# Splitting a volume clone or LUN clone

Snapdrive for Unix

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SnapDrive for UNIX enables you to split a volume clone or LUN clone. After the clone split is complete, the relationship between the parent volume and the clone is destroyed, and both the entities are independent of each other, and have their own individual storage space.

The following are the clone split operations:

- Estimate the disk space (in MB) for a volume clone or LUN clone.
- Split a volume clone or LUN clone.
- Stop the volume clone or LUN clone split.
- View the status of the clone split that is in progress, completed, or failed.

> - If a volume clone is split, all Snapshot copies in the cloned volume are deleted.
> - It is mandatory to run the clone split estimate command before splitting the file specification to determine, if there are any Snapshot copies taken in the cloned volume.
> - For all clone split commands, only long LUN name must be specified with `-lun` option. You cannot specify `-lun` option on the same command line along with other storage entities (-vg, -dg, -fs, - lvol, or -hostvol options).
> - It is always mandatory to use the absolute pathname for the file specifications with clone split commands.
> - The LUN clone split estimation using Snapshot is available only for Snapshot copies that are created from SnapDrive 4.2 for UNIX and later.

## Estimating the storage space to split a volume clone

The clone split estimation helps you to estimate the required storage space (in MB) to split a volume clone. Depending on the clone split estimation provided by SnapDrive for UNIX, you can determine the space availability to split a volume clone.

**Steps**

1. Enter the following command to estimate the required storage space to split a volume clone.

   **snapdrive clone split estimate [-lun] *long_lun_name* [long*lun_name*…] | *[{-dg* | *-vg* | *-fs* | *-hostvol* | *-lvol}* *_file_spec* [*file_spec*…]] | [-snapname *long_snap_name*] {-volclone|-lunclone}] [-v | -verbose] [-dump | -dumpall]**

   This operation displays the following information:

   - Resource name
   - Container - Aggregate for a FlexClone
   - Required Space - space required to split the volume clone
   - Available space - space available on the container
   - Storage Status - indicates the space availability for a volume clone split

- Owned Space - space occupied by the volume clone
- Shared space - space occupied by the volume clone along with the parent

The `Owned Space` and `Shared Space` is displayed when you use `-verbose` option.

The following example estimates the storage space to split a volume clone.

```
# snapdrive clone split estimate -fs /mnt/my_mnt1 -fs /mnt/my_mnt2
Resource     Container  Required Available  Storage
                        Space(MB) Space(MB) Status
/mnt/my_mnt1  f3050-220  400      61500    AVAILABLE
              -111:aggr0
/mnt/my_mnt2  f3050-220  3292     1129     NOT AVAILABLE
              -112:aggr1
```

For every file specification, SnapDrive for UNIX determines the required space that is available in the storage system to split a volume clone. Here, the `/mnt/my_mnt1` file specification has the required space to split, and thus the storage status displays as AVAILABLE. Whereas, the `/mnt/my_mnt2` file specification does not have the required space to split, and so the storage status displays as NOT AVAILABLE.

The following is an example of using the `-verbose` option. Alternatively, you can use `-v` option.

```
# snapdrive clone split estimate -fs /mnt/my_mnt1 -verbose
Resource    Container Owned    Shared   Required Available Storage
                      Space(MB)Space(MB)Space(MB)Space(MB) Status
/mnt/my_mnt1 f3050-220 32365  403      403     55875 AVAILABLE
             -111:aggr0
```

# Estimating the storage space to split a LUN clone

The clone split estimation helps you to estimate the required storage space (in MB) to split a LUN clone. Depending on the clone split estimation provided by SnapDrive for UNIX, you can determine the space availability to split a LUN clone.

**Steps**

1. Enter the following command to estimate the required storage space to split a LUN clone.

   **snapdrive clone split estimate *long_lun_name* [*long_lun_name*…] | [{-dg | -vg | -fs | -hostvol | -lvol}*file_spec* [*file_spec*…]] | [-snapname *long_snap_name*] {-volclone|-lunclone}] [-v | -verbose]**

   This operation displays the following information:

   - Resource name
   - Container- Volume for a LUN clone
   - Required Space - space required to split a LUN clone

- Available space - space available on the container
- Storage Status - indicates the space availability for a LUN clone split
- Owned Space - space occupied by the LUN clone
- Shared Space - space occupied by the LUN clone along with the parent

The `Owned Space` and `Shared Space` is displayed when you use `-verbose` option.

The following example estimates the storage space to split a LUN clone.

```
# snapdrive clone split estimate -fs /mnt/my_mnt1
Resource     Container Required Available Storage
                       Space(MB)Space(MB)  Status
/mnt/my_mnt1 f3050-220  5120    9986    AVAILABLE
             -112:/vol/vol_1
```

The following is an example of using the `-verbose` option. Alternatively, you can use `-v` option.

```
# snapdrive clone split estimate -fs /mnt/my_mnt1 -verbose
Resource    Container  Owned    Shared   Required Available Storage
                       Space(MB)Space(MB)Space(MB)Space(MB)  Status
/mnt/my_mnt1 f3050-220  365   403      5120     9986 AVAILABLE
             -112:/vol/vol_1
```

# Estimating the storage space using a Snapshot copy

The clone split estimation helps you to estimate the required storage space (in MB) using a Snapshot copy, when there is no clone available for a Snapshot copy in the storage system.

**Steps**

1. Enter the following command to estimate the required storage space.

   **snapdrive clone split estimate -snapname [*long_snap_name*] {-volclone|-lunclone}] [-v | -verbose]**

The following example estimates the storage space to split a LUN clone using a Snapshot copy.

```
snapdrive clone split estimate -snapname f3050-220-112:/vol/vol_1:snap_1
-lunclone
Resource       Container  Required Available Storage
                          Space(MB)Space(MB)  Status
f3050-220-112: f3050-220    5120       14078    AVAILABLE
/vol/vol_1:snap_1 -112:/vol/vol_1
```

The following example estimates the storage space to split a LUN clone using a Snapshot copy with the `-fs` option.

```
# snapdrive clone split estimate -fs /mnt/my_mnt1 -snapname f3050-220-
112:/vol/vol_1:snap_1 -lunclone
Resource         Container Required Available Storage
                            Space(MB)Space(MB)  Status
f3050-220-112:   f3050-220  4120     14078  AVAILABLE
/vol/vol_1:snap_1 -112:/vol/vol_1
```

The following example estimates the storage space to split a volume clone using a Snapshot copy with the `-fs` option.

```
# snapdrive clone split estimate -fs /mnt/fs1 -snapname f3050-220-
112:/vol/vol_1:snap_1 -volclone
Resource      Container   Required Available Storage
                          Space(MB)Space(MB)  Status
f3050-220-112:  f3050-220 54019   54517  AVAILABLE
/vol/vol0:snap_1 112:aggr0
```

The following example estimates the storage space to split a volume clone using a Snapshot copy.

```
# snapdrive clone split estimate -snapname f3050-220-112:/vol/vol_1:snap_1
-volclone
Resource      Container   Required Available Storage
                          Space(MB)Space(MB)  Status
f3050-220-112:  f3050-220 54019    54517    AVAILABLE
/vol/vol0:snap_1 112:aggr0
```

- The "Resource" field contains the Snapshot copy name, if the clone split estimate is done for a Snapshot copy.
- If you provide any dead file specification along with the Snapshot copy with `-lunclone` option, the "Required Space" shows as 0.
- The LUN clone split estimation using Snapshot is available only for Snapshot copies that are created from SnapDrive 4.2 for UNIX and later.

# Starting the volume clone or LUN clone split

You can start a volume clone or LUN clone split operation.

**Steps**

1. Enter the following command to start a volume clone or LUN clone split.

   **# snapdrive clone split start [-lun] *long_lun_name* [*long_lun_name*…] | [{-dg |***

**-vg | -fs | -hostvol | -lvol} *file_spec* [*file_spec* …]] [-force][-noprompt] [-dump | -dumpall]**

The following options can be used when the storage status displays as NOT AVAILABLE.

- You can use the `-force` option to forcibly start the clone split operation and receive a confirmation message that the operation has started.
- You can use the `-noprompt` along with `-force` option to start the clone split start operation without receiving any confirmation message.

> When you start another clone split operation soon after stopping a clone split operation that was in progress, the operation might fail. This issue might occur if the delay between the starting and stopping of the clone split operation was not sufficient to allow the storage system to sync the stop operation.

The following example displays how to split a volume clone:

```
# snapdrive clone split start -fs /mnt/my_mnt4_0 /mnt/my_mnt3_0
Resource    Container  Required Available Storage
                       Space(MB)Space(MB)  Status
----------------------------------------------------
/mnt/my_mnt4_0 f3050-220 3295   66033 AVAILABLE
             -111:aggr0
/mnt/my_mnt3_0 f3050-220  293   37707 AVAILABLE
             -112:aggr1

Job ID: B265Dbv8gh
Clone-Split for "/mnt/my_mnt4_0" is started
Clone-Split for "/mnt/my_mnt3_0" is started
```

The following example displays how to split a clone using the *-force* option:

```
# snapdrive clone split start -fs /mnt/my_mnt5 /mnt/my_mnt6 -force
Resource    Container Required  Available Storage
                      Space(MB) Space(MB) Status
-----------------------------------------------------
/mnt/my_mnt5 f3050-220 1198   20033   AVAILABLE
             -111:aggr0
/mnt/my_mnt6 f3050-220  3294  2196  NOT AVAILABLE
             -112:aggr1
Not enough space available for Clone-Split.  Do you want to continue
(y/n)?y
Clone-Split for "/mnt/my_mnt5" is started
Clone-Split for "/mnt/my_mnt6" is started
```

The following example shows how to directly start a clone using the *-noprompt* option meaning there is no

confirmation message:

```
# snapdrive clone split start -fs /mnt/my_mnt5 /mnt/my_mnt6 -force
-noprompt
Resource    Container  Required  Available Storage
                       Space(MB) Space(MB) Status
-----------------------------------------------------
/mnt/my_mnt5 f3050-220  1198     20033   AVAILABLE
             -111:aggr0
/mnt/my_mnt6 f3050-220  3294     2196  NOT AVAILABLE
             -112:aggr1
Clone-Split for "/mnt/my_mnt5" is started
Clone-Split for "/mnt/my_mnt6" is started
```

# Viewing the status of a volume clone or LUN clone split

You can query the clone split status by using a job ID or file specification. SnapDrive for UNIX indicates the current status of the clone split as in-progress, failed, or complete.

**Steps**

1. Enter the following command to query the clone split status using a job ID or file specification.

   **snapdrive clone split status [-lun] *long_lun_name* [*long_lun_name*…] [{-dg | -vg | -fs | -hostvol | -lvol} *file_spec* [*file_spec*…]][-job *<jobid>* ] [-all]**

The following example shows the clone split status using a job ID.

```
# snapdrive clone split status -job SVE2oxKXzH
Clone-Split-Status for /fs1-1_3 is 1% Complete
Clone-Split-Status for /fs1_0 is 73% Complete
Clone-Split-Status for /fs1_1 is 73% Complete
Clone-Split-Status for /fs1_2 is 74% Complete
Clone-Split-Status for /fs1_3 is 1% Complete
```

You can check the status of a clone split progress in either of the following ways:

- You can verify the clone by using the

  **`snapdrive storage show -fs /mnt/my_mnt`**

  or

  **`snapdrive storage show -lun long_lun_pathname`**

  commands. In either case, the clone type is displayed as a FlexClone or LUN clone if the split has not been completed.

- You can verify the clone split progress state by logging into the storage system and using the following commands in the storage system CLI:

  **`vol clone split status vol_name`** **`lun clone split status lun_name`**

The following example shows a clone split status query made using the file specification:

```
# snapdrive clone split status -fs /mnt/my_mnt3 -fs /mnt/my_mnt4
Clone-Split-Status for /mnt/my_mnt3 is 14% Complete
Clone-Split-Status for /mnt/my_mnt4 is 17% Complete
```

The following example shows a clone split status query that is running:

```
# snapdrive clone split status -all
Job ID: SVE2oxKXzH:
Clone-Split-Status for /fs1-1_3 is 100% Complete
Clone-Split-Status for /fs1_0 is 100% Complete
Clone-Split-Status for /fs1_1 is 100% Complete
Clone-Split-Status for /fs1_2 is 100% Complete
Clone-Split-Status for /fs1_3 is 100% Complete
```

- When a job is removed from the job set and you query the status of a clone split status using file specification, SnapDrive for UNIX displays the error message as

  `No split is currently in progress for the given resource`

- When a job is removed from the job set and you query the status of a clone split using a job ID, SnapDrive for UNIX displays the error message as

  `Job ID is not valid`

- When all file specifications are removed from a job and you query the status of a clone split using the Job ID, SnapDrive for UNIX displays as

  `Job ID is not valid`

because the job is removed from the job set.

- If any file specifications fail due to insufficient space in the storage system, the job still continues to split for the remaining file specifications. This means the job is not deleted from the job queue and the job status is retained until you query the overall job result.

# Stopping the volume clone or LUN clone split operation

You can stop the clone split for a volume clone or LUN clone using the job ID or file specification.

**Steps**

1. Enter the following command:

   **snapdrive clone split stop [-lun] *long_lun_name* [*long_lun_name*…] |[{-dg | -vg | -fs | -hostvol | -lvol} *file_spec* [*file_spec*…]] | [-job <*jobid*>]**

   SnapDrive for UNIX stops the clone split stop operation that is in progress.

The following example shows the clone split operation that is stopped by using the file specification.

```
# snapdrive clone split stop -fs /mnt/my_mnt4 /mnt/my_mnt3
Clone-Split for "/mnt/my_mnt4" is 0% Completed and Stopped.
Clone-Split for "/mnt/my_mnt3" is 0% Completed and Stopped.
```

The following example shows the clone split operation that is stopped by using the job ID.

```
# snapdrive clone split stop -job B265Dbv8gh
Clone-Split for "/mnt/my_mnt3" is 14% Completed and Stopped.
Clone-Split for "/mnt/my_mnt4" is 17% Completed and Stopped.
```

The following example is a typical output that shows the clone split stop operation for a file specification that is already stopped.

```
# snapdrive clone split stop -fs /mnt/my_mnt4 /mnt/my_mnt3
Clone-Split for "/mnt/my_mnt3" is not stopped : No split is in progress
for this resource
Clone-Split for "/mnt/my_mnt4" is not stopped : No split is in progress
for this resource
```

- If the clone split is stopped for a particular file specification in the job id and the clone split stop is successful, then file specification is removed from the job.
- If the clone split is stopped for a job, and the clone split stop is successful for all the file specification in the job, the job is removed from the job set.

# Viewing the result of a clone split operation using job ID or file specification

You can view the result of the completed clone split operation using job ID or file specification.

**Steps**

1. Enter the following command to view the clone split result using a file specification:

   **snapdrive clone split result [-lun] *long_lun_name* [*long_lun_name*…] |[{-dg | -vg | -fs | -hostvol | -lvol} file_spec [file_spec…]] | [-job <*jobid*>]**

   SnapDrive for UNIX displays the result of the clone split that is completed, or failed for a file specification, and then removes the file specification from the job, and removes the job from the job queue.

The following example shows the clone split result for a job ID that is completed successfully.

```
# snapdrive clone split result -job VT1ov6Q8vU
Clone-Split for "/mnt/my_mnt3" is 100% completed and succeeded
Clone-Split for "/mnt/my_mnt4" is 100% completed and succeeded
```

If there are two file specifications, and out of which one of the file specification fails due to insufficient space in the storage system, then the result of the clone split operation shows as one file specification failed and another file specification was completed successfully.

The following example shows the clone split result for a file specification that is completed successfully.

```
# snapdrive clone split result -fs /mnt/my_mnt3 /mnt/my_mnt4
Clone-Split for "/mnt/my_mnt3" is 100% completed and succeeded
Clone-Split for "/mnt/my_mnt4" is 100% completed and succeeded
```

The following example shows the clone split result when the clone split operation is still in progress and not yet completed.

```
# snapdrive clone split result -job R57aCzUaeG
Clone-Split for "/mnt/my_mnt3" is 0% completed and Split in progress
```

The following example shows a job that is permanently removed from the job set, and when you try to view the result using file specification, SnapDrive for UNIX encounters an error message as "does not belong to any job."

```
# snapdrive clone split result -fs /mnt/my_mnt2
Storage resource /mnt/my_mnt2 does not belong to any job
```

The following example shows a job that is permanently removed from the job set, and when you try to view the result using job ID, SnapDrive for UNIX encounters an error message as "Job ID is not valid".

```
# snapdrive clone split result -job T59aCzUaeG
Job ID is not valid
```

The following example displays the clone split result in which one of the clone split is in progress and another has failed.

```
# snapdrive clone split result -job qJrG8U59mg
Clone-Split for "/mnt/my_mnt4" is 100% completed and succeeded
Clone-Split for "/mnt/my_mnt5" is 0% completed and split failed
```