This article will cover setting up an Oracle virtual machine, running an Ubuntu virtual machine, installing an NGinx server on the virtual machine, and launching a website.

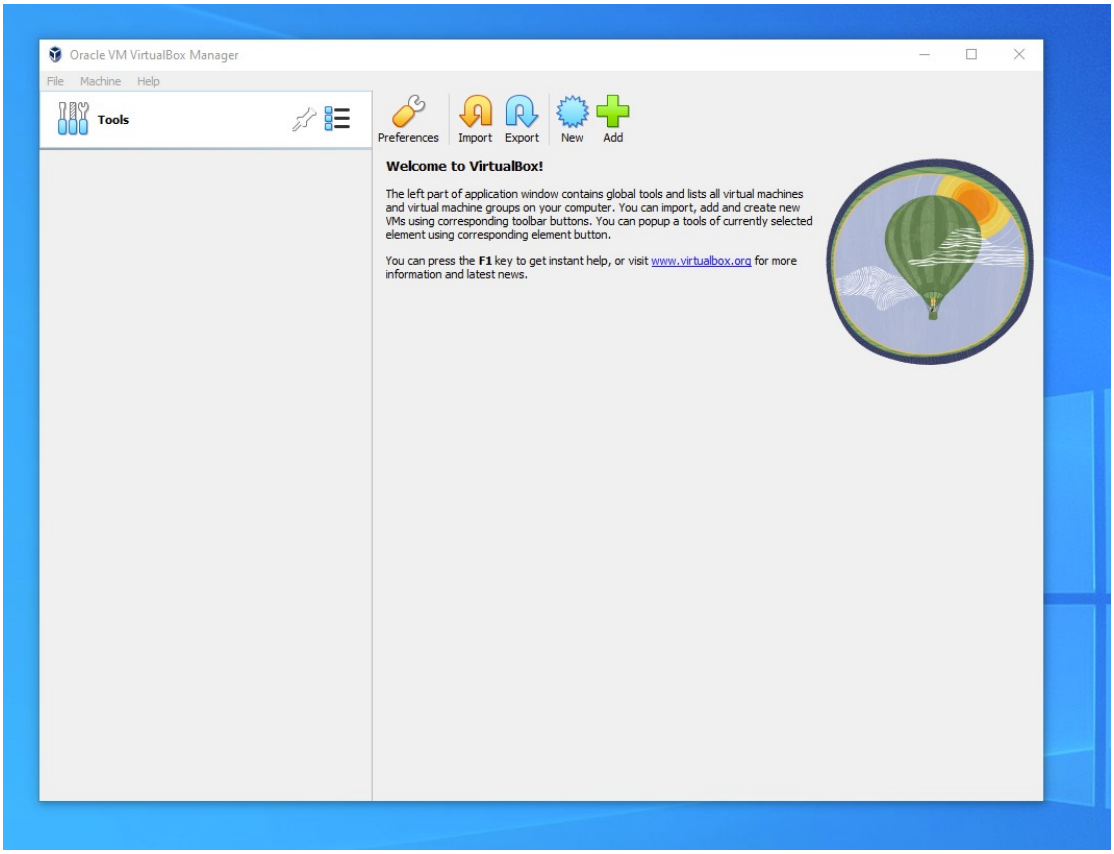
**Install Oracle Virtual Box in windows**:

* You can download the latest version of virtualbox from official website: https://www.virtualbox.org/ download the Windows version at the top by clicking “x86/amd64”

* Run the VirtualBox-XXXX.exe file, Oracle VM Virtual Box Installation Window will appear.

*Follow the on-screen instructions and accept the license agreement.Choose the components you want to install and the installation path.

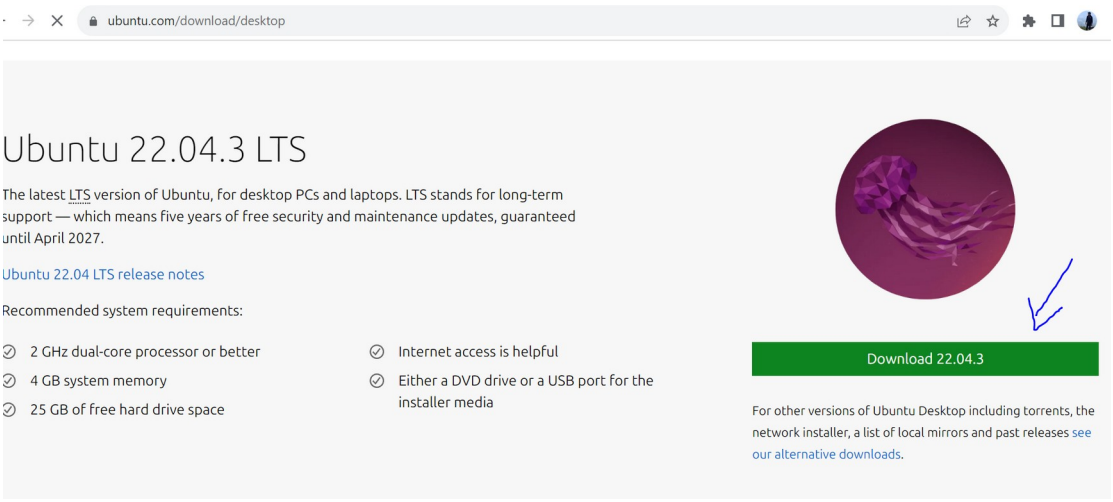
* Click finish and complete the installation process, after completion of the installation virtual box gets opened like mentioned below.




* Congratulations oracle VirtualBox is installed succesfully.

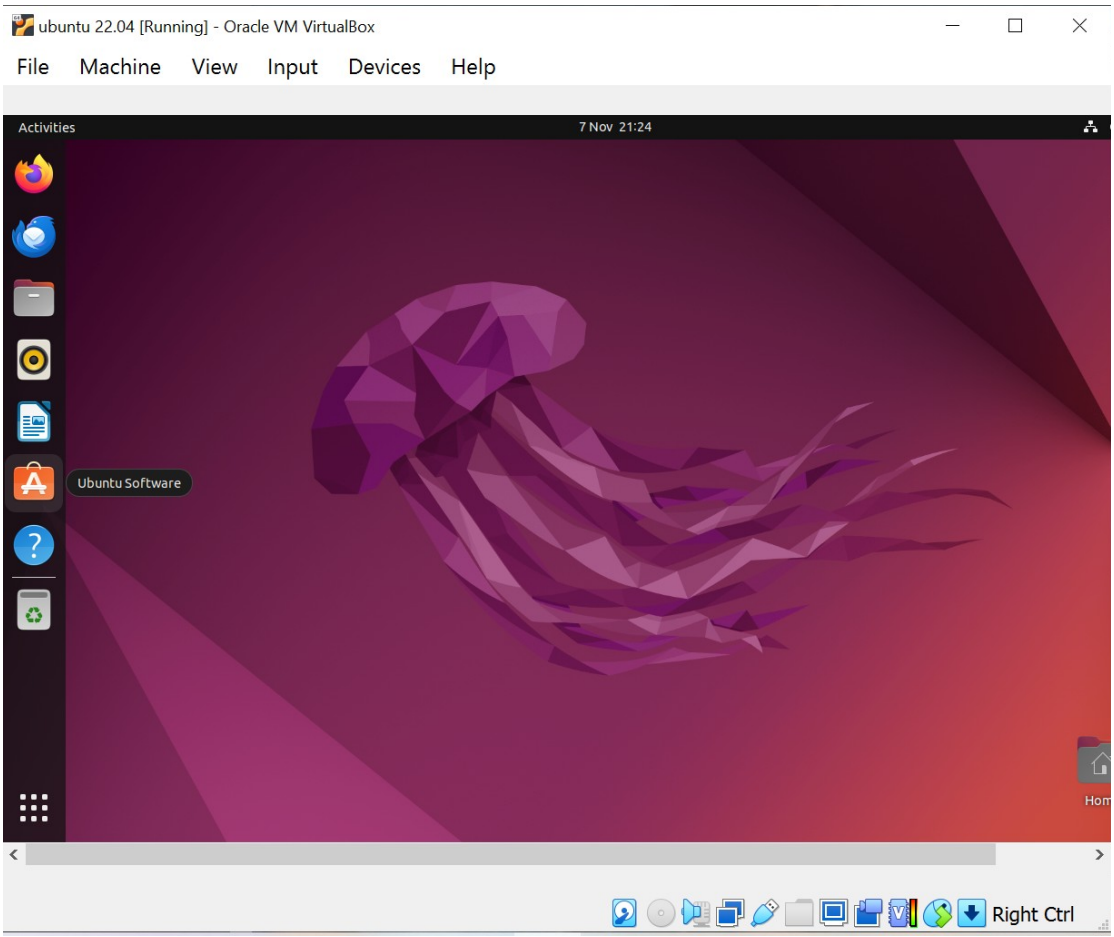
**Install Ubuntu on VirtualBox :**

* First download the required un=buntu software, go to the official website https://ubuntu.com/download/desktop then download the version you want.




* Kindly adhere to the instructions provided on this webpage.: https://www.geeksforgeeks.org/how-to-install-ubuntu-on-virtualbox/

* If you finish the installation and follow all the instructions, your Ubuntu virtual machine will look like the one shown below.




**Install Nginx in ubuntu:**

* Once your Ubuntu virtual machine is operational, open the terminal and execute the commands listed below.

$ sudo apt update

$ sudo apt install nginx

* Next, make the necessary firewall software configurations to grant access to the service.

command : $  sudo ufw app list

Enter the user password if required, you can able to see the output as mentioned below.

```
poovarasan@poovarasan-VirtualBox:~$ sudo ufw app list
[sudo] password for poovarasan:
Available applications:
  CUPS
  Nginx Full
  Nginx HTTP
  Nginx HTTPS
poovarasan@poovarasan-VirtualBox:~$
```

* Run the following command to enable the port 80.

  $ sudo ufw allow 'Nginx HTTP'

* Check the webserver is up and running with following command.

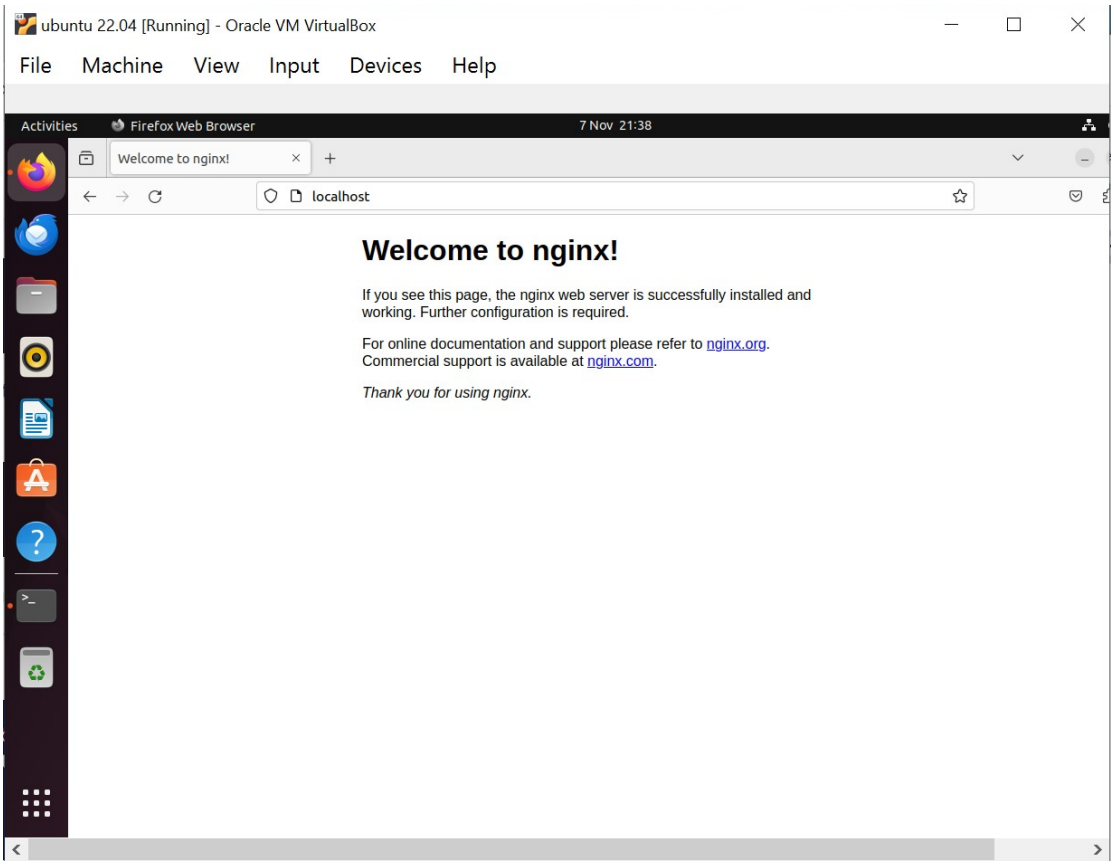
$ systemctl status nginx

The output is looks like

```
poovarasan@poovarasan-VirtualBox:~$ systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
     Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset:>
     Active: active (running) since Tue 2023-11-07 21:23:01 IST; 12min ago
       Docs: man:nginx(8)
    Process: 655 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_proces>
    Process: 775 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (co>
   Main PID: 778 (nginx)
      Tasks: 2 (limit: 2243)
     Memory: 8.1M
        CPU: 106ms
     CGroup: /system.slice/nginx.service
             ├─778 "nginx: master process /usr/sbin/nginx -g daemon on; master_>
             └─779 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" >

Nov 07 21:22:54 poovarasan-VirtualBox systemd[1]: Starting A high performance w>
Nov 07 21:23:01 poovarasan-VirtualBox systemd[1]: Started A high performance we>
lines 1-16/16 (END)
```

* open firefox enter localhost  you can able to see your website hosted by nginx.




Command to stop nginx server: $ sudo systemctl stop nginx

Congrats! Your Nginx website has successfully launched in an Ubuntu virtual machine.

**Nmap:**

*Nmap is used to scan for open ports, so make sure it installs successfully in Ubuntu virtual machine.

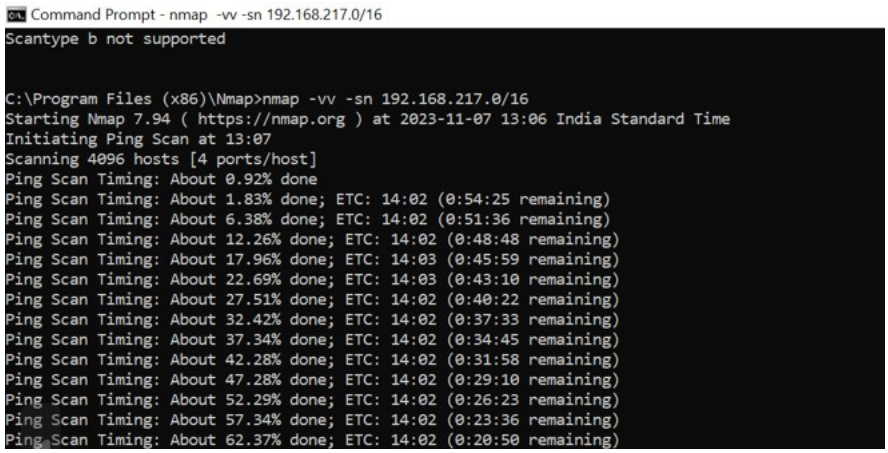
* Lets check our local host is up and running fine using nmap.

```
poovarasan@poovarasan-VirtualBox:~$ nmap 127.0.0.1
Starting Nmap 7.94 ( https://nmap.org ) at 2023-11-07 21:43 IST
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00016s latency).
Not shown: 998 closed tcp ports (conn-refused)
PORT    STATE SERVICE
80/tcp  open  http
631/tcp open  ipp

Nmap done: 1 IP address (1 host up) scanned in 0.20 seconds
poovarasan@poovarasan-VirtualBox:~$
```

In the above image shows 1 host is up and also the tcp ports available.

* Lets try to scan our windoes machine with same nmap to check the ports that are up and running.




**Thank you!!! Happy Learning!!!**