

## EXPERIMENT 7

Aim: Installation and configuration of storage virtualization using owncloud.

- Configure the user management
- Configure the security groups with user management

Theory:

Owncloud is a suite of client-server software for creating and using file hosting services. owncloud functionality 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 opensource, thereby allowing anyone to install and operate it without charge on their own private server.

owncloud enables you to share and sync data and keep it safe at the same time, on all platforms. It controls and monitors access and enables collaboration across devices, teams and continents alike. Without risking data loss, theft or infringement on privacy regulations.

Features:

- open ecosystem - for the greatest possible flexibility and integration into existing business process.

— open source - for highest level of security and customisability

Designed for enterprises - Modern user experience, highly adaptable and easy to administer.

### \* Installation Process:

Owncloud provides appliance feature where we can download a preconfigured owncloud machine for different virtual environment like ESX, VirtualBox, VMware Workstation, etc. It's built on VCS

#### User Management

Every user account has these properties

#### → Login Name (username)

The unique ID of an owncloud user, and it cannot be changed

#### → Full Name

The user's display name that appears on file shares, the owncloud web interface, and emails. Admins and users may change the Full Name anytime. If the Full name is not set it defaults to the login name

#### → Password

The admin sets the new user's first password



### → Email :

The admin sets the new user's Email. The user then gets an Email to set his password.

### → Group:

You may create group and assign group memberships to users. By default new users are not assigned to any groups.

### → Group Admin:

Group admins are granted administrative privileges on specific groups, and can add and remove users from their groups.

### → Quota:

The maximum disk space assigned to each user. Any user that exceeds the quota cannot upload or sync data. You have option to include external storage in user quotas.

### Security Groups with user management

- Every user is assigned with some storage space
- User can share the uploaded file or folder with other user groups or specific user.
- Files uploaded by individual user are secured and cannot be accessed by others without permission.

### Advantages of Owncloud

- Owncloud has a nice filing system where users can create lots of different folders and subfolders to help keep things organized.
- Owncloud has lots of space depending on your selections
- Easy to upload and download documents
- Scalable and lightweight solution for cloud storage

### Disadvantages of Owncloud

- The web user interface can be a little slow sometimes
- No online video viewer by default
- No online document editor

Conclusion: Performed installation and configuration of owncloud and learned user management

## Installing lamp stack

```
anish@anish-VirtualBox: ~  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
anish@anish-VirtualBox:~$ sudo apt-get install lamp-server^ -y  
[sudo] password for anish:  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
Note, selecting 'libgssapi3-heimdal' for task 'lamp-server'  
Note, selecting 'libhttp-message-perl' for task 'lamp-server'  
Note, selecting 'php7.4-cli' for task 'lamp-server'  
Note, selecting 'libnghttp2-14' for task 'lamp-server'  
Note, selecting 'libencode-locale-perl' for task 'lamp-server'  
Note, selecting 'libwind0-heimdal' for task 'lamp-server'  
Note, selecting 'mecab-utils' for task 'lamp-server'  
Note, selecting 'libsasl2-modules-db' for task 'lamp-server'  
Note, selecting 'libcurl4' for task 'lamp-server'  
Note, selecting 'libldap-2.4-2' for task 'lamp-server'  
Note, selecting 'libapache2-mod-php' for task 'lamp-server'  
Note, selecting 'libssh-4' for task 'lamp-server'  
Note, selecting 'libevent-core-2.1-7' for task 'lamp-server'  
Note, selecting 'php-common' for task 'lamp-server'  
Note, selecting 'libaprutil1' for task 'lamp-server'  
Note, selecting 'libbrotli1' for task 'lamp-server'  
Note, selecting 'php7.4-json' for task 'lamp-server'  
Note, selecting 'mysql-client-8.0' for task 'lamp-server'  
Note, selecting 'libheimntlm0-heimdal' for task 'lamp-server'  
Note, selecting 'mysql-server' for task 'lamp-server'  
Note, selecting 'mysql-server-8.0' for task 'lamp-server'
```

## Start and enable apache2

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

## Start and enable mysql

```
anish@anish-VirtualBox:~$ sudo systemctl start mysql  
anish@anish-VirtualBox:~$  
anish@anish-VirtualBox:~$ sudo systemctl enable mysql  
Synchronizing state of mysql.service with SysV service script with /lib/systemd/systemd-sysv-install.  
Executing: /lib/systemd/systemd-sysv-install enable mysql  
anish@anish-VirtualBox:~$
```

## Set mysql admin password and secure the installation



```
anish@anish-VirtualBox:~$ sudo mysql_secure_installation

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

VALIDATE PASSWORD COMPONENT can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD component?

Press y|Y for Yes, any other key for No: n
Please set the password for root here.

New password:

Re-enter new password:
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.
```

### Install php and required packages

```
anish@anish-VirtualBox:~$ sudo apt-get install php php-opcache php-gd php-curl
php-mysqlnd php-intl php-json php-ldap php-mbstring php-mysqlnd php-xml php-zip
-y
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'php7.4-opcache' instead of 'php-opcache'
Note, selecting 'php7.4-mysql' instead of 'php-mysqlnd'
```

### Restart apache to save changes

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

## Access mariadb console

```
anish@anish-VirtualBox:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 8.0.23-0ubuntu0.20.04.1 (Ubuntu)

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owners.

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

mysql>
```

## create owncloud database

```
mysql> CREATE DATABASE ownclouddb;
Query OK, 1 row affected (0.01 sec)
```

## Create new user with privileges

```
mysql> CREATE USER 'ownclouduser'@'localhost' IDENTIFIED BY 'PASSWORD';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON *.* TO 'ownclouduser'@'localhost';
Query OK, 0 rows affected (0.01 sec)
```

## Flush privileges

```
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.02 sec)

mysql> exit
Bye
```

## Download owncloud

```
anish@anish-VirtualBox:~$ wget https://download.owncloud.org/community/owncloud-10.5.0.zip
--2021-03-17 21:21:46-- https://download.owncloud.org/community/owncloud-10.5.0.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
```

### Unzip downloaded file

```
anish@anish-VirtualBox:~$ unzip owncloud-10.5.0.zip
```

### Move the new directory to apache root

```
anish@anish-VirtualBox:~$ sudo mv owncloud /var/www/html/  
anish@anish-VirtualBox:~$
```

### Change ownership of owncloud directory

```
anish@anish-VirtualBox:~$ sudo chown -R www-data: /var/www/html/owncloud
```

### Apache configuration file

```
GNU nano 4.8 /etc/apache2/sites-available/owncloud.conf  
<VirtualHost *:80>  
    ServerAdmin admin@localhost  
    DocumentRoot /var/www/html/owncloud  
    FilesServerName localhost  
    <Directory /var/www/html/owncloud>  
        Options FollowSymLinks  
        AllowOverride All  
        Require all granted  
    </Directory>  
  
    ErrorLog ${APACHE_LOG_DIR}/example.com_error.log  
  
    CustomLog ${APACHE_LOG_DIR}/your-domain.com_access.log combined  
  
</VirtualHost>
```

### Enable rewrite, mime, unique\_id apache modules

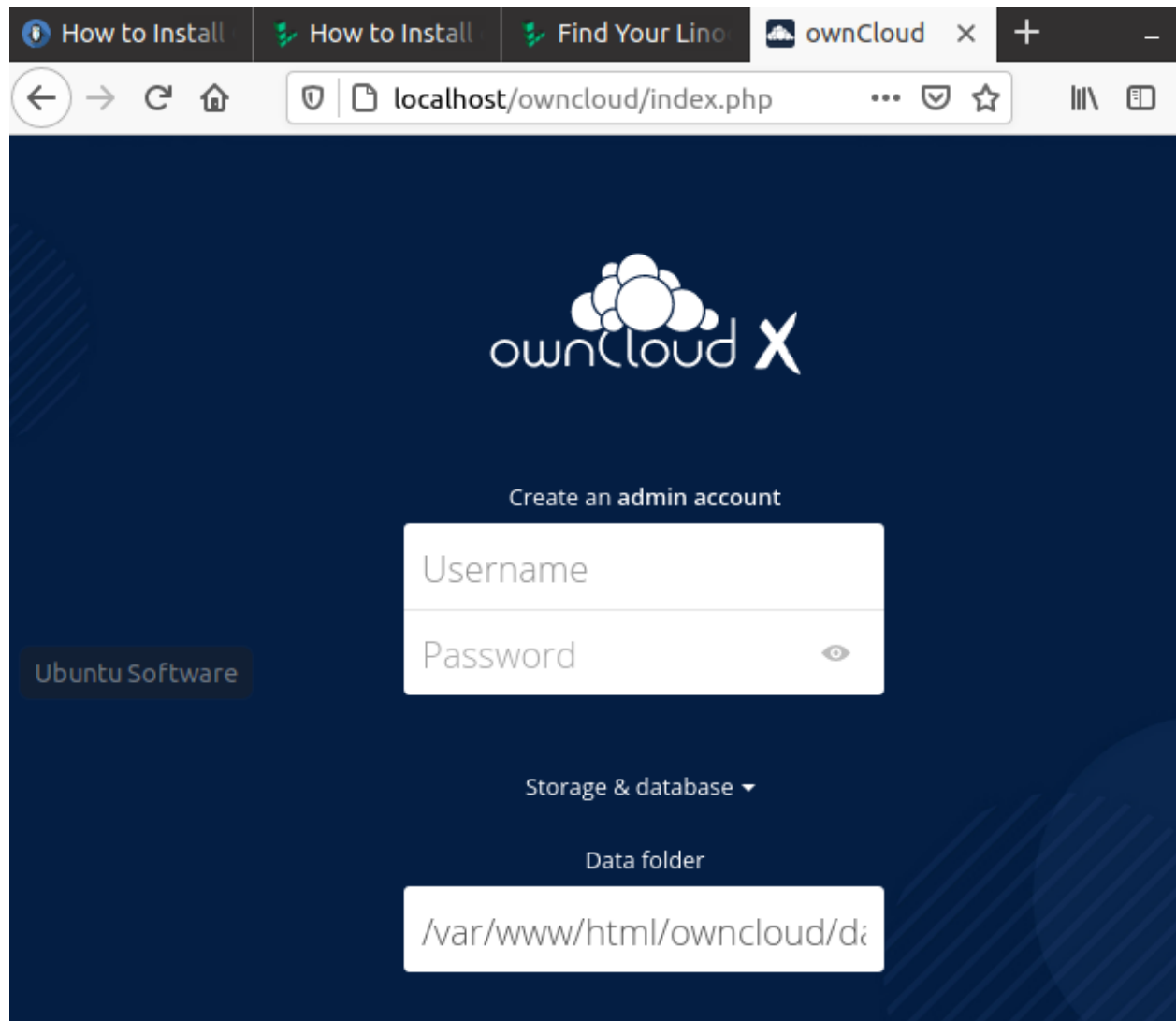
```
anish@anish-VirtualBox:~$ sudo a2enmod rewrite mime unique_id  
Enabling module rewrite.  
Module mime already enabled  
Enabling module unique_id.  
To activate the new configuration, you need to run:  
    systemctl restart apache2  
anish@anish-VirtualBox:~$
```



## Restart apache server

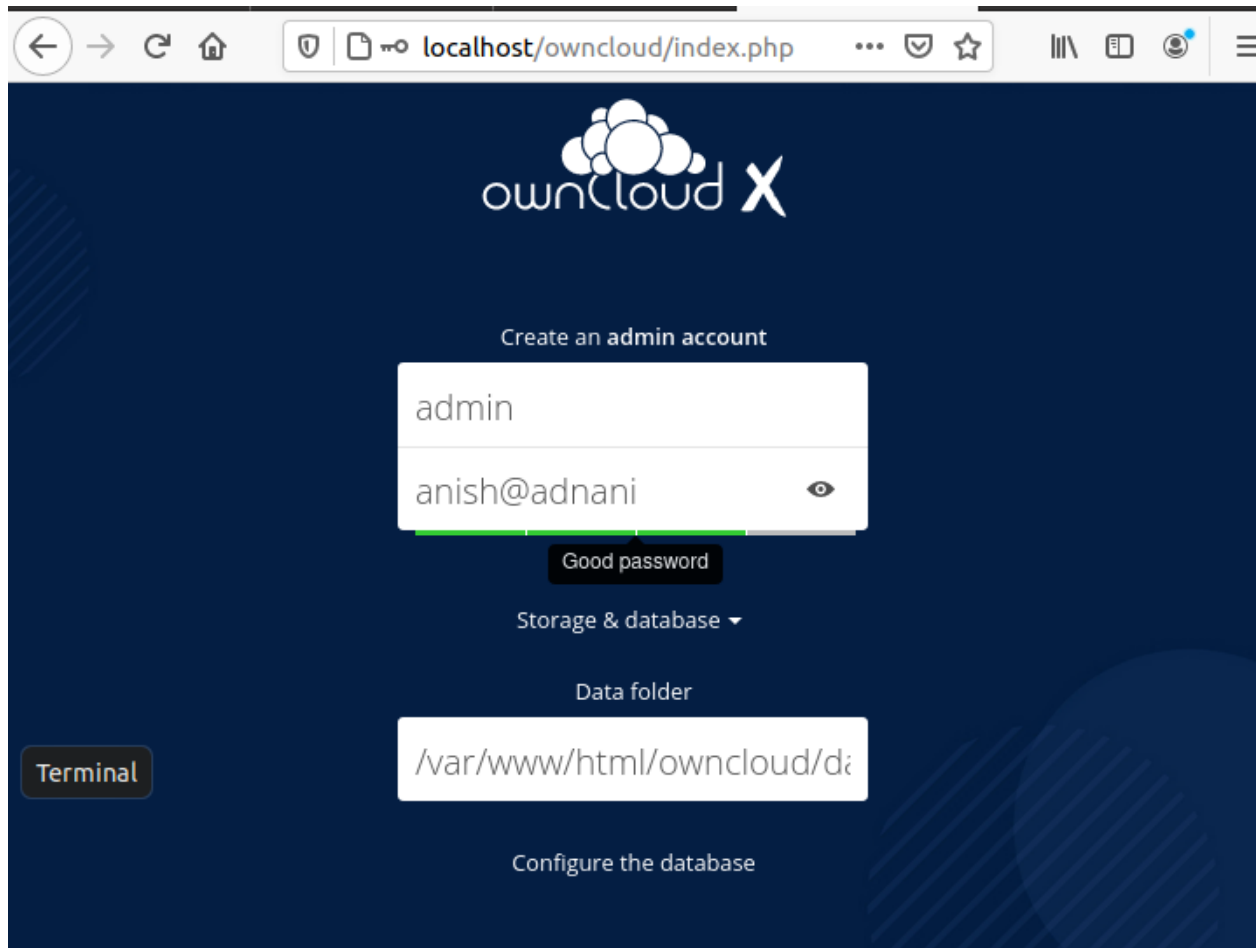
```
anish@anish-VirtualBox:~$ sudo systemctl restart apache2  
anish@anish-VirtualBox:~$
```

## Owncloud successfully installed



The screenshot shows a web browser window with the address bar displaying `localhost/owncloud/index.php`. The page has a dark blue background with the OwnCloud X logo at the top center. Below the logo, the text "Create an admin account" is displayed. There are two input fields: "Username" and "Password" (with a toggle eye icon). Below these fields, the text "Storage & database" is followed by a dropdown arrow. Underneath, the text "Data folder" is shown above an input field containing the path `/var/www/html/owncloud/d`. On the left side of the page, there is a button labeled "Ubuntu Software".

## Creating admin user



The screenshot shows the OwnCloud X installation wizard. The browser address bar indicates the URL is `localhost/owncloud/index.php`. The main heading is "owncloud X". The current step is "Create an admin account". The username field contains "admin" and the password field contains "anish@adnani". A green bar at the bottom of the password field indicates a "Good password". Below the password field is a dropdown menu for "Storage & database" and a text field for "Data folder" containing `/var/www/html/owncloud/data`. At the bottom, there is a "Terminal" button and the text "Configure the database".

owncloud X

Create an admin account

admin

anish@adnani

Good password

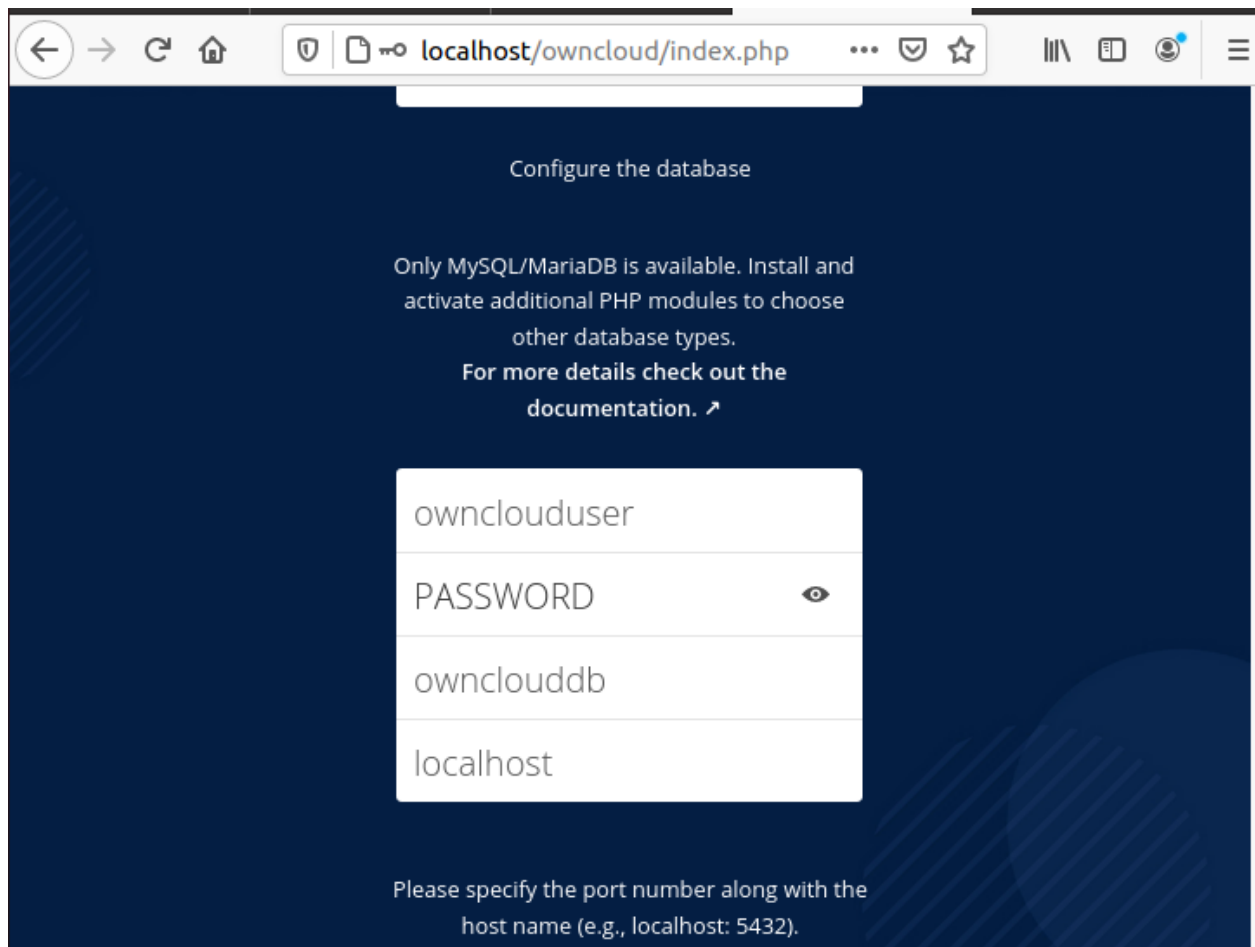
Storage & database ▼

Data folder

/var/www/html/owncloud/data

Terminal

Configure the database





Failure creating admins user as cannot enter phpmyadmin as my root  
Working on changes by providing grant all privileges using grant option

```
anish@anish-VirtualBox:~$ sudo mysql --user=root mysql
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 59
Server version: 8.0.23-0ubuntu0.20.04.1 (Ubuntu)

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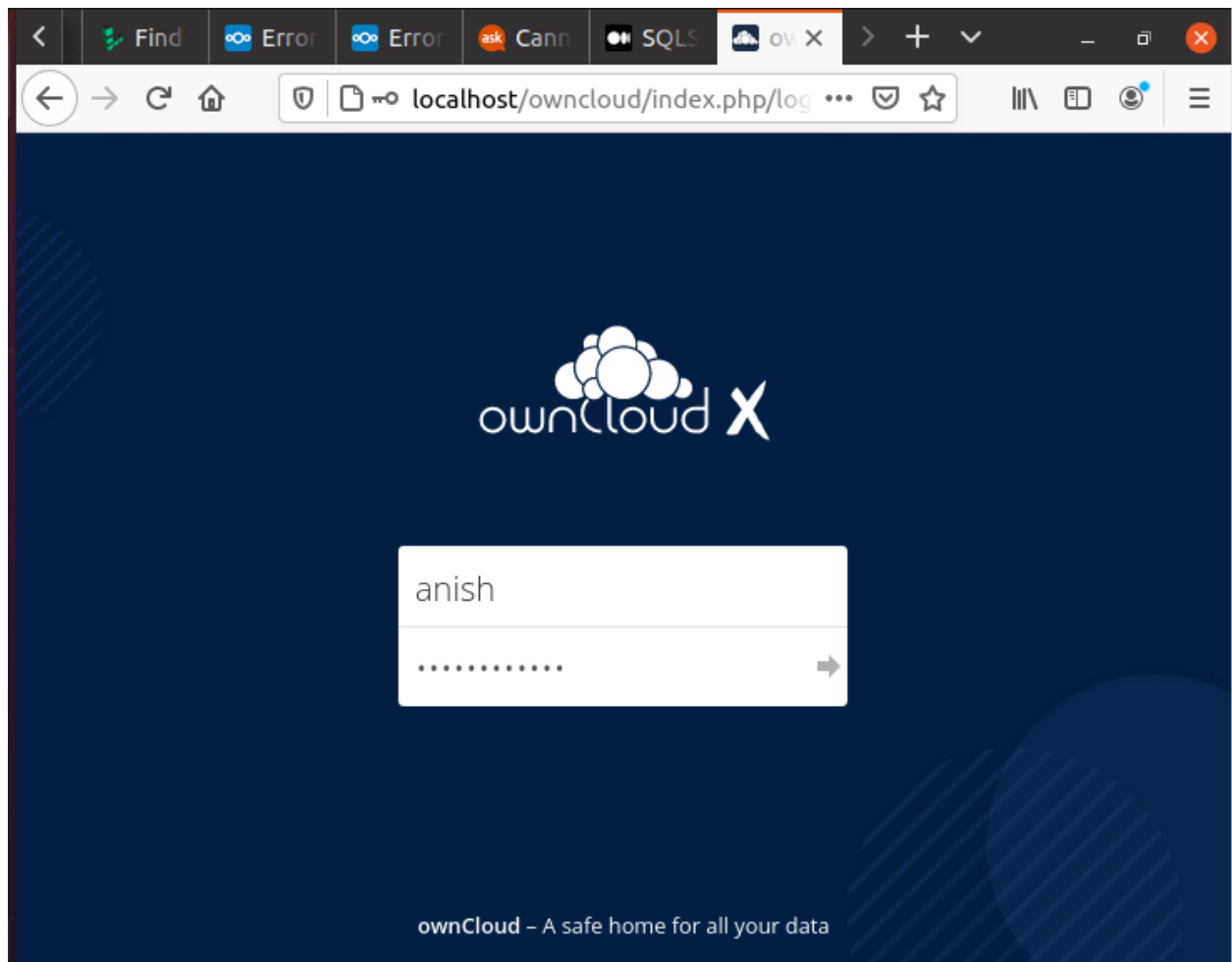
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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> grant all privileges on *.* to 'ownclouduser1'@'localhost' with grant op
tion;
Query OK, 0 rows affected (0.02 sec)

mysql> 
```

User created successfully now login



## owncloud HOME PAGE

The screenshot shows a web browser window with the URL `localhost/owncloud/index.php/app/`. The browser's tab bar includes several tabs: "Find", "Error", "Error", "Cann", "SQLS", and "Fil X". The ownCloud interface has a dark blue header with the word "Files" and a search bar containing the text "anish". Below the header, there is a navigation bar with a home icon, a back icon, and a plus icon. The main content area displays a table of files and folders:

	Name			Size	Modified
★	Documents	🔗	⋮	35 KB	seconds ago
★	Photos	🔗	⋮	988 KB	seconds ago
★	ownCloud Man... .pdf	🔗	⋮	5.8 MB	seconds ago

Below the table, a summary row indicates "2 folders and 1 file" with a total size of "6.8 MB". A "Help" button is located in the bottom left corner of the interface.



## USER MANAGEMENT IN OWNCLOUD

### Creating users and adding in various groups

≡

Users

anish

≡

Username

E-Mail

D17B

Create

	Username	Full Name	Password	Groups	Group Admin for
<div>A</div>	anish	anish	●●●●●●●●	admin	no group
<div>R</div>	ronaldo	ronaldo	●●●●●●●●	<div>D17B</div> <div><div><input checked="" type="checkbox"/> D17B</div><div><input type="checkbox"/> admin</div><div>+ add group</div></div>	no group

+ Add Group

Everyone

Admins

D17B

Settings

</

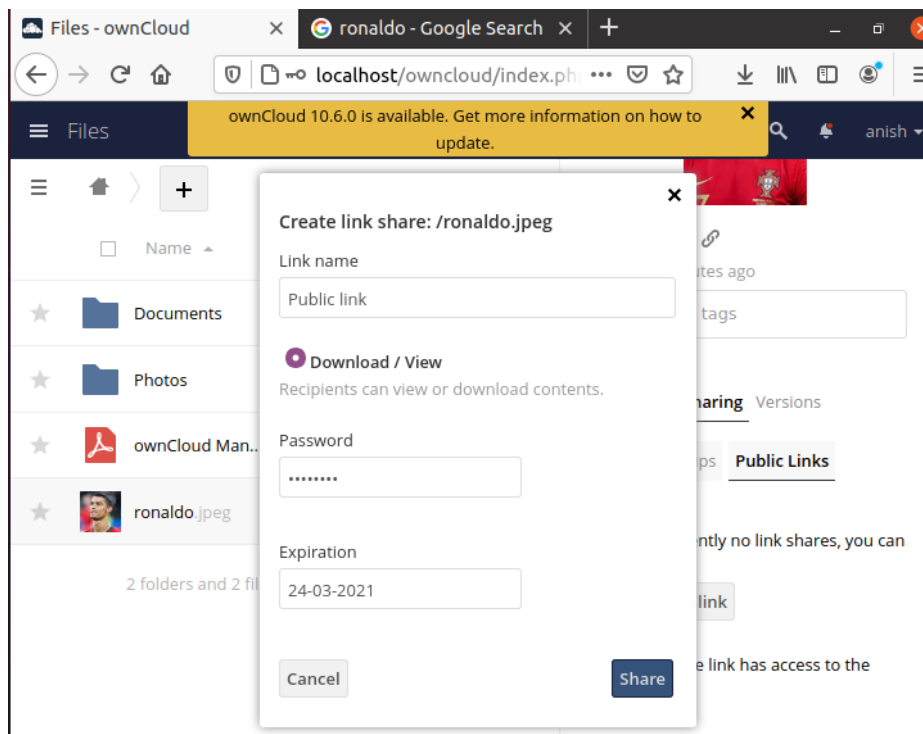
## Uploading files

The screenshot shows a web browser window with two tabs: "Files - ownCloud" and "ronaldo - Google Search". The address bar displays "localhost/owncloud/index.ph...". A yellow notification banner at the top states: "ownCloud 10.6.0 is available. Get more information on how to update." The interface includes a sidebar with a "Files" section and a main content area. The main area shows a file list with columns for "Name", "Size", and "Modified". The list contains two folders, "Documents" and "Photos", and two files, "ownCloud Man... .pdf" and "ronaldo.jpeg". A summary at the bottom indicates "2 folders and 2 files" with a total size of "6.8 MB".

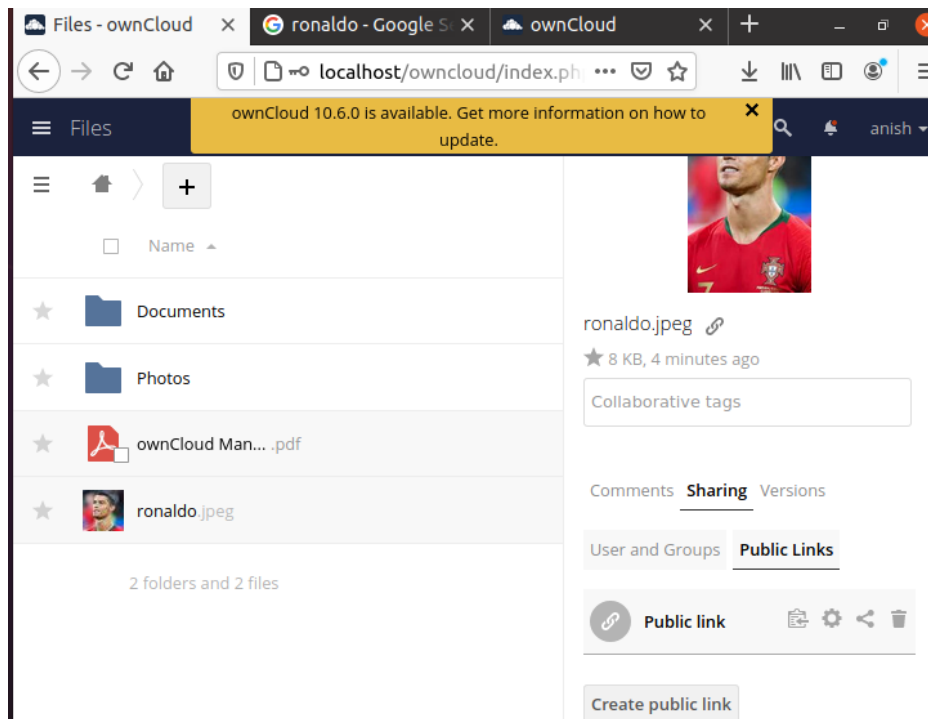
	Name	Size	Modified
★	Documents	35 KB	an hour ago
★	Photos	988 KB	an hour ago
★	ownCloud Man... .pdf	5.8 MB	an hour ago
★	ronaldo.jpeg	8 KB	seconds ago
2 folders and 2 files		6.8 MB	



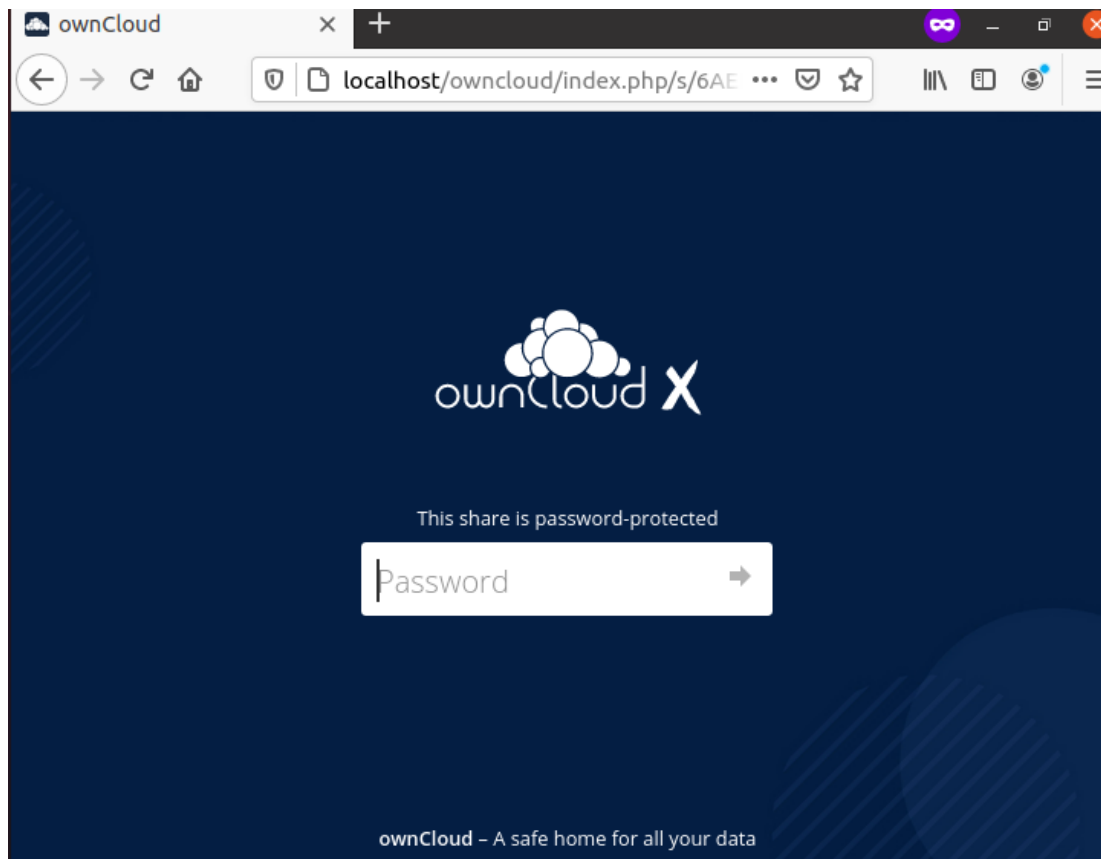
## Creating public link to share files



## Public link obtained




## Opening public link



ownCloud

localhost/owncloud/index.php/s/6

Add to your ownCloud



Download ronaldo.jpeg (8 KB)

Direct link

<http://localhost/owncloud/index.php/s/6AEEnomLW5AXzWe/download>

ownCloud – A safe home for all your data

## Sharing file to a particular group

Files - ownCloud

messi - Google Search

+

localhost/owncloud/index.ph

...

☆

↓

≡

📄

🔍

☰

Files

ownCloud 10.6.0 is available. Get more information on how to update.

anish


≡

🏠

➤


+

★




ronaldo.jpeg

★




ownCloud Man... .pdf

★




messi.jpeg

★



Photos

★



Documents

2 folders and 3 files



messi.jpeg 

★ 9 KB, seconds ago

Collaborative tags

Comments **Sharing** Versions

**User and Groups** Public Links

Share with users, groups or remot 

D

D17B (group)

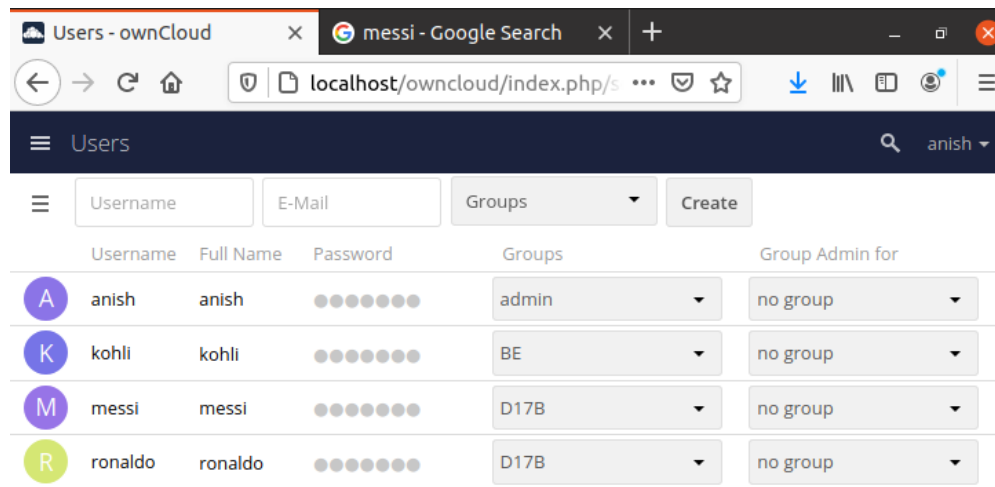






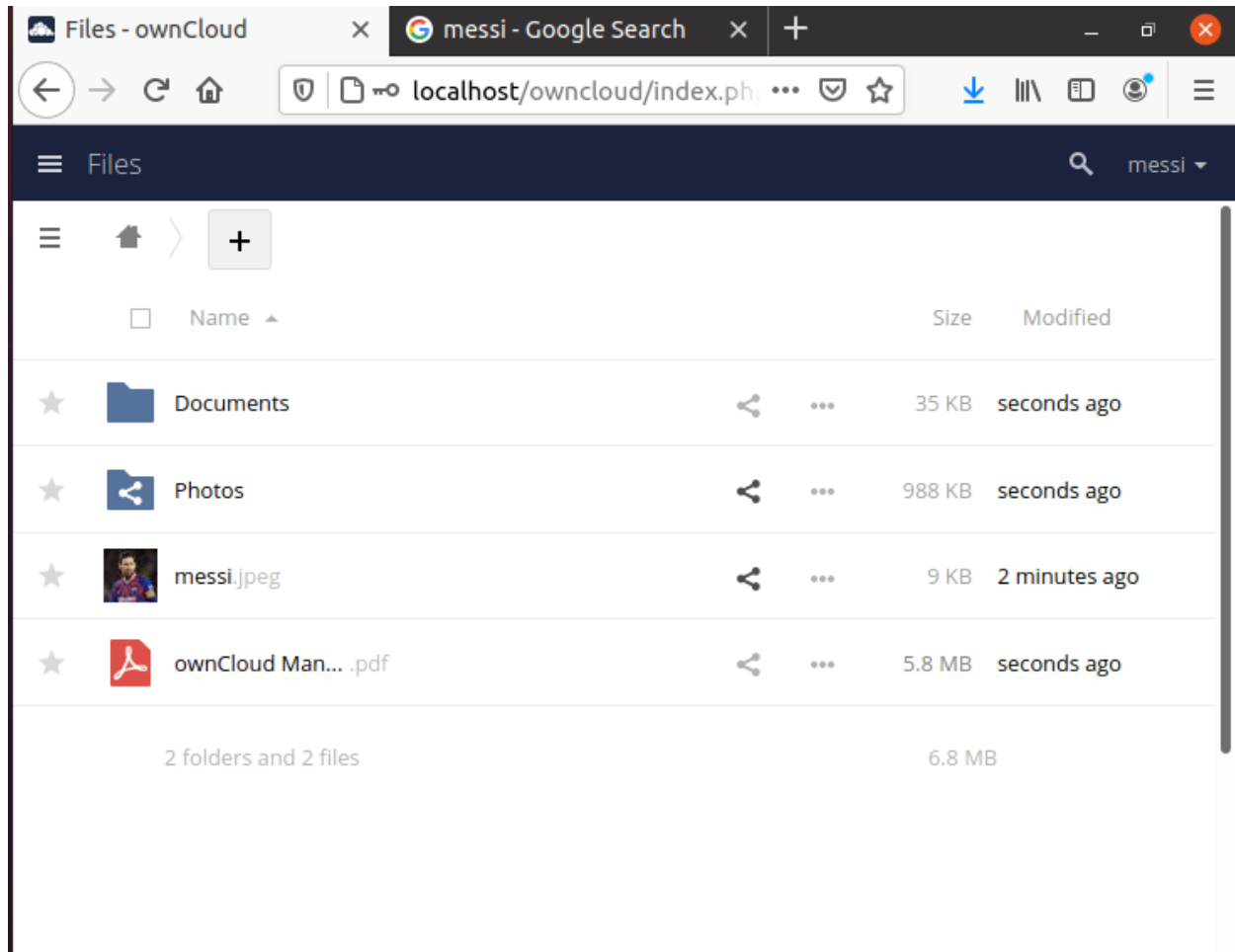
## checking the rights

### Step1 check current system users



	Username	Full Name	Password	Groups	Group Admin for
A	anish	anish	●●●●●●●●	admin	no group
K	kohli	kohli	●●●●●●●●	BE	no group
M	messi	messi	●●●●●●●●	D17B	no group
R	ronaldo	ronaldo	●●●●●●●●	D17B	no group

**step 2: Logged in as user “messi” in group “D17B”**  
**Hence shared file is viewed**



**Step3: Logged in as user “kohli” not in group D17B**  
**Hence shared file is not viewed**

