HP OpenStorage (OST) Plug-in for Symantec NetBackup using HP StoreOnce Backup Systems Setup Instructions



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1 Introduction

This guide provides information on the HP OpenStorage (OST) plug-in version 3.1 for Symantec NetBackup and details instructions on installing, updating, and configuring the OST plug-in. Setup details are provided for other NetBackup functions in addition to instructions for setting up NetBackup with:

- Un-targeted and Targeted Auto Image Replication (A.I.R.) operations
- StoreOnce Catalyst over Fibre Channel interface operation
- StoreOnce Catalyst stores and Federated Catalyst stores
- Granular Recovery Technology (GRT)
- NetBackup Accelerator for File Systems and VMware

Troubleshooting and uninstallation information is also provided.

This chapter provides an overview of the OST plug-in and provides definitions for common terms used throughout this guide.

Overview

The OST plug-in is a Symantec backup interface that allows intelligent storage devices, like the HP StoreOnce Backup systems, to work with Symantec's NetBackup software. OST provides NetBackup administrators with advanced capabilities such as optimized duplication and A.I.R.

The OST plug-in is installed on NetBackup media servers. It uses a StoreOnce Catalyst interface to interact with the HP StoreOnce Backup systems.

NOTE: All OST plug-in operations supported on version 3.1 for physical StoreOnce appliances are also supported on Virtual StoreOnce Appliances (VSA). VSAs hosted on VMware ESX Servers, Microsoft Hyper-V, and Linux KVM are supported. For more information, see the *HP StoreOnce VSA Backup system user guide* for software version 3.12.0.

Terminology

Table 1 (page 4) describes commonly-used terms used throughout this guide.

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Terminology	Description
Accelerator	A NetBackup feature that facilitates intelligent backups to disk at the cost and speed of an incremental backup using change detection techniques on the client
Auto Image Replication (A.I.R.)	A NetBackup feature that protects against site outages by replicating backups between NetBackup domains
Backup Image	User data represented with header and content files
Client	Systems that are to be protected through the use of the NetBackup backup software
Disk pool	A collection of disk volumes. It is the storage destination of a NetBackup storage unit.
Disk volume	StoreOnce Catalyst Store
Granular Recovery Technology	A feature that allows select items to be restored from database backups.
Logical Storage Unit (LSU)	StoreOnce Catalyst Store
Master server	A system with a NetBackup master server installed
Media server	A system with a NetBackup media server installed along with the OST plug-in

Table 1 Terminology (continued)

Terminology	Description
Optimized Duplication	A low bandwidth copy operation
OST	OpenStorage
OST storage server	An HP StoreOnce backup system appliance
Storage unit	A label that NetBackup is associated with physical storage

2 Prerequisites for the OST plug-in

This section describes media server prerequisites that should be considered before installing the OST plug-in for Symantec NetBackup.

Operating systems

Table 2 OST support matrix for Operating Systems and Interfaces

Operating Systems Supported	Ethernet network supported?	Fibre Channel network supported?
Microsoft Windows Server 2008 R2 (x64)	\checkmark	\checkmark
Microsoft Windows Server 2012 R2 (x64)	\checkmark	\checkmark
RedHat Enterprise Linux 5.x (x64)	\checkmark	\checkmark
RedHat Enterprise Linux 6.x (x64)	\checkmark	\checkmark
SuSE Linux Enterprise Server 10.x (x64)	\checkmark	\checkmark
SuSE Linux Enterprise Server 11.x (x64)	\checkmark	V
HP-UX 11.31 (IA-64)	\checkmark	\checkmark
AIX 6.1 (x64)	\checkmark	-
AIX 7.1 (x64)	\checkmark	-
Solaris 10 (SPARC 64)	\checkmark	-
Solaris 11 (SPARC 64)	\checkmark	-

¹ StoreOnce Catalyst over Fibre Channel is only supported on SuSE 11 SP2 and lower.

Symantec NetBackup

The OST plug-in works with the following NetBackup versions:

- 7.5
- 7.6

NOTE: Be sure to observe the following notes:

- While installing NetBackup, be sure to take note of and appropriately resolve all warnings and errors encountered during pre-install checks. Failure to do so may impact backup operations later.
- You must install NetBackup first, and then install the OST plug-in.

3 Installing, updating, and uninstalling the OST plug-in

Downloading the OST plug-in

Download the OST plug-in installer zip or tar file onto NetBackup media servers. Find the files at http://software.hp.com and navigate to HP Storage Software StoreOnce Free Software. (Refer to your sales contact for user ID and password information.)

Installing/Updating the OST plug-in with NetBackup

Before you begin the installation, make sure that Symantec NetBackup is installed. See the *NetBackup Installation Guide* for its installation instructions.

- () **IMPORTANT:** If you are installing the OST plug-in version 3.1 on AIX, ensure that you use the appropriate . rpm file before completing installation instructions.
 - For AIX v7.1: gcc-c++-4.8.1-1.aix7.1.ppc.rpm
 - For AIX v6.1: gcc-c++-4.8.1-1.aix6.1.ppc.rpm

You must install the above AIX dependency packages before proceeding.

NOTE: On Unix platforms, the OST plug-in cannot be installed on an alternative path. You must use the paths provided.

NOTE: Before completing AIX installations, observe the following:

- On AIX media servers, where IPv6 is not configured, you must configure the /etc/ netsvc.conf file as hosts=local4, bind4. Failure to do so causes NetBackup to mark disk volumes as down due to latencies introduced by AIX resolving storage server addresses.
- For AIX installations, typically, the page size setting is set to 512 MB. This setting must be change to 4 GB to allow for the seamless operation of NetBackup installations. Be sure to change this setting before completing the AIX installation process. Failure to do so causes slow or unresponsive operations on the AIX server.
- On AIX media servers, when the system reports the disk volume status to the master server, delays may occur, and the system may then mark disk volumes as being down and may also mark media servers as being not active. In this case, backup operations fail, and the NetBackup Administration Console may also show poor response and, in some cases, no response. To work around this issue, execute the following steps on each of the NetBackup Media servers, and then restart NetBackup services:
 - # touch /usr/openv/netbackup/db/config/DPS_PROXYNOEXPIRE
 - # echo "3600" >/usr/openv/netbackup/db/config/DPS_PROXYDEFAULTSENDTMO
 - # echo "3600" >/usr/openv/netbackup/db/config/DPS_PROXYDEFAULTRECVTMO
- 1. Shut down all NetBackup services using the appropriate command.

Windows:

Command: bpdown

Execution Path: C:\Program Files\Veritas\NetBackup\bin

• Linux, HP-UX, AIX, and Solaris:

Command: bp.kill_all

Execution Path: as/usr/openv/netbackup/bin/

2. On Windows, close any open command prompts so that environment variable changes, which occur during the OST plug-in installation, are reflected in the command prompt.

3. Run the installer.

Windows

- To install the OST plug-in version 3.1, extract the contents of the zip file, double-click the executable file, and follow the instructions.
- To upgrade from older versions to the OST plug-in version 3.1, install version 3.1 as stated above. There is no need to uninstall the existing plug-in.

NOTE: If you installed NetBackup on a path other than the default, you must use the same path when installing the OST plug-in.

During the installation, files are copied to the following locations:

- OST plug-in: libstspihp.dll
- Located in: C:\Program Files\Veritas\NetBackup\bin\ost-plugins
- Configuration files: C:\Program Files\Hewlett-Packard\OpenStorage\3.1\ config
- Log files: C:\Program Files\Hewlett-Packard\OpenStorage\3.1\logs

Linux, HP-UX, AIX, and Solaris

- To install the OST plug-in version 3.1, extract the version 3.1 <gzip -d package_name and tar -xvf _tar_file> (for Solaris, use gunzip instead of gzip) package, execute bash install.sh, and then follow the remaining installation instructions.
- To update from older versions to the OST plug-in version 3.1, uninstall the existing plug-in and then install version 3.1 as stated above. See the OST plug-in user guide for your version for version-specific uninstall instructions.

During the installation, files are copied to the following locations:

- OST plug-in: libstspihpq.so and libstspihpqMT.so
- Located in: /usr/openv/lib/ost-plugins
- Configuration files: /usr/openv/hp/ost/3.1/config
- Log files: /usr/openv/hp/ost/3.1/logs

Uninstalling the OST plug-in

NOTE: Adhere to the following notes before uninstalling the OST plug-in:

- Be sure to uninstall the OST plug-in before uninstalling Symantec NetBackup.
- In Windows 2012, if NetBackup is uninstalled before the OST plug-in is uninstalled, the OST plug-in uninstallation process fails.

To uninstall the OST plug-in, complete the following steps for the appropriate operating system.

Windows

- 1. Shut down all NetBackup services by using the bpdown command.
- 2. Click Start-Control Panel-Add or Remove Programs.
- 3. Select HP OST Plugin for Symantec NetBackup.
- 4. Click Uninstall.
- 5. Follow the on-screen instructions. The plug-in is uninstalled, and all related files are deleted from the system; no reboot is required.

Linux, HP-UX, AIX, and Solaris:

- 1. Shut down all NetBackup services by using the <code>bp.kill_all</code> command.
- 2. Remove the OST plug-in by executing bash uninstall.sh from the 3.1 package.
- 3. Follow the on-screen instructions.

4 Configuring the OST plug-in

The OST plug-in comes with two configuration files.

- hpost.conf—Controls plug-in behavior
- hpostlog.conf-Controls plug-in logging

These files can be found at the following locations:

- In Windows: %SystemRoot%\Program Files\Hewlett-Packard\OpenStorage\
 3.1\config
- In Linux: /usr/openv/hp/ost/3.1/config
- In HP-UX: /usr/openv/hp/ost/3.1/config
- In AIX: /usr/openv/hp/ost/3.1/config
- In Solaris: /usr/openv/hp/ost/3.1/config

Refer to Table 3 (page 10) for a description of configuration parameters. Add comments in the . conf file by using # at the beginning of each new line. The plug-in is installed with default configurations settings.

△ CAUTION: Change the configuration only if you are familiar with the use and outcome of these parameters. Improper configuration settings can cause the system to malfunction.

Table 3 (page 10) lists and describes parameters that can be used with the hpostlog.conf configuration file.

NOTE: Any changes to hpostlog.conf become effective without restarting NetBackup services.

Table 3 Parameters used with hpostlog.config configuration file

Parameter syntax	Description
LOGLEVEL: <log level></log 	Specifies the level of logging for the OST plug-in. Default: INFO Valid Values: VERBOSE/DEBUG/INFO/ERROR Example: LOGLEVEL: ERROR NOTE: Note the following information when using valid values: ERROR: Logs only error messages INFO: Logs error and informational messages DEBUG: Provides adequate detail for troubleshooting issues VERBOSE: Provides the highest level of logging for tracing
LOGFILE: <filename></filename>	Specifies the user-specific log file name. Default: hpOstLogFile.log Example: LOGFILE: hpOstLogFile.log
ROLLUPSIZE: <mb></mb>	Sets the size of the log file in MBs before it is rolled over. Maximum: 50 (MB) Example: <i>ROLLUPSIZE</i> :10
ROLLUPFILES: <count></count>	Specifies the number of rolled over log files to be kept in the filesystem. Maximum: 100 Example: <i>ROLLUPFILES</i> :20

Configuring OST plug-in using IPv6 addressing

The OST plug-in version 3.1 supports configuring and addressing StoreOnce storage appliances using IPv6 addresses supporting all NetBackup operations that were supported with IPv4 addressing. To configure a storage server using IPv6, enter the IPv6 address in the "Storage server name" field as shown below.

Figure 1 Using IPv6 addresses

Add Storage Server	
Provide details to crea	ate storage server
Storage server details	
Storage server name:	OST_server.hp.com
Storage server type:	hp-StoreOnceCatalyst
	hp-StoreOnceCatalyst
	the vendor's OpenStorage plug-in installed. NetBackup will ermine its capabilities using this media server.
Media server:	d2dblade03
Enter storage server credential	s:
User name:	FibreConnect
Password:	XXXXX
Confirm password:	жижи
	<back next=""> Cancel Help</back>

NOTE: To specify a storage server using IPv6, use an FQDN instead of an IP address. Using an IPv6 IP address will cause the storage server configuration in NetBackup to fail.

5 Setting up Auto Image Replication (A.I.R.) with NetBackup

Topics included in this section are as follows:

- "About A.I.R." (page 12)
- "A.I.R. Prerequisites" (page 13)
- "Setting up Un-targeted A.I.R." (page 13)
- "Setting up Targeted A.I.R." (page 17)

About A.I.R.

The Auto Image Replication (A.I.R.) feature of NetBackup addresses the site-to-site replication challenge by allowing storage lifecycle policies to duplicate selected images between NetBackup Master Domains. The primary purpose of Auto Image Replication is to create off-site copies of mission critical backups to protect against site loss.

NetBackup A.I.R. relies on tpman, an HP proprietary tool, to create replication topologies between storage servers. The OST plug-in uses this information to initiate automatic replication of data. Tpman supports m:n NetBackup Domain replication topologies for A.I.R. operation.

A.I.R. comes in the following configurations:

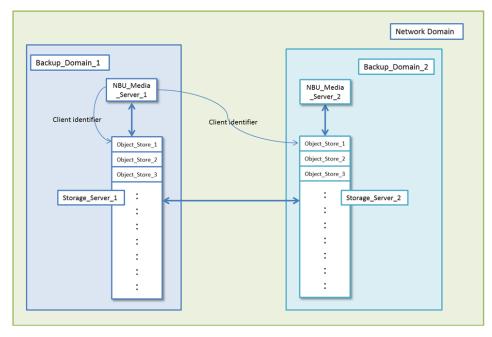
- Untargeted A.I.R.: The OST plug-in broadcasts the images based on the m:n topology and you cannot choose the replication targets.
- Targeted A.I.R.: Targeted A.I.R. presents the set of available targets for an A.I.R. operation. You can use the OST plug-in to send data to selective targets rather than a broadcast.

NOTE: The tpman tool is still necessary to create the replication topology.

Figure 2 (page 13) provides an overview of how A.I.R. needs to be set up with the OST plug-in versions 2.1 or later. It displays some of the prerequisites that need to be satisfied before setting up A.I.R. Please see the "A.I.R. Prerequisites" (page 13) for complete information.

NOTE: The OST plug-in versions 2.1 through 3.0.1 only support un-targeted A.I.R. operations. Versions 3.1 and later support both un-targeted and targeted A.I.R. on NetBackup v7.6.

Figure 2 A.I.R. setup between Object_Store_1 of Storage_Server_1 and Object_Store_1 of Storage_Server_2



A.I.R. Prerequisites

Before setting up A.I.R., make sure that:

- NetBackup source and target master domains are accessible over the network to each other.
- Both source and target stores use the same client identifier for the A.I.R. operation (in case client access permission checking is enabled).
- NetBackup does not have any provisions for setting up replication topologies for third-party storage vendors. To set up replication topologies for the HP StoreOnce Backup System, storage administrators must use the tpman tool that shipped with the OST plug-in.
- The source and target master domain, A.I.R. SLP names and data classification, are exactly the same (Un-targetd A.I.R. only).
- The date and time on source and target NetBackup domains should be set to their respective current time. NetBackup delays import of images at the target master if the time stamp on the replicated image is in the future.

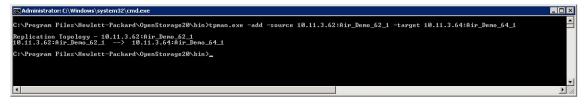
Setting up Un-targeted A.I.R.

To set up un-targeted A.I.R.:

- 1. Create stores on the source and target HP StoreOnce Backup system. (Refer to HP StoreOnce Backup system documentation at www.hp.com/go/storage/docs for more information.)
- 2. Set up topology:
 - a. HP provides a CLI tool (tpman) to storage administrators for replication topology setup. The tool is installed automatically after the OST plug-in is installed. The tool is located at:
 - For Windows: %SystemRoot%\Program Files\Hewlett-Packard\ OpenStorage\3.1\bin
 - For Linux: /usr/openv/hp/ost/3.1/bin
 - For HP-UX: /usr/openv/hp/ost/3.1/bin
 - For AIX: /usr/openv/hp/ost/3.1/bin

- Use the tpman tool to setup replication topology. The OST plug-in versions 3.1 and later support replication topology setup between stores. Topology can scale in an m:n fashion. Tpman usage:
 - For Windows: tpman.exe -add -source <sts:lsu> -target <sts:lsu> [-clientid <id>]
 - tpman.exe -remove -source <sts:lsu> -target <sts:lsu> [-clientid <id>]
 - tpman.exe -showtopology -store <sts:lsu> [-clientid <id>]
- c. For all other platforms (non-Windows platforms), use tpman as follows:
 - tpman -add -source <sts:lsu> -target <sts:lsu> [-clientid
 id>]
 - tpman -remove -source <sts:lsu> -target <sts:lsu> [-clientid
 <id>]
 - tpman -showtopology -store <sts:lsu> [-clientid <id>]
- d. Run the add command as shown below. In the example below, StoreOnce Catalyst Store, Air_Demo_62_1, of storage server 10.11.3.62 replicates to StoreOnce Catalyst Store, Air_Demo_64_1, of storage server 10.11.3.64.

Figure 3 Running the add command example



NOTE: Source StoreOnce Catalyst stores and target StoreOnce Catalyst stores should have same client identifiers.

3. Create storage units and disk pools out of these replication-enabled StoreOnce Catalyst stores, for use with A.I.R., and then restart NetBackup services.

NOTE: You can change the topology of a StoreOnce Catalyst Store even after it has been added as a disk pool. If doing so, always remember to refresh the disk pool as shown below.

Figure 4 Creating storage units and disk pools from replication-enabled StoreOnce Catalyst stores

🛅 Devices - nduvm110 - NetBackup Admi	nistration Console				_ 🗆 ×
Eile Edit Yew Actions Help					I
🗐 • 🔃 🎒 💥 🛛 🗙 🖇 🖻	a 🛍 🗼 🔽 🗶 🔯 🕺	Ba 🖀 🖀			
nduvm110	All Disk Pools	P*			1 Selected
nduvm110 (Master Server)	Name	Change Disk Pool	× acity	Available Space	Raw Size
Activity Monitor	Lakshmi_57_HB_1_DP	Disk pool name: Air Demo 62 1 DP	76 MB	13.7505 TB	13.7505 TB
🖻 🖳 NetBackup Management	Lakshmi_57_HB_DP		34 MB	13.7505 TB	13.7505 TB
	Lakshmi_59_HB_2_DP		22 MB	13.7505 TB	13.7505 TB
🖹 🗔 Policies	Lakshmi_57_HB_3_DP	Disk pool configured for: Backup	Bytes	13.7505 TB	13.7505 TB
Summary of all Policies	Lakshmi_59_HB_3_DP	Disk Pool Properties and Volumes	71 MB	13.7505 TB	13.7505 TB
Pol1	Lakshmi_62_HB_DP	A disk pool inherits the properties of its voulmes. Only volumes with similar properties	88 MB	13.7505 TB	13.7505 TB
Pol2	Lakshmi_62_HB_2_DP	can be added to a disk pool.	Bytes	13.7505 TB	13.7505 TB
- Rol3	Lakshmi_64_HB_1_DP		Bytes	13.7505 TB	13.7505 TB
	Lakshmi_62_HB_3_DP	Replication source	Bytes	13.7505 TB	13.7505 TB
Pol5	Lakshmi_64_HB_3_DP	Replication target	38 MB	13.7505 TB	13.7505 TB
Pol6	Air Demo 62 1 DP		Bytes	13.7505 TB	13.7505 TB
E-B Storage		Volumes added to this disk pool:	1		
Storage Units Storage Unit Groups		Volume Name Available Space Raw Size Replication			
Storage Lifecycle Policies		Air_Demo_62_1 13.7505 TB 13.7505 TB Source			
Catalog					
Host Properties					
Master Servers					
Media Servers					
- En Clients		Find storage changes and available volumes Refresh	1 0		
Indexing Servers					
🖻 🚵 Media and Device Management		Total available space: 13.7505 TB			
- Revice Monitor		Total raw size: 13.7505 TB			
🔅 🚥 Media		Comments:			
🖻 🛃 Devices			- 1		
- 🗐 Drives					
Robots					
		High water mark: Low water mark:			
Server Group		98 - % 80 - %			
Topology		Maximum I/O streams	_		
SAN Clients		Concurrent read and write jobs affect disk performance.			
SAN Clients Gedentials		Limit I/O streams to prevent disk overload.			
Gredentials Gredentials Wault Management		Limit I/O streams			
H anagement					
Bare Metal Restore Management		OK Cancel Help			
	1				
1					
1]•]				•
			🅑 Master S	ierver: nduvm110	Connected //,

4. Create a Storage Lifecycle Policy (SLP) on the source master server as shown below.

Figure 5 Creating a Storage Lifecycle Policy on the source master server

	policy name:	Data classification:	Priority	for secondary op		
IR_DEMO		Platinum	• 0	(Higher)	number is greater priority	y)
Operation	Window	Storage	Volume Pool	Media Owner	Retention Type	Retention Period
Backup		🖼 Air_Demo_62_1_SU			Fixed	2 weeks
Replication	Default_24x7_Window				Fixed	2 weeks
+ + 1	→					
1 4 •	Change Remo					
State of Secon	∫ → ∫ Change ∫ Remo dary Operation Processing					
				To find impact	on Policies associated t	with this Storage Lifecycle Policy due change in configuration click her

5. Create a policy that uses this SLP.

NOTE: The policy should start to backup and replicate selected backup sets to the replica as set up when using tpman.

🔁 Policies - nduvm110 - NetBackup Adminis	ration Console	×
Elle Edit View Actions Help		I
] 🖯 • 🔳 🕘 🛠 🐢 🗙 🐰 🛍	◎ ♣ ▽ ☆ ❷ 월 월 월 월 9 @ \$ \$ \$ \$ @ @ @ 2 >> > 3 3	
nduvm110	Add New Policy - AIR_Demo_Pol	
nduvm110 (Master Server)		р. <u>с</u>
- Activity Monitor	🗉 Attributes 🔁 Schedules 🕮 Clients 🦳 Backup Selections	
E MetBackup Management		
Reports		
Policies Summary of all Policies		
Pol1	Data classification: Distance V	
Pol2		
- Rol3	Policy storage:	
- 🛞 Pol4	Collect disaster recovery information for:	
- Se Pol5	Policy volume pool: NetBackup 🔽 🗖 Bare Metal Restore	
Pol6	Collect true image restore information	
Storage	Take checkpoints every:	
E Storage Unit Groups	Allow multiple data streams	
Storage Lifecycle Policies	Limit jobs per policy:	
- A Catalog	Enable granular recovery	
🖻 🕵 Host Properties	Job priority: 0	
Master Servers	Media Owner: Any Y Keyword phrase:	
Media Servers		
Clients	Enable indexing for search (Must also be enabled for the schedule and client)	
Indexing Servers	Indexing Server;	
Device Monitor	indexing delver.	
🗄 💶 Media	Snapshot Client	
E 🛃 Devices	Perform block level incremental backups Exchange 2010 DAG or Exchange 2007 replication (LCR) or CCR1	
Robots	Detailer trailing summer	
Media Servers	Heran shapshot for Instant Hecovery of SLP management	- 1
Topology	Hyper-V server: Preferred server/list (Exchange 2010 DAG only)	
- Bisk Pools	Perform off-host backup	
SAN Clients	Use:	
🗈 🚷 Credentials		
🗷 酸 Vault Management	Machine:	
Access Management		
😐 🏀 Bare Metal Restore Management	OK Cancel Help	
	Carlier nep	- 1
		F
1	Master Server: nduvm110 Connected	
	Master Server: houvenite Connected	11.

Figure 6 Creating a policy from the Storage Lifecycle Policy

6. Create an SLP on the target master server.

NOTE: Source SLP and target SLP names and their data classification must be exactly the same.

Figure 7 Creating a Storage Lifecycle Policy on the target master server

iew Storage Lifecycle Policy						×
Storage Lifecycle Policy Validation Repo	rt]					
Storage lifecycle policy name: AIR_DEMO	Data classification: Platinum	Priority	for secondary op	erations: number is greater priority)	
Operation Window	Storage	Volume Pool	Media Owner	Retention Type	Retention Period	
Import Default_24x7_Window	🥃 Air_Demo_64_1_SU			Target retention		
↑ ↓ ↓ ↓ Add Change Rer	ove					
State of Secondary Operation Processi						
C Active C Postponed □ Until 12/31/2038			To find impact		vith this Storage Lifecycle Poli change in configuration c /alidate Across Backup Policie	lick here.
					DK Cancel	Help

7. After the import operation for SLP is successfully created, note that the target starts polling for image replication events and starts to automatically import these images into the target domain.

NOTE: With default settings in place, it may take NetBackup up to 30 minutes until the image being imported is seen in the catalog of the other NetBackup domain. You can modify this behavior by changing configuration parameters at **host properties**—**Properties**—**SLP Parameters** in the **NetBackup Administration Console**. Please refer to the *NetBackup 7.x Administrator's Guide* for more details.

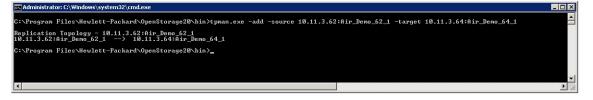
Setting up Targeted A.I.R.

Targeted A.I.R. helps replicate backup images from the source storage servers to selective storage servers in target domains. Because a trusted relationship is established between the source and target NetBackup domains with the exchange of information, the backup administrator now has a setup that ensures the replication topology will work even before any A.I.R operations are initiated.

NOTE: You must apply the device mappings file from Symantec to enable the Targeted A.I.R. feature. See "Configuring Accelerator" (page 31) to set up the device mapping file.

- 1. Create stores on the source and target HP StoreOnce Backup system. (Refer to HP StoreOnce Backup system documentation at www.hp.com/go/storage/docs for more information.)
- 2. Set up topology:
 - a. HP provides a CLI tool (tpman) to storage administrators for replication topology setup. The tool is installed automatically after the OST plug-in is installed. The tool is located at:
 - For Windows: %SystemRoot%\Program Files\Hewlett-Packard\ OpenStorage\3.1\bin
 - For Linux: /usr/openv/hp/ost/3.1/bin
 - For HP-UX: /usr/openv/hp/ost/3.1/bin
 - For AIX: /usr/openv/hp/ost/3.1/bin
 - Use the tpman tool to setup replication topology. The OST plug-in versions 3.1 and later support replication topology setup between stores. Topology can scale in an m:n fashion. Tpman usage:
 - For Windows: tpman.exe -add -source <sts:lsu> -target <sts:lsu>
 [-clientid <id>]
 - tpman.exe -remove -source <sts:lsu> -target <sts:lsu> [-clientid <id>]
 - tpman.exe -showtopology -store <sts:lsu> [-clientid <id>]
 - c. For all other platforms (non-Windows platforms), use tpman as follows:
 - tpman -add -source <sts:lsu> -target <sts:lsu> [-clientid <id>]
 - tpman -remove -source <sts:lsu> -target <sts:lsu> [-clientid
 <id>]
 - tpman -showtopology -store <sts:lsu> [-clientid <id>]
 - d. Run the add command as shown below. In the example below, StoreOnce Catalyst Store, Air_Demo_62_1, of storage server 10.11.3.62 replicates to StoreOnce Catalyst Store, Air_Demo_64_1, of storage server 10.11.3.64.

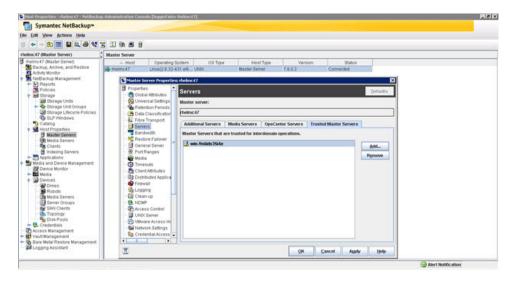
Figure 8 Running the add command example



NOTE: Source StoreOnce Catalyst stores and target StoreOnce Catalyst stores should have same client identifiers.

3. You must establish a trusted master relationship between the source and target NetBackup domains in the order shown in the remaining steps.

On the source NetBackup Domain (Master), navigate to Host Properties \rightarrow Master Servers \rightarrow Servers \rightarrow Trusted Master Servers.



- 4. Click Add.
- 5. Specify the target master server and access credentials. These credentials are the same that you would use to connect to NetBackup Domain.

Edit View Actions Help		
	<u>7</u> 2 0 8 8	
Insc47 (Master Server)	Master Server	
electric d'Ausse Served ectric d'Au		

On successful completion of the operation the target master is listed under trusted master servers.

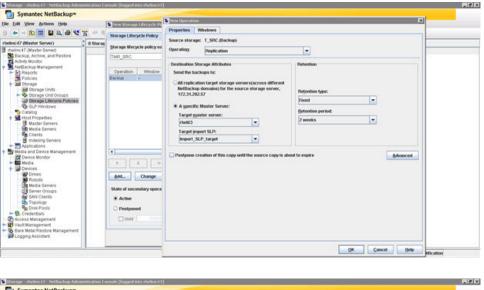
Edit View Actions Help							
dmc47 (Master Server)	Master Server						
hemer 47 Master General Backup, Archay, and Bestore A Ather Monitor Particle Management Processor Procesor Processor Procesor Processor Processor	- Host	is Settings In Periods salification m m Daneer Patiover Daneer Patiover Softwares ed Applica	6 UNIX		Cannecied united Master Servers	Confacts	
Boisk Pools Credentials Access Management Vault Management Sare Metal Restore Management Logging Assistant	Vitware A Vitware A	Settings					

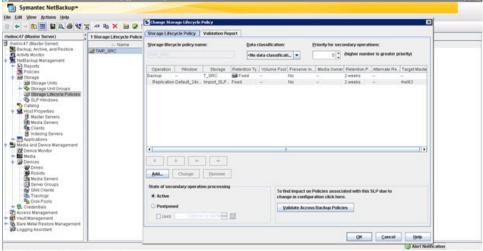
On the target master, the "trusted master servers" relationship is established automatically.

Edit View Actions Help							
	2 D 8 8	9					
	faster Server						
held Dutate Server Chick Monitor Chick Monitor C	 Host met3 	Correcting System Daniel 5-221 and Daniel Properties Ostable Antonues Ostable Antonues Ostable Antonues Ostable Antonues Ostable Antonues Daniel Steffing Properties Daniel Steffing Properties Daniel Steffing Properties Daniel Steffing Properties Daniel Steffing Properties Daniel Steffing Daniel Steffing Dani	enhelio3 Servers Master server finelio3 Additional S Master Server Master Server , wen Hode	ervers Media Server	Stable Connected rs Trusted Master Se	Contains	

6. On the source master, create an Import Storage Lifecycle Policy consisting of a Backup followed by a Replication.

H View Actions Help	d a to X	New Storag	e Lifecycle Po	icy .								3
17 (Master Server)	0 Storage Lifec	Storage Life	cycle Policy	Validation R	eport							
mc47 (Master Server)				0	Data classification: P		Priority for seco	Priority for secondary operations:				
ctivity Monitor		TAIR_BRC				No data classifi	cati.	0	(higher numb	er is greater p	riority)	
etBackup Management Reports												
Policies		Operation	Window	Storage				Media Owner			Tarpet Maste	1
Storage Storage Units		Backup		T_SRC	and Fixed		No	-	2 weeks	-		
Media Servers Scients Jadesing Servers Applications and Device Management Device Monitor Media Devices		*	4 4									
Aust Properties Master Servers Master Servers Master Servers Madeia Servers Madeia Servers Apdications Apdications Austa Device Management Correct Monitor Media Servers Servers		Add State of second	3 + Change ondary oper af	Bemove	9			Policies associ		SLP due to		
Host Properties Master Generes Mada Servers Mada Servers Mada Servers Mada Servers Mada Anterna Servers Mada Anterna Servers Mada Clercs Moda M		T Det	condary oper at	Bemove	9			Policies associ		SLP due to		





7. On the target master, create an Import Storage Lifecycle Policy.

NOTE: The source and target Storage Lifecycle Policies do not need to have the same name.

	A & X .	Change Storage Lifecycle Policy		×
3 (Master Server)	Storage Lifecycle Po	Storage Lifecycle Policy Validation Report		
63 (Master Server) Bickup, Archive, and Restore Activity Monitor NetBackup Management	- Name Import_SLP_target	Storage Miccycle policy name:	Data classification:	Priority for secondary operations:
A Reports Conception Co		Operation Window Blora import Default_2467_Window T_TRO	ge Retention Type Sulf Target Retention	Volume Pool Presare m., Media Owner Retention P. A
Applications edu and Device Management Device Monitor Media Devices		1 + 4 + +		1 91
Drives Robots Media Servers Server Groups SAN Clients SAN Clients Topology Disk Pools		Add. Change Bumove State of secondary operation processing • Active		on Policies associated with this SLP due to figuration click here.
Credentials Access Management		O Postponed	Validate Act	ross Backup Policies

8. On the source master, create a policy for triggering the targeted auto-image replication operation.

ist yew Actions Help - C C E AL A 4 4 5 6 6 8 11	Scherkel Scherkels By Clients By	
		_
c47 (Master Server) All Policies		
Inter-F2 Master Server) Exclus, Archer, And Restre, Athy Motor MeSicus Management Presidue Management Calang Calan	Compress	

6 Setting up other NetBackup functions

Please refer to the applicable NetBackup v7.x administrator guide at <u>http://www.symantec.com/</u> <u>business/support/index?page=content&id=DOC5334</u> on the web to:

- Set up a disk storage server (server type is hp-StoreOnceCatalyst)
- Set up a disk pool

NOTE: The NetBackup LSU spanning feature is not supported or recommended.

- Set up a storage unit
- Set up a backup policy
- Start a backup operation
- Restore a backup file
- Set up an optimized duplication
- Set up a Storage Lifecycle Policy (SLP)
- Set up Auto Image Replication (A.I.R.)

For information on creating a StoreOnce Catalyst Store, see the *HP StoreOnce Backup System user guide* for your system available on the HP Enterprise Information Library page of the HP website:<u>www.hp.com/go/storage/docs</u>

Select HP StoreOnce Backup and then select your product.

7 Setting up NetBackup with StoreOnce Catalyst Stores

The OST plug-in version 3.1 supports the use of StoreOnce Catalyst and Federated Catalyst stores.

StoreOnce Catalyst Stores

StoreOnce Catalyst store support (non-Federated) was first introduced with the OST plug-in version 2.0 and continues to be supported. To create a StoreOnce Catalyst store, navigate to **HPStoreOnce**—**Stores** and click **Create**. Provide the necessary information to create the StoreOnce Catalyst store. On a HP StoreOnce 6500 or B6200, you will first select a service set for the new store. If you intend to use data encryption and have applied the proper license, select Encryption Enabled at this time. You can also assign a client identifier and password to protect access to the StoreOnce Catalyst Store if client access permissions are enabled. After the setup, backup applications can connect to the Storage Server and view/access the StoreOnce Catalyst stores. For more information on StoreOnce Catalyst Store options, see the *HP StoreOnce Backup system user guide* for your model.

MP StoreOnce B6200 Backup							User: Admin	Role: admin	Logo	out <u>Help</u>
System Status	Stores									ireate
System Time: Sep. 10, 2014, 6:24:26 PM	Name 🔺	Version	Status	Created	Number of Cataly	User Data Stored	Size On Disk	Dedupe Ratio	Service Set	
	Federated_Store_7	2	📀 Online	16:16 2014/07/31	0	0.8	14.1 MB	0.0	1,2	*
Total Events 753 179 4841	Federated_Store_8	2	📀 Online	10:31 2014/08/02	0	0 B	14.1 MB	0.0	1,2	
Navigator	Store_1_1	2	📀 Online	10:33 2014/07/16	0	0.8	7.0 MB	0.0	1	
E (F StoreOnce	Store_1_3	2	📀 Online	15:15 2014/07/22	0	0.8	7.0 MB	0.0	1	Е
	Store_2_1	2	📀 Online	11:29 2014/07/15	0	0 B	7.0 MB	0.0	2	
NAS Replication	Store_2_10	2	📀 Online	12:43 2014/09/03	0	0.8	7.0 MB	0.0	2	-
StoreOnce Catalyst	New Store									
Le Activity	Catalyst Store Details									
seporting	Name		Store_1_10							
Att Hardware	Description		Catalyst Store 10							
💼 Storage Report 🖬 🛻 Reporting Central	Data Job Log Retention Inbound Copy Job Log			ige: 1 - 365, Default: 9						
Central Central Central Central Central Central	(Days)		90 📮 Days (Rar	ige: 1 - 365, Default 6	0)					
🖬 💼 Remote Support	Outbound Copy Job Los (Days)	g Retention Period	90 🌻 Days (Rar	ige: 1 - 385, Default: 6	0)					
- 🎸 Events	Primary (Default) Trans	fer Policy	High Bandwidth 🔻							
	Secondary Transfer Po	lioy	Low Bandwidth 🚽							
	Physical Data Size Que	ta	GB GB							
	Logical Data Size Quot	•	GB GB							
	Store Encryption Enabl	ed								
	Store is Federated		Г							
								Cancel	Creat	•
	4									•

Figure 9 Creating StoreOnce Catalyst stores

StoreOnce Federated Catalyst Stores

The OST plug-in version 3.1 or later supports StoreOnce Federated Catalyst stores which enable HP StoreOnce Catalyst stores to span across multiple service sets; thereby, enabling StoreOnce Catalyst Store capacities larger than the physical capacity of an HP StoreOnce appliance. StoreOnce Federated Catalyst stores also simplify the management of large backup targets. The use of an HP StoreOnce Federated Catalyst Store is transparent to NetBackup. The backup user must connect to one or any storage server (that is part of the StoreOnce Federated Catalyst Store), and configure NetBackup. For details on creating and managing StoreOnce Federated Catalyst stores, see the HP StoreOnce Backup System user guide for your product.

NOTE: StoreOnce Federated Catalyst stores are only supported on StoreOnce 6500 and B6200 appliances.

🍈 HP StoreOnce B6200 Backup							User: Admir	Role: admin	Logout Help
System Status	Stores								Create
System Time: Sep. 10, 2014, 4:20:31 PM	Name 🔺	Version	Status	Created	Number of Catal	y User Data Stored	Size On Disk	Dedupe Ratio	Service Set
🙆 🛕 🚯	Federated_Store_2	2	📀 Online	10:35 2014/07/28	0	0.8	14.1 MB	0.0	1,2
Total Events 753 179 4638	Federated_Store_3	2	🕗 Online	19:24 2014/07/30	0	0.8	14.1 MB	0.0	1,2
Navigator	Federated_Store_4	2	📀 Online	20:57 2014/07/30	0	0.8	14.1 MB	0.0	1,2
🗐 🅞 HP StoreOnce	Federated_Store_5	2	📀 Online	15:23 2014/07/31	0	0 B	14.1 MB	0.0	1,2
VTL .	Federated_Store_6	2	Online	10:54 2014/08/25	0	0.8	14.1 MB	0.0	1,2
🛄 🚃 NAS 🛄 🧙 Replication	Federated_Store_7	Multi-Select Targ	et Service Sets				14.1 MB	0.0	1,2 -
StoreOnce Catalyst		Name	St	tatus A	vailable Stores Re	emaining			
Stores	Federated_Sto	Service Se	t1 🥝	Running 3	1				
- Activity - Dusekeeping	Catalyst Store Details	Service Se	t 2 🔮	Running 3	1	Jobs			
Reporting	Name Description Data Job Log Retartion Inbound Copy Job Log Outbound Copy Job Log Primary (Detault) Trans Secondary Transfer for Physical Data Size Quot Siore Encryption Enable Sioria Franse Mode Sioria is Rederated Number of Federation 1 Pederation Member Se Federation Member Se	r Vice Sets	1.2	<u>OK</u>	ancel	Help			
	Federation Member		Status			Disabled		ite-Enabled	
	Service Set 1 Service Set 2		Online				•		
	Service Set 2		Online		0				
							Contract	Delete	Edit
	<								Þ

Figure 10 Creating StoreOnce Federated Catalyst stores selecting service sets

Figure 11 StoreOnce Federated Catalyst stores instantiation with default parameters

stem Status	Stores								Create
sten Time: Sep. 10, 2014, 4:20:31 PM	Name 🔺	Version	Status	Created	Number of Cataly	User Data Stored	Size On Disk	Dedupe Ratio	Service Set
🕴 🔔 🚯	Federated_Store_2	2	📀 Online	10:35 2014/07/28	0	0.8	14.1 MB	0.0	1,2
tal Events 753 179 4638	Federated_Store_3	2	📀 Online	19:24 2014/07/30	0	0.8	14.1 MB	0.0	1,2
vigator	Federated_Store_4	2	📀 Online	20:57 2014/07/30	0	0.8	14.1 MB	0.0	1,2
HP StoreOnce	Federated_Store_5	2	📀 Online	15:23 2014/07/31	0	0.8	14.1 MB	0.0	1,2
VTL .	Federated_Store_6	2	📀 Online	10:54 2014/08/25	0	0.8	14.1 MB	0.0	1,2
📄 NAS	Federated_Store_7	2	📀 Online	16:16 2014/07/31	0	0 B	14.1 MB	0.0	1,2
StoreOnce Catalyst	New Store								
- Housekeeping	Catalyst Store Details			•					
💼 Reporting	Name		Federated_Store_						
A Hardware	Description		Federated Catalys	t Store 8 ange: 1 - 365, Default:					
Storage Report Reporting Central	Data Job Log Retention Inbound Copy Job Log								
Device Configuration	(Days) Outbound Copy Job Lo			ange: 1 - 366, Default					
Remote Support	(Days)	g Retention Period	90 🌻 Days (R.	ange: 1 - 386, Default	90)				
Events	Primary (Default) Trans	fer Policy	Low Bandwidth	•					
	Secondary Transfer Po	licy	Low Bandwidth	-					
	Physical Data Size Qu	ota	GB GB						
	Logical Data Size Quot	a	GB GB						
	Store Encryption Enab	led							
	Store is Federated								
	Number of Federation	Members	2						
	Federation Member Se	rvice Sets	1,2						
								Cancel	Create

Figure 12 Federated_Store_8 online and ready to use

MP StoreOnce B6200 Backup							User: Admin	Role: admin	<u>Loa</u>	out <u>Help</u>
System Status	Stores									Treate
System Time: Sep. 10, 2014, 5:07:05 PM	Name 🔺	Version	Status	Created	Number of Cataly	User Data Stored	Size On Disk	Dedupe Ratio	Service Se	e .
S 🔥 🛈	Federated_Store_3	2	🚫 Online	19:24 2014/07/30	0	0.8	14.1 MB	0.0	1,2	*
Total Events 753 179 4839	Federated_Store_4	2	Online	20:57 2014/07/30	0	0.8	14.1 MB	0.0	1,2	
Navigator	Federated_Store_5	2	🚫 Online	15:23 2014/07/31	0	0.8	14.1 MB	0.0	1,2	E
E (HP StoreOnce	Federated Store 6		Online	10:54 2014/08/25	0	0.8	14.1 MB	0.0	1.2	
VTL									.,	
AS NAS	Federated_Store_7		📀 Online	16:16 2014/07/31	0	0.8	14.1 MB	0.0	1,2	
E Seplication	Federated_Store_8	2	📀 Online	10:31 2014/08/02	0	0.8	14.1 MB	0.0	1,2	+
StoreOnce Catalyst	Federated_Sto	ore_8								
Activity	Catalyst Store Details	Permissions	Catalyst Item Summary	Data Jobs Ou	tbound Copy Jobs	Inbound Copy Jobs	1			
- Housekeeping	Name		Federated_Stor	e_8						
- Reporting	Description		Federated Cata	lyst Store 8						
Alignment Hardware	Data Job Log Retention	n Period (Days)	90							
- 💼 Storage Report	Inbound Copy Job Log									
🖾 💼 Reporting Central	Outbound Copy Job Lo	g Retention Perio	d(Days) 90							
Device Configuration	Primary (Default) Trans	fer Policy	Low Bandwidth							
🖾 📷 Remote Support	Secondary Transfer Po	blicy	Low Bandwidth							
- Events	Physical Data Size Qu	ota	(No Limit)							
· ·	Logical Data Size Quo	ta	(No Limit)							
	Store Encryption Enab	led								
	Secure Erase Mode		None							
	Store is Federated		M							
	Number of Federation	Members	2							
	Federation Member Se	ervice Sets	1,2							
	Federation Member S	ervice Sets								_
	Federation Member		Status		Write-Disa	bled	Wri	ite-Enabled		
	Service Set 1		📀 Online		0		۲			
	Service Set 2		🚫 Online		Õ		۲			
						Expand	Contract	Delete	Edit	
	∥└────									

Figure 13 NetBackup Disk Pool creation listing available StoreOnce Catalyst and Federated Catalyst stores

Disk Pool Configuration Wizard	ł			x
Select Disk Pool Prope Select the disk pool p			e disk pool.	
Storage server:	10.1.5.12			
Storage server type:	hp-StoreOr	nceCatalyst		
Disk pool configured for:	Backup			
Disk pool properties and volum	ies			
A disk pool inherits the proper can be added to a disk pool.	ties of its volumes. O	nly volumes with simila	ar properties	
If properties are specified, the	list displays volumes	that match the select	ed properties.	
☐ Replication <u>s</u> ource				
Replication target				
Select volumes on the storage	e server to add to the	e disk pool:		
Volume Name	Available Space	Raw Size	Replication	
Store_CoFC_cft41r	125.6129 TB	125.6129 TB	None	
Store_CoFC_cft41r	125.6129 TB	125.6129 TB	None	
Store_CoFC_cft41r	125.3023 TB	125.6129 TB	None	
Teamed_Store_1	125.6129 TB	125.6129 TB	None	
Total available space:	0 Bytes			
Total raw size:	0 Bytes			
	< <u>B</u> ack	Next > Car		Help

8 Setting up NetBackup with the StoreOnce Catalyst over Fibre Channel interface

About the StoreOnce Catalyst over Fibre Channel interface

The OST plug-in versions 3.1 and later allow Symantec NetBackup and HP OpenStorage media servers to access HP StoreOnce Catalyst stores over a Fibre Channel network.

NOTE: StoreOnce Catalyst over Fibre Channel is supported on all HP StoreOnce Backup system models that support Fibre Channel.

StoreOnce Catalyst over Fibre Channel interface prerequisites

Before setting up the StoreOnce Catalyst over Fibre Channel interface, ensure that:

- Media servers and the HP StoreOnce appliance are connected to the Fibre Channel network.
- NetBackup media servers can communicate with the HP StoreOnce appliance over a Fibre Channel network. To do so, the storage administrator must ensure that any network segregation, such as zoning, is set up to handle required connectivity between the server and appliance.

NOTE:

- Backups are supported on StoreOnce Catalyst over Fibre Channel interface, as well as over Ethernet networks. Optimized copies continue to run over an Ethernet interface.
- Primary and secondary storage servers should be connected through an Ethernet network to enable DR copies to be made using the HP StoreOnce Catalyst copy function.
- Administrator privileges are required to run StoreOnce Catalyst over Fibre Channel because it accesses OS-specific device files associated with StoreOnce Catalyst over Fibre Channel devices.

Setting up StoreOnce Catalyst over Fibre Channel

To configure Symantec NetBackup to work with the StoreOnce Catalyst over Fibre Channel interface:

1. Use a StoreOnce Catalyst over Fibre Channel interface identifier (or alias) instead of a storage server name/IP address:

HP B6200 StoreOnce Backup Sys	stem				User: Admin	Role: a	admin	Logout He
ystem Status	StoreOnce	Catalyst						
ystem Time: May. 23, 2014, 3:58:04 PM MDT		Curren	t Node	Main Node	Failover Node		Catalyst Statu	3
S 💧 🚯	Service Set 1	hp3150	4d7870-1	hp31504d7870-1	hp31504d7870-	2	📀 Running	
otal Events 669 293 1064	Service Set 2	hp3150	4d7870-2	hp31504d7870-2	hp31504d7870-	1	📀 Running	
avigator	Service Set 3	hp3150	4d7870-3	hp31504d7870-3	hp31504d7870-	4	📀 Running	
HP StoreOnce	Service Set 4	hp3150	4d7870-4	hp31504d7870-4	hp31504d7870-	3	📀 Running	
I III VTL I III NAS								
Replication	Status Settings	Clients B	ackout Windows	Bandwidth Limiting Windo	ws Fibre Channel S	ottings		
StoreOnce Catalyst	Fibre Channel Setti		action withows	bandwidar Einlang Windo		otoriga		
Teamed Stores	Identifier Identifier Alias			hp6431504d787001 hp6431504d787001				
Hardware Storage Report	Ports							
Device Configuration	Target Ports							
Events	Port	Statu	5	Speed	Topology	Be	acon	
	Port 1	0 8	Gb/s	Auto (default)	N_Port (default)(r Switch Port to su NPIV)	equires pport]	
	Port 2	0 8	Gb/s	Auto (default)	N_Port (default)(r Switch Port to su NPIV)]	
	Port 3	0 8	Gb/s	Auto (default)	N_Port (default)(r Switch Port to su NPIV)	equires pport]	
	Port 4	Ø 8	Gb/s	Auto (default)	N_Port (default)(r Switch Port to su NPIV)]	
	Devices			World Wide Node	World Wide Port	Number of	Devices	
	Device Name	Status	FC Address	Name	Name	Logins	Initiator	Port
	StoreOnce Catalyst over FC Port 1	📀 Online	0xC92700	5001438009AE74C1	5001438009AE74C0	0	16	
	StoreOnce Catalyst over FC Port 2	📀 Online	0xC92500	5001438009AE7499	5001438009AE7498	0	16	
	StoreOnce Catalyst over FC Port 3	📀 Online	0×CB0000	5001438009AE74C3	5001438009AE74C2	0	16	
	StoreOnce Catalyst over FC Port 4	🕗 Online	0×CB0100	5001438009AE749B	5001438009AE749A	0	16	
							Edit	

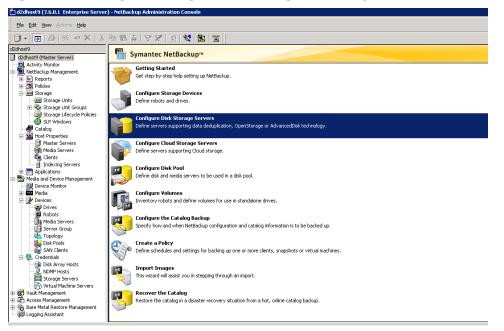
Figure 14 Using a StoreOnce Catalyst over Fibre Channel interface identifier

- a. Open a session to the HP StoreOnce appliance GUI.
- b. Navigate to HP StoreOnce StoreOnce Catalyst -> FibreChannel Settings.
- c. Copy the StoreOnce Catalyst over Fibre Channel interface identifier marked as Identifier (or Identifier Alias) in the HP StoreOnce appliance GUI.

NOTE: StoreOnce Catalyst over Fibre Channel interface identifiers are case sensitive.

- 2. Launch the Symantec NetBackup Administrative Console.
- 3. Select Configure Disk Storage Servers.

Figure 15 Selecting the Configure Disk Storage Servers option



4. Navigate to the **Add Storage Server** screen after entering the appropriate detail in the previous screens.

Figure 16 Selecting the disk storage type

Storage Server Configuration Wizard 🛛 🛛 🔀
Add Storage Server Provide details to create storage server
Select the type of disk storage to configure:
AdvancedDisk AdvancedDisk Media Server Deduplication Pool PureDisk Deduplication Pool OpenStorage
Note:
AdvancedDisk lets you combine disk storage directly attached to a NetBackup media server into a single pool. AdvancedDisk storage allows use of extended capabilities not possible with basic disk storage units, such as storage lifecycle policies and intelligent capacity management.
< Back Next > Cancel Help

5. Input the StoreOnce Catalyst over Fibre Channel interface identifier (or alias) in the Storage server name field on the Symantec NetBackup GUI. These identifiers are case sensitive.

Figure 17 Inputting the StoreOnce Catalyst over Fibre Channel interface identifier in the Storage server name field

rage Server Configuration	h Wizard
Add Storage Server Provide details to cre	eate storage server
Storage server details	
Storage server name:	COFC-hp6431504d787001
Storage server type:	hp-StoreOnceCatalyst
	hp-StoreOnceCatalyst
	is the vendor's OpenStorage plug-in installed. NetBackup will etermine its capabilities using this media server.
Media server:	d2dblade03
Enter storage server credenti	als:
User name:	FibreConnect
Password:	жижиж
Confirm password:	*****
	<back next=""> Cancel Help</back>

6. Continue with the rest of the setup as you would do for setting up NetBackup to work with the OST plug-in.

9 Setting up NetBackup with Granular Recovery Technology (GRT)

The OST plug-in version 3.1 supports Symantec's NetBackup Granular Recovery Technology (GRT) feature, a feature that enables select items from database backups to be restored on clients. GRT has been tested with Microsoft Exchange Server, Active Directory(AD) Server, and Microsoft SharePoint solutions. For details on GRT setup information, refer to the appropriate Symantec and Microsoft documentation.

While setting up NetBackup backup policies for GRT, be sure to check **Enable Granular Recovery** for granular restores later.

Policy type:	MS-Windows	Go into effect at: 5/22/2014 ÷ 6:46:07 PM ÷
Destination		Backup Network Drives
Data classification:	<no classification="" data=""></no>	Cross mount points
Policy storage:	Any Available 🔻	Compression
rolicy storage.		Encryption
Policy volume pool:	NetBackup 💌	Collect disaster recovery information for:
		Bare Metal Restore
Take checkpoints every:	0 minutes	Collect true image restore information
Limit jobs per policy:		With move detection Allow multiple data streams
	(Higher number is greater	Disable client-side deduplication
Job priority:	(Higher number is greater priority)	Enable crienteade decupication
Media Owner:	Any	
		Keyword phrase:
inapshot Client and Replication [Director	Enable indexing for search (Must also be enabled for the schedule and client)
Perform block level increment	tal backups	Indexing Server:
Use Replication Director		Enable optimized backup of Windows deduplicated volumes
Perform snapshot backups	Options	
	nt Recovery or SLP management	Microsoft Exchange Attributes
Hyper-V server:		Exchange DAG or Exchange 2007 replication (LCR or CCR)
Perform off-host backup		Database backup source:
Use:	<u></u>	
Machine:		Preferred server list (Exchange DAG only)

Figure 18 Setting up backup policies using the Add New Policy window

NOTE: During recoveries and browse sessions of GRT-enabled backups, sessions that last longer than four hours sometimes time out and the operation fails. If this occurs, please contact HP Support.

10 Setting up Symantec NetBackup Accelerator with HP StoreOnce Catalyst

Accelerator is a Symantec NetBackup feature which performs a full backup at the speed of an incremental backup. Accelerator leverages change track logging for files in a data set on the client and sends only the changed blocks of data to the storage server. Therefore, full backups can be synthesized on the disk on the fly with NetBackup by cloning the disk resident portion of the data (copied from previous backups) and the modified data sent to the storage server. The result is a full backup created on the storage server by sending the incrementals only. StoreOnce deduplication works at a much finer level of data management (chunking, hashing, and matching) and complements the bandwidth savings of Netbackup Accelerator.

The OST plug-in implements support for cloning disk resident data extents to help Symantec NetBackup perform an Accelerator Backup on HP StoreOnce appliances. The feature is supported on HP StoreOnce appliances running software version 3.12.0 or later.

NetBackup Accelerator backups are supported for File Systems (on NetBackup versions 7.5 and later) and VMware (on NetBackup versions 7.6 and later).

For best practices when using Accelerator, see the Symantec documentation.

NOTE: Accelerator backups are supported with OST plug-in version 3.1 and later with StoreOnce Catalyst using low bandwidth data transfer mode only. High bandwidth accelerated backup should not be used.

In some cases, Accelerator-forced rescan backups can run slower than non-Accelerated backups.

Configuring Accelerator

Download the device mappings file from Symantec and install it on the Master/EMM server. Detailed instructions and versions of the mappings file to use are found on Symantec's HCL listing at <u>http://www.symantec.com/business/support/library/BUSINESS/xCL/TECH76495/</u> nbu 7x hcl.html#device mappings files.

Verifying the Accelerator Configuration

To verify if Accelerator is configured on your setup, execute the following commands on the Master/EMM server:

nbdevquery -listdp -stype hp-StoreOnceCatalyst -U

Disk Pool Name	: A	Accelerator
Disk Pool Id	: A	Accelerator
Disk Type	: }	np-StoreOnceCatalyst
Status	: U	
Flag	: F	Patchwork
Flag	: Ū	Jisible
Flag	: 0	OpenStorage
Flag		SingleStorageServer
Flag		CopyExtents
Flag		ndminup
Flag	: I	InternalUp
Flag	: L	lifeCycle
Flag	: 0	CapacityMgmt
Flag	: F	PragmentImages
Flag	: 0	Cpr
Flag	: F	?T-Transfer
Flag		OptimizedImage
Raw Size (GB)		
Usable Size (GB)		
Num Volumes	: 1	
High Watermark	: 9	
Low Watermark	: 8	
Max IO Streams	: -	-1
Comment	•	
Storage Server	: 1	172.28.6.10 (UP)

nbdevquery -liststs -stype hp-StoreOnceCatalyst -U

C:\Program Files\Ver	ritas∖NetBackup\bin\admincmd>nbdevguery -liststs -stype hp-St
oreOnceCatalyst -U	
Storage Server	: 10.65.80.95
	: hp-StoreOnceCatalyst
Storage Type	: Formatted Disk, Network Attached
State	: UP
Flag	: OpenStorage
Flag	: CopyExtents
Flag	: AdminUp
Flag	: InternalUp
Flag	: LifeCycle
Flag	: CapacityMgmt
Flag	: FragmentImages
Flag	: Cpr
Flag	: FT-Transfer
5	
Storage Server	: 172.28.6.10
	: hp-StoreOnceCatalyst
Storage Type	: Formatted Disk. Network Attached
State	: UP
Flag	: OpenStorage
Flag	: CopyExtents
Flag	: AdminUv
Flag	: InternalUp
Flag	: LifeCycle
Flag	: CapacityMgmt
Flag	: FragmentImages
Flag	: Cpr
Flag	: FT-Transfer
Flag	: OptimizedImage

Accelerated Backups for File Systems using HP StoreOnce Open Storage Plug-in for NetBackup

Enabling NetBackup Accelerator for File Systems only requires a check box selection in the NetBackup policy editor.

Figure 19 Checking Use Accelerator

Policy type:	MS-Windows	Go into effect at: 7/14/2014 1:08:05 PM Backup Network Drives
Destination Data classification: Policy storage: Policy volume poot	Platinum Any Available NetBackup	Construction of the second prevention of the second prevention Compression Encryption Collect disaster recovery information for: Eare Metal Restore
Take checkpoints every. Limit jobs per policy: Job priority: Media Owner:	0 immutes (Higher number is greater priority) Any	Collect true image restore information With move detection Allow multiple data streams Disable client-side deduplication Enable granular recovery Use Accelerator Keyword phrase:
Snapshot Client and Replication Perform block level increme Use Replication Director Perform snapshot backups	ental backups	Enable indexing for search (Must also be enabled for the schedule and client) Indexing Server: Enable optimized backup of Windows dedupticated volumes
	tant Recovery or SLP management	Microsoft Exchange Attributes Exchange DAG or Exchange 2007 replication (LCR or CCR) Database backup source: Preferred server list (Exchange DAG only)

NOTE: The first Accelerated backup might be bit slower than a regular Backup without accelerator because NetBackup Accelerator needs to generate change track logs for the entire Dataset being written to on the storage appliance. Subsequent Accelerated backups (full and incremental) are much faster than corresponding regular Backups.

Accelerated Backups for VMware using HP StoreOnce Open Storage Plug-in for NetBackup

NetBackup uses Change Block Tracking on VMware for Accelerated Backups on VMware. Note that VMware Accelerator Backups are supported on NetBackup 7.6 and later. To set up Accelerator Backups for VMware:

1. Install VMware Tools on the VM client you intend to backup. In ESX vSphere, right click the client and select **Install / Upgrade VMWare Tools**.

👻 🧻 g3sdr1objst6.gbr.hp 🖻 📋 g3sdr1objst8.gbr.hp			Open Console
DataProtect	Power		Clone to New Virtual Machine
BystHarved SoreConey SoreConey	Guest		Answer Question
	Snapshot Open Console		Enter Full Screen (Ctrl +Alt +Enter) Send Ctrl +Alt +del
	Edit Settings		Install/Upgrade VMware Tools
	Migrate		Customer Cont
	Clone Template		Customer Cont Infrastructure Infrastructure
vitosha-500 m xanadu-3.1	Fault Tolerance		Purpose:
anadu-3.1	VM Storage Profile		Service Type: Notes:
Data Dev Test Tools Team Autions SOL_CLU5_01 16.26.129.251 (not respon	Add Permission Ctrl+P Alarm		
	Report Performance		
ass.gbr.hp.com	Rename		
perrin.gbr.hp.com tinea.gbr.hp.com illins US	Open in New Window Ctrl+Alt+N Remove from Inventory Delete from Disk		

- 2. Log into the client and open My Computer. You will see a VMWare drive mounted. Double click the drive letter and complete the installation instructions. At the end of the process, the client will reboot.
- 3. On NetBackup Server, create a NetBackup Storage Server, Disk Pool, and Storage Unit.
- 4. Add a backup host in your Master Server settings; the backup host is the media server name.

Figure 21 Adding the backup host

Host Properties - client1 - NetBackup Ada	ministrati	on Console			_ _
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client1	Master Se	Properties	VMware Access Hosts	Defaults	1 Selected
client1 (Master Server)	Host	Global Attributes			Active Node Virtual Name
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😑 🗒 NetBackup Management		- Generation Periods		Add	
🕒 📄 Reports		- 💁 Data Classification			
🗈 💁 Policies		-Bre Transport Servers		Remove	
🗉 🔜 Storage		Bandwidth			
Catalog		- Sestore Fallover			
Host Properties		General Server			
Media Servers		Port Ranges			
- the Clients		- 🙀 Media			
- Indexing Servers		Timeouts	Add a New Server Entry		
Applications		📇 Client Attributes	Add a new server:		
🖻 📇 Media and Device Management		- 🧐 Distributed Application Restore Map			
		- Sirewal	medial		
🕀 🚥 Media		- Call Logging	Add Close Help		
🗉 🛃 Devices		- 🔐 Clean-up - 🚷 NDMP	Add Close Help		
E 🦉 Credentials		- Access Control			
Disk Array Hosts		Whyare Access Hosts			
Storage Servers		Network Settings			
Witual Machine Servers		- 10 Credential Access			
E 🛞 Vault Management		- Befault Job Priorities			
Access Management		- 🚭 Enterprise Vault Hosts			
🗄 🍓 Bare Metal Restore Management		- 😨 Login Banner Configuration			
- 🔞 Logging Assistant		- 🙀 Resource Limit			
		- 🙀 Preferred Network			
		Throttle Bandwidth			
		Resilient Network			
		ug SLP Parameters			
		· ·			
			(
			OK Cancel Apply	Help	
	'				
	,				Master Server: client1 Connected

5. Add the ESX server hosting the guest OS (VM to be backed up) to the NetBackup Virtual Machine server list.

 Image: Contention of the second of the se

Figure 22 Adding the virtual machine server

6. Authenticate the ESX server and add the backup host details (this example chose client1).

🚰 Credentials - client1 - NetBackup Admi	nistration Console			_ @ ×
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client1	All Virtual Machine Servers (0 servers)	-)		1 Selected
det Ukster Sarer) det Ukster Sarer Sarer Sarer) det Uks	Nare	What Machine Server XM Add Victual Machine Server XM What Machine Server XM What Machine Server XM What Machine Server XM Server XM User and the type: YM (mod = EX Server YM User and: YM (mod = EX Server YM User and: YM (mod = EX Server YM Contract usropper Construction YM (mod = 1) (Mod = 1) (Mod = 1) (Mod = 1)	Port	(0) Rater Server clast (Cometed

Figure 23 Adding the backup host details

7. The ESX server will appear in the list of Virtual Machine servers.

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dient1	All Virtual Machine Servers (1 servers)			1 Selected
	Name	Virtual Machine Server Type	Port	
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· ·	11			Master Server cleant Connected

Figure 24 The ESX server is shown

8. Create a Backup Policy of type VMware.

Figure 25 Creating the Backup Policy

Policies - client1 - NetBackup Adminis	tration Console								_ # ×
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client1	client1: 6 Polici	5							
dient1 (Master Server)	 Name 		D Type St V C	EF D. S S M	. E	٧	E	Pr R.	. U.
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Reports	🛛 🛞 usejournal_		This wizard will assist you in creating a new bac	sup policy, which defines the:					•
Policies	🚯 usejournal_		Data source that needs protection on the	-E					·
Summary of all Policies	🛛 🛞 usejournal_		Data source that needs protection on the	ART K					•
- SLP_Acc WWWare	SLP_Acc		 Backup schedule and method 						·
withware withware			Other operational choices for the backup						
usejournal_4			Create a backup policy for:						
Catalog			C File systems, databases, applications		1				
Host Properties			For most typical backups using NetBacku	o clients or agents	1				
Media Servers			VMware and Hyper-V		1				
- En Clients			For virtual machine backup		1				
Indexing Servers			C NDMP Hosts		1				
E Applications			For NDMP host backup		1				
🖃 🗒 Media and Device Management			C Oracle		1				
			Backup Oracle data		1				
🕀 🏧 Media					1				
E Devices					1				
- 🚍 Drives					1				
- 😰 Robots					1				
- 🌆 Media Servers			To begin, click Next.	For assistance, click Help.	1				
Server Group					1				
Topology									
-Bab Disk Pools				:ck. Next > Cancel Help					
SAN Clients									
E 🚷 Credentials					-				
ADMP Hosts									
DMP Hosts Storage Servers									
Wrbual Machine Servers									
H S Vault Mapagement									
Access Management	-								
								Master	r Server: client1 Connected

9. Choose a suitable policy name for your VMware Backups.

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lient1 (Master Server)		Pr R. U.
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10. Add the Storage Unit details created in "step 3" (page 33).

Figure 27 Adding the Storage Unit

🛅 Policies - client1 - NetBackup Administra	ition Console						_ & ×
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client1	client1: 6 Policies					Pr	
client1 (Master Server)	Name	D Type	St V C EF	C D. S S M	E V E		
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- 🛞 usejournal_1				Options			
- 🏀 usejournal_2							
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Host Properties							
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NDMP Hosts							
Wrbual Machine Servers							
Wrtual Machine Servers Wault Management							
D.SA Array Mananamant	J						
						Master Server:	client1 Connected

11. Add the details on the backup host selected earlier.

Figure 28 Adding the backup host details

🖆 Policies - client1 - NetBackup Administra	tration Console	_ & ×								
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Storage Servers Witual Machine Servers										
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12. Select and add the Virtual machine that you want to backup.

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Activity Monitor	12	C Enter the VM dis	play name:					Any
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Summary of al Policies	ΠĽ	 Browse and sele 	ct Virtual Machine		Last Update:	7/22/2014 9:08:34 PM	¢	브브
- 🚯 SLP_Acc				(
- 🍄 WWWare		B- Z 📓 Hos		VM Host Name	Display Name		DNS Name	
- 🖗 WMWare_Acclerator_backup	14			🖸 💑 10.11.8.175	STTC-RHEL63-09		STTC-RHEL6	
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- the use journal_2	IH.			0 🔮	win2k12_Anushka(172.31.20	02.52)		
- to usejournal_3				🖸 👘	RHEL6 -172.31.202.63			
- 🧞 usejournal_4 ↔ 📟 Storage	LC.			ē 🖗	SST-RHEL65-12_172.31.202			Indexing
Catalog	1.			0 👰	SUSE11-Hiren-172.31.202.5			Yes
Host Properties				🗹 🎒 rhelmc53	RHEL6-Hiren-172.31.202.53		rhelmc53	
Master Servers						egional Settings-172.31.202.		
Mal Media Servers				🗆 💑 WIN-RRHIHH2L86A	Hiren-Win2k8-172.31.202.63		WIN-RRHIHI	
- And Clients	1 tv				Win2k8_VM_SEM QA Team-1			80
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🖻 📇 Media and Device Management	1				Monu-Win2k8-172.31.202.64			
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🕀 🏧 Media					Shikha_Windows7_64bit_172		_	
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Figure 29 Browsing the Virtual Machines

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client1 (Master Server)	Name	D Type St V C Ef C D. S S M E V E Pr R. U	
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E MetBackup Management	🔞 usejournal_4	Standard 02_4 Net I 7/2 No Any	
Policies	🔞 usejournal_3	Policy Configuration Wizard	
Summary of all Policies	🔞 usejournal_2		
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WWWare	SLP_Acc	Specify virtual machines for this policy.	
- R usejournal 1			
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usejournal_3		Vitual machine selection: Select manually	
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🕀 🔤 Storage		Name Hardware Operating System Add	
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E 🔛 Host Properties		* UPBS	
Master Servers			
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E S Media and Device Management			
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🗈 🎯 Vault Management			
🖾 🛱 Arrare Mananament 📃	0	() Moder Server d	

Figure 30 Adding the Virtual Machine of interest

13. Select the data to be backed up on the Virtual Machine.

Figure 31 Selecting the data

늘 Policies - client1 - NetBackup Adminis	tration Console		_ 8 ×
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E Reports	🛞 usejournal_3		
Olicies	🛞 usejournal_2	Policy Configuration Wizard	
Summary of all Policies	🛞 usejournal_1	Backup Selections	
- 👧 SLP_Acc	SLP_Acc	Backup Selections Specify the files and folders to backup.	
- 👰 VMWare			
- 🛞 usejournal_1			
- Construction - Constructio-Construction - Construction - Construction - Constru		The backup selections list identities files and folders to be backed up by the scheduled backups for all virtual machines in this policy. All files and folders do not have to exist on all virtual machines.	
usejournal_5		and folders do not have to exist on all virtual machines.	
tienen storage		V Backup al lacel drives.	
- A Catalog			
Host Properties		Backup Selections Add	
Master Servers		IP ALL_LOCAL_DRIVES	
-Bit Media Servers		Intert	
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Bisk Array Hosts		< Back Next> Cancel Help	
Wrtual Machine Servers			
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		Moster Server: clent1	Connected

14. Choose the Backup type.

Figure 32 Choosing the Backup type

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	dient1: 6 Policies		
	Name	D Type St V C Ef C D. S S M E V E Pr R. U.	
Activity Monitor	🥐 VMWare	VMware 0Z Net 1 7/2 VM Virt Any	
	🔞 usejournal_4	Standard 02_4 Net I 7/2 No Any	
	🔞 usejournal_3	Policy Configuration Wizard X	
	🐞 usejournal_2		
	🐞 usejournal_1	Backup Types Select the types of backups performed by the policy.	
🗳 vMWare	🗞 SLP_Acc	Select the types of backups performed by the policy.	
- 🙀 usejournal_1			
- Kategournal_2			
- 🚯 usejournal_3		Do you want the policy to perform Full Backups?	
- 🏀 usejournal_4		© Yes C No	
🔲 Storage		Do you want the policy to perform Incremental Backups?	
- 🐙 Catalog			
Host Properties		© Yes C No	
Master Servers		What type of incremental backups do you want the policy to perform?	
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Media and Device Management			
- R Device Monitor		Do you want the policy to perform Archived Redo Log Backups?	
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- 😴 Drives			
- 🖬 Robots			
🙀 Media Servers			
- 🗐 Server Group			
- 🖬 Topology			
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SAN Clients			
- 🚷 Credentials			
- 18 Disk Array Hosts		<back next=""> Cancel Help</back>	
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Witual Machine Servers			

15. Set the frequency and retention for backups.

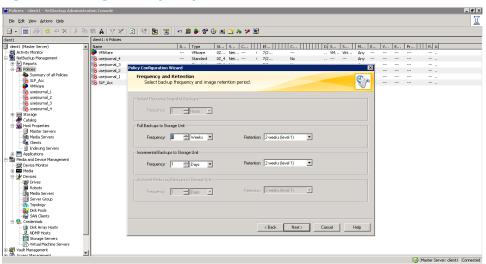


Figure 33 Setting the frequency and retention

16. Define the backup window.

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e Edit View Actions Help		
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client1: 6 Policies		
ent1 (Master Server) Name	D Type St V C EF C D. S S	M E V E Pr R. U.
Activity Monitor WWare	VMware 0Z Net 1 7/2 VM Virt	Any
NetBackup Management 🛞 usejournal_4	Standard 02_4 Net I 7/2 No	Any
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- Device Monitor		
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	C Working hours	
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- Usk Array Hosts	< Dack Next> Landel He	<u></u>
- Storage Servers		
- Mining Servers		
Vault Management		
Accerc Management		

Figure 34 Defining the backup window

17. Complete the backup selection details under the corresponding tab.

Figure 35 Completing the backup details

🛅 Policies - client 1 - NetBackup Administra	tion Console											_ # ×
Elle Edit View Actions Help												I
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Applications			Enable	vCloud integration: Disab	led							
B Media and Device Management			Multiple	organizations per policy: Instant Recovery VMs: Er	Disabled							
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Server Group				several minutes to creat								
- Topology						e policy, so please b	e patient.					
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NDMP Hosts												
Storage Servers												
Wrtual Machine Servers												
Waukt Management												
											Master S	Server: client1 Connected

18. For VMware backups, add details under an additional VMware tab. Ensure you select the check box "Use Accelerator."

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Figure 36 Adding VMware details

19. To test your Accelerated backups, right click on the policy and trigger a manual VMware backup for the selections made in the above steps.

_ 5 × 3 • 🔟 🖨 | * 🖉 🗙 2 🕺 📓 🐮 🖉 🕫 🖇 🛠 🖓 🗷 🔧 🦻 🖄 Storage Volume Pool C... If E... < t1 (Master Server) Activity Monitor D... Type 8 VMWare_Acclerator_backup: 2 Schedules Frequ... M. Storage 1 Day 1 1 Week 1 Volume Pool F... St... S. A. D. In... Media Owner Name Di Type Differential I Full Backup Retentio --- Nc --- No --- Nc --- No Manual Backu Select a schedule and one or more clients to start the backup. To start a backup for all clients, press OK without selecting an Operating System Server: dient1 VMWare_Acclerator_backup: 1 Selections 80 clerator_backup ALL_LOCAL_DRIVE OK Cancel Help Master Server: client1 Connected

20. Verify the completion status on the Activity monitor of the VMware backup triggered.

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- Applications	51 Backup	Done	0 SLP Acc	Differential-Inc	client1	client1.tes 7/21/2014 6:00:00 PM	001 A	7/21/2014 6:00:29 PM
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- 🗐 Server Group	44 Backup	Done	0 usejournal_1	Differential-Inc	client1	client1.tes 7/21/2014 4:37:33 PM	0Z_1	7/21/2014 4:37:59 PM
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VIDE Disk Array Hosts	39 Backup	Done	0 usejournal_1	Differential-Inc	client1	client1.tes 7/21/2014 4:03:46 PM	0Z_1	7/21/2014 4:04:11 PM
Storage Servers		-			*			

Figure 38 Verifying completion

21. Examine the job details to verify there were no errors.

🖰 Activity Monitor - client1 - NetBackup Ad	Iministration Console	_ # ×
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dient1 (Master Server)	client1: 92 Jobs (0 Queued 1 Active 1 Waiting for Retry 0 Suspended 0 Incomplete 90 Done)	1 Selected 🗖
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- I Server Group	44 Backup Do 43 Backup Do	4:37:59 PM 4:36:58 PM
Disk Pools	42 Backup Do	4:26:57 PM
SAN Clients	41 Backup Do Percent Complete: 100%	4:06:33 PM
E-Credentials	41 Backup Do Percent Complete: 100%	4:05:03 PM
Disk Array Hosts	39 Badwp Do Print	Help Close 4:04:11 PM
- UNDMP Hosts		
- 🚔 Storage Servers		
Witual Machine Servers	Jobs Services Processes Drives	
🖾 🕼 Vault Mananament 📃	, <u></u>	Master Server: clent1 Connected
		States server: denta (connected

Figure 39 Checking for errors

Figure 37 Testing the backups

Restoring VMware Accelerated Backups

To restore Virtual Machine backups:

- 1. Launch Backup/Archive and Restore.
- 2. Select the appropriate server, client, and the policy type of VMware.

View Actions Help		
Select for Backup 🛛 🔩 Select f	for Restore 🔹 📴 View Status 🛛 😰 💐 🛷	
	Specify NetBackup Machines and Policy Type	
	Server to use for backups and restores:	
	client1.testmail.com Edit Server List	
	Source client for restores (or virtual client for backups): Edit Client List	
	Did 6-biren-172 21 202 52	
	Search VM Clients	
	Destination client for restores:	
	client1.testmail.com	
	Policy type for restores:	
	VMware 💌	
	Date / time range:	
	From: 7/21/2014 4:05:52 PM	
	Oldest available	
	To: 7/22/2014 V 8:05:52 PM .	
	Newest available	
	OK Cancel Help	

Figure 40 Selecting the restore details

3. Select Restore from Virtual Machine Backups.

View Actions H	19 C	
Select for Backup	Select for Rostor - Markov Satus 22 & 20 & 20 & 20 & 20 & 20 & 20 & 20	
	Restore from Braden Exel Setup Restore from Setup Exel Setup Restore from Optimized Baskup Restore from Optimized Baskup v Restore from Wrbad Machine Baskup	

Figure 41 Selecting "Restore from Virtual Machine Backups"

4. Select the backup of interest and the required data for restore from the catalog.

Figure 42 Selecting the backup and data

81 H	NetBackup History : For time Time Backed Up	range 7/21/2014 4: Time Expires	05:52 PM to 7/2 Files			Schedule Type	Policy Name	
	7/22/2014 3:22:16 PM	8/5/2014	200638	60876162		Full Backup	VMWare	
- 1	7/22/2014 12:53:58 PM		406	60772953		Differential Increment		
	7/22/2014 12:03:54 PM	8/5/2014	200604	60965979	No	Full Backup	VMWare	
	7/22/2014 11:30:22 AM	8/5/2014	200600	60964049	No	Full Backup	VMWare	
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2	•							•
Ē	All Folders		Contents of	'RHEL6-Hiren-	-172.31.202.53	1		
ľ	🔽 📇 RHEL6-Hiren-172.	31.202.53	Name			Time Back	ed Up A	
			Hiren	-Win2k8-172.;	31.202.62-000	06.vmdk 7/22/2014	3:22:16 PM -shr	524288
			RHEL	6-Hiren-172.3	1.202.53 1-00	0001.vmdk 7/22/2014		
			RHEL	6-Hiren-172.3	1.202.53-0000	01.vmdk 7/22/2014	3:22:16 PM -shr	1258291
			•				_	•

5. Select Actions -> Restore... to open the Virtual Machine Recovery wizard.

Figure 43 Opening the Virtual Machine Recovery wizard
👯 Backup, Archive, and Restore - NetBackup - [Restore (Virtual Machine): Server: client1.testmail.com Source Client: RHEL6-Hiren-172.31.202.53 Destination C]
Bill Eldt View Arthors Window Help

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letBackup Histo 💣 Preview Media	122/2	014 8:05:52 PM									
Time Backed Up 🖳 Restore		Time Expires	Files			Schedule Type	Policy Name	Keyword Phrase	Image Format	Data Mover	
7/22/2014 Select Restore Type	•	8/5/2014	200638	60876162		Full Backup	VMWare		Backup		
7/22/2014 1		8/5/2014	406	60772953		Differential Increment			Backup		
7/22/2014 1 Administer Database Template 7/22/2014 11130:22 WM	s 🕨	8/5/2014 8/5/2014	200604 200600	60965979 60964049		Full Backup Full Backup	VMWare VMWare		Backup Backup		
		HEL6-Hiren-172.31.	202.53'			,					
	Name			Time Backe			Time Modified				
	Hiren-W						7/22/2014 3:24:23 PM				
							7/22/2014 3:24:23 PM				
	RHEL6-P	firen-172.31.202.5	3-000001.vmdk	7/22/2014	3:22:16 PM -s	hr 125829120KB	7/22/2014 3:24:23 PM				

6. Select the destination location to restore the virtual machine backup.

Figure 44 Selecting the destination location

advup, Archive, and Restore - Netliadup - [Restore (Virtual Machine): Server: client Lestmail.com Source Client: RHEL6-Hiren-17231.202.53 Destination C]
Select for Backup 🛛 Select for Restore 🔹 🐚 Yew Status 🔀 💥 🛷
Number lations: / for like range 722/2014 436.52 Mike 72 Vertical Handle for convery Image Front Data front <th< th=""></th<>
ly la

7. Specify the NetBackup media server to use and the VM name to create for the restore (if it is not the original location).

Figure 45 Selecting the NetBackup media server

to 172.31.202.46 - Remote Desktop Connection		
	rver: client1.testmail.com Source Client: RHEL6-Hiren-172.31.202.53 Destination C]	^ <u>11 –</u>
👮 File Edit View Actions Window Help		t
🖾 Select for Backup 🛛 💐 Select for Restore 🔹 🕼 View Status 🛛 🚱 😻 🤣		
MetBackup History : For time range 7/21/2014 4:05:52 PM to 7/2 Time Backed Up	Recovery X Inage Format Data Mover	
Recovery Recovery	Options	
Select th	he recovery host, transport mode and other options. Backup	
2 9 7/22/2014 12:03:54 PM	Backup ···	
🕅 🚱 7/22/2014 11:30:22 AM NetBarl	kup Becovery Host: clent1.testmal.com	
C Transport		
- Hanspore	modes up tries each selected transport in order from top to bottom	
	Use san to move virtual disk data	
	dd : Use vitual disk files from NetBackup server Move Up : Do not encrypt the vitual disk data for over-the network transfers	
	: Do not enclypt the virtual disk data for over-the network transfers Move Down	
RHEL		
RHEL	Note: Select vCenter Server as 'None' for standalone ESX server.	
	vCenter Server: None	
	Datacenter : None	
	Folder: None Change	
	Display Name : FHEL6-Hiren-172.31.202.53-new clone	
B	escurce Bool/vApp : 🎯 Resources 💌	
Database	e/Datastore Cluster : datastore1 (1) Change	
Dataston		
	Lise the same datastore/datastore cluster for all VMDKs	
	<back next=""> Cancel Help</back>	
	Carcel Lebo	
<	m	- + i

8. Select any additional VM options for the restore.

Figure 46 Selecting VM options

🔀 Backup, Archive, and Restore - NetBackup - [Restore (Virtual Machine): Server: client1.testmail.com 🛛 Source Client: RH#L6-Hiren-172.31.202.53 Destination C]	
	- ! ^
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🔜 Select for Badup 🖳 Select for Restore 👻 🛅 Yiew Status 🙆 💐 🛷	
NetBadup History : For time range 7/21/2014 4:66:52 PM to 7/2 Writual Machine Recovery	
Minimum The Backed by	
Retries populated blocks and minister vacuard blocks with zeroese. Thek's Province Samp Zaroad Retries populated blocks are used blocks with zeroese (segethy zeroed). The Province Retries only populated blocks. Vacuard blocks are not initiated or committed (gask light) Cancel Heb	•

Figure 47 Selecting the Storage Destination

to 172.31.202.46 - Remote Desktop Connection								×
Backup, Archive, and Restore - NetBackup - [Rest	tore (Virtua	Machine): Server: client1.testmail.com Source	Client: RHEL6-Hiren-172.	31.202.53 Destination C]				- ! ^
📜 File Edit View Actions Window Help								_1
🖸 Select for Backup 🛛 💐 Select for Restore 🕞 🦙 We	iew Status	🖻 💐 🤣						
NetBackup History : For time range 7/21/2014 4:05:52	PM to 7/2	tual Machine Recovery			×			_
Time Backed Up		Storage Destination				e Image Format	Data Mover	
🔁 🥥 7/22/2014 3:22:16 PM		Select the datastores where the VMDK files are to be restored.			Backup			
7/22/2014 12:53:58 PM 7/22/2014 12:03:54 PM						Backup Backup		
27/22/2014 11:30:22 AM						Backup		
		Source VMDK File Name	atastore/Datastore Eluster	Datastore/Datastore Cluster Status				
<i>2</i>		datastore1 (1)/RHEL6-Hiren-172.31.202.53/RHEL6 da	tastore1 (1)	100K	_			
195		datastore1 (1)/RHEL6-Hiren-172.31.202.53/RHEL6 da	tastore1 (1)	index				
18. 180		datastore1 [1]\Hiren-Win2k8-172.31.202.62\Hiren-V da	tastore1 (1)	Ф ОК				
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9. Click Start Recovery.

Figure 48 Starting the Recovery

	al Machine); Server; client.Li.estmail.com Source Client: RHEL6-Hiren-172.31.202.53 Destination (]	• i =
Ele Edit View Actions Window Help		<u>i - i</u>
NetBackup History : For time range 7/21/2014 4:05:52 PM to 7/2		
Time Backed Up	te Imane Format Data Movar	
Image: Constraint of the second sec	Perform Recovery Review the recovery settings, perform pre-recovery check and start recovery.	
	Backup	
7 7222014 11:00:22 AM 7	Peccency utility: Peccency ut	

The VM will appear in the list of the Virtual machine entries under the ESX host.

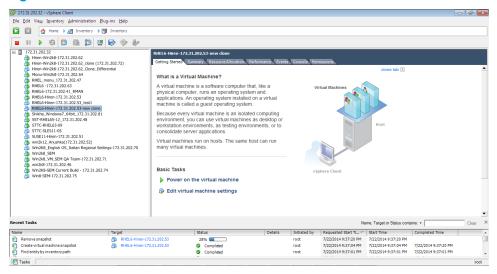


Figure 49 The VM machine is restored

11 Troubleshooting

Table 4 Common OST	plug-in i	iss <mark>ues and</mark>	solutions
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Symptom	Possible Cause	Solutions
Job failing with error code 83/84	Storage server is not reachable. HP OST logs show an -1106 error from the server.	Connectivity between the media server and the HP StoreOnce Backup System should be checked.
Job failing with error code 83/84	Storage server is overloaded, or the server is unable to service any more sessions. HP OST logs show an -1109 error from the server.	Policies should be set up in such a way that maximum sessions are not reached on the HP StoreOnce Backup System. For information on StoreOnce Catalyst stores, see the <i>HP StoreOnce Backup</i> <i>System user guide</i> for your system available on the HP Enterprise Information Library page of the HP website: www.hp.com/go/storage/ docs Select HP StoreOnce Backup and then select your product.
StoreOnce Catalyst stores are not listed while creating the disk pool.	Client permission is enabled for the HP StoreOnce Backup System service set.	Correct credentials matching the HP StoreOnce Backup System should be given at the NetBackup console. Only stores which have permissions to given credentials are granted access.
Receive the error, Authorization error, verify User name and Password, while registering storage server with NetBackup.	IP/host name used for registering is not correct.	The storage server IP/host name provided while registering with NetBackup is incorrect. Fusion Manager IP/host name should be used if using an HP StoreOnce 2700, 4500, 4700, or 4900 (or older) models; the service set IP/FQDN and Fusion Manager (HP StoreOnce Backup System management console) IP/FQDN are the same. Service set IP/ FQDN should be used if you are using an HP StoreOnce 6500 or B6200 model; the service set IP/FQDN is different from Fusion Manager IP/FQDN. Fusion Manager IP/FQDN cannot be used for registering with NetBackup.
Backup failing with error code 23.	This occurs when a large number of jobs are running on the target system and results in a client timeout.	The timeout value should be increased in NetBackup master server host properties.
Import jobs failing with error code 191.	Data classification is different for source and target SLP.	The SLP data classification at the source and target should be kept the same.
Backup jobs failing with error code 83/84.	The storage server is not licensed. OST logs show error code -1111.	The StoreOnce Catalyst license should be applied on the HP StoreOnce Backup Storage System server.
RDSM cannot connectCORBA error is displayed while registering a storage server with NetBackup.	Invalid storage server IP/StoreOnce Catalyst over Fibre Channel interface identifier specified.	Check and provide the correct IP address/StoreOnce Catalyst over Fibre Channel identifier. If the problem persists, restart NetBackup services and use the correct IP address/identifier.

Symptom	Possible Cause	Solutions	
Disk pools are missing in the Remote Windows Java Admin Console.	A slow response to the Admin console from the NetBackup Server.	Increase the Java default timeout. See www.symantec.com/business/support/ index?page=content&id=TECH204939.	
After installing NetBackup on Solaris, the configuration tabs are greyed out.	Firewall issue.	Clear the host cache using: #bpclntcmd -clear_host_cache Disable the firewall on Solaris using: #svcadm disable svc:/network/ipfilter:Default	
Running the installer for 3.1 on AIX server gives the following error: cp: /usr/openv/lib/ ost-plugins/ libstspihpqMT.so: Cannot open or remove a file containing a running program. Cannot copy the OST libraries, files are in-use Re-run the installer once problem is fixed	The library is in use.	 Perform one of the following: Shutdown NetBackup services Manually delete the library from these locations: rm -f /usr/openv/lib/ ost-plugins/ libstspihpqMT.so rm -f /usr/openv/lib/ ost-plugins/ libstspihpq.so 	
Selecting "Use Accelerator" and configuring NetBackup policy gives the following error: To use the Accelerator, select storage units from a supported storage server: PureDisk Deduplication (PDDO), Media Server Deduplication (MSDP), Symantec clouds, and other qualified storage servers. Currently configured and supported storage servers are: hp-StoreOnceCatalyst on [IP address], [IP address]. Storage Unit group is supported in failover mode only.	The Administration Console might not have picked up Accelerator configuration changes (possibly due to a command line configuration operation).	Restart the NetBackup Administration Console.	
Accelerator backups fail with the following error: Info bpbrm(pid=2428) The storage unit does not support accelerator Info bpbkar32(pid=0) done. status: 154: storage unit characteristics mismatched to request	NetBackup times out. OST and Catalyst logs do not show any errors.	In time, failed jobs are retried by NetBackup and the Accelerator Backup would complete.	

Table 4 Common OST plug-in issues and solutions (continued)

Symptom	Possible Cause	Solutions
Accelerator backups run slowly when using Windows media servers.	When switching between Clone and Write operations, backups are slowing down due to TCP Acknowledgment delays.	 Improve the performance by editing the Windows registry for "TcpAckFrequency" as follows: 1. In the Windows registry, navigate to the HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\Tcpip\Parameters\Interfaces section. 2. Select the interface/subnet being used for the StoreOnce operations. 3. Right-click on the interface and select "New, DWORD (32-bit) Value." Rename it "TcpAckFrequency" (this is case sensitive). 4. Right-click the new TcpAckFrequency value and select Modify, enter "1" and select the Hexadecimal option. 5. Exit regedit. After a reboot to activate the change, Accelerator backups will run faster.
Accelerator incremental backups can sometimes appear larger than the corresponding non-Accelerator incremental backups when using Windows clients.	The "Time overlap" feature is set in NetBackup and specifies the number of minutes to add to the date range for incremental backups. This could include additional files in the backup.	 Modify the "Time overlap" parameter (default value of 60 minutes) in the NetBackup settings: 1. Navigate to Host Properties→Clients→Client Properties. 2. Select Windows Client→Client Settings. 3. Change "Time Overlap" to 0. For more details, see the Symantec NetBackup technical articles on "Time overlap."
Accelerator backups can fail if the storage unit of the backup policy is changed after the first few Accelerator backups.	Accelerator refers to parent backups for detecting changes and cannot find them in the new storage unit.	Clear the Accelerator track log file on the backup client or copy the backup policy with a different name and use the new policy for backups.

Table 4 Common OST plug-in issues and solutions (continued)

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