DXi-Series Backup Application Specific Path To Tape Configuration Guide

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About Backup Application Specific Path to Tape

Backup Application Specific Path to Tape is a licensable feature for the DXi4700 Multi-Protocol, DXi6700, DXi6800, DXi6900 (DXi-Series), and DXi8500(DXi-Series) enhanced data protection systems platforms. When configured on a DXi system, the Path Tape (PTT) feature allows the export of data to an attached physical tape library (PTL).

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You can configure any PTL attached to the same storage network as the DXi for the PTT feature. After the feature is configured, copy or duplicate virtual images backed-up on the DXi to the PTL. These images are written to tape cartridges on the PTL, which then can be exported out of the PTL and stored off site as part of a backup and recovery plan.

DXi Virtual Interfaces

The DXi employs two virtual interfaces with the PTT feature.

Virtual Tape Library

When data is transported through a Fibre Channel connection, the DXi acts as a virtual tape library (VTL). A VTL creates images from backed-up data, and stores these images on virtual tape.

Virtual Media Changer

When data is transported through a TCP/IP connection, the DXi virtual meda changer works as a Network Data Management Protocol (NDMP) host. The NDMP host interface duplicates the virtual tape images to a physical tape on a PTL.

Backup Applications

The following backup applications support the Quantum DXi-Series Backup Application Specific Path to Tape (PTT) feature.

Symantec NetBackup and Backup Exec

You can use the following Symantec products to support the PTT feature:

- Symantec's Open Storage API
- Symantec NetBackup 7.x Direct to Tape
- Symantec Backup Exec 2010 (or later) DirectCopy to Tape features

Features

The DXi easily integrates with either NetBackup or Backup Exec to enable duplication of images to a physical tape library (PLT). With NetBackup or Backup Exec support:

• The DXi can duplicate images directly to tape without going through a media server. This process allows for better performance with less media server and network bandwidth required.

• The duplication process is controlled by NetBackup or Backup Exec so the images on the physical tape are cataloged by NetBackup or Backup Exec.

Workflow

The following workflow depicts how the NetBackup or Backup Exec duplicates images from a DXi to a PTL.

- 1. NetBackup or Backup Exec prepares the DXi to copy images from a virtual tape cartridge to a physical tape cartridge.
- 2. NetBackup or Backup Exec mounts the required tape cartridges (physical and virtual). NetBackup or Backup Exec can perform this operation by interacting directly with the physical and virtual media changer or through the DXi.
- 3. NetBackup or Backup Exec selects the DXi that can provide access to the virtual drive and establishes a session with it for the purpose of duplicating images between the drives.
- 4. The DXi copies the image from the virtual tape cartridge to the designated physical tape cartridge under the direction of NetBackup or Backup Exec.
- 5. A copy of the image on the virtual tape cartridge is now on physical tape.
- **1** Note: Backup data flows through a Fibre Channel connection in all cases.



EMC NetWorker

You can use EMC NetWorker with the PTT feature for cloning operations. With EMC NetWorker, the DXi can move data directly between its VTL and the PTL.

Requirements

The following requirements must be met to support EMC Networker PTT cloning operations:

- The DXi is integrated with EMC NetWorker.
- The PTT feature is enabled on the DXi.
- The PTL and drives are attached to the DXi.

1 Note: EMC NetWorker 8.1 and later are not supported for Backup Application Specific Path to Tape.

Oracle Secure Backup

You can use Oracle Secure Backup (OSB) to support the PTT feature.

OSB delivers unified data protection for heterogeneous environments. Highly scalable, OSB domains (environments) are centrally managed using a single console and common management interface across a spectrum of servers and Network Attached Storage (NAS) devices.

Features

OSB offers the following features.

Centralized Tape Backup Management

OSB delivers centralized tape backup management for the entire IT environment:

- Oracle database integration with Recovery Manager (RMAN) supporting versions Oracle9i to Oracle
 Database 11g
- Media management interface for Oracle database backups to tape utilizing RMAN
- File system data protection for UNIX / Windows / Linux servers
- NAS protection leveraging the Network Data Management Protocol (NDMP).

Local and Remote Data Protection

With a highly scalable client/server architecture, OSB provides local and remote data protection leveraging Secure Socket Layer (SSL) technology for secure intra-domain communication and two-way server authentication. Addressing the complexity of enterprise data protection, OSB provides advanced media and device management such as:

- · Backup encryption and key management
- · Automated tape vaulting and duplication
- Dynamic drive sharing in Storage Area Network (SAN) environments
- Server-less tape duplication using NDMP direct copy functionality as supported by Virtual Tape Libraries (VTLs)
- Note: For more detailed information regarding installation, configuration, and management of OSB, please refer to the OSB web site on Oracle Technical Network (OTN) for white papers, presentations, data sheet, support matrixes, and tutorials: http://www.oracle.com/technology/products/secure-backup/index.htm.

ASG-Time Navigator

ASG-Time Navigator supports the PTT feature by controlling the duplication process, as well as by cataloging the images on the PTL. With ASG-Time Navigator, the DXi can duplicate images directly to tape without going through a media server. This process allows for better performance with less media server and network bandwidth required.

Virtual Tape to Physical Tape Transfer Techniques

DXi contain partitions — or virtual tape libraries (VTLs) — that present the virtual media changer and virtual tape drives to the host exactly as they would to a physical tape library (PTL). This presentation allows the same drivers to be used for both VTLs and PTLs. Existing backup processes are identical, and creating a backup image on a virtual tape is no different from creating a backup image on a physical tape. The backup functionality and data path are unchanged.

Figure 2: VTL Backup Scenario



After the normal DXi backup process has completed, each backup application implements its own technique to transfer stored data from virtual tape to physical tape.

Symantec NetBackup, Symantec Backup Exec, and ASG-Time Navigator

These backup applications can perform a copy operation using Network Data Management Protocol (NDMP) to transfer data directly from the virtual tape library (VTL) to the physical tape library (PTL) over a Fibre Channel connection.

The backup application server controls the copy process, but it does not read or write the data, which in turn frees it to do other tasks. Because this data transfer is a normal duplication job, the physical tape copy is cataloged in the backup application's database. You can restore data directly from either virtual or physical copy because both the VTL and the PTL are visible to the backup application.

Workflow

To duplicate the virtual tape image, the backup application performs the following steps:

- 1. Selects an NDMP device path to the VTL.
- 2. Creates an NDMP control session for this device.
- 3. Selects a tape volume from the PTL.
- 4. Selects an NDMP device path from this library.
- 5. Creates a second NDMP control session for this device.
- 6. Sends NDMP messages via the control sessions both to move data and to monitor the data transfer.
- 7. Writes headers and handles tape spanning and errors, as needed.



EMC Networker

With EMC NetWorker, the DXi can move cloned data directly between its VTL and the PTL. The NetWorker storage node manages the cloning process, while the DXi manages the actual data transfer.

For data transer, the VTL presentation layer supports Fibre Channel connections. A second path, accessible via NDMP via Fibre Channel, supports the enhanced VTL to PTL clone operations with NetWorker.

The PTT feature allows both the VTL and the PTL to be visible to NetWorker, enabling you to restore data directly from either virtual or physical copy. NetWorker automatically catalogs the physical tape barcode in its database.

Workflow

To clone data directly from the VTL to the PTL, NetWorker performs the following steps:

- 1. Through the DXi, selects the NDMP device paths (via Fibre Channle) to the VTL and PTL.
- 2. Through NDMP, identifies a source and destination for the data movement within the DXi.
- 3. Creates another NDMP control session for this device.
- 4. Sends NDMP messages via the control session to manage the overall process, as well as to monitor the data transfer taking place at the back end of the DXi appliance.
- 5. Updates the headers on the physical tape to manage the new barcodes.



Oracle Secure Backup

Oracle Secure Backup (OSB) can duplicate or migrate virtual tapes to physical tapes on a one-off basis or per user-defined policy.

Duplication

Creates a tape copy with identical backup data but a unique tape ID for tracking purposes. After a duplication operation completes, two copies of the backup data exist.

Migration

Creates an identical tape copy with a unique tape ID, and then deletes the original tape thereby freeing up space on the VTL. After a migration operation completes, one copy of the backup data exists on tape.

Configuring tape duplication or migration can be accomplished using the OSB Web Tool, command line (obtool), or Oracle Enterprise Manager (EM) Grid Control 10.2.0.5.

Workflow

Perform a one-off duplication or migration from the OSB Web Tool:

gure 5: OSB Web	o Tool Volume	es Page	е						
tome Configure Manage Backup I	Restore								
Manage: Volumes									
View Options								Apply	
Volume Attributes	Expired volumes		Open volumes			Closed volumes		111	
C Volumes with no barcodes	C Volumes with no volume	IDs							
Single Selection					-			1	
Volume ID	Barcode	Lo	ocations: vib	_Recycle_Bin	1	Vedia family:	Cose-CATALOG-MF	1	
Volume set ID			viib2		1		RMAN-DEFAULT	1	
Group volume set members									
 Coup Ware as nerional 	a na na na ra na								
					Edit Duplica	e Recall Relea	de Show Backup Secti	ons Remove	
				(Show Properties	Show Backup Pieces	Show Volume Set	Show Duplicates	
Select.All Gear.								1-3 of 3) Prev Next	
Select Volume ID Barco	ode Se	q Rotation poli	icy Duplication P	olicy Location	on Media family	Created	Expires	Space	
Local_tapes-000007 b1e68	00+60/6895bae16bbe671c 1	not specified	not specified	vib2	Local_tapes	2009/05/19.11:0	5 2009/05/27.11.05 (exp	ered) 242.6 MB	
C 058-CATALOG-MF-000004 6/1344	0594524500582180659070570 1	not specified	not specified	viib2	OSB-CATALOG	MF 2009/05/19.10.5	0 2009/06/09 11:10 (exp	ired) not specified	
C 032-040-200-mp-000005 528260	12/17/03/07/02/07/07/00/00/0100	mu specined	mus specified	40	000-0414200-	m 2000/0/10.11.1	o 2000/00/00.11.10 (etp	integration and	
					Edit Duplicate	Recall Release	Show Backup Sections	Remove	
			l'anta						
select the desire	ed volumes i	to dup	licate o	r mia	rate.				
liek the Dunlie		a dian	lov opti	ono f	or dund	icatina	ormiar	ating th	~

4. Select the appropriate option.

Device Path Requirements

You must use specific device paths for the different backup applications. Review the following requirements.

Symantec NetBackup and Backup Exec, ASG-Time Navigator, and Oracle Secure Backup

The following device paths must be visible to these backup applications.

Device Path	Description
Fibre Channel (emulating tape) to virtual tape library (VTL)	Required for duplicating backed-up data from the primary storage device.
NDMP (emulating tape) to VTL	 Required for the following two scenarios: Duplicating data from a VTL to a physical tape library (PTL) Duplicating data from a PTL to a VTL Note: The DXi virtual medium changer must be viewed through TCP/IP, and will appear as an NDMP host.

Device Path	Description
NDMP to attached PTL	 Required to read or restore data directly from a PTL. Note: The backup application controls the VTL backups and NDMP duplication from VTL to PTL.

EMC NetWorker

The following device paths must be visible to the EMC NetWorker.

Device Path	Description
Fibre Channel or SAN (emulating tape) to VTL	Required for duplicating backed-up data from the primary storage device.
Fibre Channel or SAN to the VTL from the DXi	Required for data backups.
Fibre Channel or SAN to the VTL from the backup host	Required for data restores.
NDMP (emulating tape) to VTL	Required for the following two scenarios:
	Duplicating data from a VTL to a PTL
	Duplicating data from a PTL to a VTL
	Note: The DXi virtual medium changer must be viewed through TCP/IP, and will appear as an NDMP host.
NDMP to attached PTL	Required to read or restore data directly from a PTL.
	Note: Restoring data from a PTL may take longer to complete than restoring data from a VTI.
	Note: NetWorker controls the VTL backups and NDMP duplication from VTL to PTL.

DXi PTT Configuration

To use the DXi Path to Tape (PTT) feature, you must configure both the DXi and the backup application. In addition, for all backup applications, configure a physical tape library (PTL) that is connected to the same network as the DXi.

Supported Tape Libraries and Tape Drives

The following tables list tape libraries and tape drives that are supported by the DXi PTT feature. Refer to the appropriate vendor's documentation for a complete list of supported PTLs for your backup application.

Tape Libraries

Vendor	Tape Library
Quantum	Scalar i3
	Scalar i6
	Scalar i500
	Scalar i2000 and i6000
	Scalar 24
	• Scalar 50 (PX502)
	Scalar i40 and i80
	• PX500
	• PX720
Dell	• PV132T
	• PVT136T
	• ML6000
HP	ESL E Series
	EML Series
IBM	TS3500
Sun/STK	L180 (FC only)
	L700 (FC only)
	SL500 (FC only)
	SL3000 (FC only)

Tape Drives	6
Vendor	Tape Drive
Quantum	• SDLT320
	• SDLT600
	• DLT-S4
	• LTO-2
	• LTO-3
	Note: In addition to the previously listed drives, Oracle Secure Backup (OSB) also supports VS80, VS160, SDLT220, and LTO.
HP	• LTO-2
	• LTO-3
	• LTO-4
	• LTO-5
	• LTO-6
	• LTO-7
	• LTO-8
IBM	• LTO-2
	• LTO-3
	• LTO-4
	• LTO-5
	• LTO-6
	• LTO-7
	• LTO-8

Configuring the DXi For Path to Tape

Do the following to configure the DXi for the Path To Tape (PTT) feature.

Prerequisite

Do the following before configuring the DXi for PTT.

- Make sure the PTL is properly cabled, zoned, and mapped to the DXi node. To detect the PTL, you
 may need to reboot the DXi node.
- Install the Backup Application Specific Path to Tape license on the DXi. See your DXi User's Guide.

A separate license is required on DXi systems to support Backup Application Specific Path to Tape. The Backup Application Specific license is pre-installed on all DXi6700, DXi6800, and DXi8500 systems.

Configure the DXi for PTT

1. From the DXi remote management console, select **Configuration > PTT > Backup Application Specific** to display the **Manage Backup Users** page.

Figure 6: Manage Backup Users Page

Physical Device Discovery Backup Application Specific
Manage Backup Users
Add Edit Delete Refresh
Name Description
admin

2. Click Add to display the Add User Credential dialog box.

Figure 7: Add User Credential Dialog Box

Add User Credential	×
*User name *New Password *Confirm New Password	
Description * Required field	
Apply Cancel	

- 3. In the **User Name**, **New Password**, and **Confirm New Password** fields, enter the same user credentials that are used by the backup application.
- 4. Click Apply to create the user credentials.
- 5. Click the **Physical Device Discovery** tab to display the **Discover/Configure Physical Libraries and Tape Drives** page.

Discover/Configure I	Physical Librarie	es and Tape Driv	es		Help				
Scan Last scan time:	Scan Last scan time: 2013-07-01 18:39								
Refresh Enable Disa	able								
Serial Number	Vendor	Product ID	State						
VL	ADIC	Scalar i500	Enabled						
Refresh Enable Disa	able								
Serial Number	Vendor	Product ID	State	Drive Type					
VD	HP	Ultrium 5-SCSI	Enabled	LTO					
VD	HP	Ultrium 5-SCSI	Enabled	LTO					
VD	HP	Ultrium 5-SCSI	Enabled	LTO					
VD	HP	Ultrium 5-SCSI	Enabled	LTO					

Figure 8: Discover/Configure Physical Libraries and Tape Drives Page

6. Click the Scan button to discover all attached PTLs.

- After the DXi completes its scan, make sure that the changer and all of its drives are enabled.
 If you need to enable a changer or drive, select the component and click **Enable**.
- 8. Complete the configuration process by configuring the appropriate backup application for the DXi:
 - Symantec NetBackup
 - Symantec Backup Exec
 - EMC NetWorker
 - Oracle Secure Backup
 - ASG-Time Navigator

Configuring Symantec NetBackup for PTT

To use Symantec NetBackup with the DXi Backup Application Specific Path to Tape (PTT) feature, you must configure the backup application as follows:

- Define the DXi as the NDMP host below
- <u>Configure NetBackup for PTT on the next page</u>

Prerequisites

Do the following before configuring Symantec NetBackup for PTT.

- Install and configure the DXi for Backup Application Specific Path to Tape. See <u>Configuring the DXi</u> For Path to Tape on page 13.
- Configure Fibre Channel connectivity.
- Dedicate a partition within the DXi to NetBackup. The partition cannot be shared with another backup application.
- Install the Backup Application Specific Path to Tape license on the DXi. See your DXi User's Guide.

A separate license is required on DXi systems to support Backup Application Specific Path to Tape. The Backup Application Specific license is pre-installed on all DXi6700, DXi6800, and DXi8500 systems.

1 Note: To support large numbers of tape drives in a VTL, you must have NetBackup 7.x.

Define the DXi as the NDMP host

- 1. On the NetBackup Server, open the NetBackup Administration Console.
- 2. Navigate to NDMP Credentials to create a new Network Data Management Protocol (NDMP) host.
- 3. For the NDMP host name, enter the DXi IP address.

4. For the NDMP host user name and password, enter the same credentials used for the backup application on the DXi. See Configuring the DXi For Path to Tape on page 13.

Configure NetBackup for PTT

1. Display the the NetBackup Device Configuration Wizard.

Figure 9: Device Configuration Wizard

Device Configuration Wizard							
Device Hosts Specify the hosts on which to auto-discover/configure devices. If you are running this wizard for the first time, please specify all hosts with attached devices.							
Only hosts that are checked will be scanned. So, if updating after device changes, on to be scanned. However, all hosts sharing a device must be scanned.	y the affec	ted hosts need					
✓ Device Hosts	Optiona	Ch <u>a</u> nge					
✓ dazhbog	<none></none>						
Configure Drive Name Rules To start device detection, cl) ick Next.						
Help Cancel <back< th=""><th><u>N</u>ext ></th><th>Einish</th></back<>	<u>N</u> ext >	Einish					

2. Select your Master server and click the Change button to display the Change Device Host dialog box.

Figure 10: Change Device Host Dialog Box

Change Device Host	×
Device host:	
dazhbog	
Administrator Assisted Discovery	1
This device host controls the following types of devices:	
▶ NDMP server	
ACS robot	
☐ <u>T</u> LM robot	
<u>Q</u> K <u>C</u> ancel <u>H</u> elp	

- 3. Select NDMP Server and click OK and Next to display the NDMP Hosts page.
- 4. Click New to display the Media and Device Management NetBackup dialog box.

Figure 11: NDMP Hosts Page and Media and Device Management - NetBackup Dialog Box

Device Configuration Wizard	×
NDMP Hosts Select the NDMP hosts on which to configure devices by clicking the adjacent cl	heckbox.
NDMP Host	N <u>e</u> w
	Change
	Delete
	Econo
	_
Media and Device Management - NetBackup	×
NDMP host name:	
QK Cancel	
	_
Help Cancel <back< td=""><td>Next > Einish</td></back<>	Next > Einish

5. In the NDMP host name field, enter the hostname or IP address of the DXi.

1 Note: For segmented network configurations, enter the data IP address.

6. Click **OK** and **Next** to display the **New NDMP Host** page.

Figure 12: New NDMP Host Page

NDMP host: lamia NDMP Host Credentials Use global NDMP credentials for this NDMP host Use the following credentials for this NDMP host on all media servers User name: dahost Password: occonfirm Password: occonfirm Password: occonfirm Password: Output Output Disc different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for heads level acent and NDMP heat level	🖬 New NDMP Host - lamia 🛛 🔀
NDMP Host Credentials • Use global NDMP credentials for this NDMP host • Use the following credentials for this NDMP host on all media servers User name: dahost Password: ••••••• Confirm Password: ••••••• ① Use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for host land	NDMP host: lamia
 Use global NDMP credentials for this NDMP host Use the following credentials for this NDMP host on all media servers User name: dahost Password: output the following credentials for this NDMP host on all media servers Confirm Password: Output the following credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for host level 	NDMP Host Credentials
 Use the following credentials for this NDMP host on all media servers User name: dahost Password: eeeeee Confirm Password: eeeeee Use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for heads law loan media server back law loan media server credentials, credentials for heads law loan media back law loan media server credentials, credentials for back law loan media server credentials for back law loan media server<	\bigcirc Use global NDMP credentials for this NDMP host
User name: dahost Password: ••••••• Confirm Password: ••••••• ••••••• O Use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for heads learning alphabel and NDMP host learning	$\textcircled{\sc 0}$ Use the \underline{f} ollowing credentials for this NDMP host on all media servers
dahost Password: ••••••• Confirm Password: ••••••• ••••••• •use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for back lowed configuration	User name:
Password: •••••• Confirm Password: •••••• •••••• •••••• •use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for back lowed configuration	dahost
••••••• Confirm Password: •••••• •••••• •••••• •use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for back lame loop product on the part of the	Password:
Confirm Password: Confirm Password:	•••••
Use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for heads lowed compressions as to exercise global and NDMP heat lowed.	Confirm Password:
 Use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for back level concerned on the constraint server. 	•••••
Advanced Configuration	 Use different credentials for this NDMP host on each media server (Use Advanced Configuration) To configure individual media server credentials, credentials for back-level servers, or to override global and NDMP host level credentials, use Advanced Configuration. Advanced Configuration

- 7. Select the appropriate NDMP Host Credentials method, and populate the fields, as needed.
- 8. Click **OK** to return to the **NDMP Host** screen with the DXi now displaying as an NDMP host.
- 9. Select the DXi and click Next.
- 10. After NetBackup scans the DXi NDMP host and discovers its associated virtual tape libraries (VTLs) and tape drives, click **Next**.

- **Note:** If NetBackup does not discover the DXi or associated VTLs, make sure that the NetBackup host has network access to your DXi and recognizes the network name or IP address.
- 11. Select both the source VTL, target physical tape library (PTL), and all tape drives, as needed.
- 12. Click Next and Yes to save these settings.
- 13. Click Next twice and then click Finish to save these settings.

Initiating Symantec NetBackup PTT

Symantec NetBackup uses Network Data Management Protocol (NDMP) direct copy to duplicate backedup images. To run a duplication, you can use any of the following methods:

- The Duplicate option in the Catalog node of the NetBackup Administration Console
- The NetBackup Vault (See the NetBackup Vault Administrators Guide.)
- The **bpduplicate** command (See the NetBackup Commands Guide.)
- A Netbackup Storage Life-cycle Policy

Requirements

The following requirements must be met for NetBackup to use NDMP direct copy in duplicating backedup images.

- Designate an NDMP storage unit in the DXi to use as the destination for the duplicated image.
- Ensure that an NDMP tape drive is available to mount the source image. The NDMP tape drive can be one that was defined in the DXi or it can be a physical tape drive in a tape library.

When these requirements are met, NetBackup copies the image directly to the designated storage unit without using media server I/O or network bandwidth.

Initiate an NDMP PTT

- 1. From the NetBackup Administration Console, expand the NetBackup Management Catalog.
- 2. Set up the search criteria for the image to duplicate.
- 3. Click Search Now to locate the backed-up images.
- Right-click the image(s) to duplicate and select **Duplicate** from the displayed menu. NetBackup begins the duplication of the selected images.

Note: For more information, refer to the *NetBackup Administrator's Guide*.

Configuring Symantec Backup Exec for PTT

To use Symantec Backup Exec with the DXi Backup Application Specific Path to Tape (PTT) feature, you must configure the backup application as follows:

- Add a Backup Application Specific Library below
- Share Devices on an NDMP Server on the next page
- Test the Configuration on page 23

Prerequisites

Do the following before configuring Symantec Backup Exec for PTT.

- Install and configure the DXi for Backup Application Specific Path to Tape. See <u>Configuring the DXi</u> For Path to Tape on page 13.
- Dedicate a partition within the DXi to Backup Exec. The partition cannot be shared with another backup application.
- Install the Network Data Management Protocol (NDMP) Option locally on the media server as a separate add-on component of Backup Exec. Files are not copied to the NDMP server.

For more information, see *Installing Additional Backup Exec Options* in the *Backup Exec Installation Guide*.

• Install the Backup Application Specific Path to Tape license on the DXi. See your DXi User's Guide.

A separate license is required on DXi systems to support Backup Application Specific Path to Tape. The Backup Application Specific license is pre-installed on all DXi6700, DXi6800, and DXi8500 systems.

Add a Backup Application Specific Library

1. From the Symantec Backup Exec console, select **Tools > Configure Devices> Add NDMP Storage** to display the **Add NDMP Server** dialog box.

Figure 13: Add NDMP Server Dialog Box

(add NDMF	? Server
	General	Sharing
	Server:	Port: 10000 🗧
	Description:	Quantum DXi7500
	Connectio	n Options ICMP ping operations for Backup Exec to detect the Server
	Logon acco	unt: System Logon Account
		OK Cancel <u>H</u> elp

- 2. In the **Description** field, enter the name or IP Address of the DXi system that is attached to the physical tape library (PTL).
- 3. Select the Enable ICMP ping operations for Backup Exec to detect the Server check box.
- 4. In the **Logon account** field, select the account that has been configured for NDMP authentication with the DXi.
- 5. Click the **Sharing** tab, and select the media servers to be used with this device.

Figure 14: Add NDMP Server Dialog Box - Sharing Tab

Check each media server that you want to use with the storage devices that are attache the NDMP server. You must restart the Backup Exec services on that media server befor changes can take effect. Media Servers: CALIFORNIA SUTESTO037	General	Sharing		
hanges can take effect. [edia Servers: CALIFORNIA SUTESWIPE SVTEST0037	heck each i he NDMP se	media server	that you want to use with the storage devices the ust restart the Backup Ever services on that med	at are attached to ia server before
Media Servers:	hanges can	take effect.		
CALIFORNIA SIDESWIPE SVTEST0037	dedia Serve	rs:		
✓ SIDESWIPE □ SVTEST0037				
L SVTEST0037	CALIFO	RNIA		
	CALIFO	RNIA		
	CALIFO SIDESV SVTEST	RNIA VIPE 10037		
	CALIFO	RNIA VIPE 10037		

- 6. For each selected media server, restart Backup Exec.
- 7. From the Symantec Backup Exec console, click **Devices** to display a list of available media servers in the left pane.
- 8. Right-click the media server to use in managing the device, and select **Label Media** from the displayed menu.
- 9. Label the media server, as appropriate, to complete the addition of a backup application specific library to Backup Exec.

Share Devices on an NDMP Server

If you use the **Backup Exec Central Admin Server Option** or the **SAN Shared Storage Option**, you can share the devices attached to an NDMP server between multiple media servers. The media server used to add the NDMP server is automatically selected for sharing.

Note: If you upgraded from an earlier version of Backup Exec, your existing configuration is preserved and you do not need to set up sharing for existing configurations.

Share the devices on an NDMP server between multiple media servers

- 1. From the Symantec Backup Exec console, click **Devices** to display a list of devices.
- 2. In the right pane, right-click the NDMP server with the attached devices to share.
- 3. From the displayed menu, select Manage Sharing.
 - **(i)** Note: The Manage Sharing option only appears when Backup Exec Central Admin Server or SAN Shared Storage is installed. In addition, you must have more than one media server.

- 4. Select the NDMP server with the attached devices to share.
- 5. Under **Media Servers**, select the media servers between which to share the NDMP server's attached devices.
- 6. Click OK.
- 7. For each selected media server, restart Backup Exec.

Test the Configuration

1. From the Symantec Backup Exec console, select the **Job Setup** tab and create a new duplication job.

Figure 15: New Job to Duplicate Backup Sets Dialog Box

Ele Edit Yew Network	. <u>I</u> ools <u>₩</u> indow	Help											Share Your Idea
Home Job	Setup Job Monitor	Alerts	Reports	Devi	ces Media						Enstant Bestor	Search	howledge Race
General Tasks	A Jobs - 1 Item	9 - E. E	10.16.14	0.19111		16.16.16	19110	10.10.10	16.16.16	16.16.16.1	Filter:	All jobs	x 9
Delete Properties	Job Name / Backup 00001	Job Type Backup	Device Na HP 0001	me	Media Set Keep Data for 4 W	Job Method Full	Overwrite No	Recurring	Priority Medium	Policy	Selection List Backup 00001		
Run now													
Copy													
Increase Priority													
View Summary													
Backup Tasks	*												
New job													
New job using wizard New job to settify back on													
data			N	w Job Is	Dunlicate Backun S	iets		1		×			
New job to duplicate backup sets				C 10-1	- Coperate Controlp								
Restore Tasks	Policies - 3 Items			· Dub	icare existing backup je	<u>a</u>							
New job	Policy Name		A.	The the t	backup sets you select selected destination.	in the catalogs	are read from	the source me	edia and writte	en to			
New job using wizard	Dupikate Backup S	Sets 00001											
2 Policy Tasks	2 Verify 00001	001											
New policy				C Dup	icate backup sets follow	ing a job							
New policy using wizard New table using policy				The	backup job you select r	uns first, then it	he backup set	it created as	a copied to the				
Delete jobs created by policy				sele	cted destination.	oris inst, andri a	ne olochisp ver	r k creates a	e copies to ex	·			
View policy protected resources report													
Selection List Tasks	\$												
New backup selection list													
New restore selection list New jobs using policy													
Delete jobs created by policy						[0K.	Cancel	Hel	þ			
Search backup selection lists	Backup Selection	Lists - 1 Item									Filter	All backup select	on lists 💌 💎
Sackup Strategy Tasks	R Selection List Nam	10	A D	escription									
Prepare for disaster recovery New job to automatically	Backup 00001												
discover resources													
vault													
Configure desktop and laptop backups													
Custom Filter Tasks	*												
Manage custom filters													
			ana	10101015					1111-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1				
Job Summary: 🎯 0 🔳 0	Q10 00 1	SIDESWIPE	111										Symantec.

2. On the **New Job to Duplicate Backup Sets** dialog box, select the appropriate job type and click **OK** to display the **New Duplicate Backup Set Job** window.

3. Select the **Source > Selections** menu, and select a resource to back up.

Figure 16: New Duplicate Backup Set Job Window – Source > Selections Menu

Selections	Selections Selection list: Duplicate Backup Sets 00001	Load selection	ns from existing list	Include subdirectories	
Resource Credentials				Show file details	
Device and Media	Search <u>C</u> atalogs		le/Exclude	Preview pape	
ettings	Beginning V 8/17/201	10 - Ending	9/16/2010 🔻	Terre bare	
General	backup date: 1 mm	backup date:)	1		
Advanced	View by Resource View by I	Media View Selection Details	L		
Network and Security	E 🖉 🌑 All Resources		Name 🔺	Size	T
Notification	E-M T SIDESWIPE		🗹 🗀 Temp	4,814,274KB	F
Schedule	i i i i i i i i i i i i i i i i i i i	2010 10:32:42 AM (Eull)			
		mp			
			4]		•
	9/16/2010 10:32:42 AM (F	-ull)	-		1× 1×
	9/16/2010 10:32:42 AM (F General	iull)	¥[• •
	9/16/2010 10:32:42 AM (F General Resource Name:	ull) SIDESWIPE - C:	4		• •
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date:	ull) SIDESWIPE - C: 9/16/2010 10:32:42 AM			• •
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date: Method;	ull) SIDESWIPE - C: 9/16/2010 10:32:42 AM Full	<u>.</u>		•
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date: Method: Size:	SIDESWIPE - C: 9/16/2010 10:32:42 AM Full 4,814,274KB	<u>.</u>		•
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date: Method: Stze: Media #:	SIDESWIPE - C: 9/16/2010 10:32:42 AM Full 4,814,274KB 1	<u>.</u>		•
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date: Method: Size: Media #: Media Labels:	SIDESWIPE - C: 9/16/2010 10:32:42 AM Full 4,814,274KB 1 CP0001	<u>.</u>		•
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date: Method: Size: Media #: Media Labels: Backup Set Description:	SIDESWIPE - C: 9/16/2010 10:32:42 AM Full 4,814,274KB 1 CP0001	×		
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date: Method: Size: Media #: Media Labels: Backup Set Description: Backup Set Number:	SIDESWIPE - C: 9/16/2010 10:32:42 AM Full 4,814,274KB 1 CP0001	<u>.</u>		•
	9/16/2010 10:32:42 AM (F General Resource Name: Backup Date: Method: Size: Media #: Media Labels: Backup Set Number: Data Encryption:	SIDESWIPE - C: 9/16/2010 10:32:42 AM Full 4,814,274KB 1 CP0001 1 No			•

4. Select the **Destination > Device and Media** menu, and select the PTL to use as the destination.

Figure 17: New Duplicate Backup Set Job Window - Destination > Device and Media menu

Duplicate Backup Set Job		
	C Device and Media	
Source		
Selections	Device:	
Hesource Liedentials	QUANTUM 0002	
Device and Media		
ettings	L'eduplication	
General	C Use client-side deduplication	
Advanced Network and Security	Deduplicate the data on the client (remote agent) if the device supports it, otherwise the data is sent directly to the storage device for media server or appliance deduplication.	
Notification	C Use media server deduction	
Schedule	Deduplicate the data on the media server if the device supports it; otherwise the data is passed through the media server to the OpenStorage device for appliance deduplication	
	Media set:	
	Keep Data for 4 Weeks	-
	Agpend to media, overwise into appendable media is available Append to media, terminate job if no appendable media is available Eject media after job completes	
	Retension media before backup	
	Line high more used more (h/OBM) mode	
	Use write once, reau many (wUHM) media	
	re Englie Dieuropy in tape	
	Bun Now Cancel	<u>H</u> elp

1 Note: Verify that the Enable DirectCopy to Tape feature is selected.

5. From the Symantec Backup Exec console, select the **Job Monitor** tab to monitor the duplication job's progress.

Figure 18: Job Monitor Tab

Symantec Backup Exec Ele Edit Yew Netw	** 2010 rork <u>I</u> c	ools <u>W</u> indow	Rep										Share Your Ide
Home J	ob Setu	p Job Monitor	Alerts R	eports Devices	Media					्तू Bac श्री Bec	tore -	Search Knowledge	8aaa (
General Tasks	*	Job List	Calendar										
Hold job queue		Current Jobs - 1 Its	em							Fil	ter: All jobs		
Hold schedule		State M	lame	Device Name	Job Type	Current Op	Job Statu	s Priority	Percent	Sart Tim	e /1	Flapsed Time	Evte Count
Properties		Active D	uplicate Backup		Duplicate	Duplicate	Loading M	Medium		9/16/201	0 11:11:5	0:00:39	
Active Job Tasks	*												
Cancel													
Cancel all													
Piolo all schedules Respond to alert													
Scheduled Job Tasks	\$												
Run now													
Hold all schedules													
Increase priority	1												
Decrease priority	1												
Custom Filter Tasks	*												
Manage custom filters													
		•											
		Job History - 3 Iter	16							Fil	ter: Alliobs		-
		Name	Device Name	Job Type	Job Stal	tus Percent C	omplete S	tart Time	End Time		Elapsed Tim	e Byte Count	Job Rate
		Sadup 00001	HP 0001	Backup	Successi	ul lu	100% 9/	16/2010 10:32:2	. 9/16/2010	10:38:0	0:05:37	4,930,544,	760 1,033.00 M
		Cabel Library	QUANTUM 0001	Label Med	ša Successi	ul	100% 9/	16/2010 10:29:5.	9/16/2010	10:30:1	0:00:23		
		Cabel Library	QUANTUM 0002	Label Mer	ša Successf	ul	100% 9/	16/2010 10:25:3.	. 9/16/2010	10:28:2	0:02:51		
		-											
							_			_	_	_	

In the above illustration, **QUANTUM 0001** is the VTL and **QUANTUM 0002** is the PTL. A Scalar i40 is used as the physical tape library.

Configuring EMC NetWorker for PTT

To use EMC NetWorker with the DXi Backup Application Specific Path to Tape (PTT) feature, you must configure the backup application, as follows:

- <u>Configure SCSI Storage Node Paths on the next page</u>
- <u>Configure NDMP Storage on page 28</u>
- **1** Note: EMC NetWorker 8.1 and later are not supported for Backup Application Specific Path to Tape.

Prerequisites

Do the following before configuring EMC NetWorker for PTT

- Install and configure the DXi for Backup Application Specific Path to Tape. See <u>Configuring the DXi</u> For Path to Tape on page 13.
- Ensure that you have the required licenses.

Required Licenses

• Backup Application Specific Path to Tape license on the DXi

A separate license is required on DXi systems to support Backup Application Specific Path to Tape. The Backup Application Specific license is pre-installed on all DXi6700, DXi6800, and DXi8500 systems.

- Autochanger license for the physical tape library (PTL) based on the number of cartridge slots
- One license for each logical shared drive in the DXi

Example

A PTL with two physical drives requires the following:

- a. Two digital data storage (DDS) licenses to share the two physical Network Data Management Protocol (NDMP) drives.
- b. Two DDS licenses to share the two virtual tape library (VTL) NDMP drives.
- Storage Node License
- EMC's license to perform basic backups to the DXi in VTL mode

Contact EMC for license specific license information.

Configure SCSI Storage Node Paths

Before configuring the NDMP storage node, you must configure the SCSI storage node paths to both the VTL and the PTL.

Configure SCSI storage node paths to libraries and drives

- 1. From the NetWorker Administration console, right-click on the SCSI storage node and select **Scan for Devices** to display the **Scan for Devices** dialog box.
- 2. In the device list, make sure that the device is the VTL and PTL are selected.
- 3. For the **Device Scan Type** option, select **scsi**.
- 4. Click the Start Scan button to scan the VTL and PTL.
- 5. After the scan completes, right-click the displayed VTL and select **Configure Library** to display the **Re-configure Library** dialog box.

Figure 19: Re-configure Library Dialog Box

torage node name:	DVITE Pavinana		
norage node name.	DXI/5-Beringer		
ibrary name:	QUANTUM@0.2.0		
onfigure devices	on various storage n	odes using existing drive connectivity	
torage node 🔻	LTO Ultrium-3(2)	LTO Ultrium-3(1)	Check All
DXi75-Beringer	Videv/alias/nst/HU10.	🗹 /dev/alias/nst/HU104503PA (NDMP)	CHECK AI
w2k3ee-oah	🗹 \\.\Tape1	🗹 N.\TapeO	Clear All
			Reset
-		a making and the state of the second second in the second state and the second in the second is succed.	

- 6. Select each remaining SCSI path to the VTL's tape drives.
- 7. Click Start Configuration.
- 8. Repeat steps 5-7 for the connected PTL.

Configure NDMP Storage

After configuring SCSI paths, you must configure an NDMP storage node for the DXi. This configuration requires the following tasks.

Configure the NDMP storage node for the DXi

1. From the Networker Administration console's left pane, right-click **Storage Nodes** and select **New** to display the **Create Storage Node** dialog box.

Figure 20: Create Storage Node

Identity		Device Management	
Name:	hostname	Device sharing mode:	server default 🔹
Type of storage node:	◯ scsi	Search all luns:	🔿 Yes 💿 No
		Use persistent names:	🔿 Yes 🖲 No
Status		Skip sosi targets:	
Storage node is configured:			
Last error number:	0		
Last error message:		AFTD allowed directories:	
Registration			
Date of registration:			
		Remote Host	
		Remote user:	
		Password:	

- 2. In the Name field, enter the fully qualified device name for the DXi.
- 3. For the Type of storage node option, select ndmp.
- 4. In the **Remote Host** area, enter the remote user name and password for the NDMP user account. See <u>Configuring the DXi For Path to Tape on page 13</u>.
- 5. Click **OK** to create the NDMP storage node for the DXi.

Configure NDMP storage node paths

1. From the NetWorker Administration console, right-click on the NDMP storage node and select **Scan** for **Devices** to display the **Scan for Devices** dialog box.

Figure 21: Scan for Devices Dialog Box

Greates	a new Storag	e Node					
Scan S	Storage Node	Name	• s	Search	Use Persiste	Exclude SCSI Paths	
V (DXi75-Beringe	r	1	lo	No		
	w2k3ee-oahu	.sjcengl	ab.com N	ło	No		
pdate s	torage node	prope	rties if re	equired		4 <u></u>	
pdate s torage №	storage node Node Name:	DXI75-	rties if re Beringer	equired	lude SCSI Paths:		
p date s torage N earch al	storage node Node Name: II LUNs:	DXi75-	rties if re Beringer	equired Exc	lude SCSI Paths:	~	
p date s torage N earch al	storage node Node Name: II LUNs: istent Names:	DXi75-	rties if re Beringer	equired Exc	lude SCSI Paths:		
p date s torage № earch al se Persi	storage node Node Name: II LUNS: istent Names:	DXi75- No	rties if re Beringer	equired Exc	lude SCSI Paths:		
pdate s torage N earch al ise Persi evice So	torage node Node Name: II LUNS: istent Names: can Type:	DXI75- No No Scs	r ties if re Beringer i ondmp	equired Exc	lude SCSI Paths:		
pdate s torage N earch al ise Persi evice So DMP Usi	storage node Node Name: II LUNS: istent Names: can Type: er Name:	No No No No No Scs	rties if re Beringer i () ndmp ame	equired Exc	lude SCSI Paths:		

- 2. In the device list, make sure that the NDMP storage node is selected.
- 3. For the **Device Scan Type** option, select **ndmp**.
- 4. Click the Start Scan button to scan the DXi.
- 5. After the scan completes and the NDMP paths are visible for the VTL and PTL on the SCSI storage node, right-click the displayed VTL and select **Configure Library** to display the **Re-configure Library** dialog box.

Figure 22: Re-configure Library Dialog Box

Storage node name: DXi75-Beringer	
library name: QUANTUM@0.2.0	
onfigure devices on various storage nodes using existing drive connectivity	
storage node 🔻 LTO Ultrium-3(2) LTO Ultrium-3(1)	Check All
DXi75-Beringer 🗹 /dev/alias/nst/HU10 🗹 /dev/alias/nst/HU104503PA (NDMP)	CHECK AI
w2k3ee-oah 🗹 \\.\Tape1 🛛 🗹 \\.\Tape0	Clear All
	Reset
This storage node's configuration may not be up-to-date. A re-scan operation is suggested to ensure the configuration is our	rent.

- 6. Select each remaining NDMP path to the VTL's tape drives.
- 7. Click Start Configuration.
- 8. Repeat steps 5-7 for the connected PTL.

Configure the clone storage node

- 1. From the NetWorker Administration console, click the **Configuration** tab.
- 2. In the left pane, select **Clients**.
- 3. Right-click the client to clone, and select Properties to display the Properties dialog box.
- 4. Click the Globals (2 of 2) tab.

Configuration		Windows Client	
Remote access:	[Hard links:	
		Short filenames:	
		Chort monumos.	
		BMR	
		BMR:	
Index path:		BMR options:	
Executable path:			
Storage nodes:	nsrserverhost	Archive Manageme	ent
		Archive services:	
		Archive users:	
Clone storage nodes:	DXi75-Beringer		
Recover storage nodes:			
Owner notification:			

Figure 23: Client Properties Dialog Box - Globals (2 of 2) Tab

- 5. In the Clone storage nodes box, enter the hostname of the NDMP storage node on the DXi.
- 6. In the **Recover storage nodes** box, enter the hostname of both the SCSI storage node and the NDMP storage node.
- 7. Click **OK** to complete the configuration of the clone storage node.

NDMP Cloning Operation Commands

You must initiate Network Data Management Protocol (NDMP) cloning operations using a command line interface (CLI).

Cloning to bad physical media causes EMC NetWorker to report the following:

Waiting for 1 writable volume(s) to backup pool

Workaround this issue by issuing a CTRL-Z command from the CLI. This command cancels the clone operation, removes the known bad physical media, and restarts the clone operation.

Prerequisites

Prior to starting a clone operation, do the following:

- · Perform backups as usual with scheduled groups or manually.
- Determine whether to clone an entire tape volume or a single save set.
- Label tapes into the Default Clone pool.

NDMP Cloning Operation Commands

Use the following CLI commands to perform NDMP cloning operations.

Clone a save set

nsrndmp_clone -v -p -J <DXi_Hostname> -S <SSID_number>

Clone an entire volume

clone -v -p -J <DXi_Hostname> <volume_name>

Restore data from physical tape

NetWorker recover command specifying saveset/cloneid

i Note: Refer to the EMC NetWorker documentation for more nsrndmp_clone command options.

Configuring Oracle Secure Backup for PTT

To use Oracle Secure Backup (OSB) with the DXi Backup Application Specific Path to Tape (PTT) feature, you must configure the backup application, as follows:

- <u>Assign OSB host roles on page 35</u>
- Configure the physical tape library (PTL) in obtool on page 35
- Configure the virtual tape library (VTL) in obtool on page 36
- Note: To configure devices on OSB, you must have OSB Administrator privileges.

Prerequisites

Do the following before configuring OSB for PTT.

Set up the DXi

- Install and configure the DXi for Backup Application Specific Path to Tape. See <u>Configuring the DXi</u> For Path to Tape on page 13.
- Configure Fibre Channel connectivity.
- Dedicate a partition within the DXi to OSB. The partition cannot be shared with another backup application.
- Install the Backup Application Specific Path to Tape license on the DXi. See your DXi User's Guide.

A separate license is required on DXi systems to support Backup Application Specific Path to Tape. The Backup Application Specific license is pre-installed on all DXi6700, DXi6800, and DXi8500 systems.

Attach Points

If you are using SCSI devices, you must have the following SCSI tape device parameters. These parameters are required to create attach points from the media server to your devices.

- **Note:** For hosts with an NDMP interface, OSB can discover device attachments, and so this step is not required.
- SCSI addresses
 - For Windows, the SCSI addresses are provided during installation.
 - For Linux and UNIX environments, you must query the host to determine these parameters. Refer to the OSB documentation.
- · Host bus adapter number for the SCSI adapter
- SCSI bus address for Windows or SCSI channel for Linux
- SCSI target ID
- SCSI logical unit numbers (LUNs)

OSB LUNs

Each tape drive and tape library needs an OSB LUN for identification. OSB uses the LUN to generate device special file names.

- For Windows media servers. OSB automatically assigns LUNs to devices.
- For UNIX or Linux media server, you must assign OSB LUNs for each device as part of planning your administrative domain.

Typically OSB LUNs are assigned sequentially, starting at 0, to each tape library and tape drive. The maximum value for an OSB LUN is 31.

Example

The following LUN assignments are given:

- Tape libraries: 0, 1, 2...
- Tape drives: 0, 1, 2... .

The resulting unique device special file names are generated:

- Linux or UNIX Servers:
 - Tape libraries: /dev/ob10, /dev/ob11, /dev/ob12...
 - Tape drives: /dev/ obt0, /dev/obt1, /dev/obt2...
- Windows Servers:
 - Tape libraries: //./obl0, //./obl1, //./obl2...
 - Tape drives: //./obt0, //./obt1, //./obt2...

Assign OSB host roles

- 1. Install OSB software on the hosts requiring protection.
- 2. From the OSB console, assign the appropriate host role.

Administratrive Server

The administrative server houses the OSB catalog and scheduling information. There can be only one administrative server per backup domain.

1 Note: You can also assign the media server role to the Administrative Server, as needed.

Media Server

The media server attaches directly to the tape devices.

Client

The client contains the data to back up.

```
1 Note: All hosts have a minimum of client role.
```

Configure the physical tape library (PTL) in obtool

1. From the obtool command line interface (CLI), create an OSB device object for each PTL and assign it a user-defined name.

2. Attach each PTL to the device special file using the following command:

```
ob> <device_object> --type library --attach <device_special_file>
```

- For each tape drive attached to the PTLs, create an OSB device object and assign in a user-defined name.
- 4. Attach each drive on the PTL to the device special file using the following command, as needed:

```
ob> <PTL_device_object> --type tape --library <type> --<drive_device_object> --
attach <device_special_file>
```

5. Verify the configuration using the following command:

ob> lsdev

Example

You attach the following PTL drives to device special files:

```
ob> mkdev --type tape --library i500 --dte 1 --attach svtest0030:/dev/obt0
IBMLT03A
ob> mkdev --type tape --library i500 --dte 2 --attach svtest0030:/dev/obt1
IBMLT03B
ob> mkdev --type tape --library i500 --dte 3 --attach svtest0030:/dev/obt2
IBMLT03C
You run the following command to verify the configuration:
ob> lsdev
OSB displays the following output:
library i500 in service
    drive 1 IBMLT03Ain service
    drive 2 IBMLT03B in service
```

Configure the virtual tape library (VTL) in obtool

drive 3 IBMLTO3C in service

An NDMP copy-enabled VTL, such as a Quantum DXi, has an embedded NDMP server and multiple access paths. This format offloads the volume duplication I/O from the application running on the media server to the VTL.

You must configure the NDMP copy-enabled VTL as a group of tape devices with multiple attach specifications. This representation ensures that the inventory data coming through the multiple access paths is identical.

Note: The following task provides basic configuration steps. For detailed instructions, see Oracle Secure Backup Administrator's Guide.

Configure an NDMP copy-enabled VTL

- 1. In the obtool CLI, create two OSB host objects to represent the VTL.
 - a. Associate the first object with the media server to which the VTL is attached.
 - b. Associate the second object with the VTL's embedded NDMP server.
- 2. Assign the media server role to both of these host objects.
- 3. Create one OSB library device object with two attach specifications for the VTL.
 - a. Assign the first access path through the media server to which the VTL is attached.
 - b. Assign the second access path through the embedded NDMP server.
- 4. Create an OSB tape device object with two access paths for each drive contained within the VTL.
 - a. Assign the first access path through the media server.
 - b. Assign the second access path through the embedded NDMP server.
- 5. Create one OSB library device object with a single attach specification for the PTL.

Assign the access path through the VTL's embedded NDMP server.

6. Create an OSB tape device object with a single attach specification for each drive contained within the PTL.

Assign the access path through the VTL's embedded NDMP server.

Note: Multiple media servers can access the PTL and its drives if the PTL is connected to a shared storage area network. In this case, create the OSB device objects for the PTL and its drives with multiple attach points.

Example

Following is an example of the **obtool** commands used to configure an NDMP copy-enabled VTL. Many of the options specified in a real environment have been omitted for clarity. The device names shown are simply placeholders that may differ from the actual names in a real environment.

1. Create the OSB host object associated with the media server to which the VTL is attached.

```
mkhost --access ob --ip ipname osb_media_server
```

2. Create the OSB host object associated with the embedded NDMP server contained within the VTL.

```
mkhost --access ndmp --ip ipname ndmp_server
```

3. Configure an OSB device object that is associated with the VTL vlib.

```
mkdev --type library --class vtl
```

```
-attach osb_media_server:/dev/obl0,ndmp_media_server:/dev/sg0 vlib
```

Note: Access to this library and its drives is through the OSB media server and the embedded NDMP server.

4. Configure an OSB device object for drive vdrive1, which is contained in the VTL vlib.

```
mkdev --type tape --library vlib --dte 1
```

-attach osb_media_server:/dev/obt0,ndmp_media_server:/dev/nst0 vdrive1

5. Repeat this command for each tape drive in the VTL.

mkdev --type tape --library vlib --dte 2

```
-attach osb_media_server:/dev/obt1,ndmp_media_server:/dev/nst1 vdrive2
```

```
mkdev --type tape --library vlib --dte 3
```

```
-attach osb_media_server:/dev/obt2,ndmp_media_server:/dev/nst2 vdrive3
```

6. After configuring your devices, review the attached configured devices on the **Configure Devices** tab.

Configuring ASG-Time Navigator for PTT

To use ASG-Time Navigatorwith the DXi Backup Application Specific Path to Tape (PTT) feature, you must configure the backup application as follows:

- Configure the VTL in ASG-Time Navigator on the next page
- Configure the PTL in ASG-TIme Navigator on page 45

Prerequisites

Do the following before configuring ASG-Time Navigator for PTT.

- Install and configure the DXi for Backup Application Specific Path to Tape. See <u>Configuring the DXi</u> For Path to Tape on page 13.
- Configure Fibre Channel connectivity.
- Dedicate a partition within the DXi to ASG-Time Navigator. The partition cannot be shared with another backup application.
- Install the Backup Application Specific Path to Tape license on the DXi. See your DXi User's Guide.

A separate license is required on DXi systems to support Backup Application Specific Path to Tape. The Backup Application Specific license is pre-installed on all DXi6700, DXi6800, and DXi8500 systems.

Configure the VTL in ASG-Time Navigator

Perform the following tasks to configure a virtual tape library (VTL) in ASG-TIme Navigator.

Add the VTL

1. On the ASG-Time Navigator console, click **Advanced Device Manager > Host Platform > Network** to display the **New Network** dialog box.

Figure 24: New Network Dialog Box

😵 New Netw	ork	×	J
General			
	Type: SAN		
	Network Name:	SAN	
		OK <u>C</u> ancel <u>H</u> elp	

- 2. In the Network Name field, enter the name for the new host platform and click OK.
- 3. Click Advanced Device Manager > Host Platform to display the Device List dialog box.

evice	List									
eleçt n	ew hosts for d	levice detection	xport							
н	lost	Status	Name	Туре	Serial number	Descriptor	Connections	Library	Position	Num
SV SV SV SV	TEST0033 TEST0033 TEST0033 TEST0033	To Declare To Declare To Declare To Declare	drive_01 drive_02 drive_03 library_01	HP Ultrium 3 HP Ultrium 3 HP Ultrium 3 Adic Scalar 1500	VD185V09388VA32208 VD195V09388VA32208 VD1A5V09388VA32208 VL025V09388VA32208	c4b0t0l1 c4b0t0l2 c4b0t0l3 spt_c4b0t0l0	SAN SAN SAN	lbrary_01 lbrary_01 lbrary_01 -	0 1 2 -	- - 3
		x [autore l	Margan have inferited in an	unitions L Acc	orisko wiliko o rino	la estargie al eleis		
operti	To Day	PLAND PLANT SPLAND	Den Den Bernsteiner -	Dannelia Pratico I	The second					

Figure 25: Device List Dialog Box

- 4. Select the VTL and drive(s) with which to associate the host platform.
- 5. Under Properties, select SAN Connection.

Note: You will configure the NDMP application for the VTL **AFTER** configuring the physical tape library (PTL).

6. Click Apply.

Configure the NDMP host in ASG-Time Navigator

1. On the ASG-Time Navigator console, display the **New Host** dialog box.

Figure 26: New Host Dialog Box – General Tab

😤 New Host			×
General Pro	otocol Advanced SAN Connection		
	Type: NDMP Server Host Name: 172.16.88.123 Software Version: Unknown Comment:	_	
			QK Cancel Help

2. Populate the **General** tab with the following information:

Field	Entry
Туре	Enter NDMP Server.
Host Name	Enter the DXi's IP address or hostname.
Comment	Enter a comment to further define the host, as needed.

3. Click the **Protocol** tab.

Figure 27: New Host Dialog Box - Protocol Tab

eperal Protocol Adva	nced SAN Connection	
Version: 4.2.0	Version: 4.0 V User: tina Password:	
		QK <u>Cancel</u> <u>H</u> elp

4. Populate the **Protocol** tab with the following information:

Field	Entry
Version	Select 4.0.
User	Enter the NDMP user name configured on the DXi. See Configuring the DXi For Path to Tape on page 13.
Password	Enter the NDMP password configured on the DXi. See Configuring the DXi For Path to Tape on page 13.

5. Click **OK** to create the NDMP host.

Configure the NDMP application for the VTL

1 Note: Perform this task after AFTER configuring the PTL.

- 1. On the ASG-TIme Navigator console, click **Advanced Device Manager > Host Platform** to add a new host platform.
- 2. Display the **Supported Applications** dialog box, and select the **Application > NDMP** type to create an NDMP application.



😨 svtest0033_tina - Time Navigator - Administration Console - Version 4.2		@X
Theorem Second Second Second Second Seconds Seconds Reb		_
NEWP Add:500 NEWP_D-1 NEWP_D-2		
Image: State		
24	Gancel Belo	
Catalogs Ralations Cache BOLADOLED DUTESTICO SUITESTICO SUITESTICO SUITESTICO SUITESTICO		
Catalog "ovtest0000_bra" Server "SVTEST0003"		
Current Store 1 GB Maximum Store 4 GB		
Alcoston Statu: Expandable		
Versions: 5152		
📑 svtext0033_tina 😤 🛛	\$/5	

3. Display the Application Properties dialog box.

Figure 29: Application Properties Dialog Box

😵 Appl	ication I	Properties		x
(NDMP		
		Host Name:	SVTEST0033	
		Application Name:	SVTEST0033.ndmp	
		Comment:		
		NDMP Server:	SVTEST0033	
		NDMP User Name:	SVTEST0033\Administrator	
		NDMP Password:	****	
		Local User:	SVTEST0033\Administrator	
		Password:	****	
		Snapshot Type:	none Configuration	
Env	vironment	: Variables		
	Add	Name		
-	Import	NDMP_FINITE_	SIZE_WINDOW_ON_TAPE_SPANNING	
-	Edit			
-	Remove			
-				
		[OK Cancel Help	

4. Configure in the login credentials for the NDMP application by populating the following fields:

Field	Entry
Local User	Enter the NDMP user name configured on the DXi. See <u>Configuring the DXi For Path to Tape</u> on page 13.
Password	Enter the NDMP password configured on the DXi. See Configuring the DXi For Path to Tape on page 13.

5. In the Environment Variables area, click Add to display the Edit Environment Variable dialog box.

Figure 30: Edit Environment Variable Dialog Box

🧟 Edit I	Environment Variable	×
Name:	NDMP_FINITE_SIZE_WINDOW_ON_TAP	E_
Value:	yes	
<u> </u>	OK <u>C</u> ancel <u>H</u> elp	

6. Populate the following fields:

Field	Entry
Name	Enter NDMP_FINITE_SIZE_WINDOW_ON_TAPE_SPANNING.
Value	Enter yes .

- 7. Click OK to add the environmental variable to the NDMP application.
- 8. Verify the configuration by running a full inventory on the VTL for which you created the NDMP application. Follow the steps outlined in the <u>Verify connections to the PTL and its drives on page 48</u> task, applying them to the VTL.

9. Under Media Management, display the Drive Properties dialog box.

Figure 31: Drive Properties Dialog Box

😨 Drive Properties	X
General Cartridges Library Information Identity User Groups	
Media Pools Add Clone Remove Lone	Writing Mode
	OK Cancel Help

- 10. Select the **Cartridges** tab, and associate the VTL's drives with the **Clone** media pool.
- 11. Label the media in the VTL.

Configure the PTL in ASG-TIme Navigator

Perform the following tasks to configure a PTL in ASG-TIme Navigator.

Add the PTL to the NDMP host

1. On the ASG-Time Navigator console, display the **New Library** dialog box.

Figure 32: New Library Dialog Box

😤 New Library		×
Type: Adic Scalar ia	2000	
Host Name:	172.16.88.123	
Device Descriptor:	/dev/alias/mc/ADICATEMPO_NDMP	
Library Name:	Scalar (2000	
Serial Number:		Reset
As	Add Remove	
Advanced Properties		
	QK	Help

2. In the **Device Descriptor** field, enter the descriptor for the PTL.

Device Descriptor Format

The device descriptor is made up of the device's network path and serial number. **Example**

/dev/alias/mc/ADICATEMPO_NDMP

- For a medium changer, the path is /dev/alias/mc/.
- For a tape device, the path is /dev/alias/nst/.
- The last part of the descriptor is the device's serial number ADICATEMPO_NDMP in this example.
- Note: After the NDMP library is configured, you can find the device descriptor on the DXi's Remote Management console from the Configuration > PTT page.
- 3. In the Library Name field, enter the name of the PTL.
- 4. Click OK.

Add drives to the PTL

1. On the ASG-Time Navigator console, display the New Drive dialog box.

172- NEW Solar COOL Ad: Scalar COOL	Image: State	
ralige Current catalog Server "Server" Catalog Valume: 51,00 PB Press: 50,0 % Optics: 9 % Witting: 0,0 %	Converil Catchologies Uktrany Informations Stericity Uker Groups Type: 14* Uktran 3 Drive Name: 14* Type: 14* Uktran 3 Drive Name: 14* Type: 14* Uktran 3 Cathologies Uke Cycle Growth): 50000 Send Namber: 15* Uktran 15* Device Decorptor: 14* Uktran 15* Decorptor: 15* Uktran	
Interces: 9 Reading: 0,0 %	OK _ GHON _ BHO	

Figure 33: New Drive Dialog Box - General Tab

2. Populate the **General** tab with the following information:

Field	Entry
Drive Name	Enter the drive's name.
Cartridge Life Cycle	Enter 500000 .
Device Descriptor	Enter the descriptor for the drive. See <u>Device Descriptor Format on the previous</u> page.

3. On the Library tab, click the Library button to display the Library Selection Dialog Box.

Figure 34: Library Selection Dialog Box

Andream Const. Time Nanopolo Atalog Bartoring Bafform (2010) 172	Soche Andrein Degen	norder versions 4.2 s Strage Security Heb	dive_SI	dire_50	arver, Da.c.d. Cedig	
	Ade Scalar 2000	Quantum Dio 2000 Quantum Dio 2000 General Carbidges Library 1	HPLTO3 HPLTO3	HP1.703 HP1.703		
		Librarys Drive PostConin Librarys 0	Edwary Selection			
Catalogs Current catalog			Seniar (200			
Catalog Volume: 1,000 MB Free: 90,0 % Objects: 9 Instances: 9	Cache Volume: 64 MB Free: 300,0 % Writing: 0,0 % Reading: 0,0 %					
		1		<u>x</u>	e e	
array the D long	utein					34

- 4. Select the PTL to which you are adding the drive.
- 5. Repeat this task for each drive to add to the PTL.

Verify connections to the PTL and its drives

- 1. On the ASG-Time Navigator console, right-click on the PTL and select **Operation** to display the **Library Manager** dialog box.
- From the Library menu, select Reinitialization > Full > Full Inventory to run a full inventory of the PTL.



Figure 35: Library Manager – Full Inventory Run

3. After the inventory completes, verify that all media for the PTL has been identified, which in turn indicates that the system connection is working correctly.

Configure advanced settings for the PTL

1. On the ASG-Time Navigator console, display the Library Properties dialog box.

2. Click the Advanced Properties button to display the Advanced Properties dialog box.

Figure 36: Advanced Properties Dialog Box

172	Lary Properties				5	server_tra.cat
NOPP I				drive_03	drive_04	Catalog
1000	Prov. Narrie: 172.	05.00.123	Advanced Properties	HP LT03	HP LTOS	
	Chrone Descriptor) Tory	and a construction of the	Library Type: Adi: Scalar (2000			
	Savid Name	F 6000	Standard Generic Specific Geometry	Result		
	personal f		De Bernder			
	Associate	0 Denves	P Demount Hedia after Usei			
	A.	M HE Tare 2	Shared Library			
	Ren	eve HPTape 1	Cleaning slot			
			Desmad Git			
			Performed Ceanings:			
a second s			Authorized Cleanings:			
alogs Current catalog						
Serv						
Vokene: 1,000 MB						
Free: 90,0 % Ad	ranced Properties					
Objects: 9				1		
				046-		
			Default Configuration Code			
			OK Cancel Help			

- 3. Select the **Dismount Media After Use** option.
- 4. Deselect the **Cleaning slot** option.
- 5. Click **Ok** to apply the advanced settings.

Cloning Media with ASG-Time Navigator

To clone media with the ASG-Time Navigator backup application, perform the following tasks

Back up data to the VTL

- 1. In the ASG-TIme Navigator console, launch the **Backup Wizard**.
- 2. Click Next.
- 3. Select the files on the DXi to back up to the virtual tape library (VTL).
- 4. Complete the remaining tasks in the Backup Wizard.
- 5. Click **Finish** to run the backup operation.

Clone media from the VTL to the PTL

- 1. In the ASG-TIme Navigator console, display the Media Management dialog box.
- 2. Select the media pool from which you manage the DXi media.

- 3. Select the tape to clone, and click the **Duplicate** button.
- 4. Click Start to clone the media.