



**BakBone**<sup>™</sup>  
S O F T W A R E

# NETVAULT

---

APM/plugin user's guide

---

*for the*  
SnapMirror to  
Tape Plugin for  
Network Appliance

# Copyrights

*APM/Plugin User's Guide for the SnapMirror To Tape Plugin for Network Appliance*

Software Copyright © 2005 BakBone Software

Documentation Copyright © 2005 BakBone Software

This software product is copyrighted and all rights are reserved. The distribution and sale of this product are intended for the use of the original purchaser only per the terms of the License Agreement. All other product trademarks are the property of their respective owners.

The *APM/Plugin User's Guide for the SnapMirror To Tape Plugin for Network Appliance* documentation is copyrighted and all rights are reserved.

This document may not, in whole or part, be copied, photocopied, reproduced, translated, reduced or transferred to any electronic medium or machine-readable form without prior consent in writing from BakBone Software.

THIS PUBLICATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS PUBLICATION COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED INTO NEW EDITIONS OF THE PUBLICATION. BAKBONE SOFTWARE MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) AND/OR THE PROGRAM(S) DESCRIBED IN THIS PUBLICATION AT ANY TIME.

BakBone Software

## The SnapMirror to Tape Plugin for Network Appliance

SM.0.0 - Introduction.....	5
• <b>SM.0.1 - Terminology Used in this Chapter</b> .....	5
• <b>SM.0.2 - Target Audience</b> .....	5
SM.1.0 - Installing the NDMP SnapMirror to Tape Plugin.....	5
• <b>SM.1.1 - Pre-Installation Requirements</b> .....	5
• <b>SM.1.2 - Installation Procedure</b> .....	6
• <b>SM.1.3 - Removing the NDMP SnapMirror to Tape Plugin</b> .....	7
SM.2.0 - Configuration.....	8
• <b>SM.2.1 - Pre-Requirement: Determining the Backup Model in Place</b> .....	8
• <b>SM.2.2 - Configuration Process for Backup Model 1</b> .....	9
- <i>SM.2.2.a - Phase 1: Pre-Requisites</i> .....	9
- <i>SM.2.2.b - Phase 2: Ensure a Suitable Backup Device is Available</i> .....	10
- <i>SM.2.2.c - Phase 3: Adding the Filer to the SnapMirror to Tape Plugin</i> .....	10
- <i>SM.2.2.d - Model 1 Synopsis</i> .....	11
• <b>SM.2.3 - Configuration Process for Backup Model 2</b> .....	11
- <i>SM.2.3.a - Phase 1: Pre-Requisites</i> .....	12
- <i>SM.2.3.b - Phase 2: Configuration with the NDMP Plugin</i> .....	13
- <i>SM.2.3.c - Phase 3: Adding the Filer to the SnapMirror to Tape Plugin</i> .....	13
- <i>SM.2.3.d - Model 2 Synopsis</i> .....	14
• <b>SM.2.4 - Other Configuration Operations</b> .....	15
- <i>SM.2.4.a - Editing the NDMP Server</i> .....	15
- <i>SM.2.4.b - Removing the NDMP Server</i> .....	16
- <i>SM.2.4.c - The About Dialog Box</i> .....	16
SM.3.0 - Generating a Snapshot.....	17
SM.4.0 - Recovering Data from a Snapshot.....	18
• <b>SM.4.1 - Preparing the NDMP Server for a Recovery</b> .....	18
• <b>SM.4.2 - Recovery Procedure</b> .....	19
• <b>SM.4.3 - The SnapMirroring State</b> .....	20
• <b>SM.4.4 - Renaming/Relocating a Restore</b> .....	20
- <i>SM.4.4.a - Renaming Data to be Restored</i> .....	20



## The SnapMirror to Tape Plugin for Network Appliance

- <i>SM.4.4.b - Relocating Data to be Restored</i> .....	21
- <i>SM.4.4.c - Renaming and Relocating a Restore</i> .....	23
SM.5.0 - Mirroring Process.....	23

## SM.0.0 Introduction

---

Working in conjunction with Network Appliance's SnapMirror to Tape software, NetVault's **SnapMirror to Tape Plugin** allows for, via NDMP, a quick point-in-time snapshot to be taken of a volume on a filer which is placed on a piece of media (e.g. a tape in a tape drive). Through the use of NetWork Appliance utilities, it is then possible to "mirror" this snapshot to a second filer.

A snapshot contains flags that mark the status of the data contained in the volume at the point in time the snapshot was taken. Therefore, the snapshot can be used to recover data to that point in time. This process allows for quick, relatively seamless disaster recovery.

### SM.0.1 Terminology Used in this Chapter

Throughout this guide, references may be made to various devices. It should be known that all of these terms refer to a Network Appliance NAS Device. They include:

- **NDMP Filer**
- **NAS Filer**
- **NetApp Filer**
- **NDMP Device**
- **NAS Device**
- **NDMP Server**

This guide also uses the term:

- **NetApp** - Shortened industry term used to describe a Network Appliance brand product.

### SM.0.2 Target Audience

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

## SM.1.0 Installing the NDMP SnapMirror to Tape Plugin

---

The **NDMP SnapMirror to Tape APM** 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.

### SM.1.1 Pre-Installation Requirements

Before installing the **NDMP SnapMirror to Tape APM**, make sure that following items have been completed.

- NetVault Server/Client software is installed.
- NetVault's **NDMP Plugin** is installed and licensed.
- If the device that the snapshot is being transferred to, is not directly attached to the filer itself (i.e. a tape drive that is attached to a client system is to be used), an Operating System that supports block size transfers of 240K is required on that system.

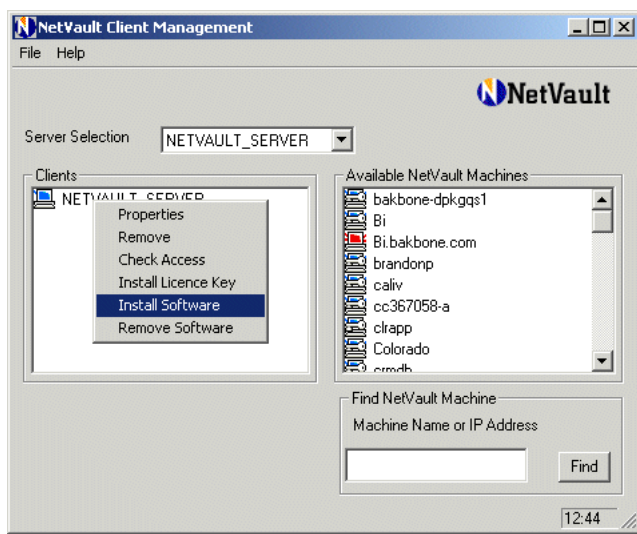
**Important:** Network Appliance's SnapMirror to Tape functionality uses an enforced block size of 240K. This block size is too large for some operating systems to handle. For complete details on block size capacity, please see the relevant operating system documentation.

- Network Appliance's **SnapMirror** software installed and properly configured on each NDMP Server (filer) being used in conjunction with the plugin.

## SM.1.2 Installation Procedure

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

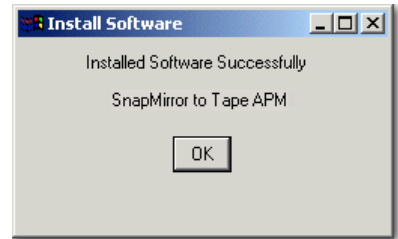
1. Open the NetVault Client Management window by clicking the **Client Management** button on the NetVault GUI (or select **Client Management** from the **Administration** pull-down menu).
2. Right-click on the NetVault server in the **Clients** list.
3. Choose **Install Software** from the pop-up menu (as shown in the figure above).
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 **smtxxxx.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 "**smtxxxx.npk**" (where "xxx" represents various software platforms and version numbers).

**Figure SM-2:**  
The Confirmation dialog box that appears after a successful installation on a Windows-based machine

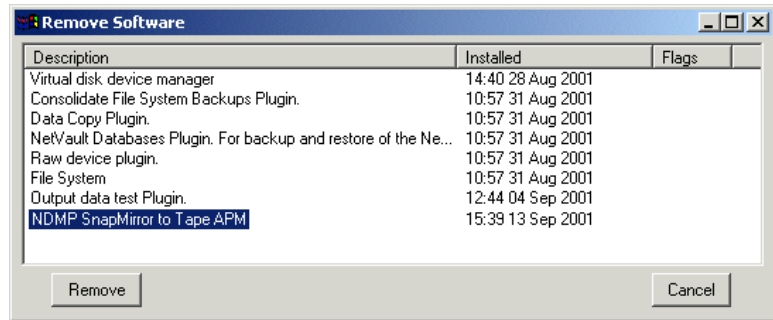
- Click **Open** and the software installation process will begin.
- When the installation has completed, a successful installation message will appear in the **Install Software** dialog box, shown at right:
- Close NetVault (and any other open applications) and reboot the machine.



### SM.1.3 Removing the NDMP SnapMirror to Tape Plugin

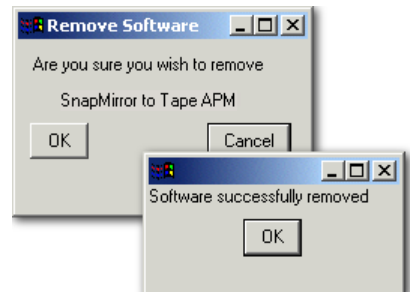
- Access the Client Management window as described in the installation procedure above.
- Right-click on the NetVault server in the **Clients** list to reveal the pop-up menu and select **Remove Software**.

**Figure SM-3:**  
The Remove Software window with the NDMP SnapMirror to Tape Plugin selected for removal



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

- Select the **SnapMirror to Tape Plugin** item from the displayed list and click the **Remove** button.
- 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.



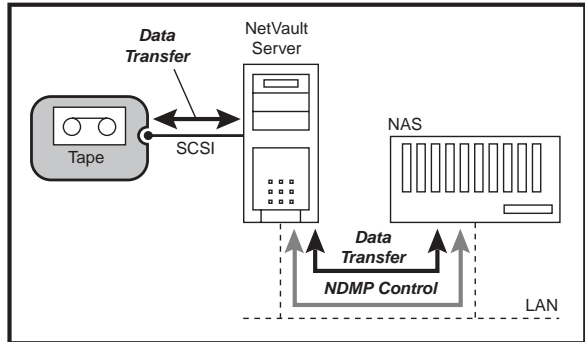
## SM.2.0 Configuration

### SM.2.1 Pre-Requisite: Determining the Backup Model in Place

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

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

- Backup Model 1: The NetVault Server/Client Attached Device** - In this type of environment backups and restores of **SnapMirror to Tape 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).

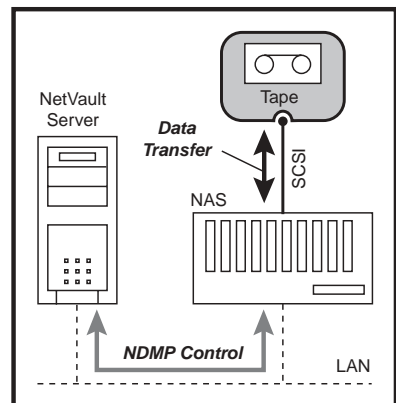


While traditionally slower (due to data needing to be transferred across the network), this configuration allows for the easiest overall setup and makes it possible to take advantage of a backup device that already exists in the NetVault domain.

**Important:** If this is the environment in place, please consult the section *Configuration Process for Backup Model 1* on page 9, for the proper configuration instructions.

**Figure SM-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 **SnapMirror to Tape 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 from 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 11, for the proper configuration instructions.



## SM.2.2 Configuration Process for Backup Model 1

Review the steps covered in the sections that follow for instructions on configuring the **SnapMirror to Tape 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 8 to determine the environment in place.

### SM.2.2.a Phase 1: Pre-Requisites

The following pre-requisites must take place before configuration can begin, regardless of the environment in place.

#### ***Step 1: Licensing***

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

- **License for the NetVault SnapMirror to Tape Plugin** - A license is required for the plugin itself and is to be installed locally on the machine containing the **NDMP SnapMirror to Tape APM**. To obtain this license, contact BakBone Technical Support.
- **Licenses per Filer (NetVault)** - As multiple filers can be used for the SnapMirror process, each filer to be utilized for the process must be licensed for use with the **NDMP SnapMirror to Tape APM**. To obtain license(s), contact BakBone Technical Support.
- **Licenses per Filer (Network Appliance)** - Network Appliance's **SnapMirror** software that this plugin works in conjunction with must be licensed on each filer being utilized. To obtain license(s), see the relevant Filer documentation for details on contacting Network Appliance.

**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**

#### ***Step 2: Initializing the NetApp Filer(s)***

Each filer to be used in conjunction with this plugin, must be in the “**on**” position. This state can be achieved through either of the following options:

- **Network Appliance's HTML Interface** - Consult the relevant Network Appliance documentation regarding this interface in order to locate the

page that allows for setting the (filer) SnapMirror software to the “on” position.

- **Through Command Line Interface** - Launch a Telnet Session and Telnet into the filer. Once successfully logged in (i.e., after inputting the proper login and password information), input the following command:

**snapmirror on**

### SM.2.2.b Phase 2: Ensure a Suitable Backup Device is Available

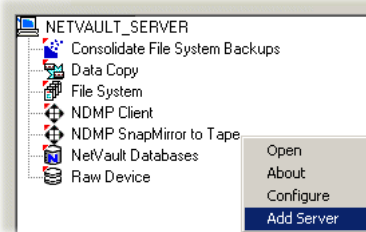
Using the procedures outlined in *Chapter 7: The Device Management Window of the NetVault Administrator’s Guide*, ensure that a standalone drive/library is properly added (i.e., as either a locally attached device on the NetVault Server or as a NetVault SmartClient). If a device already exists in either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

### SM.2.2.c Phase 3: Adding the Filer to the SnapMirror to Tape Plugin

To add the filer as an NDMP Server to the **SnapMirror to Tape 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 **SnapMirror to Tape 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 SnapMirror to Tape** plugin node and select **Add Server** from the pop-up menu.
- Double-click on the **NDMP SnapMirror to Tape** plugin node.
- Right-click on the **NDMP SnapMirror to Tape** plugin node and select **Open** from the pop-up menu.



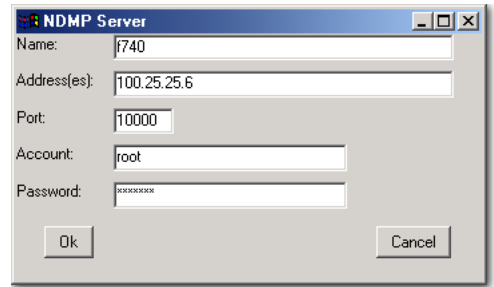
**Figure SM-7:** Right-clicking on the plugin and selecting the Add Server command from the pop-up menu is one way to access the NDMP Server window

**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 **SnapMirror to Tape 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 15.

**Figure SM-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 **SnapMirror to Tape 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 and 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** - This is the password for the **Account** named in the point above (should be no more than 8 characters).



**Figure SM-9:**  
Screenshot  
displaying 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.



### SM.2.2.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 **SnapMirror to Tape Plugin**. Backup operations will then target the backup device that is directly connected to the NetVault Server/Client.

### SM.2.3 Configuration Process for Backup Model 2

Review the steps covered in the sections that follow for instructions on configuring the **SnapMirror to Tape 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-Requirement: Determining the Backup Model in Place* on page 8 to determine the environment in place.

### SM.2.3.a Phase 1: Pre-Requisites

The following pre-requisites must take place before configuration can begin, regardless of the environment in place.

#### **Step 1: Licensing**

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

- **License for the NetVault SnapMirror to Tape Plugin** - A license is required for the plugin itself and is to be installed locally on the machine containing the **NDMP SnapMirror to Tape APM**. To obtain this license, contact BakBone Technical Support.
- **Licenses per Filer (NetVault)** - As multiple filers can be used for the SnapMirror process, each filer to be utilized for the process must be licensed for use with the **NDMP SnapMirror to Tape APM**. To obtain license(s), contact BakBone Technical Support.
- **Licenses per Filer (Network Appliance)** - Network Appliance's **SnapMirror** software that this plugin works in conjunction with must be licensed on each filer being utilized. To obtain license(s), see the relevant Filer documentation for details on contacting Network Appliance.

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**

#### **Step 2: Initializing the NetApp Filer(s)**

Each filer to be used in conjunction with this plugin, must be in the “**on**” position. This state can be achieved through either of the following options:

- **Network Appliance's HTML Interface** - Consult the relevant Network Appliance documentation regarding this interface to locate the page that allows for setting the (filer) SnapMirror software to the “**on**” position.
- **Through Command Line Interface** - Launch a Telnet Session and Telnet into the filer. Once successfully logged in (i.e., after inputting the proper login and password information), input the following command:

**snapmirror on**

## SM.2.3.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 **SnapMirror to Tape 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 its 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/](http://www.bakbone.com/support/product_documentation/)

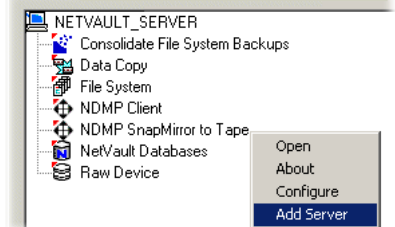
## SM.2.3.c Phase 3: Adding the Filer to the SnapMirror to Tape Plugin

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 **SnapMirror to Tape 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 **SnapMirror to Tape 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 SnapMirror to Tape** plugin node and select **Add Server** from the pop-up menu.
- Double-click on the **NDMP SnapMirror to Tape** plugin node.
- Right-click on the **NDMP SnapMirror to Tape** plugin node and select **Open** from the pop-up menu.



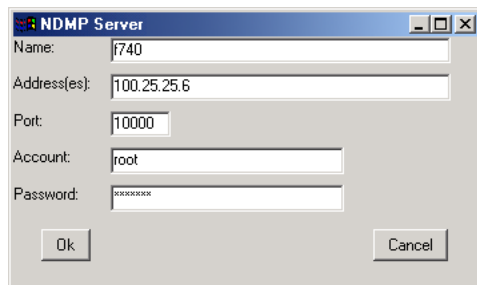
**Figure SM-10:** Right-clicking on the plugin and selecting the Add Server command from the pop-up menu is one way to access the NDMP Server window

**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 **SnapMirror to Tape 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 15.

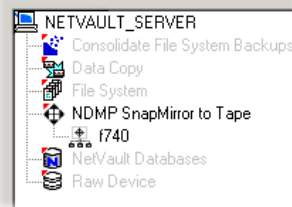
**Figure SM-11:**  
The NDMP  
Server dialog  
box

4. With the **NDMP Server** window active, input the required values as explained in the points below.

- **Name** - The name to be assigned to the NetApp Filer. This name will be how the **SnapMirror to Tape 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.
- **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 and 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** - This is the password that applies to the **Account** named in the point above (should be no more than 8 characters).



**Figure SM-12:**  
Screenshot  
displaying 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.

### SM.2.3.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 **SnapMirror to Tape Plugin**. Backup operations will then target the backup device that is directly connected to the target NetApp Filer.

## SM.2.4 Other Configuration Operations

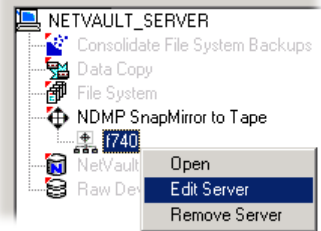
Other, optional configuration procedures are illustrated in the following sections.

### SM.2.4.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.

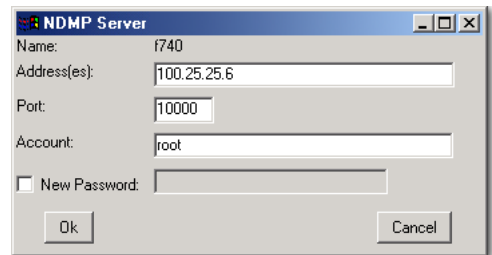
**Figure SM-13:**  
Right-click on the NDMP Server and select Edit Server from the pop-up menu

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 **SnapMirror to Tape 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 SM-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.



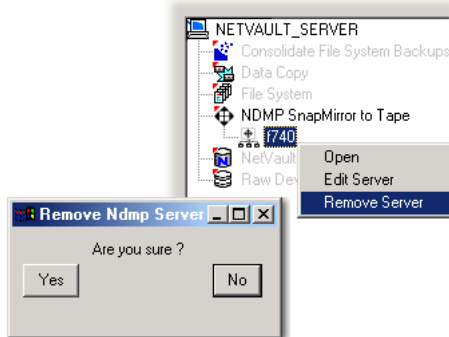
**Important:** This password must be valid in regards to the account name given. This should be no more than eight (8) characters.

### SM.2.4.b Removing the NDMP Server

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

To remove an added NDMP Server, follow the procedure 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 **SnapMirror to Tape 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).

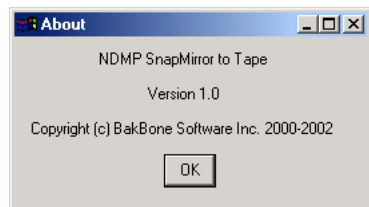


### SM.2.4.c The About Dialog Box

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

**Figure SM-16:**  
The About dialog box

1. With NetVault running and the **Backup** window active, open the machine containing the **SnapMirror to Tape 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.

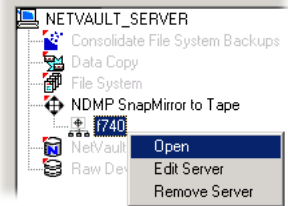


## SM.3.0 Generating a Snapshot

With the plugin properly configured and devices successfully added, it is possible to generate a snapshot of the desired volume. To accomplish this, follow the procedure detailed below.

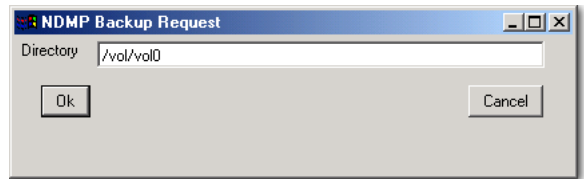
**Figure SM-17:**  
Right-click on the desired server and select Open from the pop-up menu

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 **NDMP SnapMirror to Tape APM** in order to access the NDMP Servers previously configured.
3. Right-click on the desired server and select **Open** from the pop-up menu (example at right).



**Figure SM-18:**  
The NDMP Backup Request dialog box

4. The **NDMP Backup Request** dialog box will launch. At the **Directory** prompt, input the **exact path** to the volume desired to be snapshot (e.g., in the example at right, a snapshot will be taken of the volume “**vol0**”).



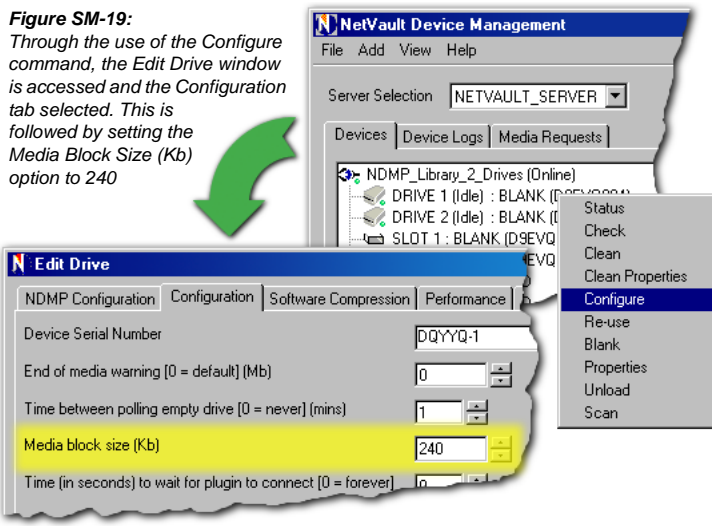
**Important:** It is only possible to snapshot an entire volume, so the value entered in the **Directory** field **must** end in the volume to be snapshot. If individual directories or files contained in this volume were input (e.g. /vol/vol0/program\_files), the snapshot would fail.

5. Click **OK** to confirm the input.
6. There are no options available in the **Backup Options** tab or use with the **SnapMirror to Tape Plugin**.
7. The job can now be scheduled, have its data stream targeted to a desired backup device other than the default and additional advanced options can be set. This is all controlled through the remaining three tabs available in the **Backup** window (e.g., **Schedule**, **Target** and **Advanced Options**). The options available in these tabs are not unique to the **SnapMirror to Tape Plugin**. For more information on their use, please the *NetVault Administrator's Guide*.

**Important:** Due to Network Appliance's forced 240Kb block size transfer, it is necessary to modify the block size setting for any target drives in order to incorporate the **Duplication** options contained on the **Advanced Options** tab of the **Backup** window. To apply the necessary block size setting, perform the steps that follow:

1. From the NetVault Server, access the **Device Management** window in the NetVault GUI.
2. In the frame of the **Devices** tab, locate a desired drive (i.e., one that will be targeted by this plugin for backups and restores) and right-click on it.
3. From the pop-up menu that appears, select the **Configure** command.
4. In the **Edit Drive** window that launches, click on the **Configuration** tab to access it.

**Figure SM-19:**  
Through the use of the **Configure** command, the **Edit Drive** window is accessed and the **Configuration** tab selected. This is followed by setting the **Media Block Size (Kb)** option to 240



5. Locate the **Media Block Size (Kb)** field and set this value to **240**.
6. Click on the **OK** button to apply the change and close this window.
7. Repeat **Steps 2 - 6** for each remaining drive that will be targeted for backup and restore by this plugin.

If this procedure is **not** followed, the **Duplication** options in the **Advanced Options** tab will remain **unusable**.

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 at the time of restore and to monitor its progress in the other windows of NetVault.
9. Launch the job by clicking on the **Submit** button.
10. The GUI on the NetVault Server can be used to monitor the job in regards to its progress and job log entries via the **Job Management** and **NetVault Logs** windows, respectively. For complete details on the use of these windows in the NetVault GUI, please see the *NetVault Administrator's Guide*.

## SM.4.0 Recovering Data from a Snapshot

### SM.4.1 Preparing the NDMP Server for a Recovery

The NDMP Server as well as the volume(s) to be restored must be set to OFFLINE. In order to accomplish this, perform either of the following:

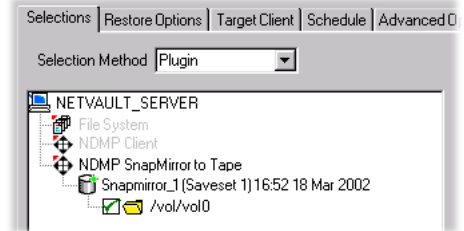
- **Network Appliance's HTML Interface** - Consult the relevant Network Appliance documentation regarding this interface in order to locate the page that allows for setting the NDMP Server and its volumes to OFFLINE
- **Through Command Line Interface** - Launch a Telnet Session and Telnet into the target NDMP Server (filer). Once successfully logged in (after inputting the proper login and password information), input the following command (i.e., where “<volume>” is the volume to be taken offline)

**vol offline <volume>**

## SM.4.2 Recovery Procedure

To recover data from a Snapshot using this plugin, follow the procedure below.

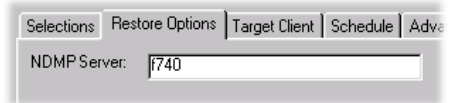
1. Launch NetVault and select the **Restore** button from the main GUI window (or select **Restore** from the **Operations** pull-down menu).
2. From the **Selections** tab, open the NetVault Server containing the **NDMP SnapMirror to Tape APM** by double-clicking on it.
3. Double-click on the plugin in order to open it and view the backup savesets contained within. Locate the desired saveset and open it by double-clicking on it.
4. Select the desired snapshot for restore by clicking in the box to the left of it. Selected items will contain a large green check.
5. With the desired item selected, select the **Restore Options** tab. The following option is available:



**Figure SM-20:**

The data backed up with the snapshot taken previously of the Volume “Vol0” is selected for a restore

- **NDMP Server** - By default the name of NDMP Server that the selected data was backed up from will appear in this field. This field can also be used to specify another NDMP Server in order to redirect the restore, if desired. Note that an NDMP Server to be used for a redirected restore must first be successfully added to the **SnapMirror to Tape Plugin** (i.e., as outlined in the section, *Configuration* on page 8). For more information on re-directing a restore and the use of this option, please see the section, *Relocation to a Different Target* on page 22.



**Figure SM-21:**  
The NDMP Server option

6. Additional options are available in the **Schedule**, **Target Client** and **Advanced Options** tabs of the **Restore** window. These options are not unique to the **SnapMirror to Tape Plugin**. See the *NetVault Administrator's Guide* for complete details on the options available in these tabs.
7. Input a suitable name for the job in the **Job Title** box. 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.).

8. Submit the restore job by clicking the **Submit** button.
9. In the same manner as a backup job, 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.

**Important:** Due to Network Appliance configurations, recovery of a Snapshot will not restore **quotas** and they will need to be reproduced on the destination filer.

### SM.4.3 The SnapMirroring State

Once a snapshot has been restored, the volume that it was restored to will be in a "SnapMirroring State." In this state, the volume will be read-only. This occurs by default with Network Appliance filers, using the SnapMirroring utility. To remove this, and return the volume to a READ-WRITE state, complete the following:

1. Launch a TelNet session and TelNet into the filer on which the snapshot was restored.
2. At the command prompt, issue the following command (i.e., where "**<volume>**" indicates the name of the volume to which it will be restored):

**snapmirror break <volume>**

### SM.4.4 Renaming/Relocating a Restore

It is possible to rename and/or relocate backed up data pertaining to a Snapshot when restoring it with the **NDMP SnapMirror to Tape APM**. Follow the procedures detailed below for each procedure.

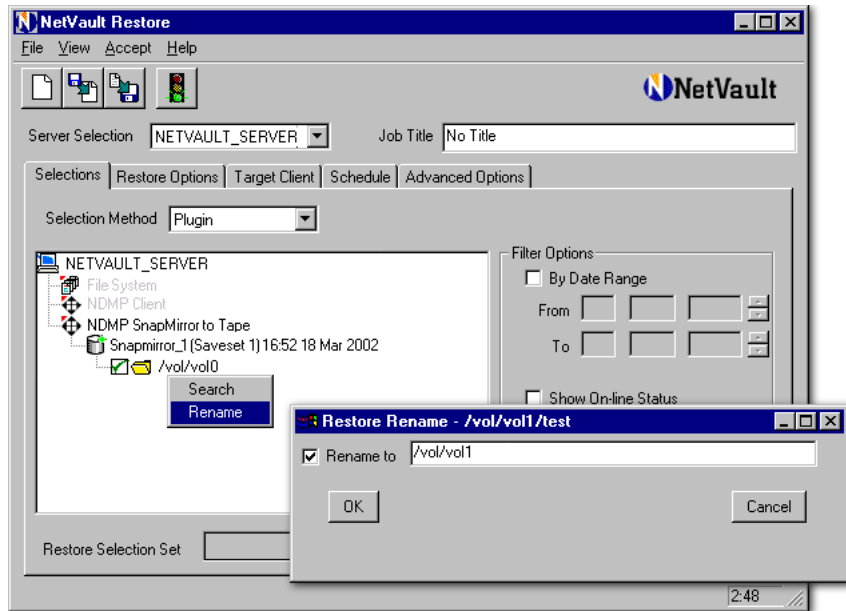
#### SM.4.4.a Renaming Data to be Restored

Upon successful restore of renamed data, it will be recovered to its original location, but with a different name. This is helpful when an existing data item of the same name must be kept, to avoid overwriting it.

1. From the **Selections** window, open down to the appropriate backup saveset.
2. Open the backup saveset (by double-clicking on it) in order to view the items contained within.
3. Right-click the desired item and choose **Rename** from the pop-up menu. The **Restore Rename** dialog box will appear.
4. Click the **Rename to** checkbox to activate its associated field and input the **exact path** as well as the desired new name. (i.e., if the previously snapshot volume was located in "**/vol/vol0**", a valid value input to change this would be "**/vol/vol1**").

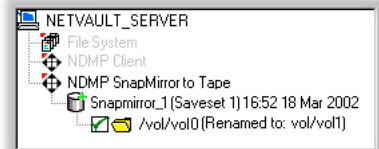
**Important:** It is only possible to recover an entire volume, so the value entered in the **Rename to:** field **must** end in a volume name. If a non-volume name were input (e.g. /vol/vol1/program\_files), the recovery would fail.

**Figure SM-22:**  
Right-click the desired item and choose **Rename** from the pop-up menu to access the **Restore Rename** dialog box



**Figure SM-23:**  
After clicking **OK**, the item will be displayed in the **Selections** window labelled with the rename information

- Click on **OK** to commit the change. The item will then be displayed in the **Selections** window labelled with the rename information.
- Continue as if this was a standard restore (for complete details on restoring, see the section *Recovery Procedure* on page 19).



#### SM.4.4.b Relocating Data to be Restored

NetVault's **SnapMirror to Tape Plugin** allows for two different forms of relocation during a restore:

- Relocation on the Same Target** - Relocation of backed up snapshot data from one volume to another on a NetApp Filer. This can be helpful when the original volume is down or when dealing with limited bandwidth or capacity.
- Relocation to a Different Target** - Through the use of the **Restore Options** tab, it is possible to recover snapshot data to a different NetApp Filer in the NetVault domain.

The two sections that follow illustrate the steps required to perform both of these operations.

### ***Relocation on the Same Target***

It is possible to relocate a restore to another NDMP Server (filer). To accomplish this, follow the procedure below.

1. From the **Selections** tab of the **Restore** window, access the desired backup saveset and open it (i.e., by double-clicking on it).
2. Right-click on the desired item and choose **Rename** from the pop-up menu. The **Restore Rename** dialog box will appear.
3. To relocate the item, select the **Rename** option and enter the new location for the directory being restored (e.g., the directory “**data**” will be relocated from the volume “**/vol1**” to the volume “**/vol0**”).

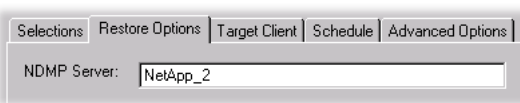
**Important:** The volume that a data directory is to be relocated to must exist on the NetApp Filer **before** launching a relocation restore job and it must be large enough to accommodate the backed up volume (i.e., it must be the same size or larger than the volume backed up in the target snapshot).

4. Click **OK** to commit the change and return to the **Restore** window. The relocate will be displayed with the selected data.
5. Continue with normal restore selections and options (as described in the section *Recovering Data from a Snapshot* on page 18) and then submit the job.

Once this restore job has completed, data will be recovered to the same NetApp Filer, but to the named volume (i.e., rather than the original target volume).

### ***Relocation to a Different Target***

1. From the **Selections** tab of the **Restore** window, access the desired backup saveset and open it (i.e., by double-clicking on it).
2. Locate the desired data items to be restored and select them.
3. Select the **Restore Options** tab. In the **NDMP Server** field, input the name of the additional NetApp Filer to which the restore is to be relocated.



**Important:**

1. An NDMP Server name input in this field must coincide with one that exists as a result of its addition to the **SnapMirror to Tape Plugin** (i.e., as illustrated in appropriate section, based on the NetApp Filer/Backup Device Model in place). Please fully review the section, *Configuration* on page 8 for more details.
2. When relocating in this manner, the volume size of the destination device must be of **equal or greater size** than the original (i.e. if the original volume was 10 Gb, the destination must be 10 Gb or greater), otherwise the recovery will fail. Regardless if the data transferred is smaller than the overall destination's volume size, this is still necessary (i.e. If the original volume was 10 Gb and the data Snapshot from it was 2 Gb, relocating this data to a different volume that is only 5 Gb in size will result in a failure).
3. Relocating to a volume that is larger than the original may result in a downgrade in overall performance, due to the fact that the destination volume will have to completely re-sync itself as to where the recovered data is to be located.

4. Continue with normal restore selections and options (as described in the section *Recovering Data from a Snapshot* on page 18) and then submit the job.

Once this restore has completed, the selected snapshot will be restored to the new target NetApp Filer.

#### SM.4.4.c Renaming and Relocating a Restore

It is also possible to mix all renaming restore data with either method of relocating it. Simply mix the procedures as required to achieve the desired end result.

#### SM.5.0 Mirroring Process

---

Through Network Appliance's **SnapMirror** utility and NetVault's **NDMP SnapMirror to Tape APM**, it is possible to take a Snapshot from a filer and transfer it to a piece of media (e.g. a tape in an attached drive). It is then possible to "mirror" this data to a second filer. Although, NetVault's **NDMP SnapMirror to Tape APM** does not control this aspect of the operation. It is solely handled by Network Appliance's utilities. Contact Network Appliance or consult the appropriate documentation regarding this procedure for more details.

