



# WD BLACK<sup>2</sup><sup>™</sup>

Fusion Drive Creation for MacBook Pro

Installation Guide



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# 1

## Getting Started

This guide is intended to guide you through the process of creating an Apple Mac Fusion drive using a WD Black<sup>2</sup> Dual Drive.



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*Note:* Fusion drives are only supported on Mountain Lion OSX 10.8.2 and higher.

Items needed to perform this process:

- A Phillips screwdriver with “0” tip head
- SATA to USB Adapter Cable
- WDMac\_XLBA Tool (download at <http://support.wd.com/product/download.asp?groupid=2301&lang=en>)
- Image Backup of MacBook System drive

Refer to your Apple system documentation for information on using Time Machine.

### **Remove your existing MacBook internal hard drive and replace it with the WD Black<sup>2</sup> Dual Drive**

Refer to your Apple system documentation for hard drive removal and installation instructions.

## 2

## Setting Up the WD Black<sup>2</sup> Drive

Follow these instructions to boot the Mac system from the original system drive via the SATA to USB cable.

1. Attach the original system drive to the SATA to USB cable.
2. To boot from the USB drive, press the power button followed by pressing and holding the “Option” button on the keyboard.
3. After the Apple logo appears, you will see the drive icons on the screen. Select the orange USB drive icon to continue the boot process.
4. When the following dialog box opens, click **Ignore**. The drive will be initialized in a subsequent step.



5. Once the system completes the boot process, locate the utility that you downloaded from <http://support.wd.com/product/download.asp?groupid=2301&lang=en> (as indicated in Getting Started above), and unzip it on your desktop.
6. Proceed by opening a terminal window and dragging the XLBA tool on top of the terminal Window. Press the spacebar, enter `-d=0 -enable`, then press **ENTER**.
7. See the sample output below. If you unzipped the XLBA file somewhere other than your desktop, a different path will display. User1 below should be your desktop name. See also the Output from Terminal example below.

```
/Users/User1/Desktop/xlba -d=0 -enable
```

## Output from Terminal

```
Macintosh:xlba_v1.3_Mac o359g$ /Users/o359g/Desktop/xlba_v1.3_Mac/xlba
-enable

XLBA Version 1.3_mac
Enable/Disable Hybrid's iSSD
Copyright (C) 2012-2013 Western Digital Corporation

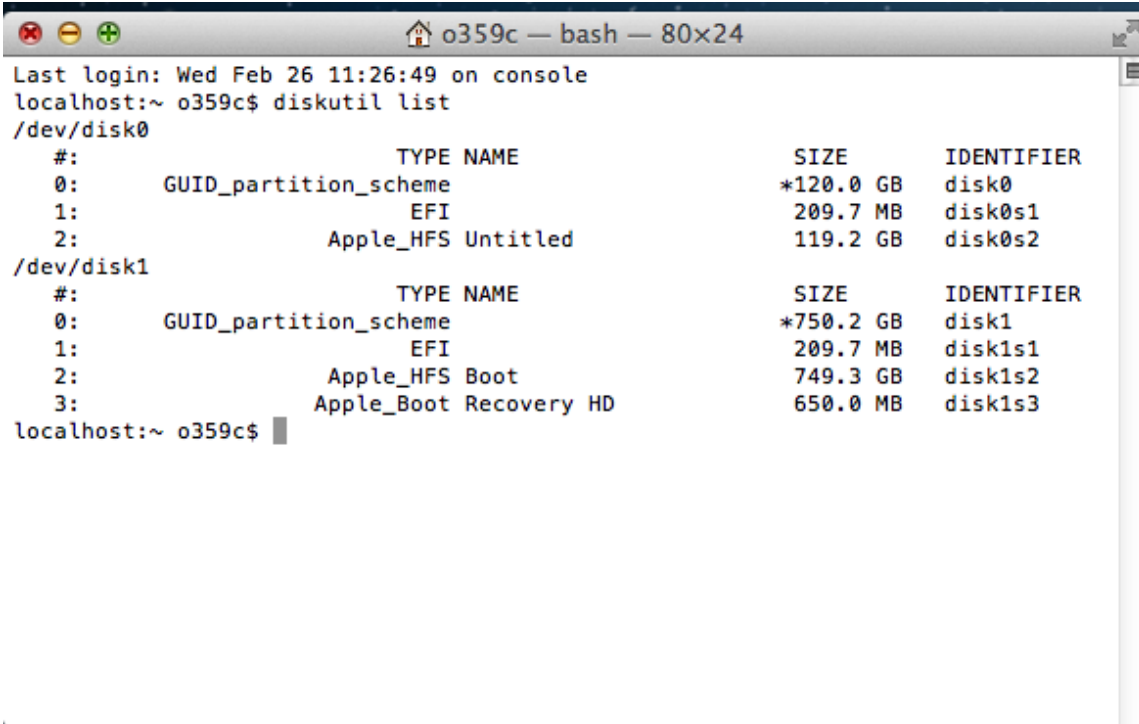
Executing: /Users/o359g/Desktop/xlba_v1.3_Mac/xlba -d=0 -enable

Drive #0
-----
Model:          WDC WD1001X06X-00SJVT0
Serial:         WD-WXXXXXXXXX
Firmware:       01.01A01
LBAs:           0x8269b960
Enable SSD:     Successful
New LBAs:       0x8269b960
```

8. Reboot the system from the original system drive to allow Mac OSX to display the extended combined SSD and HDD drive capacity.
9. From a terminal window, issue the command below to list all attached disks.

```
diskutil list
```

## Output from Terminal



```
Last login: Wed Feb 26 11:26:49 on console
localhost:~ o359c$ diskutil list
/dev/disk0
#:          TYPE NAME          SIZE      IDENTIFIER
0:          GUID_partition_scheme  *120.0 GB  disk0
1:          EFI                  209.7 MB  disk0s1
2:          Apple_HFS Untitled    119.2 GB  disk0s2
/dev/disk1
#:          TYPE NAME          SIZE      IDENTIFIER
0:          GUID_partition_scheme  *750.2 GB  disk1
1:          EFI                  209.7 MB  disk1s1
2:          Apple_HFS Boot        749.3 GB  disk1s2
3:          Apple_Boot Recovery HD  650.0 MB  disk1s3
localhost:~ o359c$
```

10. Create two partitions on the WD Black<sup>2</sup> Dual Drive by issuing the command below. The disk number below may be different, depending on your system configuration, and should point to the Endeavor's drive path.

```
diskutil partitiondisk /dev/disk0 2 JHFS+ SSD 119824388096b JHFS+ HDD
1000G
```



.....

*Note:* The SSD value shown above (119824388096b) is an absolute value and must not be changed. It ensures that the partitions are created within the SSD and HDD boundaries.

## Output from Terminal

```
Finished partitioning on disk0\
/dev/disk0\
#:                TYPE NAME                SIZE      IDENTIFIER\
0:      GUID_partition_scheme          *1.1 TB   disk0\
1:                EFI                   209.7 MB  disk0s1\
2:      Apple_HFS SSD                   119.7 GB  disk0s2\
3:      Apple_HFS HDD                    1.0 TB   disk0s3\
```

11. If you only want to use the SSD as the main OS partition and the HDD as a storage partition, and are not interested in using the WD Black<sup>2</sup> Dual Drive as a core storage fusion drive volume, you can skip the next steps and go to “Restore the Master Drive Image Onto the Fusion Drive” on page 8 to restore your original image drive onto the SSD volume partition.



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*Note:* It is not recommended to use the fully expanded WD Black<sup>2</sup> Dual Drive as a single, non-fused partition, as this will create a single partition that spans across the virtual boundary between the SSD and HDD. Performance degradation caused by the OS trying to access a nonexistent drive location will result.

## 3

## Creating a Fusion Drive From a Core Storage Volume

1. To create a core storage volume, issue the command below to merge the two partitions that were created in section 1 (the disk numbers below may be different depending on your system configuration). You must use the path to the SSD and HDD partitions that were created by the `diskutil partition` command.

```
/Users/Desktop/xlba_v1.3_Mac/diskutil cs create MacBookProFusion
disk0s2 disk0s3
```

### Output From Terminal

```
Creating Core Storage Logical Volume Group\
Switching disk0s2 to Core Storage\
Switching disk0s3 to Core Storage\
Waiting for Logical Volume Group to appear\
Discovered new Logical Volume Group "780497B3-8F6E-4A70-A4FE-781FB9D23F54"\
Core Storage LVG UUID: 780497B3-8F6E-4A70-A4FE-781FB9D23F54\
Finished CoreStorage operation\

diskutil cs list
CoreStorage logical volume groups (1 found)\
|\
+-- Logical Volume Group 780497B3-8F6E-4A70-A4FE-781FB9D23F54\
=====
Name:          MacBookProFusion\
Status:        Online\
Size:          1119760818176 B (1.1 TB)\
Free Space:    1111254499328 B (1.1 TB)\
|\
+--< Physical Volume E6C27861-79E1-462D-A95F-DEE0F464AF0B\
-----
|
|   Index:      0\
|   Disk:       disk0s2\
|   Status:     Online\
|   Size:       119690170368 B (119.7 GB)\
|\
+--< Physical Volume BA6B7E32-E4A8-43BB-B676-8E31A1FA54DE\
-----
|
|   Index:      1\
|   Disk:       disk0s3\
|   Status:     Online\
|   Size:       1000070647808 B (1.0 TB)\
```



Note: You will need the Core Storage LVG UUID number above for the next step.

2. To create the fusion drive from the core storage volume, issue the command below (enter the createVolume number, which is the Core Storage LVG UUID number from step one).

```
/Users/Desktop/xlba_v1.3_Mac/diskutil cs createVolume 780497B3-8F6E-4A70-A4FE-781FB9D23F54 JHFS+ MacBookPro-Fusion 100%
```

## Output From Terminal

```
Started CoreStorage operation\  
Waiting for Logical Volume to appear\  
Formatting file system for Logical Volume\  
Initialized /dev/rdisk2 as a 1 TB HFS Plus volume with a 90112k journal\  
Mounting disk\  
Core Storage LV UUID: 946ADCA0-4D33-4B1F-AB27-604E8704F498\  
Core Storage disk: disk2\  
Finished CoreStorage operation\  

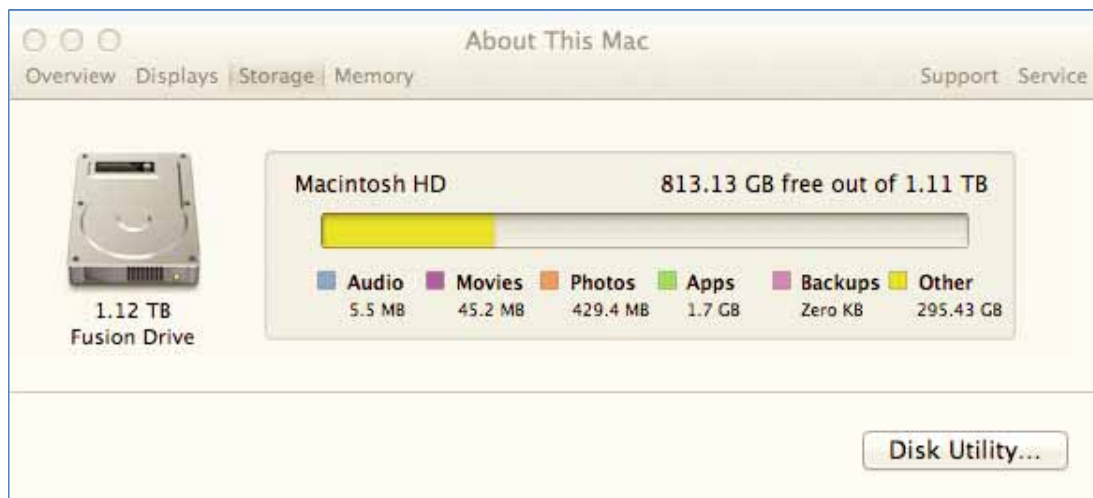
```



## 4

## Verify Proper Creation of the Fusion Drive

1. To verify that the fusion drive was created properly, click on the Apple icon located on the top left corner of the screen. Select **About This Mac** from the dropdown menu.
2. Click the **More Info...** button.
3. Select the **Storage** tab. If everything was done correctly in the **Storage** tab, a hard drive icon appears underneath the drive capacity labelled “Fusion Drive.”



# 5

## Restore the Master Drive Image Onto the Fusion Drive

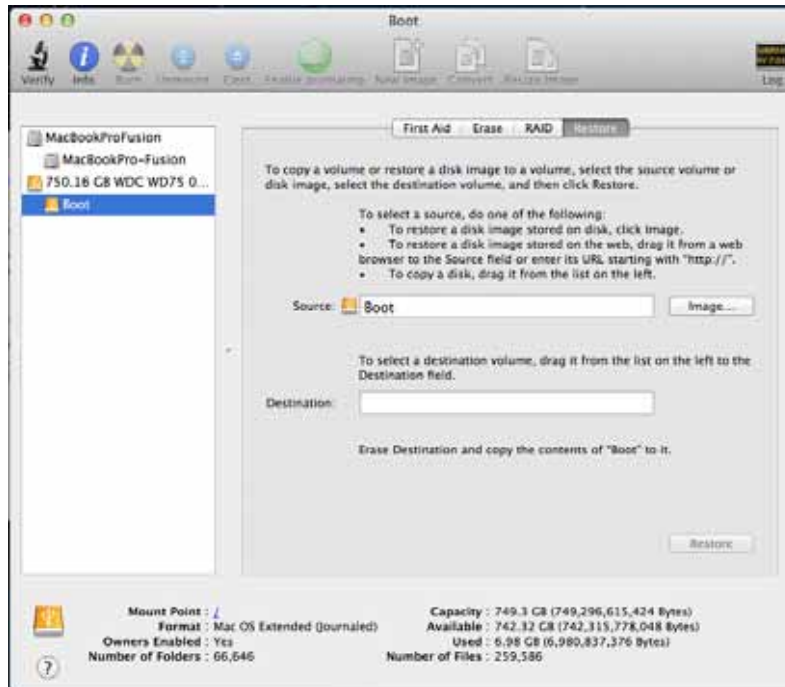
1. Shut down your Mac.
2. Press the power button, then press and hold the “Option” key on the keyboard. Select the orange USB recovery drive icon.



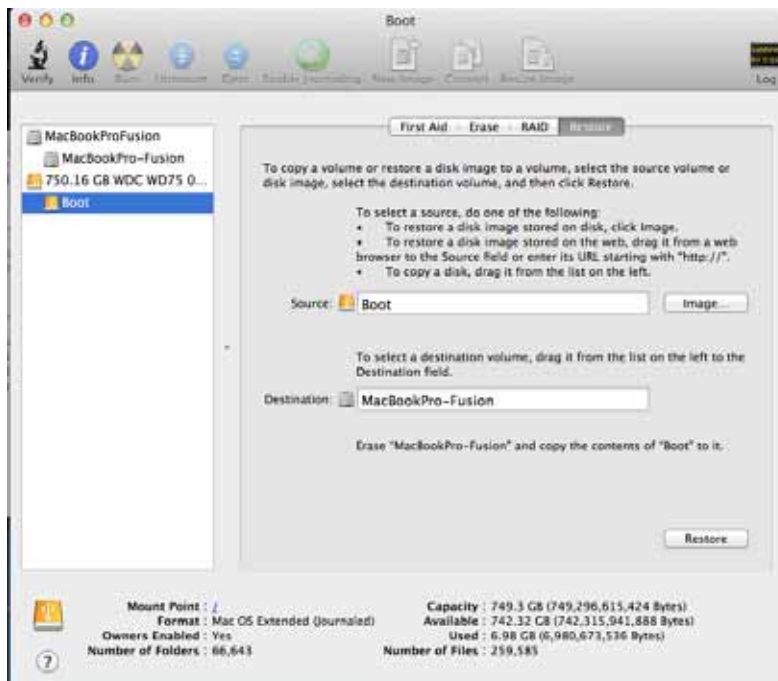
3. From the OS X Utilities Window, select the “Disk Utility” icon and click the **Continue** button.



4. Select the USB drive partition containing the Mac OSX operating system, then click on the **Restore** tab on the right side next to the RAID button. If done correctly, you should see the USB partition in the **Source** field.



5. Drag the Fusion drive partition at the top of the list (see “Creating a Fusion Drive From a Core Storage Volume” on page 5) into the **Destination** field and click the **Restore** button.



6. You will receive a warning informing you that the partition will be erased. Click **OK**.

7. Wait for the restore process to finish.
8. Shut down your Mac and disconnect the original USB attached drive.

You are now done and can begin using your Mac.

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