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HTTPS for a container: a certificate and a domain

Docker & Containers

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HTTPS for a container: a certificate and a domain

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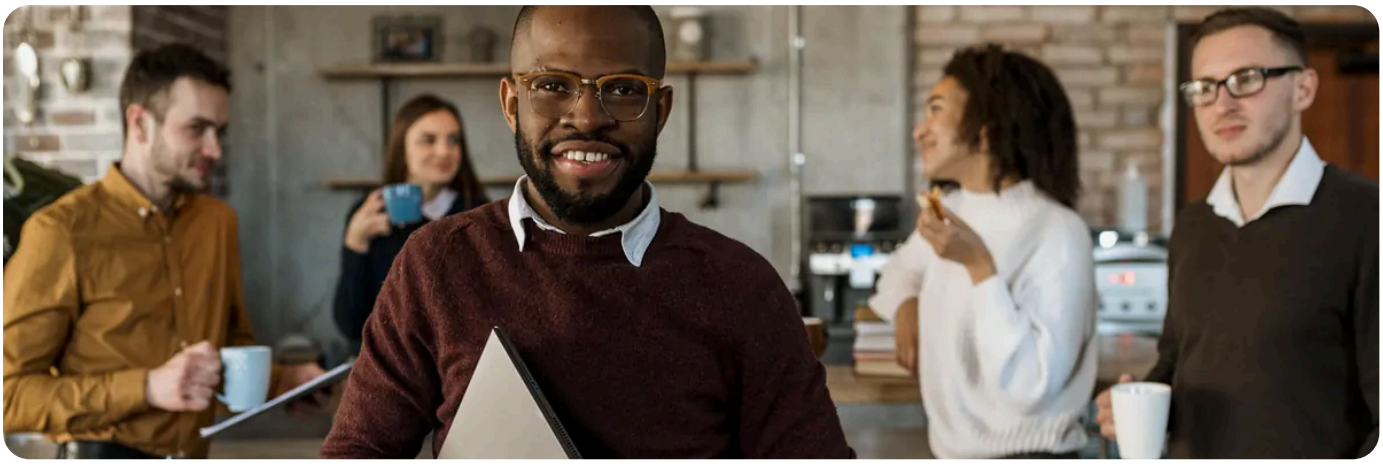

For an application running in a container to show the padlock, you need **a domain pointing at the VPS** and **a certificate**. The most common route is nginx in front of the container (**here is how to set it up**) and **certbot** asking Let's Encrypt for a free certificate and renewing it. On a VPS running Ubuntu and Docker there is **no cPanel AutoSSL**: the certificate and its renewal are yours.

With nginx and certbot

1. **Check the DNS.** The name (say `app.asuaempresa.ao`) must point to the VPS IP, and to **no other**: if there is also an AAAA record (IPv6) pointing elsewhere, validation fails. See **how to check a domain's DNS**.

2. **Open ports 80 and 443.** Validation runs over port 80, so it has to be reachable from outside even if everything moves to 443 afterwards. See **ports and firewall**.

3. **Install certbot with the nginx plugin.** On Ubuntu 22.04:

   ```
   sudo apt install certbot python3-certbot-nginx
   ```

   The certbot site (certbot.eff.org) also gives the method they recommend for each system; follow whatever it says there.

4. **Request the certificate:**

   ```
   sudo certbot --nginx -d app.asuaempresa.ao
   ```

   Certbot asks for an e-mail, validates the domain, edits the nginx file to use the certificate, and asks whether to redirect HTTP to HTTPS. Accept the redirect.

5 **Test the renewal.** Short-lived certificates are by design. Renewal is automatic, but prove it:

```
sudo certbot renew --dry-run
```

If it finishes without errors, it is sorted. To see when each certificate ends: `sudo certbot certificates`.

6 **Tell the application it sits behind HTTPS.** nginx already sends the `X-Forwarded-Proto` header. The application has to respect it, or it will build `http://` addresses and the padlock is lost to mixed content.

Other ways to get HTTPS

Option	How it works	Worth knowing
nginx + certbot on the server	Certbot runs on the VPS and edits nginx.	The most common and best documented. Renewal is a system timer.
Caddy	A web server that obtains and renews certificates by itself.	Less configuration, but one more program to learn and maintain.
Traefik	A proxy that reads your containers and handles certificates.	Built for many containers. The configuration is yours.
Cloudflare in front	The visitor speaks HTTPS to Cloudflare.	You still need HTTPS between Cloudflare and the VPS: see **SSL at Cloudflare**.

If validation fails, do not retry in a loop.
Let's Encrypt limits failed attempts. Fix the cause (DNS not propagated yet, port 80 closed, another service using 80 or 443) and, while you rehearse, use `--dry-run`, which does not spend your allowance. A domain you have only just pointed can take a while to propagate: **how long DNS changes take to propagate**.

A container listening on 80 or 443 breaks nginx.
If nginx will not start with "address already in use", another program has that port. Find out who: `sudo ss -tlnp`. And if your main site at `asuaempresa.ao` lives somewhere else, do not touch the nameservers of the whole domain: create just the subdomain, as in **domain with us, site somewhere else**.

NEED A HAND?

Domain with us and the A record does not seem to work? Tell us the name and the VPS IP, and we will check the DNS.

Open a support ticket →

SEE ALSO

- Nginx as a reverse proxy in front of a container →
- DNS records explained: A, CNAME, MX, TXT and TTL →
- How long DNS changes take to propagate →
- SSL certificates →

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TAX ID (NIF)	500 260 5724
COMMERCIAL REGISTRATION NO.	26464-25/250724
REGISTERED OFFICE	Rua Direita do Patriota, Bairro Dangereux Belas, Luanda, Angola
CONTACT	info@interweb.ao · +244 942 011 191 · www.interweb.ao
OPENING HOURS	Monday to Friday - 08 AM to 04 PM Saturday & Sunday - Closed

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