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Creating your own Fusion Drive

Wednesday, November 28th, 2012 | Author: OWC Chris S. and OWC Ron

One of the newest technologies available with the latest Macs is the ability to have what Apple calls a Fusion Drive. This is essentially a Solid State drive and a platter-based drive combined into a single volume. Apple's underlying Core Storage technology then uses the SSD for the OS and frequently-accessed files, which will benefit from the speed, while placing lesser-used files on the larger, but slower platter-based drive.

The practical upshot of all this is that Fusion gives you roughly the performance of an SSD, while also taking advantage of the plentiful storage of platter-based drives. However, **you don't need to have a Fusion Drive from Apple to do this**; with the proper command-line version of Disk Utility, you can create your own array with any platter-based drive and any SSD.

Of course, there are a few caveats to this setup (or the stock Fusion Drive, for that matter) that you should consider before committing to a Fusion setup. We'll discuss those in a bit. First, though, let's look at the process of actually setting it up.

Setting up a Fusion Drive

Items Needed:

- **A 2012 Mac mini** – this is an absolute requirement as these are the only machines that currently have a version of Disk Utility that can create a Fusion volume.
- **A hard drive and an SSD installed/to install internally** – Fusion is designed to work on internal drives only.
- **An external drive to clone to** – creating a Fusion volume will erase both the SSD and the hard drive, so if you have information on the hard drive you want to keep, you'll need to have a copy of that data elsewhere.

Step 1 – Make sure you're up-to-date.

Make sure the OS on the mini's drive is updated to 10.8.2 or later. ***This is absolutely necessary***, as the proper version of Disk Utility for doing this is on 10.8.2 or later on the mini and you want the OS versions to match.

Step 2 – Have a copy of your computer's data.

This process will erase both the installed SSD and hard drive, so if you have data on one or both of these drives, you'll want to have a copy that's not on either of the two drives that are going to be part of the Fusion array. If you are installing both a new SSD and a new platter-based drive into, you can put your original drive in an external enclosure, and your data will be there, out of the way. If you're using the same drive that you already have installed, you will need to copy that drive's contents to an external one.

Step 3 – Install the new drive(s) in the computer you're upgrading.

See our video page for our step-by-step instructions on installing one or both drives into your mini.

Step 4 – Boot to the external drive.

We need to boot to the version of 10.8.2 that came with the Mac mini, but since you can't erase the drive if you're booted to it, simply boot to your clone by holding down the Option key at startup and selecting the external drive you cloned to (it'll have the orange icon). Then, log in to the desktop like you normally would.

Step 5 – Open Terminal.

If you installed at least one brand new drive, you will likely get a message about a disk being unreadable. That's okay; just click "Ignore." We'll be initializing it over the next couple of steps.

You can then open Terminal. You can find it in Applications/Utilities/Terminal.app

Step 6 – Find Your Disk IDs.

In Terminal, type: diskutil list

This will have the command-line version of Disk Utility (diskutil) that lists all the disks attached to your computer. In the results, you will find the disk IDs of the HDD and SSD. Take note of these ID numbers. In most cases (2 drives internally and booted from the external), the IDs will be "disk0" and "disk1." However, individual results may vary, depending on your setup, so you'll want to make sure you have the right drives.

```
OWCs-Mac-mini:~ owcpd$ diskutil list
/dev/disk0
   #:                       TYPE NAME                    SIZE       IDENTIFIER
   0:      GUID_partition_scheme                        *121.3 GB   disk0
   1:                        EFI                         209.7 MB   disk0s1
/dev/disk1
   #:                       TYPE NAME                    SIZE       IDENTIFIER
   0:      GUID_partition_scheme                        *1.0 TB     disk1
   1:                        EFI                         209.7 MB   disk1s1
/dev/disk2
   #:                       TYPE NAME                    SIZE       IDENTIFIER
   0:      GUID_partition_scheme                        *1.0 TB     disk2
   1:                        EFI                         209.7 MB   disk2s1
   2:                  Apple_HFS External                999.2 GB   disk2s2
   3:                Apple_Boot Recovery HD              784.2 MB   disk2s3
```

Step 7 – Create the Fusion drive array.

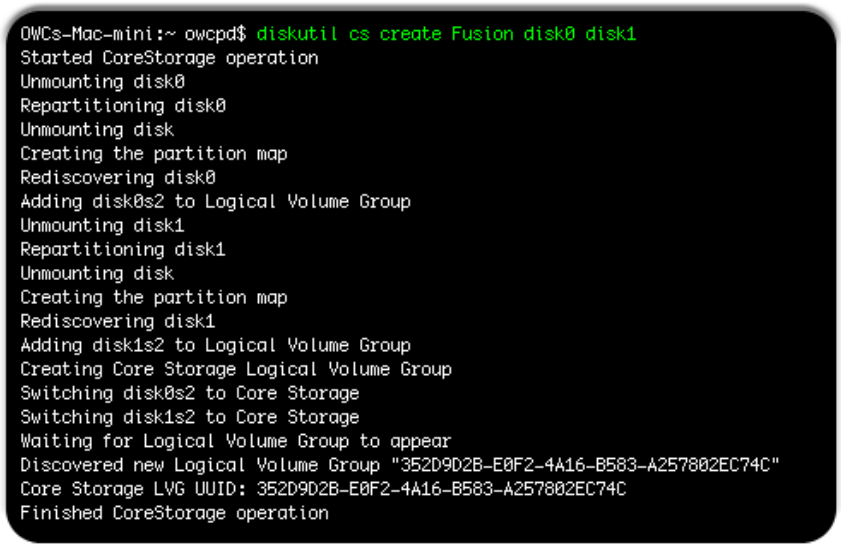
In Terminal, type: diskutil cs create *drivename driveIDs*

This is the command that actually tells your Mac to tie the drives together in a Fusion array.

Broken down, the step does this:

- **diskutil** - the command-line version of Disk Utility.
- **cs** - this invokes Core Storage, which is necessary for Fusion.
- **create** - creates a Core Storage group.
- ***drivename*** - this is the name of the drive and how you want it to appear in Disk Utility (not the Finder – that comes later). You can call it whatever you want; in our example, we named our Fusion array "Fusion."
- ***driveIDs*** - these are the drive IDs of the drives you want as part of your Fusion array, separated by a space. In our example, they are "disk0" and "disk1", but it may be different in your setup.

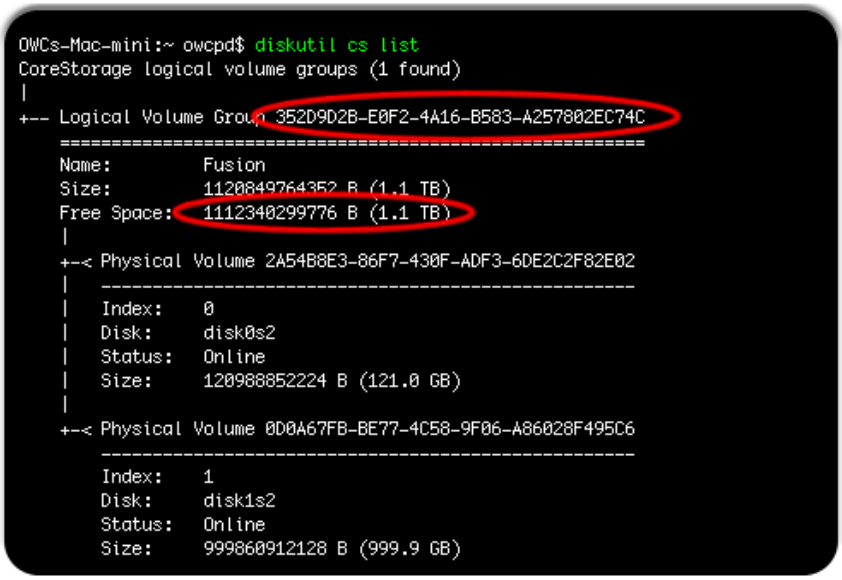
Once you enter in this command, it'll do its thing and set-up the drives into an array for Fusion.



Step 8 – Get ID information for Fusion array.

In Terminal, type: diskutil cs list

This will give you a listing showing any Core Storage Logical Volume Groups (aka Fusion Drive). You will need to do two things here. First, copy the long alphanumeric string for the Logical Volume Group, then note the Free Space for it. You will need both of these for the next step.



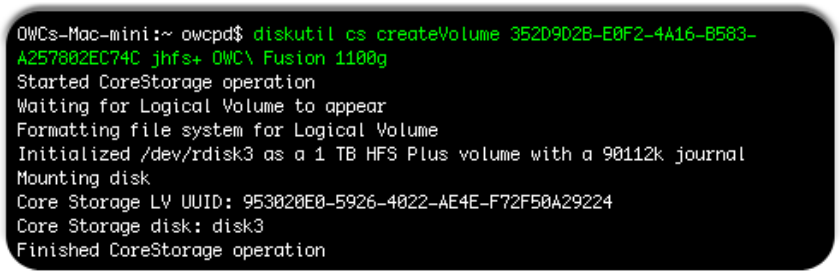
Step 9 – Format the Fusion drive so you can put files on it.

In Terminal, type: diskutil cs createVolume *groupString* jhfs+ *volumeName size*

This command creates a volume on the Fusion array where you can place your files. Again, since some important stuff is going on here, let's break down the command.

- **diskutil** - again, this is the command-line version of Disk Utility.
- **cs** - invokes Core Storage functions, which are necessary for this arrangement.
- **createVolume** - this is the command to create the actual storage area for the drive that is represented on your desktop by an icon.
- ***groupstring*** - this is the long alphanumeric string you copied from the previous step. It identifies that the array you created as the one getting a volume placed on it.
- **jhfs+** – the format of the drive. This is Apple Extended Format (journaled), which is recommended for drives with an OS installed on it.
- ***volumeName*** - the actual name of the volume, how it should appear underneath the icon. If there is a space in the name, you should either put the entire name in quotes ("Drive Name") or put a backward slash before the space (Drive\ Name). In our example, we did the latter, naming our volume "OWC Fusion."
- ***size*** - this is the size of the volume. In our example, we had a 1.1TB drive. We used "1100g" to denote it as 1100GB (1.1TB in base 10). Alternatively, we could have also used 1.1T, or even 100% as a size.

Once you have this information entered, hit Return and let it do its thing; the Fusion Drive will then be available in the Finder.



Step 10 – Boot to your clone's Recovery Partition.

Now that we have created the Fusion volume, we can now install the OS and bring over your data.

Boot to your clone's Recovery Partition by holding down Command-R at start-up.

Step 11 – Install OS X

Once booted to the Recovery Partition, select the option to Reinstall OS X. Follow the prompts for installation, choosing your new Fusion Drive as the destination. You will need an Internet connection to do this; an Ethernet connection is preferable, though you will also be able to use an AirPort connection, albeit at slower speeds.

Step 12 – Migrate over your information.

As part of the setup for your new installation, you will be asked if you wish to import data from another disk; you will want to. Select your clone and Migration Assistant will bring over your data.

Step 13 – Enjoy your new installation.

Once migration has completed, shut down your computer and disconnect your clone. At this point, you will have OS X running on a Fusion drive on your computer. You can now use it like you would any other drive.

Things to consider before committing to a Fusion setup

As with any drive setup, there are pros and cons to a Fusion array. The pros, as mentioned at the beginning of the article are that it appears single volume and works automatically to keep the best speed. However, there are a couple of cons that you should also be aware of.

You *will* need a backup.

While a backup plan for your computer is something you should have anyway, this becomes even more important for Fusion Drive equipped Macs. The way Fusion is set up, if either the hard drive *or* the SSD fails, the data on *both* drives is lost. Having a reliable, frequent backup plan will be essential in protecting against data loss.

Performance may not be enough for high-end professional use.

Apple claims near-SSD performance for Fusion-equipped drives. For casual use (email, Web browsing, basic iPhoto use, etc.), this is largely true. From testing both in-house and by Lloyd Chambers of Mac Performance Guide, a Fusion Drive will first fill the faster SSD portion, then start filling the slower hard drive. Once writing is complete, data will be moved from the SSD to the hard drive until there is 4GB free on the SSD again.

The trouble comes when you start working with larger files, such as with pro audio, video and large-scale photo work. Often, these files far surpass the 4GB size, so you will see fast SSD transfer speeds followed by a precipitous drop in speed when it transfers over to the hard drive. For a full rundown of testing, check out Lloyd's writeup at Mac Performance Guide.

For those that a Fusion Drive just isn't going to be practical, you may be better served using a Hard Drive/SSD 2-drive setup with a relocated home folder. You reduce the risk of losing all your data at once, while still retaining a large portion of the speed/storage benefits of Fusion, but with more flexibility.

4

Category: Benchmarking/Performance, Tech Tips

Tags: DIY, Fusion, hard drive, install, mac mini, Performance, SSD, Terminal, upgrade

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53 Responses Comments (53) Trackbacks (0)

Allister says:
December 14, 2012 at 4:29 am
From what I'm reading, there's not much point in this for my Apple SSD + OWC HDD 2011 MBP, which is cool. But I can't help wondering – could this single Fusion volume be encrypted?

I have encrypted SSD and HDD but for this reason it is not supported to move my home directory to the HDD. It can be done with some additional software, but is not supported.

At this stage I'm thinking of unencrypting for the simplicity of moving my home folder rather than *most* of my stuff ending up on the HDD but bits and pieces slowly building up on the SSD as various bits of software make assumptions on where to put files.

But if a Fusion drive could be encrypted, it would be the best of both worlds and the way to go.

Reply

Mark L. Charnley says:
December 11, 2012 at 2:53 pm
If OWC took a 2012 iMac 27″ with a factory installed Fusion drive with a 128 SSD and a 1TB hard drive and replaced it with a 512SSD and a 4TB had drive could you then create a Fusion drive ?

Reply

- 
  OWC Michael says:
  December 11, 2012 at 2:57 pm
  Theoretically yes, however, the 2012 iMac 27″ isn't available yet.

  Reply

Brett says:
December 11, 2012 at 12:29 pm
Just getting around to reading this post after thinking I might do this on a 2011 iMac with an OWC SSD and HD.

One question for OWC: does a home-brew Fusion Drive have any implications for firmware updates on the OWC SSD portion? I'm assuming the OWC Linux installer would see the SSD as a separate drive and that the firmware wouldn't affect the HFS+ file allocation tables or anything like that.

Reply

- 
  OWC Michael says:
  December 11, 2012 at 2:11 pm
  You are correct, while OS X sees both drives as one "Fusion Drive", the firmware updater still would recognize each individual drive.

  Reply

EN says:
December 10, 2012 at 9:07 pm
I had you guys install a 120 GB OWC SSD into my 2011 iMac, so the hardware inside is almost identical to what's in a Fusion Drive anyway. Does this procedure work if I want to set up my 1 TB HDD + 120 GB SSD as a Fusion Drive in a 2011 27″ iMac?

Reply

- 
  OWC Michael says:
  December 11, 2012 at 8:05 am

The 2011 Mac mini machines are the only models that currently have a version of Disk Utility that can create a Fusion volume.

Reply

- *EN* says:
  December 11, 2012 at 8:21 am
  I actually am switching to a Mac Mini (2012) that I received yesterday. I wiped the iMac and was trying to set up a Fusion Drive to up its resale value. I connected it to the Mac Mini in Target Disk via Thunderbolt, was able to create the Fusion Array, but then received an error message at the last step of OS X installation. It told me to repair the disk, but then I got various error messages while trying to repair the disk using Disk Utility. Ended up "un-fusing" them and backing out of the whole process and reinstalling OS X just to the SSD. I'd still be interested to pursue if you think it would work.

  Reply

Robert Schaper says:
December 7, 2012 at 7:23 pm
I just created a fusion drive by ignoring the warnings and letting Disk Utility from the recovery partition of a cloned external drive (2012 mini) do the "repairs" on a 256SSD and original internal 1T drive (about 12 seconds). It showed up immediately as a single drive and I'm installing the OS as we speak.

I may have to go to terminal but since I'm terminally lazy I'll post if this works as a good fusion drive approach "for the rest of us."

Reply

- 
  OWC Larry says:
  December 8, 2012 at 2:56 pm
  This method of creation has not resulted in successful data migration management. Fusion works by keeping 4GB of space open on the SSD – migrating select data to the HDD to keep that SSD performance capacity open. The method noted may appear to create a fusion volume, but we have not seen fusion data migration vs. what is effectively a dumb span from this method – once SSD if full, your completely on the HDD as migration isn't happening.

  Reply

  - *Robert Schaper* says:
    December 8, 2012 at 3:06 pm
    Thanks for the clarification. I obviously wouldn't know that this was the case for some time and couldn't tell this from the info I saw in Terminal. I'll do my homework properly. Rats, and thanks again.

    Reply

Graham W says:
December 7, 2012 at 1:22 am
Do you have to use the physical disk, or can you use a partition? It would be nice if this could be done while still keeping the recovery partition on the original drive.

Reply

Olivier Vanadia says:
December 6, 2012 at 11:35 am
I followed the steps above, except that, instead of re-installing the OS, I cloned my HD back on the Fusion Drive. Everything works fine, but I'm wondering if it's just the same as having installed the Os first ?

Thanks OWC, for your wonderful job on the tutorial !

Reply

Jroz says:
December 3, 2012 at 9:43 am

Excellent work guys. Thank you very much for making this tutorial. I recommend you to everyone with a Mac.

Have a great Holiday!

Reply

Jon says:
December 2, 2012 at 2:29 pm
Has OWC made a video for removing the stock HD and installing two new SSDs? I wonder if there are any particular problems with this – would you have to first leave the HD in while you put one SSD in to transfer the OS (being careful not to create a fusion drive), then open it up again to swap out the stock HD for the other new SSD? I am planning to buy two 256 GB SSDs for less than the price Apple charges for one, and I'll get a free 1TB HD as a bonus which I can put in an external enclosure and use as a back-up volume. If you could let me know whether this will work I'm ready to pull the trigger…

Reply

- 
OWC Michael says:
December 3, 2012 at 9:14 am
The installation video is available here: http://eshop.macsales.com/installvideos/mac_mini2012_dd/

  Reply

  - *Jon* says:
December 3, 2012 at 12:22 pm
Yes, I've seen that video, but it only shows how to add one SSD, not remove the old drive and add TWO new SSDs. In your video you put the original drive back in–is it exactly the same process if I'm putting a second new drive in? I would also like to know how to go about formatting and installing the OS in the case of two new SSDs. Sorry if I'm being dense.

    Reply

    - 
OWC Michael says:
December 3, 2012 at 2:53 pm
Installing a 2.5″ SSD is exactly the same as installing a 2.5″ HDD. Our instructions for formatting and installing the OS is linked at the beginning of the video.

      Reply

SHS says:
November 29, 2012 at 8:54 am
I am curious how the Fusion setup affects the SSD performance over time. It seems to force two things that, as I understand, are not generally recommended for SSD performance and longevity: the SSD will be almost full (only 4 GB free), and every new file (including large downloads) will be written to it. I suppose this isn't so bad if the 4 GB free space sector moves around to ensure even wear of NANDs. Presumably Apple's setup takes care of that, though I wouldn't bet my life on it. But what manages the location of the free sectors? OS X, drive controller, drive firmware, or a combination of those working together? So, even if factory-supplied Fusion Drive distributes the writing evenly, I can still see how a DIY setup might not. I think it would be very informative to test both Apple-supplied and DIY Fusion Drive for performance over a lot of writing cycles. (And maybe for the DIY setup, also compare an overprovisioned 120 GB drive and a non-overprovisioned 128 GB one?)

Reply

- 
OWC Chris S. says:
November 29, 2012 at 12:59 pm
These are all valid points and I'll forward them on to be looked into deeper. If there's any significant findings, you can be sure we'll pos them here.

  However, those same points/potential pitfalls support simply just going with an SSD/HDD setup individually, with a relocated Home folder – I've used this method for quite a while now, and I've never had a day's worth of trouble with it.

Reply

Ryan L. says:
November 28, 2012 at 11:09 pm
FYI, this does not work on an Early 2011 15″ MBP (8,2). “Error: -69888: Couldn’t unmount disk”

Reply

- 
OWC Chris S. says:
November 29, 2012 at 12:54 pm
Fusion is currently only recommended on models that it can be shipped with – the 2012 Mac mini and the upcoming iMacs. This may change with 10.8.3, but it’s difficult to predict.

  Reply

  - *Chris J* says:
December 9, 2012 at 6:32 pm
I just installed a Fusion drive on my 2010 model MacPro (240GB OWC SSD + the 1TB HDD my MacPro came with). This MacPro originally came with Snow Leopard. The Fusion drive works perfectly, and has boosted the MacPro’s speed very satisfyingly. To do it, I just re-downloaded the latest Mountain Lion installer, and set-up an external HDD as a Mountain Lion Install ESD using the instructions here:
http://www.macworld.com/article/1167857/how_to_make_a_bootable_mountain_lion_install_drive.html
I made sure I’d just done a TimeMachine backup, then booted from the external HDD and followed OWC’s Terminal instructions for setting up Fusion drive, then restored my set-up from TimeMachine. All went completely smoothly, so the latest version of the Mountain Lion installer on the App store seems to me to have all the CoreStorage commands needed to support Fusion drive on any Mac capable of running mountain Lion.

    Reply

    - 
OWC Michael says:
December 12, 2012 at 2:35 pm
There’s been a lot of confusion about what exactly a Fusion drive is. When Apple introduced Lion, they added a logical volume manager (Core Storage) to the OS. The key factor to Core Storage is that it allows a single volume to span multiple physical disks. Which makes the Fusion drive possible, but it isn’t the only aspect.

      What makes the Fusion drive a Fusion Drive is the introduction of Automated storage tiering to mix. This has actually been around since 2005 on larger scale networks where the software moves data across different disk types and RAID levels in order to balance space, cost and performance requirements of a server. Prior to the automation software this type of data manipulation was done manually.

      Most of the terminal command setups we’ve seen online are only initiating that Core Storage volume. It needs the software to run the automated storage tiering to make it a true Fusion Drive. So far we’ve only seen that software component in the 2012 Mac mini models that ship with their specific build of 10.8.2

      Reply

      - *Jim Clara* says:
December 14, 2012 at 11:24 am
Is it possible to confirm which build of 10.8.2 disk utility you have running? (mac mini version or ??)

        Reply

MaX says:
November 28, 2012 at 4:16 pm
It would be AWESOME if you could make the 4TB Mercury Elite Pro and the 750MB Mercury Elite Pro mini to work as bootable Mac Fusion Drives in the future…

Reply

-  *OWC Chris S.* says:
  November 29, 2012 at 12:49 pm
  While there have been examples of using an external drive as one of the drives in a Fusion array, the underlying technology behind Fusion needs to see which drive is an SSD and which is an HDD. These identifiers are determined via SATA, which would require a direct, internal connection.

  Reply
  - *MaX* says:
    November 29, 2012 at 4:09 pm
    Cannot that be accomplished via Thunderbolt?

    Reply
    -  *OWC Chris S.* says:
      November 29, 2012 at 5:33 pm
      If it's going through a bridge (like it would be if it were going through TB), info about the drive is not always transmitted. At this time, the only reliable way would be internally mounted.

      Reply

Mark L. Charnley says:
November 28, 2012 at 3:57 pm
Have you tried to fuse more than two drives into a Fusion array ?

Reply
-  *OWC Chris S.* says:
  November 29, 2012 at 12:47 pm
  Fusion is designed for two drives: an SSD and a HDD. Attempting to add a third wouldn't result in a Fusion drive; at best it would just be a concatenated drive set.

  Reply

Cedar says:
November 28, 2012 at 1:44 pm
I can confirm that it is NOT true that a Mac Mini is required. I type this from my 2010 27″ imac. I followed a procedure roughly similar to the one outlined in this post, and it worked just fine. I've been up and running with my home brew Fusion Drive for about a month now.

Reply
-  *OWC Chris S.* says:
  November 29, 2012 at 12:45 pm
  As stated into the response to Ron Miller, our techs have found that when using any version of Disk Utility other than the one that came with the 2012 Mac mini, it will *appear* as though you have a Fusion Drive, but it's really just a standard Core Storage volume – without the file moving and

  If you have it working as an actual proper Fusion drive, then consider yourself lucky. We did not experience that with our attempts of using versions of Disk Utility other than that which came with the 2012 mini.

  Reply

Mark L. Charnley says:
November 28, 2012 at 12:42 pm
I am always impressed with how clever you all are at OWC !

If one of the drives in a Fusion array fails would it be possible to boot from an external drive and then recover the data from the drive that did not fail ?

Reply
- *OWC Chris S.* says:


November 28, 2012 at 3:27 pm
The data on the drives is linked together in a Core Storage unit. As such, if one drive fails, simply hooking up another drive and trying to pull files won't work. While it MAY be possible to recover some files through direct reading of the disk (like through a data recovery service), it's probably going to cost more than the returns are worth. If you're doing this (or, really even if you're not), it's best just to have a reliable backup strategy in place.

Reply

Matt says:
November 28, 2012 at 12:08 pm
You mentioned in the factory Fusion setup that, "Once writing is complete, data will be moved from the SSD to the hard drive until there is 4GB free on the SSD again." This to make sure that any new data written (under 4GB) will be written to the faster SSD… But does this same "behind the scenes magic" that the factory Fusion setup does with freeing up 4GB of space automatically also happen with the aftermarket array setup you detail setting up yourself above? Thanks!

Reply

- 
OWC Chris S. says:
November 28, 2012 at 3:23 pm
The same behavior was observed in both the Apple-created Fusion Drive, and one created in this manner.

Reply

Ron Miller says:
November 28, 2012 at 11:47 am
Thanks for the write-up! I'm curious, however, about the statement that this will only work with the diskutil on the new Mac Minis. There are other write-ups floating around where people have created fusion drives on older macs.

I'm curious because I would really like to install a fusion drive on my 2011 Mac Mini.

Reply

- 
OWC Chris S. says:
November 29, 2012 at 11:25 am
According to our techs, when using any version of Disk Utility other than the one that came with the 2012 Mac mini, it will *appear* as though you have a Fusion Drive, but it will not behave as such. You would be essentially creating a standard Core Storage volume rather than Fusion. Effectively, once the SSD fills, you're running at HDD speed for good; there is no 4GB migration or smart movement of data. That migration, of course is what Fusion is all about.

  This all may change once 10.8.3 comes out. Until then, your best bet is a HDD/SSD combination with the relocated Home folder. It'll allow you a little more flexibility in what files go where anyway (especially useful when working with larger files).

  Reply

  - *Ron Miller* says:
  November 29, 2012 at 11:56 am
  Thanks for the response. On at least one website, the author did some detailed analysis showing that data did in fact automatically migrate from the SSD to the HDD and vice-versa. Do you know exactly what didn't seem to be working with the older mac fusion drive? Is it the 4GB write cache that does not work properly?

    Reply

    - 
    OWC Chris S. says:
    November 29, 2012 at 12:53 pm
    As far as the source of the technology (Apple), Fusion is only available on the 2012 Mac mini and upcoming iMacs. Support for any other models is chance, at best.

      Reply

  - *Jim Clara* says:
  December 8, 2012 at 7:24 pm

My mac mini's recovery disk is 10.8.1 (late 2012), so this won't truly work?

Reply

-  *OWC Michael* says:
  December 10, 2012 at 10:49 am
  Once you upgrade your OS to 10.8.2, your recovery partition would be upgraded as well.

  Reply

 *odhardy* says:
November 28, 2012 at 10:59 am
Thanks for the writeup. Lloyd Chambers claims though that he cannot replicate the "smart " migration in his fusion setup- that it just behaves like a JBOD. There are however various reports that it is successful on other hardware and with using stock 10.8.2 commandline like you did here. So, if you completely fill up the SSD are you seeing smart migration back and forth from SSD to platter using owc SSD, and have you created fusion on older hardware yet and tested the same?

Reply

-  *OWC Chris S.* says:
  November 29, 2012 at 11:06 am
  Our results were as described – the SSD fills, then information is moved to the HDD until 4GB is free on the SSD again. The "smartness" of this data transfer is something that will likely need to be determined over time. Unfortunately, it's difficult to say exactly what files are where on the drive, so direct measurement of "smartness" of data doesn't seem to be in the picture at this time. However, usage and performance over time should be indicators of the actual efficacy of this kind of drive.

  At this time, we are only focusing on the Mac mini, as that is the only model that Fusion is officially supported on.

  Reply

 *DCJ001* says:
November 28, 2012 at 10:15 am
If a fusion drive is backed up to Time Machine, will Time Machine be able to restore the backup to a new fusion drive?

Reply

-  *DCJ001* says:
  November 28, 2012 at 12:49 pm
  Or could a fusion drive back up in Time Machine be able to be restored to a single hard drive?

  Reply

-  *OWC Chris S.* says:
  November 28, 2012 at 3:22 pm
  As far as Time Machine (or a clone for that matter) is concerned, a Fusion Drive is just another Volume on your Mac, just as it would see a single drive. It will copy the files into its format and restore them to wherever you're setting them up.

  Reply

  -  *Jon-Erik* says:
    November 29, 2012 at 5:30 pm
    I did the steps above on my brand new Mac Mini that I had backed up to a Time Machine on an external drive. (I just got my SSD and kit from OWC via FedEx. Everything appears to have connected perfectly)

    I created the Fusion Drive, but when I go to restore from the Time Machine it says that it can't erase the restore volume on the target and forces me to restart.

    I'm in the process of just doing a raw install of OSX over the Internet Recovery and then trying to migrate my data later, but it's not as straightforward as just copying the old stuff in recovery, apparently.

Reply

-  *OWC Chris S.* says:
  November 29, 2012 at 5:35 pm
  Yeah… Time Machine is not the same as a clone or direct copy of the drive, which this process requires. However, you should be able to restore from Time Machine after the Internet Recovery installation.

  Reply

  -  *Jon* says:
    November 29, 2012 at 9:42 pm
    I can confirm that there are no problems doing it this way, i.e. just reinstalling OSX from Internet Recovery or otherwise and then using Migration Assistant to move your stuff over. Dropbox had to resync; that's it.

    Is there any way we can confirm that we are really "fusioning" or whatever? My system is fast as hell all of a sudden, but I don't know if it's optimizing, etc.

    I have the late 2012 Mac Mini, but my recovery stuff was 10.8.1, fwiw

    Reply

 *Richard Moore* says:
November 28, 2012 at 10:08 am
There are lots of reports of MacRumors and other apple focused web sites about people who have "rolled their own" fusion setup, using terminal vs disc utility for the initial setup. I agree that most of us should wait until at least 10.8.3 to see if the new disc utility will be included for all of our machines, as that would probably make it easier.

Hopefully the pieces will fall into place soon to buy a 2 bay thunderbolt drive, with a SSD & HDD included, making upgrade for older macs a simple process of plugging in the drive, and installing the OS to an external fusion thunderbolt.

Reply

-  *Richard Moore* says:
  November 28, 2012 at 10:12 am
  Whoops, didn't realize you still needed terminal with this setup, I thought it was something new. (It's what I get for not reading it fully before commenting.)

  Hopefully someone will make a setup utility to make the process easier soon.

  Reply

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