Raspberry pi 4 and Nextcloud

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Use raspberry pi 4 to make local cloud storage.



Mounting the storage device

1. To mount an external disk, you need to specify a folder for mounting. It is customary to create a folder within /mnt to specify it. Note that the folder must be empty. I will create a folder called mydisk as shown below and mount one of the partitions on the external hard drive to this folder.

sudo fdisk /dev/sda1

delete a partition: d

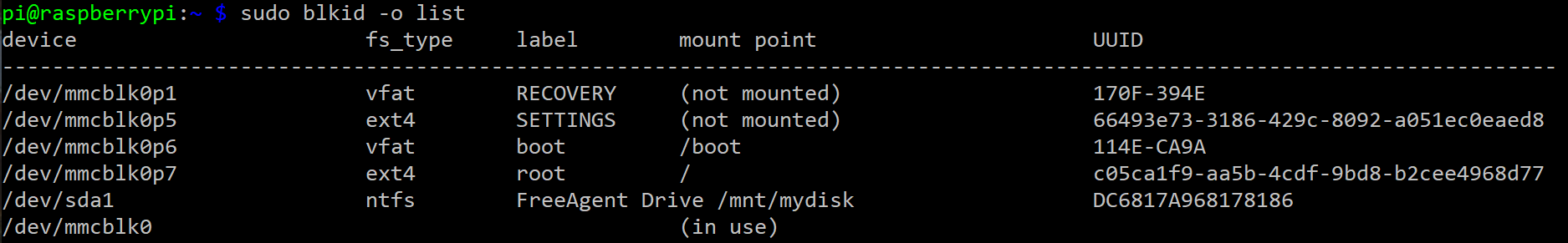
add a new partition: n

write table to disk and exit: w

delete signature: y

pi@raspberrypi:~ $ sudo mkdir /mnt/mydisk

1. Check all disk partitions with the command below.



Here, the partitions mounted at'/' and'/boot' are the default locations used by Raspbian of the Raspberry Pi. You can see that sda1 connected as an external hard drive has not yet been mounted.

sudo apt update

sudo apt install exfat-fuse

​

3. Mount the desired partition to the destination folder.

sudo mount /dev/sda1 /mnt/mydisk

4. Check if it is mounted properly with the command.

pi@raspberrypi:~ $ ls /mnt

mydisk

Setting up automatic mounts

You can mount it as above, but there is one problem. That is, when the system is rebooted, the mount information is lost, so you have to set up a new mount every time you reboot.

1. Open the fstab file through nano.

pi@raspberrypi:~ $ sudo nano /etc/fstab

2. Assuming you want to automount sda1, add the following form to the bottom line of fstab.

/dev/sda1 /mnt/mydisk ext4 defaults 0 0

1.(/dev/sda1) 2.(/mnt/mydisk) 3.(ext4) 4.(defaults) 5.(0) 6.(0)

|  |  |  |
| --- | --- | --- |
| Number | Field | Description |
| 1 | Devide | Partition (dev/sda1) or UUID of the device to be mounted |
| 2 | Mount position | Destination folder to mount the file system |
| 3 | File type | As the file system type, enter the file system type such as auto, vfat, ntfs, ntfs-3g, ext3, ext4,ext2, udf, iso9660, etc. auto automatically determines the filesystem type. |
| 4 | Options | Enter multiple items separated by commas (",") as options to specify when mounting. For more information on options, please refer to the following. When specified as defualt, rw, suid, dev, exec, auto, nouser, async are specified by default. |
| 5 | Dump | Set whether or not to enable backup of the mounted partition through the dump command. Generally, it is set to not to be backed up by leaving it to 0. |
| 6 | Inspection order | The order in which fsck checks for errors at boot time, set to 1 for the root device and 2 for other devices, or 0 if not. |

​

Options

-default: rw, suid, dev, exec, auto, nouser, async options are set by default. Usually this option is the most used

-sync/async: Execute I/O to the file system synchronously or asynchronously

-auto: Automatically mounts all file systems when booting or entering the mount -a command.

-noauto: The filesystem is not automatically mounted at boot time, only when mount -a is executed.

-exec/noexec: Allow/prohibit the execution of binary executable files in the file system

-suid/nosuid: allow/prohibit execution of suid and sgid bits

-ro: mount in read mode

-rw: mount in read/write mode

-user: All users can mount the file system

-nouser: Only the root user can mount the file system.

-netdev: mount device after network is active. Applicable only when the file system type is nfs

-nofail: No error message is displayed even if the partition does not exist

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As an option, you can usually use default. If separate setting is required, refer to the above option and specify the corresponding option value.

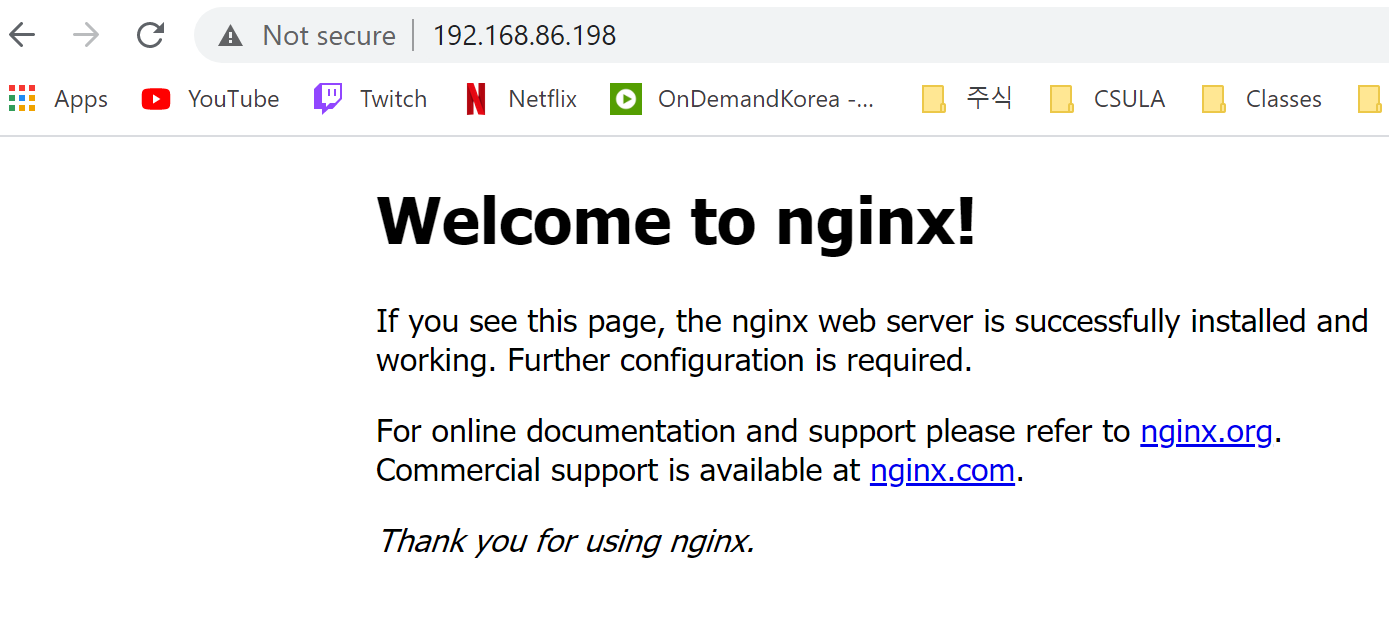
​Now that the fstab's setup is complete, save and close the file. Now when the Raspberry Pi boots, it will automatically mount the partition you specified.

NextCloud installation

1. NextCloud requires a web server, database, and php language to run. I will install Nginx as the web server and mariaDB as the database.

sudo apt install nginx mariadb-server php php-fpm php-mysql php-zip php-common php-zip php-xml php-mbstring php-gd php-curl -y

2. When the installation is complete, try accessing the Raspberry Pi's ip address through a web browser. If nginx is successfully installed, the following screen will appear.



Setting up the database

1. Enter the following to set the installed database.

sudo mariadb -u root

1. In this database terminal input window, enter the following to create a new database.

CREATE DATABASE nextcloud;

1. Create new users and passwords for new users.

CREATE USER 'nextcloud'@'localhost' IDENTIFIED BY '\*\*\*\*\*\*\*\*\*';

grant all privileges on nextcloud.\* to nextcloud@localhost;

1. Enter the quit command to exit the database dialog.

quit

NextCloud installation

1. Download the latest version of NextCloud compressed file through the command below. wget is used to download a file from an address on the web in the terminal.

wget https://download.nextcloud.com/server/releases/latest.zip

1. If you check after the download is complete, you can see that the compressed file named "latest.zip" has been downloaded. Unzip this compressed file into a path that can provide web server functions in nginx web server.

By default, nginx is set to read files from the /var/www/html/ directory. Before extracting to this path, first delete all files in the directory with the following command.

sudo rm /var/www/html/\*

1. Now, use the command below to extract NextCloud's extruded file into the folder. Here, the -d option is used to specify the destination path for extracting the extrusion file.

sudo unzip ./latest.zip -d /var/www/html/

1. The Linux user who runs the web server is the user named www-data. It is said that if the permission of the folder that provides the file from the web server is not set to www-data, the file may not be modified or an error may occur. Therefore, grant the permission of the folder to www-data through the command below.

sudo chown -R www-data:www-data /var/www/html

sudo chown -R www-data:www-data /mnt/mydisk

sudo chmod 750 /mnt/mydisk

Setting up Nginx

1. The default settings of nginx are stored in "/etc/nginx/site-enables/default". In order to apply the setting value for using nextcloud in nginx, open the file, delete all the existing contents, paste the settings below, and save.

cd /var/www/html/nextcloud

sudo nano /etc/nginx/sites-enabled/default

upstream php-handler {

server unix:/var/run/php/php7.3-fpm.sock;

}

server {

listen 80;

listen [::]:80;

server\_name localhost;

add\_header X-Content-Type-Options nosniff;

add\_header X-XSS-Protection "1; mode=block";

add\_header X-Robots-Tag none;

add\_header X-Download-Options noopen;

add\_header X-Permitted-Cross-Domain-Policies none;

add\_header Referrer-Policy no-referrer;

fastcgi\_hide\_header X-Powered-By;

root /var/www/html/nextcloud;

location = /robots.txt {

allow all;

log\_not\_found off;

access\_log off;

}

location = /.well-known/carddav {

return 301 $scheme://$host:$server\_port/remote.php/dav;

}

location = /.well-known/caldav {

return 301 $scheme://$host:$server\_port/remote.php/dav;

}

client\_max\_body\_size 512M;

fastcgi\_buffers 64 4K;

gzip on;

gzip\_vary on;

gzip\_comp\_level 4;

gzip\_min\_length 256;

gzip\_proxied expired no-cache no-store private no\_last\_modified no\_etag auth;

gzip\_types application/atom+xml application/javascript application/json application/ld+json application/manifest+json application/rss+xml applicaEnter this intion/vnd.geo+json application/vnd.ms-fontobject application/x-font-ttf application/x-web-app-manifest+json application/xhtml+xml application/xml font/opentype image/bmp image/svg+xml image/x-icon text/cache-manifest text/css text/plain text/vcard text/vnd.rim.location.xloc text/vtt text/x-component text/x-cross-domain-policy;

location / {

rewrite ^ /index.php;

}

location ~ ^\/(?:build|tests|config|lib|3rdparty|templates|data)\/ {

deny all;

}

location ~ ^\/(?:\.|autotest|occ|issue|indie|db\_|console) {

deny all;

}

location ~ ^\/(?:index|remote|public|cron|core\/ajax\/update|status|ocs\/v[12]|updater\/.+|oc[ms]-provider\/.+)\.php(?:$|\/) {

fastcgi\_split\_path\_info ^(.+?\.php)(\/.\*|)$;

set $path\_info $fastcgi\_path\_info;

try\_files $fastcgi\_script\_name =404;

include fastcgi\_params;

fastcgi\_read\_timeout 1800;

fastcgi\_param SCRIPT\_FILENAME $document\_root$fastcgi\_script\_name;

fastcgi\_param PATH\_INFO $path\_info;

fastcgi\_param modHeadersAvailable true;

fastcgi\_param front\_controller\_active true;

fastcgi\_pass php-handler;

fastcgi\_intercept\_errors on;

fastcgi\_request\_buffering off;

}

location ~ ^\/(?:updater|oc[ms]-provider)(?:$|\/) {

try\_files $uri/ =404;

index index.php;

}

location ~ \.(?:css|js|woff2?|svg|gif|map)$ {

try\_files $uri /index.php$request\_uri;

add\_header Cache-Control "public, max-age=15778463";

add\_header X-Content-Type-Options nosniff;

add\_header X-XSS-Protection "1; mode=block";

add\_header X-Robots-Tag none;

add\_header X-Download-Options noopen;

add\_header X-Permitted-Cross-Domain-Policies none;

add\_header Referrer-Policy no-referrer;

access\_log off;

}

location ~ \.(?:png|html|ttf|ico|jpg|jpeg|bcmap)$ {

try\_files $uri /index.php$request\_uri;

access\_log off;

}

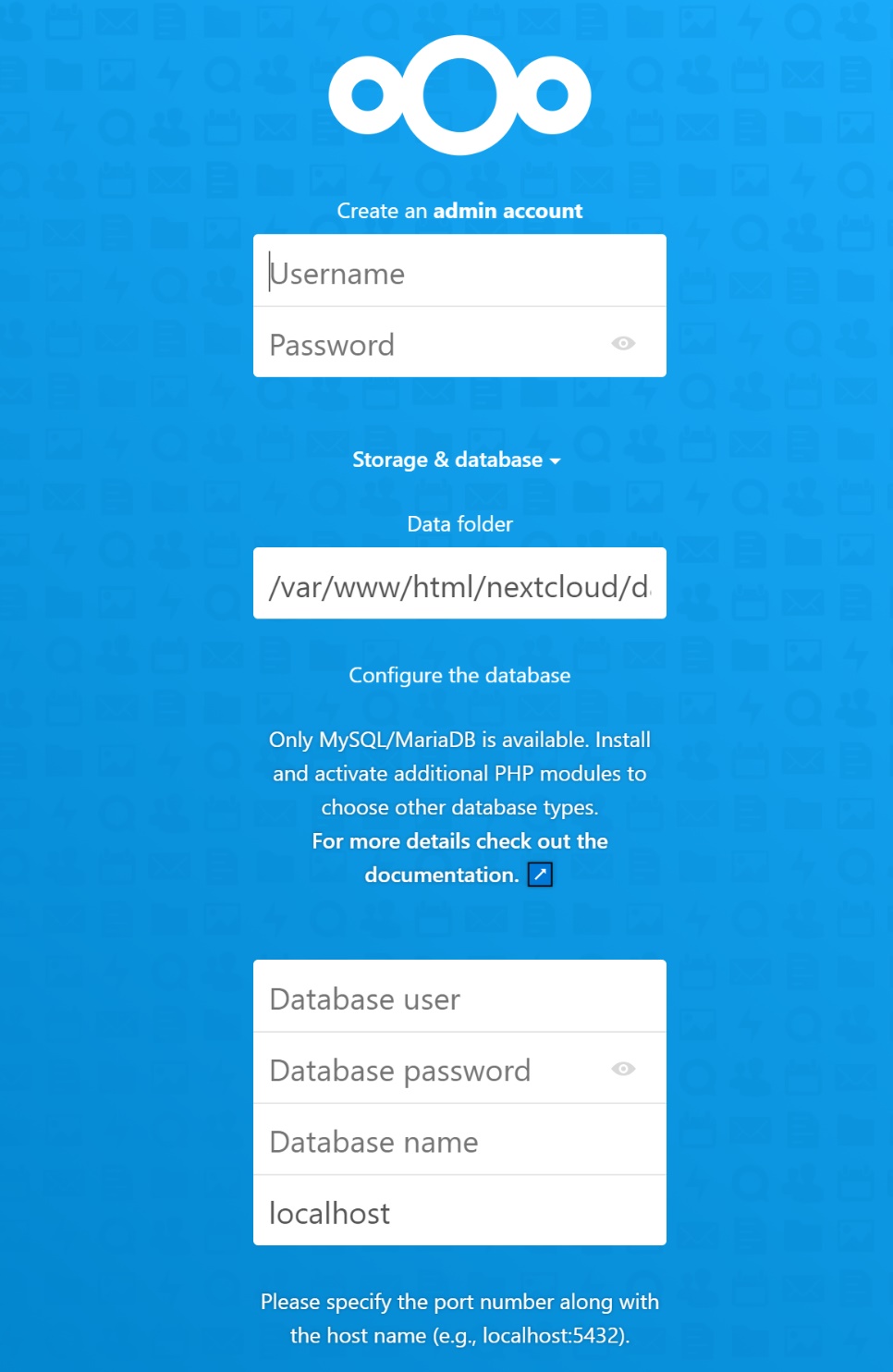
}

1. Reload nginx to apply the changed settings.

sudo nginx -s reload

NextCloud access and settings

1. Now, if you connect to the Raspberry Pi address through a web browser again, you can see the NextCloud setting window pop up.



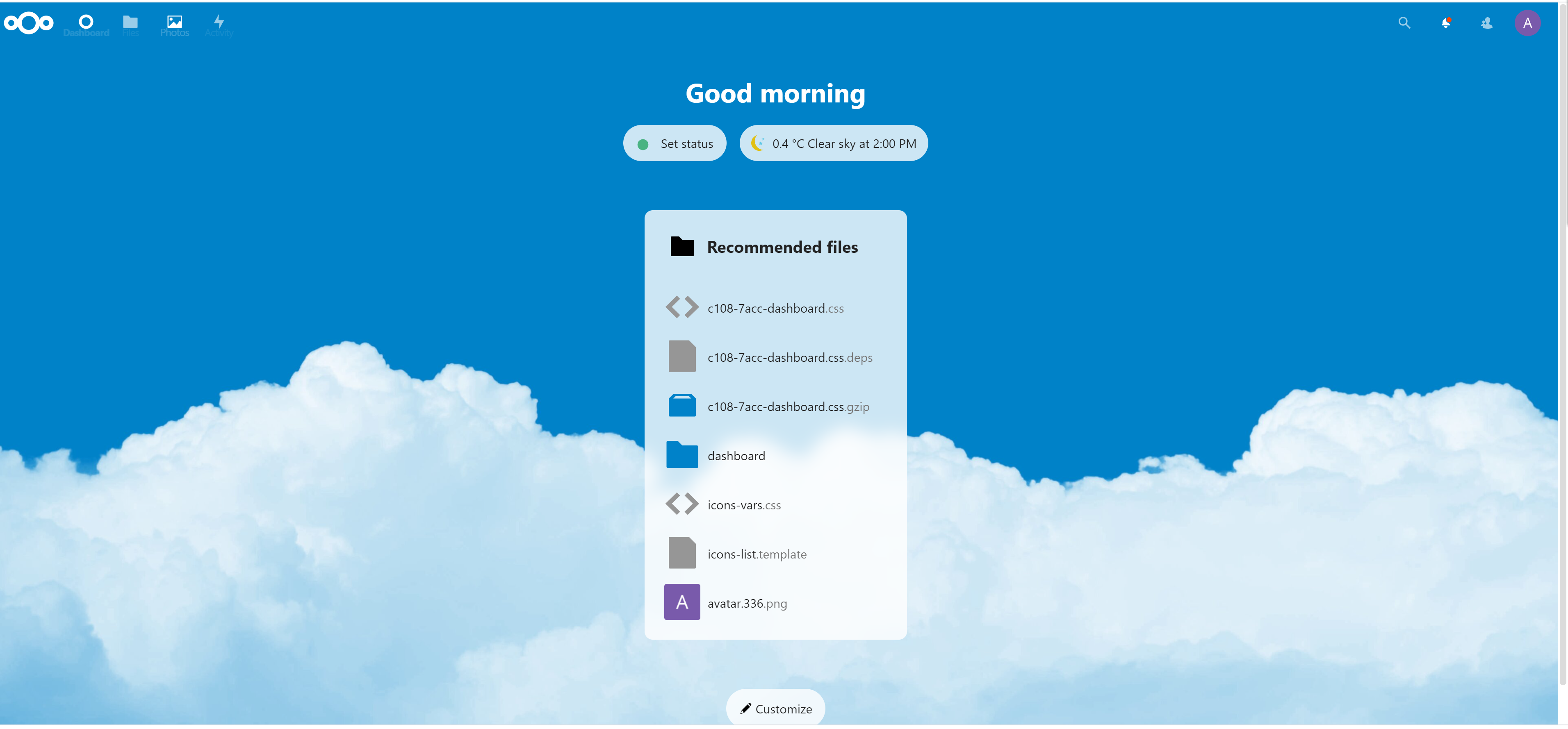
Username

Password

nextcloud

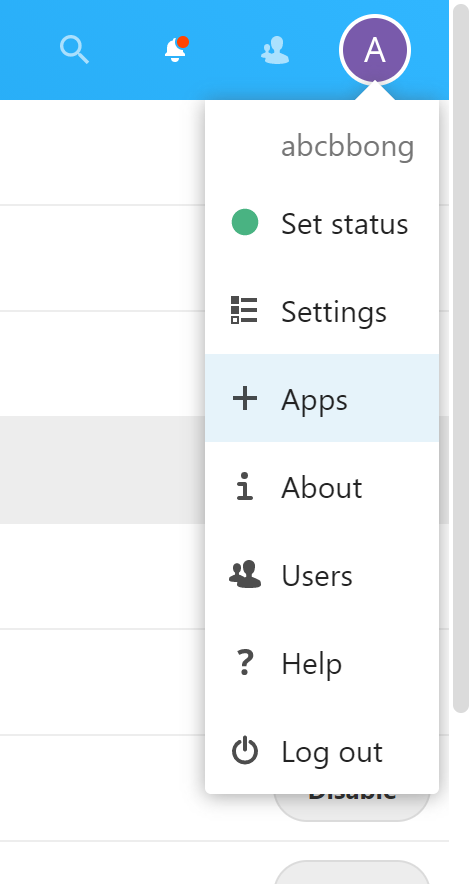
password (\*\*\*\*\*\*\*\*)

nextcloud

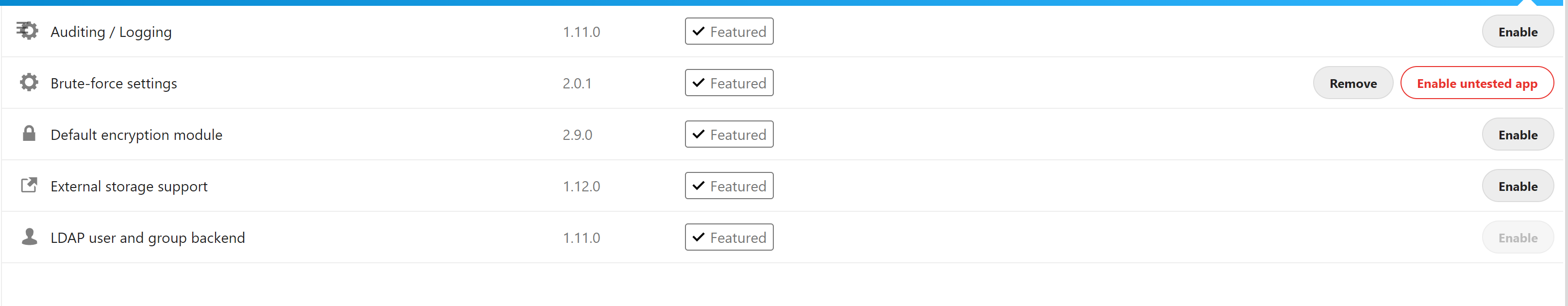


Mount external storage

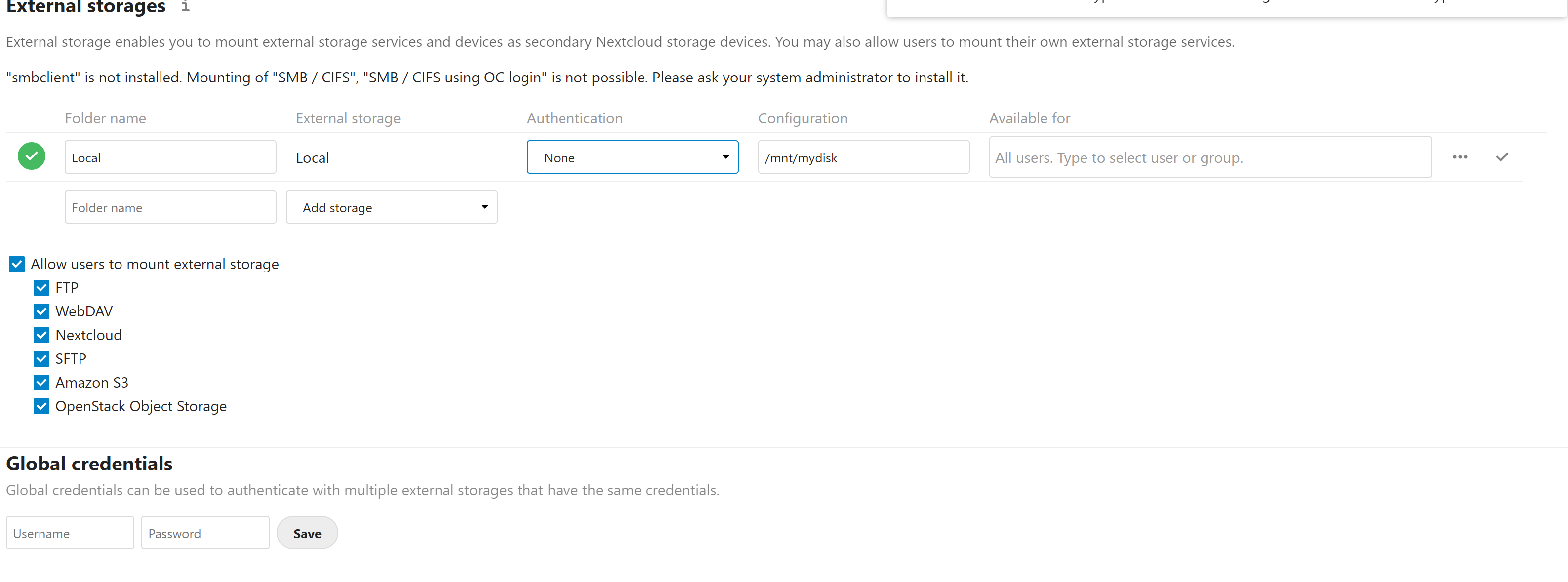
1. Click Apps



1. Enable External storage support



1. Go to Setting > Administration > External Storages
2. Click “Allow users to mount external storage.
3. Create folder name
4. External storage: Local
5. Configuration: /mnt/mydisk
6. Click “Save”



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