Deleting snapshots

Deleting snapshot data

After writing data to a Thin Image pair volume, if the capacity of the snapshot data exceeds the pool capacity, the Thin Image pair changes to the PSUE status (indicating a failure occurred). In this case, you cannot create a new Thin Image pair, therefore, you must delete snapshot data which is no longer necessary. To delete snapshot data, perform either of the following methods:

- Deleting Thin Image pairs
  Deleting Thin Image pairs deletes snapshot data stored in a pool and cancels the relationship between the P-VOL and the S-VOL.
- Deleting snapshot data only
  To delete snapshot data only, use the Resync Pairs window to delete snapshot data or restore Thin Image pairs. If you deleted only snapshot data, the relationship between the P-VOL and the S-VOL is maintained. If you delete only snapshot data, you can assign the MU numbers of the snapshot data you deleted when you store snapshot data of the Thin Image pair later. For details about the Resync Pairs window, see Restoring Thin Image pairs or Deleting Thin Image pairs.

When you delete snapshot data, the pair status changes to PAIR. Even if you update the primary volume from the host, the snapshot data is no longer stored. To resume storing snapshot data, split the Thin Image pair again.

The amount of time required for deleting snapshot data depends on the following, even if the pair synchronization ratio is 100 percent:

- The amount of pool capacity a pair is using.
- The number of pairs being operated concurrently.

The pair synchronization rate shows the rate that S-VOL data matches that of the next generation of the S-VOL. If the S-VOL is the latest one, the synchronization rate is computed by comparing the S-VOL with the P-VOL.

For the Thin Image pair where the cascade attribute is enabled, the information displayed in Synchronization Rate (%) of the View Pair Synchronization Rate window varies depending on the pair status.

Deleting Thin Image pairs

Delete Thin Image pairs when you do not need them or when you want to delete snapshot data.
When you delete a pair, the P-VOL and the S-VOL change to SMPL(PD) and they are unpaired. When volumes are unpaired, they are not displayed in the main window. After the deletion, you can use the unpaired volumes in other pairs. You cannot create pairs in the SMPL(PD) status, and you cannot allocate an S-VOL to snapshot data, or cancel or change the allocation. To shorten the time in the SMPL(PD) status, delete snapshot data if any, and delete pairs after the pair status changes to PAIR. When you set a snapshot group, if all pairs in a snapshot group are unpaired, the snapshot group is automatically removed. Make sure that the snapshot group is removed before starting another pair task.

All snapshot data in a P-VOL must be deleted for there to be a decrease in the pool usage rate and an increase in unused capacity.

The amount of time required for deletion depends on the following, even if the pair resynchronization rate is 100 percent:

- The amount of pool capacity a pair is using.
- The number of pairs being operated concurrently.

The pair synchronization rate shows the rate that S-VOL data matches that of the next generation of the S-VOL. If the S-VOL is the latest one, the synchronization rate is computed by comparing the S-VOL with the P-VOL.

(VSP G1x00 and VSP F1500) For the Thin Image pair where the cascade attribute is enabled, the information displayed in Synchronization Rate (%) of the View Pair Synchronization Rate window in Device Manager - Storage Navigator, or the information displayed by the raidcom get snapshot command in CCI, varies depending on the pair status. For details, see View Pair Synchronization Rate window.

(VSP G1x00 and VSP F1500) If you cannot delete Thin Image pairs with Device Manager - Storage Navigator, you can use to forcibly delete all Thin Image cascaded pairs in a snapshot tree. For details about CCI commands, see Pair tasks using CCI or Device Manager - Storage Navigator and the Command Control Interface Command Reference.

NoteAfter deleting a Thin Image pair, the number of pairs shown in the summary section in the Local Replication window and in the list on the TI Root Volumes tab can be different. Wait until the configuration has completed processing. If the numbers do not match, reload the configuration information (see Reloading Thin Image configuration information).

NoteIf the amount of snapshot data in selected P-VOLs or the total number of pairs in selected snapshot groups exceeds 37,768, an error message appears when attempting to perform pair tasks.

Before you begin

- You must have the Storage Administrator (Local Copy) role.
- The Thin Image pair must be suspended ("PSUE" status), paired ("PAIR" status), or split ("PSUS" status).

Procedure

1. In the Explorer pane, click Storage Systems, expand the storage system tree, expand Replication, and then click Local Replication.

2. In the Local Replication window, select a P-VOL in the TI Root Volumes tab or a snapshot group in the Snapshot Groups tab.

3. Click Operate TI Pairs.
4. In the TI Pairs window, select the pair you want to delete, and then click More Actions Delete Pairs. You can specify P-VOLs in Device Manager - Storage Navigator until the total number of snapshots or clones reaches 32,768. In addition, you can specify snapshot groups until the total number of pairs reaches 32,768. For cascaded pairs with layers, specify pairs at the lowest layer, and then higher layers.

5. Click Finish, and then confirm the settings.

6. Accept the default task name or enter a unique name. You can enter up to 32 letters, numbers, and symbols, except the following:

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7. If you want to monitor the task after submitting it, select Go to tasks window for status.

8. Click Apply to submit the task.

Results
The pair deletion process begins ("SMPL(PD)" status), and then the pair is deleted.

Accelerating the Thin Image pair deletion process

You can shorten the time that a Thin Image pair is in the process of being deleted ("SMPL(PD)" status). If the pair status is "SMPL(PD)", you cannot recreate a Thin Image pair, and you cannot assign an S-VOL to snapshot data, release an assignment, or change an assignment.

   1. Delete the snapshot data by resynchronizing the pair. This puts the pair in "PAIR" status.
   2. Delete the pair.

Removing Thin Image snapshot groups

You can remove snapshot groups by deleting all of the pairs in the group. Remove snapshot groups before performing the next pair task.

Note: You can use HDvM - SN only to reference consistency and snapshot groups and to remove snapshot groups. You cannot use HDvM - SN to delete consistency groups.

Procedure

   1. Delete all of the Thin Image pairs that are assigned to the snapshot group.

Assigning MU numbers to deleted snapshot data

Use this process to assign an MU number to deleted snapshot data.
Procedure

1. Resynchronize the pair using forward resynchronization.
2. Store the data for the Thin Image pair.

Releasing assignment of secondary volumes from Thin Image pair snapshot data

You can release the assignment of S-VOLs from snapshot data of Thin Image pairs. Note if the amount of snapshot data in selected P-VOLs or the total number of pairs in selected snapshot groups exceeds 32,768, an error message appears when attempting to perform pair tasks.

Before you begin

- You must have the Storage Administrator (Local Copy Pair Unmap) role.

Procedure

1. In the Explorer pane, click Storage Systems, expand the storage system tree, expand Replication, and then click Local Replication.
2. In the Local Replication window, select a P-VOL in the TI Root Volumes tab or a snapshot group in the Snapshot Groups tab.
3. Click Operate TI Pairs.
4. In the TI Pairs window, select the S-VOL pairs you want to delete, and then click More Actions Remove Secondary Volumes.
5. In the Remove Secondary Volumes window, confirm the settings.
6. Accept the default task name or enter a unique name. You can enter up to 32 letters, numbers, and symbols, except the following:

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7. If you want to monitor the task after submitting it, select Go to tasks window for status.
8. Click Apply to submit the task.

Workflow for deleting V-VOLs specified for Thin Image S-VOLs

Typically, you cannot delete V-VOLs and V-VOL groups that are specified for Thin Image S-VOLs. If the groups are specified for S-VOLs, complete this workflow.
1. Delete the Thin Image pairs.
2. Delete the V-VOL.

Deleting virtual volumes

You can use the Delete LDEVs window to remove virtual volumes.

For more information about the Delete LDEVs window, see the Provisioning Guide for your storage system.

Procedure

1. In the Explorer pane, click Storage Systems, expand the storage system tree, and then click Logical Devices.

2. In the Logical Devices window, from the list of volumes, select the check boxes for the V-VOLs that you want to delete, click More Actions Delete LDEVs, and then confirm the settings.

3. Accept the default task name or enter a unique name.
   You can enter up to 32 letters, numbers, and symbols, except the following:

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4. If you want to monitor the task after submitting it, select Go to tasks window for status.

5. Click Apply to submit the task.