Getting NVIDIA drivers working on Ubuntu 17.10

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I recently upgraded my system from Ubuntu 17.04 (a nice, stable distribution) to 17.10 (a fragile nightmare with very little hardware support). This broke… well, a lot of things. However, the main problem was that my NVIDIA graphics drivers were causing the system to fail to boot. I spent a frustratingly-long time trying to fix this problem on my work machine (NVIDIA 1050Ti graphics card), but I think I've finally cracked it. Here's how I did it; hopefully it can help others, too.

Purge `lowlatency` kernel and reboot

Interestingly, several people have found that the upgrade process automatically installs a `lowlatency` kernel (a kernel variant that isn't typically used on desktop systems). List these with the following `apt` command and look for ones that are installed: `apt search '^linux-(headers|image)-.*-.*-lowlatency*'`. Remove these with `sudo apt autoremove {package-name-here}` - or just `sudo apt autoremove --purge '^linux-(headers|image)-.*-.*-lowlatency*'`. Make sure that the latest `generic` kernel image and headers are installed instead.

Remove previous NVIDIA drivers

Running the following command ought to match any NVIDIA-related driver packages and remove them from your system; `sudo apt-get autoremove --purge '^nvidia'`.

Blacklist the `nouveau` driver

Next, we need to disable the open-source `nouveau` driver so that it doesn't get used instead. This *should* be done automatically by the NVIDIA driver install process that we did earlier - so you might want to check this first by looking in all of the files returned by the command `ls /etc/modprobe.d/nvidia-*.conf`. If these files exist (and they contain the lines mentioned below), then you can skip this step.

If the files mentioned above don't exist, create a new file in `/etc/modprobe.d/blacklist-nouveau.conf` and make sure that the following lines are present;

```
blacklist nouveau
blacklist lbm-nouveau
alias nouveau off
alias lbm-nouveau off
```

Update the initial ramdisk to remove `nouveau`

This step may be unnecessary, but it's worth running anyway (because if you *do* need to run it, it'll save you a whole lot of headache doing it up-front - and if you don't, it won't do you any harm). Simply `sudo rmmod nouveau`, then run `sudo update-initramfs -u`, wait a moment, and you're golden.

Reinstall NVIDIA drivers

Don't reboot just yet - now we're going to re-install a version of the NVIDIA driver that I have found to work: `sudo apt install nvidia-381`.

Add a configuration option that seems to fix things

I found a helpful answer on AskUbuntu that suggests setting the `nomodeset` parameter for the NVIDIA kernel driver. To do this, create a new file in `/etc/modprobe.d/nvidia-drm-nomodeset.conf` and make sure the following line is present;

```
options nvidia-drm modeset=1
```

Update the initial ramdisk again

Again, run `sudo update-initramfs -u`, wait a moment (check for errors, too!), and you should be good to go.

Disable Wayland in GDM

After a little more digging, it turns out that Ubuntu 17.10 ships with Wayland as its default display server (instead of the traditional X11) - which doesn't play nice with NVIDIA cards at the moment. You *can* just ask the GNOME Display Manager (GDM) to run an Xorg session instead (see below image), but I prefer disabling it for good (source).

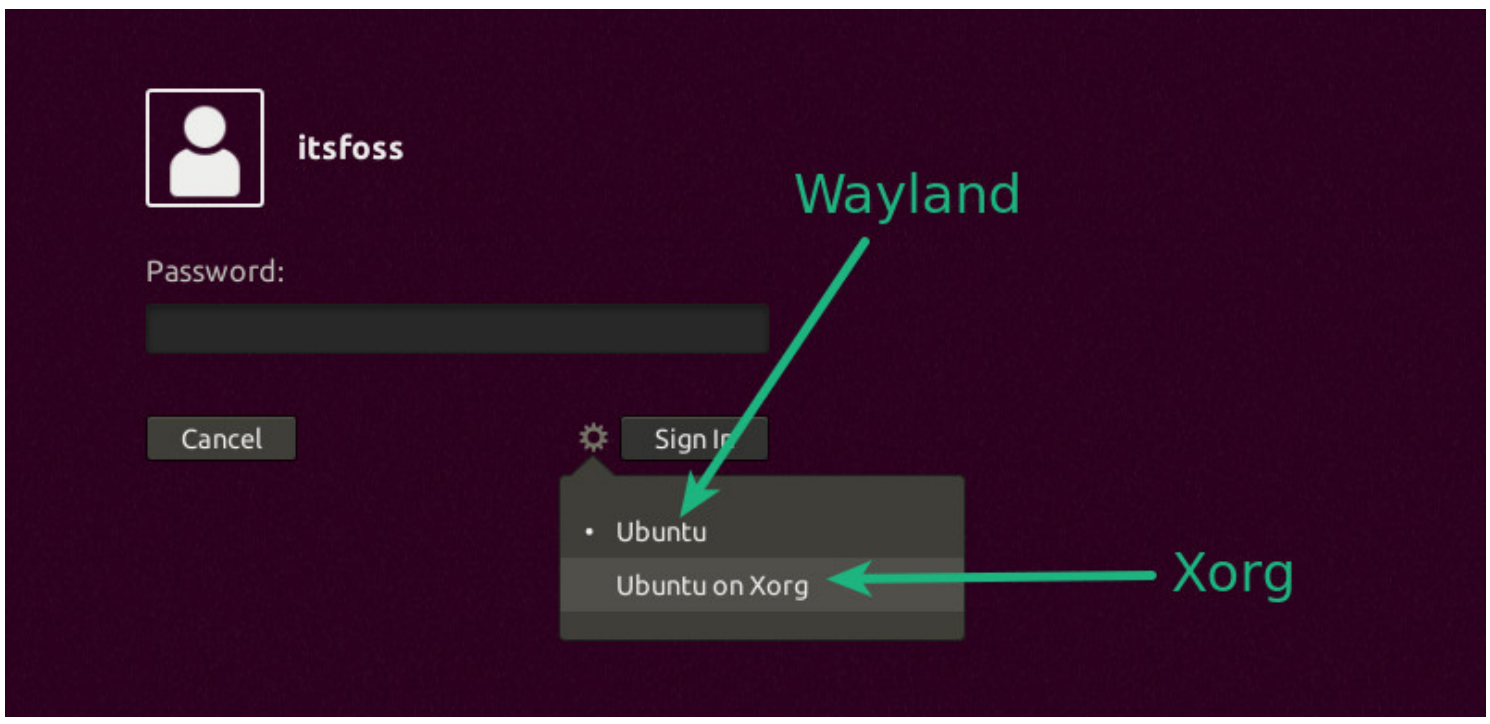

Image source: ItsFOSS

Disabling it for good is straightforward, just open `/etc/gdm3/custom.conf` in your favourite editor, and uncomment the `WaylandEnable=false` line, like so:

```
# GDM configuration storage
#
# See /usr/share/gdm/gdm.schemas for a list of available options.

[daemon] # Uncoment the line below to force the login screen to use Xorg
WaylandEnable=false
```

Reboot and cross your fingers

This set of steps worked for me, but (as usual) these instructions don't come with a warranty. Use them at your own risk and make sure that you know what you're doing *before you run each command*. Good luck.

./backlog

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Notes on machine learning, stats, devops, and open-source software.