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**Topic :**                      **Formatting MacOS X drives for Cache-A writing**

**Reference Release:**   v2.1.16

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**Summary:**

It is possible to direct attach any Mac storage volume (less than 2TB) to any Cache-A system but you can only write to such a drive (i.e. restore from tape to the drive) if it is formatted as "Case-Sensitive, Non-Journaled." Unfortunately after Snow Leopard, Apple removed this formatting option from their Disk Utilities.

This paper outlines a method for formatting an external drive as Case-Sensitive, Non-Journaled in Mac OS X 10.7 Lion and later.

WARNING! PERFORMING THESE INSTRUCTIONS WILL ERASE THE EXTERNAL DRIVE OR DEVICE THAT YOU ARE FORMATTING; MAKE ABSOLUTELY SURE YOU HAVE ALL DATA COPIED OFF OF THE DEVICE BEFORE YOU PROCEED.

**Procedure:**

Even though Apple removed the easy way to complete Case-Sensitive, Non-Journaled formatting, it is still possible with the instructions listed below.

1. Disconnect any other hard drives or USB drives connected to your Mac as a safety precaution - *Only have the drive you want to format connected.*
2. Connect the drive to be formatted and launch the program Disk Utility – this can be found in Applications > Utilities > Disk Utility
3. In the left column of the utility, select your external drive
4. Select the "**Erase**" tab
5. Change "**Format:**" to Mac OS Extended (Case-Sensitive, Journaled)
6. Name the drive; I named our example drive "lexar" (without the quotes)
7. Click "Erase"
8. Launch the Terminal application – this can also be found in Applications > Utilities > Terminal
9. Type  
    `diskutil list`  
    and press enter. This will display something like this:

```

/dev/disk0 #:
#:          TYPE NAME          SIZE          IDENTIFIER
0: GUID_partition_scheme      *320.1 GB      disk0
1:          EFI                209.7 MB       disk0s1
2:          Apple_HFS Macintosh HD 319.2 GB       disk0s2
3:          Apple_Boot Recovery HD 650.0 MB       disk0s3
/dev/disk1 #:
#:          TYPE NAME          SIZE          IDENTIFIER
0: GUID_partition_scheme      *8.0 GB        disk1
1:          EFI                209.7 MB       disk1s1
2:          Apple_HFS lexar     7.7 GB         disk1s2

```

10. The disks on the system are listed in the left-hand column. In this case, `"/dev/disk0"` is the Mac's internal hard drive and `"/dev/disk1"` is our external drive we want to format. When I erased the disk in step 7, I named the disk `"lexar"`. We now know by looking under the name column that `"/dev/disk1"` is in fact the lexar drive. This is very important to double check. Your Mac's internal hard drive will always be `"/dev/disk0"` but it is important to note that if your Mac is set up with multiple partitions (for running Bootcamp, etc.) those extra partition(s) will instead be `"/dev/disk1"`, `"/dev/disk2"`, etc. Thus, your external drive you want to format may read as `dev/disk3` or something higher. You always want to double check the name column and make sure you are looking at the correct disk.
11. Now that we know which disk our lexar is, we need to know which part of it we need to un-journal. We do this by again by finding our name in the name column, then looking under the identifier column. In this case, the lexar is `"disk1s2"`. Now we can proceed with un-journaling.
12. Type `"diskutil disableJournal disk1s2"` (without the quotes) replacing the `disk1s2` portion with the name you found under `"IDENTIFIER"` in step 11, and press enter.
13. If everything was done correctly, the terminal should say this:  
Journaling has been disabled for volume lexar on disk1s2

As before, if your disk was identified as something other than `disk1s2`, the command will display that identifier instead.

Congratulations, now we're all finished, and your drive can now be attached to your Cache-A for use as direct attached storage!