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Python & Other Languages

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FastAPI on a VPS: uvicorn workers, proxy headers and a service that restarts

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FastAPI speaks ASGI, and the server that runs it is **uvicorn**. On a VPS, the production recipe has four pieces: uvicorn with a few processes, a systemd service that keeps it alive, nginx in front with HTTPS, and the application listening only on `127.0.0.1`. The basics (running with `uvicorn main:app`) are already in **running a Flask or FastAPI application**; what follows is what turns it into a proper service.

From test to service

1 **Install into the application's virtual environment:**

```
cd /home/appuser/api
python3 -m venv .venv
.venv/bin/pip install fastapi uvicorn
```

uvicorn's documentation lists the variants with extras, if you need more speed; start with the plain one.

2 **Test:**

```
.venv/bin/uvicorn main:app --host 127.0.0.1 --port 8000 --workers 2
```

`--workers` starts several processes. The 2 is an example: each process uses memory. **Do not use** `--reload` in production: it is for development only.

3 **Create the service** in `/etc/systemd/system/my-api.service`:

```
[Unit]
Description=My API
After=network.target

[Service]
User=appuser
WorkingDirectory=/home/appuser/api
EnvironmentFile=/home/appuser/api/.env
ExecStart=/home/appuser/api/.venv/bin/uvicorn main:app --host 127.0.0.1 --port 8000 --
workers 2
Restart=on-failure

[Install]
WantedBy=multi-user.target
```

Then: `sudo systemctl daemon-reload` and `sudo systemctl enable --now my-api`.

4 **Put nginx in front** with the headers that tell the API who the visitor is and whether they came over HTTPS: `proxy_set_header Host $host;`, `proxy_set_header X-Forwarded-For $remote_addr;` and `proxy_set_header X-Forwarded-Proto $scheme;`. The rest of the block is in **nginx as a reverse proxy**.

The details that make a difference

Topic	What to know
The visitor's address	Behind the proxy, the API sees nginx's IP. uvicorn reads `X-Forwarded-For` from the addresses it trusts (`--forwarded-allow-ips` , by default only the server itself, which suits a local nginx).
Automatic documentation	FastAPI publishes `/docs` and `/redoc`. For a private API, switch them off: `FastAPI(docs_url=None, redoc_url=None)`.
Long tasks	A request that takes long holds a process. For heavy work, do it outside the request (a queue), instead of raising the *workers*.
Websockets	FastAPI supports them. For nginx, see **WebSockets on a VPS**.
Cross-origin requests	If a site on another domain calls this API: **CORS**.

! **Do not expose uvicorn to the Internet.**
Listening on `0.0.0.0` with the port open in the firewall skips HTTPS and the proxy. Keep `127.0.0.1` and leave only nginx public. If the API does not answer from outside, follow **ports and firewall on a VPS**.

Create a health route

(for example `/health` answering "ok") and use it to know whether the API is alive: with `curl`, or in a monitoring service. If the service will not start, `journalctl -u my-api -n 100` says why. On an unmanaged VPS the maintenance is yours: **how far our support goes**.

RECOMMENDED

Need a server for your API? Have a look at our VPS plans.

See the VPS servers →

SEE ALSO

- **Running Flask or Django with gunicorn and systemd on a VPS** →
- **Nginx as a reverse proxy in front of a container** →
- **CORS error between your front end and your API: how to fix it** →

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