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How to Install Nextcloud with Nginx and PHP7-FPM on CentOS 7

Tutorial Info

Author: Muhammad Arul

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Nextcloud is a free (Open Source) Dropbox-like software, a fork of the ownCloud project. Nextcloud is written in PHP and JavaScript, it supports many database systems such as, MySQL/MariaDB, PostgreSQL, Oracle Database and SQLite. In order to keep your files synchronized between Desktop and your own server, Nextcloud provides applications for Windows, Linux and Mac desktops and a mobile app for android and iOS. Nextcloud is not just a dropbox clone, it provides additional features like Calendar, Contacts, Schedule tasks, and streaming media with Ampache.

In this tutorial, I will show you how to install and configure the latest Nextcloud 10 release on a CentOS 7 server. I will run Nextcloud with a Nginx web server and PHP7-FPM and use MariaDB as the database system.

Prerequisite

- CentOS 7 64bit
- Root privileges on the server

Step 1 - Install Nginx and PHP7-FPM on CentOS 7

Before we start with the Nginx and php7-fpm installation, we have to add the EPEL package repository. Install it with this yum command.

```
yum -y install epel-release
```

Now install Nginx from the EPEL repository.

```
yum -y install nginx
```

Then we have to add another repository

for php7-fpm. There are several repositories available on the net that provide PHP 7 packages, I will use webtatic here.

Add the PHP7-FPM webtatic repository:

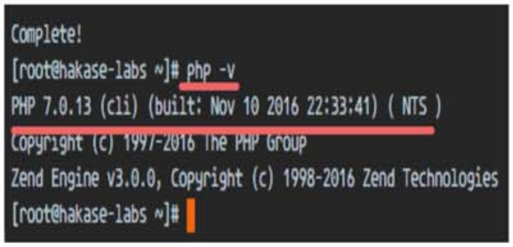
```
rpm -Uvh https://mirror.webtatic.com/yum/el7/webtatic-release.rpm
```

Next, install PHP7-FPM and some additional packages for the Nextcloud installation.

```
yum -y install php70w-fpm php70w-cli php70w-gd php70w-mcrypt php70w-mysql php70w-pear php70w-xml php70w-mbstring php70w-pdo php70w-json php70w-pecl-apcu php70w-pecl-apcu-devel
```

Finally, check the PHP version from server terminal to verify that PHP installed correctly.

```
php -v
```



```
Complete!
[root@hakase-labs ~]# php -v
PHP 7.0.13 (cli) (built: Nov 10 2016 22:33:41) ( NTS )
Copyright (c) 1997-2016 The PHP Group
Zend Engine v3.0.0, Copyright (c) 1998-2016 Zend Technologies
[root@hakase-labs ~]#
```

Step 2 - Configure PHP7-FPM

In this step, we will configure php-fpm to run with Nginx. Php7-fpm will run under user nginx and listen on port 9000.

Edit the default php7-fpm configuration file with vim.

```
vim /etc/php-fpm.d/www.conf
```

In line 8 and 10, change user and group to '**nginx**'.

```
user = nginx
group = nginx
```

In line 22, make sure php-fpm is running under server port.

```
listen = 127.0.0.1:9000
```

Uncomment line 366-370 to activate the php-fpm system environment variables.

```
env[HOSTNAME] = $HOSTNAME
env[PATH] = /usr/local
/bin:/usr/bin:/bin
env[TMP] = /tmp
env[TMPDIR] = /tmp
env[TEMP] = /tmp
```

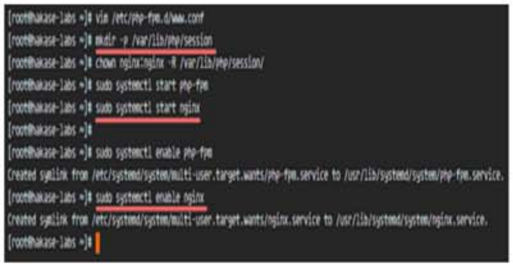
Save the file and exit the vim editor.

Next, create a new directory for the session path in the '/var/lib/' directory, and change the owner to the 'nginx' user.

```
mkdir -p /var/lib/php/session
chown nginx:nginx -R /var/lib
/php/session/
```

Now start php-fpm and Nginx, then enable the services to start at boot time.

```
sudo systemctl start php-fpm
sudo systemctl start nginx

sudo systemctl enable php-fpm
sudo systemctl enable nginx
```



```
[root@hakase-labs ~]# vim /etc/php-fpm.d/www.conf
[root@hakase-labs ~]# mkdir -p /var/lib/php/session
[root@hakase-labs ~]# chown nginx:nginx -R /var/lib/php/session/
[root@hakase-labs ~]# sudo systemctl start php-fpm
[root@hakase-labs ~]# sudo systemctl start nginx
[root@hakase-labs ~]#
[root@hakase-labs ~]# sudo systemctl enable php-fpm
Created symlink from /etc/systemd/system/multi-user.target.wants/php-fpm.service to /usr/lib/systemd/system/php-fpm.service.
[root@hakase-labs ~]# sudo systemctl enable nginx
Created symlink from /etc/systemd/system/multi-user.target.wants/nginx.service to /usr/lib/systemd/system/nginx.service.
[root@hakase-labs ~]#
```

PHP7-FPM configuration is done.

Step 3 - Install and Configure MariaDB

I will use MariaDB for the Nextcloud database. Install the mariadb-server package from the CentOS repository with yum.

```
yum -y install mariadb mariadb-server
```

Start the MariaDB service and add it to run at boot time.

```
systemctl start mariadb
systemctl enable mariadb
```

Now configure the MariaDB root password.

```
mysql_secure_installation
```

Type in your root password when requested.

```
Set root password? [Y/n] Y
New password:
Re-enter new password:

Remove anonymous users? [Y/n] Y
```

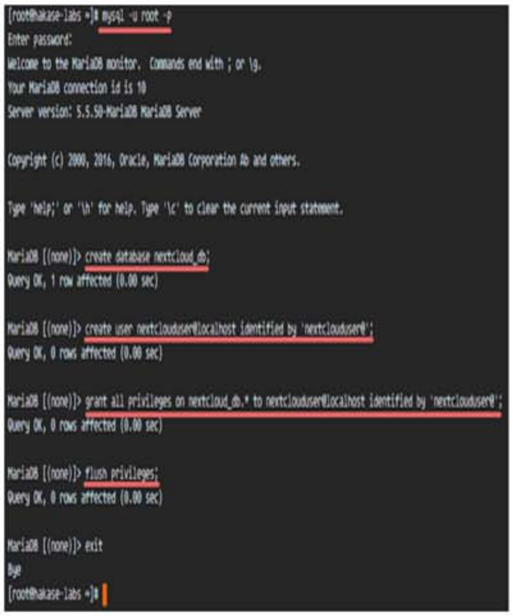
```
Disallow root login remotely?
[Y/n] Y
Remove test database and
access to it? [Y/n] Y
Reload privilege tables now?
[Y/n] Y
```

The MariaDB root password has been set, now we can login to the mysql shell to create a new database and a new user for Nextcloud. I will create a new database named '**nextcloud_db**' and a user '**nextclouduser**' with password '**nextclouduser@**'. Choose a secure password for your installation!

```
mysql -u root -p
Type Password
```

Type in the mysql query below to create a new database and a new user.

```
create database nextcloud_db;
create user nextclouduser@localhost
identified by 'nextclouduser@';
grant all privileges on
nextcloud_db.* to
nextclouduser@localhost identified
by 'nextclouduser@';
flush privileges;
```



```
[root@hakase-labs ~]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 10
Server version: 5.5.50-MariaDB MariaDB Server

Copyright (c) 2000, 2016, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]> create database nextcloud_db;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> create user nextclouduser@localhost identified by 'nextclouduser@';
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> grant all privileges on nextcloud_db.* to nextclouduser@localhost identified by 'nextclouduser@';
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> flush privileges;
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> exit
Bye
[root@hakase-labs ~]#
```

The nextcloud_db database with user

'nextclouduser' has been created.

Step 4 - Generate a Self-signed SSL Certificate for Nextcloud

In this tutorial, I will run nextcloud with a https connection for the client. You can use free SSL such as let's encrypt or create self signed SSL certificate. I will create my own self-signed SSL certificate file with the OpenSSL command.

Create a new directory for the SSL file.

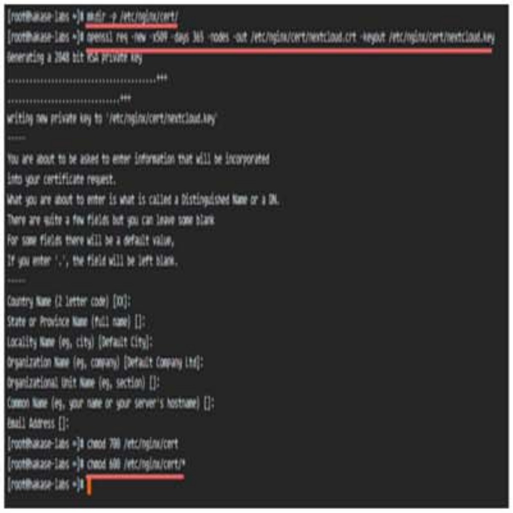
```
mkdir -p /etc/nginx/cert/
```

And generate a new SSL certificate file with the the openssl command below.

```
openssl req -new -x509 -days 365
-nodes -out /etc/nginx
/cert/nextcloud.crt -keyout
/etc/nginx/cert/nextcloud.key
```

Finally, change the permission of all certificate files to 600 with chmod.

```
chmod 700 /etc/nginx/cert
chmod 600 /etc/nginx/cert/*
```



```
[root@hakase-labs ~]# mkdir -p /etc/nginx/cert/
[root@hakase-labs ~]# openssl req -new -x509 -days 365 -nodes -out /etc/nginx/cert/nextcloud.crt -keyout /etc/nginx/cert/nextcloud.key
Generating a 2048 bit RSA private key
.........................................+++
...............................+++
writing new private key to '/etc/nginx/cert/nextcloud.key'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [XX]:
State or Province Name (full name) []:
Locality Name (eg, city) [Default City]:
Organization Name (eg, company) [Default Company Ltd]:
Organizational Unit Name (eg, section) []:
Common Name (eg, your name or your server's hostname) []:
Email Address []:
[root@hakase-labs ~]# chmod 700 /etc/nginx/cert
[root@hakase-labs ~]# chmod 600 /etc/nginx/cert/*
[root@hakase-labs ~]#
```

Step 5 - Download and Install Nextcloud

We will download Nextcloud with wget directly to the server, so we have to install wget first. Additionally, we need the unzip program. Install both applications with yum.

```
yum -y install wget unzip
```

Go to the /tmp directory and download latest stable Nextcloud 10 version from the Nextcloud web site with wget.

```
cd /tmp
wget https://download.nextcloud.com
/server/releases/nextcloud-
10.0.2.zip
```

Extract the nextcloud zip file and move it's content to the '/usr/share/nginx/html/' directory.

```
unzip nextcloud-10.0.2.zip
mv nextcloud/ /usr/share/nginx
/html/
```

Next, go to the Nginx web root directory and create a new 'data' directory for Nextcloud.

```
cd /usr/share/nginx/html/
mkdir -p nextcloud/data/
```

Change the owner of the 'nextcloud' directory to the 'nginx' user and group.

```
chown nginx:nginx -R nextcloud/
```

Step 6 - Configure Nextcloud Virtual Host in Nginx

In step 5 we've downloaded the Nextcloud source code and configured it to run under the Nginx web server. But we still need to configure a virtual host for Nextcloud. Create a new virtual host configuration file 'nextcloud.conf' in the Nginx 'conf.d' directory.

```
cd /etc/nginx/conf.d/
vim nextcloud.conf
```

Paste the Nextcloud virtual host configuration below.

```
upstream php-handler {
    server 127.0.0.1:9000;
    #server unix:/var/run/php5-fpm.sock;
}

server {
    listen 80;
    server_name cloud.nextcloud.co;
    # enforce https
    return 301 https://$server_na
```

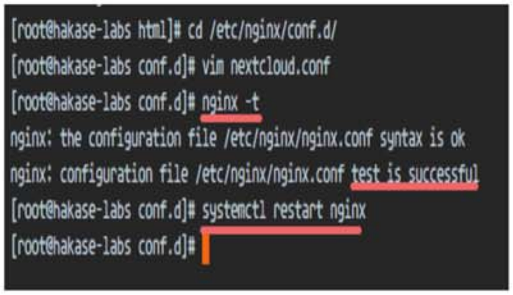
```
me$request_uri;
}

server {
    listen 443 ssl;
    server_name cloud.nextcloud.co;

    ssl_certificate /etc/nginx/cert/nextcloud.crt;
    ssl_certificate_key /etc/nginx/cert/nextcloud.key;

    # Add headers to serve security related headers
    # Before enabling Strict-Transport-Security headers please read into this
    # topic first.
    add_header Strict-Transport-Security "max-age=15768000;
    includeSubDomains; preload;";
    add_header X-Content-Type-Options nosniff;
    add_header X-Frame-Options "SAMEORIGIN";
    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;

    # Path to the root of your installation
    root /usr/share/nginx/html/nextcloud/;

    location = /robots.txt {
        allow all;
        log_not_found off;
        access_log off;
    }

    # The following 2 rules are only needed for the user_webfinger app.
    # Uncomment it if you're planning to use this app.
    #rewrite ^/.well-known/host-m
```

```
eta /public.php?service=host-meta last;
    #rewrite ^/.well-known/host-meta.json /public.php?service=host-meta-json
    # last;

    location = /.well-known/carddav {
      return 301 $scheme://$host/remote.php/dav;
    }
    location = /.well-known/caldav {
      return 301 $scheme://$host/remote.php/dav;
    }

    # set max upload size
    client_max_body_size 512M;
    fastcgi_buffers 64 4K;

    # Disable gzip to avoid the removal of the ETag header
    gzip off;

    # Uncomment if your server is build with the ngx_pagespeed module
    # This module is currently not supported.
    #pagespeed off;

    error_page 403 /core/templates/403.php;
    error_page 404 /core/templates/404.php;

    location / {
        rewrite ^ /index.php$uri;
    }

    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/.+|ocs-provider/.+|core/templates/40[34])\.php(?:$|/) {
        include fastcgi_params;
        fastcgi_split_path_info ^(.+\.php)(/.*)$;
        fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
        fastcgi_param PATH_INFO $fastcgi_path_info;
        fastcgi_param HTTPS on;
        #Avoid sending the security headers twice
        fastcgi_param modHeadersAvailable true;
        fastcgi_param front_controller_active true;
        fastcgi_pass php-handler;
        fastcgi_intercept_errors on;
        fastcgi_request_buffering off;
    }

    location ~ ^/(?:updater|ocs-provider)(?:$|/) {
        try_files $uri/ =404;
        index index.php;
    }

    # Adding the cache control header for js and css files
    # Make sure it is BELOW the PHP block
    location ~* \.(?:css|js)$ {
        try_files $uri /index.php$uri$is_args$args;
        add_header Cache-Control "public, max-age=7200";
        # Add headers to serve security related headers (It is intended to
        # have those duplicated to the ones above)
        # Before enabling Strict-Transport-Security headers please read into
        # this topic first.
        add_header Strict-Transport-Security "max-age=15768000;
        includeSubDomains; preload;";
        add_header X-Content-Type-Options nosniff;
        add_header X-Frame-Options "SAMEORIGIN";
        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;
        # Optional: Don't log access to assets
        access_log off;
    }

    location ~* \.(?:svg|gif|png|html|ttf|woff|ico|jpg|jpeg)$ {
        try_files $uri /index.php$uri$is_args$args;
        # Optional: Don't log access to other assets
        access_log off;
    }
}
```

Save the file and exit vim.

Now test the Nginx configuration to ensure that there are no error,s- Then restart the service.

```
nginx -t
systemctl restart nginx
```



```
[root@hakase-labs html]# cd /etc/nginx/conf.d/
[root@hakase-labs conf.d]# vim nextcloud.conf
[root@hakase-labs conf.d]# nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
[root@hakase-labs conf.d]# systemctl restart nginx
[root@hakase-labs conf.d]#
```

Step 7 - Configure SELinux and FirewallD for Nextcloud

In this tutorial, we will leave SELinux on in enforcing mode, so we need a new package SELinux management tools to configure SELinux for Nextcloud.

Install the SELinux management tools with this command.

```
yum -y install policycoreutils-python
```

Then execute the commands below as root user to allow Nextcloud to run under SELinux. Remember to change the Nextcloud directory in case you use a different directory.

```
semanage fcontext -a -t httpd_sys_rw_content_t '/usr/share/nginx/html/nextcloud/data(/.*)?'
semanage fcontext -a -t httpd_sys_rw_content_t '/usr/share/nginx/html/nextcloud/config(/.*)?'
semanage fcontext -a -t httpd_sys_rw_content_t '/usr/share/nginx/html/nextcloud/apps(/.*)?'
semanage fcontext -a -t httpd_sys_rw_content_t '/usr/share/nginx/html/nextcloud/assets(/.*)?'
semanage fcontext -a -t httpd_sys_rw_content_t '/usr/share/nginx/html/nextcloud/.htaccess'
semanage fcontext -a -t httpd_sys_rw_content_t '/usr/share/nginx/html/nextcloud/.user.ini'
```

```
restorecon -Rv '/usr/share/nginx
/html/nextcloud/'
```

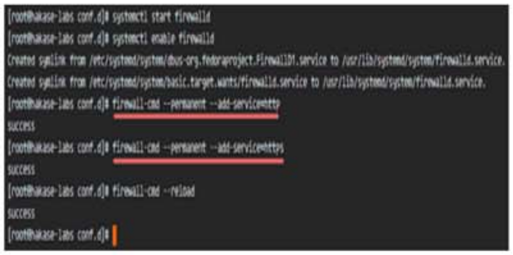
Next, we will enable the firewalld service and open the HTTP and HTTPS ports for Nextcloud.

Start firewalld and enable it to start at boot time.

```
systemctl start firewalld
systemctl enable firewalld
```

Now open the HTTP and HTTPS ports with the firewall-cmd command, then reload the firewall.

```
firewall-cmd --permanent --add-
service=http
firewall-cmd --permanent --add-
service=https
firewall-cmd --reload
```



```
[root@hakase-labs conf.d]# systemctl start firewalld
[root@hakase-labs conf.d]# systemctl enable firewalld
Created symlink from /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service to /usr/lib/systemd/system/firewalld.service.
Created symlink from /etc/systemd/system/basic.target.wants/firewalld.service to /usr/lib/systemd/system/firewalld.service.
[root@hakase-labs conf.d]# firewall-cmd --permanent --add-service=http
success
[root@hakase-labs conf.d]# firewall-cmd --permanent --add-service=https
success
[root@hakase-labs conf.d]# firewall-cmd --reload
success
[root@hakase-labs conf.d]#
```

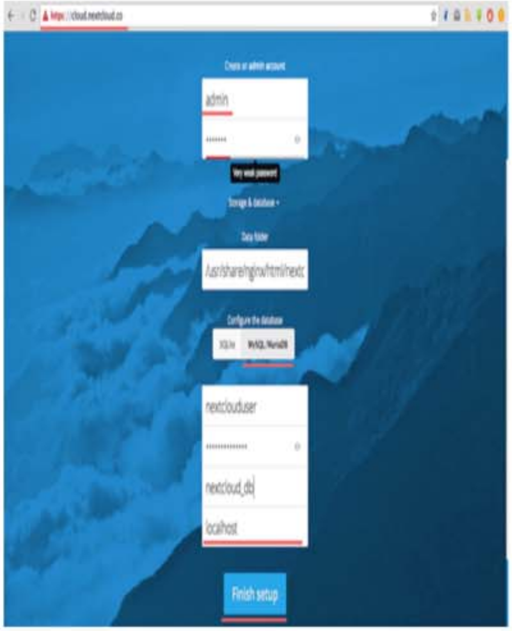
All the server configuration is done.

Step 8 - Nextcloud Installation Wizard

Open your web browser and type in your Nextcloud domain name, mine is: cloud.nextcloud.co. You will be redirected to the secure https connection.

Type in your desired admin user name

and password, and then type in your database credentials. Click '**Finish Setup**'.



https://cloud.nextcloud.co

Create an admin account

admin

Very weak password

Storage & database

Data folder

/usr/share/nginx/html/nextc

Configure the database

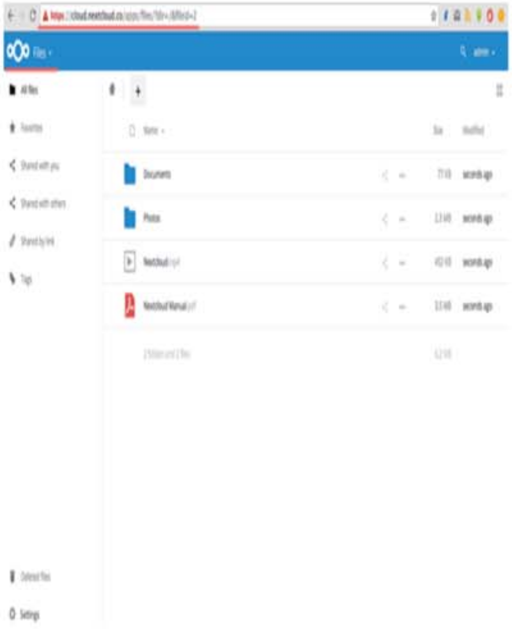
SQLite | MySQL/MariaDB

nextclouduser

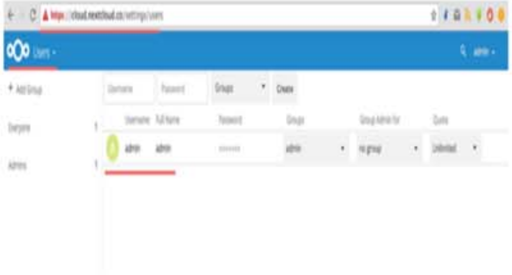
nextcloud_db

localhost

The Nextcloud Admin Dashboard (File Manager) appears.

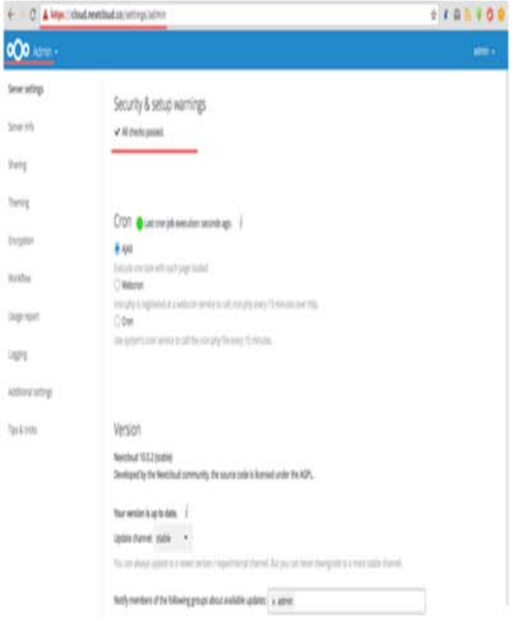


Nextcloud User Settings.



Username	Full Name	Password	Groups	Group Admin for	Quota
admin	admin	•••••••	admin	no group	Unlimited

Admin Settings.



Security & setup warnings

✓ All checks passed.

Cron ● Last cron job execution: seconds ago.

● AJAX

Execute one task with each page loaded

○ Webcron

cron.php is registered at a webcron service to call cron.php every 15 minutes over http.

○ Cron

Use system's cron service to call the cron.php file every 15 minutes.

Version

Nextcloud 10.0.2 (stable)

Developed by the Nextcloud community, the source code is licensed under the AGPL.

Your version is up to date.

Update channel: stable

You can always update to a newer version / experimental channel. But you can never downgrade to a more stable channel.

Notify members of the following groups about available updates: admin

Nextcloud has been installed with Nginx, PHP7-FPM, and MariaDB on a CentOS 7 Server.

Reference

- https://docs.nextcloud.com/

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Submit comment

Comments

From: hightur **at:** *2017-01-22 05:17:56*

Reply

Hello, Very nice tutorial :) I would prefer use https with lets encrypt. ++

From: whirlyNerd **at:** *2017-05-25 01:47:57*

Reply

Too easy! For a CentOS 7 machine running nginx and using certbot to manage your letsencrypt certificates, they are installed at /etc/letsencrypt/live/[your domain]/. Just change the path in your .conf file to fullchain.pem for the ssl_certificate and privkey.pem for the ssl_certificate_key like so:

ssl_certificate /etc/letsencrypt/live/[your domain]/fullchain.pem

ssl_certificate_key /etc/letsencrypt/live/[your domain]/privkey.pem

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