

Ubuntu 20.04 Linux Setup Guide

For ThinkStation P360 Tower, Tiny, Ultra



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Section 1 – BIOS Configuration

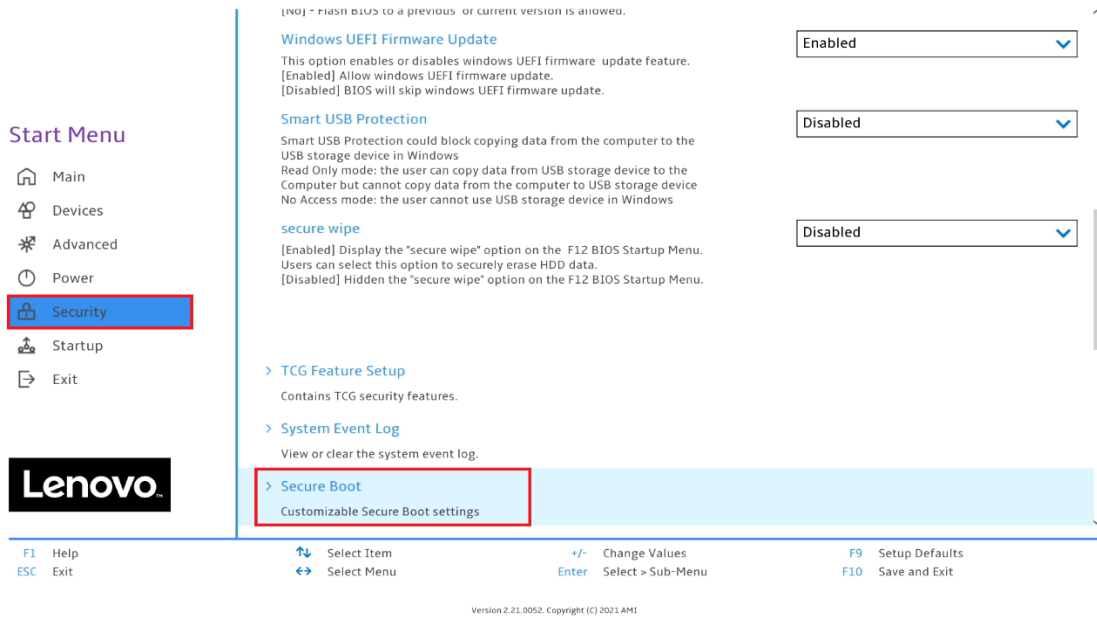
The first step before installing Linux is to make sure the system BIOS is setup correctly.

- Boot into BIOS by pressing the function F1 key at the “Lenovo” splash screen.

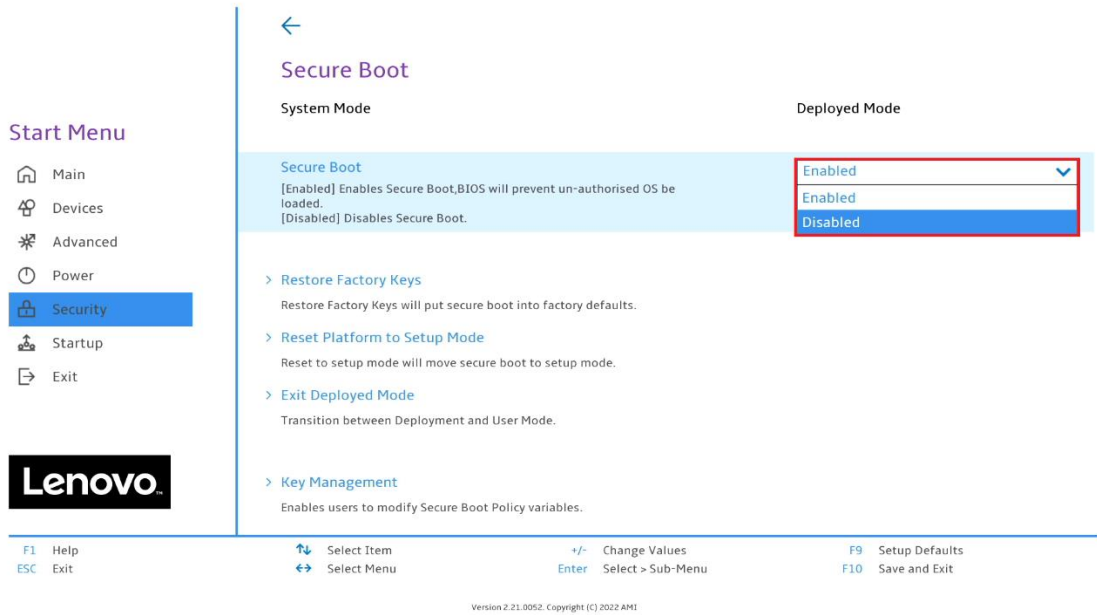
A black rectangular splash screen with the word "Lenovo" in white, sans-serif font centered on the screen.

Lenovo™

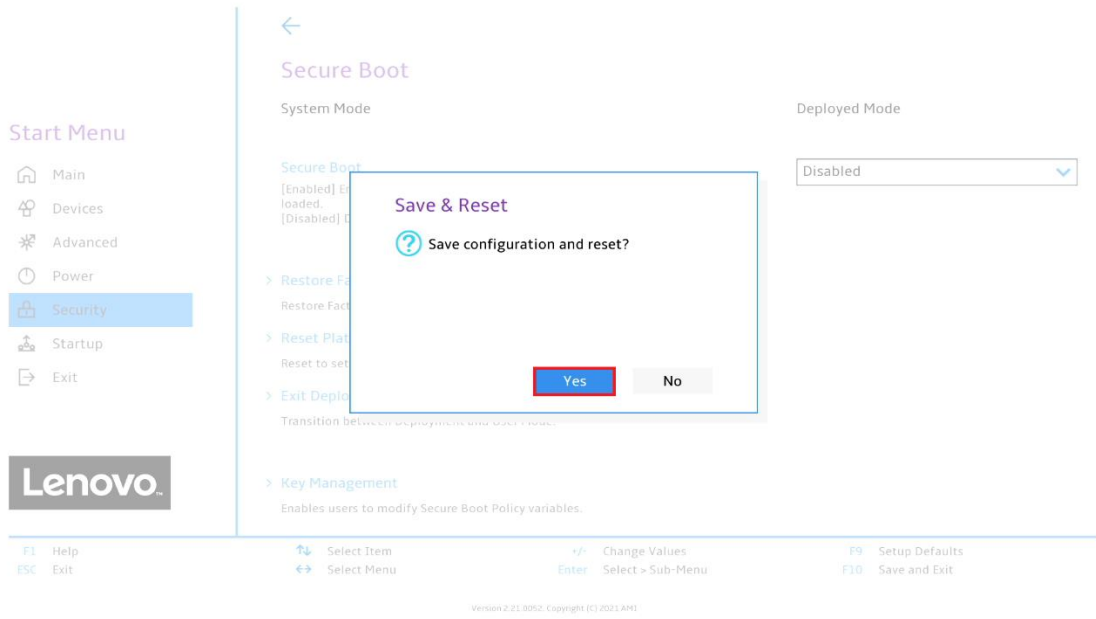
- Tab over to the Security tab and select “Secure Boot”.



- Check whether Secure Boot is disabled. If found enabled, disable it.



- Save changes by pressing an F10 function key.



Section 2 – Installing Ubuntu Linux 20.04 LTS

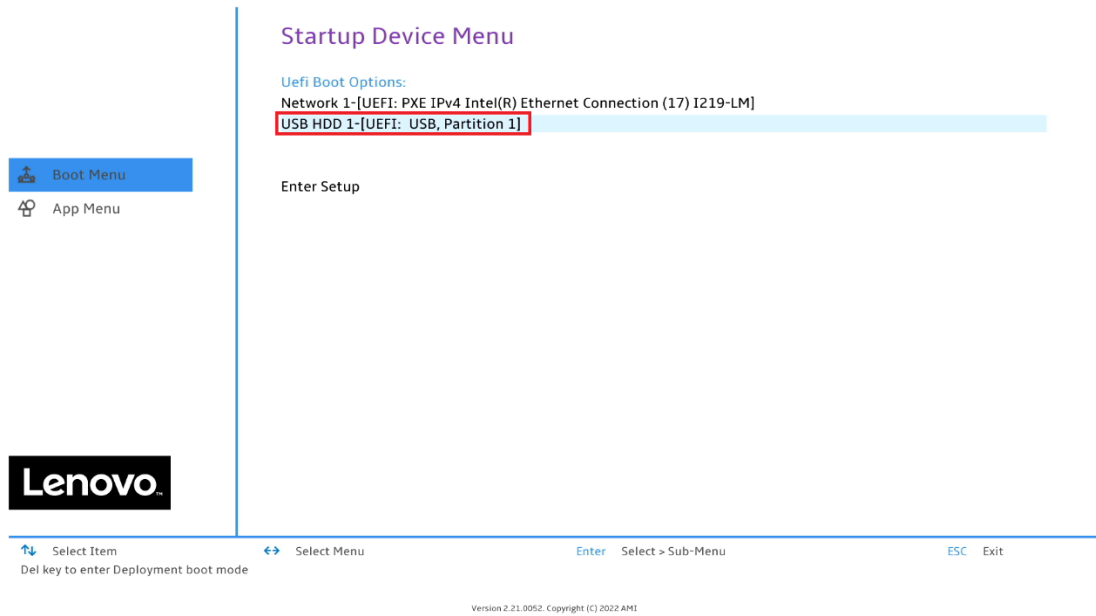
Please refer to the following instructions and screenshots on how to install Ubuntu 20.04 LTS on the Lenovo ThinkStation P360.

- Insert the Ubuntu 20.04 LTS installation media (either through USB or CD/DVD)
- Power on the system and press the F12 function key whenever the following Lenovo splash screen appears.

A black rectangular splash screen with the white "Lenovo" logo centered in the middle. The logo consists of the word "Lenovo" in a bold, sans-serif font, with a small trademark symbol (TM) to its right.

Lenovo™

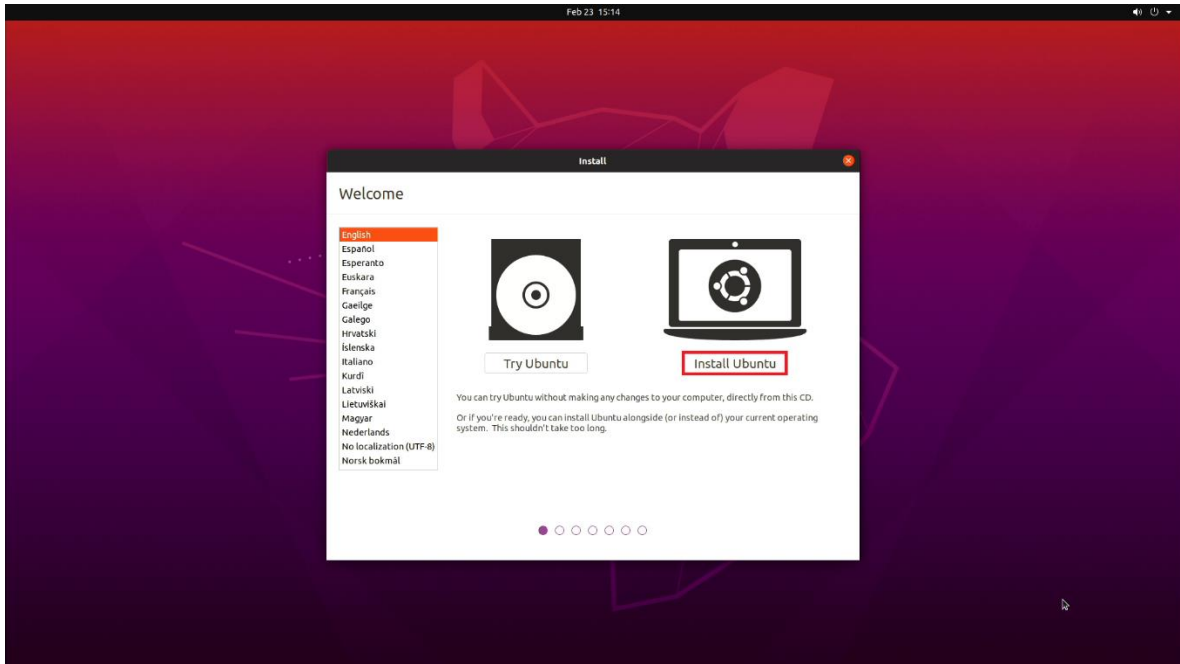
- Select the Linux bootable installation media from the F12 boot menu list.



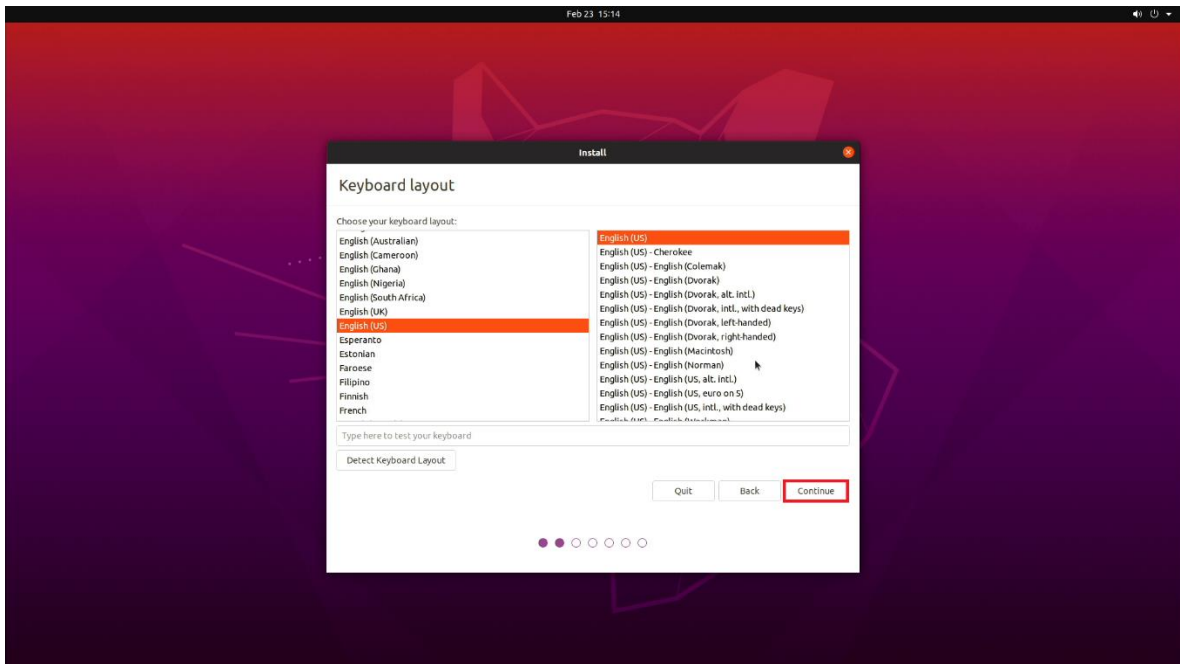
- Select “Ubuntu” from the GRUB boot menu and press enter.



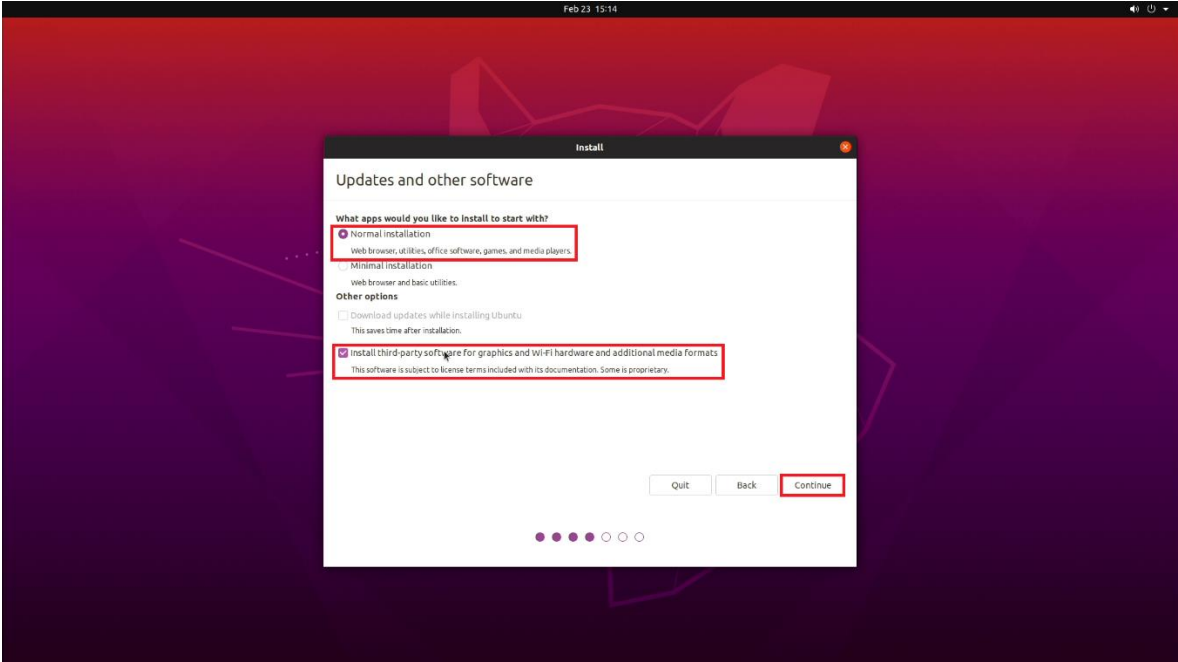
- Select the “Install Ubuntu” option on the welcome screen.



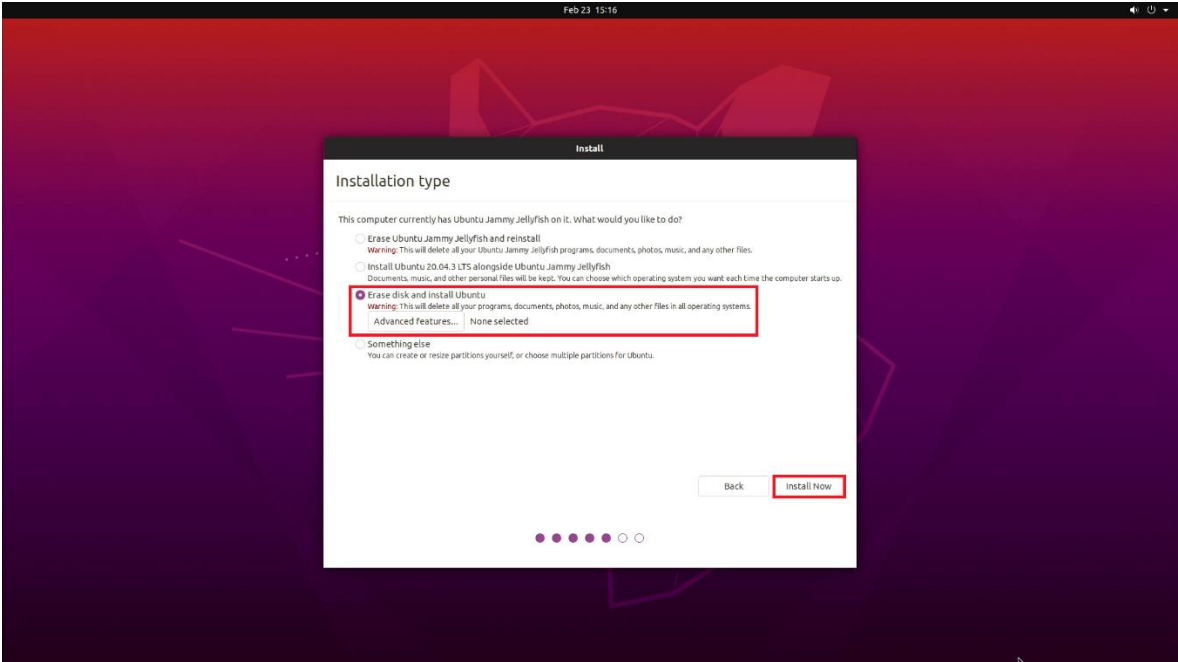
- Select the appropriate keyboard layout and language and press “Continue”.



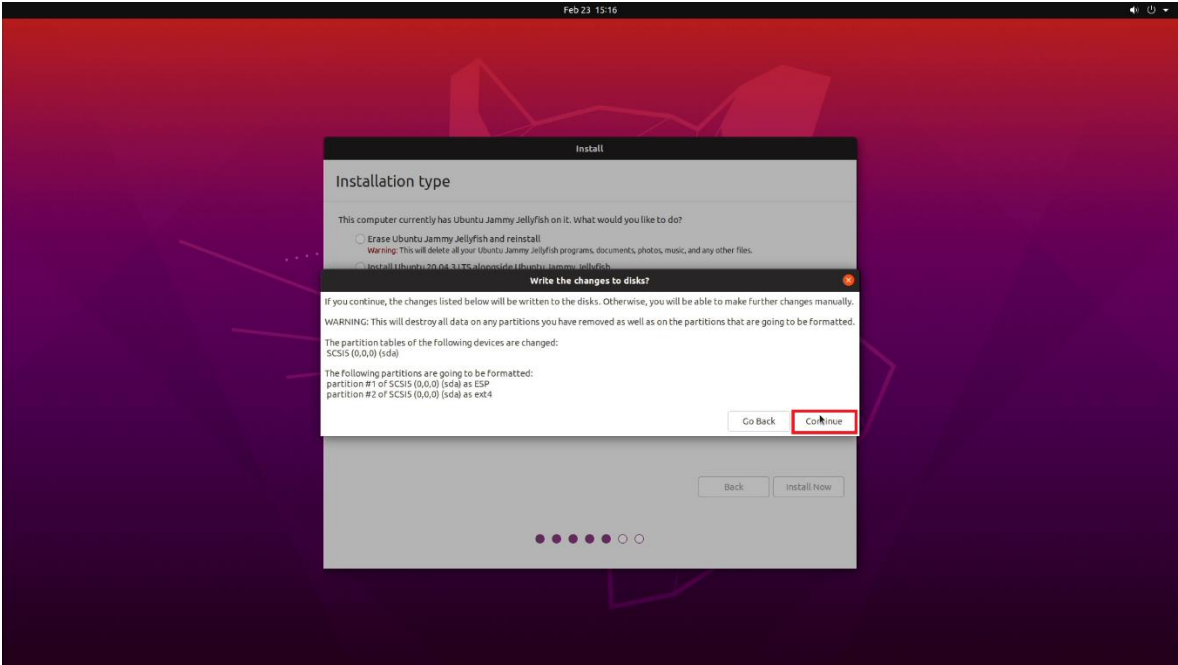
- Select “Normal Installation” and press “Continue”.
Optional: “Install third-party software...”



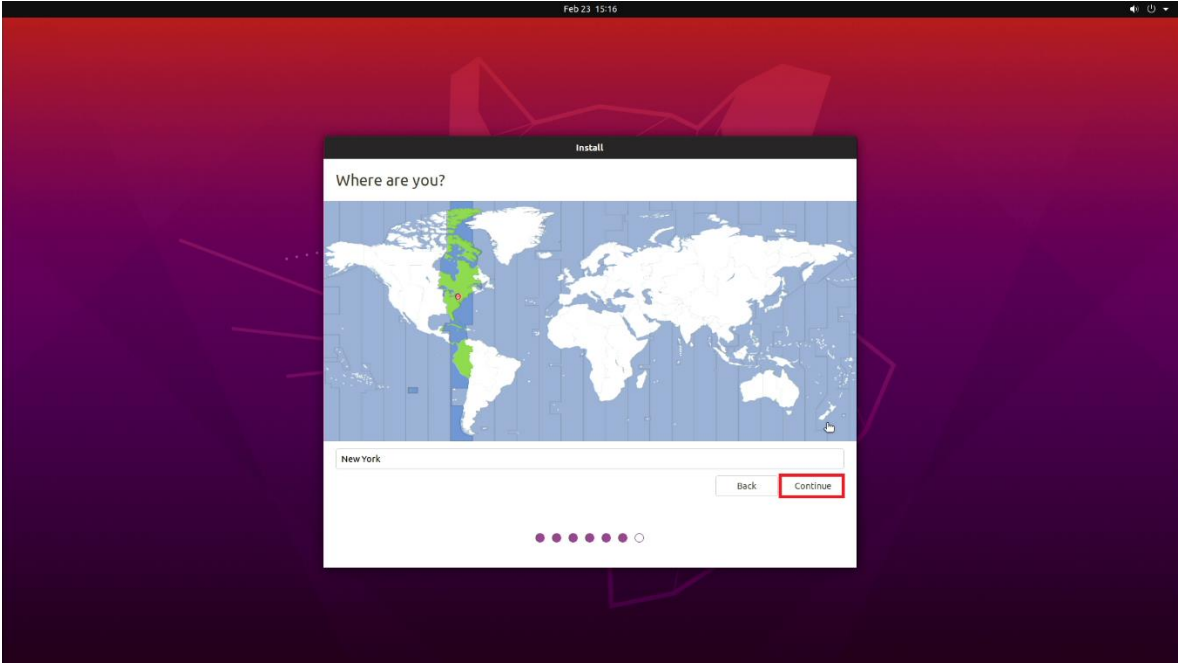
- Choose the installation type. For simplicity, this guide was done using “Erase disk and install Ubuntu”



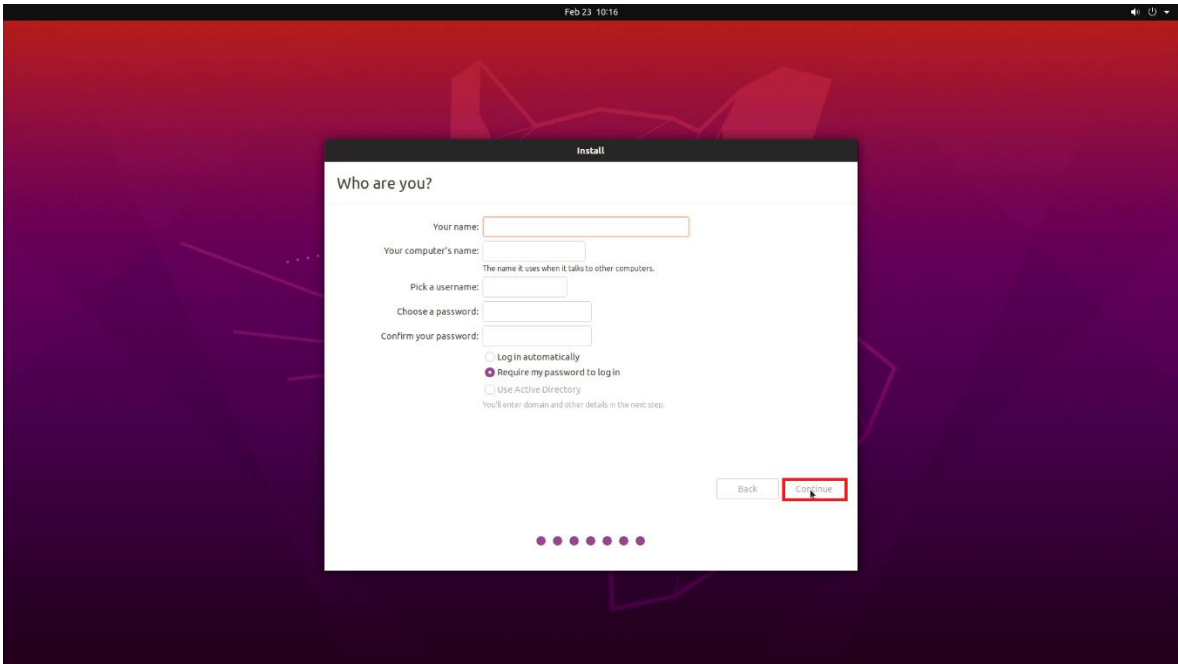
- Select “Continue” to confirm changes will be made to the disk.



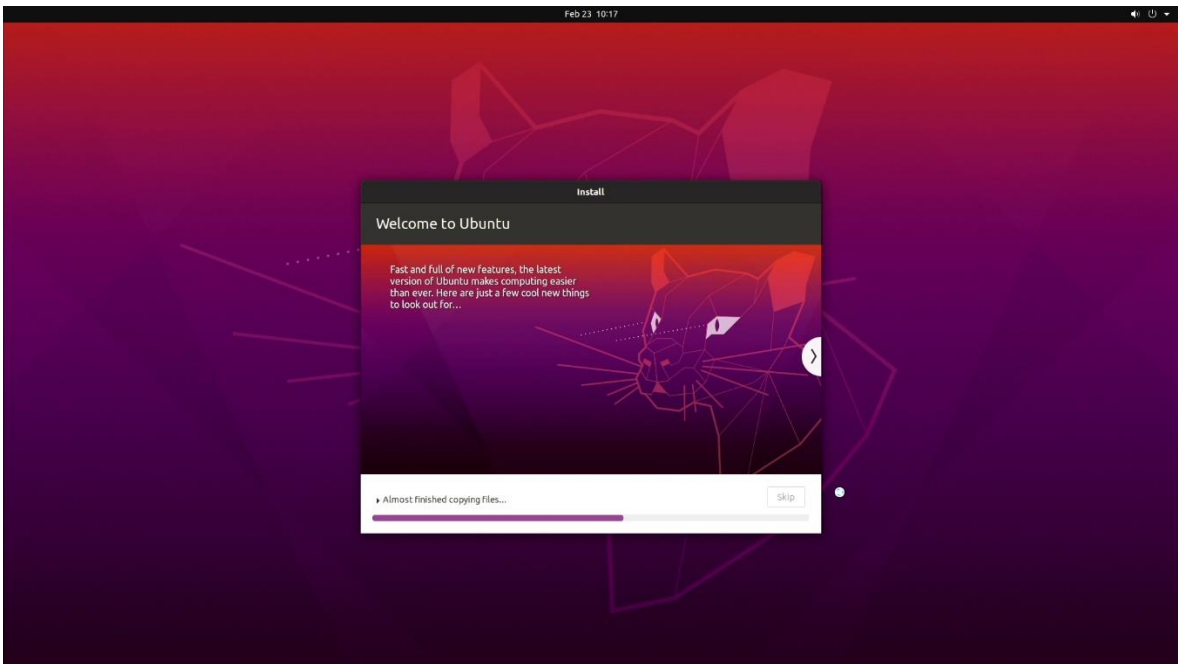
- Choose the appropriate geographical location and select “Continue”.



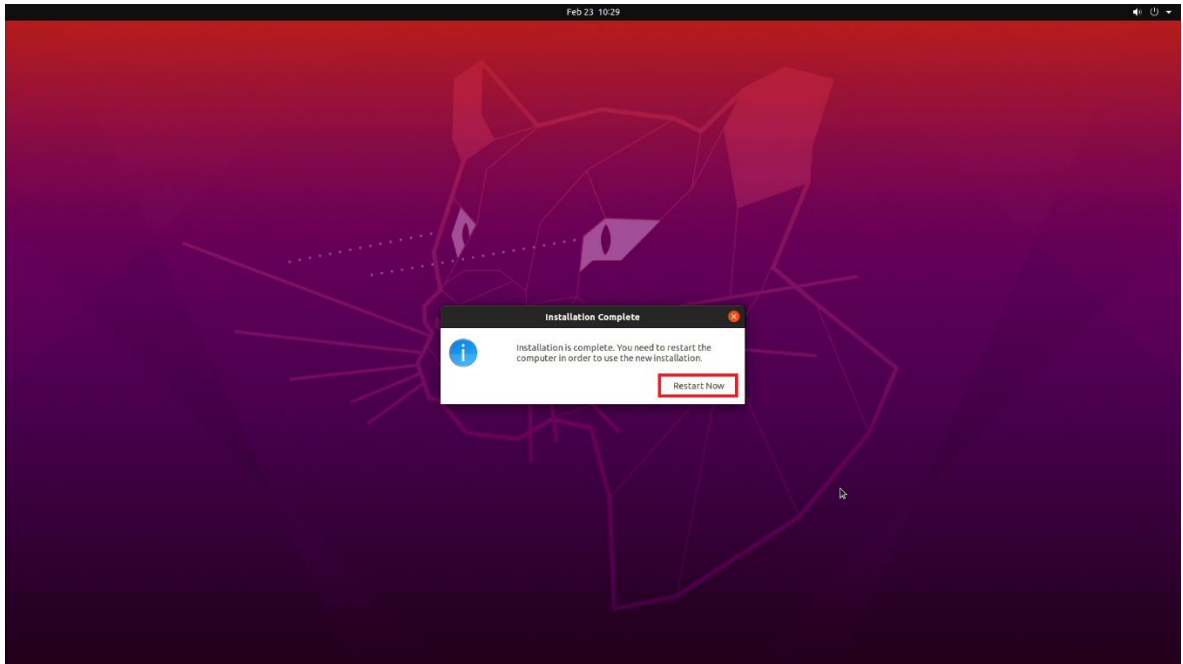
- Fill out the appropriate information and select “Continue”.



- Ubuntu installation progress bar will be shown.



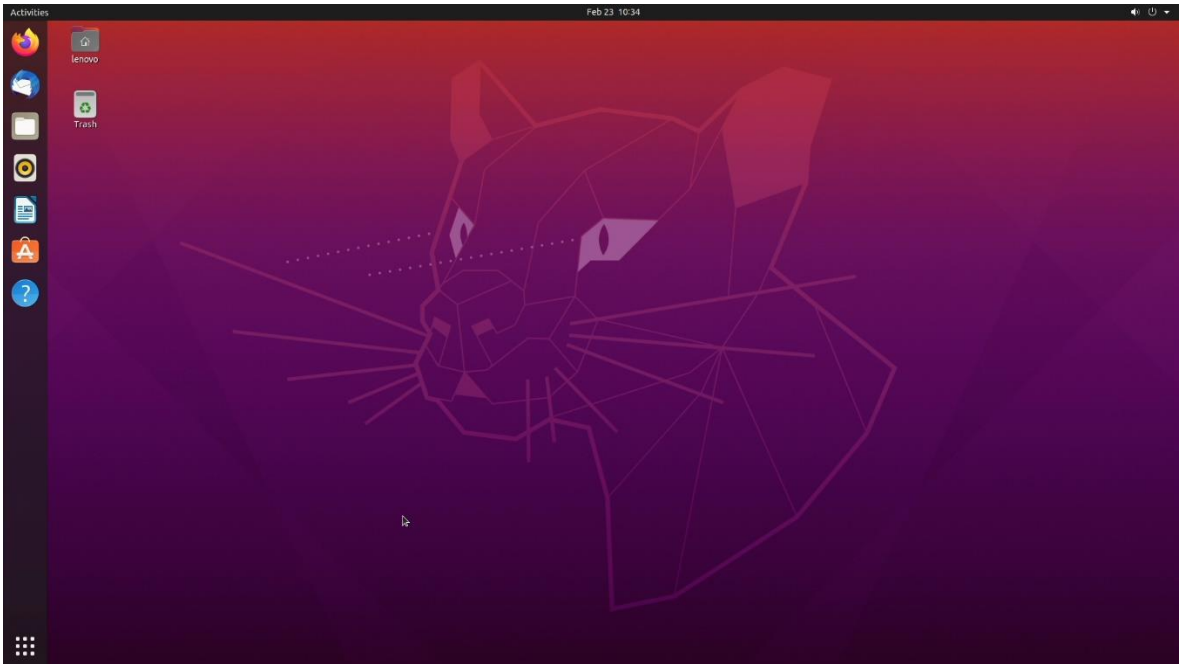
- Once the installation completes, select “Restart now”.



- Remove the installation media and press enter.



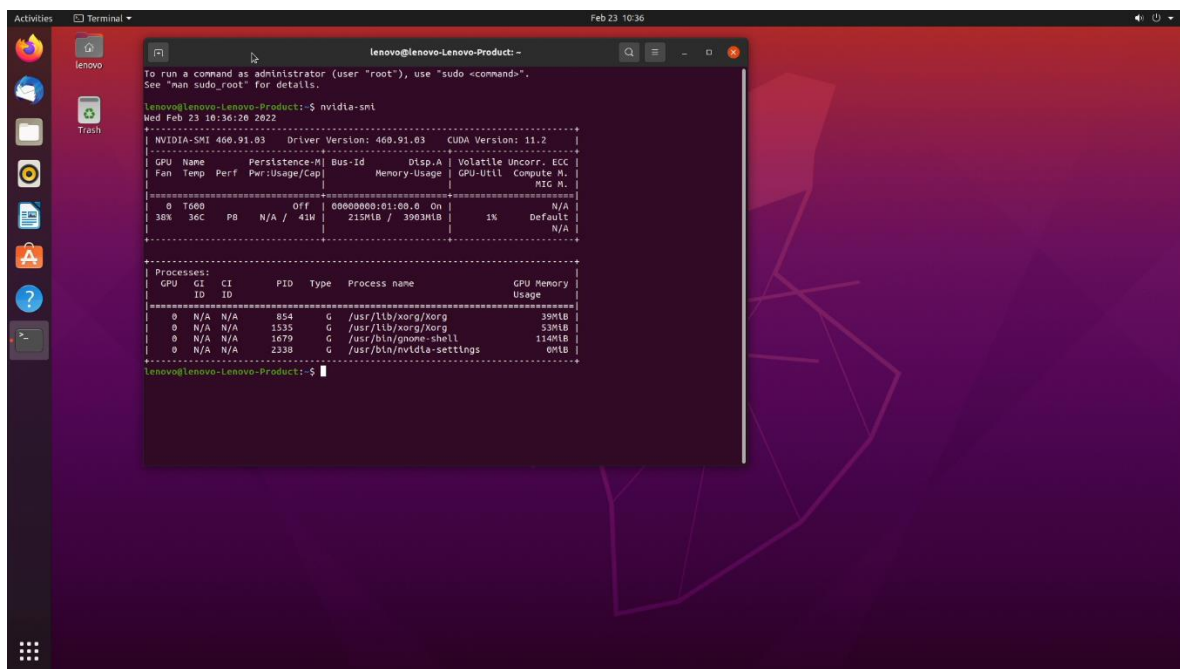
- User will land on the Ubuntu Desktop Screen.



Section 3 – Installing the Nvidia Graphics Driver

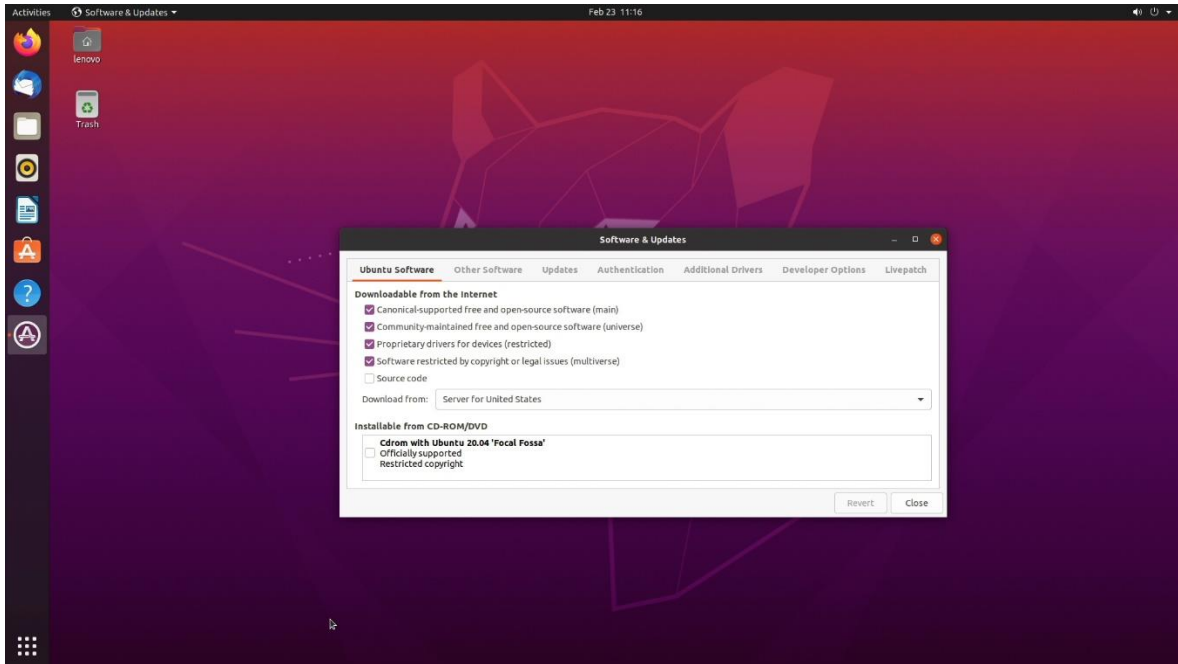
To get optimal performance out of the Nvidia GPU, it is a good idea to install the Nvidia graphics driver.

- To make sure the Nvidia GPU is working, open the terminal and write the command `nvidia -smi`.

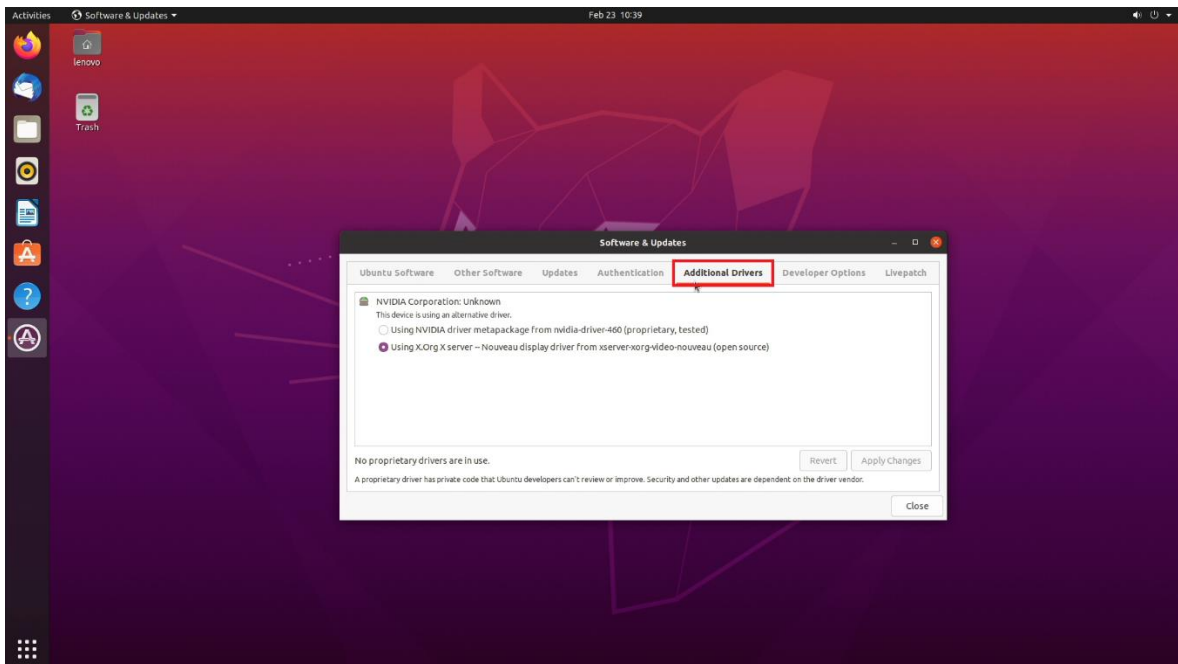


In case Nvidia GPU is not native, follow the steps below to install the GPU driver:

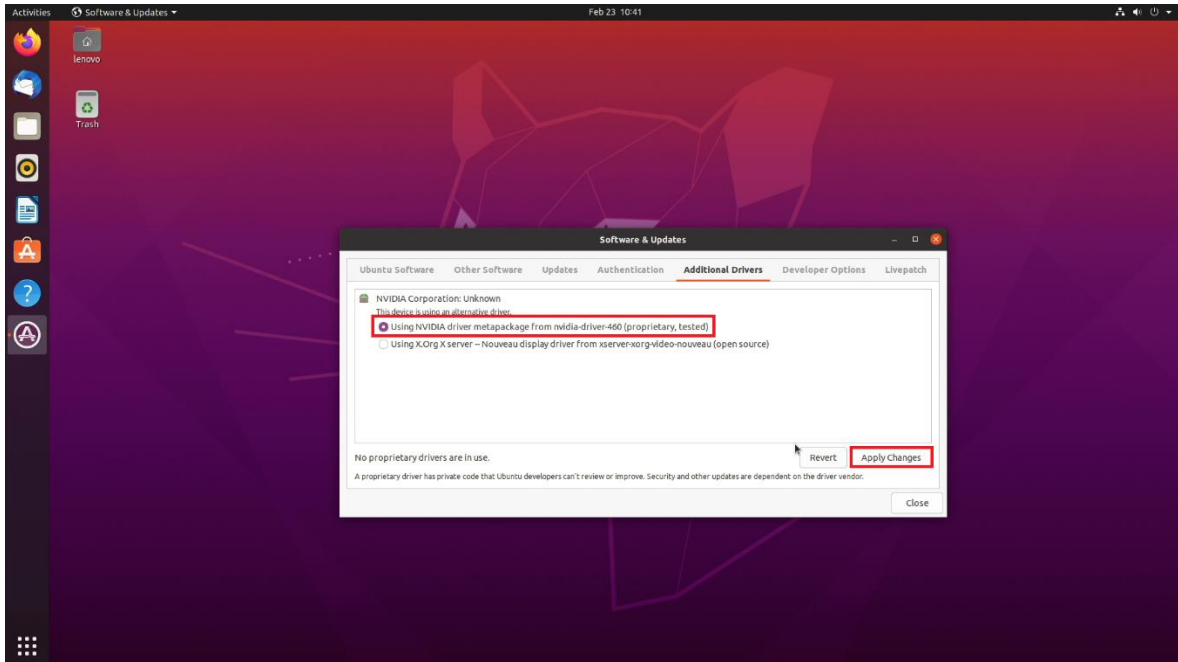
- Open Software & Updates.



- Click on Additional Drivers



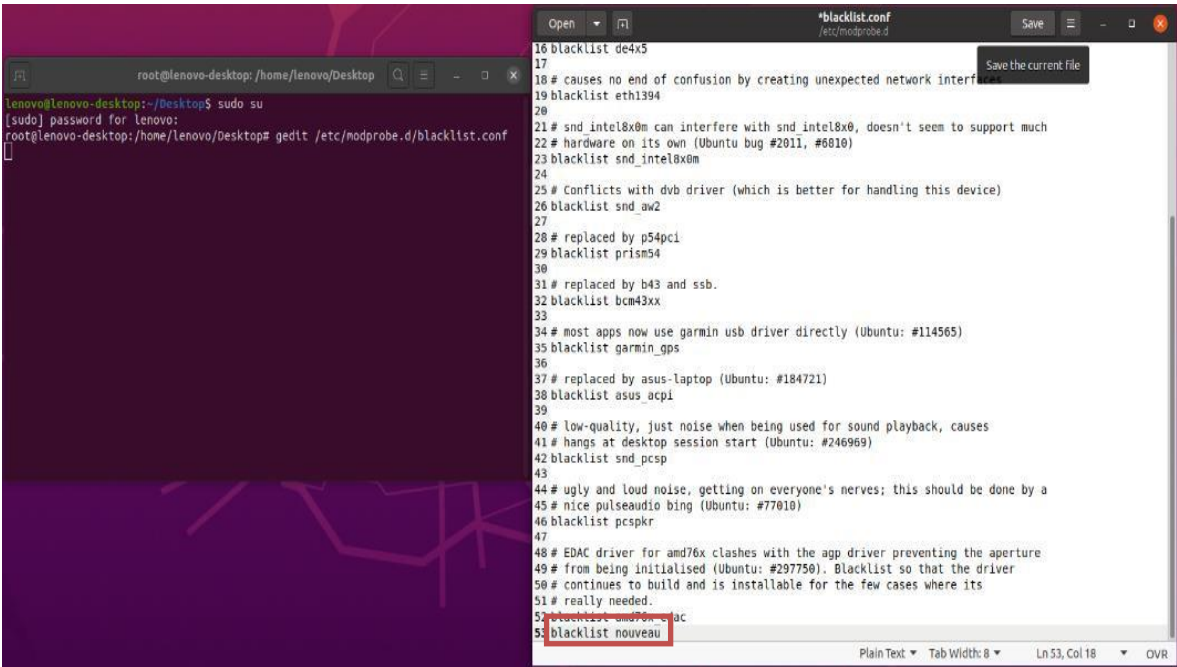
- Select the driver you would like to install and click Apply Changes



- If the system will prompt to restart, click Restart.

In case if need to install a proprietary Nvidia driver outside of the upstream kernel releases please follow the next steps:

- Download the latest Nvidia graphics driver for the appropriate Nvidia GPU from www.nvidia.com/download
- To get the Nvidia driver running, we will need to blacklist the nouveau driver. Follow the steps below:
 - Log in as root: `sudo su`
 - Open blacklist.conf file: `gedit /etc/modprobe.d/blacklist.conf`
 - Blacklist nouveau driver by writing: `blacklist nouveau`



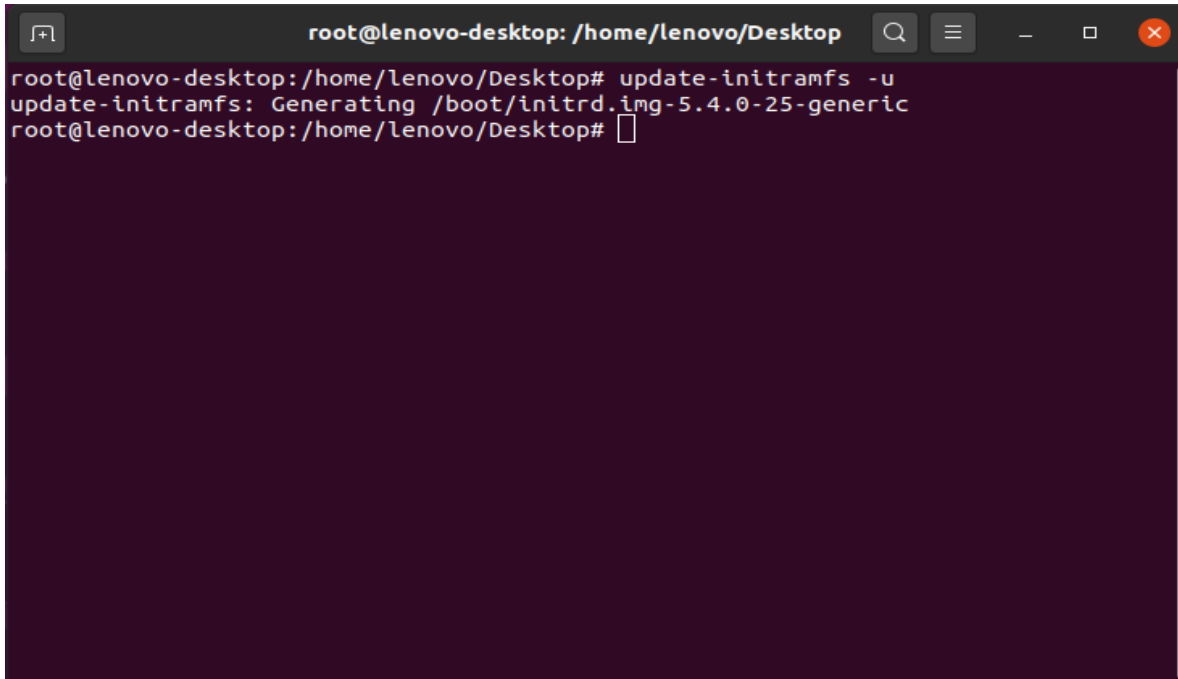
The screenshot shows a terminal window on the left and a gedit editor window on the right. The terminal shows the user logging in as root and opening the blacklist.conf file. The gedit editor shows the contents of the file, with the line `blacklist nouveau` highlighted in red at the bottom.

```

root@lenovo-desktop: /home/lenovo/Desktop
lenovo@lenovo-desktop:~/Desktop$ sudo su
[sudo] password for lenovo:
root@lenovo-desktop: /home/lenovo/Desktop# gedit /etc/modprobe.d/blacklist.conf

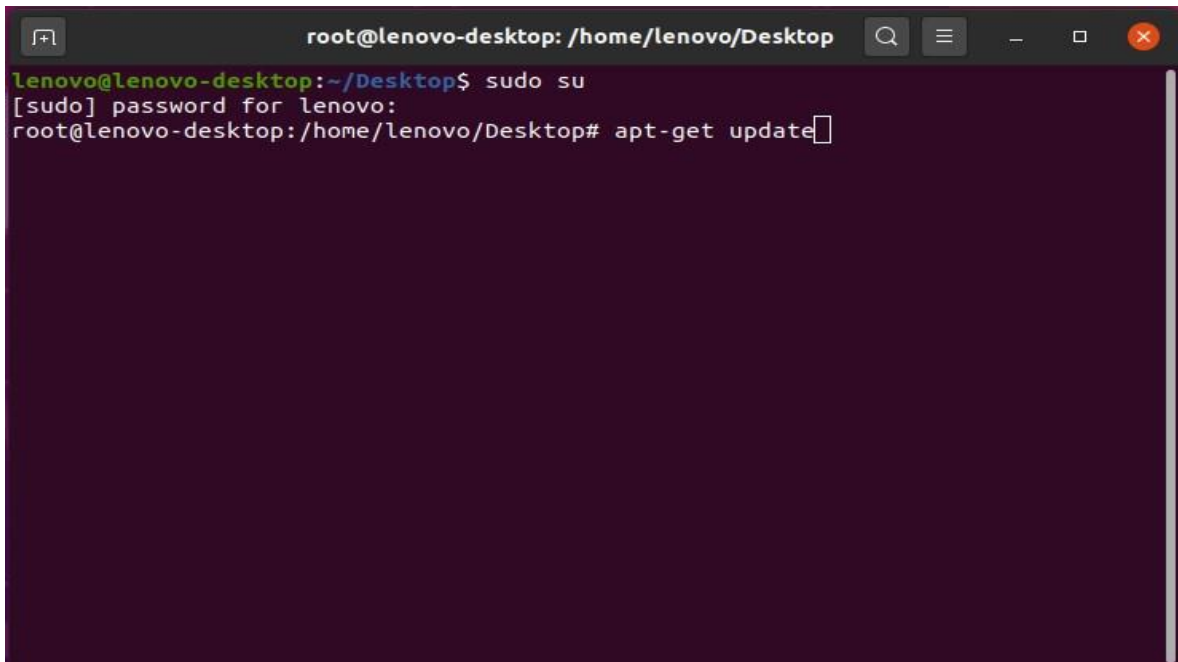
16 blacklist de4x5
17
18 # causes no end of confusion by creating unexpected network inter
19 blacklist eth1394
20
21 # snd_intel8x0m can interfere with snd_intel8x0, doesn't seem to support much
22 # hardware on its own (Ubuntu bug #2011, #6810)
23 blacklist snd_intel8x0m
24
25 # Conflicts with dvb driver (which is better for handling this device)
26 blacklist snd_au2
27
28 # replaced by p54pci
29 blacklist prism54
30
31 # replaced by b43 and ssb.
32 blacklist bcm43xx
33
34 # most apps now use garmin usb driver directly (Ubuntu: #114565)
35 blacklist garmin_gps
36
37 # replaced by asus-laptop (Ubuntu: #184721)
38 blacklist asus_acpi
39
40 # low-quality, just noise when being used for sound playback, causes
41 # hangs at desktop session start (Ubuntu: #246969)
42 blacklist snd_pcsp
43
44 # ugly and loud noise, getting on everyone's nerves; this should be done by a
45 # nice pulseaudio bing (Ubuntu: #77010)
46 blacklist pcspkr
47
48 # EDAC driver for amd76x clashes with the app driver preventing the aperture
49 # from being initialised (Ubuntu: #297750). Blacklist so that the driver
50 # continues to build and is installable for the few cases where its
51 # really needed.
52 blacklist amd76x_edac
53 blacklist nouveau
  
```

- Run the command: `update-initramfs -u`



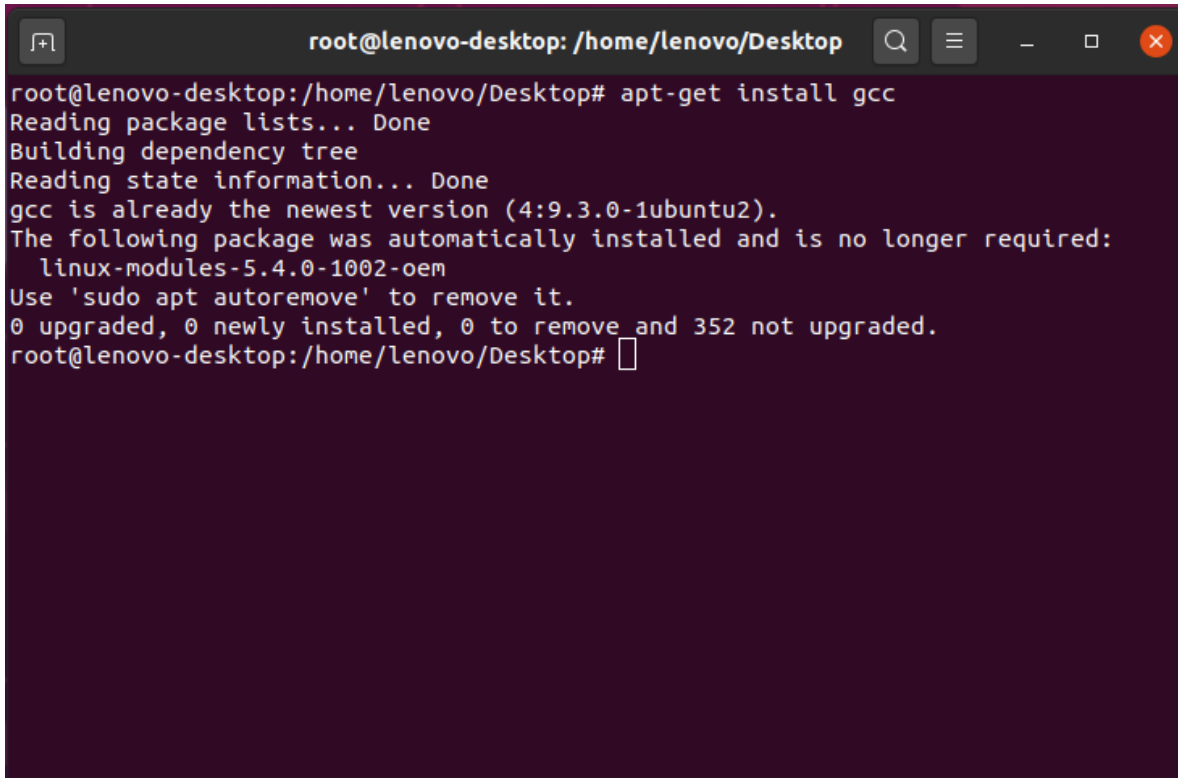
```
root@lenovo-desktop: /home/lenovo/Desktop
root@lenovo-desktop:/home/lenovo/Desktop# update-initramfs -u
update-initramfs: Generating /boot/initrd.img-5.4.0-25-generic
root@lenovo-desktop:/home/lenovo/Desktop#
```

- Reboot the system: `reboot`
 - Once your system reboots, open a terminal window and:
 - Log in as root: `sudo su`
 - Run the command: `apt-get update`



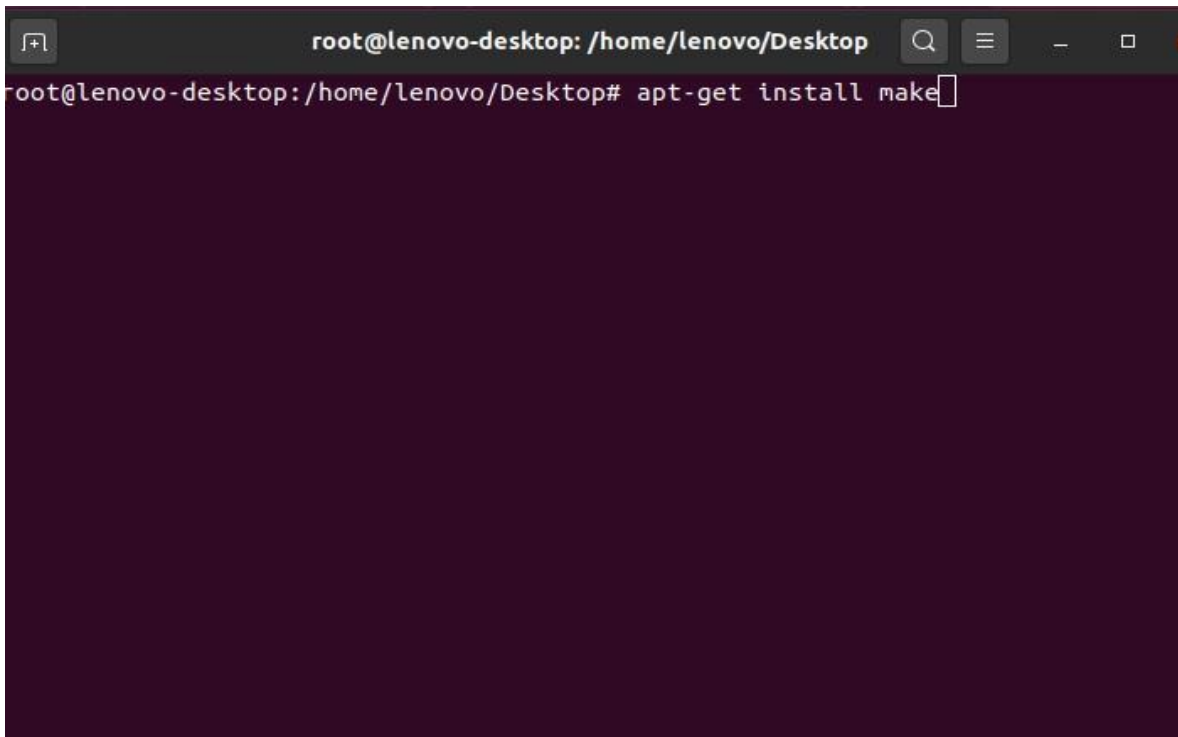
```
lenovo@lenovo-desktop:~/Desktop$ sudo su
[sudo] password for lenovo:
root@lenovo-desktop:/home/lenovo/Desktop# apt-get update
```

- Install gcc: apt-get install gcc



```
root@lenovo-desktop: /home/lenovo/Desktop
root@lenovo-desktop:/home/lenovo/Desktop# apt-get install gcc
Reading package lists... Done
Building dependency tree
Reading state information... Done
gcc is already the newest version (4:9.3.0-1ubuntu2).
The following package was automatically installed and is no longer required:
  linux-modules-5.4.0-1002-oem
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 352 not upgraded.
root@lenovo-desktop:/home/lenovo/Desktop#
```

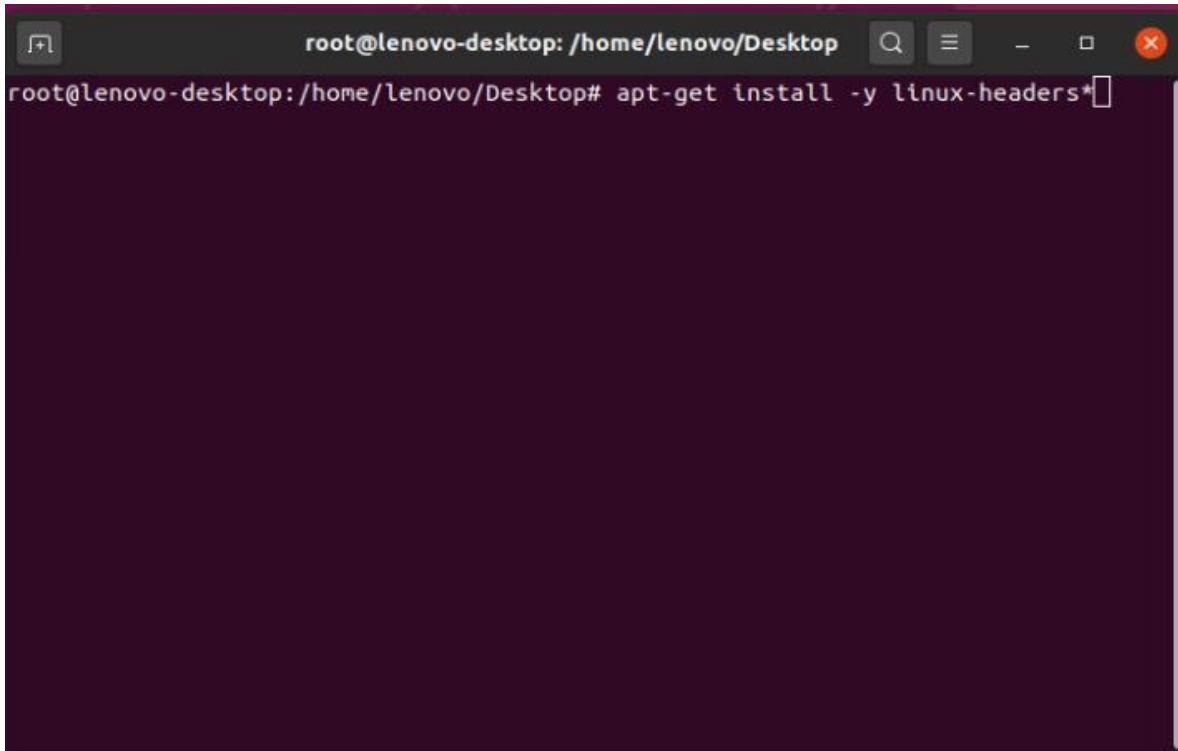
- Install make: apt-get install make



```
root@lenovo-desktop: /home/lenovo/Desktop
root@lenovo-desktop:/home/lenovo/Desktop# apt-get install make
```

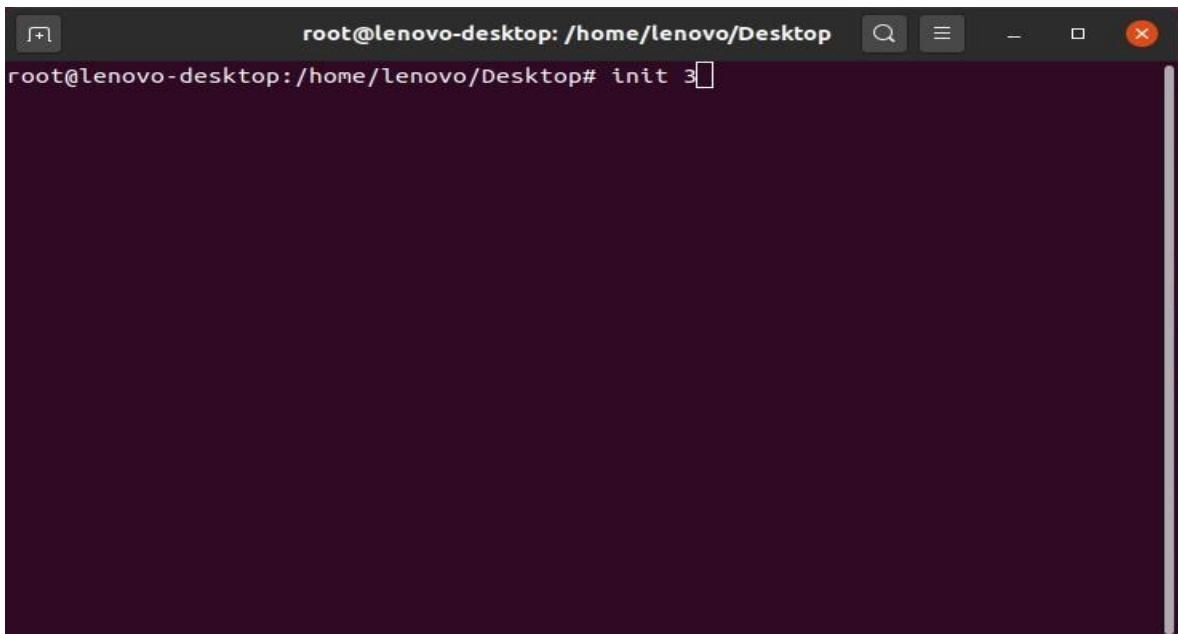


- Install linux-headers: `apt-get install -y linux-headers*`



```
root@lenovo-desktop: /home/lenovo/Desktop
root@lenovo-desktop:/home/lenovo/Desktop# apt-get install -y linux-headers*
```

- Stop x-windows by using the command: `init 3`



```
root@lenovo-desktop: /home/lenovo/Desktop
root@lenovo-desktop:/home/lenovo/Desktop# init 3
```

- Log in as root and redirect to the directory where the Nvidia driver is located.

```

Ubuntu Focal Fossa (development branch) lenovo-desktop tty2

lenovo-desktop login: lenovo
Password:
Welcome to Ubuntu Focal Fossa (development branch) (GNU/Linux 5.4.0-25-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

466 updates can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

lenovo@lenovo-desktop:~$ sudo su
[sudo] password for lenovo:
root@lenovo-desktop:/home/lenovo#

```

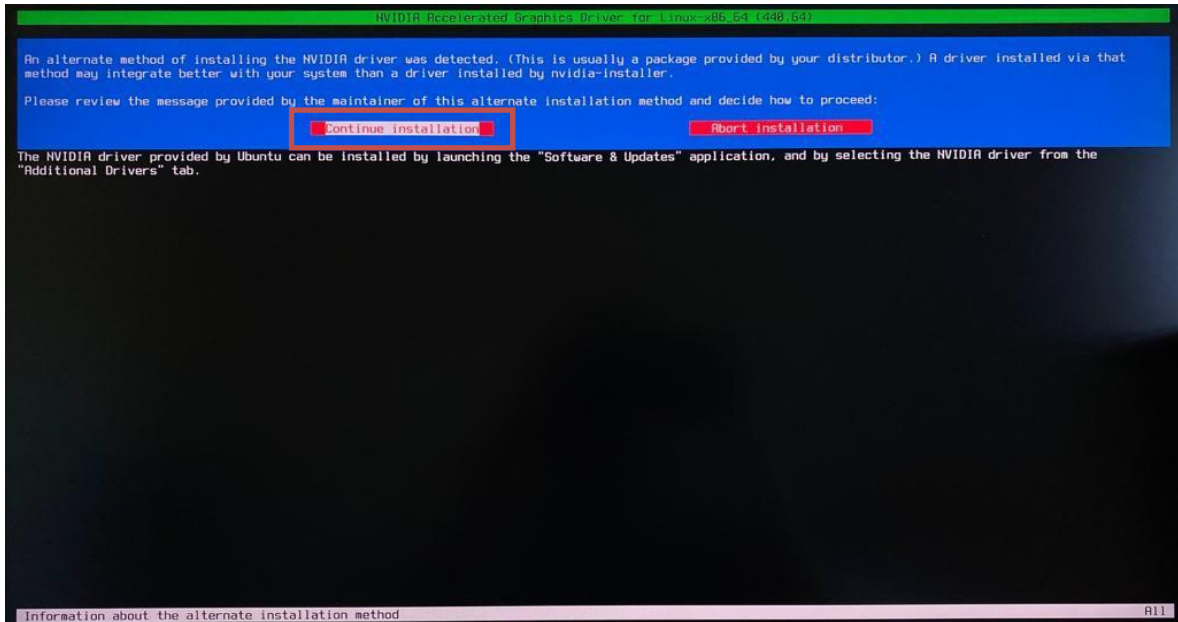
- Make the Nvidia installer an executable by the command- `chmod +x NVIDIA-Linux-x86_64-*` And run the Nvidia driver by- `./NVIDIA-Linux-x86_64-430.50.run`

```

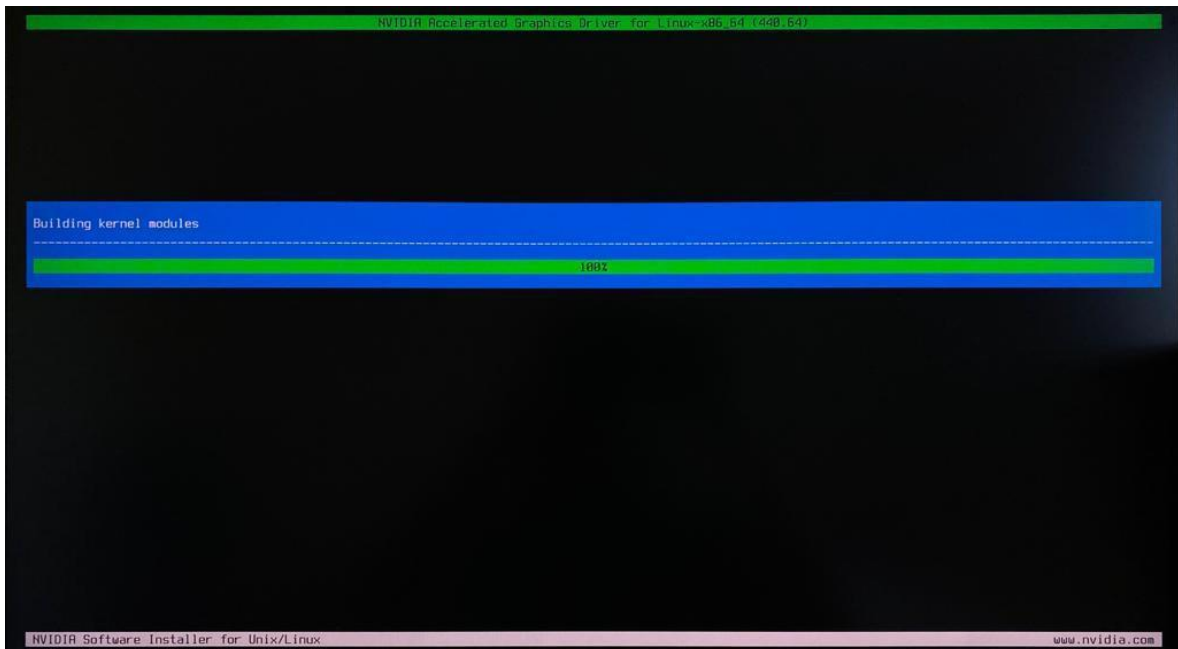
root@lenovo-desktop:/home/lenovo/Downloads# ls
NVIDIA-Linux-x86_64-440.64.run
root@lenovo-desktop:/home/lenovo/Downloads# chmod +x NVIDIA-Linux-x86_64-440.64.run
root@lenovo-desktop:/home/lenovo/Downloads# ls
NVIDIA-Linux-x86_64-440.64.run
root@lenovo-desktop:/home/lenovo/Downloads# ./NVIDIA-Linux-x86_64-440.64.run _

```

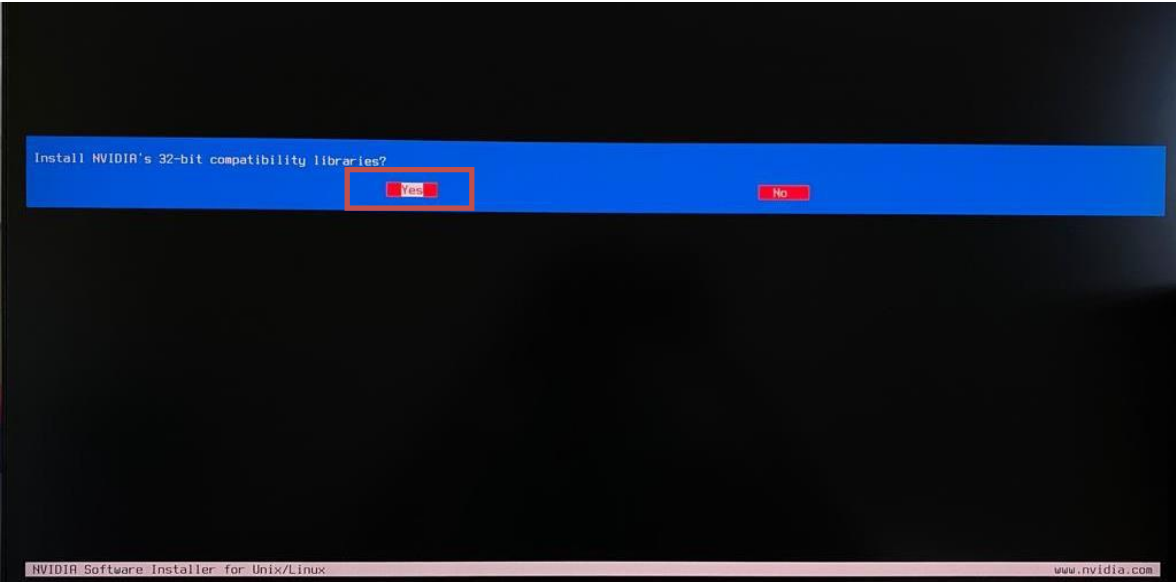
- Select Continue installation.



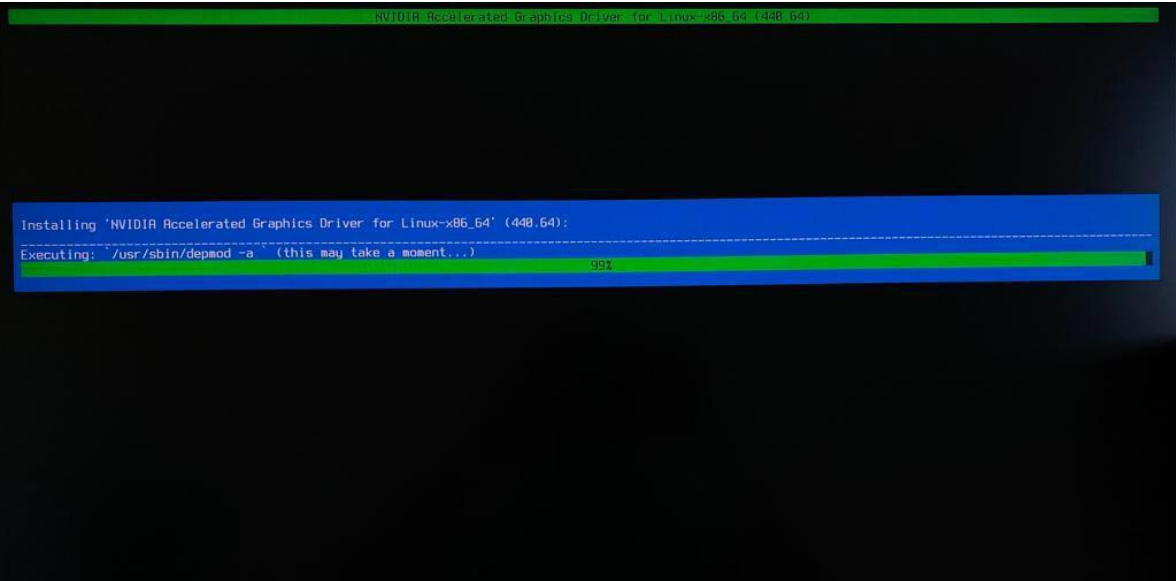
- Wait until the kernel modules are completely built.



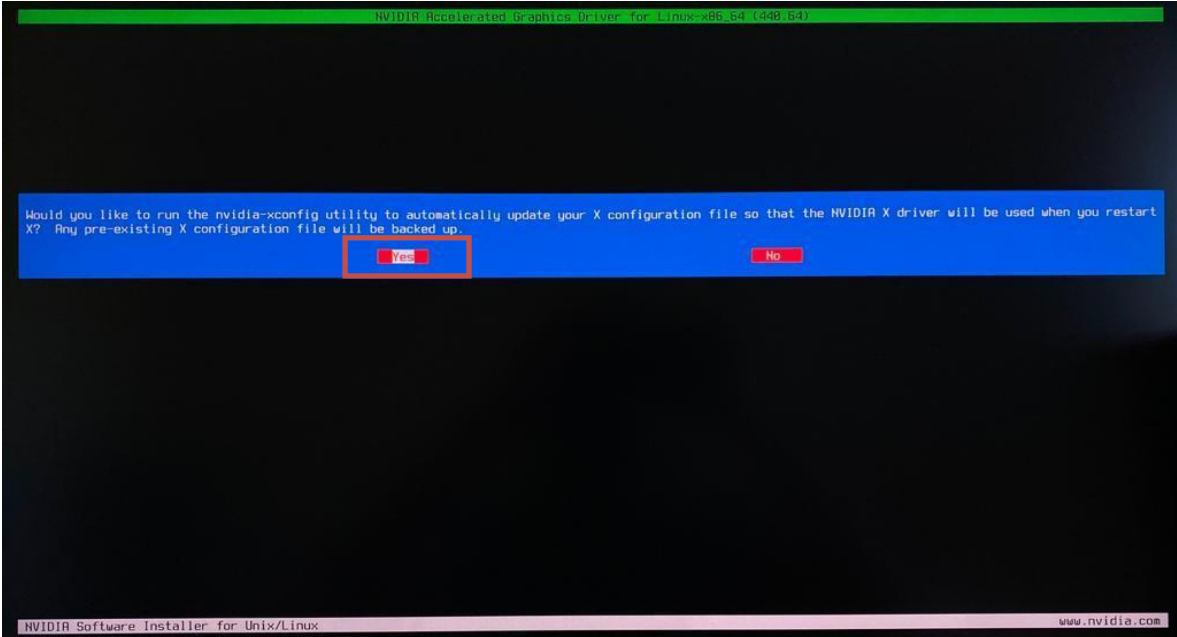
- Select Yes for installing 32-bit compatibility libraries.



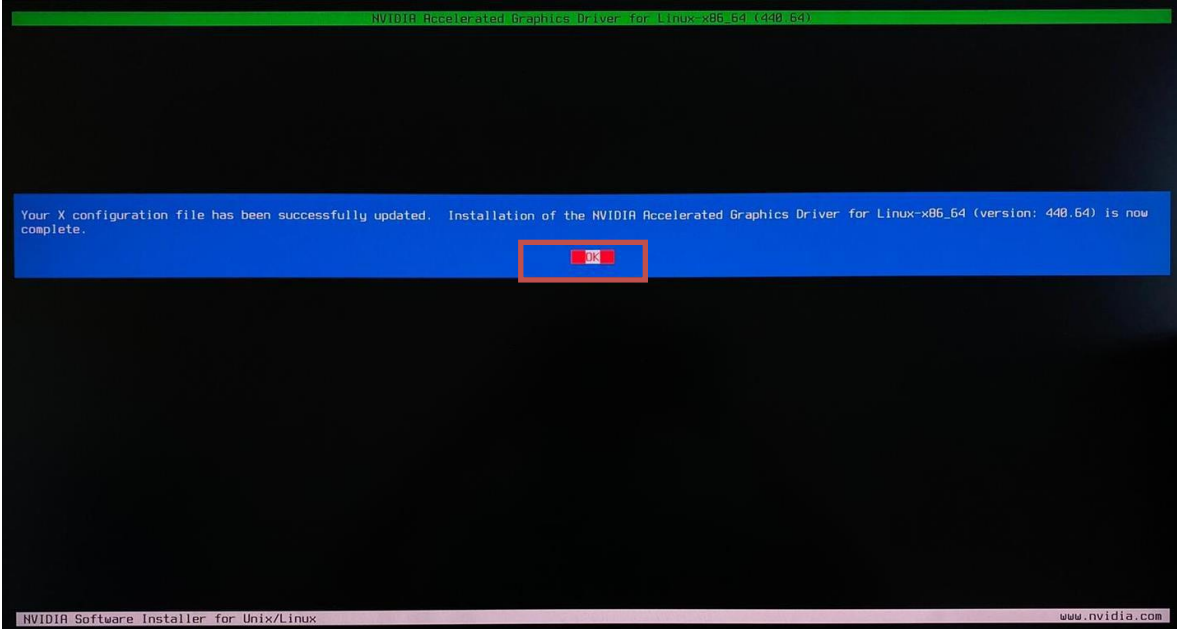
- Wait until the installation is complete.



- Select Yes to run nvidia-xconfig utility to automatically update your X configuration file.



- Select OK once the X configuration file gets updated successfully.



- Execute the following command to verify the Nvidia driver is loaded: nvidia-smi

```

root@lenovo-ThinkPad-P1-Gen2:/home/lenovo/Desktop# nvidia-smi
Wed Nov  6 16:39:08 2019
+-----+
| NVIDIA-SMI 440.31          Driver Version: 440.31          CUDA Version: 10.2   |
+-----+
| GPU  Name                   Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf   Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |
+-----+-----+
|   0   Quadro T1000             Off          | 00000000:01:00:0  Off |             N/A     |
| N/A   49C    P0              7W /  N/A |  0MiB /  3908MiB |           0%      Default |
+-----+-----+

+-----+
| Processes:                                                       GPU Memory |
|  GPU       PID    Type   Process name                               Usage      |
+-----+-----+
| No running processes found                                     |
+-----+
root@lenovo-ThinkPad-P1-Gen2:/home/lenovo/Desktop#

```

- Reboot the system.



Revision History

Version	Date	Author	Changes/Updates
1.1	7/12/2022	Aleksandr Panteleev	Added support for P360 Ultra
1.0	5/17/2022	Aleksandr Panteleev	Initial launch release