

LAB-01

Download and Install VirtualBox

Step 1

To download the latest version of VirtualBox, visit the official [VirtualBox](https://www.virtualbox.org/) website in your web browser.

Step 2

Download the VirtualBox



The screenshot shows the VirtualBox website's download page. On the left is a sidebar with navigation links: About, Screenshots, Downloads, Documentation (with sub-links for End-user docs and Technical docs), Contribute, and Community. The main content area has a large 'VirtualBox' logo and a 'Download VirtualBox' heading. Below this, it states: 'Here you will find links to VirtualBox binaries and its source code.' It then lists 'VirtualBox binaries' with a note about license agreement and a link to 'VirtualBox 6.1 builds'. Next, it lists 'VirtualBox 7.0.2 platform packages' with links for Windows, macOS, Developer preview for macOS/Arm64, Linux, Solaris, and Solaris 11 IPS hosts. A note mentions the GPL version 3. It also provides a link to the changelog and instructions on how to verify checksums (SHA256 and MD5). A 'Note' section recommends upgrading guest additions. Finally, it lists 'VirtualBox 7.0.2 Oracle VM VirtualBox Extension Pack' with a link for all supported platforms. At the bottom, it mentions support for RDP, disk encryption, NVMe, and PXE boot for Intel cards, with a reference to the User Manual.

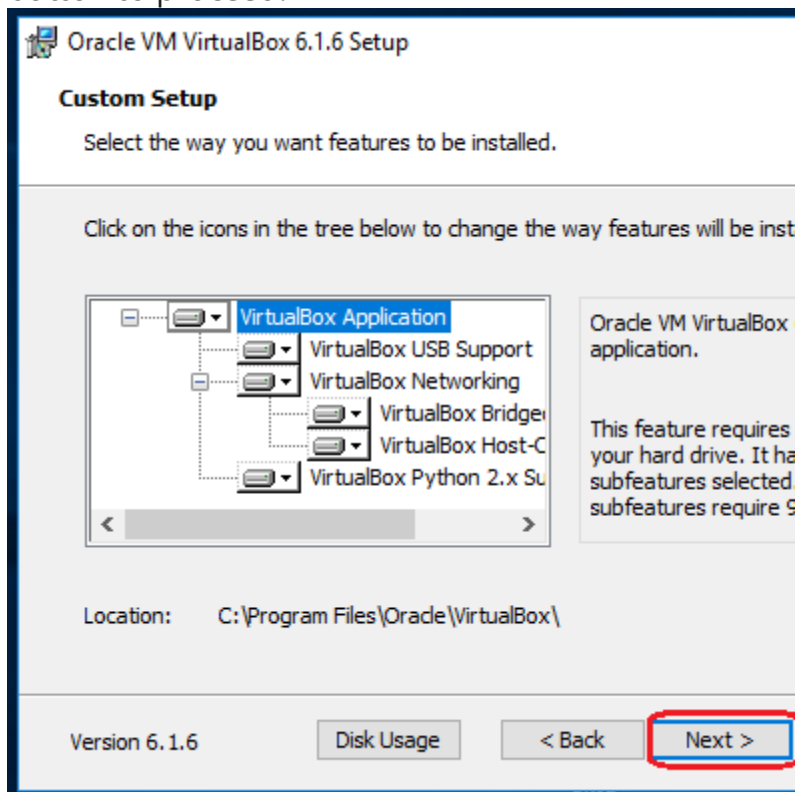
Step 3

Go on the desktop and open "VirtualBox".



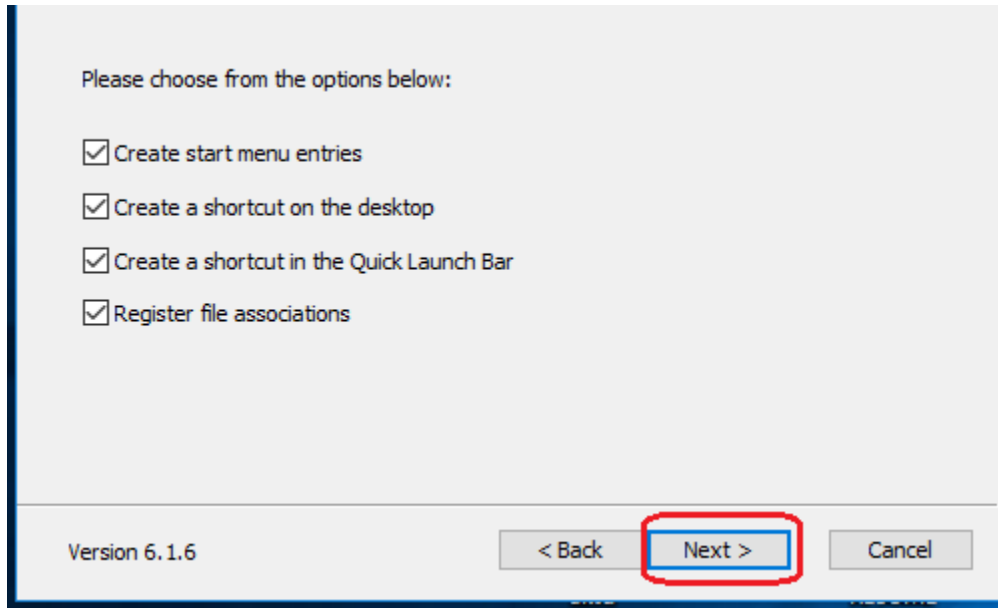
Step 5

Choose the location where you want to install the VirtualBox and click on the "Next" button to proceed.



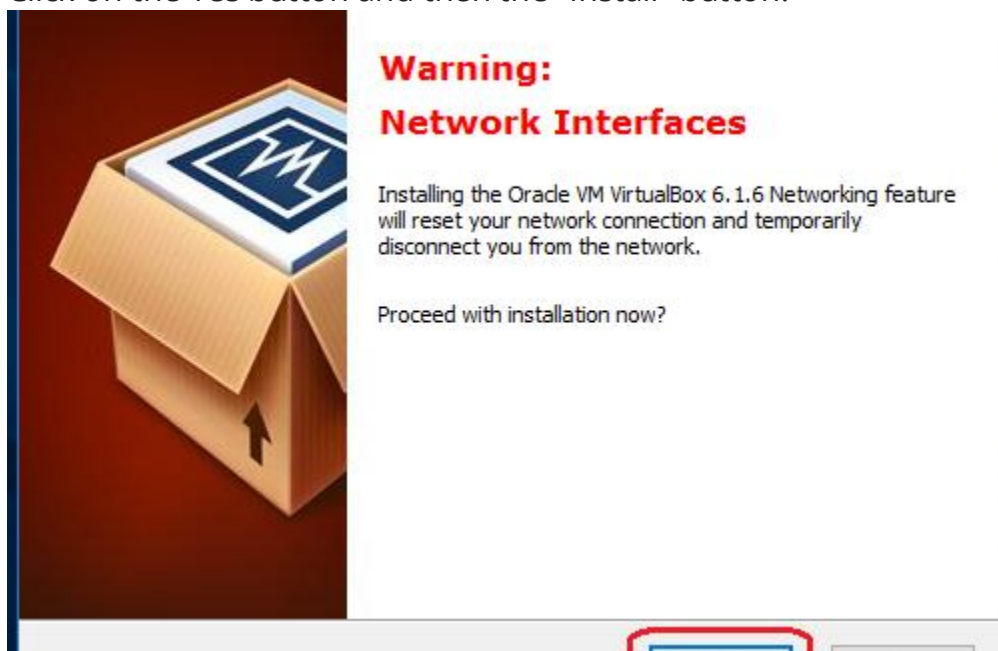
Step 6

Choose the options as per your choice and click on the "Next" button



Step 7

Click on the Yes button and then the "Install" button.



Download Ubuntu

Step 1

To download the latest version of Ubuntu, i.e. Ubuntu **22.04.1 LTS**, visit the official [Ubuntu](https://ubuntu.com) website in your web browser.

Step 2

By clicking on the "Download" button, you can download the latest version of Ubuntu, i.e. Ubuntu 22.04.1 LTS(**long term support**).

Ubuntu **22.04.1 LTS**

The latest **LTS** version of Ubuntu, for desktop PCs and laptops. LTS stands for long-term support — which means five years of free security and maintenance updates, guaranteed until April 2027.

[Ubuntu 22.04 LTS release notes](#)

Recommended system requirements:

✔ 2 GHz dual-core processor or better

✔ 4 GB system memory

✔ 25 GB of free hard drive space

✔ Internet access is helpful

✔ Either a DVD drive or a USB port for the installer media

Download

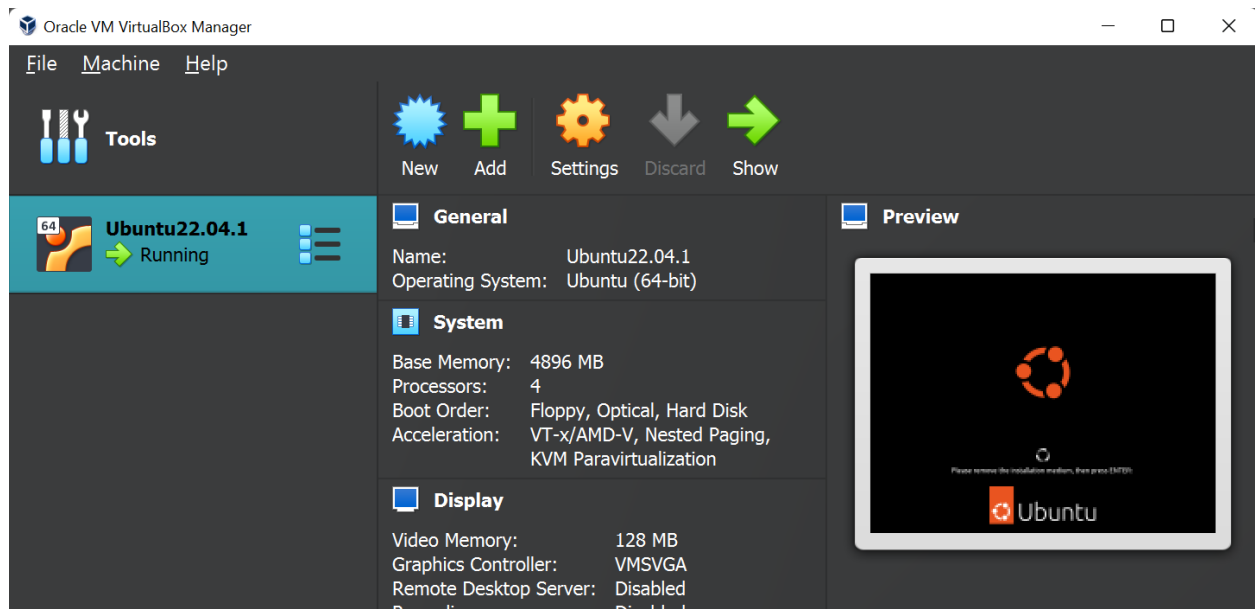
For other versions of Ubuntu Desktop including torrents, the network installer, a list of local mirrors and past releases [see our alternative downloads](#).

Creating a Virtual Machine

Now, it is time to create a Virtual Machine. Follow the instructions below to proceed.

Step 1

Open VirtualBox and click on the "New" button.



Step 2

Choose a name for your virtual machine with its location. Based on the name you entered, VirtualBox will try to predict the "Type" and "Version". Otherwise, from the drop-down menu, select "Linux" as the type and "Ubuntu" as the version and click on the "Next" button.

Name = Ubuntu **22.04.1**

Type=Linux

Version=Ubuntu_64

Step 3

With the help of the slider, choose the amount of memory (RAM) to be allocated to the virtual machine.

Step 4

Select "Create a virtual hard disk now" option and click on the "Create" button to proceed.

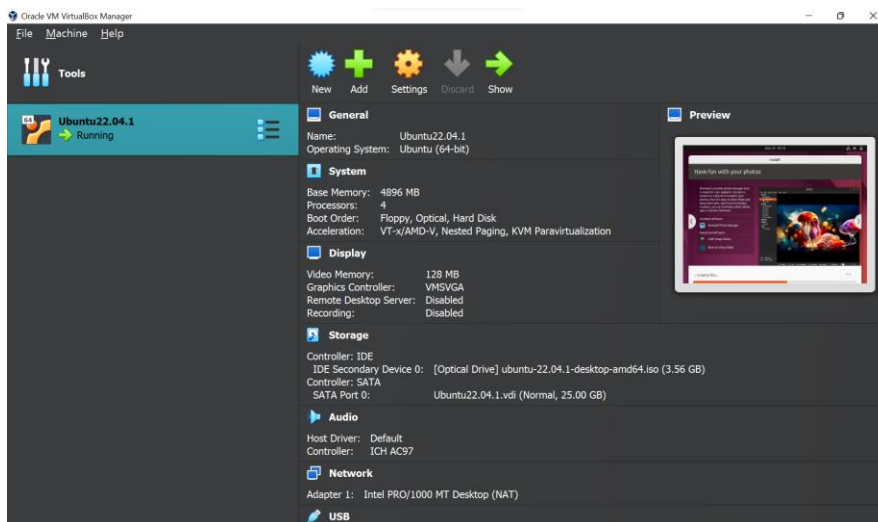
Step 5

Select the amount of space for your virtual machine and click the "Create" button. (This will be used for your operating system which is going to be installed, so give as much space as possible).

Install Ubuntu Using VirtualBox

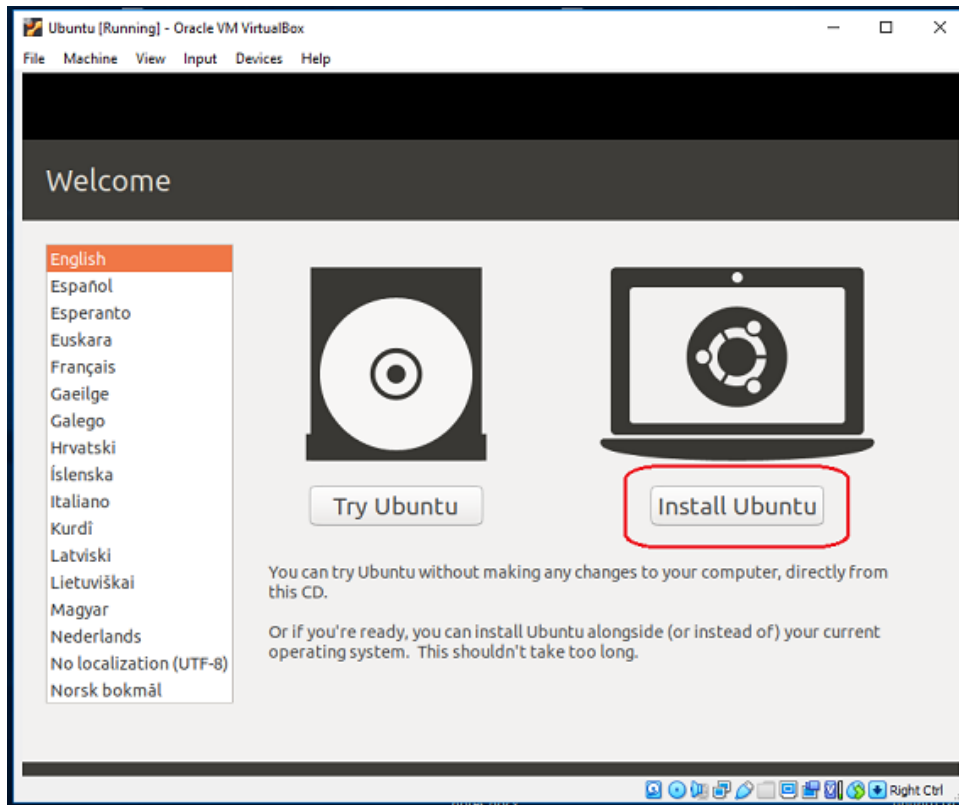
Step 1

The name of your virtual machine will now appear on the left side of the VirtualBox Manager. Click on the "Start" button in the toolbar to launch your VM.



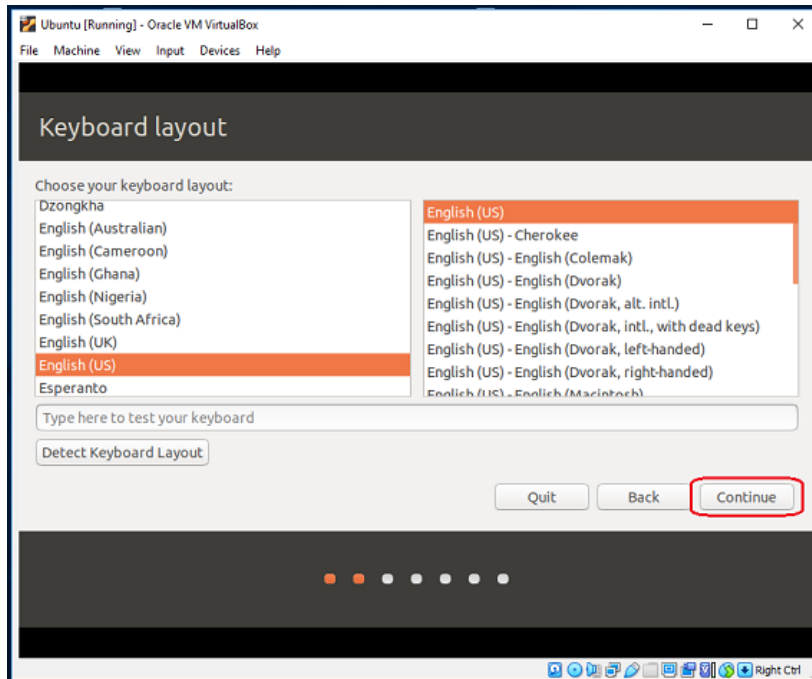
Step 2

Now, click on the "Install Ubuntu" button to proceed.



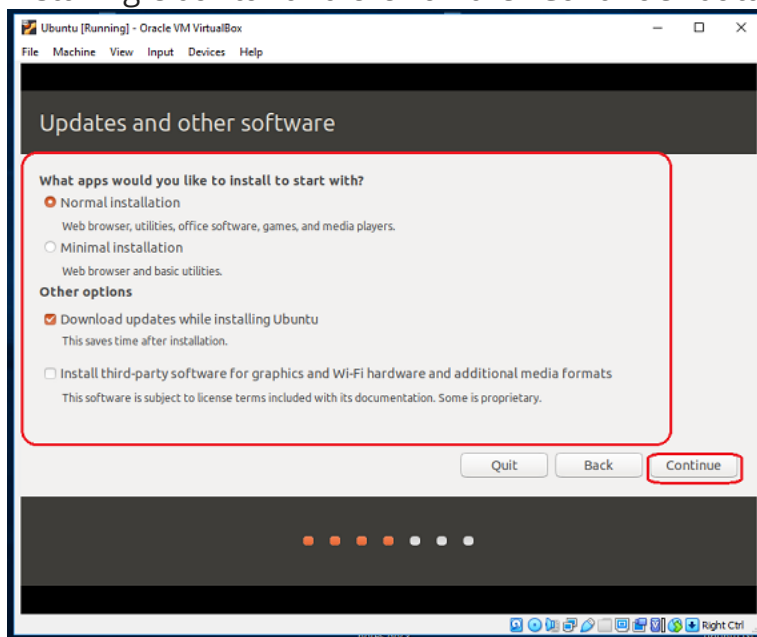
Step 3

Select your desired "keyboard layout" and click on the "Continue" button to proceed.



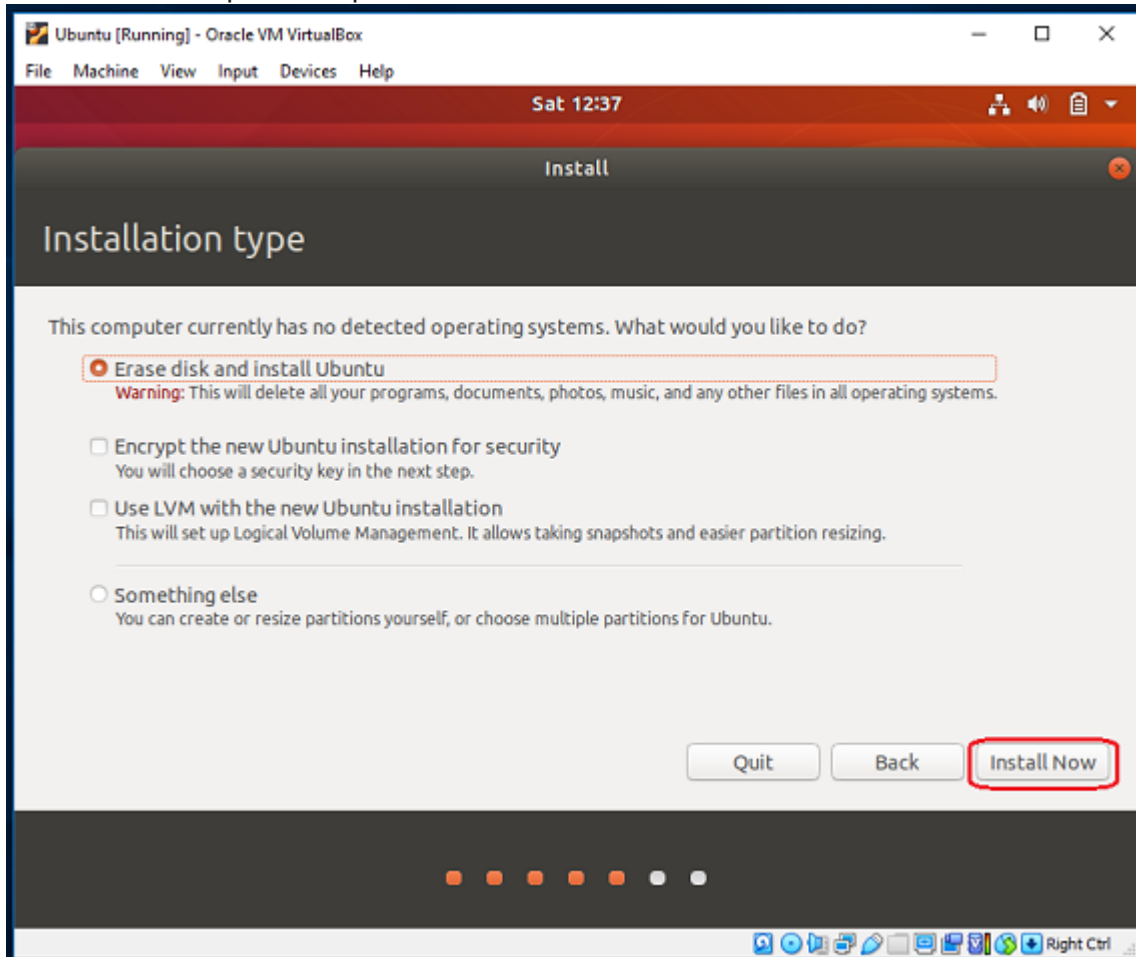
Step 4

Use the default option as "Normal Installation" with the "Download updates while installing Ubuntu" and click on the "Continue" button.



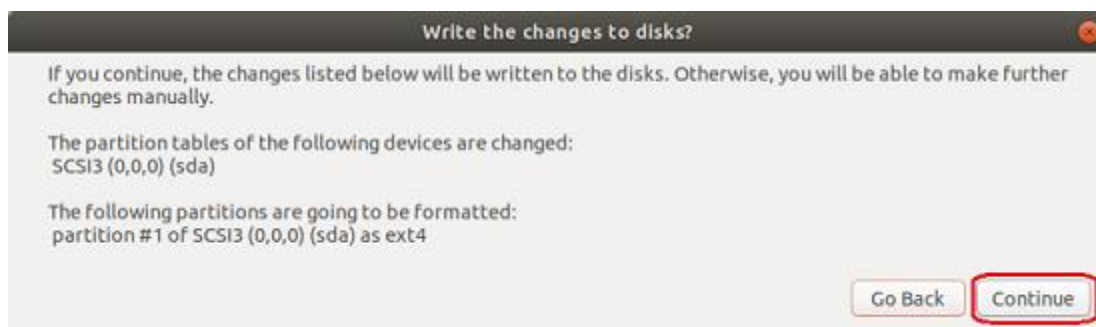
Step 5

Select the default option as the "Erase disk and Install Ubuntu" and click on the "Install Now" option to proceed.



Step 6

A warning prompt will appear on the screen and click on the "Continue" button to ignore this warning.



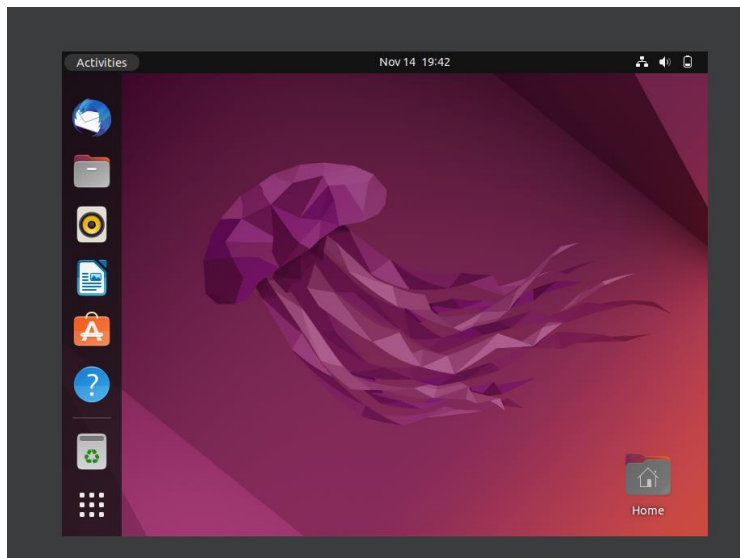
Step 7

Choose your time zone on the map and click Continue.

Step 8

Now, set your user account here by filling the necessary details and click on the "Continue" button to proceed.

Ubuntu is been installed



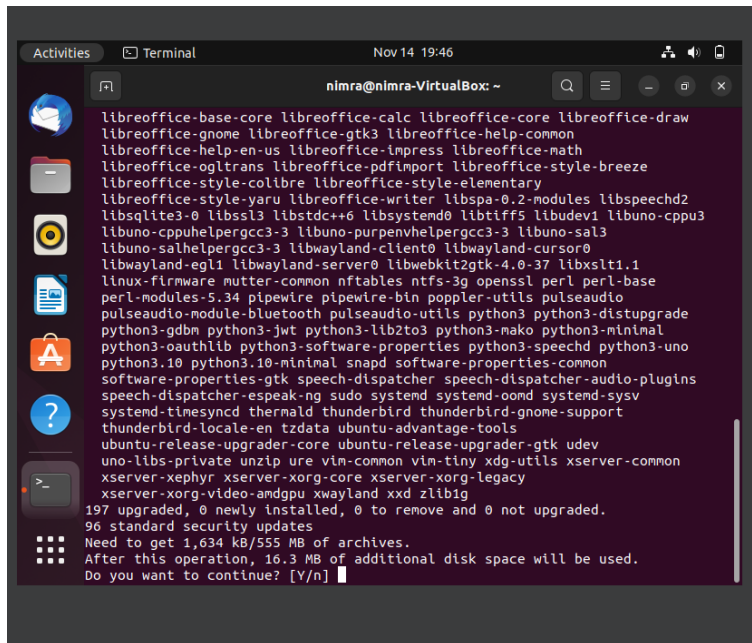
Install a LAMP (Linux+Apache+MySQL+PHP/Python) stack in your guest Ubuntu Linux, and start up a simple PHP/Python dynamic web page (for example showing phpinfo()) or server info

To install Apache on Ubuntu, run the commands below:

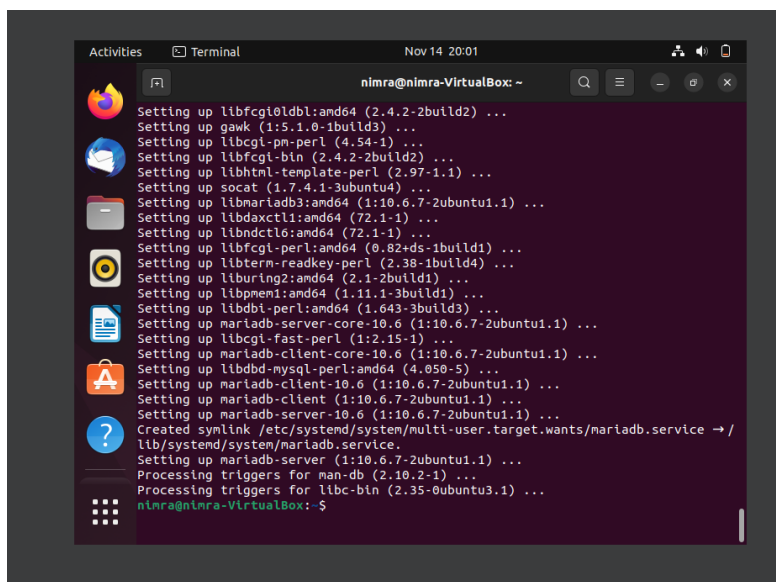
```
sudo apt update
```

```
sudo apt install apache2
```

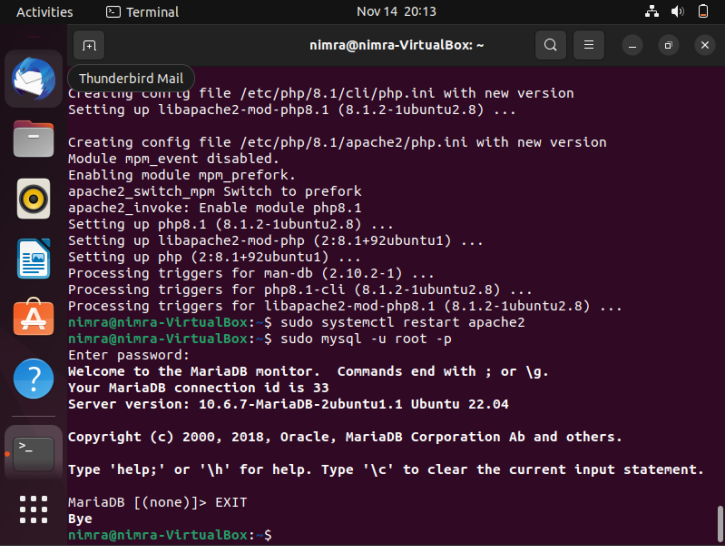
To install LAMP I write different commands in the terminal window by using and following the steps in the given link-----<https://phoenixnap.com/kb/how-to-install-lamp-in-ubuntu>



A terminal window titled 'nimra@nimra-VirtualBox: ~' showing the output of the command 'sudo apt install apache2'. The output lists various packages to be upgraded, including libreoffice-base-core, libreoffice-calc, libreoffice-core, libreoffice-draw, libreoffice-gnome, libreoffice-gtk3, libreoffice-help-common, libreoffice-help-en-us, libreoffice-impres, libreoffice-math, libreoffice-ogltrans, libreoffice-pdfimport, libreoffice-style-breeze, libreoffice-style-colibre, libreoffice-style-elementary, libreoffice-style-yaru, libreoffice-writer, libspa-0.2-modules, libspeechd2, libsqlite3-0, libssl3, libstdc++6, libsystemd0, libtiff5, libudev1, libuno-cppu3, libuno-cppuhelpergcc3-3, libuno-purpenvhelpergcc3-3, libuno-sal3, libuno-salhelpergcc3-3, libwayland-client0, libwayland-cursor0, libwayland-egl1, libwayland-server0, libwebkit2gtk-4.0-37, libxslt1.1, linux-firmware, mutter-common, nftables, ntfs-3g, openssl, perl, perl-base, perl-modules-5.34, pipewire, pipewire-bin, poppler-utils, pulseaudio, pulseaudio-module-bluetooth, pulseaudio-utils, python3, python3-distupgrader, python3-gdbm, python3-jwt, python3-lib2to3, python3-mako, python3-minimal, python3-oauthlib, python3-software-properties, python3-speechd, python3-uno, python3.10, python3.10-minimal, snapd, software-properties-common, software-properties-gtk, speech-dispatcher, speech-dispatcher-audio-plugins, speech-dispatcher-espeak-ng, sudo, systemd, systemd-oomd, systemd-sysv, systemd-timesyncd, thermald, thunderbird, thunderbird-gnome-support, thunderbird-locale-en, tzdata, ubuntu-advantage-tools, ubuntu-release-upgrader-core, ubuntu-release-upgrader-gtk, udev, uno-libs-private, unzip, ure, vin-common, vim-tiny, xdg-utils, xserver-common, xserver-xephyr, xserver-xorg-core, xserver-xorg-legacy, xserver-xorg-video-amdgpw, xwayland, xxd, zlib1g. It also shows that 197 packages are upgraded, 0 are newly installed, 0 are to be removed, and 0 are not upgraded. It mentions 96 standard security updates, a need for 1,634 kB/555 MB of archives, and that 16.3 MB of additional disk space will be used. The prompt 'Do you want to continue? [Y/n]' is visible.



A terminal window titled 'nimra@nimra-VirtualBox: ~' showing the output of the command 'sudo apt install mariadb-server'. The output lists various packages to be set up, including libfcgi1:amd64 (2.4.2-2build2), gawk (1:5.1.0-1build3), libfcgi-bin (2.4.2-2build2), libhtml-template-perl (2.97-1.1), socat (1.7.4-1-3ubuntu4), libmariadb3:amd64 (1:10.6.7-2ubuntu1.1), libdaxctl1:amd64 (72.1-1), libndctl6:amd64 (72.1-1), libfcgi-perl:amd64 (0.82+ds-1build1), libterm-readkey-perl (2.38-1build4), liburing2:amd64 (2.1-2build1), libpmem1:amd64 (1.11.1-3build1), libdb1-perl:amd64 (1.643-3build3), mariadb-server-core-10.6 (1:10.6.7-2ubuntu1.1), libfcgi-fast-perl (1:2.15-1), mariadb-client-core-10.6 (1:10.6.7-2ubuntu1.1), libdbd-mysql-perl:amd64 (4.050-5), mariadb-client-10.6 (1:10.6.7-2ubuntu1.1), mariadb-client (1:10.6.7-2ubuntu1.1), mariadb-server-10.6 (1:10.6.7-2ubuntu1.1). It also shows that a symlink is created for /etc/systemd/system/multi-user.target.wants/mariadb.service, and that mariadb-server (1:10.6.7-2ubuntu1.1) is set up. It mentions processing triggers for man-db (2.10.2-1) and libc-bin (2.35-0ubuntu3.1). The prompt 'nimra@nimra-VirtualBox: \$' is visible.



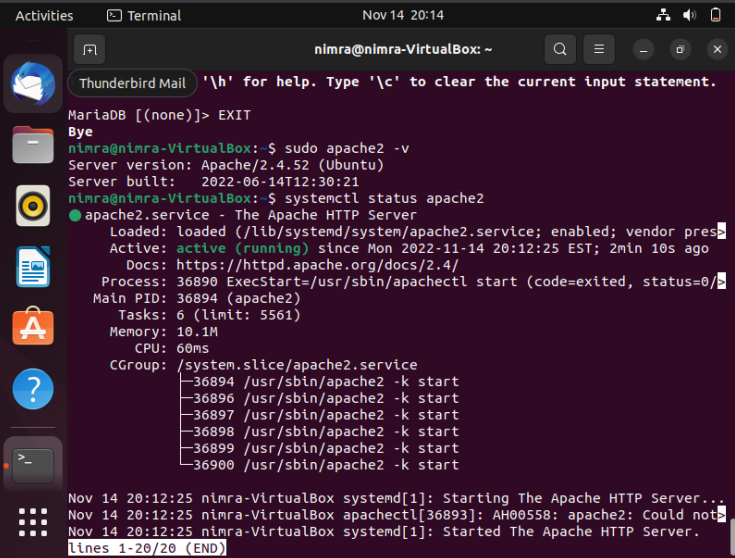
```
Activities Terminal Nov 14 20:13
nimra@nimra-VirtualBox: ~
Thunderbird Mail
Creating config file /etc/php/8.1/cli/php.ini with new version
Setting up libapache2-mod-php8.1 (8.1.2-1ubuntu2.8) ...
Creating config file /etc/php/8.1/apache2/php.ini with new version
Module mpm_event disabled.
Enabling module mpm_prefork.
apache2_switch mpm Switch to prefork
apache2_invoke: Enable module php8.1
Setting up php8.1 (8.1.2-1ubuntu2.8) ...
Setting up libapache2-mod-php (2:8.1+92ubuntu1) ...
Setting up php (2:8.1+92ubuntu1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for php8.1-cli (8.1.2-1ubuntu2.8) ...
Processing triggers for libapache2-mod-php8.1 (8.1.2-1ubuntu2.8) ...
nimra@nimra-VirtualBox:~$ sudo systemctl restart apache2
nimra@nimra-VirtualBox:~$ sudo mysql -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 33
Server version: 10.6.7-MariaDB-2ubuntu1.1 Ubuntu 22.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> EXIT
Bye
nimra@nimra-VirtualBox:~$
```

Confirm and checking apache version and status respectively



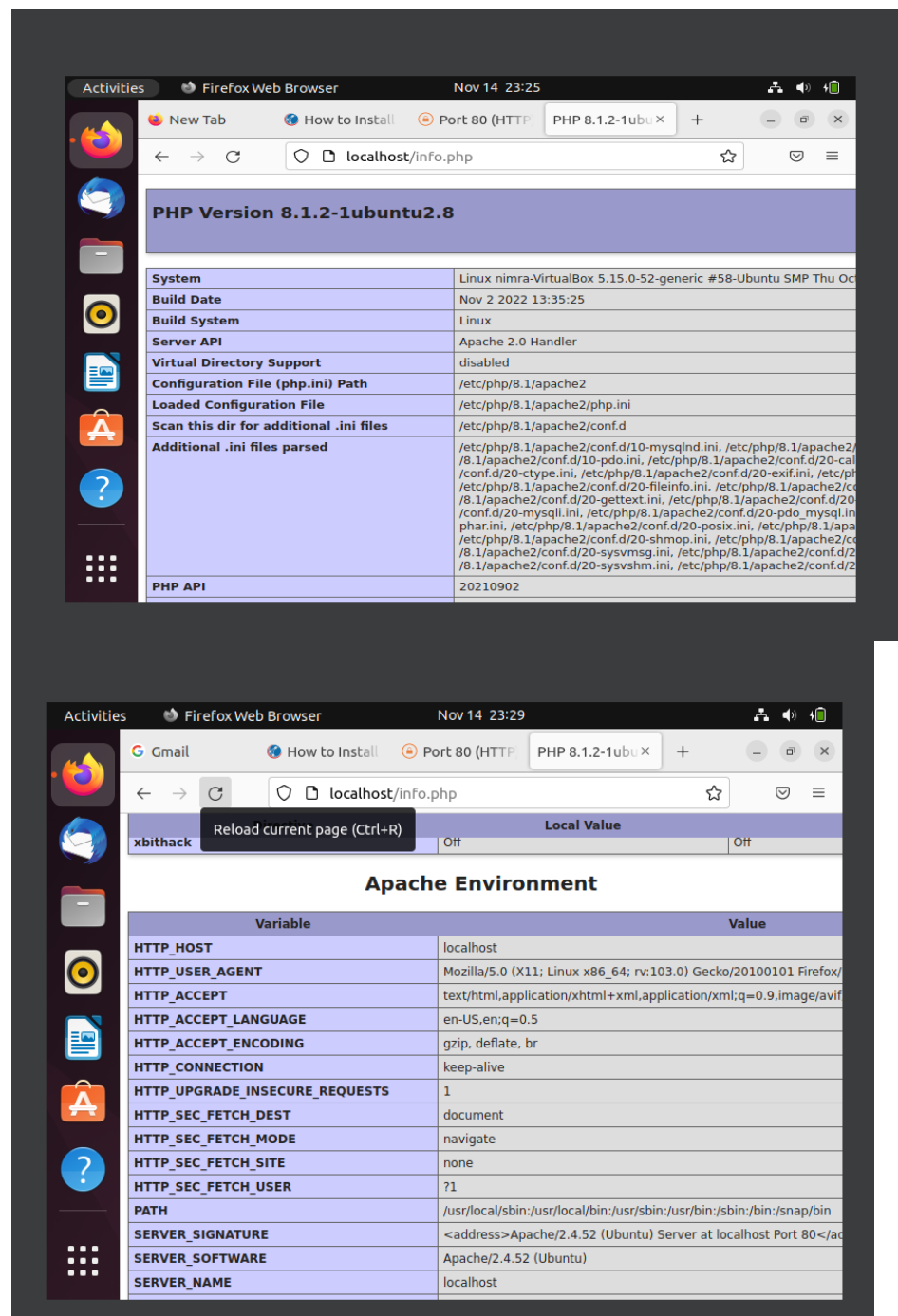
```
Activities Terminal Nov 14 20:14
nimra@nimra-VirtualBox: ~
Thunderbird Mail '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> EXIT
Bye
nimra@nimra-VirtualBox:~$ sudo apache2 -v
Server version: Apache/2.4.52 (Ubuntu)
Server built: 2022-06-14T12:30:21
nimra@nimra-VirtualBox:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2022-11-14 20:12:25 EST; 2min 10s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 36890 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 36894 (apache2)
     Tasks: 6 (limit: 5561)
    Memory: 10.1M
       CPU: 60ms
   CGroup: /system.slice/apache2.service
           └─36894 /usr/sbin/apache2 -k start
             └─36896 /usr/sbin/apache2 -k start
               └─36897 /usr/sbin/apache2 -k start
                 └─36898 /usr/sbin/apache2 -k start
                   └─36899 /usr/sbin/apache2 -k start
                     └─36900 /usr/sbin/apache2 -k start

Nov 14 20:12:25 nimra-VirtualBox systemd[1]: Starting The Apache HTTP Server...
Nov 14 20:12:25 nimra-VirtualBox apachectl[36893]: AH00558: apache2: Could not
Nov 14 20:12:25 nimra-VirtualBox systemd[1]: Started The Apache HTTP Server.
lines 1-20/20 (END)
```

Open an internet browser and type the following address:

`localhost/info.php`

The output is displaying the details of the LAMP stack, as seen in the image below:



Activities Firefox Web Browser Nov 14 23:26

New Tab How to Install Port 80 (HTTP) PHP 8.1.2-1ubu X

localhost/info.php

Configuration apache2handler

Apache Version	Apache/2.4.52 (Ubuntu)
Apache API Version	20120211
Server Administrator	webmaster@localhost
Hostname:Port	127.0.1.1:80
User/Group	www-data(33)/33
Max Requests	Per Child: 0 - Keep Alive: on - Max Per Connection: 100
Timeouts	Connection: 300 - Keep-Alive: 5
Virtual Server	Yes
Server Root	/etc/apache2
Loaded Modules	core mod_so mod_watchdog http_core mod_log_config mod_logio mod_access_compat mod_alias mod_auth_basic mod_authn_core mod_authz_host mod_authz_user mod_autoindex mod_deflate mod_mime prefork mod_negotiation mod_php mod_reqtimeout mod

Directive	Local Value
engine	On
Show Applications	Off
xbithack	Off