Tech Brief

# Changing Staging Disk Grain Size

The SVC-based CDS maintains an in-memory bitmap to track changed blocks between each flash copy and the staging disk. By default every bit in this bitmap represents a 256K block of data. This size is called the "flash copy map grain size." IBM recommends changing the grain size for snapshots of the Epic database.

### System Impact and Resource Consumption

Because the amount of memory available to the flash copy maps is limited, you must consider the eventual total amount of snapped data you plan to store before enabling this feature. When using 256KB grain size a single CDS appliance can manage a total of 1024 TB virtual space in flash copies.

For example, if you have 128 apps protecting 2 TB each, you could only have 4 snapshots each. If 64KB grain size were used, then the total virtual space would be reduced by a factor of 4.

### Restrictions when using this feature

Mounts, clones, restores, and live clones made from a snapshot need to use a pool set to the same grain size as the snap pool where the flash copy lives. When doing these operations, the Actifio Desktop presents a list of pools to use and DOES NOT currently filter the list to display only the legal pools. If an incorrect pool is chosen the job will run briefly and fail with a status message reflecting a pool grain size mismatch.

When mounting or restoring an image and when creating LiveClones, be sure to select a pool with the appropriate grain size. For best results, use 64kb grain size for an Epic database.

## Enabling the Feature

### Creating a new pool with a 64KB grainsize

Use the undocumented "-grainsize" option in your create command. For example:

```
udstask mkdiskpool -name pool_mkt -warnpct 70 -type perf -mdisk mdisk1:mdisk2 -grainsize 64
```

### Changing an existing pool to use 64kb grainsize

You can only change the grainsize on a pool with no volumes in it. You can confirm this with two steps:

1. Get the SVN internal name for the mdiskgroup: `udsinfo lsdiskpool | grep <your pool name>`
2. `lsvdisk | grep act_per_pool<nnn>`

If no lines are returned, then you can change the grainsize of the pool.

Use the undocumented "-grainsize" option. For example: `udstask chdiskpool -grainsize 64 pool_mkt`

## Migrating Existing Applications to the New Staging Disks

### New Applications with No Backup Images

1. Disable the schedule for the application in the Application Manager.
2. Create a resource profile that refers to a snapshot pool set for 64K fc grain size.
3. Protect the application with that profile. Change the resource profile on the existing application to reflect the new resource profile created in step 1.
4. Run an on-demand snapshot of the application. Watch the System Monitor for the job. If the snapshot job fails, then revert the resource profile to the previous setting and contact Actifio support.
5. Re-enable the schedule for the application in the Application Manager.

### Existing Applications

Before you begin:

- Unmount and delete any existing mounts.
- Delete any LiveClones, and recreate them after you have switched on a pool with the correct grain size.

1. Because all flash copies related to the same base volume must use the same grain size, you have 2 choices.
    - Dedup the latest snapshot then expire all snapshots for this application.
    - Unprotect the application (making the existing snaps visible under orphans) then rediscover and reprotect the application with the new FC grainsize. This will require twice the snap pool space until the orphans are expired per their retention policies).
2. Then change the existing resource profile to a 64kb enabled pool, or change the pool as described above.