



WICTRA TECH

Need to clone a Hard Drive?

Recently I needed to clone a complete hard drive to make a copy for forensics work. Those of you who know me, know I'm an expert novice at best. So, here's my story.

How do you clone a hard drive.....? Sounds so simple? I did some research and listened to a subject matter expert (SME) who told me, "just connect a hard drive and use the dd command"? He has a ton of confidence in my capability. I ask "What's a dd command"? My go to (SME) hooked me up with a ton of documentation to digest. Needless to say, I was swimming in the deep end of the pool. Below is the simple step by step process I used to clone a hard drive.

I'll cut to the chase and leave out my struggle in figuring out what worked for me.

Things needed for the process. I used an old desktop PC, a desktop works great because it gives you plenty of SATA connections to hook up multiple hard drives concurrently. I loaded the PC with Ubuntu 20.04 LTS because although I'm OK with some line commands, I still lean on some GUI and Gparted is easy to install. Using Gparted provides a nice solution to map where hard drives are connected in the system. It's imperative, the Target Drive (where the data being moved to) is the same size or bigger than the Source Drive (data is stored on).

With completion of the prep work, it was time to run a test.

A warning! The dd command can literally destroy a hard drive with a single key stroke mistake. Your safest path is experimenting with a hard drive you can afford to lose. Yes, I did trash a drive! Hence why the dd command is nicknamed the "Disk Destroyer"!

Using the Gparted program, one by one I connected the drives to determine their location in the system aka sda, sdb etc. Once you have the Source Drive (drive to be cloned) connected, connect the new Target Drive (where you are copying the data to). In my case the PC hard drive came up in Gparted as sda and the drive I wanted to clone came up as sdb (source). Next I connected the new Target Drive (copying the data to), it came up as sdc.

Now that I know the name of each drive, it's Cloning Time. The next step is opening a terminal window and typing in the dd cloning command.

Here is the complete command line.

```
sudo dd bs=4M conv=sync,noerror status=progress if=/dev/sda of=/dev/sdd
```

I used a text file to save a copy of the command and saved it on the desktop of the Ubuntu PC. This lowered the risk of a key stroke error, each time I needed to edit and re-enter the dd command line. I opened the text file and edited the command line in the text document to reflect the correct drive names that I wanted to clone from and to. Notice the change from the command line above to the line below.

```
sudo dd bs=4M conv=sync,noerror status=progress if=/dev/sdb of=/dev/sdc
```

This step is very crucial. I changed the sda to sdb which is the drive with the data (the source) and sdd to sdc (the cloned target) which is the new blank drive. This where I use Gparted. This can vary from PC to PC.

Once the changes were made I copied and pasted the entire command into the command line of the terminal window and ready to press enter, **DOUBLE CHECK YOUR WORK BEFORE YOU PRESS ENTER.** You only get one shot at this and if wrong, DD aka the disk destroyer will take over!

This is a powerful command; it doesn't care if it's Windows hard drive or Linux. It copies everything bit for bit from the source to the target

That's it. You should see a data transfer taking place in the terminal window. Depending on the condition of the drive this can easily take a couple of hours. Once the process is complete, it will return to the command prompt.

On a side note, you don't have to format the new drive before starting the process. The dd command does this as part of the process.

Once the process is complete, plug the cloned drive into a PC and it will boot as if it was the original drive.

Resources

Hardware used. One Lenovo desktop PC with four Sata ports, I7 processor and 16Gb RAM.

Software: Ubuntu 20.04 LTS and Gparted

References

Ubuntu software: <https://ubuntu.com/#download>

Gparted : <https://gparted.org/>

Cloning process:

<https://www.techrepublic.com/article/how-to-clone-a-drive-from-the-linux-command-line/>

<https://opensource.com/article/18/7/how-use-dd-linux>

<https://linuxide.com/linux-command/linux-dd-command-create-1gb-file/>

<https://www.howtoforge.com/tutorial/linux-dd-command-clone-disk-practical-example/>