

Ubuntu 22.04 Linux Setup Guide

For ThinkStation P360 Tower, Tiny, Ultra



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Section 1 – BIOS Configuration

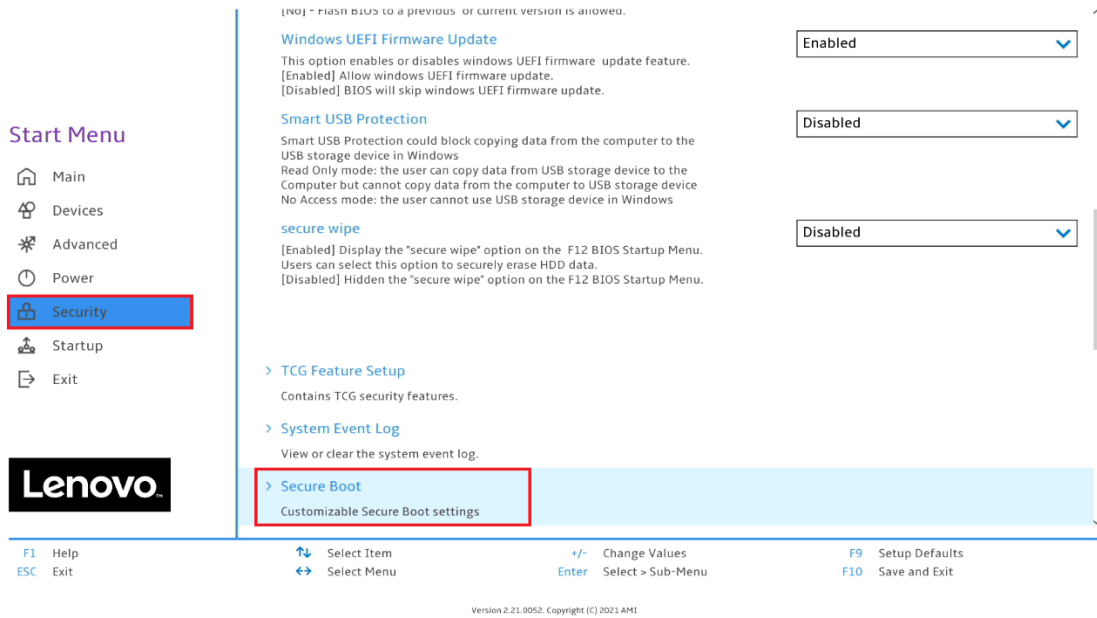
The first step before installing Linux is to make sure the system BIOS is setup correctly.

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

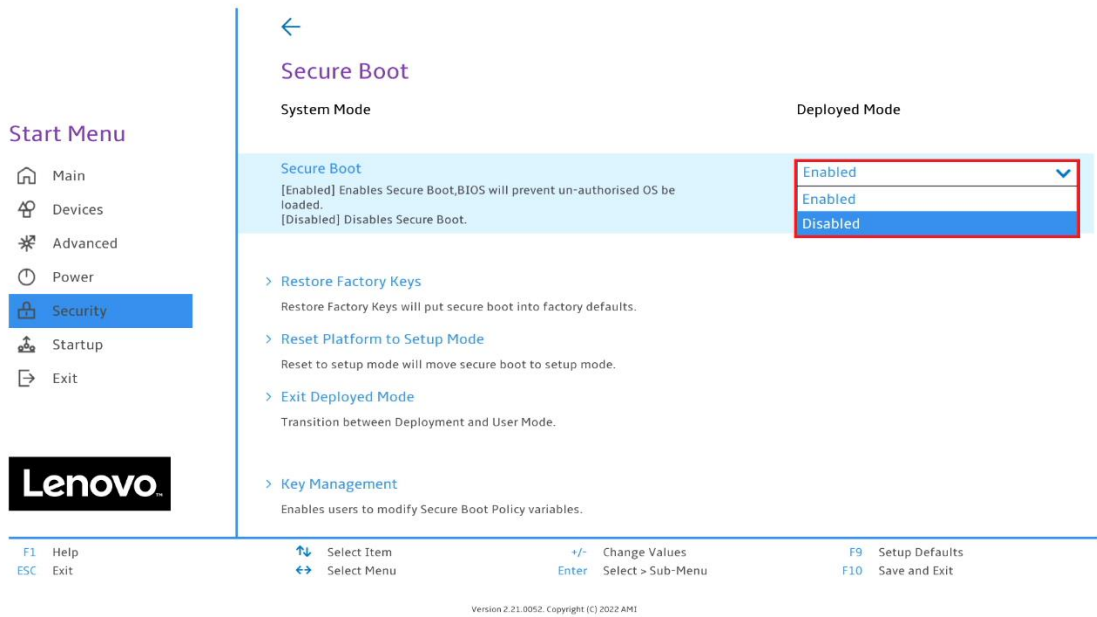
A black rectangular splash screen with the word "Lenovo" in white, sans-serif font centered on the screen.

Lenovo™

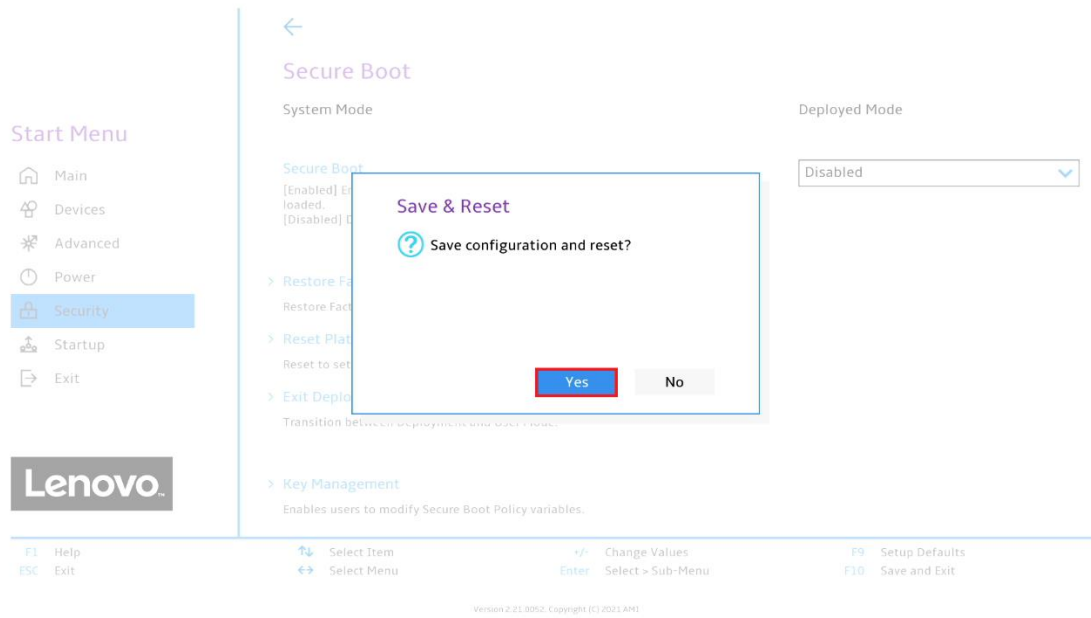
- Tab over to the Security tab and select “Secure Boot”.



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



- Save changes by pressing F10 function key.



Section 2 – Installing Ubuntu Linux 22.04 LTS

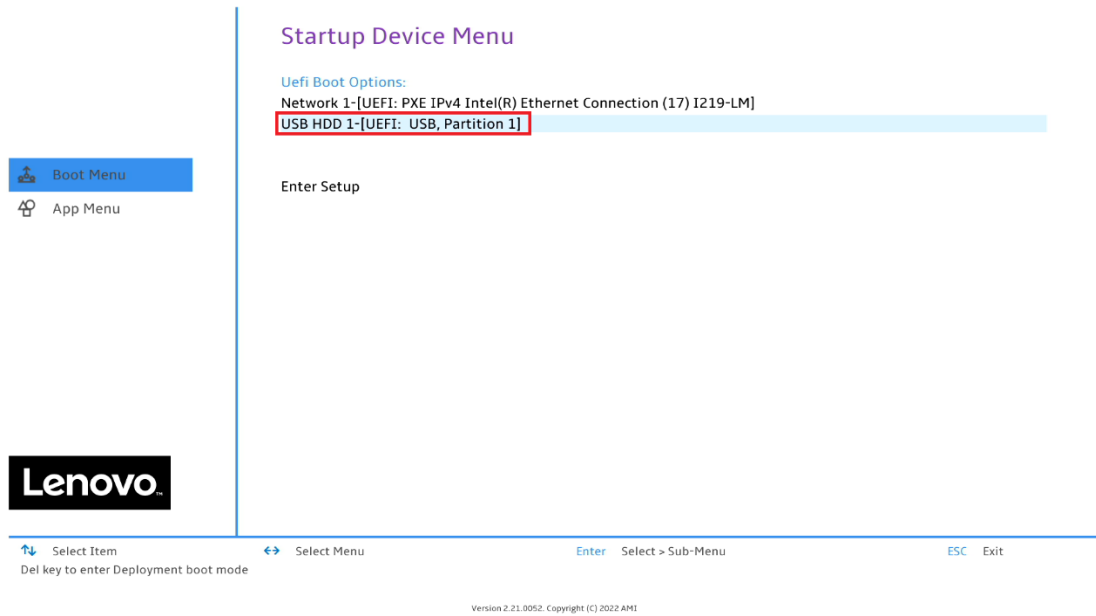
Please refer to the following instructions and screenshots on how to install Ubuntu 22.04 LTS on the Lenovo ThinkStation P360.

- Insert the Ubuntu 22.04 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.

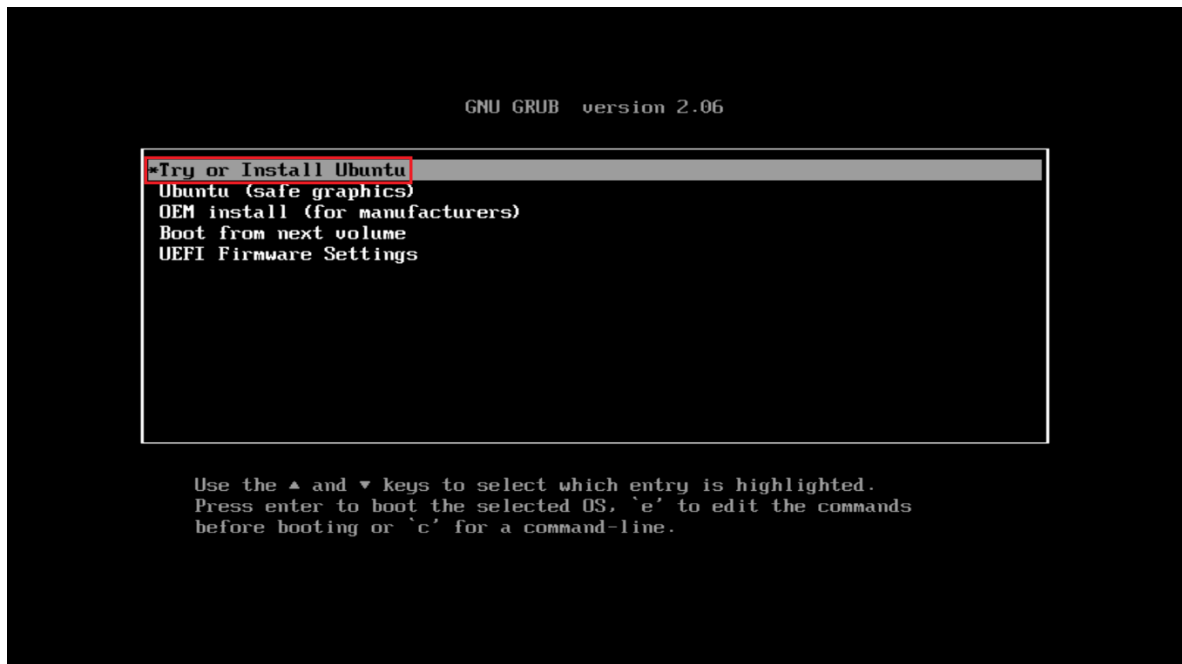
A black rectangular splash screen with the white "Lenovo" logo centered in the middle.

Lenovo™

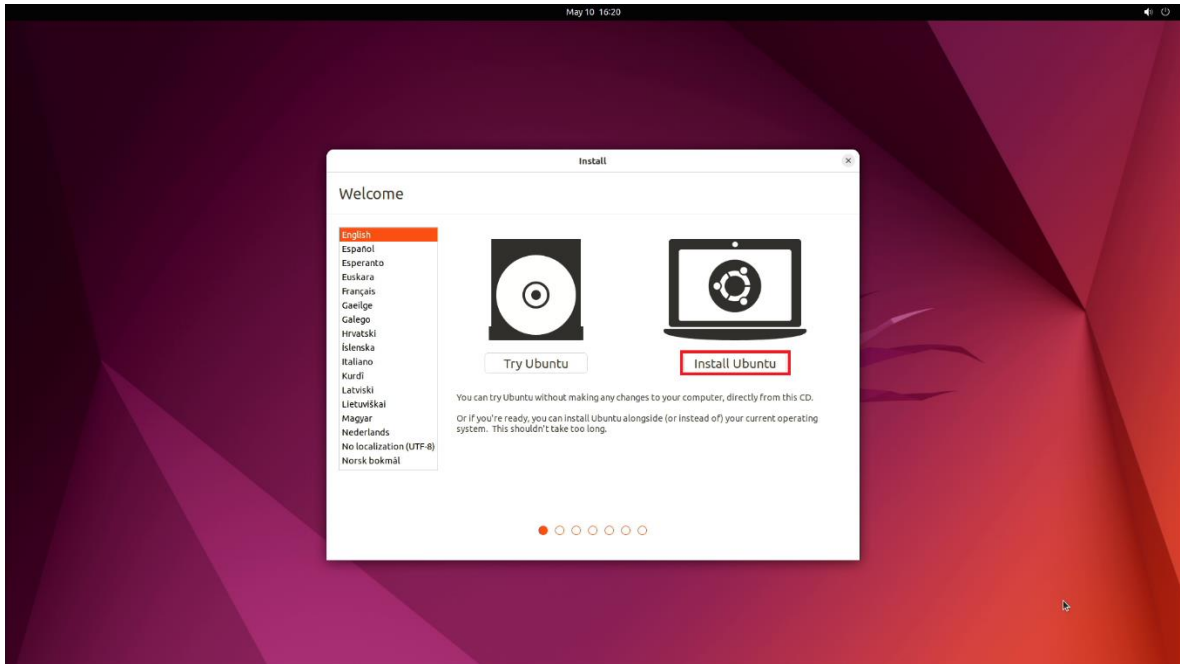
- Select the Linux bootable installation media from the F12 boot menu list.



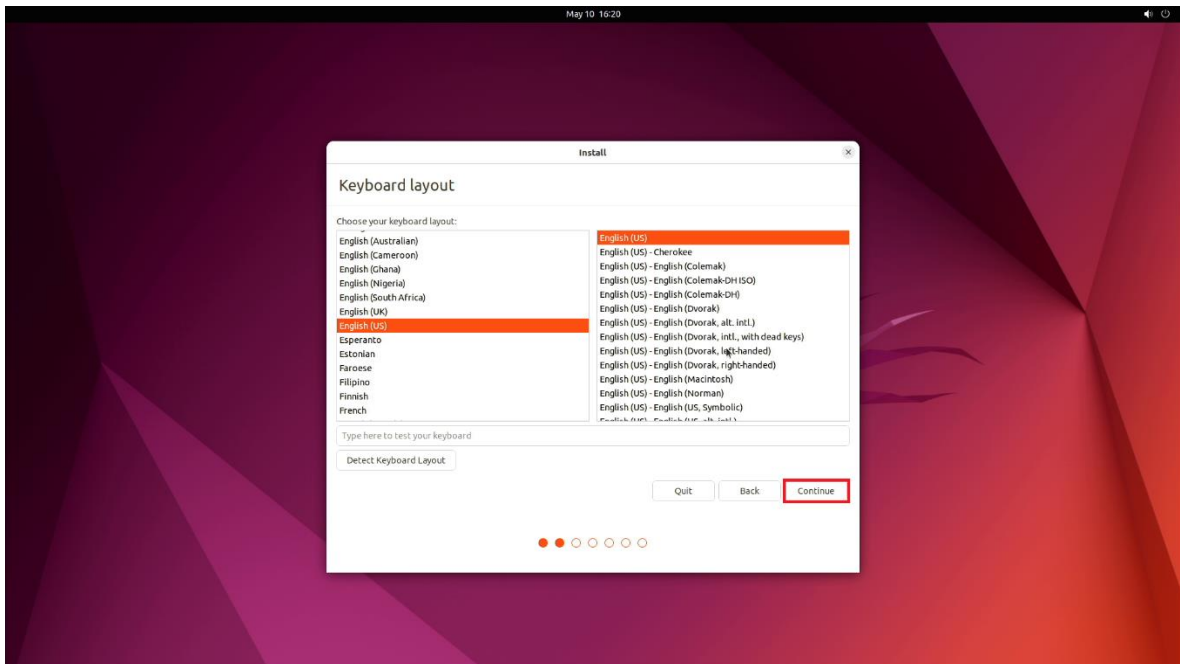
- Select “Ubuntu” from the GRUB boot menu and press enter.



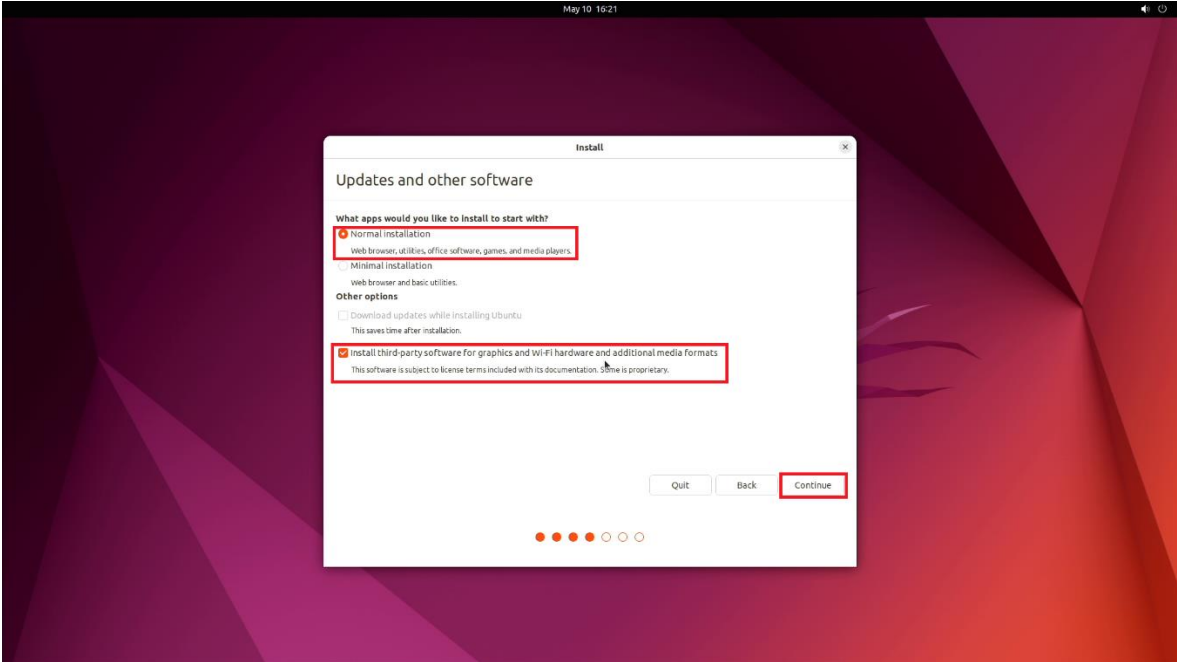
- Select the “Install Ubuntu” option on the welcome screen.



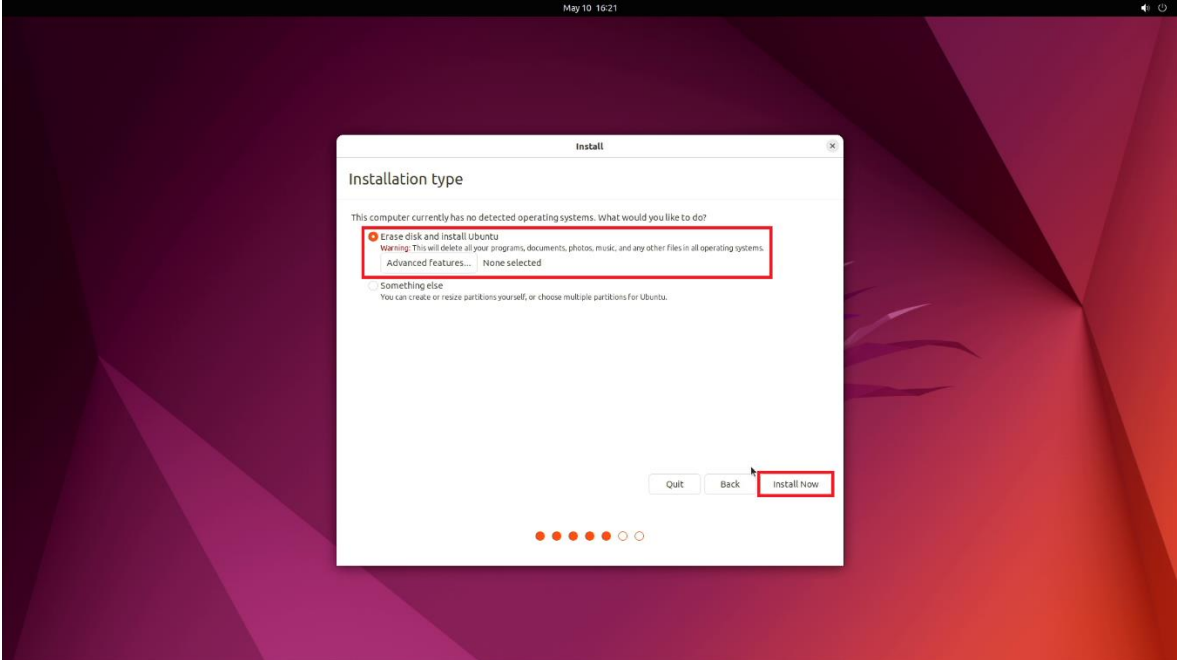
- Select the appropriate keyboard layout and language and press “Continue”.



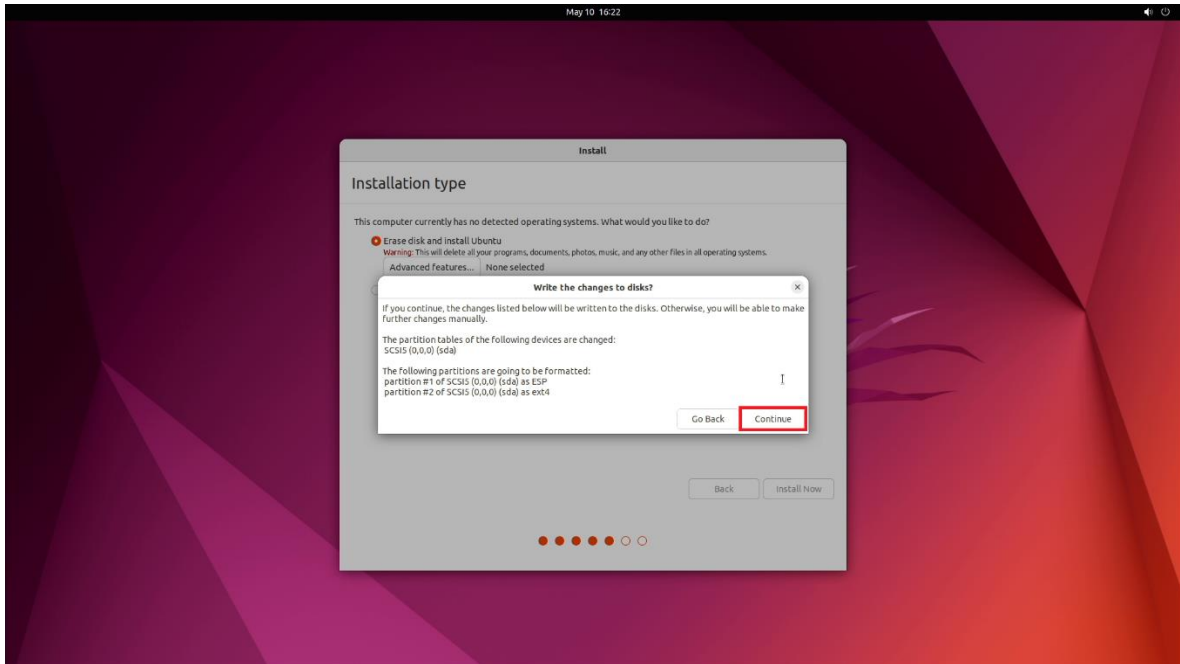
- Select “Normal Installation” and press “Continue”.
Optional: “Install third-part software...”



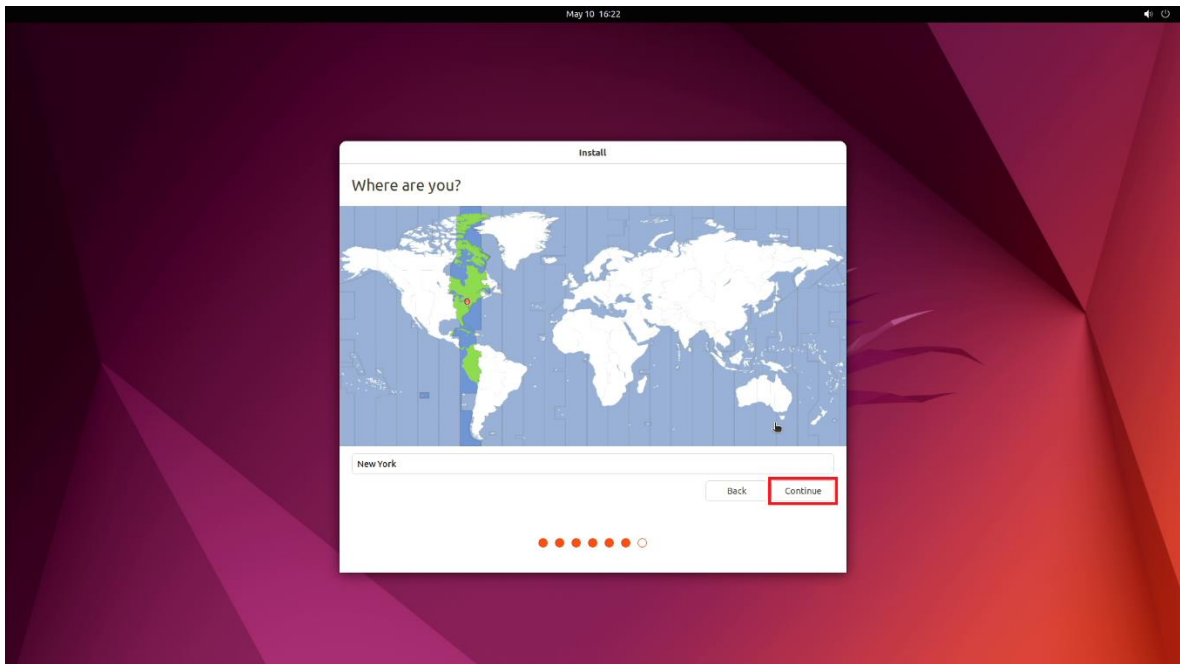
- Choose the installation type. For simplicity, this guide was done using “Erase disk and install Ubuntu”



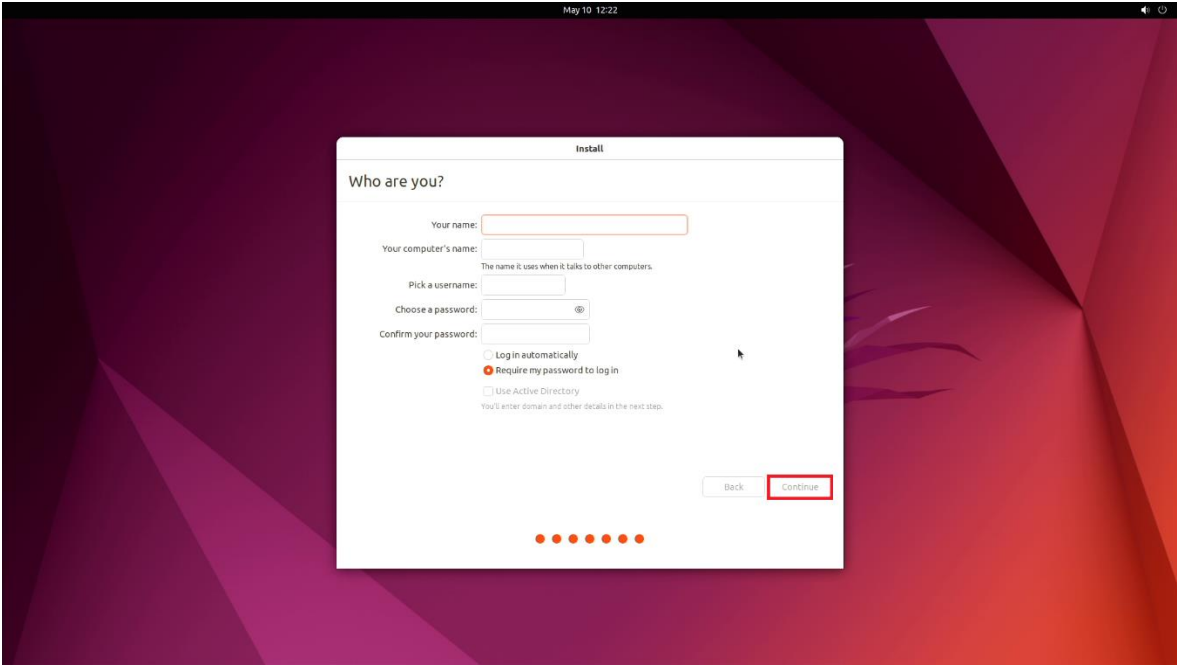
- Select “Continue” to confirm changes will be made to the disk.



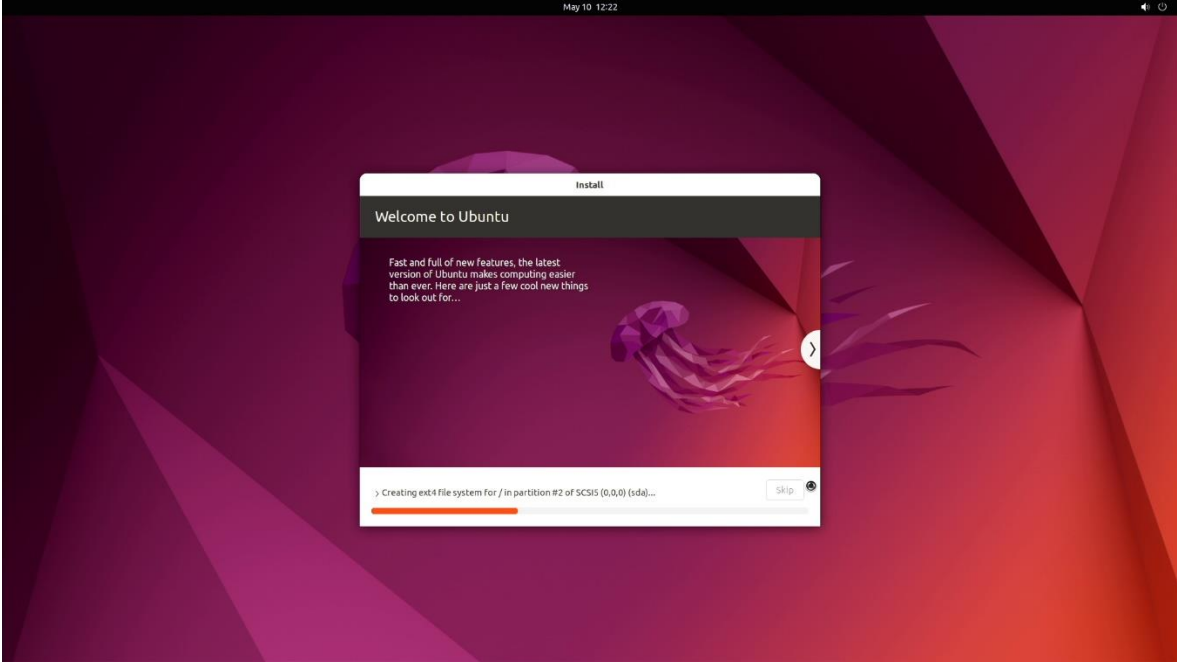
- Choose the appropriate geographical location and select “Continue”.



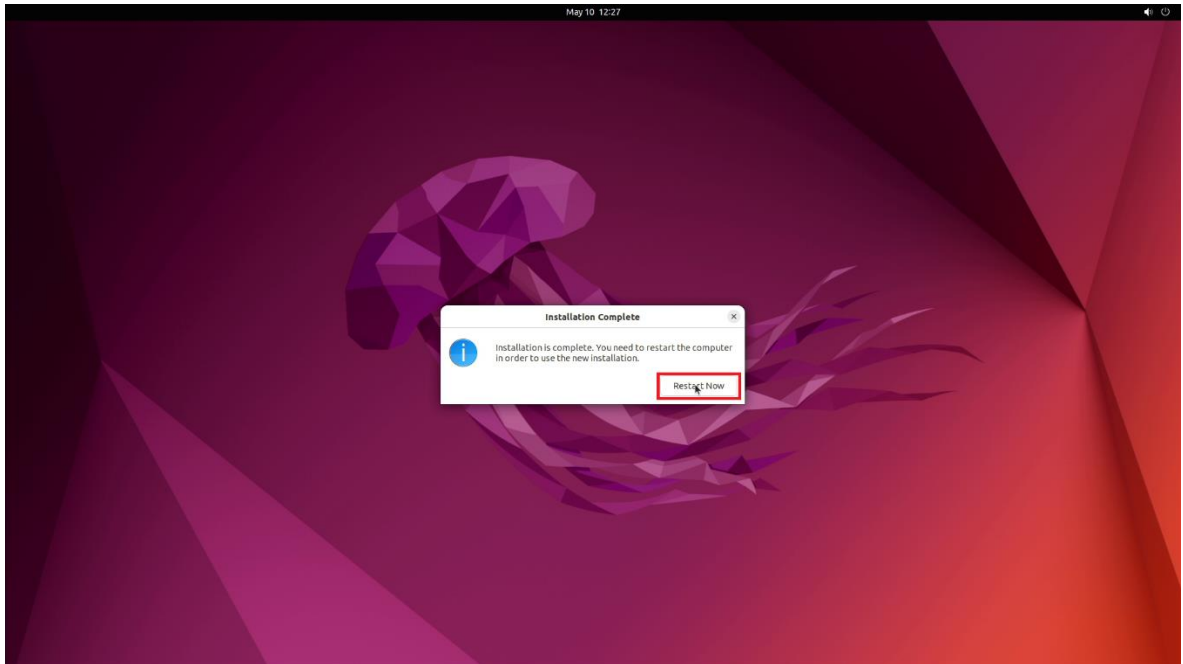
- Fill out the appropriate information and select “Continue”.



- Ubuntu installation progress bar will be shown.



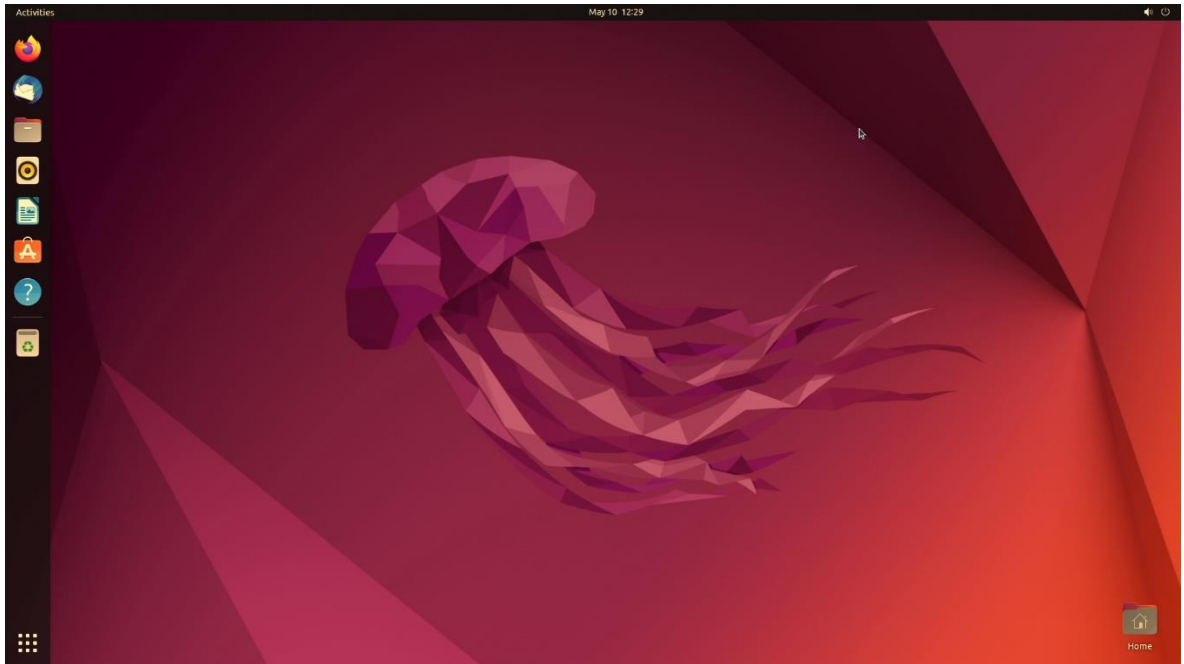
- Once the installation completes, select “Restart now”.



- Remove the installation media and press enter.



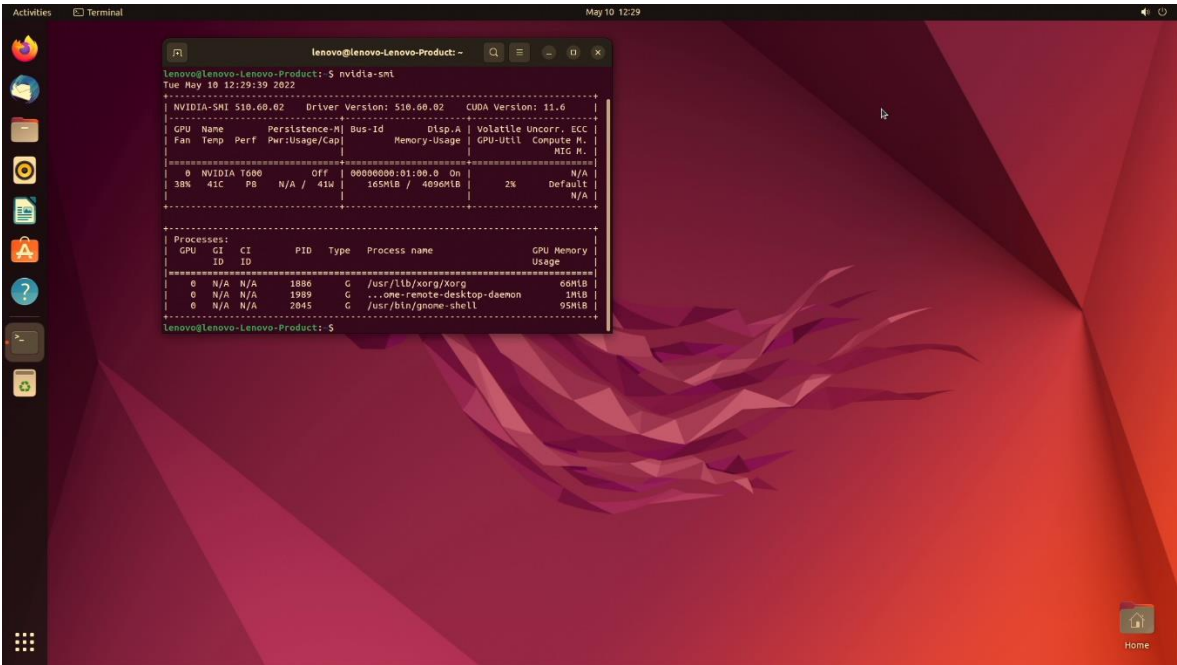
- User will land on the Ubuntu Desktop Screen.



Section 3 – Installing the Nvidia Graphics Driver

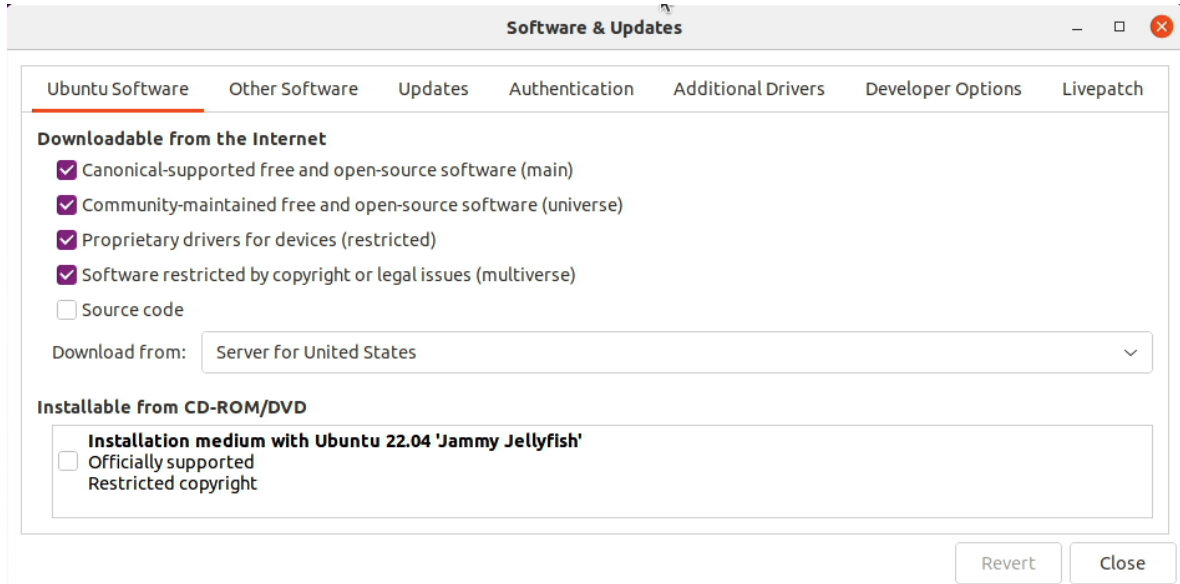
To get optimal performance out of the Nvidia GPU, it is a good idea to install the Nvidia graphics driver.

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

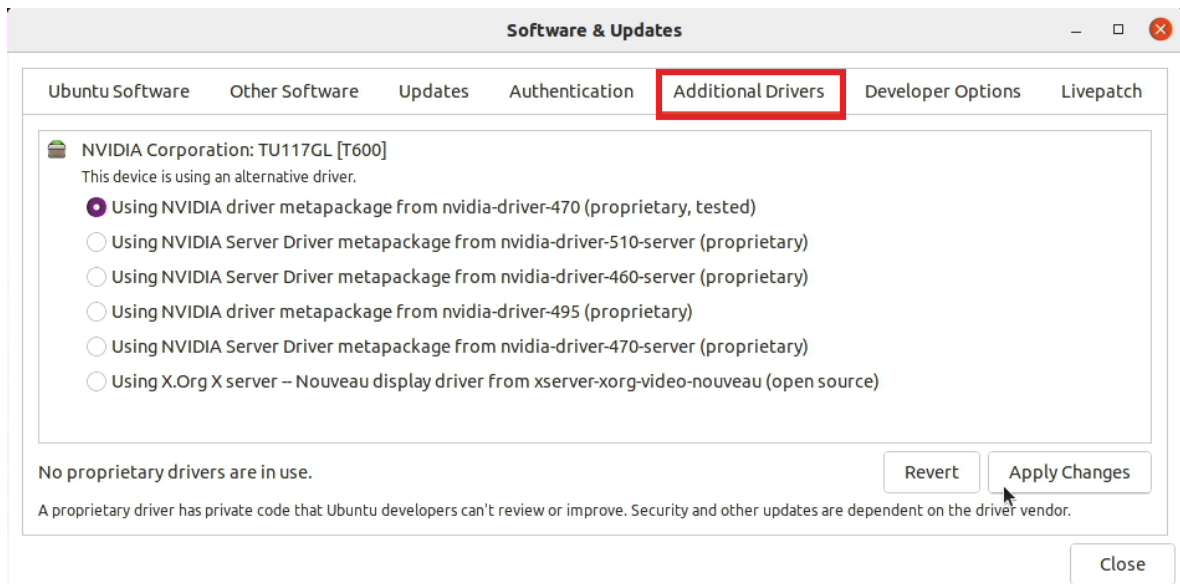


In case Nvidia GPU is not native, follow the steps below to install the GPU driver:

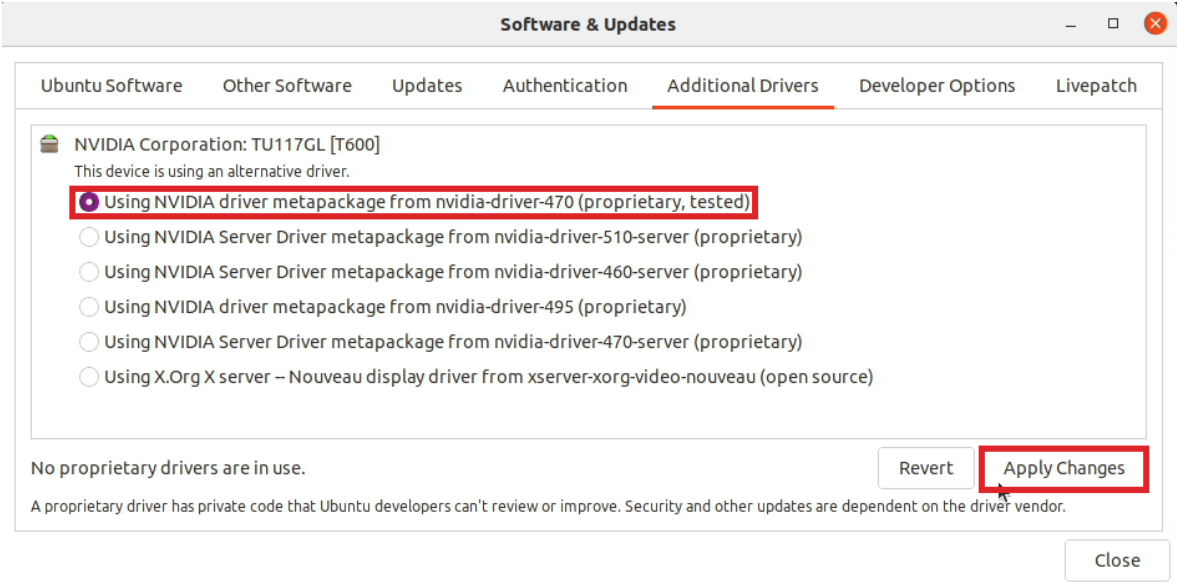
- Open Software & Updates.



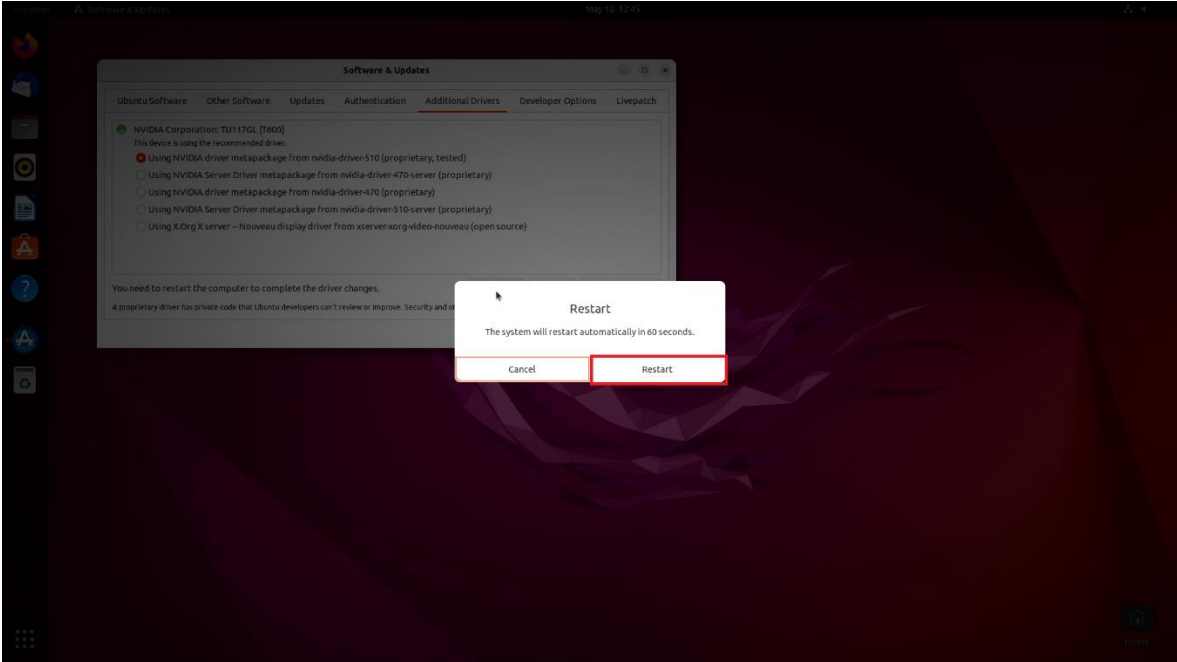
- Click on Additional Drivers



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

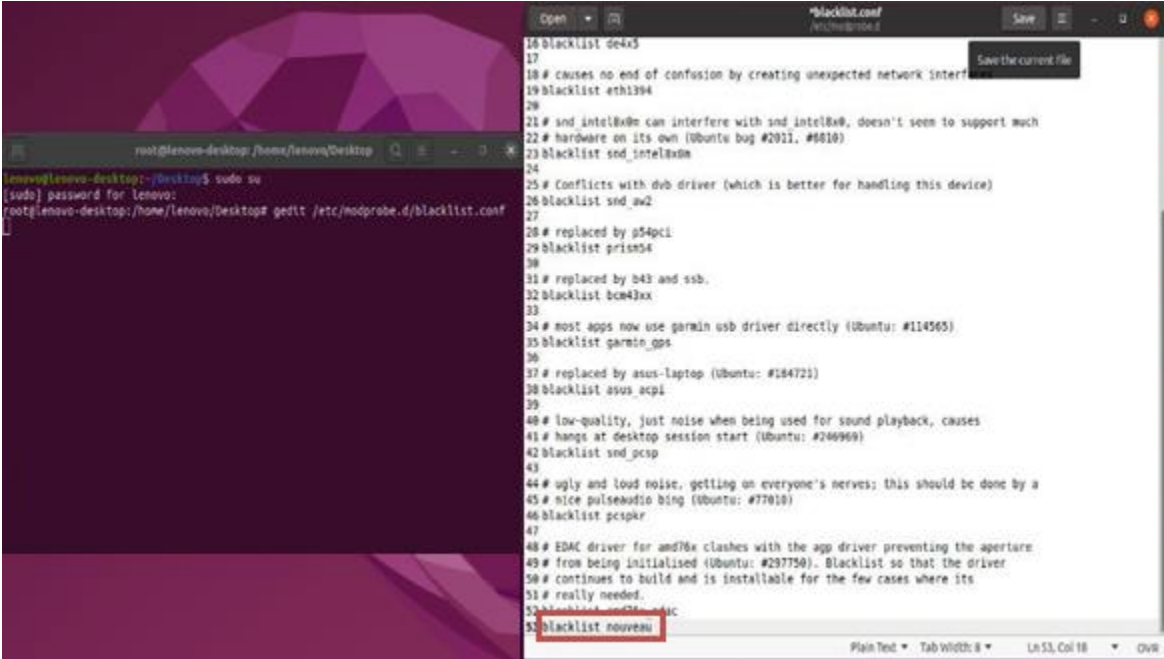


- After that system will ask to restart, click Restart.

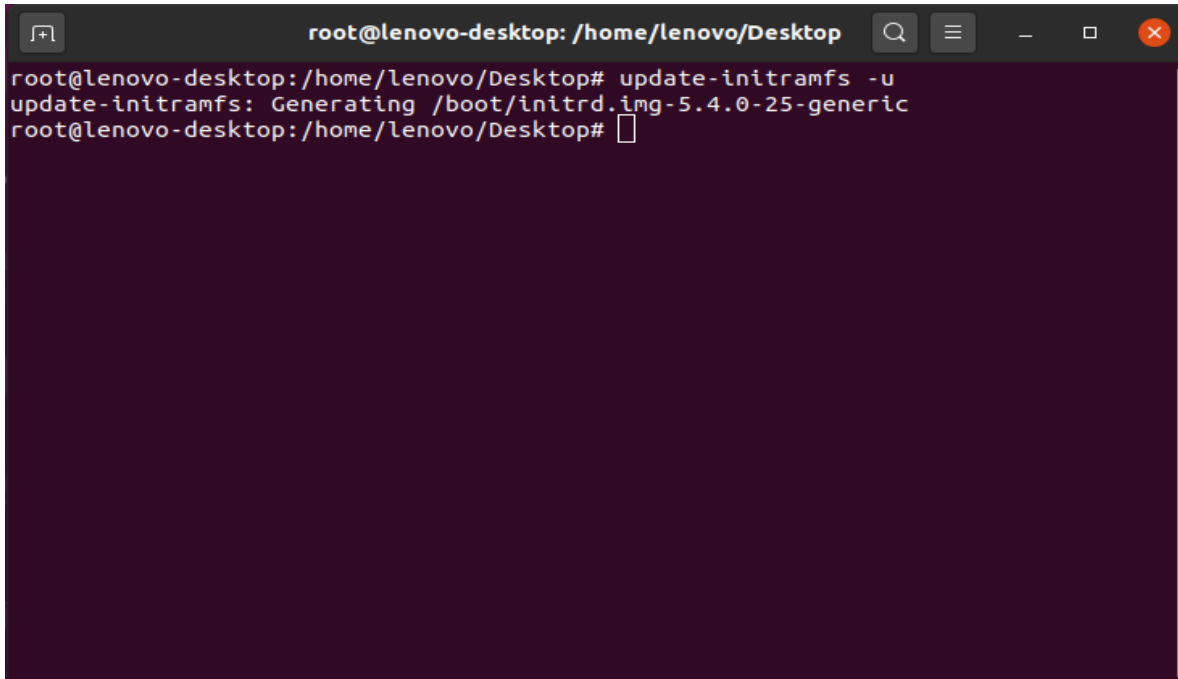


In case you desire to install a specific Nvidia driver please follow the next steps:

- 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`

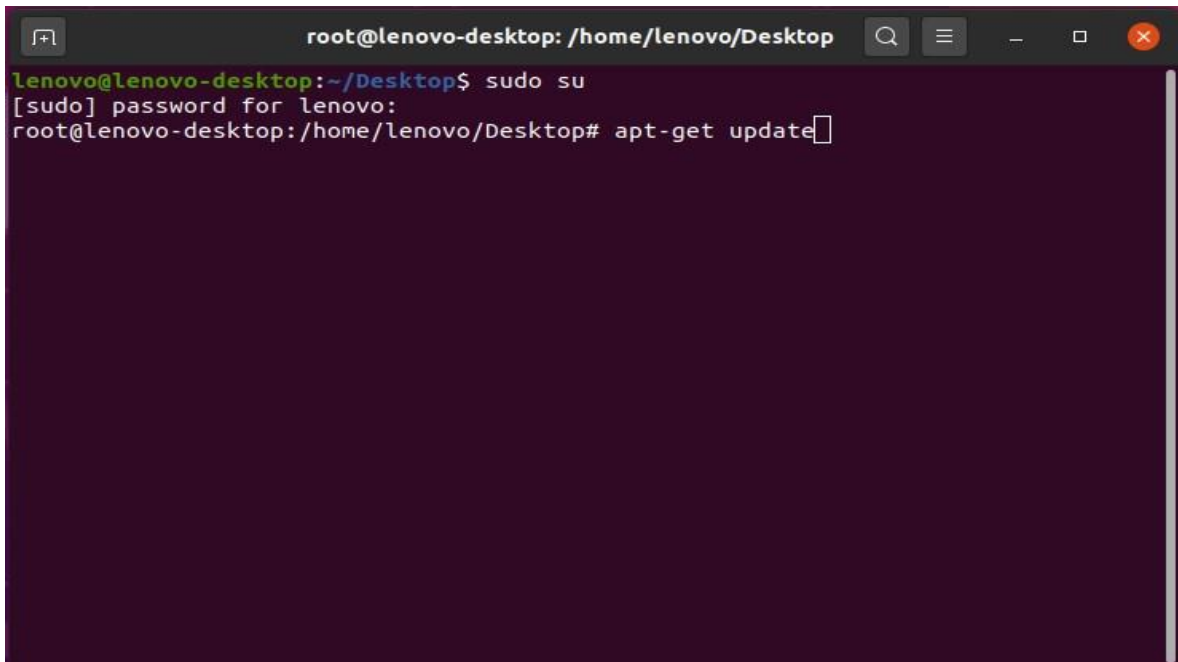


- Run the command: `update-initramfs -u`



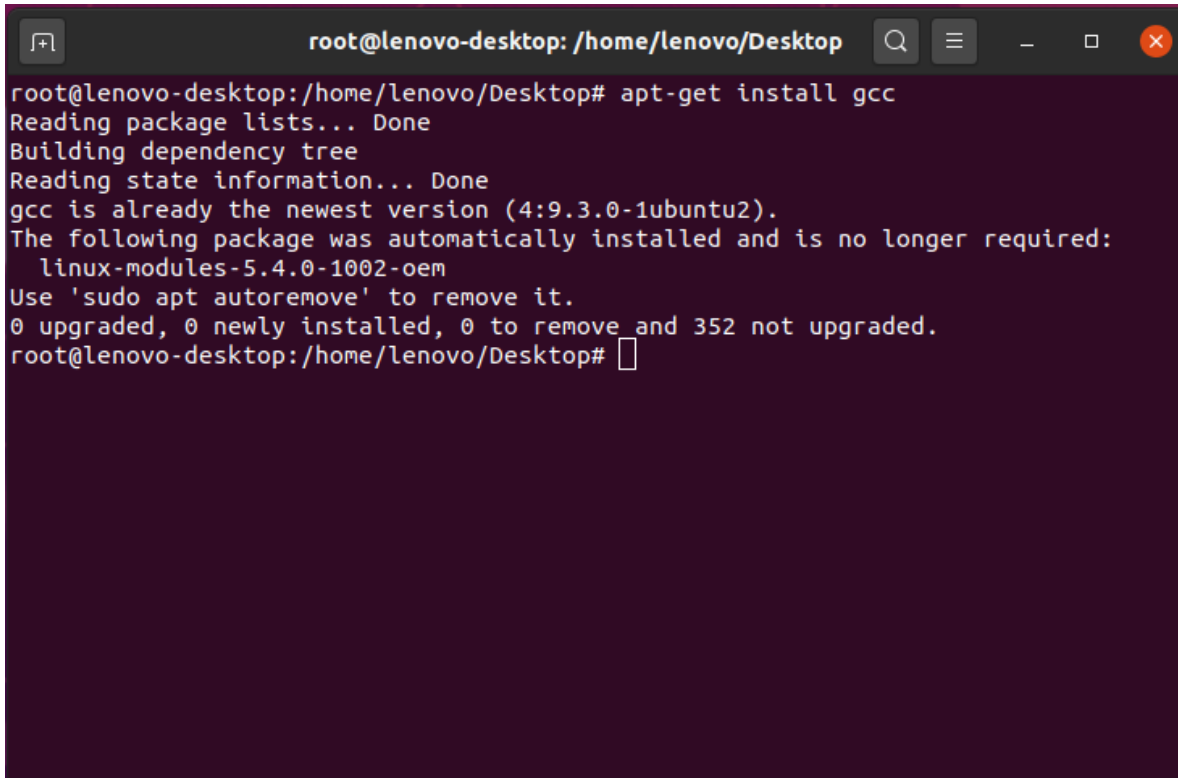
```
root@lenovo-desktop: /home/lenovo/Desktop
root@lenovo-desktop:/home/lenovo/Desktop# update-initramfs -u
update-initramfs: Generating /boot/initrd.img-5.4.0-25-generic
root@lenovo-desktop:/home/lenovo/Desktop#
```

- 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`



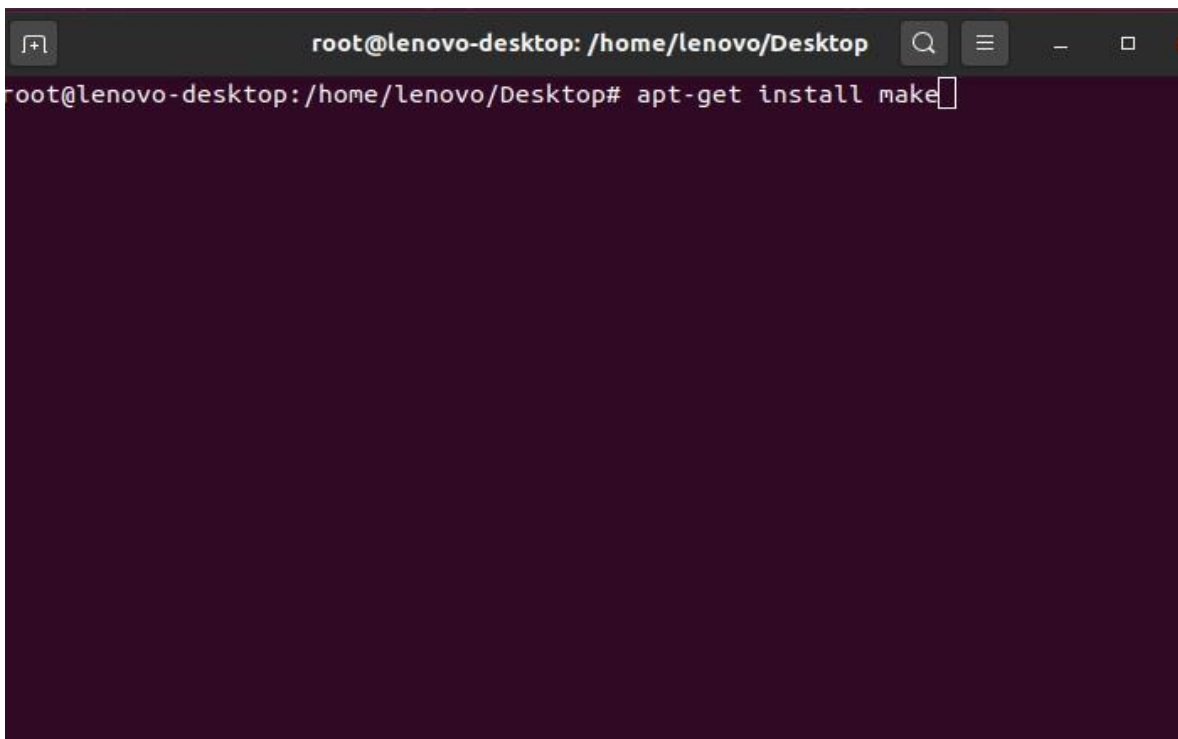
```
lenovo@lenovo-desktop:~/Desktop$ sudo su
[sudo] password for lenovo:
root@lenovo-desktop:/home/lenovo/Desktop# apt-get update
```

- Install gcc: apt-get install gcc



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

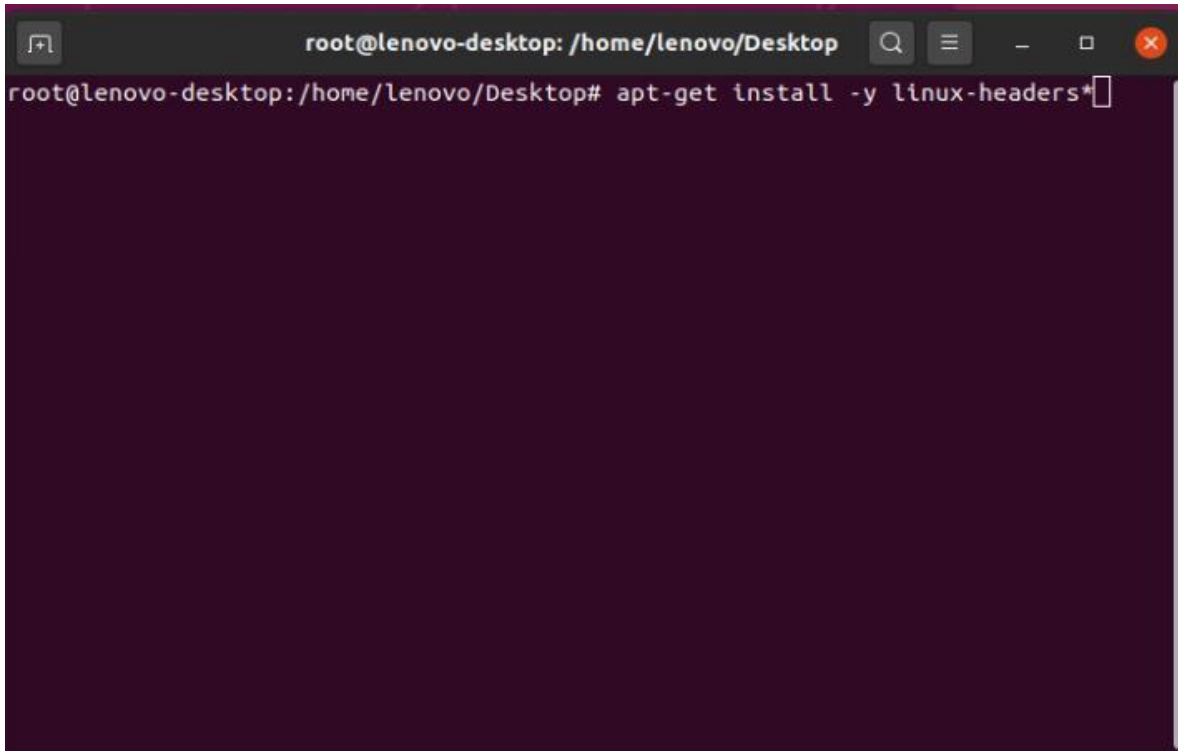
- Install make: apt-get install make



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

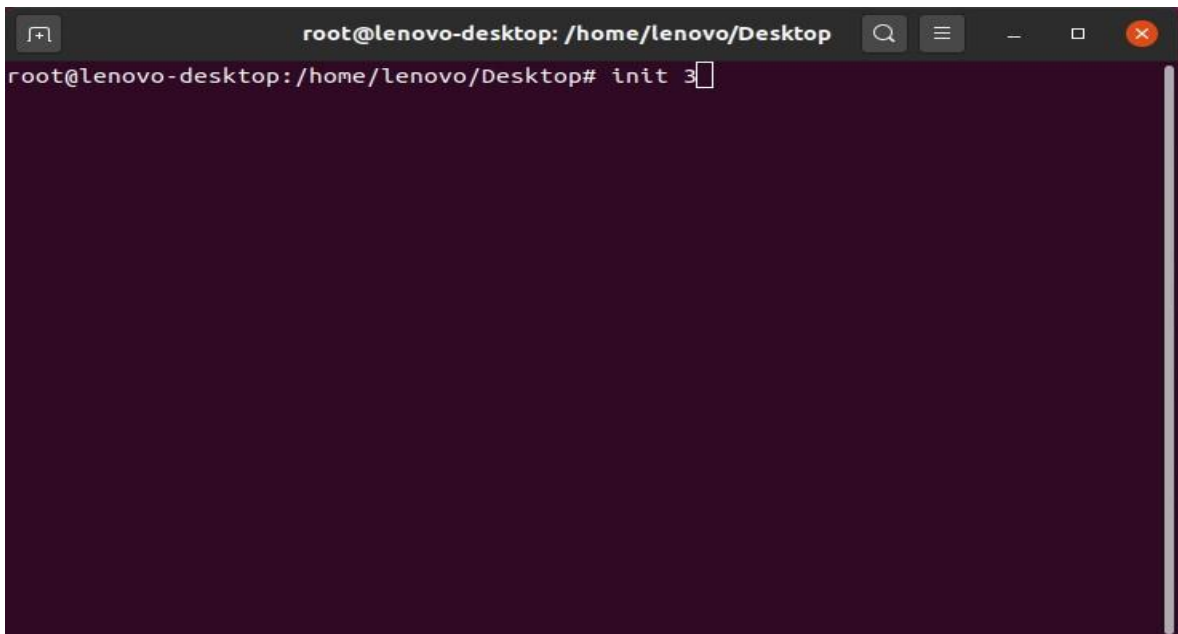


- Install linux-headers: `apt-get install -y linux-headers*`



```
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.

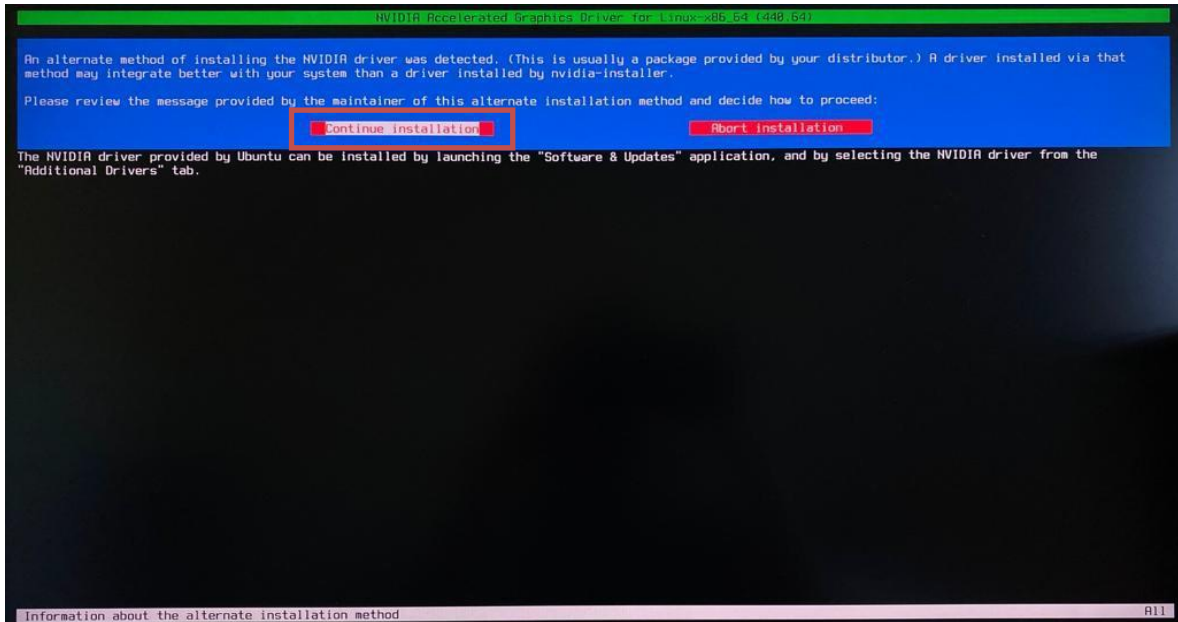
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

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

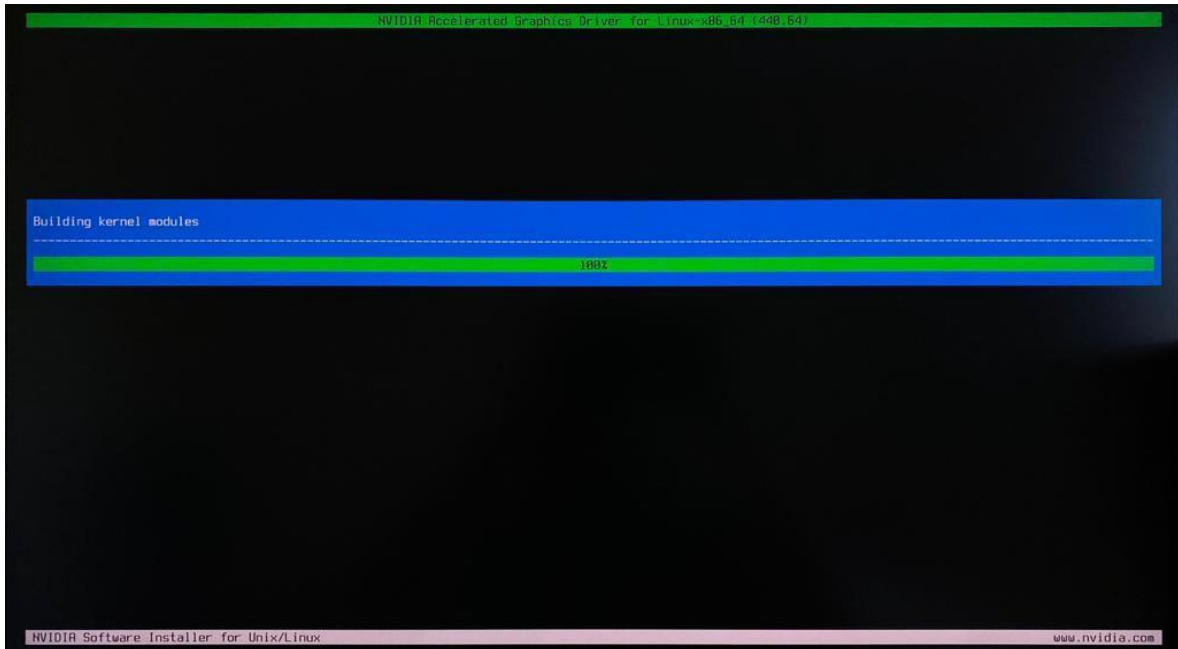
- Make the Nvidia installer an executable by the command- `chmod +x NVIDIA-Linux-x86_64-*` And run the Nvidia driver by- `./NVIDIA-Linux-x86_64-430.50.run`

```
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 _
```

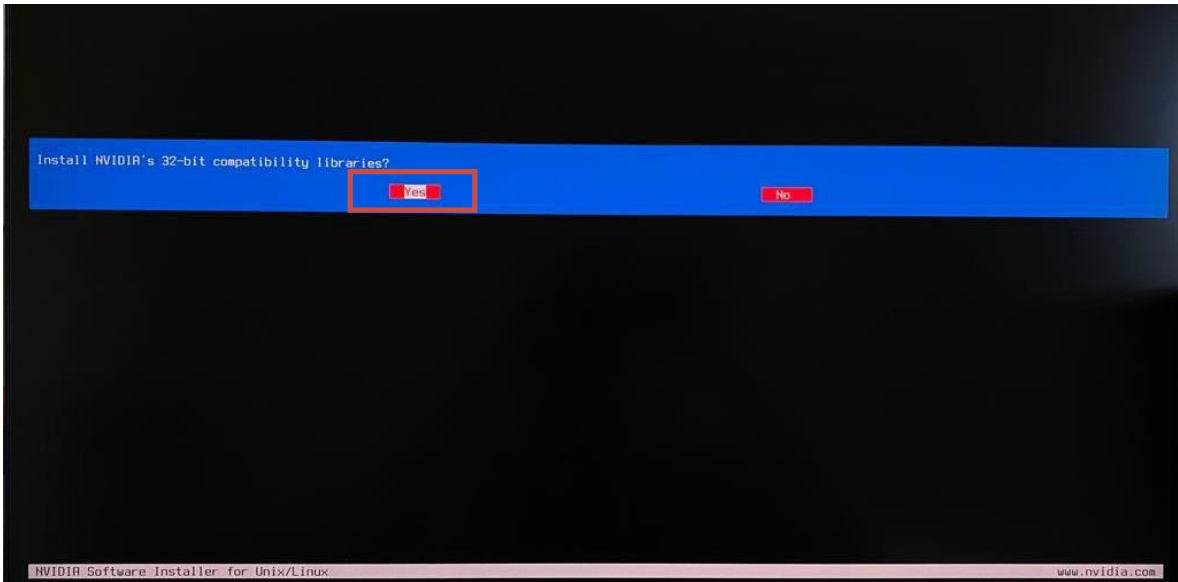
- Select Continue installation.



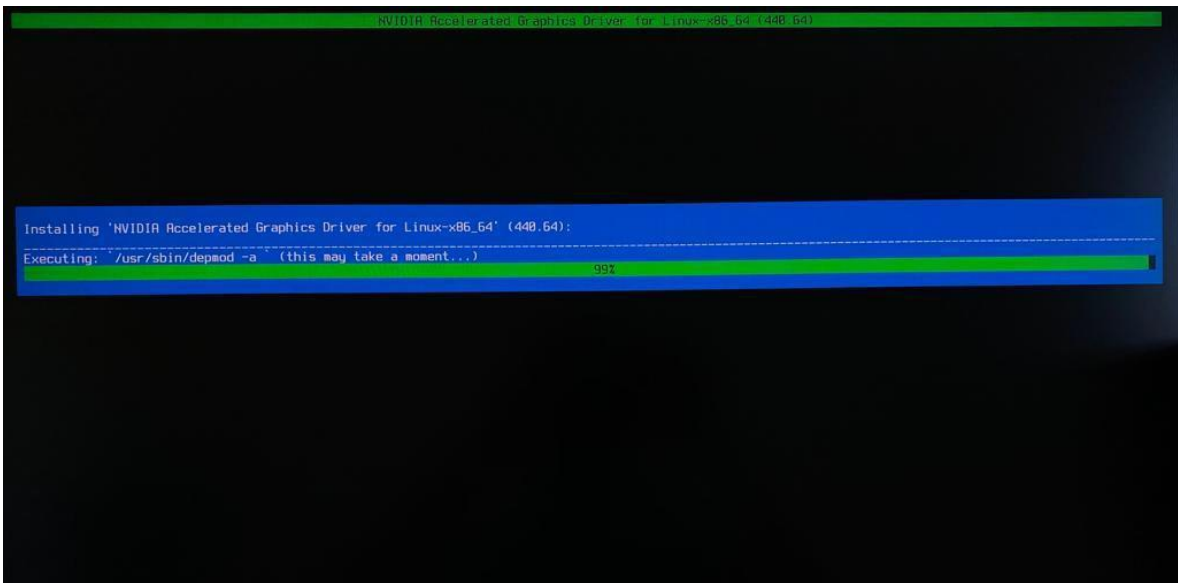
- Wait until the kernel modules are completely built.



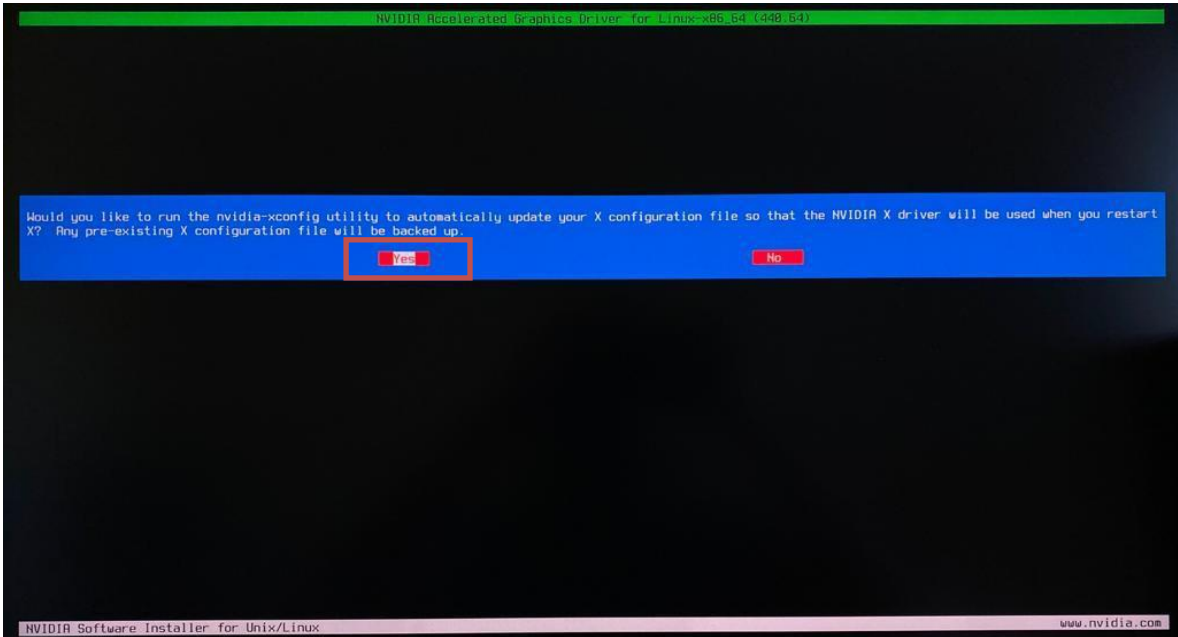
- Select Yes for installing 32-bit compatibility libraries.



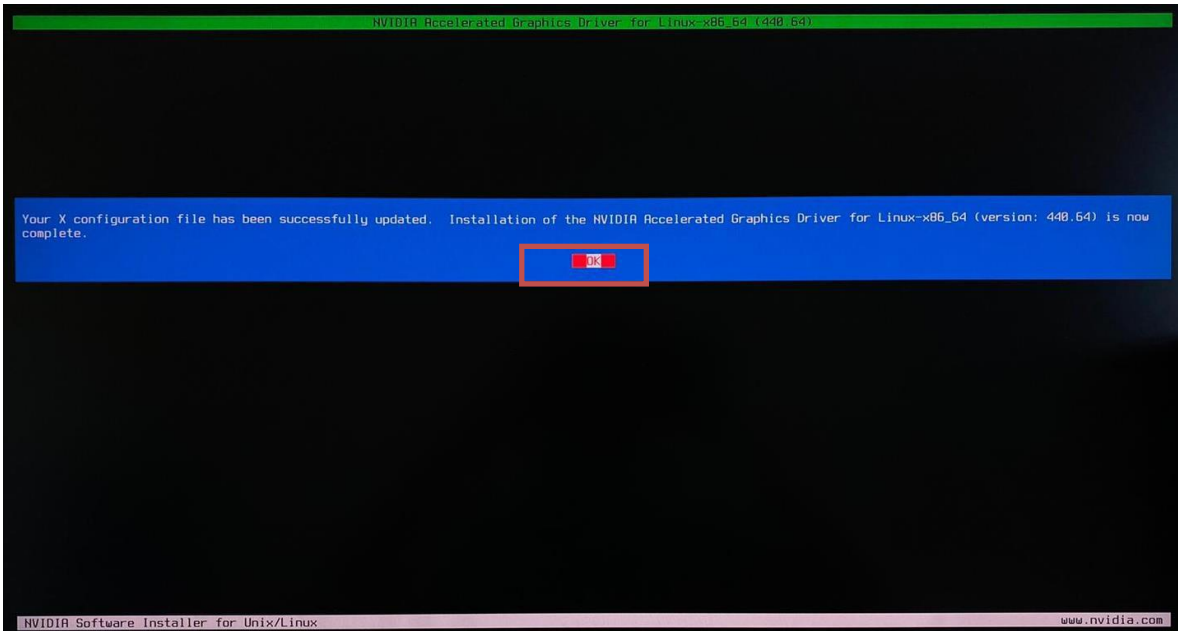
- Wait until the installation is complete.



- 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 |