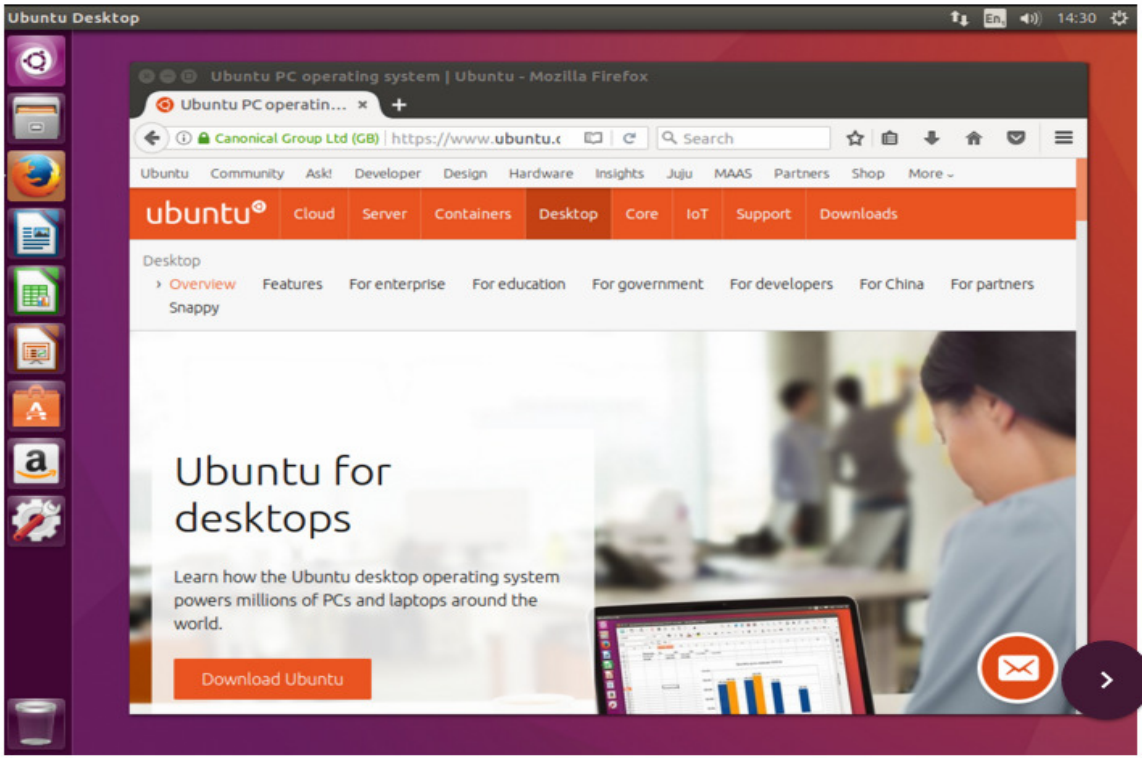
Unit 4. Linux Administration

4.1. Installing Linux
4.2. Installation of Open Source Software
4.3. Maintaining User Accounts
4.4. System Config Services (Package)

4.1 Installing Linux

The Ubuntu desktop is easy to use, easy to install and includes everything you need to run your organization, school, home or enterprise. It's also open source, secure, accessible and free to download.

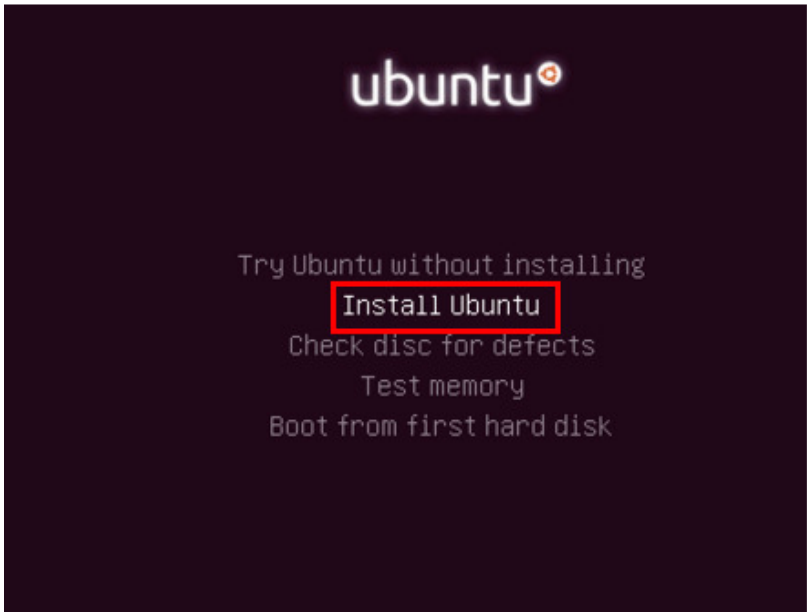


- Make sure you have a recent backup of your data. While it's unlikely that anything will go wrong, you can never be too prepared.

This is a step-by-step installation procedure for Linux, specifically Ubuntu 16.04.

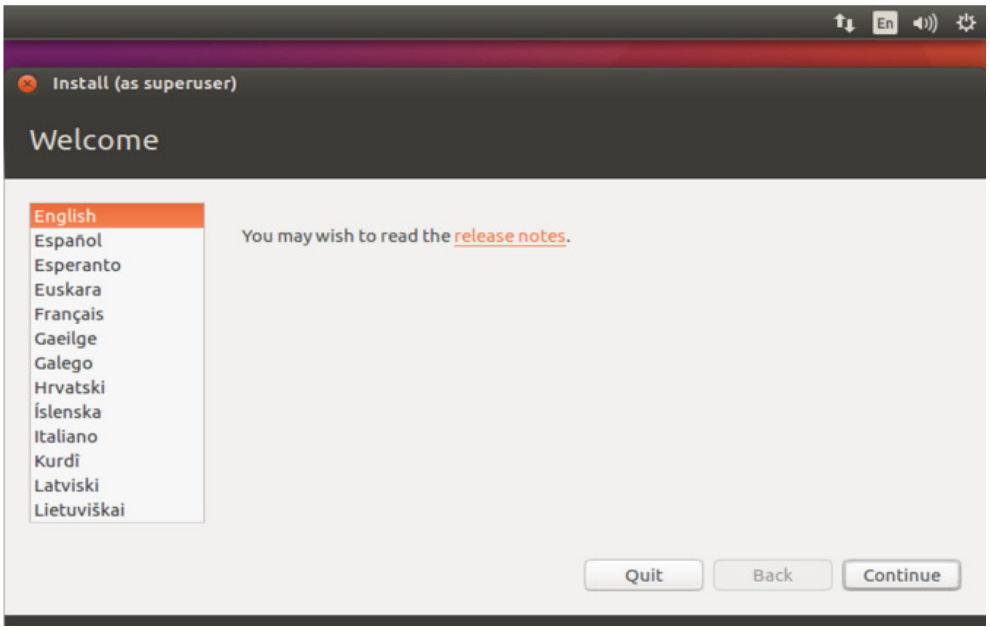
Step1 – Preparing Installation

For installing the Ubuntu 16.04, Select Install Ubuntu.

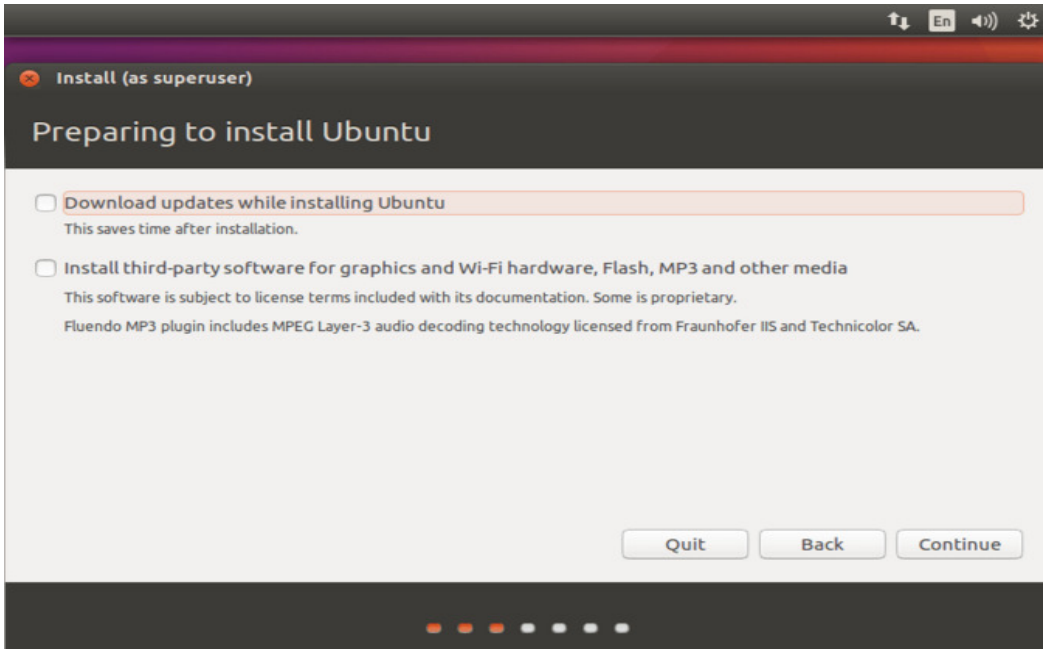


Step 2 – Welcome Screen

Press Enter to get a language screen and then select the language of your choice and click to continue



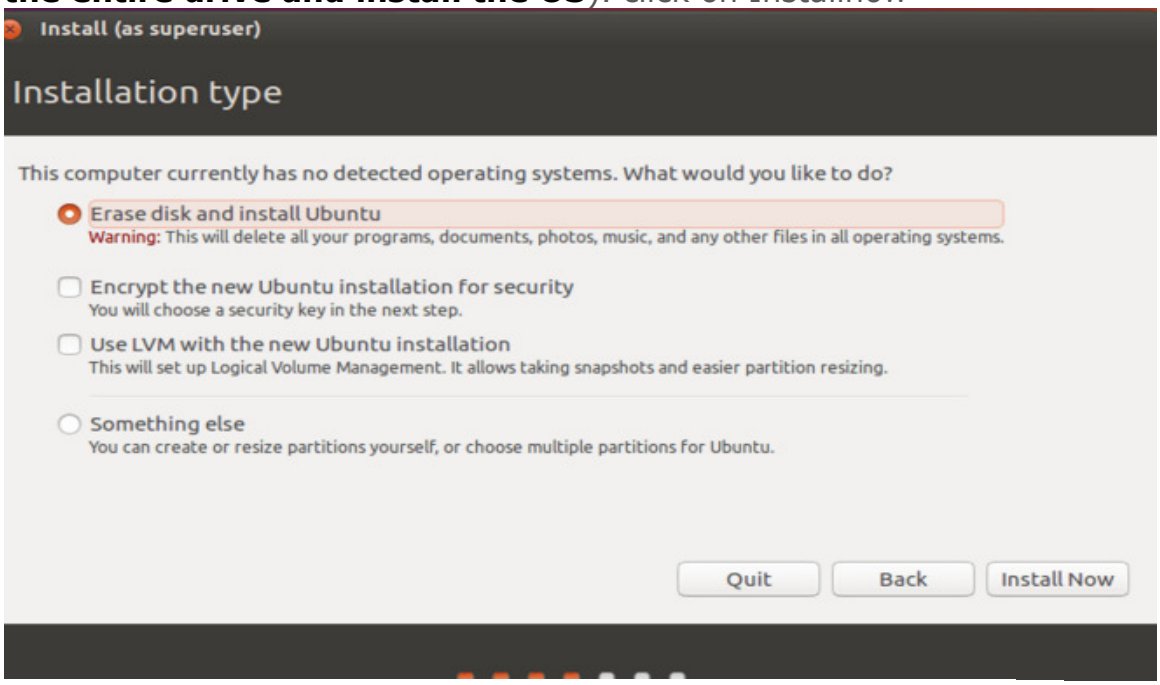
You can either choose to **install updates** and **other third-party software** while installing Ubuntu 16.04.



Step3 – Installation Type

We have only two option in the installation type.Please chose any one of the methods.

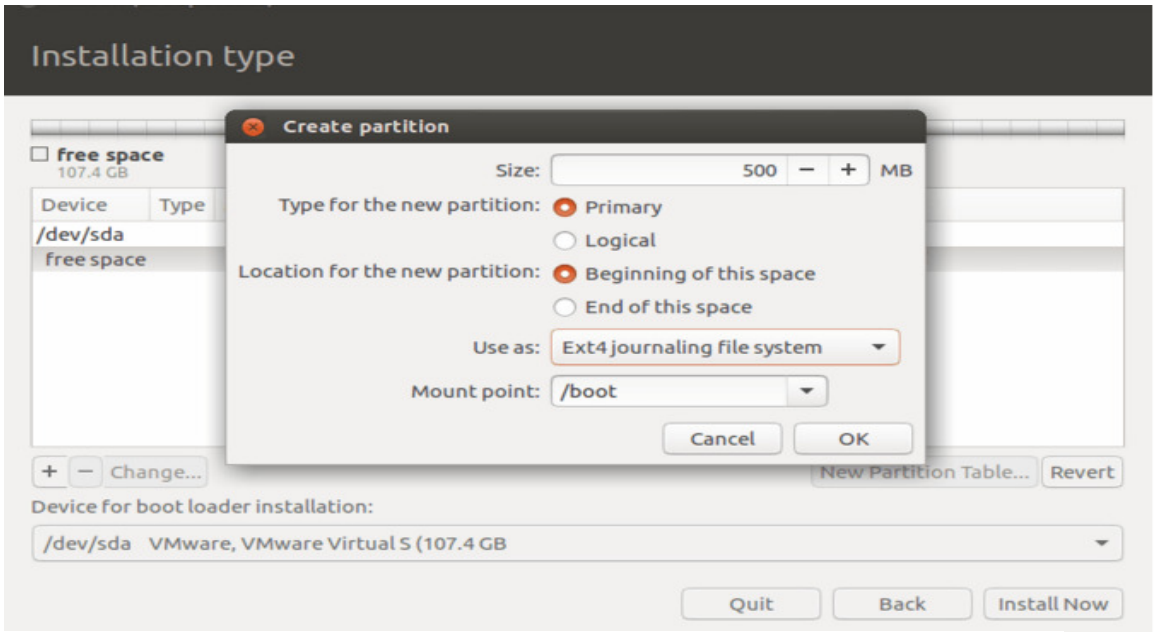
1. Erase full disk : Erase disk and install Ubuntu (i.e. **it will format the entire drive and install the OS**). click on Installnow



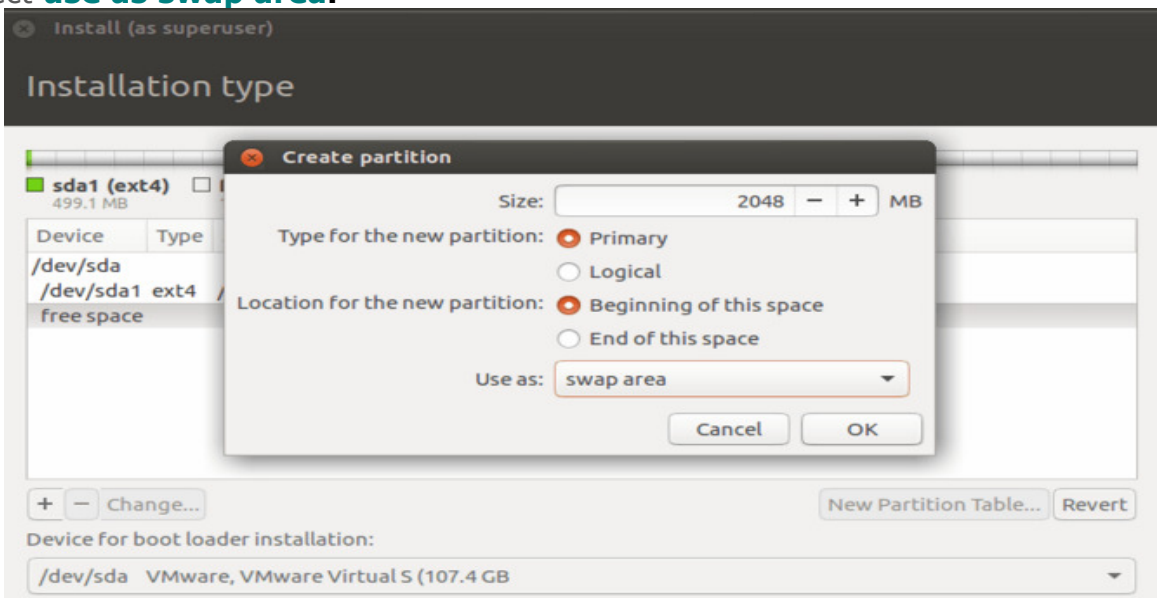
Once you clicked on Install Now, the installer will ask you to confirm the auto partitioning. Click on continue.

2. **Boot Partition : Something else** (i.e. **you can manually create the partition and install Ubuntu on your selected partition**), use this advanced mode if you are comfortable in partitioning your drives manually. Click on continue.

   Select free space and click on the **+ sign** at the bottom to create partitions. Following shows for /boot partition.

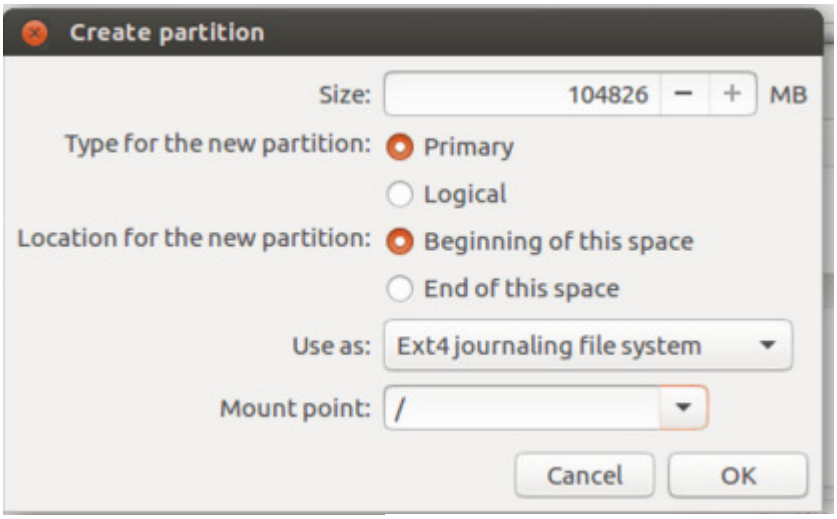


Step4 – Swap Following screen show for the swap partition, it is important to select **use as swap area.**

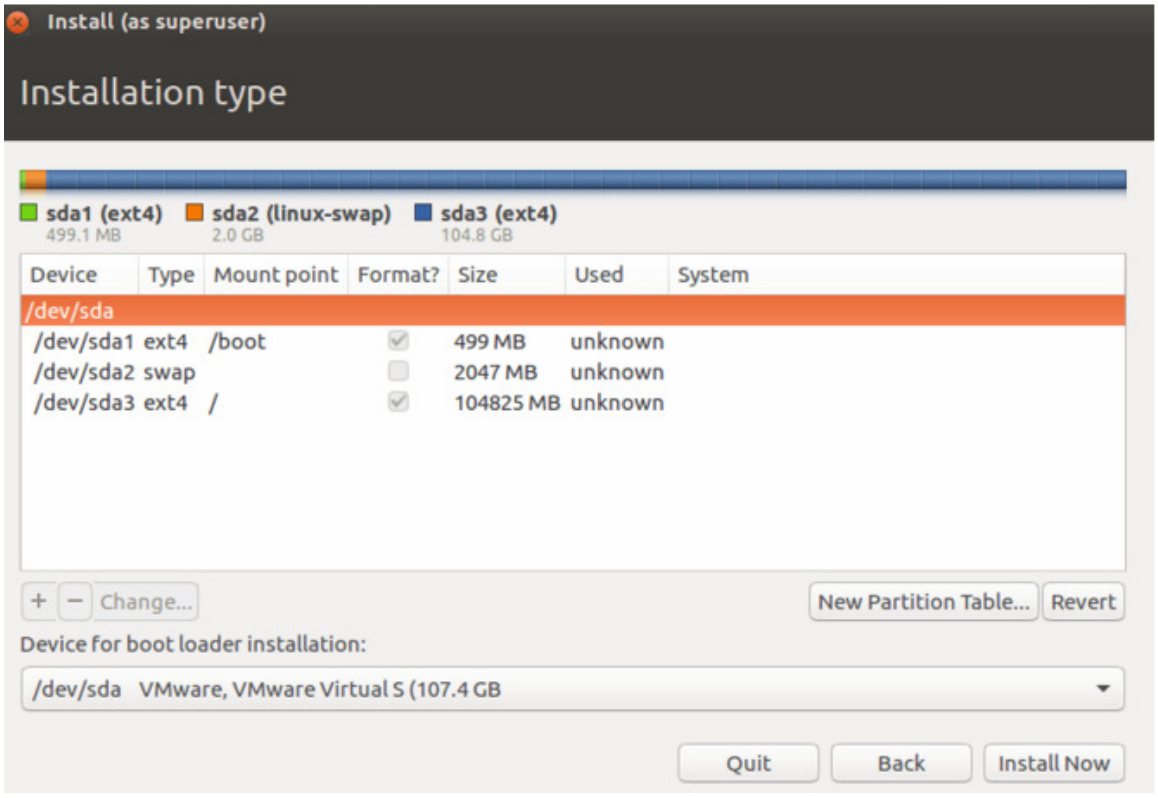


Step5 – root partition

Following is for / (root) partition.

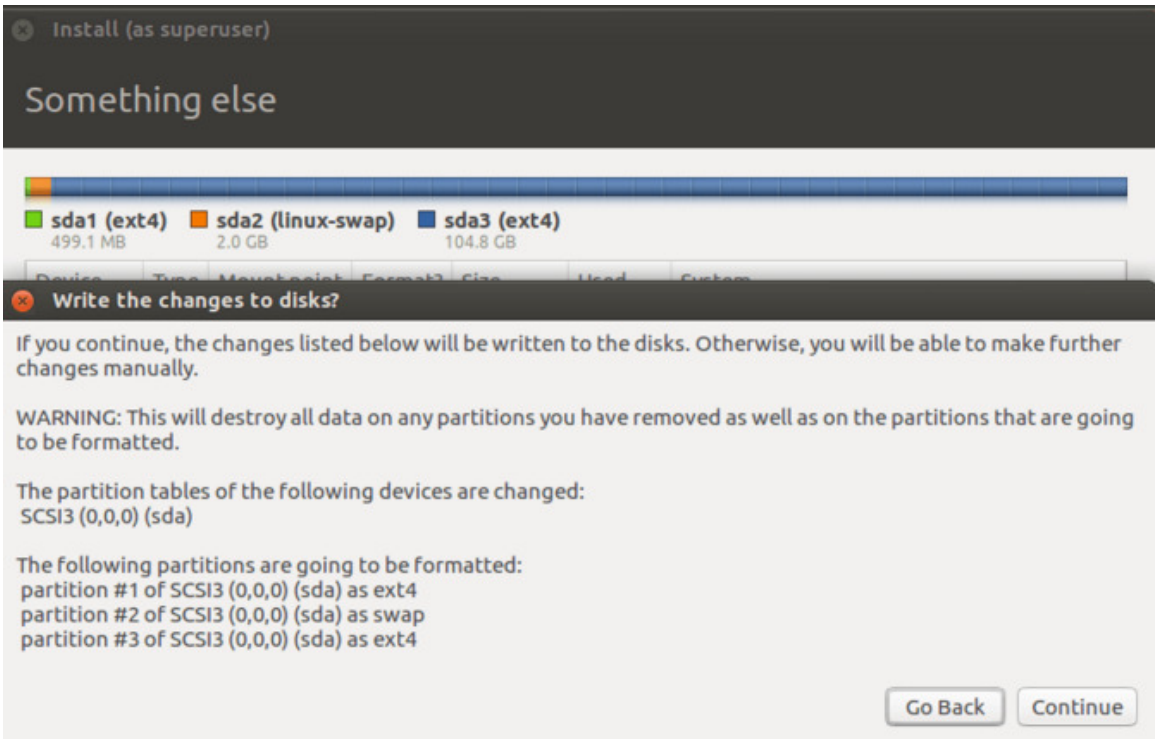


Step6 – Partition List : Review your partition layout and click on install now.



Step7 – Formatting Partitions

Write the changes to disk by clicking on continue.

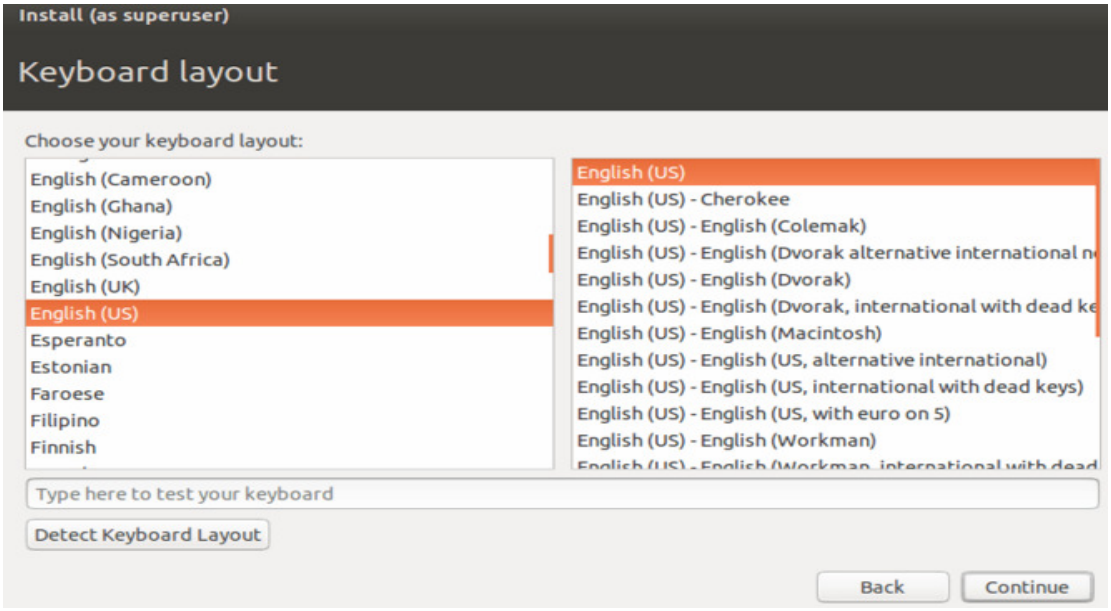


Step8 – Select Location

Select your location Press continue.

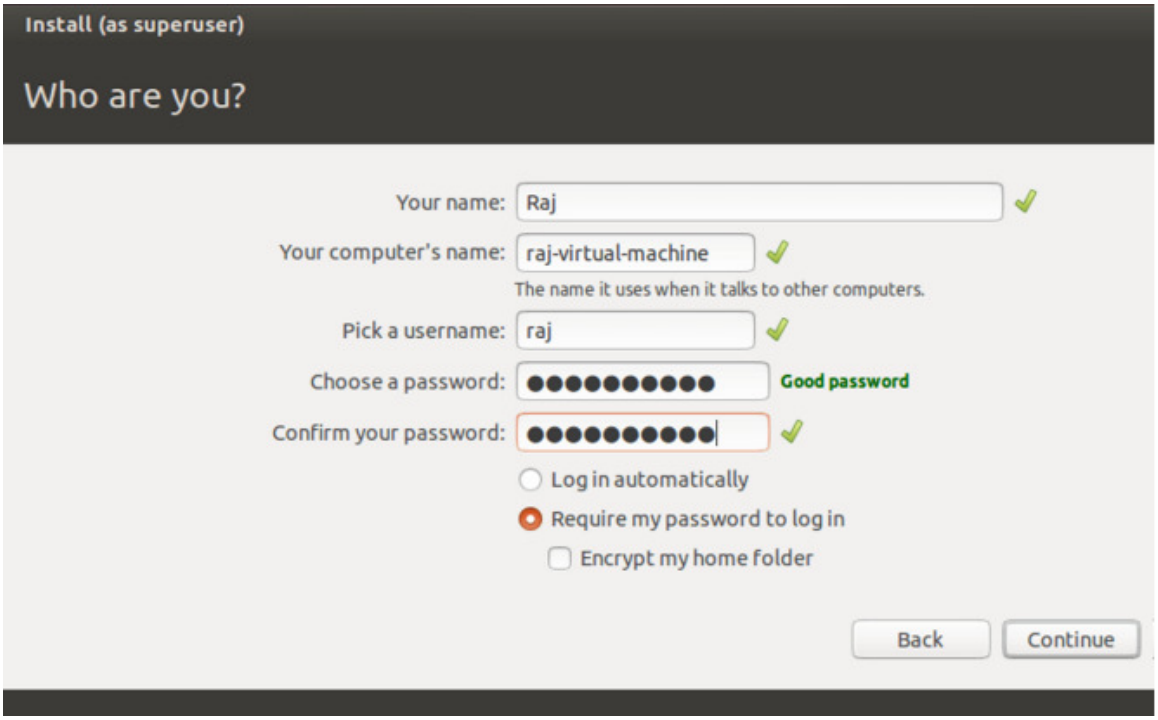
Step9 – Keyboard Layout

Select your keyboard layout. If you are not sure, use the `**Detect Keyboard Layout**` option. You can also test your selection by typing in the test text box.



Step10 – User

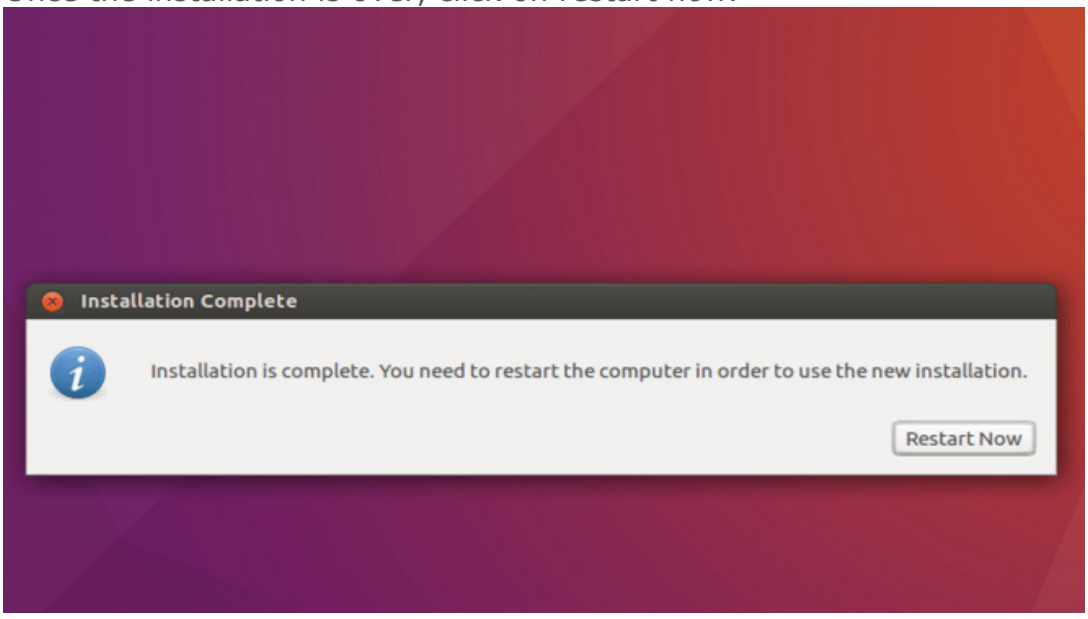
click on continue.



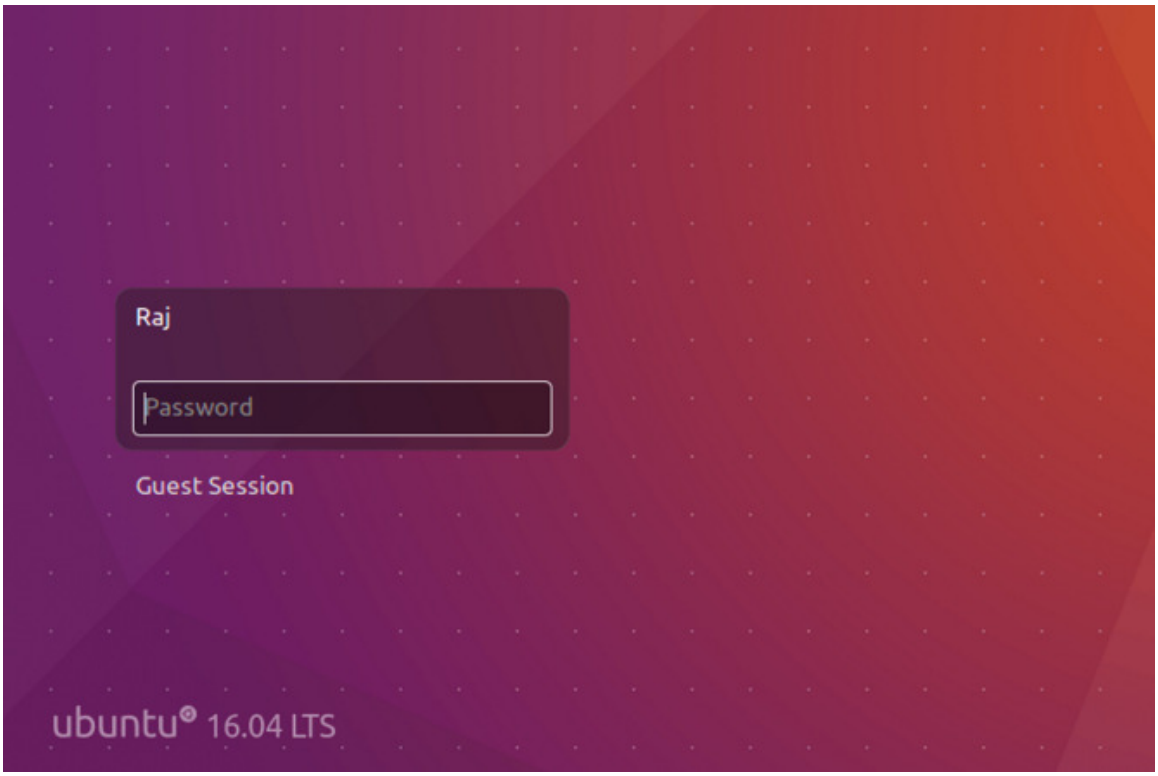
Step11 – Installing

Below screenshot shows installing Ubuntu 16.04.

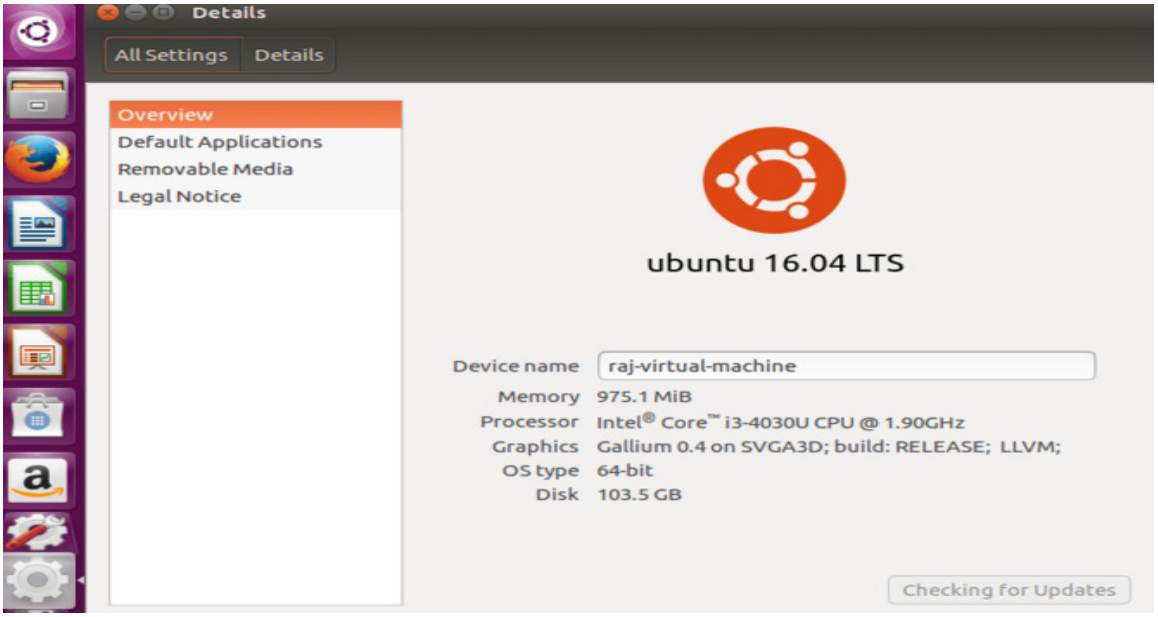
Step12 – Restart After the installation
Once the installation is over, click on restart now.



Once your machine is restarted, you will get a login window. Login with username and password that you created earlier.



Install Ubuntu 16.04 – Desktop Screen



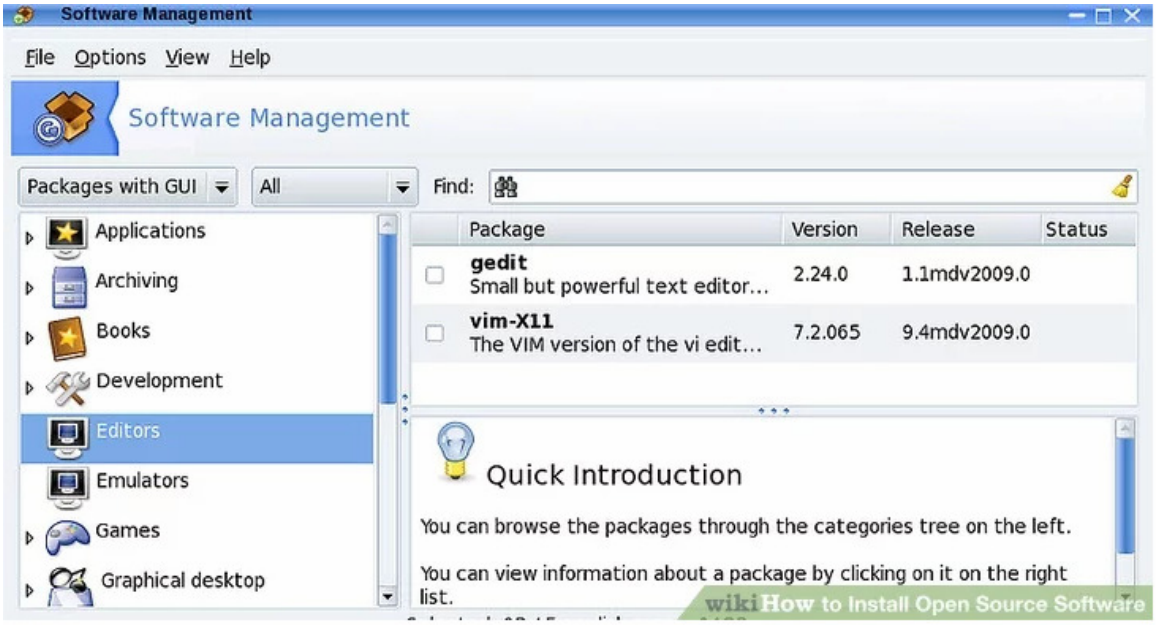
Ubuntu is now ready for you to try it out!! Use, Share and Enjoy.

4.2 Installation of Open Source Software

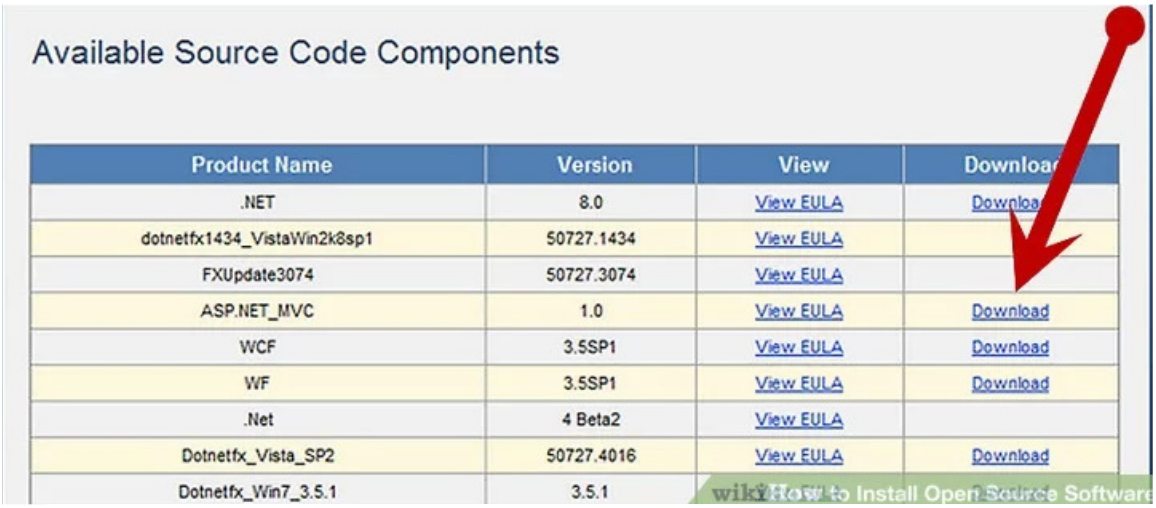
Once you have decided to migrate to open source software, you will need to do some basic installing.

Installing open source software depends on your operating system. This is a how-to compilation for multiple operating systems; read the appropriate section for your OS.

Linux/Unix/Unix-Like Systems



For most such systems, you can probably use the OSs package manager to install a pre-built binary package. This is always the recommended method.



- Alternatively, you could follow these steps:
  - Download and uncompress the source code.
  - In the terminal, move into the extracted directory.
  - Run "./configure" to configure the software.
  - Run "make" to compile the software.
  - Run "make install" to install the software.

4.3. Maintaining User Accounts

- **Linux user**
- A user or account of a system is uniquely identified by a numerical number called the UID (unique identification number).
- There are two types of users –
  1. the root or super user.
  2. Normal users.
- A root or super user can access all the files, while the normal user has limited access to files.
- A super user can add, delete and modify a user account. The full account information is stored in the */etc/passwd* file and a hash password is stored in the file */etc/shadow*. Some operations on a user account are discussed below.
- **Creating a user with a default setting:** A user can be added by running the *useradd* command at the command prompt. After creating the user, set a password using the *passwd* utility.
  - The system automatically assigns a UID, creates the **home directory (*/home/<username>*) and sets the default shell to */bin/bash*.**

    - The *useradd* command creates a user private group whenever a new user is added to the system and names the group after the user.
- **Locking and unlocking a user:** A super user can lock and unlock a user account.
    - To lock an account, one needs to invoke *passwd* with the *-l* option.
    - To unlock an account, one needs to invoke *passwd* with the *-u* option.
- **Changing a user name:** The *–l* option with the *usermod* command changes the login (user)
- **Removing a user:** Combining *userdel* with the *–r* option drop a user and the home directory associated with that user.
- **Linux group**
  Linux group is a mechanism to organize a collection of users. Like the user ID, each group is also associated with a unique ID called the GID (group ID).
- There are two types of groups –
  1. **a primary group**
  2. **a supplementary group**.
- Each user is a member of a primary group and of zero or 'more than zero' supplementary groups.
- The **group information** is stored in ***/etc/group*** and the respective **passwords** are stored in **the** ***/etc/gshadow*** file.
- Some operations such as creating, deleting and modifying on a group are below.
- **Creating a group with default settings:** To add a new group with default settings, run the ***groupadd*** command as a root user.
- If you wish to add a password, then type ***gpasswd*** with the group name.

- **Creating a group with a specified GID:** To explicitly specify the GID of a group, execute **the** ***groupadd*** command with the ***–g*** option.

- **Removing group password:** To remove a group password, run ***gpasswd –r*** with the relevant group name

- **Changing the group's name:** To change the group's name, run the ***groupmod*** command with the ***-n*** option as a super user

- **Changing the group's GID:** To change the GID of a group, run the ***groupmod*** command with ***–g***

- **Deleting a group:** Before deleting a primary group, delete the users of that primary group. To delete a group, run the ***groupdel*** command with the group name

4.4 System Config Services (Package)

- **Name:** system-config-services - Service Configuration Utility
- **Synopsis:** system-config-services
- **Description :** This is a graphical tool for enabling and disabling services (including xinetd services). Functionality to start, stop, and restart services is also included.
- **Options :**None
- **Files:**/usr/bin/system-config-services
    - /usr/share/system-config-services/*
- **To run this program simply type:** system-config-services
- **Bug :**

- Some services will not start or stop properly if started anywhere but the console (system-config-services will appear to hang in these instances). This is not a bug in system-config-services, but in the individual services.

- Some services are incredibly hard to detect if they are running or not. While there are workarounds present to deal with these, it can't be guaranteed that they're detected properly. Please file bugs against the system-config-services component at http://bugzilla.redhat.com if you encounter such services.

Some configuration files run a set of commands upon startup. A common convention is for such files to have "rc" in their name, typically using the name of the program then an "(.)rc" suffix e.g. ".xinitrc", ".vimrc", ".bashrc", "xsane.rc". S

There are various methods for managing access to system services:
a) /etc/init.d/service
b) rcconf
c) update-rc.d etc