

SnapManager® 1.0.1 for Virtual Infrastructure **Installation and Administration Guide**

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Preface

- About this guide

This guide describes how to install, configure, and use SnapManager® for Virtual Infrastructure (SnapManager for VI).
- Audience

This guide includes information for system administrators who possess a working knowledge of NetApp storage systems. It also assumes that you are familiar with the following topics:

◆ Knowledge of VMware® virtual infrastructure products

◆ Knowledge of how Hypertext Transport Protocol over Secure Sockets Layer (HTTPS) is used for file sharing or transfers

◆ Knowledge of how block storage protocols, such as FCP and iSCSI, work with SAN storage

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**Keyboard
conventions**

This guide uses capitalization and some abbreviations to see the keys on the keyboard. The keys on your keyboard might not be labeled exactly as they are in this guide.

What is in this guide...	What it means...
hyphen (-)	Used to separate individual keys. For example, Ctrl-D means holding down the Ctrl key while pressing the D key.
<i>Enter</i>	Used to see the key that generates a carriage return; the key is named Return on some keyboards.
<i>type</i>	Used to mean pressing one or more keys on the keyboard.
<i>enter</i>	Used to mean pressing one or more keys and then pressing the Enter key.

Special message

This guide contains the following special message:

Note_____

A note contains important information that helps you install or operate the system efficiently.

Attention_____

An Attention notice contains instructions that you must follow to avoid a system crash, loss of data, or damage to equipment.

This chapter introduces you to SnapManager for Virtual Infrastructure (SnapManager for VI) and describes how it works within your virtual infrastructure environment.

This chapter includes the following topics:

- ◆ “[What SnapManager for VI is](#)” on page 2
- ◆ “[SnapManager for VI concepts](#)” on page 4
- ◆ “[Components used in SnapManager for VI](#)” on page 7
- ◆ “[Configuration and usage workflows](#)” on page 9

What SnapManager for VI is

SnapManager for VI provides rapid backup and restoration of VMware® virtual machines and datastores whose active images reside on storage systems using Data ONTAP® software. SnapManager for VI uses Snapshot technology to carry out backup. SnapManager for VI can also utilize the SnapMirror® technology to integrate an optional disaster recovery solution.

The primary function of SnapManager for VI is to back up storage used by virtual infrastructures at datastore or virtual machine granularity, and then to restore either the datastore itself or an individual virtual machine within the datastore.

SnapManager for VI features

SnapManager for VI allows you to perform the following tasks:

- ◆ Carry out backup of virtual machine and datastore images residing on storage systems running the Data ONTAP software
- ◆ Schedule automated backup executions on one or more datastores or virtual machines
- ◆ Specify a retention policy for stored backups based either on a maximum time or a maximum number of backups
- ◆ Specify criteria for backup-related alert notification
- ◆ Support virtual machines and datastores that are located on either NFS directories or VMFS file systems
- ◆ Enable optional additional SnapMirror disaster recovery protection of your virtual machine and datastore images whenever you execute a backup
- ◆ Discover and display virtual machines and datastores created on the NFS file system
- ◆ Mount a backup to verify its content prior to restoration
- ◆ Restore backed up virtual machines or complete datastores

SnapManager for VI limitations

SnapManager for VI has the following limitations:

- ◆ It does not back up traditional volumes (it backs up FlexVol volumes).
- ◆ It does not back up RDM (raw device mapping) LUNs.
- ◆ It does not provide application-consistent backups of applications deployed within a virtual machine.

- ◆ It does not support restore of a virtual machine to a datastore that is not its container at the time of backup.
- ◆ It does not display newly created VMFS datastores unless the storage system volumes on which those datastores reside are rescanned from the VC server and the SnapManager for VI Backup window is refreshed.
- ◆ It does not back up a datastore whose image spans multiple volumes.
- ◆ It does not restore a datastore that has been removed from the VC server after backup.
- ◆ It does not support multiple SnapManager for VI servers providing backup for the same VC server.

SnapManager for VI concepts

Backup

A backup is a Storage Snapshot copy of an active datastore or virtual machine that resides on a storage system. If you accidentally delete or corrupt an active datastore or virtual machine image, you can restore its last backup copy as long as the storage system itself is not disabled. You can back up an entire datastore, or you can back up one or more virtual machines within the datastore.

Storage system

Unless otherwise stated in this manual, a storage system is data storage hardware that runs the Data ONTAP software.

Snapshot copies

Snapshot copy refers to the Data ONTAP Snapshot technology, which facilitates recovery after accidental deletion or modification of the data stored on a storage system by referencing a point-in-time image of that data. SnapManager for VI backups are Snapshot copies of the virtual machine or datastore images.

SnapMirror

SnapMirror is a data protection feature of Data ONTAP. It mirrors a Snapshot copy of data from a source storage system to a destination storage system in a separate location.

You can supplement SnapManager for VI backup with SnapMirror backup so that every time you back up and create a Snapshot copy you also mirror that copy to a separate destination storage system. Whenever you initiate backup of a datastore or virtual machine and opt for a SnapMirror update, the update starts as soon as the backup completes, outside of the current SnapMirror schedule.

If the physical storage system on which your active datastore and virtual machine images reside is destroyed or disabled, you can activate or restore the datastore or virtual machine copies most recently mirrored to the SnapMirror destination storage system.

Note

SnapManager for VI supports only volume-based SnapMirror updates. It does not support qtree SnapMirror updates.

You must configure a SnapMirror relationship on the storage systems before you attempt to perform a SnapMirror update. This is a required for both the source and destination. If you select to perform a SnapMirror update during a backup, SnapManager for VI invokes the existing SnapMirror relationship that starts the data transfer. See the SnapMirror information in your *Data ONTAP Online Backup Guide* for more information about configuring SnapMirror on storage systems.

Backup job

In SnapManager for VI usage, A *backup job* is not an actual backup. Instead, it is a *configuration* in which you specify how to automate the execution of your virtual machine and datastore backups. You can create a backup job and specify a schedule, description, backup retention policy, credentialed user, alert notification policy, and a name and description for your backups. You can designate the virtual machine or the datastore entities, on which to apply the backup job.

Backup job schedules

You can specify an hourly, daily, weekly or monthly schedule for executing automated backups. You can specify start days, start times, and hourly, daily, weekly, or monthly backup frequencies.

Entities

Entities refers to the VMware virtual infrastructure datastore or virtual machine units to which you can apply your SnapManager for VI backup or backup job.

Backup retention policies

In your backup job, you can specify criteria (either by maximum number of days or by maximum number of backups) for how long you want to retain a backup before automatically deleting it.

Alert notification policies

In your backup job, you can specify one or more e-mail addresses to notify of failure, error, or warning events related to scheduled backups.

Automatic backup naming

Whenever you initiate the backup of a datastore or virtual machine, SnapManager for VI automatically allocates a name to the backup if one is not given.

You can change the name of a backup by using the CLI or from the Restore window. Changing the name of a backup also changes the name on the corresponding Snapshot copy on the associated storage system.

Note

Change SnapManager for VI backup names only through the SnapManager for VI CLI or through the Restore window. Do not change the corresponding Snapshot copy names on the managed storage systems directly through Data ONTAP CLI commands.

Components used in SnapManager for VI

Components included with SnapManager for VI

The following components are included with the SnapManager for VI software.

SnapManager for VI server: This software server comes packaged with the SnapManager for VI installation file. You can deploy it locally on the same machine running the VC (VirtualCenter™) server or on any machine running a supported version of the Windows operating system.

SnapManager for VI GUI: This user interface to the SnapManager for VI server comes packaged with the SnapManager for VI installation file. It enables you to manage virtual machines and datastores that reside within your virtual infrastructure environment. It allows you to configure and schedule backup jobs, carry out manual backups, rename backups, mount and unmount backups on an ESX server for viewing prior to restoration, and restore a virtual machine or datastore from that backup.

SnapManager for VI CLI: This command-line interface to administer the SnapManager for VI server comes packaged with the SnapManager for VI installation file. It also enables you to manage virtual machines and datastores that reside within your virtual infrastructure environment. The CLI allows you to create a new user (if necessary to access both the SnapManager for VI server and the VC server with one login name), initiate a backup, find a backup to restore, mount and unmount a backup, rename a backup, and restore a virtual machine or datastore from a backup.

Components not included with SnapManager for VI

The following components work with but are not included with SnapManager for VI.

Storage systems using Data ONTAP: SnapManager for VI provides backup support for datastores and virtual machines whose active images reside on storage systems using Data ONTAP located in either SAN (VMFS over LUNs) or NAS environments.

SnapMirror source and target systems (optional): If you want to support SnapManager for VI backup plus mirroring, you must configure SnapMirror on your storage systems.

- ◆ The storage systems on which the active datastore and virtual machine images reside must be configured as SnapMirror source systems.

- ◆ The storage systems to which you want to mirror those backup copies must be configured as the SnapMirror target systems.

VMware VirtualCenter (VC): This management software suite consists of the following:

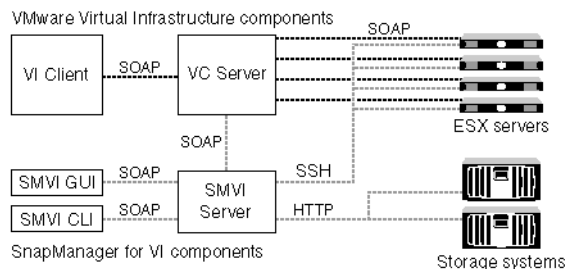
- ◆ VMware agents—software modules installed on an ESX server to carry out VC server requests
- ◆ VirtualCenter (VC) server—a server communicating with VMware agents on an ESX server
- ◆ Virtual Infrastructure (VI) client—a GUI client to manage the VC server

You use this management software to create your VMware datastores and virtual machines and to configure the storage system volumes as the containers in which your active datastore and virtual machine images reside.

VMware ESX server: This enterprise-level product integrates server processes, storage functionality, and networking resources into multiple virtual systems. For this document, the term *ESX server* refers to a physical host running an ESX server hypervisor OS.

SnapManager for VI architecture

SnapManager for VI has a client-server architecture. The following illustration shows the SnapManager for VI architecture.



In this illustration, the SSH connection between the SnapManager for VI server and the ESX servers supports file copying during virtual machine restores of VMFS datastores.

Note

In this illustration, the SnapManager for VI clients and the SnapManager for VI server reside on different host systems. However, you can install and use the two components on the same host system.

Configuration and usage workflows

About these workflows

This section describes likely preinstallation setups, installation and configuration workflows, backup configuration workflows, and restoration workflows involving the SnapManager for VI software.

Example preinstallation setup

A VMware virtual infrastructure and storage system combination that would benefit from installation of SnapManager for VI might be similar to the following example.

Virtual infrastructure and storage system configuration: The following virtual infrastructure, configured through the VI client and VC server software, is the minimum to support the basic SnapManager for VI backup function.

- ◆ A VI client and VC server (*vcserver_x*) managing ESX servers supporting datastore and virtual machine entities
- ◆ Managed datastore and virtual machines (including a virtual machine, *vm_db_accts*)
- ◆ A storage system (*ss_sm_source*) on which resides a volume (*vol_db_accts*) in which resides the active image for the virtual machine, *vm_db_accts*)

SnapMirror configuration (optional): In addition, if the volumes in which the active datastore and virtual machine images reside have been fully configured as SnapMirror source volumes through the Data ONTAP CLI or through the Protection Manager application, then you can support the optional SnapManager for VI SnapMirror update function.

In this example, the SnapMirror target volumes would include the following:

- ◆ A secondary storage system (*ss_sm_mirror*) that is located a safe distance from the first storage system (*ss_sm_source*)
- ◆ A SnapMirror target volume (*vol_db_accts_smtarget*) that resides on the secondary *ss_sm_mirror* storage system and is configured as a SnapMirror target to volume *vol_db_accts* on the first storage system

Installation and configuration workflow

To add SnapManager for VI backup capability to the existing VMware virtual infrastructure system described in the previous section, the administrator will install and configure the SnapManager for VI server and its client GUI.

Note

The server and its client GUI can be installed on either a single PC host or on separate PC hosts.

Installing SnapManager for VI: The administrator runs the package to install the SnapManager for VI client and the SnapManager for VI server on their respective PC Windows hosts.

Specifying a VirtualCenter server: After installation is complete, the administrator launches the SnapManager for VI client GUI and uses the Setup window to specify the DNS name or the IP address of the VC server `vcserver_x` whose managed datastores and virtual machines the administrator wants to provide backup service to.

Note

If the VC server credential does not match the SnapManager for VI server credential, then the administrator must specify the user name and password for the VC server through the SnapManager for VI CLI.

Specifying a storage system: During configuration the administrator also specifies the DNS names or IP addresses of the storage systems (including `ss_sm_source`) in which reside the active images of the datastores and virtual machines that the administrator wants to back up.

The SnapManager for VI software then discovers and lists the datastore and virtual machine entities that reside on the specified storage systems and their volume or qtree locations.

Note

The software cannot discover new datastores created on the VFMS file system until the storage systems on which they reside are first rescanned from the VC server.

Configuring a backup job: SnapManager for VI allows the administrator to use either the Back up window to carry out a one-time backup of specified datastores and virtual machines, or the Schedule Backup Jobs window to create scheduled backup jobs.

- ◆ In this case the administrator uses the Schedule Backup Jobs window to create a backup job (`db_accts_backup`) which allows the administrator to designate a set of datastore or virtual machine entities that the administrator wants to backup (including `vm_db_accts`), a schedule for those backups, a policy for deleting old backups, and alert notification criteria.

- ◆ Because the volumes on which the backed up datastores and virtual machines reside have existing SnapMirror relationships with volumes on a separate storage system in another location, the administrator also selects the option that enables SnapMirror transfers to automatically take place with each backup.

Restoration workflow

If one of the virtual machines (*vm_db_accts*) used by the applications administrator becomes corrupted, the SnapManager for VI administrator can use the Restore window to restore an uncorrupted backup copy of that virtual machine as follows:

Listing the available backups: Given the name of the corrupt virtual machine, the administrator checks the Restore window and lists all the existing backups containing the virtual machine *vm_db_accts*.

Mounting a backup to confirm its contents: In the Restore window, the administrator selects the most recent backup, mounts it on an ESX server, then views the backup contents through the VI client and VC server software to confirm that the image is valid. Then, through the Restore window, the administrator unmounts the backup.

Executing restore: Through the Restore window, the administrator then selects Restore to start the restore process, confirms that the administrator wants to restore the selected backup to its original ESX server, and in the case of VMFS-based restore, provides SnapManager for VI with the root credentials to enable the SnapManager for VI application to log in to the ESX server.

This chapter describes how to install SnapManager for VI, from downloading the software to the point at which you can start using the SnapManager for VI user interfaces. This chapter also describes how to uninstall SnapManager for VI.

This chapter includes the following topics:

- ◆ “[System requirements](#)” on page 14
- ◆ “[Preinstallation configuration requirements](#)” on page 16
- ◆ “[Obtaining the SnapManager for VI installation file](#)” on page 17
- ◆ “[Installing SnapManager for VI on Windows 2003 and Windows XP](#)” on page 18
- ◆ “[Installing SnapManager for VI on Windows 2008 and Vista](#)” on page 19
- ◆ “[Uninstalling SnapManager for VI](#)” on page 23

System requirements

Before you install SnapManager for VI, make sure that you have the system requirements. This section describes all supported system requirements (hardware and software) that allow you to install and run SnapManager for VI.

Supported hosts

You can install and run all of the SnapManager for VI software components on the same Windows host system. You can also install the two user interfaces (CLI and GUI) on different host systems as long as they are in the same domain as the SnapManager for VI server.

Supported host software: The following are the supported Windows platforms for the SnapManager for VI server, the SnapManager for VI GUI, and the SnapManager for VI CLI.

- ◆ Windows 2003
- ◆ Windows XP
- ◆ Windows 2008
- ◆ Windows Vista

Supported host hardware: The following table lists the minimum hardware a host must have to install and run the SnapManager for VI server, the SnapManager for VI GUI, and the SnapManager for VI CLI.

Hardware function	Hardware requirements
Memory	512 MB of RAM 1 GB (minimum) if all SnapManager for VI components and the VC server are on the same host
Disk space	500 MB (minimum)
CPU	1.0 GHz processor speed (minimum)
Temporary disk space for installation	250 MB

VC server and ESX server requirements

SnapManager for VI supports VC servers running VMware Infrastructure SDK 2.0.2 and 2.5.x.

SnapManager for VI supports ESX servers 3.0.2 and 3.5.x.

Data ONTAP requirements

SnapManager for VI requires that the data storage systems on which reside the datastore or virtual machine images run the Data ONTAP storage software. These storage systems can be either Data ONTAP-specific physical storage systems or vFiler units. The following specific requirements apply:

- ◆ Physical storage systems:
 - ❖ Data ONTAP 7.2.x and 7.3.x
 - ❖ SnapRestore® licensed
- ◆ vFiler units:
 - ❖ Data ONTAP 7.2.4 (and above) and 7.3.x
 - ❖ SnapRestore licensed

Note

vFiler supports iSCSI but not FCP protocol. In addition, a vFiler unit only supports LUNs created for VMFS datastores with multiprotocol type VMware.

Preinstallation configuration requirements

Requirements for basic SnapManager for VI backup

To support basic SnapManager for VI backup of your virtual machine and datastore images, ensure that the following VMware and storage system configurations exist prior to SnapManager for VI installation:

- ◆ Virtual Infrastructure client and VirtualCenter server are installed to configure and manage an ESX server.
- ◆ Through the Virtual Infrastructure client configuration, the ESX server's active datastore and virtual machine images reside on volumes or qtrees on one or more storage systems.

Note

See Virtual Infrastructure client and VirtualCenter server documentation for details on configuring datastore and virtual machine images to reside on storage volumes.

- ◆ Snapshot protection is enabled in the volumes on which those datastore and virtual machine images reside.
- ◆ SnapRestore is licensed for the storage systems on which those datastore and virtual machine images reside.

Requirements for additional SnapMirror protection

The optional SnapMirror-based disaster recovery protection requires the following additional preinstallation conditions:

- ◆ A SnapMirror license is installed on the storage systems on which the ESX server's active datastore and virtual machine images reside.
- ◆ The volumes containing the active datastore and virtual machine images are configured as SnapMirror source volumes.
- ◆ These source volumes have a SnapMirror relationship with target volumes on a second SnapMirror-licensed storage system that is located a safe distance from the source storage system.
- ◆ The host names and IP address of the SnapMirror source and destination storage systems must be resolvable for the SnapManager for VI server, either through a configured DNS server or through host entries added to the host file on the SnapManager for VI server.

The usual path location to the host file on Windows XP or Vista operating systems is:

`Windows_dir\system32\drivers\etc\host`

Obtaining the SnapManager for VI installation file

You can access the SnapManager for VI software from a CD or from the NOW™ (NetApp on the Web) site.

Obtain NOW credentials

To download the SnapManager for VI installation file, you must have current NOW credentials. You can obtain NOW credentials from the following Web site: <https://now.netapp.com/eservice/SupportHome.jsp>.

Downloading the installation file from the NOW site

To download the SnapManager for VI installation files from the NOW site, perform the following steps.

Step	Action
1	Use the proper NOW credentials to log in to the NOW Web site at http://now.netapp.com .
2	Download the software file for Windows from the NOW site.
3	In the NOW site, click Download Software .
4	Locate the SnapManager for VI install file: SMVI-setup.exe .
5	In the Select Platform list, select Windows platform.
6	Click Go .
7	Click View & Download .
8	Read the download instructions and click Continue .
9	Read the licensing agreement and click Accept .
10	Click the SnapManager for VI installation file.
11	When a .zip file dialog box appears, select Save to Disk > OK to complete the download process.

Installing SnapManager for VI on Windows 2003 and Windows XP

You can install SnapManager for VI on host systems running Windows Server 2003, Windows XP, Windows 2008, and Vista. See [“System requirements”](#) for a list of system requirements for a host system.

To install SnapManager for VI on the Windows Server 2003 or Windows XP platform, complete the following steps.

Step	Action
1	Ensure that your host meets all system requirements (see “System requirements”).
2	Complete the download (see “Downloading the installation file from the NOW site”).
3	Locate and launch the SMVI-setup.exe installation file. The SnapManager for VI InstallShield wizard launches.
4	Click Next .
5	Read the licensing agreement and click to accept the terms of the license.
6	Click Next .
7	When the destination folder screen appears, click Next .
8	Choose one of the following setup types: ◆ Full installation (SnapManager for VI server, GUI, and CLI) ◆ GUI and CLI (for remote GUI and CLI installations) ◆ CLI only (for remote CLI installations) After selecting a setup type, click Next .
9	Click Install .
10	Click Yes to add the shortcuts to your desktop.
11	Click Finish .

Installing SnapManager for VI on Windows 2008 and Vista

You can install SnapManager for VI on host systems running Windows Server 2003, Windows XP, Windows 2008, and Vista. See [“System requirements”](#) for a list of system requirements for a host system.

Note

To install and enable SnapManager for VI on Windows 2008 and Vista systems, you must specifically configure SnapManager for VI to run under Administrator or under a user with administrator rights.

To install SnapManager for VI on Windows 2008 and Vista systems, complete the following steps.

Step	Action
1	Ensure that your host meets all system requirements (see “System requirements”).
2	Complete the download (see “Downloading the installation file from the NOW site”).
3	Locate the SMVI-setup.exe installation file.
4	Right-click the SMVI-setup.exe icon and select the run as administrator option.
5	When the User Account Control dialog box appears, select the Allow button. The SnapManager for VI InstallShield wizard launches.
6	Click Next .
7	Read the licensing agreement and click to accept the terms of the license.
8	Click Next .
9	When the destination folder screen appears, click Next .

Step	Action
10	Choose one of the following setup types: ◆ Full installation (SnapManager for VI server, GUI, and CLI) ◆ GUI and CLI (for remote GUI and CLI installations) ◆ CLI only (for remote CLI installations) After selecting a setup type, click Next.
11	Click Install .
12	Click Yes to add the shortcuts to your desktop.
13	Click Finish .
14	Specifically enable SnapManager to run under Administrator credentials. Click the Start button and select All Programs > Administrative Tools > Services. Note— If you see the User Account Control window prompt for your permission to run the Microsoft Management Console application, select Continue. The Services window lists all Windows services.
15	In the services list, on the right pane, right-click SnapManager VI service and select Stop .
16	After the service is stopped, right-click SnapManager VI service again and select Properties from the menu. You display the SnapManager VI Properties window.
17	In the Properties window, click the Log On tab. When prompted, select the This account log on option.
18	Enter either Administrator or the name of the user who is member of administrators group. Note— You can also use Browse button to look up for user names.

Step	Action
19	Type the password of the user in the Password box and in the Confirm password box.
20	Click OK. Note _____ If you see a window saying that user has been granted Log On As A Service right, click OK.
21	Right-click SnapManager VI service again and select Start . SnapManager for VI is now configured to run with Administrator or user with Administrator rights credentials.
22	To configure your SnapManager for VI Desktop shortcuts to start SnapManager for VI under administrator-level credentials, minimize all windows so that you can see and reconfigure the SnapManager for VI shortcuts on the desktop.
23	On the desktop, right-click the smvi cli shortcut and select Properties .
24	In the shortcut properties window, click Advanced and select the Run as administrator check box.
25	Click OK to close both windows.
26	On the desktop, right-click the smvi gui shortcut and select Properties . This will open shortcut properties window.
27	In the shortcut properties window, click Advanced and select the Run as administrator check box.
28	Click OK to close both windows. Your desktop shortcuts are now configured to start SnapManager for VI under administrator credentials.
29	To enable the SnapManager for VI shortcuts in the Start menu to start SnapManager for VI under administrator credentials, select Start > All Programs > NetApp .
30	Right-click the smvi cli shortcut and select Properties .

Step	Action
31	In the shortcut properties window, click Advanced and select the Run as administrator check box.
32	Click OK to close both windows.
33	Right-click the smvi gui shortcut and select Properties .
34	In the shortcut properties window, click Advanced and select the Run as administrator check box.
35	Click OK to close both windows. Your Start menu shortcuts are now configured to start SnapManager for VI under administrator credentials.

Uninstalling SnapManager for VI

The following section describes how to uninstall SnapManager for VI from your host system.

To uninstall SnapManager for VI, complete the following steps.

Step	Action
1	Open the Windows Control Panel on the host system and start the uninstallation program. ◆ On Windows 2003 and Windows XP systems, select the Add or Remove Programs icon. ◆ On Windows 2008 and Vista systems, select the Programs and Features icon.
2	Locate and select the SnapManager for VI icon.
3	Select Remove and click Next .

Uninstalling SnapManager for VI does not automatically remove created metadata. Delete the following files to remove created metadata:

- ◆ Program Files\NetApp\SMVI\server\etc\Cred
This file contains encrypted information about both NetApp storage systems (host, user name, and password) and VirtualCenters (host, user name and password).
- ◆ Program Files\NetApp\SMVI\server\repository\backups.xml
This file contains information about what you backed up. You can save it to find and then restore a datastore or virtual machine from one or more backups earlier.
- ◆ Program Files\NetApp\SMVI\server\repository\mounts.xml
This file contains information about the backups that were mounted. If this file indicates that a backup is still mounted, then you must unmount it. Otherwise, you will have copies of your data that are still in use within VMware and NetApp storage systems.
- ◆ Program Files\NetApp\SMVI\server\repository\scheduleBackups.xml
This file contains information about the scheduled backup jobs that have been created for use within SnapManager for VI.

You can also safely remove any remaining directory or file in the installation directory after the uninstall process is complete.

This chapter describes the steps to perform when using SnapManager for VI for the first time. It has the following topics:

- ◆ [“SnapManager for VI authentication methods”](#) on page 26
- ◆ [“Launching the SnapManager for VI user interfaces”](#) on page 27
- ◆ [“Creating a user using the CLI”](#) on page 29
- ◆ [“Adding a VC server”](#) on page 30
- ◆ [“Adding storage systems”](#) on page 31
- ◆ [“Using a custom storage system account”](#) on page 32

SnapManager for VI authentication methods

SnapManager for VI provides two authentication methods to determine if you have the proper user credentials to access the SnapManager for VI server. This section provides an overview of the SnapManager for VI authentication methods.

The SnapManager for VI default authentication method allows you to use your Windows authentication credentials to log in to the SnapManager for VI server. However, you can also override the default authentication method by creating a user through the SnapManager for VI CLI. This allows you to log in with user credentials other than your Windows credentials (see “[Creating a user using the CLI](#)” for steps for creating a user).

Note

If you create a user through the SnapManager for VI CLI, then you must also set the VC server credentials through the CLI. If you do not do this, the user is unable to run any command that requires communication with the VC server.

Launching the SnapManager for VI user interfaces

This section describes how to launch the SnapManager for VI user interfaces.

Launching the CLI

When you use the SnapManager for VI CLI for the first time, the application uses your Windows user credentials by default to authenticate and validate your access to the SnapManager for VI server. When you issue your first CLI command, the CLI prompts for your password and then runs the command. If the command succeeds, the CLI caches your user credentials and stores the information locally in an encrypted format.

An alternative method to using your Windows user credentials is to create new user credentials that allow you to log in to the SnapManager for VI server for commands to work (see “[Creating a user using the CLI](#)”).

To start the SnapManager for VI CLI from your Windows host, do the following.

Step	Action
1	Click the smvi cli desktop icon or select Start > All Programs > NetApp > smvi CLI .

Note—
See “[SnapManager for VI command reference](#)” for a list and description of all CLI commands.

Launching the GUI

The default method to log in to the SnapManager for VI server to access the GUI is to use your Windows user credentials (that is, your domain and user name). If the SnapManager for VI server validates your Windows credentials, then login succeeds.

An alternative method to using your Windows user credentials is to create new user credentials that allow you to log in to the SnapManager for VI server to access the GUI (see “[Creating a user using the CLI](#)”). If the SnapManager for VI server validates the created credentials, then login succeeds.

To start the SnapManager for VI GUI from your Windows host, do the following.

Step	Action
1	Click the smvi gui desktop icon or select Start > All Programs > NetApp > smvi gui .
2	Enter the IP address or domain name of the SnapManager for VI server. Note _____ If the SnapManager for VI client and SnapManager for VI server are installed on the same PC, leave the Server field blank.
3	Enter your user name. Use either your Windows user credentials, or you can create a user and then use the created information to log in.
4	Enter your password. Use either your Windows user credentials or you can create a user and then use the created information to log in.
5	(Optional) Click Options and enter the port information of the SnapManager for VI server.
6	Click Connect .

Creating a user using the CLI

You can create a user to override the default authentication method (that is, use your Windows user credentials). The credentials of a created user provide the same access to commands and features as an administrator who logs in using the default authentication method.

To create user credentials using the SnapManager for VI CLI, complete the following steps.

Step	Action
1	Launch the CLI (see “ Launching the CLI ”).
2	Enter the <code>smvi servercredential set</code> command.
3	Enter your user name.
4	Enter your password.
5	Restart the SMVI server service. You can do this from the Start Menu: choose Settings > Control Panel > Administrative Tools > Services > SnapManager VI > Start.

Adding a VC server

Since the SnapManager for VI server communicates directly with a VC server to discover the data centers and datastores within your virtual environment, you must add a VC server after setting up your user credentials. SnapManager for VI server and the VC server communicate using HTTPS.

To add a VC server, complete the following steps.

Note

You can only connect to one VC server.

Step	Action
1	Launch and log in to the GUI (see “ Launching the GUI ”).
2	To go to the Setup screen, either click Setup on the navigation pane or click the Setup link from the Start page.
3	In the VC server pane of the Setup screen, click Edit .
4	In the Edit dialog box, type the IP address or domain name of the VC server.
5	In the Edit dialog box, type the port of the VC server.
6	Click OK .

Note

If you create a user through the SnapManager for VI CLI, then you must also set the VC server credentials through the CLI. If you do not do this, the user is unable to run any command that requires communication with the VC server. To perform the preceding operation using the SnapManager for VI CLI, see “[smvi vcserver set](#)”.

Adding storage systems

After you specify a VC server and set up your user credentials, add the physical storage systems on which the active images of the datastores and virtual machines that are managed by that VC server reside. Doing so allows SnapManager for VI to discover those datastore and virtual machine entities so that you can create backups of them.

SnapManager for VI server and storage systems communicate using either HTTP or HTTPS.

Note

If you intend to initiate a SnapMirror update during a backup procedure, you must also add a destination storage system at this time.

Note

To perform the preceding operation using the SnapManager for VI CLI, see [“smvi storagesystem add”](#).

To add storage systems, complete the following steps.

Step	Action
1	Launch and log in to the GUI (“ Launching the GUI ” on page 28).
2	To go to the Setup screen, either click Setup on the navigation pane or click the Setup link from the Start page.
3	In the Storage System pane of the Setup screen, click Add .
4	In the Add dialog box, type the DNS name or IP address of the storage system on which the active images of the datastore or virtual machine entities managed by the current VC server reside.
5	In the Add dialog box, type the name and password that allows you to communicate with the storage system.
6	Click OK .

Using a custom storage system account

A nonroot or nonadministrator account might be required for SnapManager for VI to access a specific storage system. If this is the case, then you must create a new role, group, and user on the storage system.

The following table describes how to create a new role, group, and user account for your storage system.

Item	Description
Role	The role must allow SnapManager for VI to access the storage system data through its APIs. To create a role from the storage system's CLI, use the following command: <pre>useradmin role add api-access -a api-*,login-http-admin,cli-ifconfig</pre> This command creates a role named api-access and grants the role the minimum configuration for SnapManager for VI to access the storage system.
Group	A storage system maintains groups as a collection of roles. To create a group from the storage system's CLI, use the following command: <pre>useradmin group add api-group -r api-access</pre>
User	A user account that SnapManager for VI uses to access a storage system must have a group that contains a role. You can create this user and assign a password to it. You are then able to add a storage system to SnapManager for VI with the assigned user name and password. To create a user from the storage system's CLI, use the following command: <pre>useradmin user add smvi-user -g api-group</pre> To set the user's password, run the <code>passwd</code> command on the storage system CLI as root. The storage system prompts you for the account name that you want to change, followed by the new password for this account.

For more information on how to manage users on your storage system, refer to your storage system's administrator guide.

This chapter describes how to create, modify, and use backup job configurations to automate the backing up and management of SnapManager for VI backups.

- ◆ [“About the Schedule Backup Jobs window”](#) on page 36
- ◆ [“Creating a backup job”](#) on page 38
- ◆ [“Modifying backup job properties”](#) on page 42
- ◆ [“Managing backup jobs”](#) on page 47

About the Schedule Backup Jobs window

The Schedule Backup Jobs window provides the ability to create and modify backup jobs for which you can specify an automated backup schedule, a backup deletion policy, a set of entities (virtual machines or datastores) to which to apply this schedule, a user under whose name this backup job will run, and an alert notification policy.

Note

You can refresh this window by pressing **[F5]** or by selecting **Refresh** from the View menu.

The Schedule Backup Jobs window contains the following elements:

Element	Description
Add button	This button starts the Add Job Wizard.
Edit	This button enables you to modify the name, backup schedule, entity assignment, retention policy, authorized user, and alert notification policy of the selected backup job.
Delete	This button deletes a selected backup job.
Run Job Now	This button immediately starts backup operations specified by a selected backup job.
Suspend	This button suspends the schedule of a selected backup job.
Resume	This button resumes the schedule of a selected backup job.
Name	This table column lists existing backup jobs by name.
Description	This table column displays the descriptions for existing backup jobs.
Schedule type	This table column displays the schedule types (Hourly, Daily, Weekly, or Monthly) assigned to existing backup jobs.

Element	Description
Schedule time	This table column displays the next scheduled backup times of existing backup jobs.
Schedule recurrence	This table column displays the recurrences (days of the week, number of hours, or day of the month) of backups for the listed backup jobs.
Last Run Status	This column usually displays the status (Succeeded, Failed, Running, Not Available, or Any) of the most recent backup operation associated with the listed backup jobs. Note_____ If the most recent backup associated with a job gets deleted through the Restore window or through the CLI, then the status displayed will be that of the next most recent undeleted backup associated with that backup job. _____
Scheduled Status	This column displays the status (Active or Suspended) of the listed backup jobs.
Entities	If you have a virtual machine or datastore assigned to your listed backup jobs, this pane lists the name and UUID of the virtual machine or datastore entities to which a selected backup job has been assigned.

Creating a backup job

Create a backup job if you want to create a new configuration that schedules and automates your backups, enforces a retention policy, enforces an automated alert notification policy, and can be applied to multiple datastore and virtual machine entities.

To back up one or more datastores or virtual machines, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select Add .
2	When the Add Job wizard Welcome dialog box appears, click Next .
3	In the Job Name dialog box, type a name and description for the new backup job and click Next. Note _____ If you want a backup job name assigned automatically, just click Next. _____
4	In the Virtual entities field of the Entities dialog box, select either the data center name or a datastore. ◆ Selecting the data center name displays all datastores contained in that data center in the Available Virtual Entities list box. ◆ Selecting a datastore displays all virtual machines that are part of that datastore in the Available Virtual Entities list box.

Step	Action
5	In the Available Virtual Entities list, select the datastores or the virtual machines that you want this backup job assigned to and click the > button. The selected entities, displayed in the Selected Virtual Entities box, will be assigned this schedule. Note_____ If you want to select all the datastores or virtual machines in the Available Virtual Entities list, click the >> button. _____ Note_____ To unassign this job from a virtual machine or datastore, select a virtual machine or datastore name in the Selected Virtual Entities box and click the < button. _____
6	(Optional) Select the Initiate SnapMirror Update check box to start a SnapMirror update on the selected entities concurrent with every backup. Note_____ For this option to execute successfully, the selected entities must reside in volumes that are already completely configured as SnapMirror source volumes. _____
7	Click Next .
8	In the “User Credentials” dialog box enter the user name and password of the administrator authorized to manage this backup job and the entities to which it applies. Note_____ The user name entered here must be authorized for both the SnapManager for VI server and the VC server. _____
9	Click Next .
10	In the Backup Schedule dialog box select the type of schedule to configure (Hourly, Daily, Weekly, Monthly).

Step	Action
11	Complete the fields relevant the type of schedule that you specified and click Next. Note_____ If you configure an Hourly backup schedule, specify intervals of either 1, 2, 3, 4, 6, 8, 12, or 24 hours between backups to ensure that your backups occur at the same times from one day to the next. Specifying any other interval causes your backup times to shift from one day to the next. _____
12	In the Retain Backups dialog box specify the backup deletion policy you want to apply. ◆ To retain backups based on a maximum time, select the A maximum <number> of days option and select the number of days that you want a backup retained before it is deleted. ◆ To retain a maximum number of backups, select the A maximum <number> of backups option and select the number of newer backups to have before an older backup is deleted. ◆ To retain all backups indefinitely until you decide to manually delete them, select the Indefinitely option.
13	Click Next .
14	In the Alert Notifications dialog box, specify the following: ◆ One source e-mail address. In most cases this the address of the administrator who is configuring this backup job ◆ One or more e-mail addresses to which to send alerts notification ◆ The address of the SMTP server from which to send the alerts ◆ The level of alerts for which to send notification (Always, Never, Errors or Warnings, or Errors only)
15	Click Next .
16	On the final Completing Add Job Wizard screen, review the backup job configuration and click Finish .

After the configuration is complete, the backup job appears active on the Schedule backups window.

Modifying backup job properties

Changing a backup job name and description

To change the name and description of an existing backup job, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job whose properties you want to edit, then click Edit > Names .
2	In the Job Name dialog box, enter a name and description for the new backup job and click OK .

Modifying the entities of a backup job

To change the datastores and virtual machines that are assigned an existing backup job, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job whose properties you want to edit, then click Edit > Entities .
2	In the Add entities field, select either data center or a datastore. ◆ Selecting data center displays all datastores contained in that data center in the Available Virtual Entries list box. ◆ Selecting a datastore displays all virtual machines that are part of that datastore in the Available Virtual Entries list box.
3	In the Available Virtual Entities list, select the datastores or the virtual machines that you want this backup job assigned to and click the > key. Note_____ If you want to select all the datastores or virtual machines in the available entities list, click the >> key. The selected entities, displayed in the Selected Virtual Entities box, will be assigned this schedule.

Step	Action
4	(Optional) Select the Initiate SnapMirror Update check box to start a SnapMirror update on the selected entities concurrent with every backup. Note _____ For SnapManager for VI to successfully execute this option, the selected entities must reside in volumes already completely configured as SnapMirror source volumes.
5	Click OK .

Modifying the user of a backup job

To change the user under whose name an existing backup job is run, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job whose properties you want to edit, then click Edit > User .
2	Type the user name and password of the administrator authorized to manage this backup job and the entities to which it applies.
3	Click OK .

Modifying the schedule of a backup job

To change the schedule of a backup job, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job whose properties you want to edit, then click Edit > Schedule .
2	In the Backup Schedule dialog box select the type of schedule to configure (Hourly, Daily, Weekly, Monthly) in the perform this operation field.

Step	Action
3	Complete the fields relevant to your type of schedule: ◆ For an hourly schedule, specify start date, start time, and recurrence intervals (in hours). Backup operations will start on the date and time specified, repeating at the specified hourly intervals. Note _____ If you configure an Hourly backup schedule, specify intervals of either 1, 2, 3, 4, 6, 8, 12, or 24 hours between backups to ensure that your backups occur at the same times from one day to the next. Specifying any other interval causes your backup times to shift from one day to the next. ◆ For daily schedules, specify start date and start time. Backup operations will start on the date and time specified, repeating daily at the specified start time. ◆ For weekly schedules, specify start date, start time, and one or more days of the week. Backup operations will start at the date and time specified, repeating at the specified start time on the specified days of the week. ◆ For a monthly schedule, specify start date, start time, and a day of the month (1-31). Backup operations will start at the specified date and time, repeating on the specified day of the month at the specified start time.
4	Click OK. Note _____ During a backup or restore operation on a virtual machine, SnapManager for VI allows no other backup or restore operation on that virtual machine to start. SnapManager for VI delays any backup or restore operation that is requested during an ongoing backup or restore operation after the ongoing operation is completed.

Modifying the retention policy of a backup job

To change the backup retention policy of a backup job, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job whose properties you want to edit, then click Edit > Backup Retention .
2	In the Backup Retention dialog box specify the backup deletion policy you want to apply. ◆ To retain backups based on a maximum time, select the maximum <number> days option and select the number of days that you want a backup retained before it is deleted. Backups older than the specified number of days are automatically deleted. ◆ To retain backups based on a maximum number, select the maximum <number> backups option and select the number of newer backups to have before an older backup is deleted. Backups of any entity that are older than the specified number of more recent backup copies of that entity are automatically deleted. ◆ To retain backups indefinitely until you decide to manually delete them, select the indefinitely option.
3	Click OK .

Modifying alert notification for a backup job

To change the alert notification properties of an existing backup job, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job whose properties you want to edit, then click Edit > Alerts .

Step	Action
2	In the Alert Notifications dialog box, modify the following: ◆ The source e-mail address that will appear as the sender's address in any alert notification that is issued (this can be any legitimate e-mail address) ◆ One or more destination e-mail addresses to which to send alert notifications ◆ The address of the SMTP server from which to send the alerts ◆ The level of alerts for which to send notification (Always, Never, Errors or Warnings, or Errors only)
3	Click OK .

Managing backup jobs

Deleting backup jobs

To delete a backup job, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job that you want to delete.
2	In the Entities pane, note the existing datastore and virtual machines currently associated with the selected backup job. Note that when the selected backup job is deleted, its backup operations will no longer be carried out on these entities.
3	If the deletion of this backup job is acceptable, click Delete , and then click Yes to confirm the deletion.

Running a backup job immediately

You can override a backup job's schedule and invoke an immediate backup operation on that backup job's assigned entities by using the Run Job Now option.

Note

Aside from starting a backup operation immediately, all other properties of the backup job (including any subsequently scheduled operations), continue to apply.

To run a backup job immediately, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the job that you want to run immediately.
2	In the Entities pane, note the existing datastore and virtual machines currently associated with the selected backup job.

Step	Action
3	If you conclude that starting an immediate backup operation on all the associated entities is acceptable, click Run Job Now. Note— The Run Job Now option differs from the manual Backup option on the Backup page in that the Run Job Now option applies a job's backup retention and alert notification settings, as well as carrying out an unscheduled backup.

Suspending an active backup job

You can suspend backup jobs and their scheduled operations without deleting the jobs themselves.

To suspend an active backup job, complete the following steps.

Step	Action
1	In the Schedule Backup Jobs window, select the active job that you want to suspend.
2	In the Entities pane, note the existing datastore and virtual machines currently associated with the selected backup job. Note that once the selected backup job is suspended, its backup operations will not be carried out on these entities while it is in suspended state.
3	If you conclude that suspension of this backup job is acceptable, click suspend. , and then click Yes to confirm the suspension.

Resuming a suspended backup job

You can resume a suspended backup job by using the Resume option.

To resume the schedule of a suspended backup job, complete the following steps.

Step	Action
1	In the Schedule Backups window, select the suspended job whose scheduled activities you want to resume. Note _____ Unless the selected backup job is in a suspended state, the Resume button is inactive and not clickable.
2	Click Resume , and then click Yes to confirm.

This chapter describes how to perform manual backup of virtual machine or datastores. It includes the following topics:

- ◆ “[About the Back up window](#)” on page 52
- ◆ “[Manually backing up a virtual machine](#)” on page 53
- ◆ “[Manually backing up a datastore](#)” on page 55

About the Back up window

The Back up window provides an alternative means of manually carrying out a datastore or virtual machine backup without the necessity of specifying a schedule or deletion policy or alert notification policy beforehand.

Note—
You can refresh this window by pressing **[F5]** or by selecting **Refresh** from the View menu.

The Back up window contains the following elements:

Element	Description
Tree view	This view displays a list of data centers and their datastores. Click a datastore and a list of virtual machines within the datastore appear in the Virtual Machines pane.
Datastore Properties	This pane displays datastore information, including its location and its type.
Back up Datastore	Click this button to launch a dialog box that allows you to manually back up a datastore.
Virtual Machines	This table displays all virtual machines contained within a datastore.
Back up Virtual Machine	Click this button to launch a dialog box that allows you to manually back up a virtual machine.
Tasks	Located at the bottom of the window, this pane displays the status of an operation.
CLI Command	Located at the bottom of the window, this pane displays the exact CLI command for the last backup operation.

Manually backing up a virtual machine

Create a backup of a virtual machine if you want to manually back up a single or multiple virtual machines within a selected datastore.

Note

You cannot back up a datastore that spans multiple volumes.

To back up one or more virtual machines, complete the following steps.

Step	Action
1	In the tree view of the Back up window, select a datastore to view a list of its virtual machines.
2	In the Virtual Machine pane, select one or more virtual machines that you want to back up. To select multiple virtual machines, press [Ctrl] while selecting your virtual machines.
3	In the Back up window, click Back up Virtual Machine .
4	In the Backup dialog box, specify a backup name. ◆ You can select the Automatically name backup check box (default) to have SMVI assign a name for the backup. Note _____ If you select the Automatically name backup check box and if you specify no name or a name that contains only spaces, SnapManager for VI will automatically generate a name. If you specify a name that contains both space and nonspace characters, SnapManager for VI removes all leading and trailing spaces from the name. ◆ You can uncheck the Automatically name backup check box and then type a name for the backup. Note _____ If you deselect the Automatically name backup check box and enter no name or a name that contains only spaces, the Backup dialog box displays an error.

Step	Action
5	(Optional) Select the Initiate SnapMirror Update check box to start a SnapMirror update immediately. Note_____ For this option to execute successfully, the selected virtual machines must reside in volumes already completely configured as SnapMirror source volumes. _____
6	Click OK to start the backup process. The status of the operation appears in the Task pane of the Back up window.

After the operation completes, the virtual machine backup appears in the Restore window.

Note_____

SnapManager for VI does not back up disks on a virtual machine that were attached using raw device mapping.

Manually backing up a datastore

Create a backup of a datastore when you want to manually back up the contents of an entire datastore, including all of its virtual machines.

To back up a datastore, complete the following steps.

Step	Action
1	In the tree view of the Back up window, select a datastore that you want to manually back up.
2	In the Back up window, click Back up Datastore .
3	In the Backup dialog box, either select the Automatically name backup check box (default) to have SnapManager for VI assign a name for the backup, or uncheck the Automatically name backup check box and then type a name for the backup.
4	(Optional) Select the Initiate SnapMirror Update check box to start a SnapMirror update immediately. Note_____ For this option to execute successfully, the selected datastore must be contained in a volume already configured as a SnapMirror source. _____
5	Click OK to start the backup process. Note_____ During a backup or restore operation on a virtual machine, SnapManager for VI allows no other backup or restore operation on that virtual machine to start. SnapManager for VI delays any backup or restore operation that is requested during an ongoing backup or restore operation after the ongoing operation is completed. _____

After the operation completes, the datastore backup appears in the Restore window.

Note

Again, SnapManager for VI does not back up disks on a virtual machine that were attached using raw device mapping.

This chapter describes how to restore a datastore or virtual machine from a backup using the Restore window. You can restore either an entire datastore or a virtual machine within a datastore.

This chapter has the following topics:

- ◆ [“About the Restore window”](#) on page 58
- ◆ [“Mounting and unmounting a backup \(optional\)”](#) on page 60
- ◆ [“Restoring a virtual machine of an NFS datastore from a backup”](#) on page 62
- ◆ [“Restoring a virtual machine of a VMFS datastore from a backup”](#) on page 64
- ◆ [“Restoring a datastore from a backup”](#) on page 66

About the Restore window

The Restore window provides a method to find, view, restore, and delete a saved backup.

Note

You can refresh this window by pressing **[F5]** or by selecting **Refresh** from the View menu.

The Restore window contains the following elements:

Element	Description
Datastores	This pane displays the backed up datastores. Click a datastore and a list of backups appears in the Backups pane. Note If a virtual machine exists in more than one datastore, all datastores where this virtual machine exists appear in this pane.
Backups	This pane displays created datastore and virtual machine backups. A time stamp of when you created a backup is also included.
Look for backups of	This field allows you to search for backups. You can search for a backup by typing the name or UUID (Universally Unique Identifier) of a datastore or virtual machine.
By backup name	Check this checkbox to find a backup by its backup name.
Find now	Click this button to find backups.
Clear	Click this button to clear the results of a search operation.
Edit	Click this button to launch a dialog box that allows you to change the name of a backup.
Delete	Click this button to delete one or more selected backups.
Mount	Click this button to mount a selected backup to an ESX server if you want to verify its content before restoring it.

Element	Description
Unmount	Click this button to unmount a backup from an ESX server after you verify that it contains the data that you want to restore.
Backed-up Entities	This table displays all datastores and virtual machines that are part of a selected backup.
Restore	Click this button to start a restore operation.
Tasks	Located at the bottom of the window, this pane displays the status of a Restore window operation.
CLI Command	Located at the bottom of the window, this pane displays the exact CLI command for the last Restore window operation. Note_____ If you execute a multiple backup deletion by selecting multiple backups and clicking the Restore window's Delete button, only the command line for the deletion of the last backup is displayed. _____

Mounting and unmounting a backup (optional)

If you need to restore a backup, you have the option of first mounting that backup and verifying its content to make sure that you restore the same information that was destroyed. Mounting the backup also allows you to ensure that the files are not corrupt.

After you mount the backup, verify its content by using a third-party central management interface (such as VirtualCenter from VMware). Perform the verification process independently from SnapManager for VI.

Note—
To mount a VMFS datastore backup, the supplied ESX server must have SAN or iSAN access to the NetApp storage system, including required FCP zoning or iSCSI discovery.
To mount an NFS datastore backup, the supplied ESX server must be in the NFS export list of the original datastore.

Mounting a backup to verify its contents

To mount a virtual machine from a backup, complete the following steps.

Step	Action
1	In the Datastores pane of the Restore window, select a datastore to display a list of its backups in the Backups pane.
2	In the Backups pane, select the backup that you want to mount. In the Backed-up Entities pane, the Restore window displays a list of virtual machines and datastores within this backup.
3	Click Mount .
4	When prompted, enter the name of the ESX server on which you want to mount the datastore or virtual machine in question. Note — This name is the name of the ESX server as viewed through the VI client. This name might differ from the ESX server’s host name or IP address.

Unmounting a backup

When a backup is mounted, its Snapshot copies are “busy” for the duration. This prevents you from deleting the mounted backup or any of the preceding Snapshot copies.

To unmount a backup, complete the following steps.

Step	Action
1	In the Datastores pane of the Restore window, select a datastore to display a list of its backups in the Backups pane.
2	In the Backups pane, select the backup to unmount. In the Backed-up Entities pane, the Restore window displays a list of datastores and virtual machines within this backup.
3	Click Unmount .

Restoring a virtual machine of an NFS datastore from a backup

Use SnapManager for VI to restore a single virtual machine of an NFS datastore from a backup. You can only restore the virtual machine to its original location, thereby overwriting the existing content.

Attention

You cannot stop a restore operation after it begins. It is important that you ensure that you want to overwrite the current virtual machine prior to starting a restore operation.

To restore a virtual machine from a backup, complete the following steps.

Step	Action
1	In the Datastores pane of the Restore window, select a datastore to display a list of its backups in the Backups pane.
2	In the Backups pane, select the backup to display a list of virtual machines and datastores within this backup.
3	In the Backed-up Entities pane, select the virtual machine that you want restored. Alternatively, you can list all the backups for the virtual machine using the backup search feature on the Restore window (see “Finding backups”).
4	Click Restore .
5	A confirmation message appears. Click Yes to continue. Note During a backup or restore operation on a virtual machine, SnapManager for VI allows no other backup or restore operation on that virtual machine to start. SnapManager for VI delays any backup or restore operation that is requested during an ongoing backup or restore operation after the ongoing operation is completed.

Note

The virtual machine automatically powers down when you restore a virtual machine from a backup. You must manually power it back up when the restore operation completes. Perform this manual step independently from SnapManager for VI.

Restoring a virtual machine of a VMFS datastore from a backup

Use SnapManager for VI to restore a single virtual machine of a VMFS datastore from a backup. You can only restore the virtual machine to its original location, thereby overwriting the existing content.

Attention — You cannot stop a restore operation after it begins. It is important that you ensure that you want to overwrite the current virtual machine prior to starting a restore operation.

To restore a virtual machine from a backup, complete the following steps.

Step	Action
1	In the Datastores pane of the Restore window, select a datastore to display a list of its backups in the Backups pane.
2	In the Backups pane, select the backup to display a list of virtual machines and datastores within this backup.
3	In the Backed-up Entities pane, select the virtual machine that you want restored. Alternatively, you can list all the backups for the virtual machine using the backup search feature on the Restore window (see “Finding backups”).
4	Click Restore .
5	Enter the names of the ESX server. In addition, enter the user name and password for the ESX server. Note — The name you enter must be the name of the ESX server as viewed through the VI client. This name might differ from the ESX server’s host name or IP address.

Step	Action
6	Click Restore. A confirmation message appears. Click Yes to continue. Note During a backup or restore operation on a virtual machine, SnapManager for VI allows no other backup or restore operation on that virtual machine to start. SnapManager for VI delays any backup or restore operation that is requested during an ongoing backup or restore operation after the ongoing operation is completed.

Note
The virtual machine automatically powers down when you restore a virtual machine from a backup. You must manually power it back up when the restore operation completes. Perform this manual step independently from SnapManager for VI.

Restoring a datastore from a backup

Steps to restore a datastore

Use SnapManager for VI to restore an entire datastore from a backup, including any virtual machine that was included in a datastore during the backup operation. You can only restore a datastore to its original location, thereby overwriting the existing datastore, which includes any of its backed up virtual machines.

Note

The Restore window only allows you to restore datastores that are completely backed up. To restore a partial datastore from a backup, see “[smvi backup restore](#).”

Attention

You cannot stop a restore operation after it begins. It is important that you ensure that you want to overwrite the current datastore prior to starting a restore operation.

To restore a datastore from a datastore backup, complete the following steps.

Step	Action
1	In the datastores pane of the Restore window, select a datastore to display a list of its backups in the Backups pane.
2	In the Backups pane, select the backup to display a list of virtual machines and datastores within this backup.
3	In the Backed-up Entity pane, select the datastore that you want restored.
4	Click Restore .
5	A confirmation message appears. Click Yes to continue.

Note

Any powered on or running virtual machine within a datastore powers down when you restore a datastore from a backup. You must manually power them back up when the restore operation completes. Perform this manual step independently from SnapManager for VI.

This chapter describes how to manage backups using the Restore window. You can use this window to search for a backup, change the name of a backup, or delete a backup.

This chapter has the following topics:

- ◆ [“Finding backups”](#) on page 68
- ◆ [“Changing the name of a backup”](#) on page 69
- ◆ [“Manually deleting a backup”](#) on page 70

Finding backups

SnapManager for VI provides a way search for backups. You can search for a backup by typing the name or UUID (Universally Unique Identifier) of a datastore or virtual machine.

To find backups, complete the following steps.

Step	Action
1	In the Restore window, type the name or UUID of a datastore or of a virtual machine in the Look for backup of field.
2	Click Find Now .

Note _____
If you click **Find Now** without typing a name of a datastore or virtual machine, SnapManager for VI searches for and displays the backups for the datastore selected in the Datastore pane.

Changing the name of a backup

SnapManager for VI provides a way to change the name of backup. You can perform this operation to help organize saved backups.

Note_____

Changing the name of a backup also changes the name on the corresponding storage Snapshot copy on the associated storage system.

To change the name of a backup, complete the following steps.

Step	Action
1	In the Datastore pane of the Restore window, select a datastore to display a list of backups in the Backups pane.
2	Select a backup that you want to rename.
3	Click Edit .
4	Change the name of the backup.
5	Click Ok .

Note_____

You can also perform the preceding operation using the SnapManager for VI CLI. See “[smvi backup rename](#)” for information about performing this operation using the CLI.

Manually deleting a backup

In addition to specifying automatic backup deletion through maximum day or maximum number of options in the retention tab of a backup job configuration, you can also manually select and delete one or more backup.

To delete one or more backups, complete the following steps.

Step	Action
1	In the Datastore pane of the Restore window, select a datastore to display a list of backups in the Backups pane.
2	Select a backup that you want to delete or press CTRL and select multiple backups to delete.
3	Click Delete . A confirmation message appears, asking you to confirm your decision to delete the virtual machine or datastore backup.
4	Click Ok . Note ————— If you delete the most recent backup associated with a backup job, then the Last Run Status value displayed for that backup job in the Schedule Backup Jobs window will be that of the most recent remaining undeleted backup associated with this backup job. Note ————— If you delete multiple backups, only the command line for the deletion of the last backup is displayed in the CLI Command pane.

Note—————
You can also perform the preceding operation using the SnapManager for VI CLI. See “[smvi backup delete](#)” for information about performing this operation using the CLI.

This chapter describes the tasks that you can carry out through the Setup window to manage the storage systems on which your datastores and virtual machines reside. In the Setup window, you can change the user credentials of the administrator who manages these storage systems or delete a storage system.

This chapter has the following topics:

- ◆ [“Adding a storage system”](#) on page 72
- ◆ [“Updating user credentials of a storage system”](#) on page 73
- ◆ [“Deleting a storage system”](#) on page 74

Adding a storage system

To enable SnapManager for VI to back up the virtual machines and datastores that are managed by the associated VC server, you add the storage system on which those virtual machines and data stores reside to SnapManager for VI. SnapManager for VI then locates and lists those entities.

For a description of this task, see “[Adding storage systems.](#)”

Updating user credentials of a storage system

Use the Setup window of the SnapManager for VI user interface to update the user credentials of an administrator who manages a storage system.

You are required to update an administrator’s user credential whenever this information changes because SnapManager for VI uses it to access a storage system.

Note—
You cannot edit the IP address of an added storage system. If you changed the IP address of a storage system, you must delete it and then add it again.

To change the credentials of an administrator who manages a storage system, complete the following steps.

Step	Action
1	In the Setup window, select a storage system.
2	Click Edit .
3	Make your change to the user name and password.
4	Click Ok .

Note—
You can also perform the preceding operation using the SnapManager for VI CLI. See “[smvi storagesystem modify](#)” for information about performing this operation using the CLI.

Deleting a storage system

You can delete a storage system if you are no longer using it to create backups of a datastore and virtual machine. You must also delete and re-add a storage system if its IP address changes.

To delete a storage system, complete the following steps.

Step	Action
1	In the Setup window, select a storage system.
2	Click Delete . A confirmation message appears, asking you to confirm your decision to delete the storage system.
3	Click Ok .

Note

You can also perform the preceding operation using the SnapManager for VI CLI. See “[smvi storagesystem delete](#)” for information about performing this operation using the CLI.

This chapter describes both the upgrade and maintenance procedures for the SnapManager for VI.

This chapter includes the following topics:

- ◆ [“Performing maintenance on SnapManager for VI”](#) on page 76

Performing maintenance on SnapManager for VI

You might need to perform maintenance on a current version of SnapManager for VI if you accidentally removed the destination folder (*NetApp\SMVI*) or deleted a file within the destination folder. To perform maintenance on SnapManager for VI, launch the current SnapManager for VI installation file (*SMVI-setup.exe*) to reinstall the software.

Note— You can select to reinstall all existing components or select separate components to reinstall. If you reinstall separate components, any component that you selected not to reinstall is removed when the reinstallation of the selected component is carried out. That is, if you select to reinstall the CLI but not the SnapManager for VI server and GUI, the reinstallation procedure removes the server and the GUI and only reinstalls the SnapManager for VI CLI.

To reinstall SnapManager for VI, complete the following steps.

Step	Action
1	Locate and launch the current SMVI-setup.exe installation file. This file was either downloaded from the NOW site or resides on the SnapManager for VI CD.
2	The SnapManager for VI InstallShield wizard launches. Click Next .
3	Select Reinstall and click Next . Complete the screens of the wizard.
4	Click Yes to continue.

This chapter lists and describes the use of SnapManager for VI commands, which you type at the SnapManager for VI command line to perform specific SnapManager for VI tasks.

This chapter has the following topics:

- ◆ “[CLI command overview](#)” on page 78
- ◆ “[smvi backup create](#)” on page 79
- ◆ “[smvi backup delete](#)” on page 82
- ◆ “[smvi backup list](#)” on page 84
- ◆ “[smvi backup mount](#)” on page 86
- ◆ “[smvi backup rename](#)” on page 88
- ◆ “[smvi backup restore](#)” on page 90
- ◆ “[smvi backup unmount](#)” on page 93
- ◆ “[smvi discover datastores](#)” on page 95
- ◆ “[smvi servercredential delete](#)” on page 97
- ◆ “[smvi servercredential list](#)” on page 98
- ◆ “[smvi servercredential set](#)” on page 99
- ◆ “[smvi storagesystem add](#)” on page 100
- ◆ “[smvi storagesystem delete](#)” on page 102
- ◆ “[smvi storagesystem list](#)” on page 104
- ◆ “[smvi storagesystem modify](#)” on page 106
- ◆ “[smvi vcserver list](#)” on page 108
- ◆ “[smvi vcserver set](#)” on page 110
- ◆ “[smvi version](#)” on page 112

CLI command overview

The following are general notes about the commands:

- ◆ SnapManager for VI commands are case-sensitive.
- ◆ There are no privilege levels; any user with a valid user name and password can run all commands.

For some commands, the following two parameters control the amount of output to display.

- ◆ verbose: This parameter provides detailed output when displaying information.
- ◆ quiet: This optional parameter stops any output from displaying.

Note

Even with the quiet parameter specified, failed commands still display their failure message.

smvi backup create

Usage

smvi backup create

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Backing up manually”](#) for more information.

Description

You can use this command to create a backup of a virtual machine or datastore.

Syntax:

```
smvi backup create
  -id {name | id} [name | id ...]
  [-backup-name {backup name}]
  [-server {server name}]
  [-update-mirror]
  [-quiet]
  [-verbose]
  [-user]
  [-help]
```

Options:

-id {name | id} [name | id ...]

Add this mandatory parameter as a name or identification of the datastore or virtual machine that you are backing up. You can specify names or identifications of multiple names or datastores.

[-backup-name {backup name}]

Add this optional flag to indicate that you want to specify a backup name to a virtual machine or datastore. After adding the flag, add a name for the backup.

Note

If you specify no name, this command fails. If you specify a name that contains only spaces, SnapManager for VI auto-generates a name. If you specify a name that contains both spaces and nonspace characters, SnapManager for VI removes all leading and trailing spaces from the name.

`[-server {server name}]`

Add this optional parameter as the name of the SnapManager for VI server to which you are sending this command. The default value is localhost.

`[-update-mirror]`

Add this optional flag to initiate a SnapMirror image on the secondary storage.

`[-quiet]`

Add this optional parameter to stop any output from displaying.

`[-verbose]`

Add this optional parameter to provide detailed output when displaying information.

`[-user]`

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

`[-help]`

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi backup create` command.

Output:

```
smvi backup create -id nfs1_vm1
```

```
[13:14] Starting backup request
```

```
[13:14] [WARN] Backup name is not set. Using default value  
'backup_01fb4992a28188686d4e4a3ded34bfa4'
```

```
[13:14] Backing up datastore(s) ([nfs.123.17.170./vol/nfs_vol1/))
```

```
[13:14] Backing up the following virtual machine(s) ([nfs1_vm1])
```

```
[13:14] Creating VMware snapshots for all virtual machines that are  
being backed up.
```

[13:14] Creating storage snapshots for all datastores/virtual machines that are being backed up.

[13:14] Removing VMware snapshots for all virtual machines that are being backed up.

[13:14] Backup of datastores/virtual machines is complete.

SMVICLI-0100: Command completed successfully

In the preceding example, you created a backup from a virtual machine named *nfs1_vm1*, but you did not specify a name.

smvi backup delete

Usage

smvi backup delete

Description

You can use this command to remove a virtual machine or datastore backup.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Manually deleting a backup”](#) for more information.

Syntax:

```
smvi backup delete
    -backup-name {name}
    [-server {server name}]
    [-quiet]
    [-verbose]
    [-noprompt]
    [-user]
    [-help]
```

Options:

-backup-name {name}

Add this mandatory flag to indicate that you want to delete this backup. After adding the flag, add the current name of the backup.

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server to which you are sending this command. The default value is localhost.

[-quiet]

Add this optional parameter to stop any output from displaying.

[-verbose]

Add this optional parameter to provide detailed output when displaying information.

`[-noprompt]`

By default, a prompt appears asking users for confirmation when deleting a backup. Add this optional parameter to disable this prompt.

`[-user]`

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

`[-help]`

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi backup delete` command.

Output:

```
smvi backup delete -backup-name new-one
```

```
Are you sure you want to proceed and remove backup named 'new-one'?
```

```
[yes|NO]  y
```

```
[15:15] Removed backup with name "new-one"
```

```
SMVICLI-0100: Command completed successfully
```

In the preceding example, you deleted a backup named *new-one*.

Note

If you delete the most recent backup associated with a backup job, then the Last Run Status value displayed for that backup job in the Schedule Backup Jobs window will be that of the most recent remaining undeleted backup associated with this backup job.

smvi backup list

Usage

smvi backup list

Description

You can use this command to display information about all of the created and saved backups within a virtual machine or datastore.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Finding backups”](#) for more information.

Syntax:

```
smvi backup list
    [-id {name | id} ...]
    [-backup-name {backup name}]
    [-mounted]
    [-failed]
    [-server {server name}]
    [-user]
    [-help]
```

Options:

`[-id {name | id} ...]`

Add this optional parameter to identify the name or identification of the datastores or virtual machines that you want to list.

`[-backup-name {backup name}]`

Add this optional flag to indicate that the virtual machine or datastore has a backup name. After adding the flag, add the name of the backup.

`[-failed]`

Add this optional flag to list all failed backups. The default list is only successful backups.

`[-mounted]`

Add this optional flag to list all mounted backups.

`[-server {server name}]`

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

`[-user]`

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

`[-help]`

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi backup list` command.

Output:

```
smvi backup list -id data-store01
```

```
Id Name Date Entities Snapshot Name
```

```
-----  
New Feb 26, 2008 11:32    vmfs_vm1 smvi_New _vmfs_datastore  
backup_e79397f69b1d47255492cef40bb0702f Feb 26, 2008 11:32 vmfs_vm1  
smvi_backup_e79397f69b1d47255492cef40bb0702f_vmfs_datastore
```

In the preceding example, you listed all of the backups within a datastore named *data-store1*.

smvi backup mount

Usage

smvi backup mount

Description

You can use this command to mount a backup to verify its contents.

Note

To mount a VMFS datastore backup, the supplied ESX server must have SAN or iSAN access to the storage system, including required FCP zoning or iSCSI discovery. To mount an NFS datastore backup, the supplied ESX server must be in the NFS export list of the original datastore.

Syntax:

```
smvi backup mount
    -backup-name {backup name}
    -esx-server {esx server name}
    [-server {server name}]
    [-quiet]
    [-verbose]
    [-user]
    [-help]
```

Options:

`[-backup-name {backup name}]`

Add this mandatory flag to indicate that the backup that you are mounting has a backup name. After adding the flag, add the name of the backup.

`-esx-server {esx server name}`

Add this mandatory parameter as the name or ID of the ESX server. This information describes where the backup resides on an ESX server, since it allows you to register into and then access the server via SSH.

Note

This name is the name of the ESX server as viewed through the VI client. This name might differ from the ESX server's host name or IP address.

`[-server {server name}]`

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

`[-quiet]`

Add this optional parameter to stop any output from displaying.

`[-user]`

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

`[-help]`

Add this optional parameter to display help for this command.

Example of this mount

The following is an example of the `smvi backup mount` command.

Output:

```
smvi backup mount -backup-name vmfs2_vm1 -esx-server 123.12.1.23
```

```
[12:12] Starting mount request
```

```
SMVICLI-0100: Command completed successfully
```

In the preceding example, you mounted a backup named *vmfs2_vm1* on an ESX server with the IP address of *123.12.1.23*.

smvi backup rename

Usage

smvi backup rename

Description

You can use this command to change the name of a backup. Changing the name of a backup also changes the name on the corresponding storage Snapshot copy on the associated NetApp storage system.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Changing the name of a backup”](#) for more information.

Syntax:

```
smvi backup rename
    -backup-name {name}
    -new-backup-name {new name}
    [-server {server name}]
    [-user]
    [-help]
```

Options:

-backup-name {name}

Add this mandatory flag to indicate that you want to rename a backup. After adding the flag, add the current name of the backup.

-new-name {new name}

Add this mandatory parameter as the new name of the backup. After adding the flag, add a new name for the backup.

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

[-user]

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi backup rename` command.

Output:

```
smvi backup rename -backup-name vmfs2-vm1 -new-backup-name volume-2
```

```
[15:52] Backup "vmfs2-vm1" has been renamed to "volume-2"
```

```
SMVICLI-0100: Command completed successfully
```

In the preceding example, you renamed a backup named *vmfs2-vm1* to *volume-2*.

smvi backup restore

Usage

smvi backup restore

Description

You can use this command to restore a virtual machine or datastore from a backup.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Restoring a virtual machine or datastore”](#) for more information.

Syntax:

```
smvi backup restore
  -id {name | id}
  [-esx-server {esxservername | esxserverid}]
  [-backup-name {backup name}]
  [-server {server name}]
  [-quiet]
  [-verbose]
  [-noprompt]
  [-user]
  [-help]
```

Options:

-id {name | id}

Add this mandatory parameter as a name or identification of the datastore or virtual machine that you are restoring.

[-esx-server {esx server name | esx server id}]

Add this parameter as the name or ID of the ESX server. This is required for restoring a VMFS datastore or a virtual machine that resides on a VMFS datastore.

Note

This name is the name of the ESX server as viewed through the VI client. This name might differ from the ESX server's host name or IP address.

`[-backup-name {backup name}]`

Add this optional flag to indicate which backup to use. After adding the flag, add the name of the backup. If not specified, the latest available backup for the specified datastore or virtual machine is used.

`[-server {server name}]`

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

`[-quiet]`

Add this optional parameter to stop any output from displaying.

`[-verbose]`

Add this optional parameter to provide detailed output when displaying information.

`[-noprompt]`

By default, a prompt appears asking users for confirmation when restoring a backup. Add this optional parameter to disable this prompt.

`[-user]`

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

`[-help]`

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi backup restore` command.

Output:

```
smvi backup restore -id nfs1_vm1 -backup-name backup-411
```

```
Are you sure you want to proceed with this operation? [yes|NO]  y
```

```
[11:04] Starting restore request
```

```
[11:04] [WARN] No active mounts found for datastore vmfs_ds1  
(47ab69d8-e7c72da0-d6c5-001a6412251d)
```

```
[11:05] Restoring nfs virtual machine on folder 'nfs1_vm1'  
[11:07] Reloading virtual machine  
[11:07] Restore is complete  
SMVICLI-0100: Command completed successfully
```

In the preceding example, you restored a virtual machine named *nfs1-vm1* from a backup named *backup-411*.

Note

Make sure to enter the `-esx-server` syntax when restoring a virtual machine from a VMFS-type backup. This information is the where the backup resides.

smvi backup unmount

Usage

smvi backup unmount

Description

You can use this command to unmount a mounted virtual machine or datastore backup (“[smvi backup unmount](#)”).

Note

You must unmount a mounted backup, or you cannot delete the backup or any of it preceding Snapshot copies.

Syntax:

```
smvi backup unmount
    -backup-name {backup name}
    [-server {server name}]
    [-quiet]
    [-verbose]
    [-user]
    [-help]
```

Options:

-backup-name {backup name}

Add this mandatory flag to indicate that the backup that you are unmounting has a backup name. After adding the flag, add the name of the backup.

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is `localhost`.

[-quiet]

Add this optional parameter to stop any output from displaying.

[-verbose]

Add this optional parameter to provide detailed output when displaying information.

[-user]

Add this optional parameter if you are logging in to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi backup unmount` command.

Output:

```
smvi backup unmount -backup-name vmfs-2-db
[11:55] Starting unmount request
[11:55] Unmount is complete
SMVICLI-0100: Command completed successfully
```

In the preceding example, you unmounted a backup named `vmfs2_db`.

smvi discover datastores

Usage

smvi discover datastores

Description

You can use this command to list the datastores that are managed by the current VC server and that reside on the storage systems currently assigned to your SnapManager for VI server.

Syntax:

smvi discover datastores

Example of this command

The following is an example of the `smvi servercredential delete` command.

Output:

```
smvi discover datastores
Password for NETAPP\vanib: *****
Datacenter: Aladdin
Datastore: nfs_datastore6
NFS: 172.17.170.21:/vol/nfs_vol6
Datastore: nfs_datastore7
NFS: 172.17.170.21:/vol/nfs_vol7
Datastore: nfs_datastore7 (Backup test1)
NFS:
172.17.170.21:/vol/nfs_vol7_mount_33e49878c5e74363825e84652a724aef
Datastore: nfs_datastore7 (Backup test0)
NFS:
172.17.170.21:/vol/nfs_vol7_mount_90a6b1e7d6f948beaa6735af9692b3d4
Datastore: nfs_datastore7 (Backup backup_fgfdgfdgf_20080707134801)
NFS:
172.17.170.21:/vol/nfs_vol7_mount_e50fc0eda0674cfbbf200f87f83ba8eb
Datastore: nfs_datastore8
NFS: 172.17.170.21:/vol/nfs_vol8
Datastore: nfs_datastore8 (Backup
backup_7d8597b0dffffd5c81806728dd45aea48)
NFS:
172.17.170.21:/vol/nfs_vol8_mount_e7df47fbde00446cb6b589c821adc4dd
Datastore: vmfs_datastore5
LUN: 172.17.170.21:/vol/vmfs_vol5/lun5      Partition: 1
LUN: 172.17.170.21:/vol/vmfs_vol6/lun6      Partition: 1
```

```
Datastore: vmfs_datastore2
LUN: 172.17.170.21:/vol/vmfs_vol2/vmfs_lun2      Partition: 1
Datastore: vmfs_datastore3
LUN: 172.17.170.21:/vol/vmfs_vol3/lun3          Partition: 1
Datastore: vmfs_datastore4
LUN: 172.17.170.21:/vol/vmfs_vol4/lun4          Partition: 1
Datastore: vmfs_datastore7
LUN: 172.17.170.21:/vol/vmfs_vol7/qtrees_vol7/lun7      Partition: 1
Datastore: snap-00000002-vmfs_datastore
LUN: 172.17.170.21:/vol/vmfs_vol1/vmfs_lun1          Partition: 1
Datastore: vmfs7_testAJ_1
LUN: 172.17.170.21:/vol/volaj1/lun1              Partition: 1
Datastore: vmfs7_testAJ-2
LUN: 172.17.170.21:/vol/volaj1/lun2              Partition: 1
Datacenter: Bellagio
```

In the preceding example, you listed all the datastores managed by the current VC server that reside on storage systems assigned to SnapManager for VI.

smvi servercredential delete

Usage

```
smvi servercredential delete
```

Note

You cannot run this command from a remote host.

Description

You can use this command to delete a user account created by the `smvi servercredential set` command.

Syntax:

```
smvi servercredential delete
    -username {user name}
    [-help]
```

Options:

-username {user name}

Add this mandatory parameter to indicate the internal user account that you are deleting.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi servercredential delete` command.

Output:

```
smvi servercredential delete -username olduser2
SMVICLI-0100: Command completed successfully
```

In the preceding example, you deleted the *olduser2* user account.

smvi servercredential list

Usage

`smvi servercredential list`

Note

You cannot run this command from a remote host.

Description

You can use this command to list server credentials.

Syntax:

```
smvi servercredential list
    [-help]
```

Options:

`[-help]`

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi servercredential list` command.

Output:

```
smvi servercredential list
```

```
Username
```

```
-----
```

```
administrator
```

In the preceding example, you listed the current SnapManager for VI server credentials.

smvi servercredential set

Usage

```
smvi servercredential set
```

Note

You cannot run this command from a remote host.

Description

You can use this command to set server credentials.

Syntax:

```
smvi servercredential set  
    [-help]
```

Options:

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi servercredential set` command.

Output:

```
smvi servercredential set  
Username: administrator  
Password: *****  
SMVICLI-0100: Command completed successfully
```

In the preceding example, you added a user account named *administrator* and you set a password of seven characters.

smvi storagesystem add

Usage

```
smvi storagesystem add
```

Description

You can use this command to add a NetApp storage system to your configuration.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Adding storage systems”](#) for more information.

Syntax:

```
smvi storagesystem add
    -name {dnsName|ipaddress}
    [-server {server name}]
    [-user]
    [-help]
```

Options:

-name {dnsName|ipaddress}

Add this mandatory parameter to specify the DNS name or management IP address of the NetApp storage system that you are adding.

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

[-user]

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi storagesystem add` command.

Output:

```
smvi storagesystem add -name 123.18.20.25
Enter username : client-1
Enter password : *****
smvicli-0100: Command completed successfully
```

In the preceding example, you added a server with an IP address of 123.18.20.25, you enter its administrators user named as client-1, and you added a password of ten characters.

smvi storagesystem delete

Usage

```
smvi storagesystem delete
```

Description

You can use this command to remove an added NetApp storage system.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Deleting a storage system”](#) for more information.

Syntax:

```
smvi storagesystem delete
    name {dnsName|ipaddress}
    [-server {server name}]
    [-user]
    [-help]
```

Options:

-name {dnsName | ipaddress}

Add this mandatory parameter to indicate the DNS name or management IP address of the NetApp storage system that you want to delete. To delete a NetApp storage system, you are required to provide its exact name or IP address or the command fails.

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

[-user]

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi storagesystem delete` command.

Output:

```
smvi storagesystem delete -name Jaguar
```

```
smvicli-0100: Command completed successfully
```

In the preceding example, you deleted a NetApp storage system named *Jaguar*.

smvi storagesystem list

Usage

```
smvi storagesystem list
```

Description

You can use this command to list the added NetApp storage systems.

Syntax:

```
smvi storagesystem list
    [-server {server name}]
    [-user]
    [-verbose]
    [-help]
```

Options:

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

[-user]

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-verbose]

Add this optional parameter to provide detailed output when displaying information.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi storagesystem list` command.

Output:

```
smvi storagesystem list
```

Name	IP Address

123.17.170.21	123.17.170.21

In the preceding example, you listed the NetApp storage system that resides in the local SnapManager for VI server.

smvi storagesystem modify

Usage

smvi storagesystem modify

Description

You can use this command to modify a saved NetApp storage system.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Updating user credentials of a storage system”](#) for more information.

Syntax:

```
smvi storagesystem modify
    -name {dnsName|ipaddress}
    [-server]
    [-user]
    [-help]
```

Options:

-name {dnsName | ipaddress}

Add this mandatory parameter to indicate the DNS name or management IP address of the NetApp storage system that you want to modify. To modify a NetApp storage system, you are required to provide its exact name or IP address or the command fails.

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

[-user]

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi storagesystem modify` command.

Output:

```
smvi storagesystem modify - name 123.18.20.25
```

```
Username for 123.18.20.25: root
```

```
Password for 123.18.20.25: **********
```

```
smvicli-0100: Command completed successfully
```

In the preceding example, you updated the user name of the NetApp storage system to *root* and you changed the password to ten characters.

smvi vcserver list

Usage

```
smvi vcserver list
```

Description

You can use this command to list the added VC server.

Syntax:

```
smvi vcserver list
    [-server {server name}]
    [-user {port number}]
    [-help]
```

Options:

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

[-user]

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi vcserver list` command.

Output:

```
smvi vcserver list
```

Server	Port	Username
vcserver	DEFAULT	Administrator

In the preceding example, you listed the currently configured VC server.

smvi vcserver set

Usage

```
smvi vcserver set
```

Description

You can use this command to set the VC server.

Note

You can also perform the following operation using the SnapManager for VI GUI. See [“Adding a VC server”](#) for more information.

Note

You can only connect to one VC server at a time.

Syntax:

```
smvi vcserver set
    -name {dnsName|ipaddress}
    [-port]
    [-server {server name}]
    [-vc-user]
    [-user]
    [-help]
```

Options:

-name {dnsName|ipaddress}

Add this mandatory parameter to specify the DNS name or management IP address of the VC server that you are setting.

[-port {port number}]

Add this optional parameter as a port number used to communicate with the VC server. The default port is 443.

[-server {server name}]

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

[-vc-user]

Add this optional parameter if you are logging on to the VC server with different user credentials than those under which you are currently logged in. This option is only available from the CLI.

[-user]

Add this optional parameter if you are logging on to the SnapManager for VI server with different user credentials than those under which you are currently logged in.

[-help]

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi vcserver set` command.

Output:

```
smvi vcserver set -name 123.4.56.78
```

In the preceding example, you set a VC server with the IP address of *123.4.56.78*.

smvi version

Usage

`smvi version`

Description

You can use this command to display the version of the SnapManager for VI CLI and server.

Syntax:

```
smvi version
    [-server {server name}]
    [-help]
```

Options:

`[-server {server name}]`

Add this optional parameter as the name of the SnapManager for VI server you are sending this command. The default value is localhost.

`[-help]`

Add this optional parameter to display help for this command.

Example of this command

The following is an example of the `smvi version` command.

Output:

smvi version

```
SnapManager for Virtual Infrastructure CLI 1.0 (build
date='080307_0110', version='87')
```

```
SnapManager for Virtual Infrastructure Server 1.0 (build
date='080307_0110', version='87')
```

In the preceding example, the SnapManager for VI CLI and server are both at version *1.0*.

Glossary

backup	In the context of SnapManager for VI, this term refers to the local protection of a datastore or virtual machine image on a storage system through the use of Snapshot technology.
backup copy	In the context of SnapManager for VI, this term refers to a Snapshot copy of the virtual machine or datastore images that has been replicated on secondary storage through the use of SnapManager technology for disaster recovery protection purposes.
backup job	In the context of SnapManager for VI, this term describes a configuration that schedules automated backups, specifies the virtual machines and datastores on which they are to be carried out, specifies a backup deletion policy based on either maximum time or maximum number of copies, specifies an alert notice policy, and specifies a user authorized to implement this policy.
datastore	This represents a storage location for virtual machines, such as a VMFS volume, a directory on a NAS server, or a local file system path. A datastore is platform-independent and host-independent; therefore, it does not change when a virtual machine it contains moves to another host.
ESX server	This VMware term describes a server that abstracts server processor, memory, storage and networking resources into multiple virtual machines.
FCP (Fibre Channel Protocol)	This interface protocol is for SCSI transport when mapping block-oriented storage data over Fibre Channel networks.
iSCSI (Internet Small Computer Systems Interface)	This interface protocol is for SCSI transport when mapping block-oriented storage data over TCP/IP networks.

hypervisor	This is a virtualization software interface that helps manage multiple operating systems (or multiple instances of the same operating system) on a single host system.
LUN	This is a unique identifier on a SCSI bus. It can differentiate individual physical or virtual disk drives within a common SCSI target device, such as a storage system.
NAS	This is a file-storage device that you can access through a file sharing protocol over a network.
SAN	This is a storage setup that is composed of one or more storage systems and connected to one or more hosts in a SCSI, FCP, or iSCSI environment.
SnapMirror	This product performs automated file system replication of a volume onto a separate disk or storage system.
Snapshot copy	This Data ONTAP® feature creates a point-in-time, read-only copy of a file system. This process protects against accidental deletions or modifications of files without duplicating contents of a file.
storage system	Unless otherwise stated in this manual, a storage system is data storage hardware that runs the Data ONTAP software.
virtual machine	This is a guest operating system and any application installed thereon, running on a computing device on which the software is installed, or suspended to disk or any other storage media accessible by the computing device.
VMDK (virtual machine disk)	This is a virtual disk, either stored as files on the host computer or on a remote storage device that appears to operating systems running inside virtual machines as standard disk drives.

VMFS (Virtual Machine File System)

This is a VMware cluster file system used by Virtual Infrastructure to store virtual machine disk images.

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