

Simple Admin for Veritas Storage Foundation™ User's Guide

Solaris, Linux, and AIX

0.9 Beta



Simple Admin for Veritas Storage Foundation User's Guide

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Introducing Simple Admin for Veritas Storage Foundation

This chapter includes the following topics:

- [About Simple Admin for Veritas Storage Foundation](#)

About Simple Admin for Veritas Storage Foundation

The Simple Admin utility for Veritas Storage Foundation allows an administrator to use a single command, `sfop`, to manage volumes, disk groups and file systems. Using the `sfop` utility, the administrator creates a pool of storage on which file systems are created and mounted. These file systems are referred to as pooled file systems in this document to distinguish them from file systems that do not use pooled storage. The multiple file systems created in the storage pool have equal access to the free disk space.

The Simple Admin utility simplifies storage management by providing a single interface to the administrator and by abstracting the administrator from many of the commands needed to create and manage volumes, disks groups, and file systems. To use the Simple Admin feature, the administrator must understand the following `sfop` items:

- [Disk group commands](#)
- [File system commands](#)
- [File system storage pools](#)

Disk group commands

Before pooled file systems can be created, the `sfop` utility must be used to create a disk group, which forms the basis of the storage for the pooled file systems. With the `sfop` utility, you can create and manage disk groups. Disk groups can be deported and imported, disks can be added and removed, and disks can be listed. Do not mix management of disk groups by using `sfop` commands with Veritas Volume Manager (VxVM) disk group commands, such as `vxdg` or `vxdiskadd`. All disk group and volume management should be done using `sfop` unless explicitly stated otherwise.

File system commands

The file system commands of `sfop` allow you to create, mount, umount, and remove pooled file systems. File systems clones can also be created using `sfop`. When pooled file systems are created and mounted using the `sfop` utility, mount information is stored in a private area of the file system storage pool. The `/etc/vfstab` file is not updated with the mount options. All commands used to create, mount, and remove pooled file systems should be done exclusively using the `sfop` utility when administering pooled file systems.

File system storage pools

A file system storage pool is basically a multi-volume VxFS file system, which is created on a set of volumes that are mapped one-to-one with a set of LUNs. Multiple read/write Storage Checkpoints can be created and mounted from a single file system pool. The read/write Storage Checkpoints are considered to be individual pooled file systems. The storage allocated or freed by the different pooled file systems all comes from the same storage pool. You can increase or decrease the size of a storage pool by adding or removing disks from the disk group.

Limitations and restrictions

This chapter includes the following topics:

- [About Simple Admin limitations and restrictions](#)
- [Potential data loss](#)
- [Backup restrictions](#)
- [Compatibility limitations](#)
- [Scalability limitations](#)

About Simple Admin limitations and restrictions

Simple Admin uses the Storage Checkpoint feature of VxFS, which has been available in VxFS since the 3.4 release. In 5.0 and prior releases, Storage Checkpoints were not optimized for use by Simple Admin. However, the limitations and restrictions provided in this section will be addressed in future releases. VxFS is a robust file system and can be optimized for Simple Admin without requiring significant changes.

There are various restrictions and limitations to be aware of when using the 0.9 Beta version of `sfop`. These restrictions include compatibility issues, scalability limitations, backup restrictions, and potential data loss scenarios. Symantec stipulates that the 0.9 Beta version not be used in any production environment.

Potential data loss

In VxFS 5.0 and prior releases, Storage Checkpoints are primarily used as a mechanism to take frozen image backups and thus are not regarded as important as the primary file system. In some scenarios, if a full `fsck` detects corruption in a Storage Checkpoint, that Storage Checkpoint and other Storage Checkpoints

may be removed from the file system. This scenario is unlikely, but if it does occur, data in pooled file systems will be lost. Additionally, if the file system starts running out of space, Storage Checkpoints will be removed to recover storage. These limitations with Storage Checkpoints will be addressed in future releases.

Backup restrictions

The only backup method supported at this time is namespace backups running on the same host where the Simple Admin scripts reside. SAN-based backups using EMCs Business Critical Volumes, or clone-based backups with NetBackup or any other backup program may not work.

Compatability limitations

[Table 2-1](#) provides Simple Admin compatibility limitations with Veritas Storage Foundation features.

Table 2-1 Compatibility limitations with Veritas Storage Foundation features

Feature	Limitations
Alert APIs	File system alerts are currently designed to work per-file system and will not operate correctly for pooled file systems.
DMAPI	DMAPI is not supported.
File Change Log	Each Storage Checkpoint has its own File Change Log (FCL), which by default is 3% of the total file system space. Numerous Storage Checkpoints created from a single file system pooled, could result in FCLs consuming a large amount of storage.
Dynamic Storage Tiering	Allocation policies cannot be stored based on pooled file systems.
Mount options	Some mount options cannot be set per pooled filesystem and will implicitly be set for all pooled file systems within the same storage pool.
Veritas Cluster Server	Simple Admin does not work with Veritas Cluster Server.
Veritas Storage Foundation Cluster File System	Simple Admin-created pooled file systems do not work in Veritas Storage Foundation Cluster File System clusters.

[Table 2-2](#) provides Simple Admin compatability limitations related to the Operation System.

Table 2-2 Compatibility limitations with operating systems

Feature	Limitations
vfstab file	The Simple Admin utility does not store information in the <code>vfstab</code> file. <code>sfsop</code> uses its own file stored within the storage pool. Therefore any utilities that depend on the <code>vfstab</code> to get file system mount information will not get information on pooled file systems.
File system size	Each pooled file system will report the space available as being all of the space within the storage pool.
File system quotas	File system quotas are not supported on pooled file systems.

Scalability limitations

[Table 2-3](#) provides Simple Admin scalability limitations.

Table 2-3 Scalability limitations

Feature	Limitations
Intent log	Pooled file systems within the same disk group will share a single intent log. This single log could become a bottleneck if write intensive applications are using numerous pooled file systems within the same disk group.

System requirements

This chapter includes the following topics:

- [Solaris operating system requirements](#)
- [Linux operating system requirements](#)
- [AIX operating system requirements](#)
- [Veritas Storage Foundation requirements](#)

Solaris operating system requirements

The `sfdop` utility has the following operating system requirements:

- Solaris 8 (SPARC Platform 32-bit and 64-bit)
- Solaris 9 (SPARC Platform 32-bit and 64-bit)
- Solaris 10 (SPARC Platform 64-bit)
- Solaris 10 (Opteron Platform 64-bit)

Linux operating system requirements

The `sfdop` utility has the following operating system requirement:

- Red Hat Enterprise Linux 4 (RHEL 4)

AIX operating system requirements

The `sfdop` utility has the following operating system requirement:

- AIX 5.3

- AIX 6.1

Veritas Storage Foundation requirements

The `sfdop` utility has the following Veritas Storage Foundation requirements:

- Veritas Storage Foundation 4.1 or later

Installing Simple Admin for Veritas Storage Foundation

This chapter includes the following topics:

- [Installing Simple Admin on Solaris](#)
- [Installing Simple Admin on Linux](#)
- [Installing Simple Admin on AIX](#)

Installing Simple Admin on Solaris

The following procedure installs Simple Admin.

To install Simple Admin on Solaris

- 1 Download the gzipped tar image from the web.
- 2 Extract the contents of the gzip file:

```
# gunzip VRTSsfop.tar.gz
```

- 3 Untar the file:

```
# tar -xvf VRTSsfop.tar
x ., 0 bytes, 0 tape blocks
x ./sfop_key, 124 bytes, 1 tape blocks
x ./sfop.tar, 113664 bytes, 222 tape blocks
x ./install_sfop, 113 bytes, 1 tape blocks
# ls
VRTSsfop.tar  install_sfop  sfop.tar      sfop_key
```

4 Run the sfop installer:

```
# ./install_sfop
x VRTSsfop, 0 bytes, 0 tape blocks
x VRTSsfop/pkgmap, 1121 bytes, 3 tape blocks
x VRTSsfop/pkginfo, 357 bytes, 1 tape blocks
.
.
.
x VRTSsfop/reloc/opt/VRTS/sftools/plugins/sfop/fs.pm, 16390 bytes,
  33 tape blocks
```

The following packages are available:

```
1 VRTSsfop      Veritas Simple Admin Utility
                   (sun4u) 0.9 Beta
```

Select package(s) you wish to process (or 'all' to process all packages). (default: all) [?,??,q]:

5 Enter 1 to install the Simple Admin package:

```
Processing package instance <VRTSsfop> from </new1>
```

```
Veritas Simple Admin Utility(sun4u) 0.9 Beta
Copyright (c) 2007 Symantec Corporation.
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```

```
.
.
.
```

This package contains scripts which will be executed with super-user permission during the process of installing this package.

```
Do you want to continue with the installation of <VRTSsfop> [y,n,?]
```

6 Enter y to continue the installation:

```
Installing Veritas Simple Admin Utility as <VRTSsfop>

## Installing part 1 of 1.
[ verifying class <all> ]
## Executing postinstall script.

Installation of <VRTSsfop> was successful.
```

7 Add /opt/VRTS/sftools/bin to your PATH environment variable. The sfop binary is located at /opt/VRTS/sftools/bin/sfop.

Installing Simple Admin on Linux

The following procedure installs Simple Admin.

To install Simple Admin on Linux

- 1 Download the gzipped tar image from the web.
- 2 Extract the contents of the gzip file:

```
# gunzip VRTSsfop.tar.gz
```

3 Untar the file:

```
# tar -xvf VRTSsfop.tar
./sfop_key
./install_sfop
./VRTSsfop-0.9-beta.rhel4.rpm
# ls
install_sfop  sfop_key  VRTSsfop-0.9-beta.rhel4.rpm  VRTSsfop.tar
```

4 Run the sfop installer:

```
# ./install_sfop
```

5 Check if the VRTSsfop rpm is installed:

```
# rpm -q VRTSsfop
VRTSsfop-0.9-beta
```

6 Add /opt/VRTS/sftools/bin to your PATH environment variable. The sfop binary is located at /opt/VRTS/sftools/bin/sfop.

Installing Simple Admin on AIX

The following procedure installs Simple Admin.

To install Simple Admin on AIX

- 1 Download the gzipped tar image from the web.
- 2 Extract the contents of the gzip file:

```
# gunzip VRTSsfop.tar.gz
```

- 3 Untar the file:

```
# tar -xvf VRTSsfop.tar
x . x ./sfop_key, 124 bytes, 1 media blocks.
x ./install_sfop, 115 bytes, 1 media blocks.
x ./VRTSsfop.bff, 153600 bytes, 300 media blocks.
# ls
VRTSsfop.bff  VRTSsfop.tar  install_sfop  sfop_key
```

- 4 Run the sfop installer:

```
# ./install_sfop
```

- 5 Check if the VRTSsfop package is installed:

```
# lspp -L VRTSsfop
Fileset                Level  State  Type  Description      (Uninstaller)
-----
VRTSsfop                1.1.0.0  C     F     Simple admin tool for VxFS
```

- 6 Add `/opt/VRTS/sftools/bin` to your `PATH` environment variable. The `sfop` binary is located at `/opt/VRTS/sftools/bin/sfop`.

Managing disk groups

This chapter includes the following topics:

- [About managing disk groups](#)
- [Creating a disk group](#)
- [Adding a disk to a disk group](#)
- [Removing a disk from a disk group](#)
- [Creating a disk group with one disk mirroring another](#)
- [Adding a disk as a mirror to a disk group](#)
- [Deporting a disk group](#)
- [Importing a disk group](#)
- [Detaching a disk group](#)
- [Listing disk groups](#)
- [Listing details about disk groups](#)
- [Listing all disks for all disk groups](#)
- [Listing all disks for a disk group](#)

About managing disk groups

A disk group forms the basis for a file system storage pool. The free disk space in a disk group is available for all pooled file systems created within the specified disk group. Disks do not need to be initialized as Veritas Volume Manager (VxVM) disks. However, disks must have the appropriate operating system label. On Solaris, the disks must minimally be labeled using the `format` command, but otherwise

all other disk initialization is handled by the `sfop dg create` and `sfop dg diskadd` commands.

The disk names used should be the DMP device names that are shown by the `sfop dg disklist` or `vxdisk list` commands. Do not use the underlying operating system disk names.

Creating a disk group

The following example creates a disk group.

To create a disk group

- ◆ Create a disk group named `dg1` that contains `disk1` and `disk2`:

```
# sfop dg create dg1 disk1 disk2
```

Adding a disk to a disk group

The following example adds a disk to a disk group.

To add a disk to a disk group

- ◆ Add the disk `disk3` to the diskgroup `dg1`:

```
# sfop dg diskadd dg1 disk3
```

Removing a disk from a disk group

The following example removes a disk from a disk group.

To remove a disk from a disk group

- ◆ Remove the disk `disk1` from the diskgroup `dg1`:

```
# sfop dg diskrm dg1 disk1
```

Creating a disk group with one disk mirroring another

The following example creates a disk group with one disk mirroring another.

To create a disk group with a mirror

- ◆ Create a disk group named `dg1`, with `disk2` being a mirror of `disk1`:

```
# sfop sg create dg1 disk1 :mirror:disk2
```

Adding a disk as a mirror to a disk group

The following example adds a mirror to a disk group.

To add a disk as a mirror to a disk group

- ◆ Add the disk `disk2` as a mirror for `disk1` in disk group `dg1`:

```
# sfop dg diskadd dg1 disk1 :mirror:disk2
```

Deporting a disk group

The following example deports a disk group.

To deport a disk group

- ◆ Detach volumes from and file system in disk group `dg1`, making them available to be attached on another system:

```
# sfop dg deport dg1
```

Importing a disk group

The following example imports a disk group.

To import a disk group

- ◆ Attach volumes and file systems in the disk group `dg1`:

```
# sfop dg import dg1
```

Detaching a disk group

The following example detaches a disk group.

Warning: The `dg destroy` command will unmount your file systems and destroy your data.

To detach a disk group

- ◆ Detach volumes and file systems in disk group `dg1` and destroy the disk group:

```
# sfop dg destroy dg1
```

Listing disk groups

The following example lists disk groups known to the system on which you run the command.

To list disk groups

- ◆ List all disk groups known to the system:

```
# sfop dg list
```

You can specify the `-x` option to display extended disk group information.

Listing details about disk groups

The following example lists details about the specified disk groups.

To list disk groups

- ◆ List details about the disk group `dg1`:

```
# sfop dg list dg1
```

You can specify the `-x` option to display extended disk group information.

Listing all disks for all disk groups

The following example lists all disks for all disk groups.

To list all disks for all disk groups

- ◆ List all disks for all disk groups:

```
# sfop dg listdisk
```

Listing all disks for a disk group

The following example lists all disks for the specified disk groups.

To list all disks for a disk group

- ◆ List all disks for disk group `dg1`:

```
# sfop dg listdisk dg1
```


Managing file systems

This chapter includes the following topics:

- [About managing file systems](#)
- [Creating a file system in a file system pool](#)
- [Creating a file system in a file system pool and specifying the mount point](#)
- [Mounting an existing file system to a mount point](#)
- [Mounting a file system and specifying it to be automounted after reboot or after the disk group is imported](#)
- [Removing a file system from a file system pool](#)
- [Listing pool-based file systems](#)
- [Listing all pool-based file systems in the system](#)
- [Creating a file system clone](#)

About managing file systems

Multiple file systems can be created from a single file system pool. All file systems within the pool have equal access to the storage. Note that the file systems created and mounted by `sfop` are actually read/write Storage Checkpoints and thus have some limitations compared to primary file systems.

See “[About Simple Admin limitations and restrictions](#)” on page 11.

Creating a file system in a file system pool

The following example creates a file system in a file system pool.

To create a file system in a file system pool

- ◆ Create the file system `fs1` in the file system pool `fspool1`, which is part of the disk group `dg1`. By default `fs1` will be mounted as `/fspool1/dg1/fs1`:

```
# sfop fs create dg1:fspool1:fs1
```

Creating a file system in a file system pool and specifying the mount point

The following example creates a file system in a file system pool and specifies the mount point.

To create a file system in a file system pool and specify the mount point

- ◆ Create the file system `fs1` in the file system pool `fspool1`, which is part of the disk group `dg1`, and specify the mount point as `/mount1`:

```
# sfop fs create dg1:fspool1:fs1 mount=/mount1
```

Mounting an existing file system to a mount point

The following example mounts a file system in a file system pool and specifies the mount point.

To mount an existing file system to a mount point

- ◆ Mount the file system `fs1` in the file system pool `fspool1`, which is part of the disk group `dg1`, to mount point `/mount1`:

```
# sfop -w fs mount dg1:fspool1:fs1 mount=mount1
```

Mounting a file system and specifying it to be automounted after reboot or after the disk group is imported

The following example mounts a file system and specifies that the file system will be automounted after the system is rebooted or after the disk group is imported.

To mount a file system and specify it to be automounted after reboot or after the disk group is imported

- ◆ Mount the file system `fs1` in the file system pool `fspool1`, which is part of the disk group `dg1`, to mount point `/mount1` and specify `fs1` to be automounted:

```
# sfop -w --automount fs mount dg1:fspool1:fs1 mount=mount1
```

Specifying `--noautomount` cancels a previously specified `--automount`.

Removing a file system from a file system pool

The following example removes a file system from a file system pool.

To remove a file system from a file system pool

- ◆ Remove the file system `fs1` from the file system pool `fspool1`, which is part of the disk group `dg1`:

```
# sfop fs remove dg1:fspool1:fs1
```

Listing pool-based file systems

The following example lists pool-based file systems.

To list pool-based file systems

- ◆ List pool-based file systems in the disk group `dg1`:

```
# sfop -g dg1 fs list
```

Listing all pool-based file systems in the system

The following example lists all pool-based file systems in the system.

To list all pool-based file systems

- ◆ List all pool-based file systems in the system:

```
# sfop fs list
```

Creating a file system clone

The following example creates a clone of a file system in a file system pool.

To create a file system clone

- ◆ Create a clone of the pool based file system `fs1`, name the clone `clone1`, and mount the clone under `mountclone1`:

```
# sfop fs clone dg1:fspool1:fs1 clone1 mount=mountclone1
```

If the `mount` option is not specified, by default the clone will be mounted under `/fspool1/dg1/fs1`.

If `--nomount` is specified, the file system will not be mounted.

The `--noautomount` option controls behavior when the disk group is later imported, such as after a reboot. The default is `--automount`, unless `--nomount` is specified.

Additional help

This appendix includes the following topics:

- [Getting additional help](#)

Getting additional help

The example commands provided in this document demonstrate the basic approach to using the `sfop` utility. For a complete set of all the commands and options supported by `sfop`, use the built-in help system.

To view disk group operation help

- ◆ Use `sfop help dg` to get the syntax for all disk group operations:

```
# sfop help dg
```

To view file system operation help

- ◆ Use `sfop help fs` to get the syntax for all file system operations:

```
# sfop help fs
```

