



## **NextCloud Installation and Configuration**

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**2 ISA2**

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**CEP - CCIT FACULTY OF ENGINEERING UNIVERSITAS INDONESIA**

**2024**

# **PROJECT ON**

*NextCloud Installation and Configuration*

## **Developed by**

**Aditya Rahman**

**Armila Zahrania Safira**

**Dea Fauziah Lestari**

## NextCloud Installation and Configuration

Batch Code : 2ISA2

Start Date : 05-07-2024

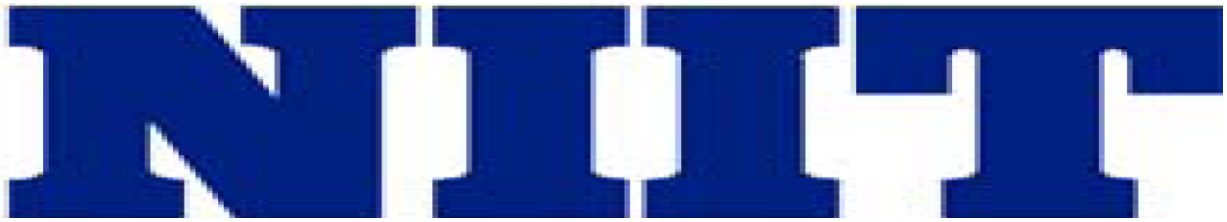
End Date : 11-07-2024

Name of Faculty : Listyo Edi Prabowo, S.T., M.T.

Names of Developer :

Aditya Rahman  
Armila Zahrania Safira  
Dea Fauziah Lestari

Date of Submission: 11-07-2024



## **CERTIFICATE**

This is to certify that this report titled “NextCloud Installation and Configuration” embodies the original work done by Aditya Rahman, Armila Zahrania Safira and Dea Fauziah Lestari. Project in partial fulfillment of their course requirement at NIIT.

Coordinator:

Listyo Edi Prabowo, S.T, M.T.

## ACKNOWLEDGEMENT

With great gratitude, we express our praise and gratitude to God Almighty for all His abundant mercy. We are honored and grateful that this paper project has been successfully completed well and on time.

Not to forget, we would like to express our sincere appreciation and gratitude to all parties who have made valuable contributions in the smooth and successful running of this project. Especially, we would like to express our special gratitude to Mr. Listyo Edi Prabowo, who has contributed both thoughts and materials. This project describing report about NextCloud Installation and Configuration. The report contains Installation and Configuration NextCloud by using Web Server Apache in linux..

The author realizes that this project still has flaws and is not perfect. Therefore, the author expects constructive suggestions and criticisms from readers to assist in the refinement of the paper. The author also hopes that this paper can provide meaningful benefits and contributions in the relevant field. Thank you again to all those who have participated in the success of this project.

Depok, 25 April 2024

# SYSTEM ANALYSIS

## **System Summary:**

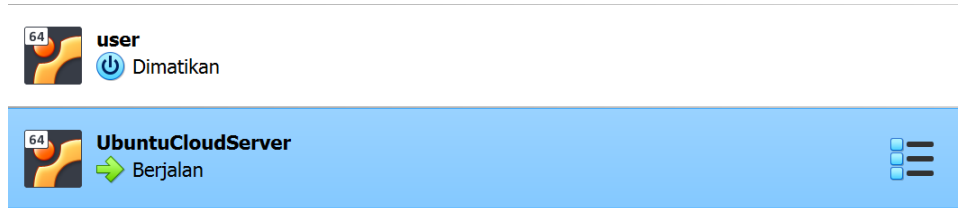
In this current digital era, cloud storage is very necessary for all gadget users to meet individual and group needs. Therefore, the purpose of our project is to tell you how to configuring DNS and Apache so that a group or individual can create a NextCloud server.

NextCloud is an open-source repository storage and self-hosted client-server software that offers the features that needed for groups and individuals. In NextCloud, users can upload or download files from various devices, creating the folders, share files/folders, and others.

It is very similar to Dropbox and Google Drive, but your files will be private and stored on your server. NextCloud also provides media player, calendar and contact management. It can be extensible using apps and provide desktop and mobile clients for all major operating systems.

# INSTALLING SOFTWARE

First of all, make sure that the ubuntu device has been downloaded and created an ubuntu server.



*figure 1. 1 create ubuntu server*

Then, open the ubuntu terminal and install bind9 with the command

```
$ apt-get install bind9
```

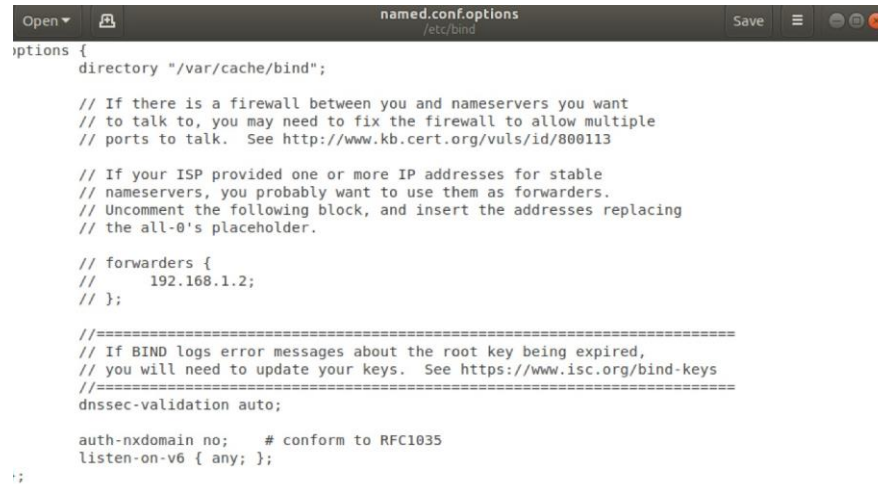
```
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  bind9-dnsutils bind9-host bind9-libs bind9-utils libjson-c5 liblmbd0
Suggested packages:
  bind9-doc resolvconf
The following NEW packages will be installed:
  bind9 bind9-dnsutils bind9-host bind9-libs bind9-utils libjson-c5 liblmbd0
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 1,797 kB of archives.
After this operation, 7,270 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libjson-c5 amd64 0.12-1ubuntu0.1 [28.4 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal/main amd64 liblmbd0 amd64 0.9.2-1 [14.1 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 bind9-libs amd64 1:9.16.1-1ubuntu0.1 [1,797 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 bind9-utils amd64 1:9.16.1-1ubuntu0.1 [14.1 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 bind9-dnsutils amd64 1:9.16.1-1ubuntu0.1 [14.1 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 bind9-host amd64 1:9.16.1-1ubuntu0.1 [14.1 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 bind9 amd64 1:9.16.1-1ubuntu0.1 [14.1 kB]
Fetched 1,797 kB in 1s (1,797 kB/s)
```

*figure 1. 2 outpot terminal from install bind9*

# DNS CONFIGURATION

Once installed, go ahead and change the named.conf.options file with the command

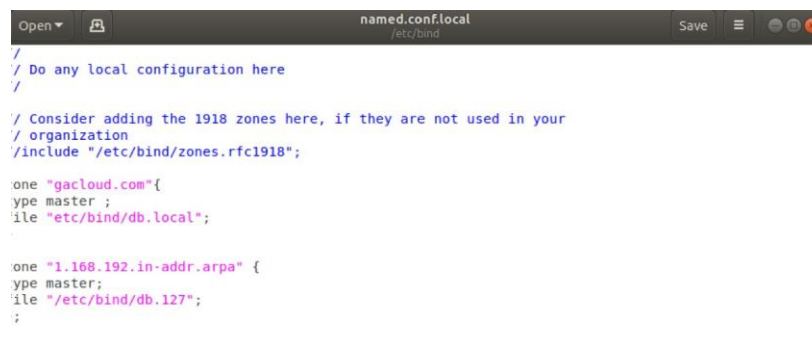
```
$ gedit sudo /etc/bind/named.conf.options
```

A screenshot of a text editor window titled 'named.conf.options' with the path '/etc/bind' shown below the title. The editor contains the following configuration: options { directory "/var/cache/bind"; // If there is a firewall between you and nameservers you want // to talk to, you may need to fix the firewall to allow multiple // ports to talk. See http://www.kb.cert.org/vuls/id/800113 // If your ISP provided one or more IP addresses for stable // nameservers, you probably want to use them as forwarders. // Uncomment the following block, and insert the addresses replacing // the all-0's placeholder. // forwarders { // 192.168.1.2; // }; //===== // If BIND logs error messages about the root key being expired, // you will need to update your keys. See https://www.isc.org/bind-keys //===== dnssec-validation auto; auth-nxdomain no; # conform to RFC1035 listen-on-v6 { any; };};

*figure 1. 3 named.conf.options*

then, change file named.conf.local to create a domain zone with the command

```
$ gedit sudo /etc/bind/named.conf.local
```

A screenshot of a text editor window titled 'named.conf.local' with the path '/etc/bind' shown below the title. The editor contains the following configuration: // Do any local configuration here // Consider adding the 1918 zones here, if they are not used in your // organization //include "/etc/bind/zones.rfc1918"; zone "gacloud.com">{ type master; file "/etc/bind/db.local"; }; zone "1.168.192.in-addr.arpa" { type master; file "/etc/bind/db.127"; };

*figure 1. 4 named.conf.local*

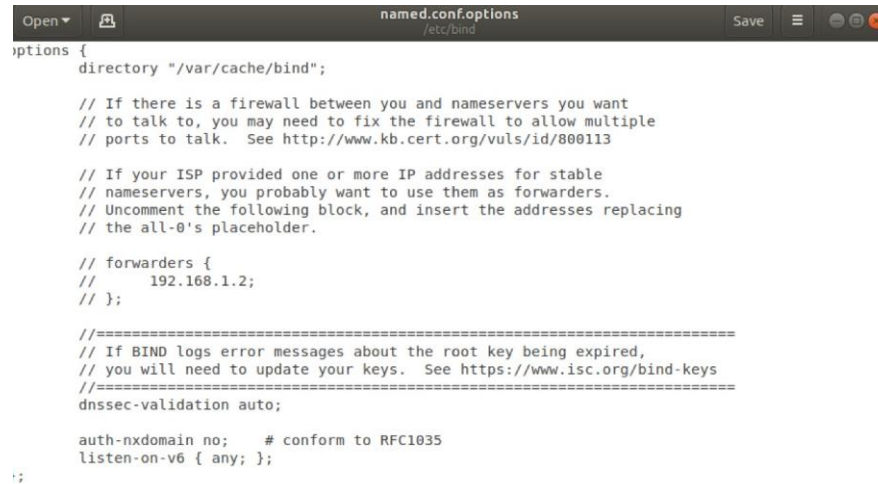
It then creates a file for the domain zone from ip address to domain name. The changed file will duplicate the db.local file and match the domain name. With the command



# DNS CONFIGURATION

Once installed, go ahead and change the named.conf.options file with the command

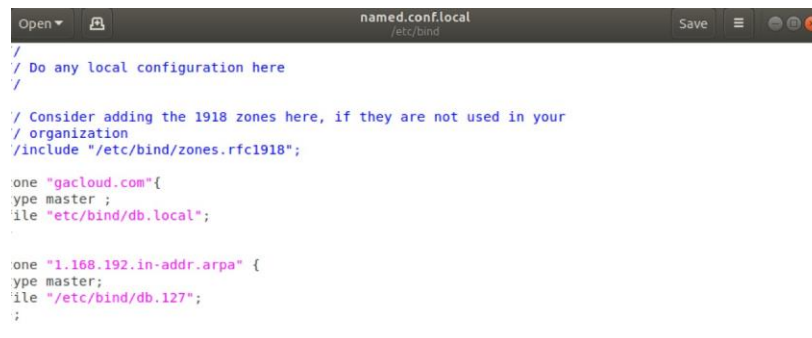
```
$ gedit sudo /etc/bind/named.conf.options
```

A screenshot of a text editor window titled 'named.conf.options' with the path '/etc/bind' shown below the title. The editor contains the following configuration: options { directory "/var/cache/bind"; // If there is a firewall between you and nameservers you want // to talk to, you may need to fix the firewall to allow multiple // ports to talk. See http://www.kb.cert.org/vuls/id/800113 // If your ISP provided one or more IP addresses for stable // nameservers, you probably want to use them as forwarders. // Uncomment the following block, and insert the addresses replacing // the all-0's placeholder. // forwarders { // 192.168.1.2; // }; //===== // If BIND logs error messages about the root key being expired, // you will need to update your keys. See https://www.isc.org/bind-keys //===== dnssec-validation auto; auth-nxdomain no; # conform to RFC1035 listen-on-v6 { any; };};

*figure 1. 5 named.conf.options*

then, change file named.conf.local to create a domain zone with the command

```
$ gedit sudo /etc/bind/named.conf.local
```

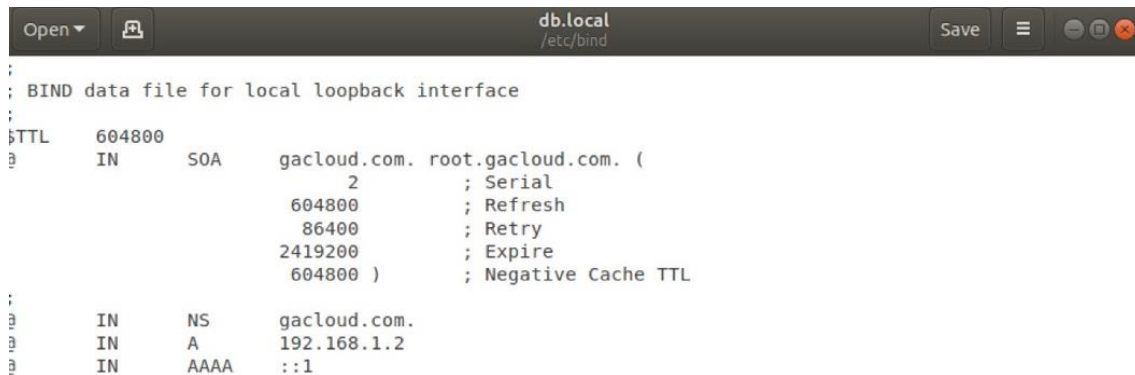
A screenshot of a text editor window titled 'named.conf.local' with the path '/etc/bind' shown below the title. The editor contains the following configuration: // Do any local configuration here // Consider adding the 1918 zones here, if they are not used in your // organization //include "/etc/bind/zones.rfc1918"; zone "gacloud.com">{ type master; file "/etc/bind/db.local"; }; zone "1.168.192.in-addr.arpa" { type master; file "/etc/bind/db.127"; };

*figure 1. 6 named.conf.local*

# DNS CONFIGURATION

It then creates a file for the domain zone from ip address to domain name. The changed file will duplicate the db.local file and match the domain name. With the command

```
$ sudo gedit /etc/bind/db.local
```

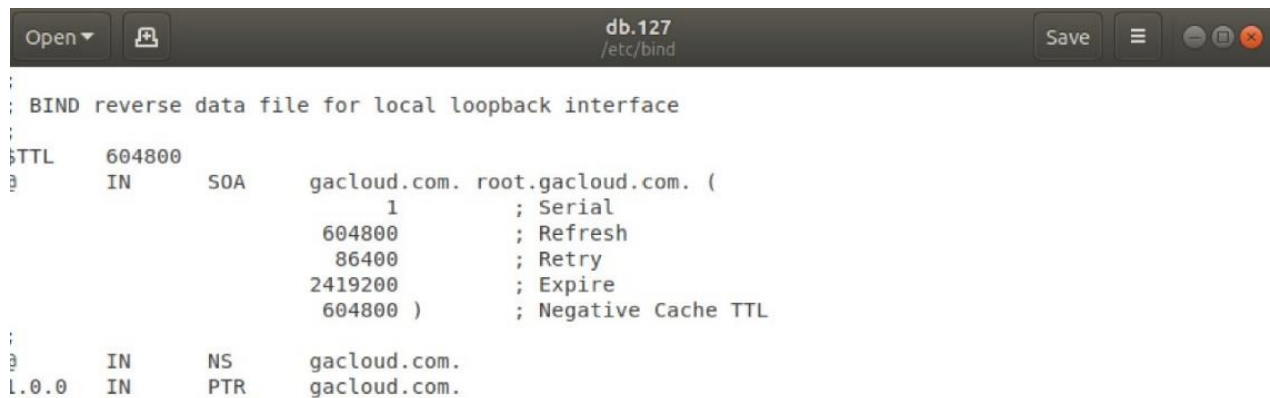
A screenshot of a gedit text editor window titled 'db.local' with the path '/etc/bind' shown below the title. The window contains the following text:

```
: BIND data file for local loopback interface
:
$TTL      604800
@         IN      SOA      gacloud.com. root.gacloud.com. (
                        2          ; Serial
                        604800     ; Refresh
                        86400      ; Retry
                        2419200    ; Expire
                        604800 )   ; Negative Cache TTL
:
:         IN      NS       gacloud.com.
@         IN      A        192.168.1.2
@         IN      AAAA     ::1
```

*figure 1. 7 db.local*

Then, create a zone ip address file from the domain to the ip address. With the command

```
$ sudo gedit /etc/bind/db.127
```

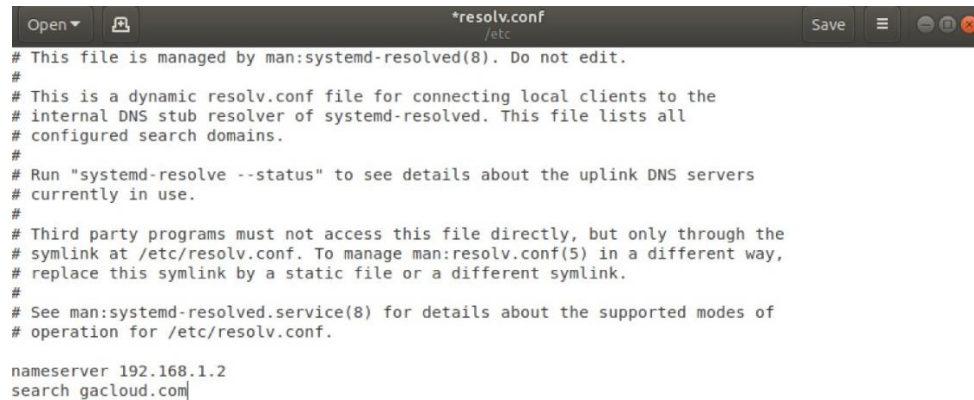
A screenshot of a gedit text editor window titled 'db.127' with the path '/etc/bind' shown below the title. The window contains the following text:

```
: BIND reverse data file for local loopback interface
:
$TTL      604800
@         IN      SOA      gacloud.com. root.gacloud.com. (
                        1          ; Serial
                        604800     ; Refresh
                        86400      ; Retry
                        2419200    ; Expire
                        604800 )   ; Negative Cache TTL
:
:         IN      NS       gacloud.com.
1.0.0     IN      PTR      gacloud.com.
```

*figure 1. 8 db.127*

# DNS CONFIGURATION

Then, change the resolv.conf file to set the ip address of the server domain and the domain name is 192.168.1.2 and gacloud.com with the command.

A screenshot of a text editor window titled '\*resolv.conf /etc'. The window shows the contents of the /etc/resolv.conf file. The text includes several comments explaining the file's purpose and usage, followed by two configuration lines: 'nameserver 192.168.1.2' and 'search gacloud.com'.

```
# This file is managed by man:systemd-resolved(8). Do not edit.
#
# This is a dynamic resolv.conf file for connecting local clients to the
# internal DNS stub resolver of systemd-resolved. This file lists all
# configured search domains.
#
# Run "systemd-resolve --status" to see details about the uplink DNS servers
# currently in use.
#
# Third party programs must not access this file directly, but only through the
# symlink at /etc/resolv.conf. To manage man:resolv.conf(5) in a different way,
# replace this symlink by a static file or a different symlink.
#
# See man:systemd-resolved.service(8) for details about the supported modes of
# operation for /etc/resolv.conf.

nameserver 192.168.1.2
search gacloud.com
```

*figure 1. 9 resolv.conf*

NameServer 192.168.1.2  
search gacloud.com

Then, enter the hosts ip address server and domain name into the file. With the command

```
$ sudo gedit /etc/hosts
```

A screenshot of a text editor window titled 'hosts /etc'. The window shows the contents of the /etc/hosts file. It lists three IP addresses and their corresponding hostnames: 127.0.0.1 for localhost, 127.0.1.1 for rania.com and rania, and 192.168.1.2 for gacloud.com. Below these are several lines of IPv6 addresses and their corresponding hostnames.

```
127.0.0.1    localhost
127.0.1.1    rania.com.rania.com    rania
192.168.1.2  gacloud.com.

# The following lines are desirable for IPv6 capable hosts
::1          ip6-localhost ip6-loopback
fe00::0      ip6-localnet
ff00::0      ip6-mcastprefix
ff02::1      ip6-allnodes
ff02::2      ip6-allrouters
```

*figure 1. 10 hosts*

# INSTALLING SOFTWARE

Install apache, mariadb-server, php and its extensions with the command

```
$ sudo apt-get install apache2 mariadb-server apache2 php7.2  
php7.2-gd php7.2-json php7.2-mysql php7.2-curl php7.2-mbstring  
php7.2-intl php7.2-imagick php7.2-xml php7.2-zip libapache2-mod-  
php7.2 unzip wget -y
```

Once all packages are installed, open the php.ini file and twick some settings with the command

```
$ sudo gedit /etc/php/7.2/apache2/php.ini
```

Then search for a few words and change them with:

file\_uploads = On

```
; Whether to allow HTTP file uploads.  
; http://php.net/file-uploads  
file_uploads = On
```

*figure 2. 1 php.ini*

allow\_url\_fopen = On

```
; Whether to allow the treatment of URLs (like http:// or ftp://) as files.  
; http://php.net/allow-url-fopen  
allow_url_fopen = On
```

*figure 2. 2 php.ini*

memory\_limit = 256M

```
; Maximum amount of memory a script may consume (128MB)  
; http://php.net/memory-limit  
memory_limit = 256M
```

*figure 2. 3 php.ini*

# INSTALLING SOFTWARE

upload\_max\_filesize = 20M

```
: Maximum allowed size for uploaded files.  
: http://php.net/upload-max-filesize  
upload_max_filesize = 100M  
  
: Maximum number of files that can be uploaded via a single request  
max_file_uploads = 20
```

*figure 2. 4 php.ini*

display\_errors = Off

```
; display_errors  
; Default Value: On  
; Development Value: On  
; Production Value: Off
```

*figure 2. 5 php.ini*

Save and exit the tab. Then, start apache2 and MariaDB, and enable the system to start the system with the command:

```
$ sudo systemctl start apache2  
$ sudo systemctl start mariadb  
$ sudo systemctl enable apache2  
$ sudo systemctl enable mariadb
```

# CREATE DATABASE

Then, create a database and user for NextCloud, Log in to MariaDB with the command

```
$ mysql -u root -p
```

```
MariaDB > CREATE DATABASE nextcloudodb;
```

```
MariaDB > CREATE USER 'nextclouduser'@'localhost' IDENTIFIED BY 'password';
```

```
MariaDB > GRANT ALL ON nextcloudodb.* TO 'nextclouduser'@'localhost' IDENTIFIED BY  
'password' WITH GRANT OPTION;
```

```
MariaDB > FLUSH PRIVILEGES;;
```

```
MariaDB >EXIT;
```

# CONFIGURATION NEXTCLOUD

- **INSTALLING NEXTCLOUD**

First, download nextcloud with a version that is adjusted to the PHP version. In this project, the version used is PHP 7.2 and then nextcloud is installed version 16.0.3 with the command

```
$ wget https://download.nextcloud.com/server/releases/nextcloud-16.0.3.zip
```

If the download is complete, unzip the downloaded file with the command:

```
$ sudo unzip nextcloud-16.0.3.zip -d /var/www/html/
```

Next, grant permission for nextcloud directory with the command

```
$ sudo chown -R www-data: /var/www/html/nextcloud
```

Configure apache for NextCloud

Create an apache virtual hosts file for NextCloud with the command

```
$ sudo gedit /etc/apache2/sites-available/nextcloud.conf
```

A screenshot of a text editor window titled 'nextcloud.conf' with the path '/etc/apache2/sites-available' shown below the title. The editor contains the following configuration for a VirtualHost:

```
<VirtualHost *:80>
ServerAdmin admin@example.com
DocumentRoot /var/www/html/nextcloud/
ServerName example.com
<Directory /var/www/html/nextcloud/>
Options +FollowSymLinks
AllowOverride All
Require all granted
<IfModule mod_dav.c>
Dav off
</IfModule>
SetEnv HOME /var/www/html/nextcloud
SetEnv HTTP_HOME /var/www/html/nextcloud
</Directory>
ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

*figure 3.1 nextcloud.conf*

## CONFIGURATION NEXTCLOUD

Save and close the file. Then, enable virtual host file and other required modules with the following command

```
$ sudo a2ensite nextcloud.conf
$ sudo a2enmod rewrite
$ sudo a2enmod headers
$ sudo a2enmod env
$ sudo a2enmod dir
$ sudo a2enmod mime
```

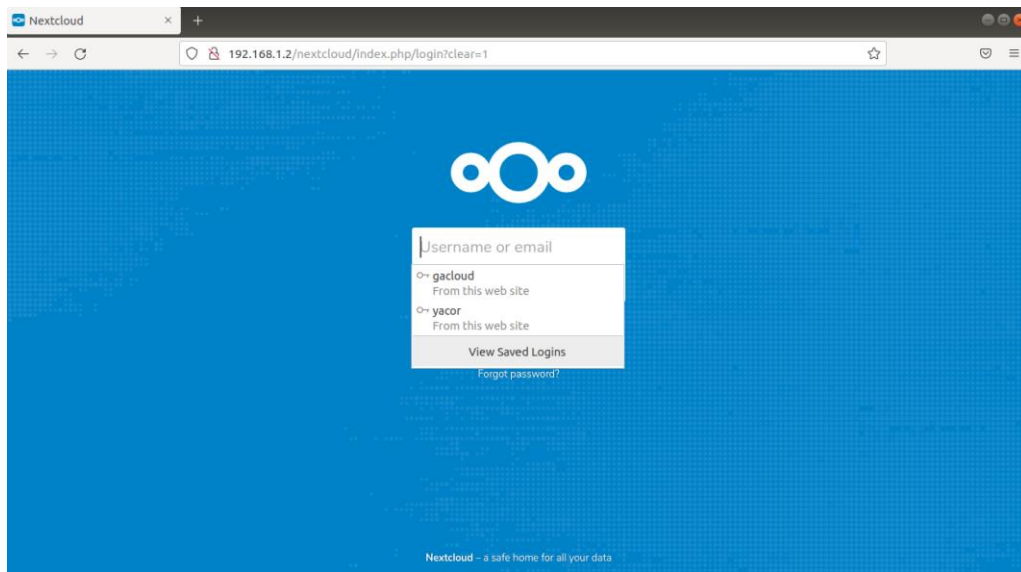
Last step, restart apache service to apply configuration changes dengan command

```
$ sudo systemctl restart apache2
```



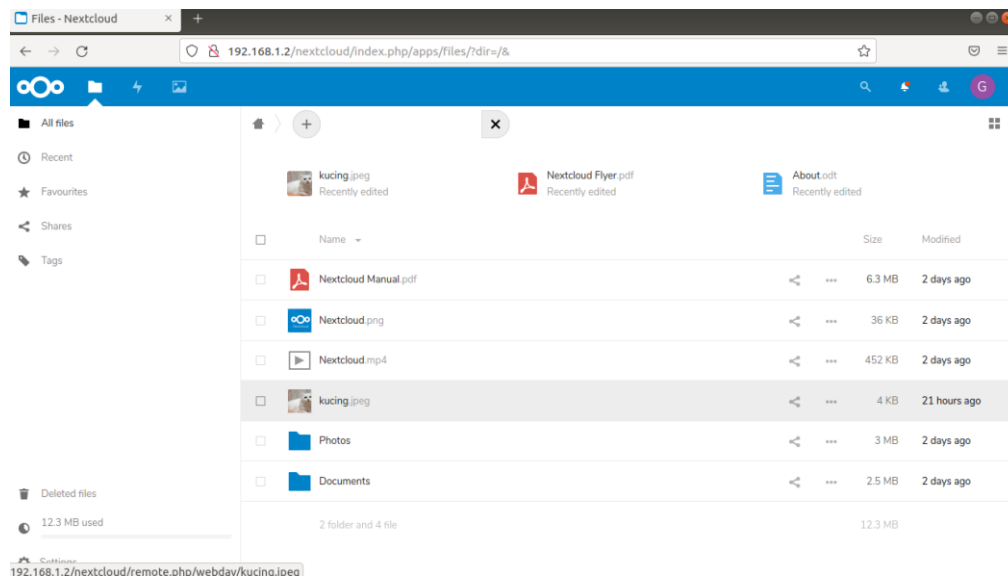
# NEXTCLOUD

Now, open a web browser with URL type 192.168.1.2/nextcloud.com



*figure 3. 2 nextcloud.interface*

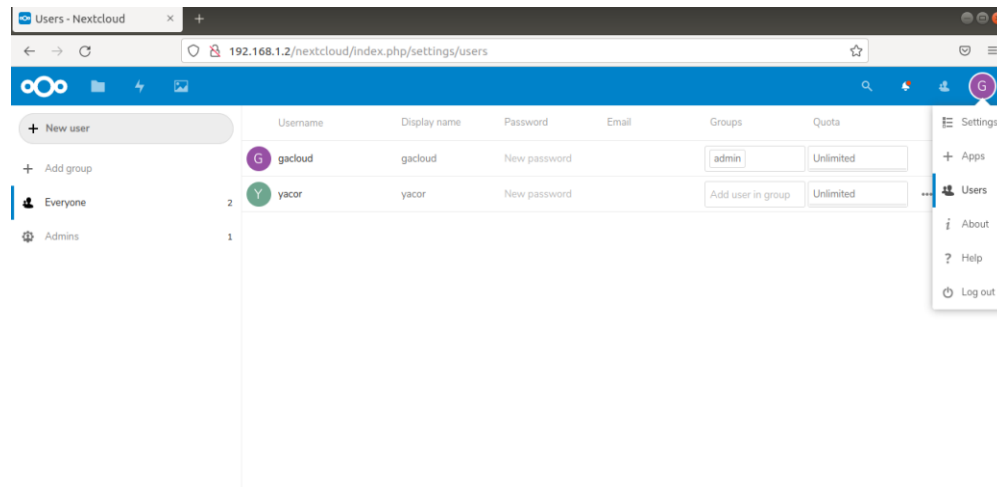
Create an account for admins, then log in and display the home tab as follows



*figure 3. 3 admin.interface*

# NEXTCLOUD

In the admin server, admins can create accounts for users and create groups of multiple users.



*figure 3. 4 interface.admin*

The interface for users is as follows:

