

SnapManager® 2.1 for Oracle®

Release Notes

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What's New in SnapManager 2.1 for Oracle

SnapManager overview

SnapManager® 2.1 for Oracle® software is a Network Appliance™ application that can be used to back up, restore, and recover host data in an Oracle database. It uses NetApp Snapshot™ and FlexClone™ technology to enable you to quickly perform operations such as creating a backup of the data, making a clone of the backup, and restoring and recovering the backup.

New Features

SnapManager 2.1 for Oracle adds support for the following:

- ◆ IBM AIX 5,2 and 5.3
With JFS2 with inline logs, RAW file systems, and FCP, iSCSI and NFS protocols.
- ◆ HP-UX 11.11 and 11.23
With native VxFS, RAW and native file systems, and FCP, iSCSI, and NFS protocols

Note

SnapManager 2.1 for Oracle does not support Oracle Automatic Storage Management (ASM) on AIX and HP-UX platforms.

New and enhanced SnapManager 2.1 for Oracle features are:

- ◆ Cloning to an alternate host
In addition to cloning a database to the same host, you can now clone the database to a different host. There are prerequisites for the configuration setup for both the database host and the host to which you are cloning.
- ◆ Exempting a backup from the normal retention policy
Backups can be kept forever or until you change the backup to the normal retention policy.
- ◆ Enhanced authentication for secured SnapManager resources
Users create and manage credentials to access the resources for which they have permissions. These credentials are stored in the user's home directory. Secured resources requiring password management and user authentication are:
 - ❖ hosts
 - ❖ repositories

- ❖ profiles
- ◆ OS authentication
 - When creating or updating profiles you can choose:
 - ❖ OS Authenticated connection mode
 - ❖ Username/password/port connection mode
 - If username and password are not specified, SnapManager defaults to OS authentication connection mode.
- ◆ Invoking CLI commands from a host other than the target database host
- ◆ Optionally, you can add the OS Account, User and Group parameters to the clone specification. Clone specifications from SnapManager 2.0 for Oracle are still valid with this release.

CLI Changes

The following commands have been added:

- ◆ `backup list`
Output shows the list of backups associated with a specified profile.
- ◆ `backup show`
Output shows detailed information about a backup.
- ◆ `backup update`
This new command allows you to change the retention policy for an existing backup. This command must specify either `-retain-forever` or `-retain-normal`.
- ◆ `credential clear`
Users enter this command to clear the credentials in their cache.
- ◆ `credential list`
Users enter this command to list the hosts, repositories, and profiles for which they have credentials.
- ◆ `credential set`
Users enter this command to set credentials for hosts, repositories and profiles for which administrators have given them permissions.
- ◆ `profile sync`
This command is used to load the profile to repository mappings into the user's cache when invoking CLI commands from a non-database host.
- ◆ `repository show`
This command allows users to see information about a repository, including, incomplete operations.

The following commands have changed:

- ◆ `backup create`

This command has two new options, `-retain-forever` and `-retain-normal`.

- ◆ `clone create`

In this release, there is a new clone label attribute that is distinct from the clone SID. You enter this label when creating the clone, or SnapManager creates the unique label for you if it is not specified. The `-label` parameter refers to this unique label, rather than the SID.

Because of the clone using the `-label` parameter, the backup being cloned must now be referenced by using `-backup-label` or `-backup-id`.

- ◆ `clone delete`

You can no longer delete a clone using the SID, because it is no longer a unique value. Use the clone label to identify the clone to delete.

- ◆ `clone list` and `clone show`

The output for these commands now includes additional information about the clones in a profile.

- ◆ `profile create`

New mandatory command line arguments, `-profile-password` and `-osgroup` have been added.

- ◆ `profile show`

This command has enhanced output, including the OS group associated with the Oracle account.

- ◆ `profile update`

Optional command line arguments, `-profile-password` and `-osgroup` is added.

- ◆ `repository create | delete | update` and `profile create | update`

The `-password` option has been removed from these commands. The password is now specified instead by the `credential set` command.

GUI Changes

The SnapManager for Oracle GUI highlights the following changes for this release:

- ◆ Handles secure resources by prompting for credentials when required
- ◆ Prompts for the information required to clone to an alternate host, including the target host name (either the same or alternate host) and additional

parameters for the alternate host (Oracle home directory, Oracle OS account, Oracle OS user and group).

- ◆ Provides a way to list clones and show the clone properties, including the host on which the clone resides.
- ◆ Backup Properties now shows the retention policy for the backup.
- ◆ Displays information about repositories.

System setup required to use SnapManager

This release of SnapManager works with hosts running one of the following Operating systems:

- ◆ Operating system:
 - ❖ Red Hat® Enterprise Linux 3 updates 4 and 5, or Red Hat Enterprise Linux 4 updates 2 and 3
 - ❖ SUSE™ Linux Enterprise Server 9
 - ❖ Solaris™ SPARC 8, 9 or 10
 - ❖ IBM® AIX® 5.2 and 5.3
 - ❖ HP-UX® 11.11 and 11.23

You must have the following installed and running to use SnapManager:

- ◆ Oracle 9iR2 or Oracle 10gR2 using NFS, iSCSI or FCP.
- ◆ NetApp SnapDrive 2.2 for UNIX on Solaris, AIX and HP-UX operating systems and SnapDrive 2.2.1 for Linux operating systems.

Note

SnapManager requires SnapDrive for UNIX, so you must also meet the requirements for that product.

On your storage system, you must have installed and running:

- ◆ NetApp Data ONTAP® 7.0 software or higher.

In addition, you must have the following Data ONTAP licenses on your storage system:

- ◆ FCP, iSCSI, or NFS
- ◆ A FlexClone™ license is required to take full advantage of SnapManager with NFS databases. SnapManager uses the FlexClone feature to:
 - ❖ Mount backups of NFS databases.
 - ❖ Verify backups of NFS databases.
 - ❖ Clone NFS databases.
 - ❖ Register backups of NFS databases with RMAN (if using RMAN).

FlexClone is part of the Data ONTAP® version supported by SnapManager. As with SnapDrive for UNIX, SnapManager handles all interactions with FlexClone.

- ◆ SnapRestore® feature

If you want to use SnapManager's Graphical User Interface (GUI), you must also have the following:

- ◆ Windows® XP software
- ◆ Windows Server 2003 software
- ◆ The GUI has the following space requirements:
 - ❖ Minimum 128 MB available disk space for the application
 - ❖ Minimum 512 MB RAM available to run the application

Restrictions

The following restrictions apply:

- ◆ Backups containing RAW tablespaces or ASM disks on Linux from previous versions cannot be cloned with SnapManager 2.1 for Oracle.
- ◆ SnapManager cannot automatically archive the backups to, or restore archived backups from, another storage system. The snapshots exist on the same storage system as the primary data.
- ◆ SnapManager supports control files on a file system or in ASM and does not support control files on raw devices.
- ◆ Backups containing RAW tablespaces or ASM disks on Linux created with previous versions cannot be cloned using SnapManager 2.1 for Oracle and later.
- ◆ SnapManager does not support reverting to a previous version of SnapManager.
- ◆ A database may not have files in more than one type of file system or volume manager. All files making up a database must reside on the same type of file system.
- ◆ SnapManager may be configured to catalog database backups with RMAN. If an RMAN recovery catalog is being used, the recovery catalog must be in a different database than the database that is being backed up.
- ◆ You can have multiple disk groups for a database, however, these rules apply to all disk groups for a given database.
 - ❖ A disk group can contain one and only one file system.
 - ❖ Disk groups for the a database can be managed by only one volume manager.

- ◆ Raw devices and ASM disks are not supported with Volume Manager volumes.

Confirming system requirements

The most current information on SnapManager's requirements are available in the compatibility matrixes on the NOW™ site. NetApp adds new components and updates products on an ongoing basis, so it is a good practice to check these matrixes.

The matrixes are available at <http://now.netapp.com/NOW/products/interoperability/>. The matrixes you need to check are:

- ◆ *SnapManager & SnapDrive Compatibility Matrix*
- ◆ *The Compatibility and Configuration Guide for NetApp's FCP and iSCSI Products*

SnapManager components

SnapManager is available either on CD-ROM or as software that you can download from the NetApp NOW site (<http://now.netapp.com/>).

The software available for downloading from the NOW site includes the SnapManager software host package and the SnapManager GUI software package. You can also download SnapManager's NetApp prerequisites, such as SnapDrive for UNIX, from their product locations on the NOW site.

The media kit includes the following items:

- ◆ *SnapManager for Oracle Installation and Administration Guide*
- ◆ CD-ROM. The CD-ROM contains the NetApp software packages for the SnapManager host and its GUI in standard, installable package formats.

Installing SnapManager

Detailed instructions for installing SnapManager are in the *SnapManager for Oracle Installation and Administration Guide*.

You must install the SnapManager software package on your UNIX host after installing SnapDrive for UNIX. See the documentation for SnapDrive for UNIX installation instructions.

To use the GUI, you must install the SnapManager GUI software package on your Windows host. You do not install SnapDrive for UNIX on the Windows host.

Using SnapManager with IBM storage systems

SnapManager has been qualified with the IBM® N series storage systems. You must have the IBM N series versions of Data ONTAP and SnapDrive for UNIX if you want to use SnapManager with an IBM N series storage system.

Finding information on known issues and troubleshooting tips

Finding information on known issues for SnapManager

At the time of this release, there were some known problems, limitations, and troubleshooting tips for SnapManager. To locate information on known issues, check the following places:

- ◆ “[Troubleshooting information for SnapManager](#)” on page 9
- ◆ “[Known issues and considerations](#)” on page 12
- ◆ The “Troubleshooting” chapter of the *SnapManager for Oracle Installation and Administration Guide*
- ◆ The NetApp Bugs Online system, which is available on the NOW site

Accessing information about bugs

In most cases, known problems have bug IDs assigned to them. You can determine the status of a bug or see if any new issues have been reported since this document was produced by using the Bugs Online system, which is available on the NOW site.

To view a list of 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.
3	Click the link for Bugs Online & Release Tools.
4	In the Bug Type(s) field, select SnapManager for Oracle, and then click Go.

Troubleshooting information for SnapManager

Snapshot operation fails or is not allowed during LUN clone split

Issue: Command fails with a message similar to:

```
"0001-123 Admin error: Failed to create snapshot S on filer F
volume V: Snapshot operation not allowed during LUN clone split.
```

When performing any SnapManager command that takes a snapshot (including backups and restores) and you get an error message similar to:

```
SMO-08007 [ERROR]: Error creating snapshot. SMO-12111: Error
executing snapdrive command "/usr/sbin/snapdrive snap create -fs
/mnt/tang/SMOTEST/nolvm_vxfs -snapname
ROLLBACK_SMOKE_SMOTEST_INTREP_SMOTEST_F_H_1_8abc01b51187ee60011187
ee79ee0001_1174807360983_0 -unrelated": 0001-123 Admin error:
Failed to create snapshot
ROLLBACK_SMOKE_SMOTEST_INTREP_SMOTEST_F_H_1_8abc01b51187ee60011187
ee79ee0001_1174807360983_0 on filer tang volume smotest_intrepid :
Snapshot operation not allowed during LUN clone split.
```

Explanation: A LUN clone split may occur after a restore operation. Both during and after a restore operation, the LUN clone split continues as a background process.

During this time you will not be able to execute commands that require snapshots of this LUN, such as a backup or another restore. Furthermore, the restore itself may fail as subsequent steps within that restore operation may require taking a rollback snapshot of the same volume (if that volume has multiple LUNs being restored from different file systems).

What to do: If the original restore succeeded and subsequent operations are failing, wait for the LUN clone split to finish and then execute the command again.

If the original restore failed (due to a rollback snapshot failing with 0001-123, set the option `lun.clone_restore` to `off` on the storage system containing the LUNs in question.

```
filer> options lun.clone_restore off
```

Retry the restore operation.

Unexpected GUI behavior Issue: Unexpected behavior occurs in the GUI when multiple GUI windows are running on the same client.

Explanation: Clearing the user credentials cache using Operations > Credentials > Clear Cache in one GUI, when you have multiple GUI windows running on the same client, can cause unexpected behavior in the other running GUI windows.

What to do: Clear the user credentials in the current GUI or restart the current GUI. This will synchronize the GUI with the credentials file.

Unable to clone database on Linux if base database changes

Issue: Failures vary, but could include error messages similar to:

```
ORA-01503: CREATE CONTROLFILE failed
ORA-01565: error in identifying file '/dev/raw/raw3'
ORA-27041: unable to open file
SMO-11129 [ERROR]: Unable to map raw device "/dev/raw/raw1".
Error: [/dev/raw/raw1:    bound to major 0, minor 0]
```

Explanation: SnapManager for Oracle on Linux may be unable to clone a database from a previous backup containing ASM disks or RAW tablespaces that no longer exist in the current database.

What to do: Create the clone from a current backup taken after the RAW tablespace or ASM disk was removed.

Backup fails due to non-persistent NFS file system use

Issue: Creating a backup fails with a message similar to:

```
"0001-858 ... Snapdrive does not support snap creation for non-
persistent NFS file systems"
```

When attempting to create a backup of a database that uses a non-persistent NFS mount (i.e., no `fstab` entry), an error message similar to the following displays:

```
SMO-08007: Error creating snapshot. SMO-12111: Error executing
snapdrive command "/usr/sbin/snapdrive snap create -fs ... -
snapname ... -unrelated": 0001-858 Command error: Snapdrive does
not support snapshot creation for non-persistent NFS file systems:
...
```

Explanation: Support must be enabled for SnapDrive to support non-persistent NFS file systems.

What to do: To enable support for non-persistent NFS file systems, change an entry in the `snapdrive.conf` file.

1. Change the entry from this:
`snapcreate-check-nonpersistent-nfs=off`

To this:

```
snapcreate-check-nonpersistent-nfs=on
```

If the entry begins with a # sign, remove it.

The `snapdrive.config` file is located at `/opt/NTAPsnapdrive` on Solaris and `/opt/NetApp/snapdrive` on all other platforms.

After making this change, your backups should succeed.

Known issues and considerations

Known issues with the product

- ◆ When working with SnapManager, there are issues you should be aware of. Review the “Troubleshooting” chapter of the *SnapManager for Oracle Installation and Administration Guide* for more information.

Backwards compatibility

- ◆ Backups and clones created with previous SnapManager versions are usable with this version. For example, you can restore a backup or delete a clone that was created with an earlier version. There are two exceptions:
 - ❖ Aborting incomplete operations with versions prior to SnapManager 2.1 for Oracle.
If a repository contains incomplete operations, an attempt to update the repository to a new version fails with a detailed message.
 - ❖ Cloning from online backups created with SnapManager versions prior to SnapManager 2.0 for Oracle.

Obtaining the latest version of the NetApp software

Getting the most up-to-date SnapManager software

The SnapManager software that you download from the NOW site is the most recent version of the 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 SnapManager product row of the Software Download table and select Oracle from the Select Platform drop-down list and then click Go!
3	Select the desired version of SnapManager and then click View & Download.
4	Follow the prompts to reach the software download page.

Step	Action
5	Download the software to a local directory. If you did not download the file to your host machine, move it to that machine. To install SnapManager, you must have: ◆ The SnapManager host software for your host operating system: ❖ (Linux host) netapp.smo.linux-2.1.0.bin ❖ (Solaris host) netapp.smo.sunos-2.1.0.bin ❖ (AIX host) netapp.smo.aix-2.1.0.bin ❖ (HP-UX host) netapp.smo.hpux-2.1.0.bin ◆ The optional SnapManager GUI software: ❖ netapp.smo.windows-2.1.0.exe
6	For instructions to install the software, see the <i>SnapManager for Oracle Installation and Administration Guide</i>.

Obtaining other NetApp documentation

Obtaining additional NetApp documentation

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

- ◆ The online *SnapManager & SnapDrive Compatibility* matrix at <http://now.netapp.com/NOW/products/interoperability/>
- ◆ 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 Pages for SnapManager 2.1 for Oracle and SnapDrive for UNIX
- ◆ The *SnapManager for Oracle Installation and Administration Guide* (available as a downloadable PDF file from the NOW site)

The documentation for SnapManager, SnapDrive for UNIX, and Data ONTAP is also available from the Access & Order Product Documentation page at <http://now.netapp.com/NOW/knowledge/docs/docs.cgi>.

