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Nginx as a reverse proxy in front of a container

Docker & Containers

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Nginx as a reverse proxy in front of a container

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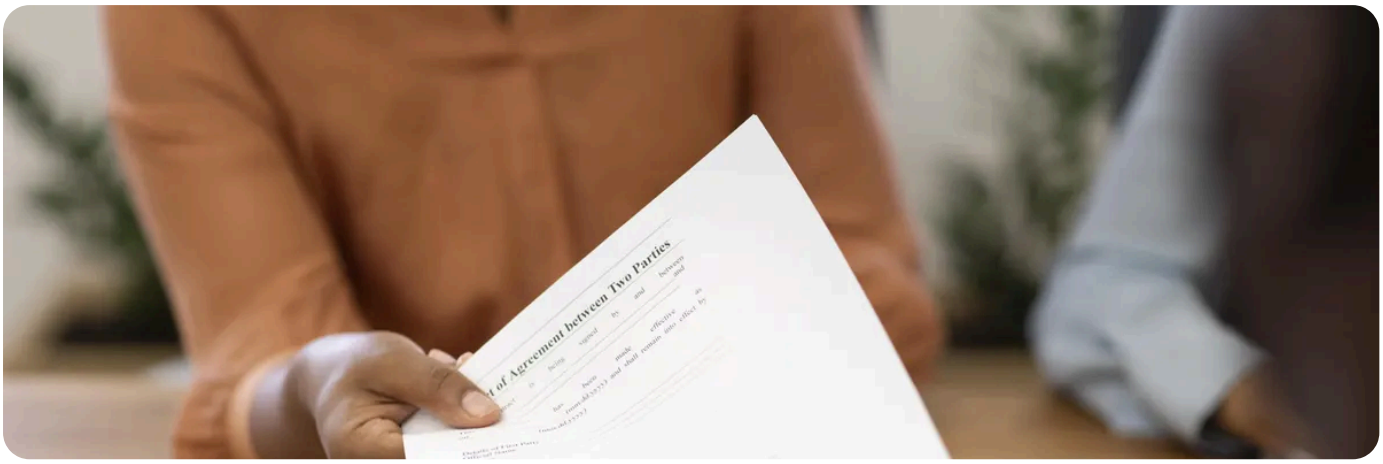

A **reverse proxy** is nginx receiving requests on ports 80 and 443, under your domain, and handing them to the application sitting on another port inside the server. It is the normal way to put a container on the internet: the application stays hidden on `127.0.0.1`, and nginx deals with the domain and with HTTPS. This article is for a **VPS** of your own, with Ubuntu 22.04 LTS and the application already running in a container (**Compose example**).

Setting up the proxy

1. **Point the name at the VPS.** Create an A record for, say, `app.asuaempresa.ao` pointing to the VPS IP, and wait for it to propagate: **pointing a domain at your VPS**.

2. **Publish the application on the server itself only.** In Compose: `"127.0.0.1:3000:3000"`. That way only nginx can reach it.

3. **Install nginx:** `sudo apt install nginx`.

4. **Create the site file**, with `sudo nano /etc/nginx/sites-available/app`:

```
server {
    listen 80;
    server_name app.asuaempresa.ao;

    location / {
        proxy_pass http://127.0.0.1:3000;
        proxy_set_header Host $host;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header X-Forwarded-Proto $scheme;
    }
}
```

5 **Enable, test and reload:**

```
sudo ln -s /etc/nginx/sites-available/app /etc/nginx/sites-enabled/app
sudo nginx -t
sudo systemctl reload nginx
```

The `nginx -t` checks the syntax **before** reloading. If it says "syntax is ok", go ahead and reload.

6 **Open ports 80 and 443** in the firewall: `sudo ufw allow 80/tcp` and `sudo ufw allow 443/tcp`. See **ports and firewall**.

7 **Add HTTPS** with certbot: **HTTPS for a container**.

The errors you will meet

What you see	Usual cause	What to do
502 Bad Gateway	nginx cannot talk to the application: the container is stopped, or the port is wrong.	`docker ps`, and check the port in `proxy_pass`.
504 Gateway Time-out	The application takes longer than nginx is willing to wait.	Look at what the application is doing and at its logs. Only then think of raising nginx's timeouts.
The nginx welcome page	The request did not match `server_name`, or the default site is still enabled.	Check the name and the DNS. Remove the default site: `sudo rm /etc/nginx/sites-enabled/default` (it is only the link).
413 Request Entity Too Large	An upload larger than nginx accepts.	Add `client_max_body_size` in the `server` block with the size you need.
Redirect loop	The application does not know the visitor came over HTTPS.	Check `X-Forwarded-Proto` and set the application to respect it.

nginx's error logs are in `/var/log/nginx/error.log`. If the application uses *websockets* (live chat, dashboards that update by themselves), add these lines to the `location` block: `proxy_http_version 1.1;`, `proxy_set_header Upgrade $http_upgrade;` and `proxy_set_header Connection "upgrade";`.

! **Do not leave the application open on a public port as well.**
If the container publishes `3000:3000` (without the `127.0.0.1`), Docker opens that port to everyone, even if `ufw` says otherwise, and the proxy becomes decoration. It is the most frequent flaw in this design.

You can also use Caddy or Traefik

instead of nginx: they handle HTTPS for you. nginx has the advantage of being the best documented. On an unmanaged VPS, installing and maintaining any of the three is yours: **how far our support goes**.

NEED A HAND?

The domain already points at the VPS but the server does not even answer a ping? That we check ourselves.

Open a support ticket →

SEE ALSO

- **HTTPS for a container: a certificate and a domain**
- **Ports and firewall on a VPS: why your app is not reachable**
- **Pointing a domain at your own VPS: nameservers and glue records**

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