

Ubuntu Linux 22.04 LTS Installation

Lenovo ThinkStation P2 Tower



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Overview

The purpose of this document is to provide high-level guidance for users to adequately install an Ubuntu Linux 22.04 LTS operating system on the new ThinkStation P2 platforms.

The Lenovo logo is displayed vertically in white text on a red rectangular background.

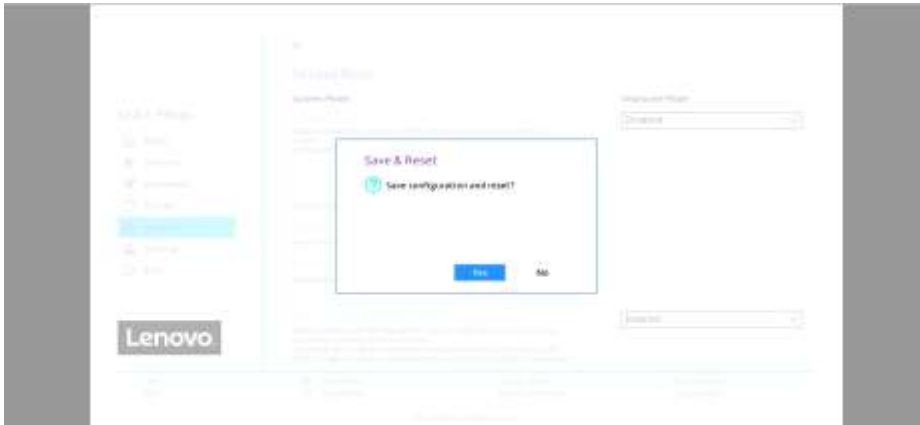
Section 1 – BIOS Setup

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

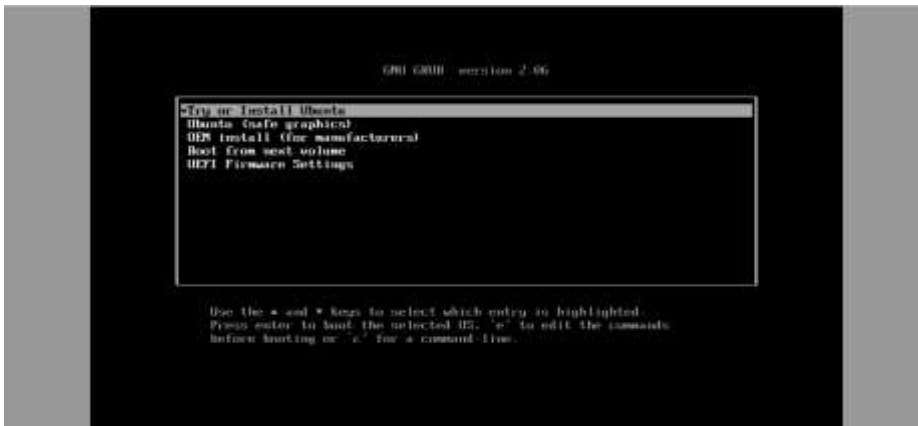
- Boot into BIOS by pressing the function F1 key at the “Lenovo” splash screen.



- Save changes by pressing F10 function key.



4. Select the 'Try or Install Ubuntu' option from the GRUB boot menu and press 'Enter'.

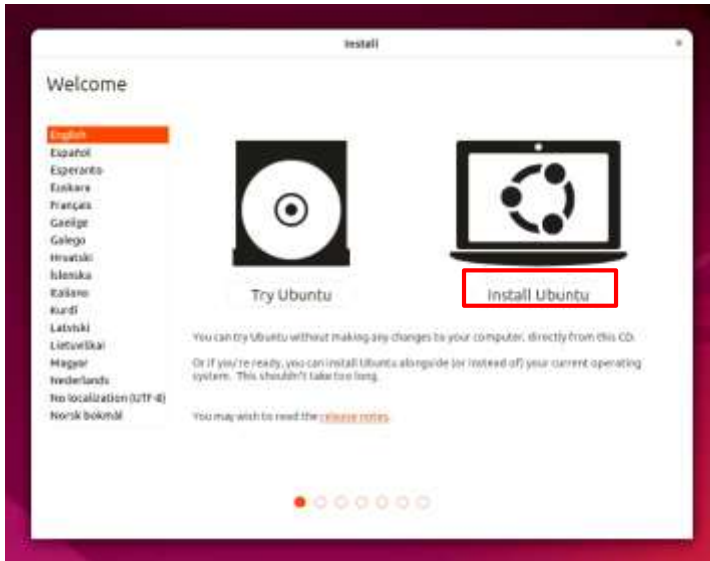


5. The Ubuntu installation media will begin to load.

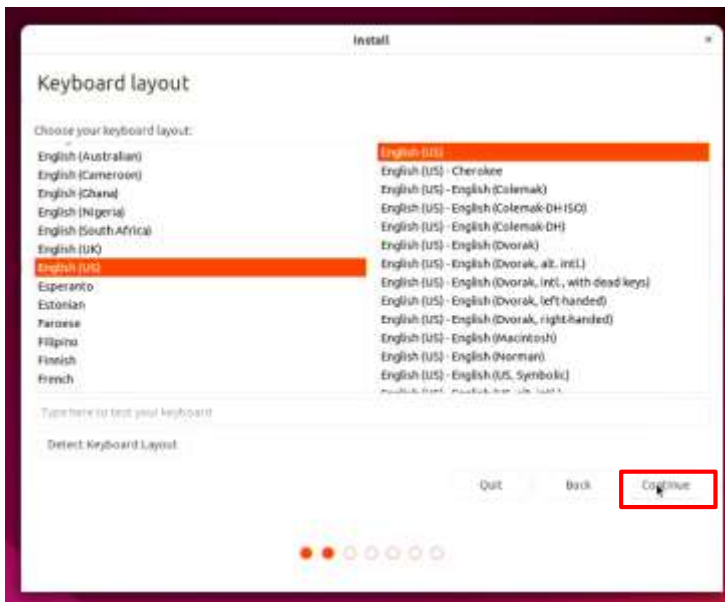


6. The Ubuntu Linux Welcome screen should eventually appear. Select the appropriate language and select 'Install Ubuntu'.

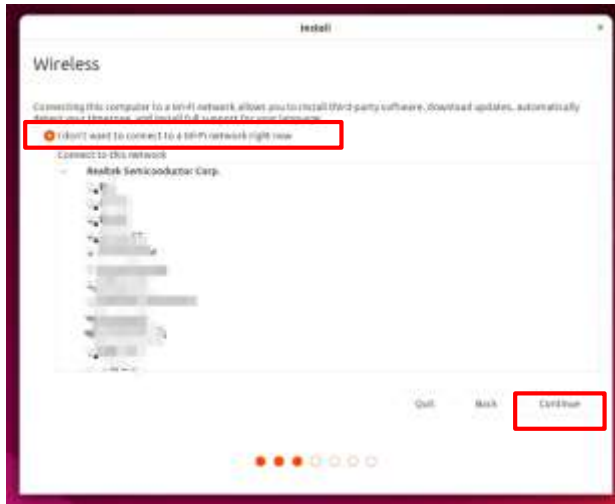




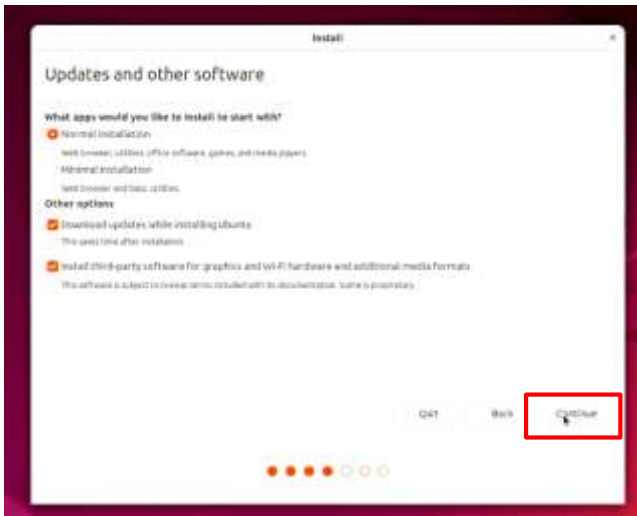
7. Select the appropriate keyboard layout and 'Continue'.



8. If a wireless module is installed in the system, the installation media may prompt the user to connect to a network. In this example, 'I don't want to connect to a Wi-Fi network right now' was selected.



9. Select the type of installation and 'Continue'.
Note: If there is a valid internet connection on the system, items available under the 'Other options' sections will be selectable.



Select 'Erase disk and install Ubuntu' to automatically create the file system partitions and 'Continue'.

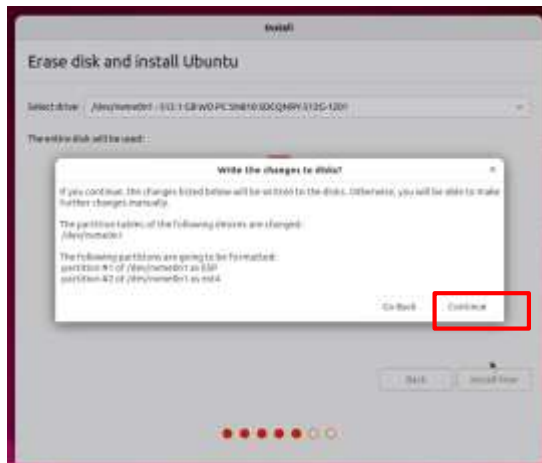
To manually create file system partitions, select 'Something else'.

Note: If the disk has data on it already the options here may be different.

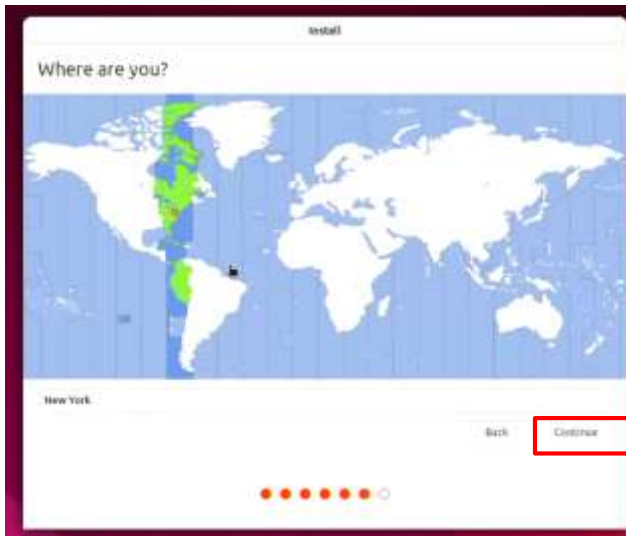
In this document, 'Erase disk and install Ubuntu' was selected.



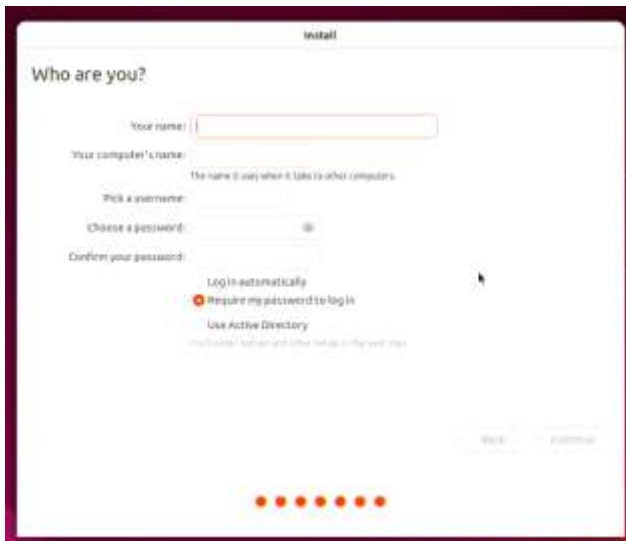
10. Select 'Continue' to confirm writing changes to the disk.



11. Select the appropriate geographical location and 'Continue'.



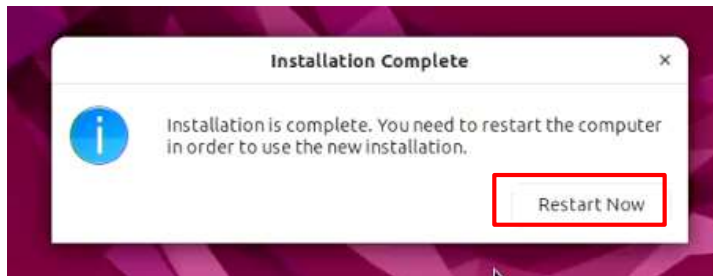
12. Fill in the appropriate boxes below and select 'Continue'.



13. Let the system finish the installation.



14. Once the installation completes, select 'Restart Now'.



15. Remove the installation media (USB/DVD) and press 'Enter'.



16. Ubuntu 22.04 LTS Desktop screen.



Section 3 – Install Device Drivers

Most of the standard building blocks used in the ThinkStation P3 platform are native to the Ubuntu Linux 22.04 LTS base kernel. Installing a proprietary graphics driver is recommended to get optimal performance from the graphics card. The next sections provide step-by-step instructions on how to install a proprietary Nvidia graphics driver in Ubuntu Linux.

Note 1: All commands need to be executed with superuser privileges in the following sections. All commands that need to be typed in, start with the # sign.

Note 2: Non-native drivers need to be manually installed. Refer to the vendor's documentation for a detailed process of obtaining and installing drivers.

The Lenovo logo is a red vertical rectangle with the word "Lenovo" written in white, oriented vertically from bottom to top.

Section 4 – Install Nvidia Proprietary Drivers

The below step-by-step instructions on how to install Nvidia proprietary drivers.

1. Download the appropriate Nvidia graphics driver from the Lenovo Support portal or NVIDIA support site.

Link for P2 Driver:

For example, for T1000 8G

<https://www.nvidia.cn/Download/driverResults.aspx/216728/en-us/>

批注 [MR1]: Where? How? Example version and file name.

批注 [AP2R1]: I have clarified as suggested from where driver should be downloaded. The version and file name can be different, don't think it is necessary to add them.

批注 [JM3]: I think I'd rather have you link users to the Linux drivers from the Lenovo Support Site as opposed to Nvidia's site. Therefore, they can install the driver that has been tested and qualified.

NVIDIA Driver Downloads

Select from the dropdown list below to identify the appropriate driver for your NVIDIA product.

Product Type:

Product Series:

Product:

Operating System:

Download Type:

Language:

Search

Linux X64 (AMD64/EM64T) Display Driver

Version: 535.146.02
Release Date: 2023.12.7
Operating System: Linux 64-bit
Language: English (US)
File Size: 325.91 MB

Download

File Name: NVIDIA-Linux-x86_64-535.146.02.run

2. Blacklist the Linux Nouveau driver.

- #
- /etc/modprobe.d/blacklist.conf
- Add the following line, 'blacklist nouveau', and save and exit the file.

```
p2@p2-Lenovo-Product: ~/Desktop
p2@p2-Lenovo-Product:~/Desktop$ sudo nano /etc/modprobe.d/blacklist.conf
```

```
GNU nano 6.2 /etc/modprobe.d/blacklist.conf
blacklist garmin_gps

# replaced by asus-laptop (Ubuntu: #184721)
blacklist asus_acpi

# low-quality, just noise when being used for sound playback, causes
# hangs at desktop session start (Ubuntu: #246969)
blacklist snd_pcsp

# ugly and loud noise, getting on everyone's nerves; this should be done by a
# nice pulseaudio bing (Ubuntu: #77010)
blacklist pcspkr

# EDAC driver for amd76x clashes with the agp driver preventing the aperture
# from being initialised (Ubuntu: #297750). Blacklist so that the driver
# continues to build and is installable for the few cases where its
# really needed.
blacklist amd76x_edac
blacklist nouveau
```

批注 [JM4]: Perhaps put a box around the text that you added in the screenshot for reference?

3. Update the initramfs file and reboot the system.

- # update-initramfs -u
- # reboot now

```
[sudo] password for p2:
p2@p2-Lenovo-Product:~/Desktop$ sudo update-initramfs -u
update-initramfs: Generating /boot/initrd.img-6.2.0-26-generic
p2@p2-Lenovo-Product:~/Desktop$
```

4. Once the system reboots to the Linux desktop screen, run the following command as superuser from a terminal window to exit X-windows.

- # init 3

```
p2@p2-Lenovo-Product:~/Desktop$ sudo init 3
[sudo] password for p2:
```



5. Login as root (superuser).

```
ubuntu 22.04.3 LTS p2-Lenovo-Product tty1
p2-Lenovo-Product login: _
```

6. Navigate to the directory to where the Nvidia driver installation file is located and run the following command. *In this example, it is on the Linux desktop.*

- # bash ./NVIDIA*

```
Last login: Tue Jan 9 20:39:40 EST 2024 on tty1
p2@p2-Lenovo-Product:~$ sudo ./Downloads/NVIDIA-Linux-x86_64-535.146.02.run
```

7. Note the driver should start to install.

```
root@p2-Lenovo-Product:/home/p2/Downloads# bash ./NVIDIA-Linux-x86_64-535.146.02.run
Verifying archive integrity... OK
Uncompressing NVIDIA Accelerated Graphics Driver for Linux-x86_64 535.146.02.....

[Progress bar with green and black segments]
```

8. Select 'OK' on the following warning message.

```
[Warning dialog box with OK button]
```

9. The driver should continue to install.

```
[Progress bar with green and black segments]
```

10. Select 'Yes' to update the x-configuration file.

```
[Warning dialog box with Yes button]
```



批注 [MR5]: Not sure Browse is the right word when at the CLI prompt. Maybe "Navigate to the directory..."
批注 [AP6R5]: Good point

11. Select 'OK' to acknowledge that the x-configuration file has successfully been updated.



12. Run the following command to verify the Nvidia driver has been installed and loaded properly, then reboot the system.

nvidia-smi

```
p2@p2-Lenovo-Product: ~/Desktop
p2@p2-Lenovo-Product: ~$ nvidia-smi
Tue Jan  9 23:09:55 2024

+-----+
| NVIDIA-SMI 535.146.02                Driver Version: 535.146.02   CUDA Version: 12.2     |
+-----+-----+-----+-----+-----+-----+
| GPU   Name                   Persistence-M| Bus-Id        Disp.A   | Volatile Uncorr. ECC |
| Fan  Temp  Perf              Pwr:Usage/Cap|      Memory-Usage  | GPU-Util  Compute M. |
|                                            |                    |                 MIG M. |
+-----+-----+-----+-----+-----+-----+
|   0   NVIDIA T1000           Off          | 00000000:01:00:08 On         |      3%      Default |
| 33%  46C  PB              N/A / 50W  | 196MiB / 4096MiB |              N/A     |
+-----+-----+-----+-----+-----+-----+

Processes:
+-----+-----+-----+-----+-----+-----+
| GPU   GI   CI          PID  Type  Process name          | GPU Memory Usage | | | |
|   0   N/A  N/A              |   0   |      | /usr/lib/xorg/Xorg    |      70MiB        |
|   0   N/A  N/A              | 1376 |      | /usr/bin/gnome-shell  |     121MiB       |
|   0   N/A  N/A              | 1750 |      | /usr/libexec/gnome-initial-setup |      1MiB        |
+-----+-----+-----+-----+-----+-----+

p2@p2-Lenovo-Product: ~$
```

批注 [MR7]: Cleanup - How do I get back to my desktop? Start x? reboot?

批注 [AP8R7]: corrected

Revision History

Version	Date	Author	Changes/Updates
0.1	1/8/2024	Zhu Zheng	Initial Draft.
1.0	10/30/2024	Zhu Zheng	Initial Release.

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