

Clone a larger hard disk to a smaller hard disk

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Tools required:

- A live CD of GParted, which you can download here:
 - <http://gparted.sourceforge.net/livecd.php>
- A live CD of Clonezilla, which can be downloaded here:
 - <http://clonezilla.org/downloads.php>

Step 1: Resize the source drive

For simplicity sake, I'm assuming both drives (source and target) are installed in the system. You can also do this by creating an image of the source drive on an external USB drive, or network server if that works for you, but setting that up is beyond the scope of this walkthrough.

IMPORTANT: You will need to ensure that your source disk (the larger of the 2 hard disks) has sufficient free space to shrink down to the size of the smaller disk. So if you have a 250G hard drive as the source drive and a 160G target drive, you will need to ensure that you have 90G of free space on the source drive.

Once you verify you have enough free space on your source drive to shrink it, boot your computer with the GParted live CD or USB key. The boot process is fairly quick and you should be taken to a graphical interface that will automatically launch the GParted application.

The main screen will show all mounted disks and partitions in your system. It's easy to identify your source and target drives because it will display how large each disk is.

Select your source drive, right-click and select Resize/Move.

Resize your partition down to the exact or smaller size than your target drive. I often like to go a gigabyte below the target drive size. This ensures that the source drive can be cloned directly on to the target without partition size issues.

After the resize, click on the Apply button to apply the change. After a bit, the operation completes and now you have a temporarily smaller hard drive! Shut down from the GParted menu, and then insert your Clonezilla live CD.

Step 2: Clone your source drive to your target drive

Boot your computer with your Clonezilla live CD and after a bit, Clonezilla will start. Once Clonezilla starts, I'll guide you through what to press at the prompts.

1. Choose to Start_Clonezilla
2. Since both drives are in our machine, choose device-device.
3. Choose Expert mode. This is important so we can access the advanced options further along.
4. Choose disk_to_local_disk.

5. Choose your source drive. The drive will be listed as it's ORIGINAL size (example 500G instead of the resized value).
6. Choose your target drive.
7. On the next screen, you will need to choose advanced options. The main parameter you need to select is `-icds` option, which skips checking the destination disk size. This is the most important parameter.
8. You can skip the next option which is check/repair the source file system.
9. Next, you need to choose option `-k1` which creates the partition table proportionally on the target disk. This ensures that the partition table fits on the target disk geometry. If you didn't choose this option, you'd get an error from Clonezilla when trying to write to the target disk.
10. Now the process will begin. You'll be asked to confirm that you want to clear the target disk, answer yes, and then one more time to be sure and that will start the clone!

Step 3: Finishing up

Depending on the size of your source drive, it may take a while for the clone process to complete. Once it does, power off your machine, and remove your source drive, and hook up just the target drive. Power on your machine and you should be able to boot your machine off your freshly cloned target drive. If it does not work for some reason, feel free to add comments to this article and I'll be happy to help out.

If everything works great, then take out your target drive and put your old source drive back in. Boot your computer with the GParted Live CD. Once GParted loads, right click on your drive and choose Resize/Move again. Resize the partition back to it's original size. Now hit Apply and your drive will go back to its original size, and you're free to set it aside as a backup in case your new drive dies! Granted, your data will be frozen to the day and time you did the clone, but at least it's better than losing everything!