Technical Report

# SnapManager for Domino: Installation and Use

John B. Spinks, NetApp, Inc.

## SNAPMANAGER FOR DOMINO: INSTALLATION AND USE
This document walks the reader through the installation and use of SnapManager® for Domino.

TABLE OF CONTENTS

# 1   PURPOSE AND SCOPE

SnapManager for Domino (SMD) is a data management tool that utilizes the Domino APIs and integrates NetApp® SnapDrive® technology to provide a data management solution for Lotus Domino databases. It dramatically boosts the availability, scalability, and reliability of Domino servers. SnapManager for Domino provides near-instantaneous hot backup and rapid restoration of Domino servers by utilizing the online Snapshot™ technology from NetApp.

This technical report provides an overview of SnapManager for Domino, details the installation and configuration of the SnapManager for Domino software, and walks you step by step through the Configurator Wizard, the Backup Wizard, the Restore Wizard, and how to leverage SnapDrive to restore a single Domino database.

# 2   ASSUMPTIONS

For the information contained in this report to be useful to the reader, we assume that the reader has knowledge of the following products and technologies:

- Windows 2003/2008 Server

- Lotus Domino

- SnapDrive

- NetApp storage systems, Data ONTAP®, and FilerView®

Furthermore, we assume that the environment is already configured and the Domino server is already operational. We also assume that all of the requirements in section 3.1 are met.

For information about how to set up and configure your Domino server on NetApp storage, see TR-3588: "Integrating Lotus Domino 7.0 for Windows 2003 with a NetApp Storage System."

# 3   OVERVIEW OF SNAPMANAGER FOR DOMINO

SnapManager for Domino uses NetApp Snapshot technology to provide rapid backup and recovery of Domino databases. Additionally, it uses Lotus Domino APIs and transaction logging to verify that each Snapshot copy created is clean, with no open or corrupted files. This means that restores are rapid, complete, and accurate.

SnapManager for Domino simplifies Domino administration and management through task automation wizards and an intuitive GUI.

## 3.1   REQUIREMENTS TO USE SNAPMANAGER FOR DOMINO

The following requirements must be met in order to use SnapManager for Domino:

- Windows 2000/2003/2008 Server

- SnapDrive 4.x, 6.0.x, or 6.x installed

- Domino 6.5.x, 7.0.x, or 8.x installed

- The Domino environment must have transaction logs enabled:

    - Transaction logs must use the Archived style.

    - Transaction logs must be located on a different volume than the Domino data directory.

SnapManager for Domino does support 32-bit and 64-bit components, but the entire stack must be either 32-bit or 64-bit: you cannot mix and match. The exception to this is the OS: you can use either 32-bit or 64-bit Windows at any time. This is really important to note when using versions of Domino prior to version 8 as there are no 64-bit versions available.

## 3.2 SNAPMANAGER FOR DOMINO COMPONENTS

During the installation you will have the option of installing two components. By default both options are selected, and in most cases you will want to use the default options.

- **Client interface (client):** The client interface is the user interface portion of SnapManager for Lotus Domino. The client interface enables you to manage and schedule Snapshot copies and restores against a properly configured Domino server. The client interface communicates with the server on a Windows socket, which uses the TCP/IP protocol. This enables you to manage and schedule Snapshot copies and restores from any machine that has a network connection to the server.

- **Domino server add-in (service):** The server add-in module is deployed on the same physical machine as the Domino server. The server module uses the Domino server API for add-ins. The server module is responsible for managing all backup and restore activity.

## 3.3 ORDERING SNAPMANAGER FOR DOMINO

The SnapManager for Domino product can be ordered using a special internal process called PVR. Contact your NetApp sales representative to purchase.
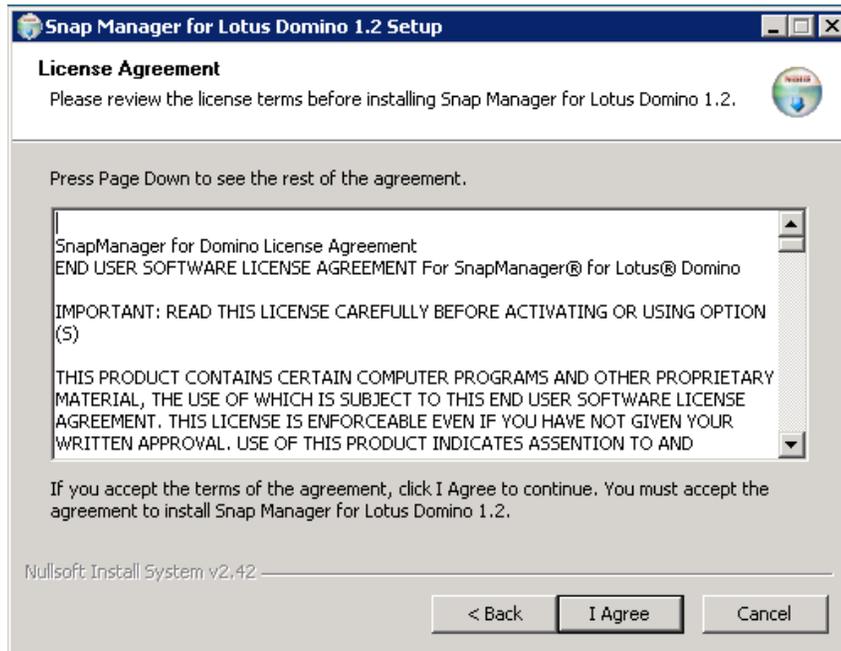
# 4 INSTALLING SNAPMANAGER FOR DOMINO

This section walks you step by step through the installation of SnapManager for Domino.

1. Double-click SMD-Setup.exe to display the following dialog box.
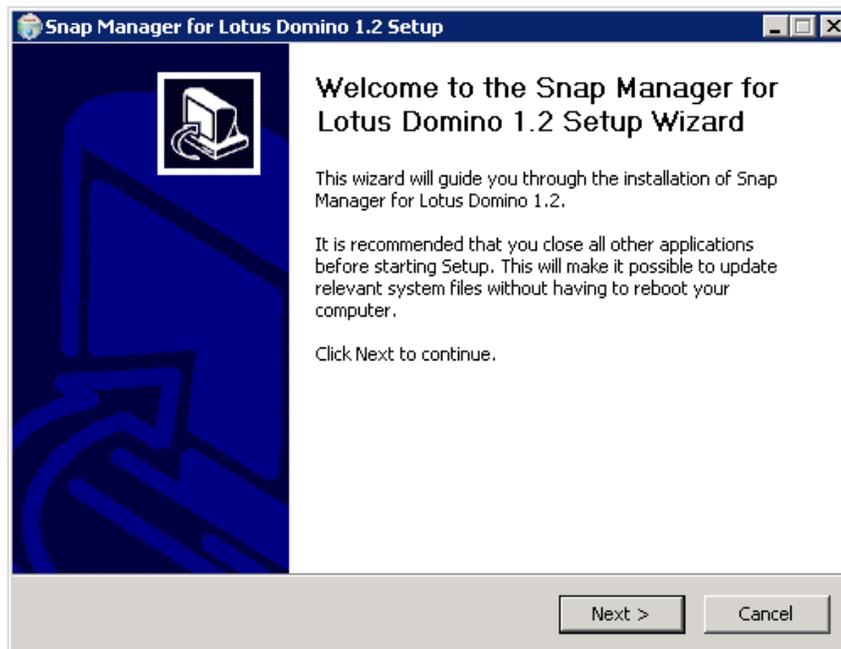
2. The next screen shows license terms and agreement. Review the license agreement and click I Agree.



3. The next screen shows a component selection dialog box. Select the components to install from the list and then click Install. By default, both options are selected.

    a. The client is the GUI interface for SnapManager for Domino.

    b. The service is the Windows service that runs in the background.
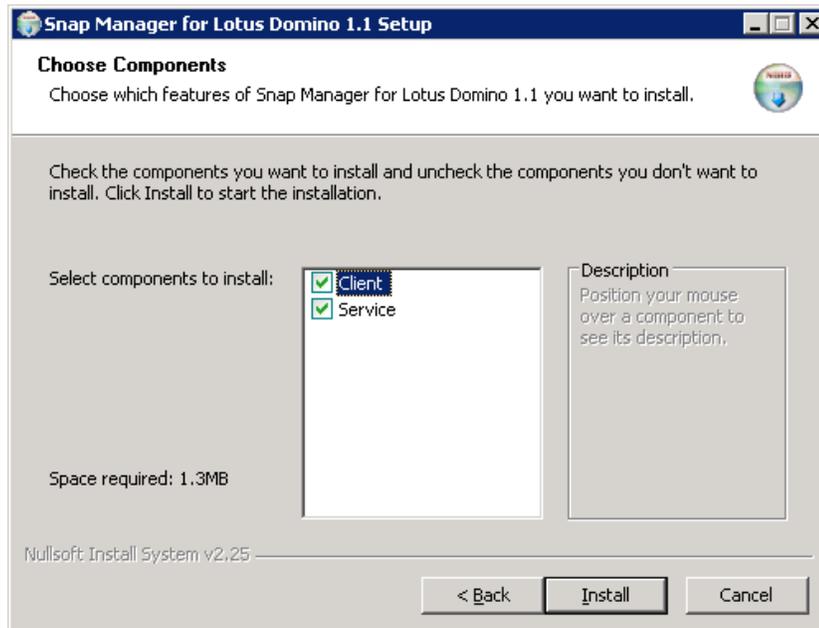
4. Click Finish to complete the installation process.
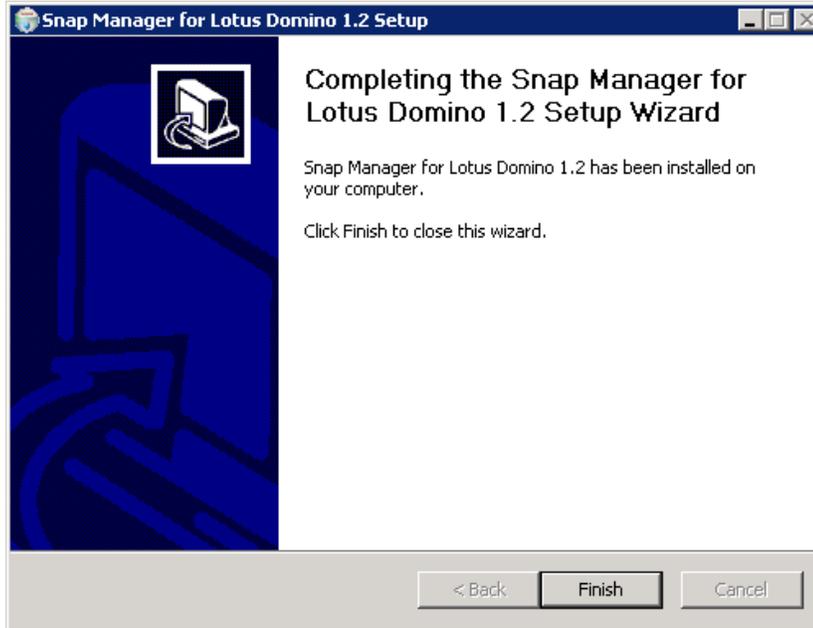


# 5   USING SNAPMANAGER FOR DOMINO

## 5.1   THE CONFIGURATOR WIZARD

When you first install SnapManager for Domino, it is assumed that you are running Domino off a local disk or a third-party storage system and that you want to migrate your Domino data onto new NetApp storage. The Configurator Wizard automates the copying of your data and updating of essential Domino databases and configuration files (.ini files). Additionally, the Configurator Wizard sets the environment variables necessary for SnapManager for Domino to operate.

Note that to migrate your data the Domino server must be stopped, so plan appropriately to minimize the effects on your environment. Since this activity is copying your Domino data to a new location, this could take some time to complete.

1. Double-click the SnapManager for Domino icon on your desktop to start the application.

2. To configure SnapManager for Domino and begin migration of Domino data, click the Configurator Wizard icon.

3. Click Next to start the wizard.
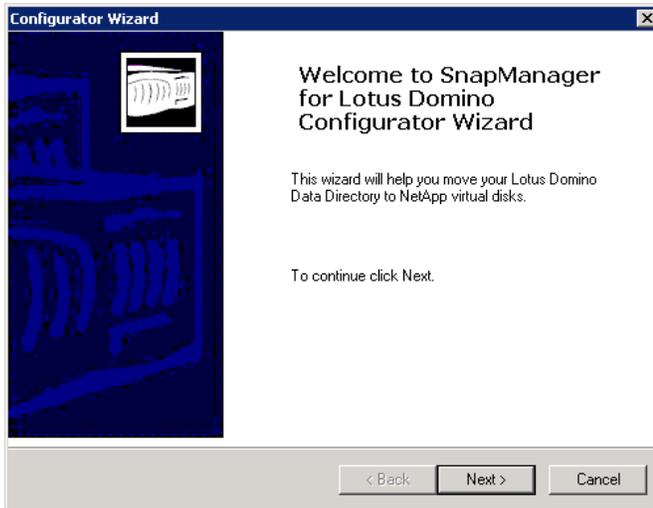


4. As shown in the following screenshot, the Domino data is currently on the F drive, which is a local drive. The logging style is Archive, which meets the requirements for using SnapManager for Domino. If transactional logging is disabled, or if circular or linear styles are in use, you will not be able to proceed.
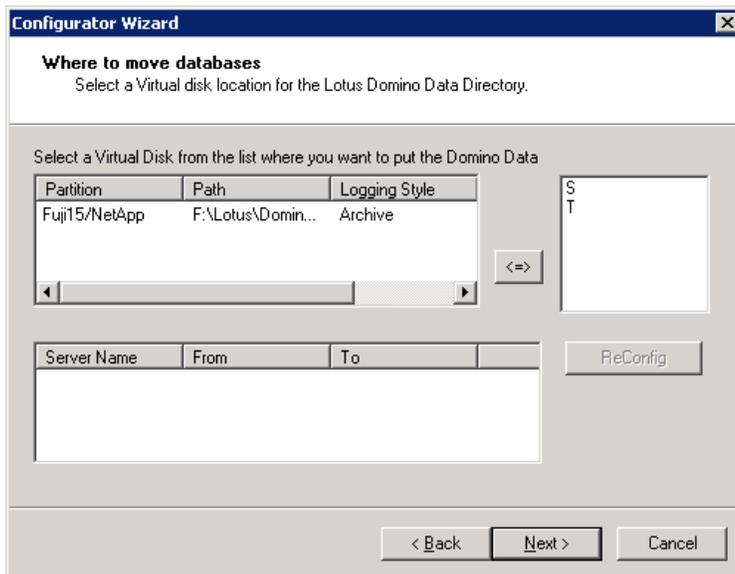
5.  In the following screen you select the drive to which to migrate your data. This drive should be a volume on your NetApp storage system. In this example the S drive is selected for the Domino data directory.

**Note:** You must first select the disk that you want to migrate. (If you are running a Domino partitioned server, you might have multiple disks listed.) In this case, select the F drive. You then select the drive to which you want to copy the Domino data——in this case, the S drive.
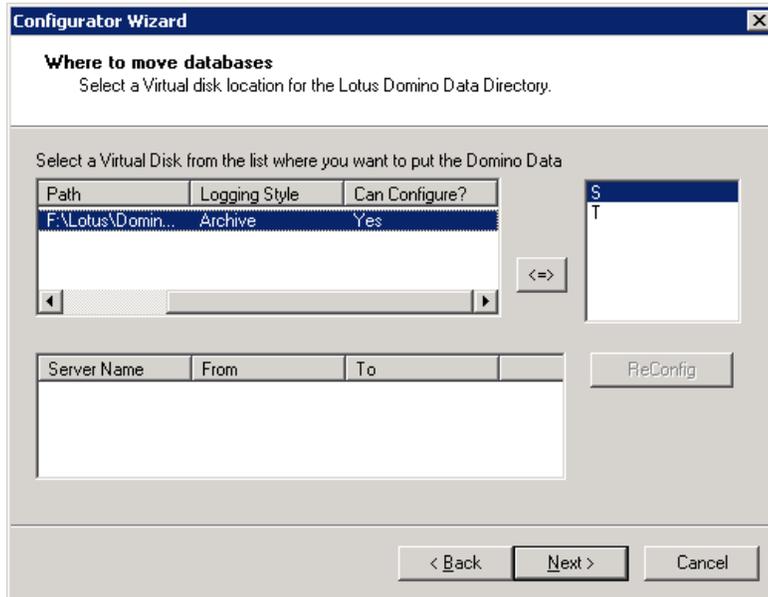


6.  After selecting your drives, click the move button <=> to accept your settings and move them to the bottom pane. Then click Next to continue.

7.  Select the destination drive for the transaction logs. Repeat steps 4–6 as described for migration of the Domino transaction logs. In this case, select the current transaction log directory, select the G drive, and then select the destination directory, the T drive. Click the move button to accept.
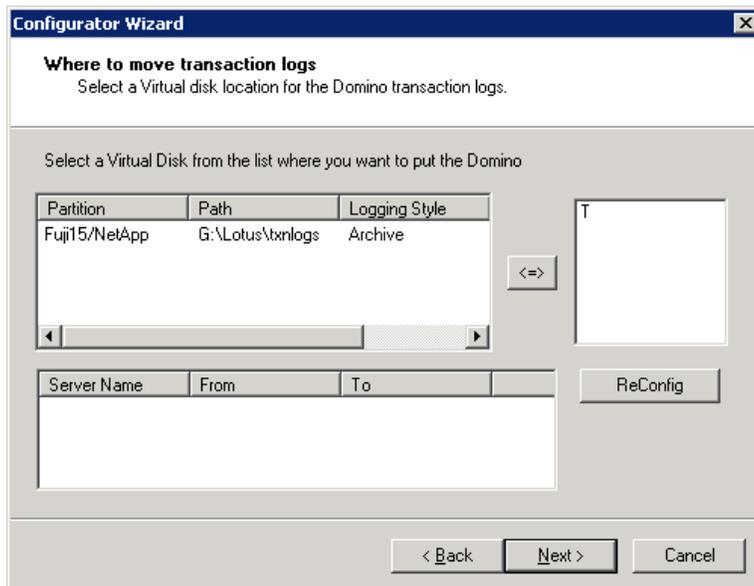
8. Confirm your settings and click Next to continue.
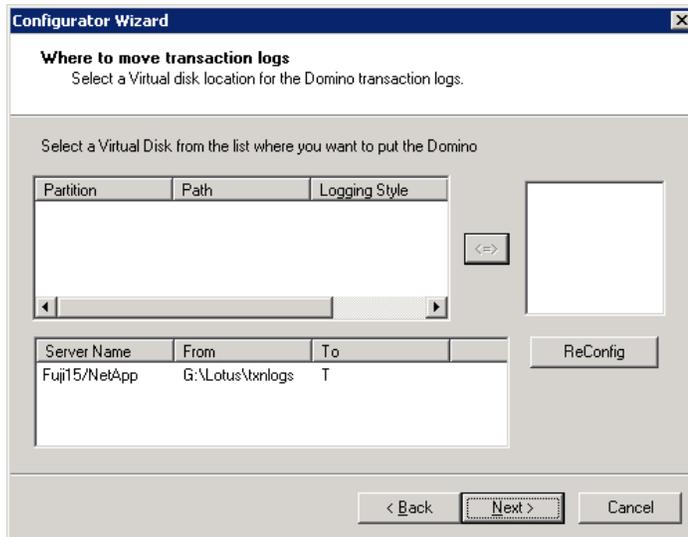


9. In the next step you select the SnapInfo directory. The SnapInfo directory stores the backup information that is used to restore your Domino data; it cannot be the same directory as the Domino data directory. By default, the SnapInfo volume is the same volume that the Domino transaction logs use, as shown in the following screenshot. Notice that the SnapInfo directory defaults to the T drive. In this case, accept the default selection.
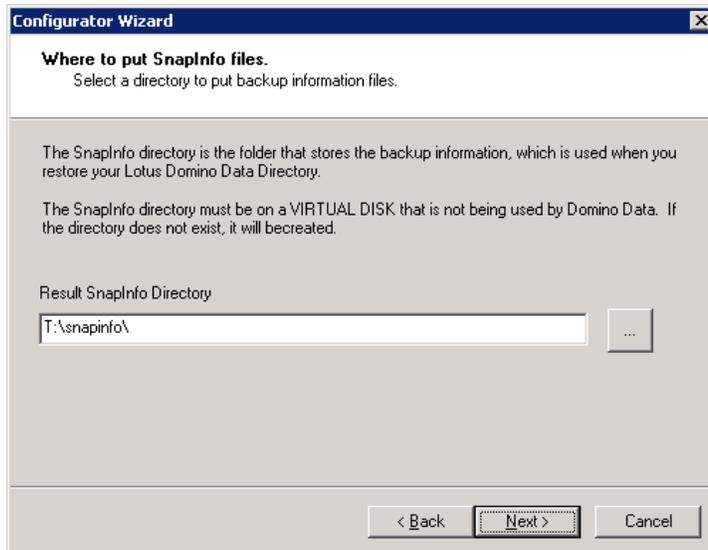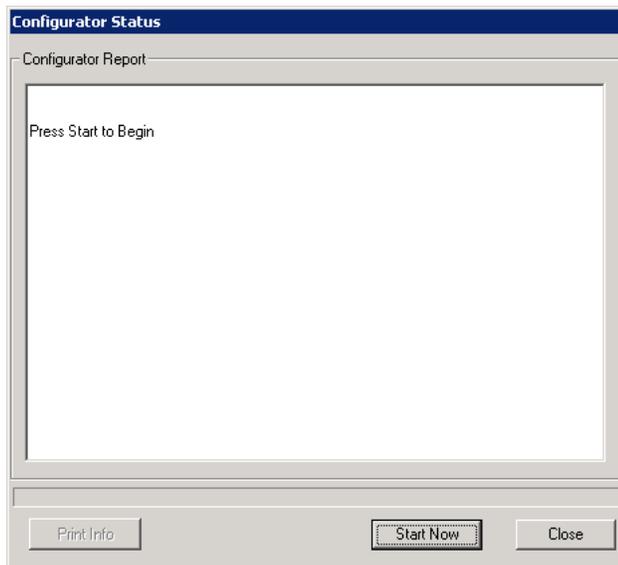


10. Click Next to continue. The following dialog box appears which notifies you that the SnapInfo directory will be created if necessary. Click OK to continue.
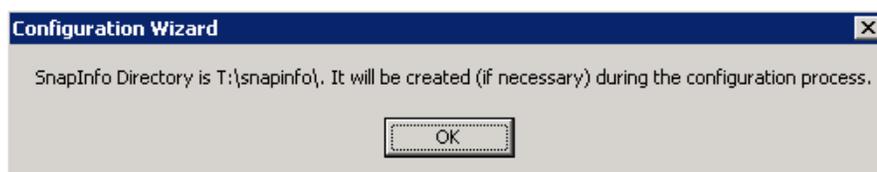
11. Review your selections and click Finish.



12.      In the dialog box that appears, click the Start Now button to start the data migration.



This process takes several minutes—the Configurator Wizard is copying the data from the starting location to the new selected location. The amount of time that migration of data takes depends on the size of your Domino data directory.

13. When the migration is complete, the following dialog box appears. Click OK to complete the Configurator Wizard.

14. The Configurator Status screen gives you additional information about the migration. Click Close to exit the Configurator Wizard. Exit SnapManager for Domino.
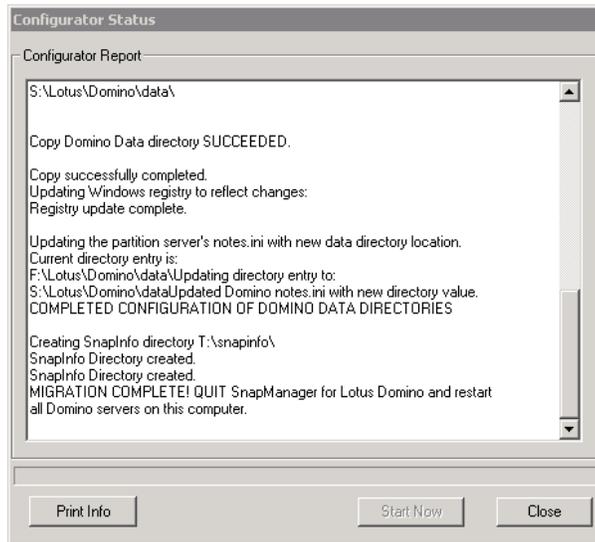


15. Start Domino.

Start and update your Domino server. This automatically updates the Domino catalog and assigns new DBIIDs for the databases. The process can take several minutes to complete.

When your Domino activity stabilizes, it's time to use SnapManager for Domino to back up your Domino server.

## 5.2    SNAPMANAGER BACKUP WIZARD

SnapManager for Domino uses Domino APIs to quiesce and back up your Domino server while it's running. Use of the APIs makes sure that the backup is consistent.

1.   Start SnapManager for Domino: Click Start > Program Files-> NetApp > SnapManager for Domino. In the window that appears, click the SnapManager Backup Wizard button. In the Welcome screen, click Next to start the wizard.
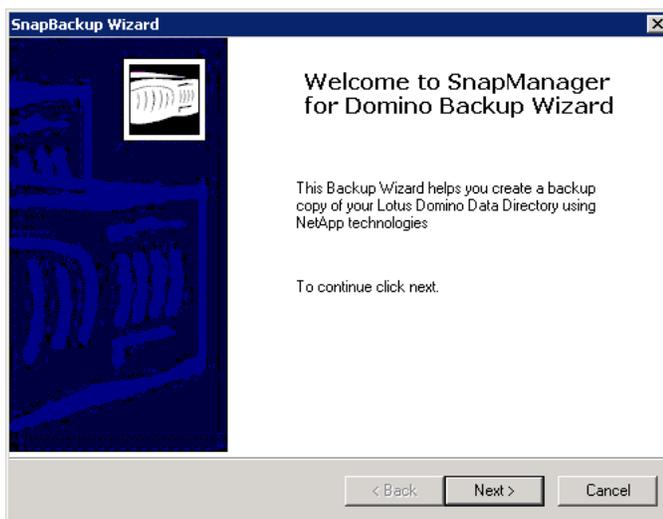
2. Back up the Domino partitions: Expand Lotus Domino Servers and then expand the physical host (Fuji15 in the following screenshot). Finally, select the Domino partition that you want to back up. In the following screenshot, there is only one partition on the server—Fuji15/NetApp. Details of the server are shown in the right pane. Notice that Data Path and Log Path reflect the earlier migration.
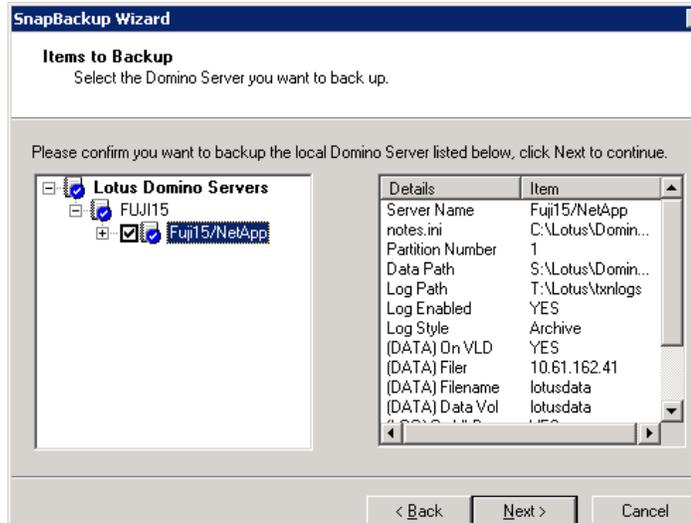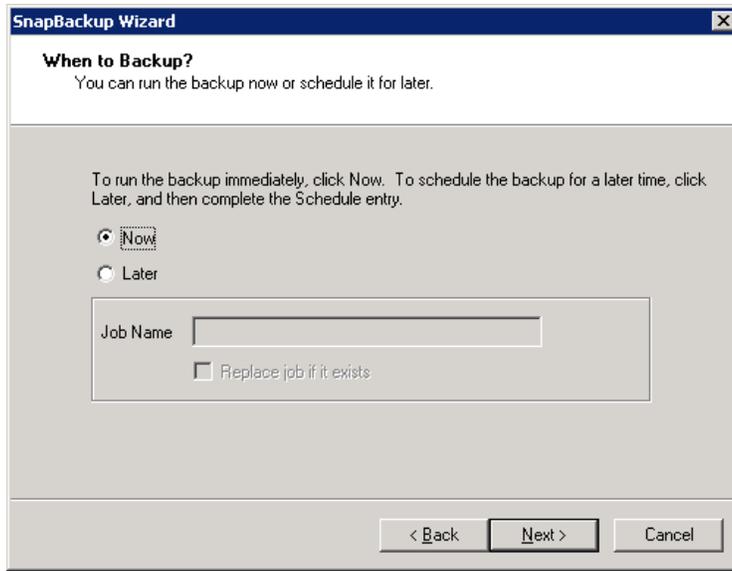


Click Next to continue.

3. Snapshot copy retention: Select the number of Snapshot copies to retain. SnapManager for Domino supports between 1 and 31 Snapshot copies. You can also choose not to automatically retain Snapshot copies and manage them manually.
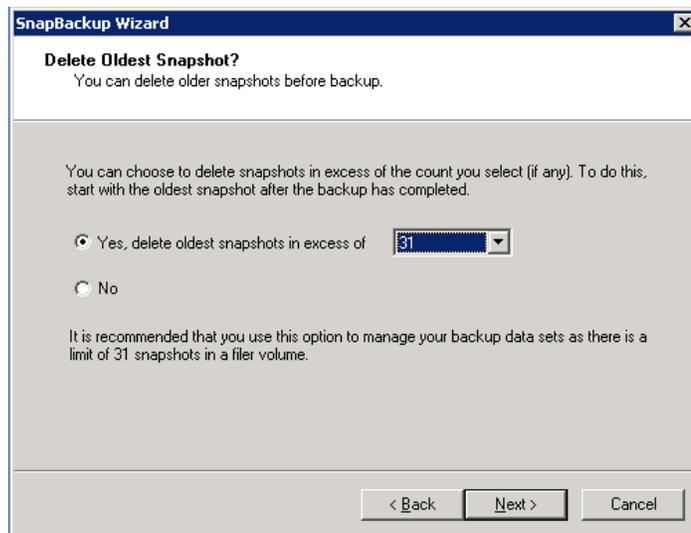


Click Next to continue.

4. Run immediately or schedule your backup: You can either run your backup imediately or schedule it for a later time. Scheduling a backup saves your settings and sets the variables necessary to schedule your backup in the Windows Task Scheduler. You use the Windows Task Scheduler to set any remaining settings.

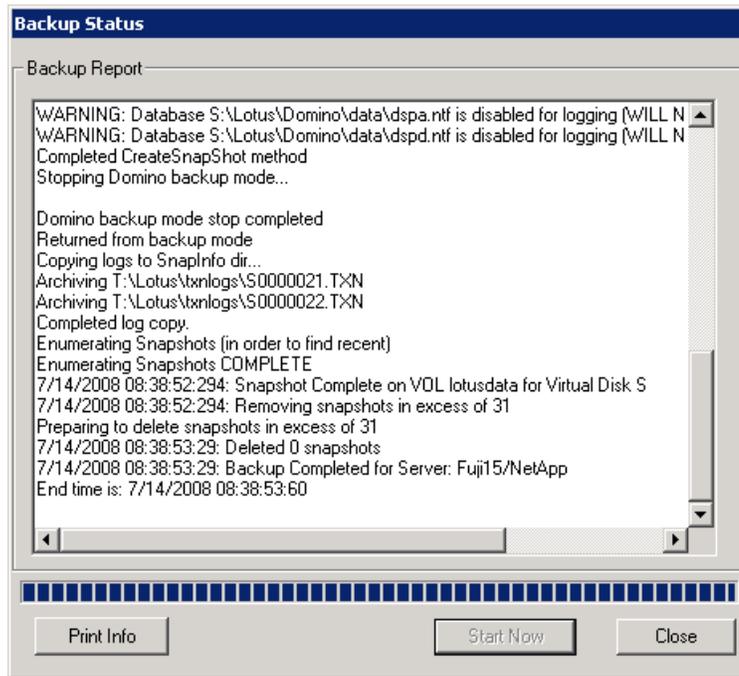In this case, select Now to run the backup immediately.

Click Next to continue.

5. Complete the Backup Wizard: Confirm your settings and click Finish.



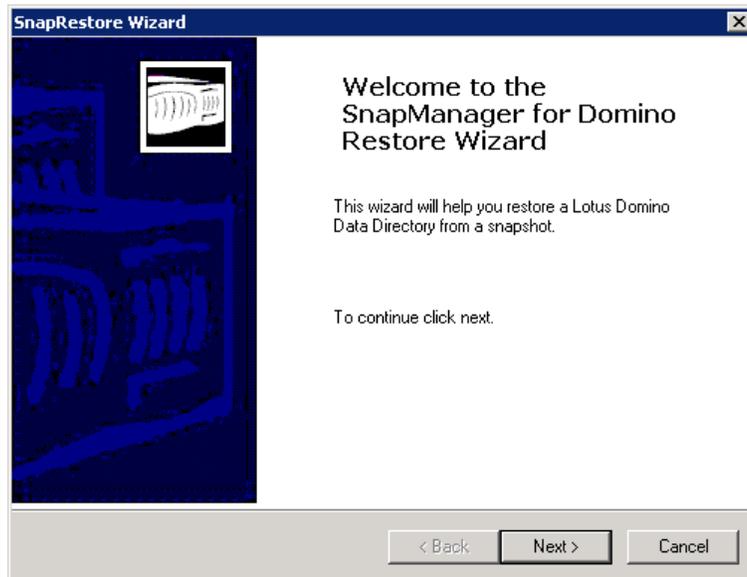6. Click Start Now to proceed with the backup.

**Backup Status**

Backup Report

```
WARNING: Database S:\Lotus\Domino\data\dspa.ntf is disabled for logging (WILL N
WARNING: Database S:\Lotus\Domino\data\dspd.ntf is disabled for logging (WILL N
Completed CreateSnapShot method
Stopping Domino backup mode...

Domino backup mode stop completed
Returned from backup mode
Copying logs to SnapInfo dir...
Archiving T:\Lotus\txnlogs\S0000021.TXN
Archiving T:\Lotus\txnlogs\S0000022.TXN
Completed log copy.
Enumerating Snapshots (in order to find recent)
Enumerating Snapshots COMPLETE
7/14/2008 08:38:52:294: Snapshot Complete on VOL lotusdata for Virtual Disk S
7/14/2008 08:38:52:294: Removing snapshots in excess of 31
Preparing to delete snapshots in excess of 31
7/14/2008 08:38:53:29: Deleted 0 snapshots
7/14/2008 08:38:53:29: Backup Completed for Server: Fuji15/NetApp
End time is: 7/14/2008 08:38:53:60
```

[ Print Info ]          [ Start Now ]          [ Close ]

7.   Click Close to complete the backup.

8.   Exit SnapManager for Domino.

### 5.3   SNAPMANAGER RESTORE WIZARD

You use the SnapManager Restore Wizard to restore the entire volume, not a single database or a single e-mail.

To use SnapManager for Domino to restore your Domino environment, you must first exit the Domino server.

1.   Open SnapManager for Domino and click SnapManager Restore Wizard.



**SnapRestore Wizard**

Welcome to the
SnapManager for Domino
Restore Wizard

This wizard will help you restore a Lotus Domino
Data Directory from a snapshot.

To continue click next.

[ < Back ]   [ Next > ]   [ Cancel ]

Click Next to continue.

2. Restore Domino partitions from a Snapshot copy: To select a Snapshot copy to restore, expand Lotus Domino Servers, expand the physical host (FUJI15), and then expand the partition (Fuji15/NetApp). This lists the available Snapshot copies from which you can restore.
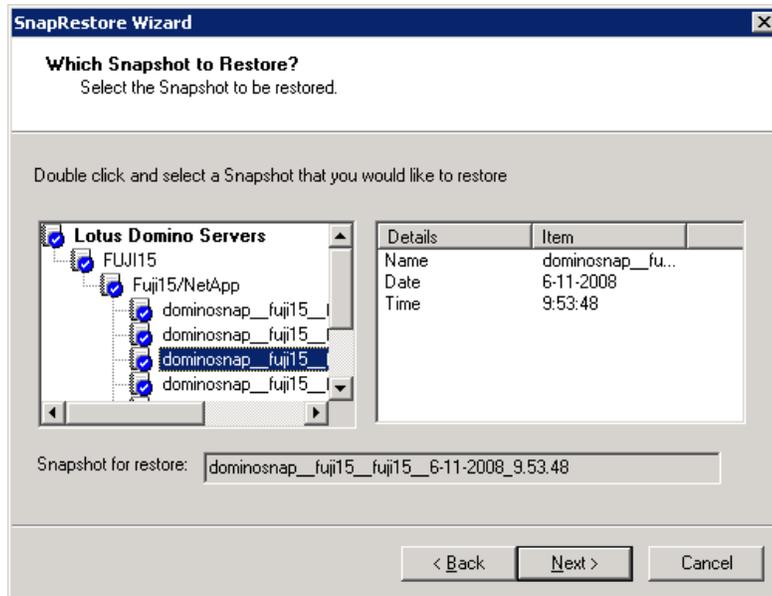


Select the Snapshot copy to restore and then click Next to continue.

3. Select Point-in-Time or Up-to-the-Minute restore.

| Restore Type | Description |
| --- | --- |
| Point-in-time | Restores a Snapshot copy to an exact point in time. |
| Up-to-the-minute | Uses Domino transaction logs to restore the most recent transactions. |

Note the warning in the following dialog box: If you select a point-in-time restore, all backups that were created after the backup you restore will be deleted.

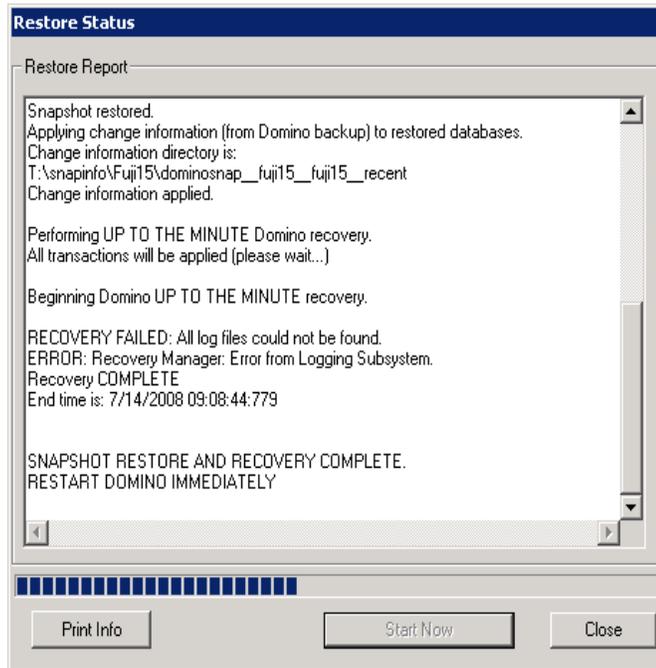In this case, select No for an up-to-the-minute restore.
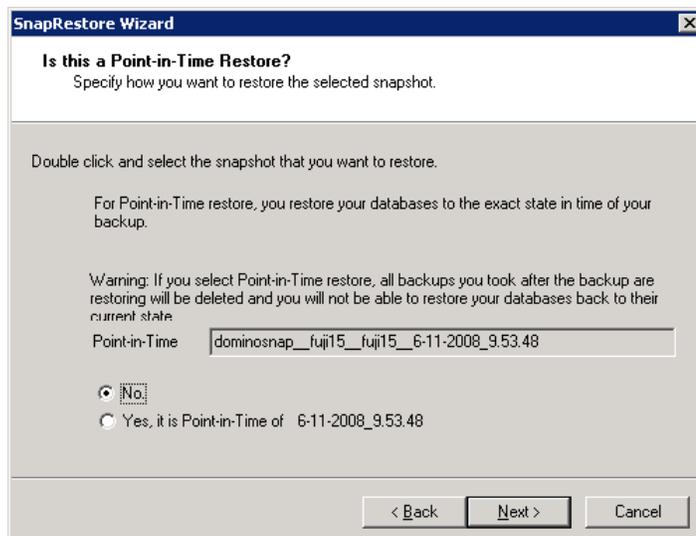
Click Next to continue.

4. Complete the Restore Wizard: Verify your settings and click Finish to open the restore window.
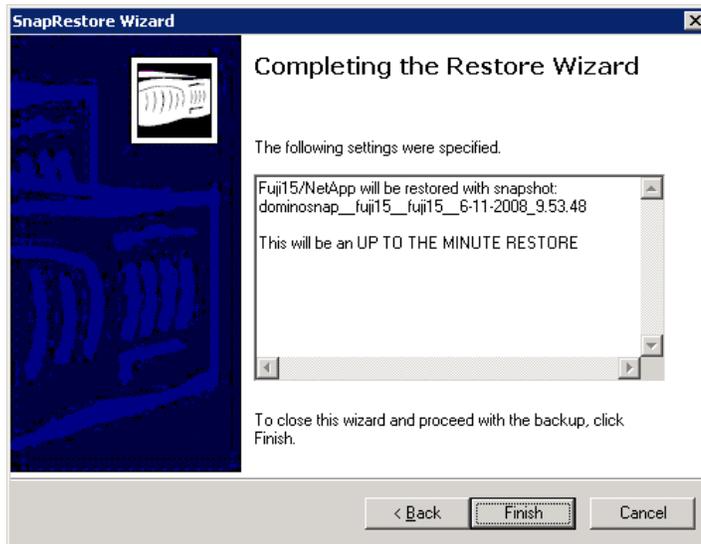


5. Click Start Now to begin the restore.



6. When the restore is complete, click Close, exit SnapManager for Domino, and start the Domino server.

## 5.4    USING SNAPDRIVE TO RESTORE A SINGLE DOMINO DATABASE

It's easy to restore a single Domino database, or even a single e-mail, by using the built-in functionality of SnapDrive.

**Note:** You cannot leverage the Domino transaction logs by using this method because it exists outside of SnapManager for Domino. This means that all single database restores are point-in-time only.

In Domino, each mail file or application is its own database, using the .nsf extension. You can use SnapDrive to browse the Snapshot directory and mount the Snapshot copy as a read-only file system. You can then copy a Domino database from the Snapshot copy and onto a local workstation or even into the production file system, possibly overwriting a corupt database with a Snapshot copy.
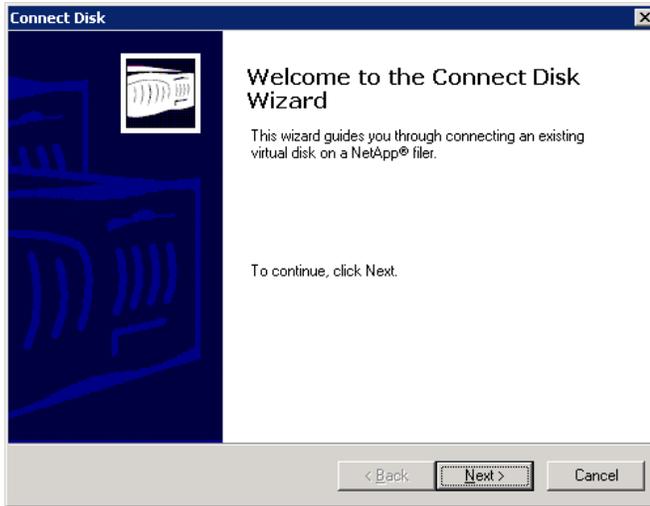
1.    Open Computer Management (Start > Settings > Control Panel > Administrative Tools > Computer Management).

2.    Under Storage, expand SnapDrive and then expand Disks.
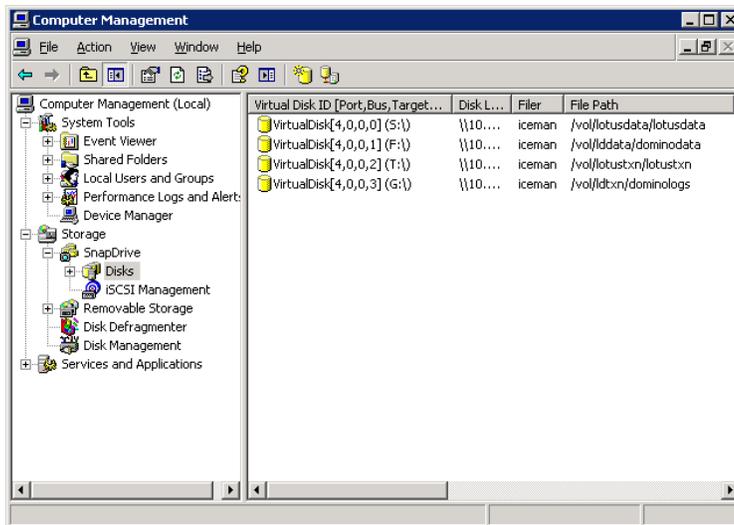


3.    Right-click Disks and select Connect Disk.
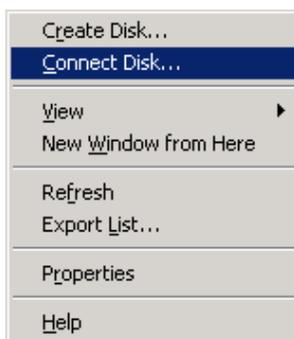
4.   The Connect Disk Wizard opens.



Click Next to continue.

5.   Enter your virtual disk location as a UNC path, as in the following example:

```
\\[Storage System]\[volume]\~snapshot\[snapshot name]\[lun]
```

| Name | Description | Example |
|---|---|---|
| Storage System | Name or IP address of your NetApp storage system | Iceman |
| Volume | The name of the volume that contains your Domino data | Lotusdata |
| ~snapshot | The ~snapshot directory contains all Snapshot copies on the volume. This directory might be hidden; see the SnapDrive manual for more information. | ~snapshot |
| Snapshot Name | The name of the Snapshot copy you want to restore | Dominosnap_fuji15_recent |
| LUN | The name of the LUN on which your Domino data resides | lotusdata |
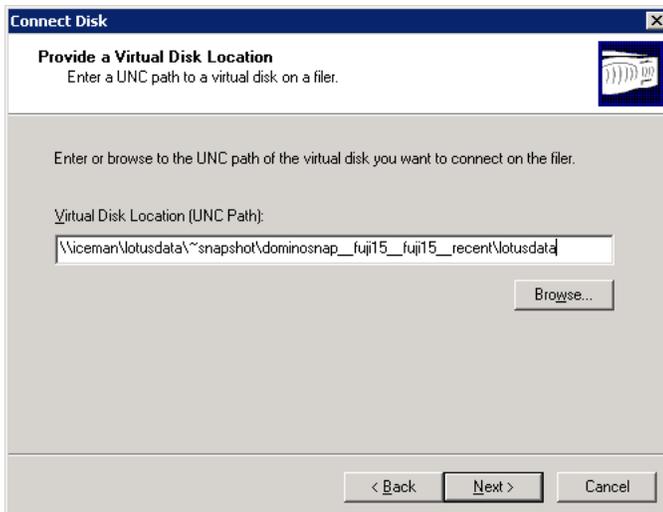
6. Select your virtual disk type. In this case, select Dedicated (your only option for a Snapshot copy).
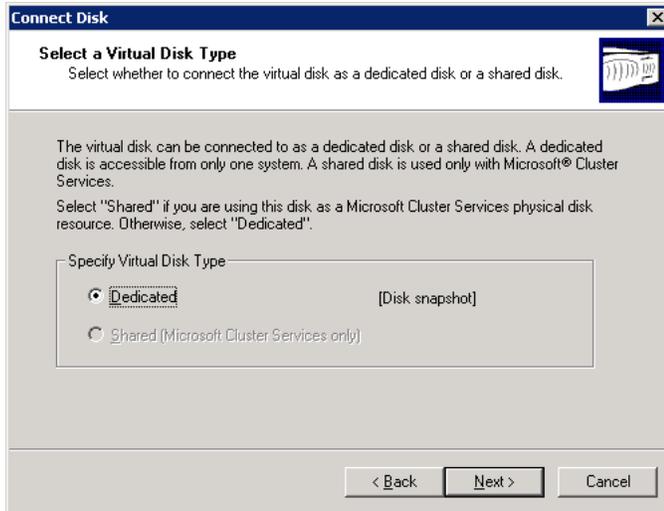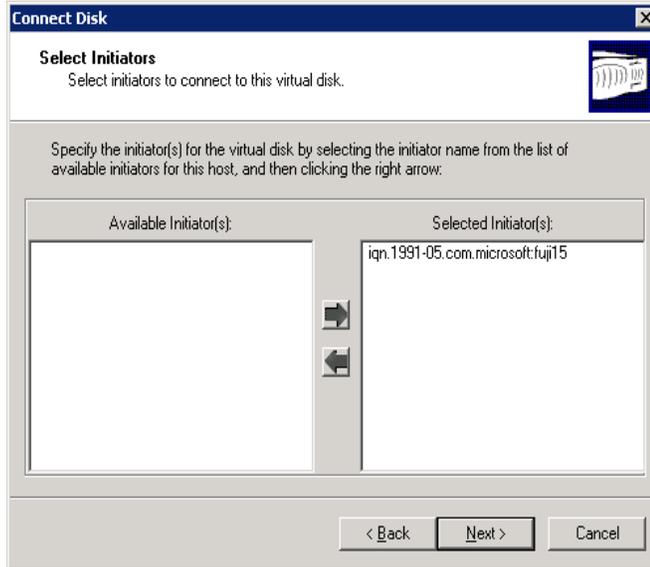


Click Next to continue.

7. Select a virtual disk drive letter, in this case, Z, so that it can be easily identified.
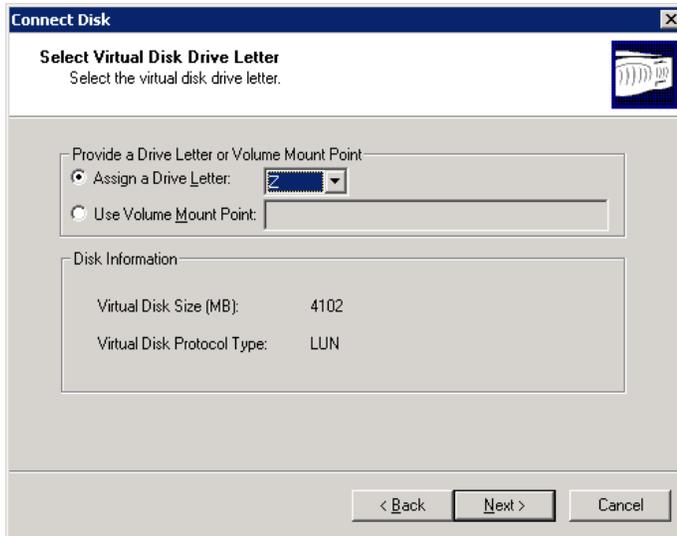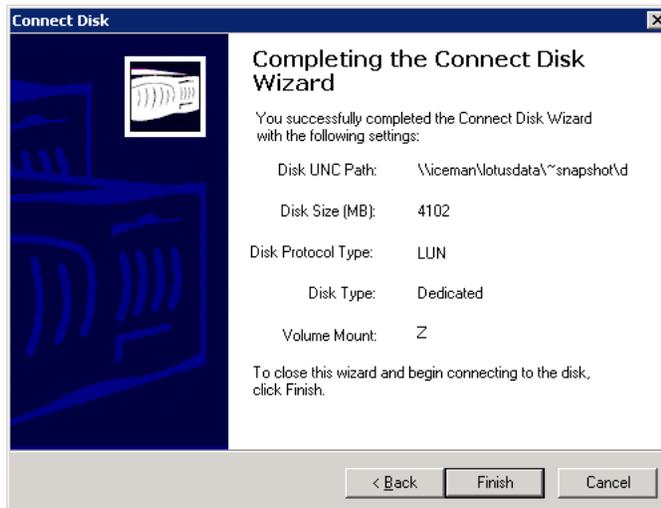


Click Next to continue.

8.  Select an iSCSI initiator and double-click it to move it from the Available column to the Selected column.
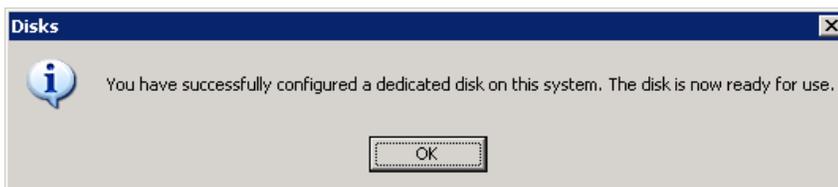


Click Next to continue.

9.  Complete the Connect Disk Wizard: Review your settings and click Finish to continue.



The status bar of the Computer Management window updates you on the connection process.



When the process is completed, the following notification appears. The disk is now ready for use.



Click OK to close this window.

10. Open Windows Explorer to browse your Snapshot file system.

11. Locate the database to restore and copy it to your workstation or to the active file system.

**Note:** To restore to an active file system, you will probably need to flush the database cache first using the domino CLI command dbcache flush.

A Domino administrator can open the restored database and copy a single e-mail from it into a user's production database.

12. When you have copied the database that you want to restore, remember to disconnect your Snapshot drive. To do this, highlight the drive in Computer Management, right-click, and select Disconnect Disk.

# 6   CAVEATS

The information presented in this document has been tested by NetApp using a limited set of hardware and software options. Therefore your experience might differ from that presented here. If you have any problems with the techniques shown in this document, please contact the author.

# 7   ACKNOWLEDGEMENTS

I would like to thank all the people who helped to put this paper together. Specifically, I'd like to thank Dhaval Parekh, Jawahar Lal, and Michelle Nguyen for their assistance in updating SnapManager for Domino 1.2 and reviewing this paper and other content.

# 8   REVISION INFORMATION

1.1: November 2009: Updated the requirements section to reflect SnapManager for Domino version 1.2, which adds support for SnapDrive 6.x, Data ONTAP 7.3, and Windows 2008. Screenshots were also updated as SMD 1.2 includes updates to the brand and logo.

1.0: Version 1.0 of this document published June 2008.

**NetApp**™

www.netapp.com