



Quest[®] NetVault[®] Backup
Plug-in for *SnapVault Manager* 11.4.5
User's Guide



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Legend

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

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

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

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Introducing NetVault Backup Plug-in for SnapVault Manager

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About NetVault Backup Plug-in for SnapVault Manager

NetVault Backup Plug-in for SnapVault Manager (Plug-in for SnapVault Manager) provides a graphical interface that is integrated with the NetVault Backup WebUI to provide a single point of enterprise-wide control and improve the management of NetApp SnapVault solution. This plug-in lets you back up changed data from multiple storage platforms to a common Snapshot target on NetApp appliances, enabling faster tape less restores.

NetApp SnapVault

SnapVault is a disk-based storage backup feature of NetApp Data ONTAP software that allows you to back up data stored on a primary filer and primary Open System (a non-filer, for example, a Windows, Linux, or UNIX system) to a central, secondary storage filer system in a quick and efficient manner. This data is saved as a “snapshot” in read-only format, and if data loss or corruption occurs, you can restore it from the SnapVault secondary storage system with less downtime and uncertainty associated with conventional tape backup and restore operations.

Terminology

The following is a brief description of various terms that are associated with a SnapVault environment and referenced throughout this document.

- **Open System:** This term refers to any system that is not a NetApp Filer (for example, a Windows, Linux, or UNIX system). These systems can be included in a backup or restore operation in an NDMP environment by using SnapVault.
- **SnapVault Primary (SV Primary):** This term refers to a SnapVault client with data to be backed up (or restored to). An SV Primary can be either a NetApp filer running Data ONTAP or an Open System with the Open System SnapVault (OSSV) Software installed.
- **SnapVault Secondary (SV Secondary):** This term is the SnapVault Server. This machine serves as storage for snapshots taken from various SV Primaries.
- **Service:** Also referred to as a SnapVault Snapshot Schedule, this service is created on the SV Secondary. A Service opens up the qtrees of a specified volume to serve as a destination for SV Primary backup data.

It sets up a schedule which is used to perform snapshots of the data at the specified intervals, and saves these snapshots to the allocated space.

- **Relationship:** Established on a SnapVault Primary after a Service has been created on the SV Secondary. A Relationship in SnapVault describes a link established between the two that allows for the transfer of backup data from the SV Primary to the SV Secondary.
- **Initial Synchronization:** This term refers to the initial transfer of selected data from an SV Primary to an SV Secondary; it is a Full Backup.
- **Update:** This term refers to secondary and further transfers of the same selected data as sent with an Initial Synchronization from an SV Primary to an SV Secondary. In this instance only data that has changed is included (that is, an Incremental Backup).

Plug-in for SnapVault Manager

The Plug-in for *SnapVault Manager* manages the backup schedules, snapshots, and Relationships between SV Primaries and SV Secondaries. The SV Primaries can be a mixture of Open Systems and NetApp filers. An SV Secondary can only be a NetApp filer.

Target audience

An understanding of the NDMP protocol, NetApp filers, Snapshot Management, and the SnapVault application are required to successfully use this plug-in.

Recommended additional reading

- *Quest NetVault Backup Installation Guide:* This guide provides details on installing the NetVault Backup Server and Client software.
- *Quest NetVault Backup Administrator's Guide:* This guide explains how to use NetVault Backup and describes the functionality common to all plug-ins.
- *Quest NetVault Backup CLI Reference Guide:* This guide provides a description of the command-line utilities.
- *Quest NetVault Backup Plug-in for NDMP Application Notes:* These notes provide filer-specific information. You can download these guides from <https://support.quest.com/technical-documents>.

i | **IMPORTANT:** Starting with 10.0, NetVault Backup provides a web-based user interface to configure, manage, and monitor your NetVault Backup system and installed plug-ins. The procedures described in this guide are intended for the new NetVault Backup WebUI. For procedures based on the NetVault Backup Console (user interface available with NetVault Backup 9.x and 8.x), see the documentation for an earlier version of the plug-in.

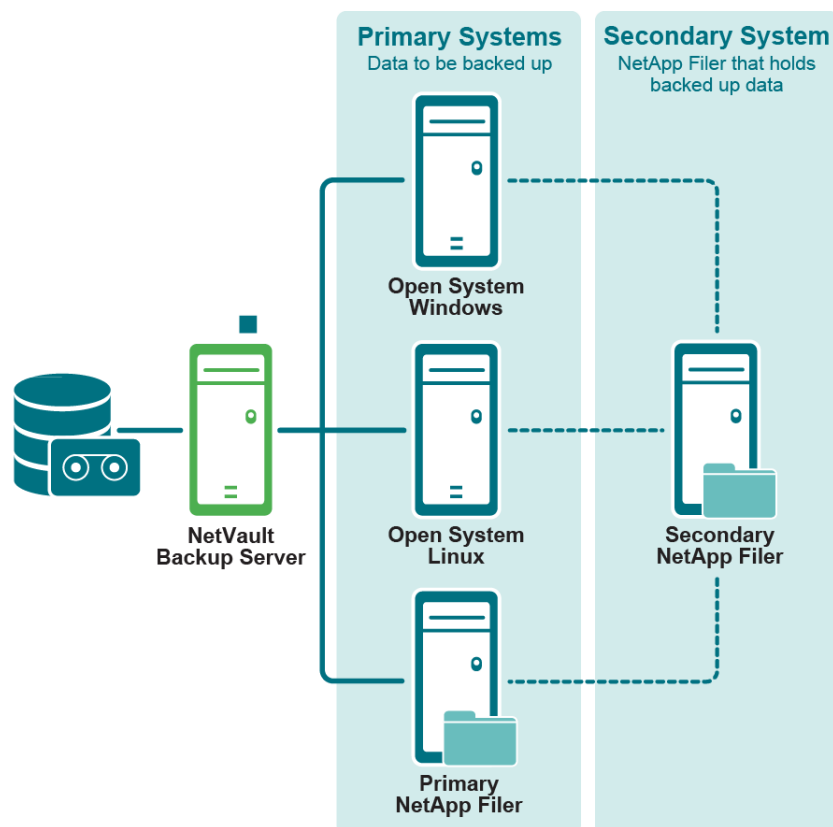
Installing the plug-in

- Deploying the plug-in
- Planning SnapVault backup system
- Prerequisites
- Installing the plug-in
- Removing the plug-in

Deploying the plug-in

The SnapVault backup systems consist of one or more Primary Systems and one Secondary System.

Figure 1. A SnapVault environment



- **Primary System:** The Primary Systems consist of Filers or Open Systems with data to be backed up to a Secondary System. When a Filer is acting as a Primary System, SnapVault backs up primary qtrees to one

or more volumes on the SnapVault Secondary System. With an Open System as a Primary, SnapVault can back up directories and entire drives to volume on the Secondary System.

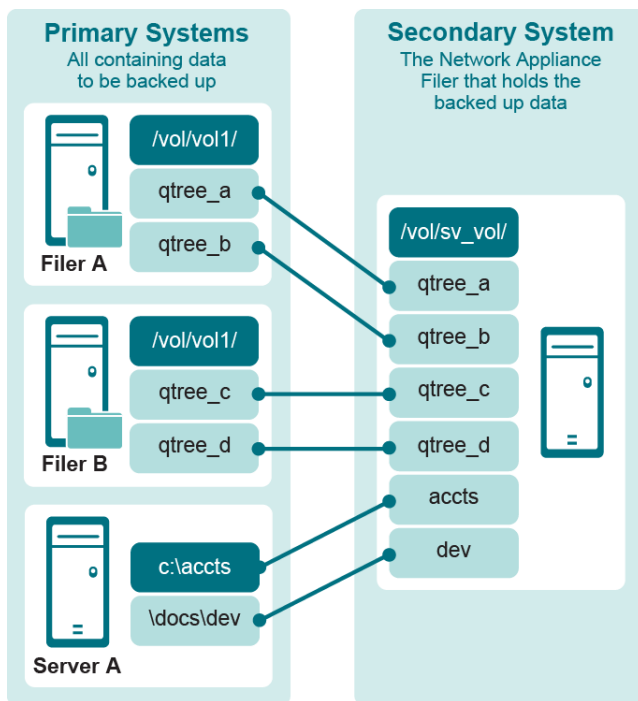
- **Secondary System:** The Secondary System is a central, disk-based unit that receives and stores backup data from Filers and Open Systems as Snapshots. Any NetApp filer can be configured as a Secondary system.

Planning SnapVault backup system

Some initial planning should be performed before setting up a SnapVault Backup System.

To start, you must plan the Relationship between the qtrees and directories of a Filer or Open System acting as SV Primaries and the qtrees of the Filer serving as the SV Secondary. You can perform multiple SV Primary backups (for example, both the qtrees of a Filer and the directories of an Open System) to a single volume of the corresponding qtrees of the SV Secondary system.

Figure 2. A sample of a SnapVault Backup System Plan



Before beginning a SnapVault configuration, you must also plan how many snapshots are required on a per volume basis; when they are to be updated; and how many of each are to be kept. Scheduling is decided upon based on the various values.

- **Hourly:** Does the data change often enough throughout the day to make it worthwhile to create a snapshot every hour, every two hours or every four hours?
- **Nightly:** Do you want to create a snapshot every night or just workday nights?
- **Weekly:** How many weekly snapshots is it necessary or useful to keep?

Table 1. Snapshots Required

SV Primary Target (qtree/directory)	SV Secondary Destination (qtree)
Filer_A	/vol/sv_vol/qtree_a
	/vol/sv_vol/qtree_b

Table 1. Snapshots Required

SV Primary Target (qtree/directory)	SV Secondary Destination (qtree)	
Filer_B	/vol/vol1/qtree_c	/vol/sv_vol/qtree_c
	/vol/vol1/qtree_d	/vol/sv_vol/qtree_d
Server_A (Open System)	C:\accts	/vol/sv_vol/accts
	Server_A:\docs\dev	/vol/sv_vol/dev

In the example represented by the preceding figure and table, there are six qtrees on the SV Secondary volume. The following schedule has been created for the backups:

- An hourly update every hour from 8:00 a.m. to 7:00 p.m. and 120 of these Snapshots are to be kept.
- A daily update is to be performed every Monday through Friday at 8:00 p.m. in which 60 of the Snapshots are to be kept.
- A weekly update every Saturday at 9:00 p.m. in which eight Snapshots are kept.

The result from this example is that 188 Snapshots are kept in the SV Secondary volume. The limit on snapshots per volume is 251, so the 188 snapshots scheduled in this example is well within this limit.

Prerequisites

Before installing the plug-in, you must complete the following tasks:

- **Install and Configure SnapVault:** The NetApp SnapVault software must be installed and properly configured on all SV Primaries and SV Secondaries to be used. For complete details on the installation and configuration of the SnapVault software, see the relevant NetApp documentation
- **Install and Configure NetVault Backup Server Software:** The Plug-in for SnapVault Manager can only be installed on the NetVault Backup Server.
- **Enable SnapVault:** The SnapVault application must first be enabled on all SV Primaries and SV Secondaries to be used.

- **SV Secondary:** At the command prompt, type the following:

```
options snapvault.enable on
options snapvault.access <primary system>
```

This setting lets you specify the names of the SV Primary systems to back up and restore. A comma-separated list of SV Primaries is included in place of the “<primary systems>” value shown earlier. Eligible values include the actual name of the host (for example, “host=melzhost, budzhost”) or its IP address (for example, “10.1.213.101”).

- **SV Primary: Filer**—Launch a terminal session from the filer, and run the following commands:

```
options snapvault.enable on
options snapvault.access <secondary>
```

This setting lets you specify the name of the SV Secondary that it backs up to. The SV Secondary is what is named in place of the “<secondary>” value shown earlier. Eligible values include the actual name of the host or its IP address. If multiple SV Secondaries are to be used, a comma-separated list of eligible values should be input.

- **SV Primary: Open System**—On an Open System, follow these steps to enable SnapVault and configure the SV Secondary system:
 - a From the Open System, access the SnapVault Configurator (svconfigurator on Linux and OSSV Configurator on Windows).

- b Select the **SnapVault** tab, and configure the following settings:
 - In the **NDMP Host Name** box, type the host name or IP address of the SV Primary system.
 - In the **QSM Access List** box, type the IP address or host name of the SV Secondary system. To configure multiple SV Secondary systems, specify a comma-separated list of eligible values.
- c To save the settings and close the SnapVault Configurator, click **OK**.
- **Install SnapVault Software Licenses:** The SnapVault software installed on the SV Secondary must have the proper license keys installed. Contact NetApp for details on obtaining license keys.

Installing the plug-in

The Plug-in for *SnapVault Manager* only functions on a Server installation of NetVault Backup. For details on installing the NetVault Backup Server software, see the *Quest NetVault Backup Installation Guide*.

- 1 In the Navigation pane, click **Guided Configuration**, and then on the **NetVault Configuration Wizard** page, click **Install Plugins**. In the **NetVault Backup Clients** list, select the clients on which you want to install the plug-in. This method allows you to install the plug-in on multiple clients at the same time (if the selected clients are all the same type).

i | **NOTE:** When you select multiple clients, make sure that the plug-in binary file is compatible with the OS and platforms of the target clients.

– or –

In the Navigation pane, click **Manage Clients**. In the **NetVault Backup Clients** list, select the client on which you want to install the plug-in, and click **Manage**. At the lower-right corner of the Installed Software table, click the **Install Plugin** button (+).

- 2 Click **Choose Plug-in File**, and in the browse window, navigate to the location of the “.npx” installation file for the plug-in (on the installation CD or the directory to which the file was downloaded from the website).
- 3 Select the file named **nsv-x-x-x-x.npx** (x-x-x-x represents the version, build, and platform numbers), and click **Next** to begin installation.

After the plug-in is installed successfully, a message is displayed.

- 4 To complete the installation, close the NetVault Backup WebUI, and restart the NetVault Backup Service.

Removing the plug-in

- 1 In the Navigation pane, click **Manage Clients**.
- 2 In the **NetVault Backup Clients** list, select the client on which the plug-in is installed, and click **Manage**.
- 3 In the **Installed Plug-ins** table, select **SnapVault Manager Plugin**, and click the **Remove Plugin** button (-).
- 4 In the confirmation dialog box, click **Remove**.

Configuring the plug-in

- Adding the SnapVault Primary and Secondary Systems
- Available commands in the Actions list
- Configuring default settings
- Using SnapVault password utility

Adding the SnapVault Primary and Secondary Systems

Before you can start using the plug-in, you must add both the SnapVault Primary and Secondary systems to the NetVault Backup Server for use (including the NetVault Backup Server itself, acting as an SV Primary).

Adding the SnapVault Secondary System

To add the filer acting as the SnapVault Secondary System:

- 1 In the Navigation pane, click **Create Backup Job**.
– or –
In the Navigation pane, click **Guided Configuration**, and then on the **NetVault Configuration Wizard** page, click **Create Backup Jobs**.
- 2 To open the **NetVault Backup Selections** page, click **Create New** next to the **Selections** list.
- 3 Open the NetVault Backup Server, and then open **SnapVault Manager**.
- 4 Select **SV Secondaries**, and in the **Actions** list, click **Add Secondary**.
- 5 In the **SnapVault Secondary** dialog box, configure the following options.

Option	Description
Name	Type a name for the SV Secondary system. Valid characters for include A–Z, 0–9, “-” (hyphen), and “_” (underscore). This field is required. After the SV Secondary is successfully added, this name is how it is displayed in the NetVault Backup WebUI.
Address(es)	Specify the IP addresses or resolvable names for the SV Secondary system. To configure multiple addresses, separate them using a comma.
Data Transfer Address	Type an IP address to serve as an optional data transfer address, if necessary.

Option	Description
Port	By default, the filer is configured to listen on port number 10000. Unless otherwise required, do not change listener port for the filer.
Use Default Account and Password	This option can be used to configure a user account other than the account specified through the “ Default Password ” option accessed from the plug-in node. These credentials are the account and password configured in the OSSV client on the SV Secondary. When you clear this check box, the Account Details section is displayed, which lets you configure the User Account and Password for the SV Secondary system.

- 6 To add the system, click **OK**.

Adding SnapVault Primary Systems

The next step is to add any systems acting as the SV Primaries to the NetVault Backup Server. This addition includes any Filers or Open Systems (including the NetVault Backup Server itself) with data to be backed up to the SV Secondary.

To add the secondary systems to the NetVault Backup Server:

- 1 In the Navigation pane, click **Create Backup Job**.
– or –
In the Navigation pane, click **Guided Configuration**, and then on the **NetVault Configuration Wizard** page, click **Create Backup Jobs**.
- 2 To open the **NetVault Backup Selections** page, click **Create New** next to the **Selections** list.
- 3 Open the NetVault Backup Server, and then open **SnapVault Manager**.
- 4 Select **SV Primaries**, and in the **Actions** list, click **Add Primary**.
- 5 In the **SnapVault Primary** dialog box, configure the following options.

Option	Description
Name	Type a name for the SV Primary system. Valid characters for a name are A–Z, 0–9, “-” (hyphen), and “_” (underscore). This field is required. After the SV Primary is successfully added, this name is how it is displayed in the NetVault Backup WebUI.
Address(es)	Type the IP addresses or resolvable names for the SV Primary system. To configure multiple addresses, separate them using a comma.
Data Transfer Address	Type an IP address to serve as an optional data transfer address, if necessary.
Port	The listener port for the SV Primary system is set to 10000 by default. Unless otherwise required, do not change listener port.
Use Default Account and Password	With this option selected, the user credentials configured using the “ Default Password ” option are used to log in to the SV Primary system. When you clear this check box, the Account Details section is displayed, which lets you configure the User Account and Password for the SV Primary system.

- 6 To add the system, click **OK**.
- 7 To add the additional SV Primary systems, repeat [Step 1](#) through [Step 6](#).

Important notes

- The NetApp SnapVault Client software must first be installed and properly configured on each SV Primary (regardless if it is a Filer or an Open System) before it can be added to NetVault Backup Server. For complete details on the installation of this software, see the relevant NetApp documentation.
- If an Open System is to serve as an SV Primary, the Account and Password information used to add the SV Primary refers to the values that were generated when NetApp SnapVault Client software was originally installed and configured on said SV Primary. When adding multiple Open Systems as SV Primaries, the **Use Default Account and Password** option are only valid if all Open Systems were configured with this same user name and password. Otherwise, it is necessary to clear this check box, and configure user credentials for each SV Primary.
- If a filer is acting as an SV Primary, the root account and password for the filer must be configured in the **Account Details** section.

Available commands in the Actions list

The following sections provide a brief description of the items that are displayed in the **Actions** list when select the **SV Primaries** node, **SV Secondaries** node, or any added system.

Available commands for the “SV Secondaries” node

The **Actions** list includes the following items for the **SV Secondaries** node:

- **Open:** Opens the **SV Secondaries** node, and lists the added SV Secondary systems. This command is replaced by the **Close** command after it has been opened.
- **Add Secondary:** Allows you to add an SV Secondary system to the server. For more information, see [Adding the SnapVault Secondary System](#).
- **Default Password:** Allows you to configure the password for the root user account for the SV Secondary system. To change the default user account for an SV Secondary system, see [Adding the SnapVault Secondary System](#).

Available commands for an SV Secondary System

The **Actions** list includes the following items for an SV Secondary system:

- **Open:** Opens the SV Secondary system node, and lists the available volumes on the filer. This command is replaced by the **Close** command after it has been opened.
- **Edit Secondary:** Allows you to update the settings for the added SV Secondary system.
- **Set Access:** Allows you to modify the access details from the **SnapVault Secondary Access** window.
- **Remove Secondary:** Allows you to remove an SV Secondary system.

Available commands for the “SV Primaries” node

The **Actions** list includes the following items for the **SV Primaries** node:

- **Open:** Opens the **SV Primaries** node, and list the added SV Primary systems. This command is replaced by the **Close** command after it has been opened.
- **Add Primary:** Allows you to add an SV Primary system to the server. For more information, see [Adding SnapVault Primary Systems](#).

- **Default Password:** Allows you to configure the password for the default SV Primary user account. To change the default user account for an individual SV Primary system, see [Adding SnapVault Primary Systems](#).
- **Default Initialization Window:** Allows you to schedule the Initial Synchronization (that is, the Initial Full Backup) operation. When you select this option, the **Default Initialization** dialog box is displayed.

To specify the schedule, select the **Enable Initialization Window** check box, and type or select the time in the **Begin** and **End** boxes.

Important notes

- If you use the default values, an Initial Synchronization occurs for an SV Primary when a Relationship is created between it and an SV Secondary.
- A time frame defined in this window applies to all currently added SV Primaries and any added in the future, but they can be overridden on a per SV Primary basis from the Initialization Window command available from an individual SV Primary.

Available commands for an SV Primary System

The **Actions** list includes the following items for an SV Primary system:

- **Open:** Opens the SV Primary system node, and lists root nodes on the filer. This command is replaced by the **Close** command after it has been opened.
- **Edit Primary:** Allows you to update the settings for the added SV Primary system.
- **Set Access:** Allows you to modify the access details from the **SnapVault Primary Access** window.
- **Default Initialization Window:** Allows you to schedule the Initial Synchronization (that is, the Initial Full Backup) operation on per SV Primary system basis.

When you select this option, the initialization window is displayed. To specify the schedule for an individual SV Primary system, configure the following parameters:

- **Use Default Initialization Window:** Clear this check box.
- **Enable Initialization Window:** Select this check box.
- **Begin and End:** Type or select the time in the **Begin** and **End** boxes.
- **Import Relationships:** Adds the existing Relationships on the SV Primary to the SnapVault Manager database.
 - When you select this option, the **Importable Secondary Relationships** dialog box is displayed. This dialog box lists the eligible Relationships. For each Relationship, it includes information about the Path, Secondary System Name, Volume Name, and Relationship Name.
 - To import a Relationship, select the corresponding **Import** check box, and click **OK**. After a Relationship is selected in this manner, the **Import New Primary Relationships** dialog box is displayed. This additional dialog box lets you specify names for selected Relationships, and establish a Service for each. This dialog box functions in the same manner as the **Add Secondary Service** dialog box.
- **Remove Primary:** Allows you to remove an SV Primary system.

Configuring default settings

- 1 Start the Backup Job Wizard, and click **Create New** next to the **Selections** list. Open the NetVault Backup Server. Select **SnapVault Manager**, and in the **Actions** list, click **Configure**.

– or

In the Navigation pane, click **Change Settings**. On the **Configuration** page, click **Server Settings**, and then click **Plugin Options**.

- 2 Under **SnapVault Control Plugin**, configure the following settings.

Setting	Description
Delete Data on Secondary When Releasing a Relationship by Default	When this check box is selected, the Remove Data on Secondaries option is selected by default in the Remove Primary Relationship dialog box. When this check box is cleared, the Remove Data on Secondaries option is not selected by default. For more information about the Remove Data on Secondaries option, see the description for the Remove Relationship command in the section Available commands for relationships .
Allow More than One GUI to Access at the Same Time	When this check box is selected, multiple instances of the NetVault Backup Console can access the Plug-in <i>for SnapVault Manager</i> and its functionality (on the same machine or remotely from another machine using the Domain Management feature).
Display Alternate Secondary Service Schedule Screen Layout	When this check box is selected, an alternative layout of the Secondary Service Schedule GUI (Add Secondary Service dialog box) is displayed.
Enable A-SIS Deduplication of Secondary Snapshots	When this check box is selected, the Secondary Filer performs ASIS deduplication of the Secondary Snapshot. For more information, see ASIS deduplication of secondary snapshots .

- 3 To save the settings and close the window, click **OK**.

Using SnapVault password utility

The SnapVault Password Utility **svpassword** allows you to set the NetVault Backup user account and password in the SnapVault Manager configuration file to enable communication between the Plug-in *for SnapVault Manager* and NetVault Backup Server. This utility must be used if the password is changed for the “**default**” or “**admin**” user accounts.

The **svpassword** utility is located in the **netvault/bin** directory on the NetVault Backup Server on which the Plug-in *for SnapVault Manager* is installed.

Syntax

```
svpassword <account> <old password> <new password>
```

The **<old password>** parameter can be omitted if no password was set for the user account.

For example, if the password for the “**default**” account has been changed to “test” in NetVault Backup, type the following command to set the password in the SnapVault Manager configuration file.

```
./svpassword default test
```

Generating snapshots

- [Transferring backup data](#)
- [Available commands in the Actions list](#)
- [ASIS deduplication of secondary snapshots](#)

Transferring backup data

The procedure for transferring backup data includes the steps outlined in the following sections:

- [Establishing service on SV Secondary](#)
- [Establishing relationship on SV Primary](#)
- [Initial synchronization and updates](#)

Establishing service on SV Secondary

The first step involves creating the SnapVault Snapshot Schedule (referred to as “Service” within the Plug-in for *SnapVault Manager*) on the SV Secondary. This schedule allows generation of snapshots for the SV Primary data at scheduled intervals. These snapshots are held on the SV Secondary system.

- 1 In the Navigation pane, click **Create Backup Job**.
– or –
In the Navigation pane, click **Guided Configuration**, and then on the **NetVault Configuration Wizard** page, click **Create Backup Jobs**.
- 2 To open the **NetVault Backup Selections** page, click **Create New** next to the **Selections** list.
- 3 Open the NetVault Backup Server, and then open **SnapVault Manager**.
- 4 Open **SV Secondaries**, and select the volume that is to serve as storage space for SV Primary backups.
- 5 In the **Actions** list, click **Add Service**.
- 6 In the **Add Secondary Service** dialog box, configure the following options.

Option	Description
Name	Type a name for the Service. Valid characters include, A–Z, 0–9, “-” (hyphen), and “_” (underscore). This field is required. After the Service is successfully configured, this name is how it is displayed in NetVault Backup when creating a Relationship between it and an SV Primary.
Enabled	This check box is selected by default. It indicates that this Service is enabled after it is created. To disable the service, clear this check box from the Edit Service window.
Secondary Retention Count	Specify the maximum number of snapshots to be held in the selected volume before recycling occurs.

Option	Description
Default Primary Update Offset	This setting specifies the number of minutes before updates occur for an SV Primary that has established a relationship with this service.
Run From	This setting specifies the date and time when the updates (Incremental Backups) begin.
Days	Select the days of the week on which updates are to occur.
Hours	Select the hours of the day at which updates are to occur. If you do not select any Days or Hours check boxes, only a single update is performed at the time and date specified in the Run From box.

- 7 To add the Service to the SV Secondary node, click **OK**.

It is displayed under the volume for which it was set up. The icon is marked by a yellow “S” and labeled with its title.

Establishing relationship on SV Primary

With a service set up and in place on an SV Secondary, the next step is to establish Relationships between each SV Primary and the Service.

- 1 On the **NetVault Backup Selections** page, open the **SV Primaries** node.
- 2 In the list of added SV Primaries, open the applicable SV Primary to display the available volumes and drives.
- 3 Browse through the selections tree and locate the directory or qtree that you want to back up.
- 4 Select the item, and in the **Actions** list, click **Add Relationship**.
- 5 In the **Add Primary Relationship** dialog box, configure the following options.

Option	Description
Name	Type a name for the Service. Valid characters include, A–Z, 0–9, “-” (hyphen), and “_” (underscore). This parameter is required. After the Service is successfully configured, this name is how it is displayed in NetVault Backup when creating a Relationship between it and an SV Primary.
Enable All Relationships	This check box is selected by default. It indicates that the Relationship is enabled after it is created. To disable the relationship, clear this check box from the Edit Relationship window. You can also disable it on a per Service basis using the Enabled option in the List of Configured Services.
Default Throttle	Type a value that serves as a “throttle” for data transfer. The value must be specified in Mb/s. The larger the value input, the larger the amount of bandwidth used. The default of “0” indicates that no set value is to be used and NetVault Backup attempts to use the maximum allowable amount.
List of Configured Services	As a Service is configured on the SV Secondary, it is made available in this list. For each Service, the following options are available: <ul style="list-style-type: none"> • Use: To use this Service, select this option. • Secondary: The name of the SV Secondary containing the Service. • Volume: The path and name of the volume in use on the SV Secondary for this Service. • Service: The name given to the Service. • Throttle: This option lets you override the Default Throttle settings, and set individual “throttle” values for the configured services. • Offset: This option lets you override the Default Primary Update Offset settings, and set individual Update Offset values for the configured services.

- 6 To establish the Relationship, click **OK**.

Items with Relationships set for them are marked by a large black “R” in the selection tree.

Initial synchronization and updates

With the steps successfully performed in both adding a Service and establishing a Relationship, the Initial Synchronization (the initial Full Backup) automatically occur (you do not have to submit a backup job to begin the backup process). Updates (Incremental Backups) are periodically performed based on how they were scheduled in the selected Service on the SV Secondary.

i | **IMPORTANT:** If a time frame was established for the Initial Synchronization, either through the **Default Initialization** or **Initialization** windows, it occurs in that time frame. Otherwise, it begins when the Relationship is generated as a result of the default settings for the Plug-in *for SnapVault Manager*.

Viewing initial synchronization and update progress

Although you do not have to submit a backup job, you can still view the progress of a SnapVault job on the **Job Status** page. To access this page, click **Job Status** in the Navigation pane.

Available commands in the Actions list

The following sections provide a brief description of the items that are displayed in the **Actions** list when you select a configured Service and Relationship.

Available commands for volumes within an SV Secondary

The **Actions** list includes the following items a volume within an SV Secondary:

- **Open:** Open the selected item and displays its contents. This command is replaced by the **Close** command after an item has been opened.
- **Add Service:** Allow you to add a service for the selected volume. For more information, see [Establishing service on SV Secondary](#).
- **Unused Relationships:** Allows you to remove Relationships that do not use any Service.

When you select this command, the **Unused Secondary Relationships** dialog box is displayed. This dialog box lists the eligible Relationships. For each Relationship, it includes information about the Path, Primary System Name, and Relationship Name.

To remove a relationship, select the corresponding **Remove** check box. To delete any data contained within the associated SV Secondary, ensure that the **Delete Data on Secondary** check box is selected. If you clear this check box, the data is preserved, but the Relationship is removed. To remove the selected Relationship, click **OK**.

Available commands for services

The **Actions** list includes the following items a service:

- **Edit Service:** Allows you to edit the current settings for a service.
- **Remove Service:** Allows you to remove a service.

i | **IMPORTANT:** When more than one service with the same name is created by separate instances of the plug-in, removing the service from SnapVault Manager causes the service to be deleted from the Secondary Filer. This change causes the other instances of the Plug-in for *SnapVault Manager* to consider this service as disabled. A disabled service can either be removed or repaired.

Available commands for relationships

The **Actions** list includes the following items a relationship:

- **Open:** Opens the selected item and display its contents. This command is replaced by the **Close** command after an item has been opened.
- **Edit Relationship:** Allows you to edit the current settings for a Relationship.

When you select this command, the Edit Primary Relationship window is displayed. You can modify the following parameters in this window:

- **Use:** Allows scheduled updates, manual updates, and restores of relationships. If this option is not selected, NetVault Backup does not perform any of these functions for the relationship. This option is useful when you want to disable the relationship, but not remove it.
- **Enabled:** Allows scheduled updates of a relationship. If this option is not selected, NetVault Backup does not perform any scheduled updates for the relationship. This option is useful if you want to temporarily disable the relationship.
- **Update Relationship:** Allows you to initiate an Update (Incremental Backup) immediately. You can use this command to perform manual Updates of the selected SV Primary Relationship data outside of what is scheduled to occur in the Service. Selecting this command will not affect future scheduled Updates set in a Service.
- **Remove Relationship:** Allows you to remove a relationship.

When you select this command, the **Remove Primary Relationship** window is displayed. To remove the data backed up using the relationship, ensure that the **Remove Data on Secondaries** check box is selected. If you clear this check box, the data is preserved, but the Relationship is removed from the SnapVault Manager database. To remove the relationship, click **Yes**.

ASIS deduplication of secondary snapshots

Starting with Data ONTAP 7.2.4, NetApp offers a feature called ASIS, which is a feature for deduplicating data in Secondary Snapshots. This feature can offer significant storage savings depending on the type of data being backed up. To perform ASIS deduplication of secondary snapshots, you must configure both the Secondary Filer and the Plug-in for *SnapVault Manager*. The configuration steps are outlined in the following sections:

- [Configuring the secondary filer](#)
- [Configuring the plug-in](#)

Configuring the secondary filer

To perform ASIS deduplication, the filer must have the correct version of NetApp installed. The ASIS license must be installed, and SIS must be enabled on the required volumes.

Ensuring that the correct version of Data ONTAP is installed

To determine if the correct version of NetApp Software is installed, type the following command:

```
fas3040b> version
```

The returned version of Data ONTAP should be 7.2.4 or higher. If not then the filer's software must be upgraded.

Ensuring that the ASIS license is installed

To determine if ASIS is licensed on the filer, type:

```
fas3040b> license
```

For example, the following output is from a filer that does not have ASIS license installed.

```
a_sis not licensed
cifs *****
cluster *****
cluster_remote not licensed
compression not licensed
disk_sanitization not licensed
.....
```

After obtaining the ASIS license from NetApp, type the following command to install the license:

```
license add <asis key>
```

To verify, type:

```
fas3040b> license
```

The following output is displayed when the license is correctly installed.

```
a_sis *****
cifs *****
cluster *****
cluster_remote not licensed
compression not licensed
disk_sanitization not licensed
.....
```

Ensuring that the NearStore license is installed

To perform ASIS deduplication, you must also install the **NearStore** license. To install this license, type:

```
license add <NearStore key>
```

Enabling ASIS on a volume

To perform ASIS deduplication, ASIS must be enabled on each volume where deduplication of Secondary Snapshots is required. To determine which volumes have ASIS enabled, type

```
sis status
```

Example

```
fas3040b> sis status
Path           State   Status   Progress
/vol/vol3      Enabled Idle      Idle for 304:18:59
```

To enable ASIS on a given volume, type:

```
sis on <volume_path>
```

Example

```
fas3040b> sis on /vol/vol2
SIS for "/vol/vol2" is enabled.
Already existing data could be processed by running "sis
start -s /vol/vol2".
fas3040b>
```

Configuring the plug-in

To perform ASIS deduplication of Secondary Snapshots, the Plug-in *for SnapVault Manager* must be configured to instruct the Secondary Filer to create a deduplicated snapshot. This configuration is done by setting the **Enable A-SIS Deduplication of Secondary Snapshots** check box in the **Configure** window. For more information about this option, see [Configuring default settings](#).

If the **Enable A-SIS Deduplication of Secondary Snapshots** check box is selected, deduplication of the Secondary Snapshot occurs, but only if the filer has the ASIS license installed and the target volume has ASIS enabled. Initially the filer creates an archive snapshot, ASIS deduplication of this snapshot is performed. After it is successfully completed, the archive snapshot is replaced with the deduplicated snapshot. If the target filer is not licensed for ASIS or the target volume does not have ASIS enabled, deduplication does not occur.

If the **Enable A-SIS Deduplication of Secondary Snapshots** check box is not selected, deduplication of the secondary snapshot does not occur, even if the filer has the ASIS license installed and the target volume has ASIS enabled.

Versions of the Plug-in *for SnapVault Manager* earlier than version 2.1 do not generate ASIS deduplicated snapshots even if the filer is licensed for ASIS and the target volume has ASIS enabled.

Restoring data

- [Prerequisites](#)
- [Performing a restore](#)
- [Restoring complete relationship](#)
- [Advanced restore procedures](#)

Prerequisites

When restoring to the location of the original backup or a location where a backup has been previously restored, the following command to release the relationship manually from the Primary:

```
snapvault release <primary_path> <secondary_filer>:<secondary_path>
```

Example

```
snapvault release c:\accounts r200:/vol/vol13/Acts
```

This procedure is applicable to all types of Primary because they do not allow restores to an existing qtree (or backed up directory). This prerequisite protects against overwriting of data and allows the restore/resync/restart functionality.

Performing a restore

Unlike the backup procedure, the restore procedure for the Plug-in *for SnapVault Manager* is similar to all other NetVault Backup Plug-ins. Restores are performed from the **NetVault Backup Restore** window. You can restore files, directories, or drives from the snapshots taken using the SV Primary Relationships.

- 1 In the Navigation pane, click **Create Restore Job**, and then click **Restore Snapshots**.
- 2 Open the NetVault Backup Server, and in the list of plug-ins, open **SnapVault Manager** to list all added SV Primaries.
- 3 To list all configured Relationships, open the applicable SV Primary.
- 4 To list the available snapshots, open the applicable Relationship node.
- 5 To display a snapshot's contents (for example, drives, mount points, directories, and files), open the applicable snapshot.
- 6 Browse through selections tree, and select the items that you want to restore.

i **NOTE:** Item omissions are not supported with this plug-in (for example, selecting a root item, and marking individual children for omission). If a root item is opened to display its children, selecting the root item also selects all the children. Access to the children is disallowed unless the root item is cleared.

- 7 Click **Next**.
- 8 Select or create the Schedule Set and Advanced Options Set.

For more information about these sets, see the *Quest NetVault Backup Administrator's Guide*.

- 9 To submit the job for scheduling, click **Submit**.

You can monitor the job progress from the **Job Status** page and view the logs from the **View Logs** page. For more information about these functions, see the *Quest NetVault Backup Administrator's Guide*.

Restoring complete relationship

Before restoring a complete relationship (not the individual items included within), you must restart the relationship to maintain any future Updates of the data it describes before the restore job is initiated.

- 1 In the Navigation pane, click **Create Restore Job**, and then click **Restore Snapshots**.
- 2 Open the NetVault Backup Server, and in the list of plug-ins, open **SnapVault Manager** to list all added SV Primaries.
- 3 To list all configured relationships, open the applicable SV Primary.
- 4 Open the applicable relationship node.
- 5 Select the root node, and in the **Actions** list, click **Options**.
- 6 In the **Target Restore** dialog box, configure the following options:
 - **Target Primary**: Ensure that this parameter is set to the applicable SV Primary system.
 - **Restart Relationship**: Select this check box.
- 7 Click **OK**.
- 8 Complete [Step 7](#) through [Step 9](#) in [Performing a restore](#).

i IMPORTANT:

- Upon completion of the restore, the relationship will be restarted and future updates of it occurs as originally set up.
- Only the root node of a relationship must first be selected before the **Options** command is accessed. Otherwise, the **Restart Relationship** option are not available.
- Failure to restart a Relationship successfully before initiating a Full Restore of it results in its loss and the need to completely recreate it.

Advanced restore procedures

This section describes the following procedures:

- [Renaming data during restore](#)
- [Relocating data during restore](#)
- [Restoring data to alternate SV Primary System](#)

Renaming data during restore

- 1 Complete steps 1 through 6 in the section [Performing a restore](#).
- 2 Select the item that you want to rename, and in the **Actions** list, click **Rename**.
- 3 In the **Restore Rename** dialog box, type a new name for the selected item in the **Rename** box.
- 4 To close the dialog box, click **OK**.

After you close the dialog box, the plug-in updates the corresponding node in the selections tree to display the new name for the item.

- 5 Complete [Step 7](#) through [Step 9](#) in [Performing a restore](#).

Relocating data during restore

- 1 Complete steps 1 through 6 in the section [Performing a restore](#).
- 2 Select the item that you want to rename, and in the **Actions** list, click **Rename**.
- 3 In the **Restore Rename** dialog box, type the new restore path for the item in the **Relocate** box.
Separate each directory in the path with a back slash character. The specified path must exist when you run the job; otherwise, the restore fails.
- 4 To close the dialog box, click **OK**.
After you close the dialog box, the plug-in updates the corresponding node in the selections tree to display the new name for the item.
- 5 Complete [Step 7](#) through [Step 9](#) in [Performing a restore](#).

Restoring data to alternate SV Primary System

- 1 In the Navigation pane, click **Create Restore Job**, and then click **Restore Snapshots**.
- 2 Open the NetVault Backup Server, and in the list of plug-ins, open **SnapVault Manager** to list all added SV Primaries.
- 3 To list all configured Relationships, open the applicable SV Primary.
- 4 Open the applicable relationship node.
- 5 Select the root node, and in the **Actions** list, click **Options** to open the **Target Restore** dialog box.
- 6 In the **Target Primary** list, select the target system, and click **OK**.
- 7 Open the root node, and select the items that you want to restore.
- 8 Complete [Step 7](#) through [Step 9](#) in [Performing a restore](#).

i | **NOTE:** To relocate the entire root node for a restore, its relationship must be restarted on the new target machine if future updates are to occur there. To accomplish this task, follow the steps described in [Restoring complete relationship](#), but in the Target Primary list, select the target system instead of the original system. With this configuration, also ensure that the **Restart Relationship** option is selected.

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