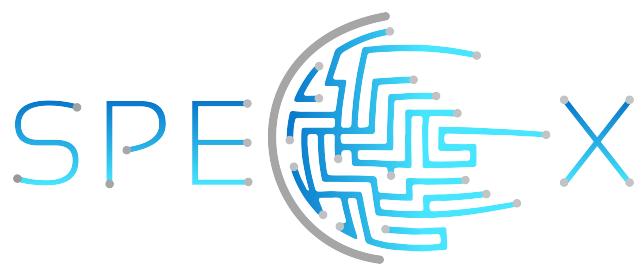

SPECX v3.2

User Guide



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Team SpecX, 2017-2020

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SpecX v3.2 User Guide

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About SpecX

Abstract

SpecX is a free, easily distributable software installation package for freeware tools for electrical/electronic and computer engineering (ECE) students.

SpecX is a Linux-based software package that facilitate easy download and installation of a wide range of tools for programming, circuit analysis, printed circuit board design, mathematical and numerical analysis, network analysis. It also downloads the dependencies prior to the tools for which they are required. SpecX provides an interactive graphical user interface which is easily understandable for users unaware of UNIX-shell language.

SpecX is free and effective alternative to the existing costly and copyrighted software packages and it attempts to reduce the duplication of efforts on building software workstations in laboratories and is intended to serve as a good teaching resource in a classroom setting.

Purpose

The basic purpose of this document is to provide the complete description about the installation of SpecX. Running SpecX on Microsoft Windows through Virtualization is also explained.

Intended Audience

SpecX is aimed at universities and students as it represents a cohesive environment integrating more than 200 software all catering to undergraduate and graduate coursework offered in ECE and Computer Science (CS) programs.

Required Background

Team SpecX has made every attempt to make this a step by step guide. However, some familiarity with Linux operating system as well as software and hardware requirements of SpecX are assumed.

How This Guide is Organized

This guide is organized into sections grouped according to the intended use by the user:

- About This Guide (Chapter 1) describes this document's purpose and intended audience
- SpecX Package (Chapter 2) has tables for Software Categorization Scheme, Selection Criteria and Included Tools
- Software Installation Process (Chapter 3) describes how to install SpecX
- Microsoft Windows Support (Chapter 4) describes a step by step procedure to configure a virtual OS for SpecX on Windows

Contact

For any further queries and suggestions, contact us at: mominaj05@gmail.com or hasaniqbal777@gmail.com

Software Installation Process

Installing SpecX software

For downloading of SpecX, visit its website:

<https://github.com/mominaj/SpecX-bin>

1. SpecX can also be downloaded from the following command through git:

```
$ git clone https://github.com/mominaj/SpecX-bin
```

2. Now run the following command on terminal:

```
$ chmod +x SpecX_setup_enUS  
$ sudo ./SpecX_setup_enUS
```

3. If the package manager of your linux distribution is busy the installation will terminate. Wait for the background processes to finish or restart the system to reset all the programs running in the background (recommended).

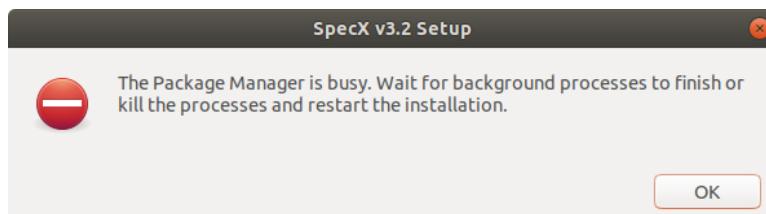


Figure 1: Password Screen

4. Enter your superuser credentials to start SpecX Installation.



Figure 2: Password Screen

5. If the superuser password is incorrect the installation will terminate.

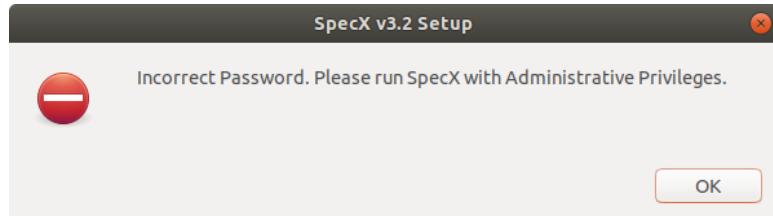


Figure 3: Password Screen

6. Click **OK** to proceed and confirm the internet connection.



Figure 4: Internet Connection Successful Screen

NOTE Installation of SpecX require a proper internet connection to proceed, otherwise the installation terminates.

7. Installation is **terminated** if there is no internet connection.



Figure 5: Internet Connection failed Screen

8. Installation wizard of SpecX will start.



Figure 6: Splash Screen

9. **Select** you want to install, uninstall or exit SpecX. Uninstallation wizard is identical to installation wizard.

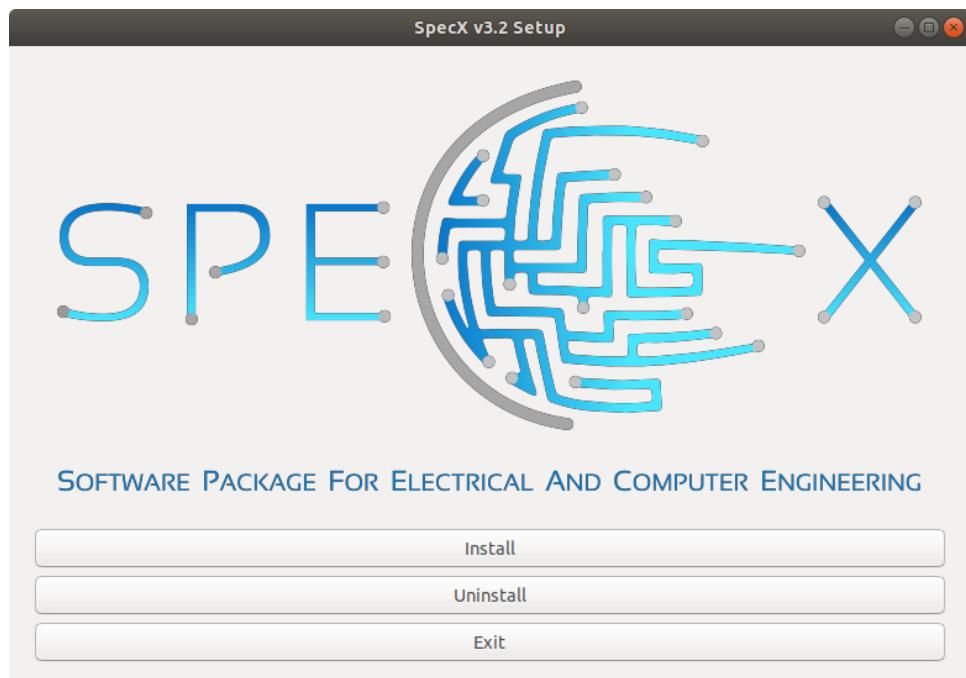


Figure 7: Installer Selection Screen

10. Click **Next** to proceed with the installation.

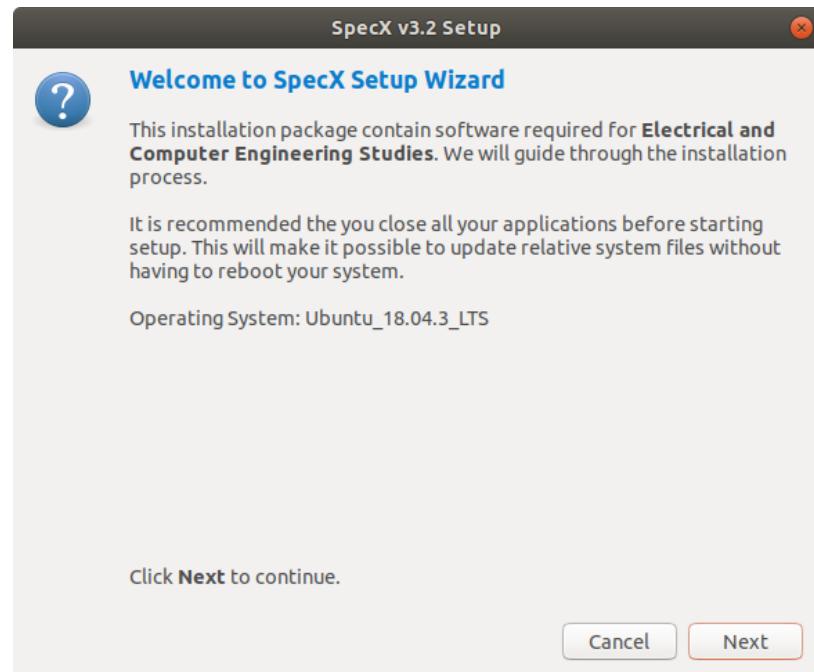


Figure 8: Installation Welcome Screen

11. SpecX pipeline detail screen is displayed. It has the information about which software you want to install. Click Next to Proceed.

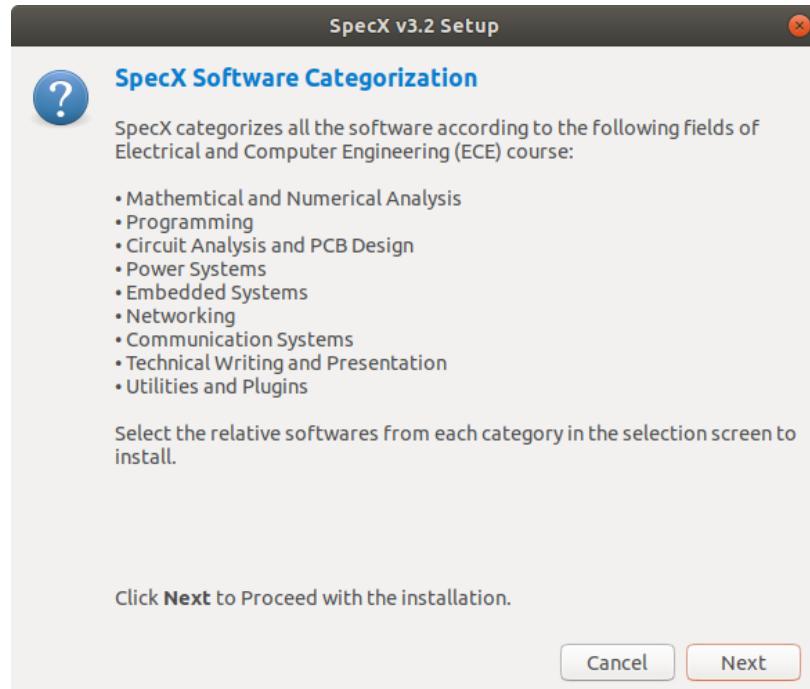


Figure 9: Pipeline information screen

12. Selection screen for Mathematical and Numerical Analysis Tools is displayed. Select the required tools and Click Next.

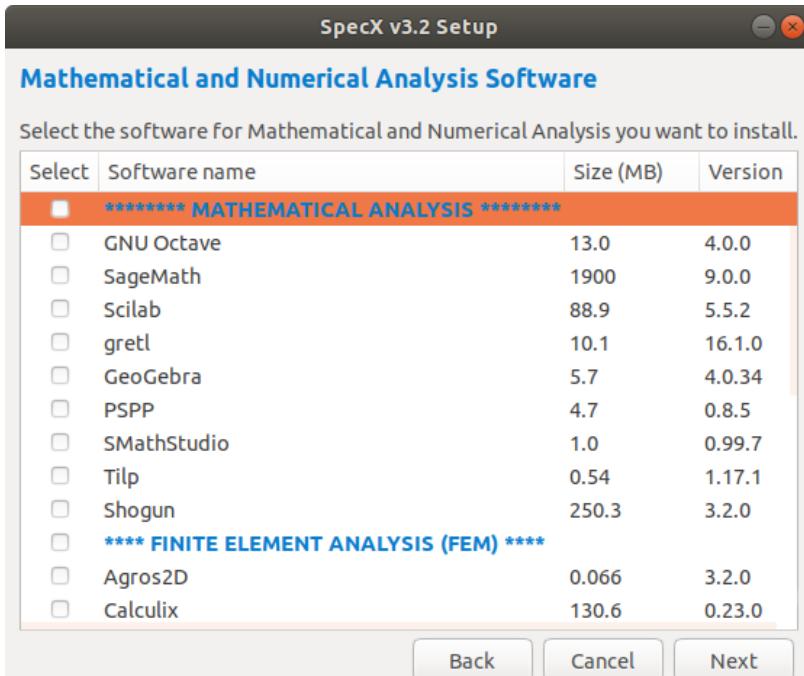


Figure 10: Mathematical and Numerical Analysis tools selection screen

13. Selection screen for Programming Tools is displayed. Select the required tools and Click **Next**.

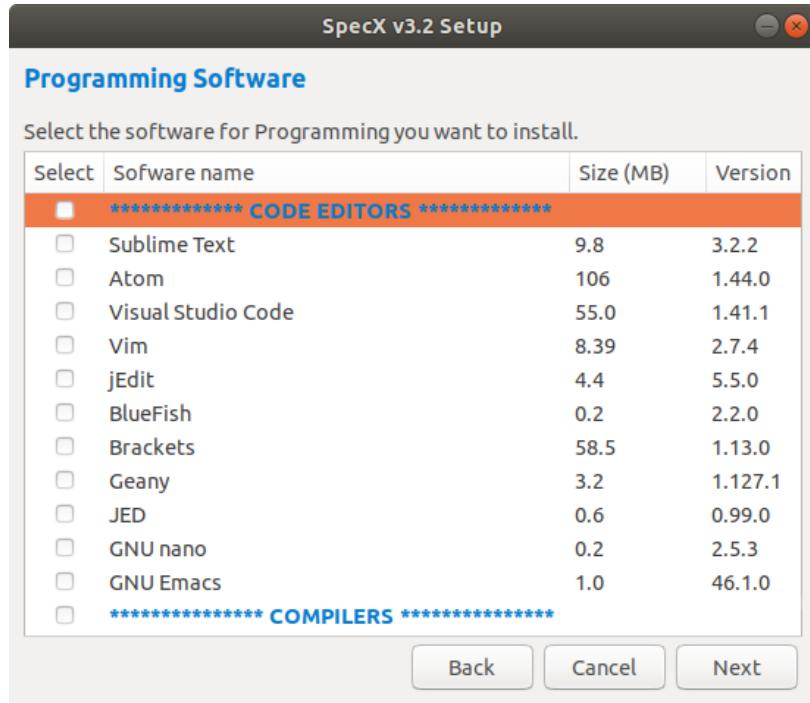


Figure 11: Programming tools selection screen

14. Selection screen for Circuit Analysis and PCB Design tools is displayed. Select the required tools and Click **Next**.

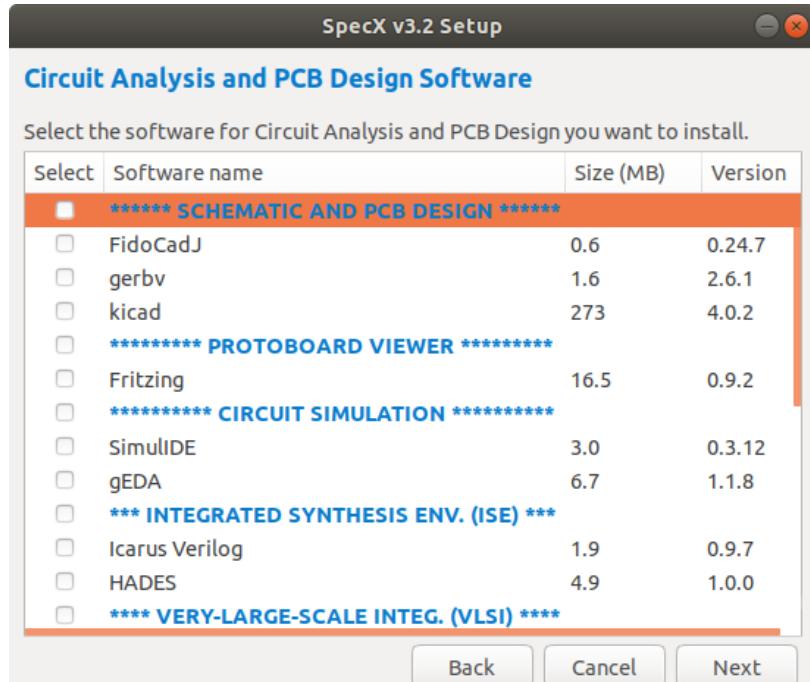


Figure 12: Circuit Analysis and PCB Design tools selection screen

15. Selection screen for Power Systems tools is displayed. Select the required tools and Click **Next**.

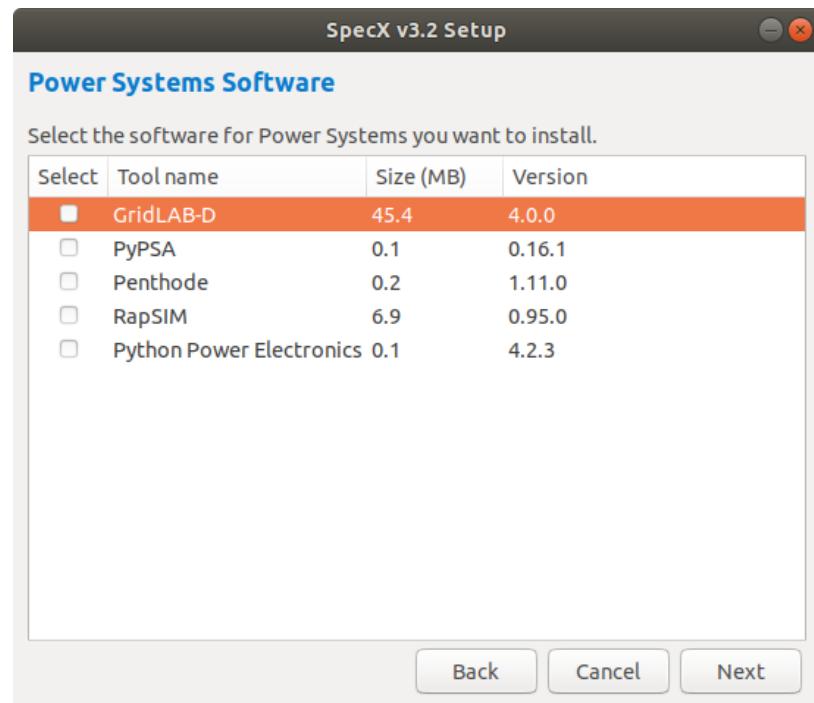


Figure 13: Power Systems tools selection screen

16. Selection screen for Embedded Systems tools is displayed. Select the required tools and Click **Next**.

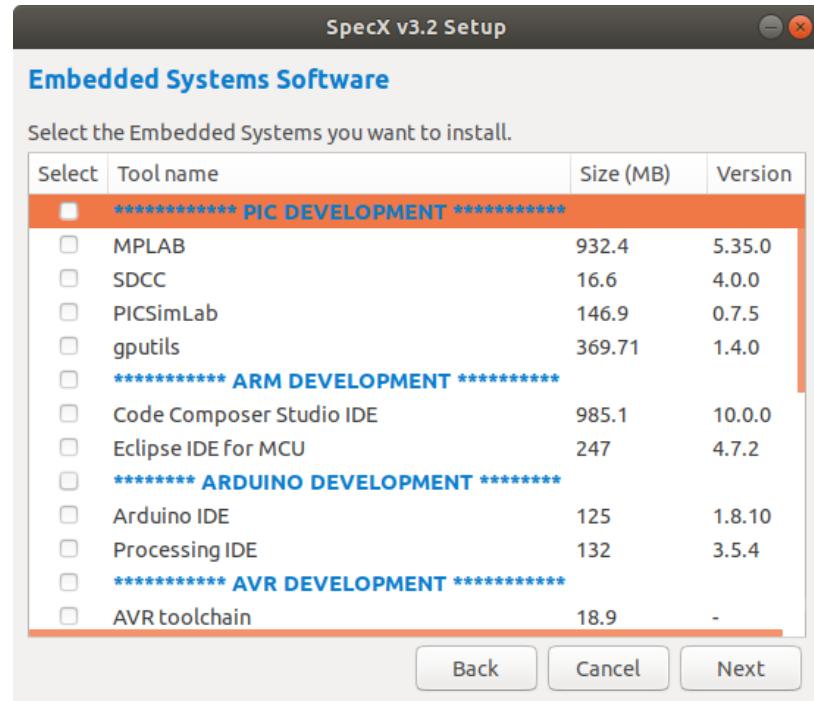


Figure 14: Embedded Systems tools selection screen

17. Selection screen for Networking tools is displayed. Select the required tools and Click **Next**.

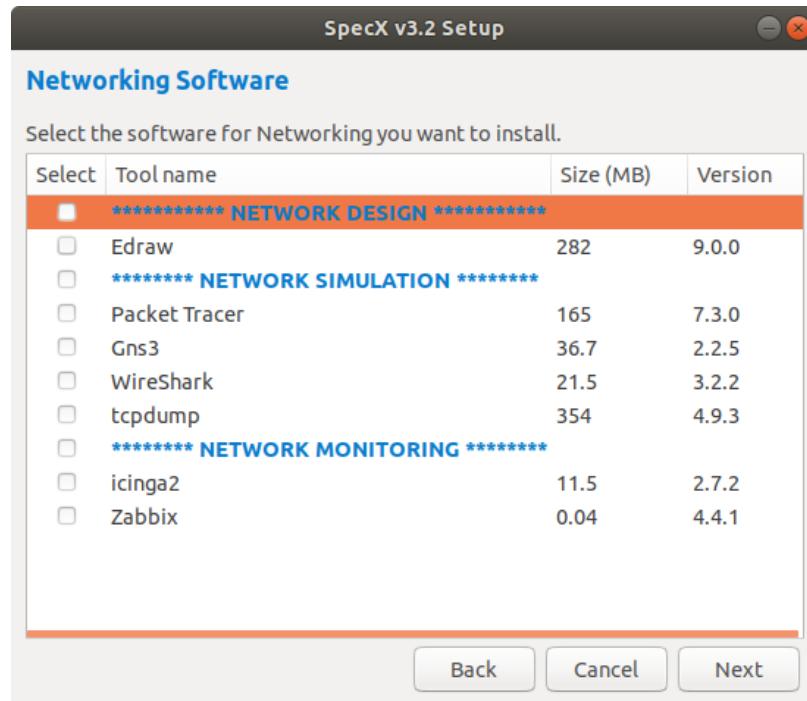


Figure 15: Networking tools selection screen

18. Selection screen for Communication Systems tools is displayed. Select the required tools and Click **Next**.

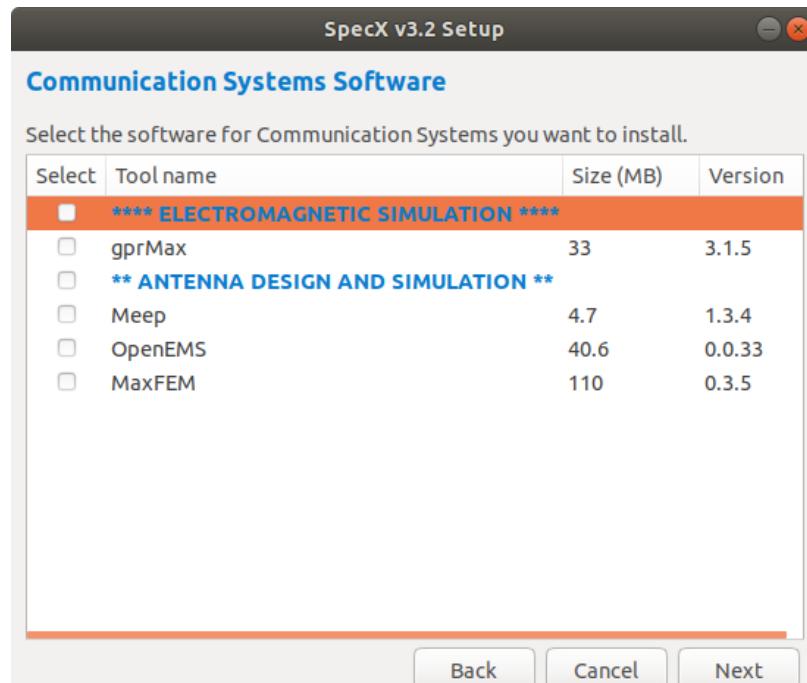


Figure 16: Communication Systems tools selection screen

19. Selection screen for Technical Writing and Presentation tools is displayed. Select the required tools and Click **Next**.

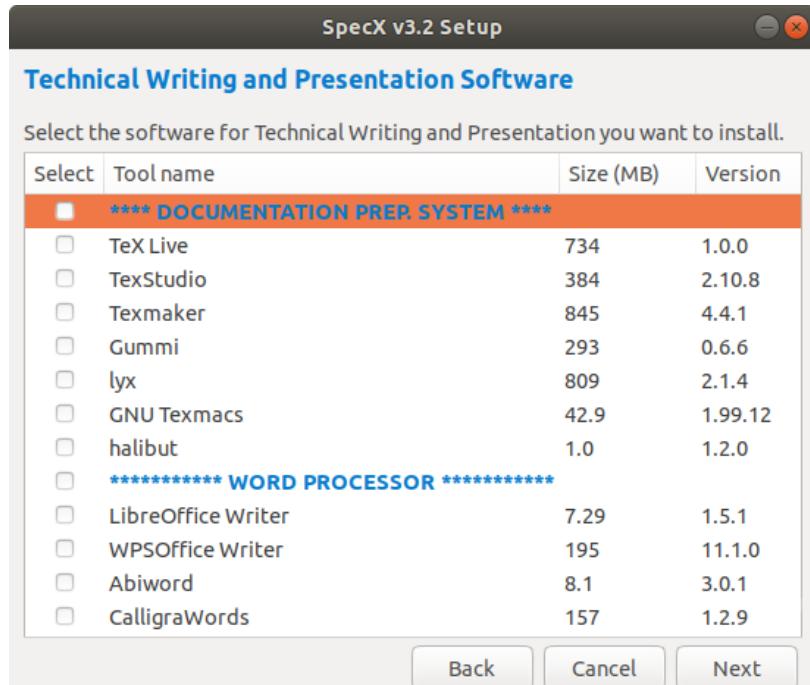


Figure 17: Technical Writing and Presentation tools selection screen

20. Selection screen for Utilities and Plugins tools is displayed. Select the required tools and Click **Next**.

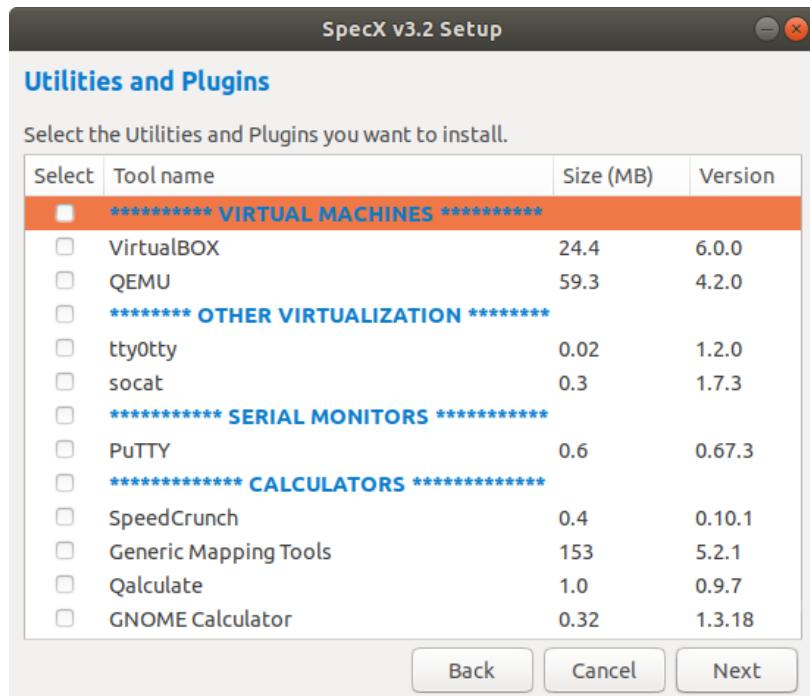


Figure 18: Utilities and Plugins tools selection screen

21. Click **Next** to proceed with the installation.

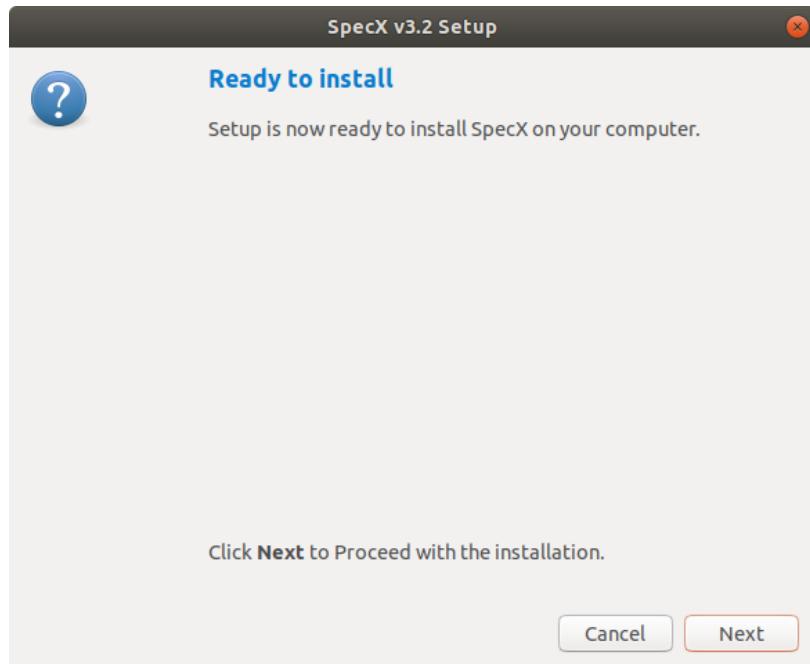


Figure 19: Ready to Install Screen

22. If no software tool is selected the installation will Finish.

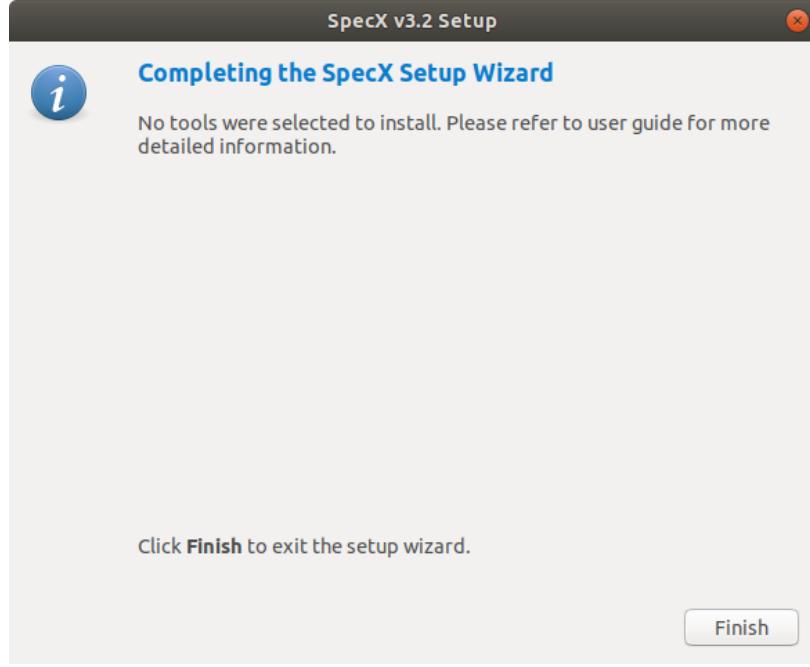


Figure 20: Ready to Install Screen

23. Dependencies related to software will start installing.

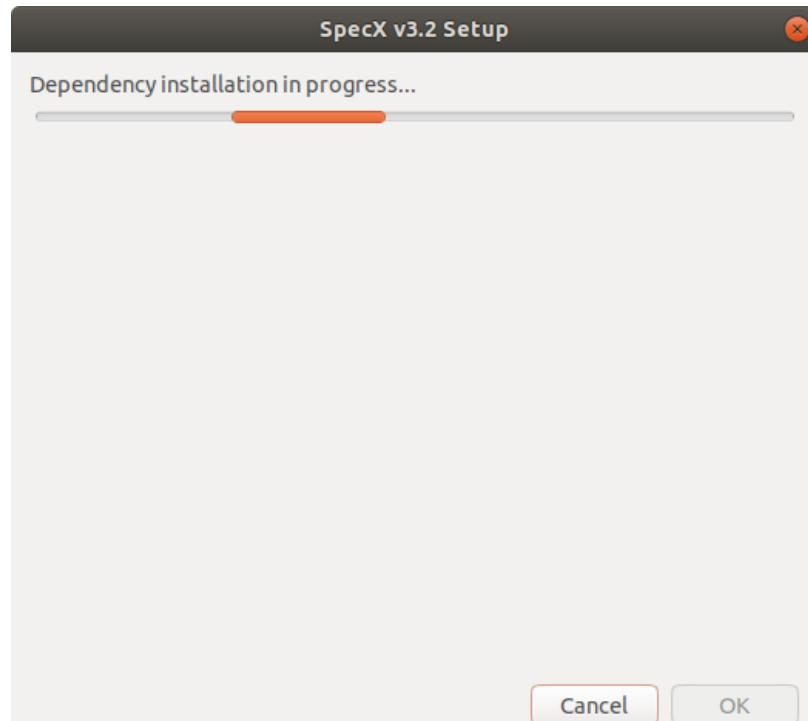


Figure 21: Installation Screen

24. All the dependencies which are installed are displayed at the end of the installation. Click **Ok**.

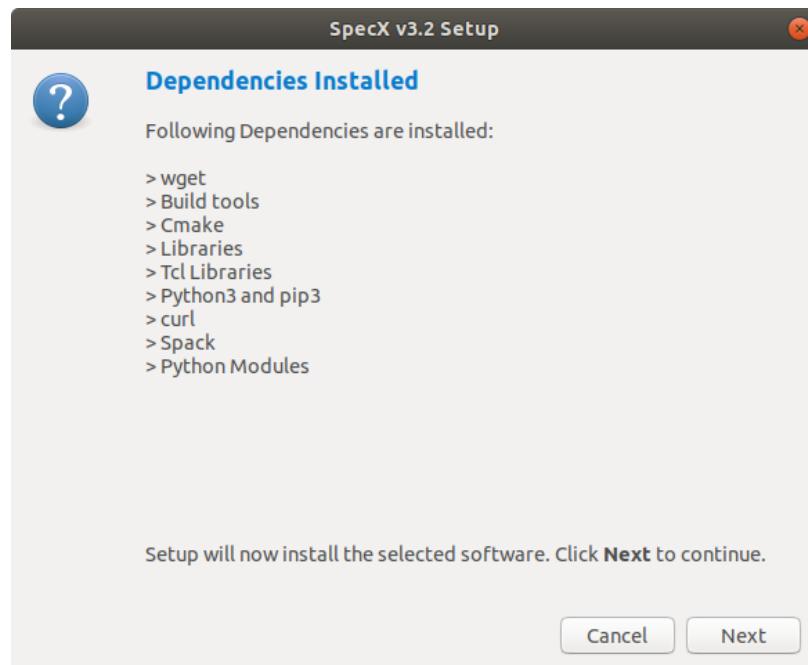


Figure 22: Dependencies installation finished screen

25. Tool installation will continue. Some tools install as standalone installation will be called automatically.

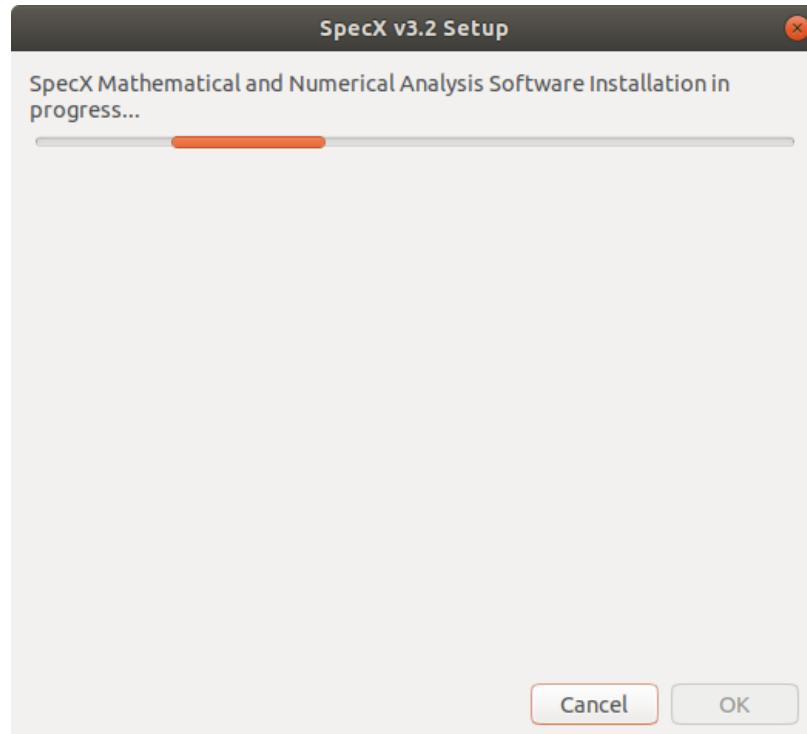


Figure 23: Downloading Screen

26. SpecX will notify you if the software size is more than 200MB and will ask your confirmation.

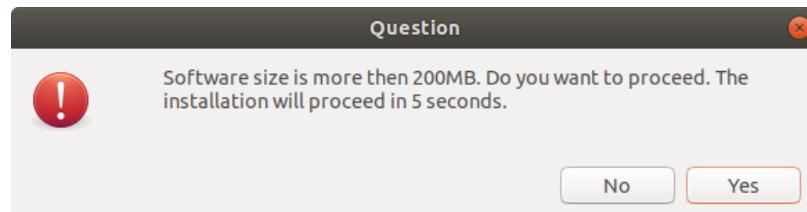


Figure 24: Warning Screen

27. SpecX will notify you if no software is selected from a category.

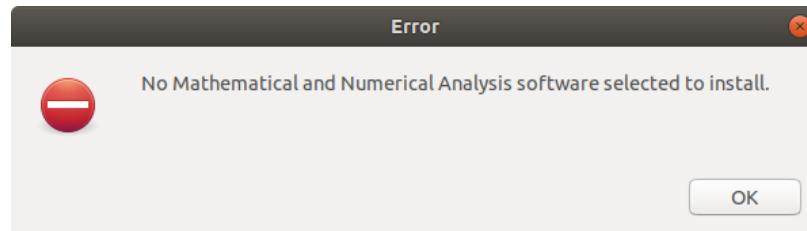


Figure 25: Warning Screen

28. SpecX will notify you of the download progress for many software.

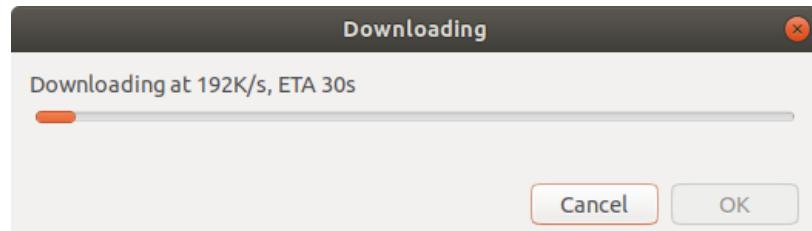


Figure 26: Warning Screen

29. Installation of SpecX is now finished. Click **Finish** to use the tools.

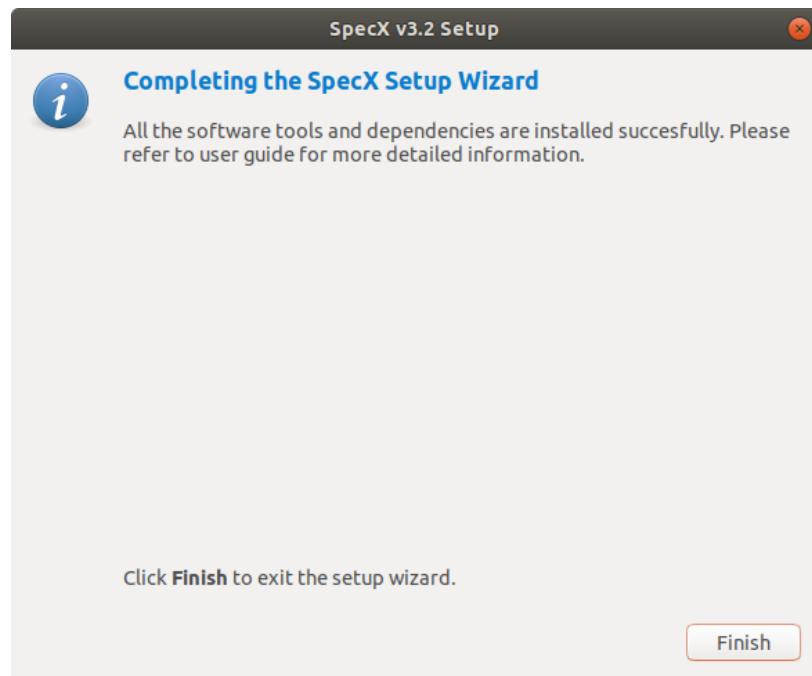


Figure 27: Finishing Installation Screen

Microsoft Windows Support

Installing SpecX software on Microsoft Windows

SpecX is software package for Linux, but Windows users can use SpecX using a Virtual Machine. Follow these steps to initialize a Virtual Machine on your Windows host.

NOTE SpecX support a 64bit Windows host. Microsoft Windows XP and Vista support is discontinued.

1. First you have to **download** the image file of the required OS (For Example Ubuntu) from its website or use the following link:

<http://releases.ubuntu.com/18.04.3/ubuntu-18.04.3-desktop-amd64.iso>

2. **Download** the virtualization software (Oracle VM VirtualBox) from the following link:

<http://download.virtualbox.org/virtualbox/6.0.10/VirtualBox-6.0.10-132072-Win.exe>

3. **Install** this software in Windows OS host.

4. **Start** Virtual Box, and click on the **New** symbol.

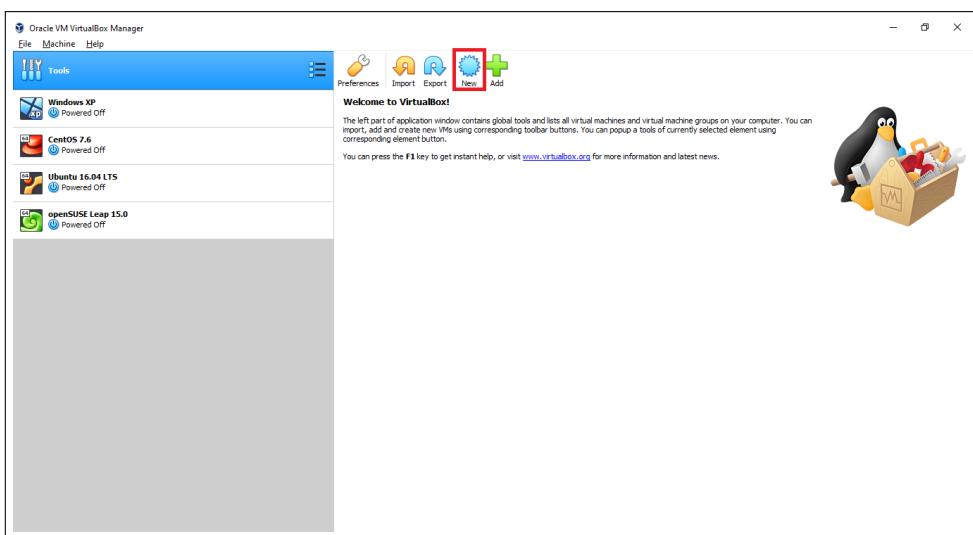


Figure 1: New Virtual OS

5. Give the virtual OS a relevant **Name**. Select the **Type** (Linux) and **Version** (Ubuntu 64-bit) and Click **Next**.

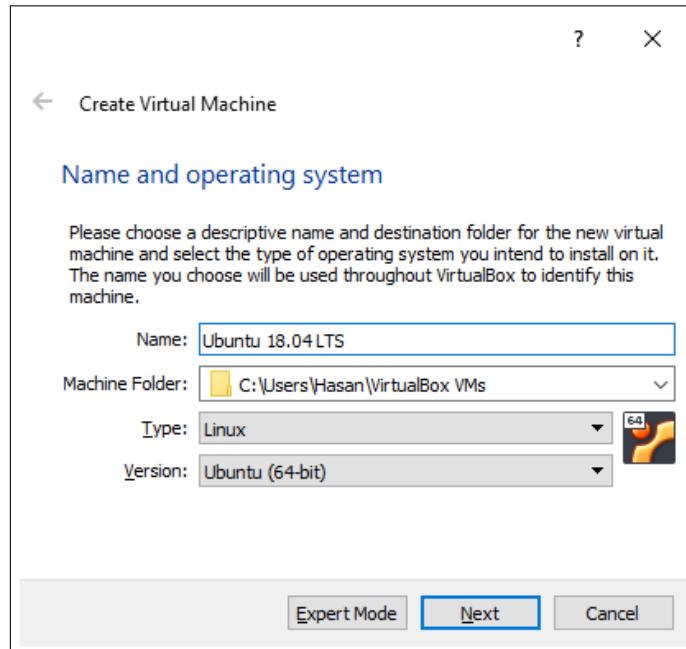


Figure 2: Assigning Name

6. Allocate RAM to the virtual OS. Following system has 8GB of RAM so 2GB of RAM is allocated. You can use more RAM if your system has enough extra RAM.

NOTE *Allocate about half of the RAM to the virtual OS. Click Next.*

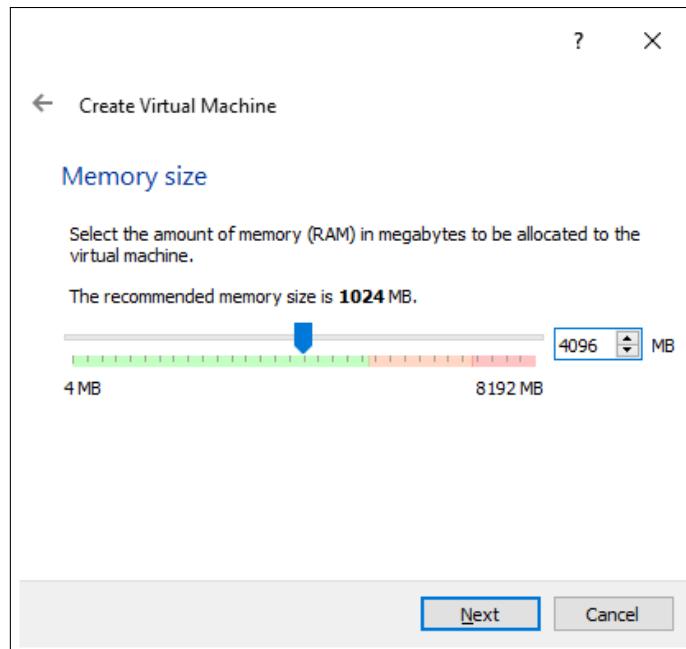


Figure 3: Memory Allocation

7. **Create a virtual disk.** This works as the hard disk of the virtual Linux system. This is where the virtual system will store its files. Click **Create**.

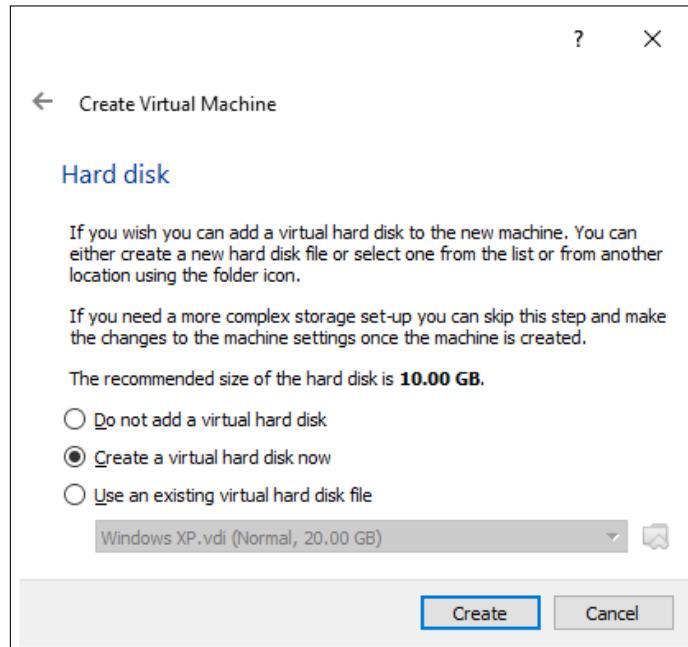


Figure 4: Creating a virtual hard disk

8. Select **VDI file type** here (recommended). Click **Next**.

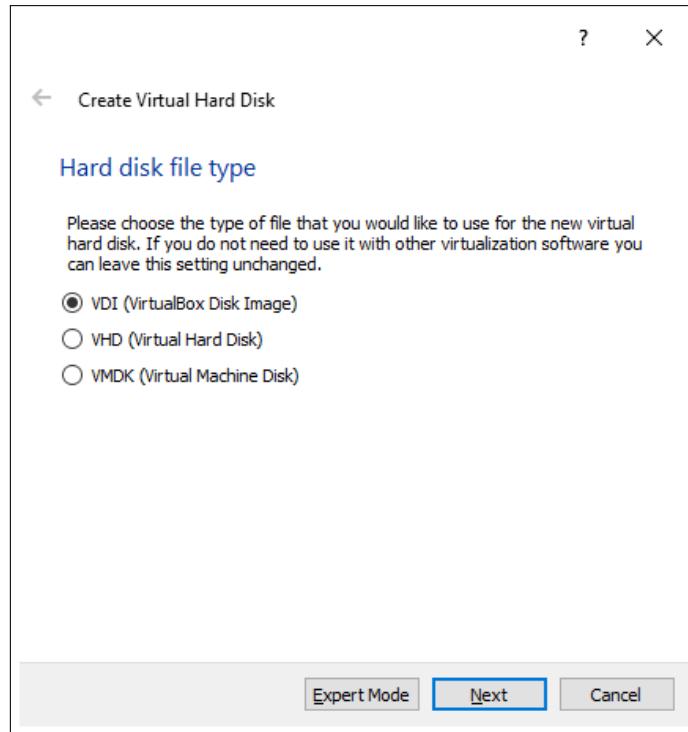


Figure 5: Hard disk file type

9. You can choose either of Dynamically allocated or Fixed size option for creating the virtual hard disk. Choose **Dynamically allocated**. (recommended). Click **Next**.

NOTE *Dynamic allocation is allocated as time passes and data is increased whereas fixed is allocated instantly.*

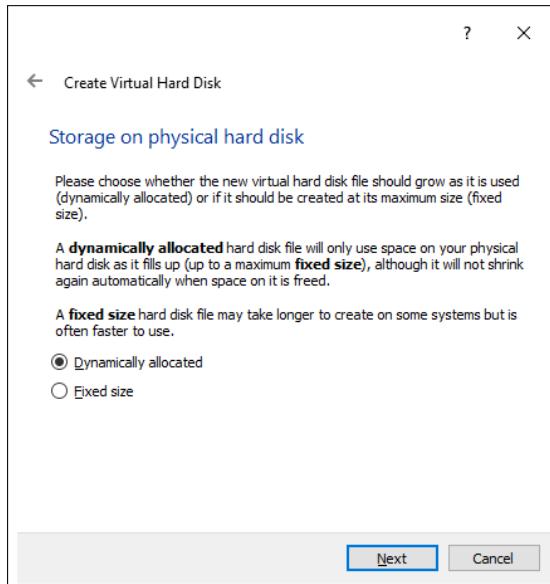


Figure 6: Storage type

10. Select **VDI file type** here (recommended) and Select the **Hard Disk size**. (recommended size: 100 GB). Click **Create**.

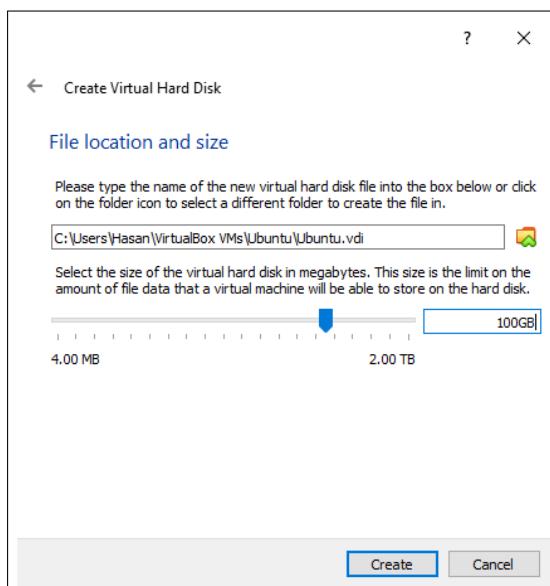


Figure 7: Hard disk size

11. Click **Next**. Now, Select **Settings** to assign the image file of respective OS to VB.

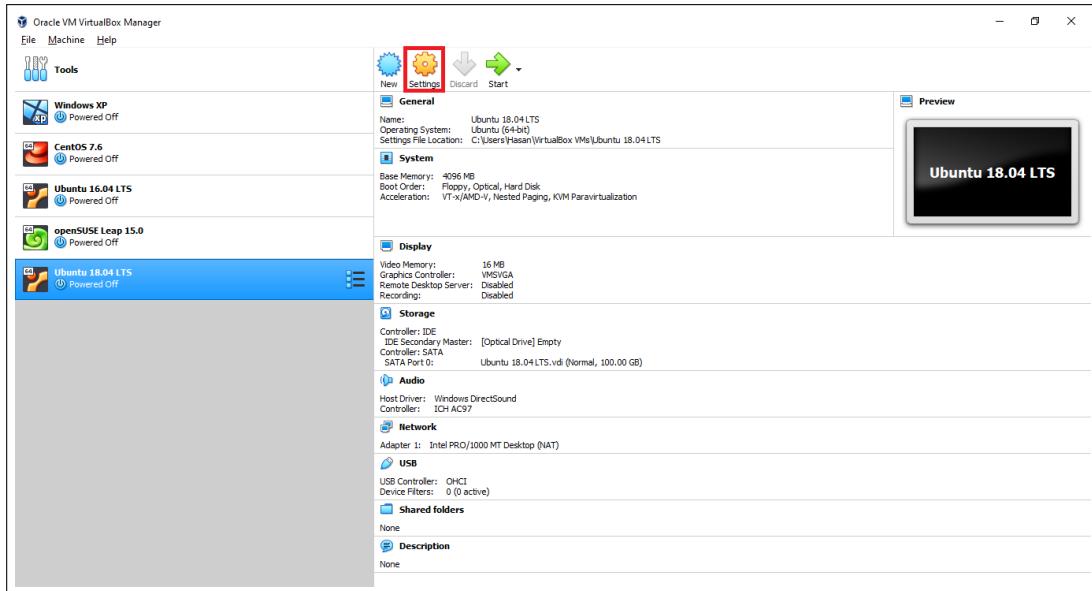


Figure 8: Select Settings

12. Select **General** → **Advanced**. Now, select the **Shared Clipboard** and **Drag'n'Drop** option to **Bidirectional**.

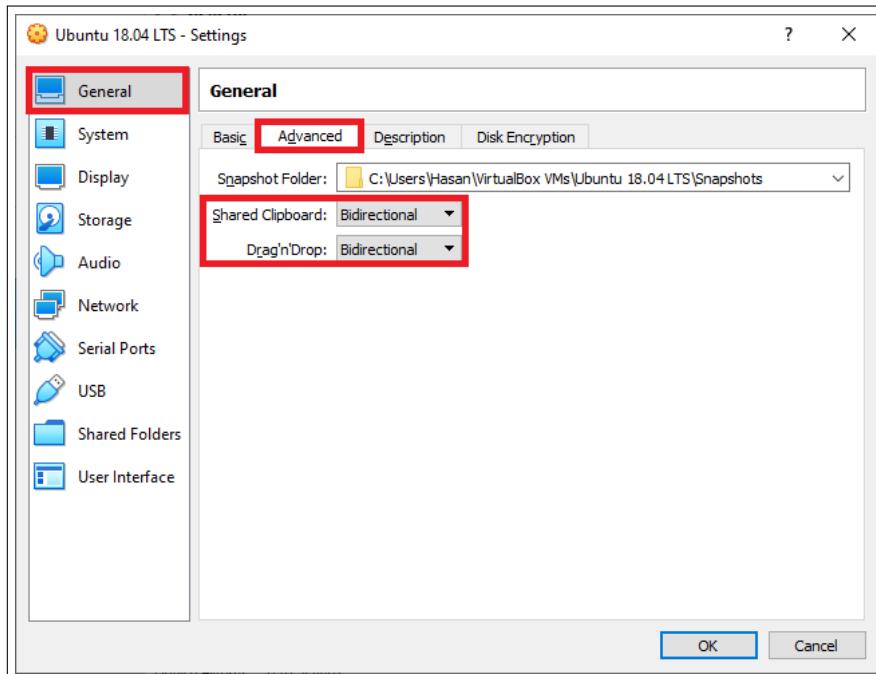


Figure 9: Advanced Settings

13. Select **Settings** to assign the image file of respective OS to VB. Select **Storage** → **Controller : IDE** → **Empty**. Now, in the **Attributes** tab, click on **New Disk** and provide the path of downloaded image file of Ubuntu OS. Click **OK**.

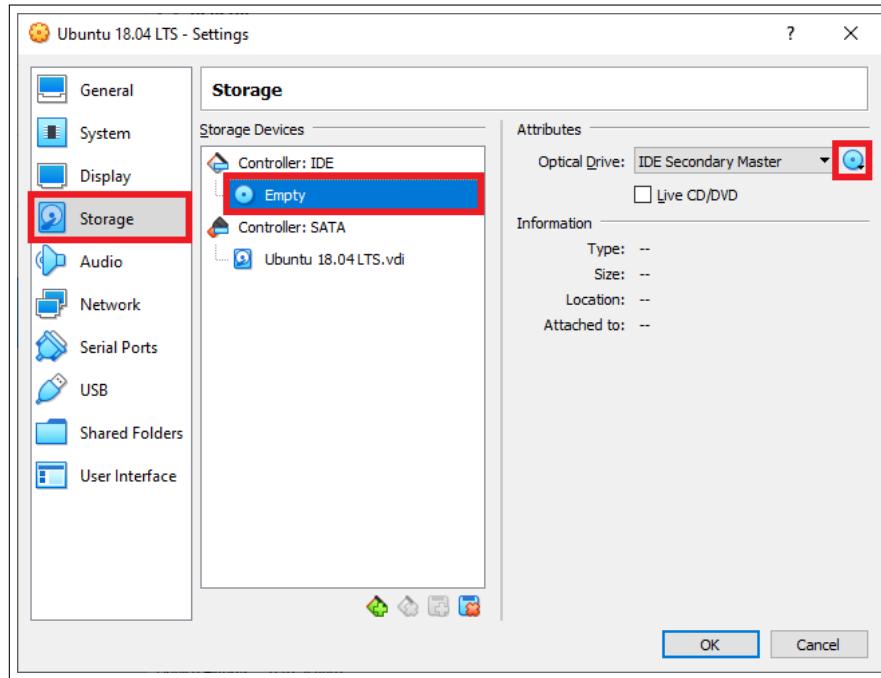


Figure 10: Providing Image file

14. Once everything is in place, it's time to boot that ISO and install Linux as a virtual operating system. Click Start.

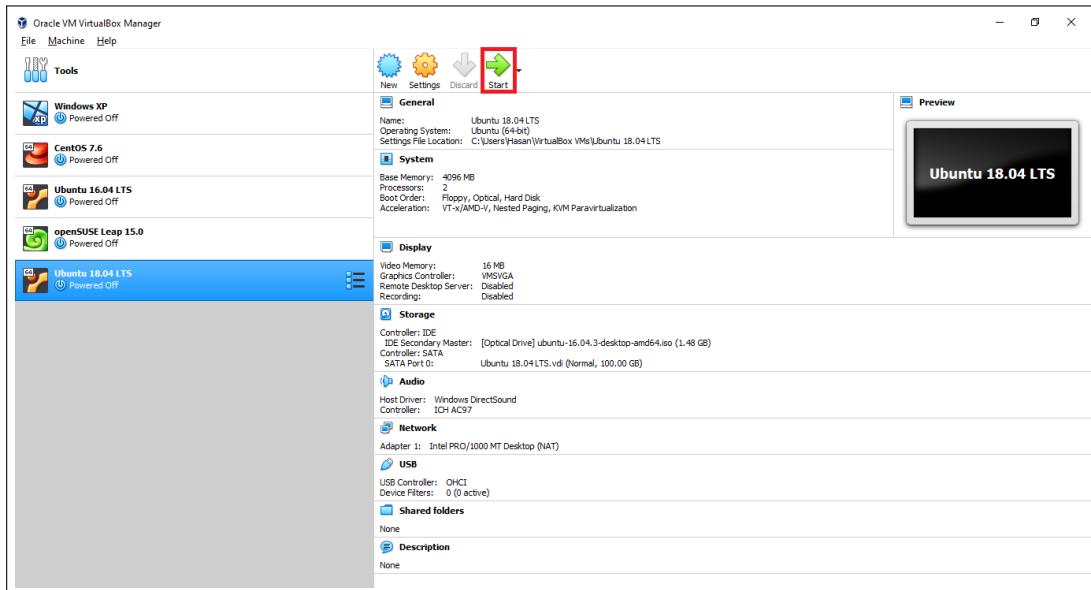


Figure 11: Starting Virtual OS

15. Virtual OS will boot into Linux Installation process. You should be presented with the option to install it. Click **Install Ubuntu**.

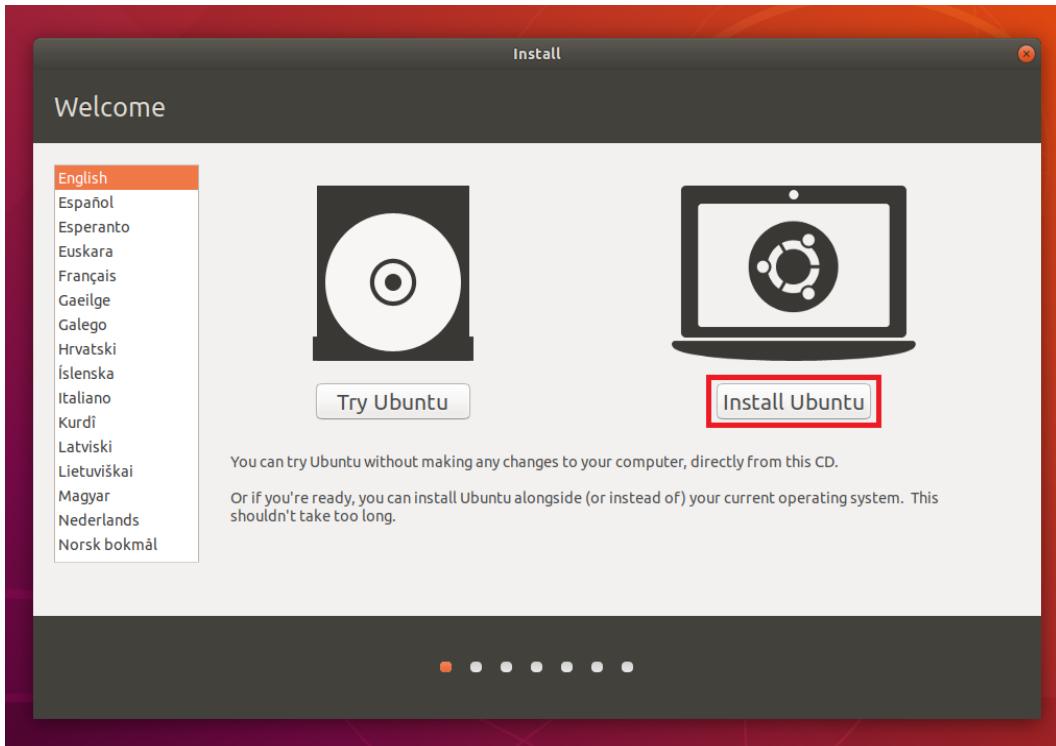


Figure 12: Installing Ubuntu

16. Continue with Normal Installation.

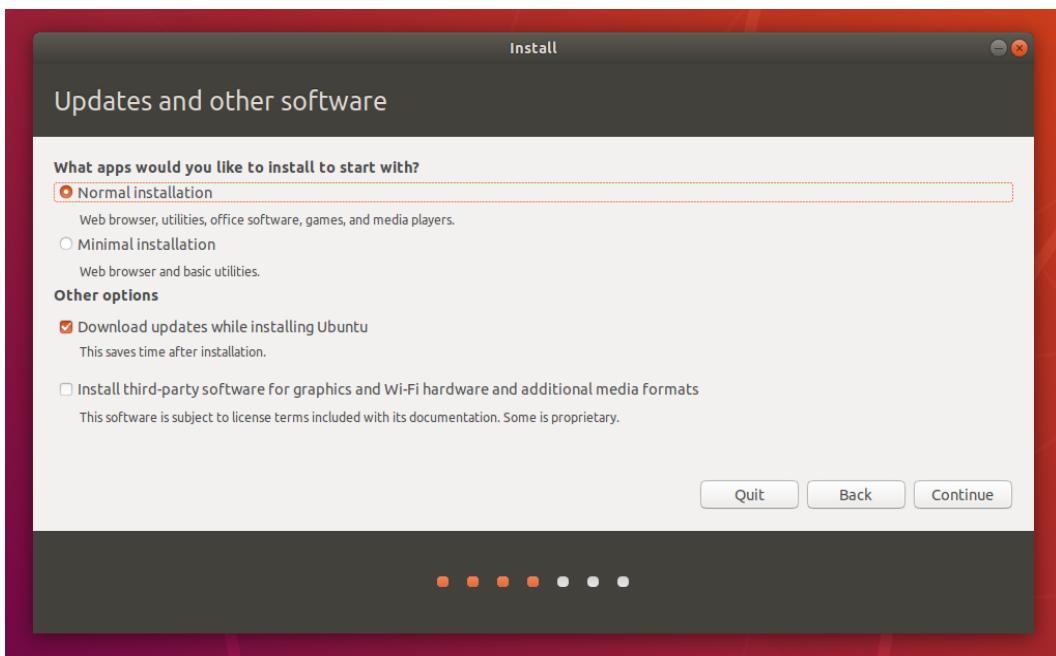


Figure 13: Update Screen

17. In Installation type screen, select **Erase disk** and **Install Now** option.

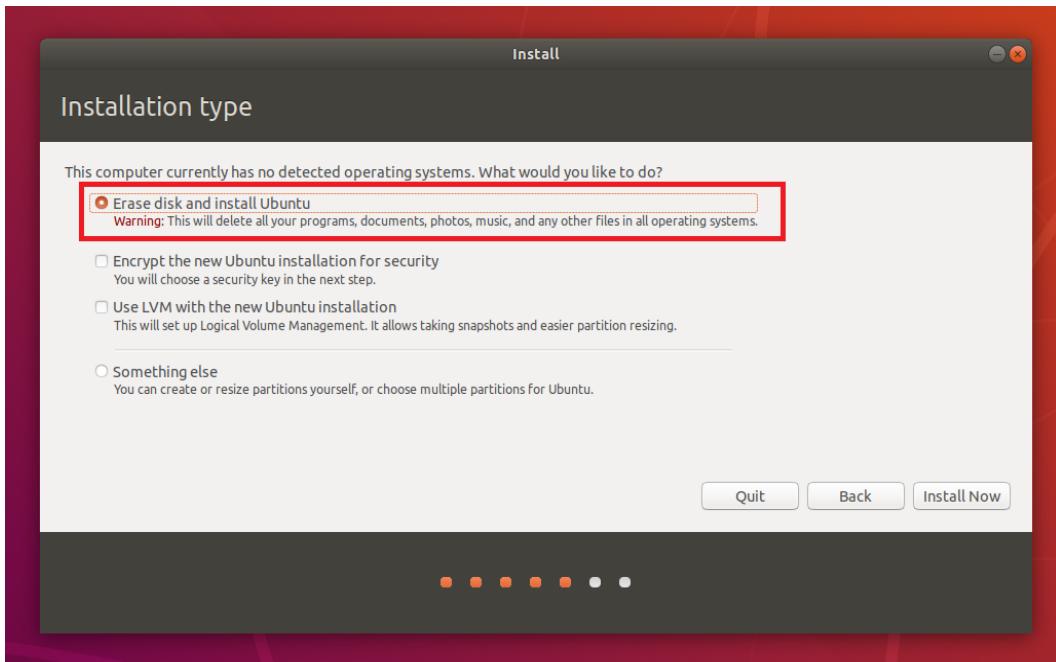


Figure 14: Installation type Screen

18. Select Continue.

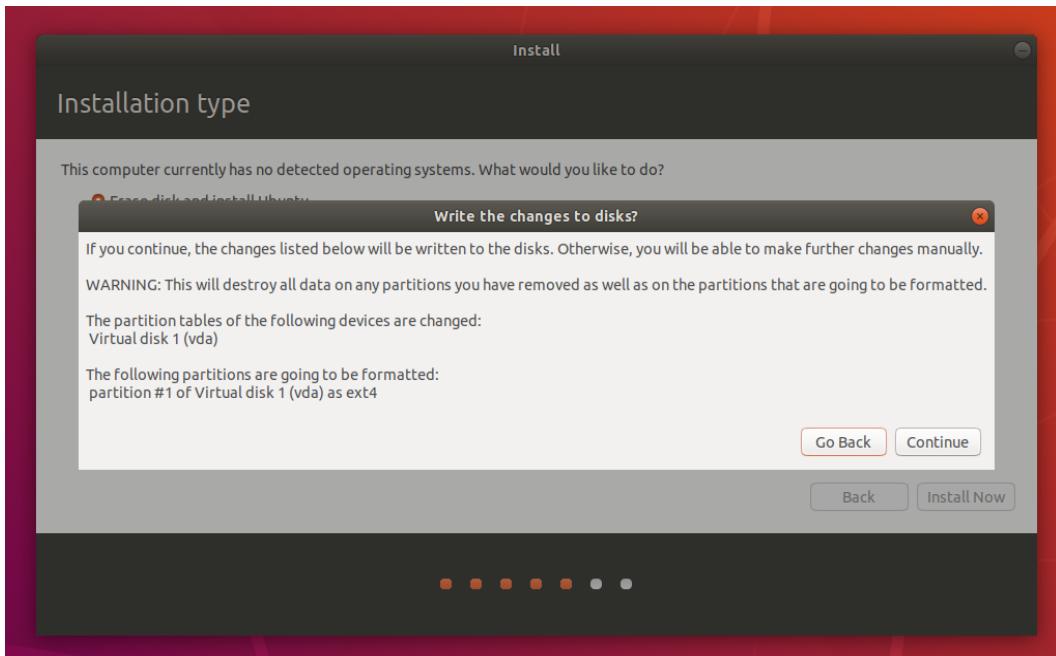


Figure 15: Confirmation Screen

19. Select your **Current Location** and Continue. Select **Continue**.

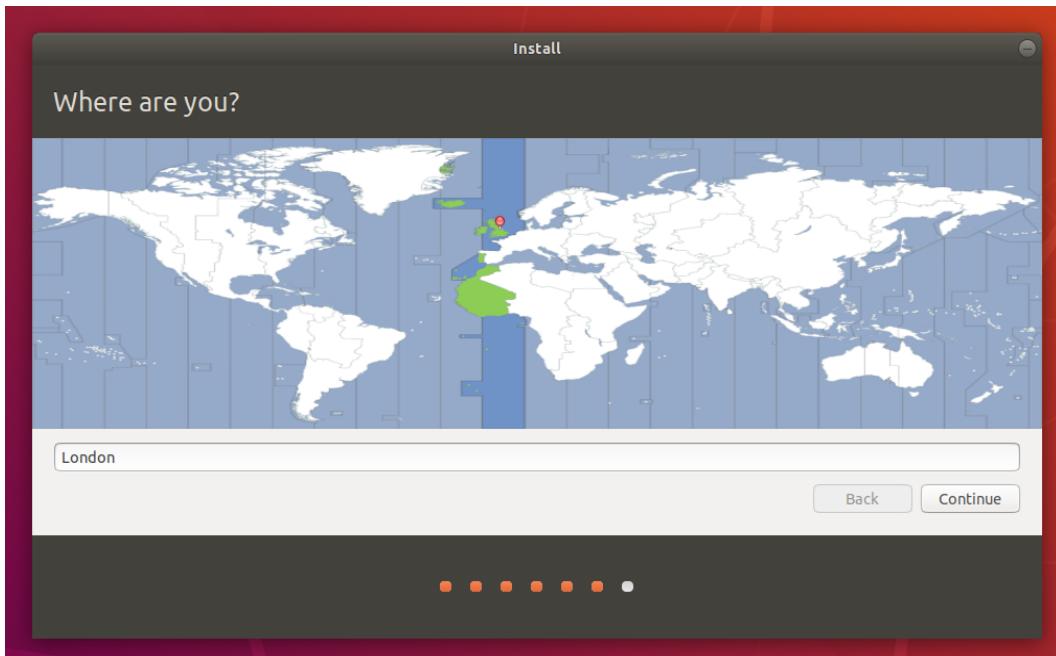


Figure 16: Location selection screen

20. Fill your Info and click **Continue**.

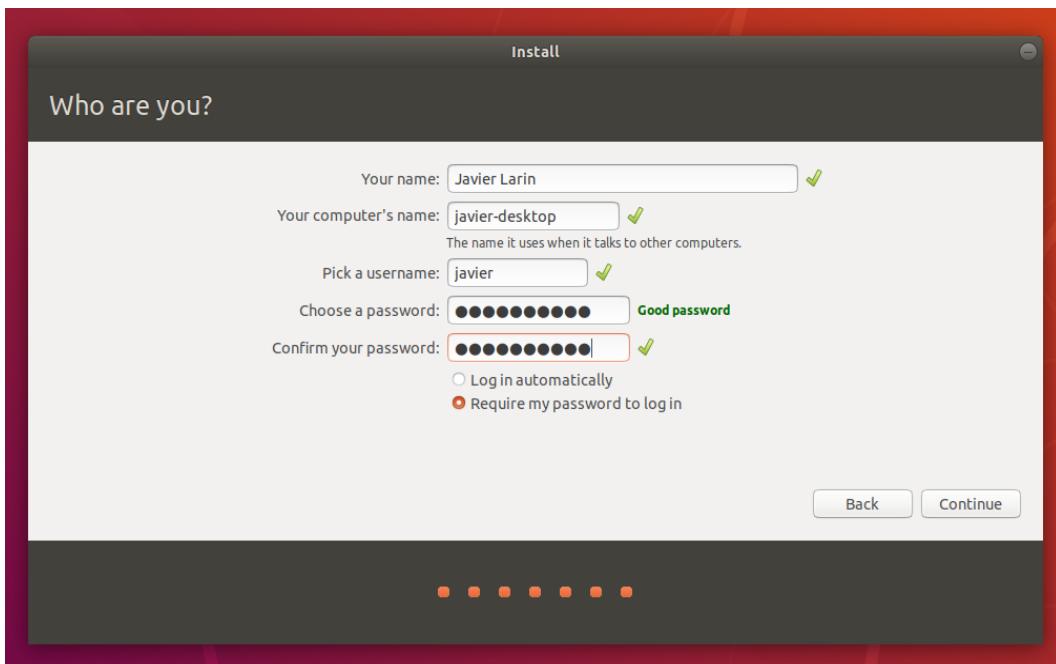


Figure 17: Intro Screen

21. Installation will Continue.

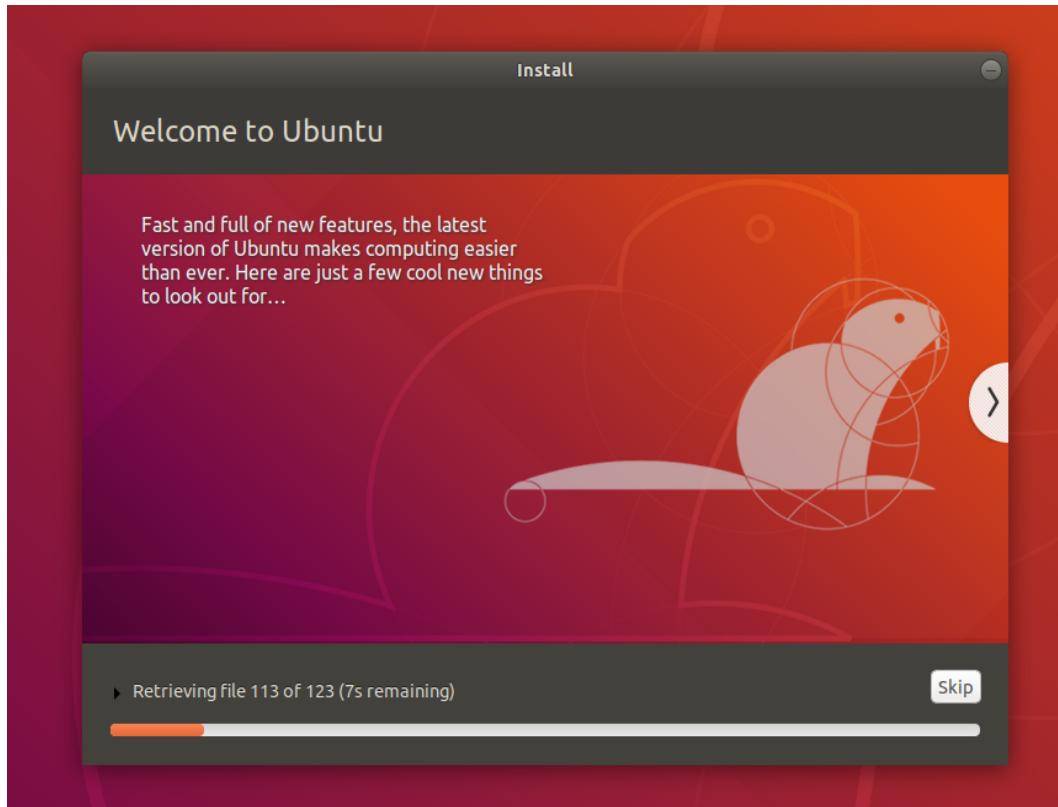


Figure 18: Installation Screen

22. Installation is Complete. Click **Restart Now**.

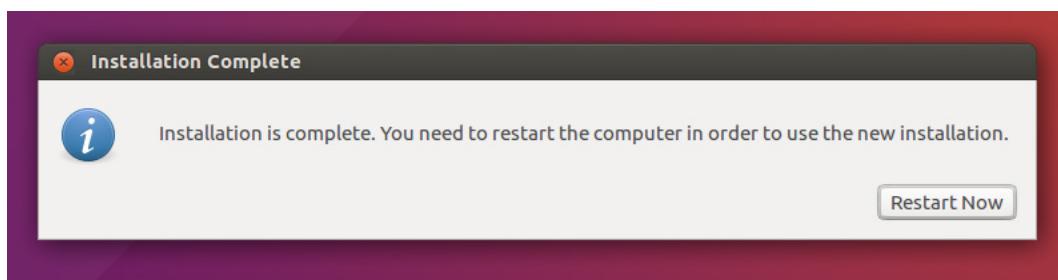


Figure 19: Complete Installation Screen

SpecX can be installed in the Virtual Linux OS normally as described in the previous chapter.