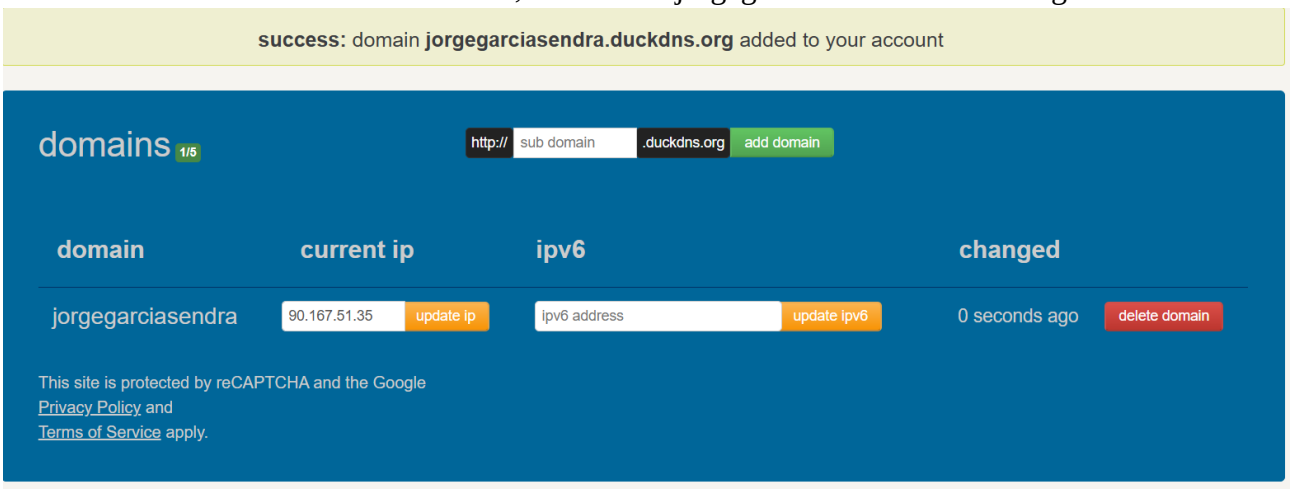
1 Creamos variables de entorno para no tener que escribirlas siempre

```
user@ServerLampJorge:~$ export DOMAIN="jorgegarciasendra.duckdns.org"
user@ServerLampJorge:~$ export WEBROOT="/var/www/miweb"
user@ServerLampJorge:~$
```

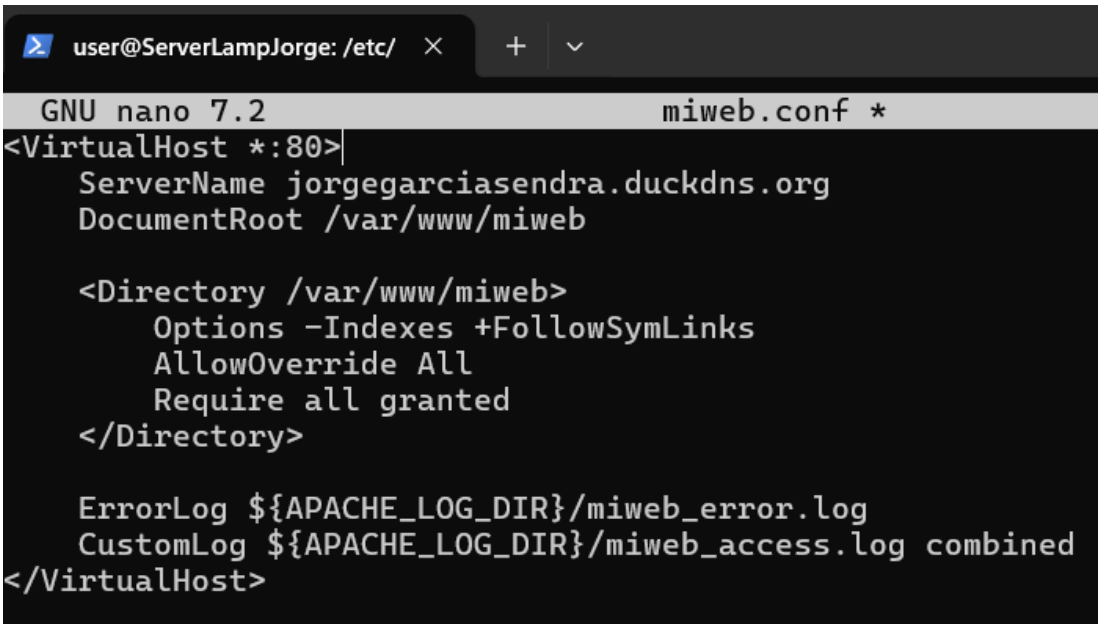
2. Creamos un subdominio en duckDNS, en mi caso jorgegarciasendra.duckdns.org




3. Creamos la carpeta donde se alojara la web, también creamos el contenido de la pagina principal

```
user@ServerLampJorge:~$ sudo mkdir -p $WEBROOT
user@ServerLampJorge:~$ ls /var/www/
html  miweb
user@ServerLampJorge:~$ echo "<h1>HTTPS con Let's Encrypt (DNS-01)</h1>" | s
udo tee $WEBROOT/index.html
<h1>HTTPS con Let's Encrypt (DNS-01)</h1>
user@ServerLampJorge:~$
```

4. Creamos el VirtualHost de apache, en servername ponemos el dominio que hemos creado con duckdns



5. Activamos el sitio y recargamos el apache2

```
user@ServerLampJorge:/etc/apache2/sites-available$ sudo a2ensite miweb.conf
Enabling site miweb.
To activate the new configuration, you need to run:
  systemctl reload apache2
user@ServerLampJorge:/etc/apache2/sites-available$ sudo systemctl reload apache2
user@ServerLampJorge:/etc/apache2/sites-available$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Thu 2025-11-13 07:24:16 UTC; 30min ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 5921 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Process: 6223 ExecReload=/usr/sbin/apachectl graceful (code=exited, status=0/SUCCES>
   Main PID: 5924 (apache2)
      Tasks: 6 (limit: 2264)
     Memory: 27.6M (peak: 40.9M)
        CPU: 820ms
```

6. Instalamos Certbot, de la forma que lo hace la practica da error ya que hace al menos 1 año que no funciona de la forma en la que lo dice, para hacerlo hay que descargar cerbot con duckdns y emitir el certificado de forma automatica (no manual ya que hoy en dia no se puede hacer).

Instalamos el pip

```
user@ServerLampJorge:~$ sudo apt install -y python3-pip
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
```

Instalamos el certbot con la extensión para duck-dns

```
user@ServerLampJorge:~$ sudo pip3 install certbot-dns-duckdns --break-system-packages
Collecting certbot-dns-duckdns
  Downloading certbot_dns_duckdns-1.7.0-py3-none-any.whl.metadata (17 kB)
Requirement already satisfied: certbot<6.0,>=1.18.0 in /usr/lib/python3/dist-packages (f
rom certbot-dns-duckdns) (2.9.0)
Requirement already satisfied: requests<3.0,>=2.20.0 in /usr/lib/python3/dist-packages (
from certbot-dns-duckdns) (2.31.0)
Collecting dnspython<3.0,>=2.0.0 (from certbot-dns-duckdns)
  Downloading dnspython-2.8.0-py3-none-any.whl.metadata (5.7 kB)
Downloading certbot_dns_duckdns-1.7.0-py3-none-any.whl (10 kB)
Downloading dnspython-2.8.0-py3-none-any.whl (331 kB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 30.7/331.1 kB 86.6 kB/s eta 0:00:04
```

Creamos la carpeta donde se guardarà toda la información y ejecutamos los siguientes comandos para crear el certificado BIEN hecho.

```
user@ServerLampJorge: ~
user@ServerLampJorge:~$ sudo mkdir -p /etc/letsencrypt
user@ServerLampJorge:~$
```

```
user@ServerLampJorge:~$ echo "dns_duckdns_token=736ebd7a-1f3e-409d-9b4e-7b1ae4
4a6c5c" | sudo tee /etc/letsencrypt/duckdns.ini
dns_duckdns_token=736ebd7a-1f3e-409d-9b4e-7b1ae44a6c5c
user@ServerLampJorge:~$
```

```
user@ServerLampJorge:~$ sudo chmod 600 /etc/letsencrypt/duckdns.ini
user@ServerLampJorge:~$
```

```
user@ServerLampJorge:~$ sudo certbot certonly --authenticator dns-duckdns --dn
s-duckdns-credentials /etc/letsencrypt/duckdns.ini --dns-duckdns-propagation-s
econds 60 -d jorgegarciasendra.duckdns.org
Saving debug log to /var/log/letsencrypt/letsencrypt.log
Requesting a certificate for jorgegarciasendra.duckdns.org
Waiting 60 seconds for DNS changes to propagate

Successfully received certificate.
Certificate is saved at: /etc/letsencrypt/live/jorgegarciasendra.duckdns.org/f
ullchain.pem
Key is saved at:         /etc/letsencrypt/live/jorgegarciasendra.duckdns.org/p
rivkey.pem
This certificate expires on 2026-02-11.
These files will be updated when the certificate renews.
Certbot has set up a scheduled task to automatically renew this certificate in
 the background.

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-
If you like Certbot, please consider supporting our work by:
 * Donating to ISRG / Let's Encrypt:   https://letsencrypt.org/donate
 * Donating to EFF:                    https://eff.org/donate-le
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-
```

Podemos ver que el certificado se ha creado correctamente

```
user@ServerLampJorge:~$ sudo certbot certificates
Saving debug log to /var/log/letsencrypt/letsencrypt.log

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-
Found the following certs:
  Certificate Name: jorgegarciasendra.duckdns.org
    Serial Number: 61de7502505772f054c16093aa8ca86b8b9
    Key Type: ECDSA
    Domains: jorgegarciasendra.duckdns.org
    Expiry Date: 2026-02-11 07:56:59+00:00 (VALID: 89 days)
    Certificate Path: /etc/letsencrypt/live/jorgegarciasendra.duckdns.org/full
chain.pem
    Private Key Path: /etc/letsencrypt/live/jorgegarciasendra.duckdns.org/priv
key.pem
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-
user@ServerLampJorge:~$
```

7. Activamos el SSL y creamos el virtualhost del HTTPS

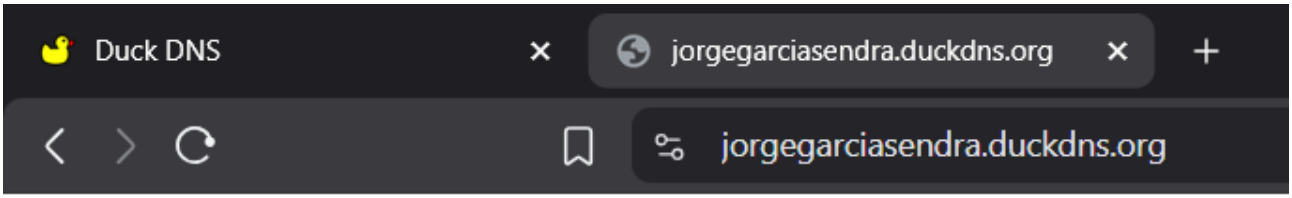
```
user@ServerLampJorge:~$ sudo a2enmod ssl
Considering dependency mime for ssl:
Module mime already enabled
```

```
 GNU nano 7.2                                  miweb-ssl.conf
<VirtualHost *:443>
    ServerName jorgegarciasendra.duckdns.org
    DocumentRoot /var/www/miweb

    SSLEngine on
    SSLCertificateFile /etc/letsencrypt/live/jorgegarciasendra.duckdns.org/fullchain.pem
    SSLCertificateKeyFile /etc/letsencrypt/live/jorgegarciasendra.duckdns.org/privkey.pem

    <Directory /var/www/miweb>
        Options -Indexes +FollowSymLinks
        AllowOverride All
        Require all granted
    </Directory>

    ErrorLog ${APACHE_LOG_DIR}/miweb_ssl_error.log
    CustomLog ${APACHE_LOG_DIR}/miweb_ssl_access.log combined
</VirtualHost>
```

8. Activamos el sitio y recargamos el apache2

```
user@ServerLampJorge:/etc/apache2/sites-available$ sudo a2ensite miweb-ssl.conf
Enabling site miweb-ssl.
To activate the new configuration, you need to run:
  systemctl reload apache2
user@ServerLampJorge:/etc/apache2/sites-available$ sudo systemctl reload apache2
user@ServerLampJorge:/etc/apache2/sites-available$
```

9. Comprobamos que funciona correctamente




# HTTPS con Let's Encrypt (DNS-01)