Manage storage

SANtricity software

NetApp
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Check volume redundancy

Under the guidance of technical support or as instructed by the Recovery Guru, you can check the redundancy on a volume in a pool or volume group to determine whether the data on that volume is consistent.

Redundancy data is used to quickly reconstruct information on a replacement drive if one of the drives in the pool or volume group fails.

Before you begin

- The status of the pool or volume group must be Optimal.
- The pool or volume group must have no volume modification operations in progress.
- You can check redundancy on any RAID level except on RAID 0, because RAID 0 has no data redundancy.

> Check volume redundancy only when instructed to do so by the Recovery Guru and under the guidance of technical support.

About this task

You can perform this check only on one pool or volume group at a time. A volume redundancy check performs the following actions:

- Scans the data blocks in a RAID 3 volume, a RAID 5 volume, or a RAID 6 volume, and checks the redundancy information for each block. (RAID 3 can only be assigned to volume groups using the command line interface.)
- Compares the data blocks on RAID 1 mirrored drives.
- Returns redundancy errors if the controller firmware determines that the data is inconsistent.

> Immediately running a redundancy check on the same pool or volume group might cause an error. To avoid this problem, wait one to two minutes before running another redundancy check on the same pool or volume group.

Steps

1. Select **Storage › Pools & Volume Groups**.
2. Select **Uncommon Tasks › Check volume redundancy**.

   The Check Redundancy dialog box appears.
3. Select the volumes you want to check, and then type `check` to confirm you want to perform this operation.
4. Click **Check**.

   The check volume redundancy operation starts. The volumes in the pool or volume group are sequentially scanned, starting from the top of the table in the dialog box. These actions occur as each volume is scanned:

   - The volume is selected in the volume table.

- The status of the redundancy check is shown in the **Status** column.
- The check stops on any media or parity error encountered, and then reports the error.

More about the status of the redundancy check

Status	Description
Pending	This is the first volume to be scanned, and you have not clicked Start to start the redundancy check. or The redundancy check operation is being performed on other volumes in the pool or volume group.
Checking	The volume is undergoing the redundancy check.
Passed	The volume passed the redundancy check. No inconsistencies were detected in the redundancy information.
Failed	The volume failed the redundancy check. Inconsistencies were detected in the redundancy information.
Media error	The drive media is defective and is unreadable. Follow the instructions displayed in the Recovery Guru.
Parity error	The parity is not what it should be for a given portion of the data. A parity error is potentially serious and could cause a permanent loss of data.

5. Click **Done** after the last volume in the pool or volume group has been checked.

Delete pool or volume group

You can delete a pool or volume group to create more unassigned capacity, which you can reconfigure to meet your application storage needs.

Before you begin

- You must have backed up the data on all of the volumes in the pool or volume group.
- You must have stopped all input/output (I/O).
- You must unmount any file systems on the volumes.
- You must have deleted any mirror relationships in the pool or volume group.
- You must have stopped any volume copy operation in progress for the pool or volume group.
- The pool or volume group must not be participating in an asynchronous mirroring operation.
- The drives in the volume group must not have a persistent reservation.

Steps

1. Select **Storage › Pools & Volume Groups**.
2. Select one pool or volume group from the list.

   You can select only one pool or volume group at a time. Scroll down the list to see additional pools or volume groups.

3. Select **Uncommon Tasks › Delete** and confirm.

Results

System Manager performs the following actions:

- Deletes all of the data in the pool or volume group.
- Deletes all the drives associated with the pool or volume group.
- Unassigns the associated drives, which allows you to reuse them in new or existing pools or volume groups.

Consolidate free capacity for a volume group

Use the Consolidate Free Capacity option to consolidate existing free extents on a selected volume group. By performing this action, you can create additional volumes from the maximum amount of free capacity in a volume group.

Before you begin

- The volume group must contain at least one free capacity area.
- All of the volumes in the volume group must be online and in Optimal status.
- Volume modification operations must not be in progress, such as changing the segment size of a volume.

About this task

You cannot cancel the operation after it begins. Your data remains accessible during the consolidation operation.

You can launch the Consolidate Free Capacity dialog box using any of the following methods:

- When at least one free capacity area is detected for a volume group, the "Consolidate free capacity" recommendation appears on the Home page in the Notification area. Click the **Consolidate free capacity** link to launch the dialog box.
- You can also launch the Consolidate Free Capacity dialog box from the Pools & Volume Groups page as described in the following task.

More about free capacity areas

A free capacity area is the free capacity that can result from deleting a volume or from not using all available free capacity during volume creation. When you create a volume in a volume group that has one or more free capacity areas, the volume's capacity is limited to the largest free capacity area in that volume group. For example, if a volume group has a total of 15 GiB free capacity, and the largest free capacity area is 10 GiB, the largest volume you can create is 10 GiB.

You consolidate free capacity on a volume group to improve write performance. Your volume group's free capacity will become fragmented over time as the host writes, modifies, and deletes files. Eventually, the available capacity will not be located in a single contiguous block, but will be scattered in small fragments across the volume group. This causes further file fragmentation, since the host must write new files as fragments to fit them into the available ranges of free clusters.

By consolidating free capacity on a selected volume group, you will notice improved file system performance whenever the host writes new files. The consolidation process will also help prevent new files from being fragmented in the future.

Steps

1. Select **Storage › Pools & Volume Groups**.
2. Select the volume group with free capacity that you want to consolidate, and then select **Uncommon Tasks › Consolidate volume group free capacity**.

   The Consolidate Free Capacity dialog box appears.
3. Type `consolidate` to confirm you want to perform this operation.
4. Click **Consolidate**.

   System Manager begins consolidating (defragmenting) the volume group's free capacity areas into one contiguous amount for subsequent storage configuration tasks.

After you finish

Select **Home › View Operations in Progress** to view the progress of the Consolidate Free Capacity operation. This operation can be lengthy and could affect system performance.

Export/Import volume groups

Volume group migration lets you export a volume group so that you can import the volume group to a different storage array.

The Export/Import function is not supported in the SANtricity System Manager user interface. You must use the Command Line Interface (CLI) to export/import a volume group to a different storage array.

Turn on locator lights in a pool, volume group, or SSD Cache

You can locate drives to physically identify all of the drives that comprise a selected pool, volume group, or SSD Cache. An LED indicator lights up on each drive in the selected

pool, volume group, or SSD Cache.

Steps

1. Select **Storage › Pools & Volume Groups**.
2. Select the pool, volume group, or SSD Cache you want to locate, and then click **More › Turn on locator lights**.

   A dialog box appears that indicates the lights on the drives comprising the selected pool, volume group, or SSD Cache are turned on.

3. After you successfully locate the drives, click **Turn Off**.

Remove capacity from a pool or SSD Cache

You can remove drives to decrease the capacity of an existing pool or SSD Cache.

After you remove drives, the data in each volume of the pool or SSD Cache is redistributed to the remaining drives. The removed drives become unassigned and their capacity becomes part of the total free capacity of the storage array.

About this task

Follow these guidelines when you remove capacity:

- You cannot remove the last drive in an SSD Cache without first deleting the SSD Cache.
- You cannot reduce the number of drives in a pool to be less than 11 drives.
- You can remove a maximum of 12 drives at a time. If you need to remove more than 12 drives, repeat the procedure.
- You cannot remove drives if there is not enough free capacity in the pool or SSD Cache to contain the data, when that data is redistributed to the remaining drives in the pool or SSD Cache.

Read about potential performance impacts

- Removing drives from a pool or SSD Cache might result in reduced volume performance.
- The preservation capacity is not consumed when you remove capacity from a pool or SSD Cache. However, the preservation capacity might decrease based on the number of drives remaining in the pool or SSD Cache.

Read about impacts to secure-capable drives

- If you remove the last drive that is not secure-capable, the pool is left with all secure-capable drives. In this situation, you are given the option to enable security for the pool.
- If you remove the last drive that is not Data Assurance (DA) capable, the pool is left with all DA-capable drives.

Any new volumes that you create on the pool will be DA-capable. If you want existing volumes to be DA-capable, you need to delete and then re-create the volume.

Steps

1. Select **Storage › Pools & Volume Groups**.
2. Select the pool or SSD Cache, and then click **More › Remove capacity**.

   The Remove Capacity dialog box appears.

3. Select one or more drives in the list.

   As you select or de-select drives in the list, the **Total capacity selected** field updates. This field shows the total capacity of the pool or SSD Cache that results after you remove the selected drives.

4. Click **Remove**, and then confirm you want to remove the drives.

   The newly reduced capacity of the pool or SSD Cache is reflected in the Pools and Volume Groups view.

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