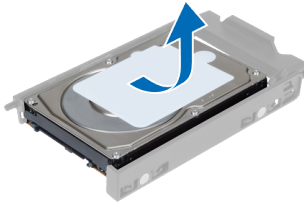


Same PC, new HD

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Introduction



Here are my notes about how to change the system hard disk on your GNU/Linux computer. This comes handy when you want to upgrade your «*spinnig rust*» boot drive to a much quicker **solid-state drive (SSD)**.

Hardware



With the PC **powered down**, install and connect the new hard drive. For the time being, **the old hard drive remains in place** to allow the copying of its partitions to the new drive.

However, you may be dealing with a laptop computer, and/or have only one hard drive bay or SATA port available. If this is the case, use a SATA to USB adaptor to temporarily connect the new hard drive.



Figure 1: SATA to USB3 adapter

Use a live DVD or USB



Instead of meddling with chroot, I opted for the more straightforward technique of booting from either a **live DVD** or a **live USB**.

At start-up, you most probably will have to instruct your computer's **BIOS** to boot from the live DVD or USB instead of any HD.

Copy partitions with GParted



With the live session running, carefully identify the old and new hard drive using the `lsblk` command.

```
$ lsblk
NAME MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda   8:0    0 279.5G  0 disk
├─sda1 8:1    0    1K  0 part
├─sda5 8:5    0   512M  0 part /boot
├─sda6 8:6    0   4.5G  0 part [SWAP]
├─sda7 8:7    0    64G  0 part /
├─sda8 8:8    0 210.5G  0 part /home
sdb   8:80   0 298.1G  0 disk
sr0   11:0   1  1024M  0 rom
```

From the Settings menu, launch **GParted**. A cool feature of GParted is that it allows for copying partitions from one drive to another. This works for all partitions, except for the [SWAP] partition which is currently in use by the live session. Its contents is of no importance to us, so again **GParted is used to create an equally sized swap file system on the new hard disk.**

Partitions copied to the new drive can be made bigger, but not smaller. If you are copying partitions to a smaller sized SSD, you will need to **reduce the existing partitions on the old drive first.**

After copying the partitions with GParted, the list of block devices may look similar to this. Note that on the old sda drive I had implemented **logical volume management (LVM)**; on the new sdb drive I chose not to do so any more.

```
$ lsblk
NAME MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda   8:0    0 279.5G  0 disk
├─sda1 8:1    0    1K  0 part
├─sda5 8:5    0   512M  0 part /boot
├─sda6 8:6    0   4.5G  0 part [SWAP]
├─sda7 8:7    0    64G  0 part /
├─sda8 8:8    0 210.5G  0 part /home
sdb   8:80   0 298.1G  0 disk
├─sdb1 8:81   0   512M  0 part /boot
├─sdb2 8:82   0   4.5G  0 part
├─sdb3 8:83   0    44G  0 part /
├─sdb4 8:84   0  249.1G  0 part /home
sr0   11:0   1  1024M  0 rom
```

Reinstall GRUB



Now, **mount the partition of the new drive which would normally used for booting (here /dev/sdb1).**

```
$ sudo mount /dev/sdb1 /mnt
```

Finally, reinstall **GRUB** on the new drive:

```
$ sudo grub-install --boot-directory=/mnt /dev/sdb
```

GRUB FlexNet warning

Whilst doing the above, GRUB reinstalled but not without issuing the following warning:

```
/usr/sbin/grub-install:
warning: Sector 32 is already in use by the program `FlexNet';
avoiding it.
This software may cause boot or other problems in future.
Please ask its authors not to store data in the boot track.
```

As usual, **you are not the only one** dealing with this issue on the Internet. What happened is that the new drive is actually a decommissioned drive that previously held commercially licensed software under Microsoft Windows™. *FlexNet* appears to be a digital contraption that keeps record of one's licenses by writing data to a sector in the **extended boot record (EBR)**. This is certainly not the kind of digital parasite we would like to see living in our EBR!

Removing FlexNet

Still within the same live DVD/USB session or in a new one, remove *FlexNet* from the affected drive (here `/dev/sdb`), using the sector number reported by **GRUB** (here sector 32):

```
$ sudo dd if=/dev/zero of=/dev/sdb bs=512 count=1 seek=32
```

There is no need to backup this usually empty part of the **extended boot record (EBR)**.

Reinstalling GRUB after FlexNet removal



Remaining within the live session. If not done so earlier, mount the partition of the affected drive which is normally used for booting (here `/dev/sdb1`).

```
$ sudo mount /dev/sdb1 /mnt
```

Finally, reinstall GRUB on the affected drive with:

```
$ sudo grub-install --boot-directory=/mnt /dev/sdb
```

GRUB should now install without any warnings. You are now safe to reboot from the disinfected hard drive.



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