

Ubuntu Linux Setup Guide

For ThinkStation P340 Tower/SFF

**** Official support of Ubuntu 20.04 LTS and later*



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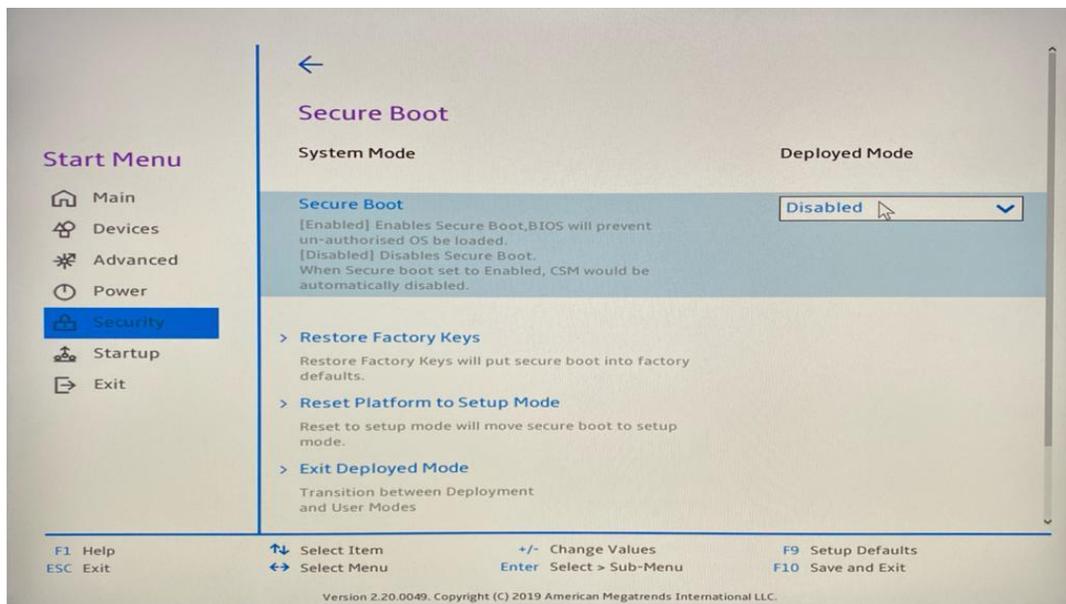
Section 1 – BIOS Setup & Pre-Installation Steps

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

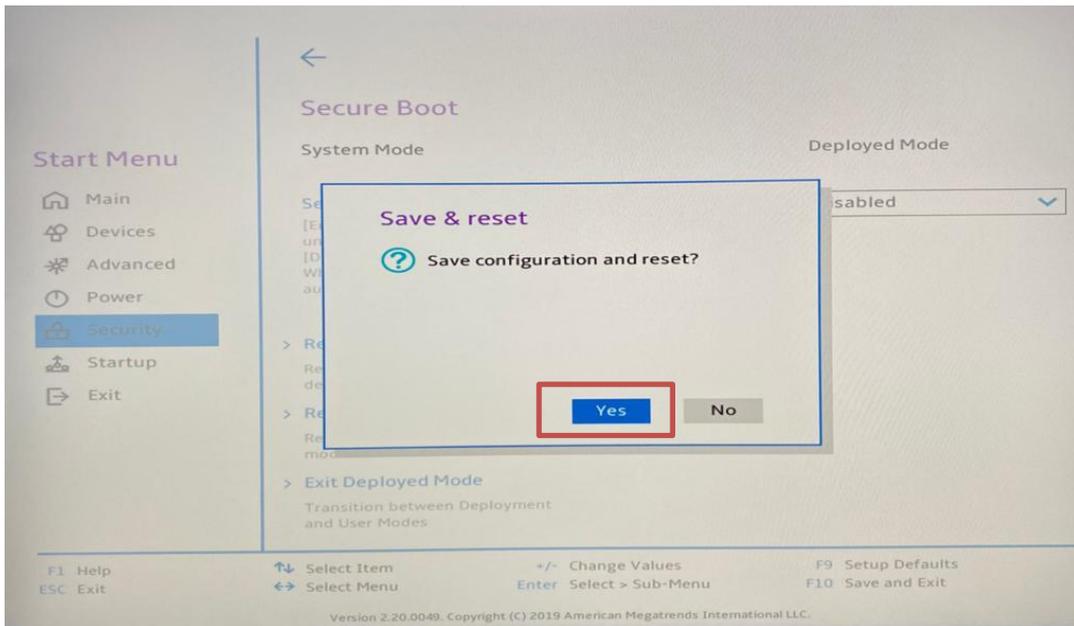
- Boot into BIOS by pressing the function F1 key at the “Lenovo” splash screen.



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



- Save changes by pressing F10 function key.



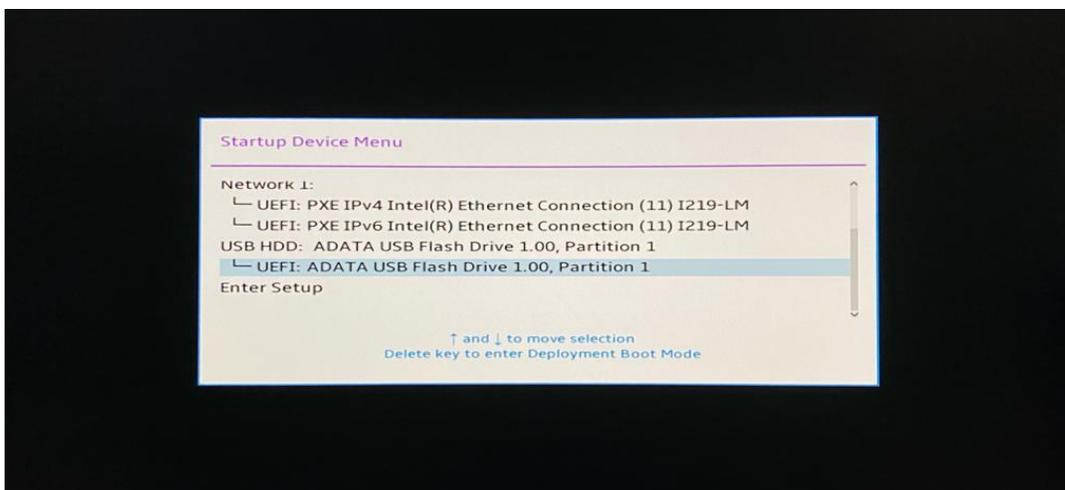
Section 2 – Installing Ubuntu Linux 20.04 LTS

Please refer to the following instructions and screenshots on how to install Ubuntu 20.04 LTS on the Lenovo ThinkStation P340.

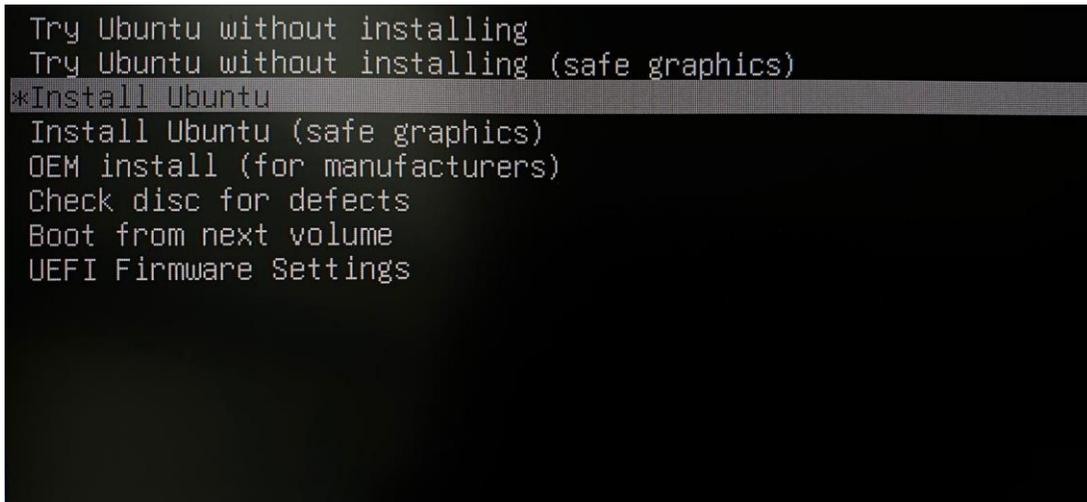
- Insert the Ubuntu 20.04 LTS installation media (either through USB or CD/DVD).
- Power on the system and press the F12 function key whenever the following Lenovo splash screen appears.



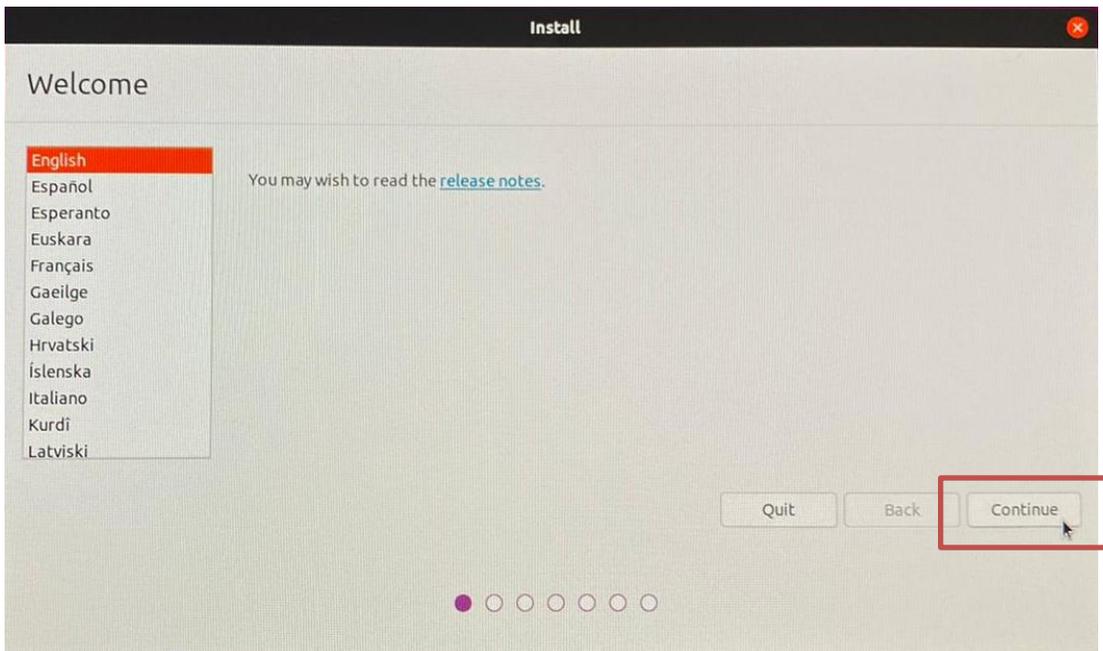
- Select the Linux bootable installation media from the F12 boot menu list.



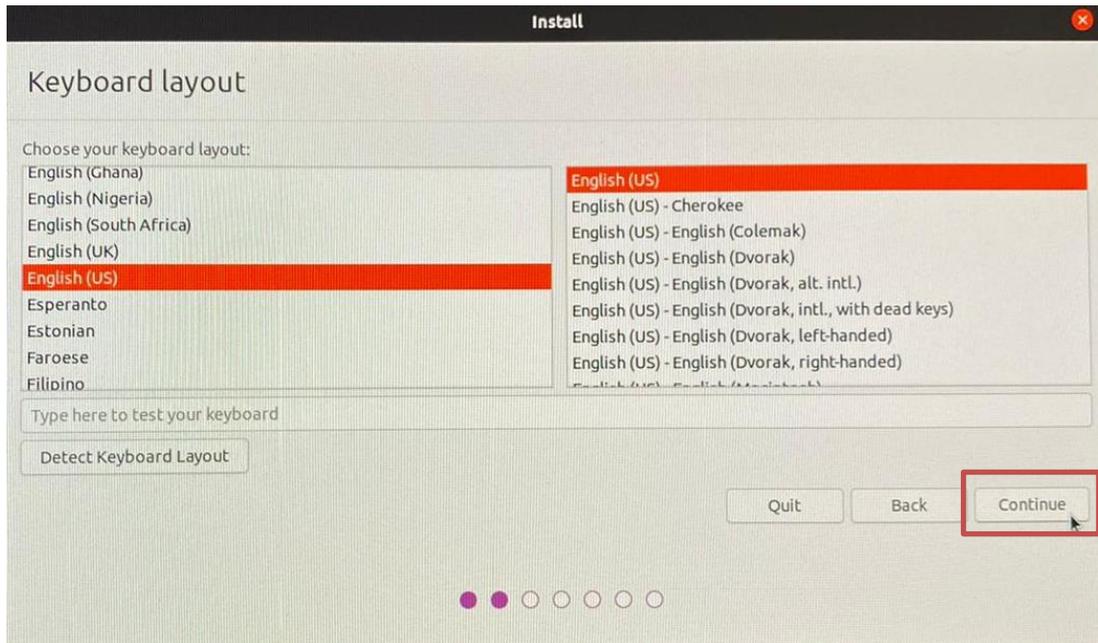
- Highlight Install Ubuntu from the GRUB boot menu and hit enter.



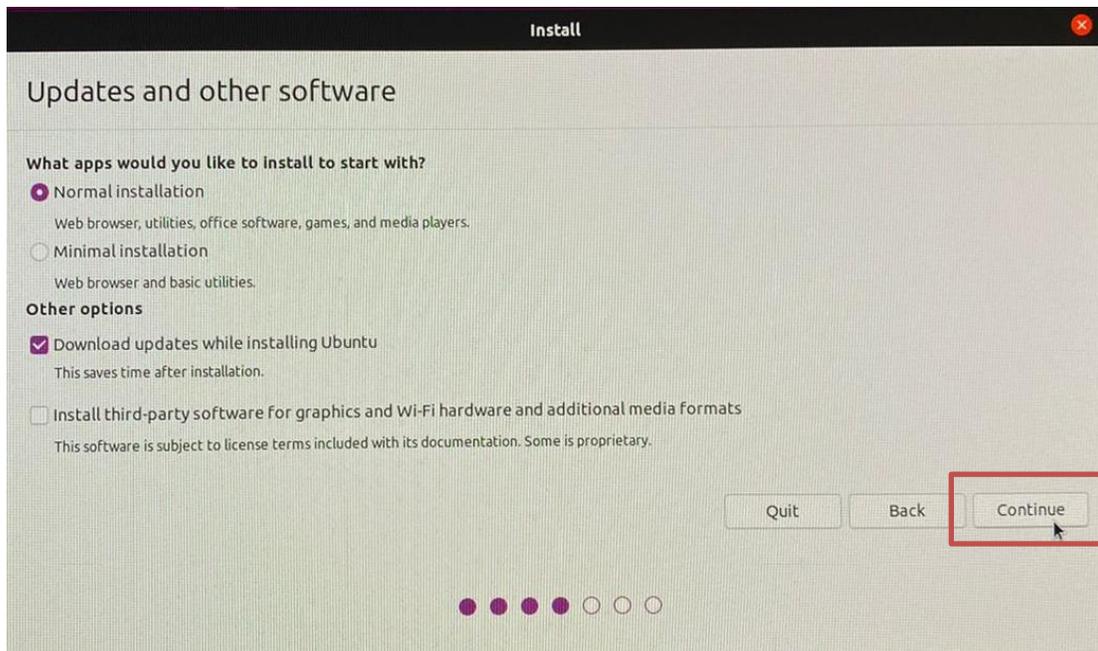
- The Ubuntu Linux Welcome Screen should appear. Select the appropriate language and Continue.



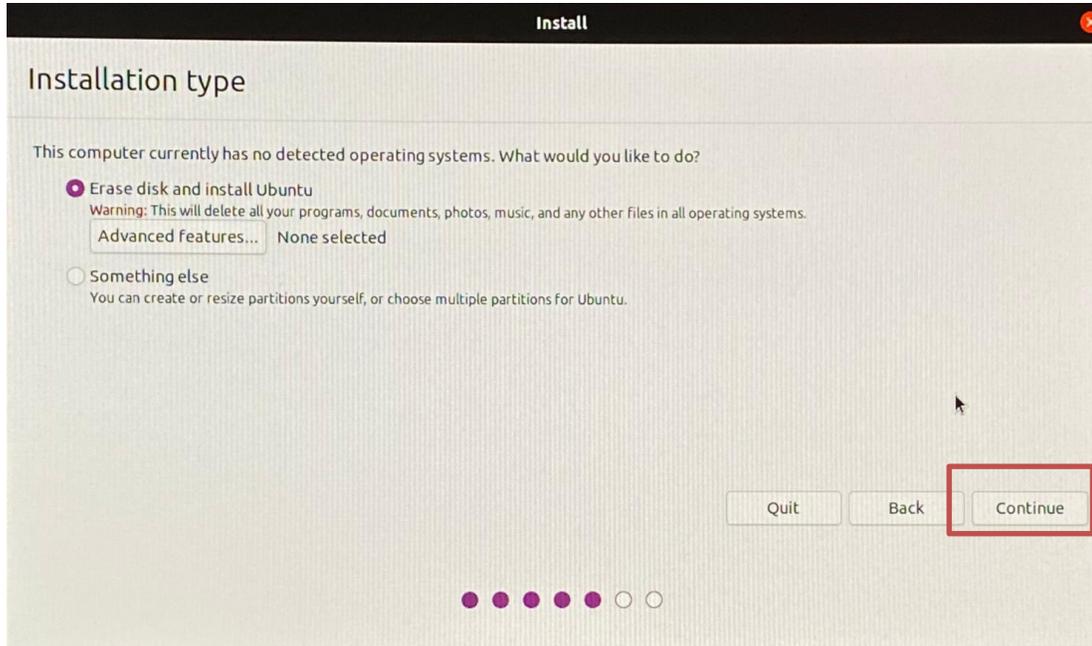
- Choose the keyboard layout and language accordingly by selecting each one and press Continue.



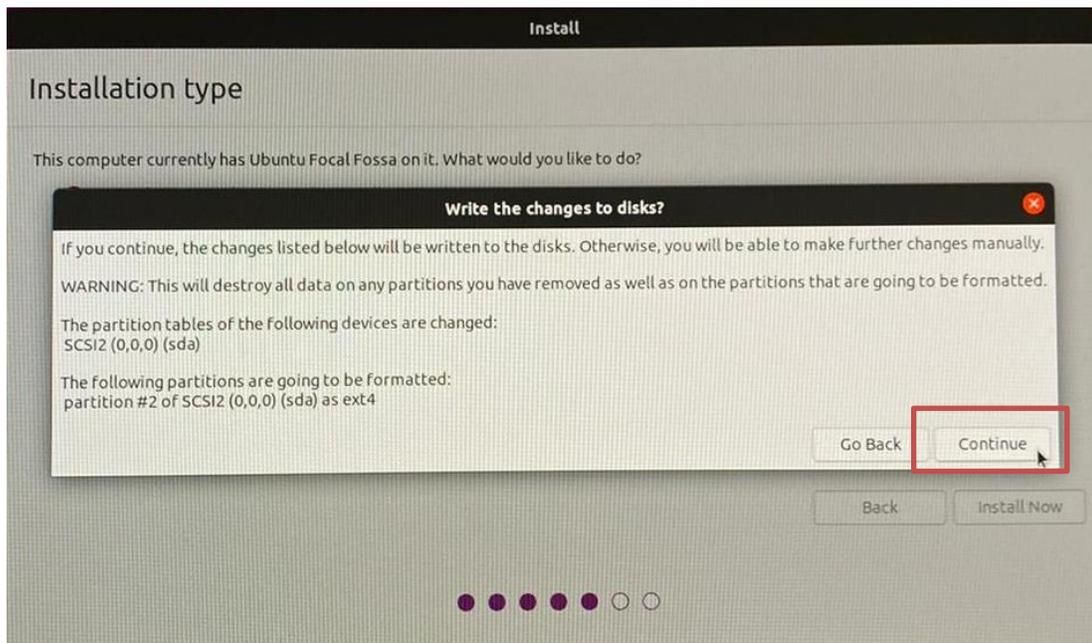
- Select Normal Installation and Continue.



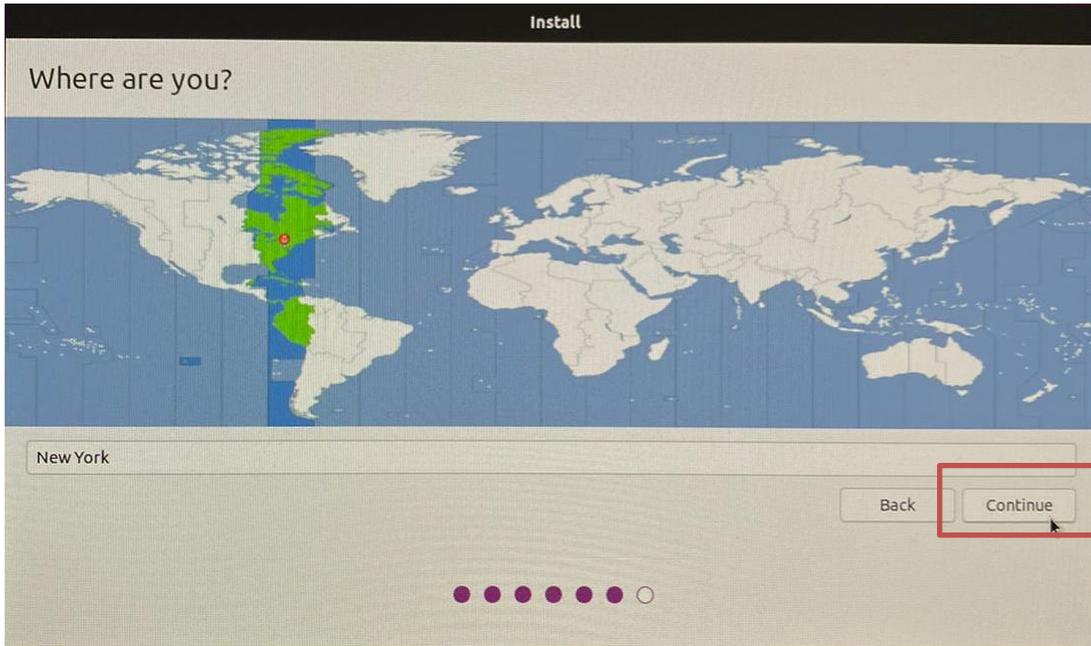
- Choose the installation type. For simplicity, this guide was done using Erase disk and install Ubuntu. Currently, Lenovo P340 systems do not support RAID installations— Check Section 3 for details.



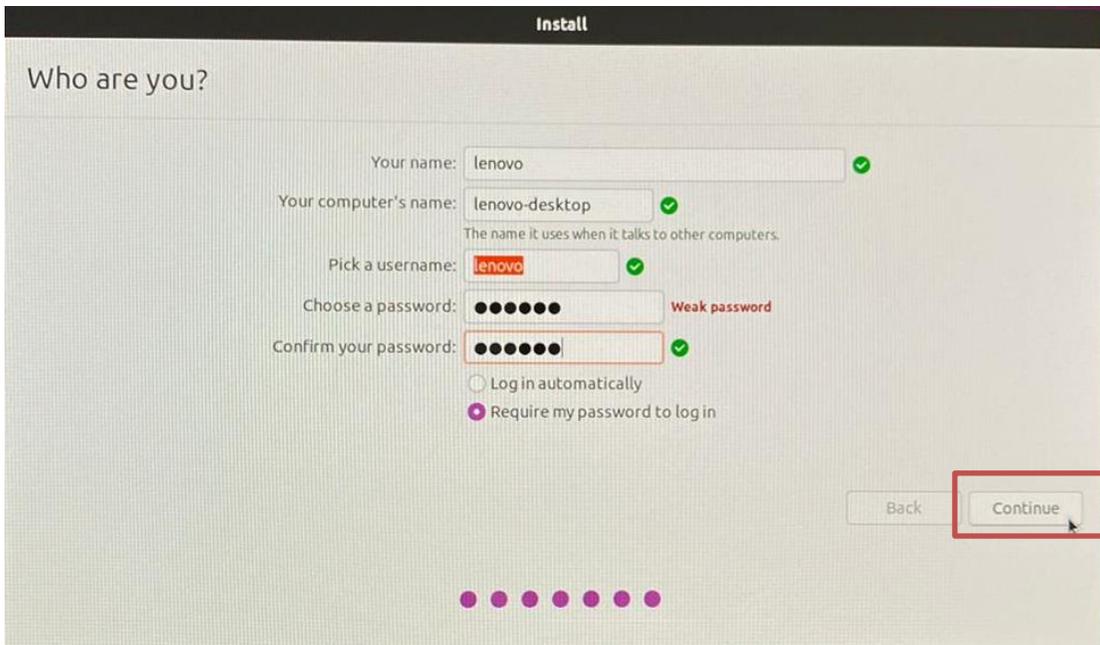
- Select Continue to confirm changes will be made to the disk.



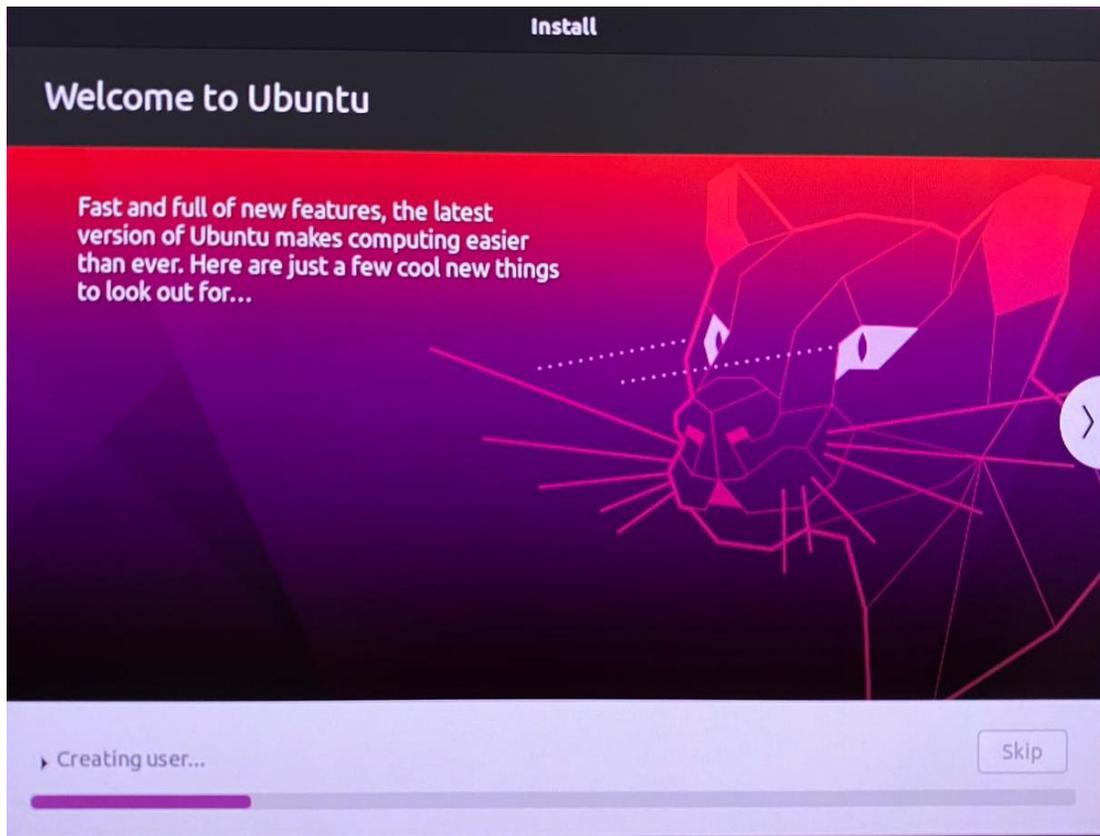
- Choose the appropriate geographical location and select Continue.



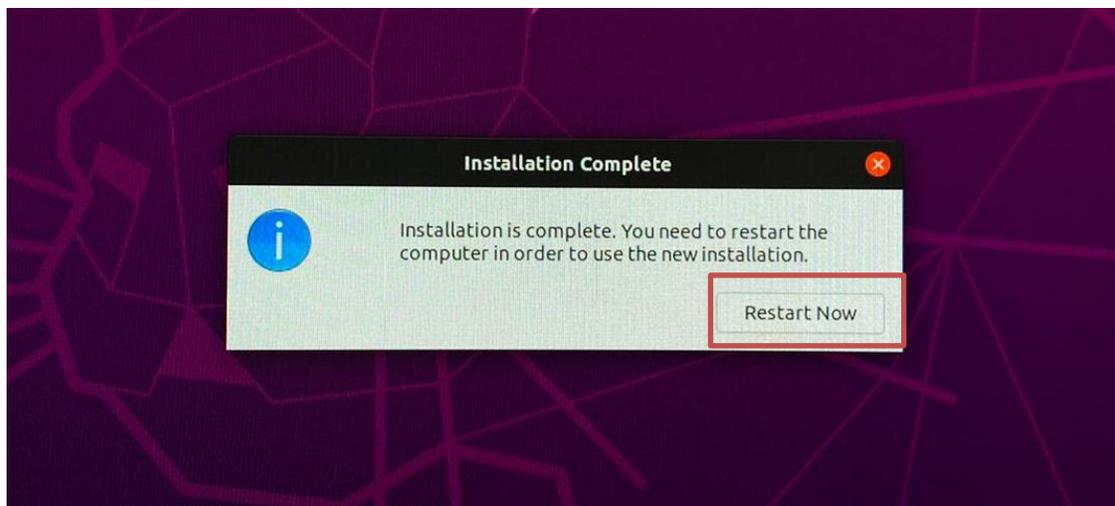
- Fill out the appropriate input boxes and select Continue.



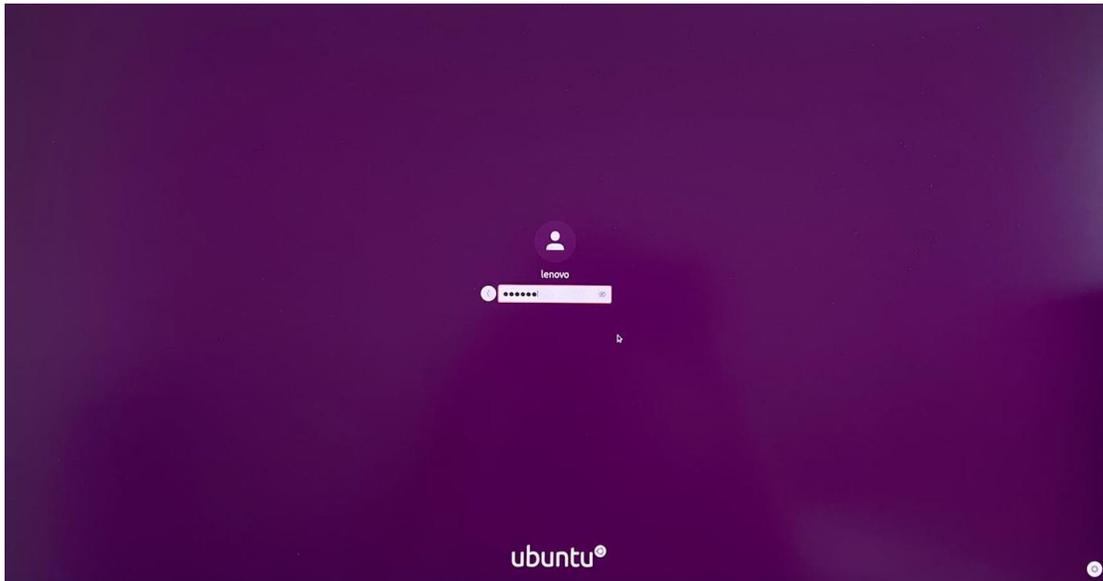
- Ubuntu installation progress bar will be shown.



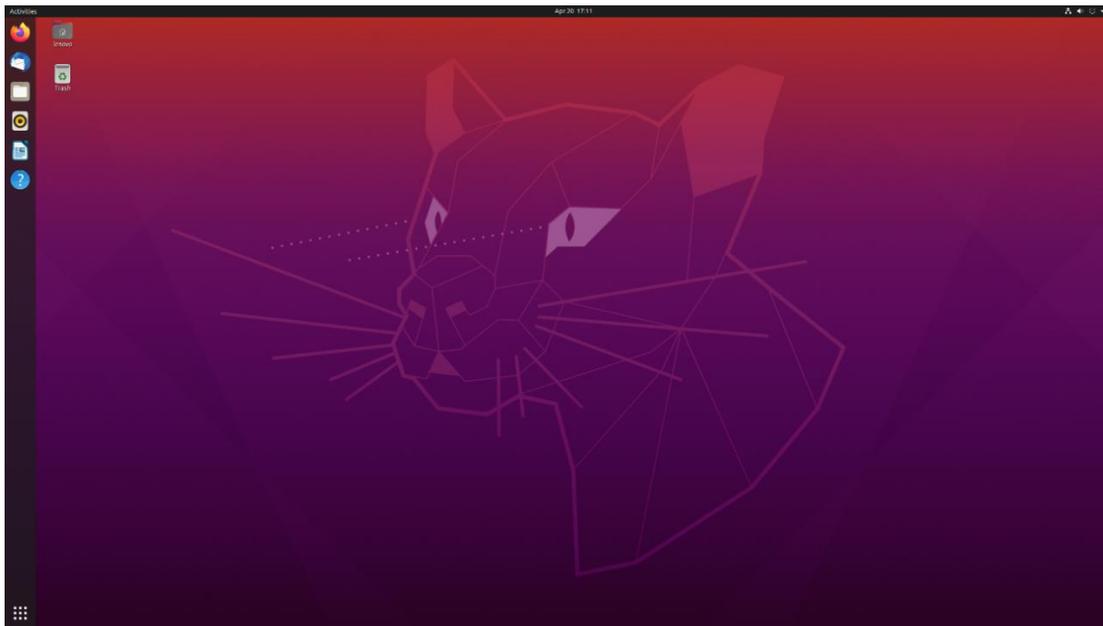
- Once the installation completes, select Restart Now.



- Remove the installation media and hit enter.



- Ubuntu Desktop Screen.



Section 3 – RAID Installation

Currently Lenovo P340 systems only support single drive installations and not RAID installations in Ubuntu 20.04 operating system due to unavailable kernel drivers.

Section 4 – LAN Connection

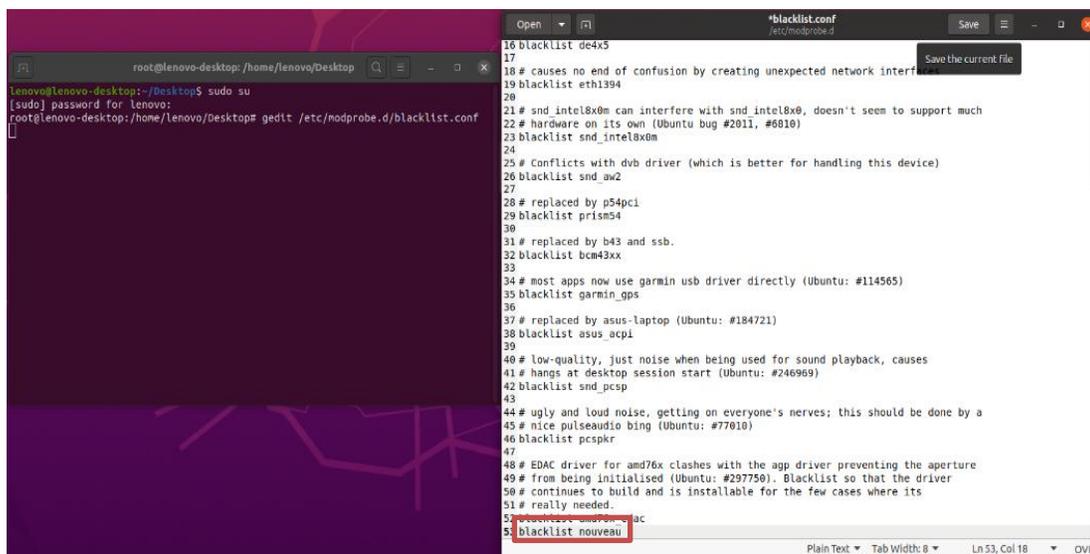
LAN is native to Ubuntu 20.04 and would not require additional drivers for it to work.

Users should make sure of having working internet connection to carry on with Section 5.

Section 5 – Installing the Nvidia Graphics Driver

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

- Download the latest Nvidia graphics driver for the appropriate Nvidia GPU from [here](#).
- In order 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 window shows the contents of the file, with the line `blacklist nouveau` added at the end and highlighted with a red box.

```

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

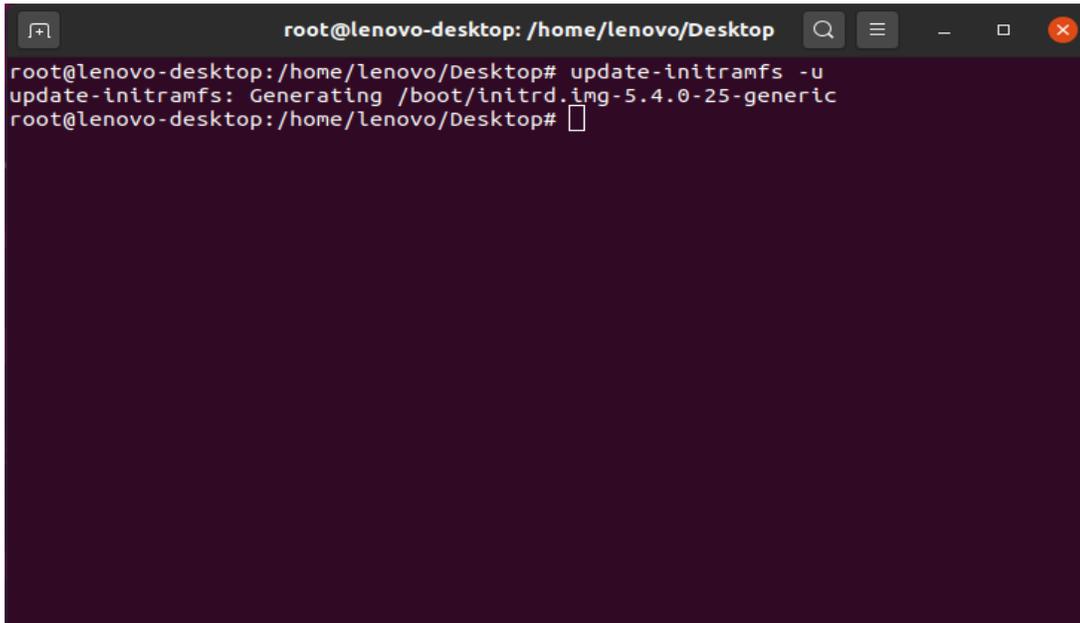
```

```

16 blacklist de4x5
17
18 # causes no end of confusion by creating unexpected network interf
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_aw2
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 pcspeaker
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

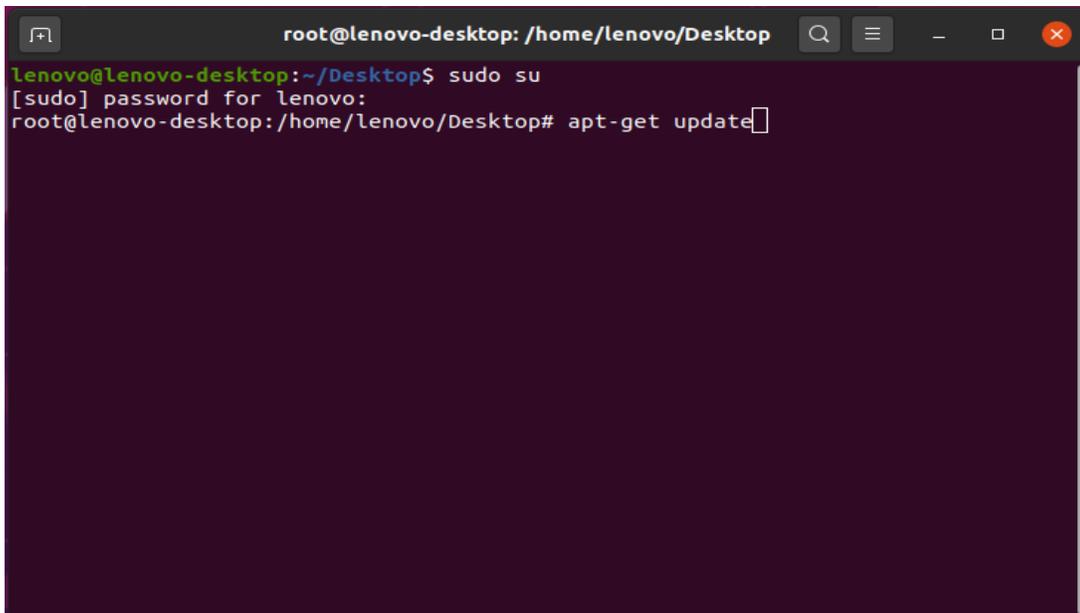
```

- Run the command: update-initramfs -



```
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



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

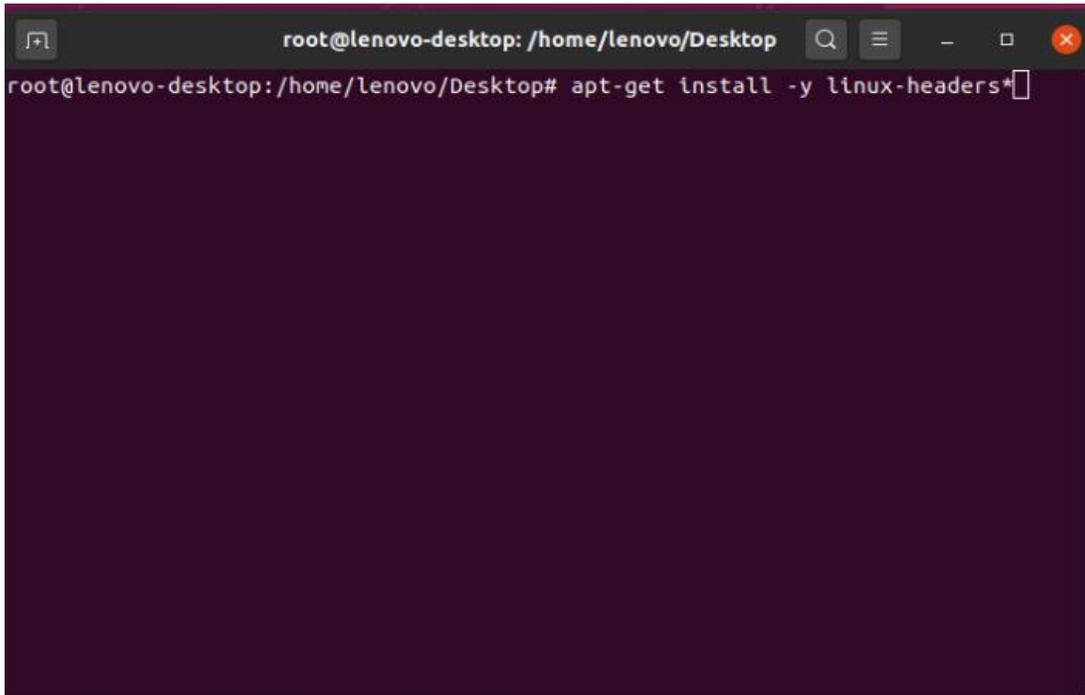
```
root@lenovo-desktop: /home/lenovo/Desktop
root@lenovo-desktop:/home/lenovo/Desktop# apt-get install gcc
Reading package lists... Done
Building dependency tree
Reading state information... Done
gcc is already the newest version (4:9.3.0-1ubuntu2).
The following package was automatically installed 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
```

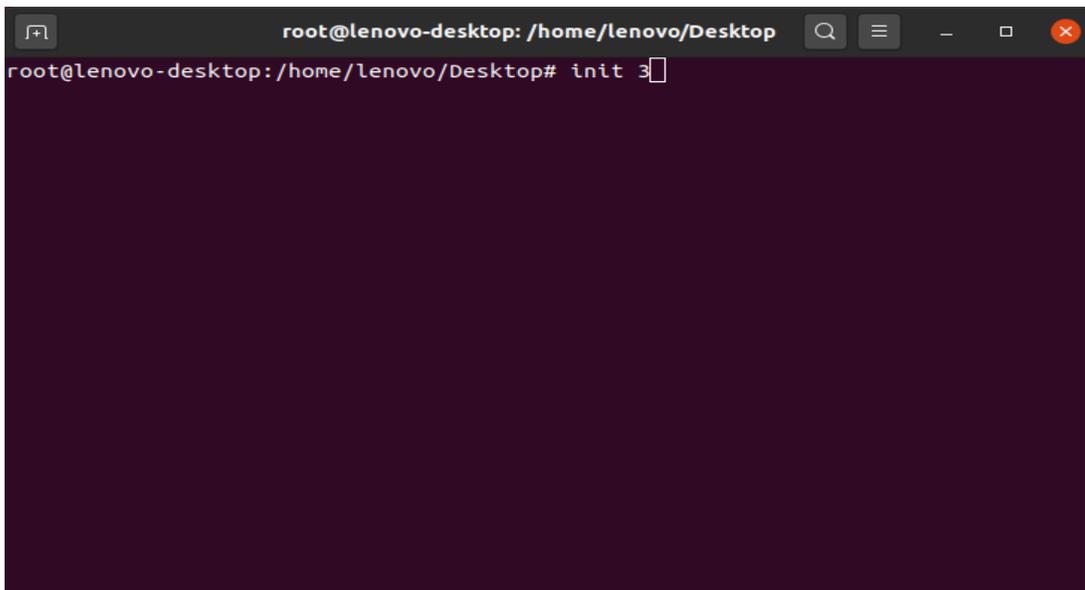


- Install linux-headers: `apt-get install -y linux-headers*`



```
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

465 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.

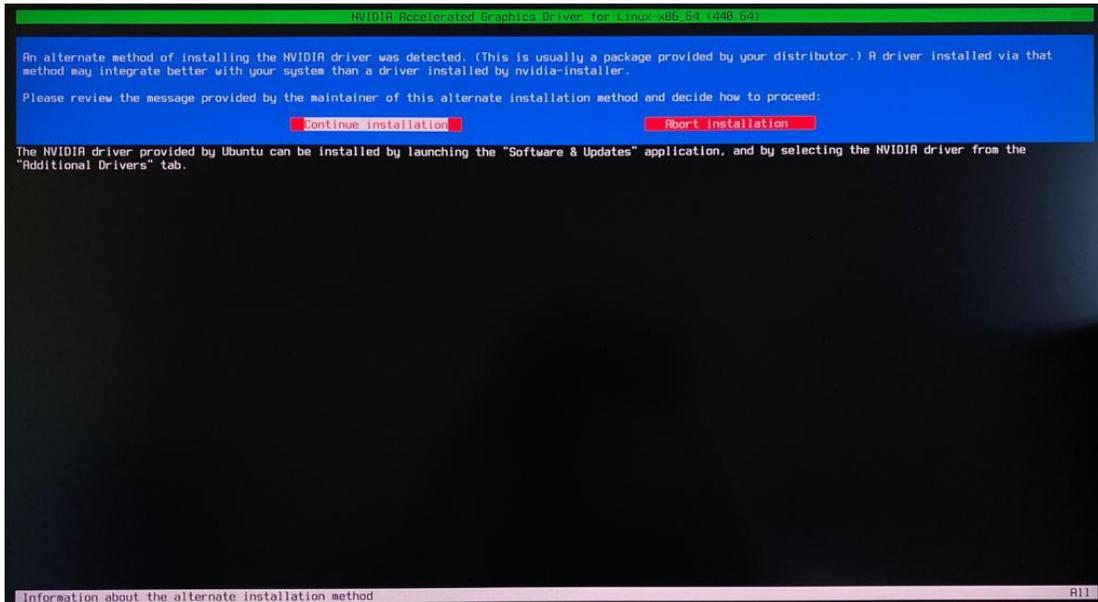
lenovo@lenovo-desktop:~$ sudo su
[sudo] password for lenovo:
root@lenovo-desktop:/home/lenovo#
```

- Make the Nvidia installer an executable by the command- `chmod +x NVIDIA-Linux-x86-64-*`

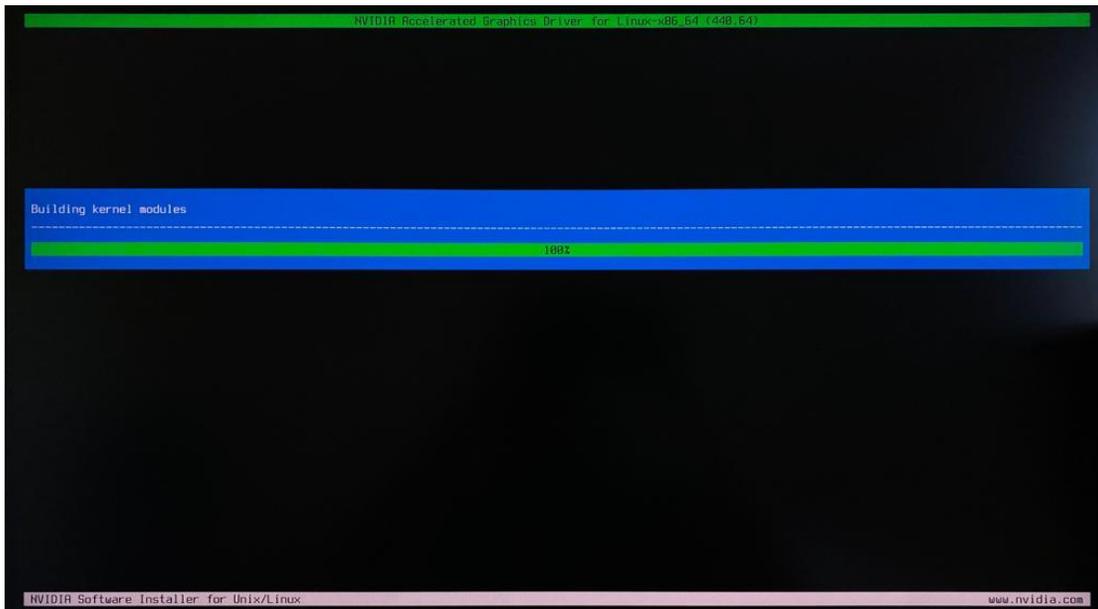
And run the Nvidia driver by- `./NVIDIA-Linux-x86_64-430.50.run`

```
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 _
```

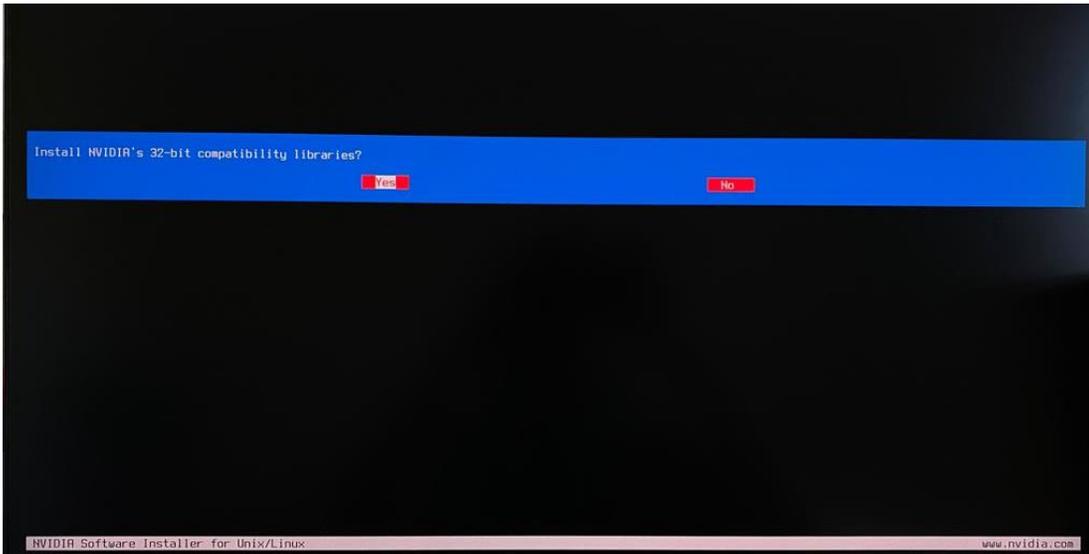
- Select Continue installation.



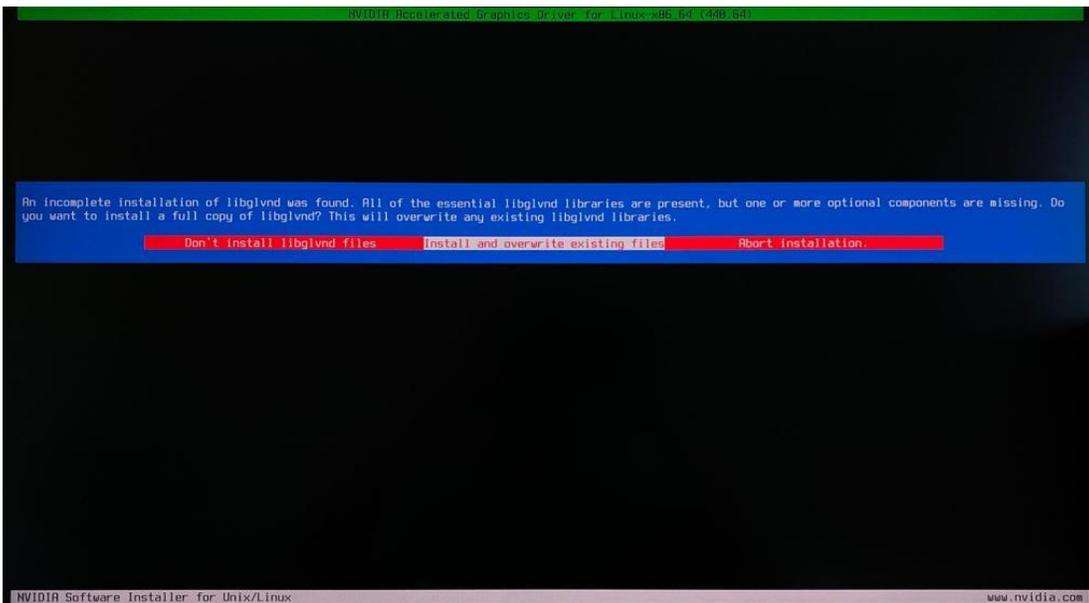
- Wait until the kernel modules are completely built.



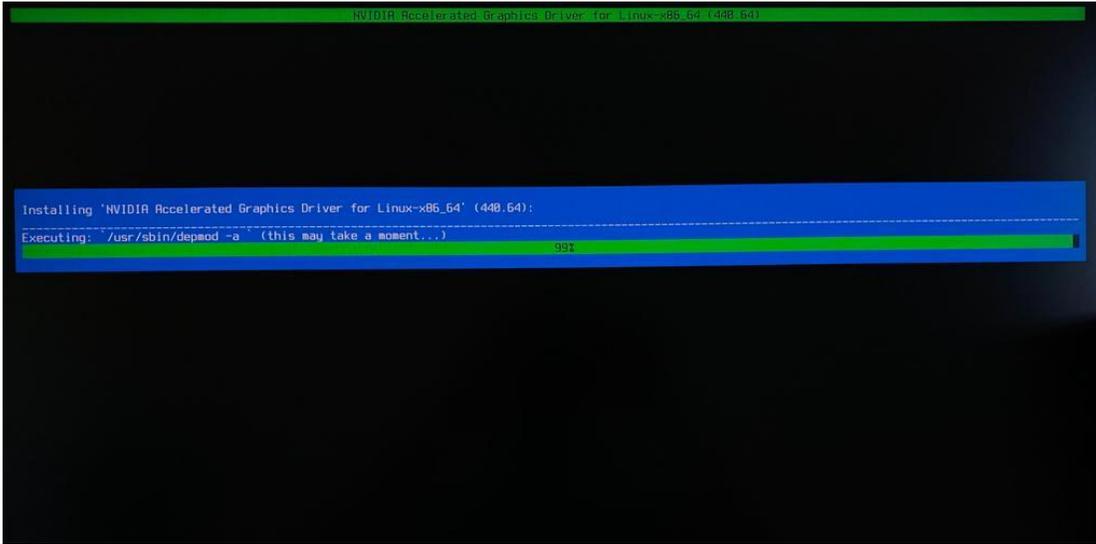
- Select Yes for installing 32-bit compatibility libraries.



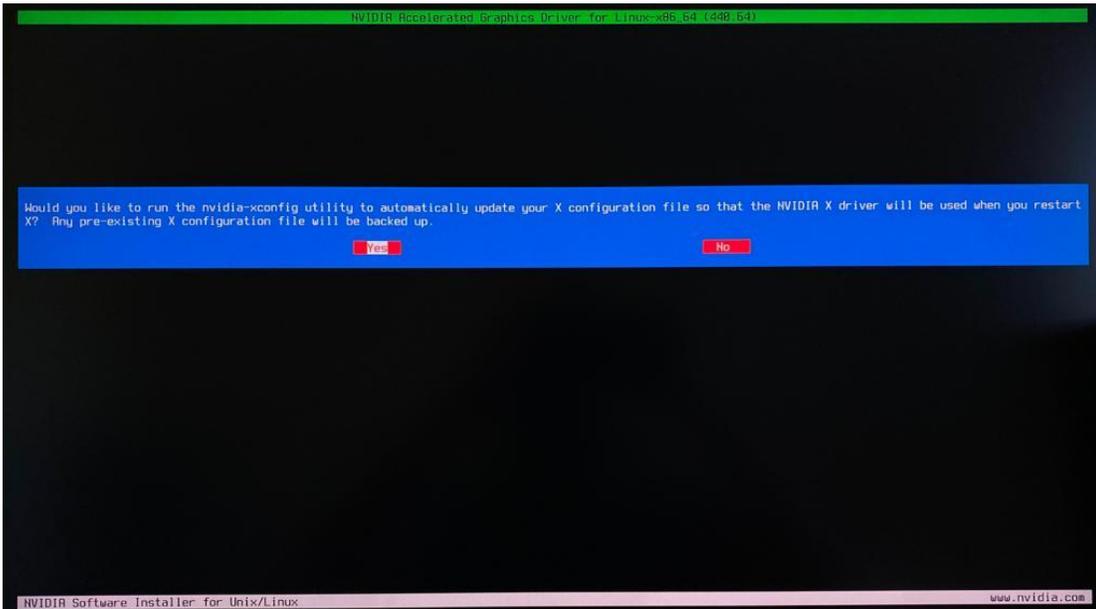
- Select Install and overwrite existing files.



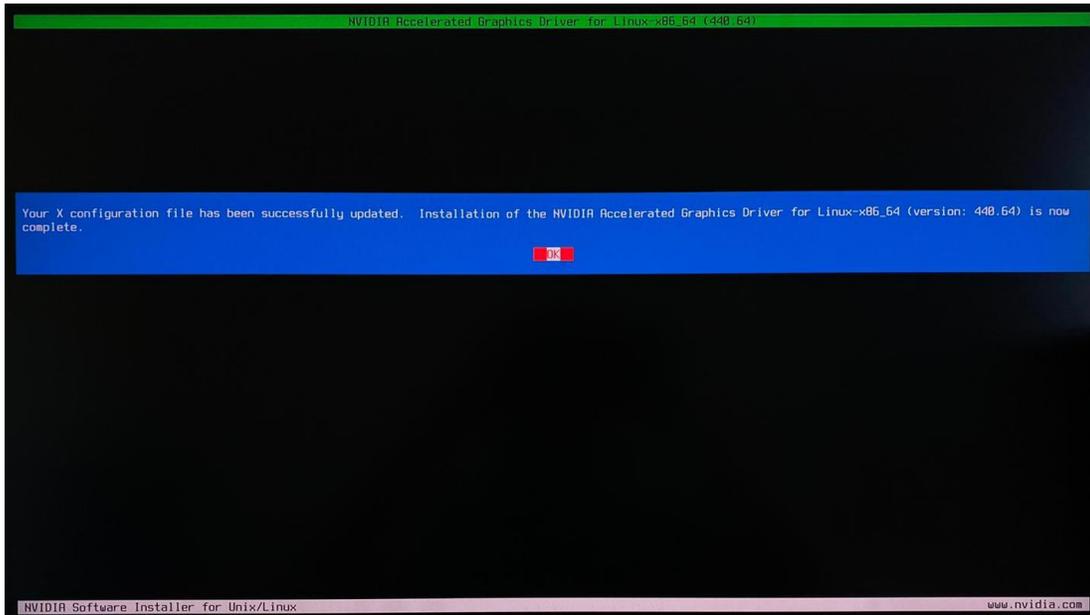
- Wait until the installation is complete.



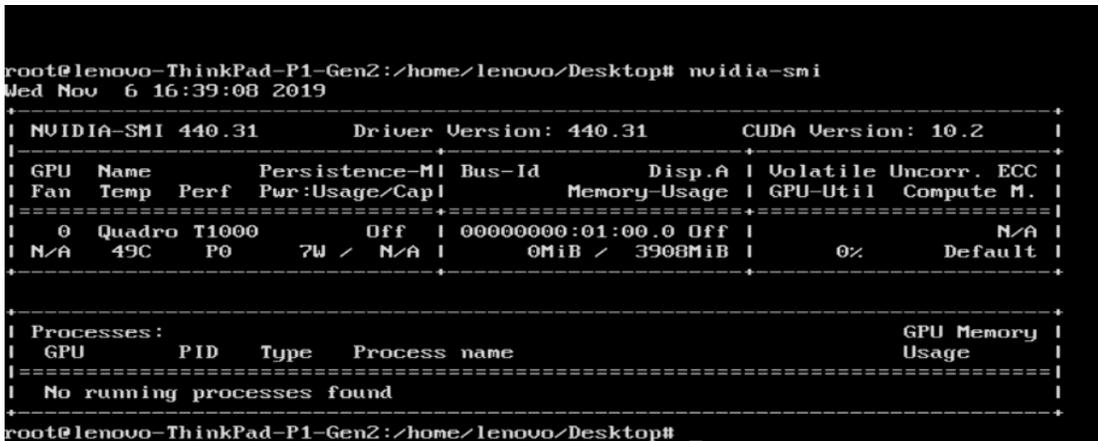
- Select Yes to run nvidia-xconfig utility to automatically update your X configuration file.



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



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



- Reboot the system.

Section 6 – Revision History

Version	Date	Author	Changes/Updates
1.0	06/04/2020	Sayali Pawar	Initial launch release