# Debian 9 "Stretch" Linux Setup Guide

For ThinkPad P1

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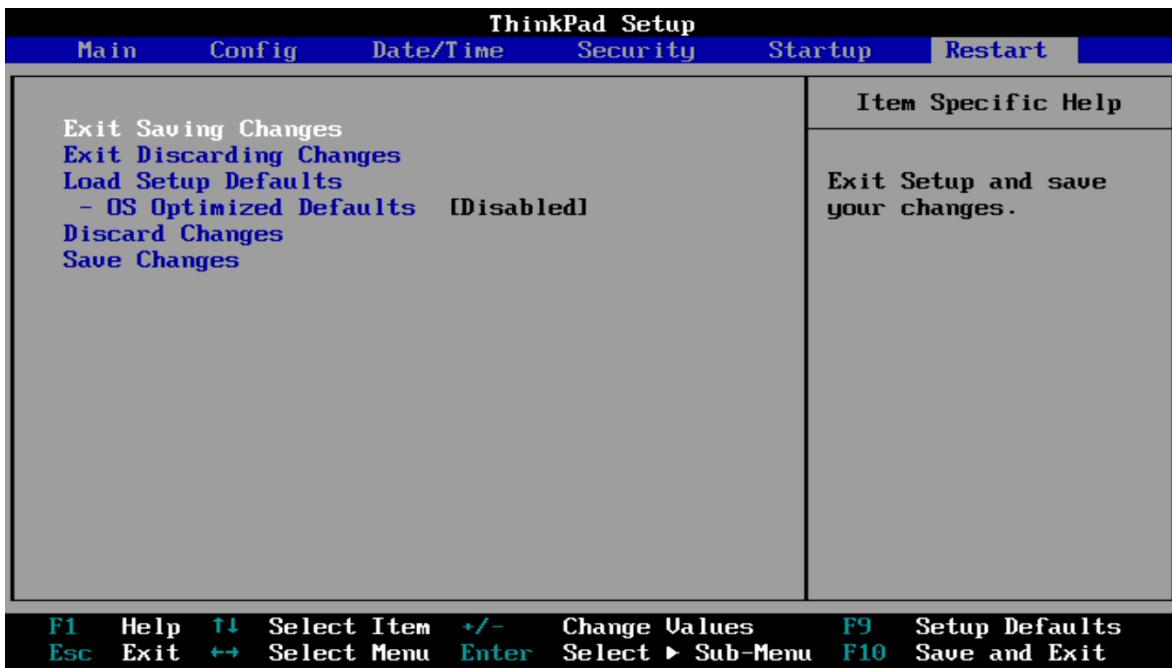
- Tab over to the "Startup" menu tab and make sure the following parameters are set accordingly.

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

```
                         ThinkPad Setup
     Main      Config     Date/Time     Security    Startup      Restart
  ┌──────────────────────────────────────────────┬─────────────────────────┐
  │                                               │  Item Specific Help     │
  │ ► Boot                                        │                         │
  │                                               │                         │
  │   Network Boot              [PCI LAN]         │                         │
  │                                               │                         │
  │   UEFI/Legacy Boot          [Both]            │                         │
  │    - UEFI/Legacy Boot Priority [UEFI First]   │                         │
  │    - CSM Support            [Yes]             │                         │
  │                                               │                         │
  │   Boot Mode                 [Quick]           │                         │
  │                                               │                         │
  │   Option key Display        [Enabled]         │                         │
  │                                               │                         │
  │   Boot device List F12 Option  [Enabled]      │                         │
  │                                               │                         │
  │   Boot Order Lock           [Disabled]        │                         │
  │                                               │                         │
  │                                               │                         │
  └──────────────────────────────────────────────┴─────────────────────────┘
   F1   Help  ↑↓  Select Item  +/-   Change Values    F9   Setup Defaults
   Esc  Exit  ←→  Select Menu   Enter Select ► Sub-Menu  F10  Save and Exit
```

***__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.

```
                    ThinkPad Setup
   Main    Config   Date/Time   Security   Startup   Restart

                                            Item Specific Help
  ▶ Network
  ▶ USB
  ▶ Keyboard/Mouse
  ▶ Display
  ▶ Power
  ▶ Beep and Alarm
  ▶ Storage
  ▶ CPU
  ▶ Thunderbolt(TM) 3
  ▶ Intel(R) AMT




  F1   Help   ↑↓  Select Item   +/-    Change Values   F9   Setup Defaults
  Esc  Exit   ←→  Select Menu   Enter  Select ▶ Sub-Menu F10  Save and Exit
```
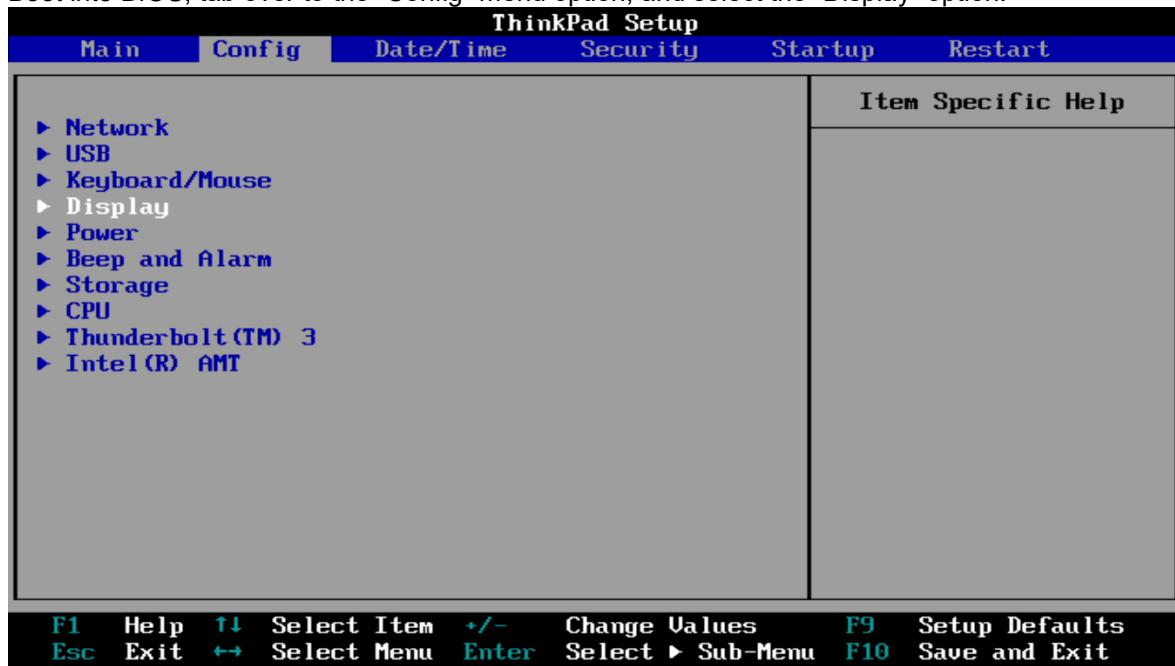
- By default, the "Graphics Device" is likely set to "Hybrid Graphics". To run exclusively Nvidia graphics, set the "Graphics Device" to "Discrete Graphics".

```
                    ThinkPad Setup
          Config

                Display                     Item Specific Help

  Boot Display Device    [ThinkPad LCD]     Discrete Graphics
  Graphics Device        [Hybrid Graphics]  mode will achieve
  Total Graphics Memory  [256MB]            higher graphics
                                            performance.
  Boot Time Extension    [D
                            Discrete Graphics   Hybrid Graphics mode
                            Hybrid Graphics     runs as Integrated
                                                Graphics mode to
                                                achieve longer
                                                battery life, and
                                                Discrete Graphics is
                                                enabled on demand.



  F1   Help   ↑↓  Select Item   +/-    Change Values   F9   Setup Defaults
  Esc  Exit   ←→  Select Menu   Enter  Select ▶ Sub-Menu F10  Save and Exit
```

Section 3 – Installing Debian 9 "Stretch" Linux

Please refer to the following instructions and screenshots on how to install Debian 9 "Stretch" on the Lenovo Thinkpad P1.

- Insert the Debian 9 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.
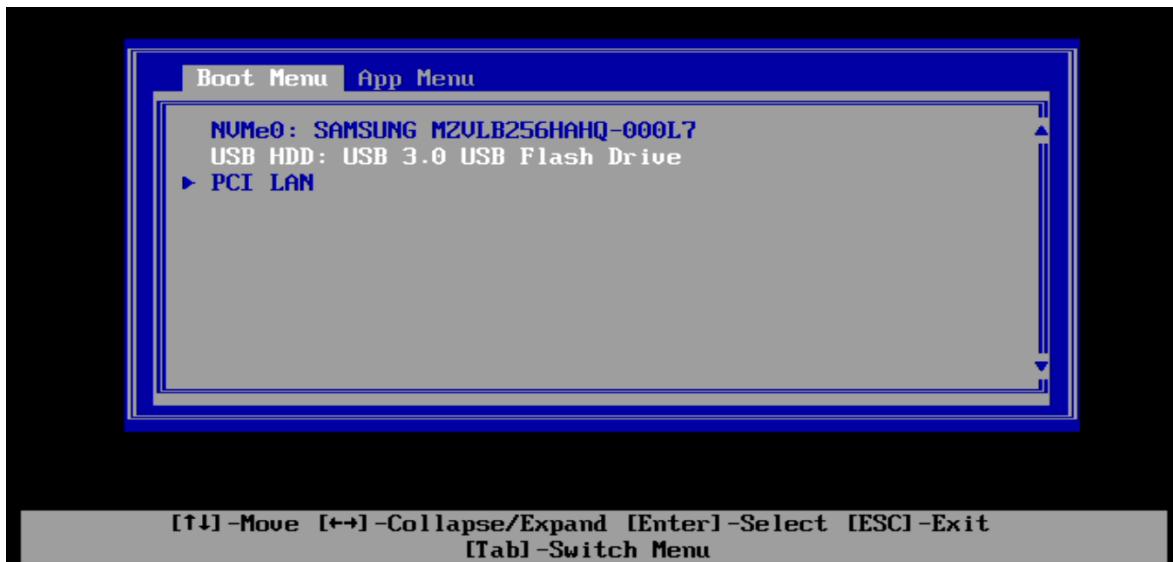
- Select "Advanced options…"

- Select "… Graphical automated install".

- If the "Network autoconfiguration failed" message displays, select "Continue".
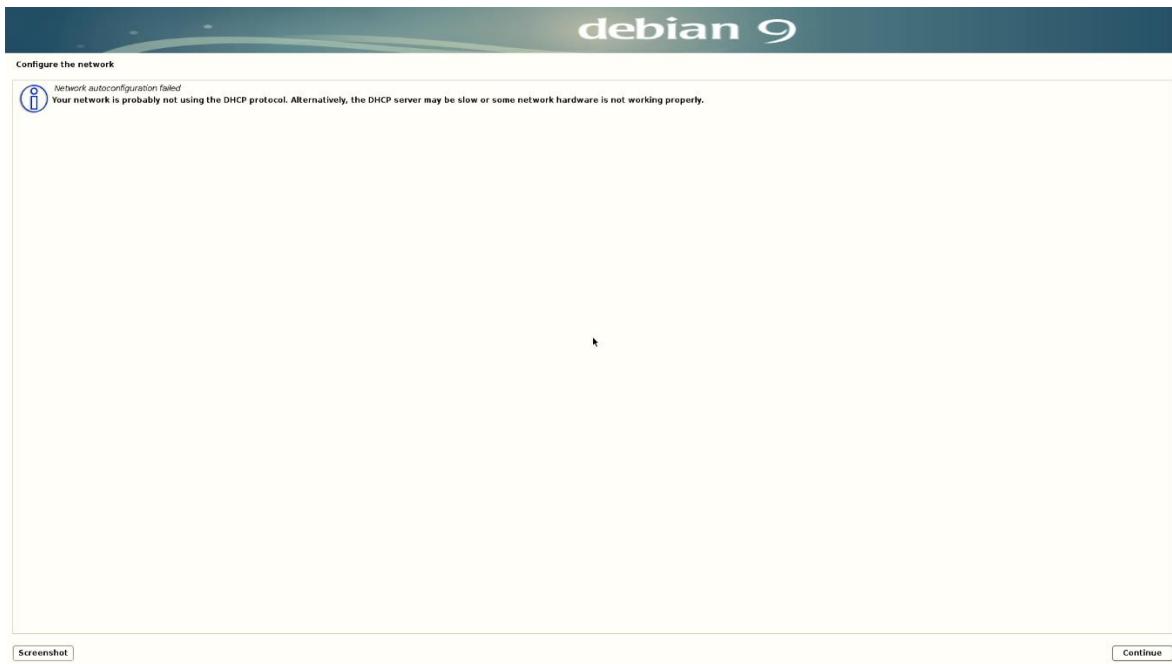
- Select "Do not configure the network at this time".
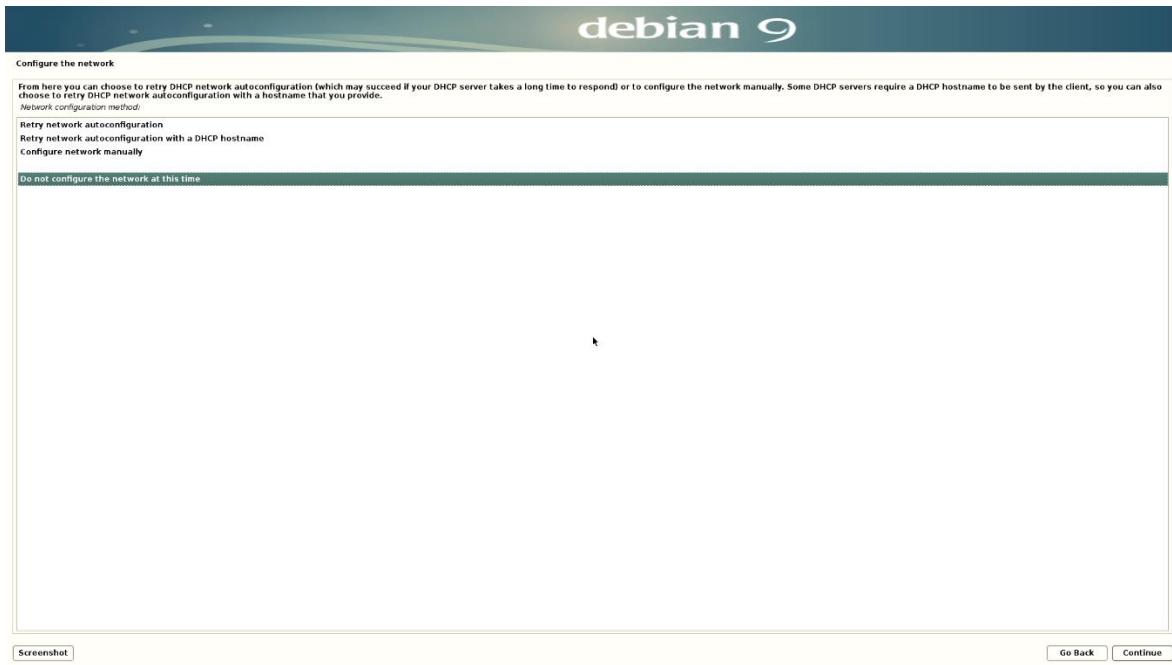
- Select "Continue".
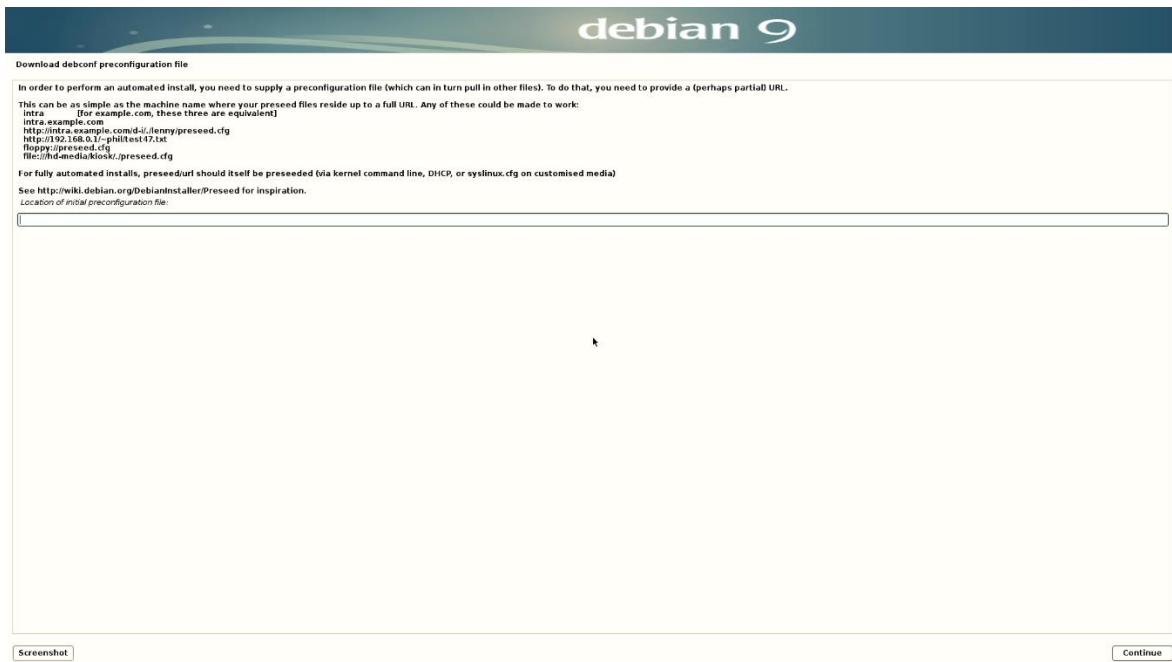
- Select a language.

- Select your location.

- Configure the keyboard.
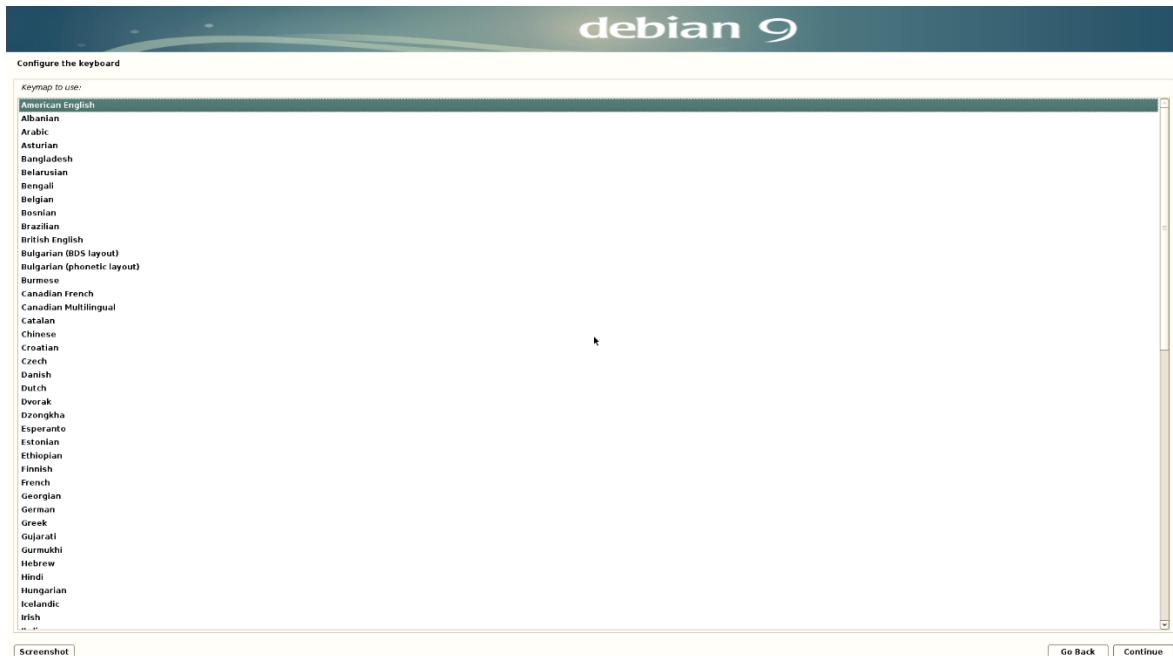
- Set up a root password.
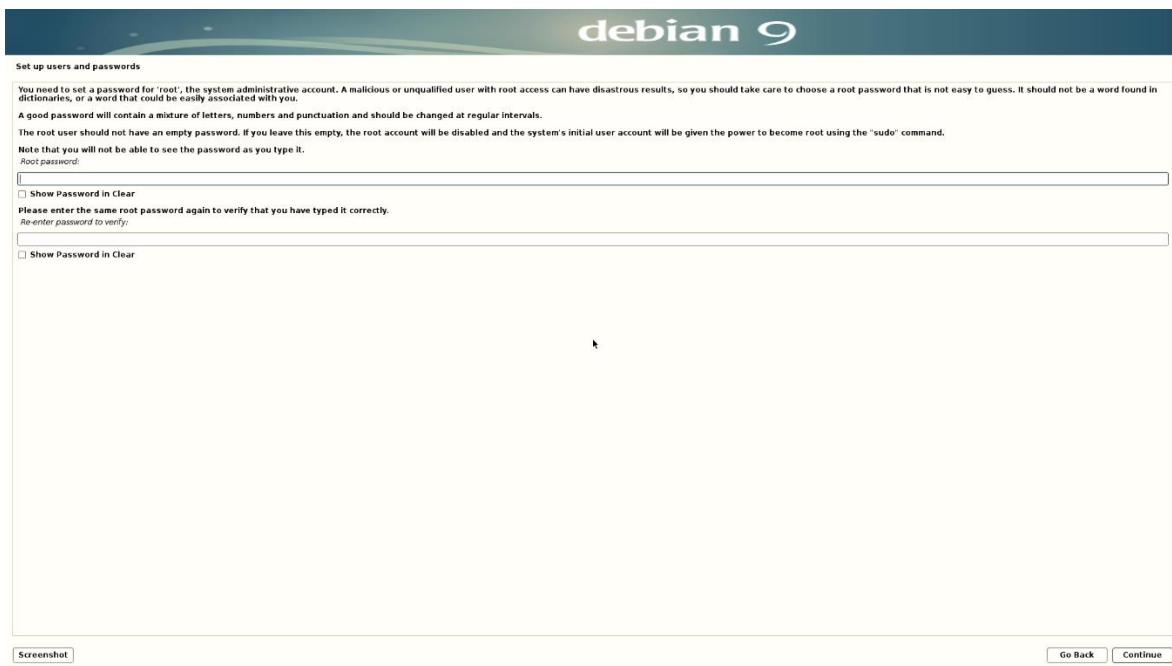
- Set up a user account and password.

- Set up a username.

- Set up a password for the username created above.

- Choose how to partition the disk.

- Select the disk to partition.

- Confirm whether to remove existing logical volume data.
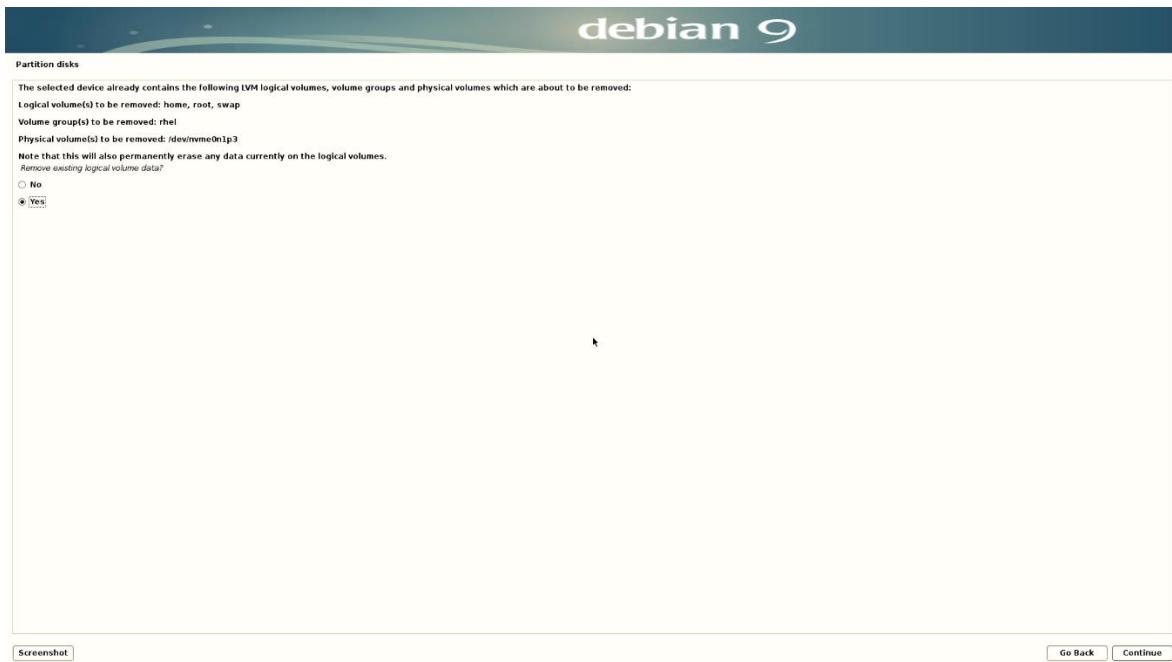
- Confirm disk partitions.

- Confirm to write changes to the disk(s).
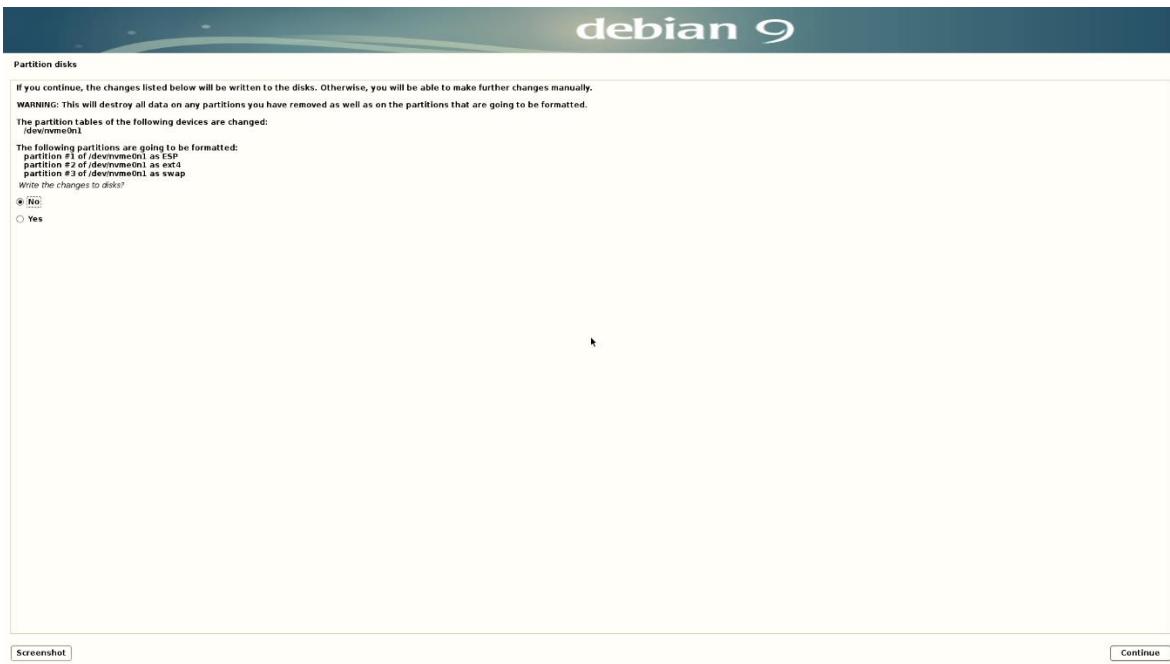
- Let the installer start the installation.

- Select "Continue" at the "Installation complete" screen to reboot the system.

- At the grub boot menu screen, press "e" to edit the boot parameters.

- Add "acpi=off" at the end of the boot parameter line, then press F10 to boot.
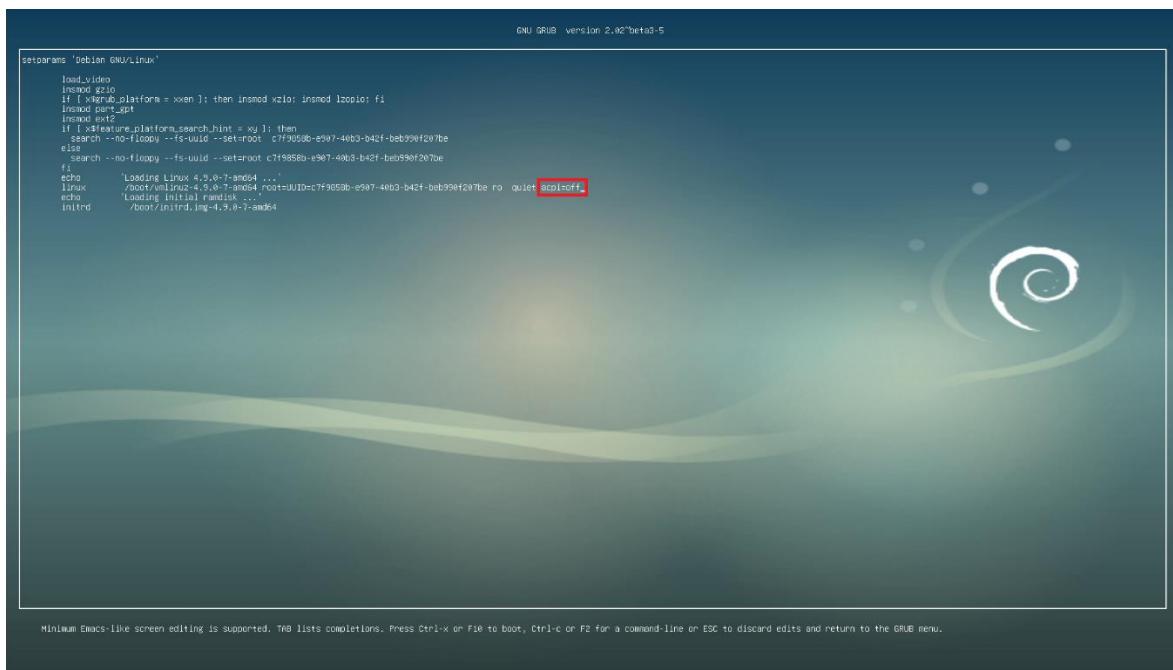

- Log in to the Debian desktop screen by using the user credentials created above.
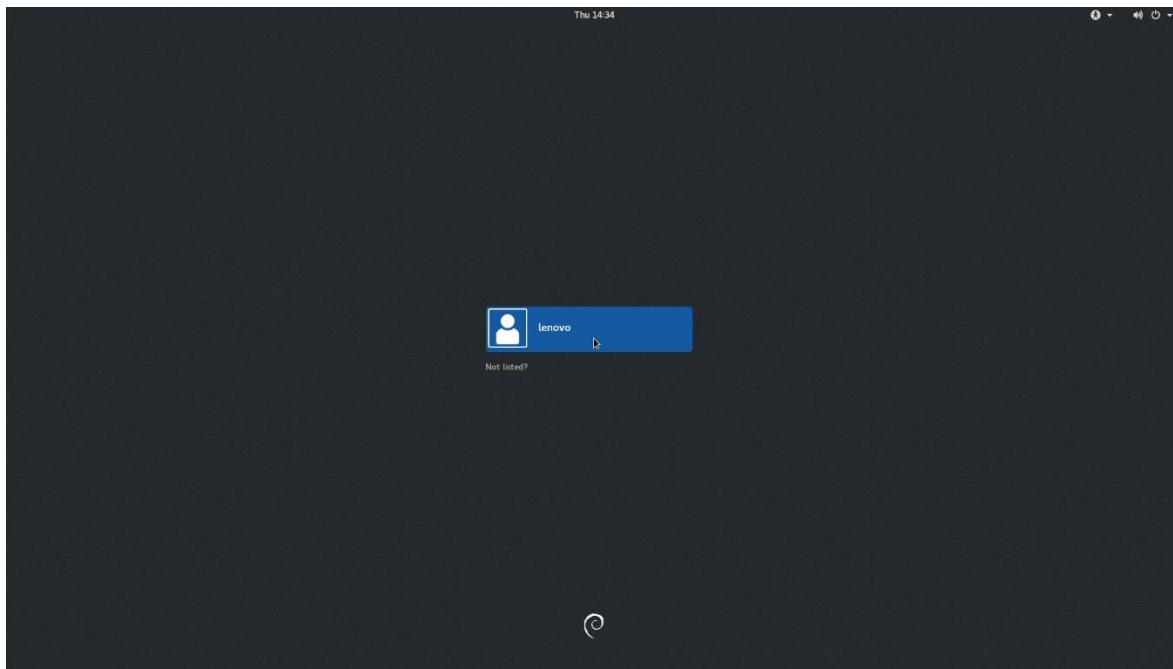
- Debian desktop screen.

Section 4 – Updating the Source List to use the Debian Repositories

Use the Debian repositories to download quick driver and/or software package releases.

Here's an example of what an /etc/apt/sources.list might look like:

Step 1:

- Edit the following '/etc/apt/sources.list' and add the following lines:

  deb http://deb.debian.org/debian stretch main
  deb-src http://deb.debian.org/debian stretch main
  deb http://deb.debian.org/debian stretch-updates main
  deb-src http://deb.debian.org/debian stretch-updates main
  deb http://security.debian.org/ stretch/updates main
  deb-src http://security.debian.org/ stretch/updates main

  deb http://deb.debian.org/debian stretch main contrib non-free
  deb-src http://deb.debian.org/debian stretch main contrib non-free
  deb http://deb.debian.org/debian stretch-updates main contrib non-free
  deb-src http://deb.debian.org/debian stretch-updates main contrib non-free
  deb http://security.debian.org/ stretch/updates main contrib non-free
  deb-src http://security.debian.org/ stretch/updates main contrib non-free

Step 2:

- Run the following command: 'apt-get update'

Section 5 – Installing the Nvidia Graphics Driver

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