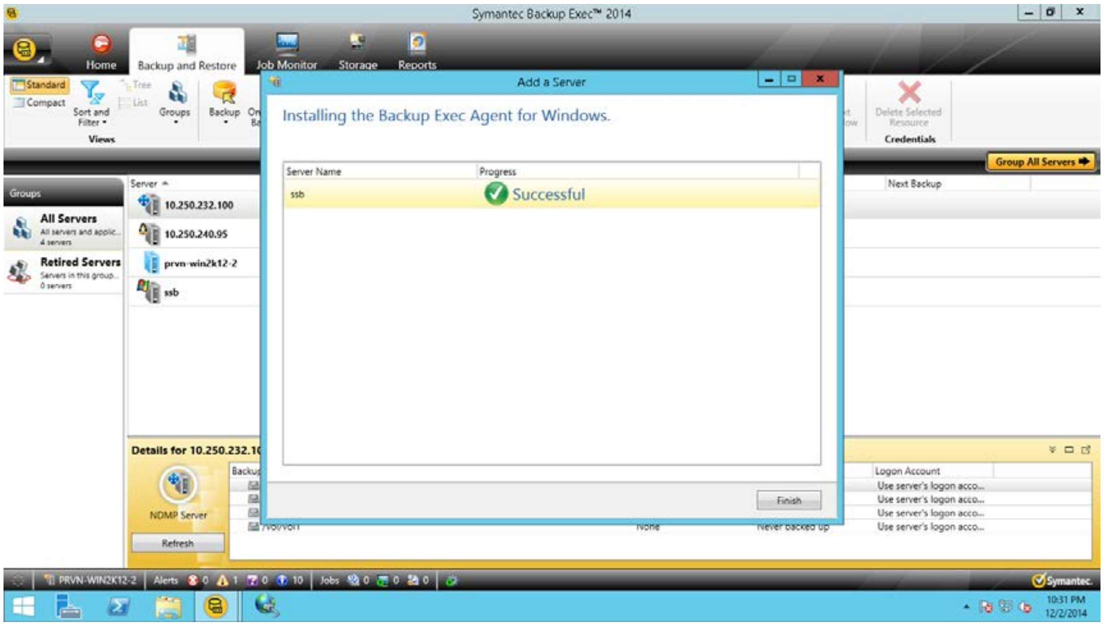
Servers to add

Server Name	Logon Account
ssb	Administrator

Install options

Upgrade the Backup Exec Agent for Windows to the current version automatically:	Yes
Restart the remote computer automatically after installing the Backup Exec Agent for Windows when a restart is required:	No

A notification appears of the successful installation of Remote Backup Exec Agent on the server.

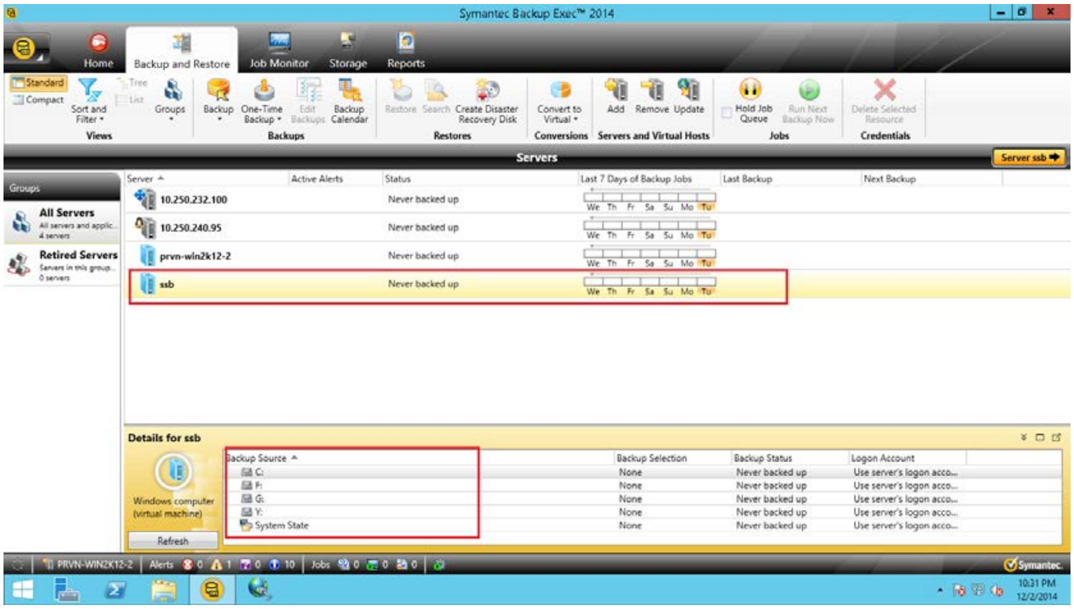


Add a Server

Installing the Backup Exec Agent for Windows.

Server Name	Progress
ssb	✓ Successful

The Backup and Restore tab shows the newly added server and related details.



Servers

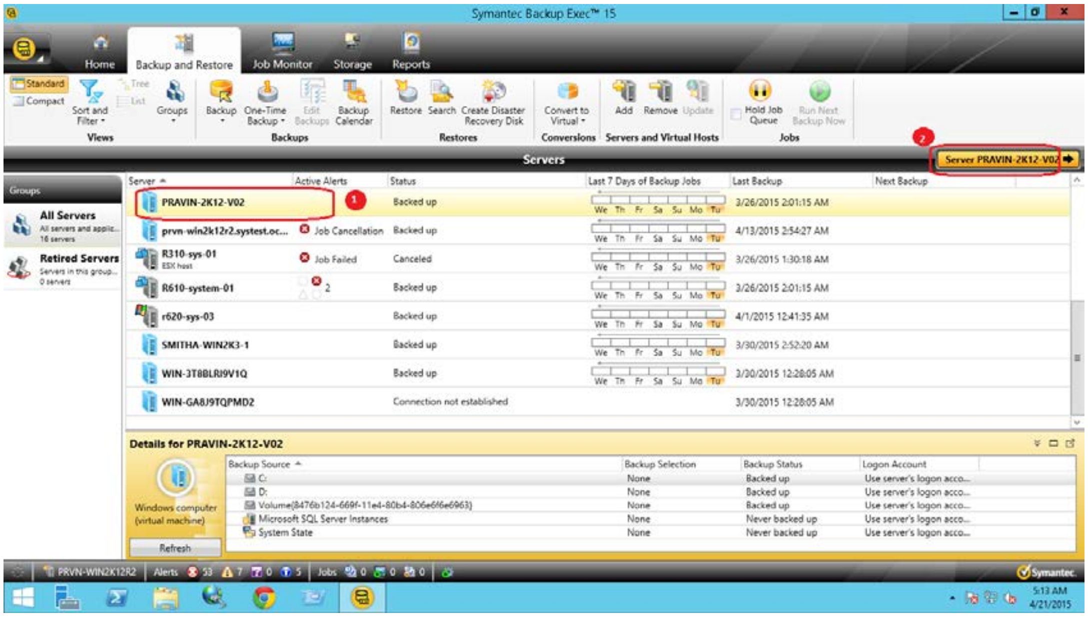
Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
10.250.232.100		Never backed up	We Th Fr Sa Su Mo Tu		
10.250.240.95		Never backed up	We Th Fr Sa Su Mo Tu		
prvn-win2k12-2		Never backed up	We Th Fr Sa Su Mo Tu		
ssb		Never backed up	We Th Fr Sa Su Mo Tu		

Details for ssb

Windows computer (virtual machine)

Backup Source	Backup Selection	Backup Status	Logon Account
C:	None	Never backed up	Use server's logon acco...
F:	None	Never backed up	Use server's logon acco...
G:	None	Never backed up	Use server's logon acco...
Y:	None	Never backed up	Use server's logon acco...
System State	None	Never backed up	Use server's logon acco...

7. On the Backup and Restore tab, select the server with the data to back up and go to **Details**.



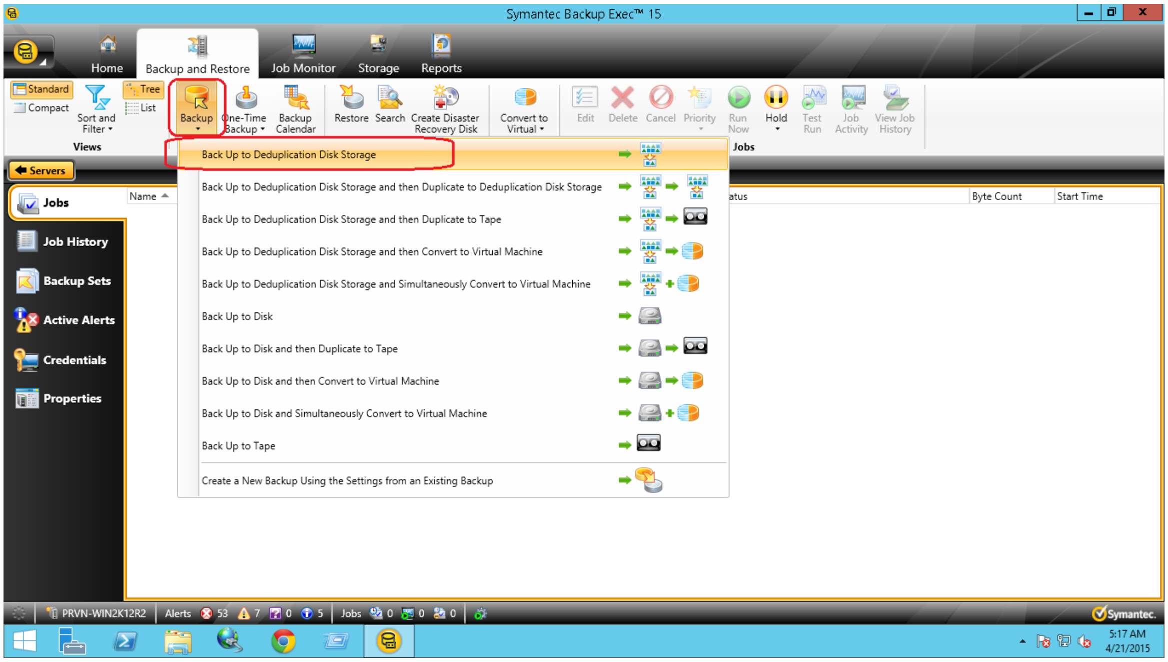
Server	Active Alerts	Status	Last 7 Days of Backup Jobs	Last Backup	Next Backup
PRAVIN-2K12-V02		Backed up	We Th Fr Sa Su Mo Tu	3/26/2015 2:01:15 AM	
prvn-win2k12r2.systest.oc...	Job Cancellation	Backed up	We Th Fr Sa Su Mo Tu	4/13/2015 2:54:27 AM	
R310-sys-01 ESX host	Job Failed	Canceled	We Th Fr Sa Su Mo Tu	3/26/2015 1:30:18 AM	
R610-system-01	2	Backed up	We Th Fr Sa Su Mo Tu	3/26/2015 2:01:15 AM	
r620-sys-03		Backed up	We Th Fr Sa Su Mo Tu	4/1/2015 12:41:35 AM	
SMITHA-WIN2K3-1		Backed up	We Th Fr Sa Su Mo Tu	3/30/2015 2:52:20 AM	
WIN-3T8BLRI9V1Q		Backed up	We Th Fr Sa Su Mo Tu	3/30/2015 12:28:05 AM	
WIN-GA8J9TQPMD2		Connection not established		3/30/2015 12:28:05 AM	

Details for PRAVIN-2K12-V02

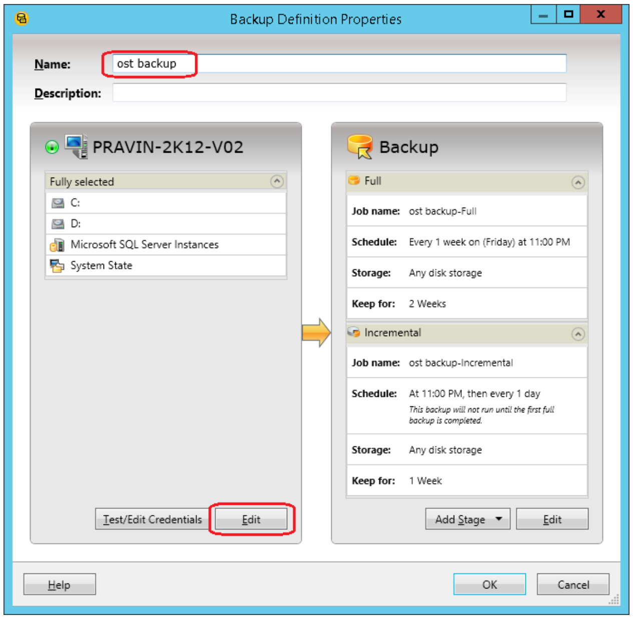
Windows computer (virtual machine)

Backup Source	Backup Selection	Backup Status	Logon Account
C:	None	Backed up	Use server's logon acco...
D:	None	Backed up	Use server's logon acco...
Volume{8476b124-669f-11e4-80b4-806e6f6e6963}	None	Backed up	Use server's logon acco...
Microsoft SQL Server Instances	None	Never backed up	Use server's logon acco...
System State	None	Never backed up	Use server's logon acco...

8. Select **Backup** > **Back up to Deduplication Disk Storage**.


Symantec Backup Exec™ 15
Home
Backup and Restore
Job Monitor
Storage
Reports
Standard
Compact
Sort and Filter
Tree
List
Views
Backup
One-Time Backup
Backup Calendar
Restore
Search
Create Disaster Recovery Disk
Convert to Virtual
Edit
Delete
Cancel
Priority
Run Now
Hold
Test Run
Job Activity
View Job History
Jobs
Servers
Jobs
Job History
Backup Sets
Active Alerts
Credentials
Properties
Name
atus
Byte Count
Start Time
Back Up to Deduplication Disk Storage
Back Up to Deduplication Disk Storage and then Duplicate to Deduplication Disk Storage
Back Up to Deduplication Disk Storage and then Duplicate to Tape
Back Up to Deduplication Disk Storage and then Convert to Virtual Machine
Back Up to Deduplication Disk Storage and Simultaneously Convert to Virtual Machine
Back Up to Disk
Back Up to Disk and then Duplicate to Tape
Back Up to Disk and then Convert to Virtual Machine
Back Up to Disk and Simultaneously Convert to Virtual Machine
Back Up to Tape
Create a New Backup Using the Settings from an Existing Backup
PRVN-WIN2K12R2
Alerts 53 7 0 5
Jobs 0 0 0
Symantec.
5:17 AM
4/21/2015

9. Enter a name for the policy and click **Edit** to select the server file systems.


Backup Definition Properties

Name: ost backup

Description:

PRAVIN-2K12-V02

Fully selected

C:

D:

Microsoft SQL Server Instances

System State

Backup

Full

Job name: ost backup-Full

Schedule: Every 1 week on (Friday) at 11:00 PM

Storage: Any disk storage

Keep for: 2 Weeks

Incremental

Job name: ost backup-Incremental

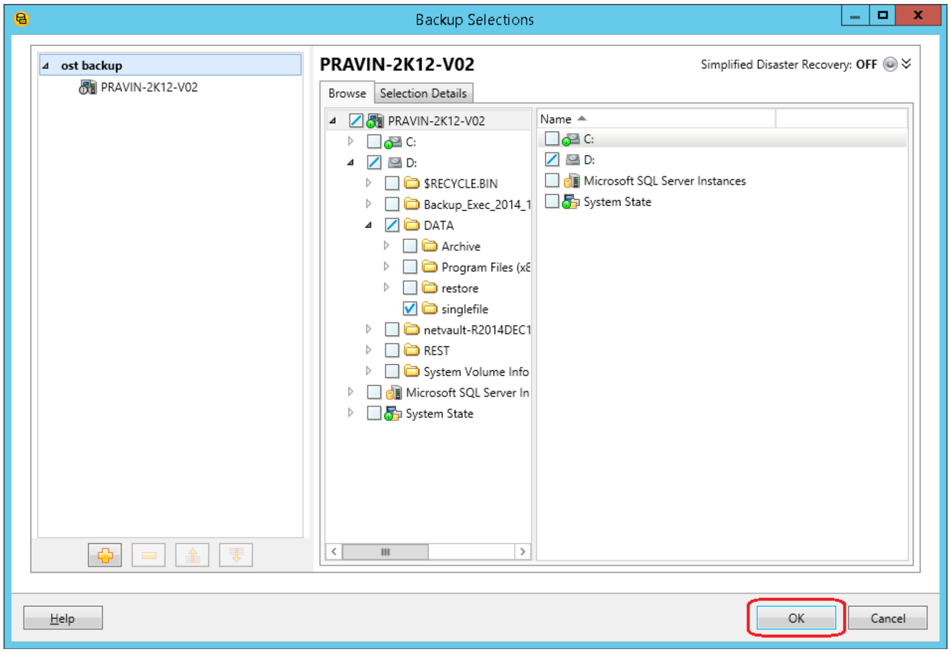
Schedule: At 11:00 PM, then every 1 day

This backup will not run until the first full backup is completed.

Storage: Any disk storage

Keep for: 1 Week

10. Browse and select the data to back up and click **OK** to continue.


Backup Selections

ost backup

PRAVIN-2K12-V02

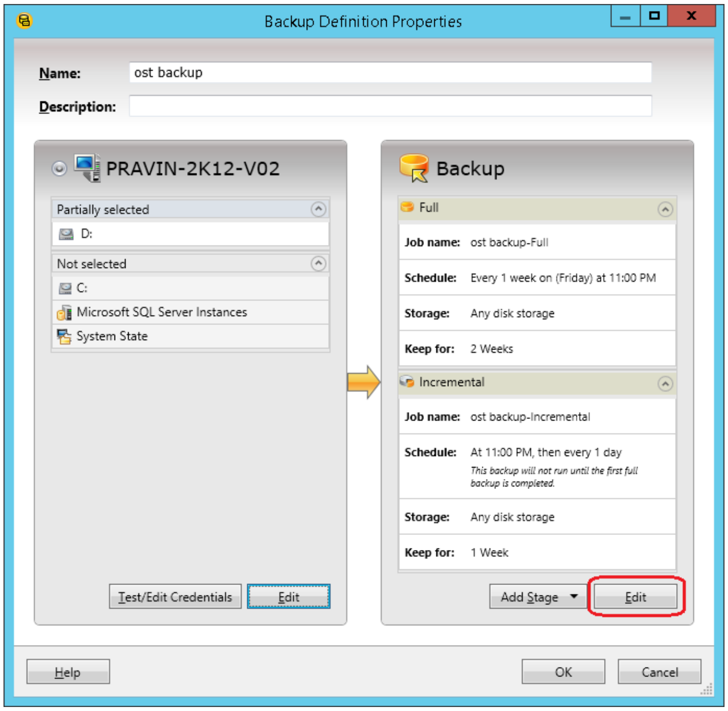
PRAVIN-2K12-V02

Simplified Disaster Recovery: OFF

- ☑ PRAVIN-2K12-V02
  - □ C:
  - ☑ D:
    - □ $RECYCLE.BIN
    - □ Backup_Exec_2014_1
    - ☑ DATA
      - □ Archive
      - □ Program Files (x8
      - □ restore
      - ☑ singlefile
    - □ netvault-R2014DEC1
    - □ REST
    - □ System Volume Info
  - □ Microsoft SQL Server In
  - □ System State

Name
□ C:
☑ D:
□ Microsoft SQL Server Instances
□ System State

11. Click **Edit** to update backup settings and to provide the storage location.



Name: ost backup

Description:

PRAVIN-2K12-V02

Partially selected
- D:

Not selected
- C:
- Microsoft SQL Server Instances
- System State

Backup

Full

Job name: ost backup-Full

Schedule: Every 1 week on (Friday) at 11:00 PM

Storage: Any disk storage

Keep for: 2 Weeks

Incremental

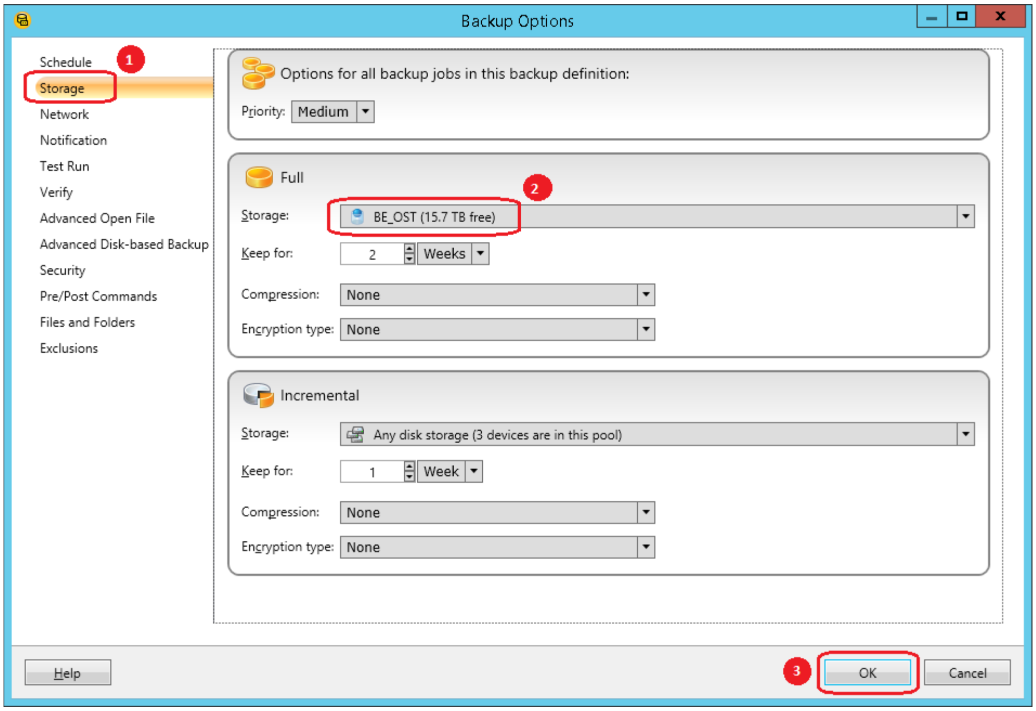
Job name: ost backup-Incremental

Schedule: At 11:00 PM, then every 1 day
This backup will not run until the first full backup is completed.

Storage: Any disk storage

Keep for: 1 Week

12. Click **Storage** in the left pane and select the required tape library for the storage unit.



Options for all backup jobs in this backup definition:

Priority: Medium

Full

Storage: BE_OST (15.7 TB free)

Keep for: 2 Weeks

Compression: None

Encryption type: None

Incremental

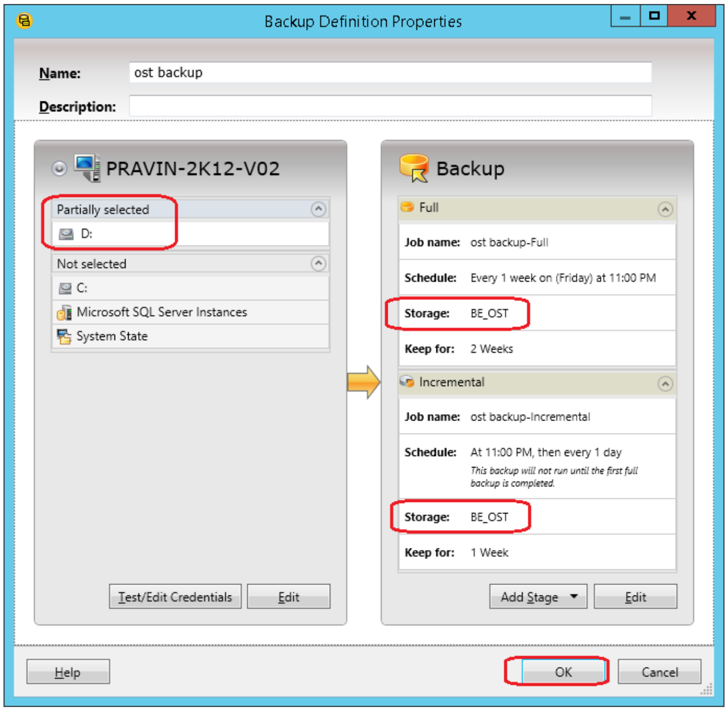
Storage: Any disk storage (3 devices are in this pool)

Keep for: 1 Week

Compression: None

Encryption type: None

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



Backup Definition Properties

Name: ost backup

Description:

PRAVIN-2K12-V02

Partially selected
D:

Not selected
C:
Microsoft SQL Server Instances
System State

Backup

Full

Job name: ost backup-Full

Schedule: Every 1 week on (Friday) at 11:00 PM

Storage: BE_OST

Keep for: 2 Weeks

Incremental

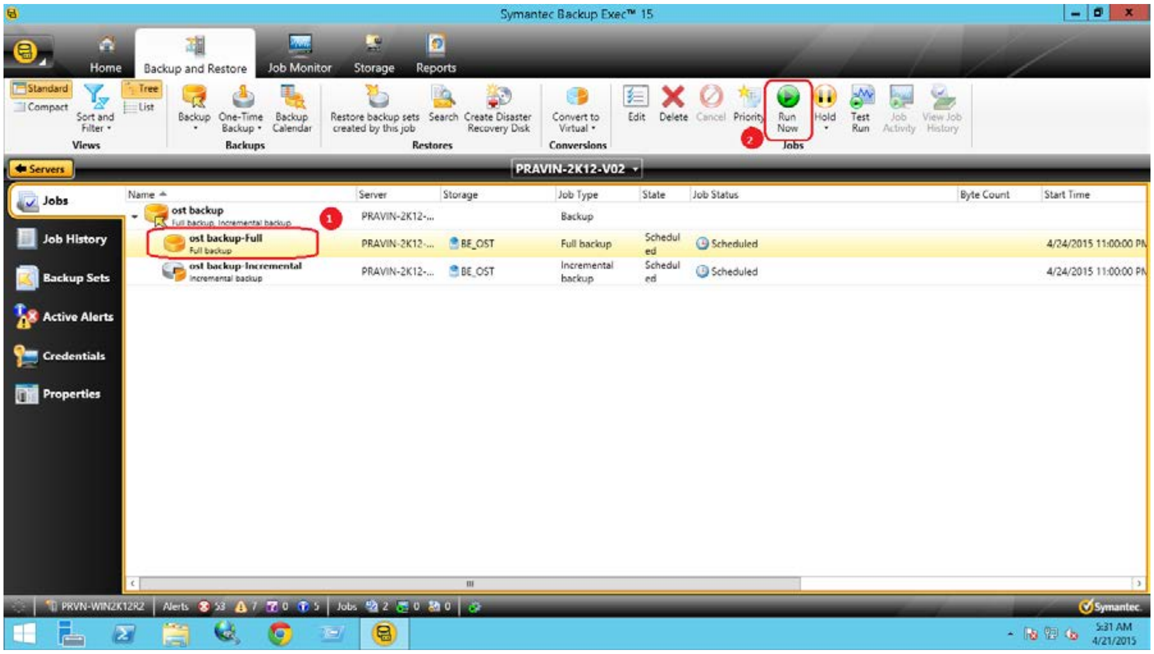
Job name: ost backup-Incremental

Schedule: At 11:00 PM, then every 1 day
This backup will not run until the first full backup is completed.

Storage: BE_OST

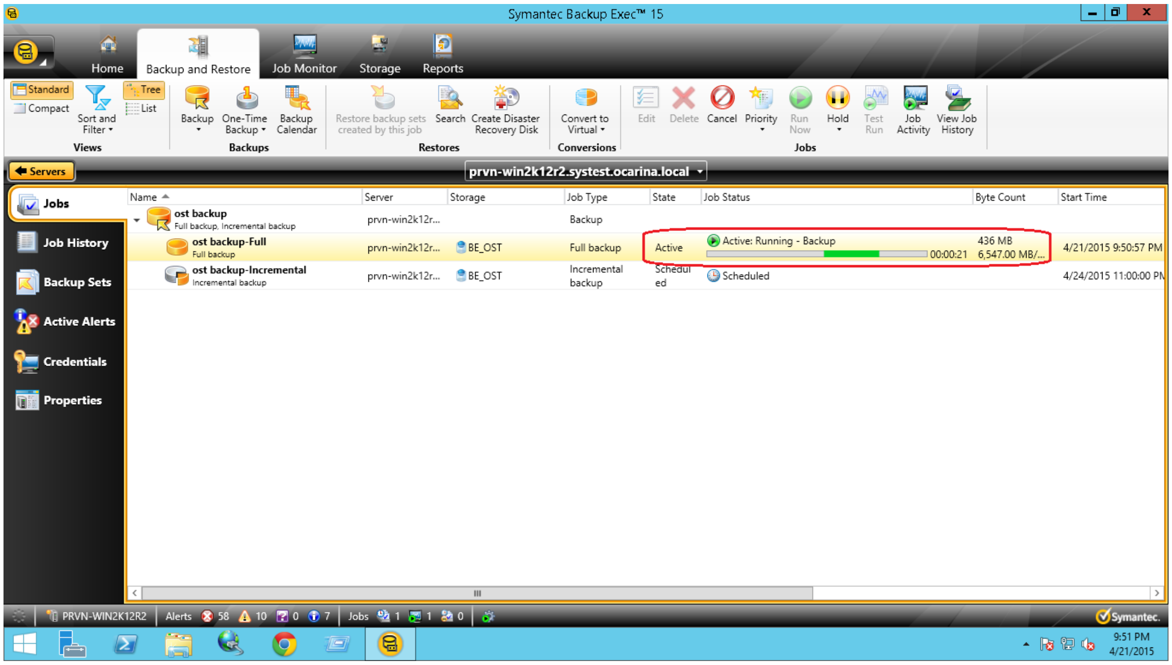
Keep for: 1 Week

14. To run a backup job, select the backup policy (FULL schedule) and click **Run Now**.



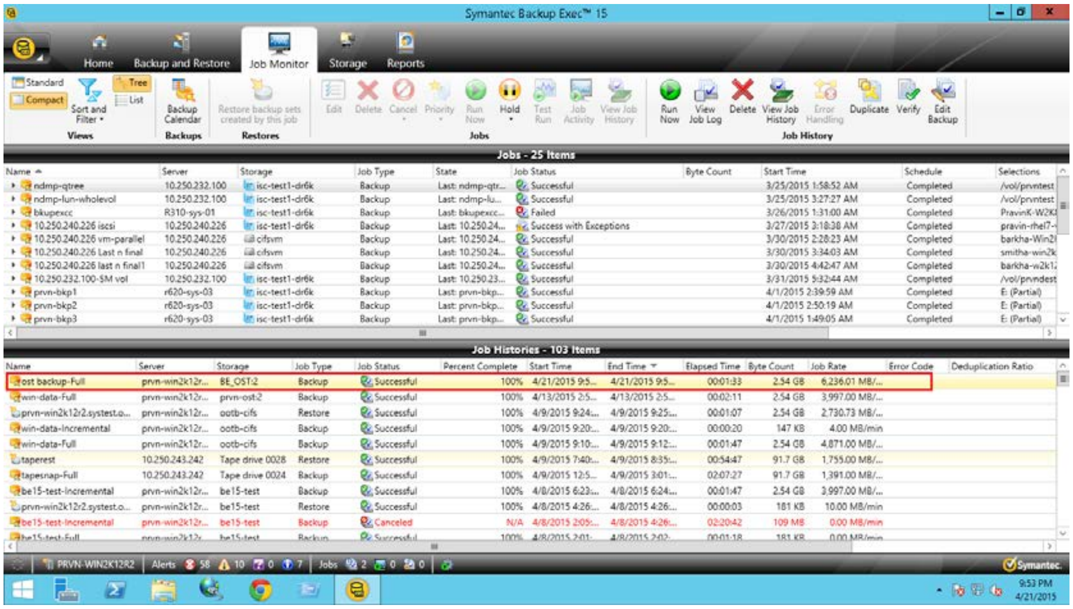
Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time
ost backup Full backup, Incremental backup	PRAVIN-2K12-...		Backup				
ost backup-Full Full backup	PRAVIN-2K12-...	BE_OST	Full backup	Scheduled	Scheduled		4/24/2015 11:00:00 PM
ost backup-Incremental Incremental backup	PRAVIN-2K12-...	BE_OST	Incremental backup	Scheduled	Scheduled		4/24/2015 11:00:00 PM

You can view the backup progress in the Backup and Restore tab.



Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time
ost backup Full backup, Incremental backup	prvn-win2k12r...		Backup				
ost backup-Full Full backup	prvn-win2k12r...	BE_OST	Full backup	Active	Active: Running - Backup 00:00:21	436 MB 6,547.00 MB/...	4/21/2015 9:50:57 PM
ost backup-Incremental Incremental backup	prvn-win2k12r...	BE_OST	Incremental backup	Scheduled	Scheduled		4/24/2015 11:00:00 PM

You can see the job status on the Job Monitor tab.



Jobs - 25 Items

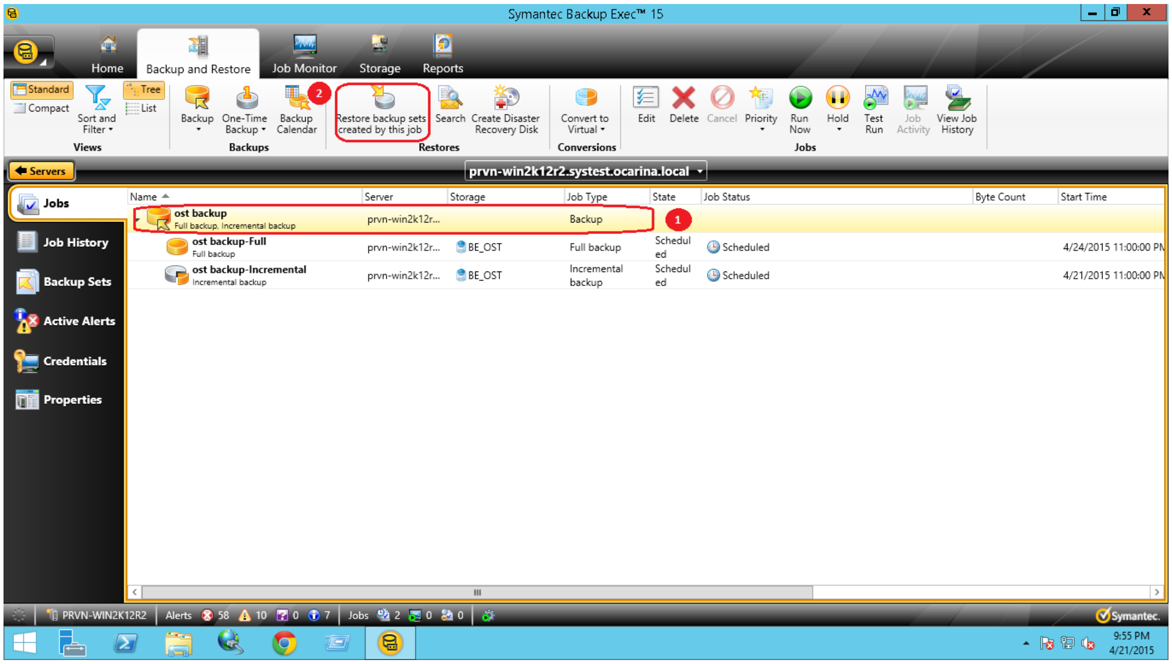
Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time	Schedule	Selections
ndmp-qtree	10.250.232.100	isc-test1-dr6k	Backup	Last: ndmp-qtr...	Successful		3/25/2015 1:58:52 AM	Completed	/vol/prvntest
ndmp-lun-wholevol	10.250.232.100	isc-test1-dr6k	Backup	Last: ndmp-lu...	Successful		3/25/2015 3:27:27 AM	Completed	/vol/prvntest
bkupexcc	R310-sys-01	isc-test1-dr6k	Backup	Last: bkupexcc...	Failed		3/26/2015 1:31:00 AM	Completed	PravinK-W2K
10.250.240.226 iscsi	10.250.240.226	isc-test1-dr6k	Backup	Last: 10.250.24...	Success with Exceptions		3/27/2015 3:18:38 AM	Completed	pravin-rhel7-
10.250.240.226 vm-parallel	10.250.240.226	cifsvm	Backup	Last: 10.250.24...	Successful		3/30/2015 2:28:23 AM	Completed	barkha-Win2
10.250.240.226 Last n final	10.250.240.226	cifsvm	Backup	Last: 10.250.24...	Successful		3/30/2015 3:34:03 AM	Completed	smitha-win2k
10.250.240.226 last n final1	10.250.240.226	cifsvm	Backup	Last: 10.250.24...	Successful		3/30/2015 4:42:47 AM	Completed	barkha-w2k1
10.250.232.100-SM vol	10.250.232.100	isc-test1-dr6k	Backup	Last: 10.250.23...	Successful		3/31/2015 5:32:44 AM	Completed	/vol/prvndest
prvn-bkp1	r620-sys-03	isc-test1-dr6k	Backup	Last: prvn-bkp...	Successful		4/1/2015 2:39:59 AM	Completed	E: (Partial)
prvn-bkp2	r620-sys-03	isc-test1-dr6k	Backup	Last: prvn-bkp...	Successful		4/1/2015 2:50:19 AM	Completed	E: (Partial)
prvn-bkp3	r620-sys-03	isc-test1-dr6k	Backup	Last: prvn-bkp...	Successful		4/1/2015 1:49:05 AM	Completed	E: (Partial)

Job Histories - 103 Items

Name	Server	Storage	Job Type	Job Status	Percent Complete	Start Time	End Time	Elapsed Time	Byte Count	Job Rate	Error Code	Deduplication Ratio
ost backup-Full	prvn-win2k12r...	BE_OST:2	Backup	Successful	100%	4/21/2015 9:5...	4/21/2015 9:5...	00:01:33	2.54 GB	6,236.01 MB/...		
win-data-Full	prvn-win2k12r...	prvn-ost:2	Backup	Successful	100%	4/13/2015 2:5...	4/13/2015 2:5...	00:02:11	2.54 GB	3,997.00 MB/...		
prvn-win2k12r2.systest.o...	prvn-win2k12r...	ootb-cifs	Restore	Successful	100%	4/9/2015 9:24:...	4/9/2015 9:25:...	00:01:07	2.54 GB	2,730.73 MB/...		
win-data-Incremental	prvn-win2k12r...	ootb-cifs	Backup	Successful	100%	4/9/2015 9:20:...	4/9/2015 9:20:...	00:00:20	147 KB	4.00 MB/min		
win-data-Full	prvn-win2k12r...	ootb-cifs	Backup	Successful	100%	4/9/2015 9:10:...	4/9/2015 9:12:...	00:01:47	2.54 GB	4,871.00 MB/...		
taperest	10.250.243.242	Tape drive 0028	Restore	Successful	100%	4/9/2015 7:40:...	4/9/2015 8:35:...	00:54:47	91.7 GB	1,755.00 MB/...		
tapesnap-Full	10.250.243.242	Tape drive 0024	Backup	Successful	100%	4/9/2015 12:5...	4/9/2015 3:01:...	02:07:27	91.7 GB	1,391.00 MB/...		
be15-test-Incremental	prvn-win2k12r...	be15-test	Backup	Successful	100%	4/8/2015 6:23:...	4/8/2015 6:24:...	00:01:47	2.54 GB	3,997.00 MB/...		
prvn-win2k12r2.systest.o...	prvn-win2k12r...	be15-test	Restore	Successful	100%	4/8/2015 4:26:...	4/8/2015 4:26:...	00:00:03	181 KB	10.00 MB/min		
be15-test-Incremental	prvn-win2k12r...	be15-test	Backup	Canceled	N/A	4/8/2015 2:05:...	4/8/2015 4:26:...	02:20:42	109 MB	0.00 MB/min		
be15-test-Full	prvn-win2k12r...	be15-test	Backup	Successful	100%	4/8/2015 2:01:...	4/8/2015 2:02:...	00:01:18	181 KB	0.00 MB/min		

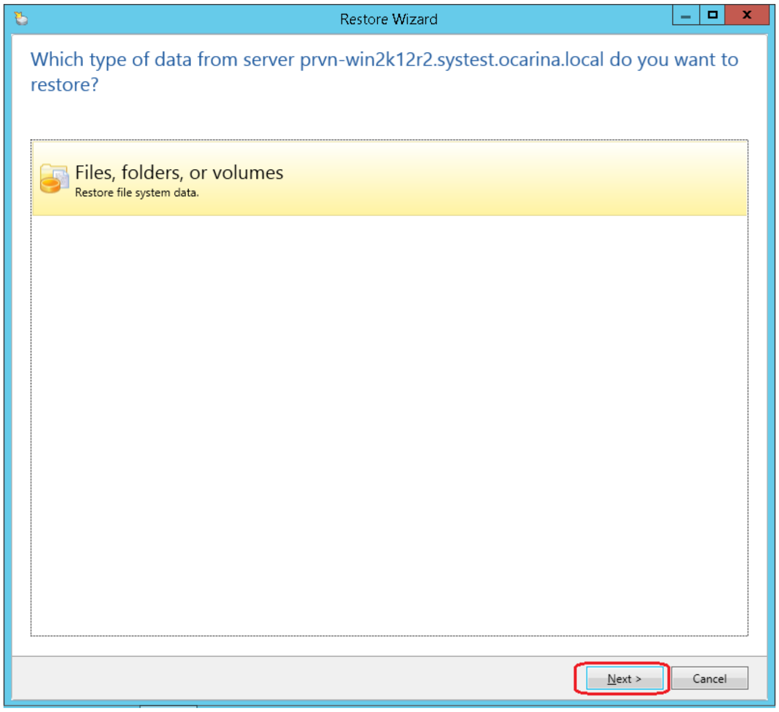
4.6 Restoring data

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



Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time
ost backup Full backup, Incremental backup	prvn-win2k12r...		Backup				
ost backup-Full Full backup	prvn-win2k12r...	BE_OST	Full backup	Scheduled	Scheduled		4/24/2015 11:00:00 PM
ost backup-Incremental Incremental backup	prvn-win2k12r...	BE_OST	Incremental backup	Scheduled	Scheduled		4/21/2015 11:00:00 PM

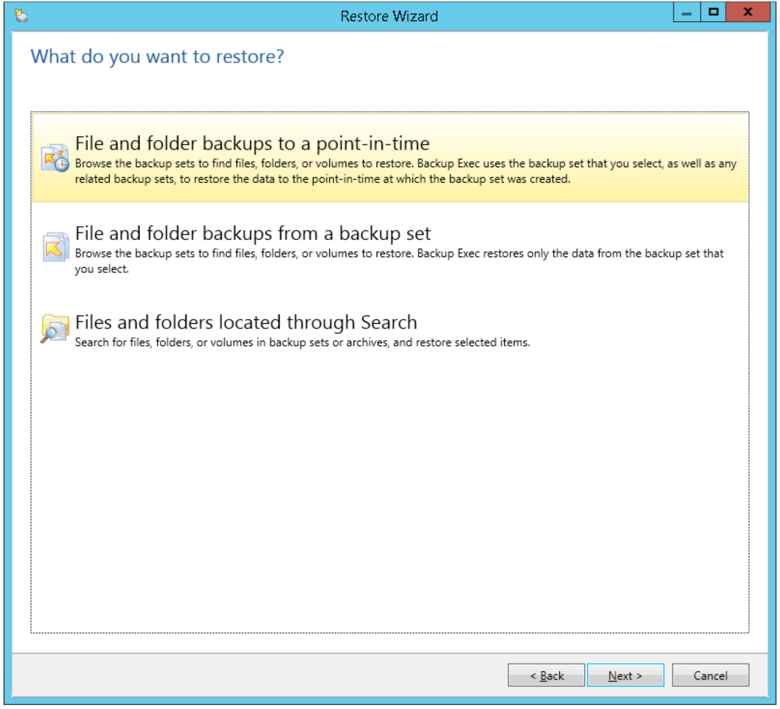
2. With the default options, click **Next**.



Which type of data from server prvn-win2k12r2.systest.ocarina.local do you want to restore?

Files, folders, or volumes
Restore file system data.

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



What do you want to restore?

File and folder backups to a point-in-time

Browse the backup sets to find files, folders, or volumes to restore. Backup Exec uses the backup set that you select, as well as any related backup sets, to restore the data to the point-in-time at which the backup set was created.

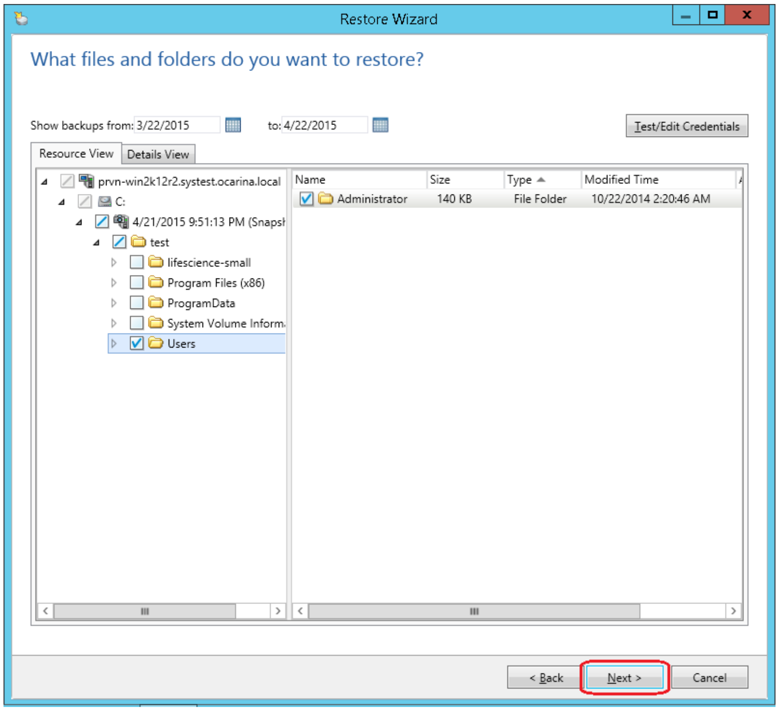
File and folder backups from a backup set

Browse the backup sets to find files, folders, or volumes to restore. Backup Exec restores only the data from the backup set that you select.

Files and folders located through Search

Search for files, folders, or volumes in backup sets or archives, and restore selected items.

4. Select the data to restore from the appropriate snapshot and click **Next** to proceed.



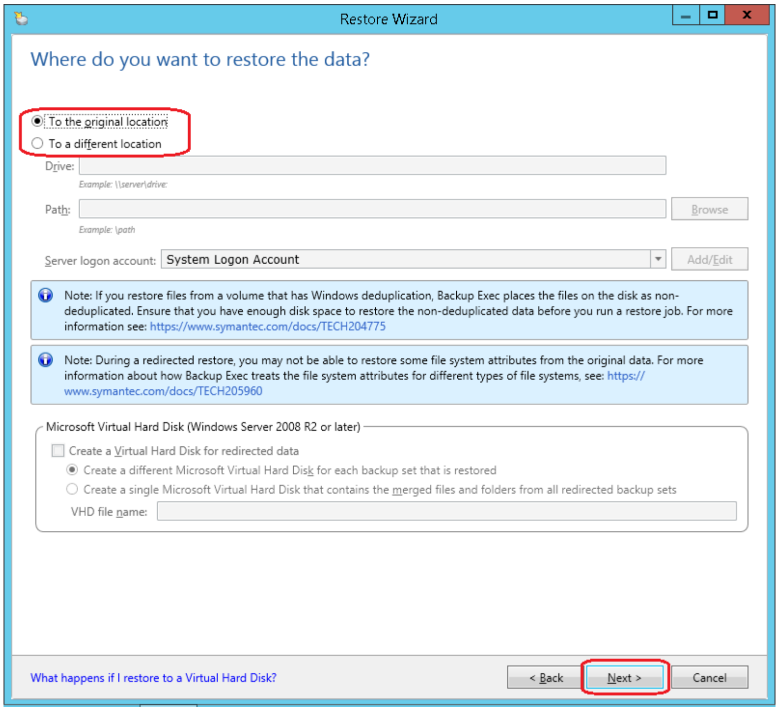
What files and folders do you want to restore?

Show backups from: 3/22/2015 to: 4/22/2015

- prvn-win2k12r2.systest.ocarina.local
  - C:
    - 4/21/2015 9:51:13 PM (Snapsh
      - test
        - □ lifescience-small
        - □ Program Files (x86)
        - □ ProgramData
        - □ System Volume Inform.
        - ☑ Users

Name	Size	Type	Modified Time
☑ Administrator	140 KB	File Folder	10/22/2014 2:20:46 AM

5. Select the default setting if restoring to the original location or specify a different location as needed, and click **Next**.



Where do you want to restore the data?

● To the original location

○ To a different location

Drive:

Example: \\server\drive:

Path:

Example: \path

Server logon account: System Logon Account

Note: If you restore files from a volume that has Windows deduplication, Backup Exec places the files on the disk as non-deduplicated. Ensure that you have enough disk space to restore the non-deduplicated data before you run a restore job. For more information see: https://www.symantec.com/docs/TECH204775

Note: During a redirected restore, you may not be able to restore some file system attributes from the original data. For more information about how Backup Exec treats the file system attributes for different types of file systems, see: https://www.symantec.com/docs/TECH205960

Microsoft Virtual Hard Disk (Windows Server 2008 R2 or later)

□ Create a Virtual Hard Disk for redirected data

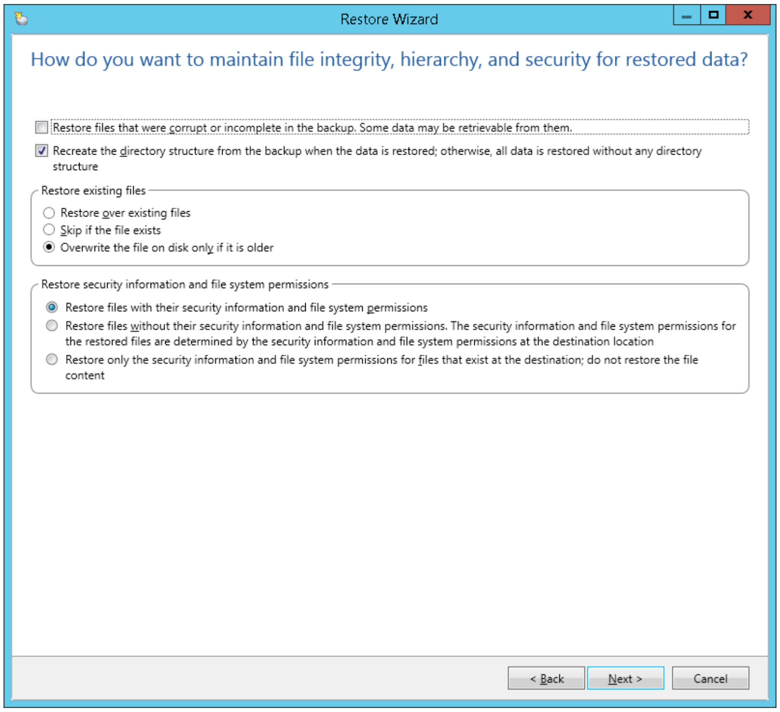
● Create a different Microsoft Virtual Hard Disk for each backup set that is restored

○ Create a single Microsoft Virtual Hard Disk that contains the merged files and folders from all redirected backup sets

VHD file name:

What happens if I restore to a Virtual Hard Disk?

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



How do you want to maintain file integrity, hierarchy, and security for restored data?

□ Restore files that were corrupt or incomplete in the backup. Some data may be retrievable from them.

☑ Recreate the directory structure from the backup when the data is restored; otherwise, all data is restored without any directory structure

Restore existing files

○ Restore over existing files

○ Skip if the file exists

● Overwrite the file on disk only if it is older

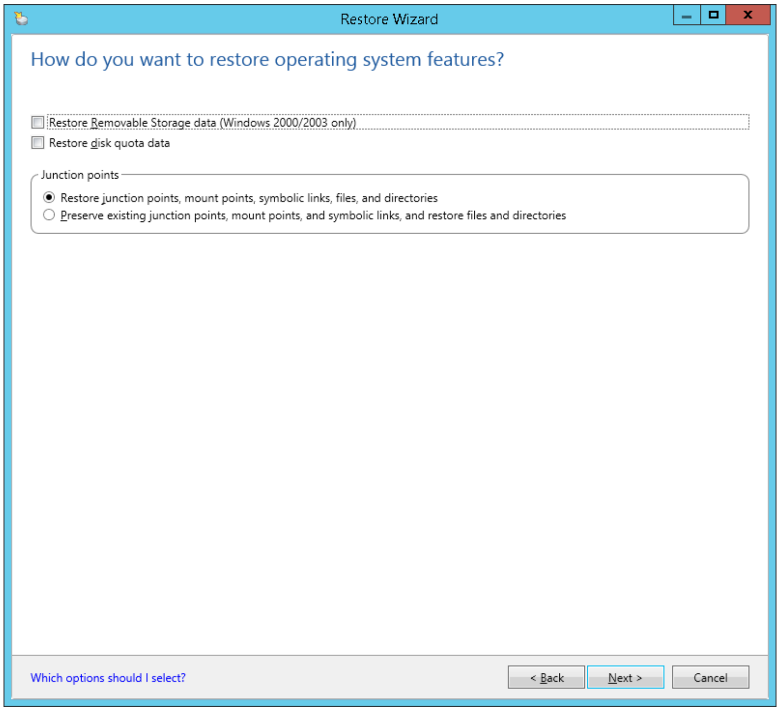
Restore security information and file system permissions

● Restore files with their security information and file system permissions

○ Restore files without their security information and file system permissions. The security information and file system permissions for the restored files are determined by the security information and file system permissions at the destination location

○ Restore only the security information and file system permissions for files that exist at the destination; do not restore the file content

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



How do you want to restore operating system features?

□ Restore Removable Storage data (Windows 2000/2003 only)

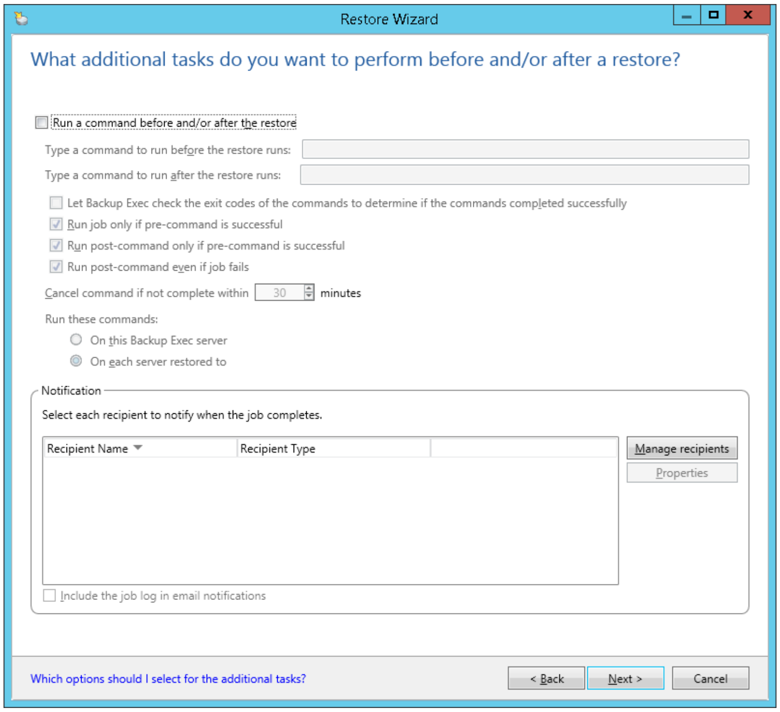
□ Restore disk quota data

Junction points

● Restore junction points, mount points, symbolic links, files, and directories

○ Preserve existing junction points, mount points, and symbolic links, and restore files and directories

8. With the default settings, click **Next** to proceed.



Restore Wizard

What additional tasks do you want to perform before and/or after a restore?

☐ Run a command before and/or after the restore

Type a command to run before the restore runs:

Type a command to run after the restore runs:

☐ Let Backup Exec check the exit codes of the commands to determine if the commands completed successfully

☑ Run job only if pre-command is successful

☑ Run post-command only if pre-command is successful

☑ Run post-command even if job fails

Cancel command if not complete within 30 minutes

Run these commands:

○ On this Backup Exec server

● On each server restored to

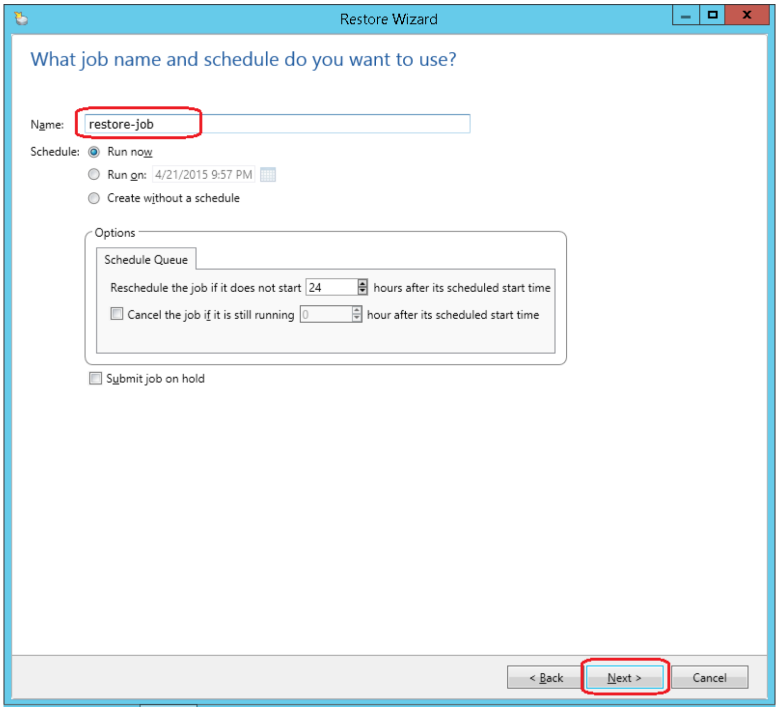
Notification

Select each recipient to notify when the job completes.

Recipient Name	Recipient Type

☐ Include the job log in email notifications

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.



Restore Wizard

What job name and schedule do you want to use?

Name: restore-job

Schedule: ● Run now

○ Run on: 4/21/2015 9:57 PM

○ Create without a schedule

Options

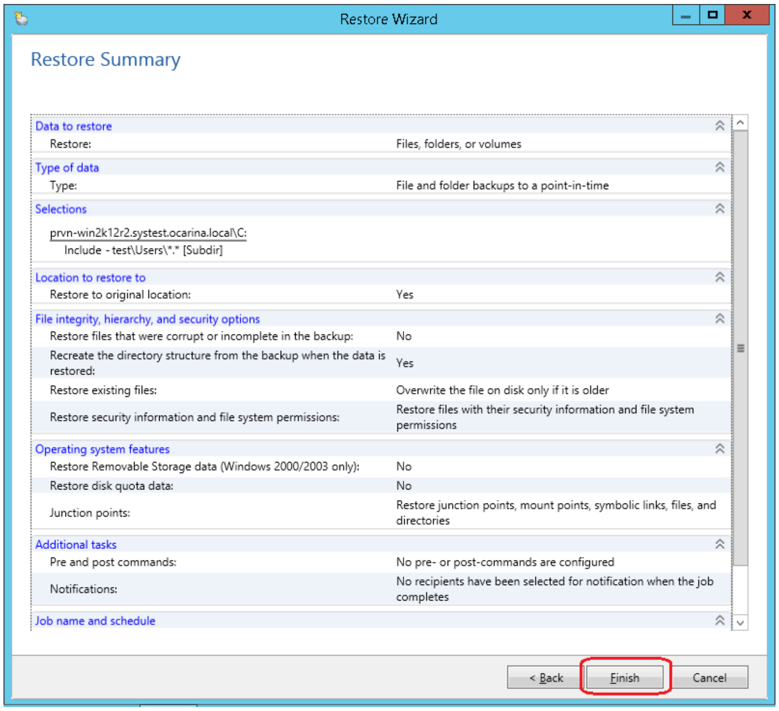
Schedule Queue

Reschedule the job if it does not start 24 hours after its scheduled start time

☐ Cancel the job if it is still running 0 hour after its scheduled start time

☐ Submit job on hold

10. Click **Finish** on the Restore Summary page.



Restore Summary

Data to restore

Restore:	Files, folders, or volumes

Type of data

Type:	File and folder backups to a point-in-time

Selections

prvn-win2k12r2.systest.ocarina.local\C:
Include - test\Users\*.* [Subdir]

Location to restore to

Restore to original location:	Yes

File integrity, hierarchy, and security options

Restore files that were corrupt or incomplete in the backup:	No
Recreate the directory structure from the backup when the data is restored:	Yes
Restore existing files:	Overwrite the file on disk only if it is older
Restore security information and file system permissions:	Restore files with their security information and file system permissions

Operating system features

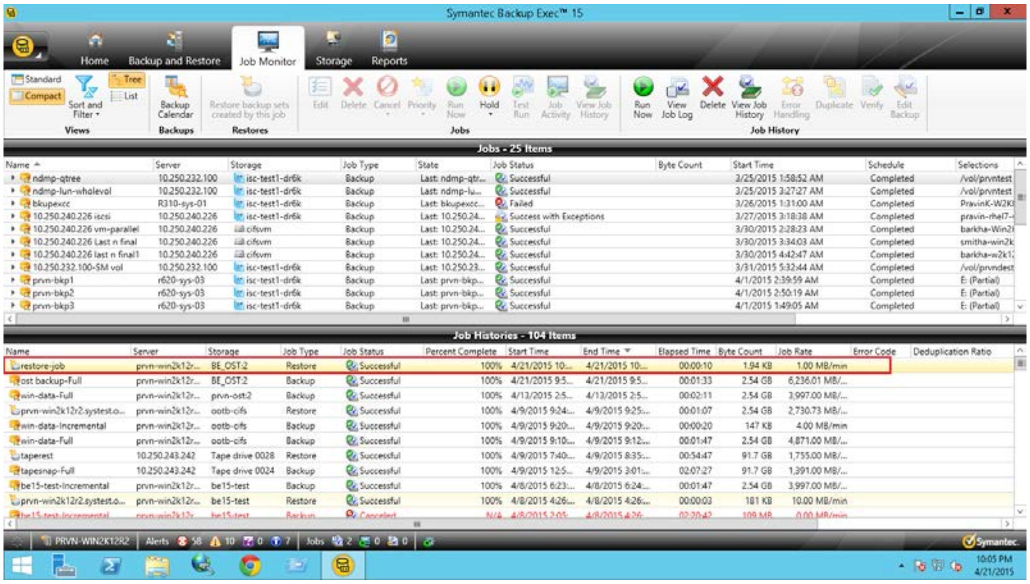
Restore Removable Storage data (Windows 2000/2003 only):	No
Restore disk quota data:	No
Junction points:	Restore junction points, mount points, symbolic links, files, and directories

Additional tasks

Pre and post commands:	No pre- or post-commands are configured
Notifications:	No recipients have been selected for notification when the job completes

Job name and schedule

On the Job Monitor tab, you can view the restore status.



Jobs - 25 Items

Name	Server	Storage	Job Type	State	Job Status	Byte Count	Start Time	Schedule	Selections
ndmp-qtree	10.250.232.100	isc-test1-dr6k	Backup	Last: ndmp-qtr...	Successful		3/25/2015 1:58:52 AM	Completed	/vol/prvntest
ndmp-lun-wholevol	10.250.232.100	isc-test1-dr6k	Backup	Last: ndmp-lu...	Successful		3/25/2015 3:27:27 AM	Completed	/vol/prvntest
bkupexcc	R310-sys-01	isc-test1-dr6k	Backup	Last: bkupexcc...	Failed		3/26/2015 1:31:00 AM	Completed	PravinK-W2KI
10.250.240.226 iscsi	10.250.240.226	isc-test1-dr6k	Backup	Last: 10.250.24...	Success with Exceptions		3/27/2015 3:18:38 AM	Completed	pravin-rhel7-
10.250.240.226 vm-parallel	10.250.240.226	cifsvm	Backup	Last: 10.250.24...	Successful		3/30/2015 2:28:23 AM	Completed	barkha-Win2I
10.250.240.226 Last n final	10.250.240.226	cifsvm	Backup	Last: 10.250.24...	Successful		3/30/2015 3:34:03 AM	Completed	smitha-win2k
10.250.240.226 last n final1	10.250.240.226	cifsvm	Backup	Last: 10.250.24...	Successful		3/30/2015 4:42:47 AM	Completed	barkha-w2k1
10.250.232.100-SM vol	10.250.232.100	isc-test1-dr6k	Backup	Last: 10.250.23...	Successful		3/31/2015 5:32:44 AM	Completed	/vol/prvndest
prvn-bkp1	r620-sys-03	isc-test1-dr6k	Backup	Last: prvn-bkp...	Successful		4/1/2015 2:39:59 AM	Completed	E: (Partial)
prvn-bkp2	r620-sys-03	isc-test1-dr6k	Backup	Last: prvn-bkp...	Successful		4/1/2015 2:50:19 AM	Completed	E: (Partial)
prvn-bkp3	r620-sys-03	isc-test1-dr6k	Backup	Last: prvn-bkp...	Successful		4/1/2015 1:49:05 AM	Completed	E: (Partial)

Job Histories - 104 Items

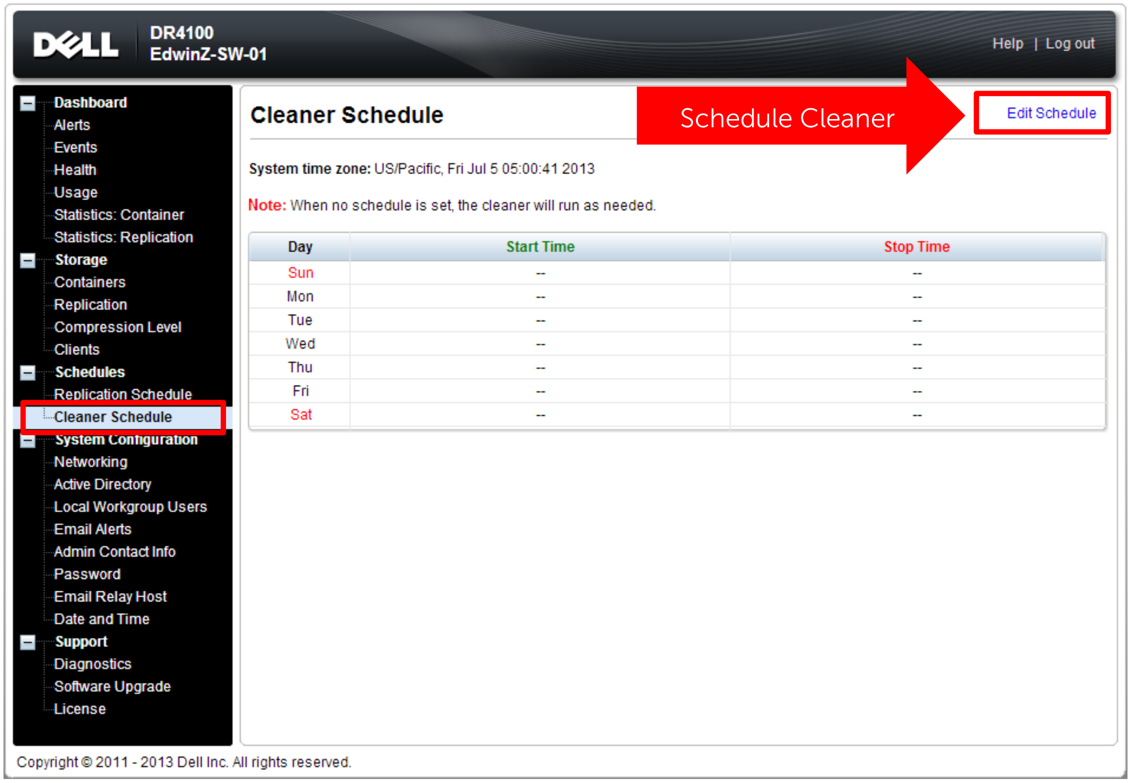
Name	Server	Storage	Job Type	Job Status	Percent Complete	Start Time	End Time	Elapsed Time	Byte Count	Job Rate	Error Code	Deduplication Ratio
restore-job	prvn-win2k12r...	BE_OST-2	Restore	Successful	100%	4/21/2015 10:...	4/21/2015 10:...	00:00:10	1.94 KB	1.00 MB/min		
ost backup-Full	prvn-win2k12r...	BE_OST-2	Backup	Successful	100%	4/21/2015 9:5...	4/21/2015 9:5...	00:01:33	2.54 GB	6,236.01 MB/...		
win-data-Full	prvn-win2k12r...	prvn-ost2	Backup	Successful	100%	4/13/2015 2:5...	4/13/2015 2:5...	00:02:11	2.54 GB	3,997.00 MB/...		
prvn-win2k12r2.systest.o...	prvn-win2k12r...	ootb-cifs	Restore	Successful	100%	4/9/2015 9:24:...	4/9/2015 9:25:...	00:01:07	2.54 GB	2,730.73 MB/...		
win-data-Incremental	prvn-win2k12r...	ootb-cifs	Backup	Successful	100%	4/9/2015 9:20:...	4/9/2015 9:20:...	00:00:20	147 KB	4.00 MB/min		
win-data-Full	prvn-win2k12r...	ootb-cifs	Backup	Successful	100%	4/9/2015 9:10:...	4/9/2015 9:12:...	00:01:47	2.54 GB	4,871.00 MB/...		
taperest	10.250.243.242	Tape drive 0028	Restore	Successful	100%	4/9/2015 7:40:...	4/9/2015 8:35:...	00:54:47	91.7 GB	1,755.00 MB/...		
tapesnap-Full	10.250.243.242	Tape drive 0024	Backup	Successful	100%	4/9/2015 12:5...	4/9/2015 3:01:...	02:07:27	91.7 GB	1,391.00 MB/...		
be15-test-Incremental	prvn-win2k12r...	be15-test	Backup	Successful	100%	4/8/2015 6:23:...	4/8/2015 6:24:...	00:01:47	2.54 GB	3,997.00 MB/...		
prvn-win2k12r2.systest.o...	prvn-win2k12r...	be15-test	Restore	Successful	100%	4/8/2015 4:26:...	4/8/2015 4:26:...	00:00:03	181 KB	10.00 MB/min		
be15-test-Incremental	prvn-win2k12r...	be15-test	Backup	Canceled	N/A	4/8/2015 2:05:...	4/8/2015 4:26:...	02:20:42	109 MB	0.00 MB/min		

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 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.



Cleaner Schedule

System time zone: US/Pacific, Fri Jul 5 05:00:41 2013

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

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

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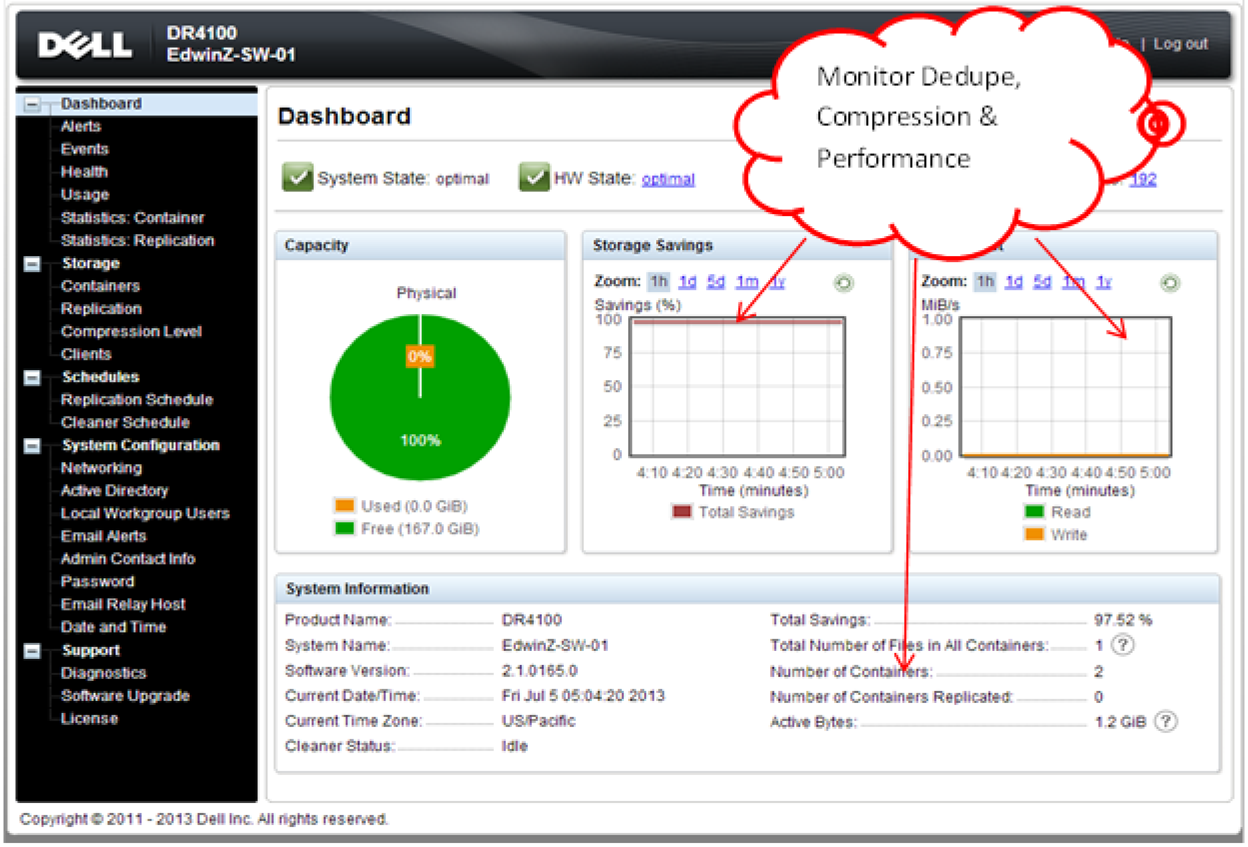
6 Monitoring deduplication, compression, and performance

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.



System State: optimal

HW State: optimal

Used (0.0 GiB)

Free (167.0 GiB)

Monitor Dedupe, Compression & Performance

System Information

Product Name:	DR4100	Total Savings:	97.52 %
System Name:	EdwinZ-SW-01	Total Number of Files in All Containers:	1
Software Version:	2.1.0165.0	Number of Containers:	2
Current Date/Time:	Fri Jul 5 05:04:20 2013	Number of Containers Replicated:	0
Current Time Zone:	US/Pacific	Active Bytes:	1.2 GiB
Cleaner Status:	Idle		

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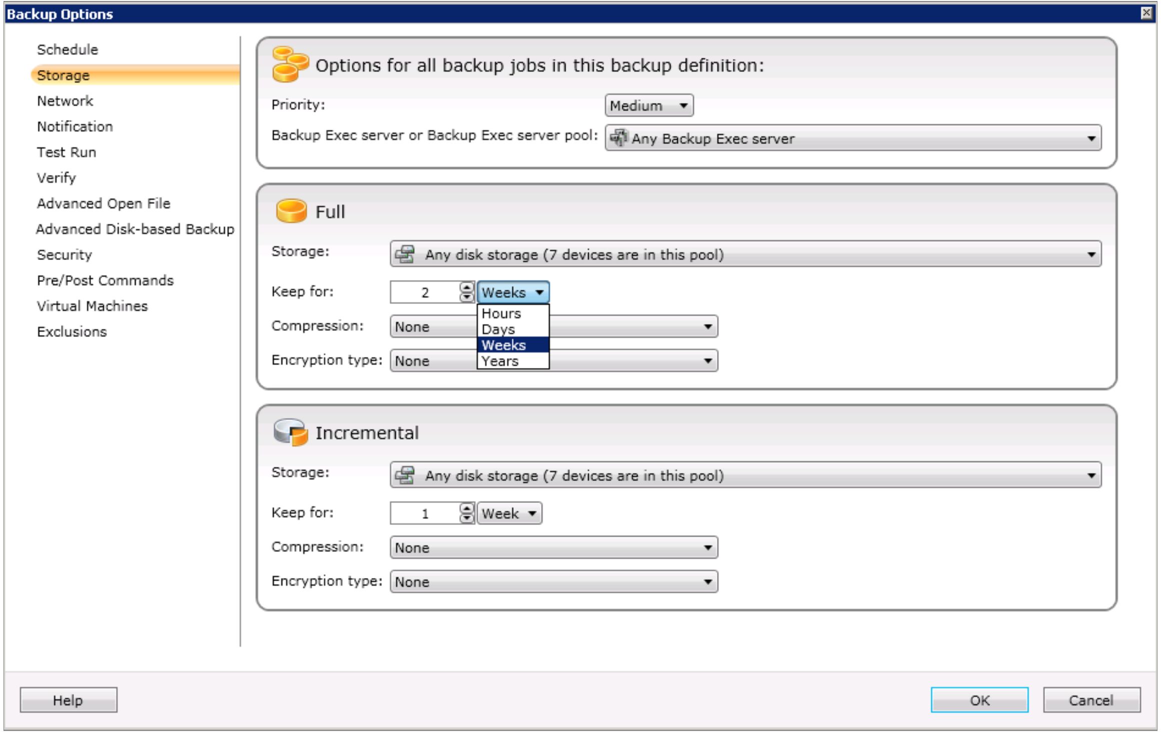
A Setting data expiration for Backup Exec 2012/2014/2015

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**.



Options for all backup jobs in this backup definition:

Priority: Medium

Backup Exec server or Backup Exec server pool: Any Backup Exec server

Full

Storage: Any disk storage (7 devices are in this pool)

Keep for: 2 Weeks

Hours
Days
Weeks
Years

Compression: None

Encryption type: None

Incremental

Storage: Any disk storage (7 devices are in this pool)

Keep for: 1 Week

Compression: None

Encryption type: None

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

	Pre-Deduplication		
Week	**Logical Size**	**Logical Full Metrics**	**10% Change Rate Logical Incremental Metrics**
1	24.2TB	20TB	2TB
2	24.2TB	20TB	2TB
3	24.2TB	20TB	2TB
4	24.2TB	20TB	2TB
5	24.2TB	20TB	2TB
Total	121TB		

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

Type	**Capacity**	**Max number of Tapes supported**
LTO-4	800GiB	2000
LTO-3	400GiB	4000

Type	Capacity	Max number of Tapes supported
LTO-2	200GiB	8000
LTO-1	100Gib	10000
LTO-1	50Gib	10000
LTO-1	10GiB	10000

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.