

Setting Up the DellTM DR Series System as an RDA or VTL Backup Target for DellTM NetVault Backup

Dell Engineering April 2015

Revisions

| Date | Description |
|--------------|---|
| January 2014 | Initial release |
| May 2014 | Updated to add suggested block size on NVBU device configuration. |
| April 2015 | Added VTL Content for v3.2 Release |

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| A.2.8 Space reclamation guidelines |
|------------------------------------|
|------------------------------------|



Executive summary

This white paper provides information about how to set up the Dell DR Series system as a backup target for Dell NetVault Backup. This document is a quick reference guide and does not include all DR Series system deployment best practices.

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

http://www.dell.com/powervaultmanuals

NOTE: The DR Series system and NetVault build versions and screenshots used for this paper may vary slightly, depending on the version of the DR Series system and NetVault software version used.

IMPORTANT NOTE: About VTL Replication: It is important to note that VTL-to-VTL replication is not currently supported. If you require replication of your VTL backup data, you should use the NetVault "nVTL" approach.

1 Installing and configuring the DR Series system for use with NetVault Backup

1.1 NetVault software prerequisites

The instructions in this document apply to NetVault Backup version 9.2 and later. The screenshots used in this document may vary slightly, depending on the version NetVault Backup software version used.

The NetVault Backup and NetVault Backup Supported VTLs, Libraries, Tape and Optical Drives compatibly guides should be referenced to determine the latest version requirements for RDA and VTL use.

http://documents.software.dell.com/NetVault%20Backup/10.0.1/Compatibility%20Guide

For NetVault Backup version 9.2, 10.0.0, and 10.0.1, there are patch requirements to add support for NDMP VTL. Refer to the NetVault Backup Compatibility Guide or contact support for details.

1.2 Installing and configuring the DR Series system

- Rack and cable the DR Series system, and power it on. In the *Dell DR Series System Administrator Guide*, refer to the sections "iDRAC Connection", "Logging in and Initializing the DR Series System", and "Accessing IDRAC6/Idrac7 Using RACADM" for information about using the iDRAC connection and initializing the system.
- 2. Log on to iDRAC using the default address 192.168.0.120, or the IP address that is assigned to the iDRAC interface. Use the user name and password: "root/calvin".



3. Launch the virtual console.

| ACCESS | CONTROLLER & - ENTER | RPRISE | | Support About Cop |
|---------------------------------------|------------------------------------|---|--|-----------------------|
| System Del CR4000 root, Admin | Properties Seluc System Summary | Power Logs Herts Console/Media System Details System Inventory | eFlash Renote File Share | |
| System | System Summa | ry | | € C ? |
| Dataries Fans Intrusion | Server Health | | | |
| Power Dupplies | Blatus Component | e : | Virtual Console Preview | |
| Removable Flash Media Temperatures | 2 Batteres | | Ophone I Sampa | |
| Votages | 🖾 res | | | |
| Power Montoring | B imates | | a production of the second | |
| | 🖾 Paner San | ales - | | |
| | Carlos Marries and | e Think Merika | | |
| | 2 Tempetate | | | |
| | Vetape) | | | Hattash. Laurch. |
| | Server Information | | Quick Launch Tasks | |
| | Power State | CN. | Press StillOFF | |
| | System Model | Dell DR4000 | Power Cycle System (celd boot) | |
| | distant Results | Kanna margarian | Lauren Vetual Caraste | |
| | Resident Martin Martin | DR4000-DKCV951 asglab mundrock | Weise Station Court Log | |
| | Operating System | CentOS | VeelOfHCLep | |
| | Concating Business | release 5.4 (Final) Kemet 2.5.10-164.e. | Update Fermany | |
| | Service Tag | DKD/601 | | |
| | Express Service Co. | 29529104401 | | |

4. After the virtual console is open, log on to the system as user administrator and the password St0r@ge! (The "0" in the password is the numeral zero).



5. Set the user-defined networking preferences.



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

| Set Static IP Address IP Address : 10.10.86.108 Network Mask : 255.255.255.128 Default Gateway : 10.10.86.126 DNS Suffix : idmdemo.local Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4009-5 Are the above settings correct (yes/no) ? _ | | | |
|--|-----------------------|---------------|-----------------|
| IP Address : 10.10.86.108 Network Mask : 255.255.255.128 Default Gateway : 10.10.86.126 DNS Suffix : idmdemo.local Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _ | Set S | tatic IP Addr | ress |
| Network Mask : 255.255.255.128 Default Gateway : 10.10.86.126 DNS Suffix : idmdemo.local Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _ | IP Address | | 10.10.86.108 |
| Default Gateway : 10.10.86.126 DNS Suffix : idmdemo.local Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _ | Network Ma | sk : | 255.255.255.128 |
| DNS Suffix : idmdemo.local Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DB4000-5 Are the above settings correct (yes/no) ? _ | Default Ga | teway : | 10.10.86.126 |
| Primary DNS Server : 10.10.86.101 Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _ | DMS Suffix | | idmdemo.local |
| Secondary DNS Server : 143.166.216.237 Host Name : DR4000-5 Are the above settings correct (yes/no) ? _ | Primary DN | S Server : | 10.10.86.101 |
| Host Name : DR4000-5 Are the above settings correct (yes/no) ? _ | Secondary | DNS Server : | 143.166.216.237 |
| Are the above settings correct (yes/no) ? _ | Host Name | | DR4000-5 |
| | Are the above setting | s correct (ye | es/no) ? _ |

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

| Login | | Reset Password |
|-------|----------------------------|----------------|
| | Please enter your password | |
| | Username: administrator | |
| | Password. Stor@ge! | |
| | Log in | |

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 left navigation area of the DR Series GUI

| Global View | Dashboard | | | | | | | | | |
|--|---------------------|------------|-------------------------------|----------------|----------------|---------------------|---------|---------|-----------|------------|
| Dashboard Alerts Events | System State: optim | mal 🔽 HW | / State: optimal | Nur | mber of Aler | ts: <u>0</u> | Numb | er of E | vents: 7 | 05 |
| Health Usage | Capacity | | Storage Savings | | | Throug | hput | | | |
| Statistics: Container Statistics: Replication | Physical | | Zoom: 1h 1g 5g Savings (%) | 1m 1y Refre | rshing. | Zoom: MiB/s | 1h 10 | 1 54 1 | n 11 | 0 |
| Storage Containers | | | 100 | | - i | 1.00 | | | 1 | |
| Replication | 13% | | 75 | | | 0.75 | | | | |
| Compression Level | | | 50 | | | 0.50 | | | | |
| Clients | | | 25 | | _ | 0.25 | | | | - |
| Schedules Replication Schedule | 87% | | 0 | | | 0.00 | | | | _ |
| Cleaner Schedule | | | 0:20 0:30 0:4 | 0 0:50 1:0 | 0 1:10 | 0.00 | 0.200 | 30 0:40 | 0:50 1:00 | 1:10 |
| System Configuration | Used (21 29 G | (8) | Time | (minutes) |)C | | | Time (r | ninutes) | |
| | Free (142.48 G | HB) | - 10131 | oavings | | | | - Wei | te | |
| Active Directory | | | | | | | | | | |
| Encal Workgroup Users | System Information | | | | | | | | | |
| Admin Contact Info | Product Name: | DR4100 | | Total | Savinos: | | | | 55.06 | 96 |
| Password | System Name: | edwinz-sw | -01 | Total | Number of Fi | les in All (| Contain | ers: | -10 | |
| Email Relay Host | Software Version: | 99.0.0517 | 0 | Num | ber of Contain | ers: | | | 2 | |
| Date and Time | Current Date/Time: | Thu Sep 2 | 5 01:12:47 2013 | Num | ber of Contain | ers Repli | cated: | | 0 | |
| Diagnostics | Current Time Zone: | US/Pacific | | Active | e Bytes: | maniera respicates. | | | | 47 GIB (?) |
| | Olassa Clarken | Lille | | | | | | | | |

b. Enter your Active Directory credentials.

| edwinz-sw-01.ocarina.local | Active Directory | | Join |
|----------------------------|---|---|------|
| Global View | Houre Birectory | | |
| Dashboard | Settings | | |
| Events | | | |
| Health | The Active Directory settings have not been configu | red. Click on the 'Join' link to configure them | |
| Usage | | | |
| Statistics: Container | Active Directory Configuration | | |
| Statistics Replication | | 1 - Belds are serviced | |
| Containers | Domain Name (FQDN)* | = neids are required. | |
| Replication | Lisemama* | | |
| | Deservation . | | |
| Clients | Password" | | |
| Schedules | Org Unit | | |
| Cleaner Schedule | | (Conset John Donale | |
| System Configuration | | Cancel Join Domain | |
| Networking | | | |
| Active Directory | | | |
| Local Workgroup Users | | | |
| Admin Contact Info | | | |
| Password | | | |
| Email Relay Host | | | |
| Date and Time | | | |
| Support | | | |
| Software Upgrade | | | |
| License | | | |

2 Creating and configuring the RDA target container(s) for NetVault Backup

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

| Dashboard Alerts | | Containers | | | | Create | Edit Delete Dis | |
|---|--|---|---|------------------------|----------|---|--|--------------------------|
| Health | | Number of Containers: 12 Container | | | | | | |
| Usage | | Containers | Files | NFS | CIFS | RDA | Replication | Select |
| Statistics: F | Replication | backup | 0 | ~ | ~ | | Not Configured | 0 |
| Storage | Create Ne | w Container: | | | | | | |
| Schedules | Marker Tvp | e [*] : ^O None [©] Auto ^O CommVault | ○ Networker ○ TSM ○ A | RCserve C H | IPDP (?) | , - and _ onaracter | ¥. | |
| Schedules Replication Cleaner Sc | Marker Typ Sch Connection | e [*] : [©] None [©] Auto [©] CommVault n Type [*] : [©] None [©] NFS/CIFS [©] R(| ○ Networker ○ TSM ○ A | RCserve C H | IPDP ? | Cancel | s. Create a New (| Container |
| Schedules Replication Cleaner Sc System Co Networking | Marker Typ Connection hedt nfigu | e [*] : O None O Auto O CommVault n Type [*] : O None O NFS/CIFS O RI | C Networker C TSM C # DA ? | RCserve ^O ⊢ | IPDP ? | Cancel | s. Create a New (N/A | Container |
| Schedules Replication Cleaner Sc System Co Networking Active Direc | Marker Typ Sch Connectio hedu nfigu story | e°: C None I Auto C CommVault n Type°: I None C NFS/CIFS C RT R310-Perf-06_src R310-Perf-07_src | C Networker C TSM C # DA ? 2 2 | RCserve O H | IPDP ? | Cancel RDS RDS | s. Create a New (N/A N/A | Container C |
| Schedules Replication Cleaner Sc System Co Networking Active Direc Local Work Email Alert | Marker Typ Sch Connection Infigu Itory group Users | e [*] : C None [©] Auto ^C CommVault Type [*] : [©] None ^C NFS/CIFS ^C RI R310-Perf-06_src R310-Perf-07_src R310-Perf-08_src | C Networker C TSM C # DA ? 2 2 2 | RCserve ^O ⊢ | IPDP ? | Cancel RDS RDS RDS | s. Create a New (N/A N/A N/A | Container O O |
| Schedules Replication Cleaner Sc System Co Networking Active Direc Local Work Email Alert Admin Con Baceur | Marker Typ I Sch Connection Infigu I story group Users s tact Info | e [*] : C None [©] Auto [©] CommVault Type [*] : [©] None [©] NFSICIFS [©] Rt R310-Perf-05_src R310-Perf-07_src R310-Perf-08_src rda1 | C Networker C TSM C A DA ? 2 2 2 174 | RCserve C H | IPDP ? | Cancel RDS RDS RDS RDS RDS | s. Create a New (N/A N/A N/A N/A | Container O O O |

2. Enter a Container Name, select the Connection Type as RDA, and then select RDA type as RDS.

| _ | | Create New Container: |
|---|---------------------------------|---|
| | Dashboard | * = required fields |
| | - Alerts | Choose the type of container to create ((NFS and/or CIFS) or RDA) and add clients that need access. |
| | Events | Container Name [®] RDS Max 32 characters and only letters, numbers, - and _ characters. |
| | Health | |
| | Usage Clotiotico: Cont | Marker type S Nume S Auto S Continuauti S Networker S TSM S ARCSENE S HPDP () |
| | -Statistics: Con | Connection type: S None S NESCES S RDA (F) |
| | Storage | PDA trans ¹ C OST BDS 2 |
| | Containers | |
| | Replication | © Unlimited |
| | Compression I | C Size Unlimited (GIB) |
| | Clients | |
| | Schedules | |
| | Replication Scl | |
| | - Cleaner Sched | |
| h | System Config | |
| | -Networking | |
| | Active Directory | |
| | Local Workgro | |
| | Email Alerts | |
| | Admin Contact | |
| | - Fassivoru - Empil Dolov Ur | |
| | Dote and Time | |
| | Support | |
| 1 | Diagnostics | |
| | Software Upgra | |
| | License | |
| | | |



3. Click Create a New Container. Confirm that the container is added.

| Dashboard Alerts Events | Containers | | | | Creat | e Edit Delete Dis | | |
|-----------------------------------|--|-------|-----|------|-------|-------------------------|---------------|--|
| Health | Message Image: Successfully added container "RDS". • Container "RDS' has the following marker(s) None. | | | | | | | |
| | | | | | | | | |
| Storage Containors | Number of Containers: 13 | | | | | Container Pa | th: /containe | |
| Replication | Containers | Files | NFS | CIFS | RDA | Replication | Select | |
| Compression Level | backup | 0 | ~ | ~ | | Not Configured | 0 | |
| Clients | new | 11 | | | RDS | N/A | 0 | |
| Schedules Deplication Schedule | new2 | 11 | | | RDS | N/A | 0 | |
| Cleaner Schedule | R310-Perf-01 src | 2 | | | RDS | N/A | 0 | |
| System Configuration | R310-Perf-02_src | 2 | | | RDS | N/A | 0 | |
| Networking | R310-Perf-03 src | 2 | | | RDS | N/A | 0 | |
| Active Directory | R310-Perf-04_src | 2 | | | RDS | N/A | 0 | |
| -Email Alerts | R310-Perf-05_src | 2 | | | RDS | N/A | 0 | |
| Admin Contact Info | R310-Perf-06_src | 2 | | | RDS | NIA | 0 | |
| Password | R310-Perf-07_erc | 2 | | | RDS | NIA | 0 | |
| Email Relay Host | R310-Perf-08_erc | 2 | | | RDS | NIA | 0 | |
| Support | rdo1 | 174 | | | PDP | NIA | 0 | |
| -Diagnostics Software Upgrade | RDS | 0 | | | RDS | N/A | 0 | |

2.1 Adding the RDA target container(s) for NetVault Backup

| MetVault | Backup | | | | | | | ➡ Video Tuto | rial 1 admin - O |
|---|--|------------------------------|--|---------------------------------|---------------|-------|-------|------------------------------|---------------------|
| Aonitoring Berver Honitor Job Status Device Activity View Logs | | Client Sta 2 / 2 | itus | | Storage Devia | ces | | Total Data Store 5.11 GiB | ed |
| Veer Events bibs Creater Backup AD Creater Backup AD Manage Sets Manage Abb Cententons Manage Poticies Explore Storage Reporting Veer Reports 20 Henron | 100.00 Transfer Rote Hell / Sec) - 00.00 - 00 | | | | | | | | |
| Configuration Guided Configuration | 0.00 | Tue 14 | an a | OS AM | 09 444 | 12 PM | 03 PM | D6 PM | 09 PM |
| Kanage Clients Hanage Devices Hanage Users | 0 somin | © thr © Bhrs Current Acti | 0 12 hrs + 24 hrs | | Policies: | | | û Errors Only û Ke | y Events 🔹 Al Event |
| Configure Notifications Change Settings Setip Documentation | Active Warting Pending Scheduled | | | Healthy Owarrangs DErrors | | | | | |

1. Open the NetVault Backup web console.

2. Add the RDA container to NVBU. Select to begin the guided configuration Add Storage Devices Wizard.



| 🗅 NetVault Backup | × 🔼 | A - 6 × |
|---|--|--|
| ⊢ → C (some:// | ocalhost:8443/configuration/index.html | ର୍ ଚ୍ଚ |
| NetVault | Backup | 🖶 Video Tutorial 🚊 admin = 🏼 🕕 |
| Monitoring Server Monitor | NetVault Configuration Wizard | |
| View Logi View Events | This watard will gate you through the stage that are needed to set up a new backup server. To be gated through the complete set-up sequence, clock on the length baction. You can form to any of the individual strass in the sequence, by clocking the bactions below. | on reform to this wiscord at any time by |
| Jobs Create Rectore 3x0 Annage 3x0 Enfinitions Annage 3x0 Enfinitions Annage 3x0 Enfinitions Explore 3torage Reporting Verwinged tits Annage Creats Annage Creats Annage Creats | II Add Clients III Instal Flugnes Instal Flugnes III Instal Flugnes Instal Flugnes III Add Storage Devices III III Create backup jobs III | |
| Configure Notifications Change Settings felp Documentation | | 3 |
| Video and Tutorials | | Begin |

3. In the Storage Configuration Wizard – Add Storage Devices page, select Add Dell RDA Devices.

| 🗋 NetVault Backup | x 📷 | A - 6 X |
|---|---|--|
| ← → C (states | //localhost:8443/configuration/devices/ | ର ଚ୍ଚ୍ଚ |
| NetVaul | t Backup | 2 senin - 0 |
| Monitoring Server Monitor | NetVault Storage Configuration Wizard - Add Storage Devices | |
| Job Status Device Activity View Logs View Events | Select the type of device that you was to and from the set below. If you select one of the Vartual' device types you must also specify whether you want to create a new virtue has been created but has been removed provided backup. | ul device or whether you want to re-add one that |
| Jobs Create Backup Job Create Rusture Job Awanga Sets Manage Policies Explains Storage View Reports Job History Configuration | Single Virtual disk device Virbust kapitikasy / India shanger Daded sinkus dia bitary Single physical kapitikasy Single physicasy Single physicasy Single physicasy Single physicasy | |
| Monogo Chents Monogo Devices Monogo Users Configure Notifications Change Settings Help Documentation Video and Tutorials | | () Hext |





4. Enter the DR Series system hostname, username, and password to add the RDA device. Enter the RDA container name and save.

Note: The default username is backup_user and the password is St0r@ge! (The "0" in the password is the numeral zero). Suggested Block Size is 524288 bytes (512KB) to achieve optimal performance and specify the Stream Limit required.

| You now need to specify the details below to allow the Dell XDA storage device | to be added to the NetVault Backup Server. | |
|--|--|--|
| If the Earget device is already added to another NetNault Backup Server with th | same name, select the Force Add" option | to force the device to be added to the currently selected server. This can be useful in situat |
| where the NetVault Backup Server has been last and rebuilt. | | |
| | | |
| Network name / IP address: | | |
| Network name / IP address: Uservane: | <u></u> | |
| Network name / IP address Username: Password: | | |
| Network name / IP address: Uterrane: Password: LSU: | | |
| Network name / IP address Unierrame: Patismotid: 150: Biock Szeg (m NB): | 512 | |

5. Confirm the RDA device is created by navigating to Manage Devices.

| 🗅 NetVault Backup 🛛 🗙 | | A - 0 : |
|---|--|--------------------------------|
| | host. 8443/devicemanagement.html | Q & |
| NetVault Ba | ckup | 🖝 Video Tutorial 🙎 admin - 🏼 🔒 |
| Konitoring M | anage Devices | |
| Job Status Device Activity | * Tape Library: AUTOINT8: Device DRv32:L700-SR0EAM_00 (STK L700) Drives: 10 Slots: 10 (Online) | c • ● ↓ |
| View Logs View Events | RAS: Dell DR (autointBrda) - 10.8.230.100 (Idle) | •• :) |
| obs Create Backup Job Create Restore Job Manage Sets Manage Job Defnitions Manage Policies | 0 | |
| eporting View Reports | | |
| Job History onfiguration Guided Configuration Manage Clients | | |
| Manage Devices Manage Users Configure Notifications Change Settings | | |
| elp Documentation Video and Tutorials | | + Add Davise |



2.2 Configuring transport modes for NetVault Backup

There are two transport modes for backing up data over RDA: Optimized / Dedup and Passthrough. Optimized backup does source side dedupe on the NVBU clients. The Passthrough mode does target side dedupe on the DR Series system.

The default mode for each client is decided based on the number of CPU cores in the client machine and whether the architecture is 32-bit or 64-bit. In general, there is no need to change the mode. In the event you want to change the mode, it can be done by setting the RDA mode in the DR Series system command prompt or through the GUI.

2.2.1 Setting the mode using the CLI

Open an ssh session to the DR Series system and run the command:

rda --update_client --name <hostname of client> --mode <dedupe/passthrough>

| ot@SWSTS-235 ~]# rdaupdate_clientname R310-SYS-86mode passthrough id Data Access (RDA) client R310-SYS-86 with mode Pass-through added successfully. ot@SWSYS-235 ~]# rdashowclients | | | | | | | |
|--|------|----------|----------------------|-----------------------|-------------|---------------|-------------|
| RDA Client(s) | Type | Plugin | 05 | Backup Software | Last Access | Connection(s) | Mode |
| R310-Perf-01 | RDS | 2.1.0241 | Linux 2.6.18-274.el5 | NetVault 9.2 Build 16 | | 0 | Dedupe |
| R310-Perf-O2 | RDS | 2.1.0241 | Linux 2.6.18-274.el5 | NetVault 9.2 Build 16 | | 0 | Dedupe |
| R310-Perf-03 | RDS | 2.1.0241 | Linux 2.6.18-274.el5 | NetVault 9.2 Build 16 | | 0 | Dedupe |
| R310-SYS-86 | RDS | | | | | 0 | Passthrough |

2.2.2 Setting the mode using the GUI

In the DR Series system GUI, follow the steps:

- 1. Navigate to the Clients page, and select the **RDA** tab. The list of clients that have active connections are shown.
- 2. Select the client for which you want to change the mode.
- 3. On the top right side of the page, click the **Update Client** link.
- 4. Select the required mode from the drop down menu, and click **Submit**.

| Dashboard Alerts | Clients | | | | Update | Client Edit Pas | isword Dow | nload Plu |
|---------------------------------------|--------------------------|-----------------|--------------|--------------------------|--------------------|-------------------|--------------|-----------|
| Events Health | Total Number of Clients: | 9 | | | | | | |
| Statistics: Container | NFS CIFS R | DA | | | | | | |
| Statistics Replication | Number of RDA Clients | : 9 | | | | | | |
| Containers Replication | Harrie | Туре | Plug-In | Backup Software | Idle Time | Connection | Mode | Select |
| Compression Level | R310-Perf-01 | RDS | 2.1.0241 | NetVault 9.2 Build 16 | → : | 0 | Dedupe | • |
| Schedules | R310-Perf-02 | RDS | 2.1.0241 | NetVault 9.2 Build | (1 <u>44</u> 75) | 0 | Dedupe | C |
| Replication Schedule | B310.Pe | nt: R310-Perf-l | 11 Type: RDS | i | | | | |
| System Configuration | CONTRACT IN | Client Mode: | dedupe | * | | | | C |
| Networking Active Directory | r310-pen | | | | | Cancel | Submit | C |
| Local Workgroup Users Email Alerts | R310-Perf-05 | RDS | 2.1.0243 | NetWault 9 2 Build 18 | | 0 | Dedupe | ç |
| | R310-Perf-06 | RDS | 2.1.241 | NetVault 9.2 Build 16 | | 0 | Dedupe | c |
| Email Relay Host Date and Time | R310-Pert-07 | RDS | 2.1.241 | NetVault 9.2 Build 16 | Aug 28 00:20:52 | 1 | Dedupe | С |
| Support Diagnostics | R310-Perf-08 | RDS | 2.1.241 | NetWault 9.2 Build 16 | | D | Dedupe | с |
| | R310-Perf-09 | RDS | | - | - | 0 | Dedupe | C |

NOTE: Except for the NetVault Backup file system plug-in, all the other plug-ins are 32- bit binaries on Windows (64-bit or 32-bit versions). There is a known issue because of which optimized back-ups with 32 bit plug-ins provide less performance than passthrough back-ups. It is recommended to keep the default that the DR Series system chooses to use rather than forcing the mode to be optimized even if the client has more power. A NetVault Backup client running on a 64-bit Linux machine has 64-bit plugins.

2.3 Configuring a backup job for NetVault Backup

Refer to the following resources for information about

• Creating a backup job for NetVault 9.2:

http://documents.software.dell.com/doc107040

• Creating a backup job for NetVault 10:

http://documents.software.dell.com/DOC229690

3 Configuring VTL

3.1 Creating and configuring iSCSI target container(s) for NetVault Backup

3.1.1 Create an iSCSI VTL container for NetVault Backup

- 1. Create and export the iSCSI container.
 - a. Select Containers in the left navigation area, and then click **Create** at the top of the page.

| r9-interop-a7.ocarina.local 🗠 Global View | Containers | | | 2 Create) | Edit Delete Displa | |
|--|-------------------------|-------|-------------|-------------------------|------------------------|----------|
| Dashboard Alerts | Number of Containers: 2 | | | | Container Path: | /contain |
| Events | Containers | Files | Marker Type | Access Protocol Enabled | Replication | Select |
| Health | backup | 0 | Auto | NFS, CIFS | Not Configured | 0 |
| Usage Container Statistics | intvm05iscsi | 31 | Networker | VTL iSCSI | Not Configured | 0 |
| Storage Containers Replication Encryption Clients Schedules System Configuration | • | | | | | |

2. Specify your container name and select the VTL option.

| Container Wizard - Create N | ew Container | | * = required fields |
|------------------------------|--|--------|---------------------|
| Container Name | Max 32 characters, including only letters, numbers, hyphen, and underscore. Name must start with a letter. | | |
| Container Name*: | iscsiVTL1 | | |
| Virtual Tape Library (VTL) : | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | Cancel | Next > |

3. Select the **iSCSI** Access Protocol. Specify the DMA Access Control by providing the storage node / media node IP Address, IQN or FQDN. For NetVault, you must also specific Auto as the Marker Type.

| Configure Virtual Tape Library — | * = required fields |
|----------------------------------|---|
| Is OEM: Tape Size: | Container Name and Type 0 800GB 400GB 200GB 100GB 50GB 10GB |
| Access Protocol: | NDMP iscsi No Access |
| Access Control (initiator): | |
| Marker Type: | Unix Dump Networker BridgeHead Time Navigator |
| | < Back Cancel Next > |

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





3.1.2 Configure the iSCSI target – Windows

1. Configure the iSCSI Initiator Software for Windows by providing the IP or FQDN of the DR Series system into the Quick Connect, Target field. Click **Quick Connection** to open the Quick Connect dialog box, which indicates a connection was made but is set as inactive.

| iSCSI Initiator Properties | × |
|--|---|
| Targets Discovery Favorite Targets Volumes and Devices | RADIUS Configuration |
| Cuick Connect | |
| To discover and log on to a target using a basic connection, typ DNS name of the target and then click Quick Connect. | be the IP address or |
| Target: | Quick Connect |
| Discovered targets | |
| | |
| Name | 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 |
| J To connect using advanced options, select a target and then click Connect. | ign.1984-05.com.dell:dr4000.9lbp8r1.intvm05iscsi.10 Inactive |
| To completely disconnect a target, select the target and then click Disconnect. | |
| select the target and click Properties. | |
| For configuration of devices associated with a target, select | Progress report |
| the target and then click Devices. | |
| | |
| More about basic iSCSI connections and targets | |
| | |
| | Connect Done |
| ОК | |

Ń

2. Close the dialog box and proceed by selecting the newly discovered target. This target will have an Inactive Status as it requires authentication parameters to be provided for iSCSI logon. Select the Target from the list, click the **Connect** button, and then in the Connect To Target dialog box, click the **Advanced** button.

| | iSCSI Initiator Properties | x |
|--|--|-----------------------|
| | Targets Discovery Favorite Targets Volumes and Devices | RADIUS Configuration |
| | Quick Connect | |
| | To discover and log on to a target using a basic connection, t DNS name of the target and then click Quick Connect. | ype the IP address or |
| | | |
| | Target: | Quick Connect, |
| | Discovered targets | |
| | | Refresh |
| | Name | Status |
| | Iqn. 1904-05.com.dell:ar4000.9lbpor1.incvm05lScSl.10 | Inacuve |
| | | 1 |
| | | |
| | | |
| | | |
| | | 2 |
| | To consist using advanced actions, called a toward and there | |
| | click Connect. | Connect |
| Connect To Target | × | Disconnect |
| Target name: | | |
| iqn.1984-05.com.de | ll:dr4000.9lbp8r1.intvm05iscsi.10 | Properties |
| Add this connecti | on to the list of Favorite Targets. | Devices |
| This will make the connection every | system automatically attempt to restore the time this computer restarts. | |
| Enable multi-pa | 3 | |
| | | |
| Advanced | OK Cancel | |
| | | |
| | | |
| | ок | Cancel Apply |



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

| dvanced Settings | 3 | ' × |
|---|---|-----|
| General IPsec | | _ |
| Connect using | | |
| Local adapter: | Default | |
| Initiator <u>I</u> P: | Default | |
| Target portal IP: | Default | |
| CRC / Checksum | | |
| 🔲 Data digest | ☐ <u>H</u> eader digest | |
| Enable CHAP log on | | |
| CHAP helps ensure conn an initiator. | ection security by providing authentication between a target and | |
| To use, specify the same initiator. The name will o specified. | e name and CHAP secret that was configured on the target for this default to the Initiator Name of the system unless another name is 2 | |
| Name: | dr9-interop-a7 | ٦ |
| Target <u>s</u> ecret: | •••••• | J |
| Perform mutual auth To use mutual CHAP, eit RADIUS. Use RADIUS to gene Use <u>R</u> ADIUS to auth | entication her specify an initiator secret on the Configuration page or use rate user authentication credentials enticate target credentials | |
| | OK Cancel Apply | |

The iSCSI target should now show as connected and the device discovery can now proceed.



| rargec: | | | Quick Connect, |
|--|--|---------------|--|
|)iscovered ta | rgets | | Refresh |
| Name iqn.1984-05 | .com.dell:dr4000.9lbp8r1.intvm05iscsi.10 | Stati Conr | us nected |
| | | | |
| Fo connect us | sing advanced options, select a target and the | n | Connect |
| Fo connect u: :lick Connect Fo completely :hen click Disc | sing advanced options, select a target and then , y disconnect a target, select the target and connect. | n | Connect |
| To connect u: lick Connect Fo completely then click Disc For target pri select the tar | sing advanced options, select a target and the , y disconnect a target, select the target and connect. operties, including configuration of sessions, get and click Properties. | n | Connect Disconnect Properties |
| To connect us click Connect To completely then click Disc For target pri- select the tar For configura | sing advanced options, select a target and the , y disconnect a target, select the target and connect. operties, including configuration of sessions, get and click Properties. tition of devices associated with a target, select of them click Devices. | n | Connect Disconnect Properties Devices |

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

Note: Refer to the article at <u>http://catalog.update.microsoft.com/v7/site/home.aspx</u> for information about acquiring Microsoft Device Drivers, e.g., StorageTek Library Drivers.





3.1.3 Configure NetVault Backup to use the newly created iSCSI VTL

1. Access the Storage Configuration Wizard menu within the NetVault Administration interface. Select the Add Storage Devices button and then proceed to the Tape library/ medium changer submenu.



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2. Select the NetVault node that has the iSCSI device configured, and, after the scan has completed, select the tape library to be added. Click **Next** to add the iSCSI tape library.

| hetvouit Sachup | × | | A _ 6 X |
|--|--|----------------------|------------------------------|
| ← → C (8000 | 5.//localhoist:8++13/configuration/devices/addlibrary2.html | | ର 🏠 🔳 |
| NetVai | ult Backup | | 🛔 default - 0 |
| Monitoring Server Honitor | NetVault Configuration Wizard - Add Tape Library (2/3) | | |
| Job Status Device Activity View Logs View Events | The following library with were found when scenning the selected cleark. Nonce select the with the type wish to add to Netburt Backup. | | |
| Jobs | | Device display name: | Costate some for this device |
| Create Backup Job Create Bactore Job | Device | Serial Humber | |
| Manage Sets | (8-0.0 1 (5TK LT00) | www.cory.co | |
| Manage Job Definitions | 8-0.1.1 (DTK L700) | W1L0K3_00 | |
| Manage Policies | (a) (b) (b) (b) | | 1 - 2 of 2 items |
| Job History Coaded Chients Manage Clients Manage Devices Manage Users Configure Notifications Change Settings Heals | | | |
| Documentation Video and Tutoriais | | | C Back Next |

3. When the tape library has been added, click the Create Backup job... button to commit the library. The VTL should show up ready for use.

| NetVault Backup | × 🛄 | |
|--|---|---|
| ← → C (80400 | ://localhost:8443/configuration/devices/addilitrary3.html | ର 🏠 🔳 |
| NetVau | lt Backup | 🚊 default - 🏾 🛈 |
| Monitoring Server Montor | NetVault Configuration Wizard - Add Tape Library (3/3) | |
| Jenes Average Abs Stabut Device Activity View Loyers View Events Data Create Backup, AD Create Backup, AD Create Antonia Manage Prices Explain Elonge Bayers Data Manage Activity Manage Activity Data Manage Activity Data Manage Check Manage | <image/> <image/> | Specifican II all the dirive are to be controlled by the motions selected in the please press the "And drives potentials," further to select write |
| | Add drives manually | Add more devices |

4. Label all the media with labels and place them in their respective media groups for use.



| 🗅 NetVault Backup 🛛 🗙 💽 | 7 | | | | | £ 6 5 |
|--|------------------|--|----------------------|--------|------------|---------------|
| ← → C (≥ bactors://localhost | t:8443/deviceman | agement.html | | | | Q. 😒 |
| NetVault Back | qı | | | | | 💄 default + 🛛 |
| Monitoring Mana Server Monitor | age Devices | | | | | 4 |
| Job Status Device Activity | ▼ Tape Library: | AUTOINT8: 8-0.0.1 (STK L700) Drives: 1 | 0 Slots: 10 (Online) | | | 000 |
| View Logs | DRIVE 1 | 8-0.0.2 (IBM ULT3580-TD4) | Online | (Idle) | Unloaded | ê 1 |
| View Events | DRIVE 2 | 8-0.0.3 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| Jobs Create Backup Job | DRIVE 3 | 8-0.0.4 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | ° |
| Create Restore Job | DBINE 4 | R.O.O.E.(IR)(111 T2ERO TD4) | Online | (Idle) | Links de d | |
| Manage Sets Manage Job Definitions | DRIVE 4 | 6-0.0.3 (IBM 0E13360-104) | onune | (1008) | Unioaded | |
| Manage Policies | DRIVE 5 | 8-0.0.6 (IBM ULT3580-TD4) | Online | (Idle) | Unloaded | • |
| Explore Storage | DRIVE 6 | 8-0.0.7 (IBM ULT3580-TD4) | Online | (Idle) | Unloaded | • • • |
| Reporting View Reports | DRIVE 7 | 8-0.0.8 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| Job History | DRIVE S | 8-0.0.9 (IBM ULT 3580-TD4) | Online | (idle) | Unloaded | • |
| Configuration | DBUG | 0.0.0.10 (PULII TIERO TOI) | 0-1 | (1-0-) | Links de d | 0 |
| Wanage Clients | DRIVE | 8-0.0.10 (IBM 0E1 3580-104) | Unine | (rane) | Unicaded | : |
| Manage Devices | 10 | 8-0.0.11 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| Manage Users Configure Notifications Change Settings | Slots | Total: 10 (10 Populated, 0 Empty), | 0 Blank | | | • |
| Help Documentation Video and Tutorials | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | + Add Device |

3.2 Creating and configuring NDMP target container(s) for NetVault Backup

3.2.1 Create the NDMP VTL container for NetVault Backup

You need to create and export the NDMP container in the DR Series system GUI.

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

| | Containers | | | 2 Create I | Edit Delete Displa | |
|--|-------------------------|-------|-------------|-------------------------|------------------------|-----------|
| Global View Dashboard Alerts | Number of Containers: 2 | | | | Container Path: | /containe |
| Events | Containers | Files | Marker Type | Access Protocol Enabled | Replication | Select |
| Health | backup | 0 | Auto | NFS, CIFS | Not Configured | 0 |
| Usage Container Statistics | intvm05iscsi | 31 | Networker | VTL iSCSI | Not Configured | 0 |
| Storage Containers Replication Encryption | | | | | | |

2. Enter your container name and select the VTL option.



3. Select the **NDMP** Access Protocol. Specify the DMA Access Control by providing the storage node or, media node IP Address or FQDN. Select the Marker Type as **Unix Dump**.

| ontainer Wizard - Create New | Container | | | |
|--------------------------------|------------|---------|-------------|---|
| Configure Virtual Tape Library | | | | * = required field |
| Is OEM: | | | | Container Name and Type System_A3_VTL1 |
| Tape Size: | 800GB | O 400GB | O 200GB | VTL |
| | O 100GB | ○ 50GB | O 10GB | |
| Access Protocol: | NDMP | O iSCSI | O No Access | |
| Access Control: | FQDN or IP | | | 2 |
| Marker Type: | Unix Dump | 3 | | |
| | O None | | | |
| | | | | |
| | | | | |
| | | | < Ba | ack Cancel Next > |

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



3.2.2 Set up NetVault Backup to use the newly created NDMP VTL

You need to add the DR Series system as an NDMP node by using the NDMP Plugin.

1. Navigate to the Create Backup Set submenu, and select the NDMP Plugin within the NetVault Create Selection Set navigation pane. Select to add a new NDMP Server node. In the proceeding dialog box, enter the name of the node, the IP address and DR the credentials. Provide the login credentials for the ndmp user account on the DR unit.

| Country | Declare Job | | | | _ | Consolidat Data Corr | e Incremental backups |
|---|---|---------------------------------|-----|--------------|------------|---|---|
| , Create | васкир зор | | | | 5 | NOMP CH | 3 |
| y Creat | e a new backup job by selecting or creating o | ptions sets below. | | | - | B Raw Deve Consoldat Data Copy File System | Batablises se le Incremental backups / n m |
| | Job Name: | Jub Nome | | | 1 | B NetVault | nt Databases Ja |
| efinitions | Selections: | | | # Create New |)'' | | |
| HS 20 | Plugin Options: | | ~ | 💷 Create New | | Actions - | |
| t in the second s | Schedule: | Immediate | ~ | Create New | E E | About Configure | nental backups |
| l uration | Target Storage: | Default Backup Target Options | ~ | # Create New | 1 | Set Account Add Server | <mark>6</mark> 8 |
| 5 | Advanced Options: | Default Advanced Backup Options | v I | Create New | L 👌 . | Onita Cop Operation Operation | m ant |
| - Contraction | a format and | and the set of the | | | mad . | B Raw Den | Databases |
| | | | | | | NDMP Server | 6 |
| | | | | | | Addressletts | |
| | | | | | | Port. | 10000 |
| | | | | | | | |

2. Access the Storage Configuration Wizard menu within the NetVault Administration interface. Select the Add Storage Devices button and then proceed to Tape library/ medium changer submenu.

| 🗋 NetVault Backup | |
|--|--|
| | localhost:8443/configuration/devices/ ♀☆: |
| NetVault | Backup ± default - 0 |
| Monitoring Server Monitor Job Status Device Activity View Logs View Events | NetVault Storage Configuration Wizard - Add Storage Devices |
| Juns Create Backup Job Create Restore Job Manage Sets Manage Job Definitions Manage Job Definitions Explore Storage Reporting View Reports Job History Configure Not Manage Celents Manage Celents Manage Celents Manage Devices Configure Notifications Configure Notifications Configure Notifications Configure Notifications Comge Settings | Single virtual disk device Virtual tape library / media change Single virtual disk device Single virtu |

3. Select the NetVault node that has the NDMP device configured, and, after the scan has completed, select the desired tape library to be added. Click **Next** to complete the workflow to add the NDMP tape library. The VTL should now show up ready for use.

| | localhost: 8443/configuration/devices/addibrary2.html | | ର 🏠 🔳 |
|---|--|----------------------|-----------------------------|
| NetVault | Backup | | 2 default - 0 |
| Monitoring Server Monitor | NetVault Configuration Wizard - Add Tape Library (2/3) | | |
| Job Status Device Activity View Logs View Events | The following library units were found when scanning the selected client. Neese select the unit that you wish to odd to Netblock Backup. | | |
| Johs | | Device display name: | Custom name for this device |
| Create Backup Job | Device | Serial Number | |
| Wanage Sets | 8-0.0.1 (57K L700) | WW80IY_00 | |
| Manage Job Definitions | 8-0.1.1 (57K L700) | W1LOK3_00 | |
| Manage Policies | Device Diviz:1700 No10Nis_00 (51K L700) | NIYONAK_00 | |
| Explore Storage | Device DRv02:L700-S0T02H_00 (STK L700) | SOT02H_00 | 20 |
| Reporting | | | 1 - 4 of 4 items |
| Job History | | | |
| Configuration | | | |
| Guided Configuration | 0 | | |
| Manage Clients | | | |
| Manage Devices | | | |
| Configure Notifications | | | |
| Change Settings | | | |
| Help | | | |
| Documentation | | | |
| Video and Tutorials | | | |
| | | | - |
| | | | 3 |
| | | | |
| | | | A DOCK NEXT |
| | | | |



4. Label all the media with labels and place them in their respective media groups for use.

| nitering Man | age Devices | | | | | |
|--|---------------|---|-------------------|--------|----------|-------|
| vice Activity | Tape Library: | AUTOINT8: 8-0.0.1 (STK L700) Drives: 10 S | lots: 10 (Online) | | | 0 0 0 |
| w Logs | DRIVE 1 | 8-0.0.2 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| w Evenus | DRIVE 2 | 8-0.0.3 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| ate Backup Job | DRIVE 3 | 8-0.0.4 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| sate Restore Job nage Sets | DRIVE 4 | 8-0.0.5 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | 0 |
| hage Job Definitions | DRIVE 5 | 8-0.0.6 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| lage Policies Iore Storage | DRIVEA | 9-0 0 7 (IBH III T 2590-TD4) | Oplica | ((die) | Unloaded | 0 |
| orting | DRIVE | 8-0.0.7 (IBM 0L13580-104) | orning | (1018) | onbaded | 0 |
| w Reports | DRIVE 7 | 8-0.0.8 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| figuration | DRIVE 8 | 8-0.0.9 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| ded Configuration | DRIVE 9 | 8-0.0.10 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | ě |
| nage Clients name Devices | DRIVE 10 | 8-0.0.11 (IBM ULT 3580-TD4) | Online | (Idle) | Unloaded | • |
| nage Users nfigure Notifications ange Settings | Slots | Total: 10 (10 Populated, 0 Empty), 0 E | Blank | | | ٥ |
| umentation | | | | | | |
| amenication so and Tutorials | | | | | | |



Setting up the DR Series system cleaner

Performing scheduled disk space reclamation operations are recommended as a method for recovering disk space from system containers in which files were deleted as a result of deduplication.

The cleaner runs during idle time. If your workflow does not have a sufficient amount of idle time on a daily basis, then you should consider scheduling the cleaner to force it to run during a scheduled time.

If necessary, you can perform the procedure shown in the following screenshot to force the cleaner to run. After all of the backup jobs are set up, the DR Series system cleaner can be scheduled. The DR Series system cleaner should run at least 40 hours per week when backups are not taking place, and generally after a backup job has completed.

| | DELL DR4000 DR4000-D | KCV6S1 | | | Help Log out |
|---|---|-----------------------|---|------------------|----------------|
| | Dashboard Alerts Events Health Lisane | Cleaner Schec | lule entral, Mon Jan 23 15:18:49 2012 | Schedule Cleaner | Schedule |
| | Statistics: Container | Day | Start Time | Stop Time | • |
| | Statistics: Replication | Sun | - | _ | |
| - | Storage | Mon | | | |
| | Containers | Tue | | | |
| | Replication | Wed | - | - | |
| | Compression | Thu | | - | |
| | Renlication | Fri | - | | |
| 1 | Cleaner | Sat | | | |
| | System Configuration Networking Active Directory Email Alerts Date & Time Support Diagnostics Software Upgrade | Note: When no scheduk | e is set, the cleaner will run as needed. | | |



4

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.



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A VTL configuration guidelines

A.1 Managing VTL protocol accounts and credentials

A.1.1 iSCSI account details and management

By default, the iSCSI username is the hostname of the DR Series system and can be confirmed by reviewing the output of the iscsi –account --user CLI command. For example:

>iscsi --show --user user : dr9-interop-a7

The default iSCSI password is St0r@ge!iscsi. You can modify this password in the iSCSI tab of the Clients page. Click Edit CHAP Password and enter a new password as needed.

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

| 63.ocarina.local 🔹 | Clients | | | | Update Cli | ent Edit Password Edit | CHAP Password Delete DR200 |
|--|-------------------------------|-----------------|-------------|--------------------------|---------------|--------------------------|----------------------------|
| ashboard erts | Total Number | of Clients: | 1 | | | | 2 |
| rents | NFS C | CIFS RD | A NDMP | iscsi | DR2000v | | |
| ontainer Statistics | ISCSI Curren | t Sessions S | statistics | NG. 1 | | | |
| eplication Statistics orage | Container Name | Containe | r ION | | | Initiatore Connected | |
| plication Statistics prage ntainers | Container Name Test-VTL | Containe iqn | Edit CHAP A | ccount | | Initiatore Connected | |
| olication Statistics rage ntainers olication ryotion | Container Name Test-VTL | Containe iqn | Edit CHAP A | .ccount Il existing i | SCSI sessions | Initiatore Connected | bmission. |

copyright o 2011 - 2011 Doil ind. Air right root rod.

Alternatively, you can also use the iscsi--setpassword CLI command to change the iSCSI CHAP password as shown in the following example:



A.1.2 NDMP account details and management

The default username for the NDMP service is "ndmp_user." This can be confirmed on the NDMP tab of the Clients page in the DR Series system GUI.

| | | | | | | | administrato | r (Log out) H |
|-------------------------------|----------|------------------|--------------|-----------------|---------|-----------------|------------------------|-----------------|
| 9-interop-a7.ocarina.local 🔽 | Clien | ts | | | | Update Client | Edit Password | Delete DR200 |
| - Dashboard Alerts | Total Nu | mber of Clients | : 0 | | | | 2 | |
| Events Health | NFS | CIFS R | DA | OMP iSCSI | DR2000v | | | |
| Usage Container Statistics | Number | r of Current NDI | MP Sessio | ns in active: 0 | | | | |
| Replication Statistics | NDMP (| Current Sessions | Statistics | | | | | |
| Storage | ID | Duration | State | Source | Target | Throughput | Transfer Size | DMA |
| Containers | | | | | | | | |
| Replication | NDMP (| Completed Sessi | ons Statisti | cs | | | | |
| Encryption | ID | Duration | State | Source | Target | Avg. Throughput | Transfer Size | DMA |
| Schoounes | ~ | | | | | | | |
| System Configuration | | | | | | | | |
| Networking | | | | | | | | |
| Active Directory | | Edit Pass | word | | | | | |
| Local Workgroup Users | | | 01 T | | | | All fields are require | ed. |
| Email Alerts | | | Client Ty | pe. NDMP | | | | |
| -Admin Contact Info | | | User nar | ne: backup_user | | | | |
| Password | | N | ew passwo | ird: | | | | |
| Email Relay Host | | Confi | rm passwo | rd: | | | | |
| Date and Time | | | | | | | - | - |
| Support | | | | | | Cancel | Change Passwo | rd |
| oupport | | | | | | | | |

You can also use the CLI command ndmp -show as shown in the following example.

| > ndmpshow | |
|------------|-----------|
| NDMP User: | ndmp_user |
| NDMP Port: | 10000 |

The default password is St0r@ge! It can be modified by running the ndmp – setpassword command:

```
> ndmp --setpassword
```

NDMP password successfully updated.



A.1.3 VTL Default Account Summary Table:

| Service | Account | Default Credentials | CLI Modifier |
|---------|-------------------------------------|---------------------|------------------|
| NDMP | ndmp_user | St0r@ge! | ndmpsetpassword |
| iSCSI | <appliance hostname=""></appliance> | St0r@ge!iscsi | iscsisetpassword |

A.2 Managing VTL media and space use

A.2.1 General performance guidelines for DMA configuration

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

A.2.2 Physical DR space sizing and planning

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



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

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

A.2.3 Logical VTL geometry and media sizing

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

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

Important Note: Media can always be added as needed. Media cannot however be deleted so care must be taken in order to avoid creating too many media items.

In the previous example at the end of the 5-week cycle the 1st week retires and frees up media to be reused or recycled which once processed will allow the DR to reclaim the physical space associated with the virtual media. Since the smallest data set footprint resulting from the change rate is 2TB in each incremental iteration we create our media at 800GB increments and add as we grow. For this example the initial Virtual Tape Library would be created with 152 (121TB divided by 800GB) pieces of media at 800GB for each piece media.

20TB Total initial footprint with a 10% change rate

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

A.2.4 Media retention and grouping

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

A.2.5 VTL media count guidelines

| Туре | 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 |



A.2.6 Adding media to the VTL 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.

| r9-interop-a7.ocarina.local V Global View | Containers | | | Creat | e Edit Delete Displ | ay Statistic |
|--|---|--|-------------------|------------------------|---|--------------|
| - Dashboard - Alerts | Number of Containers: 5 | | | | Container Path | . /container |
| Events | Containers | Files | Marker Type | Access Protocol Enable | d Replication | Select |
| Health | backup | 0 | Auto | NFS, CIFS | Not Configured | 0 |
| Container Statistics | intvm05_ndmp | 31 | Unix Dump | VTL NDMP | Not Configured | 0 |
| Replication Statistics | intvm05iscsi | 31 | Networker | VTL ISCSI | Not Configured | 0 |
| Storage | intvm05iscsi2 | 31 | Networker | VTL ISCSI | Not Configured | 0 |
| Containers | TEST_VTL_LALA | 31 | None | VTL NDMP | Not Configured | 0 |
| System Configuration Networking Active Directory Local Workproup Users | - Configure Virtual Tape Library - Is OEM Tape Size | sooge tooge | ○ 400GB ○ 50GB | 2003B 0 1068 | Container Name and Ty TEST_VTL_LALA VTL | ype |
| Email Alerts Admin Contact Info Password Email Relay Host Date and Time Support | Access Protocol Access Control | NDMP FQDN or IP 10.8 238 125 | O ISCSI | No Access | | |

Alternatively you may also use the "vtl -create_carts" cli command for this operation:

> vtl --create_carts --name TEST_VTL_LALA --tapes 10

Created 10 cartridges

A.2.7 Updating NetVault Backup to identify newly added VTL media

After the VTL media has been added to the target VTL container, NetVault must now be updated to be able to use the newly created media.

- 1. Select the VTL and conduct an inventory update.
- 2. Navigate to the Tape Library Management menu for the given DR VTL and select to Open Door. The Activity and Door Status will change from (Online;Closed) to (Door Open;Open).
- 3. At this time select the Close Door function, which will force an update to the inventory of the library contents. This will result in a Read Element Status request by the NetVault Software, which in turn will update the new inventory status resulting in the newly added tapes appearing for use within NetVault: Backup.



| NetVault Backup | | | | | | 1 | Same |
|--|------|----------|-----------------------------|---------|----------|----------|--------------|
| Netroal Dockap | | | | | | | a detault - |
| Tape Library Management | | | | | | | |
| Name AUTOINTS: 8-0.0.1 (STK L700) | Orth | er: | | | | | |
| Vendor STX | | Bay + | Furthe | Statut | activity | Costents | |
| Product U700 | | DRIVE 1 | 0-0.0.2 (BM ULT2300-TD4) | onine | ide | Unicaded | |
| Drives 10 | | | 0-0.0.2 (BM ULT2500-TD4) | Onitre | ide | unloaded | |
| a Backup ad | | CRIVE 3 | 0-0.0.4 (BM ULTOS00-TD4) | ONINA | ida | Unloaded | |
| a Restare ad | | DRIVE 4 | 0-0.0.5 (BM ULT2380-TD4) | Otime | ide | Univaded | |
| Activity Online | | CRIVE 5 | 5-0.0.5 (BM ULTISSO TD4) | Online | ide | Univaded | |
| Door Closed | | DENE 4 | 8-0-0 7 (644 ULTO 580-TD-0) | Online | ide | Univaded | |
| e ////age | | DATIVE 7 | 6-0.0.8 (6M UL T3580-TD4) | Celline | ide | Unisaded | |
| ing and a second s | | DRIVE 8 | 0-0.0.7 (0M ULT2500-TD4) | onine | 1dia | unicaded | |
| aperts 🥝 | | DRIVE T | 0-0.0.10 (844 ULY3500-104) | onine | ide | Unicaded | |
| | | DRIVE 10 | 8-8.0.11 (BA ULT3580-TD4) | Otifine | 154 | Unloaded | |
| Status Online | | | | | | | |
| Clasts Door Open | | | | | | | |
| Device | | | | | | | |
| Volare Dear | | | | | | | |
| re Notifications | | | | | | | |
| Jerrings | | | | | | | |
| wration | | | | | | | |
| and Taterials | | | | | | | |
| | | | - | | | | |
| | | | | 2 | | | |
| | | | | | | 1+1 | to of to the |

A.2.8 Space reclamation guidelines

General Guidelines

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

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

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

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

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

Product Specific Guidelines

In the event that space becomes an issue or that a user impact requires manual cleaning media can either be manually Erased, Blanked, Scratched or otherwise recycled and a manual cleaning cycle initiated on the DR unit.

For Netvault Backup the following can be used when a situation dictates that space must be reclaimed manually.

- 1. From the Explore Storage: Tape & VTL Storage: Explore Tape Storage page select the volume and Blank it.
- 2. Repeat this process as needed with all media items that can be reconciled for reclamation.

CAUTION: This will permanently delete / destroy the data on these virtual volumes.

| NetVault B | ackup | | | | | 🚨 admin - 🛛 🔒 |
|--|---|---|---------------------------|--------------|-----------|---------------------|
| Server Monitor Job Status | Explore Tape Med | 5ROEAM001 | Choose a saveset from the | list below: | Q. secret | |
| View Logi View Events Jobb Create Restop: Job Create Restop: Job Create Restore: Job Manage Asto Manage Notices: Explorising Manage Notices: Job Reporting View Reports Job Reports Job Reports Job Reports Goldes Configuration Goldes Configuration Manage Dentes | Label Group Library Offsite Location Media Type Data Stored Space Available Reuse Policy Date Last Read Times Reused Read Errors Write Errors Usable Read-Only Bed Only | AUTOINT8 13 Apr 11:36-1 AUTOINT8: Device DRv32:L700-5ROEAM_00 (STK L70 None ULTRIUM 4/16T U-416 0.00 Kiß 8.00 GiB Reuse 4/13/2015, 11:42:50 AM Never 1 0 0 Yes No Yes | Severset Date | Saveset Name | Size | Job/Instance/Phase |
| Manage Users Configure Notifications Change Settings elp Documentation Video and Tutorials | Media Usage | e Savis - Attack Inconstant - Attack | (B) (B) (B) | Sauce Blank | 6 Daura | No Items to display |

Alternatively users can opt to use the bulk blank facility for scale by accessing the Manage Devices: Tape Library Management Page.

| 9 | васкир | | | | | | | | ≛adnin - |
|---|----------|--|-------|----------|---------------------------------|----------|----------|-----------|-----------------|
| nitoring erver incentor ib Status evice Activity | Tape Lib | AUTOINT8: Device DR/32:1700-5R0EAM_00 (STK 1700) | Drive | si. | | | | | |
| ew Logs | Product | 5TK 1700 | | Bay - | Name | Ratus | Activity | Contents | |
| w Events | Drives | 10 | | Dente 1 | Tape DRVDZ ULT3580-TD4-580 | . Online | ide | unloaded | |
| re tadop inh | Slots | 10 | | COUNT 2 | Table Concerns 13500 1374 500 | (mine | ide . | introduct | |
| ate Restore Job | Client | AUTOINT8 | | CENT 4 | Table CENCIZ US TUNED. TO 4 190 | Online | | Litingdad | |
| age Sets | Actinity | Online | | DENT 1 | Tape CRIVIT ULTIMO TOA 180 | onine | | coloaded | |
| age Ab Definitions | Door | Closed | | DRIVE 6 | Tape DRV02.ULT0580-T04-580_ | onine | ide. | Unloaded | |
| lore Itorage | | | | DRIVE 7 | Tape DRV02.ULT0580-TD4-5R0_ | Onizina | 104 | Unloaded | |
| rting | | | | DRIVE 8 | Tape DRVDZ.ULTDS80-TD4-580_ | Online | ide | Unloaded | |
| e Reports | | | | DRIVE 1 | Tape 08v02.0173580-TD4 5R0_ | Online | ide | Unloaded | |
| Annual Separation ded Cenfiguration Agis Clents Agis C | > | | | DBYYE 10 | Tager CR-02.0173580 TD-1980 | Orline | ule. | Shloaded | |
| | | | - 14 | | | | | | - 10 of 10 Memo |



3. When the reconciliation process has completed on the NetVault: Backup software, from the DR Series system, initiate a cleaning cycle either via the UI or via the command line. For example:

> maintenance --filesystem --reclaim_space

Successfully started cleaner.

4. Make sure that the space has now been reclaimed via the UI or via the command line. The Cleaner Status should transition from Running to Pending at which time the statistics should change to reflect the reclaimed space. For example:

| > statssystem | | |
|------------------------------|--------------|---|
| Capacity Used | : 22.0 GiB | |
| Capacity Used in GB | : 23.666 | |
| Capacity Free | : 7970.4 GiB | |
| Capacity Free in GB | : 8558.199 | |
| Read Throughput | : 0.00 MiB/s | 3 |
| Write Throughput | : 0.00 MiB/s | 3 |
| Current Files | : 66 | |
| Current Bytes | : 3359575340 | 5 |
| Post Dedupe Bytes | : 2492622499 | 0 |
| Post Compression Bytes | : 2273455388 | б |
| Post Encryption Bytes | : 0 | |
| Post Encryption Bytes in GiB | : 0.0 GiB | |
| Compression Status | : Done | |
| Cleaner Status | : Running | |
| Encryption Status | : Disabled | |
| Total Inodes | : 101 | |
| Bytes decrypted | : 0 | |
| Dedupe Savings | : 25.81 % | |
| Compression Savings | : 8.79 % | |
| Total Savings | : 32.33 % | |

