

# Installation and Deployment

## 1. Prerequisites

- Ubuntu 22.04 (or macOS)
- Docker (>= 20.x) & Docker Compose plugin
- SSH access to the VM (root or sudo)
- A domain name pointing to your VM

## 2. Clone the repository

```
git clone https://github.com/YourUsername/ICT171-Assignment2-Cloud-Perso-AlexAbriel.git
cd ICT171-Assignment2-Cloud-Perso-AlexAbriel
```

## 3. Environment configuration

### 3.1 Provided .env

We include a ready-to-use .env at the repo root. It contains all credentials needed to test the live site:

```
NEXTCLOUD_ADMIN=admin
NEXTCLOUD_PASS=YourProvidedPassword
DB_USER=oc_user
DB_PASS=oc_pass
DB_NAME=oc_db
```

Use this file as-is. If you want custom values, copy it:

```
cp .env .env.local
# then edit .env.local
```

## 4. Start the containers

```
docker compose pull
docker compose up -d
```

- Verify: `docker ps` should list db, app, proxy, etc.

## 5. Final checks

- NextCloud UI: <https://cloud.alex-abriel.com> → log in as **admin** with the password from .env

# Networking, DNS & SSL/TLS

## 1. DNS Configuration

1. In your DNS provider dashboard, create an **A record**:

- **Name:** cloud
- **Type:** A
- **Target:** <YOUR\_DROPLET\_IP>

2. Verify propagation:

```
dig +short cloud.alex-abriel.com
# or
nslookup cloud.alex-abriel.com
```

## 2. Nginx Reverse-Proxy (Docker)

- **nginx.conf** at repo root:

```
events {}
http {
    server {
        listen 80;
        server_name cloud.alex-abriel.com;
        location /.well-known/acme-challenge/ {
            root /usr/share/nginx/html;
        }
        location / {
            return 301 https://$host$request_uri;
        }
    }
    server {
        listen 443 ssl;
        server_name cloud.alex-abriel.com;
        ssl_certificate /etc/letsencrypt/live/cloud.alex-abriel.com/fullchain.pem;
        ssl_certificate_key /etc/letsencrypt/live/cloud.alex-abriel.com/privkey.pem;
        location / {
            proxy_pass http://app:80;
            proxy_set_header Host $host;
            proxy_set_header X-Real-IP $remote_addr;
        }
    }
}
```

- In your **docker-compose.yml** add:

```
services:
  proxy:
    image: nginx:alpine
    volumes:
      - ./nginx.conf:/etc/nginx/nginx.conf:ro
      - certs:/etc/letsencrypt
      - proxy_data:/usr/share/nginx/html
```

```

    ports:
      - "80:80"
      - "443:443"

    volumes:
      certs:
      proxy_data:

```

### 3. Obtain & Renew Certificates

#### 1. Run Certbot:

```

docker run --rm \
-v "$(pwd)/certs:/etc/letsencrypt" \
certbot/certbot certonly \
--webroot -w proxy_data \
-d cloud.alex-abriel.com \
--email you@example.com --agree-tos

```

#### 2. Schedule renewal (on the VM's crontab):

```

0 3 * * * docker run --rm \
-v /root/ICT171-Assignment2-Cloud-Perso-AlexAbriel/certs:/etc/letsencrypt \
certbot/certbot renew --quiet

```