

SnapDrive® for UNIX® 2.2

Release Notes (IBM® AIX®, HP-UX®, Linux®, Solaris™)

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SnapDrive for UNIX overview

SnapDrive for UNIX overview

SnapDrive® for UNIX® is a Network Appliance™ tool that you can use to back up and restore host data stored on NetApp® storage systems. You can also use SnapDrive for UNIX to manage the Snapshot copies that you create with it and to create and manage storage. SnapDrive for UNIX interacts with the host operating system and volume manager as it performs these tasks.

About this release

The following features and enhancements are included in this release:

- ◆ iSCSI support on the following platforms:
 - ❖ Solaris™ 10
 - ❖ SUSE® Linux Enterprise Server 9
- ◆ FCP support on the following Linux platforms:
 - ❖ Red Hat® Enterprise Linux 3 and 4
 - ❖ SUSE Linux Enterprise Server 9
- ◆ 64-bit support on the following Linux platforms:
 - ❖ Red Hat Enterprise Linux 3 and 4
 - ❖ SUSE Linux Enterprise Server 9
- ◆ Consistency group support
- ◆ Simplified LUN cloning support on Linux platforms
- ◆ VERITAS Storage Foundation for Oracle Real Application Clusters (SFRAC) 4.1 support on the Solaris platform
- ◆ AutoSupport enhancement to include the following information in the AutoSupport message:
 - ❖ SnapDrive for UNIX version
 - ❖ Message status: 3 for a warning or information message
 - ❖ Host name
 - ❖ Host operating system
 - ❖ Host operating system release number
 - ❖ Host operating system version
 - ❖ Protocols used
 - ❖ Number of disk or volume groups

Current host platforms for SnapDrive for UNIX

The most current list of host platforms that SnapDrive for UNIX supports is in the online *SnapDrive for UNIX Compatibility Matrix*. This matrix is on the NOW site at <http://now.netapp.com/NOW/knowledge/docs/docs.shtml>.

Note

In SnapDrive for UNIX 2.2, the FCP Host Attach Kit and iSCSI Support Kit product names are renamed FCP Host Utilities and iSCSI Host Utilities.

SnapDrive for UNIX currently supports the following host platforms:

- ◆ IBM AIX with either FCP AIX Host Utilities or iSCSI AIX Host Utilities installed
- ◆ HP-UX with either FCP HP-UX Host Utilities or iSCSI HP-UX Host Utilities installed
- ◆ Red Hat Enterprise Linux with either FCP Linux Host Utilities or iSCSI Linux Host Utilities installed
- ◆ SUSE Linux with either FCP Linux Host Utilities or iSCSI Linux Host Utilities installed
- ◆ Solaris with either FCP Solaris Host Utilities or iSCSI Solaris Host Utilities installed

With minor exceptions in functionality, the same feature set is available on each host. Also, many of the SnapDrive for UNIX known problems and limitations are the same. As a result, this document contains information relevant to all platforms of SnapDrive for UNIX.

For more information about the differences between the SnapDrive for UNIX hosts, see the “*Overview of SnapDrive for UNIX*” chapter in the *SnapDrive for UNIX Installation and Administration Guide*. All platforms use the same manual.

SnapDrive for UNIX components

SnapDrive for UNIX is available either on CD-ROM or as a software package that you can download from the NetApp NOW site (<http://now.netapp.com/>). The media kit includes the following items:

- ◆ *SnapDrive for UNIX Installation and Administration Guide*
- ◆ *SnapDrive for UNIX Quick Start Guide*
- ◆ CD-ROM. The CD-ROM for your host platform contains the NetApp software package in a standard installable package format that can be either of the following:
 - ❖ An installation package or script for your host operating system
 - ❖ The SnapDrive for UNIX software package
- ◆ License agreement

System requirements

System requirements

For FCP and iSCSI configurations, SnapDrive for UNIX requires that you install the FCP or iSCSI Host Utility for your host system. Your host system must meet the requirements specified by that utility, regardless of whether you are using a FCP or iSCSI Host Utility.

Because NetApp adds new kits and components on an ongoing basis, you need to check the following on-line matrices to determine the system requirements for SnapDrive for UNIX on your host platform. These matrices contain the most up-to-date information for NetApp products in a SAN environment.

- ◆ The *SnapDrive for UNIX Compatibility Matrix* is at <http://now.netapp.com/NOW/knowledge/docs/docs.shtml/>. It provides a high-level list of the SnapDrive for UNIX requirements for each host platform. If a feature (for example, a file system) is not listed in the matrix, then SnapDrive for UNIX does not support it on that host platform, even if the utility does. To avoid duplicating detailed information, this matrix refers you to the *Compatibility and Configuration Guide for NetApp's FCP and iSCSI Products* for specific information on requirements, such as any patches that are required for the operating system.
- ◆ The *Compatibility and Configuration Guide for NetApp's FCP and iSCSI Products* guide is at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/. It provides a detailed list of the requirements for setting up a NetApp SAN environment. It provides specific information on components, such as the patch levels required for the operating systems. You need to check the information in this matrix to determine the details on the requirements listed in the *SnapDrive for UNIX Compatibility Matrix*.

Finding information on known issues and troubleshooting tips

Finding information on known issues for SnapDrive for UNIX

At the time of this release, there were some known problems, limitations, and troubleshooting tips for SnapDrive for UNIX. While some issues affect all SnapDrive for UNIX host platforms, others affect only a specific host platform. To locate information on known issues, first check the following section:

- ◆ [“Known issues and troubleshooting tips affecting all hosts”](#) on page 7

Then check the section for your host platform:

- ◆ [“AIX-specific issues and troubleshooting tips”](#) on page 11
- ◆ [“HP-UX-specific issues and troubleshooting tips”](#) on page 13
- ◆ [“Linux-specific issues and troubleshooting tips”](#) on page 15
- ◆ [“Solaris-specific issues and troubleshooting tips”](#) on page 20
- ◆ The “Troubleshooting” chapter of the *SnapDrive for UNIX Installation and Administration Guide*

Finding information on public bugs

In some cases, problems and limitations have a public bug ID assigned to them. Public burts are not included in these release notes. For information on checking the status of these issues, see [“Accessing information about bug fixes”](#) on page 4. You can also use Bugs Online to determine if any new issues have been found since this document was published.

Note

The term *disk group* in this documentation refers to either a disk or volume group.

Accessing information about bug fixes

Some issues with SnapDrive for UNIX are listed in an online system called Bugs Online. For a list of fixed bugs, access Bugs Online by completing the following steps.

Step	Action
1	Use a Web browser to go to http://now.netapp.com .
2	Log into NOW and click Service & Support.

Step	Action	
3	Click the link for Bugs Online & Release Tools.	
4	If you want to check by using the...	Then...
	Quick Search	a. Enter either the bug ID in the ID box or the phrase “SnapDrive for UNIX” in the Key Word Search box. Note _____ You can also include an operating system keyword with “SnapDrive for UNIX.” If you do, the search finds all information related to the operating system, not just the SnapDrive for UNIX information. b. Click the Go button next to the text box for your search.
	Advanced Search: Bug Type	a. For results specific to SnapDrive for UNIX, select the following two types in the Bug Types box: ❖ SnapDrive - UNIX This choice displays the bugs that pertain to all SnapDrive for UNIX hosts. ❖ SnapDrive - <i>host-operating-system</i>; for example SnapDrive-AIX This choice displays all the SnapDrive for UNIX bugs that are specific to that host operating system.

Step	Action	
		You should select both bug types to ensure that you see all the SnapDrive for UNIX bugs that apply to your host. Bugs that are common to all platforms do not specify an operating system type. To select multiple types, highlight the first type. Then press the CTRL key as you highlight subsequent types. To select a range of types, highlight the first one and then press the Shift key when you highlight the next one. b. Click the Go button in the Advanced Search section.
	Advanced Search: Product Type	a. For results about all platforms of SnapDrive, select SnapDrive in the Product Types box. b. Click the Go button in the Advanced Search section. Bugs Online displays the bugs for all platforms of SnapDrive, not just the SnapDrive for UNIX platforms. c. Check the Product Type category of each bug displayed to see whether the bug applies to SnapDrive for UNIX.

Known issues and troubleshooting tips affecting all hosts

AIX, HP-UX only: storage show for LUNs fails if volume group unavailable (bug 161395)

Symptom: On AIX and HP-UX hosts, the `storage show -lun lun_name` and the `storage show -all` commands fail if any volume group on the system is inactive (HP-UX) or varied off (AIX).

Other forms of the `storage show` command work without problems as long as you do not specify an inactive or varied off volume group.

Explanation: SnapDrive for UNIX cannot determine the volume groups to which the LUNs belong. As a result, if the command specifies one or more LUNs, as both the `-lun` and `-all` options do, and the volume group is unavailable, the command fails. If you use one of the other command options (`-dg`, `-hostvol`, or `-fs`), the command captures the information for that entity and returns it.

What to do: When it is possible, activate or vary on all your host volume groups. If you have a host cluster, activating all the volumes may not be practical. In that case, use the `storage show` command without the `-lun` or `-all` option. Instead, use it with the `-dg`, `-hostvol`, or `-fs` option.

Access control permissions file not working as intended

Symptom: The local access control mechanism is not working as it should. This happens when the storage system does not have a `vol0`.

Explanation: By default, SnapDrive for UNIX expects to find the permissions file for local access control at the pathname `/vol/vol0/sdprbac/sd<hostname>.prbac`, where `<hostname>` is the name of the local host. This does not work if your storage system does not contain a `vol0`.

What to do: You can use the parameter `rbac-vol-name` in the `snapdrive.conf` file to specify a different volume name where SnapDrive for UNIX looks for the permissions file. Specify the name of the volume with no `/vol` suffix, as in:

```
rbac-vol-name="vol1"
```

SnapDrive for UNIX then uses that volume name for all the storage systems accessed from the local host.

Restoring the storage stack on the host after destroying a LUN

You should always use SnapDrive storage commands to remove LUNs. Using commands outside of SnapDrive to remove LUNs can have an unpredictable effect on the host system.

If you remove a LUN without using a SnapDrive storage command, you should reboot the host to restore the storage system stack to a known state. You can also restore the host system state by entering the SnapDrive `snap restore` command and specifying a Snapshot copy that contains an instance of the destroyed LUN.

Restoring qtrees in NFS mounted file systems on SnapMirror

SnapDrive for UNIX does not allow you to restore a Snapshot copy of qtree that is NFS mounted on a SnapMirror destination. SnapDrive for UNIX does allow you to restore LUNs on Qtrees on a SnapMirror destination.

Restoring NFS directories with symbolic links

SnapDrive for UNIX fails if you use it to restore an NFS directory that contains symbolic links.

SnapDrive for Unix produces an error 18 in trace log (bug 225765)

Symptom: The host from which SnapDrive for UNIX is executed will not be able to access the filer. The following error message appears:

SnapDrive for UNIX cannot contact the storage system needed for this command. Check the connectivity to the storage system indicated in the error message.

Explanation: If the filer option `httpd.admin.access` is set to "legacy" value, then the host from which SnapDrive for UNIX is executed has to be entered in the `trusted.hosts` list, for the host to access the filer.

What to do: Add all the hosts from which SnapDrive for UNIX is executed to the `trusted.hosts` list. This enables SnapDrive for UNIX to access the filer.

Example: In the following example, SnapDrive for UNIX is executed from the ruby and 10.88.88.191 hosts, and each of these hosts require access to filer X:

```
options trusted.hosts 10.88.88.191, ruby
```

Note

You can set `trusted.hosts` or `httpd.admin.access` to `*` value to give HTTP access to all the hosts in the network.

Failure of snap create operation

Symptom: The `snapdrive snap create` operation fails to remove Snapshot copies on the filer because the LUNs are busy. The following error message appears:

```
0001-124 Admin error: Failed to remove snapshot <snap-name> on  
filer <filer-name>: LUN clone
```

Explanation: You might encounter this error and not be able to directly delete a Snapshot copy if the following are true:

- ◆ A disk group spans multiple storage systems.
- ◆ The following SnapDrive commands are executed in a loop for more than 50 iterations (the number of iterations depends on the host operating system):
 - ❖ `storage create`
 - ❖ `snap create`
 - ❖ `storage delete`
 - ❖ `snap restore`
 - ❖ `snap connect`
 - ❖ `storage delete`
 - ❖ `snap delete`

At this point, the Snapshot copy status on the filer shows `LUNs-Busy`, and this status will be prolonged for a few hours.

What to do: Do one of the following.

If...	Then...
There are cloned LUNs in a Snapshot copy	Split the LUNs to delete the Snapshot copy.
There are no cloned LUNs	Wait until the <code>LUNs-Busy</code> status of the Snapshot copy on the filer disappears.

AIX-specific issues and troubleshooting tips

Message about clustering appears during snap restore

Symptom: The following message appears when you execute the `snapdrive snap restore` command:

```
# snapdrive snap restore -vg clustervg -snapname mysnap
It appears you are using high-availability host clustering
software. To avoid a possible cluster failover, please
disable cluster monitoring for the resources you want to
restore before restoring them.
Do you want to continue? (y/n)
```

Explanation: This is a generic message that applies to any SnapDrive for UNIX host operating system with host cluster monitoring. It appears even if your system does not provide host cluster monitoring or you have it turned off.

The problem occurs because the `snapdrive snap restore` command brings down the volume group temporarily. If cluster monitoring is going on at this time, performing a `snapdrive snap restore` operation could cause a cluster failover.

What to do: This should not be a problem on AIX hosts running HACMP because HACMP does not provide default resource monitoring for volume groups and applications.

If you customized an application to provide storage monitoring under HACMP, you must disable the application and monitoring before you execute a `snap restore` command.

Configuring multipathing-type parameter for SANPath

You must configure the 'multipathing-type' parameter in the `snapdrive.conf` file on AIX. The value has to be set to "SANPath" for AIX systems with FCP. You do not need to change 'multipathing-type' if the system is configured to work over iSCSI."

Intermittent failure of snapdrive storage show operation

Symptom: On an AIX host which uses the DotHill SANpath® for mutipathing, the `snapdrive storage show -all` operation fails with the following error message:

```
LUN information not available. the LUN may be busy or offline
```

Explanation: This happens due to a bug in the DotHill SANpath product, which incorrectly populates the physical volume name of the AIX (native) logical volume manager, after a `snapdrive snap connect` operation on an originating host.

This condition often manifests itself on a cluster setup which has more than one path for the FCP SAN. This does not affect any I/O on the cloned or the original file system.

What to do: Do one of the following:

- ◆ Run the `setsp -W0` command.
- ◆ Reboot the host.

HP-UX-specific issues and troubleshooting tips

SnapDrive for UNIX does not check for attach kit (bug 129426)

When you install SnapDrive for UNIX, it does not automatically check to see if the host utility is installed. You can use the `swlist santools` command to manually check for the host utility.

If you do not have santools installed, get the FCP HP-UX Host Utilities or iSCSI HP-UX Host Utilities from NetApp and install it. This utility is available for download from the NOW site.

Command fails with /dev/ in path name (bug 116375)

Symptom: The SnapDrive for UNIX commands fail when the name of the volume group includes the full HP-UX specification. The following error message appears:

```
# snapdrive snap create -vg /dev/tester_vg_2 -snapname qa2
Error (Command error 0001-058): Diskgroup /dev/tester_vg_2 is not
found on Volume Manager
```

Explanation: The SnapDrive for UNIX commands do not accept the full HP-UX specification when you supply the name of a volume group as an argument.

What to do: Enter the volume group name without preceding it with `/dev/`. For example, the following SnapDrive for UNIX command line executes without producing an error message:

```
# snapdrive snap create -vg tester_vg_2 -snapname qa2
```

Failure of snap restore operation (bug 129741)

Symptom: The `snap restore` operation fails if you manually activate the volume group during this procedure.

Explanation: The `snap restore` operation automatically performs the following tasks:

- ◆ Deactivates a volume group.
- ◆ Exports it.
- ◆ Restores the LUNs.
- ◆ Re-imports and re-activates the volume group.

If you try to activate the volume group manually during the `snap restore` operation, the `snap restore` fails. You must then perform a manual recovery.

What to do: Do not manually activate or import a volume group during a `snap restore` operation.

If you do and this problem occurs, provide NetApp Technical Support with the recovery log and use their help to complete the `snap restore` operation.

Linux-specific issues and troubleshooting tips

Data disappears when you add LUNs to a volume group

Symptom: You add an existing LUN to a volume group, but the data on the LUN disappears.

Explanation: If you add an existing LUN to a volume group that is managed by the LVM and then execute a `pvcreate` command, the data is overwritten.

What to do: If you need data that is on an exiting LUN, you must migrate that data to a LUN that you create using the LVM. Complete the following steps.

Step	Action
1	Create new LUNs.
2	Place the LUNs under LVM control by using the <code>pvcreate</code> , the <code>vgcreate</code> , and the <code>lvcreate</code> commands.
3	Copy data from the existing LUNs to the LUNs you just created and placed under LVM control.

Restore fails with message that file system is mounted

Symptom: You unmount the file system, but when you attempt to restore the Snapshot copy the operation fails and says the file system is mounted.

Explanation: With a Linux host, you can mount the same file system more than once. You can then take a Snapshot copy using SnapDrive for UNIX. The Snapshot copy, though, contains only the first entry in the mount table for the file system. When you issue an unmount command, it unmounts the most recent mountpoint, not the one shown in the Snapshot copy. Then, when you attempt to restore the Snapshot copy, it fails with a message that the volume is already mounted.

The following example illustrates what can happen if a file system is mounted more than once:

```
# mount /dev/dg3/vol1 /var/tmp/mnts/dg3/vol1
# mount /dev/dg3/vol4 /mnt/uml
```

```
# mount /dev/dg3/vol4 /var/tmp/mnts/dg3/vol4
# mount |grep dg3
/dev/dg3/vol1 on /var/tmp/mnts/dg3/vol1 type ext3 (rw)
/dev/dg3/vol4 on /mnt/uml type ext3 (rw)
/dev/dg3/vol4 on /var/tmp/mnts/dg3/vol4 type ext3 (rw)
# snapdrive snap create -dg dg3 -snapname dg3_vol2_snapshot
snap create: snapshot dg3_vol2_snapshot contains:
    disk group dg3 containing host volumes
        vol1 (filesystem: /var/tmp/mnts/dg3/vol1)
        vol2
        vol3
        vol4 (filesystem: /mnt/uml)
snap create: created snapshot eccentric:/vol/vol1:dg3_vol2_snapshot
# snapdrive snap show -v -snapname eccentric:/vol/vol1:dg3_vol2_sn
snap name                      host                      date                      snapped
-----
eccentric:/vol/vol1:dg3_vol2_snapshot childs                      Sep  1 14:14 dg3
host OS: Linux 2.4.21-9.ELsmp #1 SMP Thu Jan 8 17:08:56 EST 2004
snapshot name: dg3_vol2_snapshot
Volume Manager: linuxlvm 1.0.3
disk group:      dg3
host volume:     vol1
host volume:     vol2
host volume:     vol3
host volume:     vol4
file system:     vol1      file system type:  ext3      mountpoint:
/var/tmp/mnts/dg3/vol1
file system:     vol4      file system type:  ext3      mountpoint: /mnt/uml
lun path          dev paths
-----
eccentric:/vol/vol1/swl14      /dev/sds
# snapdrive snap restore -dg dg3 -snapname dg3_vol2_snapshot
Starting to restore LUNs in disk group dg3
  WARNING: This can take several minutes.
           DO NOT CONTROL-C!
           If snap restore is interrupted, the disk group
           being restored may have inconsistent or corrupted
           data.
  For detailed progress information, see the log file /var/log/sd-recovery.log
  Importing dg3
Error (Command error 0001-034): mount failed: mount: /dev/dg3/vol4 already mounted or
/mnt/uml busy
mount: according to mtab, /dev/dg3/vol4 is already mounted on /mnt/uml
#
```

What to do: Make sure that the file system is not mounted more than once.

SnapDrive for UNIX commands hang if iSCSI connectivity fails

SnapDrive for UNIX commands will hang if the iSCSI connection between the host and storage system fails, or if iSCSI on the storage system fails. To successfully use SnapDrive commands, you must first restore the iSCSI service.

Attempt to connect a Snapshot copy fails

Symptom: SnapDrive for UNIX fails to connect to a Snapshot copy when a Linux host reboots during the SnapDrive for UNIX operation. The following error message appears:

Volume manager configuration file has tags that are added by SnapDrive for UNIX. Clean the file manually

Explanation: This happens on Linux LVM2 during a `snap connect` operation on an originating host that reboots during the SnapDrive for UNIX operation.

What to do: Complete the following steps.

Step	Action
1	Ensure that the LUN clones of devices belonging to the disk groups are not mapped to the host. If they are mapped to the host, then unmap and delete them. They might have been present from a previously failed SnapDrive operation.
2	Edit the <code>lvm.config</code> file (located at <code>/etc/lvm/</code>) in the following manner: ◆ Remove all lines with suffix <code>#SDUTEMP</code>. ◆ Restore all lines that are preceded by the comment tag <code>#SDUEXISTING</code>.

If none of the above works, contact NetApp Technical Support.

Attempt to delete LUNs with exported disk groups on Linux LVM 2 fails

Symptom: SnapDrive for UNIX does not delete LUNs with exported disk groups on Linux LVM2.

Explanation: If you export a disk group (dg) on Linux LVM2 and try to delete the LUN, the delete operation fails.

What to do: You have to use `vgimport <dgname>` to import the disk group and then use the following command to delete the disk group and LUN:

```
# snapdrive storage delete - dg <dgname> [-full]
```

SnapDrive for UNIX occasionally fails to discover LUNs

Symptom: SnapDrive for UNIX occasionally fails to discover LUNs on a host running SUSE 9, Service Pack 3.

Explanation: The iSCSI stack sometimes gets corrupted and causes SnapDrive for UNIX to fail to discover LUNs or devices during SnapDrive for UNIX operations.

What to do: Reboot the host.

SnapDrive for UNIX does not display LVM entities on the LUNs

Symptom: The `snapdrive storage show` command with the `-all` option does not always display LVM entities on a Red Hat Enterprise Linux 4 host.

Explanation: After rebooting the host, when you start the iSCSI driver and execute the `snapdrive storage show -all` operation, SnapDrive for UNIX does not display LVM entities on the LUNs.

What to do: Run the `vgscan` command before executing the `snapdrive storage show -all` operation.

After each reboot snap connect yields "0001-680 Admin error: Host OS requires an update to internal data" (bug 226889)

Symptom: On a Red Hat Enterprise Linux 4 host, after every reboot the `snapdrive snap connect` and `snapdrive storage create` operations yield the following error:

0001-680 Admin error: Host OS requires an update to internal data

Explanation: This happens because sg driver deletes all the inactive device `/dev/sgXX` files after a reboot.

What to do: Complete the following steps.

Step	Action
1	Set the configuration variable <code>enable-implicit-host-preparation</code> to "on" in the <code>/opt/NetApp/snapdrive/snapdrive.conf</code> file. After rebooting the host and before using SnapDrive for UNIX, complete the following steps.

Step	Action
2	Verify that the sg and iSCSI services are loaded by entering the following command: <pre>lsmod</pre>
3	If the sg and iSCSI (if iSCSI setup is used) services are not loaded, enter the following commands: ◆ <code>modprobe sg</code> ◆ <code>service iscsi start</code>
4	(Optional) If you do not want to perform steps 2 and 3 manually, add the following commands in the host startup script: ◆ <code>modprobe sg</code> ◆ <code>service iscsi start</code>

Solaris-specific issues and troubleshooting tips

Solaris platform limits concurrent LUN paths to 128

Symptom: An unexpected problem occurs on Solaris hosts when you attempt to use more than 128 concurrent paths to LUNs. **Explanation**

Explanation: SnapDrive for UNIX does not place limits on the number of concurrent paths to the LUNs; however, in some cases, a component of the software stack below it does.

What to do: Current testing indicates that you can avoid such unexpected problems by reducing the number of concurrent paths you use to be fewer than 128.

Storage connect operation fails to connect to a LUN created using filer command

Symptom: The `snapdrive storage connect` command with `-lun` option gives the following error:

```
0001-638 Admin error: Unable to identify device nodes corresponding to the following LUN(s). The LUN(s) on the filer may be offline or unmapped or may not be completely initialized on the host: for lun create manually on the filer.
```

Explanation: The storage connect fails to connect to a LUN if it is created on a filer by using the `lun create` command or by using FilerView. This error appears because the LUN is not formatted and Solaris does not recognize it, but the LUN gets discovered and mapped to the host.

What to do: Do not create LUNs manually. Use the `snapdrive storage create` command with the `-lun` option to create LUNs. If you have to use an existing LUN after executing the `snapdrive storage connect` command, complete the following steps.

Step	Action
1	Format the LUN manually.
2	Create a file system on it using the native volume manager and operating system commands. After creating a file system, you can use SnapDrive for UNIX operations for this LUN.

SnapDrive for UNIX does not show the supported file system types for storage create operation

Symptom: On a Solaris 10 update 1 host, the `snapdrive storage create` operation fails to create a UFS file system over raw LUNs, using the `-fstype` option and the iSCSI transport. The following error message appears:

```
0001-539 Command error: Snapdrive cannot create a file system of
type ufs Supported types for storage create are:
```

Explanation: The `snapdrive storage create` operation fails to create a UFS file system over raw LUNs (LUNs without any volume manager components), using the `-fstype` option and the iSCSI transport, if the following are true:

- ◆ UFS file system is present
- ◆ VxVM components (VxVM, VxFS and DMP) are not installed
- ◆ HBA driver for Emulex is loaded

What to do: Unload the Emulex driver (`lpfc`) on the host using the `modunload` command.

Obtaining the latest version of the NetApp software

What you need

The SnapDrive for UNIX software package that you download from the NOW site is the most recent version of the NetApp software. You can check the NOW site to see whether the software available there is more recent than the file you have on CD-ROM. If so, download the software instead of using the CD-ROM version of the software.

Obtaining the software from NOW

To download the software from the NOW site, complete the following steps.

Step	Action
1	Log in to the NOW site at http://now.netapp.com . In the fields on the right side of the page, complete the following steps: 1. Enter your user name and password. 2. From the Select Start Page list box, click Download Software. 3. Click the Login button.
2	Go to the SnapDrive product row of the Software Download table and select your host operating system from the Select Platform drop-down list.
3	Click Go!
4	Follow the prompts to reach the software download page.
5	Download the software file to a local directory. If you did not download the file to your host machine, move it to that machine.
6	For instructions about extracting and installing this file, see the <i>SnapDrive for UNIX Installation and Administration Guide</i> .

Obtaining other NetApp documentation

Obtaining additional NetApp documentation

NetApp's NOW Web site contains the most current documentation for SnapDrive for UNIX, FCP and iSCSI Host Utilities, SAN storage system components, and various interconnect methods. For information, see the following:

- ◆ The online *SnapDrive for UNIX Compatibility* matrix at <http://now.netapp.com/NOW/knowledge/docs/docs.shtml/>
- ◆ The online *Compatibility and Configuration Guide for NetApp's FCP and iSCSI Products* at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/
- ◆ The online NOW Description Page for SnapDrive for UNIX on your host operating system
- ◆ The *SnapDrive for UNIX Installation and Administration Guide* (available as a downloadable PDF file from the NOW site and in printed form with the SnapDrive for UNIX media kit)
- ◆ *SnapDrive for UNIX Quick Start Guide* (available as a downloadable PDF file from the NOW site and in printed form with the SnapDrive for UNIX media kit)