

Setting Up the Dell[™] DR Series System as a Backup Target on ASG-TimeNavigator

Dell Engineering June 2015

Revisions

Date	Description
April 2015	Initial release
June 2015	Updated cleaner recommendation

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Executive summary

This white paper provides guidelines about how to set up the DR Series system as a backup to disk target for ASG-Time Navigator over CIFS and NFS. This paper 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 ASG-Time Navigator build version and screenshots used for this paper may vary slightly, depending on the version of the software you are using.



1 Installing and configuring the DR Series system

- 1. Rack and cable the DR Series system, and power it on. Initialize the DR Series system. Refer to the *DR Series System Administrator Guide* topics: "iDRAC Connection", "Logging in and Initializing the DR Series System," and "Accessing IDRAC6/Idrac7 Using RACADM" for more information.
- 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.

INTEGRATED DELL REMOTE Support About Logout						
System Dell DR4000 root , Admin	Properties Setup System Summary Sy	Power Logs Alerts Console/Media stem Details System Inventory	vFlash Remote File Share			
System IDRAC Settings Batteries	System Summary			0 3	2	
Fans	Server Health					
Power Supplies	Status Component		Virtual Console Preview			
Removable Flash Media Temperatures Voltages Power Monitoring	Batteries		Options : Settings			
	E Fans					
	Maintrusion		and the second s			
	Power Supp					
	Removable I	lash Media				
	Temperature	A:		-		
	Voltages		Refresh	unch		
	Server Information		Quick Launch Tasks			
	Power-State	ON	Power ON / OFF			
	System Model	Dell DR4000	Power Cycle System (cold boot)		-	
	System Revision	н	Launch Virtual Console			
	System Host Name	DR4000-DKCV6S1.asglab.roundrock	View System Event Log			
	Operating System	CentOS	View IDRAC Log			
	Operating System Ver	alon release 5.4 (Final) Kernel 2.6.18-164.e	Update Firmware			
	Service Tag	DKCV6S1	Resettore	_		
	Express Service Cod	29529104401				
	BIOS Version	1.9.0		_		
	Firmware Version	1.80 (Build 17)			-	

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



5. Set the user-defined networking preferences.



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

Set Static IP Ac	idress
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) ? _

7. Log on to DR Series System administrator console using the IP address you just provided for the DR Series system with the username **administrator** and password **St0r@ge!**

DØLL	DR4100-VM sush-hv2t2	
Login		Reset Password
	Please enter your password: Username: [administrator Password: [Stör@gel Log In	ĵ
Copyright © 2011	1 - 2015 Dellins, Alfrights reserved	

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. In the left navigation area of the DR Series system GUI, select Active Directory.

DELL DR4100-VM		administrator (Log out) Help	
sush-hv2t2.ocarina.local Active Dire	ectory	Join	1
Alerts Settings Events The Active Direc	ctory settings have not been configured. Click on the 'Join' link to configure them.		
Container Statistics CIF\$ Share Replication Statistics			
Schedules System Configuration Networking			
Active Directory Local Workgroup Users Email Alerts			
Password Email Relay Host Date and Time			
Support Copyright © 2011 - 2015 Dell Inc. All rights reserved.			
organise and the and the set If the Hard State VEL.			



c. Enter your Active Directory credentials.

	DELL DR4100	administrator (Log out) Help	
	sh-hv2t2.ocarina.local	Active Directory Configuration Join	
8	Global View Dashboard	Note: By joining the Active Directory, you will lose the current URL and session connectivity to the	
	Events	system, the proviser will re-priect to a new UKC and you will need to log pack into the system again.	
	Usage	Usemame":	
	Container Statistics	Password*:	
	- Storage	Org Unit	
	Schedules System Configuration	Cancel Join Domain	
	Networking		
	Local Workgroup Users		
	Email Alerts		
	Password		
	Email Relay Host Date and Time		
	Support		
Con	yright © 2011 - 2015 Dell Inc.	a rights reserved.	

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

- K	DELL DR4000					testad/administrator (Log	out) Help
sv	vsys-33.testad.ocarina.lot V Global View	Containers		Click on Cre	eate container	ne Edit Delete Disp	lay Statistics
-	Dashboard Alerts	Number of Containers: 2				Container Patr	: /containers
	Events	Containers	Files	Marker Type	Access Protocol Enable	d Replication	Select
	Health	backup	0	Auto	NFS, CIFS	Not Configured	0
	Usage	Lease of the second sec					
	Container Statistics	the second se					
	Storage						
	Containers						
	Replication						
	Encryption						
	Clients						
-	Schedules						
	Replication Schedule						
	Cleaner Schedule						
-	System Configuration						
	Networking						

10. Enter a Container Name,

Container Wizard - Create N	ew Container	
Container Name		* = required fi
	Max 32 characters, including only letters, numbers, hyphen, and underscore. Name must start with a letter.	
Container Name*:	sample1	
/irtual Tape Library (VTL) :		

11. Select the Connection Type as **NAS** to enable both CIFS and NFS access. (Time Navigator supports both CIFS and NFS protocols.)

Container Wizard - Create	New Container				
Select Access Protocols					* = required fields
Storage Access Protocol*:	 Dell Rapid Data Storage (RDS) Symantec OpenStorage (OST) NAS (NFS, CIFS) 	(?)	C	ontainer Name ar sample1	ıd Type
			< Back	Cancel	Next >

12. Enable NFS and CIFS access to the container as appropriate, and select **Time Navigator** for the Marker type. Click **Next**.

Container Wizard - Create	New Container		
Configure NAS Access			* = required fields
Enable Access Protocols :	✓ NFS (Use NFS to backup UNIX or LINUX clients)		Container Name and Type sample1
	CIFS (Use CIFS to backup MS Windows clients)		Access Protocols NAS (NFS, CIFS)
Marker Type*:	None	?	
	 Auto 		
	Networker		
	Unix Dump		
	BridgeHead		
	Time Navigator		
		< Back	Cancel Next >



13. Enter the required access control list details.

Container Wizard - Create New	Container		
- Configure NFS Access			* = required fields
NFS Options *:	 Read Write Access Read Only Access 	✓ Insecure	Container Name and Type sample1 Access Protocols
Map root to :	-select-		NAS (NFS, CIFS) Time Navigator
Client Access :	 Open (allow all clients) Create Client Access List 		
Client FQDN or IP : allow access client(s)		Add Remove	
		< Back	cancel Next >

14. Click Create a New Container.

ntainer Wizard - Create New Container	
nfiguration Summary	* = required field
Container Name and Type	NFS Access
Container Name: sample1	Access Option: Read Write Access
Access Protocols	Insecure: Yes Open (allow all clients):
Marker Type: Time Navigator	CIFS Access
	Open (allow all clients):
	< Back Cancel Create a New Container

15. Verify the container is created.

E						administrator (Log	out) Help
DF	R4000-78CWRR1.ocarin; V Global View Dashboard	Containers			Create	Edit Delete Displ	ay Statistics
	Alerts	Message					
	Events Health Usage Container Statistics Replication Statistics Storage	Successfully ac Successfully ac Successfully ac Successfully ac Successfully er Number of Containers: 4	Ided container "sam Ided NFS connection Ided CIFS connectior nabled container "sar	ole1". for container "sample for container "sample nple1" with the followir	1". :1". ng marker(s) "TiNa".	Container Path	/containers
	Containers	Containers	Files	Marker Type	Access Protocol Enabled	Replication	Select
	Replication	backup	1	Auto	NFS, CIFS	Online	0
	Clients	iscsiVTL1	31	None	VTL iSCSI	Not Configured	0
+	Schedules	sample1	0	Time Navigator	NFS, CIFS	Not Configured	0
+	System Configuration	vti800	31	None	VTL ISCSI	Not Configured	0

- 16. Select the Container that was just created and click **Edit.** Note the container share/export path, which you will use later to target the DR Series system.
- 17. To exit, click **Cancel**

Note: For improved security, Dell recommends adding IP addresses for the Backup console (ASG-Time Navigator). Not all environments will have all components.



2 Configuring a backup job on ASG-Time Navigator for a CIFS target

This procedure describes how to initiate and configure a backup job using ASG-Time Navigator with the DR Series system. The high level steps are as follows:

- 1. Configure CIFS container as a TiNa-library (i.e., backup device)
- 2. Create a media pool and attach the TiNa library to this media pool
- 3. Configure the TiNa backup strategy
- 4. Select source data and start a backup job

2.1 Configuring a CIFS container as a TiNa-library

- Open the Time Navigator Administration Console by going to Start > All Programs > TimeNavigator > Administration. Configure the CIFS container as a TiNa-library (backup device) in the form of a virtual library system.
- 2. Login to catalog.

😨 Catalog I	Login: "catalo	og"			
	User: Password:	admin ******			
			ОК	Cancel	Help

3. Go to **Devices** > Library > New.

😵 catalog - Time Navigator - Administration Console - Version 4.3	X
Catalog Monitoring Platform Backup Archiving Devices Storage Security Help Device Detection Wizard Advanced Device Manager Drive Catalog.cat Catalog.windows 2008 Recovery Agent Properties Delete	
Catalog: Statistics Cache Catalog: Catalog: Server 'R310-SY5-09" Used Size: 0.15 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Not Expandable ? Objects: 47056 Versions: 93149	

select virtual Libraries, and expand the Atempo section. Click virtual Library system	n.
😨 catalog - Time Navigator - Administration Console - Version 4.3	_ 🗆 X
Catalog Monitoring Platform Backup Archiving Devices Storage Security Help	
Catalog.cat R310-SYS-09 Catalog Windows 2008 Sample_cifs_library Sample-cifs-library_ Sample cifs_library Vtl Disk	
Catalogs Statistics Cache Catalog Fujisu Catalog "catalog" Server "R310-SYS Metwork Appliance Catalog "catalog" Server "Oracle StorageTek	
Used Size: 0.15 GB Cuantum/ATI Allocated Size: 1 GB Cuantum/ATI Cancel Help	
Allocation Status: Not Expandable Objects: 47058	

4. Select Virtual Libraries, and expand the Atempo section. Click Virtual Library System.

5. Enter a library name (for example, sample_cifs_library) in the New Atempo VLS screen and provide the CIFS share path in the **Media Directory** field. Click **OK**.

🤓 New Acemp	O YLS		<u> </u>
General Adv	anced		,
	Atempo VLS		
	Host Name:	R310-SYS-09	
	Library Name:	sample_cifs_library	
	Number of Drives:	2	
	Media Directory:	\\10.250.208.94\sample	
	Cartridge Size (MB):	10000	
	Number of Cartridges:	300	
	<u>K</u>	<u>C</u> ancel <u>H</u> elp	



6. Confirm the library has been properly created in catalog.

Note: TiNa backup services should run as the user with domain administrator or administrator write permissions on the DR Series system.

Refer to Appendix A for recommendations on the number of cartidges and size for disk-based dedupe appliances.



2.2 Creating a media pool and attaching the TiNa library



1. On the Storage menu, click Media Pool and then click New.



2. Enter a Pool Name and Label, and click **Add**. Select the available **Drives** in the list by clicking **OK**.

Pool Name: Label: Comment:	sample_mediapoo sample_mediapoo	əl əl		=
Retention © Infini © Data 01	Period te stored during Weeks	Associated Drives	Logical N sample-c sample-c	lame ifs-librar ifs-librar
		<u>o</u> k <u>c</u>	ancel	Help

2.3 Configuring the TiNa backup strategy

 Click the Backup menu and then select Platform Selection. Select the Strategy (for example, Strategy A), click New, and then click Standard Strategy.

😨 catalog - Time Navigator - Ac	dministration Console - V	lersion 4.3	- 🗆 ×
Catalog Monitoring Platform Ba	ckup Archiving Devices	Storage Security Help	
	Scheduling •		
catalog.cat	Backup Wizard Groups Backup Status List Strategy List Selected Platform	sample-dfs-lbrary sample-dfs-lbrary sample-dfs-lbrary sample-dfs-lbrary with rain Backup Selecton Strategy A Strategy A Strategy D Strategy D Full Session Now Incremental Session Now	
Catalogs Statistics Cache Catalog "catalog" Server "R3 Used Size: 0.15 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Not Expand Objects: 47058 Versions: 93149	110-SYS-09"	talog.ca	



2. Click the Main button under Media Pools. Select the pool name, and click OK.

New	Strategy A - Platform R310-SYS-09	×
Full	Incremental Options Advanced Snapshot Replication	
ΠMe	edia Pools	
[Main: sample mediapool	
	Add Name	
	Remove	
E Eu	II Scheduling	
	Choose New Edit Unlink	
li		
	Synthetic	
		_
Rese	et Import Calendar View	
	OK Cancel Help	
		_

3. Similarly, add it for **incremental** backup. Without this Incremental media Pool, Time Navigator will not accept to take the full backup.

Full Incremental Options Advanced Snapshot Replication	
Media Pools	
Main: sample_mediapool	
Multiple Writing Pools	
Add Name	_
Remove	
- Towards I School Jing	
Choose New Edit Unlink	
Disable Temporarily	
Reset Import Calendar View	



2.4 Selecting source data and starting a CIFS backup

1. Right-click the Time Navigator backup server host icon and click Backup Selection.

2. Click **New**, and then browse to the path of the data to be backed up. Select the directory location and click **OK**.

Backup Selection List					×
Column choice					
Directory		Strateg	ΙΥ.		
	Path of the New Backup Selection:	Backup Selection			
			OK	Cancel	
New Properties	Delete				Close Help
Browsing "R310-SYS-0	9"				_ O ×
Path					
d:\ sekhar10 sekhar2 sekhar3 sekhar3 sekhar4 smal_data srinivas System volume temp TIR_src Users Users vsphere	Information				4
d:\source_dataset					
			0	K Cano	el Help

3. Apply a strategy for the new backup selection, and click **OK**.

💀 New Backup Selection 🛛 📉 🗙
Directory: /d/source_dataset
Filters Time Phases Properties Security
Names
Selection: *
Exclusion:
Maximum Size: Infinite
Modified Since
Days; 1
Default Configuration
OK Cancel Help

Note: Dell recommends not to enable TiNa's native compression and encryption while doing backup and restore

😵 New Backup Selection 🛛 🗙
Directory: /d/source_dataset
Filters Time Phases Properties Security
Format
Parallelized
Default Configuration



4. On the **Backup** menu, click **Selected Platform** > **Strategy A** > **Full Session Now**.

👷 catalog - Time Navigator - Administration Consolo	e - Version 4.3
Catalog Monitoring Platform Backup Archiving Devic	es Storage Security Help
Scheduling	•
Image: Control of the second secon	Image: Sample-cifs-Ibrary sample-cifs-Ibrary Image: Sample-cifs-Ibrary sample-cifs-Ibrary Radup Selection Vtl Disk Backup Selection Vtl Disk Strategy A New Strategy C Delete Full Session Now Incremental Session Now
Catalogs Statistics Cache Catalog "catalog" Server "R310-SYS-09" Used Size: 0.15 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Not Expandable Objects: 47057 Versions: 93148	catalog.ca

5. Monitor the status of the running job by clicking **Monitoring > Job Manager**.

Event 3ob M Task Media	Viewer anager Aewer Request Co	rsole					R310-5Y5-09.978	
Ca	talog	Windows 2008	sample_cifs_library Atempo VLS	sample-c Vtl	ifs-library_ Disk	sample-cifs-library_ Vtl Disk	Recovery Agent	
alog - Time	Navigator -	Job Manager - Version	43					
a View Joh	s Help	and the second second second						
and d	-1-1-1							
II >	TAV	I						
II ► we Jobs tatus		D Description	Progress	Alarms	: Media		Submit Date	
II ► ve Jobs atus ming (active	T A V	D Description B Backup R310-SYS-0	Progress 9 A (Full) 0 G2	Alarms	: Media sample_r	rediapool 2014/05/	Submit Date	
II > ve Jobs atus ming (active	I A I	D Description B Badrup R310-SY5-0	Progress P A (Full)	Alarms	i Media sample_r	rediapool 2014/05/	Submit Date 31 00455713	
II > we Jobs tatus mmm (active oric tatus	T A V	D Description Badrup R310-SYS-0	Progress PA (Full) 0 Cel	Alarms	Media sample (rediapool 2014/05/ Submit Date	Submit Date 31 06457713 End Date	
II > we Jobs tatus mining (active oric tatus mining tatus	1 sessions) 2 10 204	Description Description Description Cetalog Mantenance	Progress 19 A (Full) 0 68 Volume	Alarms	Media comple_r	submit Date 2014/05/	Submit Date 3100207018 End Date 2014/05/30 12h00-01	
II	▲ ▼ sessions) 2 ID 204 233	Description Badrup R310-SYS-0 Description Catalog Maintenance Badrup R310-SYS-09 B (Progress 9 A (Full) 0 021 (Full) 19 08	Alarms	Media sample_r	Submit Date 2014/05/ 5014/05/0 2014/05/30 (2006)1 2014/05/2014/920	End Date 2014/05/2012 2014/05/2012/b0001 2014/05/2012/b0001	
II > we lobs tatus tatus oric tatus supjete supjete	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	Description Description Description Description Catalog Maintenance Backup R310-5Y5-09 B(Bac	Progress PA (Ful) 0 000 Volume (Ful) 19 G8 (Ful) 19 G8	Alarms	Media sample r Media	Submit Date 2014/05/ 2014/05/01 12/00-01 2014/05/29 23/14/9-28 2014/05/29 23/14/9-28	End Date 51 00457213	
II	■ ID 2014 2014 2013 2014 2013 2014 2013 2014 2013 2014 2013 2014	Description Description Badup R310-SYS-0 Description Catalog Mantenance Badup R310-SYS-09 & I Badup R310-SYS-09 A Catalog Mantenance Catalog Mantenance	Progress 9 A (Ful) 10 68 Volume (Ful) 19 68 (Ful) 19 68 9 8 9	Alarms	Media sample_r Media - -	Submit Date 2014/05/ 2019/05/20 12/00:01 2014/05/20 12/00:01 2014/05/29 23/11:19 2014/05/29 12/10:01	End Date End Date 2014/05/29 239/54 13 2014/05/29 239/54 13 2014/05/29 239/54 13 2014/05/29 239/54 13 2014/05/29 239/16 39 2014/05/29 2014 2014/05/29 200	
II	Image:	Description Description Description Description Catalog Maintenance Backup R310-5Y5-09 A Catalog Maintenance Backup R310-5Y5-09 Catalog Maintenance Backup R310-5Y5-09 Description	PA (Ful) 0 681 Volume (Ful) 19 68 (Ful) 19 68 (Ful) 19 68	Alarms	Meda sample (Meda - -	submit Date Submit Date 2014/05/30 12/000-01 2014/05/29 23/94/28 2014/05/29 23/94/28 2014/05/29 23/94/28 2014/05/29 23/94/28	End Date End Date End Date 2014/05/20 12/b00-01 2014/05/29 23/b61-13 2014/05/29 23/b64-13 2014/05/29 23/b64-09 2014/05/29 12/b00-03 2014/05/29 2014/05/29 12/b00-03 2014/05/29	
II I I I I I I I I I I I I I I I I I I	Image:	Description Description Description Catalog Maintenance Badup R310-5Y5-00	Progress 9 A (Ful) 0 681 Volume 10 681 (Ful) 19 68 (Ful) 19 68 (Ful) 20 68 (Ful) 20 68 (Ful) 20 68	Alarms	Meda sangle J Meda	Submit Date Submit Date 2014/05/ 2014/05/20 12:00:01 2014/05/29 23:01:01 2014/05/29 23:01:01 2014/05/29 23:01:01 2014/05/29 03:03:04 2014/05/29 03:05:04 2014/05/29 03:05:04 2014/05/20 2014/05/20 2014/05/20 2014/05/20 2014/05/20 2014/05/20 2014/0	End Date End Date 2014/05/20 12h00-01 2014/05/20 23h46-13 2014/05/20 23h46-19 2014/05/20 23h46-19 2014/05/20 23h46-19 2014/05/20 04h59-00 2014/05/20 04h59-10 2014/05/20 04h59-14	
III be we solve toric tatus transi (status omplete omplete omplete omplete omplete omplete omplete	T A V 10 284 283 284 283 284 283 284 283 284 283 284 284 285 285 285 205 205 205 205 205 205 205 20	Description Description Description Catalog Mantenance Bodup R310-SYS-09 Badup R310-SYS-09 D	Progress 9 A (Full) 0 (62) (Full) 10 (62) (Full) 19 (68) (Full) 19 (68) (Full) 20 (62) (Full) 20 (62) (Full) 20 (62) (Full) 20 (62) (Full) 0 (62)	Alarms	Meda sangle J Meda - - -	Submit Date Submit Date Submi	End Date End Date 2014/05/20 12h00-01 2014/05/20 23h54-13 2014/05/20 23h54-13 2014/05/20 23h54-13 2014/05/20 23h54-17 2014/05/20 23h54-14 2014/05/20 24 2014/05/20 24 2014/05/20 2	

2.5 Performing an incremental backup

1. Add the Full backup Media Pool in the **Incremental** tab. Browse the Media pools by clicking **Main**, and then selecting the Full backup Media Pool in the list.

😪 catalog - Time Navigator - Administration I		
Catalog Monitoring Platform Backup Archiving	Devices Storage Security Help	
Catalog.cat A A	Backup Strategy A Properties - Platform R310-SY5-09	Secondary_d1 Wi Disk
Catalog "catalog" Server "R310-SYS-09" Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expandable Objects: 81554 Versions: 240561	Incremental Scheduling Choose New Edit Unlink. Disable Temporarily Reset Import Calendar View OK Cancel	

2. Select the full backup strategy by clicking the **Backup** > **Platform Selection** and then selecting the strategy (for example, **Strategy A**). Click **New** > **Incremental Session Now**.

😨 catalog - Time Navigator - Administration Console - Y	ersion 4.3	
Catalog Monitoring Platform Backup Archiving Devices Scheduling Backup Wizard Groups Catalog.cat Catalog Backup Status List Backup Status List Backup Selection List Selected Platform	Storage Security Help	ary_d0 Secondary_di Isk Vtl Disk
Catalogs Statistics Cache Catalog "catalog" Server "R310-SYS-09" Used Size: 0.32 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expandable Objects: 82671 Versions: 326926	talog.ca	



3 Configuring a restore job on ASG-Time Navigator over a CIFS target

1. When a backup job completes, select the Windows Time Navigator host, and configure the Restore operation by selecting **Platform > Restore & Archive Manager**.

😪 cata	log - Time N	avigator - Admir	nistration C	onsol	e - Version 4	.3			_ 🗆 ×
Catalog	Monitoring	Platform Backup	Archiving	Devid	es Storage	Security Help			
		Use		•					
14		Restore & Arch	ive Manager.					-	
	No	New		•				SRA	
	0-20	Properties							
	catalog	Delete						R310-SYS-09.sra	
	Catalo	Host List			_cifs_library	sample-cifs-library	sample-cifs-library_	Recovery Agent	
		Application List			mpo VLS	Vtl Disk	Vtl Disk		
		Search		•					
		Display		•					
		Set Preference	s						
Cabala	Statistics	المعا							
Catal	Jys Statistics	[cacie]		1 4	catalog.ca	R310-SYS-	R310-5Y5-		
	Catalog "catalo	og" Server "R310-9	YS-09"						
	Used Siz	e: 0.15 GB							
	Allocated Siz	e: 1 GB							
	Maximum Siz	e: 512 GB							
A	llocation Statu	s: Not Expandable	?						
	Object	s: 47058							
	Version	s: 93149							

2. Enter the credentials of the Host for the Restore Job configuration and click **OK**.

🙆 Log on to	the Host "R310-SY	'S-09"
Microsoft	Platform User: Platform Domain: Platform Password:	administrator R310-SYS-09 ********
		OK Cancel Help

4. Browse to and select the objects to be restored.

😨 Time Navigator - Restore &	Archive Manager - Version 4.3		
Catalog Tree Archiving Backup	Restore Help		
Platforms	Past O	Sat May 31 2014 09:11	
R310-5Y5-09	│ □□ , ∷ / ⊢□ , ∷ ⊢□ ,	-	
R310-SYS-09\administrator		dataset	
C Precent			
05/31/2014 09:11			
Show deleted files			
For the past:			
Tree Control			
View Unprotected Files			

5. On the **Restore** menu, click **Run.**

😨 Time Navigator - Restore & Arch	hive Manager - Version 4.3		_ 🗆 🗙
Catalog Tree Archiving Backup R	estore Help		
Platforms P	View Checked Objects Only	Sat May 31 2014 09:11	
Platoms R310-5Y5-09\administrator R310-5Y5-09\administrator Time Navigation Pesent Past D5/51/2014 09:11 Show deleted files For the past: D2 Days Tree Control View Modified Files View Unprotected Files	Run Crrl+R Test		



6. Select one of the Restore Destinations and click **OK**.

🐻 Time Navigator - Restore	& Archive !	Manager - Versi	ion 4.3	_ 🗆 ×
Catalog Tree Archiving Bac	kup Restore	e Help		
Platforms	Past	Θ	Sat May 31 2014 09:11	
As user: R310-5Y5-09 R310-5Y5-09		• ≝ / ≐+⊡- - ⊡ ⊕+₽	d Z-• 📴 source_dataset	
Time Navigation			😵 Restore 📉	
C Present			Parameters Polynian Consider	
Past				
05/31/2014 09:11			Restore Destination	
			C Other Directory:	
Show deleted files			 Original Directory 	
For the past:			- Dealters Laurel	
02 Days				
Tree Control			Restore Data and Attributes except Attributes of Existing Directories Destore Data and Attributes including Attributes of Existing Directories	
View Modified Files			C Restore Object Attributes Only	
View Unprotected Files			C Restore Directory Attributes Only	
L	3			
			Do not Restore Security Attributes	
			Go through the Filesystem Mounting Points during Restore	
			Restore all file versions	
			Volume to Restore (bytes): 20,9/1,520,740 Number of objects to restore: 2	
			upate	
			OK Cancel Help	

The Restore Information window shows the restore progression to its completion.

😨 Time Navigator - Restore & Archive Manager - Version 4.3 Catalog Tree Archiving Backup Restore Help	_ _ X
Platforms Sat May 31 2014 09:11 Image: Connected to: Image: Connected to: R310-SYS-09 Image: Connected to: As user: Image: Connected to: R310-SYS-09\administrator Image: Connected to:	
Ime Navigation Present Ds/31/2014 09:11 Show deleted files For the past: D2 Days Stow Modified Files View Modified Files View Modified Files View Unprotected Files: I Restore directories: I Errors: 0 Close	



7. Monitor the restore job status by clicking **Monitoring > Job Manager**.

Status	11	D Description	Progress	Alarms	Media		Submit Date	
kunning (active se	essions) 26	36 Restore R310-515-09		•	sampie_r	nediapooluu 2014/05):	31.09U13(00	
itoric Status	ID	Description	Volume	Alarms	Media	Submit Date	End Date	
storic Status Complete	ID 285	Description Backup R310-5Y5-09 A (Full)	Volume 19 GB	Alarms -	Media sample_	Submit Date 2014/05/31 08h57:13	End Date 2014/05/31 09h04:52	
storic Status Complete Complete	ID 285 284	Description Backup R310-SYS-09 A (Full) Catalog Maintenance	Volume 19 GB	Alarms - -	Media sample_ -	Submit Date 2014/05/31 08h57:13 2014/05/30 12h00:01	End Date 2014/05/31 09h04:52 2014/05/30 12h00:01	
toric Status Complete Complete Complete	ID 285 284 283	Description Backup R310-SYS-09 A (Full) Catalog Maintenance Backup R310-SYS-09 B (Full)	Volume 19 GB 19 GB	Alarms - -	Media sample_ - -	Submit Date 2014/05/31 08h57:13 2014/05/30 12h00:01 2014/05/29 23h49:28	End Date 2014/05/31 09h04:52 2014/05/30 12h00:01 2014/05/29 23h54:13	
storic Status Complete Complete Complete Complete	ID 285 284 283 282	Description Backup R310-SYS-09 A (Full) Catalog Maintenance Backup R310-SYS-09 B (Full) Backup R310-SYS-09 A (Full)	Volume 19 GB 19 GB 19 GB 19 GB	Alarms - - -	Media sample_ - -	Submit Date 2014/05/31 08h57:13 2014/05/30 12h00:01 2014/05/29 23h49:28 2014/05/29 23h11:19	End Date 2014/05/31 09h04:52 2014/05/30 12h00:01 2014/05/29 23h54:13 2014/05/29 23h16:39	
storic Status Complete Complete Complete Complete Complete	ID 285 284 283 282 281	Description Backup R310-SYS-09 A (Full) Catalog Maintenance Backup R310-SYS-09 B (Full) Backup R310-SYS-09 A (Full) Catalog Maintenance	Volume 19 GB 19 GB 19 GB	Alarms - - - -	Media sample_ - - -	Submit Date 2014/05/31 08h57:13 2014/05/30 12h00:01 2014/05/29 23h49:28 2014/05/29 23h11:19 2014/05/29 12h00:01	End Date 2014/05/31 09h04:52 2014/05/30 12h00:01 2014/05/29 23h54:13 2014/05/29 23h16:39 2014/05/29 12h00:03	
storic Complete Complete Complete Complete Complete Complete Complete	ID 285 284 283 282 281 281 278	Description Backup R310-SYS-09 A (Full) Catalog Maintenance Backup R310-SYS-09 B (Full) Backup R310-SYS-09 A (Full) Catalog Maintenance Backup R310-SYS-09 D (Full)	Volume 19 GB 19 GB 19 GB 20 GB	Alarms	Media sample_ - - - -	Submit Date 2014/05/31 08h57:13 2014/05/30 12h00:01 2014/05/29 23h49:28 2014/05/29 12h00:01 2014/05/29 12h00:01 2014/05/29 03h38:46	End Date 2014/05/31 09h04:52 2014/05/30 12h00:01 2014/05/29 23h54:13 2014/05/29 23h16:39 2014/05/29 12h00:03 2014/05/29 03h59:08	
storic Status Complete Complete Complete Complete Complete Complete	ID 285 284 283 282 281 278 269	Description Backup R310-SYS-09 A (Full) Catalog Maintenance Backup R310-SYS-09 B (Full) Backup R310-SYS-09 A (Full) Catalog Maintenance Backup R310-SYS-09 D (Full) Backup R310-SYS-09 A (Full)	Volume 19 GB 19 GB 19 GB 20 GB 20 GB	Alarms	Media sample_ - - - - - -	Submit Date 2014/05/31 08h57:13 2014/05/30 12h00:01 2014/05/29 23h49:28 2014/05/29 12h00:01 2014/05/29 12h00:01 2014/05/29 03h38:46 2014/05/29 03h37:55	End Date 2014/05/31 09h04:52 2014/05/30 12h00:01 2014/05/29 23h54:13 2014/05/29 23h16:39 2014/05/29 12h00:03 2014/05/29 03h59:08 2014/05/29 03h58:47	

When the Restore job completes, it appears in the Job Manager.

👸 catalo	og - Time Navigator -	Job Manager - Version 4.3						
<u>C</u> atalog	⊻iew <u>J</u> obs <u>H</u> elp							
		I						
Active 2	Jobs							
Statu	IS	ID Description	Progress	Alarms	: Media	Submit Date		
								·
⊢Historic	. <u> </u>							
50.00	IS ID	Description	Volume	Alarms	Media	Submit Date	End Date	
Comp	lete 286	Restore R310-SYS-09	19 GB	-	sample_me	2014/05/31 09h19:06	2014/05/31 09h26:56	
Comp	285	Backup R310-SVE C2 A (Full)	19 GB	-	sample_me	2014/05/31 08h57:13	2014/05/31 09h04:52	
Comp	lete 284	Catalog Maintenance		-	-	2014/05/30 12h00:01	2014/05/30 12h00:01	
Comp	lete 283	Backup R310-SYS-09 B (Full)	19 GB	-	con2_mp	2014/05/29 23h49:28	2014/05/29 23h54:13	
Comp	lete 282	Backup R310-SYS-09 A (Full)	19 GB	-	con1_mp	2014/05/29 23h11:19	2014/05/29 23h16:39	
Comp	lete 281	Catalog Maintenance		-	-	2014/05/29 12h00:01	2014/05/29 12h00:03	
Comp	lete 278	Backup R310-SYS-09 D (Full)	20 GB	-	cifs2 mp	2014/05/29 03h38:46	2014/05/29 03h59:08	
Comp	lete 269	Backup R310-SYS-09 A (Full)	20 GB	-	cifs2 mp	2014/05/29 03h37:55	2014/05/29 03h58:47	~
Г								élava Dohail
								Alarm Decai
Catalo	on Number of Active 10	hs: 0				Number of Historical Jobs: 6	9/169	
Cacal	og promoor of Active bo	5,0				Number of Historical Sobs, o	/10/	I



4 Running a duplication and restore job on a secondary CIFS target

For certain Disaster Recovery scenarios, a duplicate copy of a backup data set from a primary DR Series system can be made available on a secondary DR Series system.



Follow these instructions to create a duplicate copy of a backup.

1. On the primary DR Series system, create a CIFS container.



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2. On the secondary DR Series system, create a CIFS container.



The following figure shows the configured primary and secondary DR containers as Primary-Virtual Library System (VLS) and Secondary-VLS for demonstration of duplication and restore from a secondary DR Series system.

😨 catalog - Time Navigator - Administration Co	nsole - Yersion 4.3) ×
Catalog Monitoring Platform Backup Archiving I	Devices Storage Security Help	
Catalog Catalog A At	Primary Secondary Primary_d0 VtJ Disk Vtl Disk Vtl Disk Vtl Disk Vtl Disk	
		•
Catalogs Statistics Cache	catalog.cal	
Catalog "catalog" Server "R310-SYS-09"		
Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 G8 Allocation Status: Expandable ? Objects: 81552 Versions: 240579		



talog Monitoring Platform	Backup Archiving	Devices Storage	Security Help				
catalog.cat Catalog	R310-SYS-09 Windows 2008	Primary Atempo VLS	Secondary Atempo VLS	Primary_d0 Vtl Disk	Primary_d1 Vti Disk TriNa_Dell_Pool0000C S55,905 KB	Secondary_d0 Vtl Disk	Secondary_d1
				-			
	10.250.	242.139 - PuTTY					
	CIFS con	nnection IP a	ddresses :	*			*
(] Catalogs Statistics Cache]	CIFS co CIFS co [root@st Success TiNa". [root@st Capacity	nnection IP a nnection Enab wsys-69 ~]# c fully enabled wsys-69 ~]# s y Used	ddresses : led : containerma container "p tatssystem	* Yes rkerenable rimarycontair 141.0 GiB	e tinaname p mer" with the f	orimarycontain following mar	ner ker(s) "
Tatalogs Statistics Cache Catalog "Catalog "Catalog "Catalog" Server "	CIFS co CIFS co [root@s Success: TiNa". [root@s Capacit; Capacit; Rai0 Write T	nnection IP a nnection Enab wsys-69 ~]# c fully enabled wsys-69 ~]# s y Used y Free roughput hroughput	ddresses : led : containerma container "p tatssystem : :	* Yes rkerenable rimarycontain 141.0 GiB 7853.3 GiB 0 00 WEP/s 48.95 MiB/s	e tinaname p her" with the f	orimarycontain collowing mar)	ner ker(s) "
atalogs Statistics Cache Catalog "catalog" Server "	CIFS co CIFS co [root0s] Success: TINA". [root0s] Capacit Capacit Raid Write T Current	nnection IP a ways-69 ~]# c fully enabled ways-69 ~]# s y Used y Free roughput hroughput Files Bures	ddresses : led : containerma container "p tatssystem : : : : : : : : : : : : : : : : : : :	* Yes rkerenable rimarycontair 141.0 GiB 7853.3 GiB 0.00 WrJs 48.95 MiB/s 181/ 51814286002	e tinaname p her" with the f	orimarycontain	ner ker(s) "
atalogs Statistics Cache Catalog "catalog" Server " Used Size: 0.24 GB	CIFS co CIFS co [root0s] Success TINA". [root0s] Capacity Capacity Capacity Rai0 Write Ti Current Current Current Post Des	nnection IP a maction Enab wsys-69 ~]‡ c fully enabled wsys-69 ~]‡ s y Used y Free roughput hroughput Files Bytes dupe Butes	ddresses : led : ontainerma container "p tatssystem : : : : : : :	* Yes rkerenabl(imarycontain 141.0 GiB 7853.3 GiB 0 00 W3/s 48.95 MiB/s 181/ 518142869024 15140131988	e tinaname p her" with the f	orimarycontain	ner ker(s) "
atalogs Statistics Cache Catalog "catalog "catalog "server " Used Size: 0.24 GB Allocated Size: 1 GB Maximus Size: 512 GB	CIFS co CIFS co CIFS co Loot0s Success TiNa". Capacit Capacit Capacit R310 Read Th Write T Current Current Corrent Post Co	nnection IP a ways-69 ~]‡ c fully enabled wsys-69 ~]‡ s y Used y Free roughput hroughput Files Bytes dupe Bytes mpression Byt	ddresses : led : containerma container "p tatssystem : : : : : : : : : : : : : : : : : : :	* Yes rikerenable rimarycontain 141.0 GiB 7853.3 GiB 0 00 WB/r 48.95 MiB/s 181/ 518142869024 15140113198 14435390292	e tinaname p her" with the f	orimarycontain	Aner ker(s) "
atalogs Statistics Cache Catalog "catalog" Server " Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 GB	CIFS col CIFS col [root@s] Success TiNa". [root@sr Capacit; Capacit; Capacit; Capacit; Capacit; Capacit; Capacit; Capacit; Current Post Det Post Col Compres;	nnection IP a ways-69 ~]‡ c fully enabled wsys-69 ~]‡ s y Used y Free roughput hroughput Files Bytes dupe Bytes mpression Byt	ddresses : led : containerma container "p tatssystem : : : : : : : : : : : : : : : : : : :	* Yes rkerenable rimarycontair 141.0 GiB 7853.3 GiB 0 00 452 48.95 MiB/s 1817 518142659024 151401131988 144353902922 Done	e tinaname p her" with the f	orimarycontain	ner ker(s) "
atalogs Statistics Cache Catalog "catalog" Server " Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expanda	CIFS co CIFS co (root@s Success TiNa". Copacit Capacit Capacit Capacit Capacit Current Post Dee Post Co Compress Cleaner	nnection IP a ways-69 ~]# c fully enabled ways-69 ~]# s y Used y Free roughput hroughput Files Bytes dupe Bytes dupe Bytes mpression Byt sion Status	ddresses : led : containerma container "p tatssystem : : : : : : : : : : : : : : : : : : :	* Yes rkerenable rimarycontair 141.0 GiB 7853.3 GiB 0.00 ¥245 48.95 MiB/s 1817 518142869024 518142869024 518144353902925 Done Pending	e tinaname p her" with the f	orimarycontain	Aner ker(s) "
Atalogs Statistics Cache Catalog "catalog" Server " Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expanda Objects: 81559	CIFS coi CIFS coi CIFS coi Ciroct@s Success TINM". Capacit Capacit Capacit Raio Write T Current Current Current Current Compress Cleaners Total T	nnection IP a ways-69 ~]‡ c fully enabled wsys-69 ~]‡ s y Used y Used roughput hroughput Files Bytes dupe Bytes dupe Bytes mpression Byt sion Status Status nodes	ddresses : led : containerma container "p tatssystem : : : : : : : : : : : : : : : : : : :	* Yes rkerenable rimarycontain 141.0 GiB 7853.3 GiB 0.00 Mt3/s 48.95 MiB/s 1817 518142869024 181401131988 144353902925 Done Pending 1845	e tinaname p her" with the f	orimarycontain	Aner ker(s) "
atalogs Statistics Cache Catalog "catalog "catalog" Server " Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expanda Objects: 81559 Versions: 240587	CIFS co CIFS co CIFS co Loot0s Success TiNa". Capacit	nnection IP a ways-69 ~]‡ c fully enabled wsys-69 ~]‡ s y Used y Free roughput hroughput Files Bytes dupe Bytes mpression Byt Status Status nodes Savings	ddresses : led : : containerma container "p tatssystem : : : : : : : : : : : : : : : : : : :	* Yes rkerenable rimarycontain 141.0 GiB 7853.3 GiB 0 00 V:57- 48.95 MiB/s 1817 518142869024 151401131985 144353902925 Done Pending 1845 70.78 %	e tinaname p her" with the f	orimarycontain	ner ker(s) "
atalogs Statistics Cache Catalog "catalog" Server " Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expanda Objects: 81559 Versions: 240587	CIFS co CIFS co CIFS co CIFS co CIFS co Corcess Success TiNa". (coot@s Capacity Current Post Dec Post Dec Compress Cleaner Total II Deduge S	nnection IP a ways-69 ~]# c fully enabled ways-69 ~]# s y Used y Free roughput hroughput Files Bytes dupe Bytes dupe Bytes status Status status son Status sion Savings	ddresses : led : containerma container "p tatssystem : es : es : ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	* Yes rkerenable rimarycontain 141.0 GiB 7853.3 GiB 0 00 47345 48.95 MiB/8 181422690024 151401131985 144353902925 Done Pending 1845 70.78 % 4.65 %	e tinaname p her" with the f	orimarycontain	ner ker(s) "

The Backup Job is configured and submitted on the Primary DR Series system.

3. For duplication of existing backup data Configuration, when the primary backup job completes, click **Storage > Media > Management**.

😪 catalog - Time Navigator - Administration C	onsole - Version 4.3	
Catalog Monitoring Platform Backup Archiving	Devices Storage Security Help Media Media Pool Media Pool Media Pool Media Pool Pretry: Snapshot Prim Deduplication Engine Primary_d0 VtI Disk	Primary_d1 Vtl Disk Vtl Disk Vtl Disk Vtl Disk
Catalogs Statistics Cache Catalogs "catalog" Server "R310-SYS-09" Used Size: 0.24 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expandable ? Objects: 81671 Versions: 240699		

alan Manihavina Di 11	- Administration C	onsole - Version 4.	3 Georgian Itala				
alog Monitoring Platform	Backup Archiving	Devices Storage	Security Help				
catalog.cat Catalog	R310-5Y5-09 Windows 2008	Primary Atempo VLS	Secondary Atempo VLS	Primary_d0 Vtl Disk	Primary_d1 Vtl Disk	Secondary_d0 Vtl Disk	Secondary, Vtl Disk
c]			Media Pool Name backup_mp cifs-tina con1_mp	Selection			
Catalogs Statistics Cache Catalog "catalog" Server Used Size: 0.24 G	r "R310-SY5-09" B	catalog.ca	hyper_mp sample media maacifs-savii TINa Dell Po				-[
Maximum Size: 512 GE	able ?				(ок с	ancel

4. Select the **media pool name** on which the secondary logical drives are available and click **OK**.

5. Select the Cartridges and click **Duplicate**.

😨 catalog - Time Navigator - Administration Console - Version 4.3	
Catalog Monitoring Platform Backup Archiving Devices Storage Security Help	
Catalog.cat R310-5Y5-09 Primary Secondary Catalog Windows 2008 Primary Secondary Catalog - Media Management Image: Catalog - Media Management Image: Catalog - Media Management Pool Label: Tina-dell_pi Pool name: Tina_dell_p Retention: Infinite Number of cartridges: 3 Total Volume: 22,052 MB Catalog Image: Catalog - Media Management	
Column choice Export Display In/Out Status In/Out Period Pool Choice	
Name Barcode Volume Status Filling Level Location Retention Period	
Tina-dell_pool0000001 Primary_2 9995 MB Closed Full Primary_Infinite Tina-dell_pool000002 Primary 3 9995 MB Closed Full Primary_Infinite	
Tina-dell_pool0000003 Primary_4 2062 MB Open Partly filled Primary Infinite	
Catalog Ste Catalog ' Use Allocate Maximu Allocation C	
Recycle Close Reopen Delete -> Spare Duplicate Off-line Information	
Cuplicate the selected cartridges	



catalog - Time Navi talog Monitoring Pl	gator - Administration Console - N atform Backup Archiving Devices	Version 4.3 Storage Security Help	_	_	_	
catalog.cat Catalog 	R310-SYS-09 Windows 2008 A A Atempo VL	Secondary Atempo VLS	Primary_d0 Vtl Disk	Primary_d1 Vtl Disk Tina-dell_pool0000(9,995 MB	Secondary_d0	Secondary_d1 Vtl Disk Pool2000001 358,401 KB
Col	alog - Media Management abel: Tina-dell_p Pool I er of cartridges: 6 Total umn choice Export e Barcode	name: Tina_dell_p R Volume: 53,385 MB	tetention: Infinite	: Status In/Out Per	iod Pool Choice	
Catalog' Tir Usi Allocat Maximu Allocation	Duplicate Cartridge Cartridge Tina-dell_pool0000001 Tina-dell_pool0000002 Tina-dell_pool0000003	Status Duplicating -	Drives Primary_d Primary_d	11 10	Status Allocated Free	
Allocation C Vi	Work in progress		0/3			
	Start Cancel					

6. Click **Start** to see the duplication in progress.

7. Monitor the duplication work in progression on the Primary and Secondary DR Series systems. Catalog Monitoring Platform Backup Archiving Devices Storage Security Help



8.	Right-click the secondary	logical drive and click Enable (For Restore Only)	١.
		, , , , , , , , , , , , , , , , , , ,	

Catalog - Time Navigator - Administration Console - Version 4.3 Catalog Monitoring Platform Backup Archiving Devices Storage Security Help	
Catalog.cat Catalog. Windows 2008 A Atempo VLS Atempo VLS	Primary_d0 Primary_d1 Seco Enable (For Restore Only) Vtl Disk Vtl Disk Vtl Disk Properties Identify Content Eject Media Test Hide Test Hide
	[>]
Catalogs Statistics Cache Catalog "catalog" Server "R310-SYS-09" Used Size: 0.28 GB Allocated Size: 1 GB Maximum Size: 512 GB Allocation Status: Expandable Objects: 81671 Versions: 339220	

9. Monitor the Restore progress on the secondary system.

Platforms Past	9	Sun Jun 08 2014 11:03	
Contracted OF As user: Cat Cat Cat	saveset		
Time Navig	n		
C Present			
Progress Events			
06/08/21			
General			
Show d Restore in progra	255		
For the pa:	8.000.1 MB		
	0,0001110		
c:\saveset\data\	,00\00\00\00\46.ddt		
PuTTY 10.250.242.139 - PuTTY		EX 8 10.250.243.119 - PuTTY	
Dedupe Savings	: 75.07 %	Dedupe Savings	: 72.12 %
Compression Savings	: 5.82 %	Compression Savings	: 7.07 %
at Total Savings	: 76.52 %	Total Savings	: 74.09 %
administrator@swsys-69 > st	tatssystem	administrator@swsys-73 > st	atssystem
Capacity Used	: 146.2 GiB	Capacity Used	: 21.2 GiB
Capacity Proc	2049 2 GiB	Canadity LLCC	- 10001 9 GiB
Read Throughput	: 0.00 MiB/s	Read Throughput	: 34.94 MiB/2
Write Intoughput	MIB/s	Write Incoming	11B/3
Current Files	: 1818	Current Files	: 302
Current Bytes	: 624256813696	Current Bytes	: 80038475840
Post Dedupe Bytes	: 155653715667	Post Dedupe Bytes	: 22317298195
Post Compression Bytes	: 146587709261	Post Compression Bytes	: 20740001071
Compression Status	: Done	Compression Status	: Done
	: Running	Cleaner Status	: Pending
Cleaner Status		E Total Incdes	: 310
Cleaner Status Total Inodes	: 1847	- IOCAL INODES	
Cleaner Status Total Inodes Dedupe Savings	: 1847 : 75.07 %	Dedupe Savings	: 72.12 %
Cleaner Status Total Inodes Dedupe Savings Compression Savings	: 1847 : 75.07 % : 5.82 %	Dedupe Savings Compression Savings	: 72.12 % : 7.07 %
Cleaner Status Total Inodes Dedupe Savings Compression Savings Total Savings	: 1847 : 75.07 % : 5.82 % : 76.52 %	 Dedupe Savings Compression Savings Total Savings 	: 72.12 % : 7.07 % : 74.09 %

10. Wait for the restore to complete from the secondary container to client.

🧑 Time Navigator - Rest	ore & Archive Mana	ger - Version 4.3	
Catalog Tree Archiving	Backup Restore He	p	
Platforms	Past 🕒	Sat May 31 2014 09:11	
Connected to:		1	
Acuseri			
R310-SYS-09\administrato	or 👘	±+₩-● Main source_dataset	
Time Navigation			
C Present			
Past	Restore Informat		
05/31/2014 09:11	Progress Events		
Show deleted files	General		
For the past:	Restore comple	te	
02 Days		20,000 MB	
	d:\source_data	set)/50dup	
Tree Control		Restore complete	
View Unprotected Fi	Data Restore	Volume restored: 20.000 MB	
	Restored	files: 1 Number of objects restored: 2	
	Restored direct	pries: 1	
	E		
		Close Help	
_			



5 Configuring a backup job on ASG-Time Navigator over an NFS target

This procedure describes how to initiate and configure a backup job using ASG-Time Navigator with the DR Series system. The high level steps are:

- 1. Configure an NFS container as a TiNa-library (i.e., backup device).
- 2. Create a media pool and attach TiNa logical drives to this media pool.
- 3. Configure a TiNa backup strategy.
- 4. Select the data to be backed up and start a backup job.

5.1 Configuring the NFS container as a TiNa-library

 Enter the *tina_adm* command from the <TiNa install path>/Bin directory to open the Time Navigator- Administration Console-version4.3 and configure the backup device in the form of a virtual library system. Click Library > Devices > New.

		del	I - Time	Navigator	- Admini	istration	Console	- Version 4.3) X
Catalog	Monitoring	Platform	Backup	Archiving	Devices	Storage	Security		н	elp
					Device D	etection Wi	zard			
		Linux			Advance	d Device M	anager			
	× –				Drive		⊳			
	dell.cat	TINA_Linux	(64_		Library		⊳	Operations 🕨	1	
(Catalog	Linux						New		
			-				1	Properties		
								Delete		
Catalogs	Statistics	Cache		[dell.c	TiNA_L	_			F
alog "del	l" Server "Ti	INA_Linux64	_Backup_	Sen						
	Used Size:	0.04 GB								
Alloo	ated Size:	1 GB								
Maxi	mum Size:	102 GB								
Allocat	ion Status:	Expandable		8						
	Objects:	7								

2. Select Virtual Libraries and, in the Atempo section, click Virtual Library System.

	dell - Time l	Navigator -	Admini	stration Consol	e - Version 4.	3		אכ
Catalog Monitoring Pla	atform Backup	Archiving	Devices	Storage Securi	ty		He	elp
dell.cat Th Catalog 	Linux A Linux64 Linux		Ē	Virtual Libraries Adic Adic Virtual Lib Data Domain Emc FalconStor Fujitsu	Library List			
Catalogs Statistics C	Cache			Hewiett-Packar Network Applia Oracle Storage	a nce Tok		$\overline{\nabla}$	
Used Size: 0.04	LINUX64_Backup_S	5en		ok	Ca	ancel H	elp	
Allocated Size: 1 g	в							
Maximum Size: 102	GB							
Allocation Status: Exp	andable	?						
Objects: 7								

3. Enter a library name (for example, TiNA_Library) in the New Atempo VLS screen. Browse the Media Directory to select the DR container (NFS) mount point, and click OK.

		New Atempo VLS	×
Gatalog Monitoring Platt	General Advanced	Help	
*	Atempo VLS		
	Host Name:	TiNA_Linux64_Backup_Server	
dell.cat TINA	Library Name:	TiNA_Library	
Catalog	Number of Drives:	2	
الكارك إكارك إكار	Media Directory:		and the second second
	Cartridge Size (MB):	10000 Browsing "TINA_Linux64_backup_Ser	ver" X
	Number of Cartridges:	300 Path	
		/mnt/TiNA_TargetContainer	
Catalogs Statistics Ca		TINA_Linux64_Backup_Server	
alog "dell" Server "TINA LI		- TINA_TargetContainer	
Used Size: 0.04			
Allocated Size: 1 ca	ок		
Maximum Size: 102 a		Selection	
Allocation Status: Expansi	able 7	/mnt/TiNA_TargetContainer	
Objects: 7			
Versions: 7		OK Cancel	

4. The DR container should be mounted on the machine on which TiNa is running.



5. Click OK to assign the selected mount point on the New Atempo VLS

8	New Atempo VLS	
Catalog Monitoring Plati	General Advanced He	elp
	Atempo VLS	
	Host Name: TiNA_Linux64_Backup_Server	
dell.cat TINA	Library Name: TiNA_Library	
Catalog	Number of Drives: 2	
	Media Directory: /mnt/TiNA_TargetContainer	
	Cartridge Size (MB): 10000	
	Number of Cartridges: 300	
Catalogs Statistics Ca		
alog "dell" Server "TINA_Li		
Licod Size: e et		
Allocated Size: 1 GB		
Maximum Size: 102 g		
Allocation Status: Expan	dable 💡	
Objects: 7		

Note: See Appendix A for information about best practices, cartridge size, and number of cartridges for the DR Series system.

5.2 Creating a media pool and attaching TiNa logical drives

1. To create a Media Pool, select **Storage > Media Pool > New**.

	dell - Time Navigator - Administration Console - Version 4.3	X
Catalog Monitoring	g Platform Backup Archiving Devices Storage Security Media Pool Media Pool New Deduplication Pool Properties Delete Replication Engine Devices Storage Security Media Pool Properties Delete Properties	Help
Catalogs Statistic alog "dell" Server " Used Size Allocated Size Allocation Status Objects Versions	Cs Cache "TINA_Linux64_Backup_Sen e: 0.04 ab e: 1 cb e: 102 ab 5: Expandable f	

2. Enter a Pool Name and Label and click Add. Select the available Drives in the list and click OK.

	dell - Time Navigator - Administration Console - Version 4.3	
Catalog Monitoring	Platform Backup Archiving Devices Storage Security	Help
dell.cat Catalog	TINA Linux64 TINA	
	Label: TINA_Del1_Pool Comment:	
Catalogs Stationed	Retention Period Associated Drives Cancel	
Catalogs Statistics	Infinite Add Logical Name	
alog "dell" Server "T Used Size:	Deta stored during INA-Library_d0 INA-Library_d0 INA-Library_d0	
Allocated Size:		
Maximum Size:	OK Cancel Help	
Allocation Status:		
Objects:		
Versions:	7	

5.3 Configuring a TiNa backup strategy

1. Create a backup strategy by clicking **Backup** > **Platform Selection** and then selecting the Strategy (for example, **Strategy A**). Click **New** and then click "**Standard Strategy**.

🚼 de	I - Time Navigator - Adn	ninistration Consol	e - Version 4.3	
Catalog Monitoring Platform	Backup Archiving Devic	es Storage Securi	ty	Help
	Scheduling 🕞			
	Backup Wizard			
	Groups			
dell.cat TiNA_Linu	Backup Status List			
Catalog	Strategy List	brary_d(TINA-Library_	<u>_d</u>	
	Backup Selection List	Disk Vtl Disk		
	Selected Platform	Backup Selection		
		Strategy A		
	l l l l l l l l l l l l l l l l l l l	Strategy B	Properties	Stangard Strategy
		Strategy C	Delete	
		Strategy D	Eull Session Now	Replication Strategy
Catalogs Statistics Cache	dell.c	TINA_L	Incremental Session Now	meduplication strategy
alog "dell" Server "TiNA Linux6	Backup San			
Used Size: 0.04 cm				
Allocated Size: 1 GB				
Maximum Size: 102 GB				
Allocation Status:	2			
Objects: 7				

2. Click **Main** under Media Pools, and, in the Media Pool Selection dialog box, select the pool name and click **OK**.

	New Strategy A - Platform TiNA_Linux64_Backup_Server X	×
Catalog Monitoring	Full Incremental Options Advanced	Help
dell.cat	Media Pools	
Catalog	Add Name Bemove Media Pool Selection	
	Name V TINA_Dell_Pool	
Catalogs Statistic	Full Scheduling	
Used Size Allocated Size Maximum Size	Disable Te Cancel Help Synthetic	
Allocation Status Objects		

5.4 Selecting the data to be backed up and starting a backup job

1. Configure the data to be backup as follows. Right-click the **Time Navigator backup server host** icon and click **Backup Selection**.



2. Click **New** and then browse to the path of the data to be backed up. Select the directory location and click **OK**.

dell - Time Navigator - Administration Console - Version 4.3	_ 🗆 ×
Catalog Monitoring Platform Backup Archiving Devices Storage Security	Нер
Image: Selection: Image: Selection:	
Browsing "TiNA_Linux64_BackupServer"	×
OK Cancel Path	
Column choice Directory Properties Detects Cancel Cancel	

3. Click **Properties**, and then clear the **Compressed** and **Encoded** checkboxes. Click **OK**.

8		dell	- Time N	lavigator	- Admini	stration	Console - Version 4.3 _ 🗆
Catalog	Monitoring	Platform	Backup	Archiving	Devices	Storage	Security He
*	S	Linux					Backup Selection Properties
	Catalog	Linux	K64		Dealars		Strategies A* TB C D Filters Time Phases Properties Security
	Column choice ome/tina-savir	ngdata/set1	Directory	,	Backup		Format Compressed Encoded
Ailoc	ation Status: Objects:	Expandable	Delete	e		Ē	Default Configuration
	Versions:	249232					

Note : Dell recommends that you do not enable the TimeNavigator native compression and encryption features while performing backup/restore.



4.	Configure th	ne properties	for the new	backup selection a	as needed, ar	nd click OK .
----	--------------	---------------	-------------	--------------------	---------------	----------------------

	New Backup Selection >	
	Directory: /home/sourcedata	
Catalog Linux	Strategies	
	Filters Time Phases Properties Security	
	I Names	
	Selection: •	
	Exclusion:	
		×
Column choice		
Dire	Maximum Size: Infinite =	av 🖉
	Modified Since	
	Days: 1	
New Properties Dele	Default Configuration	

5. Select **Backup** > **Selected Platform**. Select a Strategy, and click **Full Session Now**.

de de	II - Time Navigator - Administration Console - Version 4.3	
Catalog Monitoring Platform	Backup Archiving Devices Storage Security	Help
deil.cat Catalog A	Scheduling Backup Wizard Groups Backup Status List Strategy List Backup Selection List Selected Platform Backup Selection Strategy A New	
Catalogs Statistics Cache	Strategy B Properties Strategy C Strategy D Full Session Now dell.c TINA L	
alog "dell" Server "TiNA_Linux6	4_Backup_Sen	
Allocated Size: 1 GB		
Maximum Size: 102 GB		
Allocation Status: Expandable		
Objects: 7		
Versions: 7		



6. Monitor the status of the running job by clicking **Monitoring** > **Job Manager**. The backup progress is shown in VTL disk (logical drives).

dell - Time Navigator - Administration Console - Version 4.3	
Catalog Monitoring Platform Backup Archiving Devices Storage Security Alarms Event Viewer Job Manager Task Viewer	Help
Media Request Console Interclatary of Intercl	
Catalogs Statistics Cache alog "dell" Server "TINA_Linux64_Backup_Sen Used Size: 0.64 as Allocated Size: 1 as Maximum Size: 102 as Allocation Status: mxpandable Objects: 8 Versions: 8	

7. Double click one of the Active Jobs to view the complete details.

dell - Time Navigator - Ad	ministration Co	nsole - Version	4.3		-0	×	
Gatalog Monitoring Platform Backup Archiving Devi	ces Storage S	iecurity			Help		
Catalog View Jobs	rvigator - Job P	anager - vers	ion 4.3				Help
Active Jobs							
ID Descripti	on	Progress	Alarms	Me	sia Sub	mit Date $ riangle$	
Running (active sessions) 101 Backup TINA			Job D	tall			
General	Advanced Sp	ecific Events	Alarms				
	tion						
Insome	mon						
	atalog: dell			Host:	TiNA_Linux6		
	ld: 101			User:	1400 (Mar. 11)		
Desc	ription: Backup 1	7iNA_Linux64_B	sckup_Ser	Media:	TINA_Dell_P	001	
	Status: Running	(active session	ons)	Folder:	host.TiNA_L	inux64_Bac	kup_1
dell Number of Active Jobs: 1	Monity: medium						
Objects: Versions: Progre	15		Dates				



8. For Incremental Backup, add the Full backup Media Pool in the **Incremental** tab. Browse the Media pools by clicking **Main**, and then selecting the Full backup Media Pool in the list.

ion			
	New Strategy	A - Platform TiNA_Linux64_BackupServer ×	×
Catalog Full	Incremental Options	Advanced	Help
	lia Pools Main: ultiple Writing Pools	Name	
Catalogs Catalog Catalog All Ma Alloc	Remove Remove emental Scheduling Choose New Edit Disable Temporarily et Import Calenda	Media Pool Selection Name pool28 poolsec primary-pool savingpool test TINA_Dell_Pool OK Cancel Help	

9. Select the full backup strategy by clicking **Backup** > **Platform Selection** and then selecting the Strategy (for example, **Strategy A**). Click **New** > **Incremental Session Now**.



6 Configuring a restore job on ASG-Time Navigator for an NFS target

1. For a restore operation, select the Linux Time Navigator host and configure the Restore operation by selecting **Platform > Restore & Archive Manager**.



2. Enter the credentials of the Host for the Restore Job configuration and click **OK**.

dell - Time Navigator - Administration Console - Version 4.3	
Catalog Monitoring Platform Backup Archiving Devices Storage Security	Help
dell.cat Linux 	
Log on to the Host "TINA_Linux64_Backup_Server" Log Platform User: root Platform Password: ·······1	
Atempo Time Navigator" OK 🗞 Cancel Help	
Restore & Archive Manager	2
Version 4.3 © 1991 - 2014 Atempo	
Maximum Size: 102 GB	
Allocation Status: Expandable	
Objects: 38	
Versions: 40	



3. Browse to and select the objects to be restored. Select **Restore > Run**.



4. Select one of the Restore Destinations and click **OK**.

Platio	Parameters Behavior Security	
	TIN Restore Destination	
As us		
root		
Time	Navigat	
🔷 Р	resent Restore Level	
🔶 P	ast	
05	/25/2 Restore Data and Attributes including Attributes of Existing Directories	
	Restore Object Attributes Only	
	how de	
For the	le past: I ☐ Do not Restore Security Attributes	
	Go through the Filesystem Mounting Points during Restore	
Tree	Control Restore all file versions	
	iew Mo	
	New Unit Volume to Restore (bytes): 12,935,190,388	
A	Number of objects to restore: 31	
	OK Cancel Help	
de de		





The Restore Information dialog box shows the restore progress.



Running a duplication and restore job on a secondary DR Series system NFS target

For certain Disaster Recovery scenarios, a duplicate copy of a backup data set from a primary DR Series system can be made available on a secondary DR Series system.



7

1. On the primary DR Series system, create an NFS container.



2. On the secondary DR Series system, create an NFS container.



- Mount the primary and secondary DR containers on Time Navigator backup server [root@TiNA Linux64 BackupServer ~] # mount -t nfs 10.250.242.139:/containers/primary /mnt/primary/ [root@TiNA Linux64 BackupServer ~] # mount -t nfs 10.250.243.119:/containers/secondary /mnt/secondary/
- 4. The following figure shows the configured primary and secondary DR containers as Primary-VLS and Secondary-VLS for demonstration of duplication and restore from the secondary DR system.

8	dell - Time	Navigator -	Administ	ration Console	- Version 4.3		_ 🗆 🗙
Catalog Monitoring	Platform Backup	Archiving	Devices	Storage Security			Help
dell.cat Catalog	TINA LInux64 Linux A	Primary tempo VLS	Secondary Atempo VLS	Primary_d0 Vti Disk	Primary_d1 Vti Disk	Secondary_d0 Vti Disk	Secondary_d1 Vti Disk
Catalogs Statistic	s Cache er "TiNA_Linux64_Bac	kupServer"	dell.ca	TINALI			
Used Size: Allocated Size: Maximum Size: Allocation Status: Objects: Versions:	0.27 GB 1 GB 36 GB Expandable 171882 250492	 •					



8	dell - Time Navigator - Administration Console - Version 4.3	×
Catalog Monitoring	g Platform Backup Archiving Devices Storage Security	Help
A dell.cat Catalog	TINA_LInux64 Primary Secondary A Atempo VLS Atempo VLS Vti Disk Vti D	d1
Catalogs Statistic	Post Compression Bytes : 14365082921 Compression Status : Done Cleaner Status : Pending Total Inodes : 1541 Dedupe Savings : 70.79 % Compression Savings : 4.65 %	
Catalog "dell" Serv	administrator@swsys-69 > statssystem	
Used Size	Capacity Stee : 7853.4 GiB Read Throughput : 0.00 MiB/s	
Allocated Size	Write Throughput : 112.58 MiB/s	
Maximum Size	Current Bytes : 519300496928 Post Dedupe Bytes : 151426807977	
Allocation Status	Post Compression Bytes : 144385821444 Compression Status : Done	
Objects	Cleaner Status : Pending Total Inodes : 1541	
Versions	Dedupe Savings : 70.84 % Compression Savings : 4.65 % Total Savings : 72.20 %	

The Backup Job is configured and submitted on the primary DR Series system.

5. For duplication of existing backup data Configuration, when the primary backup job is completed, click **Storage > Media > Management**.



- * dell - Time Navigator - Administration Console - Version 4.3 _ 🗆 × Storage Security Catalog Monitoring Platform Help N Linux Ś A Media Pool Selection Label 10drivespool Catalogs Statistics Cache dell.ca TiNA_Li Catalog "dell" Server "TINA_Linux64_BackupServer" Duplication_Po Duplication_Pool Used Size: 0.27 GB ∇ Allocated Size: 1 GB Maximum Size: 36 GB ок 📐 Cancel Allocation Status: Expandable ? Objects: 172188 Versions: 250800
- 6. Select the media pool name on which the secondary logical drives are available and click **OK**.

7. Select the cartridges and click Duplicate.

Catalog Monitoring Pl	atform Backup Archivir	ng Devices S	Storage Secu	urity			Help
dell.cat Catalog	Linux NA_Linux64 Linux • • •	Secondary Atempo VLS	Primary_d Vti Disk	0 Primary Vti D	/_d1 Secondary_ sk Vtl Disk	_d0 Secondar Vtl Dia	y_d1
		de	ll - Media M	lanagemen	t		×
	Pool Label: Du Number of cartridges: 2	plicatio F	ool name:	Duplicatio 10,541 MB	Retention: In:	finite	
	Column choice Exp	port	D D	isplay In/Out S	itatus In/Out Perio	ed Pool C	noice
Catalogs Statistics	Name	Barcode	Volume	Status	Filling Level	Location	R
Catalog "dell" Server "T	Duplication_Pool0000001 Duplication_Pool0000002	Primary_0 Primary_1	9995 MB 559873 KB	Closed Open	Full Partly filled	Primary Primary	Infini Infini
Used Size: 0.2 Allocated Size: 1 c Maximum Size: 36							
Allocation Status: Exp							
Objects: 172							
Versions: 250	Recycle Close H	eopen Delete	-> Spare	Duplicate	Mi-line Informa	ation	
				Clos	Se	d cartridges Help	

- Co N Linux Ś root A Duplication_Po Duplic 9,995 MB 5,422 MB dell - Media Management × Pool Label: Pool name: Duplicate Cartridge Number of cartridges: Total Volume: Cartridges Status uplication_Pool0000001 Duplicated Allocated Column choice Export uplication_Pool0000002 Duplicating Free Name Volume Duplication_Pool0000001 Primary_0 9995 MB Duplication_Pool0000002 Primary_1 559873 KB Work in progress Cancel Close Help Recycle Close Reopen Delete -> Spare
- 8. Click Start to see the Duplication in progress.

9. Restore from secondary is required when the primary is down or inaccessible.

	, i		1 2		
administrator@swsys-69	> connecti	iondisabl	etype nfs	name primary	
Successfully updated co	onnection e	entry.			
NFS connection IP addre	esses :	*			
NFS connection Root map	p :	root			
NFS connection options		rw			
NFS connection Enabled		No			
administrator@swsys-69	>				

10. Right-click the secondary logical drive and click Enable (For Restore Only).

dell.cat Catalog	TINA_LINUX64 Linux A	Primary Atempo VLS	Secondary Atempo VLS	Primary_d0 Vt! Disk	Primary_d1 Vti Disk	Secondr Vti Dis	Endita Endite Endite (For Restore O Disable Maintenance Properties
							Identify Content Eject Media Test Hide
atalogs Statistics Catalog "dell" Serve Used Size: Allocated Size:	Cache "TiNA_Linux64_E 0.27 cas	3ackupServer"	_ dell.cs	VTINA_LI			
Maximum Size: Allocation Status: Objects:	36 GB Expandable	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
Versions:	251109						

11. Restore data selection.



12. Monitor restore progress on the secondary DR Series sytem.





	8	Time Navigato	or - Restore	& Archive Manager - Version 4.3		_ = ×	
N	Catalog Tree	Archiving Backup	Restore			Help	
	Platforms			Fri Jun 06 2014 05:01			
	Linux Connec	sted to:	Rec	Postoro Information			
			- Ke				
	root	Progress Events			_		
	Time Navigation	General					
	Present	Restore com					
	🔶 Past		A	20,480 MB			
	06/06/2014	/home/source					
Catalogs							
Galalog	Show delete	Data Restore		Attributes Restore			
Catalo	For the past:	Restored f	files: 1	Restored Attributes: 1			
Volu		Restored directo	ories: 0	 Errors: 0			
F	Tree Control	-					
Writ			1013.				
Read	View Unprot						
della				Close Help			

Restored data from secondary DR container to client.



Setting up the DR Series system cleaner

8

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

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

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

	DR4100 EdwinZ-SV	V-01				Help Log out				
	Dashboard Alerts	Cleaner Sche	dule	Sche	edule Cleaner	Edit Schedule				
	- Events - Health - Usage - Statistics: Container	System time zone: US/Pacific, Fri Jul 5 05:00:41 2013 Note: When no schedule is set, the cleaner will run as needed.								
	Statistics: Replication	Day	Start Time		Stop Ti	me				
	Storage	Sun								
	Containers Mon				-					
	Compression Level	Tue								
	Clients	Wed								
	Schedules	Thu	-							
	Replication Schedule	Fri	-							
	Cleaner Schedule	Sat	-							
	System Configuration Networking Active Directory Local Workgroup Users Email Alerts Admin Contact Info Password Email Relay Host Date and Time Support Diagnostics Software Upgrade License									
Сор	License yright© 2011 - 2013 Dell Inc. /	All rights reserved.								



Monitoring deduplication, compression, and performance

9

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 Best practices for setting up ASG-Time Navigator backup native Virtual Library System (VLS) on a DR Series system

The DR Series systems are capable of running a cleaning cycle on a regular basis to recover data space that is no longer required by the deduplication process. Using a DR Series system as an ASG-Time Navigator VTL repository requires periodic maintenance to achieve the best usage from the system. Space reclamation from virtual media of a ASG-Time Navigator VTL hosted on a DR Series system has some specific requirements. Even though ASG-Time Navigator can locate and blank media that is marked for spare or reuse, the DR Series system will not know that ASG-Time Navigator has marked the media for spare or reuse and will not reclaim the space on the next clean cycle. This is due to the fact that ASG-Time Navigator will only update the header on the media and not scrub through and remove the old data. To ensure that the cleaner cycle can reclaim space, the marked for reuse media must be identified and cleared using the **tina_libary_control**. **Tina_cart_control** utilities must be removed and then re-added as a new file. Since the new file no longer has any content, the DR Series cleaner cycle can reclaim the space.

A.1 ASG-Time Navigator nVTL setup /configuration best practice for configuring number and size of each cartridge

Due to various factors such as data set size, data set iteration or count, retention period, and change rate, it can be difficult to determine the best VTL size and configuration for any given deduplication situation. One of the best practices is to

- Size the VTL to no more than 10x the physical available disk space
- Or to assess how much data you have to backup and the required retention periods for each set of data so as to not exceed either one of these two guidelines when creating the virtual media for the virtual tape library
- And to set the drive count to equal the number of simultaneous jobs or data streams desired without exceeding the maximum guidelines set forth by the vendor.

For Example: Starting with a storage appliance with 2TB of physical disk space. Based on the 10X usage recommendation, you can create a VTL of 20TB of total storage. But, given that the data backed up per week is 2TB and data retention is 4 weeks, the total amount of data stored at any given time would only be 8TB. Reducing the VTL space to 10TB would then be a more efficient use of space.

Once the overall size of the VTL is determined, the number of virtual drives to create and the granularity of the VTL is the next consideration.

Most storage appliance operating environments can effectively handle a set number of streams. Any read or write operation to and from a VTL virtual drive would denote a stream. As a rule of thumb, the number of virtual drives to create in the VTL should reflect what is required to support simultaneous streams, or concurrent jobs. Creating an excessive number of drives does not yield any benefits and could lead to



performance degradation. It is important to also never exceed the number of streams supported by the appliance vendor's operating environment when creating VTLs and virtual drives.

Media size is the final consideration when creating a VTL. Unlike physical media, virtual media can be created to any size within the allowed range set by the appliance. So proper media size selection is important to ensure smooth operation of the VTL. Creating a small number of large media will extend the retention of expired data and prevent proper recycling within a media pool. Creating a large number of small media puts a strain on the ASG-Time Navigator Media Size be made to accommodate for the media group retention policy such that when the retention period is expired for that group all items on the media should expire as well thus allowing for the reuse of the virtual media in question.



B Creating a storage device for CIFS

There are two options for ASG-Time Navigator to authenticate to a DR Series system through CIFS.

- The DR Series system is joined into an Active Directory Domain: Integrate ASG-Time Navigator and DR Series system with Active Directory and ensure the Active Directory user has appropriate ACLs to the DR Series system container share.
- The DR Series system is a standalone CIFS server: Make sure this CIFS user has appropriate access permission to the DR Series system container share. The ASG-Time Navigator Backup Node will use this user to authenticate to the DR Series system share in Workgroup mode. To set the password for local CIFS administrator on the DR Series System, log on to the DR using SSH.
 - o Log on with username Administrator and password St0r@ge!
 - o Run the following command:

```
authenticate --set --user administrator
```

Note: The CIFS administrator account is a separate account from the administrator account used to administer the appliance. After an authentication method is chosen, set the ASG-Time Navigator service account to use the CIFS administrator account.



C Creating a storage device for NFS

For NFS backup using the ASG-Time Navigator, a target folder needs to be created as an NFS share directory. This is the location to which backup objects will be written. This is not required while adding CIFS share.

1. Mount the DR Series System NFS share onto the NFS share directory to which backup objects will be written in the ASG-TimeNavigator environment. For example:

```
mount -t nfs <ip address of DRXXXX>:/containers/sample
/mnt/TiNA_targetContainer
```

2. Verify the NFS share. One way is to use the Linux command "cat /proc/mounts". The rsize and wsize of the NFS share in the command output should be 512K.

Launching a Time Navigator administration console on a Linux platform

Go to the **Bin** directory location /usr/Atempo/TimeNavigator/tina/Bin on the Time Navigator Backup server. The Time Navigator *tina_daemon and tin_daemon_clt* must be started each time the platform starts, with the *root* user:

[root@TiNA_Linux64_BackupServer_Bin]# runtina tina_daemon [root@TiNA_Linux64_BackupServer_Bin]# runtina tina_daemon_clt [root@TiNA_Linux64_BackupServer_Bin]# runtina tina_adm

D

Note: The services/daemon must be running on the Linux Time Navigator backup server at all times. It is not possible to start a backup or to use a peripheral on a platform if the service or daemon is not running. The services/daemon must also be running on the Time Navigator Server; otherwise, the application stops. An X_Window graphical display is required on the Linux Time Navigator Backup server. Users must check that the environment variable DISPLAY is correctly defined for launching the *tina_adm*.

