

How to Dual Boot

Installing Ubuntu 18.04 LTS onto a Lenovo Yoga 730 running Windows 10
Assumes the computer uses the UEFI specification for booting

Note on file sharing: This setup does not really allow you to share files between the OSes (Linux and Windows use different file encodings). Because Linux is competent, you should be able to access your Windows files from the Linux partition, but if you modify anything Windows will get really mad at you. You cannot see your Linux files from the Windows side. I think there is a way around this that involves setting up an additional Windows-friendly partition just for your files and then pointing both of your OSes at this partition, but I have not tried this as I did not want to overcomplicate. Instead I intend to keep most of my files on the Ubuntu side (using Dropbox for backup/extra storage) and manually transfer stuff to the Windows partition if I (hopefully don't) need to use it.

FIRST BACK UP EVERYTHING

Put Ubuntu onto a flash drive

1. Get a flash drive w/ at least 2 GB
2. Download the Ubuntu ISO from [this site](#). Under the “current” section, choose the highest version marked as “LTS” (meaning that it is a stable build). For me that was 18.04.1. (See first answer [here](#).)
3. Download a program called [Rufus](#), which will install a bootable version of the OS on the flash drive. Follow the instructions [here](#) to select appropriate settings and load the OS onto the flash drive. (Note: this link assumes you are using an UEFI-enabled device)

Prep the computer to receive the new OS

You need to shrink the size of the partition that contains Windows so that you have room on your hard drive for the Ubuntu partition.

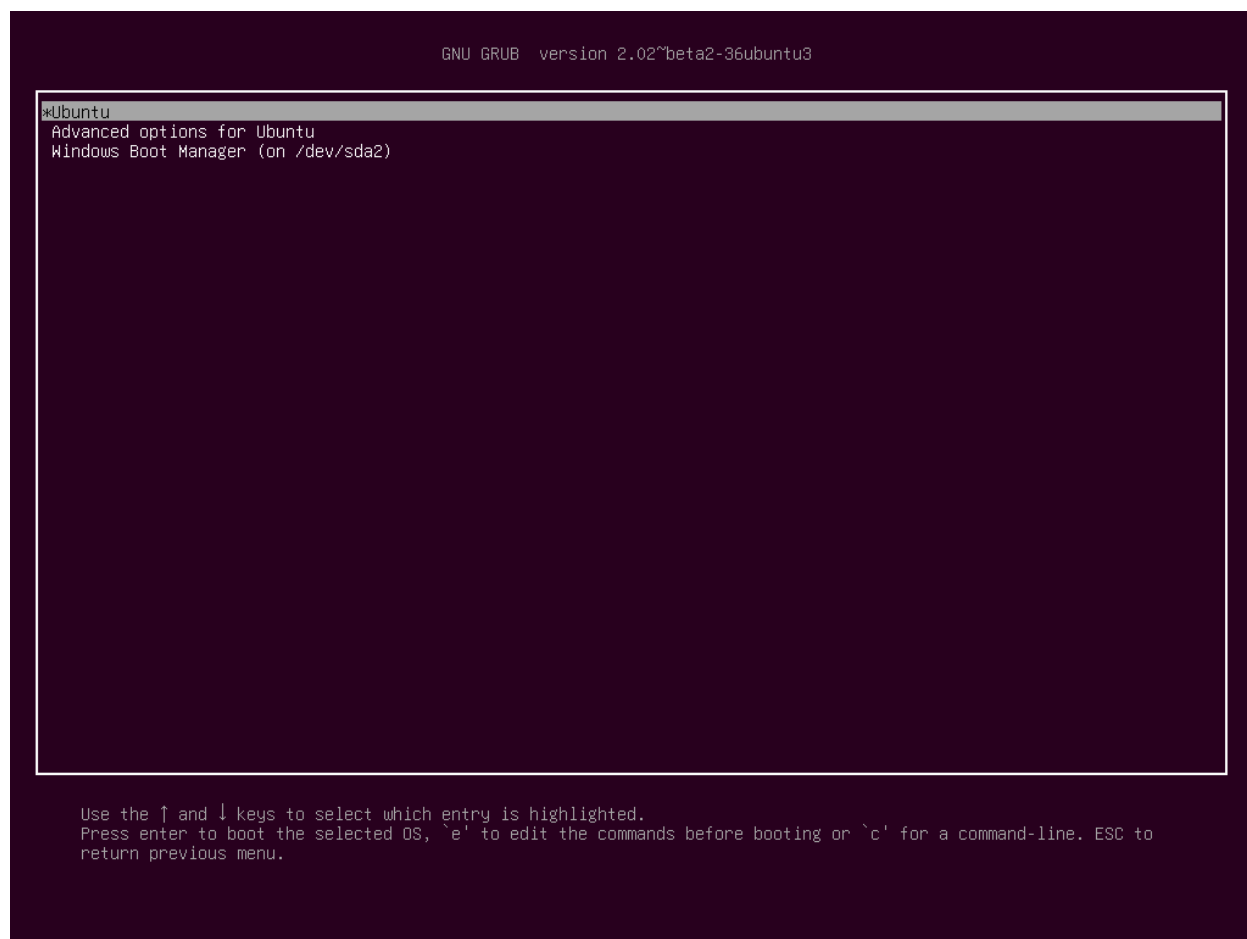
******Some tutorials also want you to create a Ubuntu partition up front, and/or advise that you create an extra linux-swap partition to supplement your RAM. I did not do this but you should be able to add this later if you want.

1. Type `diskmgmt.msc` into the Windows command prompt to bring up the Disk Management utility.

2. Find your Windows partition (c:). Right click and select "Shrink Volume". Windows will give you some kind of estimate for how much space you need for its partition, which will probably be a gross overestimate of how much space you actually need. As long as this clears up at least ~20GB for Ubuntu, this should be fine for now (will probably be easier to change later from the Ubuntu side). Hit "Shrink". You should then see some unallocated space on your hard drive. (See [here](#) and [here](#) for pictures of this process.)
3. Turn off Windows' "Fast Reboot" feature. This is a feature that saves some sort of copy of the state of the OS when you shut down and then restarts from that state. This speeds up the boot process for Windows but bypasses the BIOS so that you don't have a chance to boot into Ubuntu. **Note: I'm not sure how necessary this is because I didn't try booting with quick boot on, but several things said to turn it off. Apparently you can turn it back on after you have installed Ubuntu, but I did not. Instructions from [here](#)
 - a. Open Control Panel (Windows+X->Control Panel from the desktop in Windows 8+)
 - b. Navigate to Power Options
 - c. Click "Choose what the power button does"
 - d. Click "Change settings that are currently unavailable"
 - e. Make sure the box that says "Turn on fast startup (Recommended)" at the bottom is **not** checked.
 - f. Power off then power back on.

Install Ubuntu

1. Insert the USB key w/ Ubuntu installed. Boot your computer from the flash drive using [these instructions](#). You should then see Ubuntu pop up on your computer (exciting!!!)
2. A menu should show up; choose the "install Ubuntu" option.
3. [This link](#) has screenshots of what the installation screen looks like, but DON'T FOLLOW ITS INSTRUCTIONS, instead do this:
 - a. Choose your language
 - b. On "Preparing to install Ubuntu" screen, SELECT the option that says "Install 3rd party software for graphics and WiFi...." This will download important drivers and save you a headache later.
 - c. Next you should see an "installation type" screen. Select the option that says "Install Ubuntu alongside Windows boot manager". DO NOT hit "Erase disk", this will get rid of windows. There's also an option to make your own partitions, but that's more complicated. **If this screen does not contain any options ([looks like this](#))**, see troubleshooting at the end of this section.
 - d. The rest should be pretty self-explanatory
 - e. Restart when the installation is complete.
4. When your computer boots up, you should see a menu like this:



Hit the first (highlighted) option to boot into Ubuntu, select the third option “Windows boot manager” to boot into Windows.

Troubleshooting 3c:

This probably indicates that Ubuntu cannot find your hard drive to install itself onto.

In my case, this was because my SSD was using some fancy RAID-based file format that Ubuntu did not recognize: [Explanation 1](#)

You can fix this by changing the disk format that is being used by following [David's response \(the first response\) here](#). Make sure you are in safe mode when you change the BIOS settings. I would do a little more research before trying this to make sure you actually have the affected kind of hard drive, but this worked for me.

Cleanup

I ran into a problem where I could not connect to wifi. When I opened the Wifi section in settings I got a message like “No Wifi adapter found” or something. This probably indicates that you have no wifi driver installed OR the OS was unable to load the driver because Secure Boot was turned on.

You can find out what kind of Wifi controller you are using by running this command:

```
lspci -nnk | grep -iA3 net
```

```
anelise@anelise-computer:~/Documents$ lspci -nnk | grep -iA3 net
6c:00.0 Network controller [0280]: Realtek Semiconductor Co., Ltd. Device [10ec:b822]
      Subsystem: Lenovo Device [17aa:b023]
      Kernel driver in use: r8822be
      Kernel modules: r8822be
```

I recommend googling the controller. In my case, I was able to find out that the driver for my controller was automatically included in Ubuntu 18. The problem ended up being that Secure Boot prevented any drivers that were not signed by Microsoft from being loaded. I turned off this feature (from the BIOS menu; google how to do this) and it worked fine.

Repartitioning Later

Have not done yet, but you can download a software called gparted for Ubuntu and apparently it's pretty easy to do.

Some useful tutorials:

- <https://askubuntu.com/questions/666631/how-can-i-dual-boot-windows-10-and-ubuntu-on-a-uefi-hp-notebook>
- <https://www.tecmint.com/install-ubuntu-16-04-alongside-with-windows-10-or-8-in-dual-boot/>
- <https://news.softpedia.com/news/how-to-dual-boot-windows-10-and-ubuntu-linux-500635.shtml>
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