

Red Hat Enterprise Linux 10 Installation

Lenovo ThinkStation P3 Tower Gen 2



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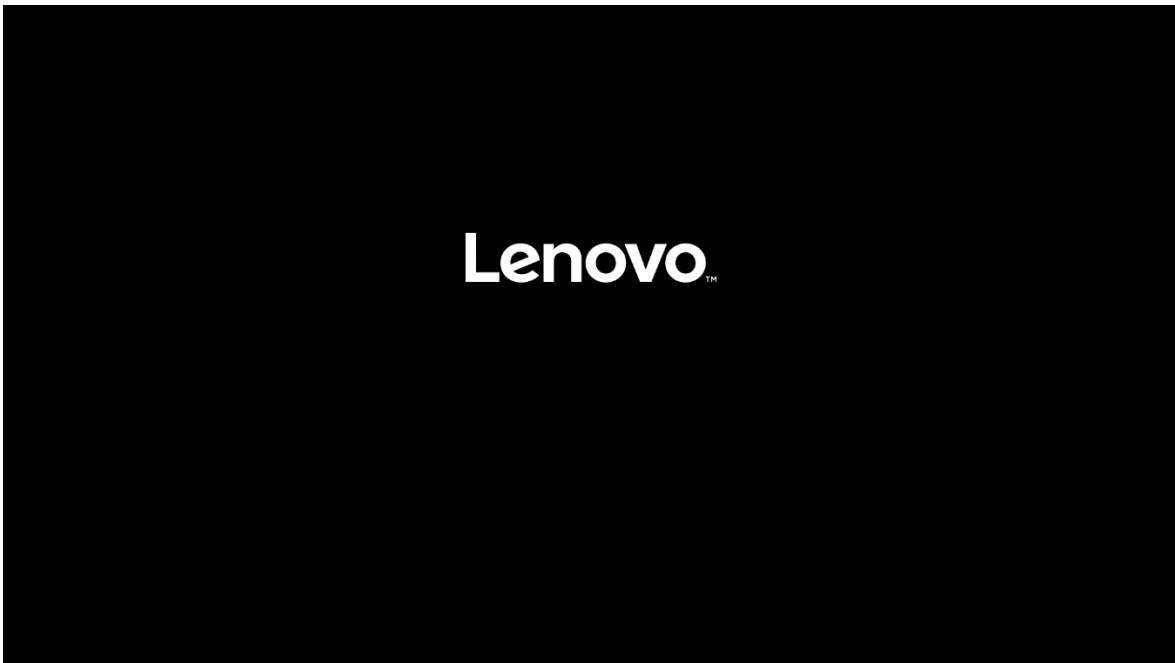
Overview

The purpose of this document is to provide high-level guidance for users to install the Red Hat Enterprise Linux 10 operating system on the new ThinkStation P3 Tower Gen 2.

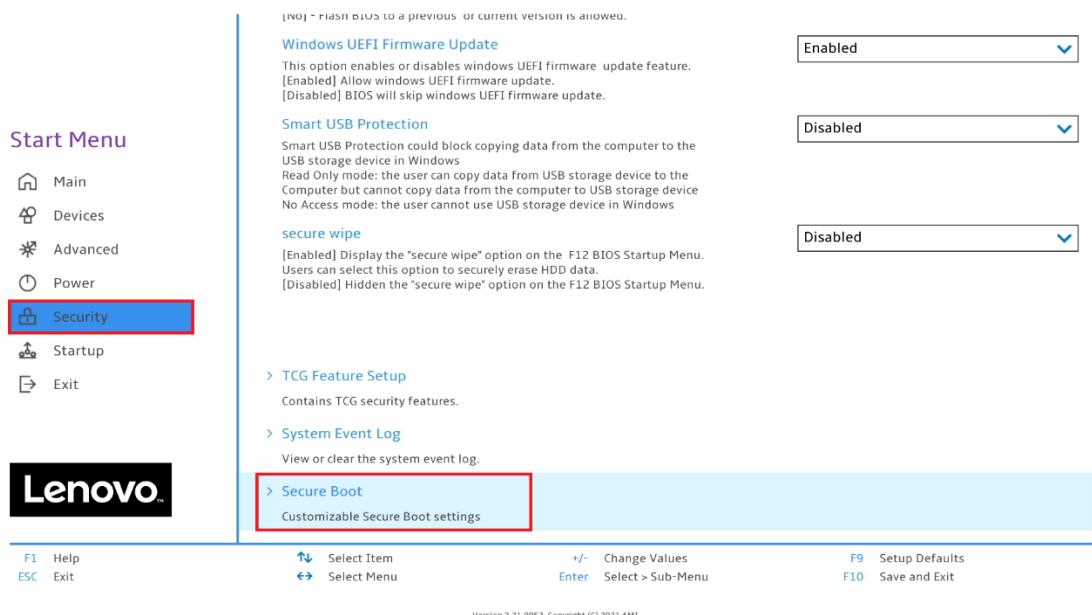
Section 1 – BIOS Setup

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

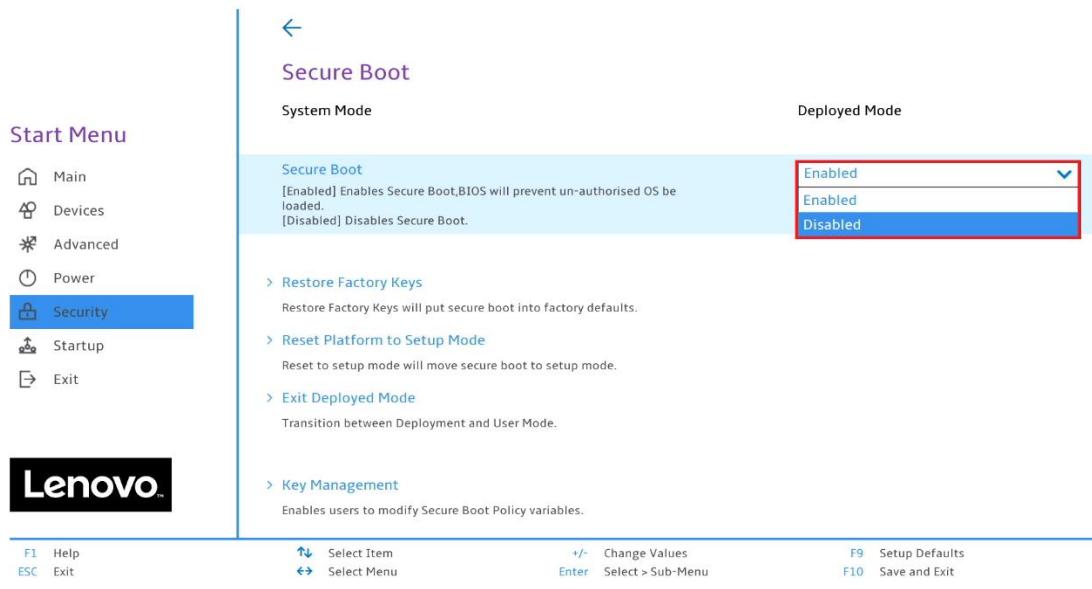
- Boot into BIOS by pressing the function F1 key at the “Lenovo” splash screen.



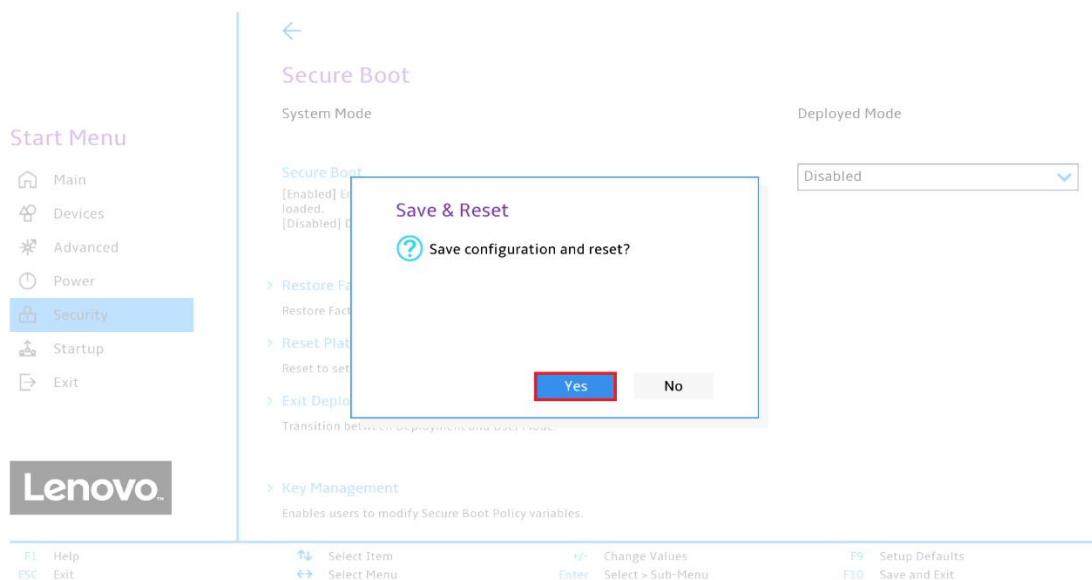
- Tab over to the Security tab and select “Secure Boot”.



- Ensure that Secure Boot option is set to “Disabled”.



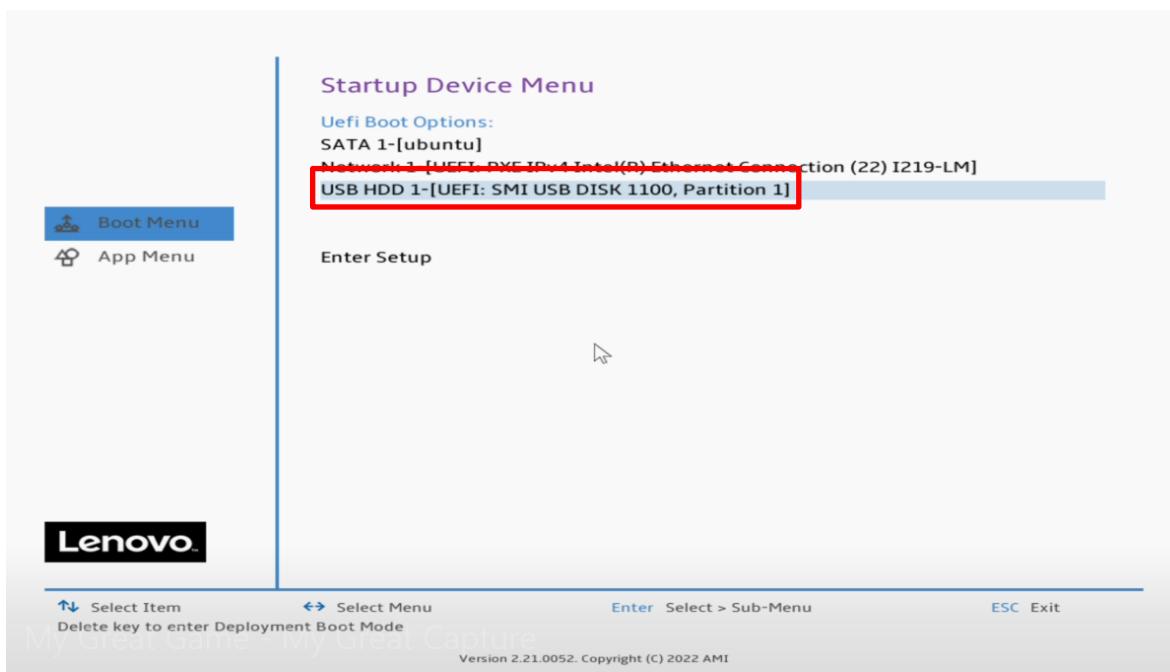
- Save changes by pressing F10 function key.



Section 2 – RHEL 10 Installation

Here are some step-by-step instructions on how to get a Red Hat Enterprise Linux 10 operating system installed on the ThinkStation P3 Tower Gen 2.

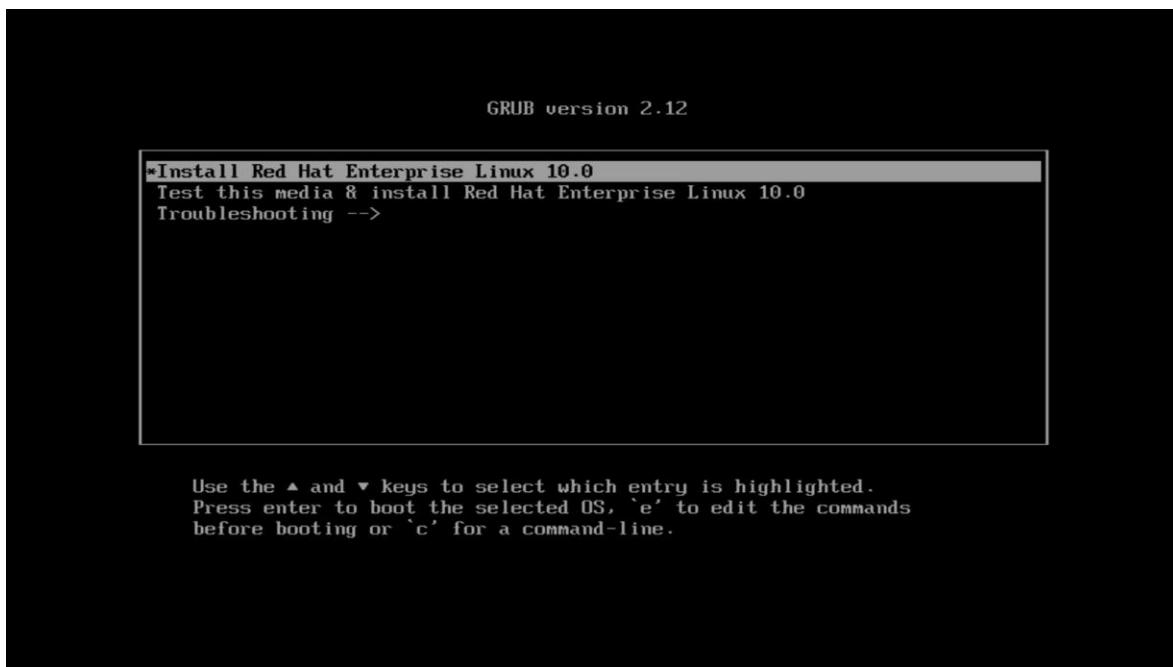
1. Obtain a copy of the RHEL 10 installation media. It is recommended to use Fedora Media Writer to make an installation USB with the appropriate RHEL 10 installation media.
2. Insert the USB memory key into one of the USB ports on the system and power on the system.
3. At the Lenovo splash screen, press the function F12 key to enter the BIOS startup menu and select the USB installation media from the list.



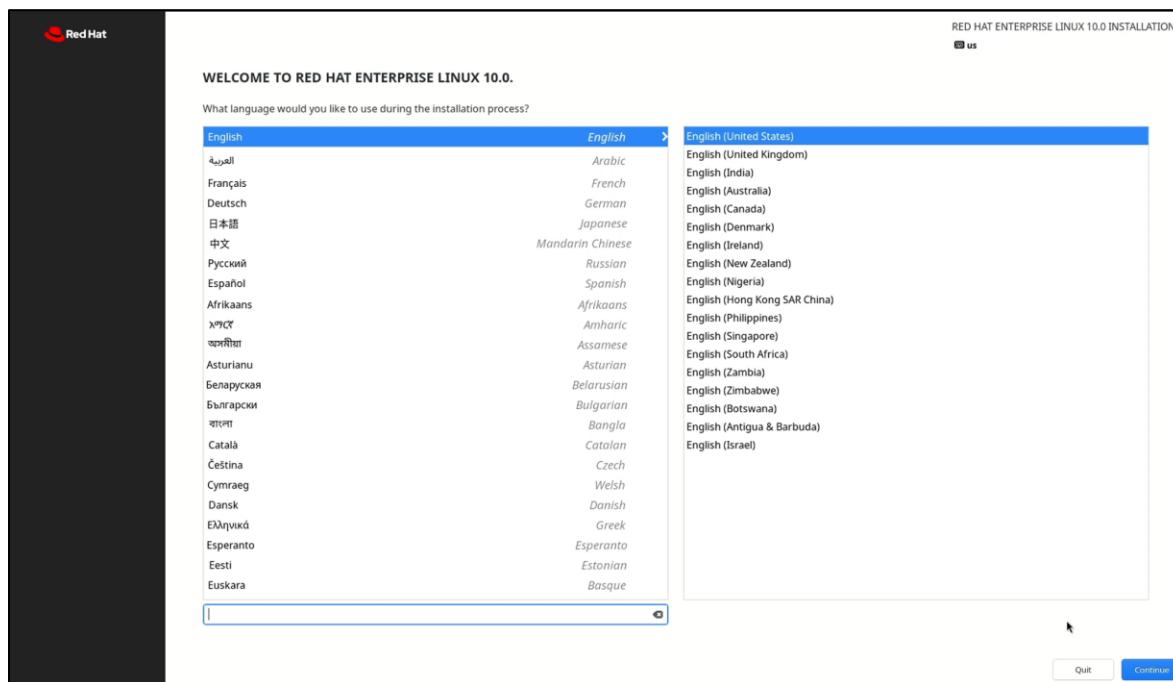
NOTE

Legacy boot is not supported on P3 Gen 2 platforms. Only UEFI bootable options will be available.

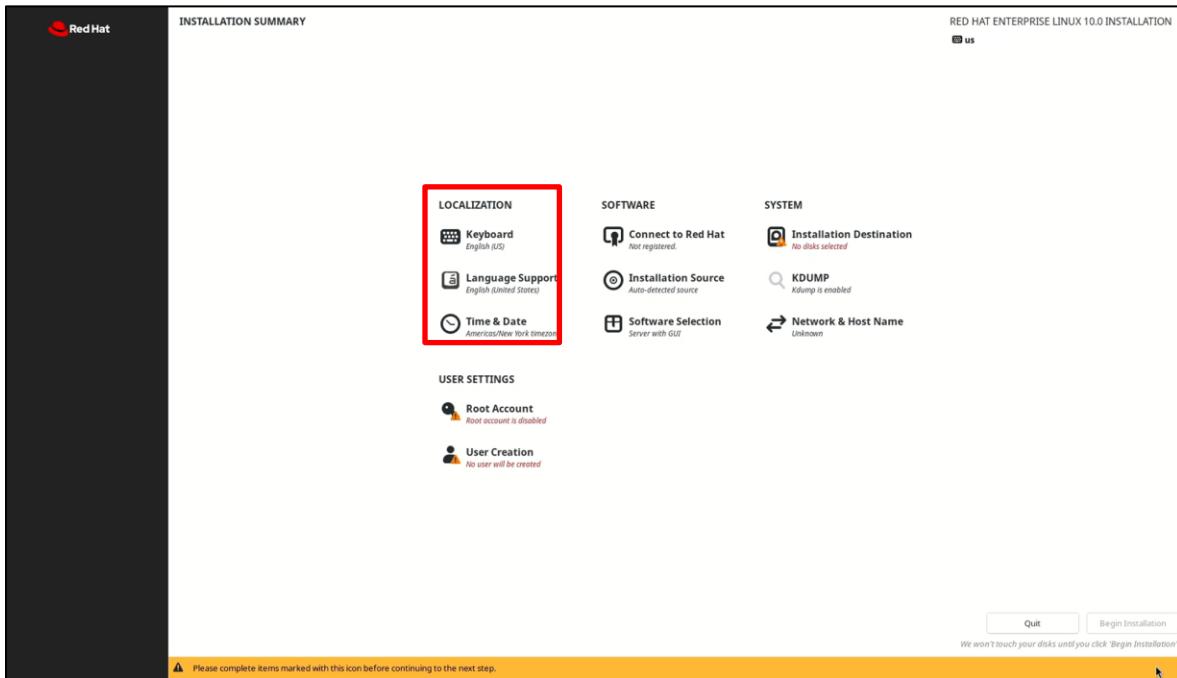
4. Select the 'Install Red Hat Enterprise Linux 10.0 option from the GRUB boot menu and press 'Enter'.



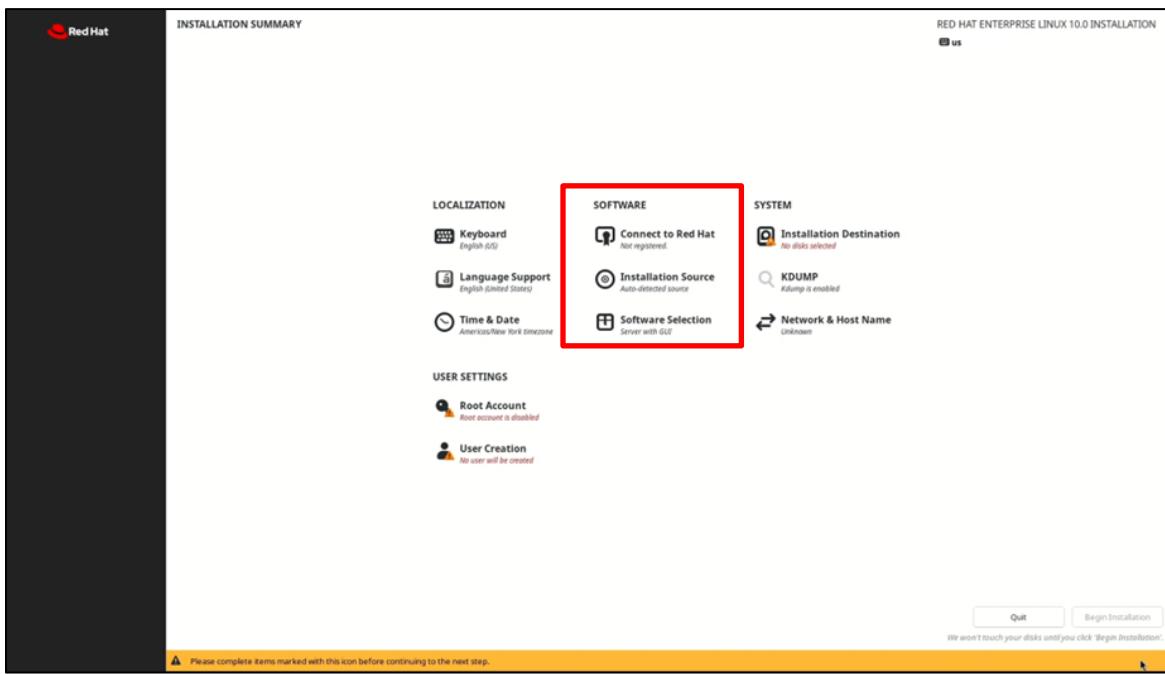
5. The Red Hat Enterprise Linux Welcome screen should appear. Select the appropriate language from the list of options and select 'Continue'.



6. Adjust the 'Keyboard', 'Language Support', and 'Time & Date' accordingly by selecting each one.

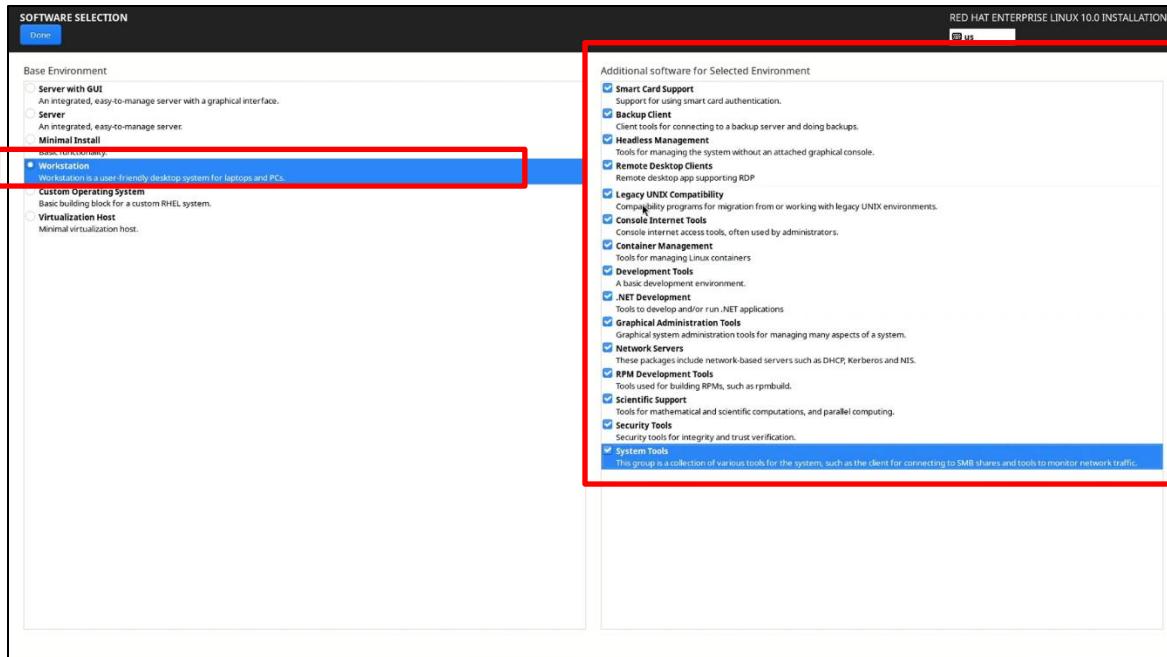


7. Select the 'Software Selection' and choose the type of software to install.

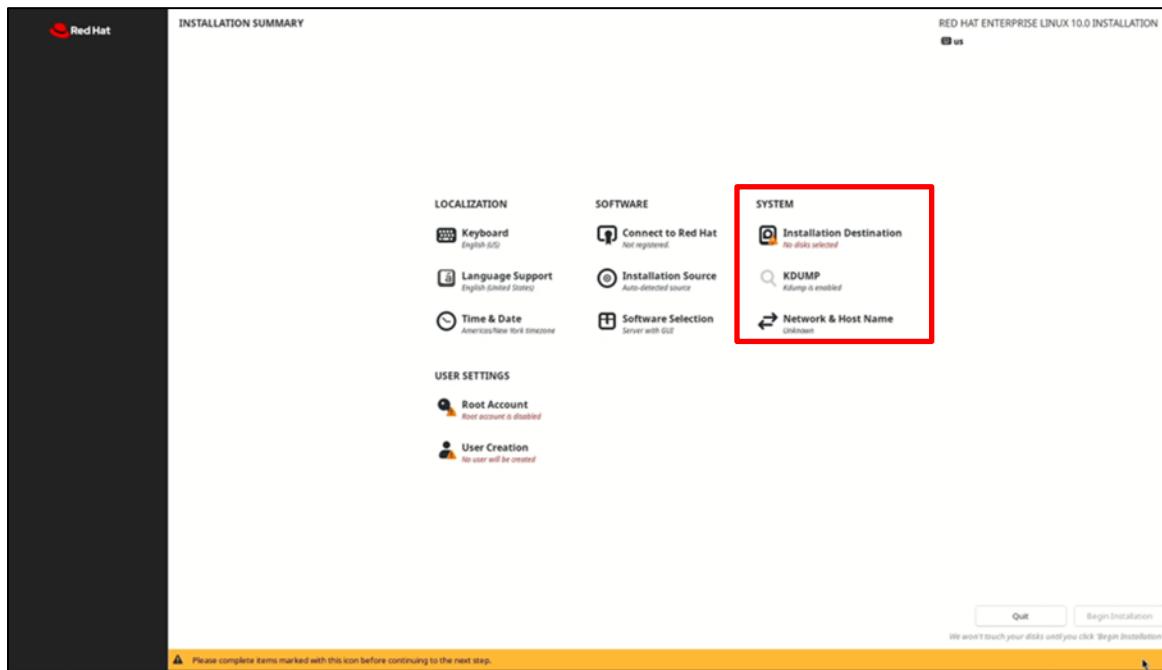


8. Select the type of 'Base Environment' as well as each additional software packages to install.

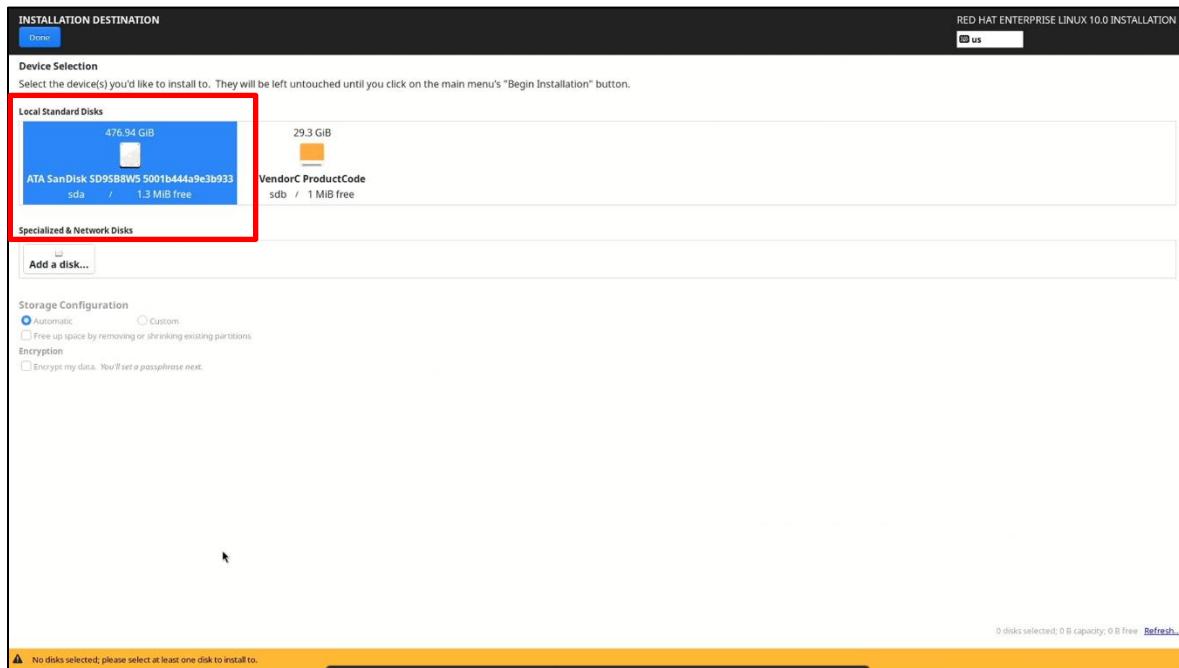
In this example, 'Workstation' was selected for the 'Base Environment' and all additional software tools were selected.



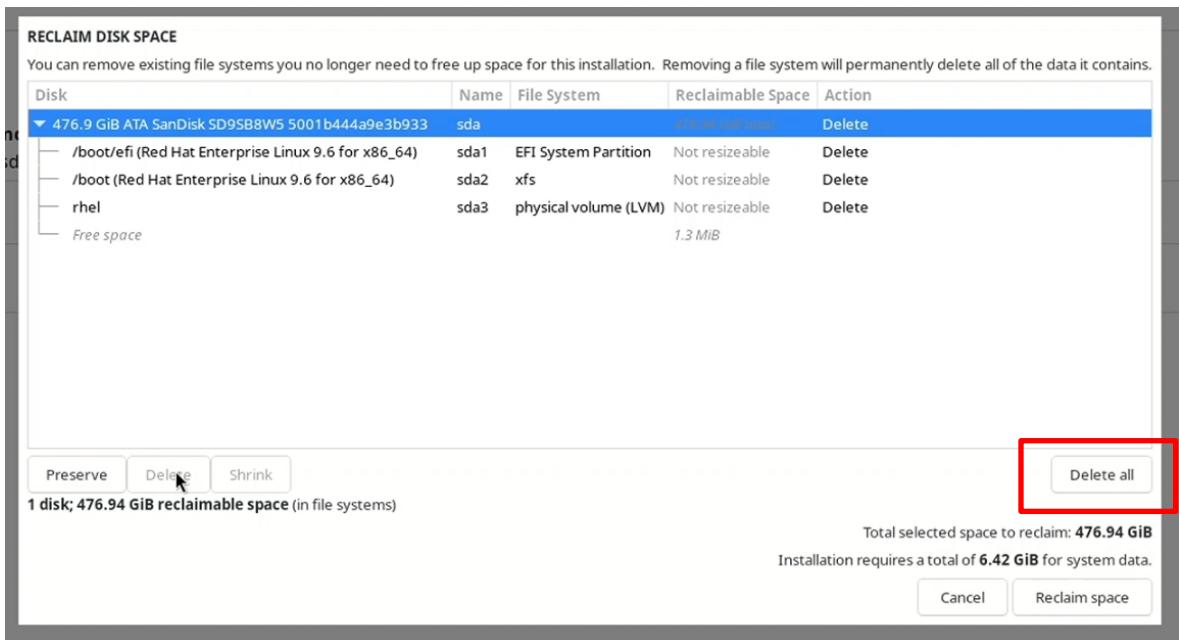
9. Select 'Installation Destination'.



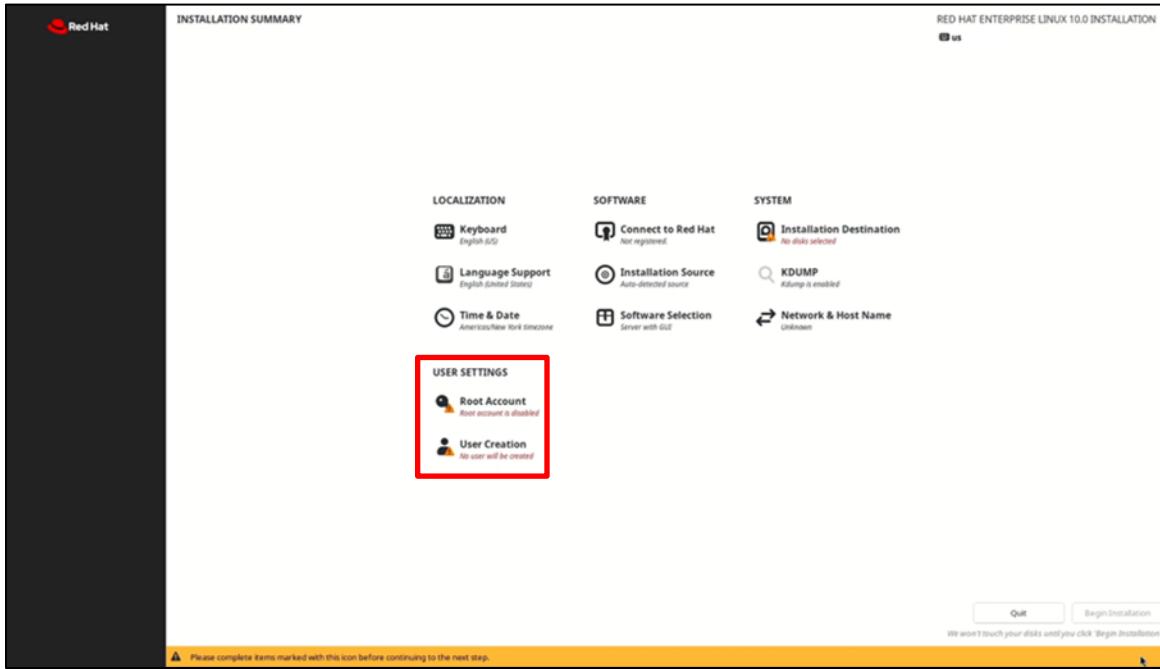
10. Select the device on where to install the operating system.



11. If there is an existing file system on the selected disk, the user will be asked to reclaim disk space. In this example, all existing partitions on the selected install disk were deleted.



12. Select ‘Root Password’.



13. Enter a root password in both boxes below and select ‘Done’ in the upper left.

ROOT ACCOUNT

Done

The root account is used for administering the system.

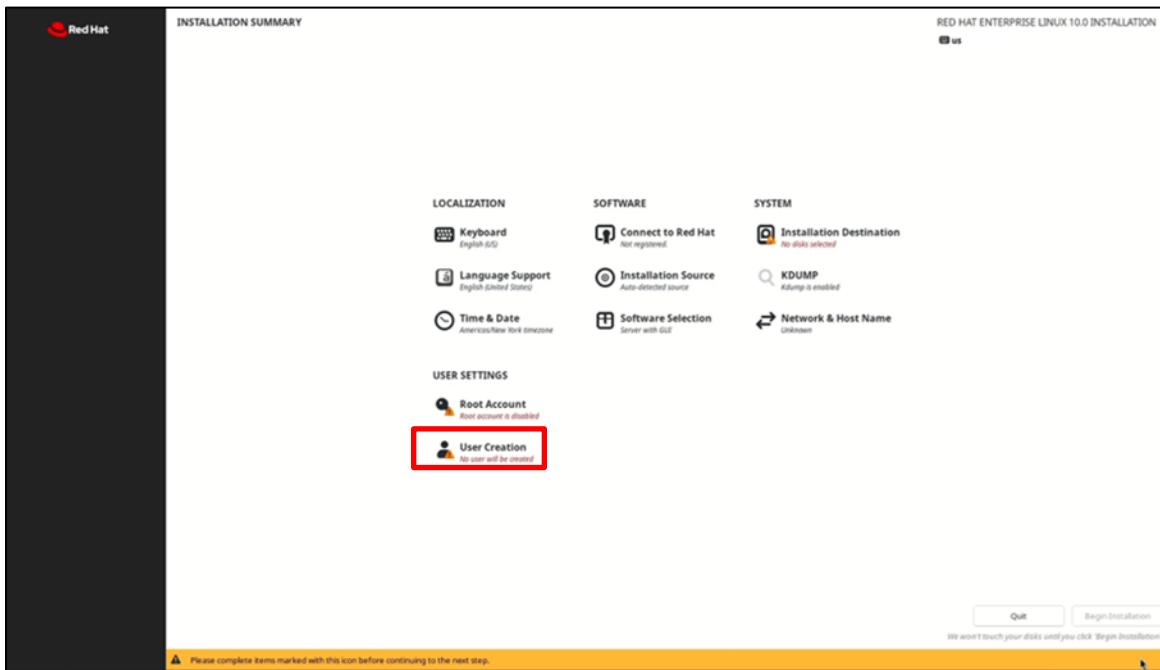
The root user (also known as super user) has complete access to the entire system. For this reason, logging into this system as the root user is best done only to perform system maintenance or administration.

Disable root account
Disabling the root account will lock the account and disable remote access with root account. This will prevent unintended administrative access to the system.

Enable root account
Enabling the root account will allow you to set a root password and optionally enable remote access to root account on this system.

Root Password: empty password
 Confirm:
 Allow root SSH login with password

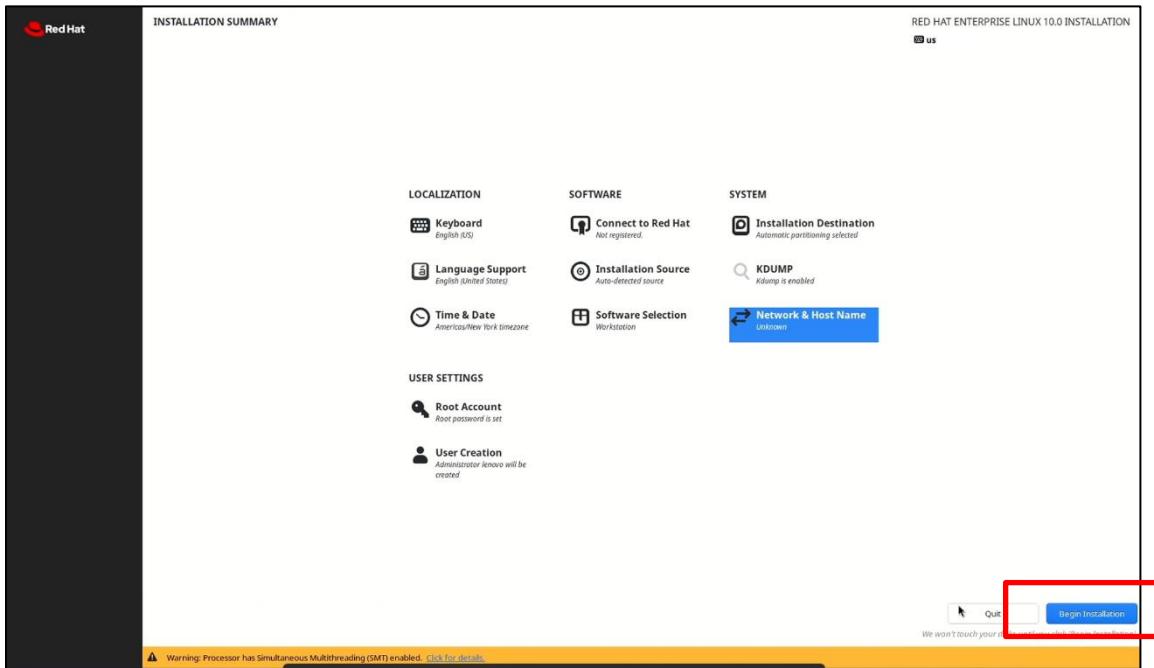
14. Select ‘User Creation’.



15. Fill in the appropriate boxes below and select ‘Done’ in the upper left.

The screenshot shows the 'CREATE USER' dialog box. It has fields for 'Full name' (empty), 'User name' (empty), 'Password' (empty, labeled 'empty password'), and 'Confirm password' (empty). There are also checkboxes for 'Add administrative privileges to this user account (wheel group membership)' and 'Require a password to use this account'. A 'Done' button is visible in the top-left corner of the dialog.

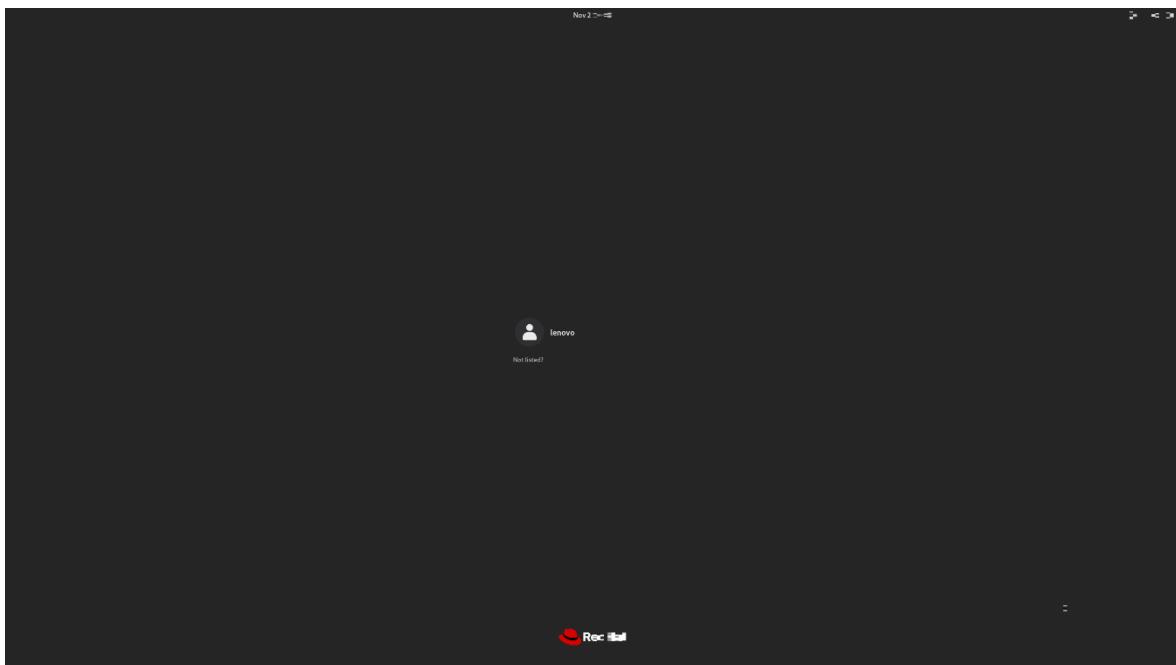
16. Select ‘Begin Installation’ to start the installation.



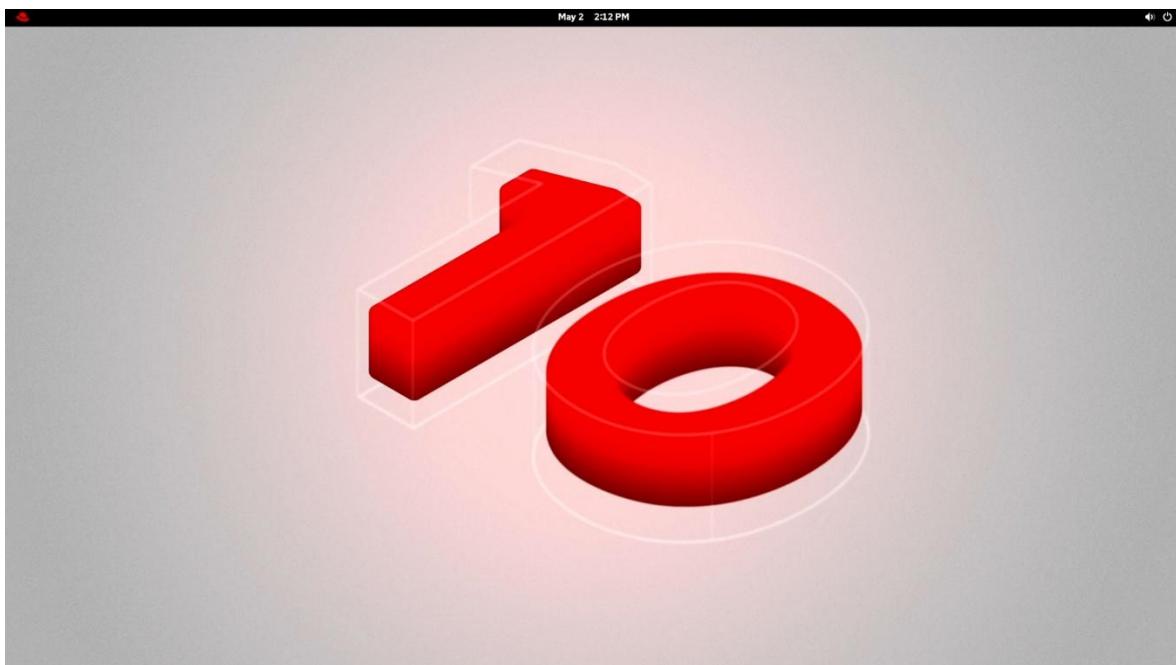
17. Once the installation completes, select ‘Reboot System’ at the bottom right.



18. Select the user icon and log in using the user credentials created above.



19. Red Hat Enterprise Linux 10 Desktop screen.



Section 3 – Install Device Drivers

Most of the standard building blocks used in the ThinkStation P3 Tower Gen 2 are native to the Red Hat Enterprise Linux 10 base kernel. Users may consider installing a proprietary graphics driver to get optimal performance from the graphics card. This section provides step-by-step instructions on how to install a proprietary Nvidia graphics driver in Red Hat Enterprise Linux.

NOTE



Most commands need to be executed with superuser privileges in the following sections. All commands that require superuser privileges, start with the # sign in this document.

NOTE



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

NOTE



Registering the system to the Red Hat subscription will allow for easy Linux updates. The commands below will allow users to easily register and subscribe to the Red Hat subscription repositories. Registering the system to the Red Hat subscription requires a network connection.

From within the Linux desktop, open a terminal window and run the following Linux commands:

```
# subscription-manager register
```

- This will require a valid Red Hat username and password.

```
# subscription-manager attach
```

Section 4 – Install Nvidia Proprietary Drivers

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



NOTE

Verify that the correct versions of the GCC compiler and make utility are installed to ensure compatibility with the Nvidia driver.

1. Download the appropriate Nvidia graphics driver from the Lenovo support portal.
2. Blacklist the Linux Nouveau driver.
 - # nano /etc/modprobe.d/blacklist.conf
 - Add the following line, 'blacklist nouveau', save and exit the file.

```
GNU nano 5.6.1
blacklist nouveau_
```

3. Update the initramfs file and reboot the system.

- # dracut --force
- # reboot now

```
[root@localhost Desktop]# dracut --force  
[root@localhost 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

5. Login as root (superuser).

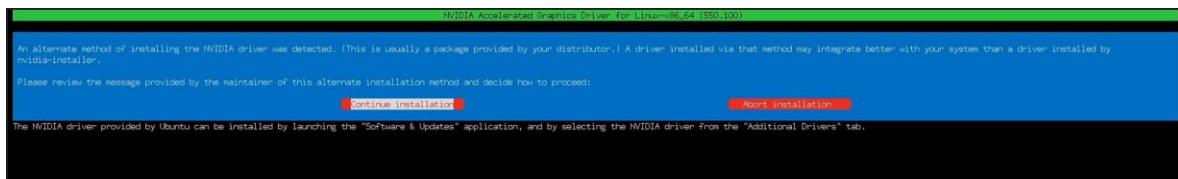
```
Red Hat Enterprise Linux 9.0 (Plow)  
Kernel 5.14.0-70.13.1.el9_0.x86_64 on an x86_64  
  
Activate the web console with: systemctl enable --now cockpit.socket  
  
localhost login: root  
Password:  
Last login: Thu Nov  3 06:35:43 on tty1  
[root@localhost ~]# _
```

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

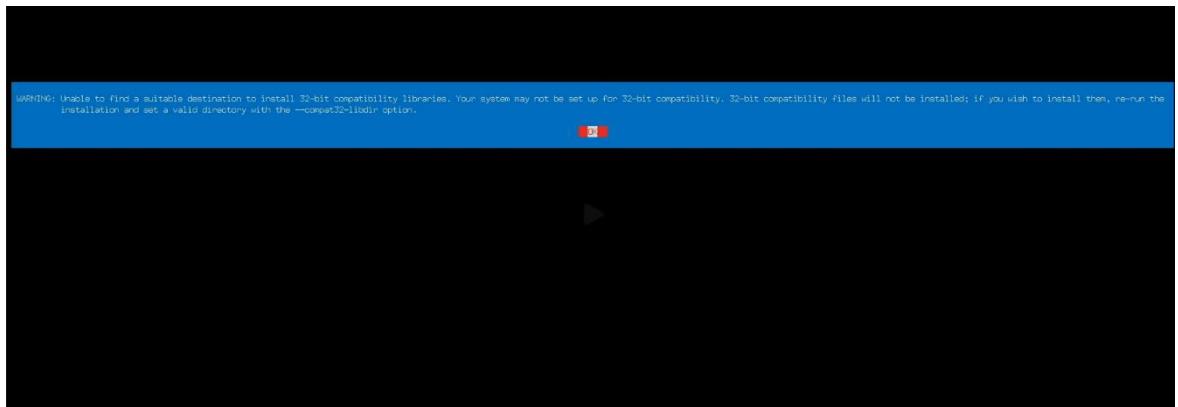
- # bash NVIDIA*

```
Red Hat Enterprise Linux 9.0 (Plow)  
Kernel 5.14.0-70.13.1.el9_0.x86_64 on an x86_64  
  
Activate the web console with: systemctl enable --now cockpit.socket  
  
localhost login: root  
Password:  
Last login: Thu Nov  3 06:35:43 on tty1  
[root@localhost ~]# cd /home/lenovo/Desktop/  
[root@localhost Desktop]# ls  
NVIDIA-Linux-x86_64-515.76.run  
[root@localhost Desktop]# bash NVIDIA-Linux-x86_64-515.76.run _
```

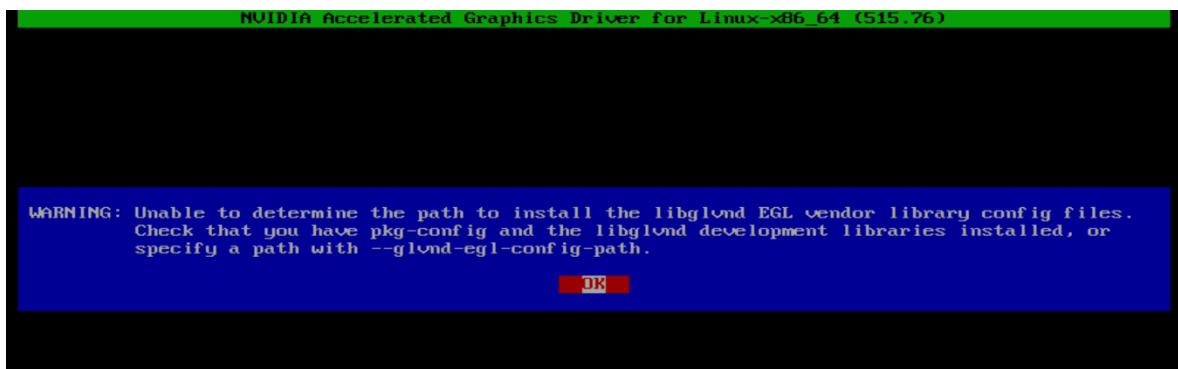
7. Note the driver should start to install. Select ‘Continue Installation’.



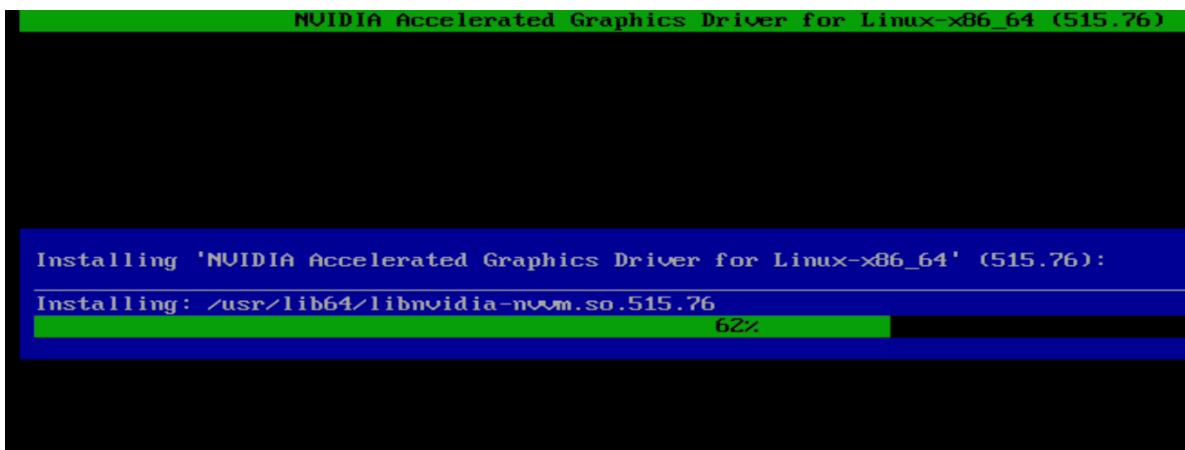
8. The driver may prompt a warning about NVIDIA's 32-bit compatibility libraries. Select 'OK' on the warning message.



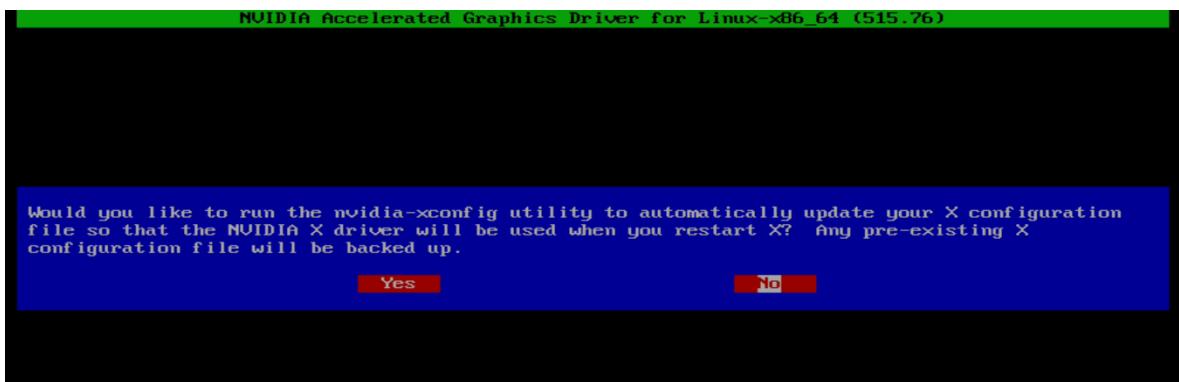
9. Select 'OK' on the following warning message.



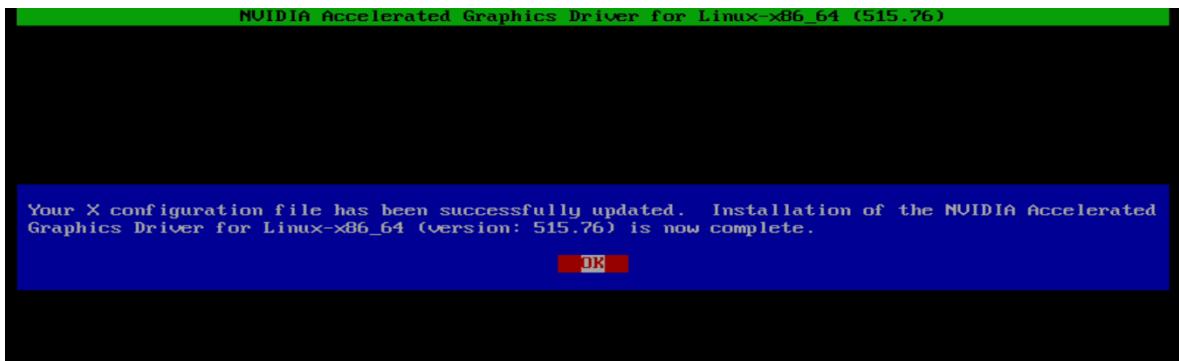
10. The driver should continue to install.



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



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



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

```
# nvidia-smi
```

```
+-----+-----+-----+
| NVIDIA-SMI 550.100       Driver Version: 550.100     CUDA Version: 12.4   |
|-----+-----+-----+
| 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 RTX A1000        Off  | 00000000:01:00.0 Off |          N/A | | |
| 33%   60C    P0      N/A / 50W |           1MiB / 8188MiB |     0%     Default |
| |                           |                               |             |          N/A |
+-----+-----+-----+
+-----+
| Processes:
| GPU  GI  CI      PID  Type  Process name          GPU Memory |
| ID   ID
+=====+
| No running processes found
|
```

Revision History

Version	Date	Author	Changes/Updates
1.0	9/23/25	Kev G.	Initial launch release.