

# dedupe causes vol size to grow

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[sarbjit](#) 19 posts since

Mar 10, 2008

IHAC who are using FAS3020 running ONTAP 7.2.5.1.They enabled dedupe on a volume of 30GB which is not space reserved and the fractional reserve is set to 100%.The volume has a LUN of 25GB.

After enabling dedupe,customer saw the volume size increasing and it reached to a max autogrow limit of 60GB.Customer then disabled dedupe.(I believe they did using sis stop/sis off commands which saves the current fingerprint information) as the aggregate was also running out of space.

BEFORE dedupe

AFTER dedupe

Vol->30GB

vol-->60GB

lun->25GB

lun->25GB

## vol options ##

```
SCCM online  raid_dp, flex  nosnap=off, nosnapdir=off,
              sis      minra=off, no_atime_update=off,
                   nvfail=off,
                   ignore_inconsistent=off,
                   snapmirrored=off,
                   create_ucose=on,
```

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```
convert_ucose=on,  
maxdirsize=20971,  
schedsnapname=ordinal,  
fs_size_fixed=off,  
guarantee=none, svo_enable=off,  
svo_checksum=off,  
svo_allow_rman=off,  
svo_reject_errors=off,  
no_i2p=off,  
fractional_reserve=100,  
extent=off,  
try_first=volume_grow,  
sis_logging=off,  
read_realloc=off
```

Containing aggregate: 'aggr0'

#sis status -l shows the volume as :

```
Path:          /vol/SCCM  
State:         Disabled  
Status:        Idle  
Progress:      Idle for 30:11:29  
Type:          Regular
```

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Schedule: auto  
Last Operation Begin: Wed Jun 24 12:08:00 IST 2009  
Last Operation End: Wed Jun 24 12:23:00 IST 2009  
Last Operation Size: 25 GB  
Last Operation Error: -  
Stage: Done  
Fingerprints Gathered: 6554516  
Gathering Begin: Wed Jun 24 12:08:00 IST 2009  
Fingerprints Sorted: 6554516  
Duplicate Blocks Found: 784739  
Sorting Begin: Wed Jun 24 12:17:39 IST 2009  
Blocks De-duplicated: 784876  
De-duping Begin: Wed Jun 24 12:18:16 IST 2009  
Fingerprints Deleted: 0  
Checking Begin: -

How can we reclaim the grown space in the volume? Is it because of the fingerprint information & checkpoints? can we delete the fingerprints and start a fresh dedupe using "sis start -s"

OR

Do a deletion of fingerprints and "sis undo" the volume first before starting it all over.

Any inputs will be highly appreciated.

best regards

sarbjit

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[aarondelp](#) 27 posts since

Nov 25, 2008 1. **Re: dedupe causes vol size to grow** Jun 25, 2009 8:28 AM

Did they have snap shot on the volume? Best practice is to remove all snapshots on the volume prior to dedupe.

Although I'm not entirely sure why your volume would have grown (somebody here may have an idea as to why).

Aaron

[sarbjit](#) 19 posts since

Mar 10, 2008 2. **Re: dedupe causes vol size to grow** Jun 25, 2009 8:30 AM

No snapshots on this particular volume :

##snap list from asup##

Volume SCCM

working...

No snapshots exist.

[jooss](#) 12 posts since

Mar 18, 2008 3. **Re: dedupe causes vol size to grow** Jun 25, 2009 9:45 AM

Do you have LUN reservations enabled?

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If you disable LUN reservations, I believe, the space will not be consumed.

[radek.kubka](#) 389 posts since

Jul 31, 2008 4. **Re: dedupe causes vol size to grow** Jun 25, 2009 10:08 AM

Rick,

From Sarbjit's post it looks like the fractional reserve is indeed set to 100%.

But we were always told that fractional reserve kicks in **only** if there is at least one snapshot in the volume in question. And apparently in this case there are no snapshots.

Is A-SIS taking a 'hidden' snapshot which causes this behaviour?

Regards,

Radek

[sajan](#) 7 posts since

Aug 11, 2008 5. **Re: dedupe causes vol size to grow** Jun 25, 2009 2:01 PM

Sarbjit,

I believe in this case the overwrite reserve space is going up by 30 GB (100% - value for fractional reserve). Since volume guarantee is none,

there will really be no physical storage allocated for this overwrite space. So, in summary we would not consume any extra space in this

configuration. We can confirm this if you could provide the output of "df -r"? If the overwrite reserve space is 30 GB and it is shown in parentheses then it conforms this theory.

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Radek,

If the guarantee is "volume/file" then enabling dedupe is like taking a snapshot on the volume from a fractional reserve perspective. And the reason for that is one can overwrite deduplicated data with undeduplicable data.

Dedupe does not create snapshot except in one case - when "sis start -s" is run to deduplicate the data written on a volume before enabling dedupe. In this

case we create a temporary snapshot and delete it once the dedupe operation (sis start -s) is done.

regards,

-Sajan

[sarbjit](#) 19 posts since

Mar 10, 2008 6. Re: dedupe causes vol size to grow Jun 25, 2009 5:48 PM

thanks to all for replying on the post!!

###df -r output###

```
/vol/SCCM/          62914560 49680084 13234476 (26269580) /vol/SCCM/  
/vol/SCCM/.snapshot      0      0      0      0 /vol/SCCM/.snapshot
```

```
/vol/SCCM/sccm.lun      25.0g (26847313920) (r/w, online, mapped)
```

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Comment: "SCCM"

Serial#: C4iBFJL-Fj4r

Share: none

**Space Reservation: enabled** (not honored by containing Aggregate)

Multiprotocol Type: windows

This seems to be inline with Sajan's comments. The question is how do we get back to the original state? (when the vol was 30GB and LUN was 25GB)? How can we reclaim the space taken by the space reserved LUN (assuming there were changes in data on the LUN which caused the volume to grow) and now those blocks are locked by the storage.

What is the best way to reclaim this reserved space without actually disabling LUN space reservation? I believe we can use snapdrive 5.0 to reclaim the space that is locked on the storage.

thoughts/comments?

Best Regards,

sarbjit

[sajan](#) 7 posts since

Aug 11, 2008 7. Re: **dedupe causes vol size to grow** Jun 25, 2009 6:30 PM

Sarbjit,

As mentioned before there is really no physical storage reserved for overwrite and space saved by dedupe is available to the aggregate (It may not

show in DF -A though).

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Regards,

-sajan

[jooss](#) 12 posts since

Mar 18, 2008 8. **Re: dedupe causes vol size to grow** Jun 25, 2009 7:10 PM

Hi,

There's no hidden snapshot but when the volume is dedup'd and there are space reserved objects (typically LUNs are the only space reserved object but it also possible to enable space reservations on files) the space will be reserved.

If you disable reservations on the LUNs, which generally makes sense when using dedup, you should see the space returned.

Also, as mentioned in this case the volume guarantee == none and because of that even though the space is "reserved" at the volume level no physical blocks at the aggregate level are being reserved.

[sarbjit](#) 19 posts since

Mar 10, 2008 9. **Re: dedupe causes vol size to grow** Jun 25, 2009 7:31 PM

thanks to all for the quick reply.

Much Appreciated!!!

Best Regards

sarbjit

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[Andrew Miller](#) 662 posts since

Oct 7, 2008 10. **Re: dedupe causes vol size to grow** Jun 26, 2009 2:49 PM

Just to chime in way after the fact, I have actually seen the "temporary" asis snapshot in place during the initial dedup run and then disappear after the fingerprints have been created..

If you want to realize dedup space savings, you'll need to use thin provisioning regardless (i.e. no volume or LUN space reservation).