

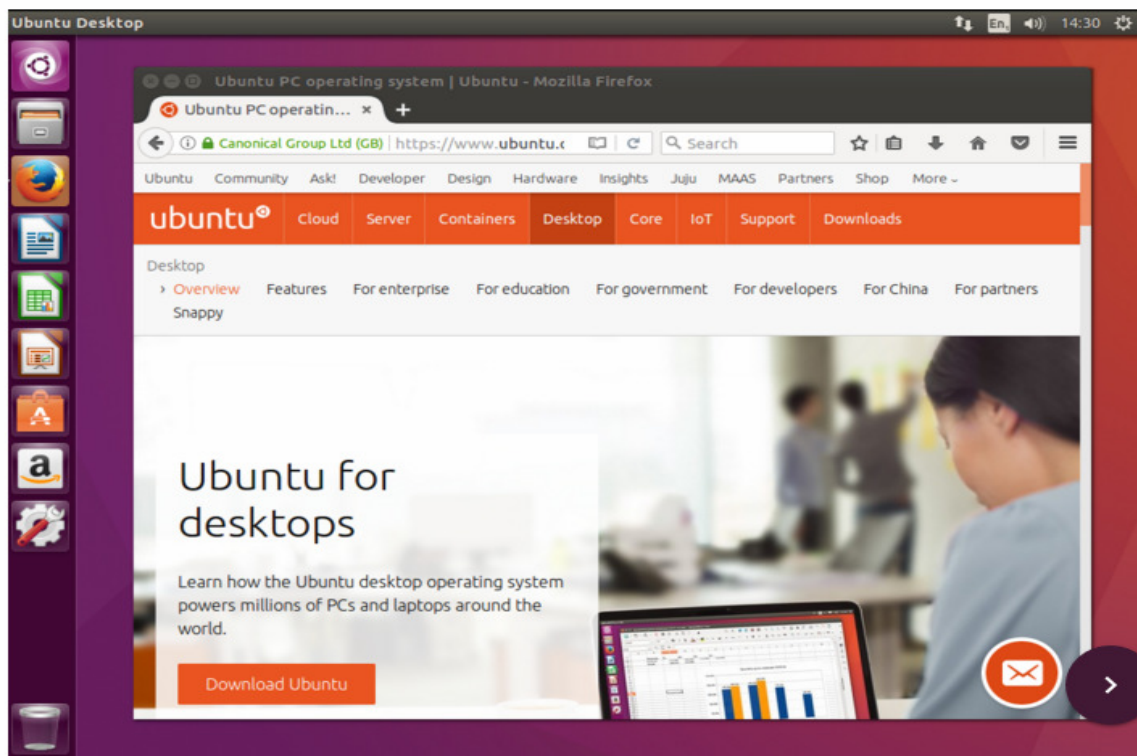
## Unit 4. Linux Administration

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- 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.

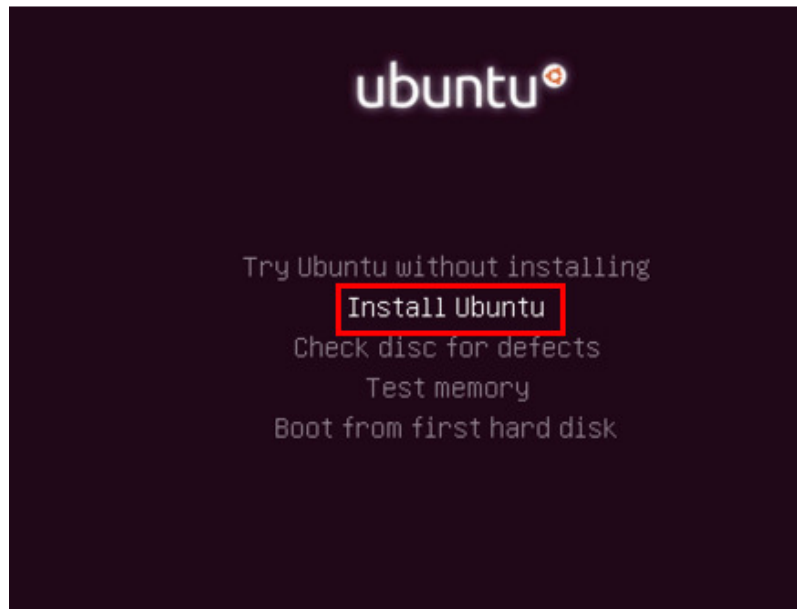
This is a step-by-step installation procedure for Linux, specifically Ubuntu 16.04.

#### **Step1 – Preparing Installation**

For installing the Ubuntu 16.04, Select Install Ubuntu.

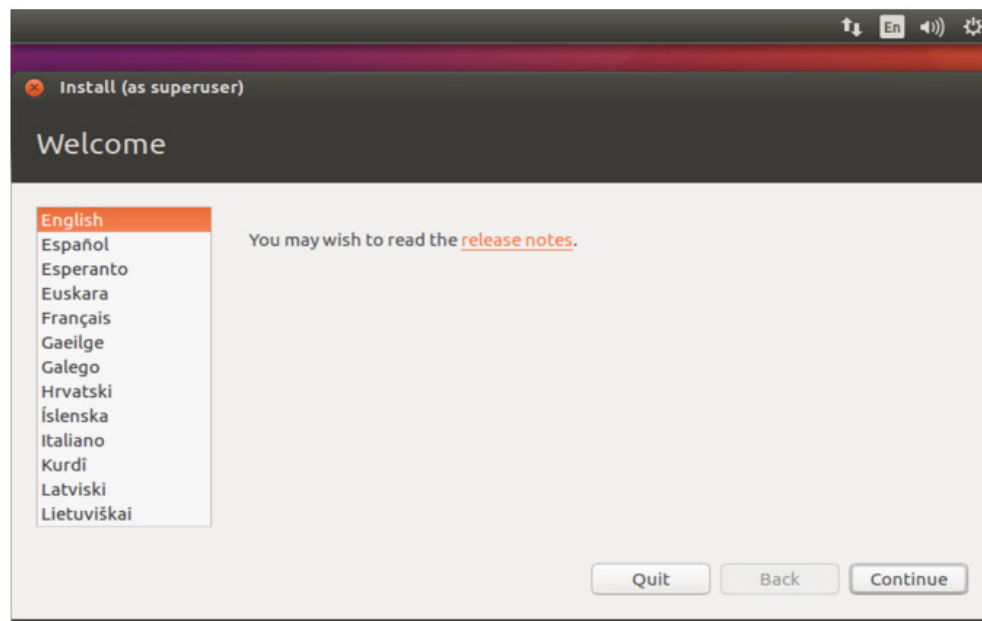
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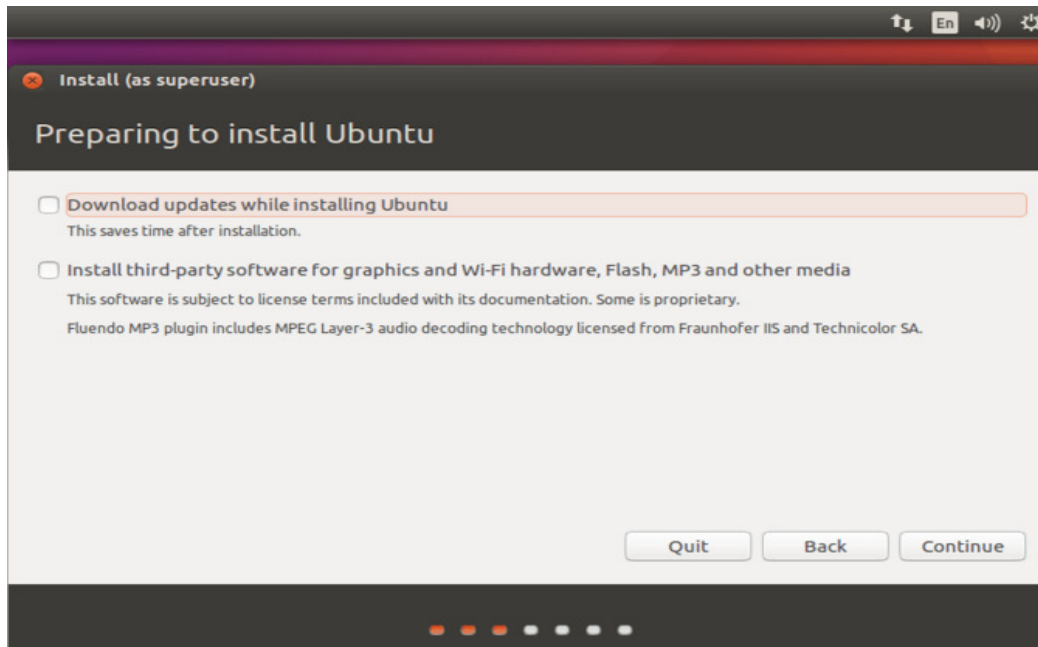
### Step 2 – Welcome Screen

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.

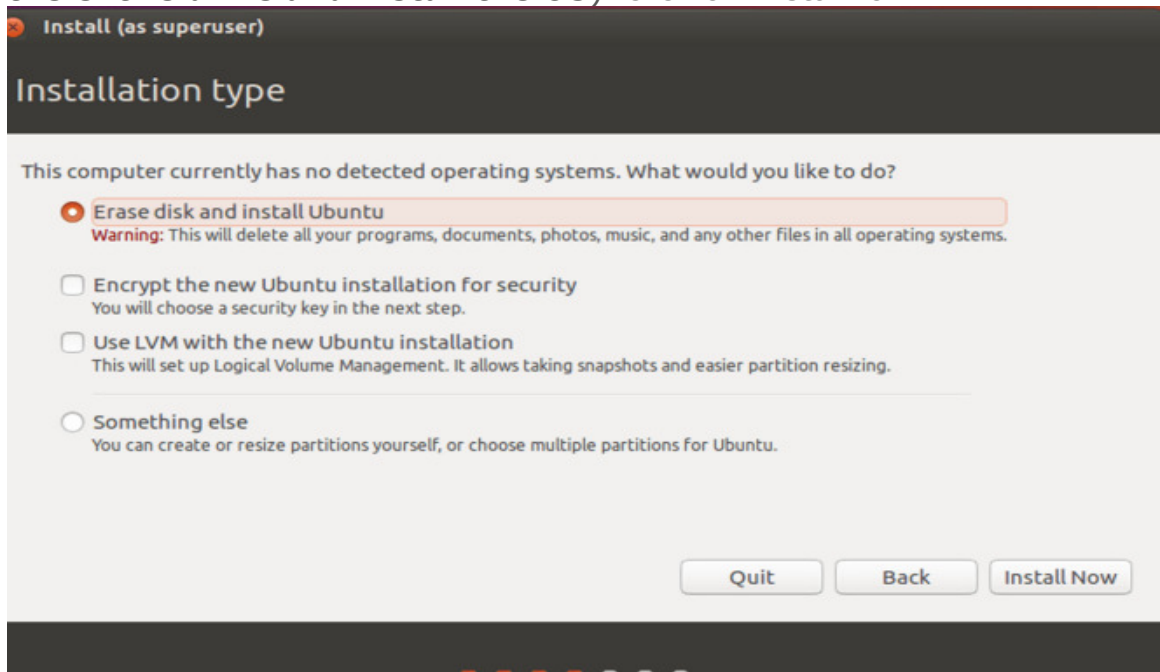
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### Step3 – Installation Type

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



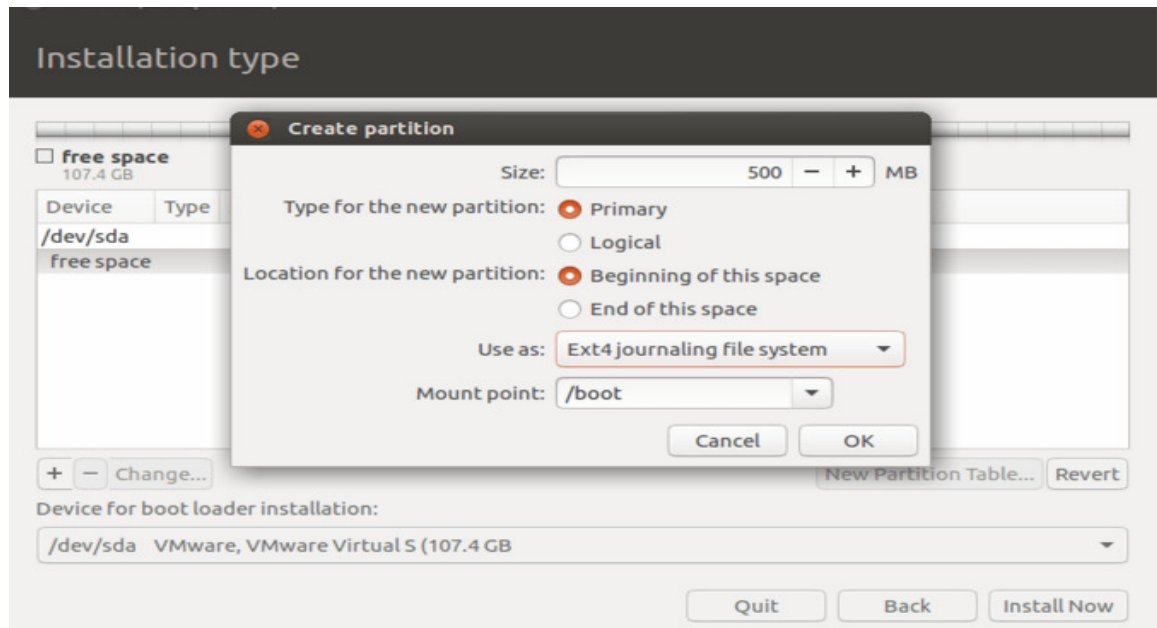
Once you clicked on Install Now, the installer will ask you to confirm the auto partitioning. Click on continue.

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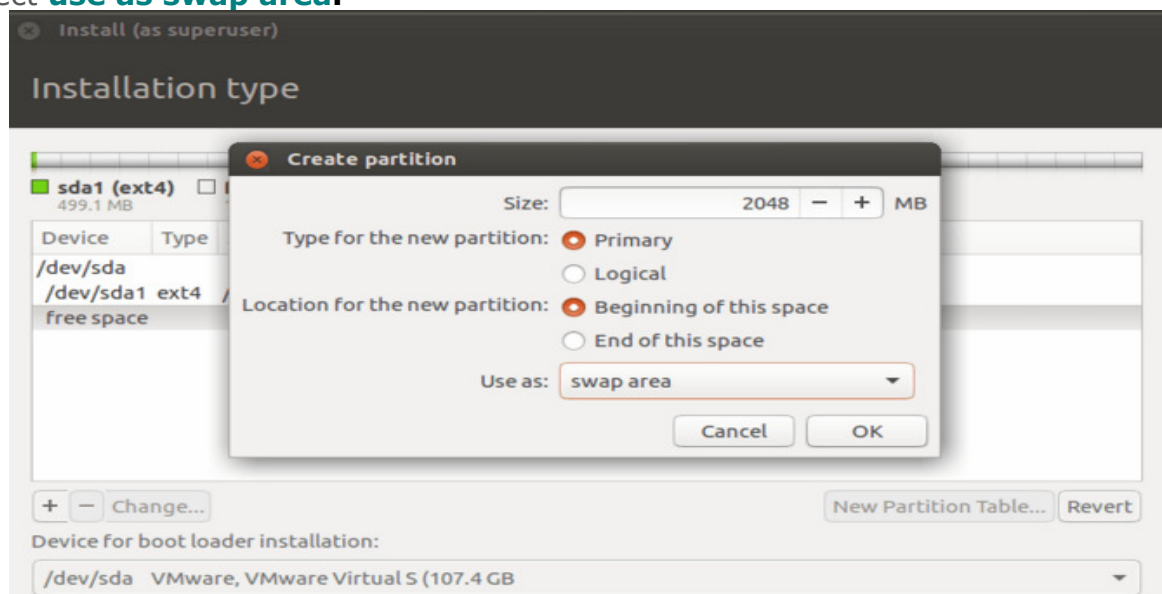
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2. **Boot Partition : Something else** (i.e. **you can manually create the partition and install Ubuntu on your selected partition**), use this advanced mode if you are comfortable in partitioning your drives manually. Click on continue.

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



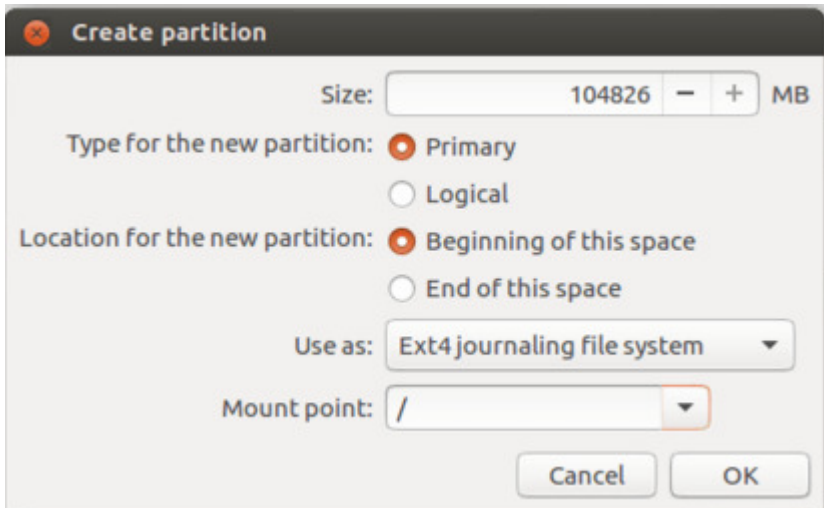
**Step4 – Swap** Following screen show for the swap partition, it is important to select **use as swap area**.



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### Step5 – root partition

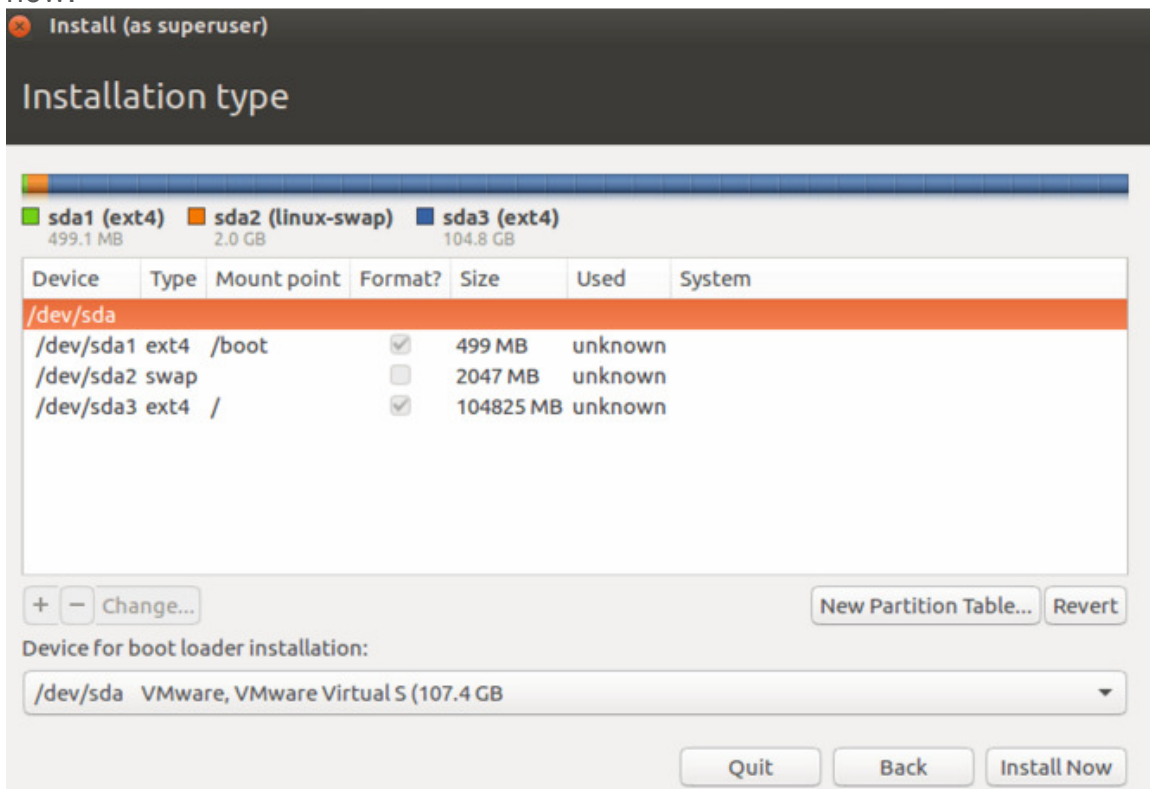
Following is for / (root) partition.



The 'Create partition' dialog box shows the following configuration:

- Size: 104826 MB
- Type for the new partition: ☒ Primary
- Location for the new partition: ☒ Beginning of this space
- Use as: Ext4 journaling file system
- Mount point: /

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



The 'Installation type' screen displays the following partition layout:

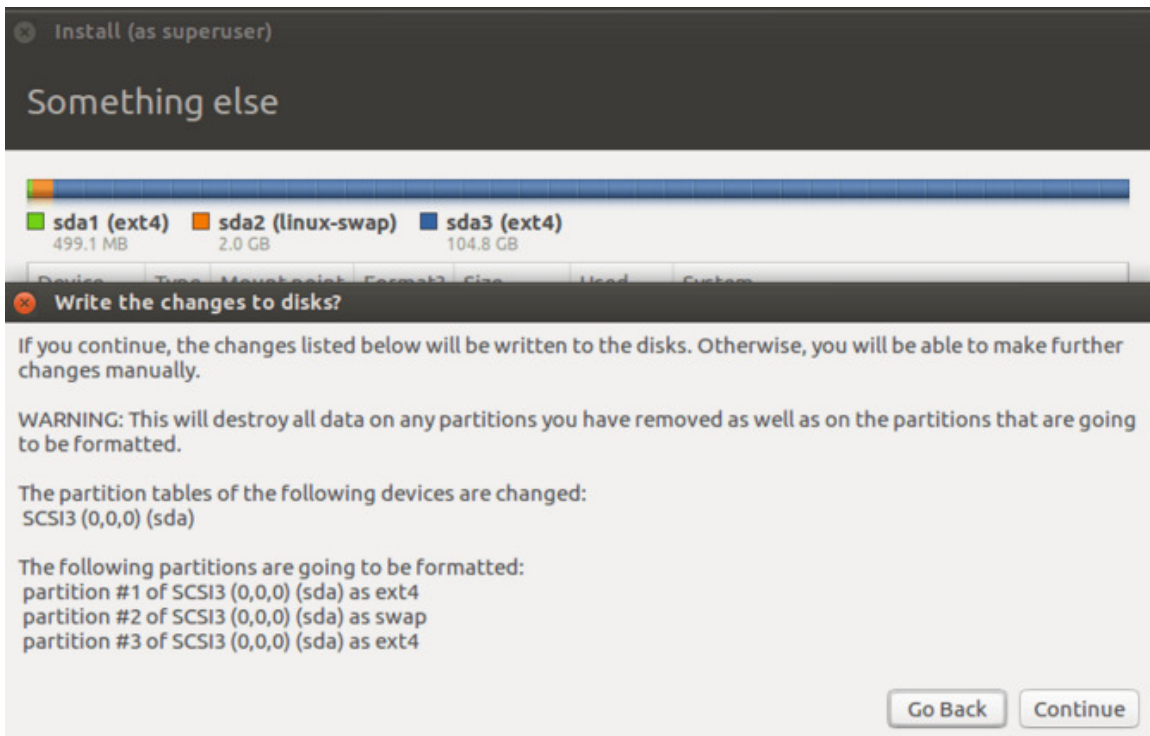
Device	Type	Mount point	Format?	Size	Used	System
<b>/dev/sda</b>						
/dev/sda1	ext4	/boot	<input checked="" type="checkbox"/>	499 MB	unknown	
/dev/sda2	swap		<input type="checkbox"/>	2047 MB	unknown	
/dev/sda3	ext4	/	<input checked="" type="checkbox"/>	104825 MB	unknown	

Buttons at the bottom: + - Change..., New Partition Table..., Revert, Device for boot loader installation: /dev/sda VMware, VMware Virtual S (107.4 GB), Quit, Back, Install Now.

### Step7 – Formatting Partitions

Write the changes to disk by clicking on continue.

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### Step8 – Select Location

Select your location Press continue.





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### 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.

The screenshot shows the 'Keyboard layout' selection screen. At the top, it says 'Install (as superuser)' and 'Keyboard layout'. Below this, it says 'Choose your keyboard layout:'. There are two lists of keyboard layouts. The left list includes: English (Cameroon), English (Ghana), English (Nigeria), English (South Africa), English (UK), English (US) (highlighted), Esperanto, Estonian, Faroese, Filipino, and Finnish. The right list includes: English (US) (highlighted), English (US) - Cherokee, English (US) - English (Colemak), English (US) - English (Dvorak alternative international n), English (US) - English (Dvorak), English (US) - English (Dvorak, international with dead ke), English (US) - English (Macintosh), English (US) - English (US, alternative international), English (US) - English (US, international with dead keys), English (US) - English (US, with euro on 5), English (US) - English (Workman), and English (US) - English (Workman, international with dead). Below the lists is a text box labeled 'Type here to test your keyboard' and a button labeled 'Detect Keyboard Layout'. At the bottom right are 'Back' and 'Continue' buttons.

### Step10 – User

click on continue.

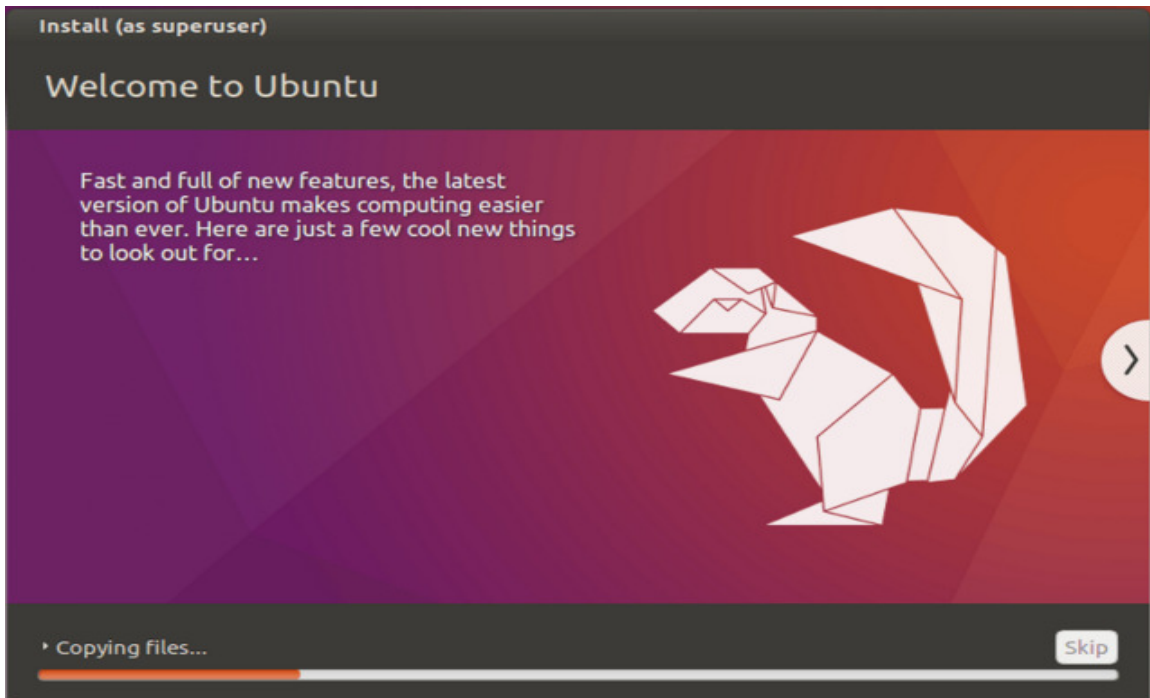
The screenshot shows the 'Who are you?' user creation screen. At the top, it says 'Install (as superuser)' and 'Who are you?'. Below this, there are several fields for user information: 'Your name:' with the value 'Raj' and a green checkmark; 'Your computer's name:' with the value 'raj-virtual-machine' and a green checkmark, with a note 'The name it uses when it talks to other computers.'; 'Pick a username:' with the value 'raj' and a green checkmark; 'Choose a password:' with a masked password and a green checkmark and the text 'Good password'; and 'Confirm your password:' with a masked password and a green checkmark. Below these fields are three radio button options: 'Log in automatically' (unselected), 'Require my password to log in' (selected), and 'Encrypt my home folder' (unselected). At the bottom right are 'Back' and 'Continue' buttons.

### Step11 – Installing

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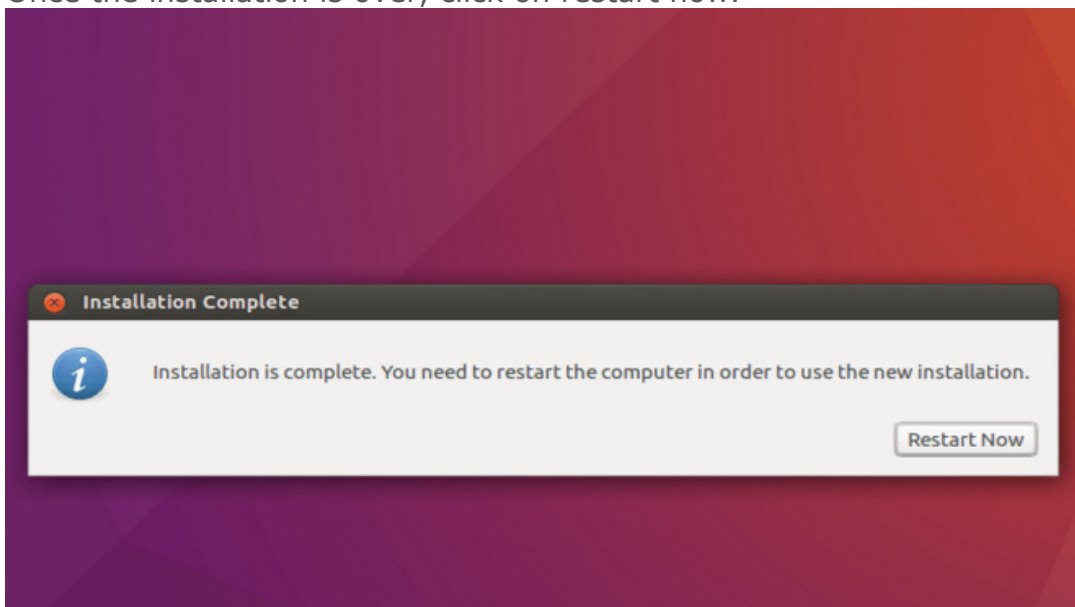
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Below screenshot shows installing Ubuntu 16.04.



### Step12 – Restart After the installation

Once the installation is over, click on restart now.

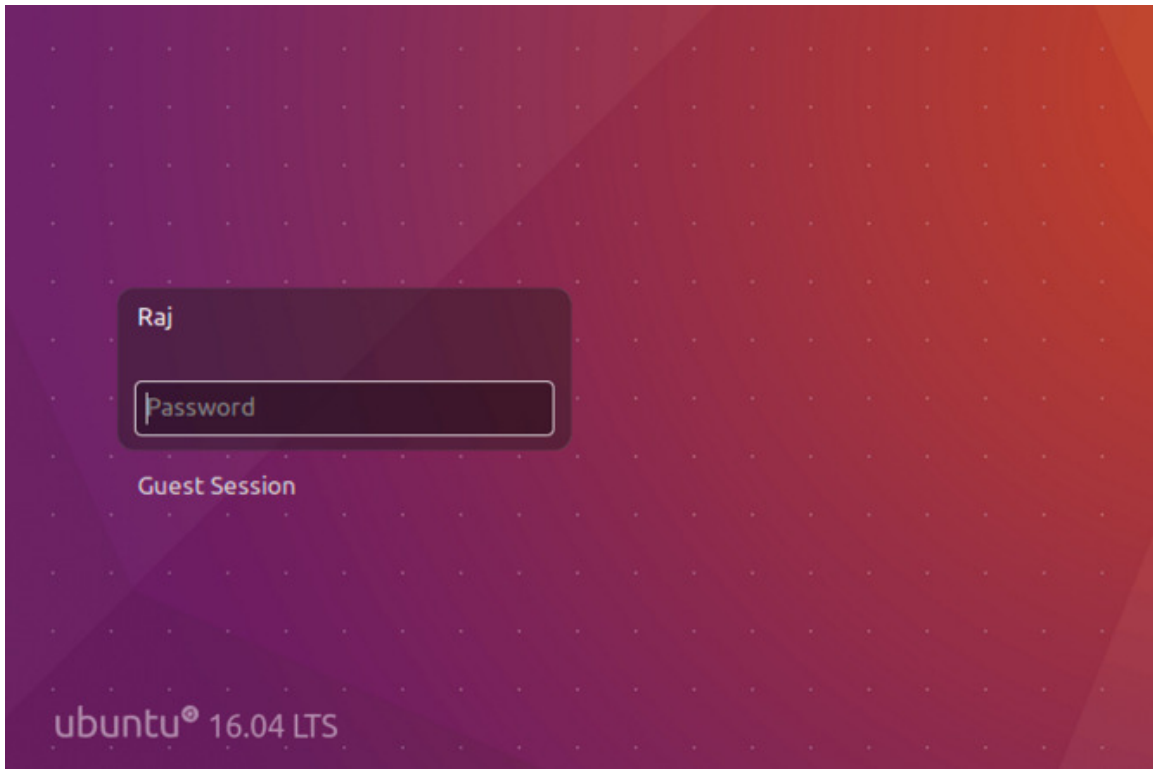


Once your machine is restarted, you will get a login window. Login with username and password that you created earlier.



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### Install Ubuntu 16.04 – Desktop Screen



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

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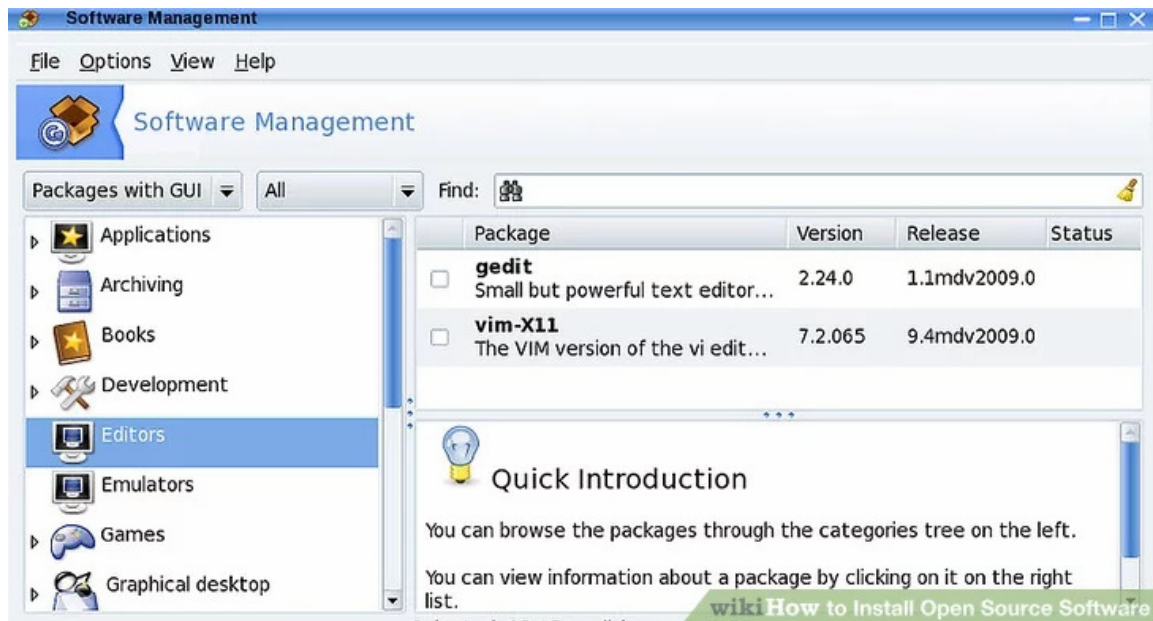
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## 4.2 Installation of Open Source Software

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.

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Available Source Code Components

Product Name	Version	View	Download
.NET	8.0	<a href="#">View EULA</a>	<a href="#">Download</a>
dotnetfx1434_VistaWin2k8sp1	50727.1434	<a href="#">View EULA</a>	
FXUpdate3074	50727.3074	<a href="#">View EULA</a>	
ASP.NET_MVC	1.0	<a href="#">View EULA</a>	<a href="#">Download</a>
WCF	3.5SP1	<a href="#">View EULA</a>	<a href="#">Download</a>
WF	3.5SP1	<a href="#">View EULA</a>	<a href="#">Download</a>
.Net	4 Beta2	<a href="#">View EULA</a>	
Dotnetfx_Vista_SP2	50727.4016	<a href="#">View EULA</a>	<a href="#">Download</a>
Dotnetfx_Win7_3.5.1	3.5.1	<a href="#">View EULA</a>	<a href="#">Download</a>



[wikiHow to Install Open Source Software](#)

- 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`.

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- 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

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### 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