Restore files from snapshots

ONTAP 9

NetApp
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Restore a file from an ONTAP snapshot on an NFS or SMB client

A user on an NFS or SMB client can restore a file directly from a snapshot without the intervention of a storage system administrator.

Every directory in the file system contains a subdirectory named `.snapshot` accessible to NFS and SMB users. The `.snapshot` subdirectory contains subdirectories corresponding to the snapshots of the volume:

```
$ ls .snapshot
daily.2017-05-14_0013/              hourly.2017-05-15_1106/
daily.2017-05-15_0012/              hourly.2017-05-15_1206/
hourly.2017-05-15_1006/             hourly.2017-05-15_1306/
```

Each subdirectory contains the files referenced by the snapshot. If users accidentally delete or overwrite a file, they can restore the file to the parent read-write directory by copying the file from the snapshot subdirectory to the read-write directory:

```
$ ls my.txt
ls: my.txt: No such file or directory
$ ls .snapshot
daily.2017-05-14_0013/              hourly.2017-05-15_1106/
daily.2017-05-15_0012/              hourly.2017-05-15_1206/
hourly.2017-05-15_1006/             hourly.2017-05-15_1306/
$ ls .snapshot/hourly.2017-05-15_1306/my.txt
my.txt
$ cp .snapshot/hourly.2017-05-15_1306/my.txt .
$ ls my.txt
my.txt
```

Enable and disable NFS and SMB client access to ONTAP snapshot directory

You can enable and disable access to the snapshot directory using the ONTAP CLI `-snapdir-access` option of the `volume modify` command, and beginning with ONTAP 9.10.1, you can use System Manager to enable or disable client systems to access to a snapshot directory on a volume. Enabling access makes the snapshot directory visible to clients and allows Windows clients to map a drive to the snapshot directory to view and access its contents. NFS and SMB clients can then restore a file or LUN from a snapshot.

You can enable or disable access to a volume's snapshot directory by editing the volume settings or by editing the volume's share settings.

Enable or disable client access to snapshot directory by editing a volume

Steps

You can enable and disable client snapshot directory access by using ONTAP System Manager or the ONTAP CLI. The snapshot directory on a volume is accessible to clients by default.

System Manager

1. Click **Storage > Volumes**.
2. Select the volume containing the snapshots directory you want to either show or hide.
3. Click ⋮ and select **Edit**.
4. In the **Snapshot (Local) Settings** section, select or deselect **Show the Snapshot directory to clients**.
5. Click **Save**.

CLI

1. Check the snapshot directory access status:

   ```
   volume show -vserver <SVM_name> -volume <vol_name> -fields snapdir-
   access
   ```

   Example:

   ```
   clus1::> volume show -vserver vs0 -volume vol1 -fields snapdir-
   access
   vserver volume snapdir-access
   ------- ------ --------------
   vs0     vol1   false
   ```

   Learn more about `volume show` in the ONTAP command reference.

2. Enable or disable the snapshot directory access:

   ```
   volume modify -vserver <SVM_name> -volume <vol_name> -snapdir-access
   <true|false>
   ```

   The following example enables snapshot directory access on vol1:

   ```
   clus1::> volume modify -vserver vs0 -volume vol1 -snapdir-access
   true
   Volume modify successful on volume vol1 of Vserver vs0.
   ```

   Learn more about `volume modify` in the ONTAP command reference.

Enable or disable client access to snapshot directory by editing a share

The snapshot directory on a volume is accessible to clients by default.

Steps

1. Click **Storage > Shares**.
2. Select the volume containing the snapshots directory you want to either show or hide.
3. Click ⋮ and select **Edit**.
4. In the **Share Properties** section, select or deselect **Allow clients to access snapshots directory**.
5. Click **Save**.

Restore a single file from an ONTAP snapshot

You can use the `volume snapshot restore-file` command to restore a single file or LUN from a snapshot. You can restore the file to a different location in the parent read-write volume if you do not want to replace an existing file.

About this task

If you are restoring an existing LUN, a LUN clone is created and backed up in the form of a snapshot. During the restore operation, you can read from and write to the LUN.

Files with streams are restored by default.

Steps

1. List the snapshots in a volume:

   `volume snapshot show -vserver` *`SVM`* `-volume` *`volume`*

   Learn more about `volume snapshot show` in the ONTAP command reference.

   The following example shows the snapshots in `vol1`:

```
clus1::> volume snapshot show -vserver vs1 -volume vol1

Vserver Volume Snapshot                  State    Size  Total% Used%
------- ------ ---------- ----------- ------   -----  ------ -----
vs1     vol1   hourly.2013-01-25_0005  valid   224KB     0%    0%
               daily.2013-01-25_0010   valid   92KB      0%    0%
               hourly.2013-01-25_0105  valid   228KB     0%    0%
               hourly.2013-01-25_0205  valid   236KB     0%    0%
               hourly.2013-01-25_0305  valid   244KB     0%    0%
               hourly.2013-01-25_0405  valid   244KB     0%    0%
               hourly.2013-01-25_0505  valid   244KB     0%    0%

7 entries were displayed.
```

2. Restore a file from a snapshot:

   `volume snapshot restore-file -vserver` *`SVM`* `-volume` *`volume`* `-snapshot` *`snapshot`* `-path` *`file_path`* `-restore-path` *`destination_path`*

Learn more about `volume snapshot restore-file` in the ONTAP command reference.

The following example restores the file `myfile.txt`:

```
cluster1::> volume snapshot restore-file -vserver vs0 -volume vol1
-snapshot daily.2013-01-25_0010 -path /myfile.txt
```

Restore part of a file from an ONTAP snapshot

You can use the `volume snapshot partial-restore-file` command to restore a range of data from a snapshot to a LUN or to an NFS or SMB container file, assuming you know the starting byte offset of the data and the byte count. You might use this command to restore one of the databases on a host that stores multiple databases in the same LUN.

Beginning with ONTAP 9.12.1, partial restore is available for volumes using SnapMirror active sync.

Steps

1. List the snapshots in a volume:

   `volume snapshot show -vserver` *`SVM`* `-volume` *`volume`*

   Learn more about `volume snapshot show` in the ONTAP command reference.

   The following example shows the snapshots in `vol1`:

```
clus1::> volume snapshot show -vserver vs1 -volume vol1

Vserver Volume Snapshot                  State    Size  Total% Used%
------- ------ ---------- ----------- ------   -----  ------ -----
vs1     vol1   hourly.2013-01-25_0005  valid   224KB     0%    0%
               daily.2013-01-25_0010   valid   92KB      0%    0%
               hourly.2013-01-25_0105  valid   228KB     0%    0%
               hourly.2013-01-25_0205  valid   236KB     0%    0%
               hourly.2013-01-25_0305  valid   244KB     0%    0%
               hourly.2013-01-25_0405  valid   244KB     0%    0%
               hourly.2013-01-25_0505  valid   244KB     0%    0%

7 entries were displayed.
```

2. Restore part of a file from a snapshot:

   `volume snapshot partial-restore-file -vserver` *`SVM`* `-volume` *`volume`* `-snapshot` *`snapshot`* `-path` *`file_path`* `-start-byte` *`starting_byte`* `-byte-count` *`byte_count`*

The starting byte offset and byte count must be multiples of 4,096.

The following example restores the first 4,096 bytes of the file `myfile.txt`:

```
cluster1::> volume snapshot partial-restore-file -vserver vs0 -volume
vol1 -snapshot daily.2013-01-25_0010 -path /myfile.txt -start-byte 0
-byte-count 4096
```

Restore the contents of a volume from an ONTAP snapshot

You can recover a volume to an earlier point in time by restoring from a snapshot. You can use System Manager or the `volume snapshot restore` command to restore the contents of a volume from a snapshot. Learn more about `volume snapshot restore` in the ONTAP command reference.

About this task

If the volume has SnapMirror relationships, manually replicate all mirror copies of the volume immediately after you restore from a snapshot. Not doing so can result in unusable mirror copies that must be deleted and recreated.

Steps

You can use System Manager or the ONTAP CLI to restore from an earlier snapshot.

System Manager

1. Click **Storage** and select a volume.
2. Under **Snapshot copies**, click ⋮ next to the snapshot you want to restore, and select **Restore**.

CLI

1. List the snapshots in a volume:

```
volume snapshot show -vserver <SVM> -volume <volume>
```

The following example shows the snapshot in `vol1`:

```
clus1::> volume snapshot show -vserver vs1 -volume vol1

Vserver Volume Snapshot                  State    Size  Total% Used%
------- ------ ---------- ----------- ------   -----  ------ -----
vs1     vol1   hourly.2013-01-25_0005  valid   224KB     0%    0%
               daily.2013-01-25_0010   valid   92KB      0%    0%
               hourly.2013-01-25_0105  valid   228KB     0%    0%
               hourly.2013-01-25_0205  valid   236KB     0%    0%
               hourly.2013-01-25_0305  valid   244KB     0%    0%
               hourly.2013-01-25_0405  valid   244KB     0%    0%
               hourly.2013-01-25_0505  valid   244KB     0%    0%

7 entries were displayed.
```

2. Restore the contents of a volume from a snapshot:

```
volume snapshot restore -vserver <SVM> -volume <volume> -snapshot
<snapshot>
```

The following example restores the contents of `vol1`:

```
cluster1::> volume snapshot restore -vserver vs0 -volume vol1
-snapshot daily.2013-01-25_0010
```

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