

## FreeNAS - Bug #21336

### Add ability to attach smaller disk to a larger one

02/21/2017 03:19 AM - Richard Kojedzinski

<b>Status:</b> Resolved	
<b>Priority:</b> Nice to have	
<b>Assignee:</b> William Grzybowski	
<b>Category:</b> OS	
<b>Target version:</b> 11.1	
<b>Seen in:</b> 11.1-RC1	<b>Needs Merging:</b> Yes
<b>Severity:</b> New	<b>Needs Automation:</b> No
<b>Reason for Closing:</b>	<b>Support Suite Ticket:</b> n/a
<b>Reason for Blocked:</b>	<b>Hardware Configuration:</b>
<b>Needs QA:</b> No	<b>ChangeLog Required:</b> No
<b>Needs Doc:</b> Yes	
<b>Description</b>	
<p>I've run into a situation, where we installed freenas on a 16G and a 32G usb flash mirrored. The idea was that using two different manufacturers may provide more robustness. Now our smallest drive failed. I detached that from the pool, the pool remained at the same size. We obtained another 16G drive, we tried to attach that to the existing 32G drive, but that failed. Maybe that behaviour is intended, although the pool could have accepted that to operate as before the failure. Btw it works on zfs on linux stable on debian.</p> <p>I've attached a small script which demonstrates the issue. I know, I should have not detached the failed disk, instead I should have done a replace.</p>	
<b>Related issues:</b>	
Related to FreeNAS - Feature #23455: Detach device from mirrored boot pool	<b>Resolved</b> <b>04/19/2017</b>

#### Associated revisions

##### Revision 2ba44194 - 10/20/2017 04:55 AM - William Grzybowski

feat(middlewared/boot): use same size of the older partition

Ticket: #21336

##### Revision 64cf0a9a - 10/20/2017 05:03 AM - William Grzybowski

feat(middlewared/boot): make expanding boot disk attach optional

Ticket: #21336

##### Revision 8acbd65f - 10/20/2017 05:07 AM - William Grzybowski

feat(gui): add `expand` option to boot disk attach

Ticket: #21336

##### Revision a8556137 - 10/20/2017 06:08 AM - William Grzybowski

fix(gui): typo - s/disable/disabled/

Ticket: #21336

**Revision f532c15a - 10/20/2017 06:09 AM - William Grzybowski**

feat(middlewared/boot): use same size of the older partition

Ticket: #21336

**Revision b8c3f0e1 - 10/20/2017 06:09 AM - William Grzybowski**

feat(middlewared/boot): make expanding boot disk attach optional

Ticket: #21336

**Revision 1ae19b92 - 10/20/2017 06:09 AM - William Grzybowski**

feat(gui): add `expand` option to boot disk attach

Ticket: #21336

**Revision 8cc5a35c - 10/20/2017 06:09 AM - William Grzybowski**

fix(gui): typo - s/disable/disabled/

Ticket: #21336

**Revision 399ff3a9 - 11/09/2017 09:06 AM - William Grzybowski**

fix(middlewared/boot): specify size in bytes

Ticket: #21336

**Revision b0dd0056 - 11/09/2017 09:06 AM - William Grzybowski**

fix(gui): raise traceback if something bad occurs

Ticket: #21336

**Revision a9c98e4e - 11/10/2017 03:35 AM - William Grzybowski**

fix(middlewared/boot): specify size in bytes

Ticket: #21336

(cherry picked from commit 399ff3a975ab01d0e0a2ca3425b4d716d6b419fb)

**Revision 421251e8 - 11/10/2017 03:35 AM - William Grzybowski**

fix(gui): raise traceback if something bad occurs

Ticket: #21336

(cherry picked from commit b0dd005648200136068eb20dddea9585a71affcd)

**Revision 79b9b889 - 12/06/2017 08:41 AM - William Grzybowski**

fix(middlewared/boot): specify size in bytes

Ticket: #21336  
(cherry picked from commit 399ff3a975ab01d0e0a2ca3425b4d716d6b419fb)

**Revision ef3c868c - 12/06/2017 08:41 AM - William Grzybowski**

fix(gui): raise traceback if something bad occurs

Ticket: #21336  
(cherry picked from commit b0dd005648200136068eb20dddea9585a71affcd)

## History

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**#1 - 02/21/2017 05:51 AM - Bonnie Follweiler**

- Assignee set to Kris Moore

**#2 - 02/21/2017 07:27 AM - Kris Moore**

- Assignee changed from Kris Moore to William Grzybowski  
- Target version set to 9.10.4

William, Not sure the original decision behind this. Do we intentionally check the disk size vs the partition size for the zpool?

**#3 - 02/21/2017 07:35 AM - William Grzybowski**

- Status changed from Unscreened to 15

How did that fail, exactly?

Are you sure the 16gb is not a few KB smaller than the last one?

the autoexpand property of the freebas-boot pool is off by default.

**#4 - 02/22/2017 01:00 AM - Richard Kojedzinski**

I think the failure is irrelevant in this scenario, but actually it is a Sandisk cruzer fit drive, and I suppose it has some firmware bug, it just stopped working. After a removal/reinsert it is detected again and works fine, but this is not acceptable for us in reliability.

As I wrote, initially we created a pool with a 16G and a 32G disk mirrored, thus resulted in a 16G pool size. My fault is probably that I removed the 16G device (and not issued a replace). So after the removal, and with autoexpand off, the pool is still at 16G of size. And unfortunately, I cannot attach a 32G drive to the existing one (which is again a 32G), which is somewhat smaller, but indeed larger than the initial 16G one. The pool has still 16G of size.

So now I assume I can only attach a 32G drive which has at least any sectors as the old one (or 64G) to an existing, 16G size pool. That is my only problem.

**#5 - 02/22/2017 03:00 AM - William Grzybowski**

Richard Kojedzinski wrote:

I think the failure is irrelevant in this scenario, but actually it is a Sandisk cruzer fit drive, and I suppose it has some firmware bug, it just stopped working. After a removal/reinsert it is detected again and works fine, but this is not acceptable for us in reliability.

As I wrote, initially we created a pool with a 16G and a 32G disk mirrored, thus resulted in a 16G pool size. My fault is probably that I removed the 16G device (and not issued a replace). So after the removal, and with autoexpand off, the pool is still at 16G of size. And unfortunately, I cannot attach a 32G drive to the existing one (which is again a 32G), which is somewhat smaller, but indeed larger than the initial 16G one. The pool has still 16G of size.

So now I assume I can only attach a 32G drive which has at least any sectors as the old one (or 64G) to an existing, 16G size pool. That is my only problem.

Sorry, I still not seeing the problem here.

The installer finds the disks with smaller size and creations a partition one each disk with the minimal size between the two. Its virtually impossible for the pool to autoexpand to the disk size, even if you ended detaching the other disk from the pool.

I dont understand how that is possible.

Your proof script is flawed in that sense, because it does not create partitions of the same size as the installer does.

Perhaps you have installed FreeNAS before it was a feature? (April 2015)

**#6 - 02/23/2017 12:59 AM - Richard Kojedzinszky**

Maybe I've installed on only the 16G disk, and later attached the 32G disk to the pool. Actually, the attach method on UI does this exactly. And actually I was targeting this question as a ZFS request, not a freenas UI request.

**#7 - 02/23/2017 03:16 AM - William Grzybowski**

- *Status changed from 15 to Screened*

Richard Kojedzinszky wrote:

Maybe I've installed on only the 16G disk, and later attached the 32G disk to the pool. Actually, the attach method on UI does this exactly. And actually I was targeting this question as a ZFS request, not a freenas UI request.

ZFS is behaving correctly from my point of view here.

I'll make sure the UI does the right thing when attaching a disk to the boot pool (as in partitioning to the smallest disk size).

**#8 - 02/24/2017 05:22 AM - Richard Kojedzinszky**

Through UI one can get to the same situation, as the UI attach feature creates a partition with all the space in the drive. Actually my original question is that why ZFS does not attach a partition which is actually smaller than other vdevs, but still has enough space to hold pool data?

**#9 - 04/19/2017 07:57 AM - Kris Moore**

- Target version changed from 9.10.4 to 11.1

**#10 - 10/20/2017 05:09 AM - William Grzybowski**

- Status changed from Screened to Needs Developer Review
- Assignee changed from William Grzybowski to Vladimir Vinogradenko
- Target version changed from 11.1 to 11.1-BETA1

**#12 - 10/20/2017 06:08 AM - Vladimir Vinogradenko**

- Status changed from Needs Developer Review to Reviewed by Developer
- Assignee changed from Vladimir Vinogradenko to William Grzybowski

**#13 - 10/20/2017 06:09 AM - William Grzybowski**

- Status changed from Reviewed by Developer to Ready For Release

**#14 - 10/20/2017 06:10 AM - Dru Lavigne**

- Subject changed from Attach smaller disk to a larger one to Add ability to attach smaller disk to a larger one

**#15 - 10/24/2017 04:48 AM - Dru Lavigne**

- Status changed from Ready For Release to Resolved

**#16 - 11/07/2017 09:32 AM - Nick Wolff**

Testing Procedure:

Testing this by creating a 10g 16g and 20g zvol to back a freenas vm. I will then install to the 10g and 20g disk. Once installed detach 10g zvol and attempt to then attach 16g zvol. That should now work and be a passing test

**#17 - 11/08/2017 07:10 AM - Nick Wolff**

- QA Status Test Fails FreeNAS added
- QA Status deleted (Not Tested)

Attach appears successful in ui but fails. Efi partition is created but next partition creation fails. It appears gpart takes size in number of sectors if no suffix is added. Adding a 'B' to the size argument should allow you to easily use the mediasize number from the boot disk your mirroring.

```
/var/log/middleware.log
[2017/11/08 06:52:15] (WARNING) application.call_method():174 - Exception while calling boot.attach(*['ada1', {'expand': False}])
Traceback (most recent call last):
File "/usr/local/lib/python3.6/site-packages/middleware/main.py", line 150, in call_method
result = await self.middleware.call_method(self, message)
File "/usr/local/lib/python3.6/asyncio/coroutines.py", line 109, in next
return self.gen.send(None)
File "/usr/local/lib/python3.6/site-packages/middleware/main.py", line 883, in call_method
return await self._call(message['method'], methodobj, params, app=app)
File "/usr/local/lib/python3.6/asyncio/coroutines.py", line 109, in next
return self.gen.send(None)
File "/usr/local/lib/python3.6/site-packages/middleware/main.py", line 860, in _call
return await methodobj(*args)
File "/usr/local/lib/python3.6/asyncio/coroutines.py", line 109, in next
return self.gen.send(None)
File "/usr/local/lib/python3.6/site-packages/middleware/schema.py", line 491, in nf
return await f(*args, **kwargs)
```

File "/usr/local/lib/python3.6/asyncio/coroutines.py", line 109, in next  
return self.gen.send(None)  
File "/usr/local/lib/python3.6/site-packages/middlewared/plugins/boot.py", line 125, in attach  
boottype = await self.format(dev, format\_opts)  
File "/usr/local/lib/python3.6/asyncio/coroutines.py", line 109, in next  
return self.gen.send(None)  
File "/usr/local/lib/python3.6/site-packages/middlewared/schema.py", line 491, in nf  
return await f(\*args, \*\*kwargs)  
File "/usr/local/lib/python3.6/asyncio/coroutines.py", line 109, in next  
return self.gen.send(None)  
File "/usr/local/lib/python3.6/site-packages/middlewared/plugins/boot.py", line 74, in format  
await run(\*command)  
File "/usr/local/lib/python3.6/asyncio/coroutines.py", line 109, in next  
return self.gen.send(None)  
File "/usr/local/lib/python3.6/site-packages/middlewared/utils.py", line 65, in run  
cp.check\_returncode()  
File "/usr/local/lib/python3.6/subprocess.py", line 369, in check\_returncode  
self.stderr)  
subprocess.CalledProcessError: Command '('gpart', 'add', '-t', 'freebsd-zfs', '-i', '2', '-a', '4k', '-s', '10464698368', 'ada1')' returned non-zero exit status 1.

**#18 - 11/08/2017 09:38 AM - Dru Lavigne**

- Status changed from Resolved to Unscreened

William: please check results with QA.

**#19 - 11/09/2017 09:14 AM - William Grzybowski**

- Status changed from Unscreened to Needs Developer Review

- Assignee changed from William Grzybowski to Vladimir Vinogradenko

<https://github.com/freenas/freenas/pull/421>

**#20 - 11/09/2017 09:27 AM - Dru Lavigne**

- Target version changed from 11.1-BETA1 to 11.1

**#21 - 11/09/2017 10:19 PM - Vladimir Vinogradenko**

- Status changed from Needs Developer Review to Reviewed by Developer

- Assignee changed from Vladimir Vinogradenko to William Grzybowski

**#22 - 11/10/2017 08:26 AM - Bonnie Follweiler**

- Related to Feature #23455: Detach device from mirrored boot pool added

**#23 - 11/10/2017 08:28 AM - William Grzybowski**

- Status changed from Reviewed by Developer to Ready For Release

- QA Status Not Tested added

- QA Status deleted (Test Fails FreeNAS)

**#24 - 11/10/2017 08:29 AM - William Grzybowski**

- Tracker changed from Feature to Bug
- Seen in set to 11.1-RC1
- ChangeLog Required set to No

**#25 - 11/27/2017 07:04 AM - Dru Lavigne**

- Target version changed from 11.1 to 11.1-RC2

**#26 - 11/29/2017 01:00 PM - Dru Lavigne**

- Target version changed from 11.1-RC2 to 11.1-RC3

**#27 - 12/01/2017 11:20 AM - Dru Lavigne**

- Status changed from Ready For Release to Resolved

**#28 - 12/06/2017 08:44 AM - Bonnie Follweiler**

- Status changed from Resolved to Unscreened
- QA Status Test Fails FreeNAS added
- QA Status deleted (Not Tested)

As in <https://redmine.ixsystems.com/issues/26663>

```
root@freenas:~ # grep gpart /var/log/middlewared.log
subprocess.CalledProcessError: Command '('gpart', 'add', '-t', 'freebsd-zfs', '-i', '2', '-a', '4k', '-s', '53686521856', 'ada2')' returned non-zero exit status 1.
root@freenas:~ #
```

It looks like this was pulled into Master but not in 11.1 Stable <https://github.com/freenas/freenas/pull/421>

**#29 - 12/06/2017 08:45 AM - William Grzybowski**

- Status changed from Unscreened to Screened
- Target version changed from 11.1-RC3 to 11.1
- QA Status Not Tested added
- QA Status deleted (Test Fails FreeNAS)

**#30 - 12/06/2017 09:51 AM - William Grzybowski**

- Status changed from Screened to Needs Developer Review
- Assignee changed from William Grzybowski to Vladimir Vinogradenko

<https://github.com/freenas/freenas/pull/556>

**#31 - 12/06/2017 10:32 AM - Vladimir Vinogradenko**

- Status changed from Needs Developer Review to Reviewed by Developer
- Assignee changed from Vladimir Vinogradenko to William Grzybowski

**#32 - 12/06/2017 11:20 AM - William Grzybowski**

- Status changed from Reviewed by Developer to Ready For Release

**#33 - 12/07/2017 01:26 PM - Nick Wolff**

- Needs QA changed from Yes to No
- QA Status Test Passes FreeNAS added
- QA Status deleted (Not Tested)

**#34 - 12/13/2017 04:10 PM - Dru Lavigne**

- Status changed from Ready For Release to Resolved

**Files**

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pool-replace.sh	561 Bytes	02/21/2017	Richard Kojedzinsky
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