Red Hat Enterprise Linux Setup Guide

For ThinkPad P1

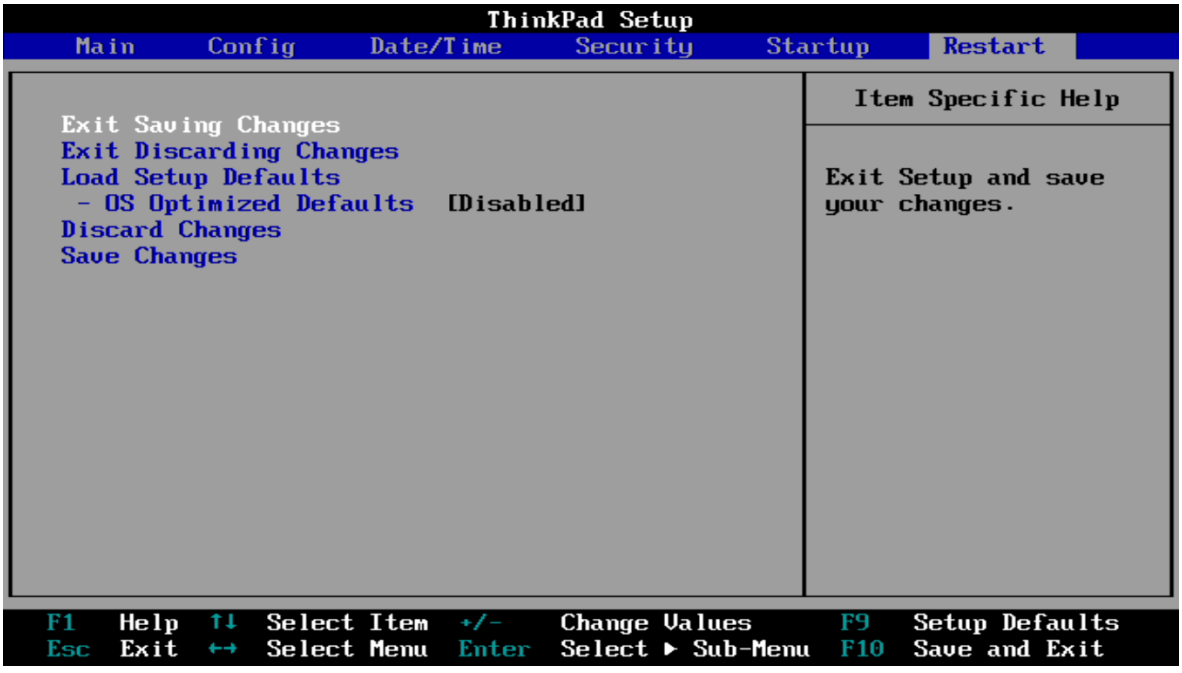
****Official support of RHEL 7.5 and later.*

Section 1 – BIOS Setup and Pre-Installation Steps

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

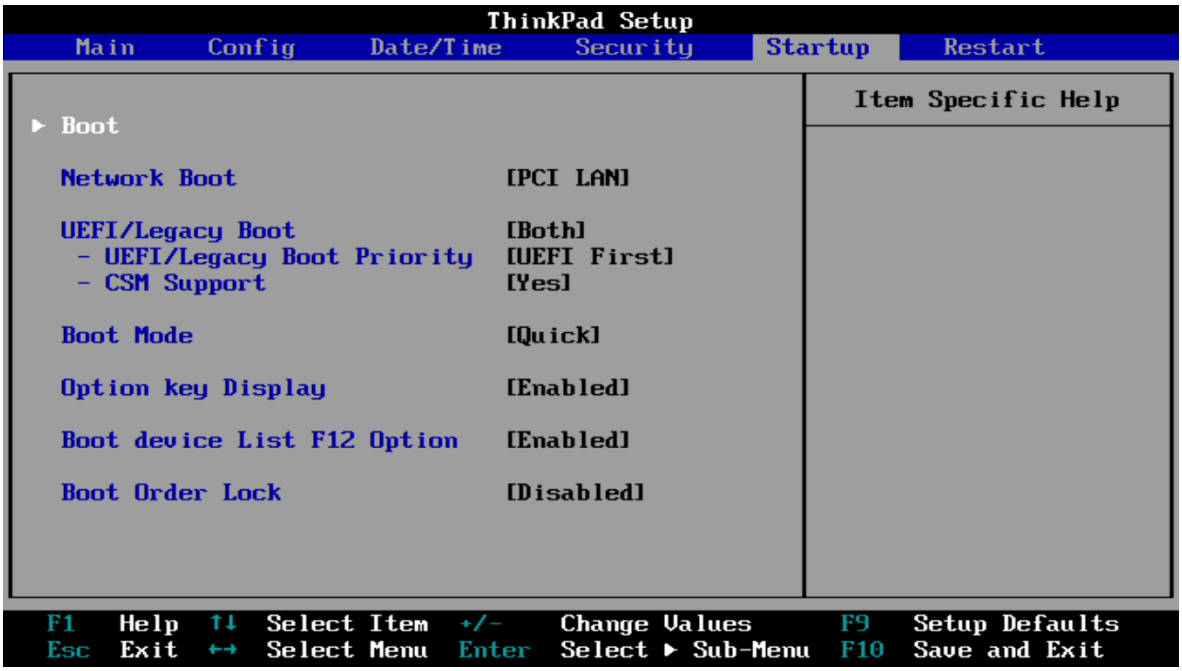
- Boot into BIOS by pressing the function F1 key at the “Lenovo” splash screen.

- Tab over to the ‘Restart’ menu tab, and set “OS Optimized Defaults” to “Disabled”.



- Tab over to the “Startup” menu tab and make sure the following parameters are set accordingly.

  ***__Note__: Pressing F9 will allow “UEFI/Legacy Boot” to be selectable; otherwise, it will be an unchangeable setting to “UEFI only”.

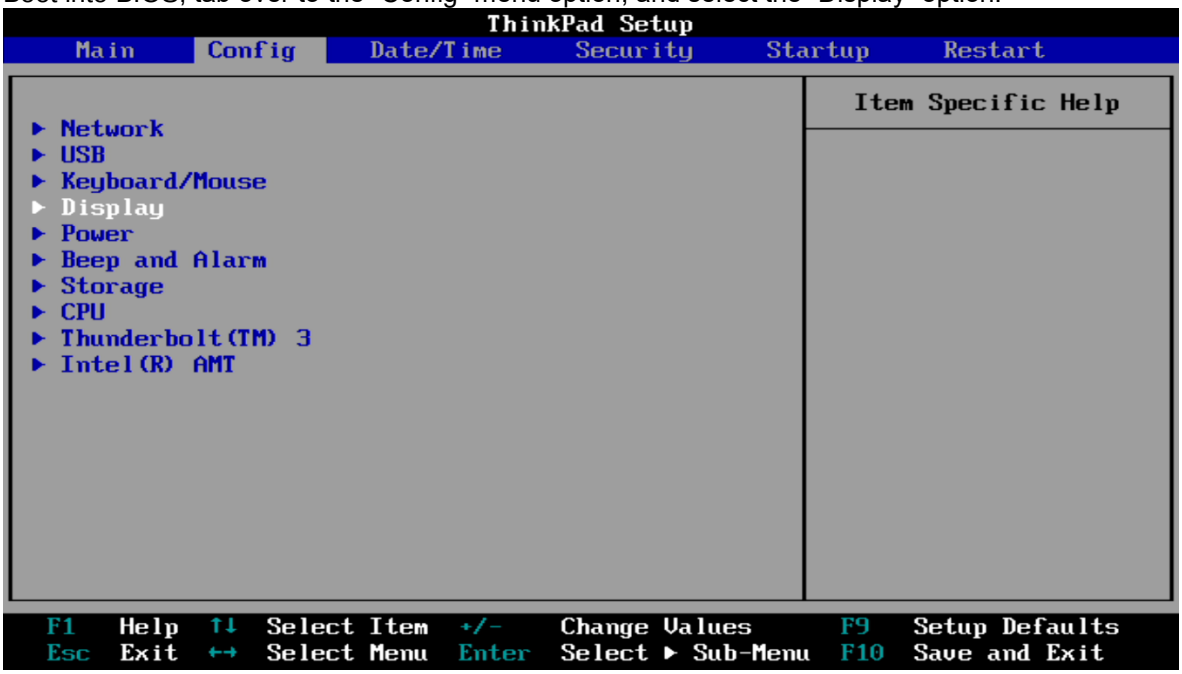


***__Note__: Pressing F9 after setting “OS Optimized Defaults” to “Disabled” will also disable “Secure Boot” under the “Security” menu tab -> “Secure Boot” menu.

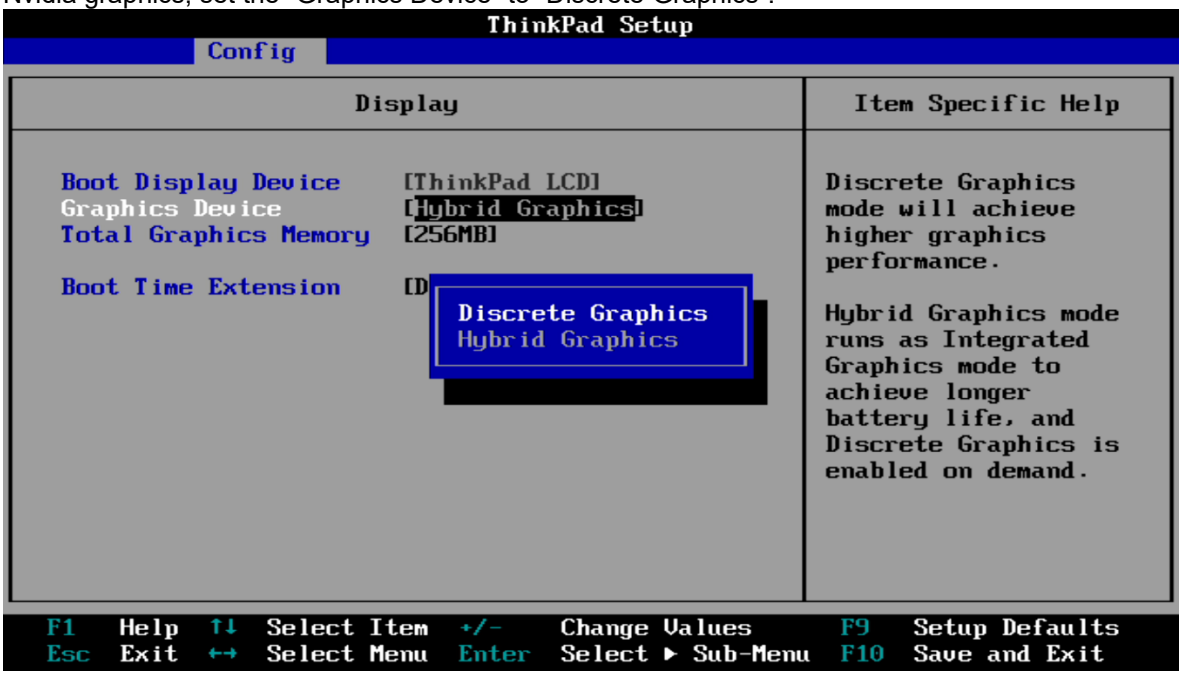
Section 2 – Discrete vs Hybrid Graphics

The Thinkpad P1 offers both Nvidia and Intel graphics. To run exclusively Nvidia graphics, use the discrete graphics mode.

- Boot into BIOS, tab over to the “Config” menu option, and select the “Display” option.



- By default, the “Graphics Device” is likely set to “Hybrid Graphics”. To run exclusively Nvidia graphics, set the “Graphics Device” to “Discrete Graphics”.

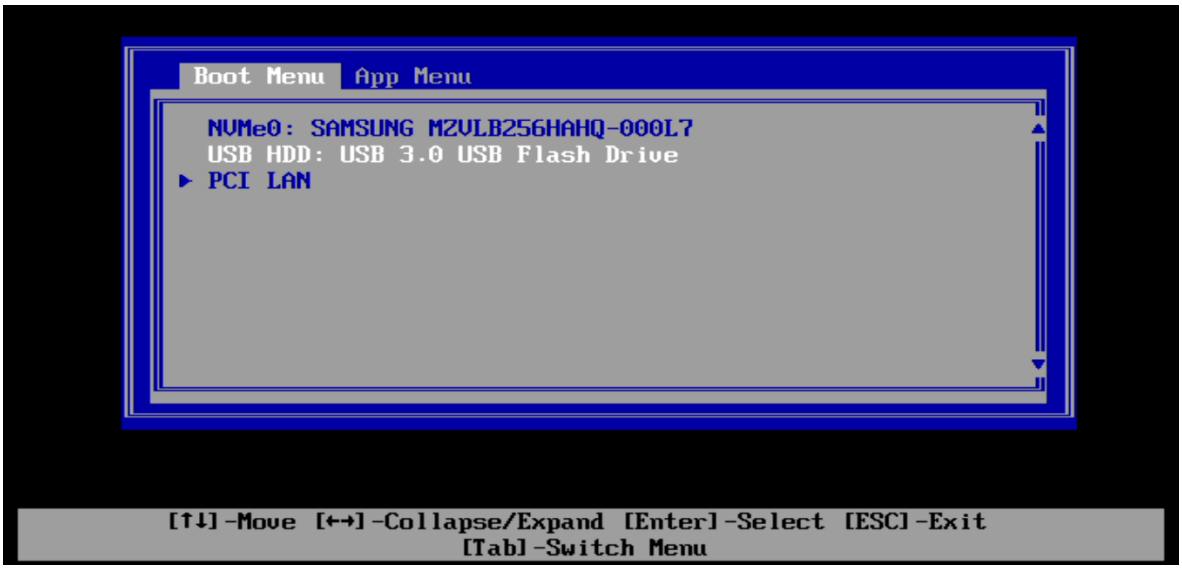


Section 3 – Installing Red Hat Enterprise Linux 7

Please refer to the following instructions and screenshots on how to install RHEL 7 on the Lenovo Thinkpad P1.

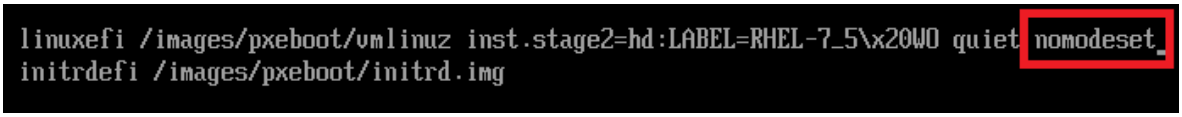
- Insert the RHEL 7 installation media (either through USB or CD/DVD).
- Power on the system and press the F12 function key whenever the following Lenovo splash screen appears:

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

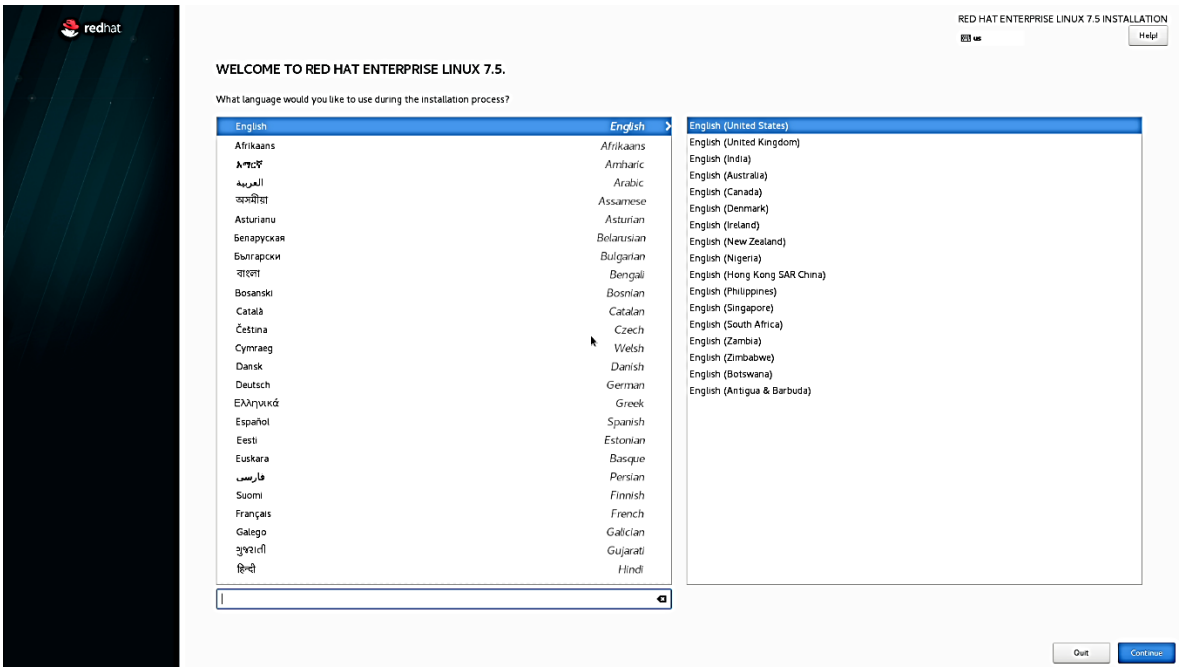


- Highlight “Install Red Hat Enterprise Linux 7.x” from the GRUB boot menu and press ‘e’.

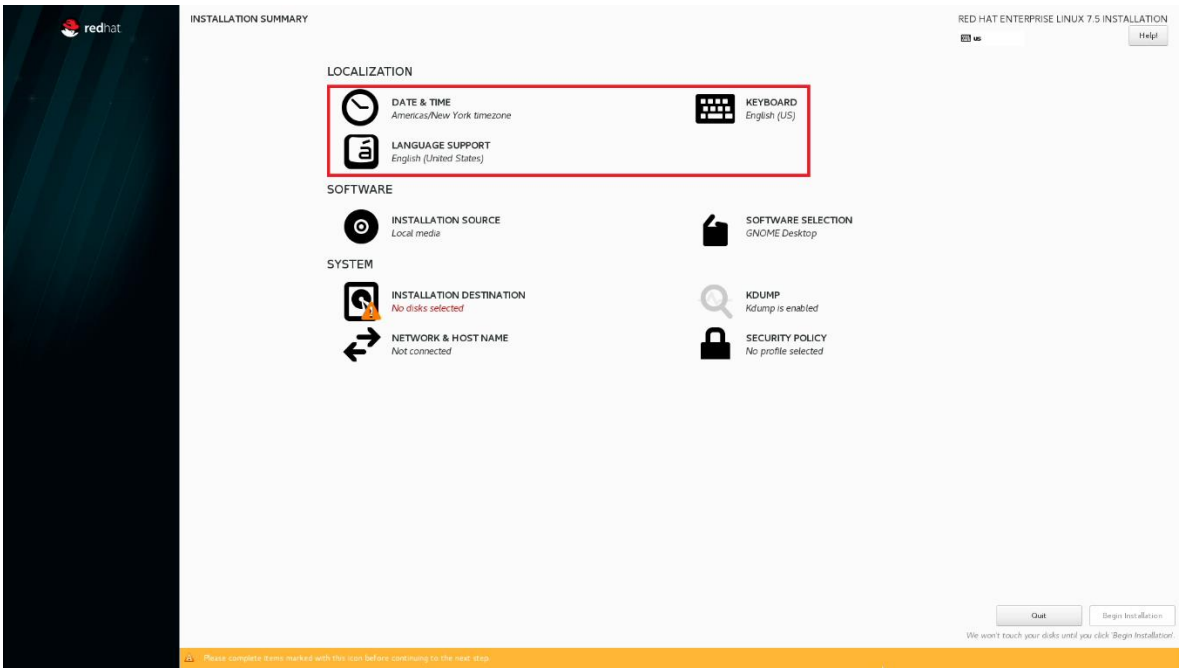
- Add the following line, “nomodeset”, to the end of the boot kernel parameter.



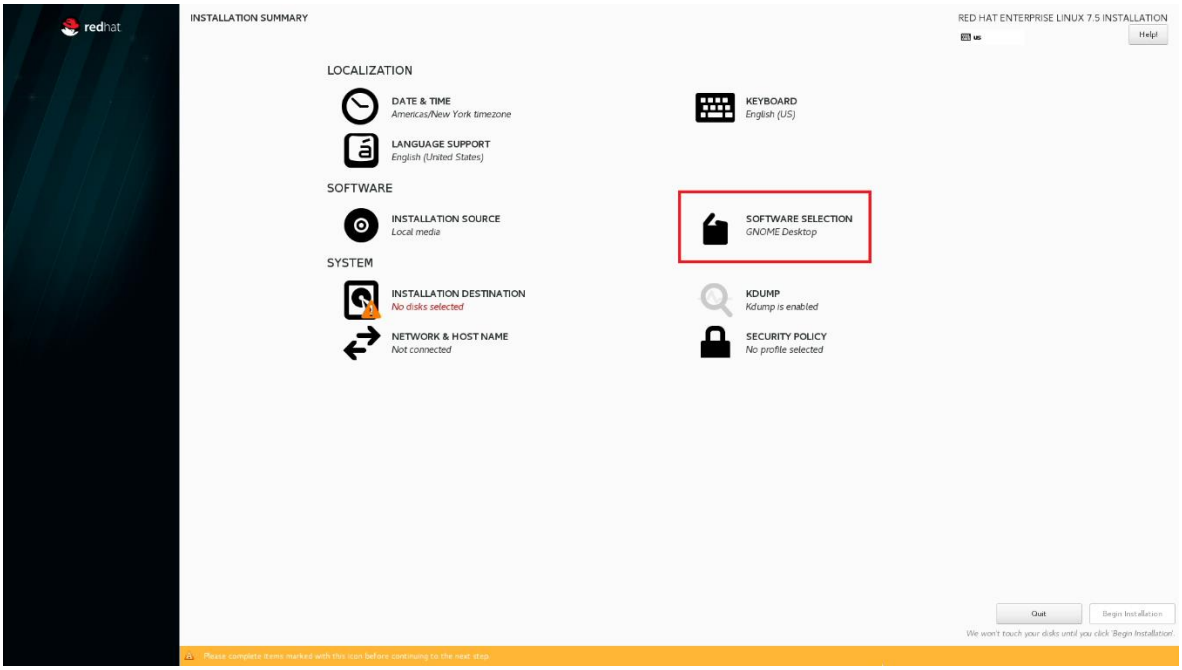
- The Red Hat Enterprise Linux Welcome Screen should appear. Select the appropriate language and “Continue”.



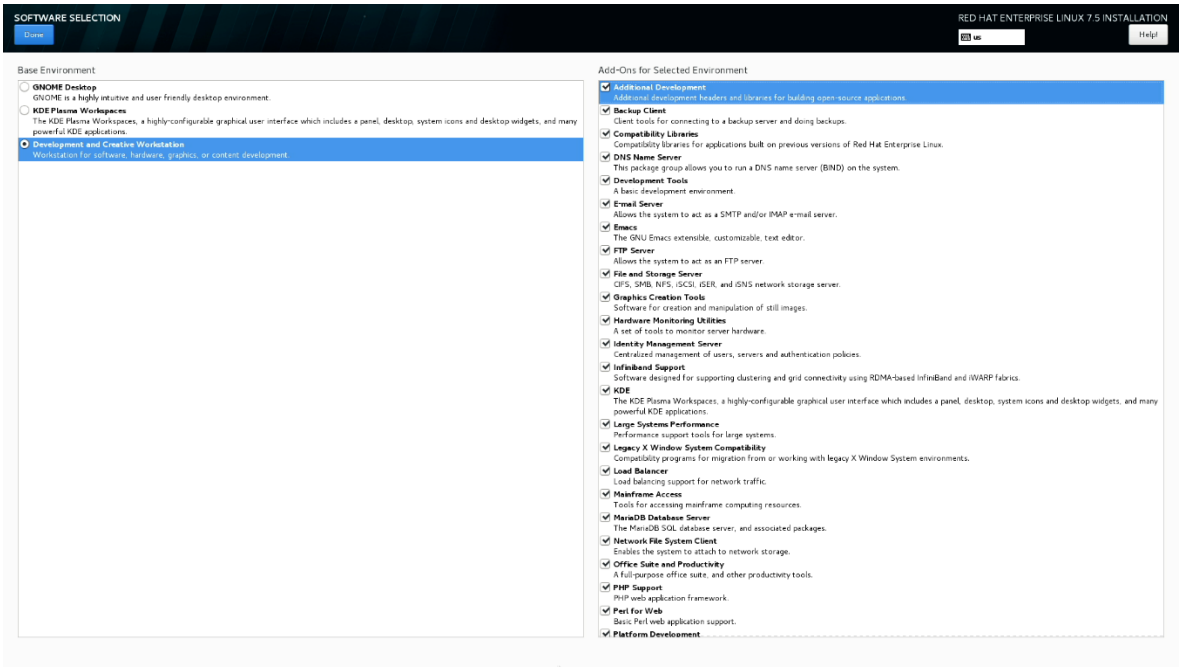
- Adjust the “Date & Time”, “Keyboard”, and “Language Support” accordingly by selecting each one.

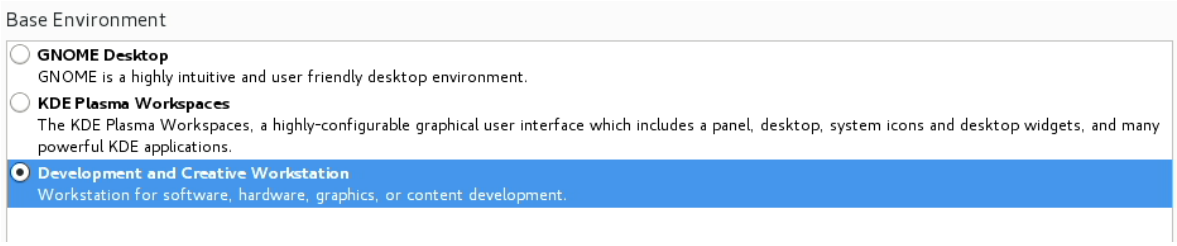


- Select “SOFTWARE SELECTION” and choose the type of software to install.



- Select the type of “Base Environment” as well as each “Add-Ons” to install. In this example, “Development and Creative Workstation” was selected for the “Base Environment” and all “Add-Ons” were selected.

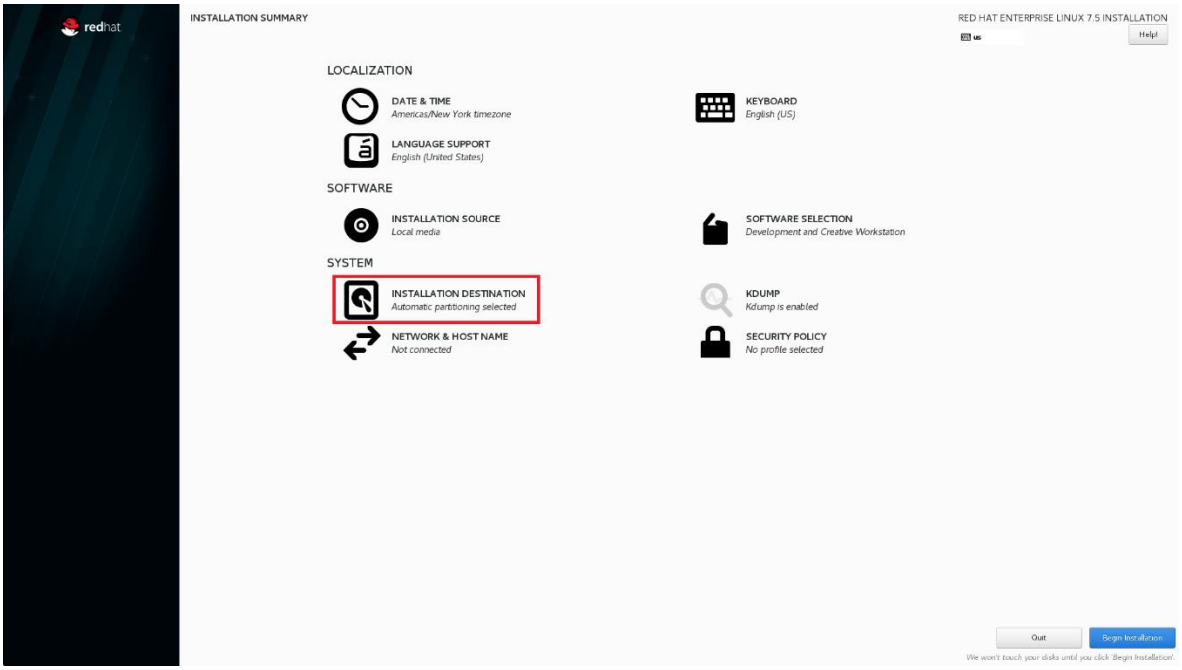




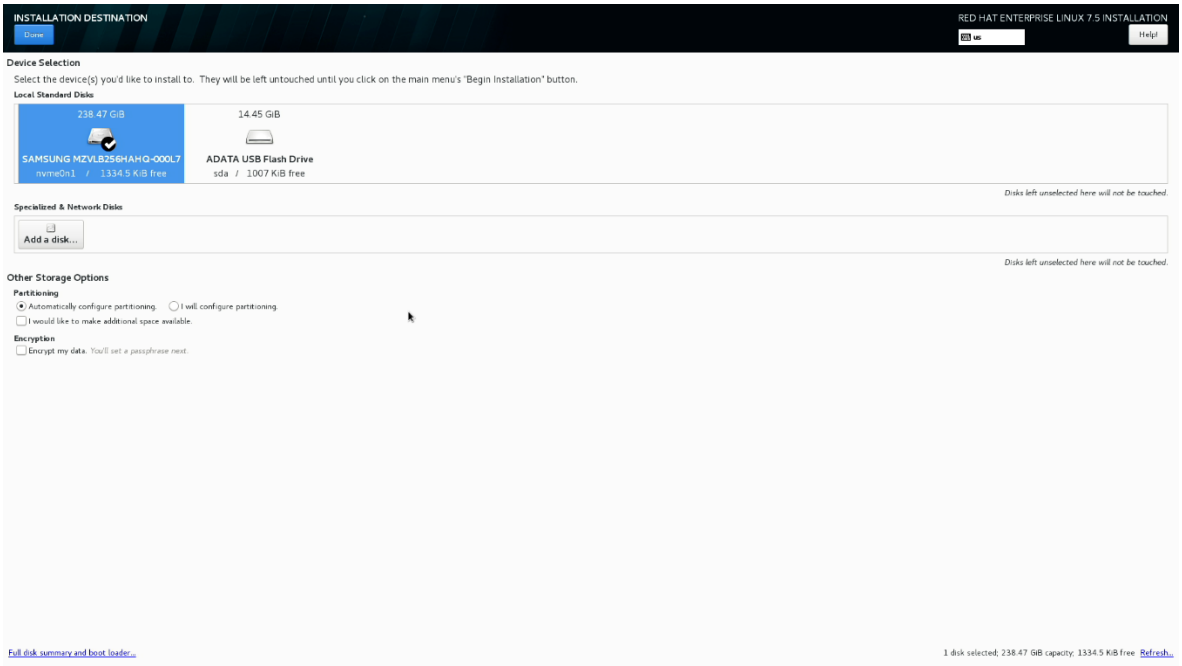
Add-Ons for Selected Environment

- [x] **Additional Development**
  Additional development headers and libraries for building open-source applications.
- [x] **Backup Client**
  Client tools for connecting to a backup server and doing backups.
- [x] **Compatibility Libraries**
  Compatibility libraries for applications built on previous versions of Red Hat Enterprise Linux.
- [x] **DNS Name Server**
  This package group allows you to run a DNS name server (BIND) on the system.
- [x] **Development Tools**
  A basic development environment.
- [x] **E-mail Server**
  Allows the system to act as a SMTP and/or IMAP e-mail server.
- [x] **Emacs**
  The GNU Emacs extensible, customizable, text editor.
- [x] **FTP Server**
  Allows the system to act as an FTP server.
- [x] **File and Storage Server**
  CIFS, SMB, NFS, iSCSI, iSER, and iSNS network storage server.
- [x] **Graphics Creation Tools**
  Software for creation and manipulation of still images.
- [x] **Hardware Monitoring Utilities**
  A set of tools to monitor server hardware.
- [x] **Identity Management Server**
  Centralized management of users, servers and authentication policies.
- [x] **Infiniband Support**
  Software designed for supporting clustering and grid connectivity using RDMA-based InfiniBand and iWARP fabrics.
- [x] **KDE**
  The KDE Plasma Workspaces, a highly-configurable graphical user interface which includes a panel, desktop, system icons and desktop widgets, and many powerful KDE applications.
- [x] **Large Systems Performance**
  Performance support tools for large systems.
- [x] **Legacy X Window System Compatibility**
  Compatibility programs for migration from or working with legacy X Window System environments.
- [x] **Load Balancer**
  Load balancing support for network traffic.
- [x] **Mainframe Access**
  Tools for accessing mainframe computing resources.
- [x] **MariaDB Database Server**
  The MariaDB SQL database server, and associated packages.
- [x] **Network File System Client**
  Enables the system to attach to network storage.
- [x] **Office Suite and Productivity**
  A full-purpose office suite, and other productivity tools.
- [x] **PHP Support**
  PHP web application framework.
- [x] **Perl for Web**
  Basic Perl web application support.
- [x] **Platform Development**

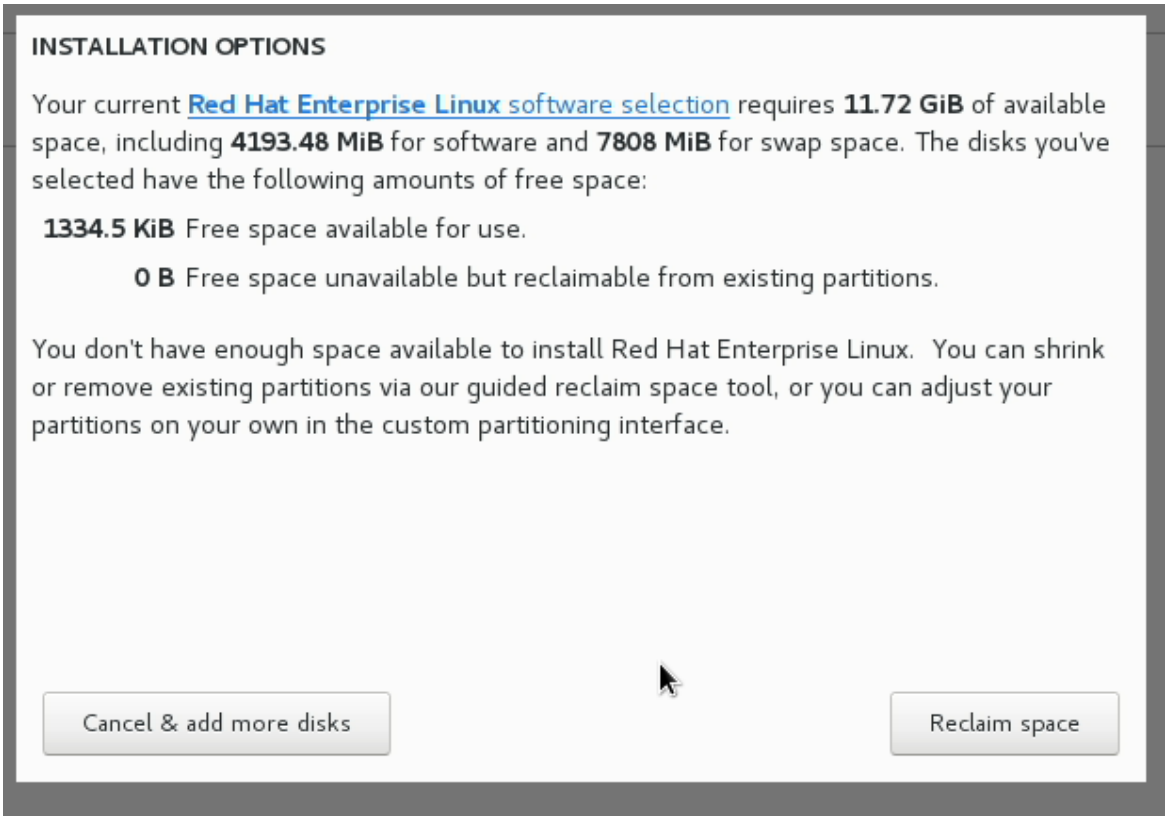
- Select the “INSTALLATION DESTINATION”.



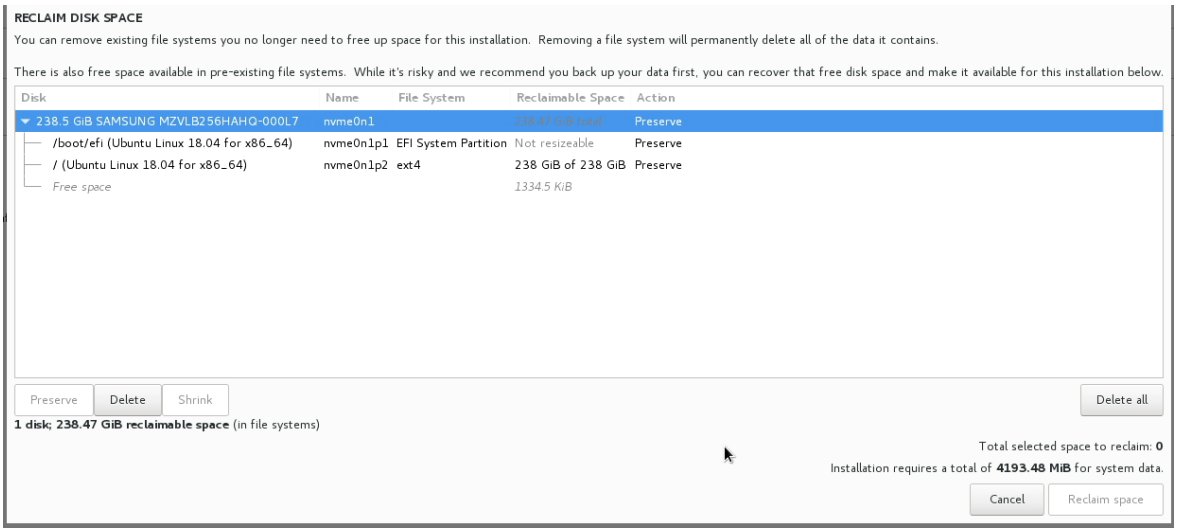
- Select the device on where to install the operating system and “Done” in the upper left.



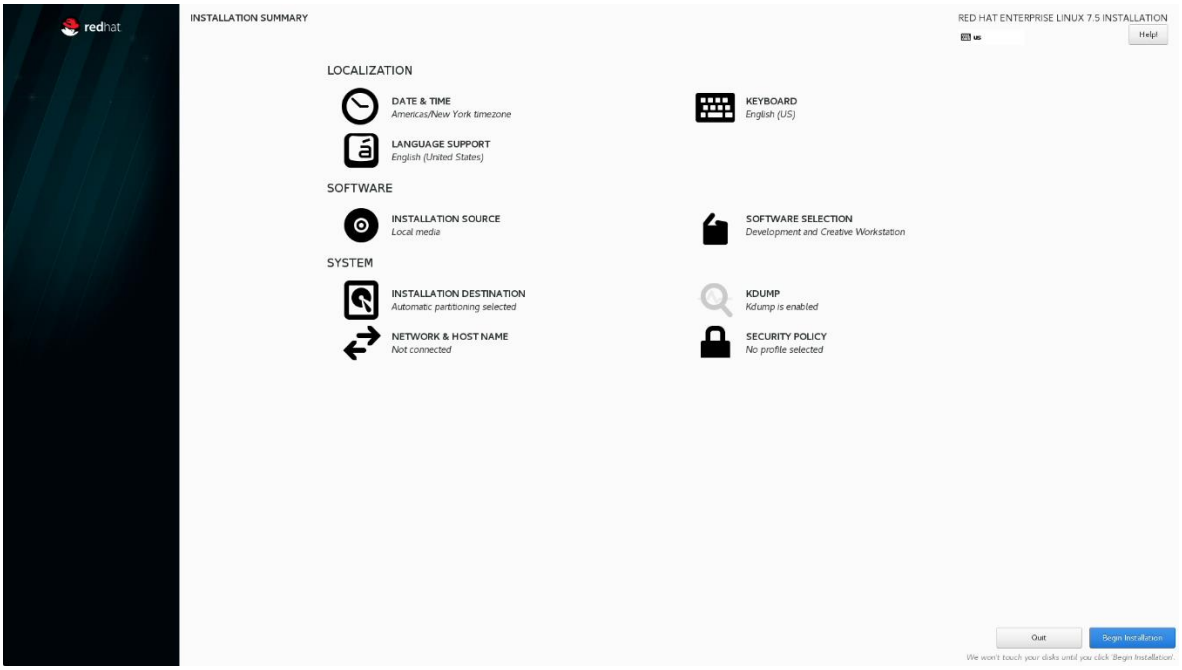
- For storage devices with previous partitions created, select “Reclaim space”.



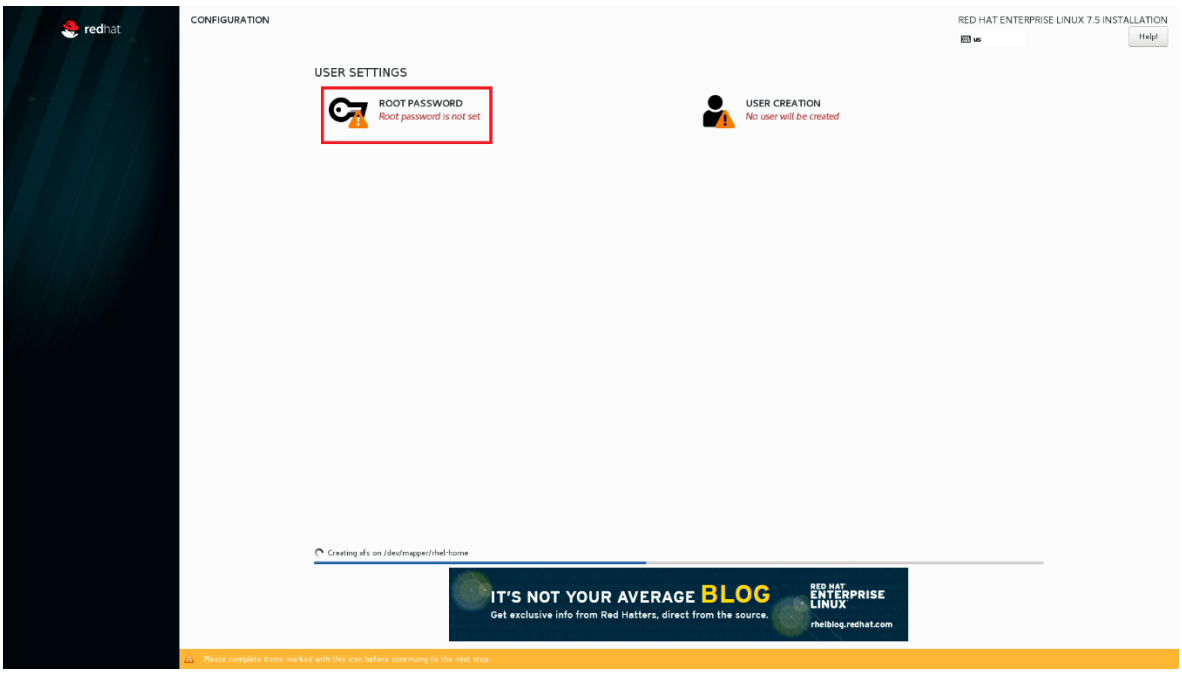
- Select “Delete all” to delete all the previously created partitions or select each partition to delete and select the “Delete” option. When done, select “Reclaim space” at the bottom.



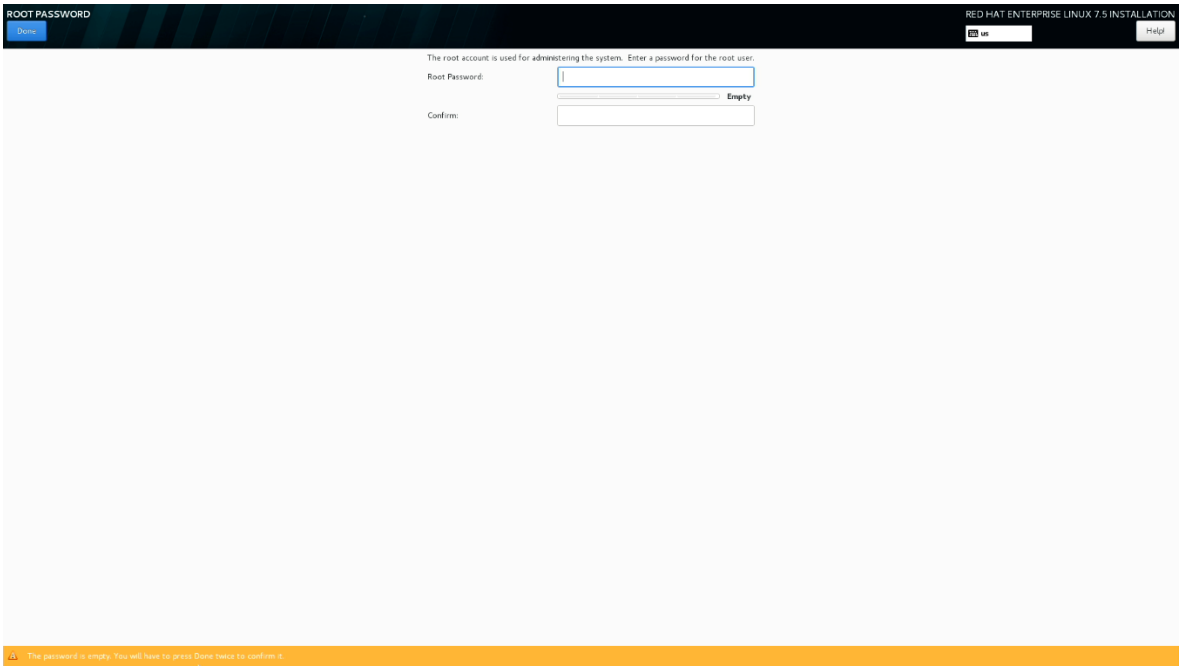
- Select “Begin Installation” in the bottom right.



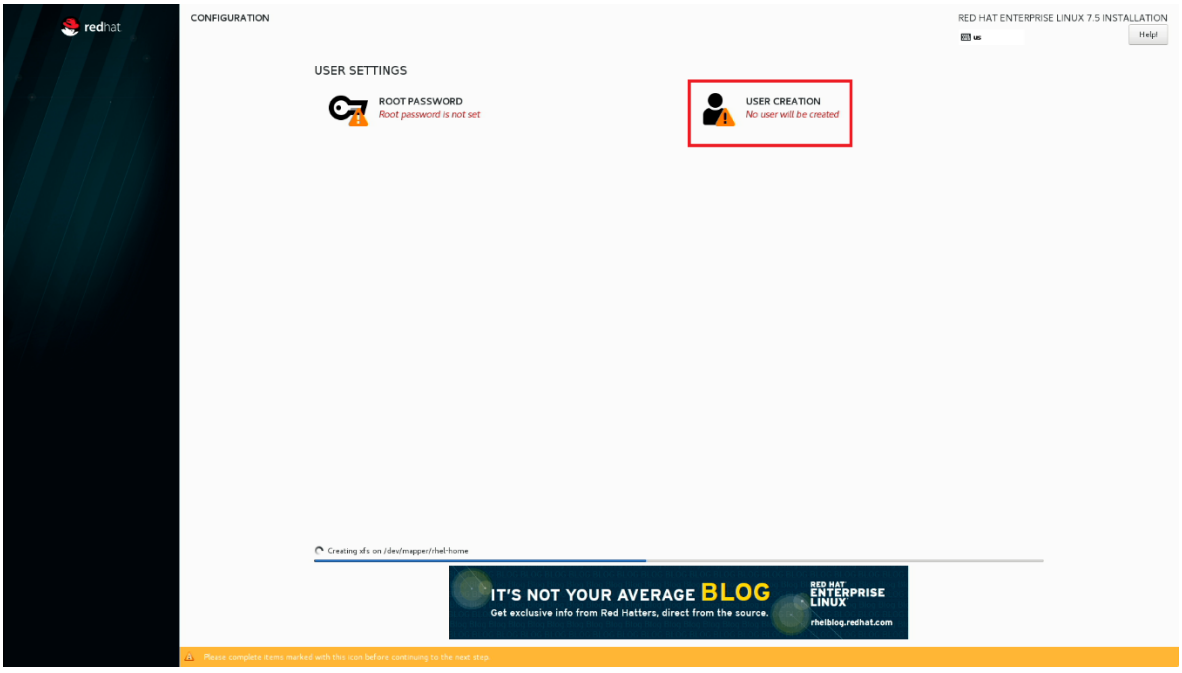
- Select “ROOT PASSWORD”.



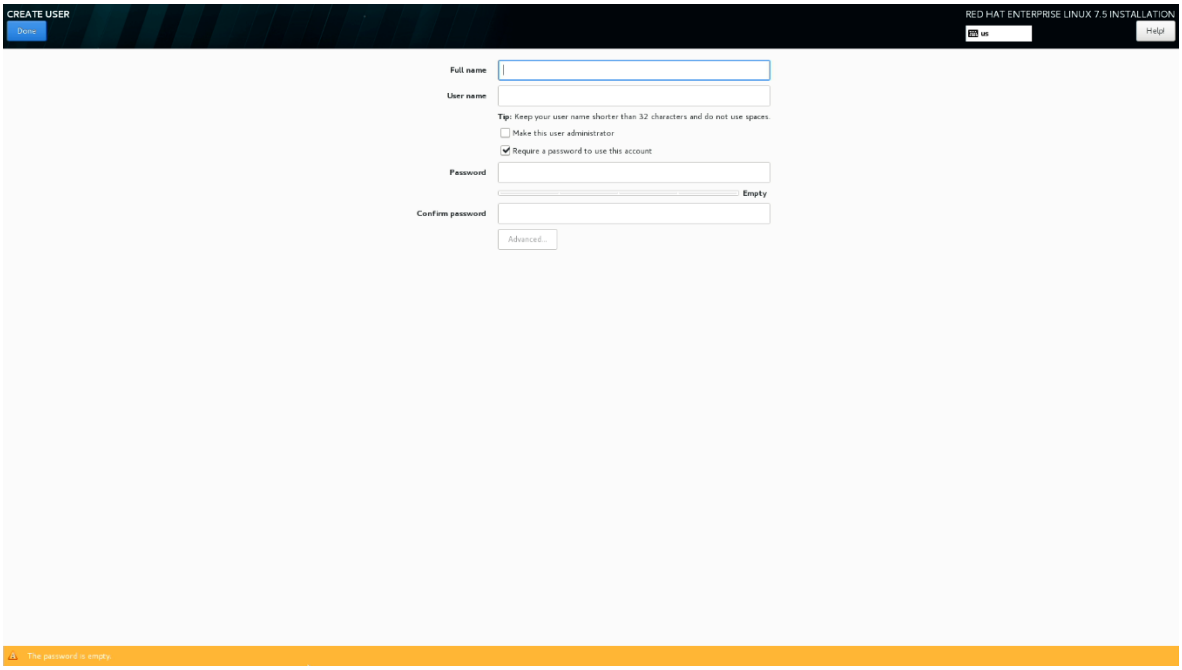
- Enter a root password in both of the boxes below and select “Done” in the upper left.



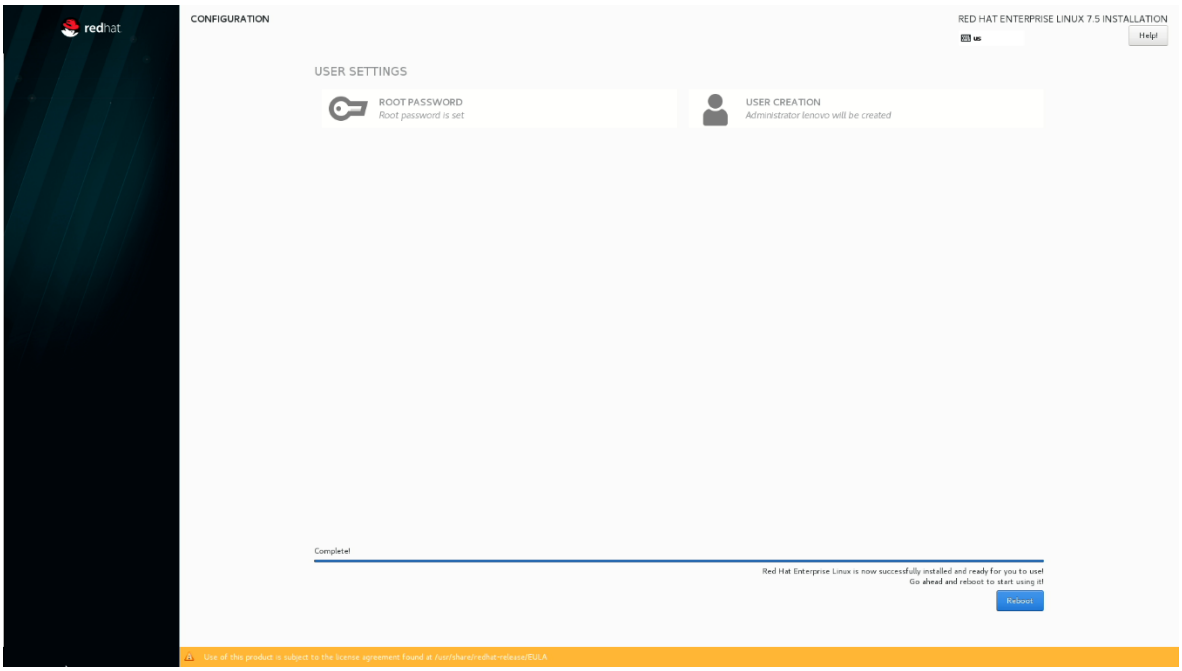
- Select “USER CREATION”.



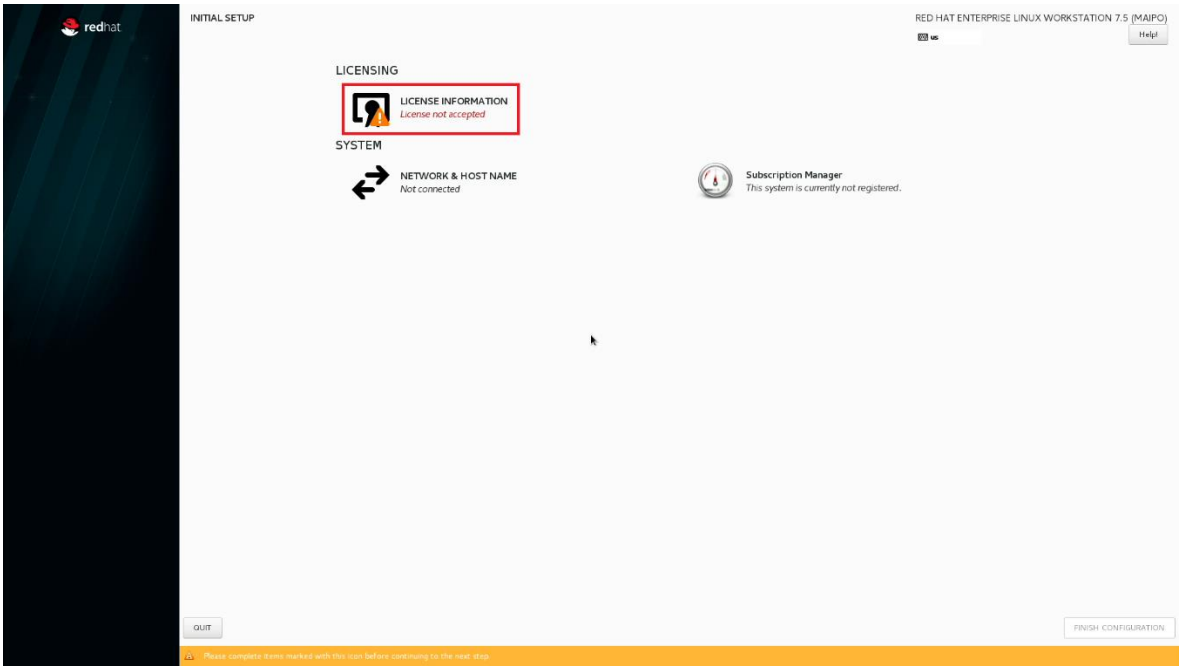
- Fill in the appropriate boxes below and select “Done” in the upper left.



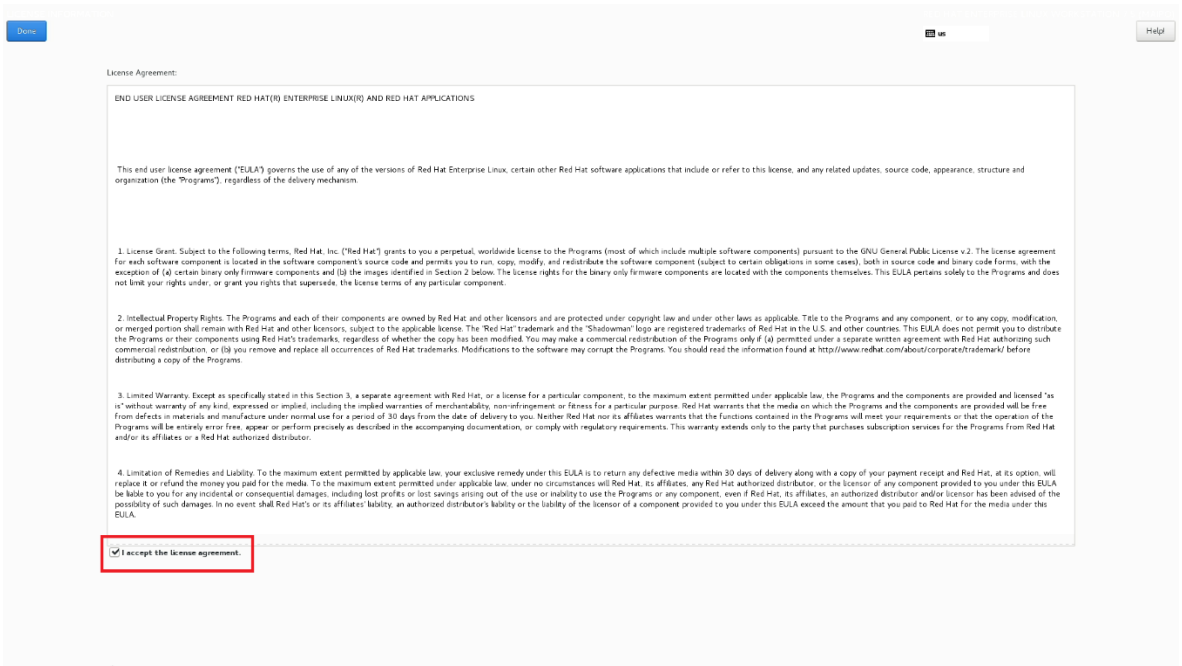
- Once the installation completes, select “Reboot” at the bottom right.



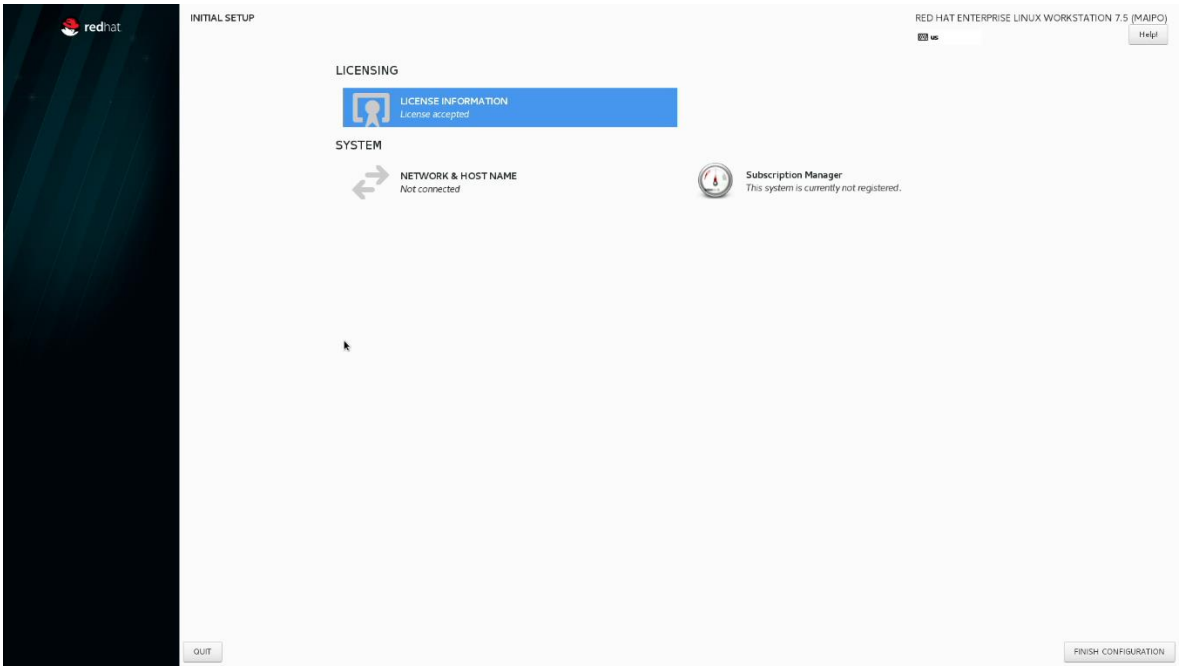
- Select “LICENSE INFORMATION”.



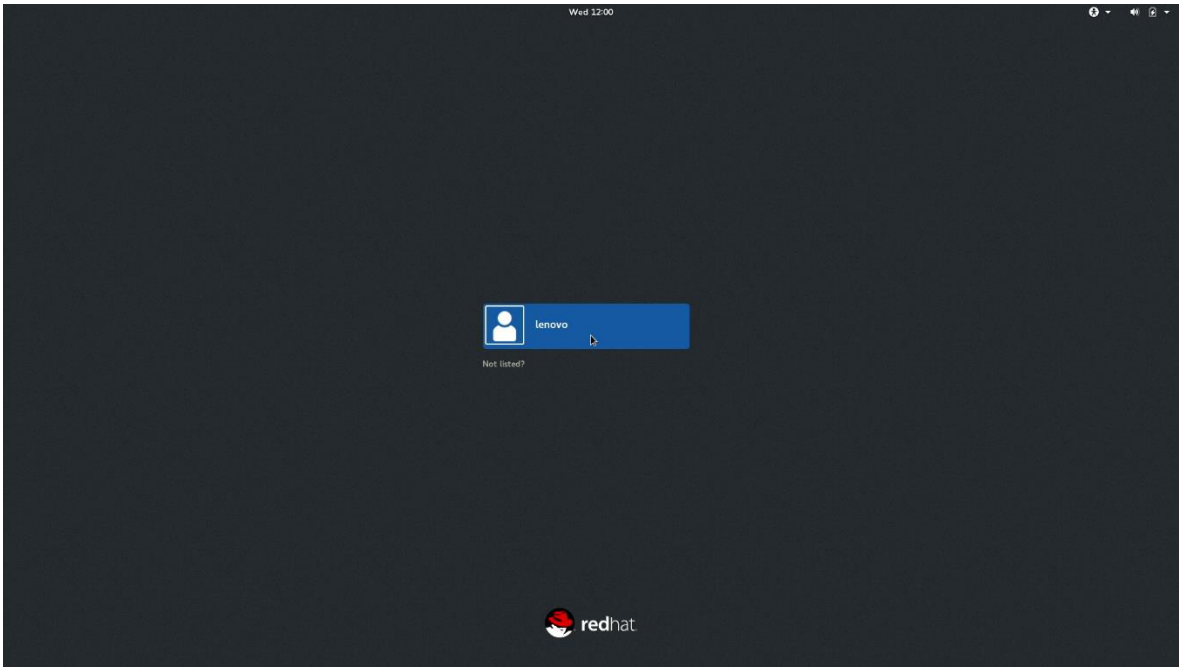
- Check the box at the bottom left and “Done” at the upper left.



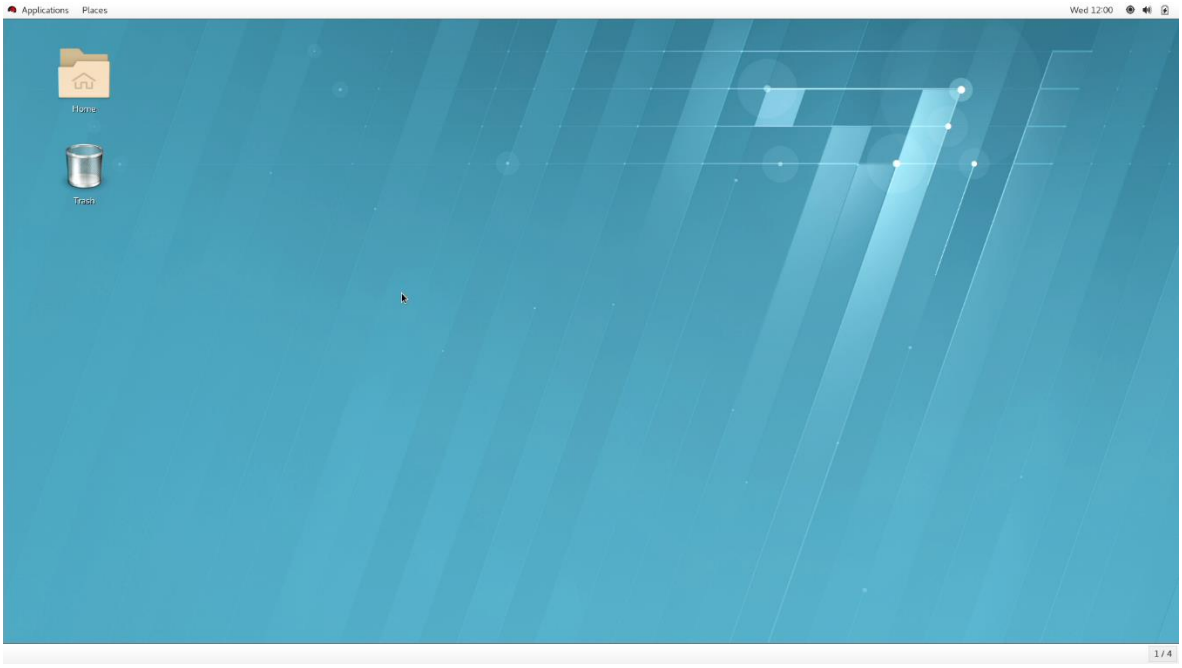
- Select “FINISH CONFIGURATION” at the bottom left.



- Log in to the Linux Desktop using the login credentials created above.



- Red Hat Enterprise Linux 7.x Desktop screen.



Section 4 – Installing the Nvidia Graphics Driver

The proprietary Nvidia driver will not work properly on Pascal-based GPU's within Linux; therefore, use the native Linux Nouveau driver.