Setting Up the DR Series System as a CIFS, NFS, or VTL Target on Networker 8.2.1

Technical White Paper

Quest Engineering

October 2017

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■ **WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death**

! **CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.**

ℹ IMPORTANT, NOTE, TIP, MOBILE, or VIDEO: An information icon indicates supporting information.

Setting Up the DR Series System as a CIFS_NFS_VTL Target on Networker 8.2.1

Updated – December 20, 2017

Contents

Executive Summary

This document provides information about how to set up the DR Series system as a backup target for Dell EMC Networker 8.2.1.

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

http://support.quest.com/DR-Series

For more information about Networker, refer to the Networker documentation at:

https://community.emc.com/docs/DOC-49315

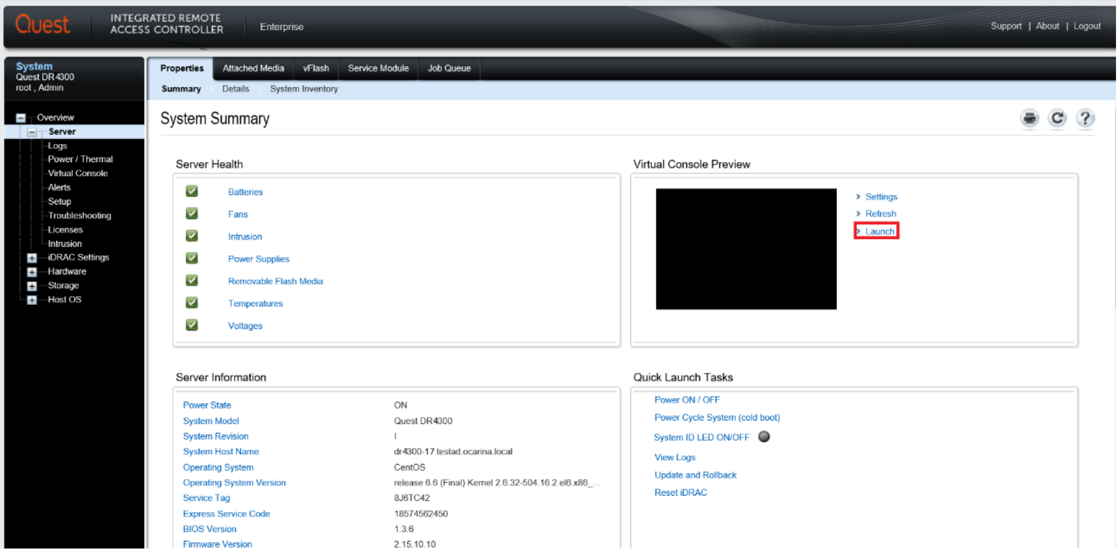
NOTE: The DR Series system/ Networker build version and screenshots used in this document might vary slightly, depending on the version of the DR Series system/ Networker Software version you are using.

Revisions

Date	Description
January 2014	Initial release
November 2016	Updated the guide with new DR-4.0 GUI screens
October 2017	Updated with Quest-branded DR Series system GUI screenshots (v4.0.3)

Installing and configuring the DR Series system

1. Rack and cable the DR Series system, and power it on. In the *Quest DR Series System Administrator Guide*, see the following sections for information about using the iDRAC connection and initializing the appliance.
   - “iDRAC Connection”,
   - “Logging in and Initializing the DR Series system”
   - “Accessing IDRAC6/Idrac7 Using RACADM”
2. Log on to iDRAC using the default credentials (username: **root** and password: **calvin**) and either:
   - the default address **192.168.0.120**,
   - or the IP address that is assigned to the iDRAC interface
3. Launch the virtual console.



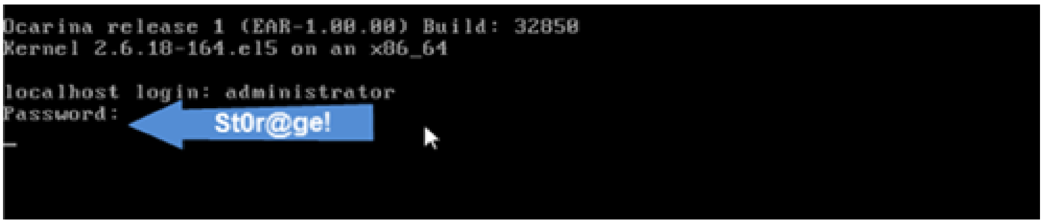
Server Information

Power State	ON
System Model	Quest DR4300
System Revision	I
System Host Name	dr4300-17.testad.ocarina.local
Operating System	CentOS
Operating System Version	release 6.6 (Final) Kernel 2.6.32-504.16.2.el6.x86_...
Service Tag	8J6TC42
Express Service Code	18574562450
BIOS Version	1.3.6
Firmware Version	2.15.10.10

4. When the virtual console opens, log on to the system as:

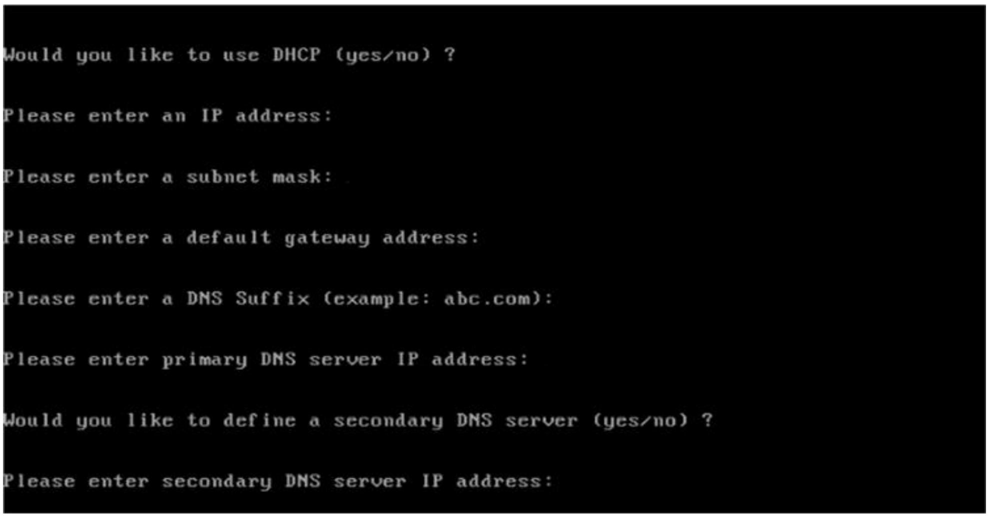
   user: **administrator**, password: **St0r@ge!**

   NOTE: The “0” in the password is the numeral zero.



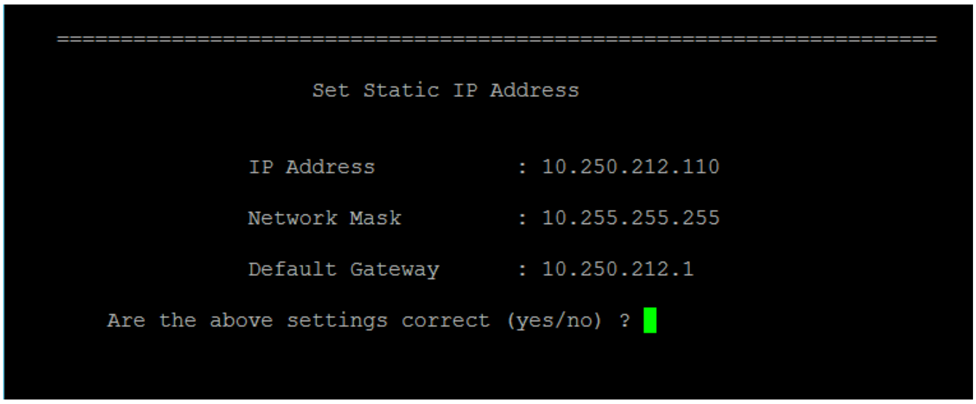
```
Ocarina release 1 (EAR-1.00.00) Build: 32850
Kernel 2.6.18-164.el5 on an x86_64

localhost login: administrator
Password:
_
```

5. Set the user-defined networking preferences.



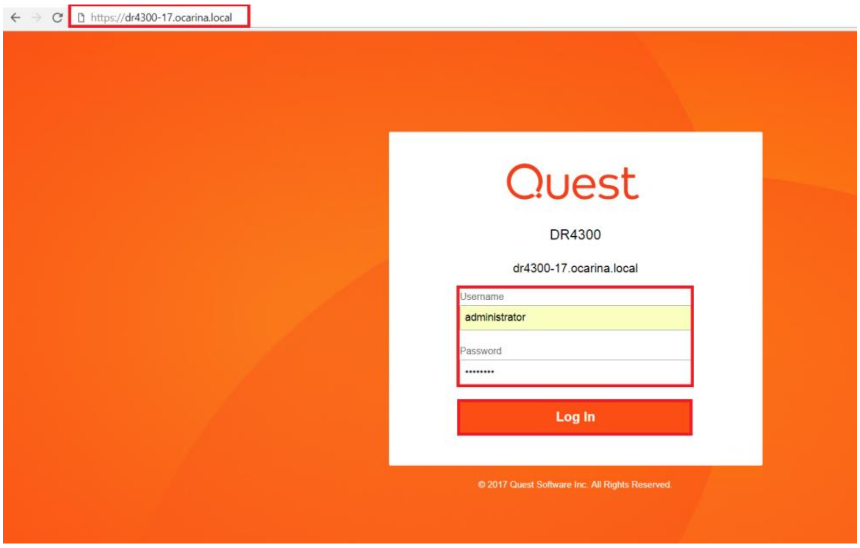
```
Would you like to use DHCP (yes/no) ?

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 network preferences summary and confirm if the settings are correct.



```
    ====================================================================

                        Set Static IP Address


                   IP Address           : 10.250.212.110

                   Network Mask         : 10.255.255.255

                   Default Gateway      : 10.250.212.1

        Are the above settings correct (yes/no) ?
```

7. Log on to DR Series system administrator console with the IP address you just provided for the DR Series system. Use the username **administrator** and password **St0r@ge!** (The “0” in the password is the numeral zero).



https://dr4300-17.ocarina.local
Quest
DR4300
dr4300-17.ocarina.local
Log In
© 2017 Quest Software Inc. All Rights Reserved.

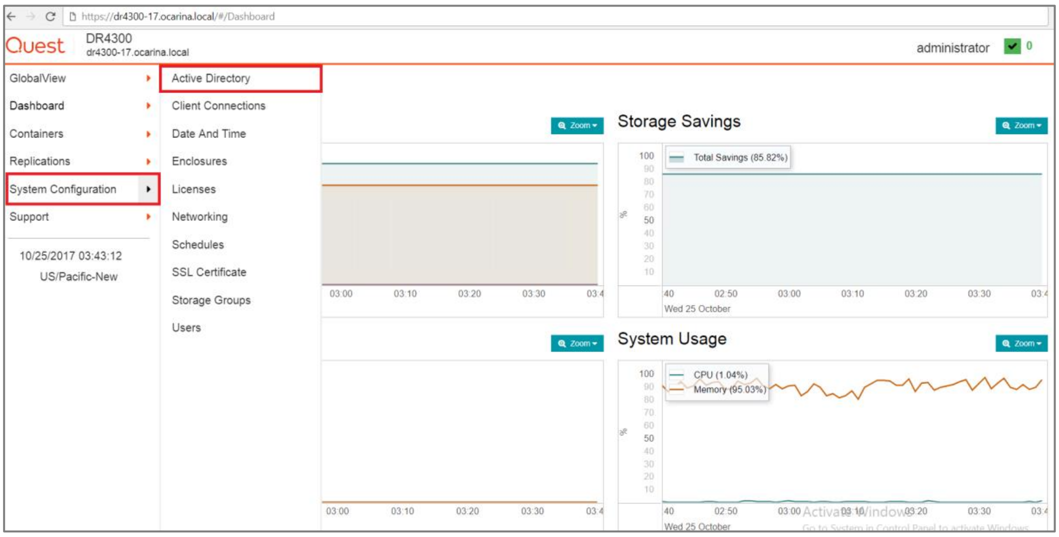
Username: administrator

Password: ••••••••

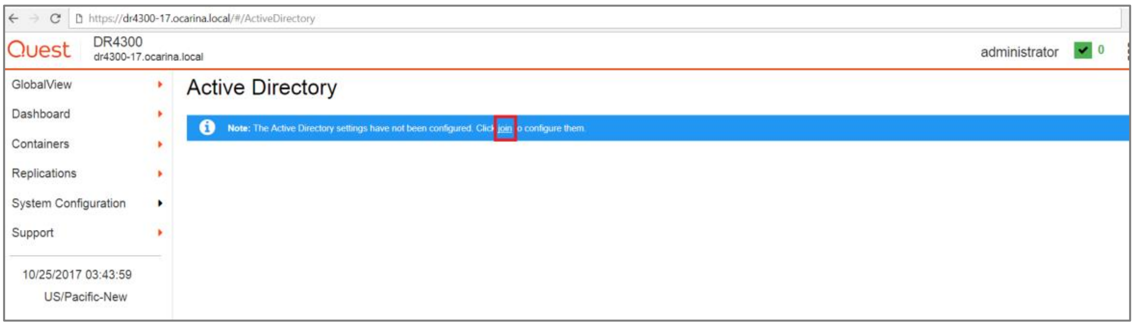
8. Join the DR Series system to Active Directory

> 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 navigation area of the GUI.

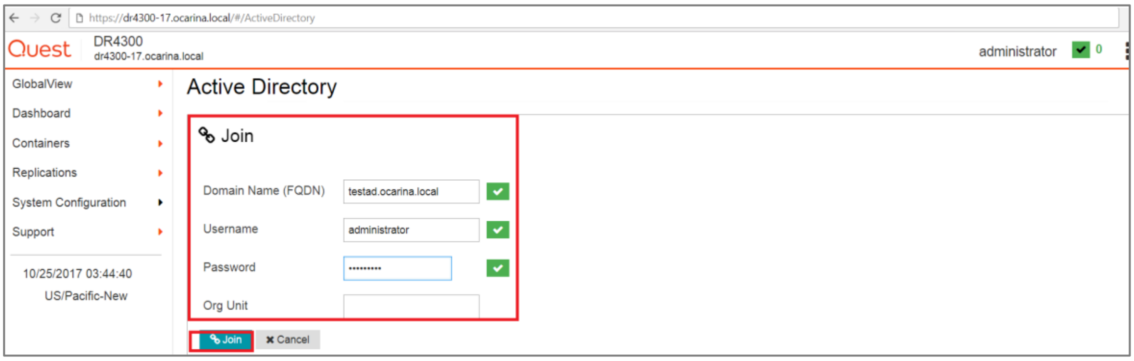


b Select the **Join** hyperlink in Active Directory configuration.



Note: The Active Directory settings have not been configured. Click join to configure them.

c Enter your **Active Directory** credentials and click **Join**.

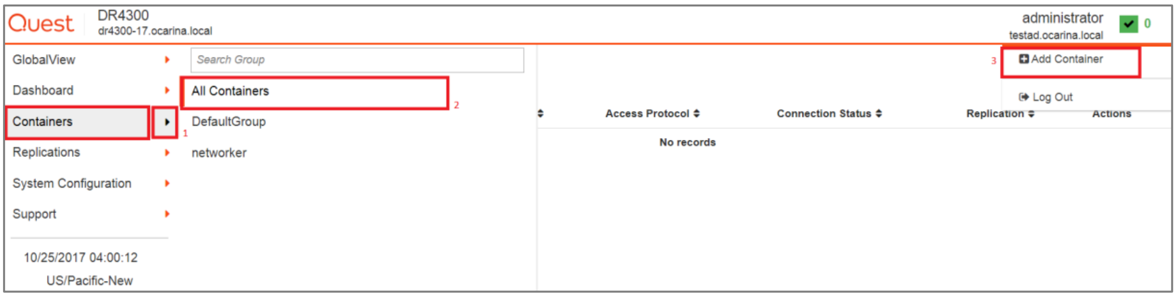


Domain Name (FQDN)	testad.ocarina.local
Username	administrator
Password	•••••••••
Org Unit	

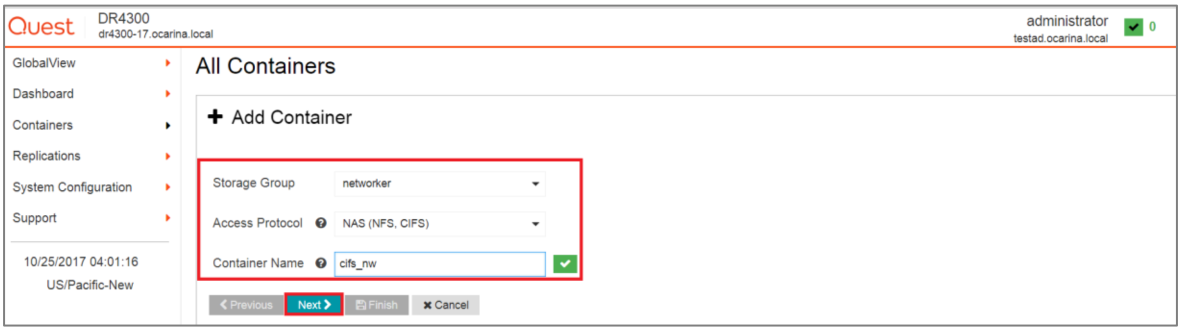
Creating and configuring CIFS target container(s) for Networker

Creating the network share container for Networker use

1. Select **Containers** in the left navigation area of the DR Series system GUI, then select the **Action Menu** in the upper right corner. Click the **Add Container** option at the top of the menu.



2. Select the **Storage Group** name and **NAS (NFS, CIFS)** from the **Access Protocol** drop down menu, enter a **Container Name**, and then click **Next**.

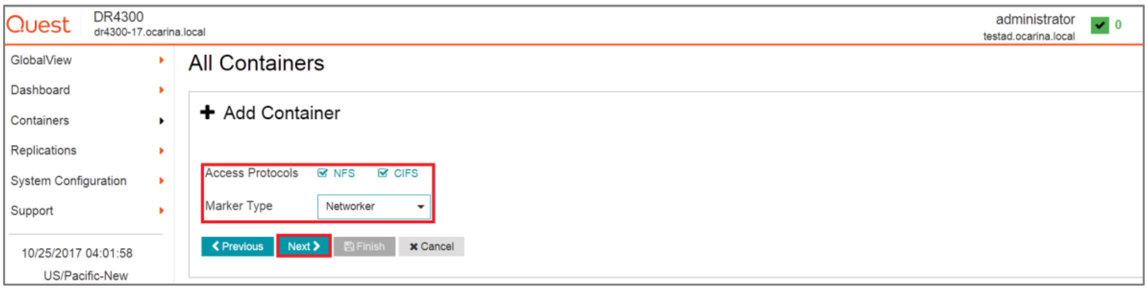


Storage Group: networker

Access Protocol: NAS (NFS, CIFS)

Container Name: cifs_nw

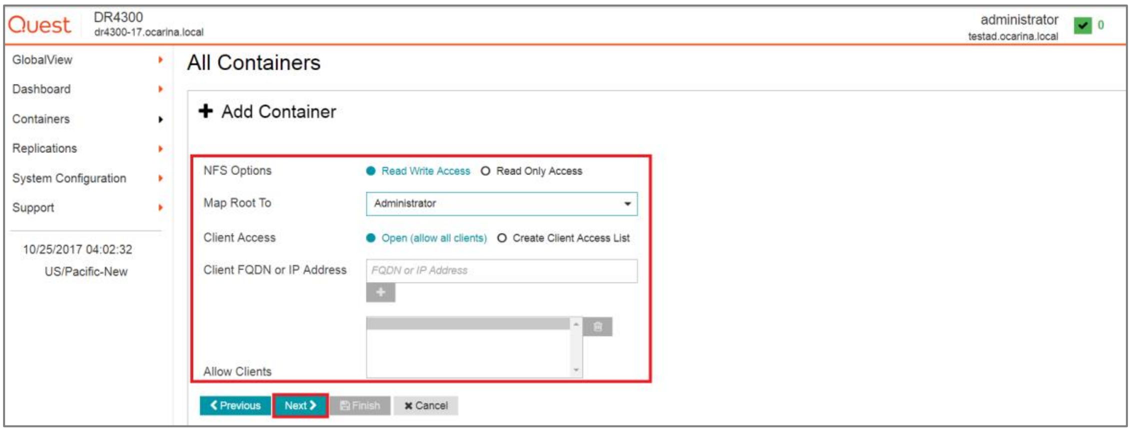
3. Select the check mark for **NFS** or **CIFS** as appropriate, select the **Marker Type** as **Networker**, and then click **Next** (Networker supports both CIFS and NFS protocols.)



Access Protocols ☑ NFS ☑ CIFS

Marker Type: Networker

4. Enter backup container information for NFS options, and then click **Next**.



NFS Options ● Read Write Access ○ Read Only Access

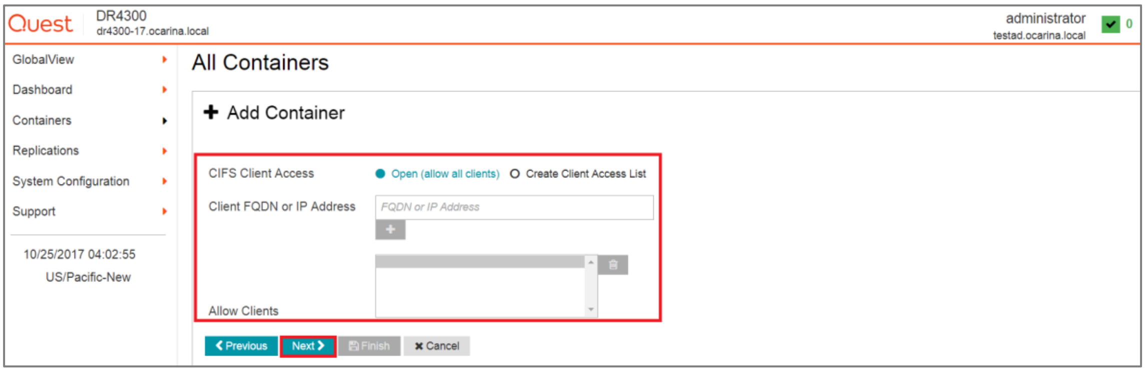
Map Root To: Administrator

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

Client FQDN or IP Address: FQDN or IP Address

Allow Clients

5. Enter backup container information for CIFS options, and then click **Next**.

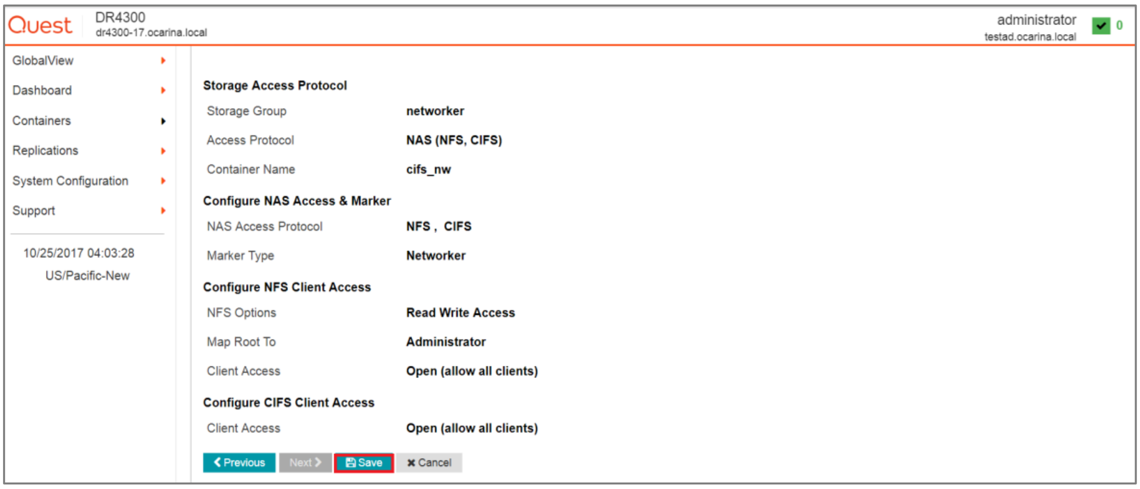


CIFS Client Access ● Open (allow all clients) ○ Create Client Access List

Client FQDN or IP Address: FQDN or IP Address

Allow Clients

6. Confirm the settings and click **Save**.



Storage Access Protocol

Storage Group	**networker**
Access Protocol	**NAS (NFS, CIFS)**
Container Name	**cifs_nw**

Configure NAS Access & Marker

NAS Access Protocol	**NFS , CIFS**
Marker Type	**Networker**

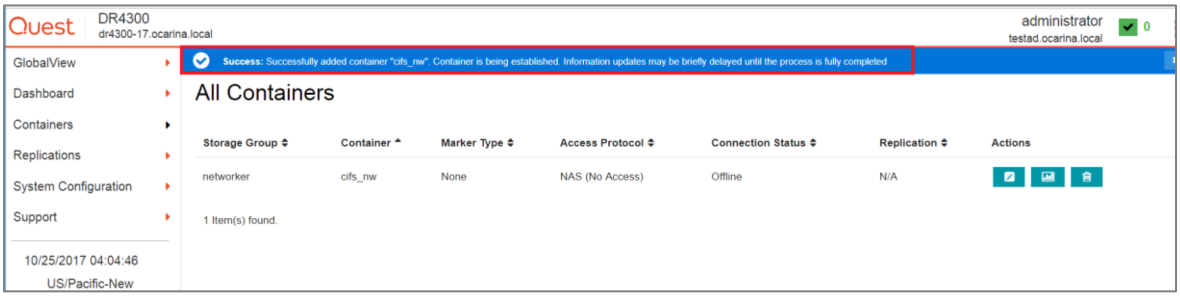
Configure NFS Client Access

NFS Options	**Read Write Access**
Map Root To	**Administrator**
Client Access	**Open (allow all clients)**

Configure CIFS Client Access

Client Access	**Open (allow all clients)**

7. Confirm that the container is added successfully.



Success: Successfully added container "cifs_nw". Container is being established. Information updates may be briefly delayed until the process is fully completed

All Containers

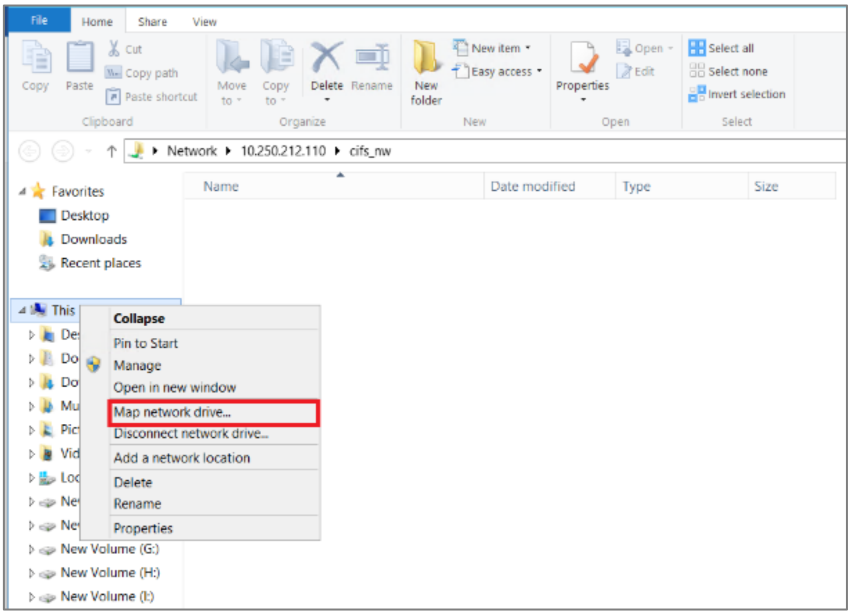
Storage Group	Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
networker	cifs_nw	None	NAS (No Access)	Offline	N/A	

1 Item(s) found.

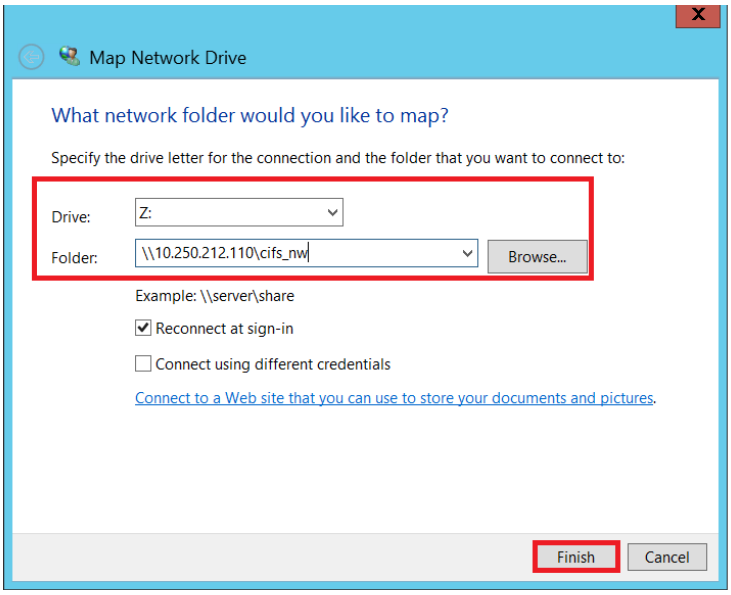
NOTE: For improved security, Quest recommends adding IP addresses for the backup console (Networker Server), Networker storage nodes, and Networker clients. Not all environments will have all components.

Configuring the Networker storage node – Windows CIFS

1. Log on to the storage node and click **Start** > **Computer**.
2. Righty click **Computer** and then click **Map network drive**.



3. In the **Map Network Drive** window, in the **Folder** field, enter the path to the container on the DR Series system.


Map Network Drive

What network folder would you like to map?

Specify the drive letter for the connection and the folder that you want to connect to:

Drive: Z:

Folder: \\10.250.212.110\cifs_nw

Example: \\server\share

☑ Reconnect at sign-in

□ Connect using different credentials

Connect to a Web site that you can use to store your documents and pictures.

4. Select Reconnect at sign-in.

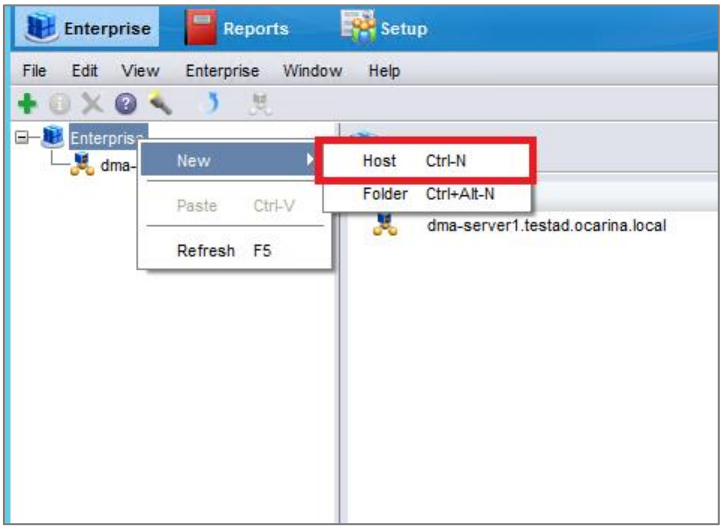
5. When prompted, enter the CIFS credential to authenticate on the Active Directory domain. The DR Series system container is now mounted to your backup server.

6. If Client Direct is used, make sure all the clients can access the same DR container share using this path. Otherwise, separate Client Direct Paths must be entered with the actual paths that clients use to access the DR container share (please refer to step 10 in the next section Set up Networker).

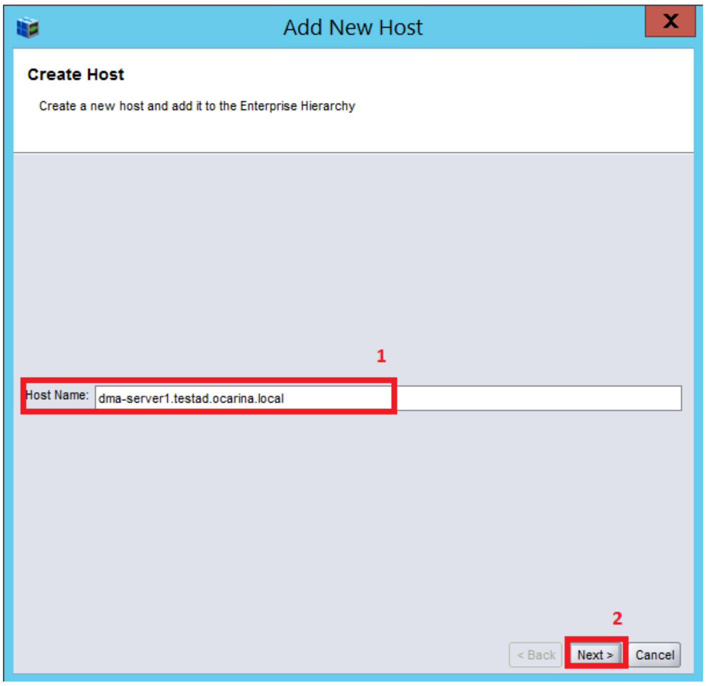
Configuring Networker to use the newly created network share

1. Open the Networker Management Console (NMC).

2. Click the **Enterprise** menu button, select the storage node that the DR Series system share will be configured as a backup device, right-click on **Enterprise** >> **New** >> **Host**.

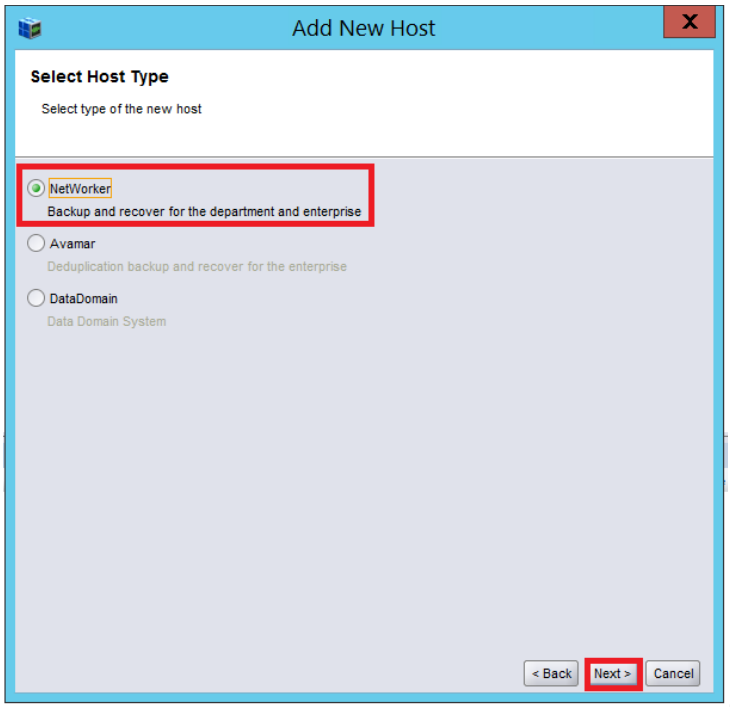


3. Add the **Host Name** and Click **Next**.



Host Name: dma-server1.testad.ocarina.local

4. Select **Networker** and click **Next**.



Add New Host

Select Host Type

Select type of the new host

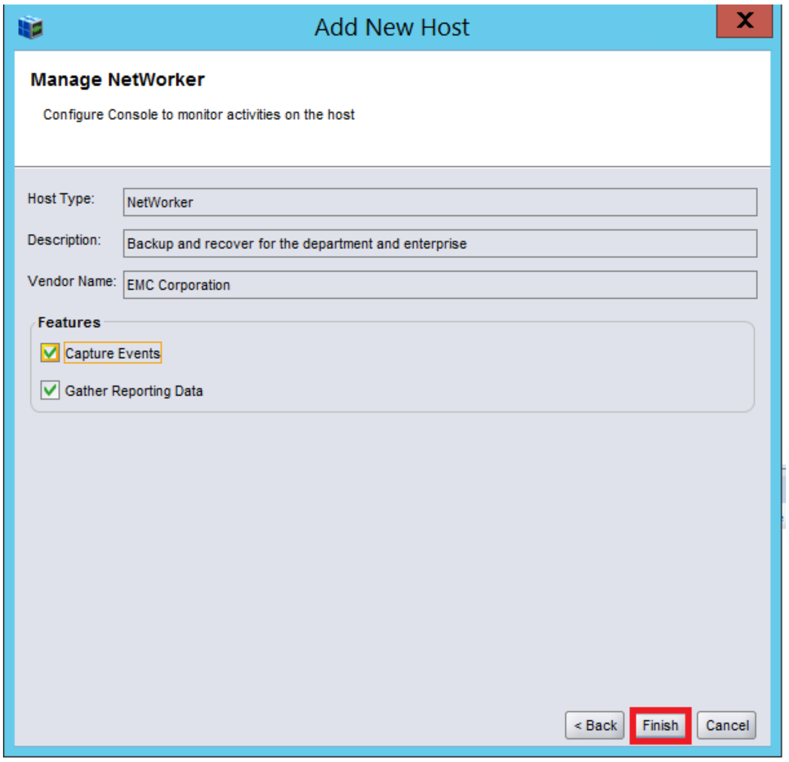
● NetWorker
Backup and recover for the department and enterprise

○ Avamar
Deduplication backup and recover for the enterprise

○ DataDomain
Data Domain System

.

5. Click **Finish**.



Add New Host

Manage NetWorker

Configure Console to monitor activities on the host

Host Type: NetWorker

Description: Backup and recover for the department and enterprise

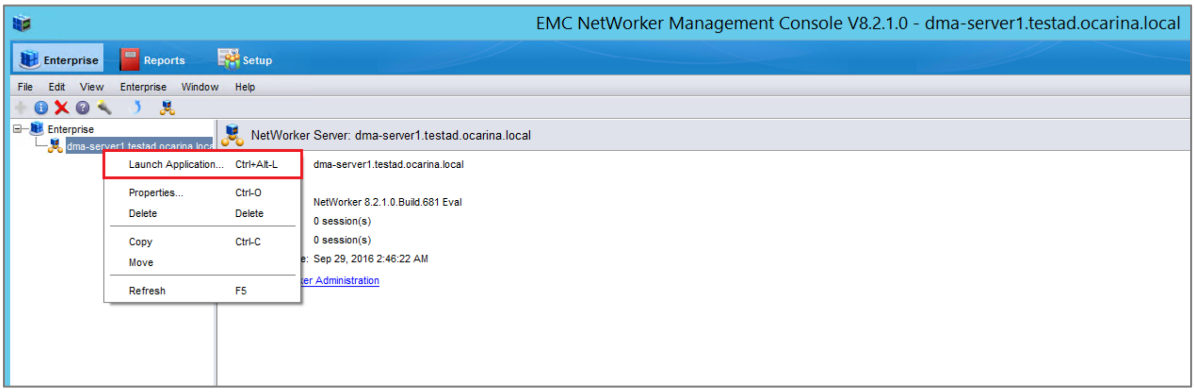
Vendor Name: EMC Corporation

Features

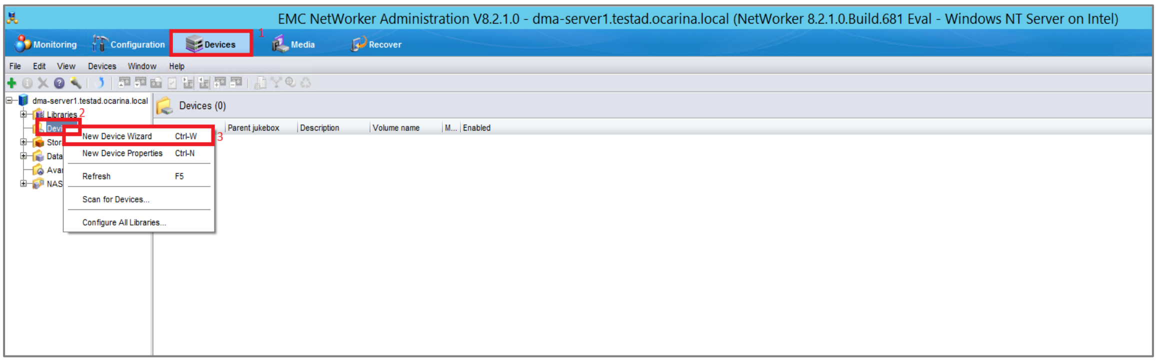
☑ Capture Events

☑ Gather Reporting Data

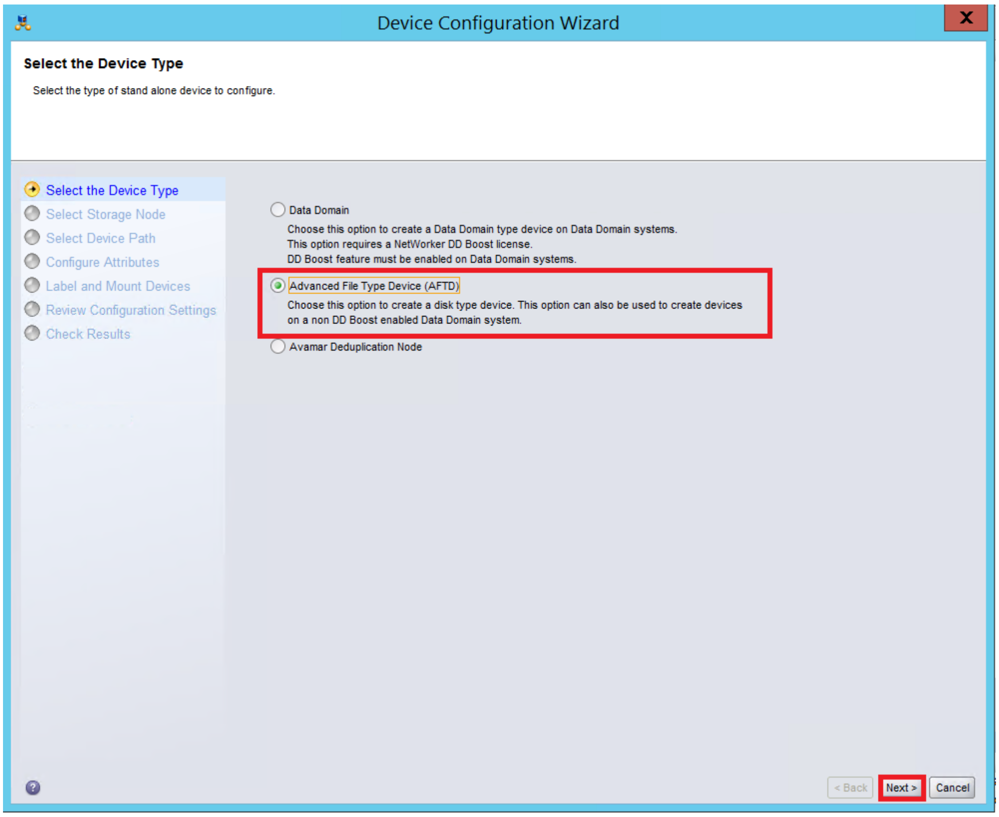
6. Right-click and select the newly created Networker application and click **Launch Application**.


EMC NetWorker Management Console V8.2.1.0 - dma-server1.testad.ocarina.local
Enterprise
Reports
Setup
File Edit View Enterprise Window Help
Enterprise
dma-server1.testad.ocarina.local
Launch Application... Ctrl+Alt-L
Properties... Ctrl-O
Delete Delete
Copy Ctrl-C
Move
Refresh F5
NetWorker Server: dma-server1.testad.ocarina.local
dma-server1.testad.ocarina.local
NetWorker 8.2.1.0.Build.681 Eval
0 session(s)
0 session(s)
Sep 29, 2016 2:46:22 AM
er Administration

7. In the **Devices** window, right-click **Device** in the left panel and click **New Device Wizard**.


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)
Monitoring
Configuration
Devices
1
Media
Recover
File Edit View Devices Window Help
dma-server1.testad.ocarina.local
Libraries
2
Devi
Stor
Data
Avai
NAS
New Device Wizard Ctrl-W
3
New Device Properties Ctrl-N
Refresh F5
Scan for Devices...
Configure All Libraries...
Devices (0)
Parent jukebox
Description
Volume name
M...
Enabled

8. Select **Advanced File Type Device (AFTD)**.



Select the Device Type

Select the type of stand alone device to configure.

○ Data Domain

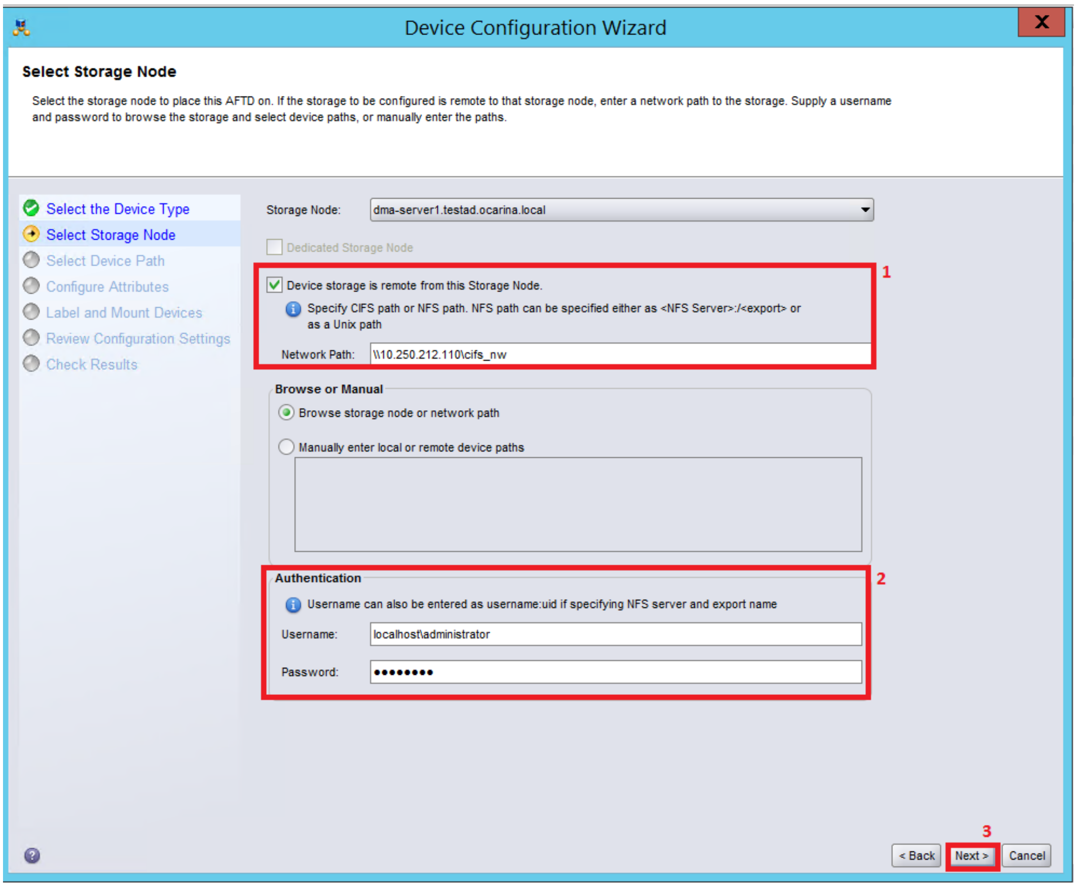
Choose this option to create a Data Domain type device on Data Domain systems.
This option requires a NetWorker DD Boost license.
DD Boost feature must be enabled on Data Domain systems.

● Advanced File Type Device (AFTD)

Choose this option to create a disk type device. This option can also be used to create devices on a non DD Boost enabled Data Domain system.

○ Avamar Deduplication Node

9. In the next dialog box, select **Device storage is remote from this Storage Node,** type in the network path of the DR Series system container share location (if name resolution works, the hostname or FQDN can be used in the server portion of the network path). In the **Authentication** section, type the CIFS credentials to access the DR Series system share. Click **Next**.



Select Storage Node

Select the storage node to place this AFTD on. If the storage to be configured is remote to that storage node, enter a network path to the storage. Supply a username and password to browse the storage and select device paths, or manually enter the paths.

Storage Node: dma-server1.testad.ocarina.local

□ Dedicated Storage Node

☑ Device storage is remote from this Storage Node.

Specify CIFS path or NFS path. NFS path can be specified either as <NFS Server>:/<export> or as a Unix path

Network Path: \\10.250.212.110\cifs_nw

Browse or Manual

● Browse storage node or network path

○ Manually enter local or remote device paths

Authentication

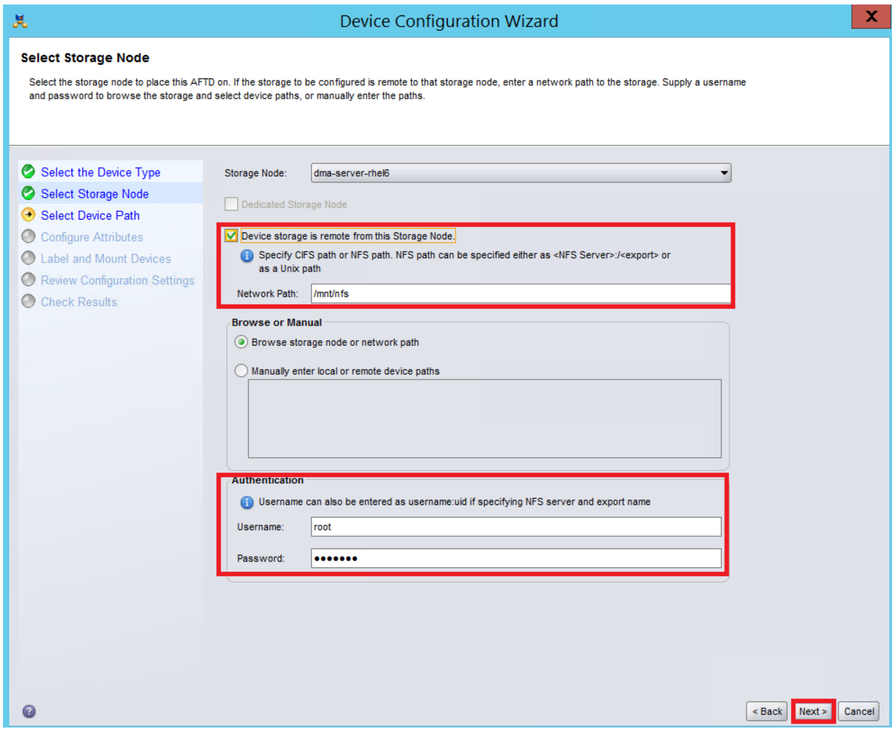
Username can also be entered as username:uid if specifying NFS server and export name

Username: localhost\administrator

Password: ••••••••

NOTE: For the NFS protocol option, Device storage is remote from this Storage Node, type in the network path of the DR Series system container share location.

10. Mount the DR Series system in the Linux machine and provide the mount path in the **Network Path** field. In the **Authentication** section, type the Linux Login credentials to access to DR Series system share. Click **Next**.



Select Storage Node

Select the storage node to place this AFTD on. If the storage to be configured is remote to that storage node, enter a network path to the storage. Supply a username and password to browse the storage and select device paths, or manually enter the paths.

Storage Node: dma-server-rhel6

□ Dedicated Storage Node

☑ Device storage is remote from this Storage Node.

Specify CIFS path or NFS path. NFS path can be specified either as <NFS Server>:/<export> or as a Unix path

Network Path: /mnt/nfs

Browse or Manual

● Browse storage node or network path

○ Manually enter local or remote device paths

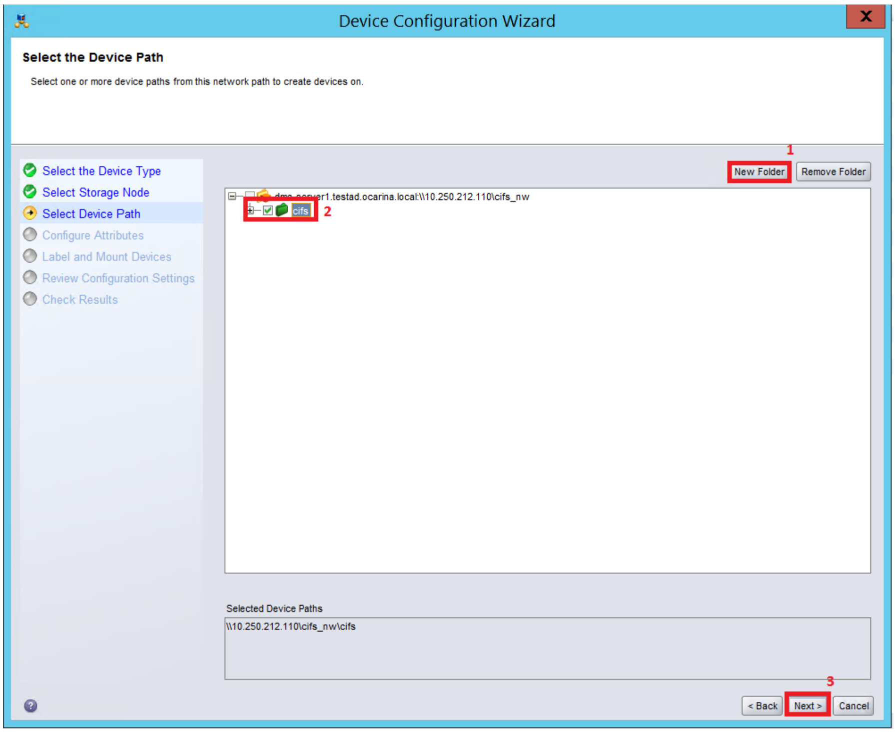
Authentication

Username can also be entered as username:uid if specifying NFS server and export name

Username: root

Password: •••••••

11. Click **New Folder**, type an appropriate folder name, enable the folder, and click **Next**.



Select the Device Path

Select one or more device paths from this network path to create devices on.

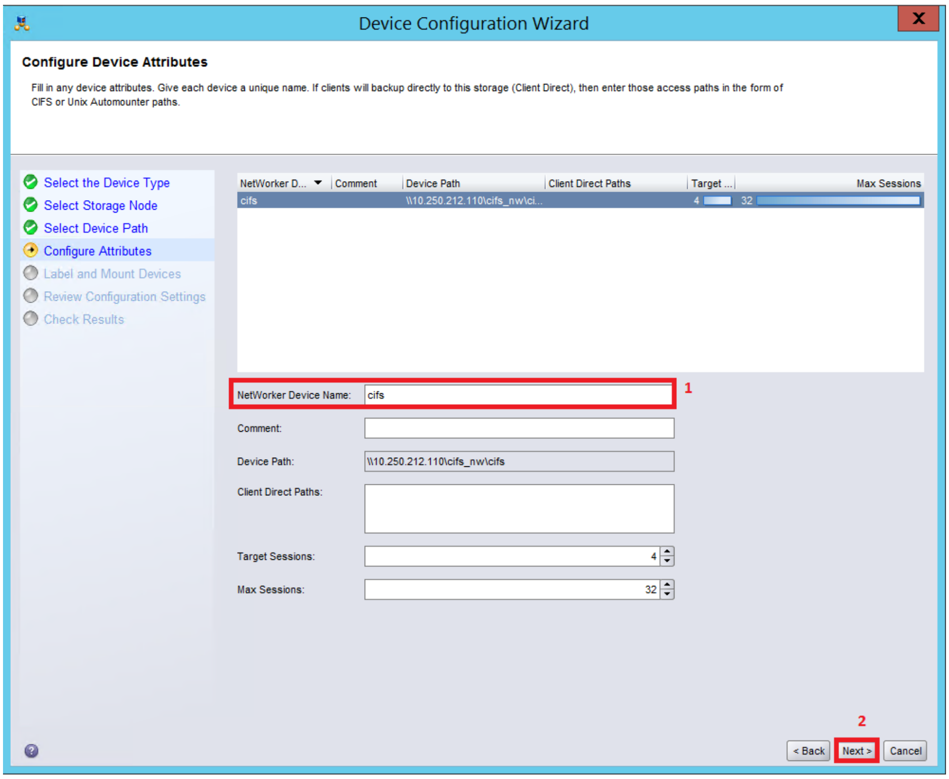
□ dma-server1.testad.ocarina.local:\\10.250.212.110\cifs_nw

☑ cifs

Selected Device Paths

\\10.250.212.110\cifs_nw\cifs

12. Set the session attributes according to the Networker administration documentation and click **Next**. If the Client Direct feature will be used, different device path(s) that clients use to access the DR Series system container share can be entered into the **Client Direct Paths.** If all of the clients are able to access the DR Series system container share using the direct path, there is no need to enter extra client direct paths.



Configure Device Attributes

Fill in any device attributes. Give each device a unique name. If clients will backup directly to this storage (Client Direct), then enter those access paths in the form of CIFS or Unix Automounter paths.

NetWorker D...	Comment	Device Path	Client Direct Paths	Target ...	Max Sessions
cifs		\\10.250.212.110\cifs_nw\ci...		4	32

NetWorker Device Name: cifs

Comment:

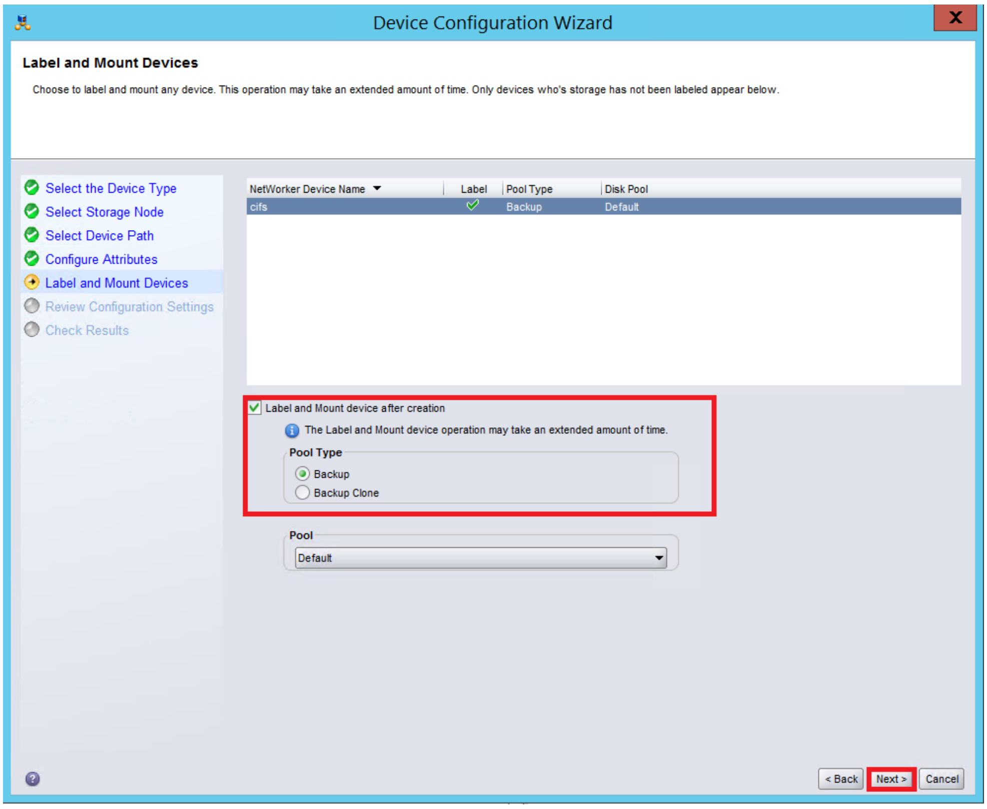
Device Path: \\10.250.212.110\cifs_nw\cifs

Client Direct Paths:

Target Sessions: 4

Max Sessions: 32

13. The new Networker device should have Pool Type set to **Backup**. Click **Next**.



Device Configuration Wizard

Label and Mount Devices

Choose to label and mount any device. This operation may take an extended amount of time. Only devices who's storage has not been labeled appear below.

- Select the Device Type
- Select Storage Node
- Select Device Path
- Configure Attributes
- Label and Mount Devices
- Review Configuration Settings
- Check Results

NetWorker Device Name	Label	Pool Type	Disk Pool
cifs	✓	Backup	Default

☑ Label and Mount device after creation

The Label and Mount device operation may take an extended amount of time.

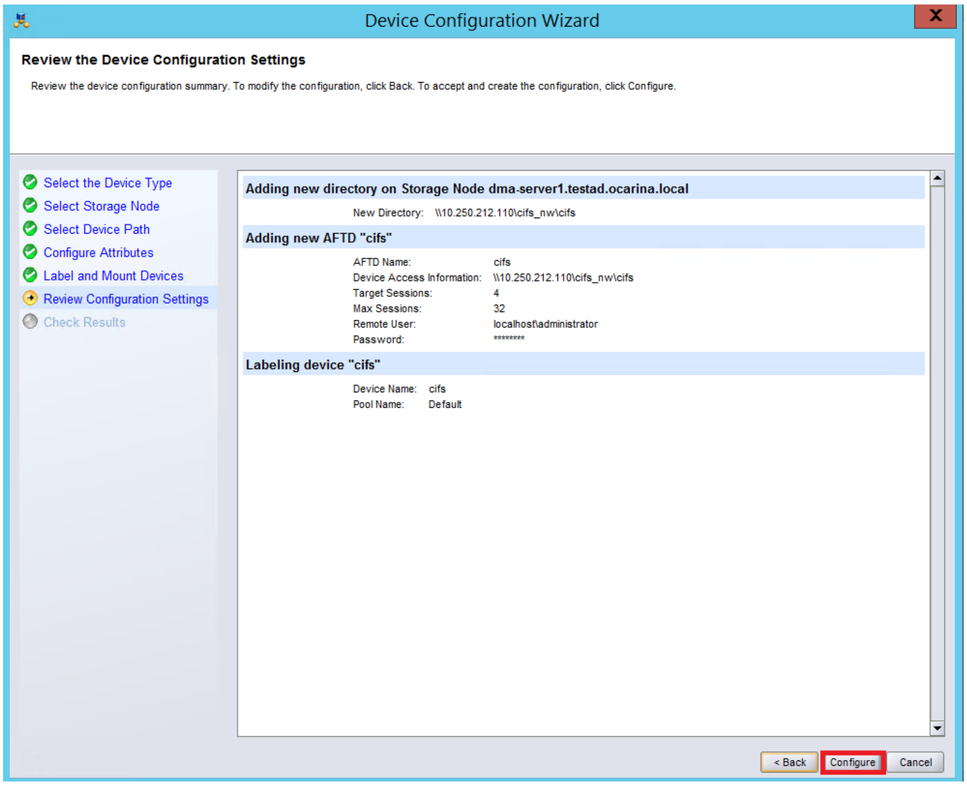
Pool Type

● Backup

○ Backup Clone

Pool: Default

14. Review the configuration and then click **Configure**.



Device Configuration Wizard

Review the Device Configuration Settings

Review the device configuration summary. To modify the configuration, click Back. To accept and create the configuration, click Configure.

- Select the Device Type
- Select Storage Node
- Select Device Path
- Configure Attributes
- Label and Mount Devices
- Review Configuration Settings
- Check Results

Adding new directory on Storage Node dma-server1.testad.ocarina.local

New Directory: \\10.250.212.110\cifs_nw\cifs

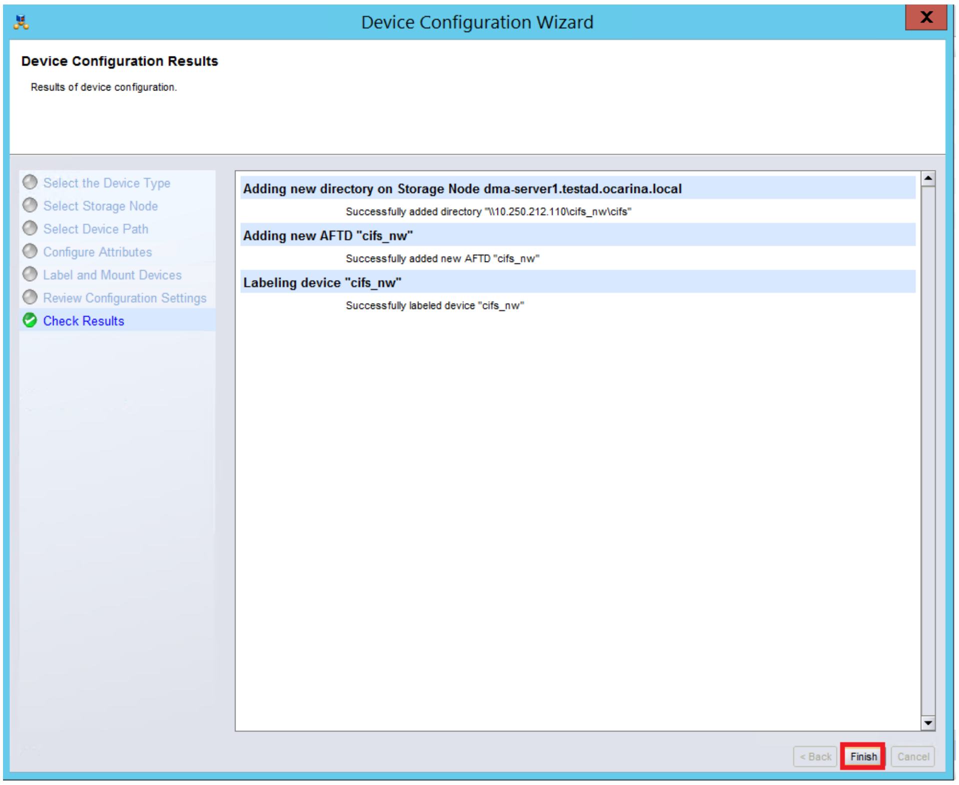
Adding new AFTD "cifs"

```
AFTD Name:                  cifs
Device Access Information:  \\10.250.212.110\cifs_nw\cifs
Target Sessions:            4
Max Sessions:               32
Remote User:                localhost\administrator
Password:                   ********
```

Labeling device "cifs"

```
Device Name:  cifs
Pool Name:    Default
```

15. Check the Device Configuration Results and click **Finish**.

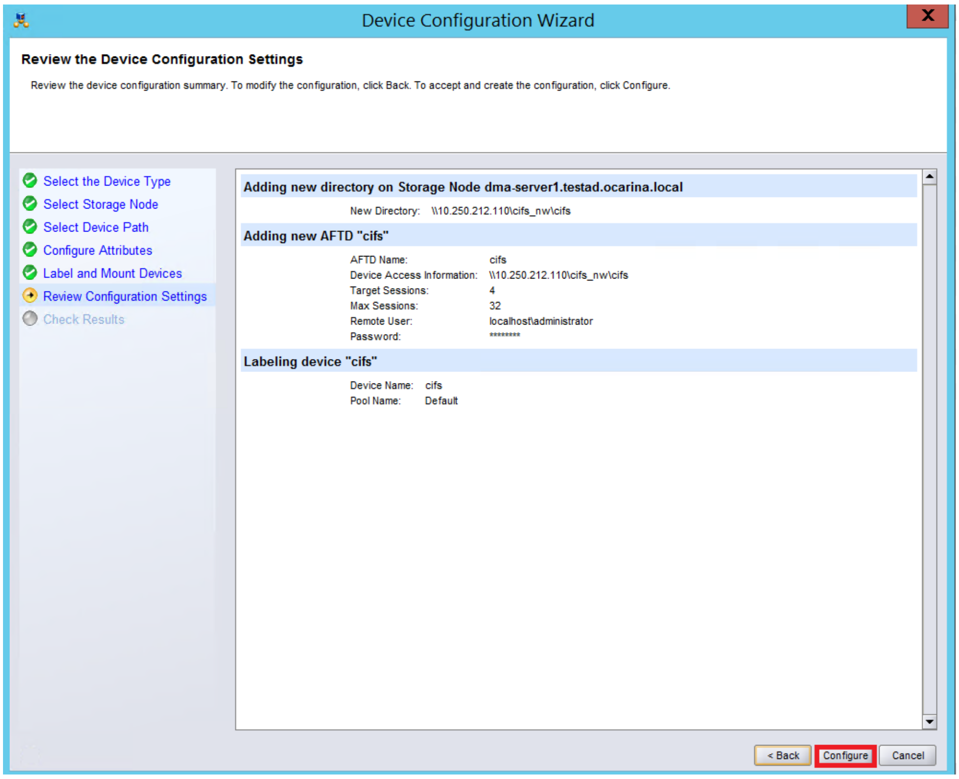


Device Configuration Results

Results of device configuration.

```
Adding new directory on Storage Node dma-server1.testad.ocarina.local
        Successfully added directory "\\10.250.212.110\cifs_nw\cifs"
Adding new AFTD "cifs_nw"
        Successfully added new AFTD "cifs_nw"
Labeling device "cifs_nw"
        Successfully labeled device "cifs_nw"
```

16. Review the **Device configuration settings** and click **Configure**

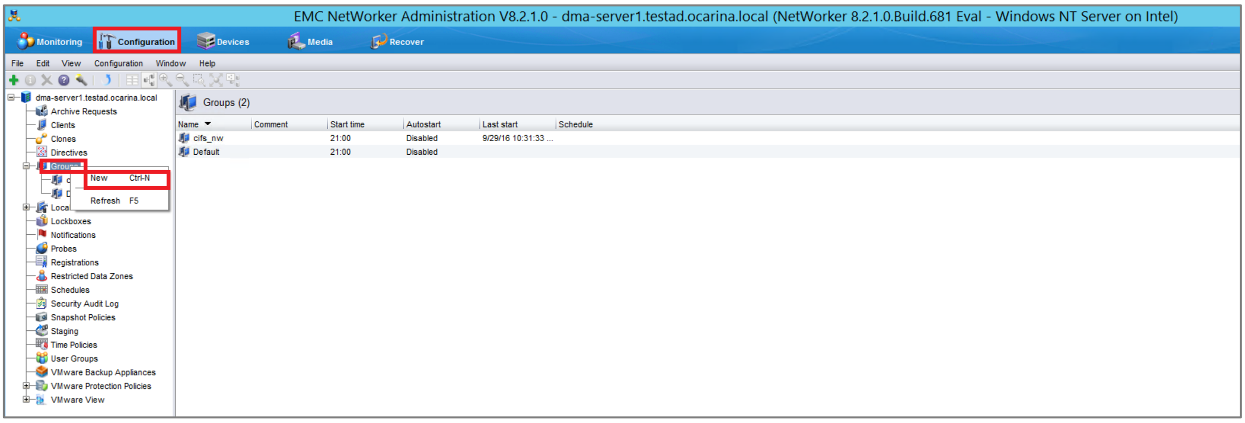


Review the Device Configuration Settings

Review the device configuration summary. To modify the configuration, click Back. To accept and create the configuration, click Configure.

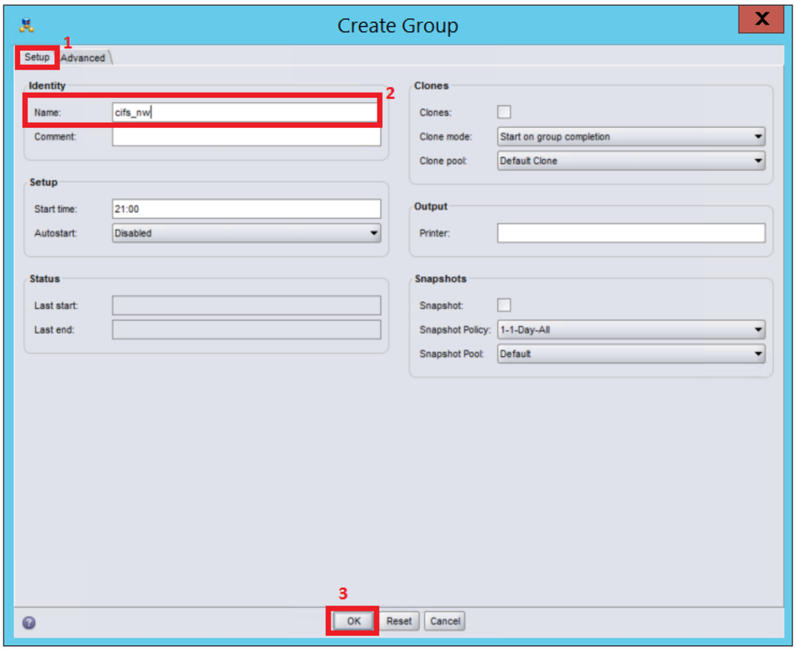
```
Adding new directory on Storage Node dma-server1.testad.ocarina.local
        New Directory:   \\10.250.212.110\cifs_nw\cifs
Adding new AFTD "cifs"
        AFTD Name:                    cifs
        Device Access Information:    \\10.250.212.110\cifs_nw\cifs
        Target Sessions:              4
        Max Sessions:                 32
        Remote User:                  localhost\administrator
        Password:                     ********
Labeling device "cifs"
        Device Name:   cifs
        Pool Name:     Default
```

17. On the **Configuration** tab, right click **Groups** and select **New**.



Name	Comment	Start time	Autostart	Last start	Schedule
cifs_nw		21:00	Disabled	9/29/16 10:31:33 ...	
Default		21:00	Disabled		

18. Enter the required details and click **OK**.



Identity

Name: cifs_nw

Comment:

Setup

Start time: 21:00

Autostart: Disabled

Status

Last start:

Last end:

Clones

Clones: □

Clone mode: Start on group completion

Clone pool: Default Clone

Output

Printer:

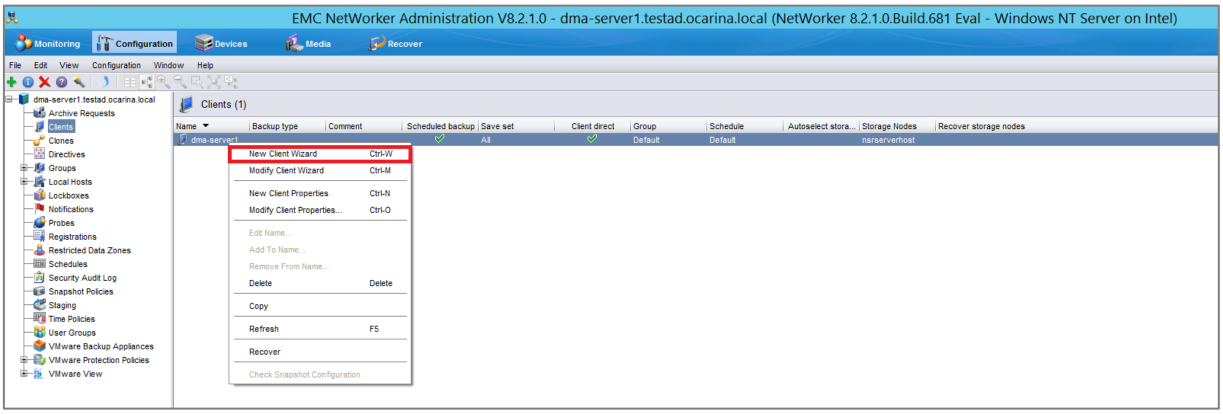
Snapshots

Snapshot: □

Snapshot Policy: 1-1-Day-All

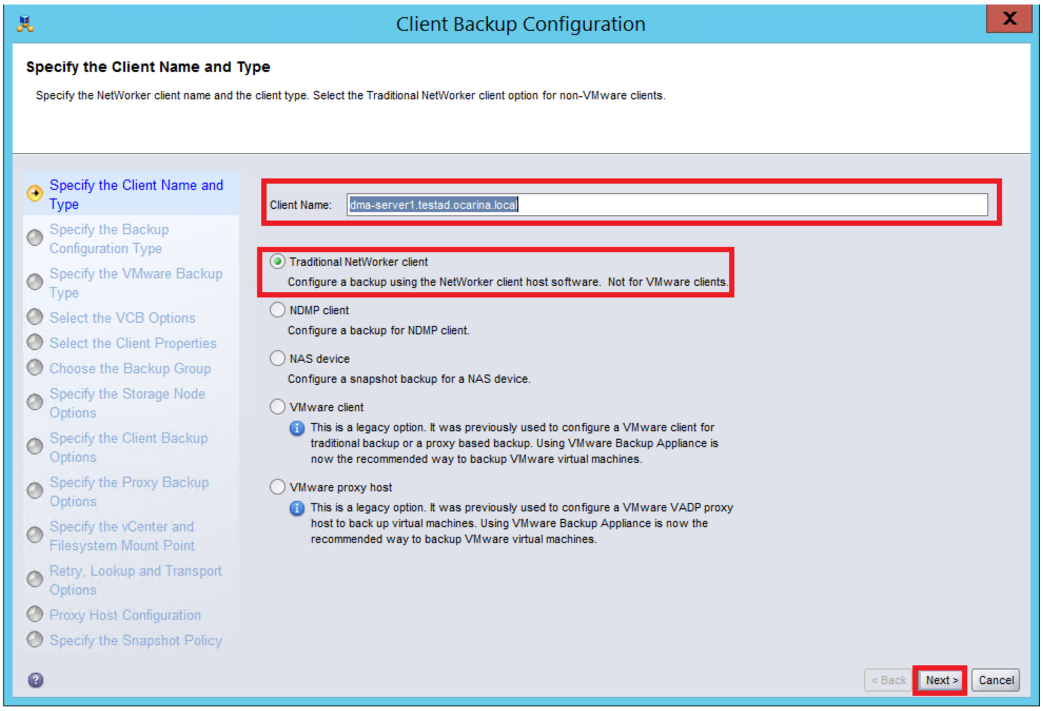
Snapshot Pool: Default

19. On the **Configuration** tab, right-click **Clients** and select **New Client Wizard**.



Name	Backup type	Comment	Scheduled backup	Save set	Client direct	Group	Schedule	Autoselect stora...	Storage Nodes	Recover storage nodes
dma-server1			✓	All	✓	Default	Default		nsrserverhost	

20. Specify the **Client Name** and click **Next**.


Client Backup Configuration
Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the VMware Backup Type
Select the VCB Options
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Specify the Client Backup Options
Specify the Proxy Backup Options
Specify the vCenter and Filesystem Mount Point
Retry, Lookup and Transport Options
Proxy Host Configuration
Specify the Snapshot Policy
< Back
Next >
Cancel

Specify the Client Name and Type

Specify the NetWorker client name and the client type. Select the Traditional NetWorker client option for non-VMware clients.

Client Name: dma-server1.testad.ocarina.local

● Traditional NetWorker client
Configure a backup using the NetWorker client host software. Not for VMware clients.

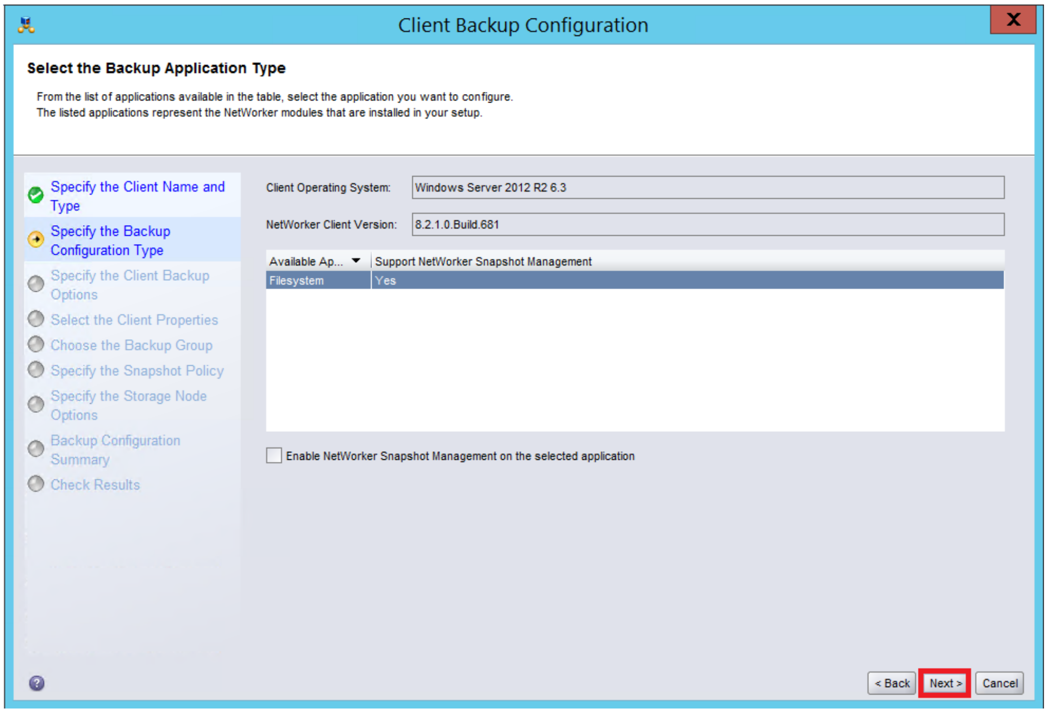
○ NDMP client
Configure a backup for NDMP client.

○ NAS device
Configure a snapshot backup for a NAS device.

○ VMware client
This is a legacy option. It was previously used to configure a VMware client for traditional backup or a proxy based backup. Using VMware Backup Appliance is now the recommended way to backup VMware virtual machines.

○ VMware proxy host
This is a legacy option. It was previously used to configure a VMware VADP proxy host to back up virtual machines. Using VMware Backup Appliance is now the recommended way to backup VMware virtual machines.

21. Select the **Backup Application Type** and click **Next**.


Client Backup Configuration
Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Select the Backup Application Type

From the list of applications available in the table, select the application you want to configure.
The listed applications represent the NetWorker modules that are installed in your setup.

Client Operating System: Windows Server 2012 R2 6.3

NetWorker Client Version: 8.2.1.0.Build.681

Available Ap...	Support NetWorker Snapshot Management
Filesystem	Yes

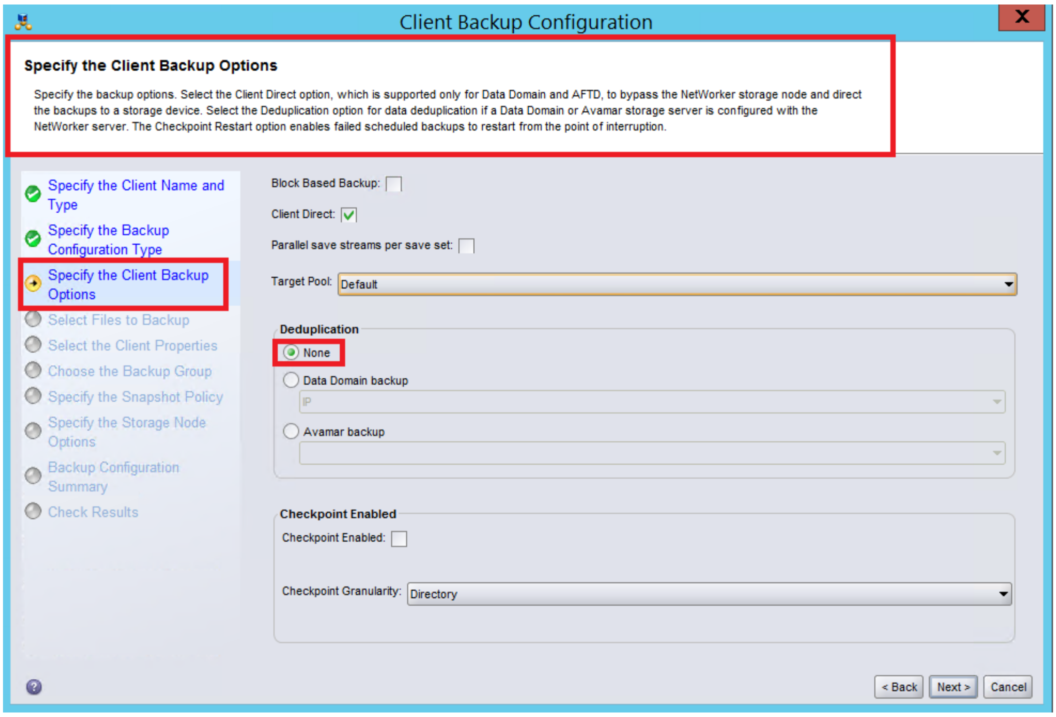
□ Enable NetWorker Snapshot Management on the selected application

22. In **Specify the Client Backup Options**, define the following settings.

a **Deduplication** should be set to **None**

b **Target Pool** should be set to the pool that has the DR Series system device included.

23. You can enable **Client Direct** if the client is directly backing up data to a preferred DR Series system, thus bypassing the storage node. For Client Direct to work, the DR Series device must have at least one device path that the client can use to directly access the DR container share.


Client Backup Configuration
Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Specify the Client Backup Options

Specify the backup options. Select the Client Direct option, which is supported only for Data Domain and AFTD, to bypass the NetWorker storage node and direct the backups to a storage device. Select the Deduplication option for data deduplication if a Data Domain or Avamar storage server is configured with the NetWorker server. The Checkpoint Restart option enables failed scheduled backups to restart from the point of interruption.

Block Based Backup: □

Client Direct: ☑

Parallel save streams per save set: □

Target Pool: Default

Deduplication

● None

○ Data Domain backup

IP

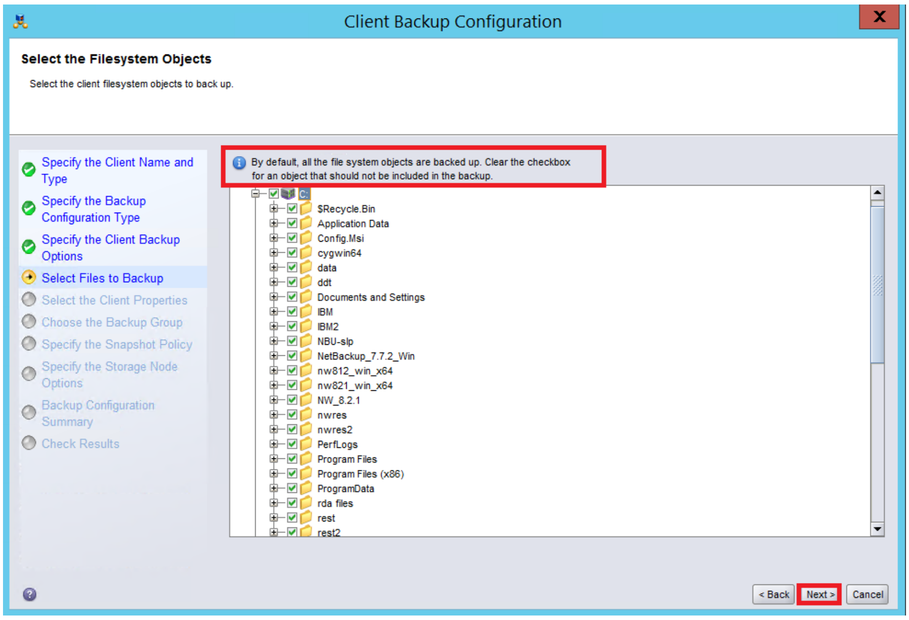
○ Avamar backup

Checkpoint Enabled

Checkpoint Enabled: □

Checkpoint Granularity: Directory

24. Select the Backup folder and click **Next.**


Client Backup Configuration
Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

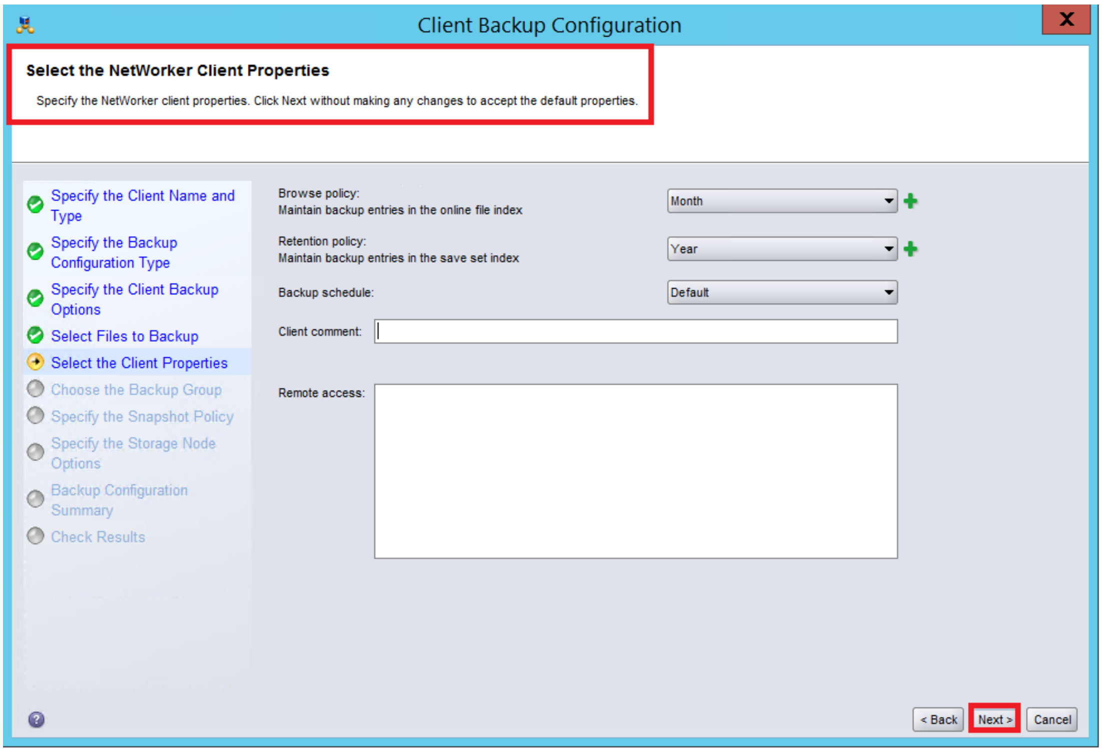
Select the Filesystem Objects

Select the client filesystem objects to back up.

By default, all the file system objects are backed up. Clear the checkbox for an object that should not be included in the backup.

☑ C:
- ☑ $Recycle.Bin
- ☑ Application Data
- ☑ Config.Msi
- ☑ cygwin64
- ☑ data
- ☑ ddt
- ☑ Documents and Settings
- ☑ IBM
- ☑ IBM2
- ☑ NBU-slp
- ☑ NetBackup_7.7.2_Win
- ☑ nw812_win_x64
- ☑ nw821_win_x64
- ☑ NW_8.2.1
- ☑ nwres
- ☑ nwres2
- ☑ PerfLogs
- ☑ Program Files
- ☑ Program Files (x86)
- ☑ ProgramData
- ☑ rda files
- ☑ rest
- ☑ rest2

25. Select the **Networker Client Properties** and click **Next**.



Client Backup Configuration

Select the NetWorker Client Properties

Specify the NetWorker client properties. Click Next without making any changes to accept the default properties.

Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results

Browse policy:
Maintain backup entries in the online file index: Month

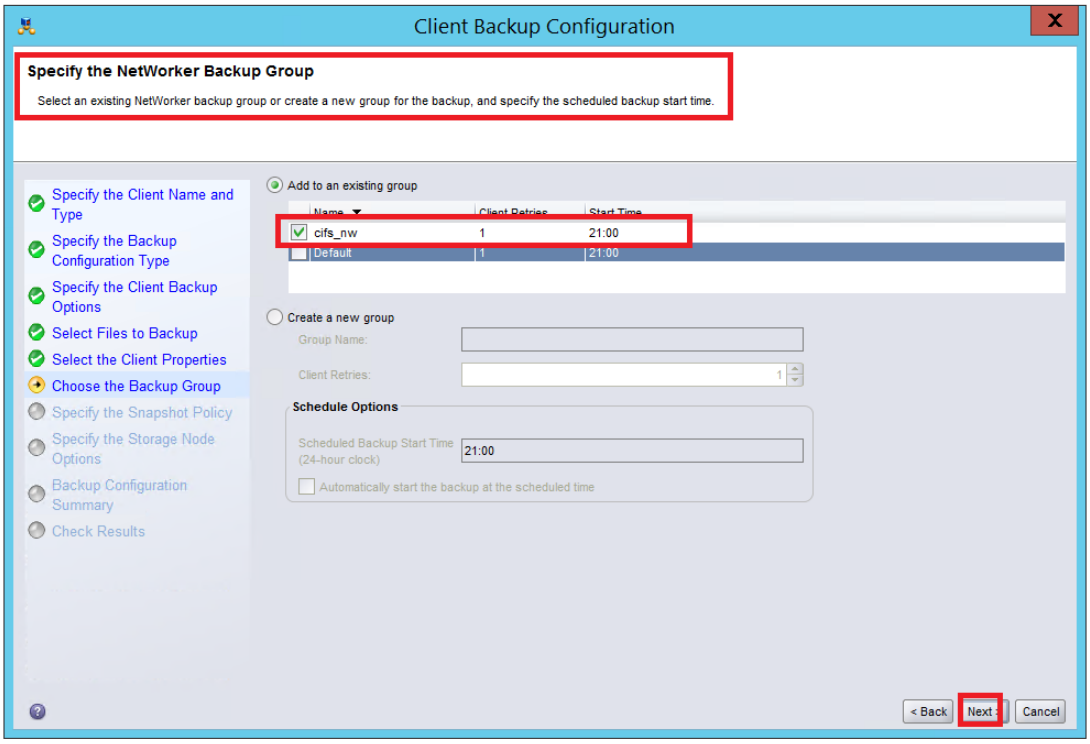
Retention policy:
Maintain backup entries in the save set index: Year

Backup schedule: Default

Client comment:

Remote access:

26. Specify the **Networker Backup Group** and click **Next.**



Client Backup Configuration

Specify the NetWorker Backup Group

Select an existing NetWorker backup group or create a new group for the backup, and specify the scheduled backup start time.

Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results

● Add to an existing group

	Name	Client Retries	Start Time
☑	cifs_nw	1	21:00
□	Default	1	21:00

○ Create a new group

Group Name:

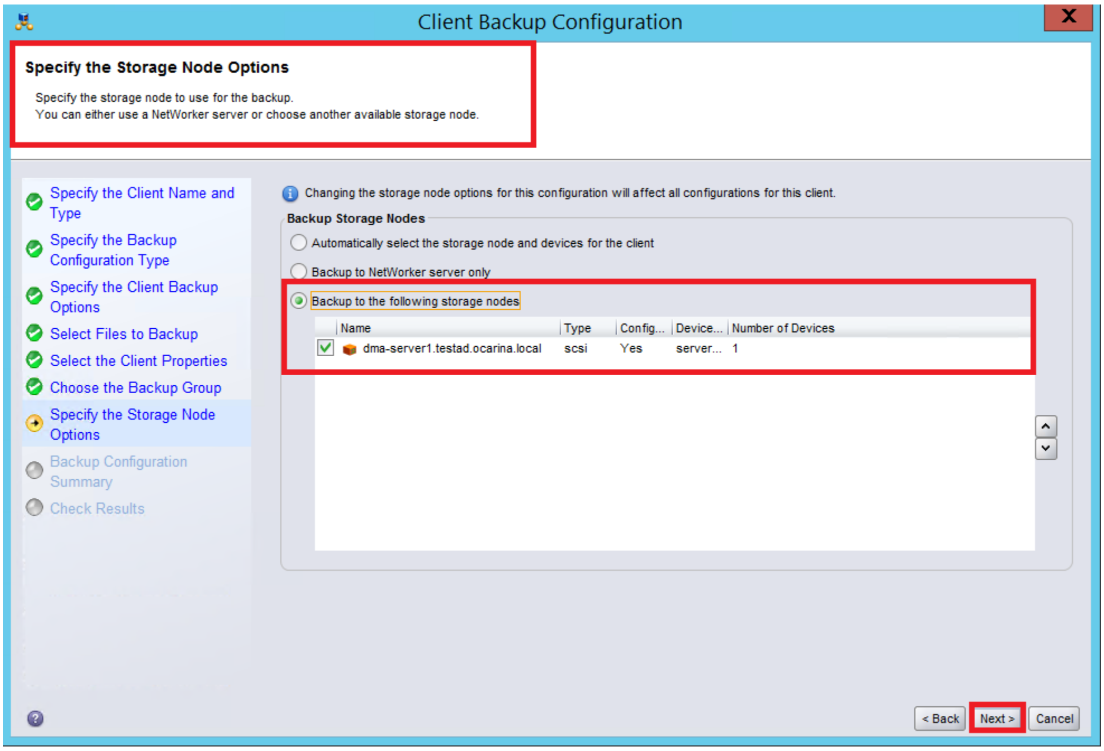
Client Retries: 1

Schedule Options

Scheduled Backup Start Time (24-hour clock): 21:00

□ Automatically start the backup at the scheduled time

27. Specify the **Storage Node Options** and click **Next.**


Client Backup Configuration

Specify the Storage Node Options

Specify the storage node to use for the backup.
You can either use a NetWorker server or choose another available storage node.

Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Backup Configuration Summary
Check Results

Changing the storage node options for this configuration will affect all configurations for this client.

Backup Storage Nodes

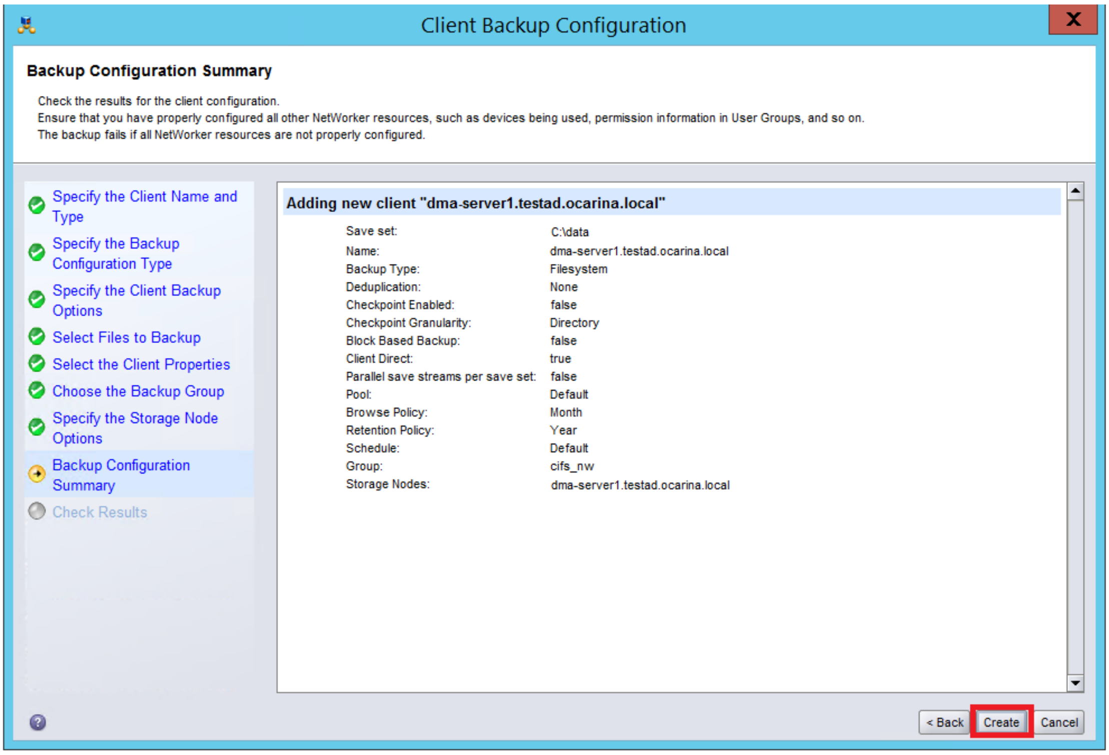
○ Automatically select the storage node and devices for the client

○ Backup to NetWorker server only

● Backup to the following storage nodes

	Name	Type	Config...	Device...	Number of Devices
☑	dma-server1.testad.ocarina.local	scsi	Yes	server...	1

28. Verify the **summary** and click **Create.**


Client Backup Configuration

Backup Configuration Summary

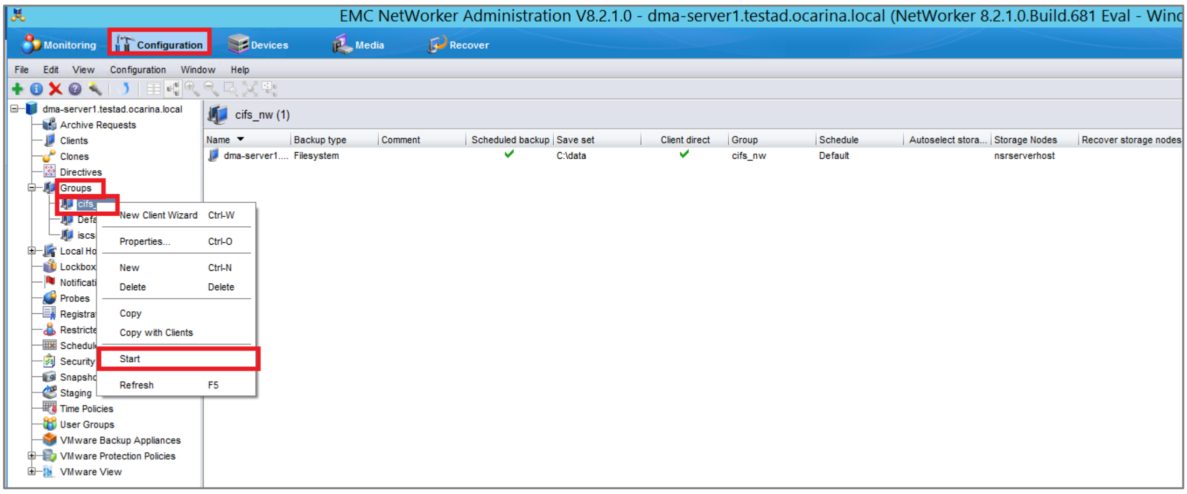
Check the results for the client configuration.
Ensure that you have properly configured all other NetWorker resources, such as devices being used, permission information in User Groups, and so on.
The backup fails if all NetWorker resources are not properly configured.

Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Backup Configuration Summary
Check Results

Adding new client "dma-server1.testad.ocarina.local"

Save set:	C:\data
Name:	dma-server1.testad.ocarina.local
Backup Type:	Filesystem
Deduplication:	None
Checkpoint Enabled:	false
Checkpoint Granularity:	Directory
Block Based Backup:	false
Client Direct:	true
Parallel save streams per save set:	false
Pool:	Default
Browse Policy:	Month
Retention Policy:	Year
Schedule:	Default
Group:	cifs_nw
Storage Nodes:	dma-server1.testad.ocarina.local

29. After completing the Client Backup configuration, expand groups in the Configuration tab, right-click the appropriate Backup group created, and then click **Start**.

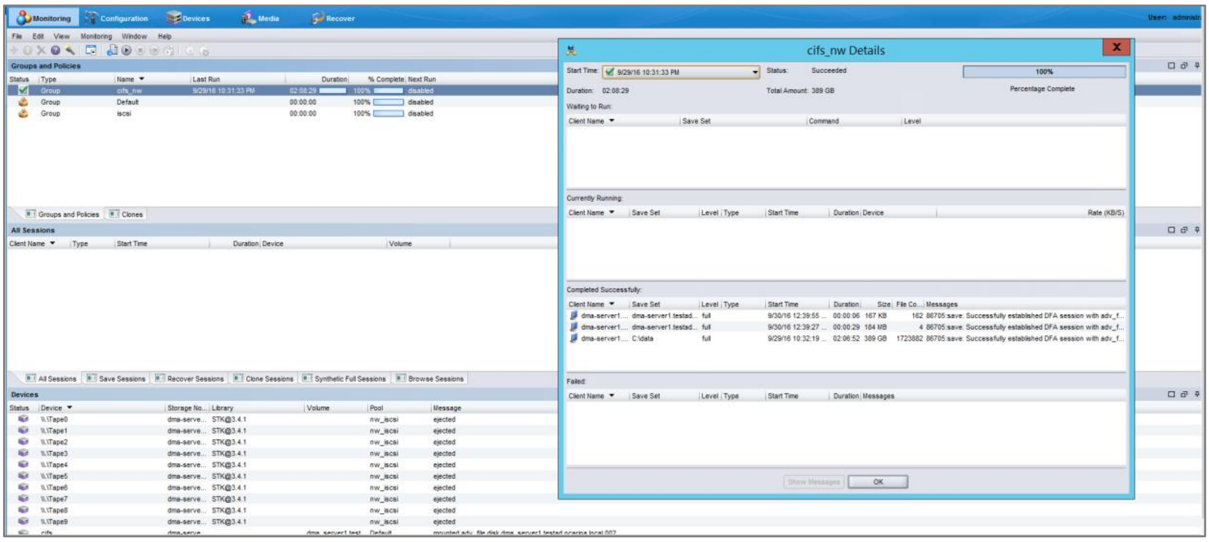


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Winc

cifs_nw (1)

Name	Backup type	Comment	Scheduled backup	Save set	Client direct	Group	Schedule	Autoselect stora...	Storage Nodes	Recover storage nodes
dma-server1....	Filesystem		✓	C:\data	✓	cifs_nw	Default		nsrserverhost	

30. Monitor the job status in the **Monitoring** tab.



Groups and Policies

Status	Type	Name	Last Run	Duration	% Complete	Next Run
✓	Group	cifs_nw	9/29/16 10:31:33 PM	02:08:29	100%	disabled
	Group	Default		00:00:00	100%	disabled
	Group	iscsi		00:00:00	100%	disabled

All Sessions

Client Name	Type	Start Time	Duration	Device	Volume

Devices

Status	Device	Storage No...	Library	Volume	Pool	Message
	\\.\Tape0	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape1	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape2	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape3	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape4	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape5	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape6	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape7	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape8	dma-serve...	STK@3.4.1		nw_iscsi	ejected
	\\.\Tape9	dma-serve...	STK@3.4.1		nw_iscsi	ejected

cifs_nw Details

Start Time: 9/29/16 10:31:33 PM

Status: Succeeded

100%

Percentage Complete

Duration: 02:08:29

Total Amount: 389 GB

Waiting to Run:

Client Name	Save Set	Command	Level

Currently Running:

Client Name	Save Set	Level	Type	Start Time	Duration	Device	Rate (KB/S)

Completed Successfully:

Client Name	Save Set	Level	Type	Start Time	Duration	Size	File Co...	Messages
dma-server1....	dma-server1.testad...	full		9/30/16 12:39:55 ...	00:00:06	167 KB	162	86705:save: Successfully established DFA session with adv_f...
dma-server1....	dma-server1.testad...	full		9/30/16 12:39:27 ...	00:00:29	184 MB	4	86705:save: Successfully established DFA session with adv_f...
dma-server1....	C:\data	full		9/29/16 10:32:19 ...	02:06:52	389 GB	1723882	86705:save: Successfully established DFA session with adv_f...

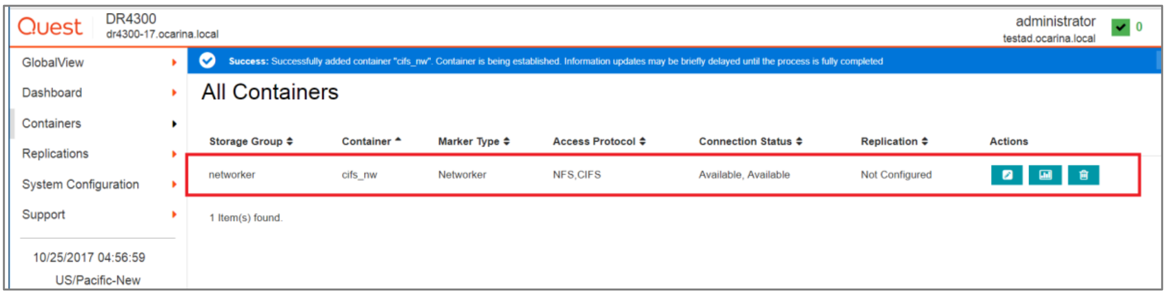
Failed:

Client Name	Save Set	Level	Type	Start Time	Duration	Messages

Setting up DR Series system replication and restore from the replication target

Creating a replication relationship between two DR Series systems

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



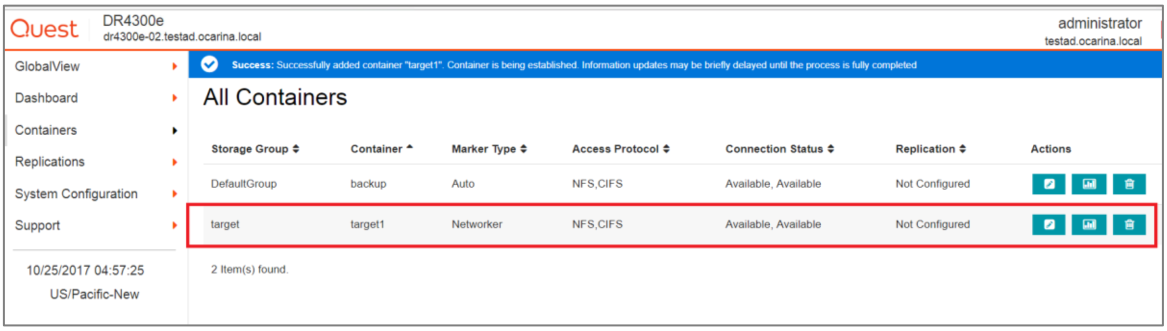
Success: Successfully added container "cifs_nw". Container is being established. Information updates may be briefly delayed until the process is fully completed

All Containers

Storage Group ⇕	Container ▲	Marker Type ⇕	Access Protocol ⇕	Connection Status ⇕	Replication ⇕	Actions
networker	cifs_nw	Networker	NFS,CIFS	Available, Available	Not Configured	

1 Item(s) found.

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



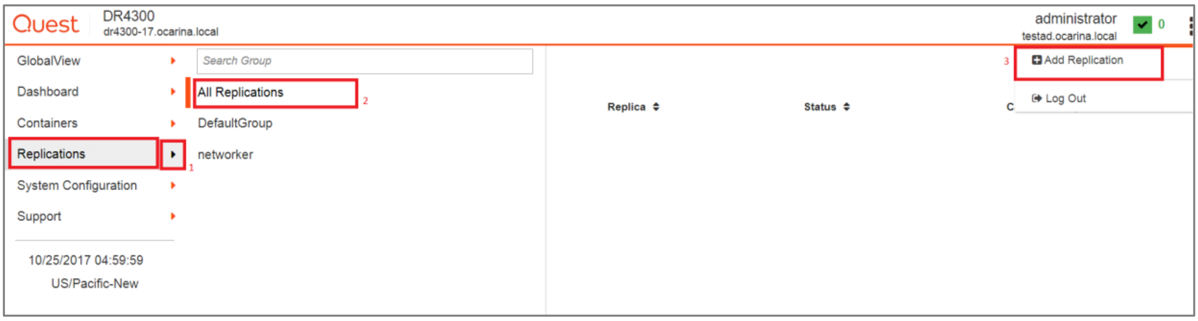
Success: Successfully added container "target1". Container is being established. Information updates may be briefly delayed until the process is fully completed

All Containers

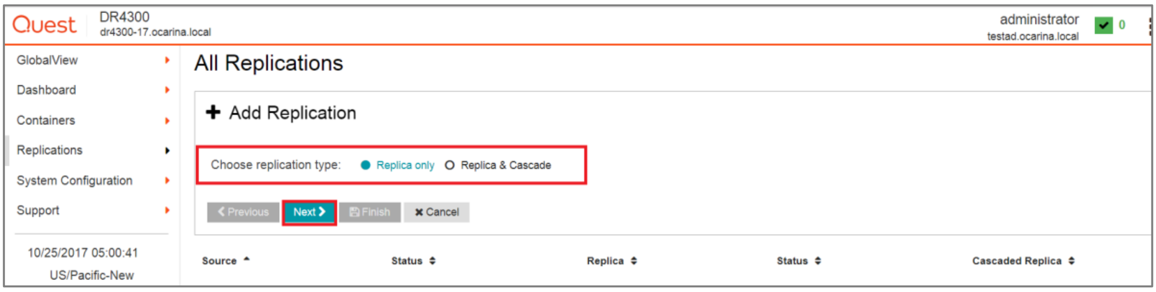
Storage Group ⇕	Container ▲	Marker Type ⇕	Access Protocol ⇕	Connection Status ⇕	Replication ⇕	Actions
DefaultGroup	backup	Auto	NFS,CIFS	Available, Available	Not Configured	
target	target1	Networker	NFS,CIFS	Available, Available	Not Configured	

2 Item(s) found.

3. On the source DR Series system, click **Replications** in the left navigation bar, and click **Add Replication** from the **Action Menu** in the upper right corner of the page.

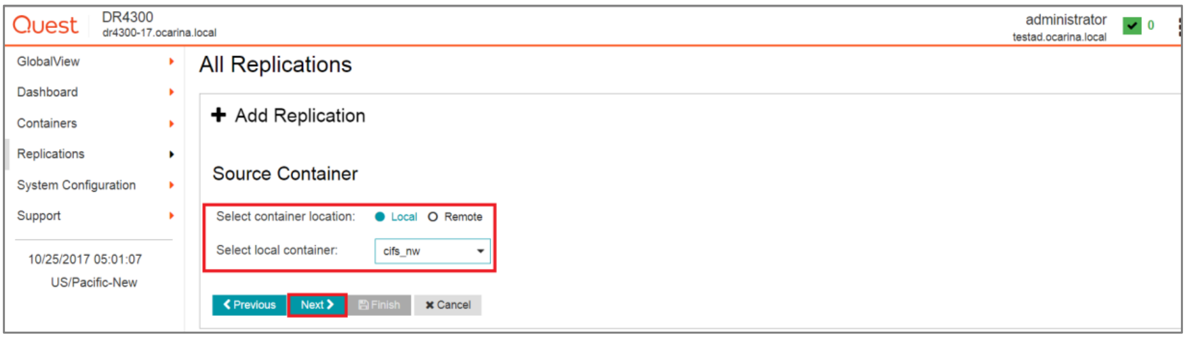


4. Choose the replication type and click **Next**.



Choose replication type: ● Replica only ○ Replica & Cascade

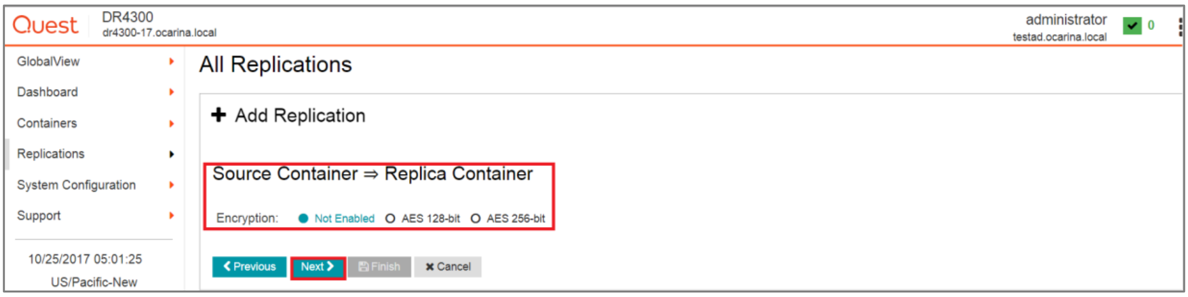
5. Select the Source Container for replication and click **Next**.



Select container location: ● Local ○ Remote

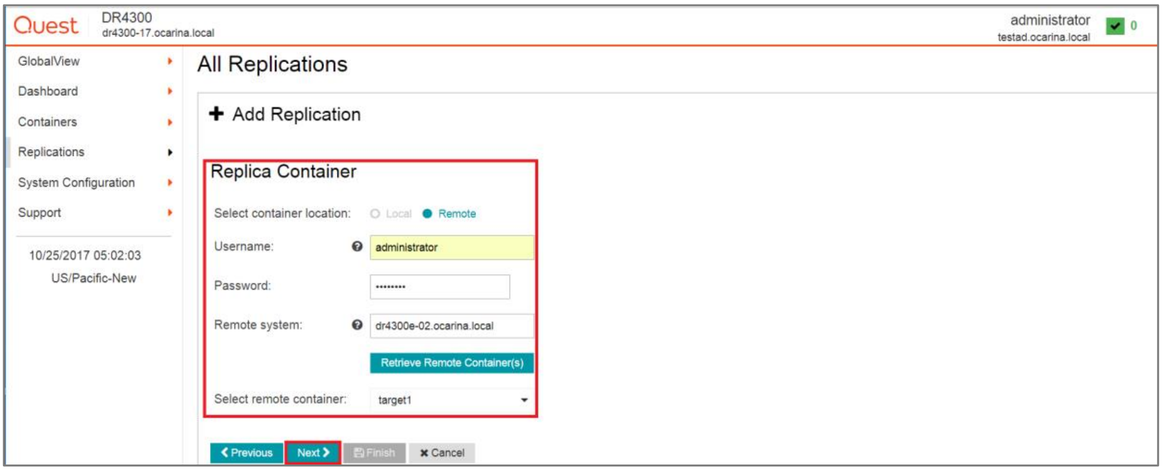
Select local container: cifs_nw

6. Select the Encryption Type for the Source Container and click **Next**.



Encryption: ● Not Enabled ○ AES 128-bit ○ AES 256-bit

7. Select **Container from remote system**, enter the target DR Series system related information, click **Retrieve Remote Containers**, select a populated target container from the list, and click **Next.**



Select container location: ○ Local ● Remote

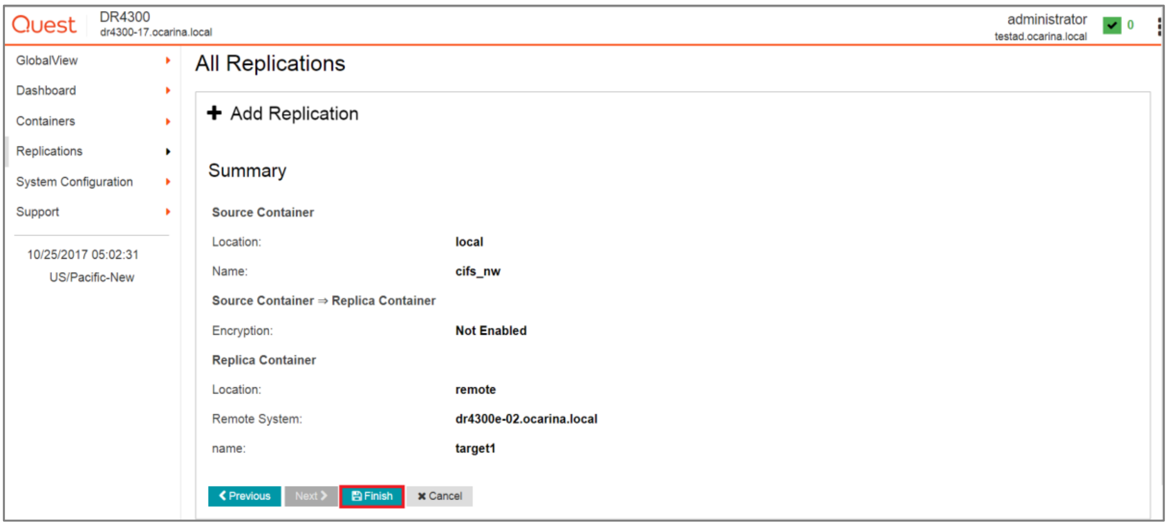
Username: administrator

Password: ••••••••

Remote system: dr4300e-02.ocarina.local

Select remote container: target1

8. Verify the **Summary** and click **Finish**.



All Replications

➕ Add Replication

Summary

Source Container

Location:	**local**
Name:	**cifs_nw**

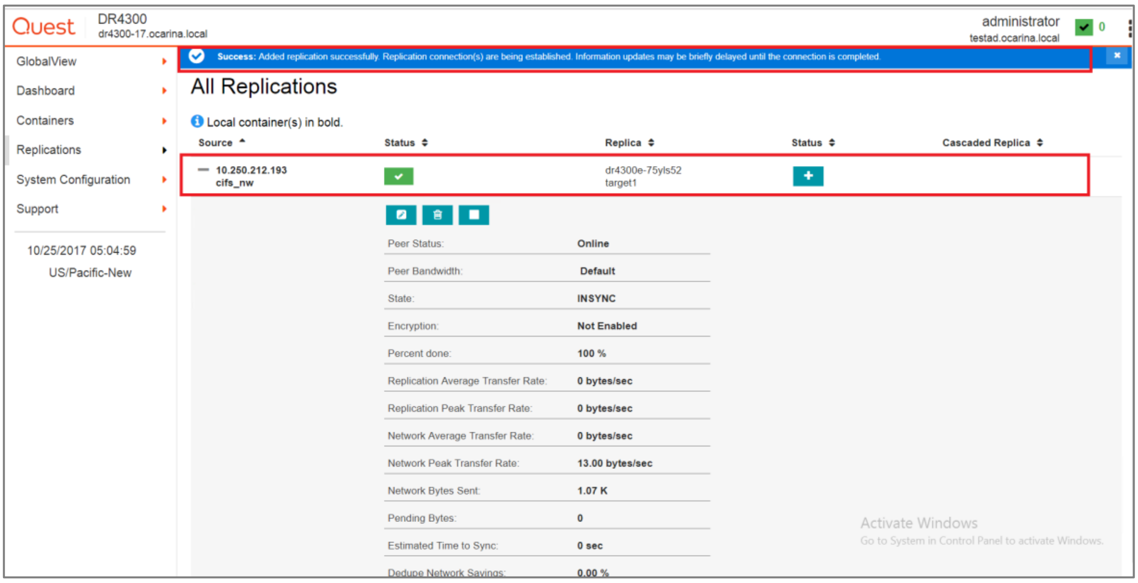
Source Container ⇒ Replica Container

Encryption:	**Not Enabled**

Replica Container

Location:	**remote**
Remote System:	**dr4300e-02.ocarina.local**
name:	**target1**

9. Check that the **Replication** is added successfully and confirm the **Replication** details.



Success: Added replication successfully. Replication connection(s) are being established. Information updates may be briefly delayed until the connection is completed.

All Replications

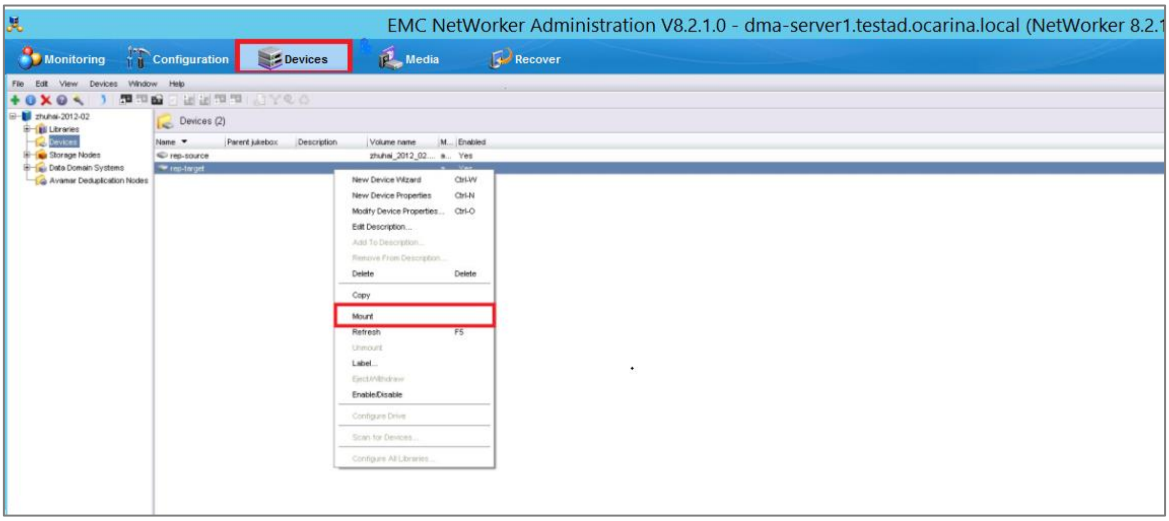
Local container(s) in bold.

Source	Status	Replica	Status	Cascaded Replica
10.250.212.193 **cifs_nw**	✓	dr4300e-75yls52 target1	+	

Peer Status:	**Online**
Peer Bandwidth:	**Default**
State:	**INSYNC**
Encryption:	**Not Enabled**
Percent done:	**100 %**
Replication Average Transfer Rate:	**0 bytes/sec**
Replication Peak Transfer Rate:	**0 bytes/sec**
Network Average Transfer Rate:	**0 bytes/sec**
Network Peak Transfer Rate:	**13.00 bytes/sec**
Network Bytes Sent:	**1.07 K**
Pending Bytes:	**0**
Estimated Time to Sync:	**0 sec**
Dedupe Network Savings:	**0.00 %**

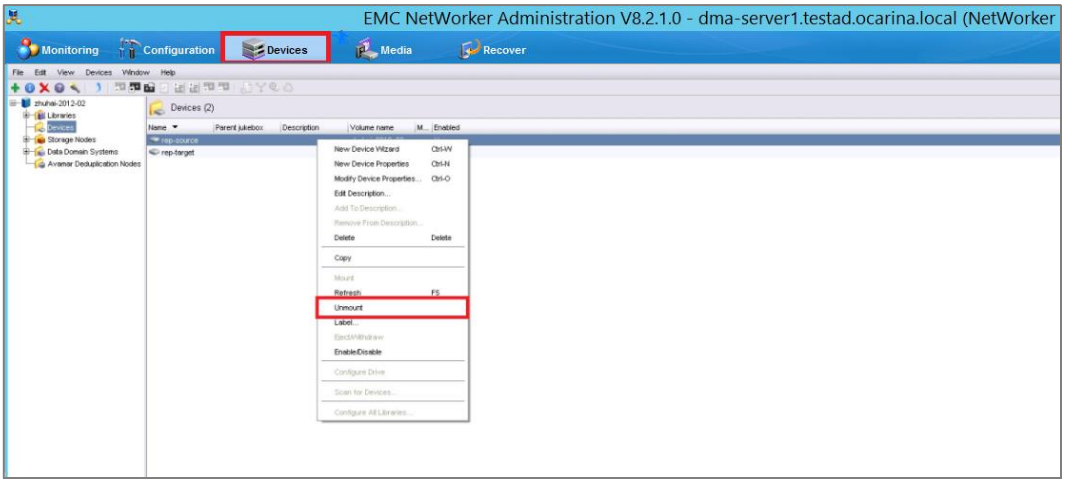
Restoring from the replication target container

1. Add the target container onto the Networker storage node. Right-Click **Device** > **New Device Properties**, and then enter necessary information for the target device. When complete, mount the device.

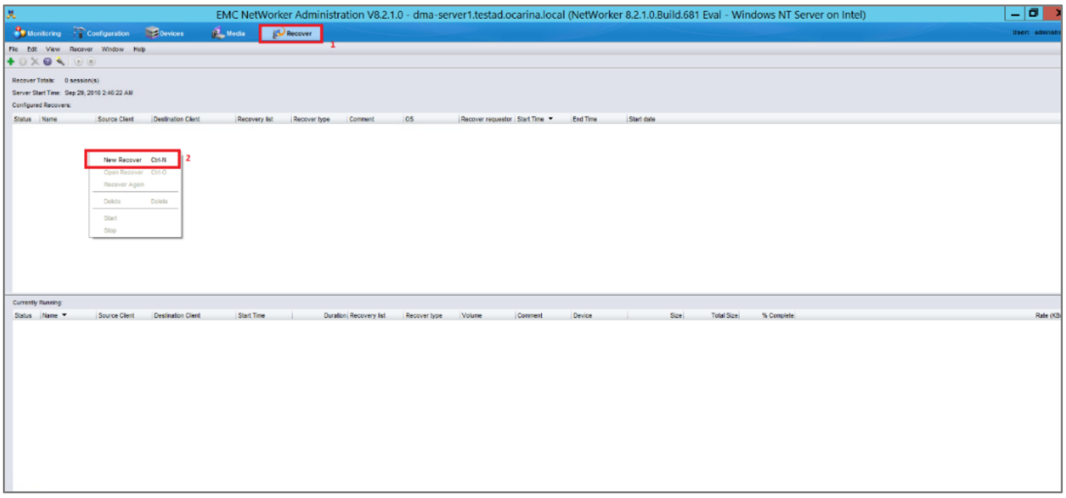


> **NOTE:** Do not label the target device.

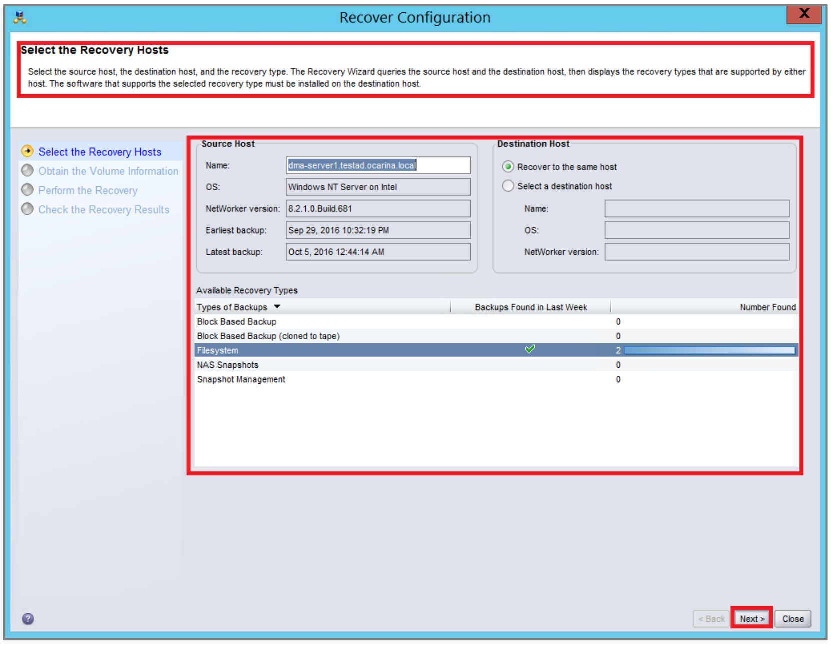
2. Unmount the source container.



3. On the **Recover t**ab, right-click **Add New Recovery**



4. Enter the appropriate information in the **Recovery Hosts** and click **Next**.



Select the Recovery Hosts

Select the source host, the destination host, and the recovery type. The Recovery Wizard queries the source host and the destination host, then displays the recovery types that are supported by either host. The software that supports the selected recovery type must be installed on the destination host.

Select the Recovery Hosts
Obtain the Volume Information
Perform the Recovery
Check the Recovery Results

Source Host

Name: dma-server1.testad.ocarina.local

OS: Windows NT Server on Intel

NetWorker version: 8.2.1.0.Build.681

Earliest backup: Sep 29, 2016 10:32:19 PM

Latest backup: Oct 5, 2016 12:44:14 AM

Destination Host

● Recover to the same host

○ Select a destination host

Name:

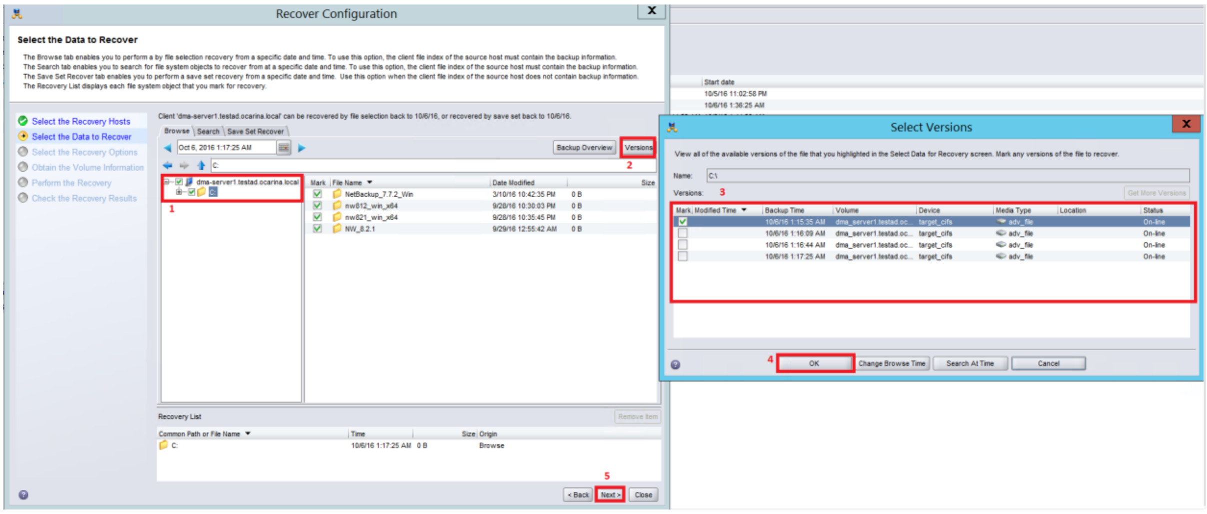
OS:

NetWorker version:

Available Recovery Types

Types of Backups	Backups Found in Last Week	Number Found
Block Based Backup		0
Block Based Backup (cloned to tape)		0
Filesystem	✓	2
NAS Snapshots		0
Snapshot Management		0

5. Select the data set to recover, click **Versions** to view the **Select Versions** window, select the data, and click **OK**.



Select the Data to Recover

The Browse tab enables you to perform a by file selection recovery from a specific date and time. To use this option, the client file index of the source host must contain the backup information.
The Search tab enables you to search for file system objects to recover from at a specific date and time. To use this option, the client file index of the source host must contain the backup information.
The Save Set Recover tab enables you to perform a save set recovery from a specific date and time. Use this option when the client file index of the source host does not contain backup information.
The Recovery List displays each file system object that you mark for recovery.

Select the Recovery Hosts
Select the Data to Recover
Select the Recovery Options
Obtain the Volume Information
Perform the Recovery
Check the Recovery Results

Client 'dma-server1.testad.ocarina.local' can be recovered by file selection back to 10/6/16, or recovered by save set back to 10/6/16.

Oct 6, 2016 1:17:25 AM

C:

dma-server1.testad.ocarina.local

C:

Mark	File Name	Date Modified	Size
☑	NetBackup_7.7.2_Win	3/10/16 10:42:35 PM	0 B
☑	nw812_win_x64	9/28/16 10:30:03 PM	0 B
☑	nw821_win_x64	9/28/16 10:35:45 PM	0 B
☑	NW_8.2.1	9/29/16 12:55:42 AM	0 B

Recovery List

Common Path or File Name	Time	Size	Origin
C:	10/6/16 1:17:25 AM	0 B	Browse

Start date
10/5/16 11:02:58 PM
10/6/16 1:36:25 AM

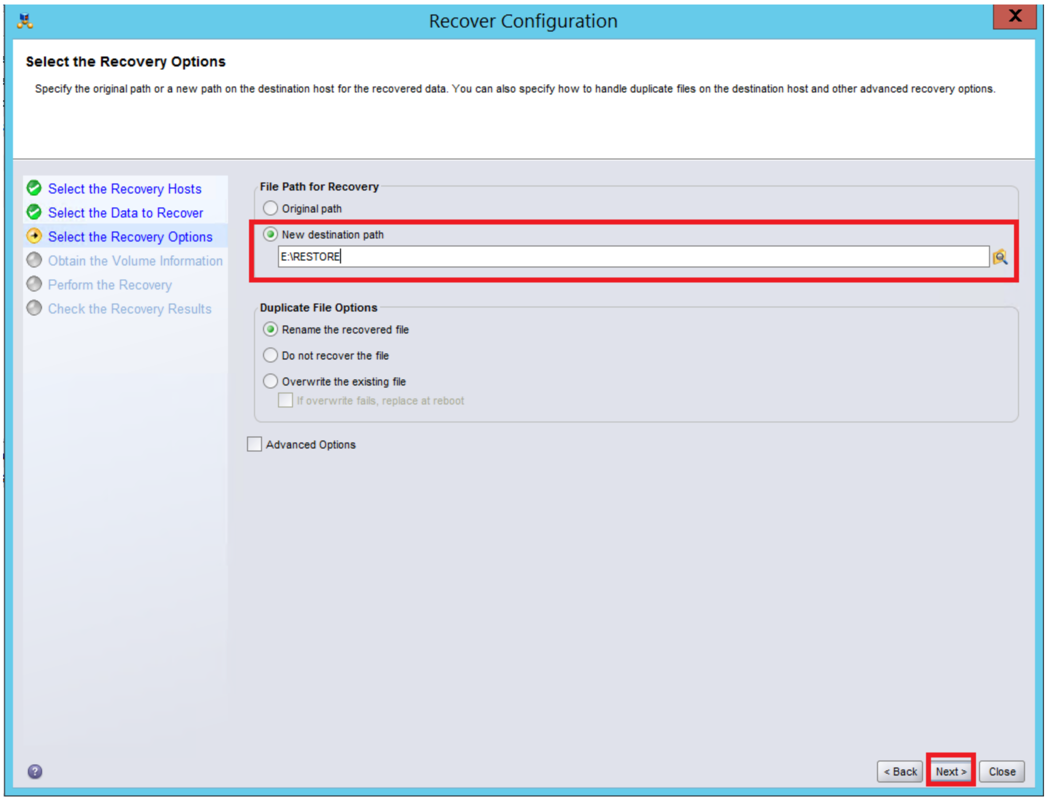
View all of the available versions of the file that you highlighted in the Select Data for Recovery screen. Mark any versions of the file to recover.

Name: C:\

Versions:

Mark	Modified Time	Backup Time	Volume	Device	Media Type	Location	Status
☑		10/6/16 1:15:35 AM	dma_server1.testad.oc...	target_cifs	adv_file		On-line
□		10/6/16 1:16:09 AM	dma_server1.testad.oc...	target_cifs	adv_file		On-line
□		10/6/16 1:16:44 AM	dma_server1.testad.oc...	target_cifs	adv_file		On-line
□		10/6/16 1:17:25 AM	dma_server1.testad.oc...	target_cifs	adv_file		On-line

6. Select the **Recovery Options**, choose **Original path**, or enter a **New Destination Path** to which to recover data, and click **Next**.



Recover Configuration

Select the Recovery Options

Specify the original path or a new path on the destination host for the recovered data. You can also specify how to handle duplicate files on the destination host and other advanced recovery options.

- Select the Recovery Hosts
- Select the Data to Recover
- Select the Recovery Options
- Obtain the Volume Information
- Perform the Recovery
- Check the Recovery Results

File Path for Recovery

○ Original path

● New destination path

E:\RESTORE

Duplicate File Options

● Rename the recovered file

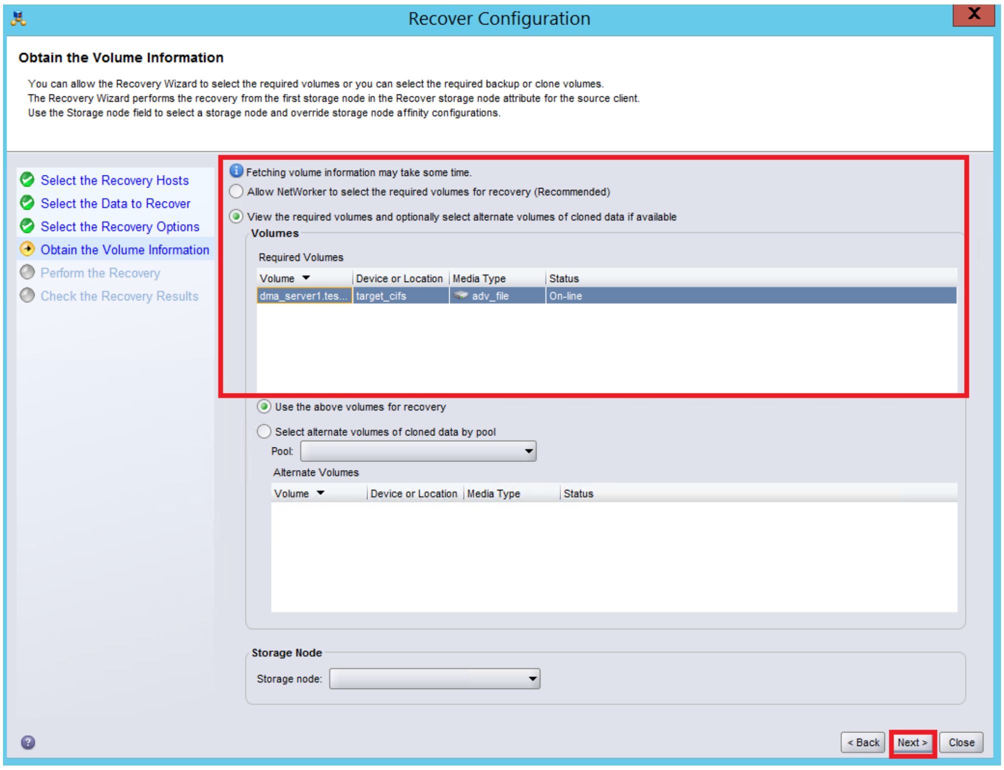
○ Do not recover the file

○ Overwrite the existing file

□ If overwrite fails, replace at reboot

□ Advanced Options

7. Allow the Recovery Wizard to select the required volumes and click **Next**.



Recover Configuration

Obtain the Volume Information

You can allow the Recovery Wizard to select the required volumes or you can select the required backup or clone volumes.
The Recovery Wizard performs the recovery from the first storage node in the Recover storage node attribute for the source client.
Use the Storage node field to select a storage node and override storage node affinity configurations.

- Select the Recovery Hosts
- Select the Data to Recover
- Select the Recovery Options
- Obtain the Volume Information
- Perform the Recovery
- Check the Recovery Results

Fetching volume information may take some time.

○ Allow NetWorker to select the required volumes for recovery (Recommended)

● View the required volumes and optionally select alternate volumes of cloned data if available

Volumes

Required Volumes

Volume	Device or Location	Media Type	Status
dma_server1.tes...	target_cifs	adv_file	On-line

● Use the above volumes for recovery

○ Select alternate volumes of cloned data by pool

Pool:

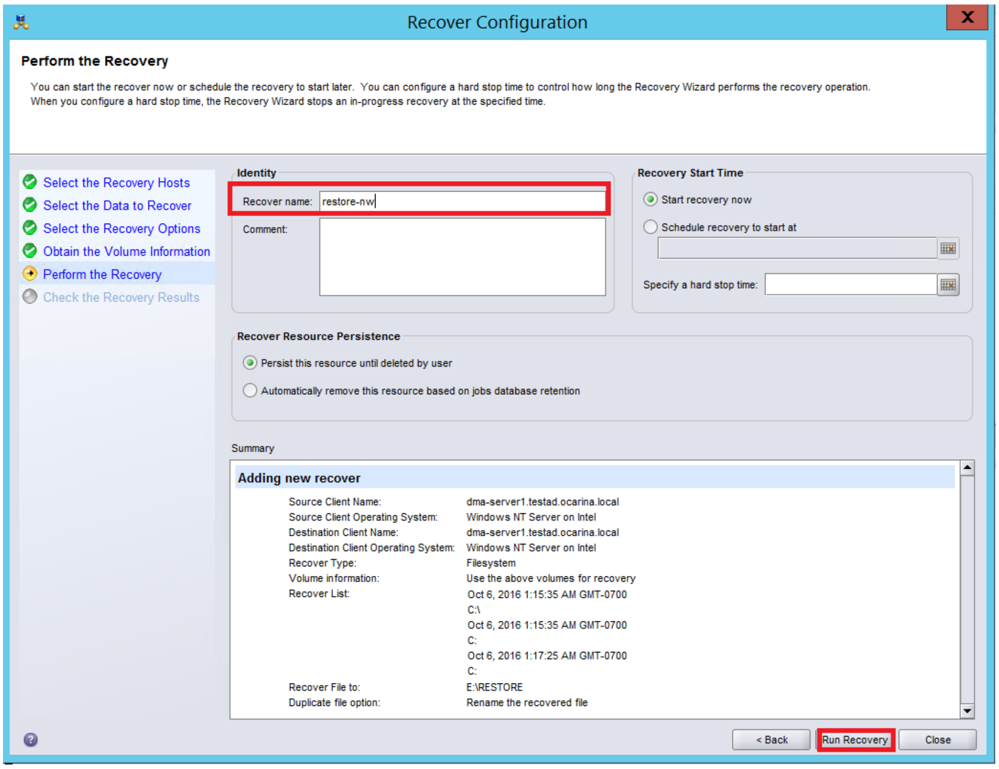
Alternate Volumes

Volume	Device or Location	Media Type	Status

Storage Node

Storage node:

8. Enter a Recover name, and click **Run Recovery**.


Recover Configuration
Select the Recovery Hosts
Select the Data to Recover
Select the Recovery Options
Obtain the Volume Information
Perform the Recovery
Check the Recovery Results
< Back
Run Recovery
Close

Perform the Recovery

You can start the recover now or schedule the recovery to start later. You can configure a hard stop time to control how long the Recovery Wizard performs the recovery operation. When you configure a hard stop time, the Recovery Wizard stops an in-progress recovery at the specified time.

Identity

Recover name: restore-nw

Comment:

Recovery Start Time

● Start recovery now

○ Schedule recovery to start at

Specify a hard stop time:

Recover Resource Persistence

● Persist this resource until deleted by user

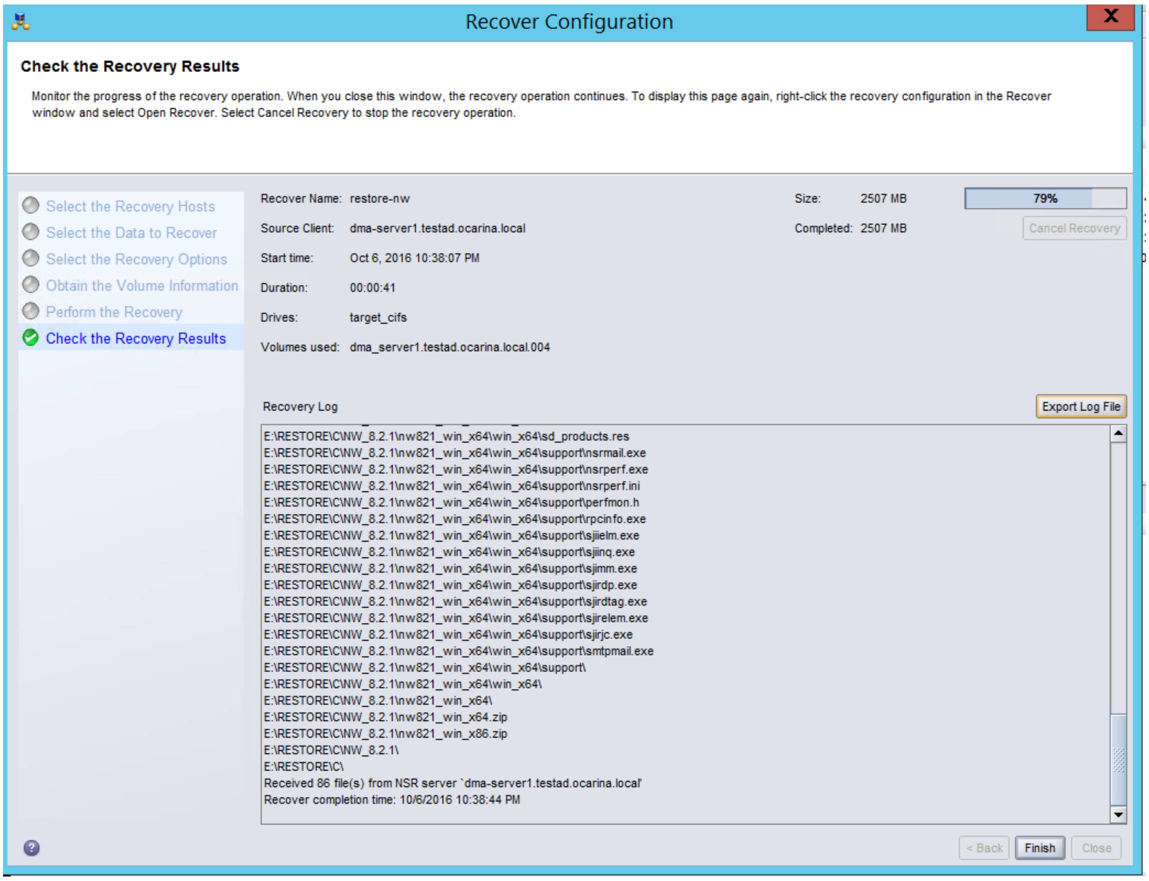
○ Automatically remove this resource based on jobs database retention

Summary

```
Adding new recover
        Source Client Name:                    dma-server1.testad.ocarina.local
        Source Client Operating System:        Windows NT Server on Intel
        Destination Client Name:               dma-server1.testad.ocarina.local
        Destination Client Operating System:   Windows NT Server on Intel
        Recover Type:                          Filesystem
        Volume information:                    Use the above volumes for recovery
        Recover List:                          Oct 6, 2016 1:15:35 AM GMT-0700
                                               C:\
                                               Oct 6, 2016 1:15:35 AM GMT-0700
                                               C:
                                               Oct 6, 2016 1:17:25 AM GMT-0700
                                               C:
        Recover File to:                       E:\RESTORE
        Duplicate file option:                 Rename the recovered file
```

9. Check the Recovery Results.

> **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.


Recover Configuration
Select the Recovery Hosts
Select the Data to Recover
Select the Recovery Options
Obtain the Volume Information
Perform the Recovery
Check the Recovery Results
79%
Cancel Recovery
Export Log File
< Back
Finish
Close

Check the Recovery Results

Monitor the progress of the recovery operation. When you close this window, the recovery operation continues. To display this page again, right-click the recovery configuration in the Recover window and select Open Recover. Select Cancel Recovery to stop the recovery operation.

Recover Name: restore-nw

Source Client: dma-server1.testad.ocarina.local

Start time: Oct 6, 2016 10:38:07 PM

Duration: 00:00:41

Drives: target_cifs

Volumes used: dma_server1.testad.ocarina.local.004

Size: 2507 MB

Completed: 2507 MB

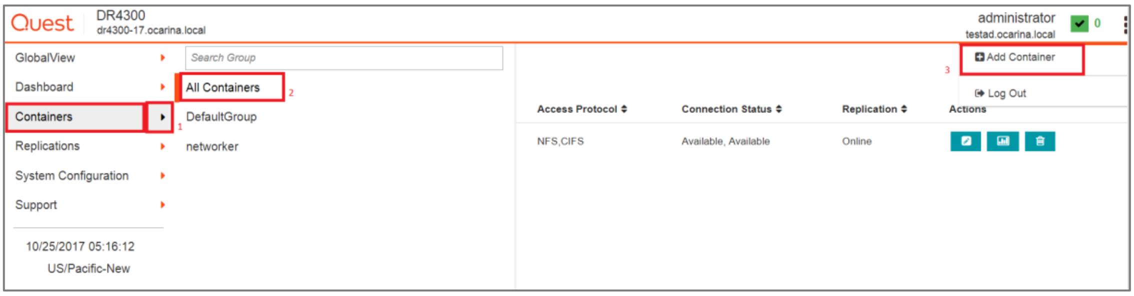
Recovery Log

```
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\sd_products.res
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\nsrmail.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\nsrperf.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\nsrperf.ini
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\perfmon.h
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\rpcinfo.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\sjiielm.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\sjiinq.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\sjimm.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\sjirdp.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\sjirdtag.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\sjirelem.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\sjirjc.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\smtpmail.exe
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\support\
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\win_x64\
E:\RESTORE\C\NW_8.2.1\nw821_win_x64\
E:\RESTORE\C\NW_8.2.1\nw821_win_x64.zip
E:\RESTORE\C\NW_8.2.1\nw821_win_x86.zip
E:\RESTORE\C\NW_8.2.1\
E:\RESTORE\C\
Received 86 file(s) from NSR server `dma-server1.testad.ocarina.local'
Recover completion time: 10/6/2016 10:38:44 PM
```

Creating and configuring ISCSI target container(s) for Networker

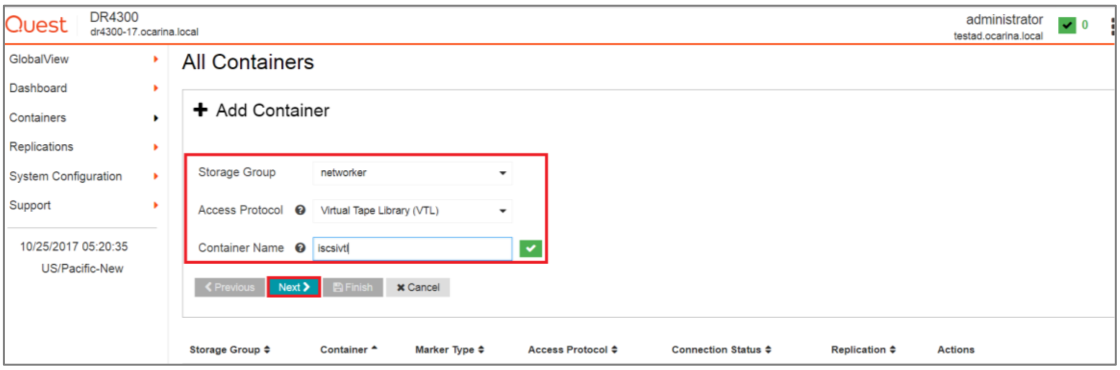
Creating an iSCSI VTL container for Networker

1. Create and export the iSCSI container by selecting **Containers** in the left navigation pane of the DR Series system GUI. Select the **Action Menu** in the upper right corner, then click **Add Container**.



Access Protocol	Connection Status	Replication	Actions
NFS,CIFS	Available, Available	Online	

2. Select the **Storage Group** name, select **NAS (NFS, CIFS)** from the **Access Protocol** drop down menu, enter a **Container Name**, and then click **Next**.

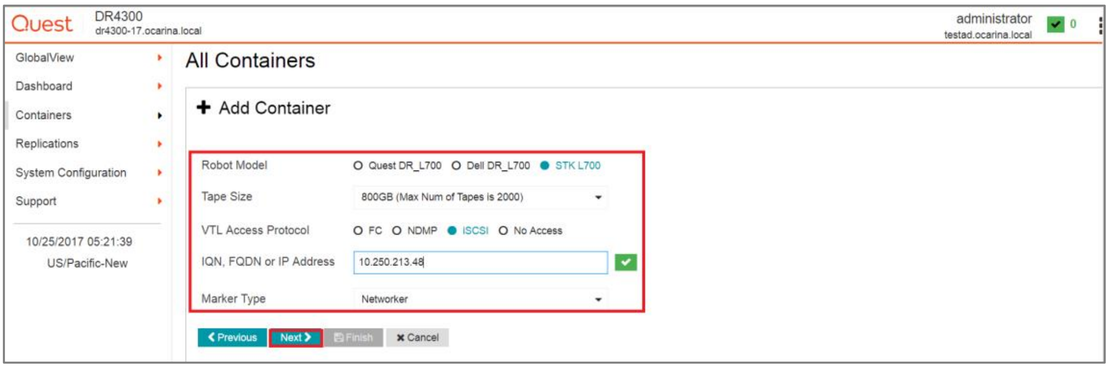


Storage Group: networker

Access Protocol: Virtual Tape Library (VTL)

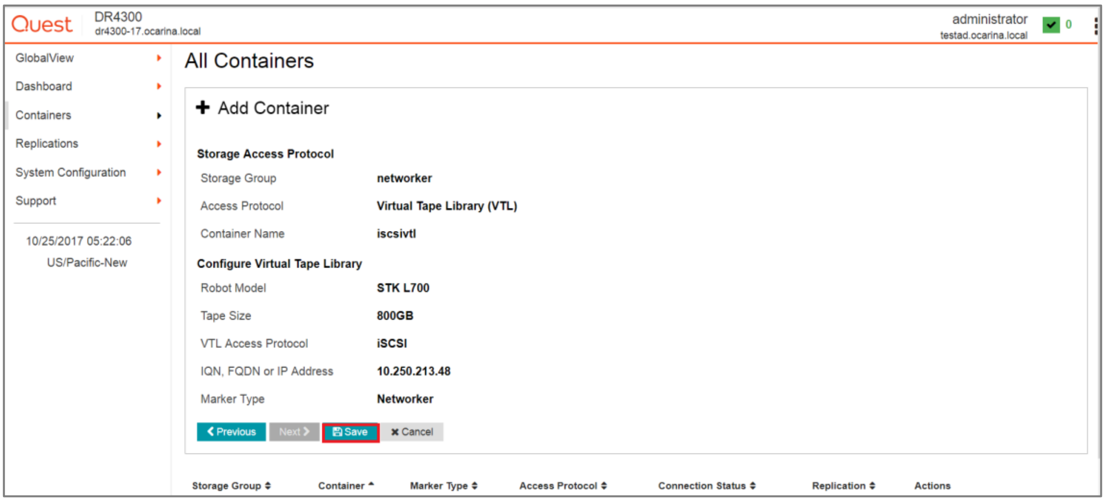
Container Name: iscsivtl

3. Select the iSCSI **Access Protocol**, and specify the DMA **Access Control** by providing the storage node / media node IP Address, IQN or FQDN. For Marker Type, select **Networker**. Click **Next**.



Robot Model	○ Quest DR_L700 ○ Dell DR_L700 ● STK L700
Tape Size	800GB (Max Num of Tapes is 2000)
VTL Access Protocol	○ FC ○ NDMP ● iSCSI ○ No Access
IQN, FQDN or IP Address	10.250.213.48
Marker Type	Networker

4. Click **Save** to create a new ISCSI container.



Storage Access Protocol

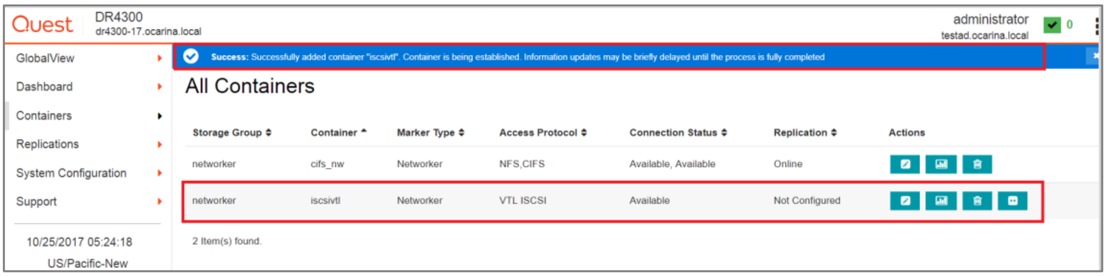
Storage Group	**networker**
Access Protocol	**Virtual Tape Library (VTL)**
Container Name	**iscsivtl**

Configure Virtual Tape Library

Robot Model	**STK L700**
Tape Size	**800GB**
VTL Access Protocol	**iSCSI**
IQN, FQDN or IP Address	**10.250.213.48**
Marker Type	**Networker**

Storage Group	Container	Marker Type	Access Protocol	Connection Status	Replication	Actions

5. Verify that you successfully created the ISCSI container.



Success: Successfully added container "iscsivtl". Container is being established. Information updates may be briefly delayed until the process is fully completed

Storage Group	Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
networker	cifs_nw	Networker	NFS,CIFS	Available, Available	Online	
networker	iscsivtl	Networker	VTL ISCSI	Available	Not Configured	

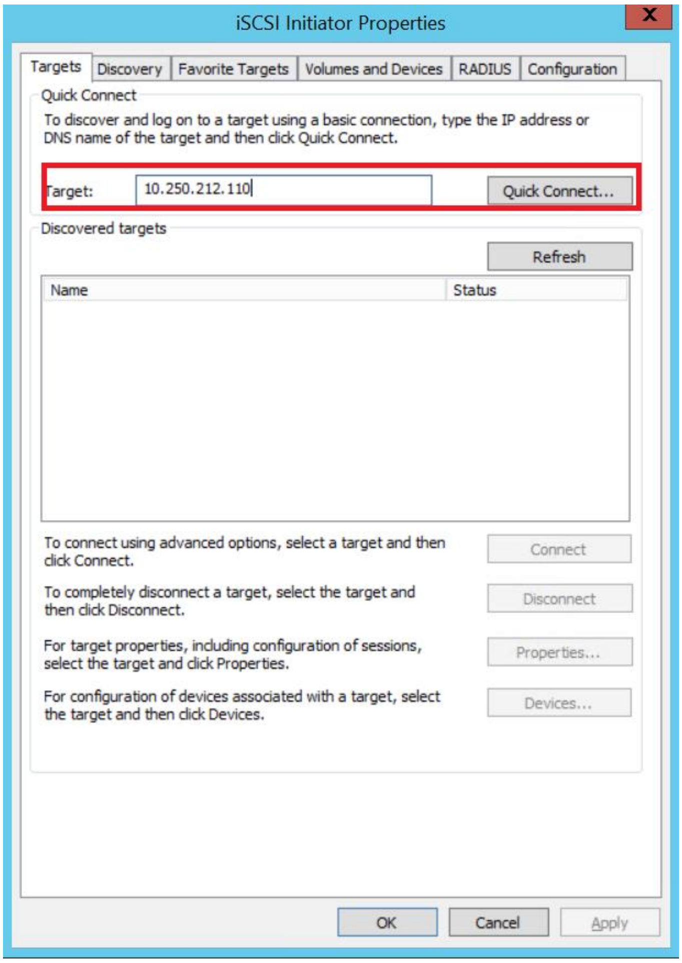
2 Item(s) found.

Configuring the iSCSI Networker storage node – Windows

iSCSI initiator configuration is a two-step process, consisting of:

- Target discovery
- Establishing an iSCSI session with the target using CHAP authentication

1. Provide the IP or FQDN of the DR Series system in the **Target** field. Click **Quick Connect**, which results in target discovery, The Quick Connect dialog box lists all available targets on the DR Series system.



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.

Target: 10.250.212.110

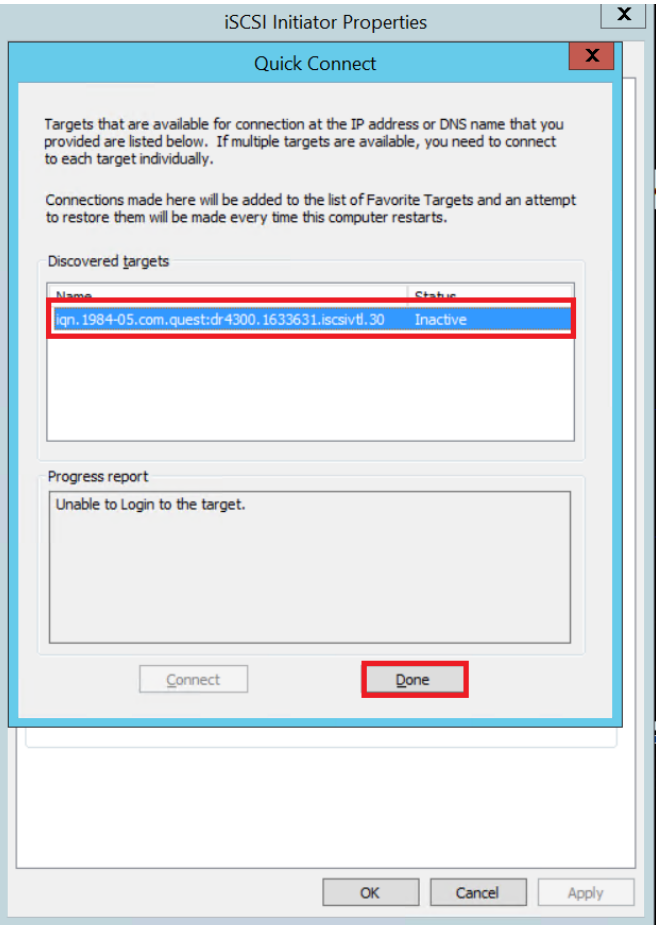
To connect using advanced options, select a target and then click Connect.

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.

2. At this point, the status will be Inactive. Click **Done** and close the dialog box.



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.

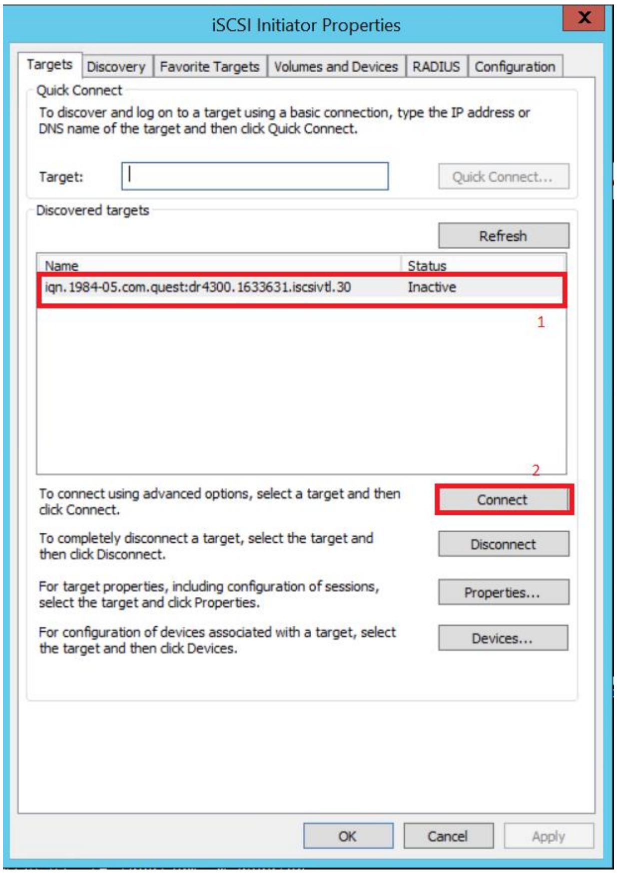
Discovered targets

Name	Status
iqn.1984-05.com.quest:dr4300.1633631.iscsivtl.30	Inactive

Progress report

Unable to Login to the target.

3. Select the discovered target and click **Connect**.



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.quest:dr4300.1633631.iscsivtl.30	Inactive

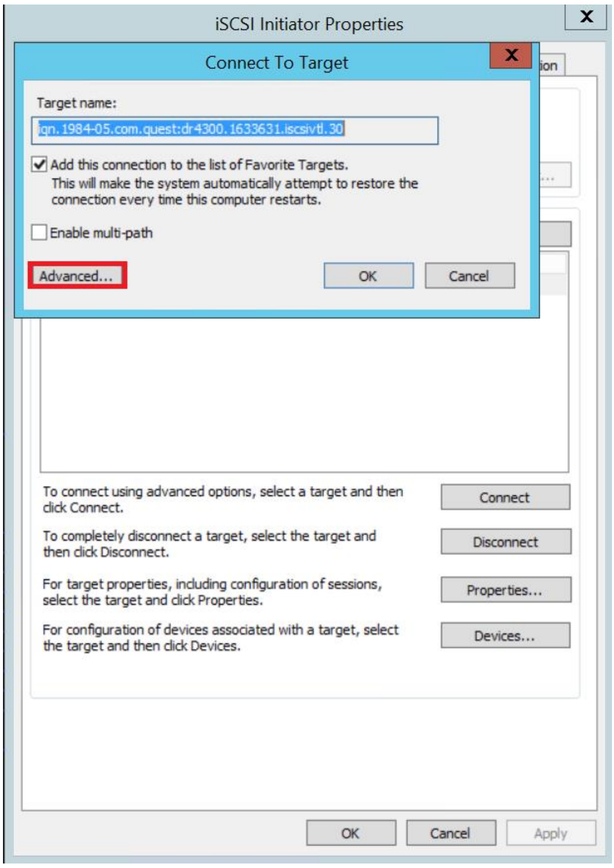
To connect using advanced options, select a target and then click Connect.

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. Select the **Advanced** button.



iSCSI Initiator Properties

Connect To Target

Target name:

iqn.1984-05.com.quest:dr4300.1633631.iscsivtl.30

☑ 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-path

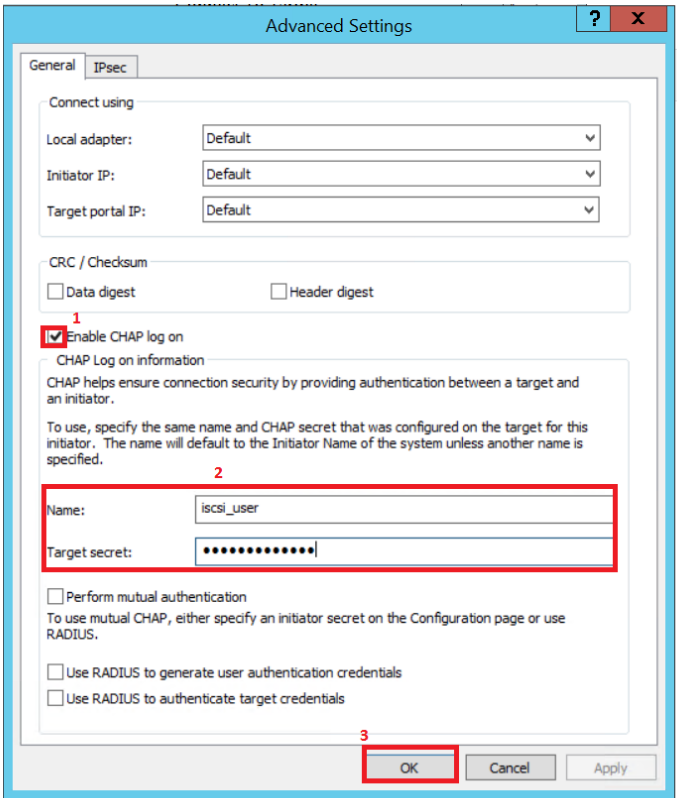
To connect using advanced options, select a target and then click Connect.

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.

5. In Advanced Settings, select to **Enable CHAP log on** and type the User Name and Target Secret / Password. Select **OK** to save the settings. Refer to Appendix A for further details about accounts and credentials.



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: iscsi_user

Target secret: •••••••••••••

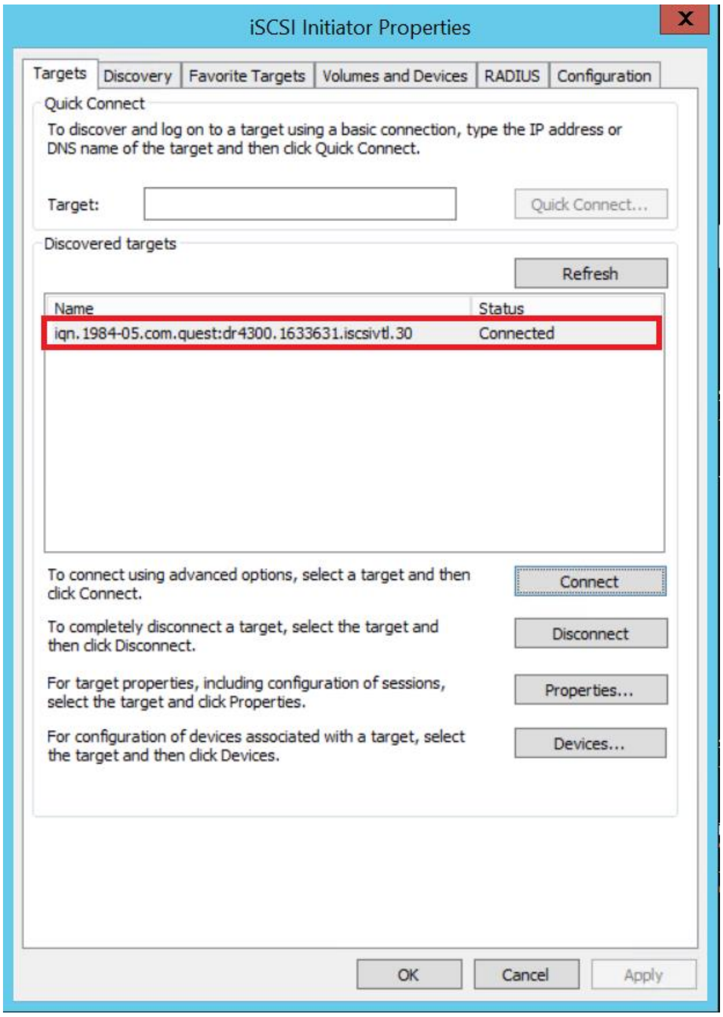
□ Perform mutual authentication

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 the device discovery can now proceed.



iSCSI Initiator Properties

Quick Connect

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.

Target:

Discovered targets

Name	Status
iqn.1984-05.com.quest:dr4300.1633631.iscsivtl.30	Connected

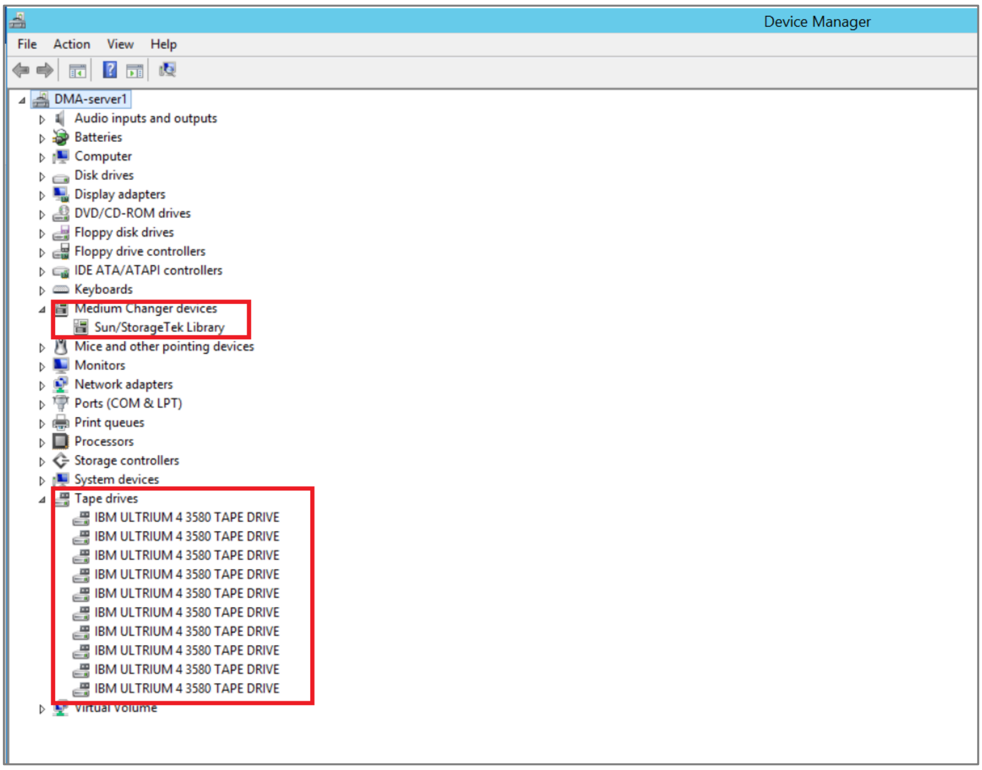
To connect using advanced options, select a target and then click Connect.

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.

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


Device Manager
File
Action
View
Help
DMA-server1
Audio inputs and outputs
Batteries
Computer
Disk drives
Display adapters
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
Monitors
Network adapters
Ports (COM & LPT)
Print queues
Processors
Storage controllers
System devices
Tape drives
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
IBM ULTRIUM 4 3580 TAPE DRIVE
Virtual Volume

Configuring the iSCSI target – Linux

Before you begin, 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 10.250.212.110
```

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 "10.250.212.110:3260" --login
   ```

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

   ```
   iscsiadm -m session
   ```

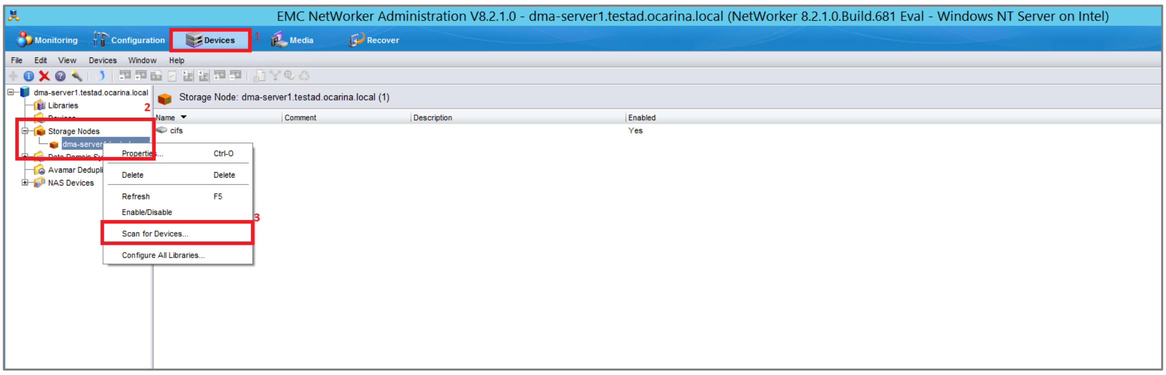
   For example:

   ```
   iscsiadm -m session = tcp: [34] 10.250.212.110:3260,1
   iqn.1984-05.com.quest:dr4300.4043905.iscsivtl.10 (non-flash)
   ```

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

Setting up Networker to use the newly created iSCSI VTL

1. Access the **Devices** menu within the **Networker Administration interface**. Select the Storage Node that has had the iSCSI VTL configured for access. Select **Scan for Devices**.

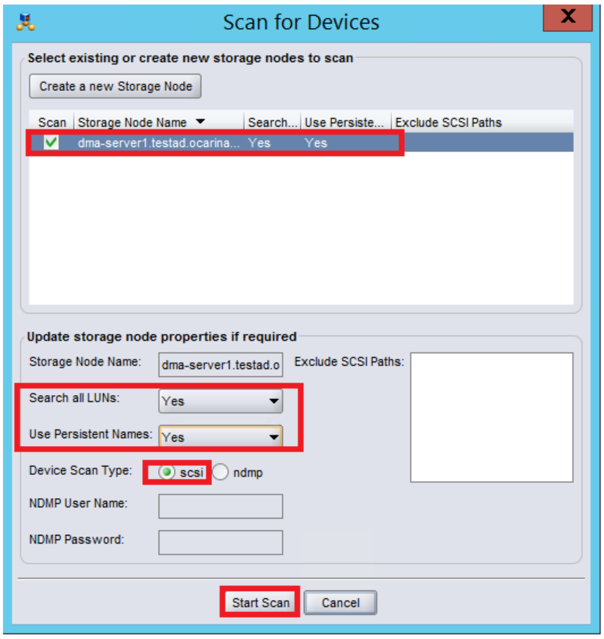


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)

Storage Node: dma-server1.testad.ocarina.local (1)

Name	Comment	Description	Enabled
cifs			Yes

2. In the Scan for Devices dialog box, select the appropriate storage node with the settings to **Search all LUNs**, **Use Persistent Names** and **Device Scan Type** of **scsi.** Then click **Start scan**.



Scan for Devices

Select existing or create new storage nodes to scan

Scan	Storage Node Name	Search...	Use Persiste...	Exclude SCSI Paths
☑	dma-server1.testad.ocarina...	Yes	Yes	

Update storage node properties if required

Storage Node Name: dma-server1.testad.o

Exclude SCSI Paths:

Search all LUNs: Yes

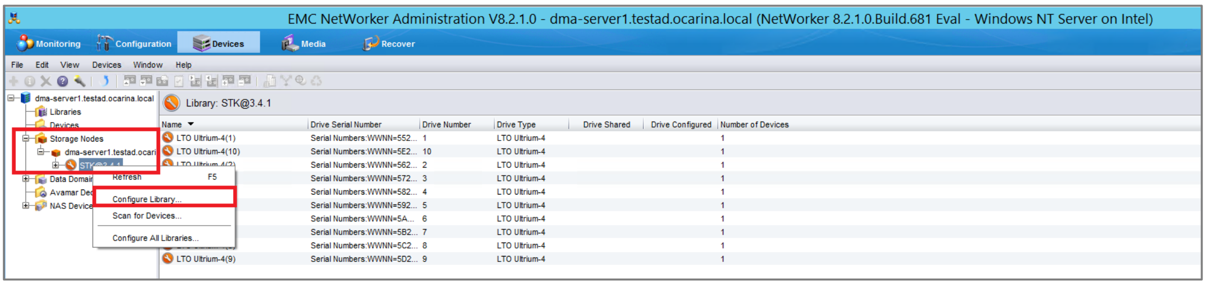
Use Persistent Names: Yes

Device Scan Type: ● scsi ○ ndmp

NDMP User Name:

NDMP Password:

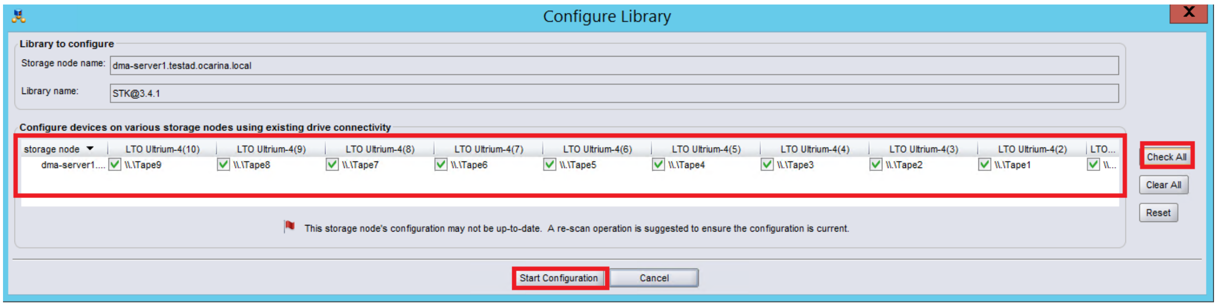
3. After the device scans, the iSCSI VTL should now appear and must be configured for use. Select the library within the **Storage Nodes** navigation tree and proceed with the **Configure Library** option. In the **Configure Library** dialog box, **Check All** drives and click **Start Configuration**.



EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)

Library: STK@3.4.1

Name	Drive Serial Number	Drive Number	Drive Type	Drive Shared	Drive Configured	Number of Devices
LTO Ultrium-4(1)	Serial Numbers:WWNN=552...	1	LTO Ultrium-4			1
LTO Ultrium-4(10)	Serial Numbers:WWNN=5E2...	10	LTO Ultrium-4			1
LTO Ultrium-4(2)	Serial Numbers:WWNN=562...	2	LTO Ultrium-4			1
[illegible]	Serial Numbers:WWNN=572...	3	LTO Ultrium-4			1
[illegible]	Serial Numbers:WWNN=582...	4	LTO Ultrium-4			1
[illegible]	Serial Numbers:WWNN=592...	5	LTO Ultrium-4			1
[illegible]	Serial Numbers:WWNN=5A...	6	LTO Ultrium-4			1
[illegible]	Serial Numbers:WWNN=5B2...	7	LTO Ultrium-4			1
[illegible]	Serial Numbers:WWNN=5C2...	8	LTO Ultrium-4			1
LTO Ultrium-4(9)	Serial Numbers:WWNN=5D2...	9	LTO Ultrium-4			1



Configure Library

Library to configure

Storage node name: dma-server1.testad.ocarina.local

Library name: STK@3.4.1

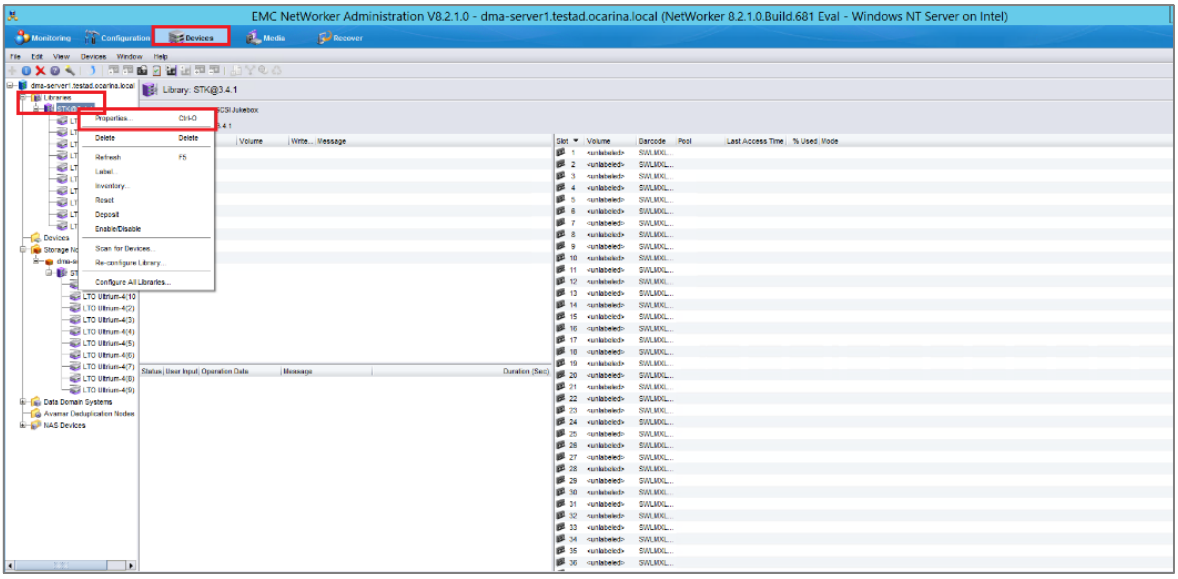
Configure devices on various storage nodes using existing drive connectivity

storage node	LTO Ultrium-4(10)	LTO Ultrium-4(9)	LTO Ultrium-4(8)	LTO Ultrium-4(7)	LTO Ultrium-4(6)	LTO Ultrium-4(5)	LTO Ultrium-4(4)	LTO Ultrium-4(3)	LTO Ultrium-4(2)	LTO...
dma-server1....	☑ \\.\Tape9	☑ \\.\Tape8	☑ \\.\Tape7	☑ \\.\Tape6	☑ \\.\Tape5	☑ \\.\Tape4	☑ \\.\Tape3	☑ \\.\Tape2	☑ \\.\Tape1	☑ \\...

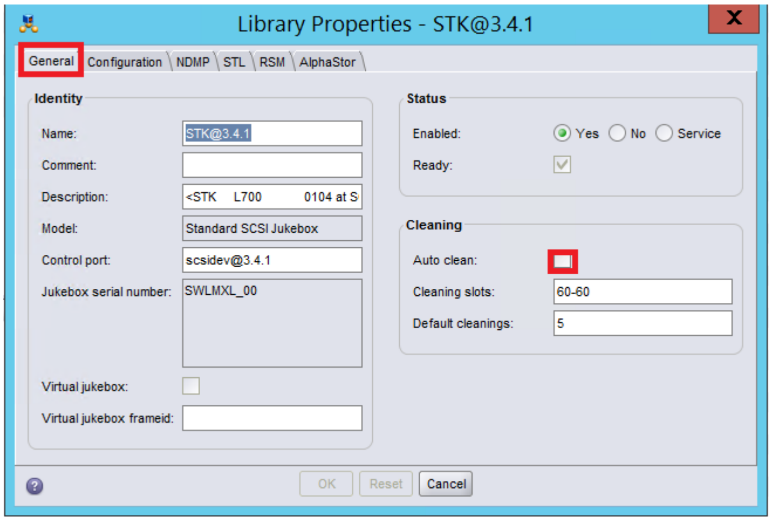
This storage node's configuration may not be up-to-date. A re-scan operation is suggested to ensure the configuration is current.

The VTL should now show up ready for use. By default, the cleaning option is enabled, which must be disabled.

4. Within the navigation tree, select the Library and then the **Properties** option.



5. In the dialog box, disable the **Auto-clean** option, and omit the default slot and cleanings settings. Click **OK** to save the changes



Identity

Name: STK@3.4.1

Comment:

Description: <STK L700 0104 at S

Model: Standard SCSI Jukebox

Control port: scsidev@3.4.1

Jukebox serial number: SWLMXL_00

Virtual jukebox: □

Virtual jukebox frameid:

Status

Enabled: ● Yes ○ No ○ Service

Ready: ☑

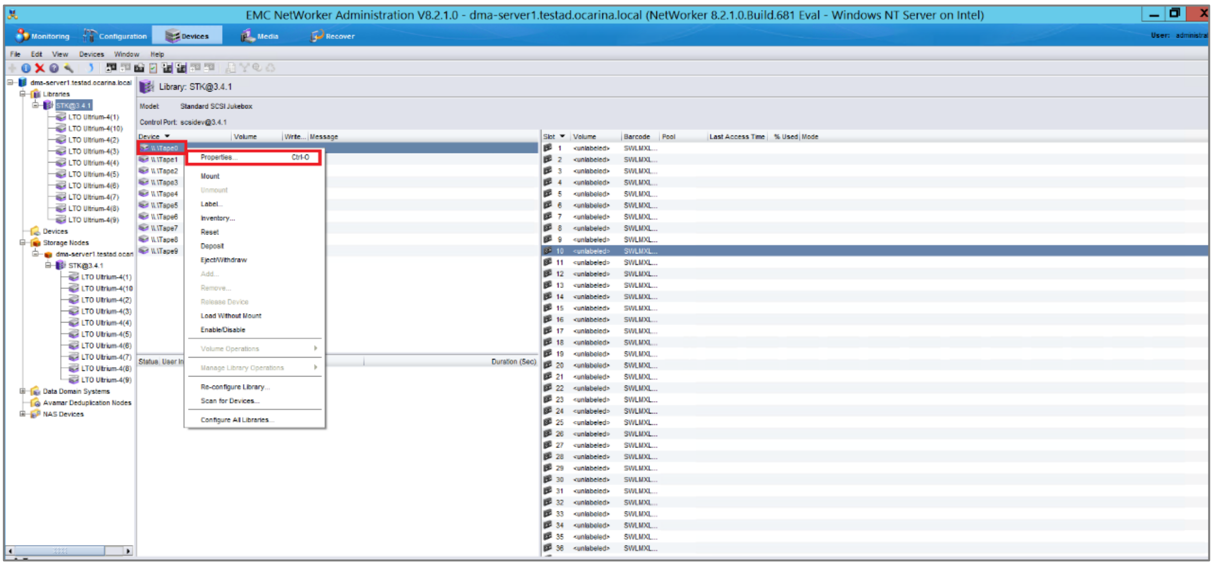
Cleaning

Auto clean: □

Cleaning slots: 60-60

Default cleanings: 5

6. After the library has been configured, the individual tape drives must be configured so that they service only one target session at any given time. Multiplexing to virtual tape drives has an adverse effect on deduplication and thus requires that each drive only handle a single target session.



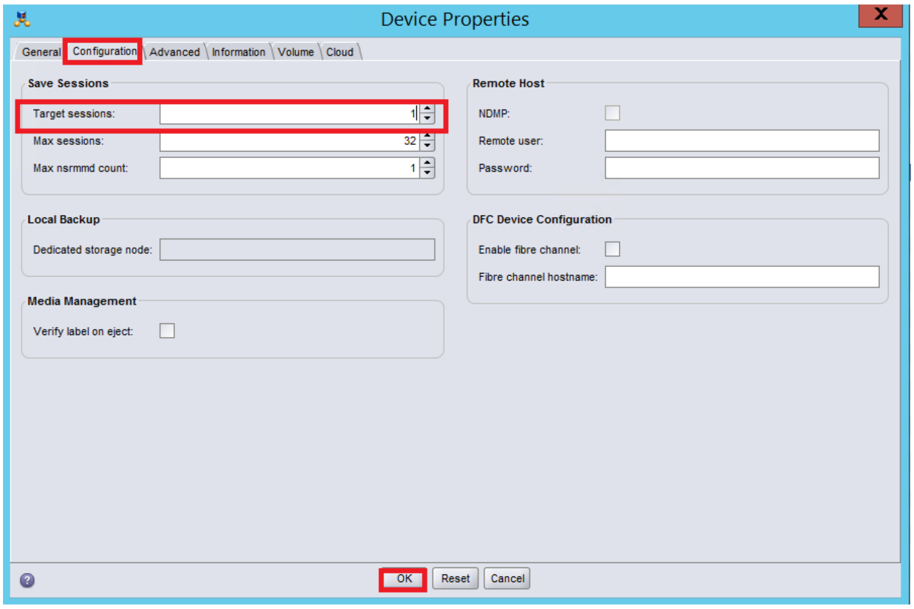
Library: STK@3.4.1

Model: Standard SCSI Jukebox

Control Port: scsidev@3.4.1

Device	Volume	Write...	Message
\\.\Tape0			
\\.\Tape1			
\\.\Tape2			
\\.\Tape3			
\\.\Tape4			
\\.\Tape5			
\\.\Tape6			
\\.\Tape7			
\\.\Tape8			
\\.\Tape9			

Slot	Volume	Barcode	Pool	Last Access Time	% Used	Mode
1	<unlabeled>	SWLMXL...				
2	<unlabeled>	SWLMXL...				
3	<unlabeled>	SWLMXL...				
4	<unlabeled>	SWLMXL...				
5	<unlabeled>	SWLMXL...				
6	<unlabeled>	SWLMXL...				
7	<unlabeled>	SWLMXL...				
8	<unlabeled>	SWLMXL...				
9	<unlabeled>	SWLMXL...				
10	<unlabeled>	SWLMXL...				
11	<unlabeled>	SWLMXL...				
12	<unlabeled>	SWLMXL...				
13	<unlabeled>	SWLMXL...				
14	<unlabeled>	SWLMXL...				
15	<unlabeled>	SWLMXL...				
16	<unlabeled>	SWLMXL...				
17	<unlabeled>	SWLMXL...				
18	<unlabeled>	SWLMXL...				
19	<unlabeled>	SWLMXL...				
20	<unlabeled>	SWLMXL...				
21	<unlabeled>	SWLMXL...				
22	<unlabeled>	SWLMXL...				
23	<unlabeled>	SWLMXL...				
24	<unlabeled>	SWLMXL...				
25	<unlabeled>	SWLMXL...				
26	<unlabeled>	SWLMXL...				
27	<unlabeled>	SWLMXL...				
28	<unlabeled>	SWLMXL...				
29	<unlabeled>	SWLMXL...				
30	<unlabeled>	SWLMXL...				
31	<unlabeled>	SWLMXL...				
32	<unlabeled>	SWLMXL...				
33	<unlabeled>	SWLMXL...				
34	<unlabeled>	SWLMXL...				
35	<unlabeled>	SWLMXL...				
36	<unlabeled>	SWLMXL...				



Save Sessions

Target sessions: 1

Max sessions: 32

Max nsrmmd count: 1

Remote Host

NDMP: □

Remote user:

Password:

Local Backup

Dedicated storage node:

DFC Device Configuration

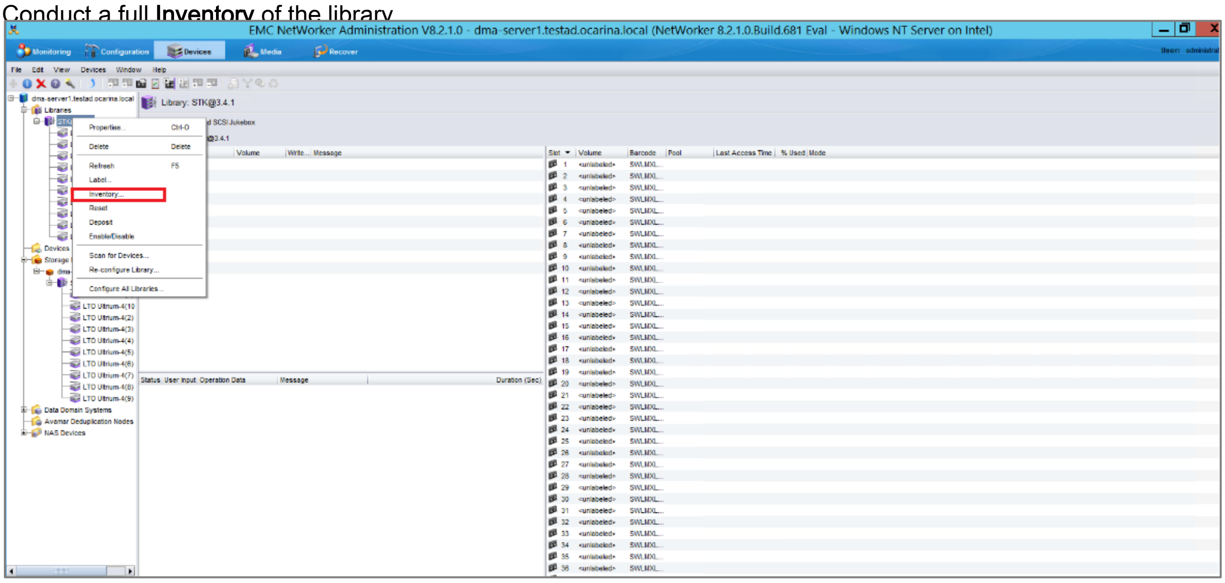
Enable fibre channel: □

Fibre channel hostname:

Media Management

Verify label on eject: □

7. Conduct a full **Inventory** of the library



Slot	Volume	Barcode	Pool	Last Access Time	% Used	Mode
1	<unlabeled>	SWLMXL...				
2	<unlabeled>	SWLMXL...				
3	<unlabeled>	SWLMXL...				
4	<unlabeled>	SWLMXL...				
5	<unlabeled>	SWLMXL...				
6	<unlabeled>	SWLMXL...				
7	<unlabeled>	SWLMXL...				
8	<unlabeled>	SWLMXL...				
9	<unlabeled>	SWLMXL...				
10	<unlabeled>	SWLMXL...				
11	<unlabeled>	SWLMXL...				
12	<unlabeled>	SWLMXL...				
13	<unlabeled>	SWLMXL...				
14	<unlabeled>	SWLMXL...				
15	<unlabeled>	SWLMXL...				
16	<unlabeled>	SWLMXL...				
17	<unlabeled>	SWLMXL...				
18	<unlabeled>	SWLMXL...				
19	<unlabeled>	SWLMXL...				
20	<unlabeled>	SWLMXL...				
21	<unlabeled>	SWLMXL...				
22	<unlabeled>	SWLMXL...				
23	<unlabeled>	SWLMXL...				
24	<unlabeled>	SWLMXL...				
25	<unlabeled>	SWLMXL...				
26	<unlabeled>	SWLMXL...				
27	<unlabeled>	SWLMXL...				
28	<unlabeled>	SWLMXL...				
29	<unlabeled>	SWLMXL...				
30	<unlabeled>	SWLMXL...				
31	<unlabeled>	SWLMXL...				
32	<unlabeled>	SWLMXL...				
33	<unlabeled>	SWLMXL...				
34	<unlabeled>	SWLMXL...				
35	<unlabeled>	SWLMXL...				
36	<unlabeled>	SWLMXL...				

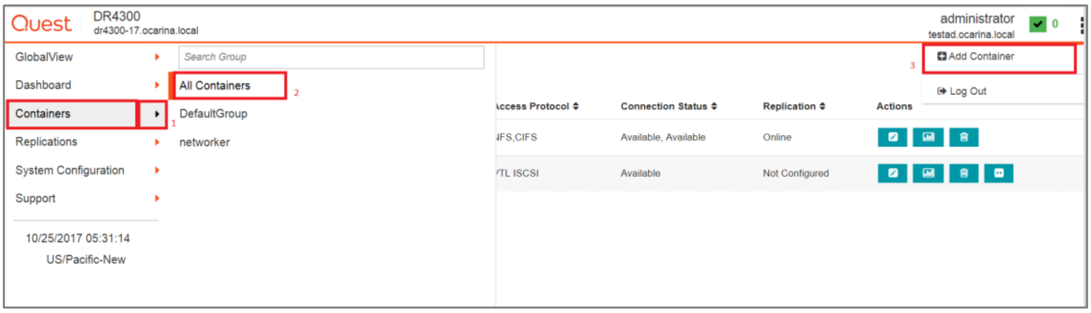
8. Label all the media with labels and place them in their respective media pools for use.

9. For Label operation, please follow the steps from the preceding section.

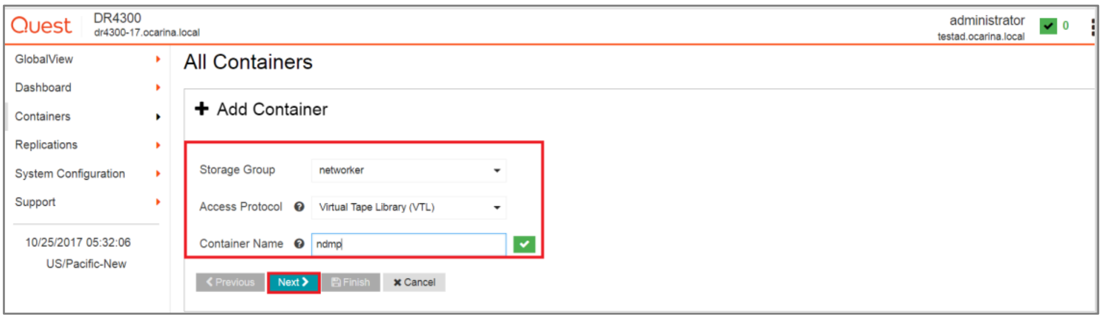
Creating and configuring NDMP target container(s) for Networker

Creating the NDMP VTL container for Networker use

1. Create and export the NDMP container by selecting **Containers** in the navigation area of the GUI, and then clicking **Add Container** in the top right **Action Menu.**



2. In the **Create New Container** wizard, enter the container name, select the **Virtual Tape Library (VTL)** container option, and click **Next**.



Storage Group: networker

Access Protocol: Virtual Tape Library (VTL)

Container Name: ndmp

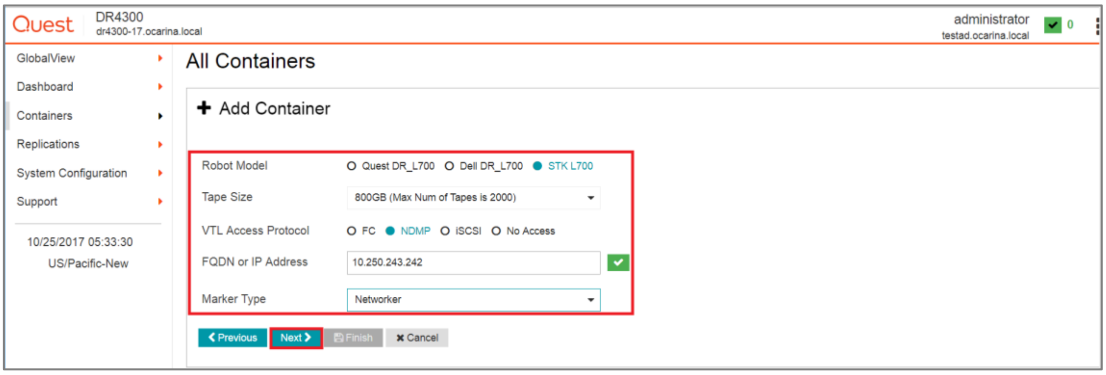
3. Do the following:

   a Select the NDMP **Access Protocol**.

   b Specify the DMA **Access Control** information by providing the storage node or, media node IP Address or FQDN.

   c Select the Marker Type as **Unix Dump.**

   d Click **Next.**



All Containers

✚ Add Container

Robot Model ○ Quest DR_L700 ○ Dell DR_L700 ● STK L700

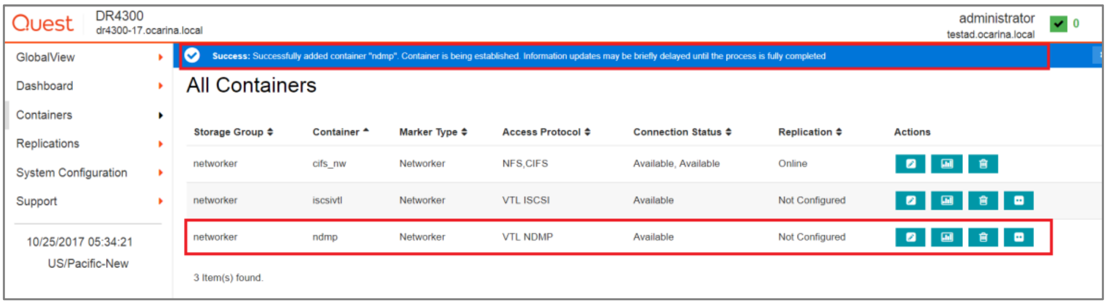
Tape Size 800GB (Max Num of Tapes is 2000)

VTL Access Protocol ○ FC ● NDMP ○ iSCSI ○ No Access

FQDN or IP Address 10.250.243.242 ✓

Marker Type Networker

4. Verify that the NDMP container is added.



Success: Successfully added container "ndmp". Container is being established. Information updates may be briefly delayed until the process is fully completed

All Containers

Storage Group	Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
networker	cifs_nw	Networker	NFS,CIFS	Available, Available	Online	
networker	iscsivtl	Networker	VTL ISCSI	Available	Not Configured	
networker	ndmp	Networker	VTL NDMP	Available	Not Configured	

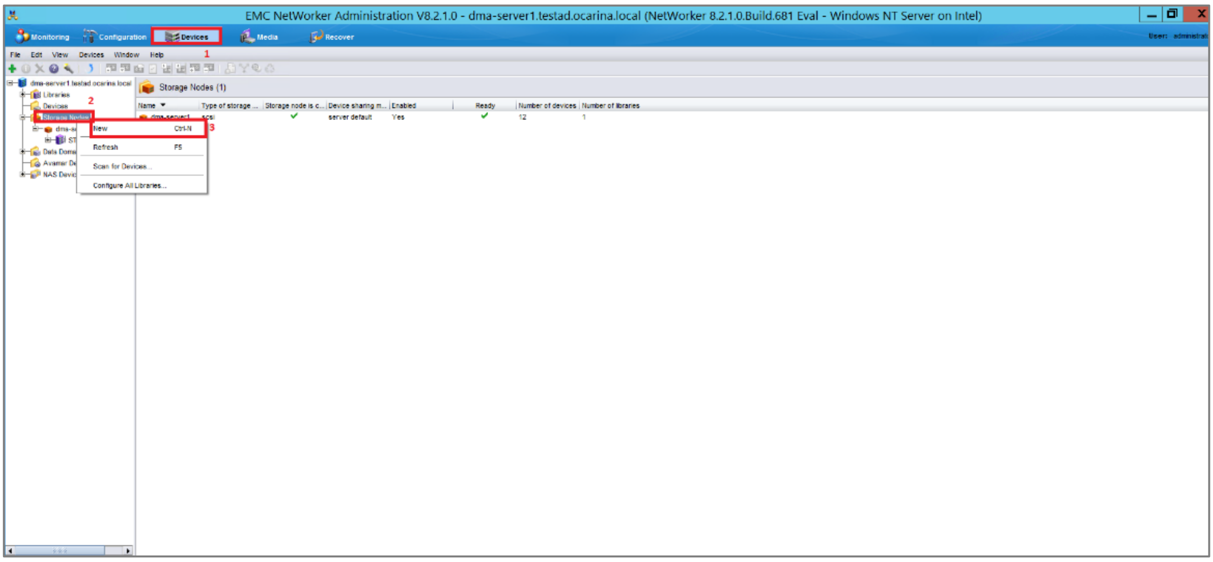
3 Item(s) found.

Configuring Networker to use the newly created NDMP VTL

1. Add the DR Series system as a storage node via NDMP.

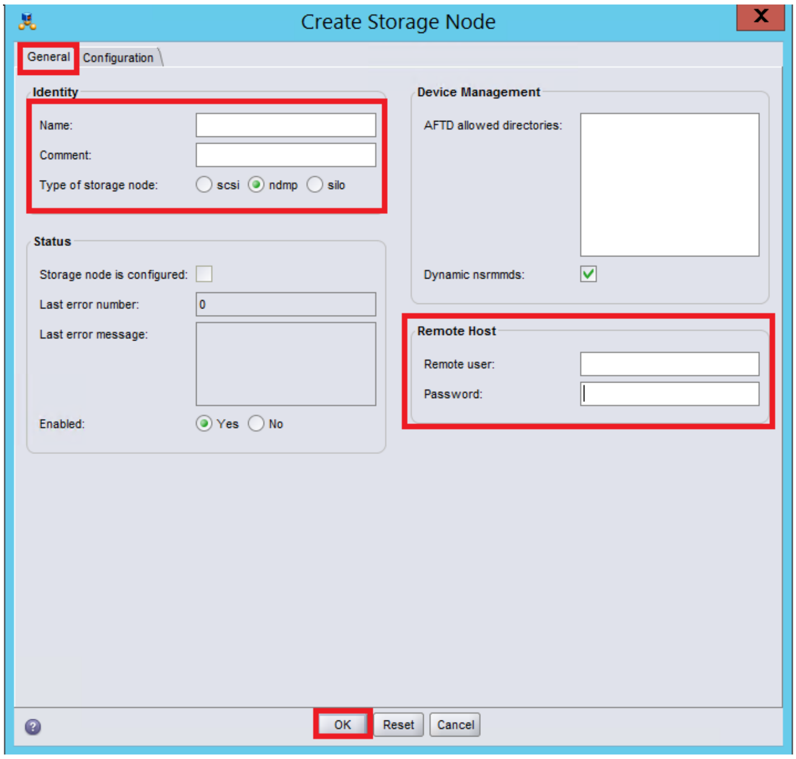
   a Navigate to the **Devices** menu, select the **Storage Nodes** Sub-Tree object within the EMC Networker navigation pane, and add a new storage node.

   b In the **Create Storage Node** window enter the name of the node (this must be resolvable via DNS or host file resolution). Provide the logon credentials for the ndmp user account on the DR Series system.


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)
Monitoring
Configuration
Devices
Media
Recover
1
File
Edit
View
Devices
Window
Help
dma-server1.testad.ocarina.local
Libraries
Devices
2
Storage Nodes
dma-se
ST
Data Doma
Avamar De
NAS Devic
New Ctrl-N
3
Refresh F5
Scan for Devices...
Configure All Libraries...
Storage Nodes (1)

Name	Type of storage ...	Storage node is c...	Device sharing m...	Enabled	Ready	Number of devices	Number of libraries
dma-server1	scsi	✓	server default	Yes	✓	12	1

2. Add the **NDMP storage node** details, **Username/Password** details, and click **OK**. Refer to Appendix A for information about NDMP user credentials.



Name:

Comment:

Type of storage node: ○ scsi ● ndmp ○ silo

Storage node is configured: □

Last error number: 0

Last error message:

Enabled: ● Yes ○ No

AFTD allowed directories:

Dynamic nsrmmds: ☑

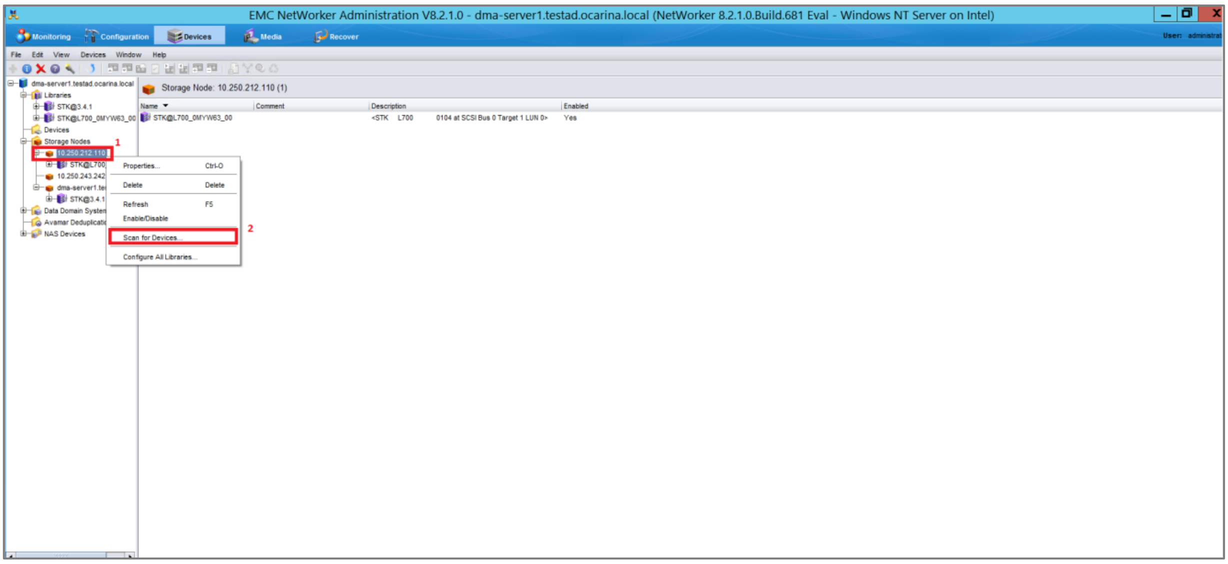
Remote user:

Password:

3. Access the **Devices** menu within the **Networker Administration interface** and do the following:

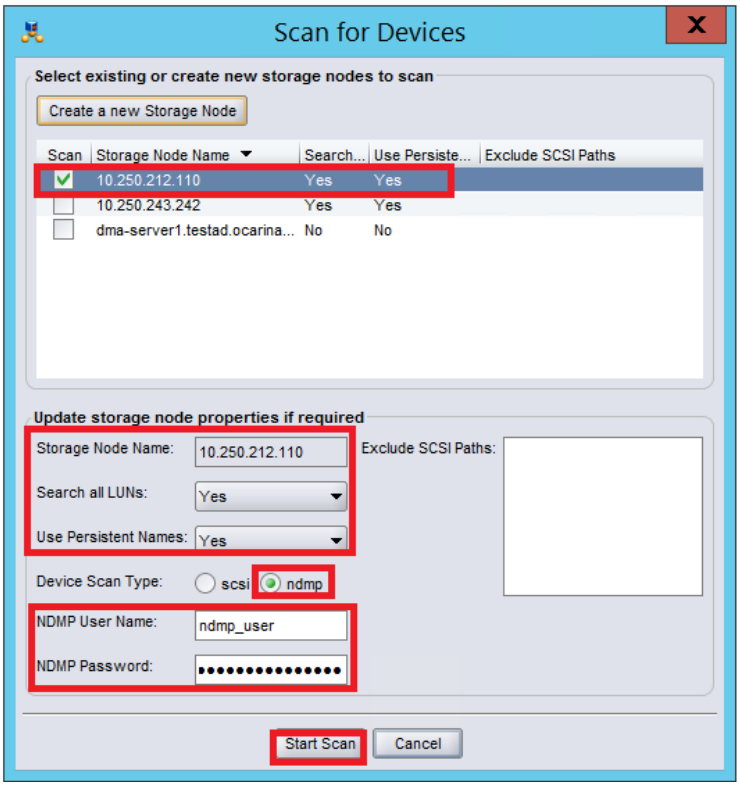
   a Select the Storage Node that has the NDMP VTL configured for access.

   b Select to **Scan for Devices**.



Name	Comment	Description	Enabled
STK@L700_0MYW63_00		<STK L700 0104 at SCSI Bus 0 Target 1 LUN 0>	Yes

4. In the Scan for Device dialog box, select the appropriate storage node with the settings to **Search all LUNs**, **Use Persistent Names** and Device Scan Type of **NDMP**, and then click **Start scan**



Scan for Devices

Select existing or create new storage nodes to scan

Scan	Storage Node Name	Search...	Use Persiste...	Exclude SCSI Paths
☑	10.250.212.110	Yes	Yes	
□	10.250.243.242	Yes	Yes	
□	dma-server1.testad.ocarina...	No	No	

Update storage node properties if required

Storage Node Name: 10.250.212.110

Search all LUNs: Yes

Use Persistent Names: Yes

Device Scan Type: ○ scsi ● ndmp

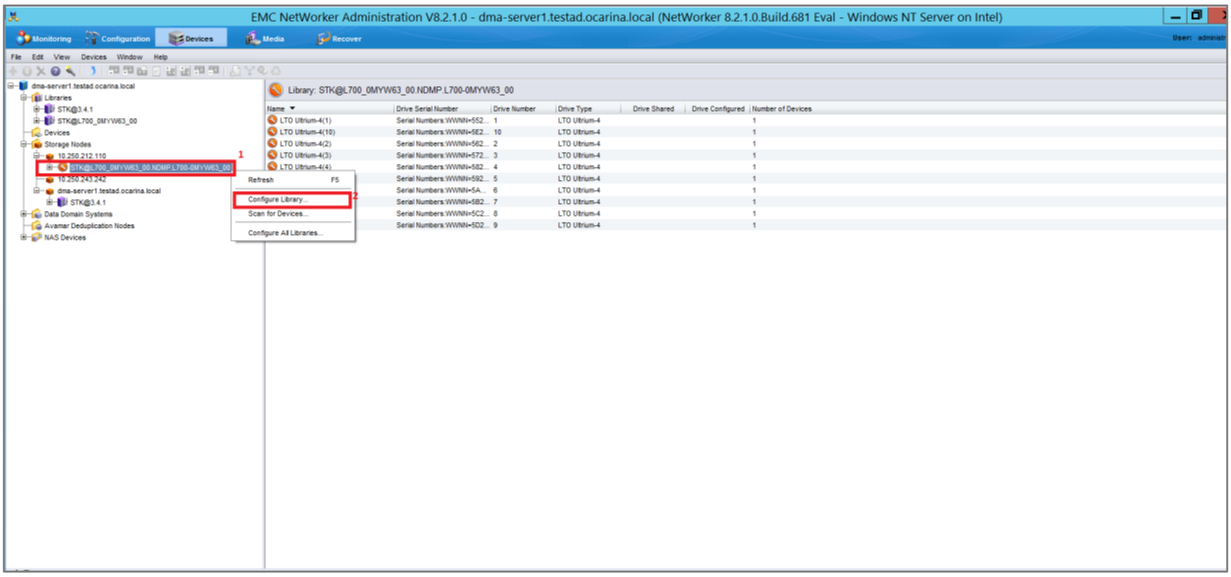
NDMP User Name: ndmp_user

NDMP Password: ••••••••••••••••

Exclude SCSI Paths:

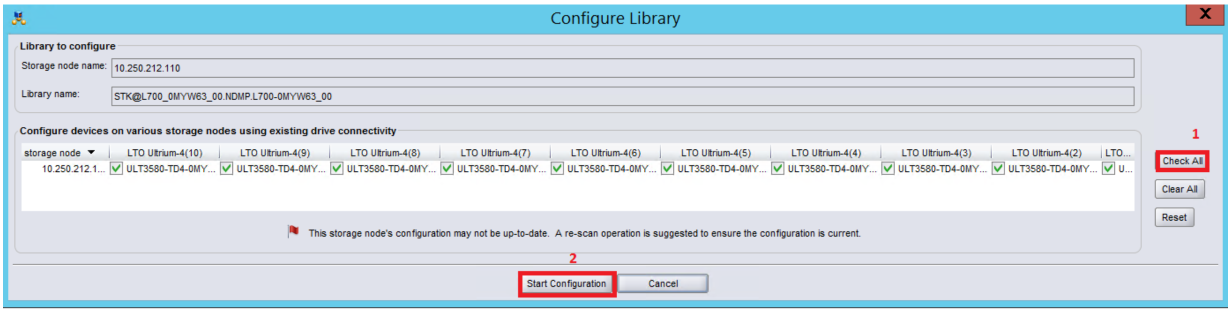
After the device scan, the NDMP VTL should appear and can be configured for use.

5. Select the library within the storage nodes navigation tree and proceed with the **Configure Library** option. In the **Configure Library** dialog box, **Check All** drives and, click the **Start Configuration** button.


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)
Monitoring
Configuration
Devices
Media
Recover
File
Edit
View
Devices
Window
Help
dma-server1.testad.ocarina.local
Libraries
STK@3.4.1
STK@L700_0MYW63_00
Devices
Storage Nodes
10.250.212.110
STK@L700_0MYW63_00.NDMP.L700-0MYW63_00
10.250.243.242
dma-server1.testad.ocarina.local
STK@3.4.1
Data Domain Systems
Avamar Deduplication Nodes
NAS Devices
1
Refresh F5
Configure Library...
2
Scan for Devices...
Configure All Libraries...

Library: STK@L700_0MYW63_00.NDMP.L700-0MYW63_00

Name	Drive Serial Number	Drive Number	Drive Type	Drive Shared	Drive Configured	Number of Devices
LTO Ultrium-4(1)	Serial Numbers:WWNN=552...	1	LTO Ultrium-4			1
LTO Ultrium-4(10)	Serial Numbers:WWNN=5E2...	10	LTO Ultrium-4			1
LTO Ultrium-4(2)	Serial Numbers:WWNN=562...	2	LTO Ultrium-4			1
LTO Ultrium-4(3)	Serial Numbers:WWNN=572...	3	LTO Ultrium-4			1
LTO Ultrium-4(4)	Serial Numbers:WWNN=582...	4	LTO Ultrium-4			1
	Serial Numbers:WWNN=592...	5	LTO Ultrium-4			1
	Serial Numbers:WWNN=5A...	6	LTO Ultrium-4			1
	Serial Numbers:WWNN=5B2...	7	LTO Ultrium-4			1
	Serial Numbers:WWNN=5C2...	8	LTO Ultrium-4			1
	Serial Numbers:WWNN=5D2...	9	LTO Ultrium-4			1



Library to configure

Storage node name: 10.250.212.110

Library name: STK@L700_0MYW63_00.NDMP.L700-0MYW63_00

Configure devices on various storage nodes using existing drive connectivity

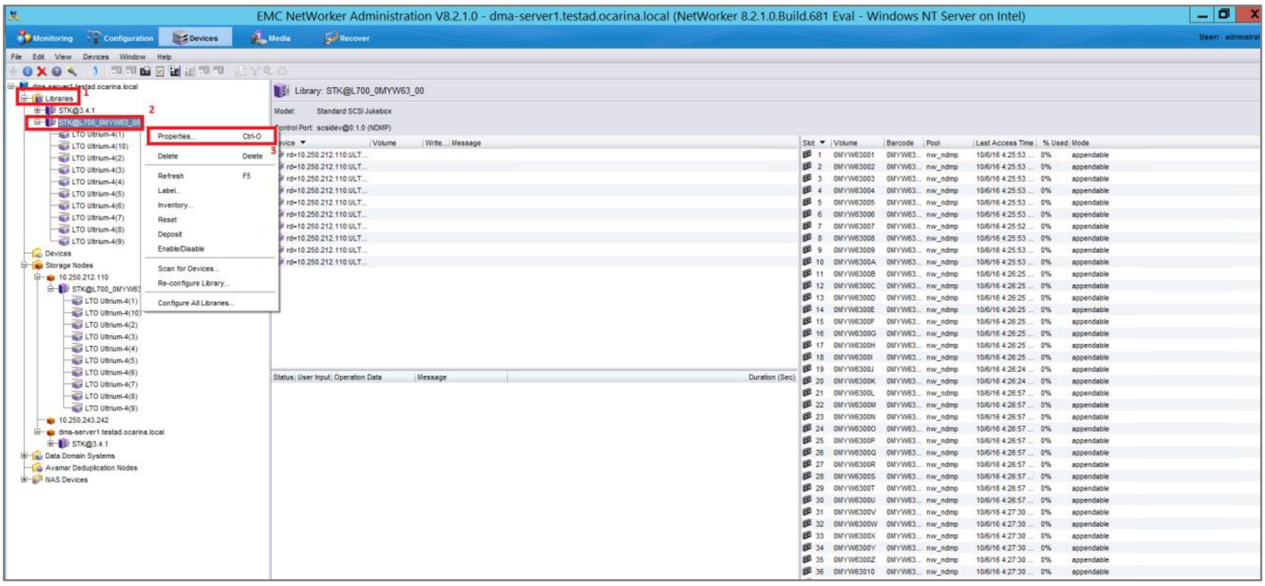
storage node	LTO Ultrium-4(10)	LTO Ultrium-4(9)	LTO Ultrium-4(8)	LTO Ultrium-4(7)	LTO Ultrium-4(6)	LTO Ultrium-4(5)	LTO Ultrium-4(4)	LTO Ultrium-4(3)	LTO Ultrium-4(2)	LTO...
10.250.212.1...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ ULT3580-TD4-0MY...	☑ U...

This storage node's configuration may not be up-to-date. A re-scan operation is suggested to ensure the configuration is current.

The VTL should now appear ready for use. By default, the cleaning option is enabled, and it must be disabled.

6. Within the navigation tree, select the Library, and then select the **Properties** option.

7. In the dialog box, disable the **Auto-clean** option, omit the default slot and cleanings settings, and click **OK**.



Library: STK@L700_0MYW63_00

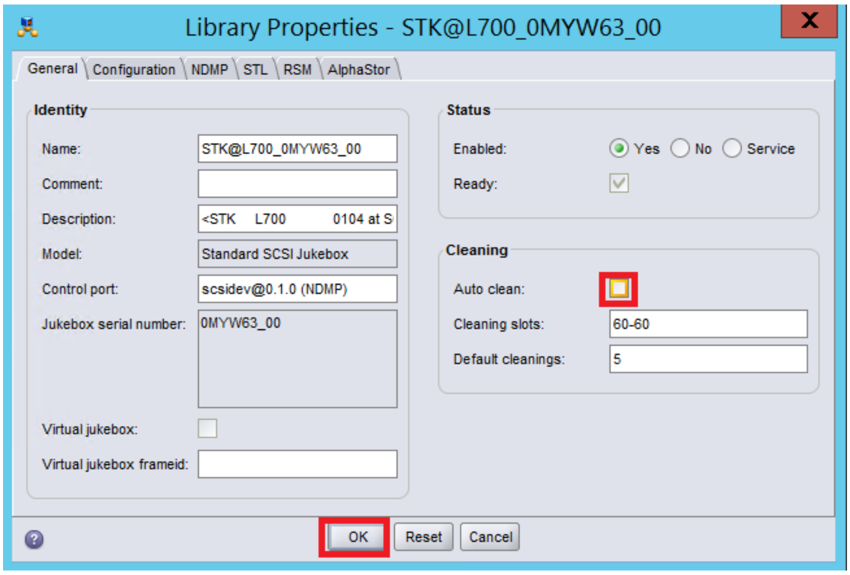
Model: Standard SCSI Jukebox

Control Port: scsidev@0.1.0 (NDMP)

Device	Volume	Write...	Message
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			
rd=10.250.212.110:ULT...			

Slot	Volume	Barcode	Pool	Last Access Time	% Used	Mode
1	0MYW63001	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
2	0MYW63002	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
3	0MYW63003	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
4	0MYW63004	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
5	0MYW63005	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
6	0MYW63006	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
7	0MYW63007	0MYW63...	nw_ndmp	10/6/16 4:25:52 ...	0%	appendable
8	0MYW63008	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
9	0MYW63009	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
10	0MYW6300A	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
11	0MYW6300B	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
12	0MYW6300C	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
13	0MYW6300D	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
14	0MYW6300E	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
15	0MYW6300F	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
16	0MYW6300G	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
17	0MYW6300H	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
18	0MYW6300I	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
19	0MYW6300J	0MYW63...	nw_ndmp	10/6/16 4:26:24 ...	0%	appendable
20	0MYW6300K	0MYW63...	nw_ndmp	10/6/16 4:26:24 ...	0%	appendable
21	0MYW6300L	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
22	0MYW6300M	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
23	0MYW6300N	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
24	0MYW6300O	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
25	0MYW6300P	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
26	0MYW6300Q	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
27	0MYW6300R	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
28	0MYW6300S	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
29	0MYW6300T	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
30	0MYW6300U	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
31	0MYW6300V	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
32	0MYW6300W	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
33	0MYW6300X	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
34	0MYW6300Y	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
35	0MYW6300Z	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
36	0MYW63010	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable

8. In **Library** Properties, on the **General** tab, clear the **Auto clean** checkbox.



Identity

Name: STK@L700_0MYW63_00

Comment:

Description: <STK L700 0104 at S

Model: Standard SCSI Jukebox

Control port: scsidev@0.1.0 (NDMP)

Jukebox serial number: 0MYW63_00

Virtual jukebox: □

Virtual jukebox frameid:

Status

Enabled: ● Yes ○ No ○ Service

Ready: ☑

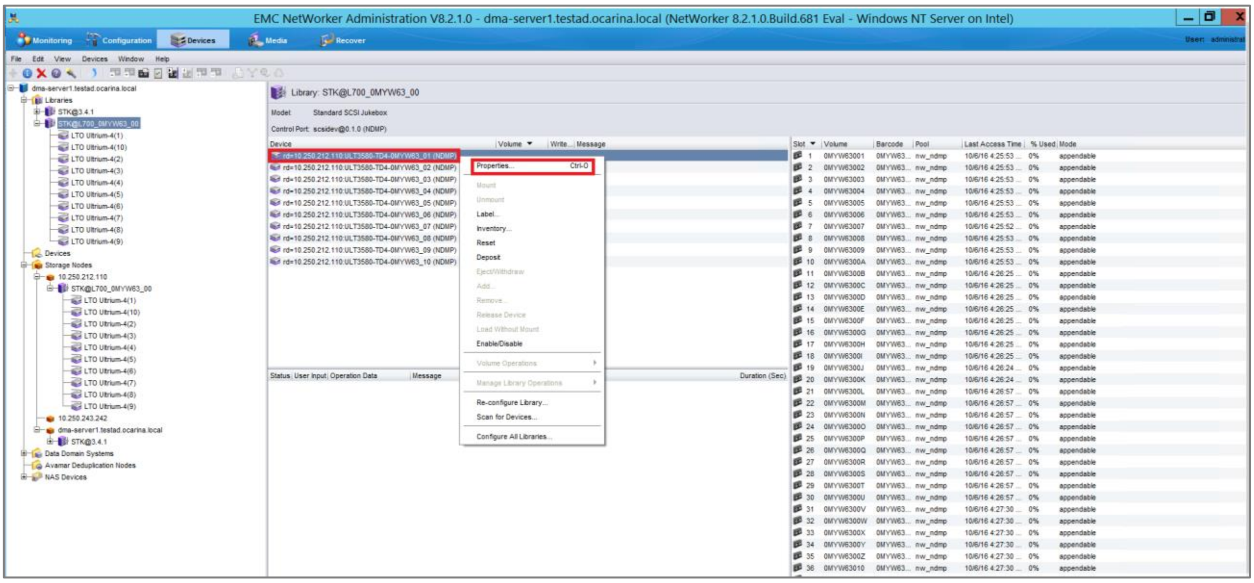
Cleaning

Auto clean: □

Cleaning slots: 60-60

Default cleanings: 5

9. After the library has been configured, the individual tape drives must be configured so that they service only one target session at any given time.



Library: STK@L700_0MYW63_00

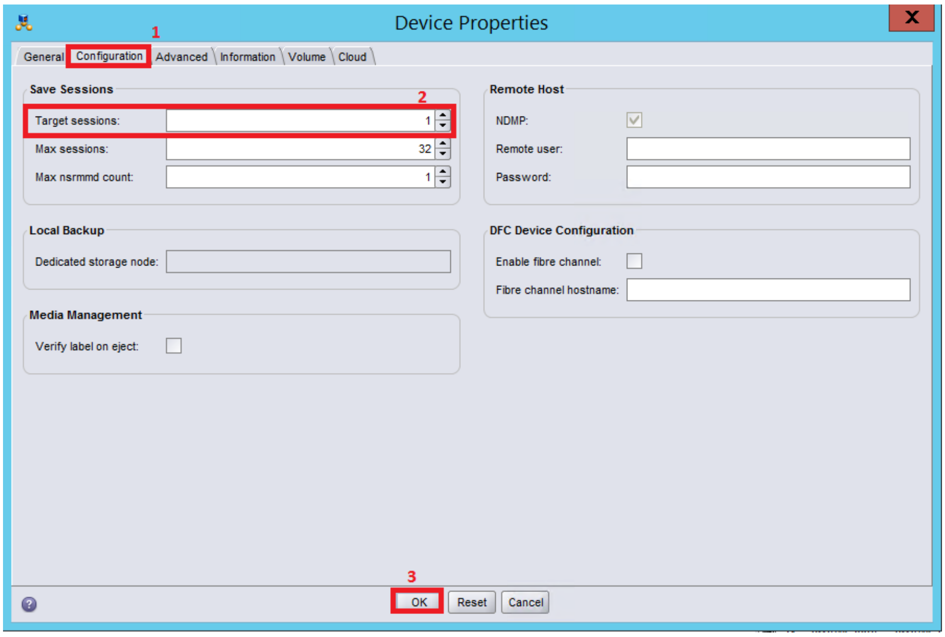
Model: Standard SCSI Jukebox

Control Port: scsidev@0.1.0 (NDMP)

Device	Volume	Write...	Message
rd=10.250.212.110:ULT3580-TD4-0MYW63_01 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_02 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_03 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_04 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_05 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_06 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_07 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_08 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_09 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_10 (NDMP)			

Slot	Volume	Barcode	Pool	Last Access Time	% Used	Mode
1	0MYW63001	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
2	0MYW63002	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
3	0MYW63003	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
4	0MYW63004	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
5	0MYW63005	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
6	0MYW63006	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
7	0MYW63007	0MYW63...	nw_ndmp	10/6/16 4:25:52 ...	0%	appendable
8	0MYW63008	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
9	0MYW63009	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
10	0MYW6300A	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
11	0MYW6300B	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
12	0MYW6300C	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
13	0MYW6300D	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
14	0MYW6300E	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
15	0MYW6300F	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
16	0MYW6300G	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
17	0MYW6300H	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
18	0MYW6300I	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
19	0MYW6300J	0MYW63...	nw_ndmp	10/6/16 4:26:24 ...	0%	appendable
20	0MYW6300K	0MYW63...	nw_ndmp	10/6/16 4:26:24 ...	0%	appendable
21	0MYW6300L	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
22	0MYW6300M	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
23	0MYW6300N	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
24	0MYW6300O	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
25	0MYW6300P	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
26	0MYW6300Q	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
27	0MYW6300R	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
28	0MYW6300S	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
29	0MYW6300T	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
30	0MYW6300U	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
31	0MYW6300V	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
32	0MYW6300W	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
33	0MYW6300X	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
34	0MYW6300Y	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
35	0MYW6300Z	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
36	0MYW63010	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable

10. In Device Properties, on the Configuration tab, provide the Target sessions information and click **OK**. Note that multiplexing to virtual tape drives has an adverse effect on deduplication and thus requires that each drive only handle a single target session.



Save Sessions

Target sessions: 1

Max sessions: 32

Max nsrmmd count: 1

Remote Host

NDMP: ☑

Remote user:

Password:

Local Backup

Dedicated storage node:

DFC Device Configuration

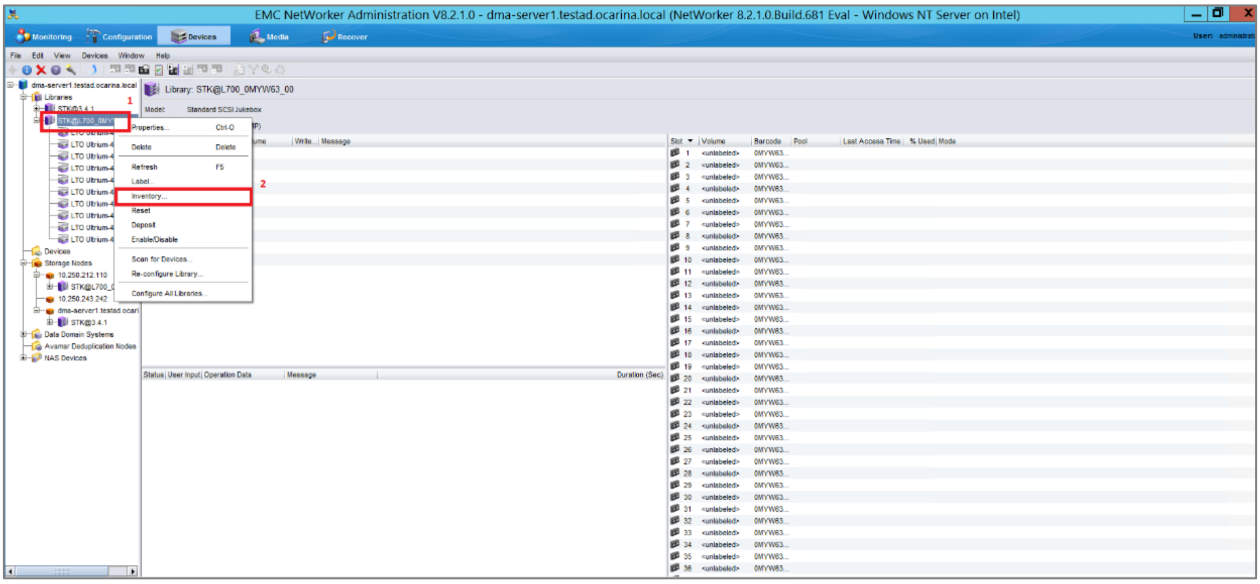
Enable fibre channel: □

Fibre channel hostname:

Media Management

Verify label on eject: □

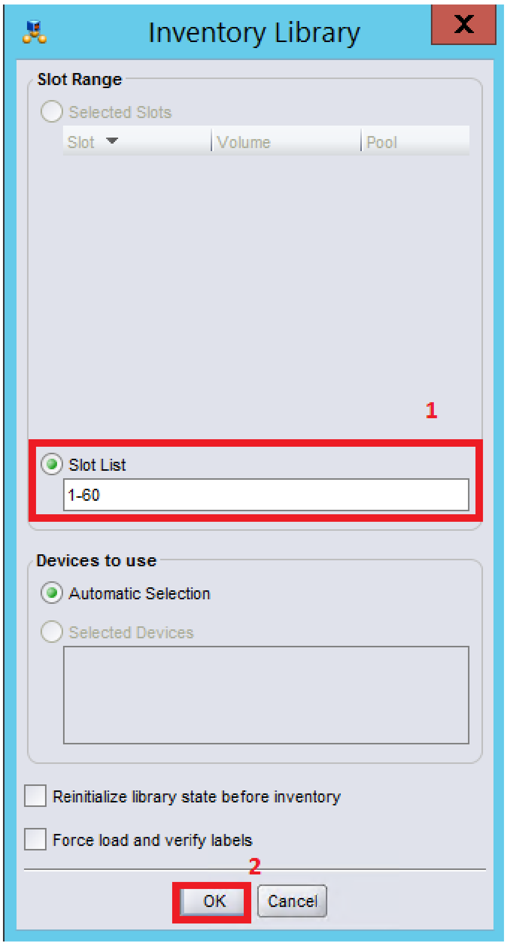
11. Proceed by conducting a full **Inventory** of the library.



Library: STK@L700_0MYW63_00

Model: Standard SCSI Jukebox

Slot	Volume	Barcode	Pool	Last Access Time	% Used	Mode
1	<unlabeled>	0MYW63...				
2	<unlabeled>	0MYW63...				
3	<unlabeled>	0MYW63...				
4	<unlabeled>	0MYW63...				
5	<unlabeled>	0MYW63...				
6	<unlabeled>	0MYW63...				
7	<unlabeled>	0MYW63...				
8	<unlabeled>	0MYW63...				
9	<unlabeled>	0MYW63...				
10	<unlabeled>	0MYW63...				
11	<unlabeled>	0MYW63...				
12	<unlabeled>	0MYW63...				
13	<unlabeled>	0MYW63...				
14	<unlabeled>	0MYW63...				
15	<unlabeled>	0MYW63...				
16	<unlabeled>	0MYW63...				
17	<unlabeled>	0MYW63...				
18	<unlabeled>	0MYW63...				
19	<unlabeled>	0MYW63...				
20	<unlabeled>	0MYW63...				
21	<unlabeled>	0MYW63...				
22	<unlabeled>	0MYW63...				
23	<unlabeled>	0MYW63...				
24	<unlabeled>	0MYW63...				
25	<unlabeled>	0MYW63...				
26	<unlabeled>	0MYW63...				
27	<unlabeled>	0MYW63...				
28	<unlabeled>	0MYW63...				
29	<unlabeled>	0MYW63...				
30	<unlabeled>	0MYW63...				
31	<unlabeled>	0MYW63...				
32	<unlabeled>	0MYW63...				
33	<unlabeled>	0MYW63...				
34	<unlabeled>	0MYW63...				
35	<unlabeled>	0MYW63...				
36	<unlabeled>	0MYW63...				



Slot Range

○ Selected Slots

Slot	Volume	Pool

● Slot List

1-60

Devices to use

● Automatic Selection

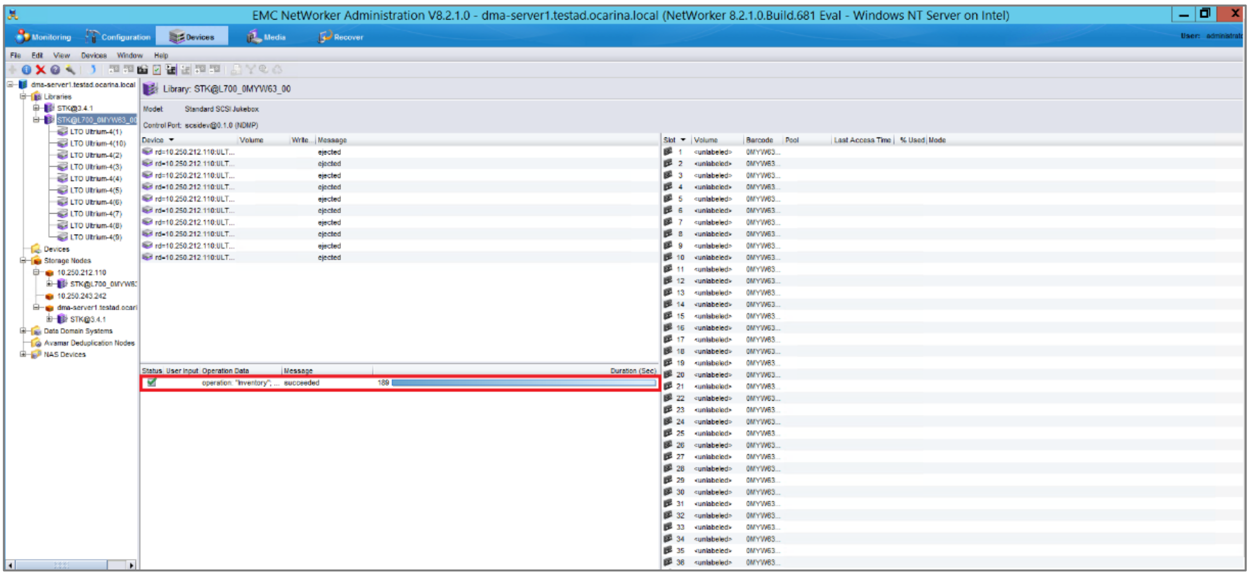
○ Selected Devices

□ Reinitialize library state before inventory

□ Force load and verify labels

OK Cancel

12. Check that the Inventory is successful.



Library: STK@L700_0MYW63_00

Model: Standard SCSI Jukebox

Control Port: scsidev@0.1.0 (NDMP)

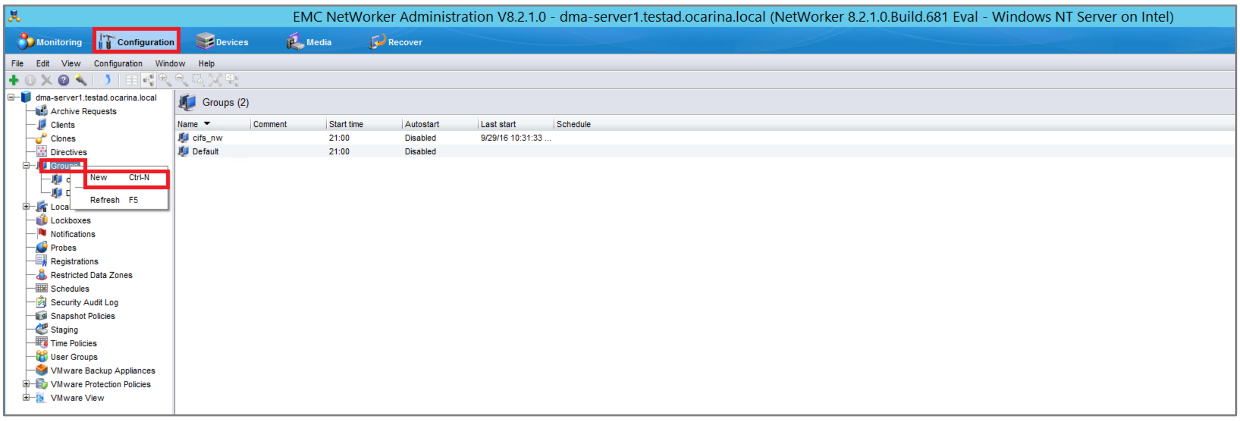
Device	Volume	Write...	Message
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected
rd=10.250.212.110:ULT...			ejected

Status	User Input	Operation Data	Message	Duration (Sec)
✓		operation: "Inventory"; ...	succeeded	189

Slot	Volume	Barcode	Pool	Last Access Time	% Used	Mode
1	<unlabeled>	0MYW63...				
2	<unlabeled>	0MYW63...				
3	<unlabeled>	0MYW63...				
4	<unlabeled>	0MYW63...				
5	<unlabeled>	0MYW63...				
6	<unlabeled>	0MYW63...				
7	<unlabeled>	0MYW63...				
8	<unlabeled>	0MYW63...				
9	<unlabeled>	0MYW63...				
10	<unlabeled>	0MYW63...				
11	<unlabeled>	0MYW63...				
12	<unlabeled>	0MYW63...				
13	<unlabeled>	0MYW63...				
14	<unlabeled>	0MYW63...				
15	<unlabeled>	0MYW63...				
16	<unlabeled>	0MYW63...				
17	<unlabeled>	0MYW63...				
18	<unlabeled>	0MYW63...				
19	<unlabeled>	0MYW63...				
20	<unlabeled>	0MYW63...				
21	<unlabeled>	0MYW63...				
22	<unlabeled>	0MYW63...				
23	<unlabeled>	0MYW63...				
24	<unlabeled>	0MYW63...				
25	<unlabeled>	0MYW63...				
26	<unlabeled>	0MYW63...				
27	<unlabeled>	0MYW63...				
28	<unlabeled>	0MYW63...				
29	<unlabeled>	0MYW63...				
30	<unlabeled>	0MYW63...				
31	<unlabeled>	0MYW63...				
32	<unlabeled>	0MYW63...				
33	<unlabeled>	0MYW63...				
34	<unlabeled>	0MYW63...				
35	<unlabeled>	0MYW63...				
36	<unlabeled>	0MYW63...				

13. Before labeling, Create a **Media Pool** in **Media.**

14. Before Creating **Media pool**, create a **Group** in the **Configuration** tab.

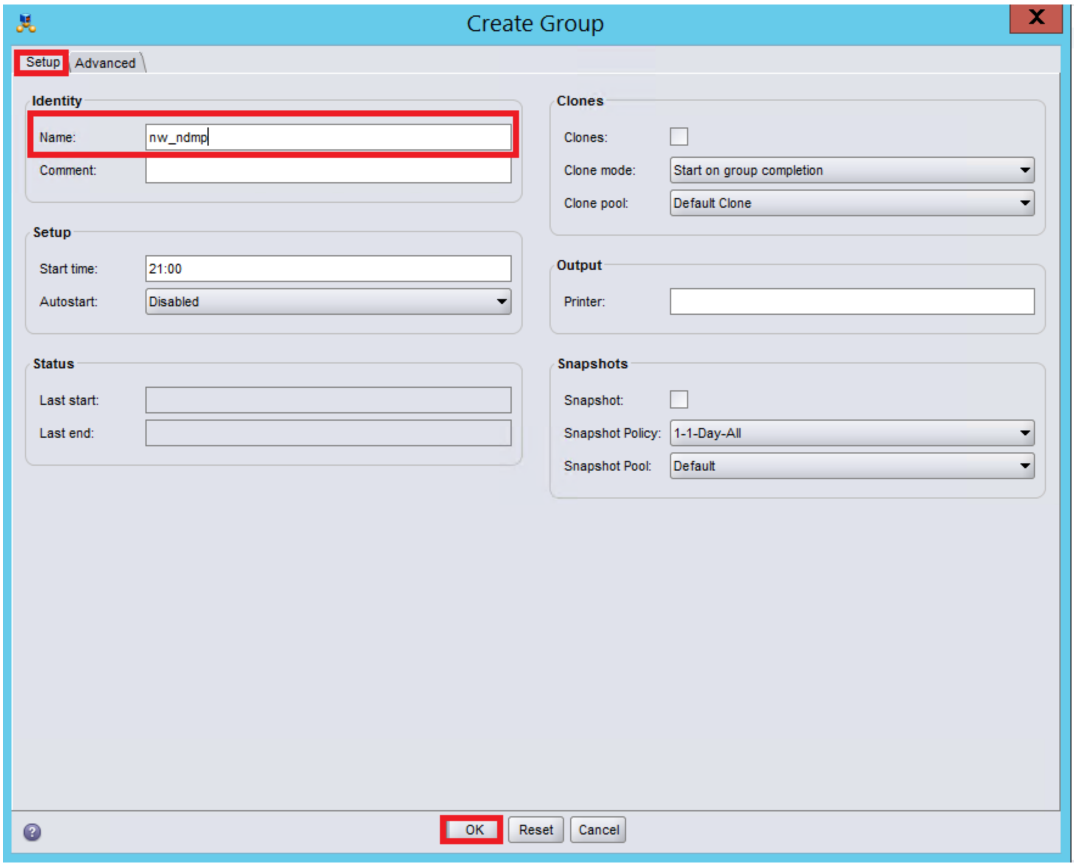


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)

Groups (2)

Name	Comment	Start time	Autostart	Last start	Schedule
cifs_nw		21:00	Disabled	9/29/16 10:31:33 ...	
Default		21:00	Disabled		

15. On the **Setup** tab, provide the required information and click **OK**.



Create Group

Identity

Name: nw_ndmp

Comment:

Setup

Start time: 21:00

Autostart: Disabled

Status

Last start:

Last end:

Clones

Clones: □

Clone mode: Start on group completion

Clone pool: Default Clone

Output

Printer:

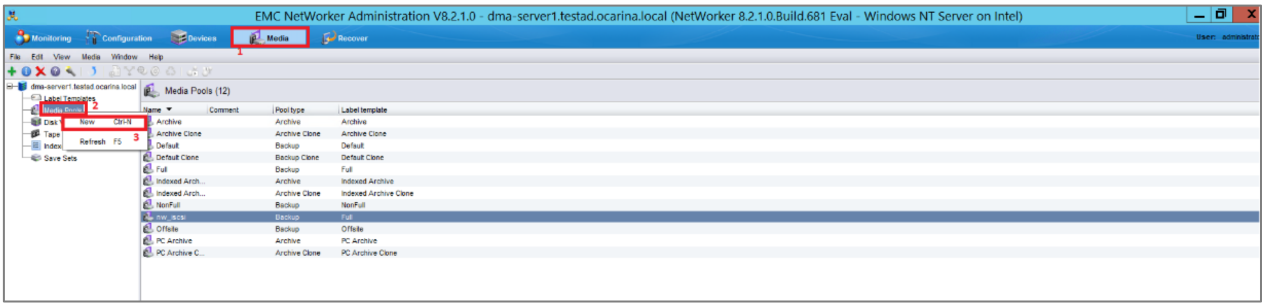
Snapshots

Snapshot: □

Snapshot Policy: 1-1-Day-All

Snapshot Pool: Default

16. After creating the NDMP group and client Wizard, create a media pool using the NDMP group name.

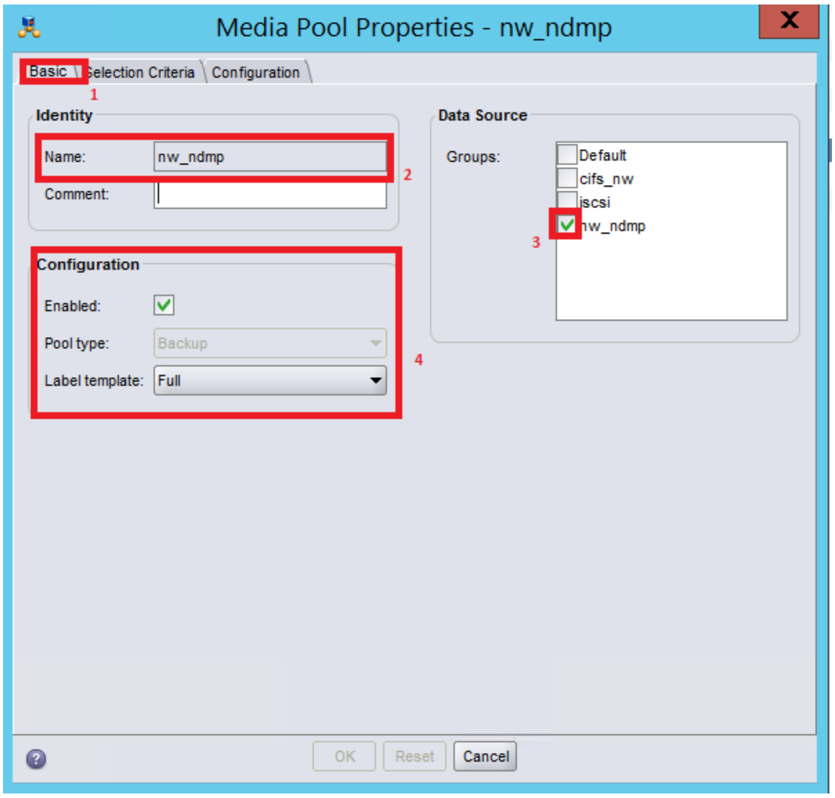


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)

Media Pools (12)

Name	Comment	Pool type	Label template
Archive		Archive	Archive
Archive Clone		Archive Clone	Archive Clone
Default		Backup	Default
Default Clone		Backup Clone	Default Clone
Full		Backup	Full
Indexed Arch...		Archive	Indexed Archive
Indexed Arch...		Archive Clone	Indexed Archive Clone
NonFull		Backup	NonFull
nw_iscsi		Backup	Full
Offsite		Backup	Offsite
PC Archive		Archive	PC Archive
PC Archive C...		Archive Clone	PC Archive Clone

17. For **Media Pool Properties**, on the **Basic** tab, provide the required information in the **column, Data source** and **Configuration** sections.



Name: nw_ndmp

Comment:

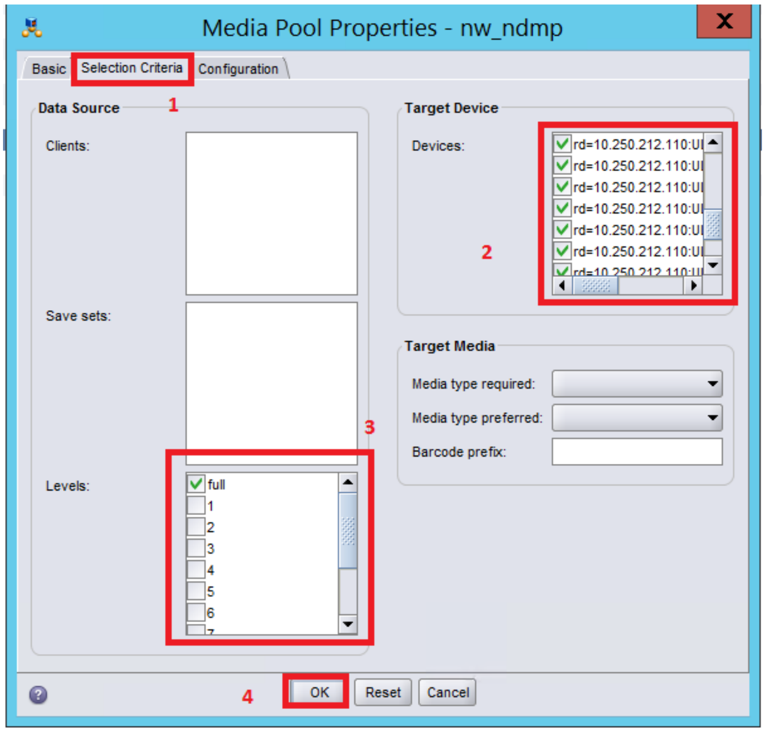
Groups:
- □ Default
- □ cifs_nw
- □ iscsi
- ☑ nw_ndmp

Enabled: ☑

Pool type: Backup

Label template: Full

18. On the **Selection Criteria** tab, enable the **DR devices**, select the **Levels** that are needed, and click **OK**.



Clients:

Save sets:

Levels:
- ☑ full
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7

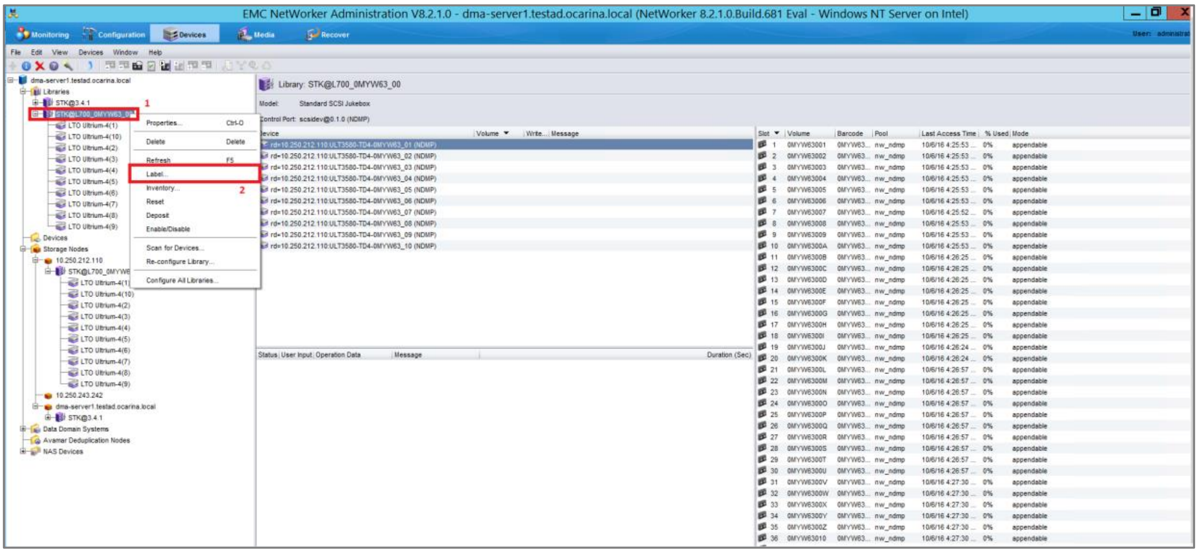
Devices:
- ☑ rd=10.250.212.110:U
- ☑ rd=10.250.212.110:U
- ☑ rd=10.250.212.110:U
- ☑ rd=10.250.212.110:U
- ☑ rd=10.250.212.110:U
- ☑ rd=10.250.212.110:U
- ☑ rd=10.250.212.110:U

Media type required:

Media type preferred:

Barcode prefix:

19. **Label** all the media and place them in their respective media pools for use.



Library: STK@L700_0MYW63_00

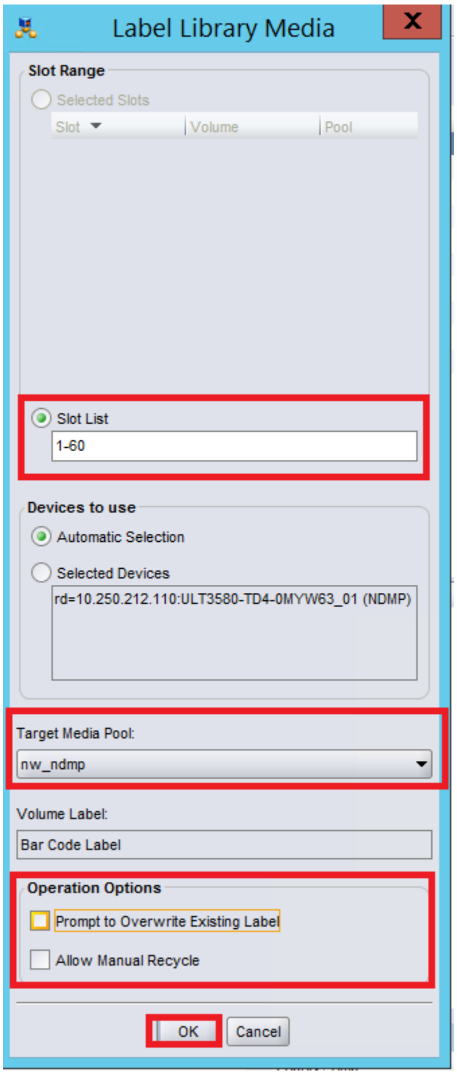
Model: Standard SCSI Jukebox

Control Port: scsidev@0.1.0 (NDMP)

Device	Volume	Write...	Message
rd=10.250.212.110:ULT3580-TD4-0MYW63_01 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_02 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_03 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_04 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_05 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_06 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_07 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_08 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_09 (NDMP)			
rd=10.250.212.110:ULT3580-TD4-0MYW63_10 (NDMP)			

Slot	Volume	Barcode	Pool	Last Access Time	% Used	Mode
1	0MYW63001	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
2	0MYW63002	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
3	0MYW63003	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
4	0MYW63004	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
5	0MYW63005	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
6	0MYW63006	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
7	0MYW63007	0MYW63...	nw_ndmp	10/6/16 4:25:52 ...	0%	appendable
8	0MYW63008	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
9	0MYW63009	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
10	0MYW6300A	0MYW63...	nw_ndmp	10/6/16 4:25:53 ...	0%	appendable
11	0MYW6300B	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
12	0MYW6300C	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
13	0MYW6300D	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
14	0MYW6300E	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
15	0MYW6300F	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
16	0MYW6300G	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
17	0MYW6300H	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
18	0MYW6300I	0MYW63...	nw_ndmp	10/6/16 4:26:25 ...	0%	appendable
19	0MYW6300J	0MYW63...	nw_ndmp	10/6/16 4:26:24 ...	0%	appendable
20	0MYW6300K	0MYW63...	nw_ndmp	10/6/16 4:26:24 ...	0%	appendable
21	0MYW6300L	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
22	0MYW6300M	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
23	0MYW6300N	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
24	0MYW6300O	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
25	0MYW6300P	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
26	0MYW6300Q	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
27	0MYW6300R	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
28	0MYW6300S	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
29	0MYW6300T	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
30	0MYW6300U	0MYW63...	nw_ndmp	10/6/16 4:26:57 ...	0%	appendable
31	0MYW6300V	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
32	0MYW6300W	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
33	0MYW6300X	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
34	0MYW6300Y	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
35	0MYW6300Z	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable
36	0MYW63010	0MYW63...	nw_ndmp	10/6/16 4:27:30 ...	0%	appendable

20. Provide the **slot range**, select the **target pool** and **operation options** and click **OK**.



Slot Range

○ Selected Slots

● Slot List

1-60

Devices to use

● Automatic Selection

○ Selected Devices

rd=10.250.212.110:ULT3580-TD4-0MYW63_01 (NDMP)

Target Media Pool: nw_ndmp

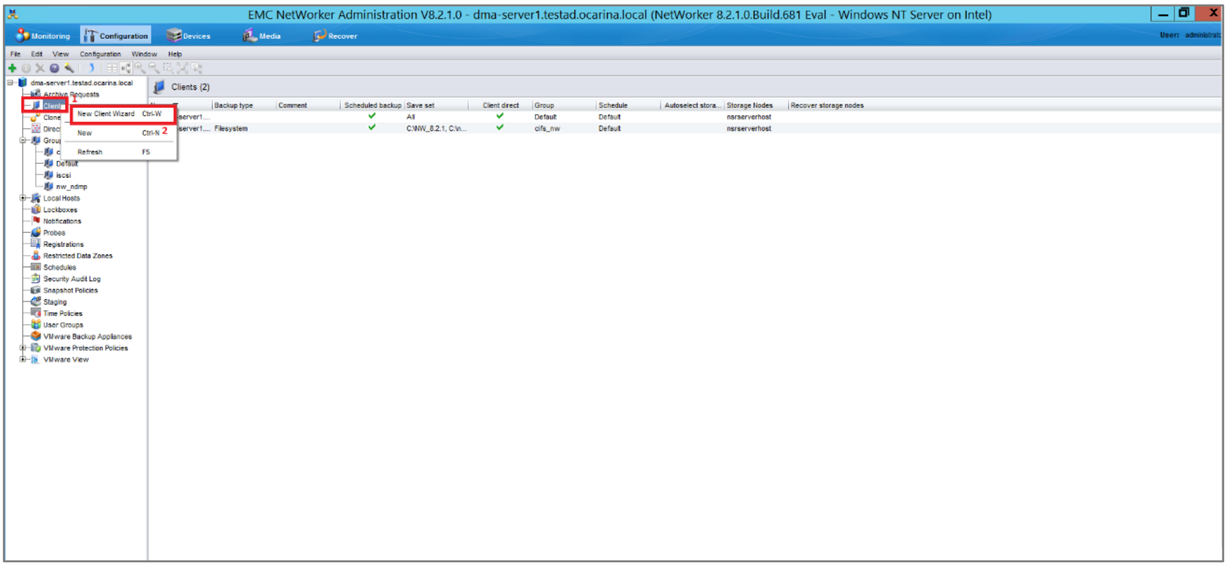
Volume Label: Bar Code Label

Operation Options

□ Prompt to Overwrite Existing Label

□ Allow Manual Recycle

21. Create a New Client wizard for NDMP.

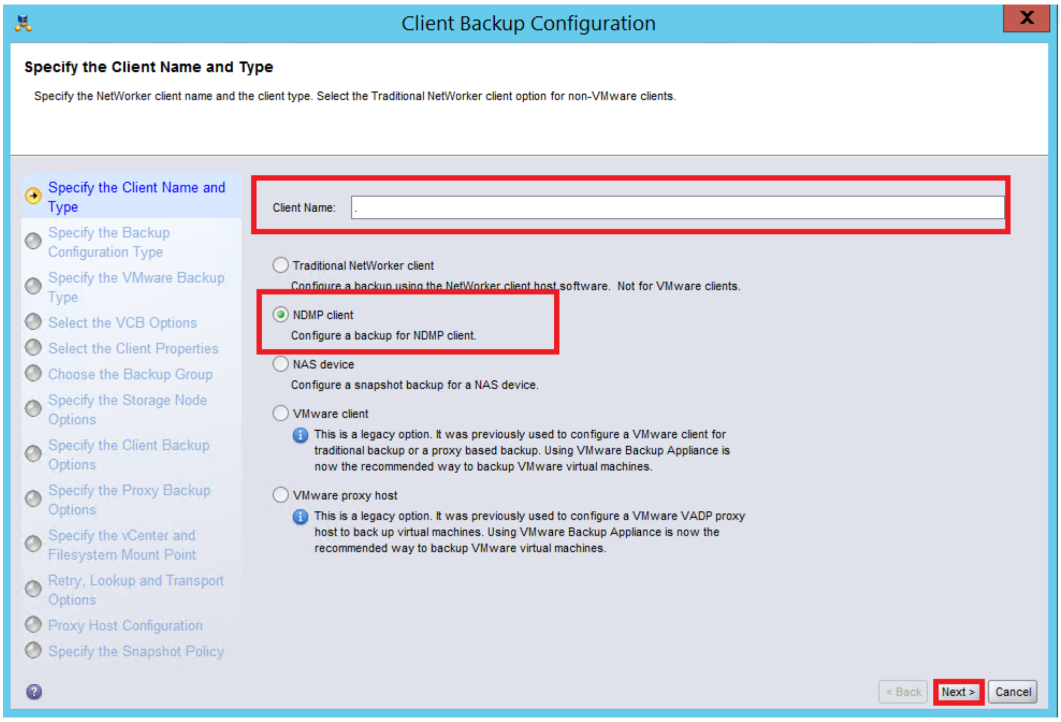


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)

Clients (2)

	Backup type	Comment	Scheduled backup	Save set	Client direct	Group	Schedule	Autoselect stora...	Storage Nodes	Recover storage nodes
server1....			✓	All	✓	Default	Default		nsrserverhost	
server1....	Filesystem		✓	C:\NW_8.2.1, C:\n...	✓	cifs_nw	Default		nsrserverhost	

22. Provide the **Client Name**, select the option **NDMP** and click **Next**.



Client Backup Configuration

Specify the Client Name and Type

Specify the NetWorker client name and the client type. Select the Traditional NetWorker client option for non-VMware clients.

Client Name: .

○ Traditional NetWorker client

Configure a backup using the NetWorker client host software. Not for VMware clients.

● NDMP client

Configure a backup for NDMP client.

○ NAS device

Configure a snapshot backup for a NAS device.

○ VMware client

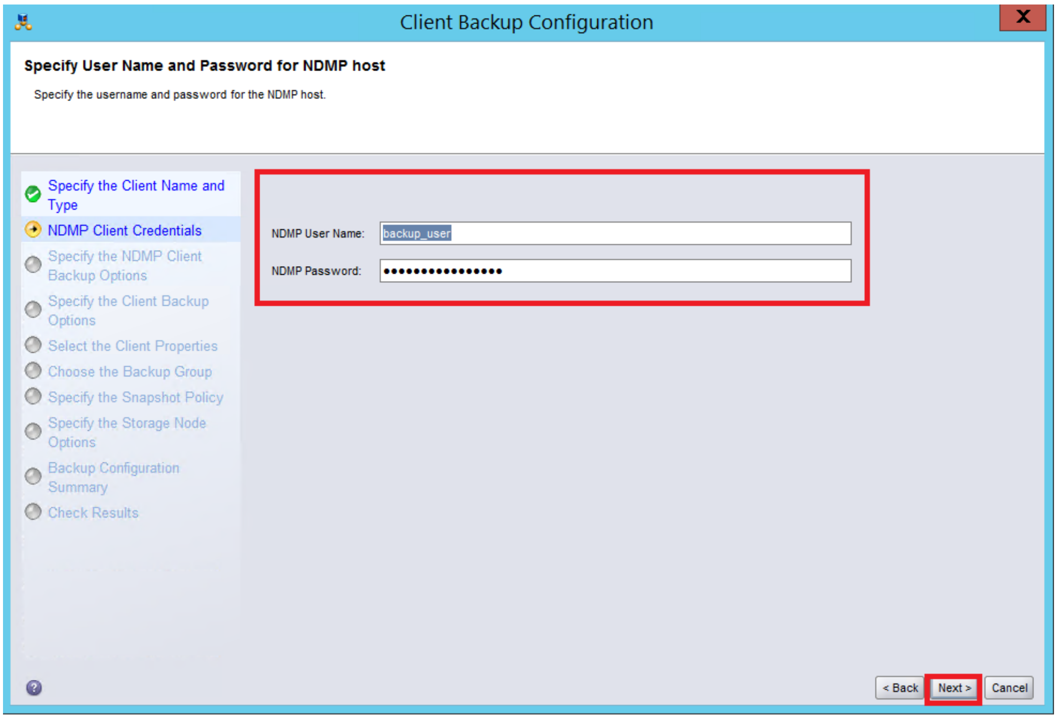
This is a legacy option. It was previously used to configure a VMware client for traditional backup or a proxy based backup. Using VMware Backup Appliance is now the recommended way to backup VMware virtual machines.

○ VMware proxy host

This is a legacy option. It was previously used to configure a VMware VADP proxy host to back up virtual machines. Using VMware Backup Appliance is now the recommended way to backup VMware virtual machines.

Specify the Client Name and Type
Specify the Backup Configuration Type
Specify the VMware Backup Type
Select the VCB Options
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Specify the Client Backup Options
Specify the Proxy Backup Options
Specify the vCenter and Filesystem Mount Point
Retry, Lookup and Transport Options
Proxy Host Configuration
Specify the Snapshot Policy
< Back
Next >
Cancel

23. Provide the appropriate NDMP **Username/Password** and click **Next**.



Client Backup Configuration

Specify User Name and Password for NDMP host

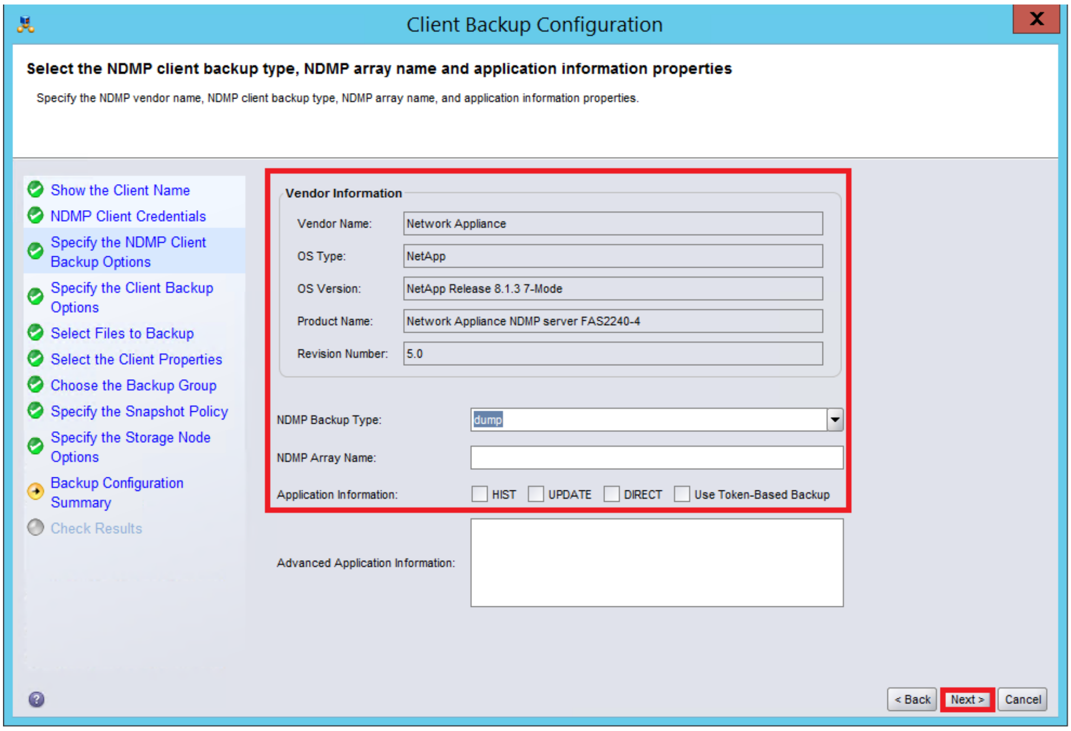
Specify the username and password for the NDMP host.

Specify the Client Name and Type
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

NDMP User Name: backup_user

NDMP Password: ●●●●●●●●●●●●●●●●

24. Select the Backup Type and Application information and click **Next**.



Client Backup Configuration

Select the NDMP client backup type, NDMP array name and application information properties

Specify the NDMP vendor name, NDMP client backup type, NDMP array name, and application information properties.

Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Vendor Information

Vendor Name: Network Appliance

OS Type: NetApp

OS Version: NetApp Release 8.1.3 7-Mode

Product Name: Network Appliance NDMP server FAS2240-4

Revision Number: 5.0

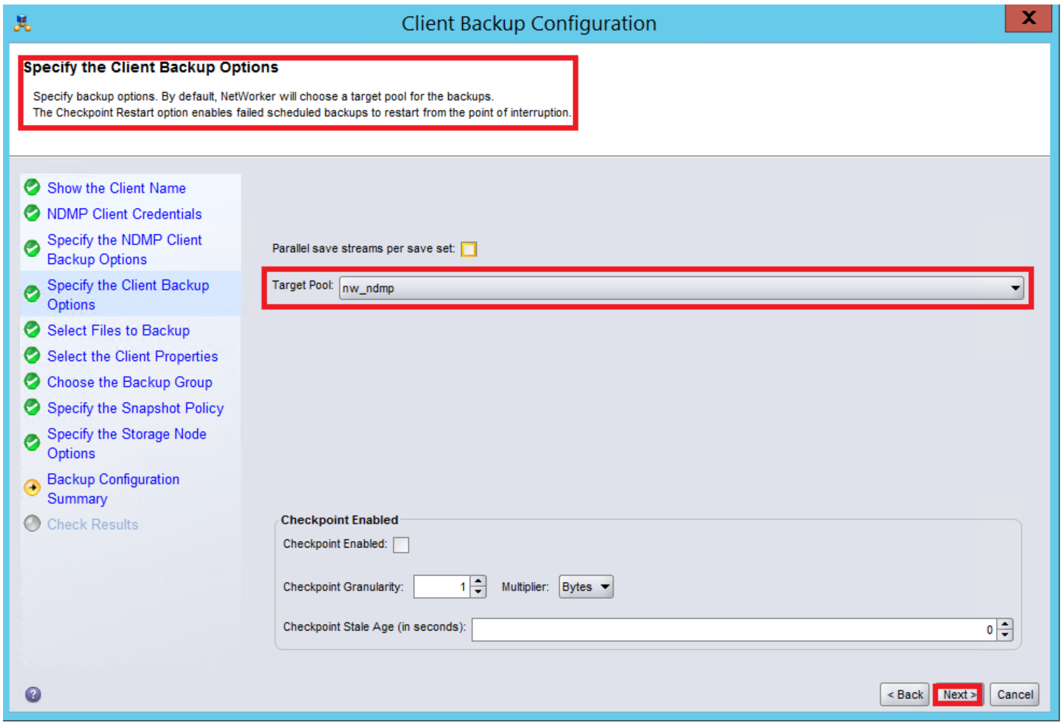
NDMP Backup Type: dump

NDMP Array Name:

Application Information: □ HIST □ UPDATE □ DIRECT □ Use Token-Based Backup

Advanced Application Information:

25. Select the Target Pool created and click **Next**.


Client Backup Configuration
Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Specify the Client Backup Options

Specify backup options. By default, NetWorker will choose a target pool for the backups.
The Checkpoint Restart option enables failed scheduled backups to restart from the point of interruption.

Parallel save streams per save set: □

Target Pool: nw_ndmp

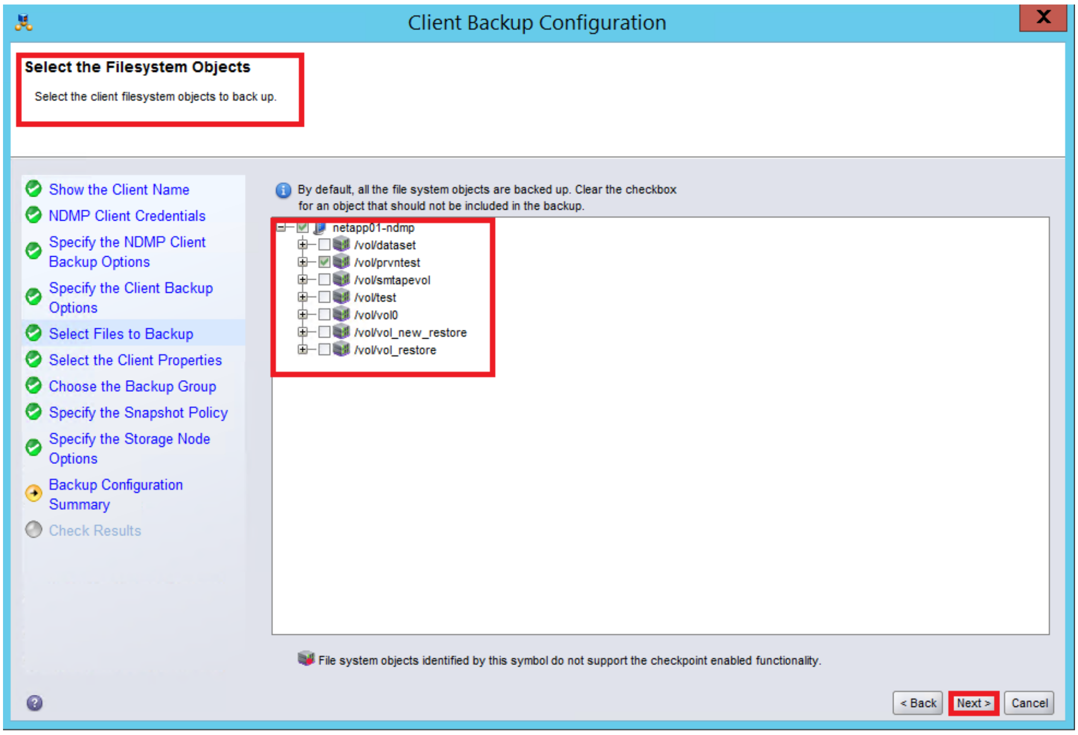
Checkpoint Enabled

Checkpoint Enabled: □

Checkpoint Granularity: 1 Multiplier: Bytes

Checkpoint Stale Age (in seconds): 0

26. Expand out the **File system** options that are needed to backup and click **Next**.


Client Backup Configuration
Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Select the Filesystem Objects

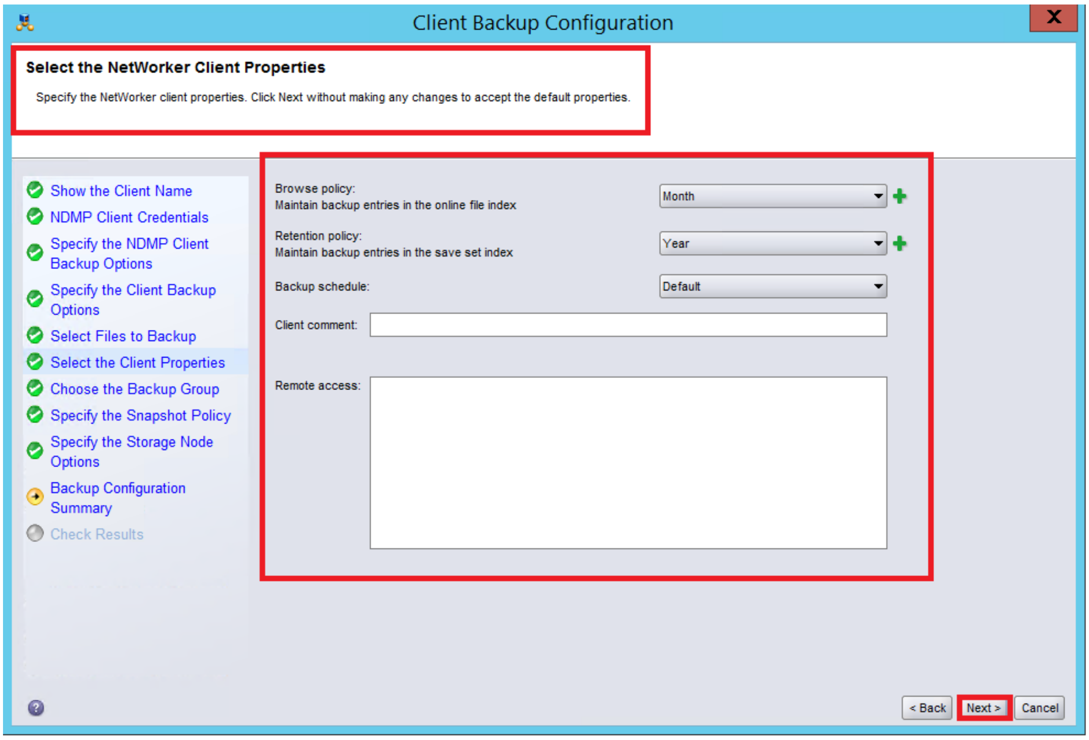
Select the client filesystem objects to back up.

By default, all the file system objects are backed up. Clear the checkbox for an object that should not be included in the backup.

- ☑ netapp01-ndmp
  - □ /vol/dataset
  - ☑ /vol/prvntest
  - □ /vol/smtapevol
  - □ /vol/test
  - □ /vol/vol0
  - □ /vol/vol_new_restore
  - □ /vol/vol_restore

File system objects identified by this symbol do not support the checkpoint enabled functionality.

27. Select the Networker client properties, and click **Next**


Client Backup Configuration
Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Select the NetWorker Client Properties

Specify the NetWorker client properties. Click Next without making any changes to accept the default properties.

Browse policy: Maintain backup entries in the online file index: Month

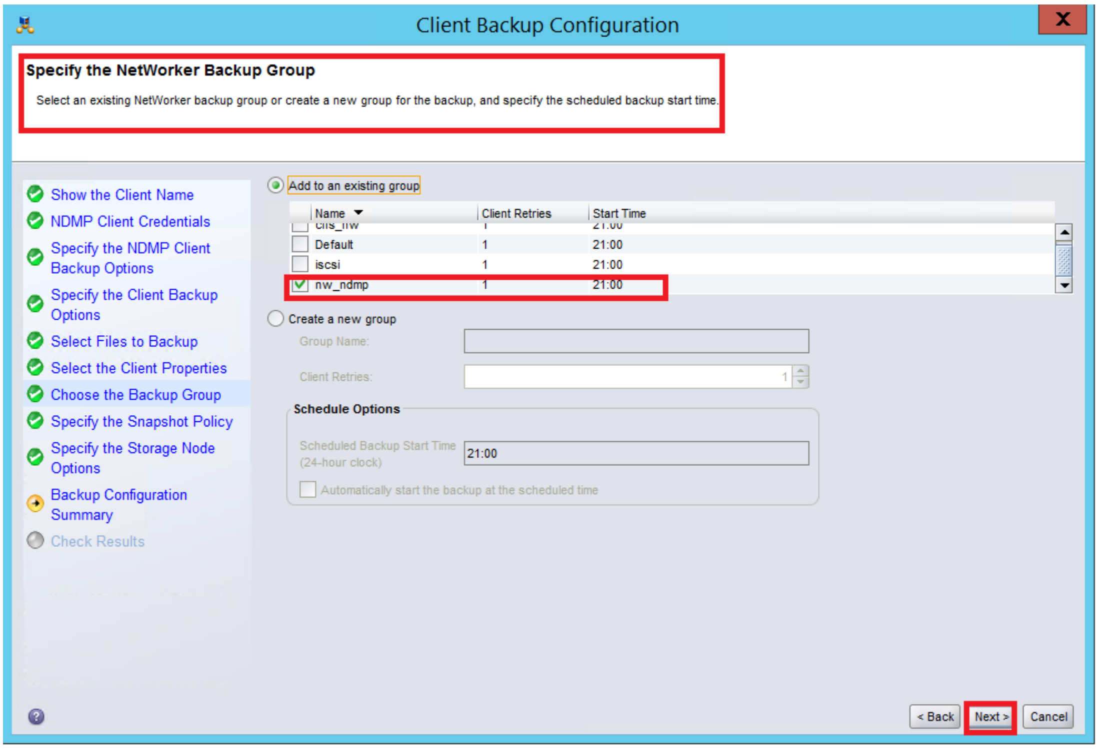
Retention policy: Maintain backup entries in the save set index: Year

Backup schedule: Default

Client comment:

Remote access:

28. Specify the Networker Backup Group and click **Next**.


Client Backup Configuration
Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Snapshot Policy
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Specify the NetWorker Backup Group

Select an existing NetWorker backup group or create a new group for the backup, and specify the scheduled backup start time.

● Add to an existing group

	Name	Client Retries	Start Time
□	cifs_nw	1	21:00
□	Default	1	21:00
□	iscsi	1	21:00
☑	nw_ndmp	1	21:00

○ Create a new group

Group Name:

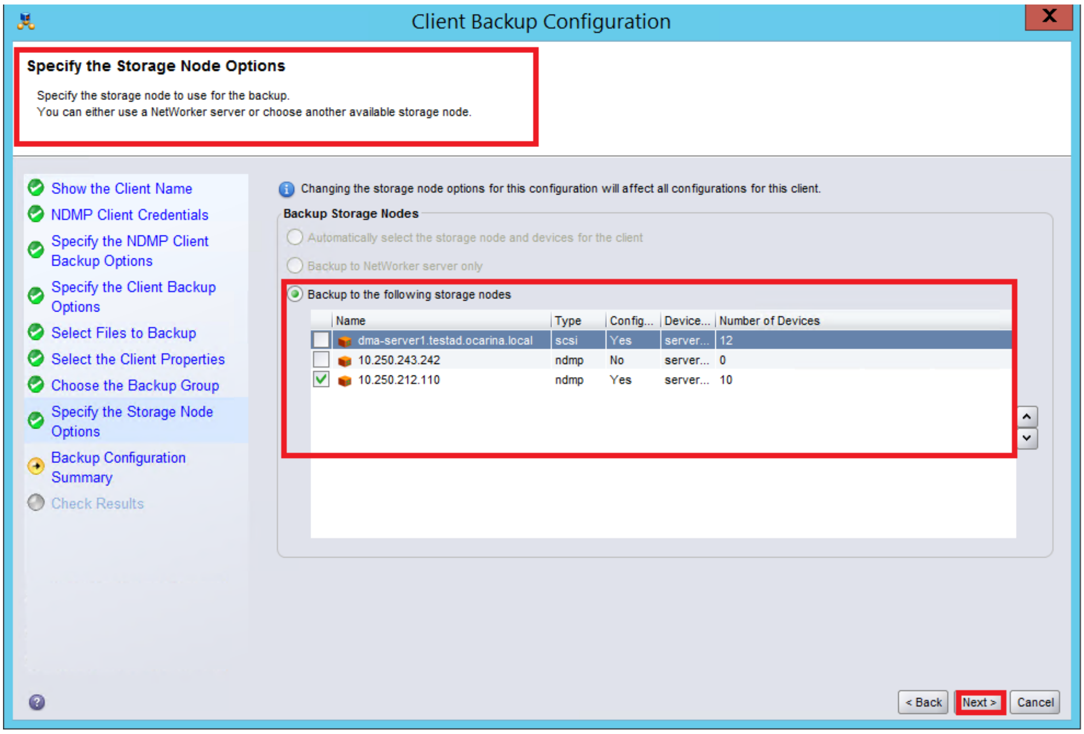
Client Retries: 1

Schedule Options

Scheduled Backup Start Time (24-hour clock): 21:00

□ Automatically start the backup at the scheduled time

29. Specify the **Storage Node Options** and click **Next**.


Client Backup Configuration
Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Next >
Cancel

Specify the Storage Node Options

Specify the storage node to use for the backup.
You can either use a NetWorker server or choose another available storage node.

Changing the storage node options for this configuration will affect all configurations for this client.

Backup Storage Nodes

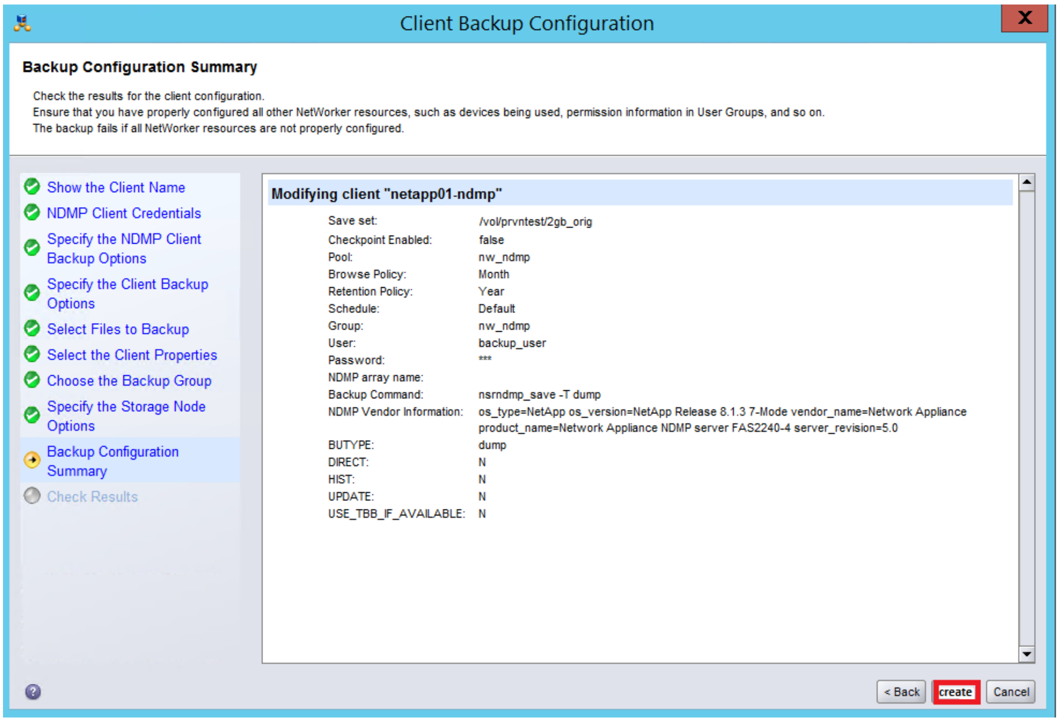
○ Automatically select the storage node and devices for the client

○ Backup to NetWorker server only

● Backup to the following storage nodes

	Name	Type	Config...	Device...	Number of Devices
□	dma-server1.testad.ocarina.local	scsi	Yes	server...	12
□	10.250.243.242	ndmp	No	server...	0
☑	10.250.212.110	ndmp	Yes	server...	10

30. Check the Backup Configuration Summary and click **Create.**


Client Backup Configuration
Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
create
Cancel

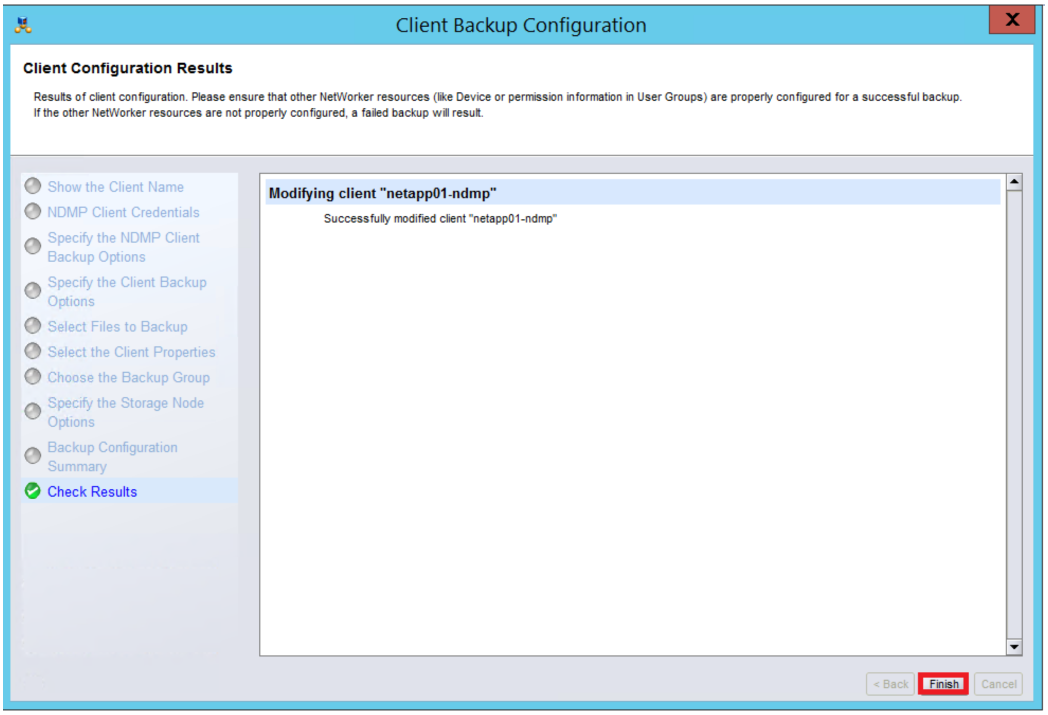
Backup Configuration Summary

Check the results for the client configuration.
Ensure that you have properly configured all other NetWorker resources, such as devices being used, permission information in User Groups, and so on.
The backup fails if all NetWorker resources are not properly configured.

Modifying client "netapp01-ndmp"

```
Save set:                 /vol/prvntest/2gb_orig
Checkpoint Enabled:       false
Pool:                     nw_ndmp
Browse Policy:            Month
Retention Policy:         Year
Schedule:                 Default
Group:                    nw_ndmp
User:                     backup_user
Password:                 ***
NDMP array name:
Backup Command:           nsrndmp_save -T dump
NDMP Vendor Information:  os_type=NetApp os_version=NetApp Release 8.1.3 7-Mode vendor_name=Network Appliance
                          product_name=Network Appliance NDMP server FAS2240-4 server_revision=5.0
BUTYPE:                   dump
DIRECT:                   N
HIST:                     N
UPDATE:                   N
USE_TBB_IF_AVAILABLE:     N
```

31. Click **Finish**.



Client Backup Configuration

Client Configuration Results

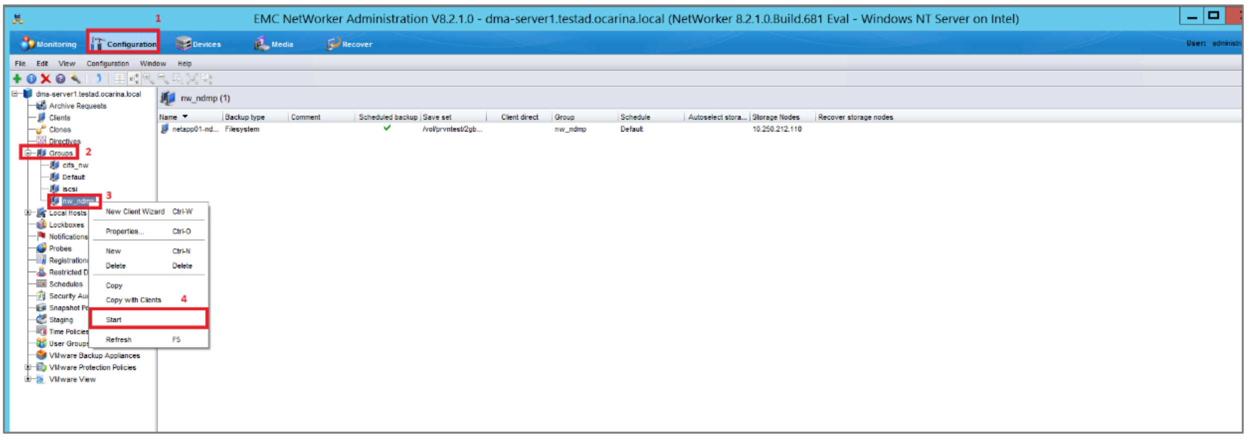
Results of client configuration. Please ensure that other NetWorker resources (like Device or permission information in User Groups) are properly configured for a successful backup.
If the other NetWorker resources are not properly configured, a failed backup will result.

Modifying client "netapp01-ndmp"

Successfully modified client "netapp01-ndmp"

Show the Client Name
NDMP Client Credentials
Specify the NDMP Client Backup Options
Specify the Client Backup Options
Select Files to Backup
Select the Client Properties
Choose the Backup Group
Specify the Storage Node Options
Backup Configuration Summary
Check Results
< Back
Finish
Cancel

32. On the **Configuration** tab, right-click the **NDMP** group created and click **Start**.

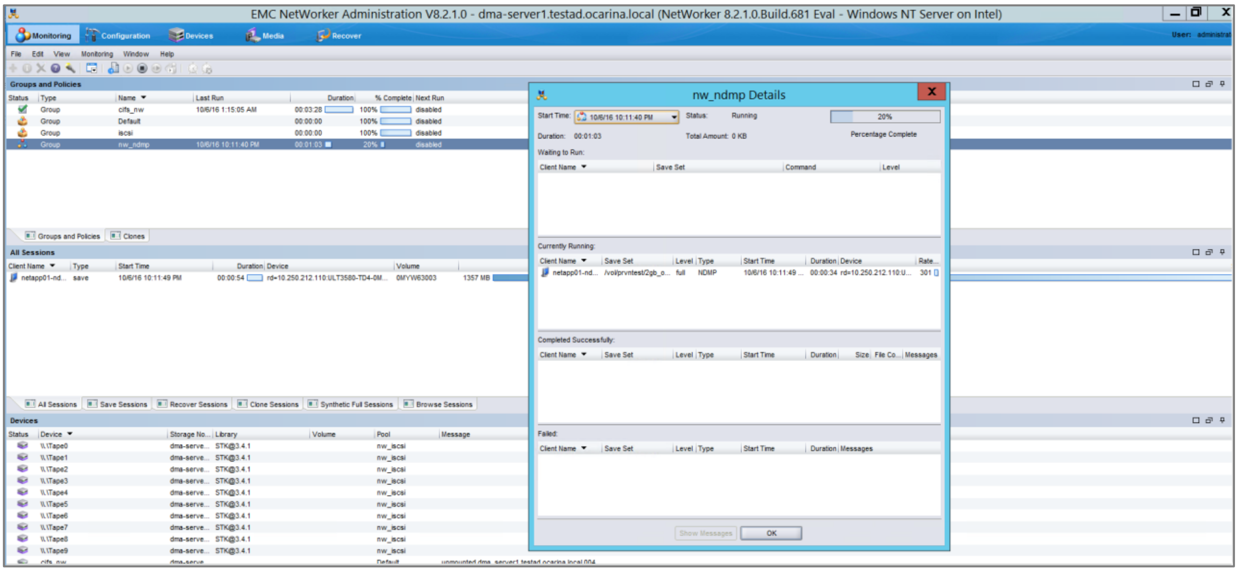


EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)

mw_ndmp (1)

Name	Backup type	Comment	Scheduled backup	Save set	Client direct	Group	Schedule	Autoselect stora...	Storage Nodes	Recover storage nodes
netapp01-nd...	Filesystem		✓	/vol/prvntest/2gb...		nw_ndmp	Default		10.250.212.110	

33. Monitor the backups while they are running.



EMC NetWorker Administration V8.2.1.0 - dma-server1.testad.ocarina.local (NetWorker 8.2.1.0.Build.681 Eval - Windows NT Server on Intel)

Groups and Policies

Status	Type	Name	Last Run	Duration	% Complete	Next Run
✓	Group	cifs_nw	10/6/16 1:15:05 AM	00:03:28	100%	disabled
	Group	Default		00:00:00	100%	disabled
	Group	iscsi		00:00:00	100%	disabled
	Group	nw_ndmp	10/6/16 10:11:40 PM	00:01:03	20%	disabled

All Sessions

Client Name	Type	Start Time	Duration	Device	Volume	
netapp01-nd...	save	10/6/16 10:11:49 PM	00:00:54	rd=10.250.212.110:ULT3580-TD4-0M...	0MYW63003	1357 MB

Devices

Status	Device	Storage No...	Library	Volume	Pool	Message
	\\.\Tape0	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape1	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape2	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape3	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape4	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape5	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape6	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape7	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape8	dma-serve...	STK@3.4.1		nw_iscsi	
	\\.\Tape9	dma-serve...	STK@3.4.1		nw_iscsi	
	cifs_nw	dma-serve			Default	unmounted dma_server1.testad.ocarina.local:004

nw_ndmp Details

Start Time: 10/6/16 10:11:40 PM Status: Running 20%

Duration: 00:01:03 Total Amount: 0 KB Percentage Complete

Waiting to Run:

Client Name	Save Set	Command	Level

Currently Running:

Client Name	Save Set	Level	Type	Start Time	Duration	Device	Rate...
netapp01-nd...	/vol/prvntest/2gb_o...	full	NDMP	10/6/16 10:11:49 ...	00:00:34	rd=10.250.212.110:U...	301

Completed Successfully:

Client Name	Save Set	Level	Type	Start Time	Duration	Size	File Co...	Messages

Failed:

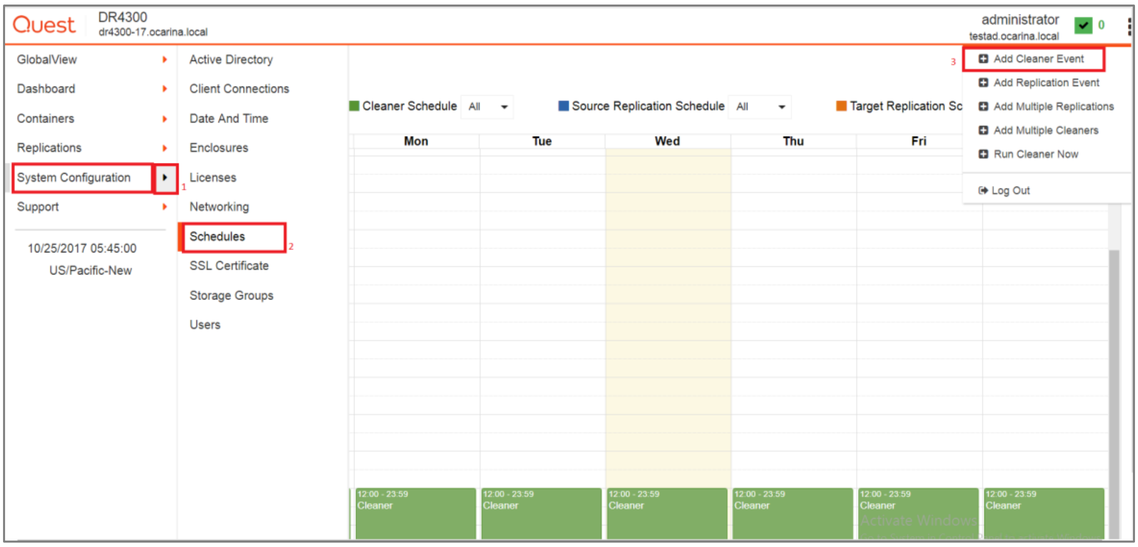
Client Name	Save Set	Level	Type	Start Time	Duration	Messages

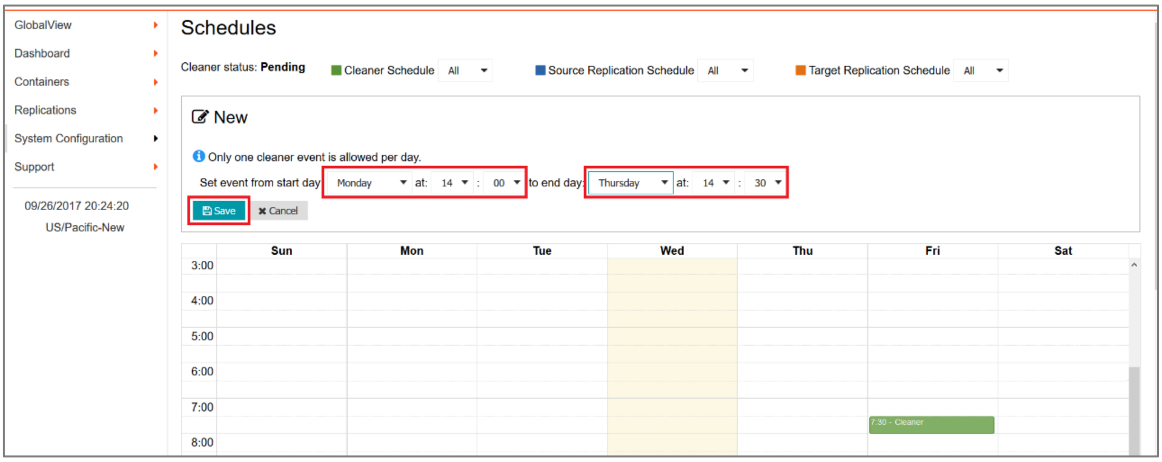
Setting up the DR Series system cleaner

The cleaner will run 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 which will force it to run during that scheduled time.

If necessary, you can do the following procedure as described in the screenshot to force the cleaner to run. Once all the backup jobs are setup the DR Series Deduplication Appliance cleaner can be scheduled. The DR Series Deduplication Appliance cleaner should run at least 40 hours per week when backups are not taking place, generally after a backup job has completed.

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.





Schedules

Cleaner status: **Pending** 🟩 Cleaner Schedule All 🟦 Source Replication Schedule All 🟧 Target Replication Schedule All

New

Only one cleaner event is allowed per day.

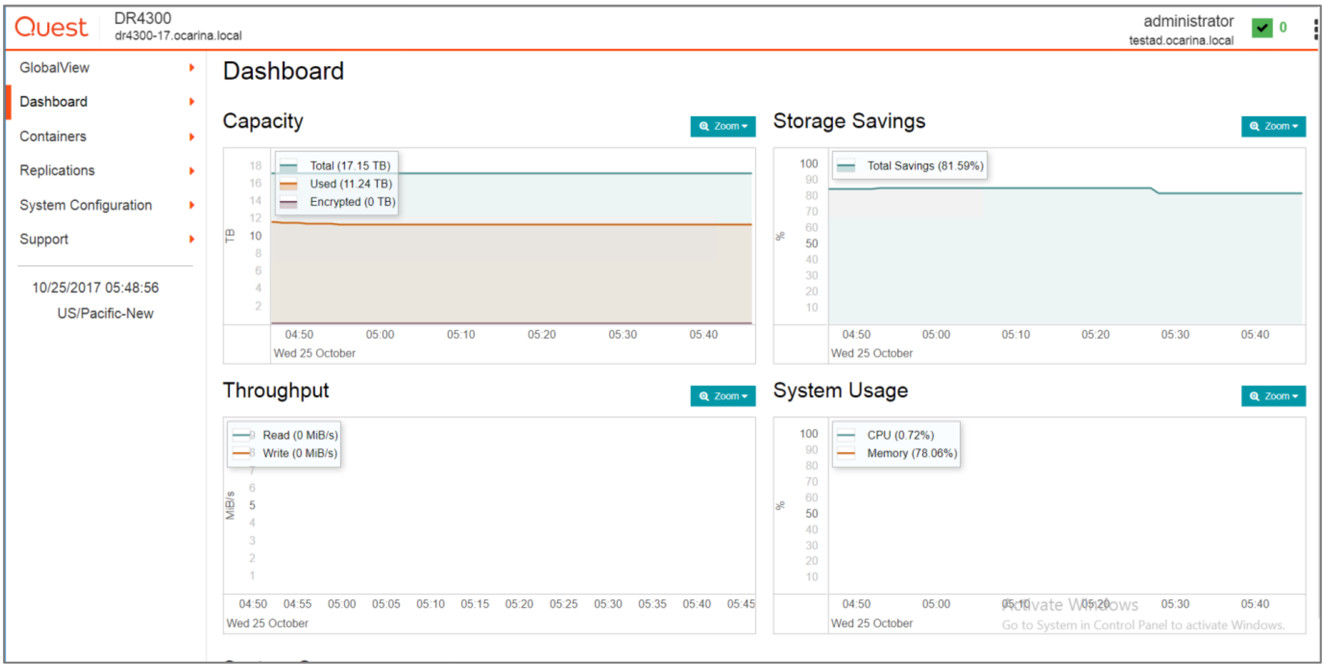
Set event from start day Monday at: 14 : 00 to end day Thursday at: 14 : 30

Save Cancel

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.



A - Managing VTL protocol accounts and credentials

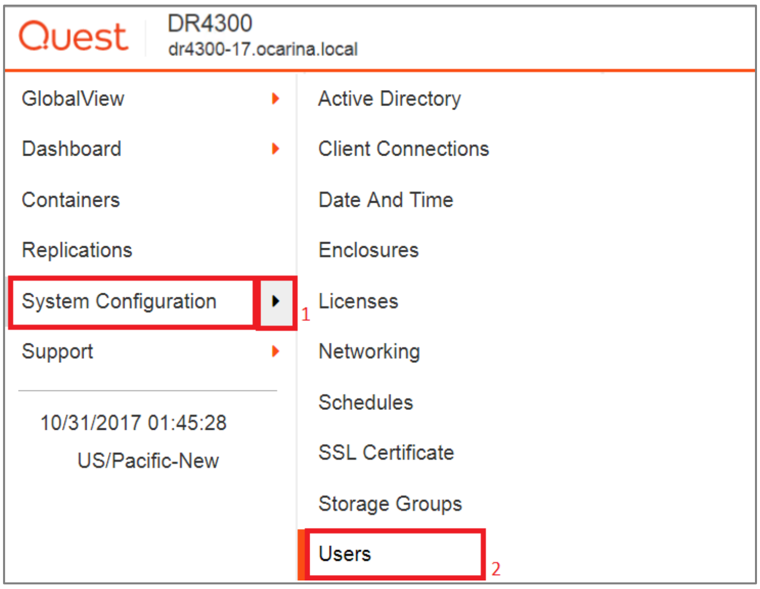
iSCSI account details and management

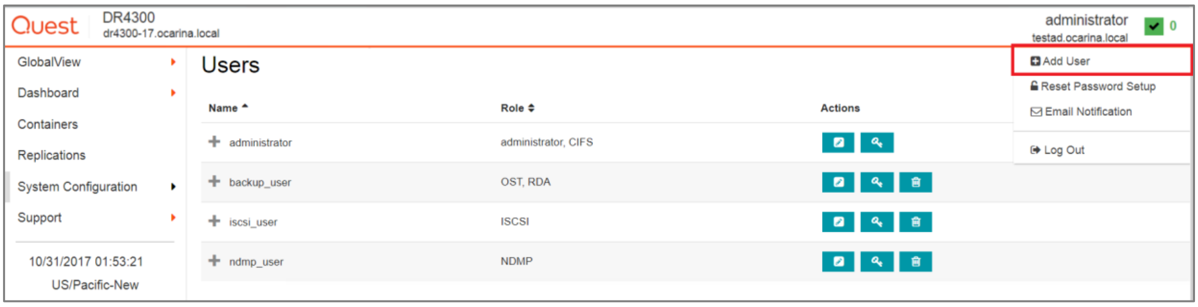
By default, the iSCSI Username will be the **iscsi_user** of the DR and can be confirmed by reviewing the output of the iscsi –show --user command. For example:

```
>iscsi –show --user

user: iscsi_user
```

The default iSCSI Password is “St0r@ge!iscsi”. This can be modified by selecting the System Configuration menu and clicking Users. On the Users page click the icon on the iscsi_user line.

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





Name	Role	Actions
administrator	administrator, CIFS	
backup_user	OST, RDA	
iscsi_user	ISCSI	
ndmp_user	NDMP	

Alternatively, you may also use the “user --setpassword –name <username>” CLI command to change the iSCSI CHAP Password setting as shown in the following example:

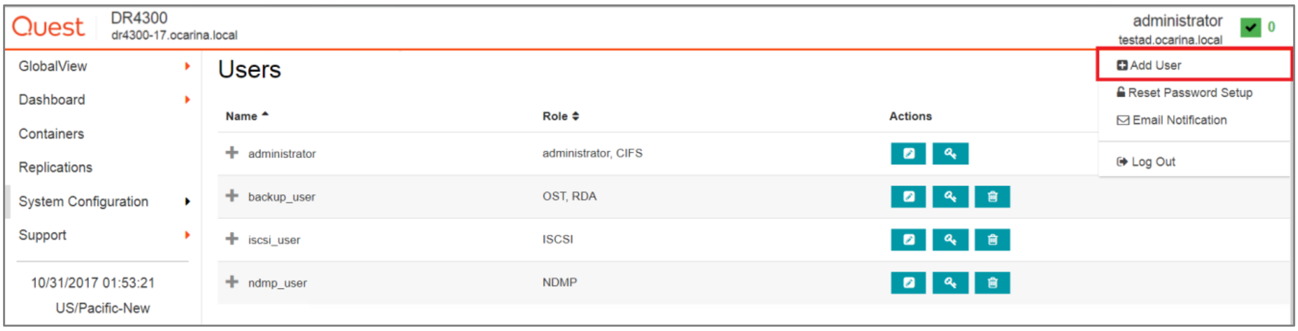
```
> user --setpassword --name iscsi_user

Enter new password:#########

Re-type password:########

WARNING: All existing iSCSI sessions will be terminated!

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

Successfully updated User iscsi_user.
```

NDMP account details and management

The default username for the NDMP service is “ndmp_user” and can be confirmed by reviewing the output of the ndmp --show command. For example:

```
> ndmp --show
NDMP User: ndmp_user
NDMP Port: 10000
```

The default NDMP Password is “St0r@ge!”. This can be modified by selecting the System Configuration menu and clicking Users. On the Users page click the icon on the ndmp_user line.



Name	Role	Actions
administrator	administrator, CIFS	
backup_user	OST, RDA	
iscsi_user	ISCSI	
ndmp_user	NDMP	

Alternatively, you may also use the “user --setpassword --name <username>” cli command to change the NDMP Password setting as shown in the following example:

```
> user --setpassword --name <username>

Enter new NDMP password:#########

Re-type NDMP password:#########

NDMP password successfully updated.
```

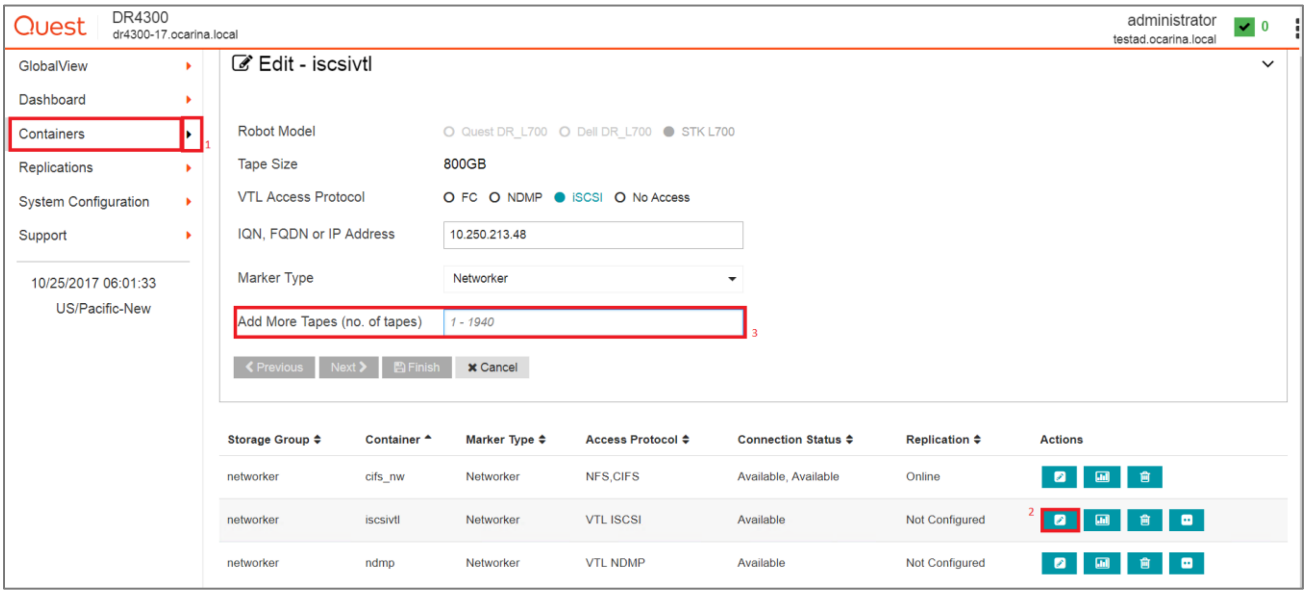
VTL default account summary table

Service	Account	Default Credentials	CLI Modifier
NDMP	ndmp_user	St0r@ge!	user --setpassword --name ndmp_user
iSCSI	iscsi_user	St0r@ge!iscsi	user --setpassword --name iscsi_user

B - Managing VTL media

Adding the VTL media to the container

To add media to an existing VTL container navigate to the **Containers** menu option. Select and edit the target VTL container. Use the resulting dialog box field **Add More Tape (no of Tape)** field to input the number of tapes to add to the VTL container.



Edit - iscsivtl

Robot Model ○ Quest DR_L700 ○ Dell DR_L700 ● STK L700

Tape Size 800GB

VTL Access Protocol ○ FC ○ NDMP ● iSCSI ○ No Access

IQN, FQDN or IP Address 10.250.213.48

Marker Type Networker

Add More Tapes (no. of tapes) 1 - 1940

Storage Group	Container	Marker Type	Access Protocol	Connection Status	Replication	Actions
networker	cifs_nw	Networker	NFS,CIFS	Available, Available	Online	
networker	iscsivtl	Networker	VTL ISCSI	Available	Not Configured	
networker	ndmp	Networker	VTL NDMP	Available	Not Configured	

Alternatively, you may also use the “vtl –create_carts” CLI command for this operation.

For example:

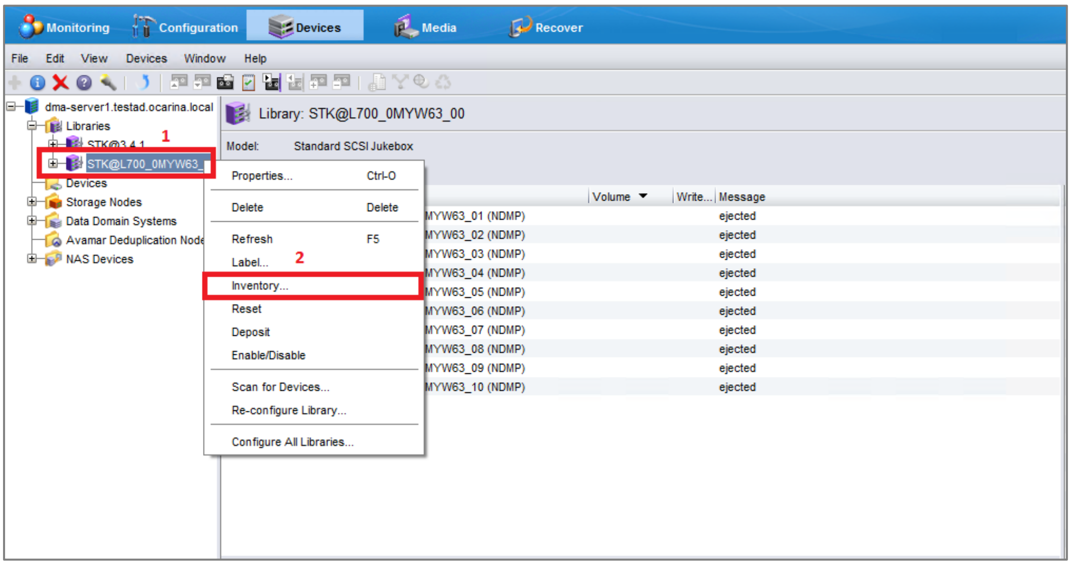
```
> vtl --update_carts --add --name sample --no_of_tapes 10

 Created 10 cartridges
```

VTL media count guidelines

Type	Capacity	Max number of Tapes supported
LTO-4	800GiB	2000
LTO-3	400GiB	4000
LTO-2	200GiB	8000
LTO-1	100Gib	10000
LTO-1	50Gib	10000
LTO-1	10GiB	10000

Updating Networker to identify newly added VTL media

After the VTL media has been added to the target VTL container Networker must now be updated to be able to use media. Select the VTL and conduct an inventory update.

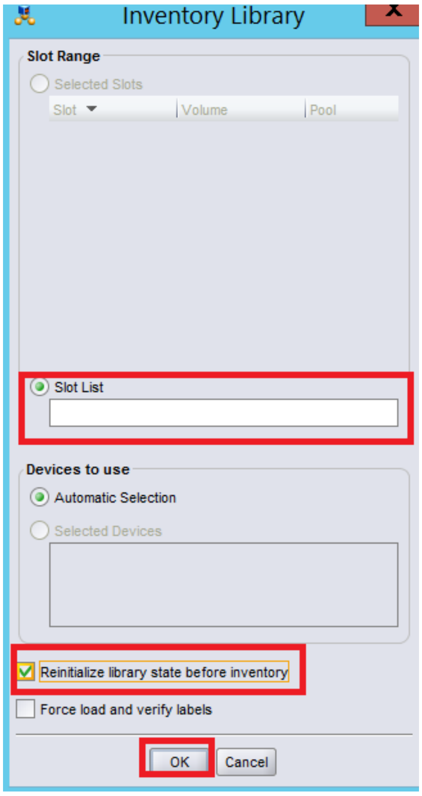


Library: STK@L700_0MYW63_00

Model: Standard SCSI Jukebox

	Volume	Write...	Message
MYW63_01 (NDMP)			ejected
MYW63_02 (NDMP)			ejected
MYW63_03 (NDMP)			ejected
MYW63_04 (NDMP)			ejected
MYW63_05 (NDMP)			ejected
MYW63_06 (NDMP)			ejected
MYW63_07 (NDMP)			ejected
MYW63_08 (NDMP)			ejected
MYW63_09 (NDMP)			ejected
MYW63_10 (NDMP)			ejected

Input the new range created (for example, 10 new tapes would result in 70 Slots) and select the option to reinitialize the library.



○ Selected Slots

● Slot List

● Automatic Selection

○ Selected Devices

☑ Reinitialize library state before inventory

□ Force load and verify labels