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[SOLVED] mirror raid1 error after upgrade-need disk recovery

by **karellampe** » Sun Jun 28, 2009 7:33 pm

I upgraded through the web interface to 0.7RC1 i386 on a CF drive, as usual. No issues for the normal drives not in raid, but the 2 drive raid1 Gmirror suddenly reports errors, and can not be approached.

It has important data on it, not all backed up recently. I do not expect any harddisk hardware errors, everything worked fine 5 minutes earlier before firmware upgrade. In Disk Management in the web interface there is only an error in the mount point for the GMirror, not the disks themselves or the RAID.

So can anybody help with:

- Anybody who had the same experience?
- How to get the raid back on line in FreeNAS; or
- how to recover the seconday GPT table; or
- How to recover the data from the disk(s) and copy to an empty non-raid disk?

For the last one I was thinking of making a full disk-copy, and then try with recovery software.

Please Advice, I really need some help!

System log with relevant lines:

FreeBSD 7.2-RELEASE-p1 #0: Fri Jun 19 20:56:48 UTC 2009
CPU: AMD Athlon(tm) XP 1800+ (1493.65-MHz 686-class CPU)
real memory = 1073676288 (1023 MB)
ad4: 715404MB <SAMSUNG HD753LJ 1AA01113> at ata2-master SATA150
ad6: 715404MB <SAMSUNG HD753LJ 1AA01113> at ata3-master SATA150
GEOM: ad4: the secondary GPT table is corrupt or invalid.
GEOM: ad4: using the primary only -- recovery suggested.
GEOM_LABEL: Label for provider ad4p1 is ufsid/492c097d943cf02e.
GEOM: ad6: the secondary GPT table is corrupt or invalid.
GEOM: ad6: using the primary only -- recovery suggested.
GEOM_LABEL: Label for provider ad8p1 is ufsid/4920b8c4724cbe75.
Trying to mount root from ufs:/dev/md0
GEOM_LABEL: Label ufsid/4a3d45a082aedf53 removed.
GEOM_MIRROR: Device mirror/Mirror750Gb launched (2/2).
GEOM_LABEL: Label ufsid/492c097d943cf02e removed.
GEOM: mirror/Mirror750Gb: corrupt or invalid GPT detected.
GEOM: mirror/Mirror750Gb: GPT rejected -- may not be recoverable.
GEOM_LABEL: Label ufsid/49227f86a32897c2 removed.
WARNING: /mnt/disk2_300Gb was not properly dismounted
GEOM_LABEL: Label ufsid/4920b8c4724cbe75 removed.
WARNING: /mnt/disk1_200Gb was not properly dismounted
GEOM_LABEL: Label for provider md1 is ufsid/4a47bee9b7509ab0.
GEOM_LABEL: Label ufsid/4a47bee9b7509ab0 removed.
Last edited by al562 on Sun Jul 12, 2009 4:23 pm, edited 2 times in total.
Reason: *Added [SOLVED] Tag, Moved to proper forum.*

Re: mirror raid1 error after upgrade - need disk recovery

by **trompetenmann** » Wed Jul 01, 2009 7:56 pm

After upgrading/installing 0.7RC1 i had trouble with my NAS/RAID, too. As you can read herethe cause was a false config-file. I solved the problem by correcting that config-file.
Maybe downgrading your NAS-Box again and see if it runs well after that will be a step for a solution. If the problem disappears than the new version is to blame for your problems -and you can back up your files 😅 Downgrading should not be so difficult, in my case it wasn't. Requirement is a current configuration-file from the old freeNAS Version.

By the way I still have an issue with my RAID/HDD, which seems to be a common one if you search in the forum for that:

kernel: GEOM: ad4: corrupt or invalid GPT detected.
kernel: GEOM: ad4: GPT rejected -- may not be recoverable

I found no solution how to solve this, unfortunately. Think I open a new thread concerning this...

Grüße Mathias.

edit: spelling mistake

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Thu Jul 02, 2009 1:32 pm

Thanks, Trompetenmann.

I could not find the error in the config file, like you said. In firmware 0.69 the config file says version 7.5; in 0.7RC1 it says version 7.9

I downgraded the firmware, put back a backup config file (the one before I upgraded to 0.7RC1) but this resulted in the error:
"GEOM_MIRROR: Kernel module is too old to handle metadata", indicating the disks have been touched by the 0.7RC1 upgrade.

Does anybody out there have experience with recovering (one of the disks) of a GEOM_MIRROR Raid1? Tips would be very much appreciated!

Re: mirror raid1 error after upgrade - need disk recovery

by **danmero** » Thu Jul 02, 2009 3:17 pm

> *karellampe wrote:*Does anybody out there have experience with recovering (one of the disks) of a GEOM_MIRROR Raid1? Tips would be very much appreciated!

Suggestions:

- Read gmirror gm0 destroyed on shutdown; GPT corrupt - mailing.freebsd.current | Google Groups
- Check if /boot/kernel/geom_mirror.ko is loaded on kernel
  Code: Select all
  ```
  kldstat
  ```
- If not load the module and check the mirror status
  Code: Select all
  ```
  kldload /boot/kernel/geom_mirror.ko
  gmirror status
  ```

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Fri Jul 03, 2009 7:26 am

Thanks danmero, for your reaction.

Just to clarify, and maybe I did not make that clear before, I need some hands-on tips how to recover the DATA on the corrupted gmirror disks. It is clear to me that 0.7RC1 somehow corrupted the gmirror, and can not be read anymore by 0.69. Furthermore, I use FreeNAS, I am not experienced in FreeBSD and all its technology.

Your suggestions:

- Code: Select all
  ```
  $ kldstat
  Id Refs Address    Size     Name
  1    7 0x80400000 ac3698   kernel
  2    1 0x868c4000 6a44c    acpi.ko
  3    1 0x89fd5000 15000    geom_mirror.ko
  4    1 0x8a1e0000 a6000    zfs.ko
  ```

```
5    1 0x8a286000 2000     opensolaris.ko
6    1 0x8a3bd000 13000    geom_vinum.ko
```

- Code: Select all

```
$ gmirror status
                  Name    Status  Components
     mirror/Mirror750Gb  COMPLETE  ad6
                                   ad4
```

Seems all OK to me.

About the Google Groups discussion:

> There were two reasons to use the last sector instead of first:
> 1. You want to be able to boot from gmirror. If all your data will be
> moved forward your boot sectors and kernel will be harder to find.
> 2. For recovery reasons you may want to turn off gmirror and still be
> able to access your data.

Do you have a secure method how to turn off gmirror and access the data on the disk(s)? I really don't want to loose the data!

Re: mirror raid1 error after upgrade - need disk recovery

by **danmero** » Fri Jul 03, 2009 11:27 am

What about:

- Code: Select all

```
fdisk /dev/mirror/Mirror750Gb
```
- Code: Select all

```
gpt show /dev/mirror/Mirror750Gb
```

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Fri Jul 03, 2009 8:54 pm

al562, danmero: I appreciate you guys are thinking with me!

Summary:
- upgrade from 0.69 to 0.7RC1: corrupt GPT and no access to the raid1
- downgrade to 0.69 and backed up config: Kernel module is too old to handle metadata.
- For the rest I have not touched the disks.

Right now I have 2 CF cards, one with 0.69 and one with 0.7RC1.

Code: Select all

```
$ fdisk /dev/mirror/Mirror750Gb
******* Working on device /dev/mirror/Mirror750Gb *******
parameters extracted from in-core disklabel are:
cylinders=91201 heads=255 sectors/track=63 (16065 blks/cyl)

Figures below won't work with BIOS for partitions not in cyl 1
parameters to be used for BIOS calculations are:
cylinders=91201 heads=255 sectors/track=63 (16065 blks/cyl)

Media sector size is 512
Warning: BIOS sector numbering starts with sector 1
Information from DOS bootblock is:
The data for partition 1 is:
sysid 238 (0xee),(EFI GPT)
    start 1, size 1465149167 (715404 Meg), flag 0
   beg: cyl 1023/ head 255/ sector 63;
   end: cyl 1023/ head 255/ sector 63
The data for partition 2 is:
```

```
<UNUSED>
The data for partition 3 is:
<UNUSED>
The data for partition 4 is:
<UNUSED>
```

Code: <u>Select all</u>
```
$ gpt show /dev/mirror/Mirror750Gb
      start        size  index  contents
          0           1          PMBR
          1  1465149166
```

[Re: mirror raid1 error after upgrade - need disk recovery](#)

by **al562** » Sat Jul 04, 2009 4:39 am

>@Karellampe;
Your FDISK and GPT appear good to me. Far as I can tell you should be able to mount this array and get at your data. Follow the steps as outlined in those 3 threads I asked you to read earlier. If you get stuck or see any errors, please post them here and we'll try to work through them. Start by backing up your current configuration. Then delete the array's mount point and try to recreate it. Let's see what happens.

Regards,
Al

[Re: mirror raid1 error after upgrade - need disk recovery](#)

by **karellampe** » Sat Jul 04, 2009 7:17 am

Hi al562

Thanks for your advice.

Danmero, you might have additional tips?

I might be too careful, but The warnings from the GUI that data will be destroyed scare me though... Are you sure that the suggested workflow is safe in 0.7RC1? The post from danmero is from Nov 06, 2008, so not tested with 0.7. And your post Re: Deleting Software RAID of Thu May 07, 2009 7:59 pm is also not 0.7, I expect. I don't have some empty disks lying around to experiment.

But I do have one spare empty 750Gb, can I safely make a carbon copy of one of the raid1 disks with eg Easus DiskCopy (runs by itself from a bootable CD) before proceeding?

Just to double check, find below a new log from 0.7RC1 with only the lines that contain GEOM:

Code: <u>Select all</u>
```
GEOM_LABEL: Label ufsid/4a4ef6b94f4bf555 removed.
GEOM_LABEL: Label for provider md1 is ufsid/4a4ef6b94f4bf555.
GEOM_LABEL: Label ufsid/4920b8c4724cbe75 removed.
GEOM_LABEL: Label ufsid/49227f86a32897c2 removed.
GEOM: mirror/Mirror750Gb: GPT rejected -- may not be recoverable.
GEOM: mirror/Mirror750Gb: corrupt or invalid GPT detected.
GEOM_LABEL: Label ufsid/492c097d943cf02e removed.
GEOM_MIRROR: Device mirror/Mirror750Gb launched (2/2).
GEOM_LABEL: Label ufsid/4a3d45a082aedf53 removed.
GEOM_LABEL: Label for provider ad8p1 is ufsid/4920b8c4724cbe75.
GEOM_LABEL: Label for provider ad4p1 is ufsid/492c097d943cf02e.
GEOM: ad6: using the primary only -- recovery suggested.
GEOM: ad6: the secondary GPT table is corrupt or invalid.
GEOM: ad4: using the primary only -- recovery suggested.
GEOM: ad4: the secondary GPT table is corrupt or invalid.
GEOM_LABEL: Label for provider ad2a is ufsid/4a3d45b94b8831fc.
GEOM_LABEL: Label for provider ad0p1 is ufsid/49227f86a32897c2.
```

```
GEOM_LABEL: Label for provider md0c is ufsid/4a3d45a082aedf53.
```

Regards, Karel.

Re: mirror raid1 error after upgrade - need disk recovery

by **danmero** » Sat Jul 04, 2009 1:08 pm

> *karellampe wrote:*Danmero, you might have additional tips?

Maybe you should provide more info.
Here are my steps:

1. Install clean 0.69 Kwisatz Haderach (revision 4244) embedded.
   - Build raid1
   - fill data & checksum
2. Firmware upgrade to 0.69.2 Muad'Dib (revision 4690) embedded.
   - Check raid1 OK
   - Checksum data OK
3. Firmware upgrade to 0.7RC2 Khasadar (revision 4793) embedded.
   - Check raid1 OK
   - Checksum data OK

⚠ **Info:** Sorry but I can't duplicate your raid1 problem , you should provide your FreeNAS version(s)/revision(s) for each step.

> *karellampe wrote:*I might be too careful, but The warnings from the GUI that data will be destroyed scare me though... Are you sure that the suggested workflow is safe in 0.7RC1? The post from danmero is from Nov 06, 2008, so not tested with 0.7.

Let's see as today Sat Jul 4 09:00:01 EDT 2009 :

   I. Start from 0.7RC2 Khasadar (revision 4793) embedded, **see above**.
  II. Reset to factory default.
 III. Set NIC & IP
 IV. Add raid disk(s) , select pre-formatted SoftwareRAID(DON'T FORMAT).
  V. Re-create the SoftwareRAID on **Disks|Software RAID|RAID1|Management** using the same raid name, the interface stick on Apply Changes(Initializing) even if the State is COMPLETE
 VI. Mount the raid1(gmirror) array, everything is OK(I never format disk's or array).
VII. Checksum data, full match.

⚠ **Info:** My last test confirm my theory on 0.7RC2 but don't bring any light over your original problem(corrupted GPT partition on raid1).

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Sat Jul 04, 2009 1:46 pm

Thanks for your detailed workflow. I'll follow it step by step. I understand you tested it... Thanks!

Everything worked well in:
0.69.1 Omnius (revision 4554)
built on Sat Apr 18 23:20:57 UTC 2009
FreeBSD 6.4-RELEASE-p3 (revision 199506)
i386-embedded on AMD Athlon(tm) XP 1800+

GPT problems started after upgrade to:
0.7RC1 Sardaukar (revision 4735)
built on Sat Jun 20 20:25:01 UTC 2009
FreeBSD 7.2-RELEASE-p1 (revision 199506)

i386-embedded on AMD Athlon(tm) XP 1800+

And, I have to say, I did some experimenting in 0.7... like unmounting and remounting the raid1; I tried to use different partition types to remount, but no luck: it reported errors like wrong partition etc.. I never deleted the raid though. This did not influence the errors in the logs re. the corrupted GPT tables, but this might caused that 0.69 kan not read the metadata anymore.

I'll update on the progress!

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Sat Jul 04, 2009 3:14 pm

Edit - I forgot to set the FS to SW Raid when adding the disks.

Please find below the steps I took:

- Fresh install of 0.7RC2 on separate CF
- set IP and nic
- log: secondary GPT table corrupt, using primary only - recovery suggested
- GUI menu: disks/management: added the 2 drives with software raid FS, no errors, status online
- reboot
- GUI menu: disks/software raid: no error
- GUI menu: disks/mount point: error: "Wrong partition type or partition number"

I halted there...

This is similar to what happened after I first upgraded to 0.7RC1

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Sun Jul 05, 2009 12:29 pm

Beginning to loose hope here...

I started to try recovering the data outside FreeNAS. But in such a way that nothing is written to the array.

Here's what I did:
- I made an exact copy of one of the raid HD's on an identical size HD (not identical brand & type) with Easeus Disc Copy from a bootable CD. - No read or write errors reported.
- Analyzed this copy with R-Studio 3.0 software (2007) in Windows 7
- In a first scan 1/4 was recognized. Aborted.
- After restarting the scan the first 2/3 was recognized. It showed a lot of recognized UFS, but also sometimes areas were not recognized. It also found a few traces of FAT...
- After 2/3 R-Studio did not find recognizable data. I aborted the scan. Originally the raid was 80% full.
- there is some file recovery possible, I wrote it to another HD. some files are ok but fail original folder structure and filenames.
- many files are damaged. (way too short mp3's, damaged jpg's)

I might overlook a few things, in my inexperience:
- can it be that the HD copy is not fully recoverable?
- is R-Studio 3.0 too old for FreeNAS 0.7?
- Should I try to remount both HD's of the raid1 in R-Studio, and recover data from there? I would say it is not necessary, since each HD should contain all data.

I guess I am on a two track road now, also trying to get things working again directly in FreeNAS... So tips and hints on both are very welcome!

I must say, the reactions and thinking with me is superb, I really appreciate!

Regards

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Sun Jul 05, 2009 9:26 pm

Things are improving... 😁

In the meantime I tried R-Studio 4.5, which immediately recognized the GPT File system (as opposed to 3.0). Most of the data is completely there on the the copy of one of the raid HD's, in folder structures and with the right filenames. Backing up now. Strangely most videos (divx etc) is not in such a good shape. I will try to mount the raid1 array in R-Studio, see if that brings improvement.

Re: mirror raid1 error after upgrade - need disk recovery

by **al562** » Mon Jul 06, 2009 2:09 am

Sorry, I am not very familiar with R-Studio or Easeus Disc Copy. I use mainly Ghost or G4L. When copying your drive you should use a raw or block (sometimes also called forensic) copy method to make sure everything is copied properly.
I'm glad you're having some success with the recovery method.
You could also try mounting just one of the drives on another FreeNAS box. It's pretty much the procedure you are now familar with except you don't create a RAID, you just mount a single drive.
LEt us know how it goes.

Regards,
Al

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Mon Jul 06, 2009 9:10 am

Al,

R-Studio is data recovery software; do Ghost and G4L provide that? Do they recognize GPT?
R-Studio (installed in Windows 7) does not seem to touch a GPT HD. Windows itself does not recognize the HD, and default R-Studio is read only. So I feel pretty safe attaching both original HD's of the array. R-Studio should see the software raid.

I don't have another machine to install FreeNAS to, but I have several CF cards with different versions of FreeNAS; easy to swap. Or do you think the problems could be hardware related?

Just adding a HD and mounting in FreeNAS does not write anything to the HD's?

Regards, Karel.

Re: mirror raid1 error after upgrade - need disk recovery

by **al562** » Mon Jul 06, 2009 12:01 pm

> *karellampe wrote:*do Ghost and G4L provide that?

Ghost, no. G4L, somewhat, but not in the same way, or to the same extent as R-Studio does.

> *karellampe wrote:* Do they recognize GPT?

Both of them, yes.

> *karellampe wrote:*Just adding a HD and mounting in FreeNAS does not write anything to the HD's?

Not if you are careful and follow the procedure Danmero tested for you and the advice in those 3 threads I gave you earlier. Use your original drives, not copies.

Regards,
Al

Re: mirror raid1 error after upgrade - need disk recovery

by **karellampe** » Sun Jul 12, 2009 2:49 pm

Well, everything rescued! 😄

Short summary of what happened:

- GMirror was corrupt after upgrade to 0.7RC1, with corrupt GPT tables.

- No backup available, so data had to be recovered.
- Could not be recovered after downgrading to 0.69.
- Could not be re-configured from a clean install.
- Data could not be entirely recovered by R-Studio.

What finally did work: - Clean install 0.7RC2. - Add one of the disks of the array, filesystem set to software raid, ofcourse without formatting. - Mount this disk, without setting up the raid. And *everything* was still there!

I am still thinking now how to configure... Best would be 2 disks in mirror and one more to backup to; maybe even on a Windows machine on the LAN. Then both disk- and software failure is covered, but it needs 3 disks... I could leave out the mirror raid, and use a single disk instead, and then data safety depends entirely on the sync / backup routine.

It would be very nice though that FreeNAS gives better support to eg FAT 32, so that I could config a backup (portable) disk with this. Handy if I want to take it all with me, or if the FreeNAS server gets defect.

Anyhow, many thanks, especially to Al and Danmero for your valuable tips!

Regards, Karel.

Re: mirror raid1 error after upgrade - need disk recovery

by **al562** » Sun Jul 12, 2009 4:20 pm

You're very welcome Karel.
I use the 4 disk system myself, 2 in SoftRAID1, 1 with RSYNC backup, 1 spare for off-site backup/replacement of failed drive.
As you've seen, it's not that difficult to recover a SoftRAID1. Now that you have the experience you can easily migrate your data to a new server, just break the mirror on the old server, put one drive in the new one and copy the data. Old server can keep running in degraded state until new one is up and running. Off-site backups also easy, break the mirror, pull out 1 drive and send it away to a safe place, put spare drive in and add it to the mirror, then sync it overnight.
The biggest mistake people make is panicking. Once panic sets in, stupidity happens and they wind up making it more diffcult or erasing data instead of recovering it. Congratulations on not being one of those people 😁 ⚠️

Regards,
Al