Aim - To implement Storage as a Service(SaaS) on cloud by installing OwnCloud on Ubuntu VM.

Theory -

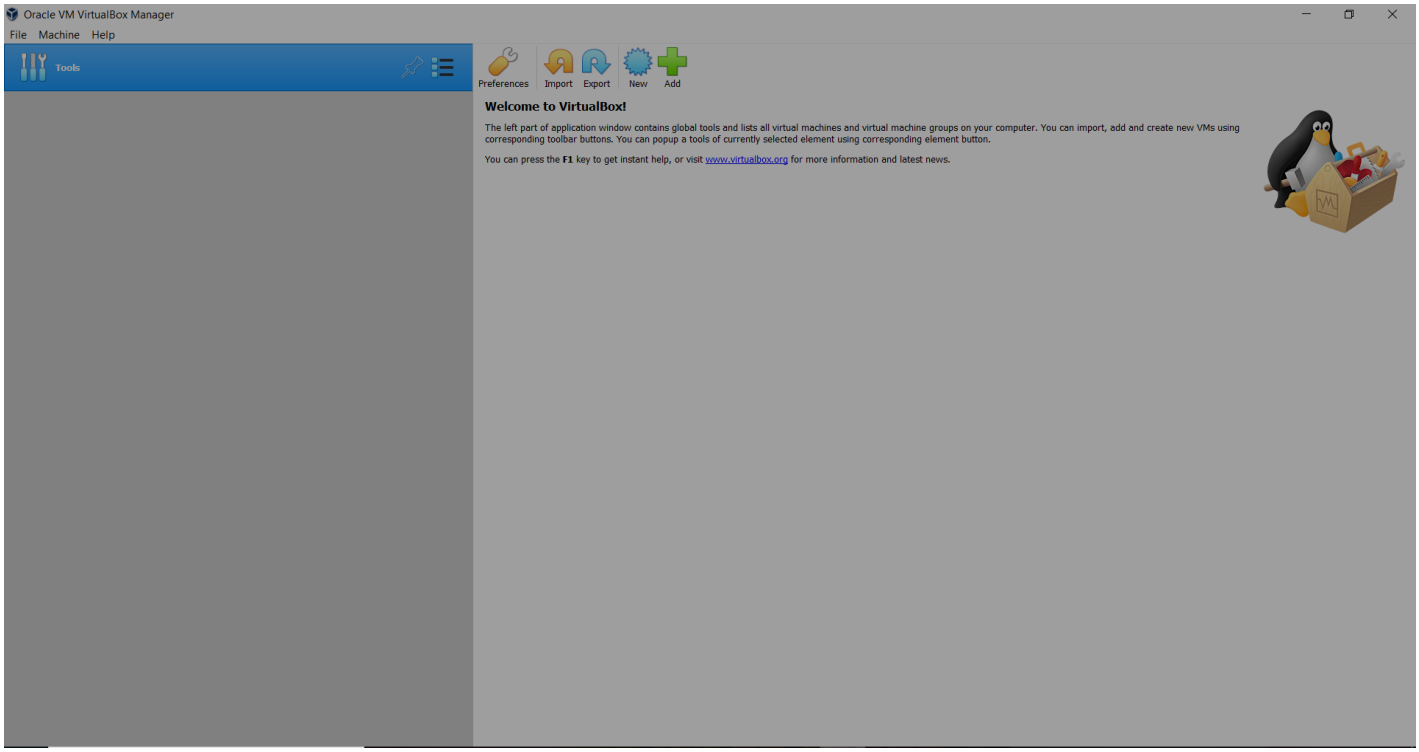
Owncloud - It is a suite of client–server software for creating and using file hosting services. OwnCloud functionally has similarities to the widely used Dropbox. The primary functional difference between ownCloud and Dropbox is that ownCloud does not offer data centre capacity to host stored files. The Server Edition of ownCloud is free and open-source, thereby allowing anyone to install and operate it without charge on their own private server.

OwnCloud supports extensions that allow it to work like Google Drive, with online document editing, calendar and contact synchronization, and more. Its openness avoids enforced quotas on storage space or the number of connected clients, instead of having hard limits (for example on storage space or number of users) limits are determined by the physical capabilities of the server.

Installation -

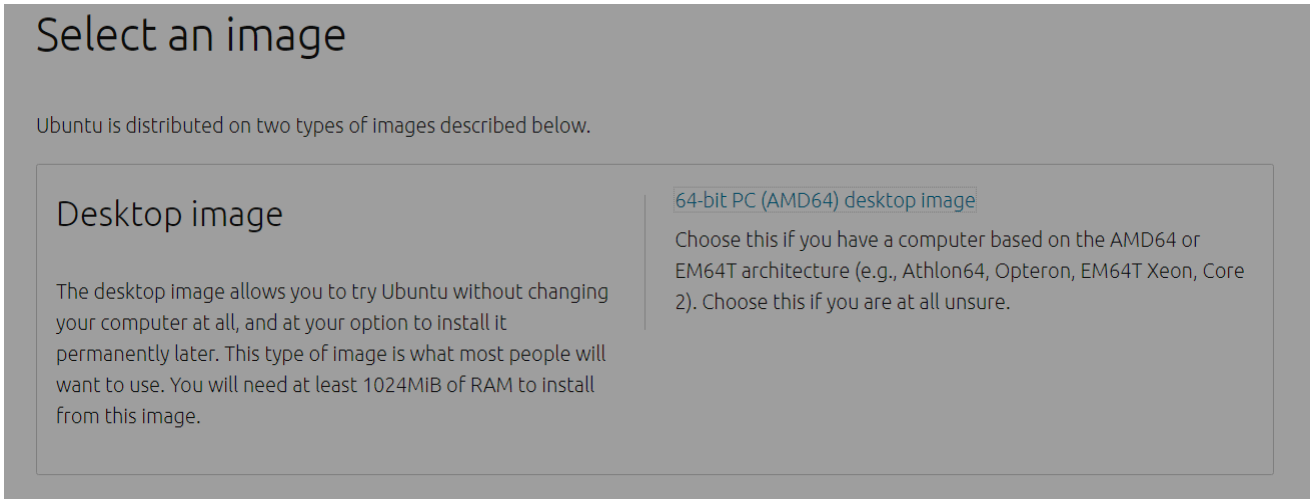
STEP 1 - INSTALL ORACLE VIRTUALBOX

https://www.virtualbox.org/wiki/Downloads
After clicking on the link, select **Windows hosts,** it will get installed.
Finish the installation by clicking next and agreeing the terms & conditions.
This is how it looks after installation -

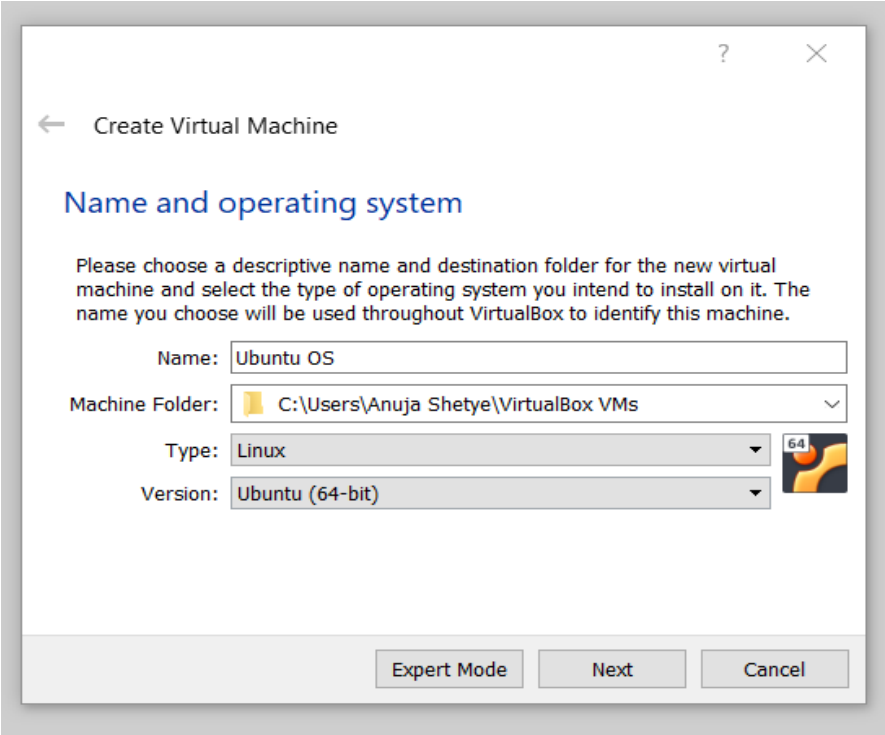


STEP 2 - INSTALLING UBUNTU ON VIRTUALBOX

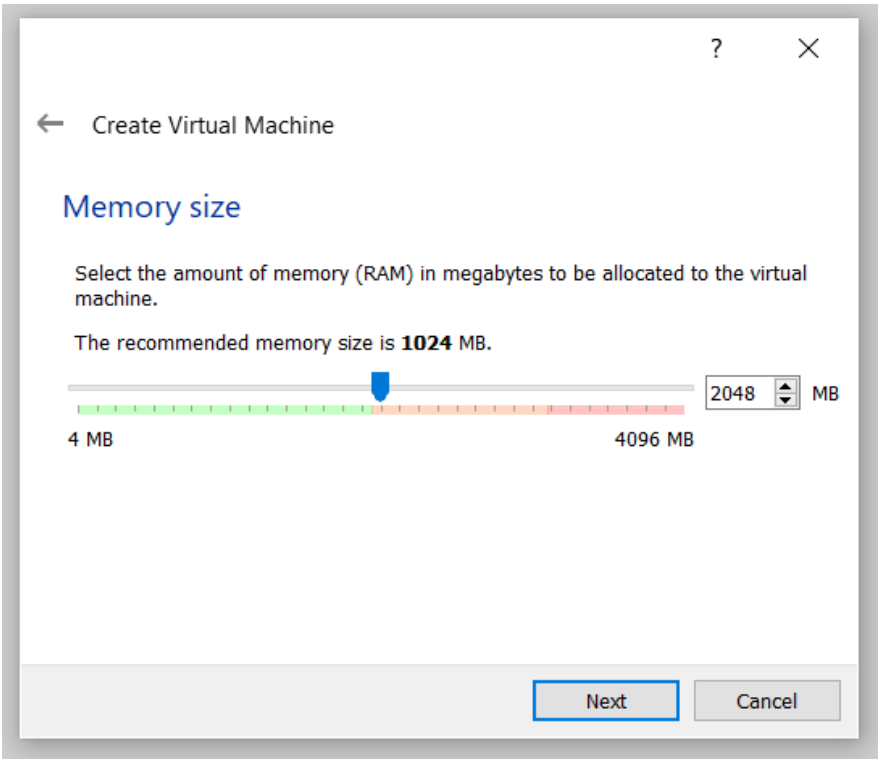
Step 1 - Download Ubuntu image file
https://releases.ubuntu.com/20.10/
After clicking on the link, select **64-bit PC (AMD64) desktop image** to download the disc image file of Ubuntu. You can always select whichever version you want. OwnCloud is compatible with version 18 and above.



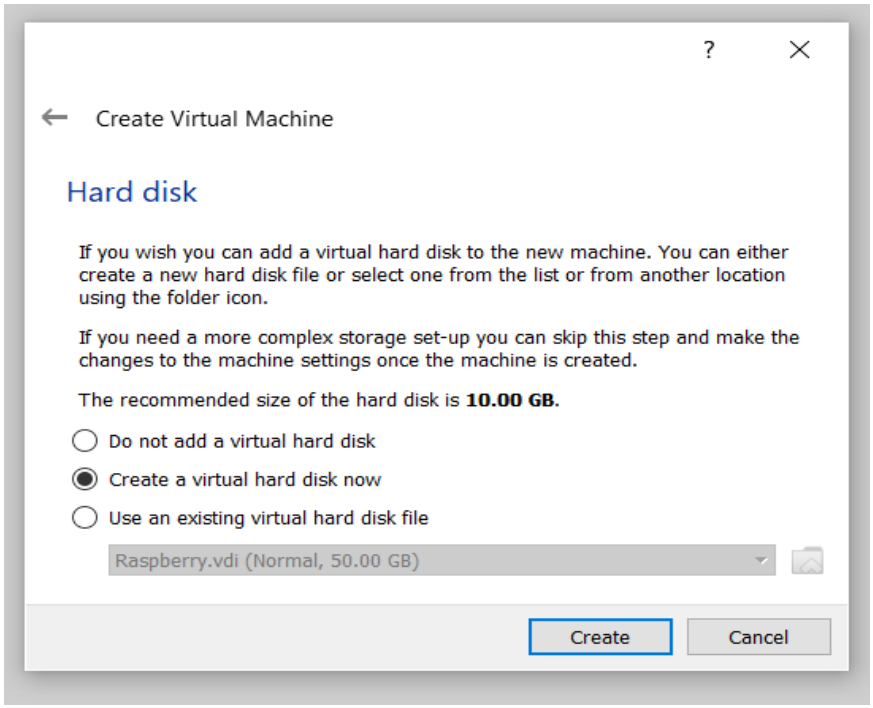
Step 2 - Click New button for creating a new virtual OS. Give a suitable name for your machine and click next.



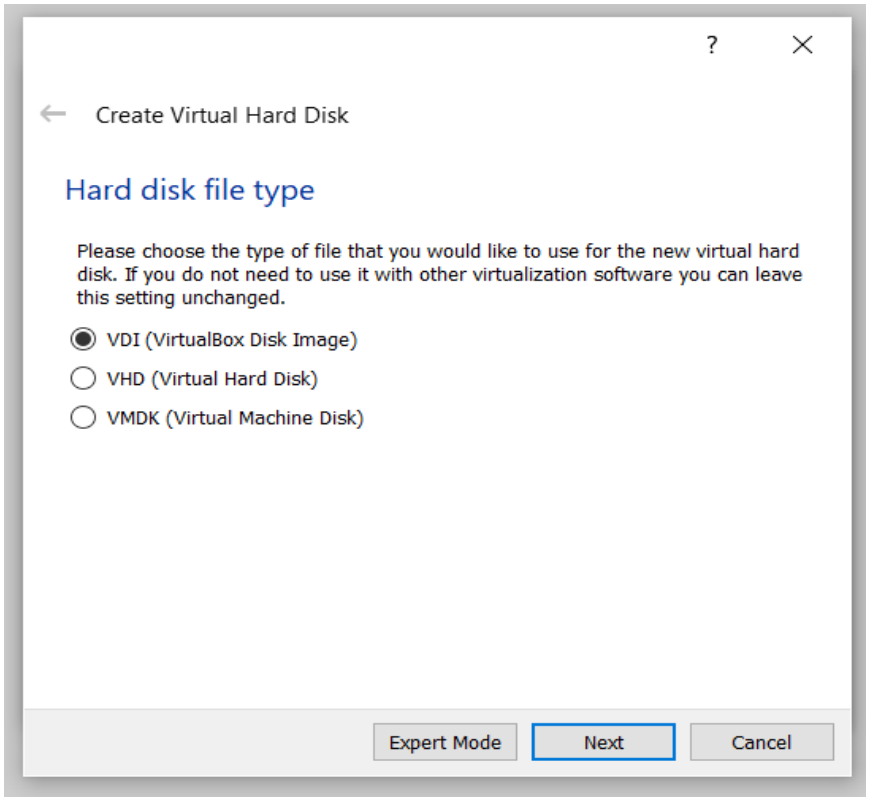
Step 3 - Allocate memory for your machine & click next.



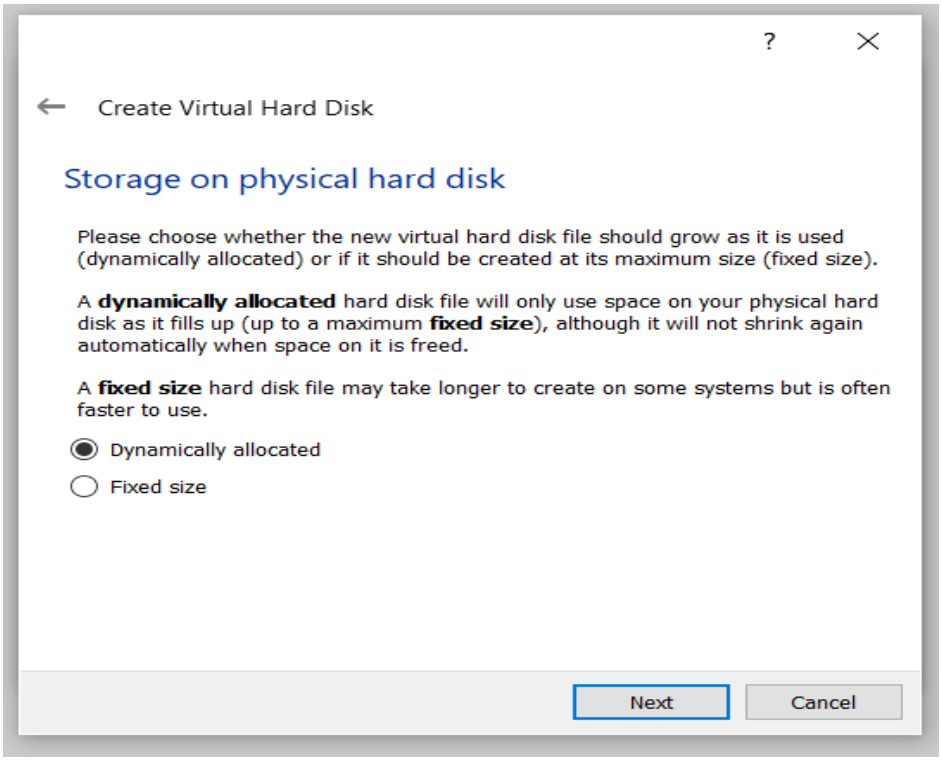
Step 4 - Keep the default option and click create.



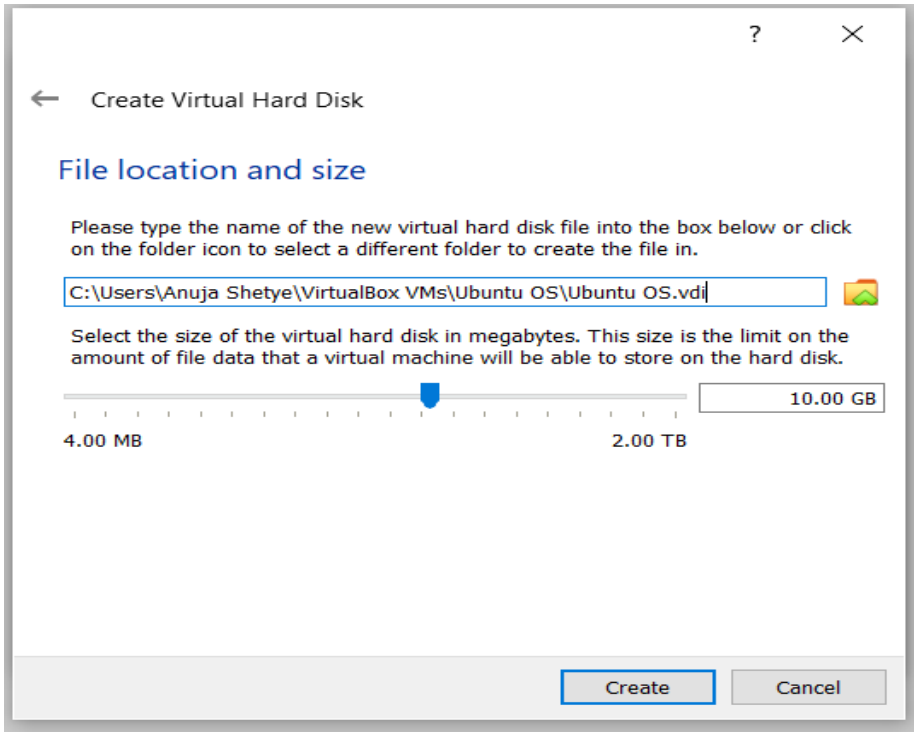
Step 5 - Keep the default option and click next.



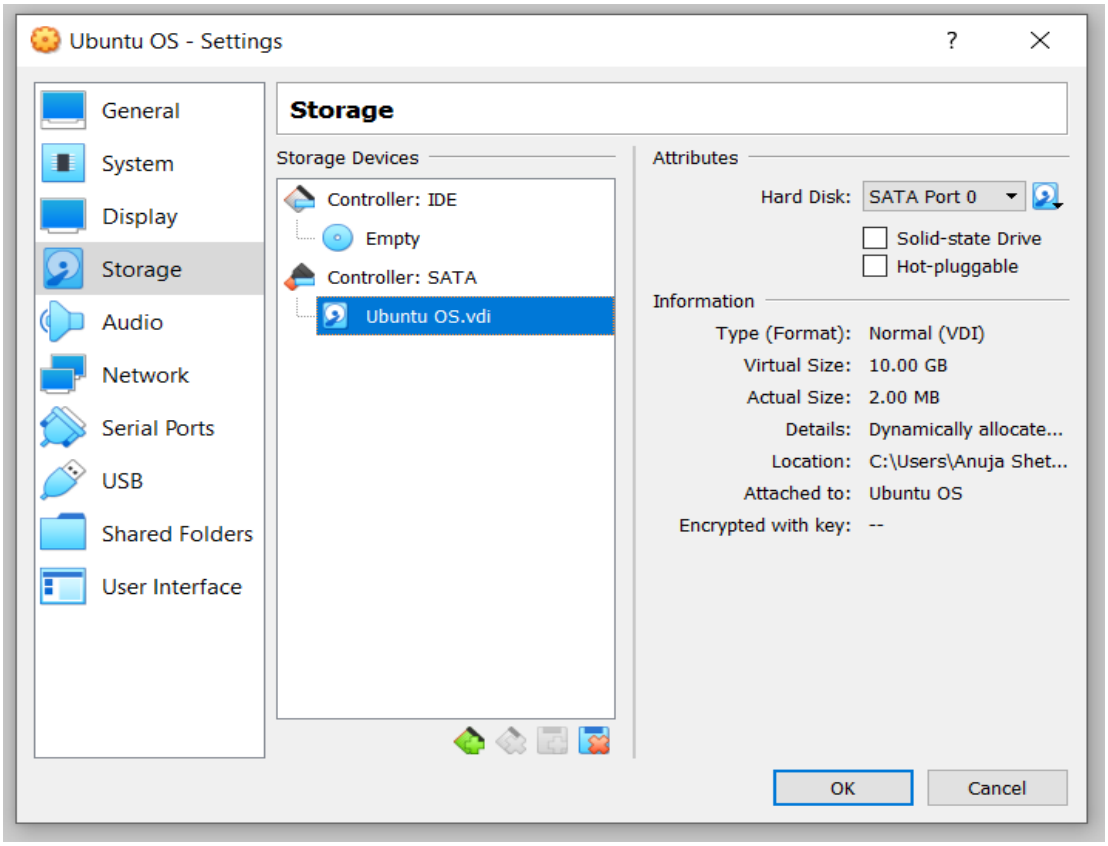
Step 6 - Keep the default option and click next.



Step 7 - Allocate memory for hard disk & click create.

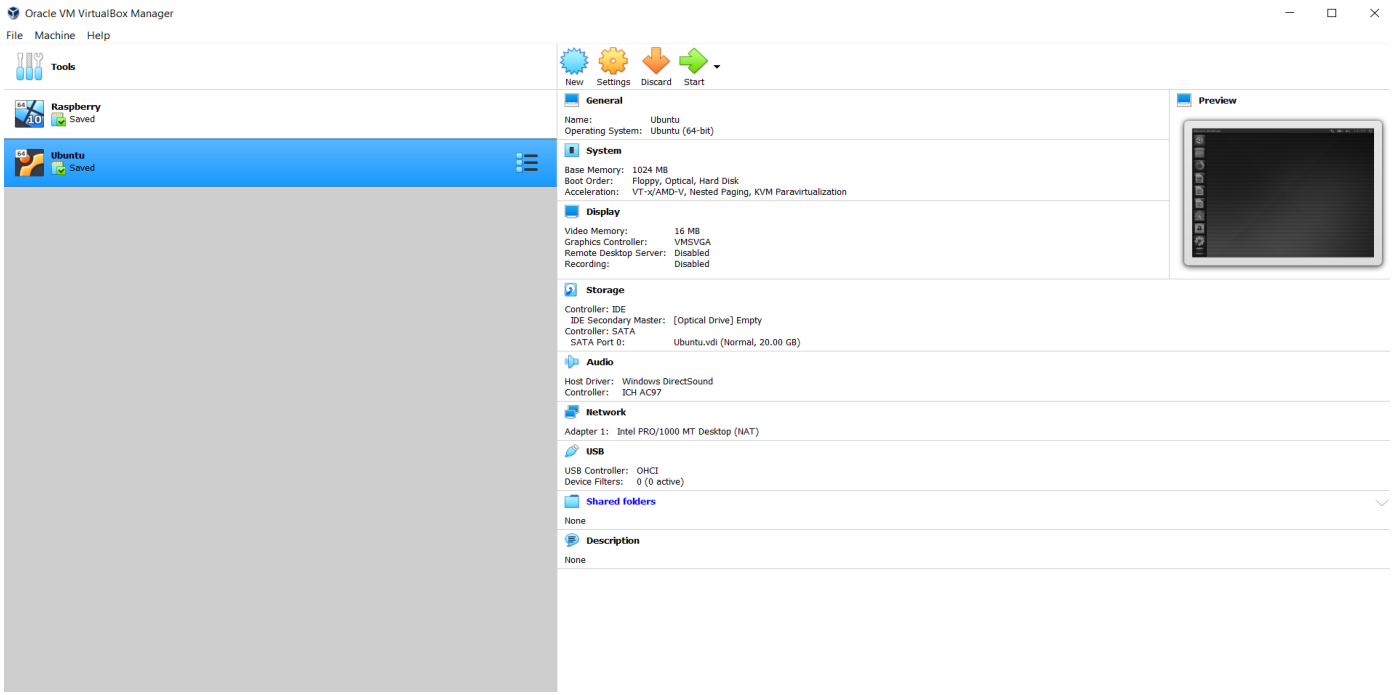


Step 8 - Now, click on the newly created virtual machine and go to settings.
In settings, go to storage → Controller : IDE → click Empty → in attributes → click on the cd icon → click ‘Choose a disk file’ to import the disk image file that we have downloaded & click ok.

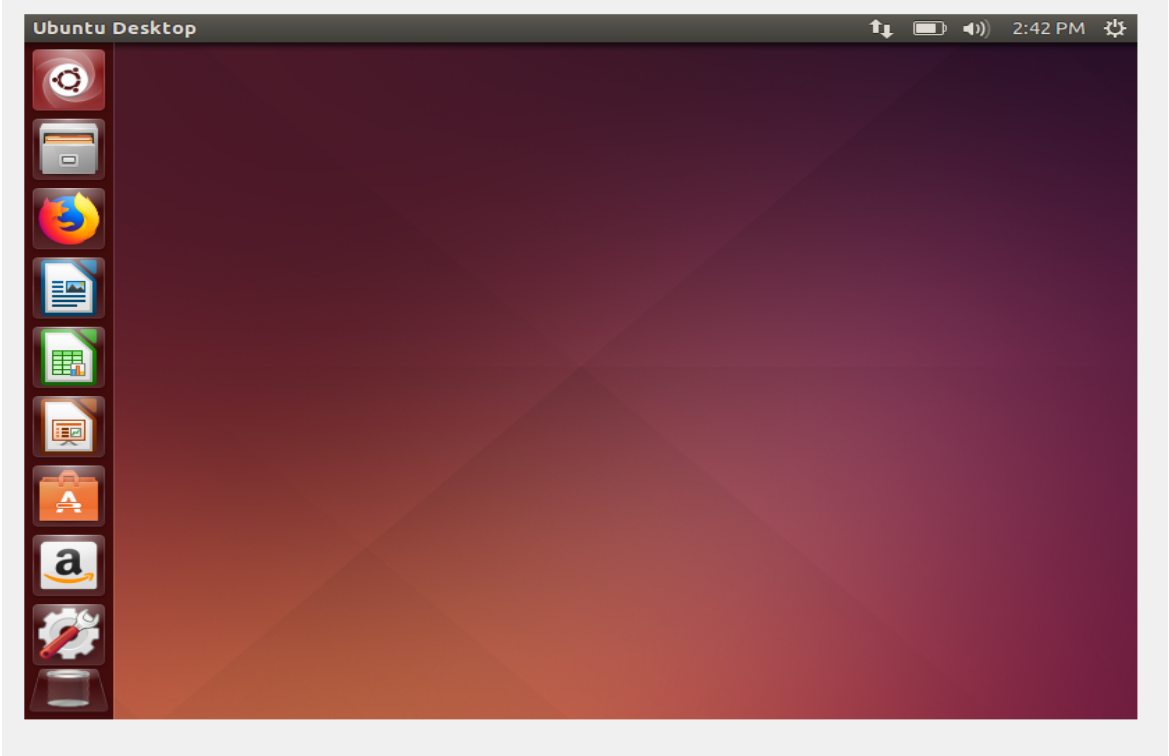


Step 9 - Then click on start to start with the installation of virtual machine. Follow the instructions, click on next & enter the required personal details.

After successfully installing Ubuntu on virtual box-



Step 10 - Start the virtual machine.
After entering your password home page will be displayed-



STEP 3 - INSTALLING LAMP(APACHE 2, PHP7, MARIADB) ON UBUNTU 20.10

Step 0: Open the terminal to run the following commands.

Step 1: Install Apache on system

1.1 install apache2

```
anuja@anuja-VirtualBox:~$ sudo apt install apache2 -y
[sudo] password for anuja:
Reading package lists... Done
Building dependency tree
Reading state information... Done
apache2 is already the newest version (2.4.46-1ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 240 not upgraded.
anuja@anuja-VirtualBox:~$
```

1.2 check status apache

```
anuja@anuja-VirtualBox:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor pres>
     Active: active (running) since Tue 2021-03-23 19:40:06 IST; 8min ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 635 (apache2)
      Tasks: 55 (limit: 1103)
     Memory: 3.5M
     CGroup: /system.slice/apache2.service
             ├─635 /usr/sbin/apache2 -k start
             ├─636 /usr/sbin/apache2 -k start
             └─637 /usr/sbin/apache2 -k start

Mar 23 19:40:02 anuja-VirtualBox systemd[1]: Starting The Apache HTTP Server...
Mar 23 19:40:06 anuja-VirtualBox apachectl[602]: AH00558: apache2: Could not r>
Mar 23 19:40:06 anuja-VirtualBox systemd[1]: Started The Apache HTTP Server.
lines 1-15/15 (END)
```

1.3 enable auto start at boot time

```
anuja@anuja-VirtualBox:~$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /lib/syste
md/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable apache2
anuja@anuja-VirtualBox:~$
```

1.4 config firewall to allow Apache web server

```
anuja@anuja-VirtualBox:~$ sudo ufw allow http
Skipping adding existing rule
Skipping adding existing rule (v6)
anuja@anuja-VirtualBox:~$
```

1.5 enable system startup

```
anuja@anuja-VirtualBox:~$ sudo ufw enable
Firewall is active and enabled on system startup
anuja@anuja-VirtualBox:~$
```

1.6 check status. It is allowed on port 80.

```
anuja@anuja-VirtualBox:~$ sudo ufw status numbered
Status: active

     To                         Action      From
     --                         ------      ----
[ 1] 80/tcp                     ALLOW IN    Anywhere
[ 2] 80/tcp (v6)                ALLOW IN    Anywhere (v6)

anuja@anuja-VirtualBox:~$
```

1.7 run ifconfig to know the IP addresses

```
anuja@anuja-VirtualBox:~$ ifconfig
Command 'ifconfig' not found, but can be installed with:
sudo apt install net-tools
```

1.8 install the required packages asked, for using various commands and tools.
If getting error as follows then use command **- kill -9 *process id***

```
anuja@anuja-VirtualBox:~$ sudo apt install net-tools
[sudo] password for anuja:
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
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Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is h
^Zd by process 2102 (unattended-upgr)... 18s
[1]+  Stopped                 sudo apt install net-tools
anuja@anuja-VirtualBox:~$ sudo kill -9 2102
```

```
anuja@anuja-VirtualBox:~$ sudo apt install net-tools
E: dpkg was interrupted, you must manually run 'sudo dpkg --configure -a' to co
rrect the problem.
anuja@anuja-VirtualBox:~$ sudo dpkg --configure -a
Setting up man-db (2.9.3-2) ...
Updating database of manual pages ...
man-db.service is a disabled or a static unit not running, not starting it.
anuja@anuja-VirtualBox:~$ enable man-db.service
bash: enable: man-db.service: not a shell builtin
anuja@anuja-VirtualBox:~$ enable man-db
bash: enable: man-db: not a shell builtin
```

1.9 finally installed

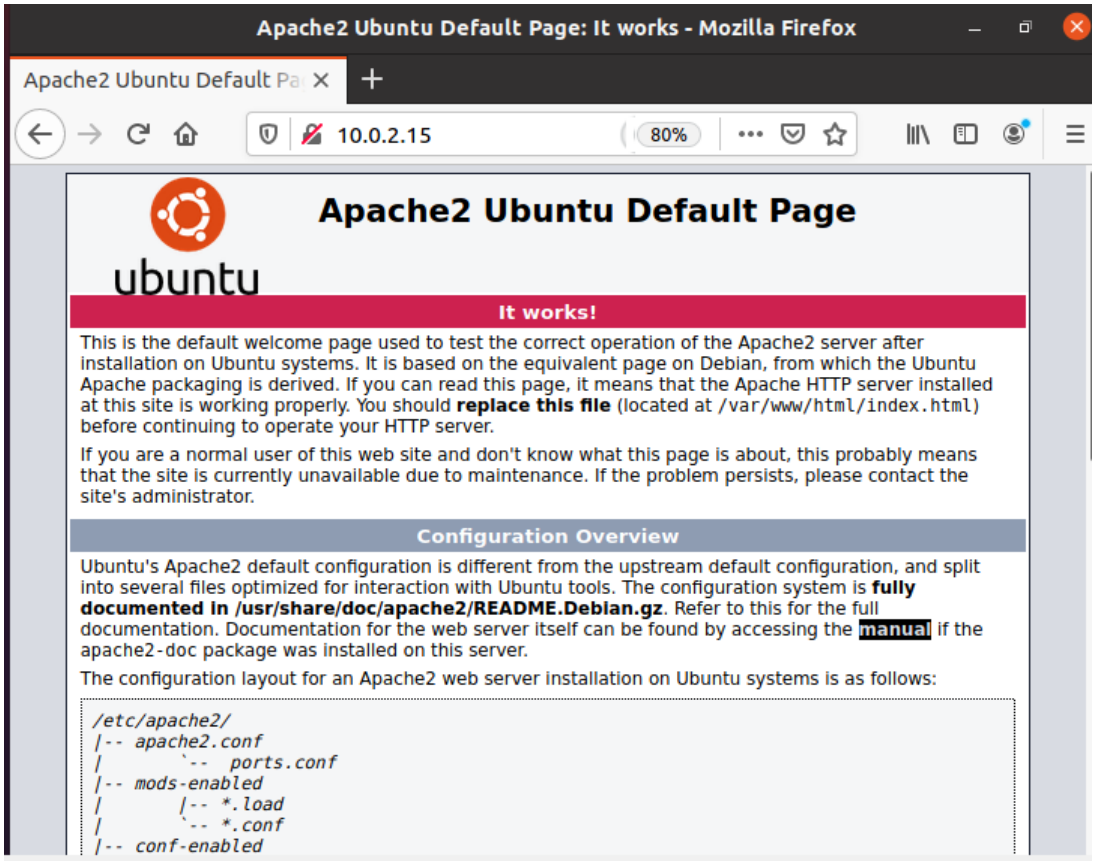
```
anuja@anuja-VirtualBox:~$ sudo apt install net-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 194 not upgraded.
Need to get 192 kB of archives.
After this operation, 856 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu groovy/main amd64 net-tools amd64 1.6
0+git20180626.aebd88e-1ubuntu2 [192 kB]
Fetched 192 kB in 1s (217 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 186090 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20180626.aebd88e-1ubuntu2_amd64.deb .
..
Unpacking net-tools (1.60+git20180626.aebd88e-1ubuntu2) ...
Setting up net-tools (1.60+git20180626.aebd88e-1ubuntu2) ...
Processing triggers for man-db (2.9.3-2) ...
anuja@anuja-VirtualBox:~$
```

1.10 run ifconfig command

```
anuja@anuja-VirtualBox:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::3f50:47f:a323:30de  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:4e:81:ef  txqueuelen 1000  (Ethernet)
        RX packets 167230  bytes 233927735 (233.9 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 10725  bytes 712302 (712.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 302  bytes 26766 (26.7 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 302  bytes 26766 (26.7 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Here my IP is 10.0.2.15

1.11 now test by opening the browser



It’s working!

Step 2: Install PHP 7 on system

2.1 install PHP and PHP modules

```
anuja@anuja-VirtualBox:~$ sudo apt install php libapache2-mod-php php-mysql php
-gd php-cli -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libapache2-mod-php7.4 php-common php7.4 php7.4-cli php7.4-common php7.4-gd
  php7.4-json php7.4-mysql php7.4-opcache php7.4-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php7.4 php php-cli php-common php-gd
  php-mysql php7.4 php7.4-cli php7.4-common php7.4-gd php7.4-json
  php7.4-mysql php7.4-opcache php7.4-readline
0 upgraded, 15 newly installed, 0 to remove and 194 not upgraded.
Need to get 4,188 kB of archives.
After this operation, 18.7 MB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu groovy/main amd64 php-common all 2:76
 [12.0 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 php7.4-comm
on amd64 7.4.9-1ubuntu1.1 [982 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 php7.4-json
 amd64 7.4.9-1ubuntu1.1 [19.4 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 php7.4-opca
che amd64 7.4.9-1ubuntu1.1 [198 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 php7.4-read
line amd64 7.4.9-1ubuntu1.1 [12.5 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 php7.4-cli
amd64 7.4.9-1ubuntu1.1 [1,425 kB]
```

2.2 PHP 7 installed

```
anuja@anuja-VirtualBox:~$ php -v
PHP 7.4.9 (cli) (built: Oct 26 2020 15:17:14) ( NTS )
Copyright (c) The PHP Group
Zend Engine v3.4.0, Copyright (c) Zend Technologies
    with Zend OPcache v7.4.9, Copyright (c), by Zend Technologies
anuja@anuja-VirtualBox:~$
```

2.3 install vim

```
anuja@anuja-VirtualBox:~$ sudo apt-get install vim
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  vim-runtime
Suggested packages:
  ctags vim-doc vim-scripts
The following NEW packages will be installed:
  vim vim-runtime
0 upgraded, 2 newly installed, 0 to remove and 194 not upgraded.
Need to get 7,268 kB of archives.
After this operation, 35.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu groovy/main amd64 vim-runtime all 2:8
.2.0716-3ubuntu2 [5,944 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu groovy/main amd64 vim amd64 2:8.2.071
6-3ubuntu2 [1,324 kB]
Fetched 7,268 kB in 10s (743 kB/s)
Selecting previously unselected package vim-runtime.
(Reading database ... 186320 files and directories currently installed.)
Preparing to unpack .../vim-runtime_2%3a8.2.0716-3ubuntu2_all.deb ...
```

2.4 test PHP

```
anuja@anuja-VirtualBox:~$ sudo vim /var/www/html/test.php
[sudo] password for anuja:
```

Press qa for changing into insert mode

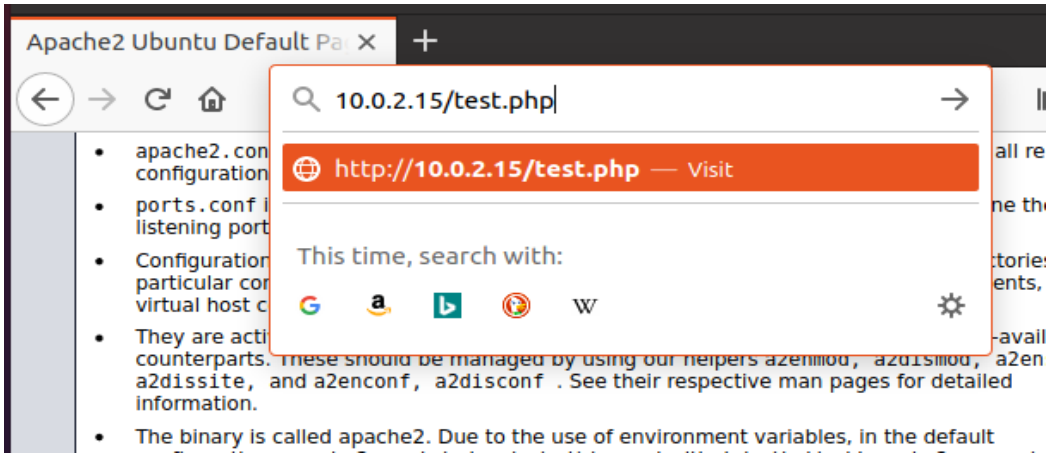
```
<?php

        phpinfo();

?>
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
-- INSERT --                                                  5,3           All
```

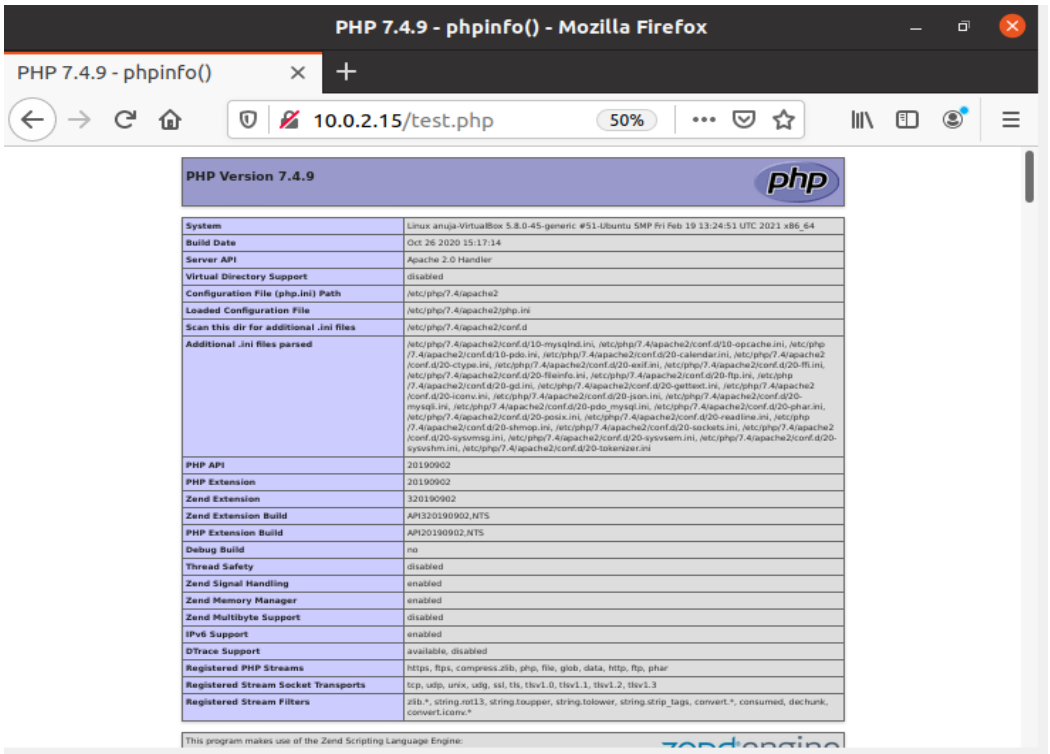
Press esc -> : -> x-> enter to save file

2.5 restart Apache

```
anuja@anuja-VirtualBox:~$ sudo systemctl restart apache2
anuja@anuja-VirtualBox:~$
```

2.6 on browser check if PHP is working





It’s working!

Step 3: Install MariaDB 10 on system

3.1 install MariaDB

```
anuja@anuja-VirtualBox:~$ sudo apt install mariadb-server mariadb-client -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  galera-3 gawk libaio1 libcgi-fast-perl libcgi-pm-perl
  libconfig-inifiles-perl libdbd-mariadb-perl libdbi-perl libfcgi-perl
  libhtml-template-perl libreadline5 libsigsegv2 libterm-readkey-perl
  mariadb-client-10.3 mariadb-client-core-10.3 mariadb-common
  mariadb-server-10.3 mariadb-server-core-10.3 socat
Suggested packages:
  gawk-doc libmldbm-perl libnet-daemon-perl libsql-statement-perl
  libipc-sharedcache-perl mailx mariadb-test tinyca
The following NEW packages will be installed:
  galera-3 gawk libaio1 libcgi-fast-perl libcgi-pm-perl
  libconfig-inifiles-perl libdbd-mariadb-perl libdbi-perl libfcgi-perl
  libhtml-template-perl libreadline5 libsigsegv2 libterm-readkey-perl
  mariadb-client mariadb-client-10.3 mariadb-client-core-10.3 mariadb-common
  mariadb-server mariadb-server-10.3 mariadb-server-core-10.3 socat
0 upgraded, 21 newly installed, 0 to remove and 194 not upgraded.
Need to get 19.9 MB of archives.
After this operation, 166 MB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu groovy/main amd64 libsigsegv2 amd64 2
.12-2build1 [13.9 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu groovy/main amd64 gawk amd64 1:5.0.1+
dfsg-1 [418 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu groovy/universe amd64 mariadb-common
all 1:10.3.25-0ubuntu1 [15.8 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu groovy/universe amd64 galera-3 amd64
```

3.2 check status MariaDB

```
anuja@anuja-VirtualBox:~$ sudo systemctl status mariadb
● mariadb.service - MariaDB 10.3.25 database server
     Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor pres>
     Active: active (running) since Tue 2021-03-23 20:49:26 IST; 1min 28s ago
       Docs: man:mysqld(8)
             https://mariadb.com/kb/en/library/systemd/
   Main PID: 45027 (mysqld)
     Status: "Taking your SQL requests now..."
      Tasks: 31 (limit: 1103)
     Memory: 68.8M
     CGroup: /system.slice/mariadb.service
             └─45027 /usr/sbin/mysqld

Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: information_s>
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: mysql
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: performance_s>
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: Phase 6/7: Ch>
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: Processing da>
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: information_s>
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: performance_s>
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: Phase 7/7: Ru>
Mar 23 20:49:27 anuja-VirtualBox /etc/mysql/debian-start[45065]: OK
Mar 23 20:49:28 anuja-VirtualBox debian-start[45130]: WARNING: tempfile is dep>
lines 1-22/22 (END)
```

3.3 enable auto start at boot time & secure MariaDB

```
anuja@anuja-VirtualBox:~$ sudo systemctl enable mariadb
anuja@anuja-VirtualBox:~$ sudo mysql_secure_installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
      SERVERS IN PRODUCTION USE!  PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current
password for the root user.  If you've just installed MariaDB, and
you haven't set the root password yet, the password will be blank,
so you should just press enter here.

Enter current password for root (enter for none):
```

```
Cleaning up...

All done!  If you've completed all of the above steps, your MariaDB
installation should now be secure.

Thanks for using MariaDB!
anuja@anuja-VirtualBox:~$
```

3.4 login MariaDB

```
anuja@anuja-VirtualBox:~$ sudo mysql -uroot -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 58
Server version: 10.3.25-MariaDB-0ubuntu1 Ubuntu 20.10

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)]>
```

STEP 4 - INSTALLING OWNCLOUD LATEST VERSION ON UBUNTU 20.10

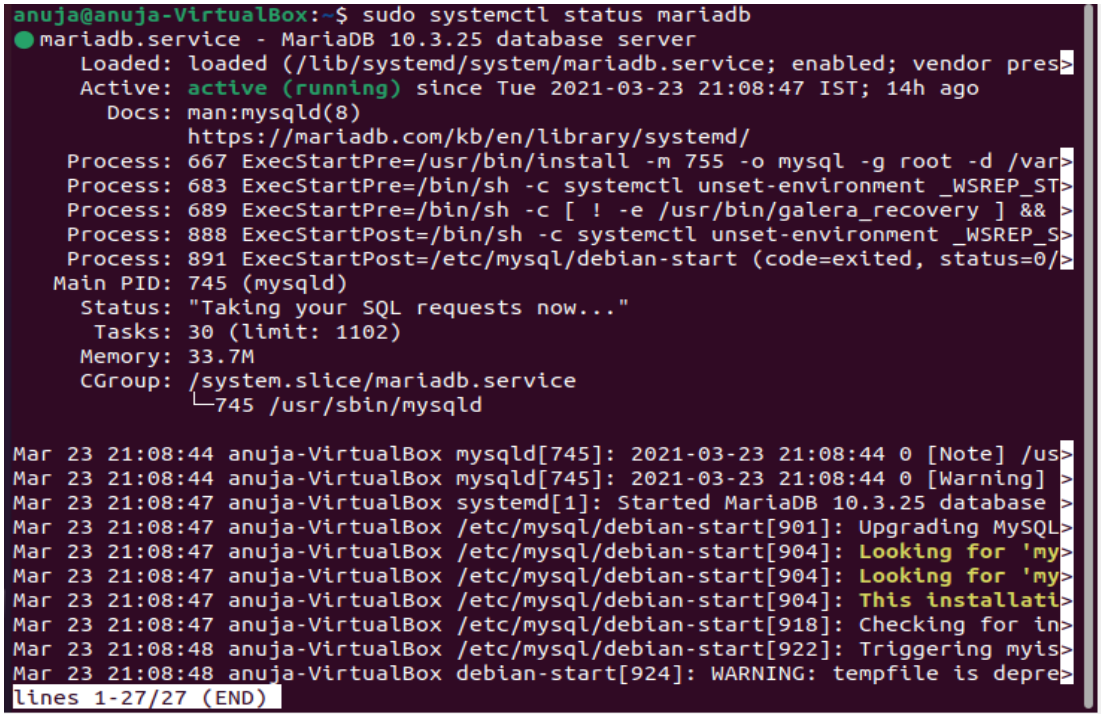
Step 1: Check requirements

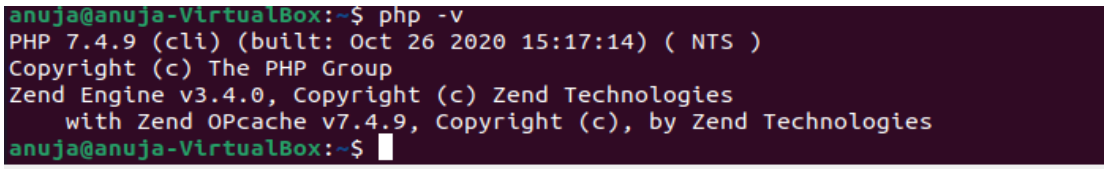
1.1 update the system

```
anuja@anuja-VirtualBox:~$ sudo apt update && sudo apt upgrade -y
[sudo] password for anuja:
Hit:1 http://in.archive.ubuntu.com/ubuntu groovy InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu groovy-updates InRelease [115 kB]
Get:3 http://security.ubuntu.com/ubuntu groovy-security InRelease [110 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu groovy-backports InRelease [101 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 Packages [3
96 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu groovy-updates/main i386 Packages [17
3 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu groovy-updates/main Translation-en [9
9.9 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 DEP-11 Meta
data [40.5 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu groovy-updates/main amd64 c-n-f Metad
ata [6,768 B]
Get:10 http://in.archive.ubuntu.com/ubuntu groovy-updates/restricted amd64 Pack
ages [133 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu groovy-updates/restricted Translatio
n-en [20.1 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu groovy-updates/universe amd64 Packag
es [149 kB]
Get:13 http://in.archive.ubuntu.com/ubuntu groovy-updates/universe i386 Package
s [81.2 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu groovy-updates/universe Translation-
en [58.0 kB]
Get:15 http://in.archive.ubuntu.com/ubuntu groovy-updates/universe amd64 DEP-11
 Metadata [104 kB]
Get:16 http://in.archive.ubuntu.com/ubuntu groovy-updates/universe amd64 c-n-f
```

1.2 ensure Apache, MariaDB/ MySQL, PHP installed on the system

```
anuja@anuja-VirtualBox:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor pres>
     Active: active (running) since Tue 2021-03-23 21:08:44 IST; 14h ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 661 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SU>
   Main PID: 738 (apache2)
      Tasks: 6 (limit: 1102)
     Memory: 9.3M
     CGroup: /system.slice/apache2.service
             ├─738 /usr/sbin/apache2 -k start
             ├─754 /usr/sbin/apache2 -k start
             ├─755 /usr/sbin/apache2 -k start
             ├─756 /usr/sbin/apache2 -k start
             ├─757 /usr/sbin/apache2 -k start
             └─759 /usr/sbin/apache2 -k start

Mar 23 21:08:43 anuja-VirtualBox systemd[1]: Starting The Apache HTTP Server...
Mar 23 21:08:43 anuja-VirtualBox apachectl[688]: AH00558: apache2: Could not r>
Mar 23 21:08:44 anuja-VirtualBox systemd[1]: Started The Apache HTTP Server.
lines 1-19/19 (END)
```





1.3 install PHP modules required by ownCloud

```
anuja@anuja-VirtualBox:~$ sudo apt install -y php-imagick php-common php-curl p
hp-gd php-imap php-intl php-json php-mbstring php-mysql php-ssh2 php-xml php-zi
p php-apcu php-redis redis-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
php-common is already the newest version (2:76).
php-common set to manually installed.
php-gd is already the newest version (2:7.4+76).
php-mysql is already the newest version (2:7.4+76).
The following additional packages will be installed:
  gsfonts imagemagick-6-common libatomic1 libc-client2007e libjemalloc2
  liblqr-1-0 liblua5.1-0 liblzf1 libmagickcore-6.q16-6 libmagickwand-6.q16-6
  libonig5 libssh2-1 libzip5 lua-bitop lua-cjson mlock php-apcu-bc
  php-igbinary php7.4-curl php7.4-imap php7.4-intl php7.4-mbstring php7.4-xml
  php7.4-zip redis-tools
Suggested packages:
  uw-mailutils libmagickcore-6.q16-6-extra ruby-redis
Recommended packages:
  ttf-dejavu-core
The following NEW packages will be installed:
  gsfonts imagemagick-6-common libatomic1 libc-client2007e libjemalloc2
  liblqr-1-0 liblua5.1-0 liblzf1 libmagickcore-6.q16-6 libmagickwand-6.q16-6
  libonig5 libssh2-1 libzip5 lua-bitop lua-cjson mlock php-apcu php-apcu-bc
  php-curl php-igbinary php-imagick php-imap php-intl php-json php-mbstring
  php-redis php-ssh2 php-xml php-zip php7.4-curl php7.4-imap php7.4-intl
  php7.4-mbstring php7.4-xml php7.4-zip redis-server redis-tools
0 upgraded, 37 newly installed, 0 to remove and 200 not upgraded.
Need to get 8,232 kB of archives.
```

Step 2: Create a new Database for ownCloud

2.1 login MariaDB

```
anuja@anuja-VirtualBox:~$ sudo mysql -uroot -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 36
Server version: 10.3.25-MariaDB-0ubuntu1 Ubuntu 20.10

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)]>
```

2.2 create a new database named “owncloud db”

```
MariaDB [(none)]> CREATE DATABASE owncloud db;
Query OK, 1 row affected (0.011 sec)

MariaDB [(none)]>
```

2.3 create a new database user called “owncloud user” with pswd “owncloud pswd”, you can set any password but make sure you remember it.

```
MariaDB [(none)]> CREATE USER owncloduser@localhost IDENTIFIED BY "owncloudpsw
d";
Query OK, 0 rows affected (0.108 sec)

MariaDB [(none)]>
```

2.4 grant all the rights of “owncloud db” to “owncloduser”

```
MariaDB [(none)]> GRANT ALL ON owncloud db.* TO owncloduser@localhost;
Query OK, 0 rows affected (0.020 sec)

MariaDB [(none)]>
```

2.5 reload & exit

```
MariaDB [(none)]> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.104 sec)

MariaDB [(none)]>
```

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

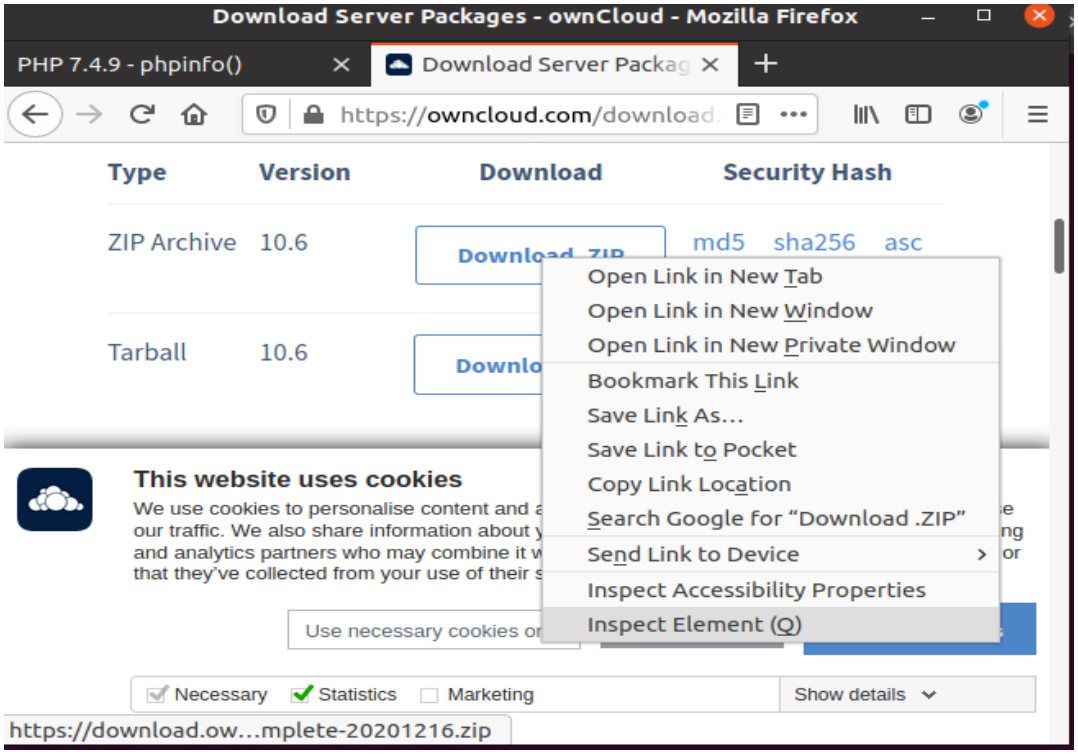
Step 3: Download ownCloud latest version

3.1 enter into /var/www directory

```
anuja@anuja-VirtualBox:~$ cd /var/www/
anuja@anuja-VirtualBox:/var/www$
```

```
anuja@anuja-VirtualBox:/var/www$ ll
total 12
drwxr-xr-x  3 root root 4096 Mar 22 16:56 ./
drwxr-xr-x 15 root root 4096 Mar 22 16:56 ../
drwxr-xr-x  2 root root 4096 Mar 23 20:42 html/
anuja@anuja-VirtualBox:/var/www$
```

3.2 get the link to download ownCloud on browser
https://owncloud.com/download-server/



right click on download zip and select copy link location

```
anuja@anuja-VirtualBox:/var/www$ sudo wget https://download.owncloud.org/commun
ity/owncloud-complete-20201216.zip
[sudo] password for anuja:
--2021-03-24 12:03:37--  https://download.owncloud.org/community/owncloud-compl
ete-20201216.zip
Resolving download.owncloud.org (download.owncloud.org)... 167.233.14.167, 2a01
:4f8:1c1d:3d1::1
Connecting to download.owncloud.org (download.owncloud.org)|167.233.14.167|:443
... connected.
HTTP request sent, awaiting response... 200 OK
Length: 66755686 (64M) [application/zip]
Saving to: ‘owncloud-complete-20201216.zip’

  owncloud-complete-2  55%[============>            ]  35.16M  38.8KB/s    eta
        1216.zip              81%[====================>     ]  51.57M  43.1KB/s
owncloud-complete-2 100%[==================>]  63.66M  41.3KB/s    in 22m 53s

2021-03-24 12:26:30 (47.5 KB/s) - ‘owncloud-complete-20201216.zip’ saved [66755
686/66755686]

anuja@anuja-VirtualBox:/var/www$
```

```
anuja@anuja-VirtualBox:/var/www$ ll
total 65208
drwxr-xr-x  3 root root     4096 Mar 24 12:03 ./
drwxr-xr-x 15 root root     4096 Mar 22 16:56 ../
drwxr-xr-x  2 root root     4096 Mar 23 20:42 html/
-rw-r--r--  1 root root 66755686 Dec 16 21:33 owncloud-complete-20201216.zip
anuja@anuja-VirtualBox:/var/www$
```

Step 4: Configure OwnCloud

4.1 extract the zip file you downloaded
sudo unzip owncloud-20201216.zip

```
   creating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-icons
_228ef1_256x240.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_gl
ass_65_ffffff_1x400.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-icons
_222222_256x240.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_hi
ghlight-soft_100_eeeeee_1x100.png
 extracting: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_di
agonals-thick_20_666666_40x40.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-icons
_ffd27a_256x240.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_hi
ghlight-soft_75_ffe45c_1x100.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/animated
-overlay.gif
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_gl
ass_100_fdf5ce_1x400.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-icons
_ef8c08_256x240.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_gl
oss-wave_35_f6a828_500x100.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_di
agonals-thick_18_b81900_40x40.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-icons
_ffffff_256x240.png
  inflating: owncloud/core/vendor/jquery-ui/themes/ui-lightness/images/ui-bg_gl
ass_100_f6f6f6_1x400.png
```

Extracted

```
anuja@anuja-VirtualBox:/var/www$ ll
total 65212
drwxr-xr-x  4 root root     4096 Mar 24 12:39 ./
drwxr-xr-x 15 root root     4096 Mar 22 16:56 ../
drwxr-xr-x  2 root root     4096 Mar 23 20:42 html/
drwxr-xr-x 12 root root     4096 Dec 16 16:02 owncloud/
-rw-r--r--  1 root root 66755686 Dec 16 21:33 owncloud-complete-20201216.zip
anuja@anuja-VirtualBox:/var/www$
```

4.2 change permissions on ownCloud directory

```
anuja@anuja-VirtualBox:/var/www$ sudo chown -R www-data:www-data /var/www/owncl
oud
```

```
anuja@anuja-VirtualBox:/var/www$ sudo chmod -R 755 /var/www/owncloud
anuja@anuja-VirtualBox:/var/www$
```

```
anuja@anuja-VirtualBox:/var/www$ ll
total 65212
drwxr-xr-x  4 root     root         4096 Mar 24 12:39 ./
drwxr-xr-x 15 root     root         4096 Mar 22 16:56 ../
drwxr-xr-x  2 root     root         4096 Mar 23 20:42 html/
drwxr-xr-x 12 www-data www-data     4096 Dec 16 16:02 owncloud/
-rw-r--r--  1 root     root     66755686 Dec 16 21:33 owncloud-complete-2020121
6.zip
anuja@anuja-VirtualBox:/var/www$
```

4.3 create a virtual host configuration for ownCloud

```
anuja@anuja-VirtualBox:/var/www$ sudo vim /etc/apache2/conf-available/owncloud.
conf
```

```
Alias /owncloud "/var/www/owncloud/"

<Directory /var/www/owncloud/>

        Options +FollowSymlinks
        AllowOverride All
        <IfModule mod_dav.c>
                Dav off
        </IfModule>

        SetEnv HOME /var/www/owncloud
        SetEnv HTTP_HOME /var/www/owncloud

</Directory>

~
~
~
~
~
~
~
~
~
~
~
~
~
-- INSERT --                                              14,13         All
```

Save file esc -> : -> x -> enter

4.4 enable all the required Apache modules

```
anuja@anuja-VirtualBox:/var/www$ sudo a2enconf owncloud.conf
Enabling conf owncloud.
To activate the new configuration, you need to run:
  systemctl reload apache2
anuja@anuja-VirtualBox:/var/www$
```

```
anuja@anuja-VirtualBox:/var/www$ sudo a2enmod rewrrite headers env dir mime
ERROR: Module rewrrite does not exist!
Enabling module headers.
Module env already enabled
Module dir already enabled
Module mime already enabled
To activate the new configuration, you need to run:
  systemctl restart apache2
anuja@anuja-VirtualBox:/var/www$
```

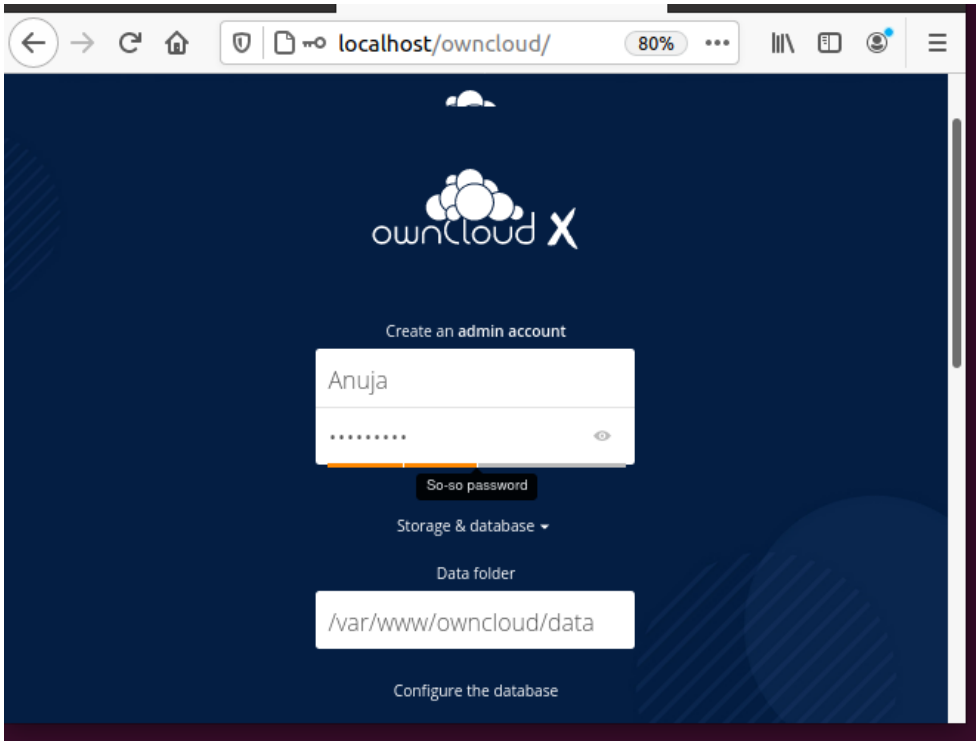
Step 5: Setup OwnCloud

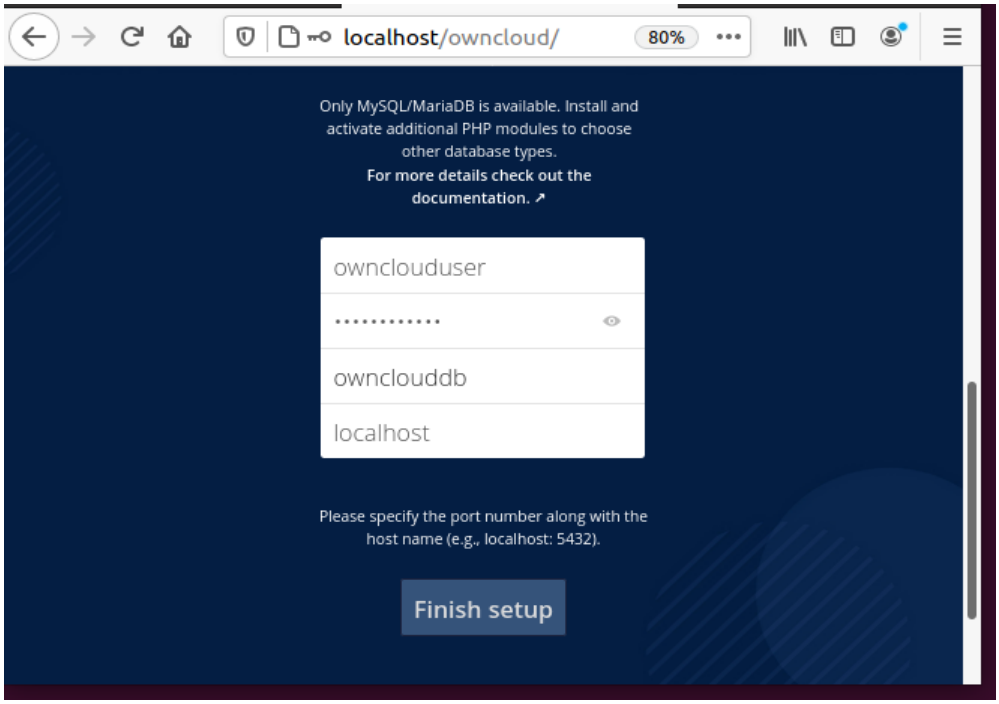
5.1 restart Apache, MariaDB services

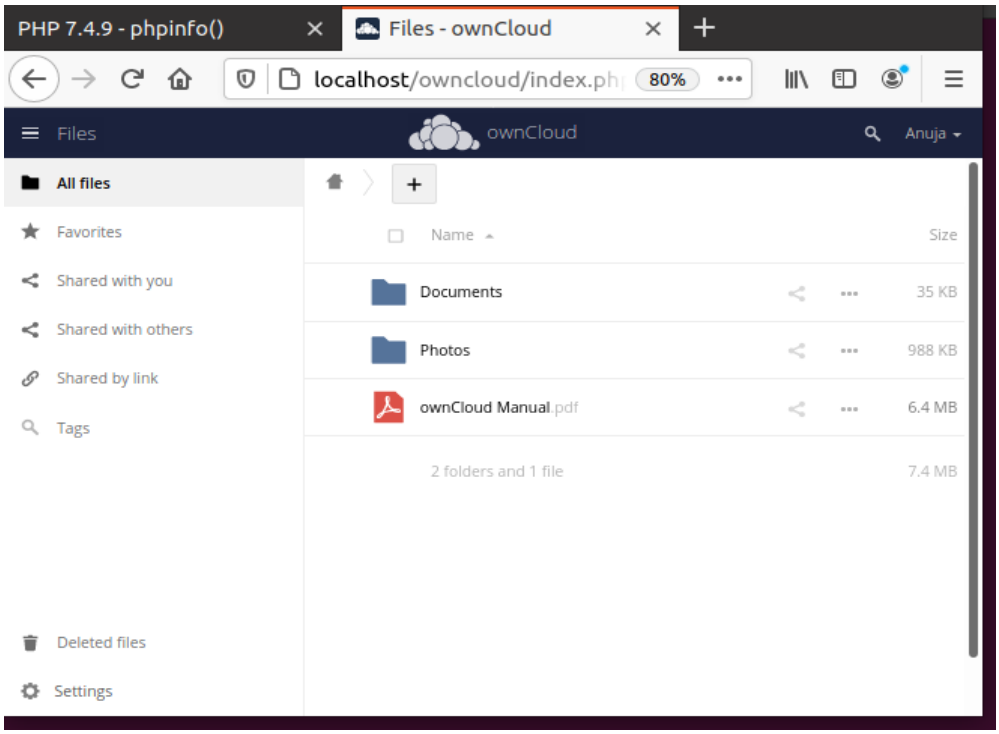
```
anuja@anuja-VirtualBox:/var/www$ sudo systemctl restart apache2
anuja@anuja-VirtualBox:/var/www$ sudo systemctl restart mariadb
anuja@anuja-VirtualBox:/var/www$
```

5.2 on browser access address http://localhost/owncloud

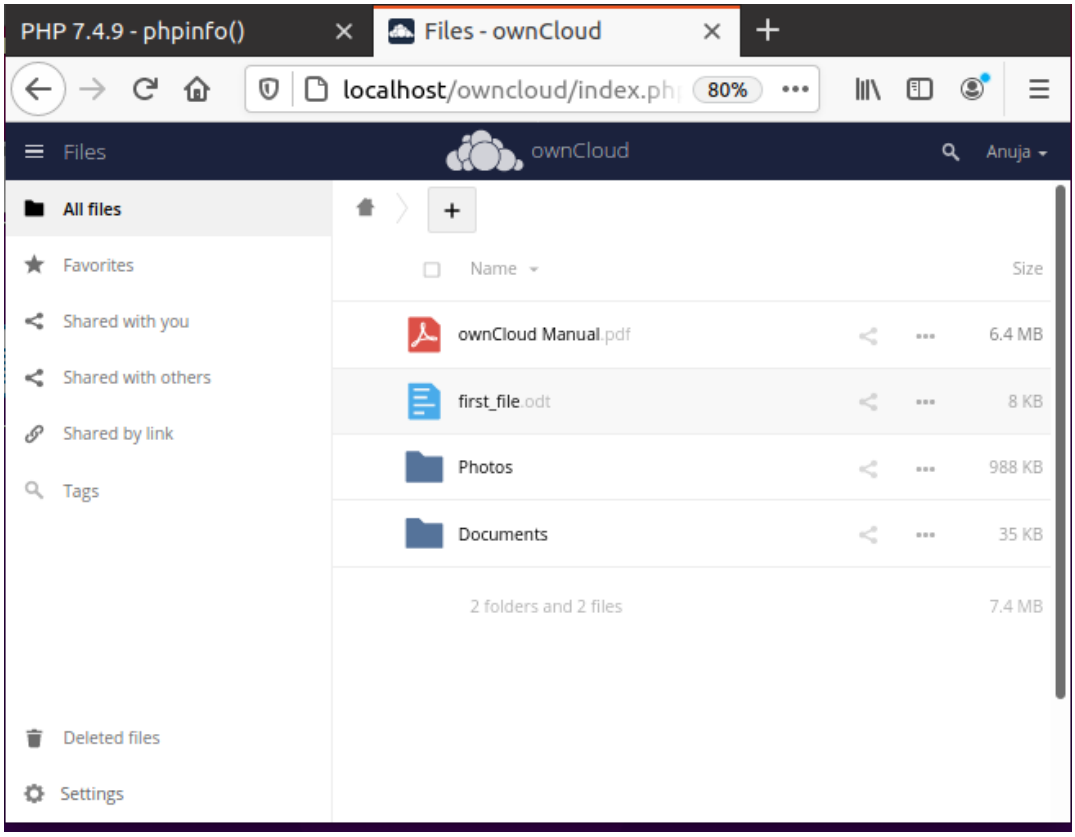
Create a new admin username & password







Now you can store the files on owncloud.



Conclusion - Thus, we have successfully installed Owncloud and used it as a storage service.