BakBone SOFTWARE™

NETVAULT

APM/plugin user's guide

for the

Snapshot Manager Plugin for Network Appliance

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BakBone Software

10145 Pacific Heights Boulevard, Suite 500 ◆ San Diego, California 92121 ◆ 866.484.2663

The Snapshot Manager Plugin for Network Appliance

2.0.0 Introduction

NDMP-enabled NAS filers manufactured by Network Appliance give the user the ability to generate ***snapshots*** of its volumes and then store this data in a reserved area of the filer's hard disk. A snapshot, simply put, is a point-in-time backup of a volume which consists of ***flags***. These flags mark the status of the data contained in the volume at the point in time the snapshot was taken. Since snapshots taken by the filer are stored on the filer's own hard disk, backup (a.k.a. ***snapshotting***) and restore can be both transparent and seamless and can be completed in a drastically reduced amount of time.

NetVault's **Snapshot Manager Plugin**, in conjunction with Network Appliance's Snapshot capacity, allows for administration and control of snapshotting as well as recovery of these snapshots through NetVault's GUI. NetVault also allows a user to look into a snapshot and selectively choose individual components for a restore.

SS.2.1 Terminology Used in this Guide

Throughout this section, various references to devices are made which all refer to an **NDMP-enabled Network Appliance Filer**. The devices noted include:

- **NDMP-enabled NAS Filer**
- **NetApp Filer** (or simply, **Filer**)
- **NDMP Server** (the generic NetVault term, describing this type of device).

SS.2.2 Target Audience

System Administrator as well as NDMP experience is recommended when using the **Snapshot Manager Plugin**. Although it is not necessary to have a great level of experience administer the snapshots associated with this plugin, the restore procedure may require a system administrator's level of expertise.

SS.3.0 Installing the Snapshot Manager Plugin

The **Snapshot Manager Plugin** needs to be installed on the NetVault server. It is installed and removed from the NetVault Client Management window. To install this plugin, follow the procedure explained below.

SS.3.1 Pre-Installation Requirements

Before installing the **Snapshot Manager Plugin**, make sure that following items have been completed.

- NetVault Server software installed (This plugin ***cannot*** run under a Client installation of the software).
- Network Appliance's **Snapshot** software installed and properly configured on each NDMP Server (filer) being used in conjunction with the plugin.

SS.3.2 Installation Procedure

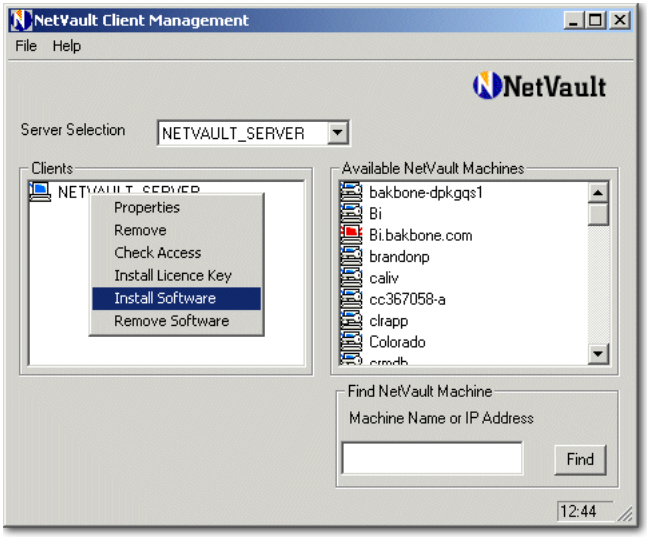


Figure SS-1: *The Client Management window of the NetVault GUI*

1. Open the NetVault Client Management window by clicking the **Client Management** button on the NetVault GUI (or select **Client Management** from the **Administration** pull-down menu).
2. Right-click on the NetVault server in the **Clients** list.
3. Choose **Install Software** from the pop-up menu.
4. Navigate to the location of the ".npk" installation file (e.g. the NetVault APM/Plugin Installation CD or the directory the file was downloaded to). Open the directory for the appropriate Operating System and locate the directory entitled **NDMP**. Open this folder and choose the and locate the snap directory. From this directory, select the **nssxxxx.npk** plugin file.

Important: Based on the operating system being used, the directory path for this software may vary, but the file required for installation of this plugin should be entitled "**nssxxxx.npk**" (where "xxxx" represents various software platforms and version numbers).

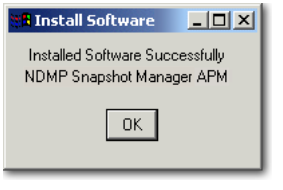


Figure SS-2: *The confirmation dialog box denoting a successful installation of the plugin*

5. Click **Open** and the installation process will begin.
6. When the installation has completed, a successful installation message will appear in the **Install Software** dialog box.
7. Close NetVault (and any other open applications) and reboot the machine.

SS.3.3 Removing the Snapshot Manager Plugin

1. Access the **Client Management** window as described in the installation procedure above.
2. Right-click on the NetVault server in the **Clients** list to reveal the pop-up menu and select **Remove Software**.

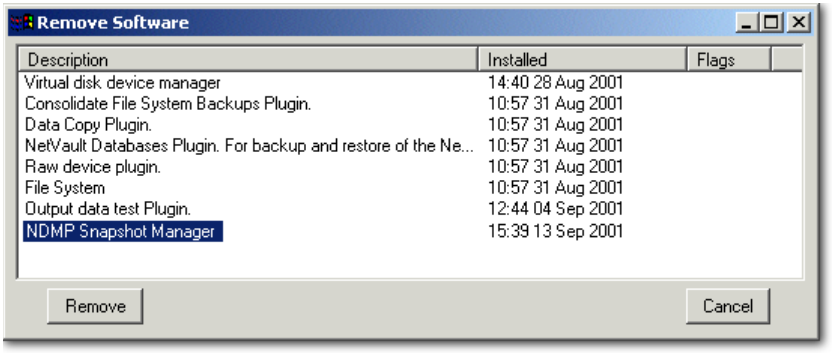


Figure SS-3: *The Remove Software window with the NDMP SnapShot Manager Plugin selected for removal*

3. Select the **Snapshot Manager Plugin** item from the displayed list and click the **Remove** button.
4. A dialog box will appear asking for confirmation of the remove command. Click on **OK** to proceed (or **Cancel** to abort). Clicking **OK** results in the removal of the software and a confirmation message will appear. Click **OK** to close this dialog box and return to the **Client Management** window.

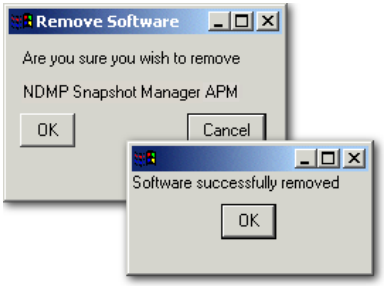


Figure SS-4: *The two dialog boxes issued during the removal process for this plugin*

SS.4.0 Configuration

SS.4.1 Pre-Requisite: Determining the Backup Model in Place

The configuration steps required for use of the **Snapshot Manager Plugin** depend entirely on the NetApp Filer/Backup Device model in place. There are basically two different forms of model (each with multiple variations).

- **Backup Model 1: The NetVault Server/Client Attached Device** - In this type of environment backups and restores of **Snapshot Manager Plugin** data will be routed to a backup device that is locally attached to the NetVault Server or one of its added Clients (i.e., a NetVault SmartClient). While traditionally slower (due to data needing to be transferred across the

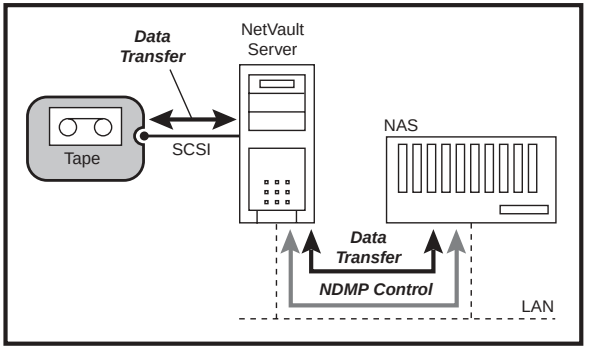


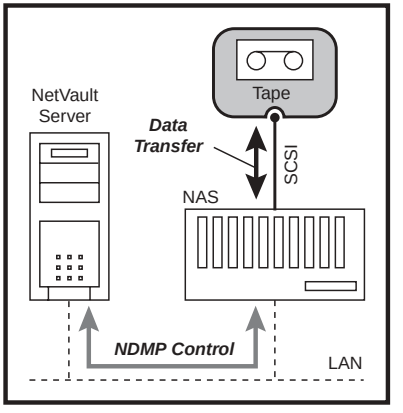
Figure SS-5: *An example of an environment incorporating a tape device that is locally attached to the NetVault Server*

network), this configuration allows for the easiest overall setup and makes it possible to take advantage of a backup device that already exists in the NetVault domain.

Important: If this is the environment in place, please consult the section *Configuration Process for Backup Model 1* on page 8, for the proper configuration instructions.

Figure SS-6: *An example of an environment incorporating a tape device that is locally attached to the NetApp Filer*

- **Backup Model 2: Using a NetApp Filer Attached Device** - In this environment, backups and restores of **Snapshot Manager Plugin** data will be directed to a standalone drive or library that is directly attached to the NetApp Filer. This environment allows for the quickest form of transfer, as data is sent directly form the NetApp Filer to a locally attached device. However, it requires that a backup device be directly connected to the filer (i.e., the device must be properly configured and added to the NetVault Server for access).



Important: If this is the environment in place, please consult the section *Configuration Process for Backup Model 2* on page 10, for the proper configuration instructions.

SS.4.2 Configuration Process for Backup Model 1

Review the steps covered in the sections that follow for instructions on configuring the **Snapshot Manager Plugin** for use in this type of NetApp Filer/Backup Device environment:

Important: This configuration process can only be used in environments utilizing some form of *Backup Model 1: The NetVault Server/Client Attached Device* (i.e., the target backup device is locally attached to either the NetVault Server or one of its added Clients). Prior to beginning any configuration of this plugin. please fully review the section, *Pre-Requisite: Determining the Backup Model in Place* on page 7 to determine the environment in place.

SS.4.2.a Phase 1: Pre-Requisite - Licensing

The following licensing information must be obtained and applied prior to configuring the plugin.

- **License for NetVault's Snapshot Manager Plugin** - It is necessary to obtain a license for the use of the plugin. For complete details on obtaining this license, contact BakBone technical support.

- **SnapRestore License** - Available from Network Appliance, a separate license must be installed on each filer to be used, in order to restore snapshots generated with the Network Appliance Snapshot utility and this plugin.

Important: It is possible to gain Network Appliance-specific license information by launching a TelNet session into the desired filer and issuing the following command:
license

SS.4.2.b Phase 2: Ensure a Suitable Backup Device is Available

Using the procedures outlined in *Chapter 7: The Device Management Window* of the *NetVault Administrator's Guide*, ensure that a standalone drive/library is properly added (i.e., as either a locally attached device on the NetVault Server or as a NetVault SmartClient). If a device already exists in either of these capacities, it can be used for this purpose.

SS.4.2.c Phase 3: Adding the Filer to the Snapshot Manager Plugin

To add the filer as an NDMP Server to the **Snapshot Manager Plugin**, follow the instructions detailed below.

1. Launch NetVault and select the **Backup** button from the main GUI window (or select **Backup** from the **Operations** pull-down menu).
2. Open the NetVault Server containing the installation of the **Snapshot Manager Plugin**.
3. It is next necessary to access the **NDMP Server** window. Perform any of the following to do so
   - Right-click on the **NDMP Snapshot Manager** plugin node and select **Add Server** from the pop-up menu.
   - Double-click on the **NDMP Snapshot Manager** plugin node.
   - Right-click on the **NDMP Snapshot Manager** plugin node and select **Open** from the pop-up menu.

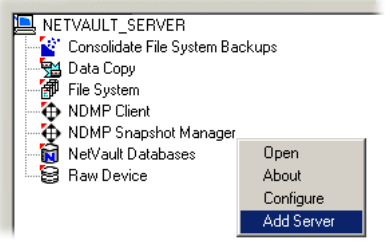
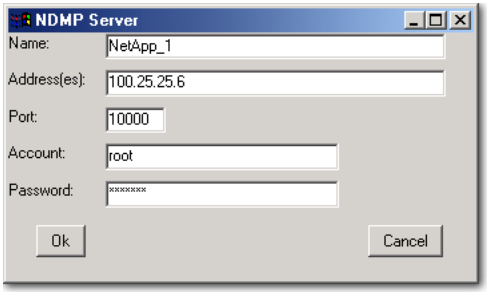


Figure SS-7: *Right-clicking on the plugin and selecting the Add Server command from the pop-up menu is one way to access the NDMP Server window*

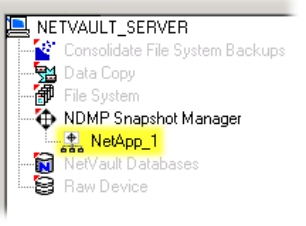
Important: The latter two options displayed here will only access the **NDMP Server** dialog box the ***first time*** this plugin is accessed. Once an initial NetApp Filer has been successfully configured as an NDMP Server, either of these methods will simply open the **Snapshot Manager Plugin**. For details on gaining access to the NDMP Server dialog box after this has occurred, see the section *Editing the NDMP Server* on page 13.

Figure SS-8: The NDMP Server dialog box



4. With the **NDMP Server** window active, input the required values as explained in the points below.
   - **Name -** The name of the NDMP-enabled NAS filer. This name will be how the **Snapshot Manager Plugin** will recognize the filer in the future and it can be anything desired. However, it is recommended that a relevant name be used to allow for easy identification of the filer (i.e., in the event that multiple filers are to be added to the plugin for access).
   - **Address(es) -** One or more IP addresses assigned to the filer, each separated by a comma. This address is used by the plugin to access the filer.
   - **Port -** The port number assigned to the NetApp Filer that will serve as the NDMP Server. Generally this field can be left at its default, unless the NetApp Filer exists behind a firewall an has been assigned a specific port number for access. In this case, input this assigned number.
   - **Account -** The account name for a user that exists on the NetApp Filer with sufficient rights to perform backups and restores of the device.
   - **Password -** Password for the **Account** named in the point above (should be no more than 8 characters).

Figure SS-9: The NDMP Server successfully added



5. Once the data has been properly input, click the **OK** button. The NetApp Filer should be successfully added to the plugin as an NDMP Server.

SS.4.2.d Model 1 Synopsis

With all of the previous configuration steps complete, it is now possible to conduct backups and restores of the filer with the **Snapshot Manager Plugin**. Backup operations will then target the backup device that is directly connected to the NetVault Server/Client.

SS.4.3 Configuration Process for Backup Model 2

Review the steps covered in the sections that follow for instructions on configuring the **Snapshot Manager Plugin** for use in this type of NetApp Filer/Backup Device environment:

Important: This configuration process ***must be*** used in environments utilizing some form of *Backup Model 2: Using a NetApp Filer Attached Device* (i.e., the target backup device is locally attached to the target NetApp Filer). Prior to beginning any configuration of this plugin. please fully review the section, *Pre-Requisite: Determining the Backup Model in Place* on page 7 to determine the environment in place.

SS.4.3.a Phase 1: Pre-Requisite - Licensing

The following licensing information must be obtained and applied prior to configuring the plugin.

- **License for NetVault's Snapshot Manager Plugin** - It is necessary to obtain a license for the use of the plugin. For complete details on obtaining this license, contact BakBone technical support.
- **SnapRestore License** - Available from Network Appliance, a separate license must be installed on each filer to be used, in order to restore snapshots generated with the Network Appliance Snapshot utility and this plugin.

Important: It is possible to gain Network Appliance-specific license information by launching a TelNet session into the desired filer and issuing the following command:

license

SS.4.3.b Phase 2: Configuration with the NDMP Plugin

In an environment in which the target backup device is directly connected to a NetApp Filer, the NetApp Filer must be added as an NDMP Server to the **NDMP Plugin *first*** (i.e., before adding it to the **Snapshot Manager Plugin**). In addition, the backup device must be properly added to the NetVault Server. Please consult *Chapter 5: The NDMP Plugin and Network Appliance* of the *NDMP Plugin User's Guide* for complete instructions on the following:

- **Adding the Target NetApp Filer as an NDMP Server to the NDMP Plugin**
- **Adding a Backup Device for Use**

Important:

1. In this environment, the NetApp Filer ***must be*** added to the **NDMP Plugin *first***, and it's locally attached backup device must be successfully added to the NetVault Server ***before*** proceeding on to the next phase of this configuration.
2. The *NDMP Plugin User's Guide* can be obtained from BakBone Software's web site, by clicking on the **"NDMP Plugin Module"** link at the following URL:

http://www.bakbone.com/support/product_documentation/

SS.4.3.c Phase 3: Adding the Filer to the Snapshot Manager Plugin

With the filer properly added first to the **NDMP Plugin** and the backup device successfully added for use, it is next necessary to add the filer as an NDMP Server to the **Snapshot Manager Plugin**.

1. Launch NetVault and select the **Backup** button from the main GUI window (or select **Backup** from the **Operations** pull-down menu).
2. Open the NetVault Server containing the installation of the **Snapshot Manager Plugin**.
3. It is next necessary to access the **NDMP Server** window. Perform any of the following operations to do so:
   - Right-click on the **NDMP Snapshot Manager** plugin node and select **Add Server** from the pop-up menu.
   - Double-click on the **NDMP Snapshot Manager** plugin node.
   - Right-click on the **NDMP Snapshot Manager** plugin node and select **Open** from the pop-up menu.

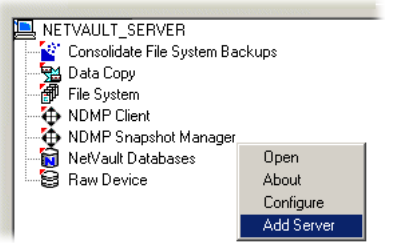


Figure SS-10: *Right-clicking on the plugin and selecting the Add Server command from the pop-up menu is one way to access the NDMP Server window*

Important: The latter two options displayed here will only access the **NDMP Server** dialog box the ***first time*** this plugin is accessed. Once an initial NetApp Filer has been successfully configured as an NDMP Server, either of these methods will simply open the **Snapshot Manager Plugin**. For details on gaining access to the NDMP Server dialog box after this has occurred, see the section *Editing the NDMP Server* on page 13.

4. With the **NDMP Server** window active, input the required values as explained in the points below.
   - **Name -** The name to be assigned to the NetApp Filer. This name will be how the **Snapshot Manager Plugin** will recognize the device in the future and it can be anything desired. However, it is recommended that a relevant name be used to allow for easy identification of the filer (i.e., in the event that multiple filers are to be added to the plugin for access).
   - **Address(es) -** One or more IP addresses assigned to the filer, each separated by a comma. This address is used by the plugin to access the filer.

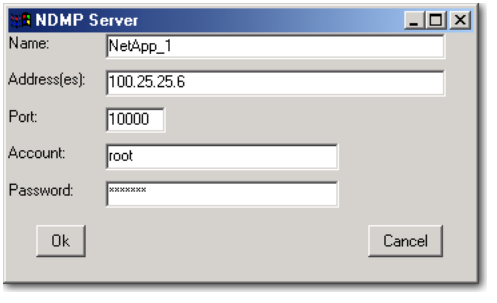
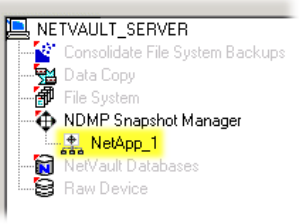


Figure SS-11: *The NDMP Server dialog box*

- **Port -** The port number assigned to the NetApp Filer that will serve as the NDMP Server. Generally this field can be left at its default, unless the NetApp Filer exists behind a firewall an has been assigned a specific port number for access. In this case, input this assigned number.
- **Account -** The account name for a user that exists on the NetApp Filer with sufficient rights to perform backups and restores of the device.
- **Password -** Password for the **Account** named in the point above (should be no more than 8 characters).

Figure SS-12: The NDMP Server successfully added



5. Once the data has been properly input, click the **OK** button. The NetApp Filer should be successfully added to the plugin as an NDMP Server.

SS.4.3.d Model 2 Synopsis

With all of the previous configuration steps complete, it is now possible to conduct backups and restores of the filer with the **Snapshot Manager Plugin**. Backup operations will then target the backup device that is directly connected to the target NetApp Filer.

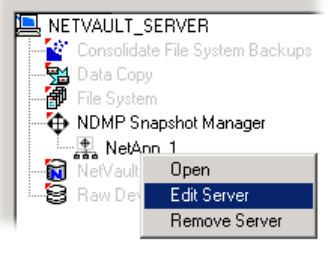
SS.4.4 Other Configuration Operations

Other, optional configuration procedures are illustrated in the following sections.

SS.4.4.a Editing the NDMP Server

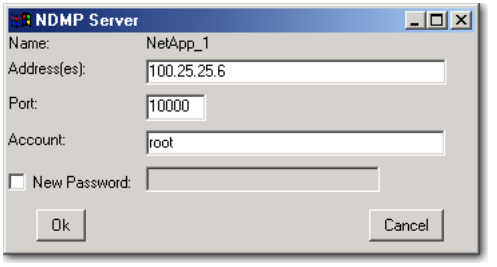
In the event that details regarding the configuration of a previously added NDMP Server have changed, it is possible to edit the originally input values. To accomplish this, follow the steps detailed below.

Figure SS-13: Right-click on the NDMP Server and select Edit Server from the pop-up menu



1. Launch NetVault and access the **Backup** window.
2. In the list of available Clients, locate and open the NetVault Server with the desired installation of the **Snapshot Manager Plugin**.
3. Double-click on the plugin in order to open it.
4. Right-click on the NDMP Server to be changed and select the **Edit Server** command from the pop-up menu.

Figure SS-14: The NDMP Server dialog box



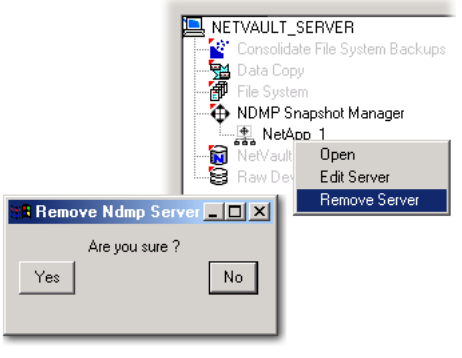
5. The **NDMP Server** window will appear. Edit the values contained within as necessary.
   - **Name -** This is not an editable field. The name value input during the initial configuration procedure will be displayed here.
   - **Address(es) -** One or more IP addresses used by NetVault to gain access to the target NetApp filer. Any previously input value(s) will appear by default in this field. Input a new or additional value as required.
   - **Port -** The port value in use by the filer. By default the value input during original configuration will appear here (i.e., or a value input as a result of a previous “Edit NDMP Server” operation).
   - **Account -** The account name that will allow access to the filer. The value that will appear here by default is the Account input during original configuration of this NDMP Server (i.e., or a value input as a result of a previous “Edit NDMP Server” operation).
   - **New Password -** The value for the password has been associated with the previously input account name, so this field is greyed out. If a new password is required (i.e., the Account information has changed or the Password associated with the previous Account has changed) click the checkbox in order to activate the field and input the new relevant value.

Important: This password must be valid in regards to the account name given. This should be no more than eight (8) characters.

SS.4.4.b Removing the NDMP Server

To remove an added NDMP Server, follow the procedure detailed below

Figure SS-15: Right-click on the NDMP Server to be changed and select Remove Server



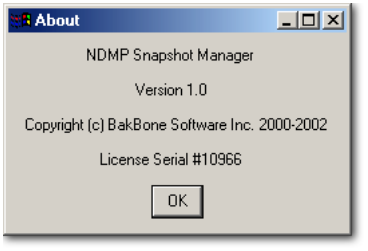
1. Launch NetVault and select the **Backup** button from the main GUI window
   (or select **Backup** from the **Operations** pull-down menu).
2. Open the NetVault Server containing the **Snapshot Manager Plugin**.
3. Double-click on the plugin in order to open it.

4. Right-click on the NDMP Server to be changed and select **Remove Server** from the pop-up menu (as shown in the figure at right).
5. When prompted with the dialog box asking **"Are You Sure?"** select **Yes** to confirm (or **Cancel** to abort).

SS.4.4.c The About Dialog Box

This dialog box can be accessed in order to give various details regarding the installation of the **Snapshot Manager Plugin**. To access this box, perform the following steps.

Figure SS-16: The About dialog box



1. With NetVault running and the **Backup** window active, open the machine containing the **Snapshot Manager Plugin** by double-clicking on it (or right-clicking on it and selecting **Open** from the pop-up menu).
2. Right-click on the plugin and select **About** from the pop-up menu. The About dialog box will be displayed.

SS.5.0 Snapshot Management

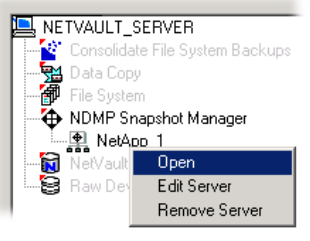
With the plugin properly configured, it is now possible to manage the generation of snapshots of a desired volume. NetVault's **Snapshot Manager Plugin** allows for two different forms of Snapshot Management, to include:

- **Auto Schedule**
- **Reserve**

Both of these forms of Snapshot Management are explained in detail in the sub-sections that follow.

SS.5.1 Auto-Schedule

Figure SS-17: Right-click on the desired NDMP Server and select Open from the pop-up menu



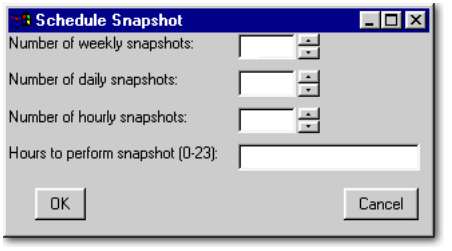
1. Launch NetVault and click on the **Backup** button in the main GUI window (or select **Backup** from the **Operations** pull-down menu).
2. Open the NetVault Server containing the **Snapshot Manager Plugin** in order to access the NDMP Servers previously configured.
3. Right-click on the desired NDMP Server and select **Open** from the pop-up menu, or double-click on the plugin in order to open it.
4. The NDMP Server will be opened to show the root volume of the selected server. Open this volume by double-clicking on it (or by right-clicking on it and selecting **Open** from the pop-up menu).

5. The volumes contained within will be displayed allowing for selection and addition to a snapshot. Select the desired item by clicking in the box to the left of the item (selected items will be marked with a green check).

Important: Only Snapshots of an entire volume can be taken. There are no directory/file level Snapshot facilities.

Figure SS-18: *The Schedule Snapshot dialog box*

6. With the desired item(s) selected, right-click on the root volume and select the **Auto-Schedule command** from the pop-up menu. The **Schedule Snapshot** window will be displayed. This window is comprised of the following fields that need to be set accordingly:



Important:

1. Since these values can be set locally on the NetApp Filer by an administrator, initially they will be read from the filer and displayed accordingly.
2. A zero (0) value placed in any of these fields will result in no Snapshot of that type being performed.

- **Number of Weekly Snapshots -** Weekly Snapshots are taken each Sunday at 12:00 midnight. This field indicates how many snapshots are to be taken each week at this time, before replacing (over-writing) the first one.
- **Number of Daily Snapshots -** Daily Snapshots are taken each night at 12:00 midnight. This field indicates, how many snapshots are to be taken each night at this time, before replacing (over-writing) the first one.
- **Number of Hourly Snapshots -** This field indicates, based on the values input in the Hours to perform snapshots (0-23) field, how many snapshots are to be taken before replacing (over-writing) the first one.
- **Hours to Perform Snapshot (0-23)** - This value represent the periodic time at which a snapshot will be taken. Only single digit values need to be input (i.e. 7 would be entered for 7:00 am) and 24-hour clock values apply (i.e. 17 would be input for 5:00 pm). Each value input must be separated by a comma (,) and values should be input in ascending order (e.g. 8, 10, 18, 20)
- There are no options available in the **Backup Options** tab or use with the **Snapshot Manager Plugin**.

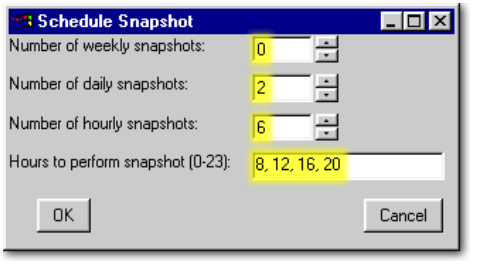
With the data input as desired, the operation is complete and the Snapshots will occur as scheduled.

Important:

1. All other options on these tabs are invalid. If any of these items are selected, it may result in the job failing or they will be ignored.
2. For complete details on the functionality of these tabs, please see the *NetVault Administrator's Guide*.

SS.5.1.a Example of Auto-Scheduling Settings

Figure SS-19: *Example values input in the Schedule Snapshot window*



For this example, the following values were input in the fields of the **Schedule Snapshot** window:

- **Number of weekly snapshots = 0**
- **Number of daily snapshots = 2**
- **Number of hourly snapshots = 6**
- **Hours to perform snapshots (0-23): = 8, 12, 16, 20**

As an end result the following would occur:

- **Hourly Snapshots** - The first snapshot will be taken at 8:00 am followed by one at 12:00 pm, a third at 4:00 pm and the fourth at 8:00 pm. Subsequently, the fifth snapshot will be taken at 8:00 am the following day followed by the sixth and final snapshot at 12:00 pm. The cycle will now restart with Snapshot #1, but the time sequence input in the **Hours to perform snapshot (0-23)** field will be maintained. Therefore, NetVault will prompt the filer to generate six snapshots starting with first at 4:00 pm. Being the first of the series of six, this one will now ***overwrite*** the original snapshot taken the first day at 8:00 am. The second snapshot, will be taken at 8:00 pm and will replace the initial second snapshot taken at 12:00 pm, and so on. This sequencing works the same in regards to.
- **Daily Snapshots** - This Snapshot will be taken at 12:00 midnight and is separate from the ones taken hourly (Unless "0" (Midnight) is set in the **Hours to perform snapshots** field. In this case, this Snapshot would take its place). A second Daily Snapshot will then be taken the following night at this same time. On the third night, the next Snapshot will be taken at midnight, but this one will overwrite the one taken the first night. This process will continue to occur each night, with the new Snapshot overwriting the oldest.

Important: ***Weekly Snapshot*** - Snapshots set in this field would be taken weekly at 12:00 Midnight and are separate from other Snapshots (except a Daily Snapshot on a Sunday night - this Snapshot would take its place). Although, set to zero (0), no Snapshots will be taken weekly.

SS.5.2 Reserve

1. Follow steps 1-5 as detailed in the the section *Auto-Schedule* on page 15.
2. With a volume selected, right-click on it and select **Reserve** from the pop-up menu. The **Reserve** dialog box will be displayed. The following fields will be displayed:

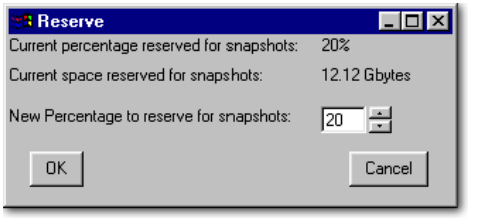


Figure SS-20: *The Reserve dialog box*

- **Current percentage reserved for snapshots** This value will show the current percentage set in regards to the amount of disk space reserved for snapshots. The default value is 20%.
- **Current space reserved for snapshots** - This value represents the physical amount of space reserved for snapshots in relation to the percentage setting. For example, if 20% of a 10 Gbyte drive is set, then this value would read 2.0 Gbytes.
- **New Percentage to reserve for snapshots** - This field allows for modification of the amount of space reserved on the filer's hard disk for snapshots, in percentage. Once a new figure is input and the **OK** button selected, re-opening this dialog box would reflect the change in value in the previous two fields.

Important: As these values can be set locally on the filer by an administrator, initially, they will be read from the filer and displayed accordingly.

3. **Backup Options Tab** - There are no **Backup Options** for use with this plugin.
4. Due to the nature of this operation, various settings on the other tabs of the NetVault Backup window are invalid. Of the other available tabs, the following function with this plugin (please see the *NetVault Administrator's Guide* for complete details on the functionality of these tabs).
   - **Schedule Tab** - All options
   - **Target Tab** - No functionality in this tab is supported.
   - **Advanced Options Tab** - The **Pre** and **Post Script** options, ***only***.

Important: All other options on these tabs are invalid. If any of these items are selected, it may result in the job failing or they will be ignored.

5. With the data input as desired, the operation is complete and the Snapshots will occur as scheduled.

SS.6.0 Recovering Data from a Snapshot

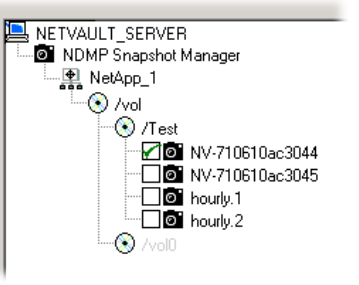


Figure SS-21: *The data backed up with the snapshot taken previously of the Volume "NV-710610ac 3044" is selected for a restore*

The restore process for a Snapshot is relatively seamless and only takes a matter of minutes due to the fact that it is being read locally from the filer's hard disk. In order to recover data from a Snapshot using this plugin, follow the procedure detailed below.

1. Launch NetVault and select the **Restore** button from the main GUI window (or select **Restore** from the **Operations** pull-down menu).
2. From the **Selections** tab, open the NetVault Server containing the **Snapshot Manager Plugin** by double-clicking on it.
3. Double-click on the plugin to open it and view the backup savesets contained within. Open the desired saveset by double-clicking on it.
4. To restore a complete Snapshot, select it by clicking in the box to the left of it. Selected items will contain a large green check (as shown in the example above).

Important:

1. Each time the filer is accessed by NetVault, the **Snapshot Manager Plugin** will first sync with it to ensure that all Snapshots performed and removed outside of NetVault are recognized. Therefore, all Snapshots present on that filer will be displayed in the Restore Selections window, (including those performed outside of NetVault).
2. Snapshots generated with NetVault will be labelled "NV-xxxx", where "xxxx" represents increments in each Snapshot generated.
3. Only one Snapshot can be restored at a time. Restoring the Snapshot will overwrite all data on the selected volume of the filer.

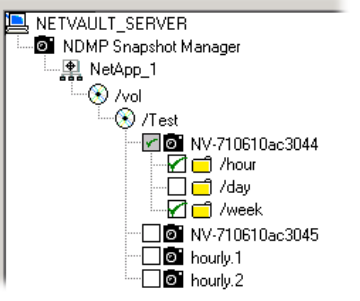


Figure SS-22: *Snapshot items can be right-clicked to access a pop-up menu*

5. Each Snapshot item can also be right-clicked in order to access a pop-up menu including the following functions:
   - **Open** - This allows the user to open the Snapshot itself and browse its contents. As well, individual items contained within can be selected for a restore (rather than selecting the entire Snapshot). It is also possible to open the Snapshot by double-clicking on it.

Important: Only simple selections are supported in regards to individual items contained within a Snapshot. Omissions (selecting the entire Snapshot and then individually marking items contained within -- with a red "X" -- to be left out of the restore) ***are not*** supported. Omitting items in this fashion will result in the restore failing.

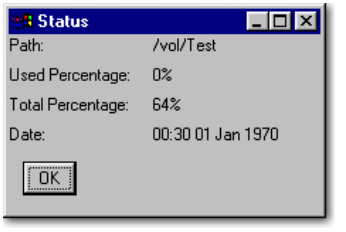


Figure SS-23: *The Status window*

- **Status** - Selecting this item will launch the Status window which displays various data pertaining to the Snapshot selected.
- **Delete** - This item will invoke Network Appliance's **Snap Delete** command on the filer containing the Snapshot. Issuing this command will delete the Snapshot from NetVault, the filer itself as well as the NetVault Database.
- **Media and Search** - These selections are not functional with this plugin. As they are global NetVault commands, they exist in the menu. Selecting either of these items will result in a failure message.

6. There are no **Restore Options** available for use with this plugin.
7. Due to the nature of this operation, various settings on the other tabs of the NetVault **Restore** window are invalid. Of the other available tabs, the following functions are available:
   - **Schedule Tab** - All options
   - **Target Client Tab** - No functionality in this tab is supported.
   - **Advanced Options Tab** - The **Pre** and **Post Script** options, ***only***.

Important:

1. All other options on these tabs are invalid. If any of these items are selected, it may result in the job failing or they will be ignored.
2. For complete details on the functionality of these tabs, please see *Chapter 5: The Restore Window* of the *NetVault Administrator's Guide*.

8. Input a suitable name for the job in the **Job Title** field. It is recommended that a detailed name be used to allow for easy identification of the job in the various windows of the NetVault GUI (e.g., the **Job Management** window, the **Job Status** window, etc.).
9. Submit the restore job by clicking the **Submit** button.
10. Restore job progress and log entries can be monitored as desired (i.e., via the **Job Management**, **Status** and **NetVault Logs** windows). Please see the *NetVault Administrator's Guide* for details on accessing these windows and their use.