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dd Report

The dd command or “disk destroyer” as it is sometimes called, is used for copying data from standard input to standard output. It can copy data between files, and also between devices e.g., from computer to thumb drive. A common use of dd is to backup entire hard drives or partitions as disk images or .iso files. A quick internet search will reveal that there are many other uses for dd. The dd command uses the “option=value” syntax instead of the standard flag syntax. By default data is copied in 512 byte blocks. The block size can be altered by using the “bs=“ syntax. The dd command also has the ability to do various conversions using the “conv=“ syntax. There are many conversion options listed on the man page for dd.

The version of dd that I tested can be found in the GNU Coreutils 8.22 bundle. Before this assignment I had never heard of the dd command, so I was a little hesitant to robustly test something nicknamed “disk destroyer”. However I was able to run some basic conversion tests, look over the source code, and scan the internet for any mention of previously found bugs. I attempted many times to compile the source code with the gcov tool but was unsuccessful. I was also unable to install valgrind on OSX 10.9.1. The tests that I ran which consisted of basic data transfers and conversions between files were all successful. I also ran tests using various block sizes and I did not run into any trouble. One test I ran converted lower case letters into upper case ones. One thing I found interesting is that dd doesn’t distinguish between letters and symbols. Converting a file of all symbols to upper or lower case doesn’t alter the file at all and dd doesn’t give any message indicating that there were no letter characters in the file. As I looked over the source code I noticed that there was only 1 assert used in 2340 lines of code. This is probably not best practice. There is a decent amount of read/write error checking though. However, the error messages that they provide are not very insightful. They are usually just a few words, and they don’t tell you exactly where in the process something went wrong. There is also no built-in progress indicator. The only message displayed is when the transfer/conversion has finished. Some people online complained that you really have to be careful when using dd because it is quite easy to get the “option=value” commands mixed up and cause some serious damage to your machine or external device. To summarize I would say that dd is a fairly solid utility that can be useful in many different situations.