

Self hosting your side projects with Django and duct tape

PyCon Italia

@anze3db, May 25, 2024



⌚ dashboard

Last Updated: 2024-05-24 11:24:25 +0100

OVERALL ANALYZED REQUESTS

Total Requests
490,931

Excl. IP Hits
0

Valid Requests
490,931

Referrers
0

Failed Requests
0

Not Found
7,413

Log Parsing Time
00:00:40

Static Files
629

Unique Visitors
223,791

Log Size
0 Byte

23/APR/2024 – 24/MAY/2024

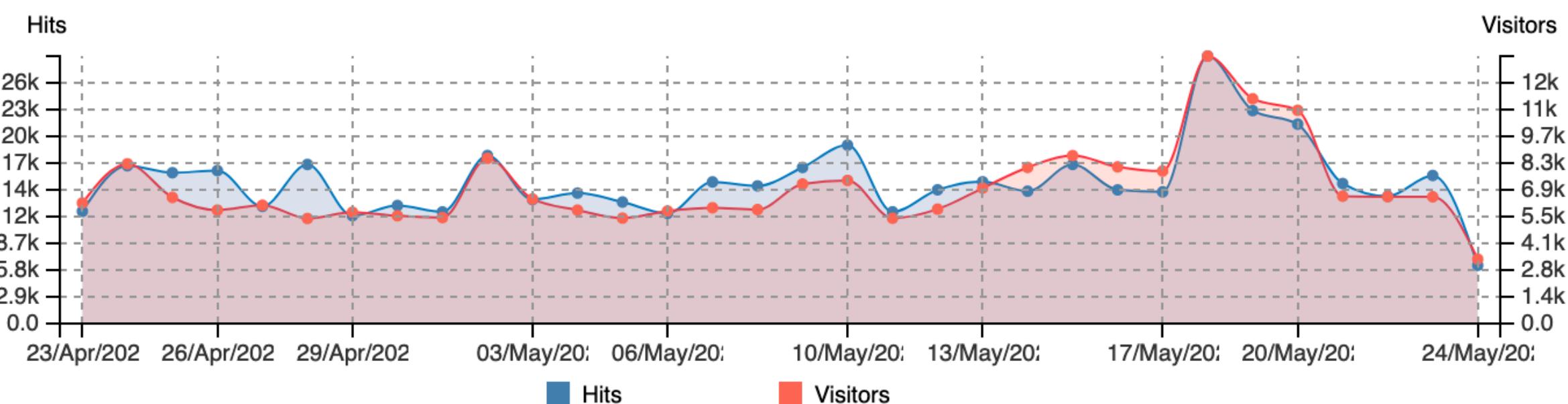
Requested Files
139,331

Tx. Amount
3.76 GiB

UNIQUE VISITORS PER DAY - INCLUDING SPIDERS

HITS HAVING THE SAME IP, DATE AND AGENT ARE A UNIQUE VISIT.

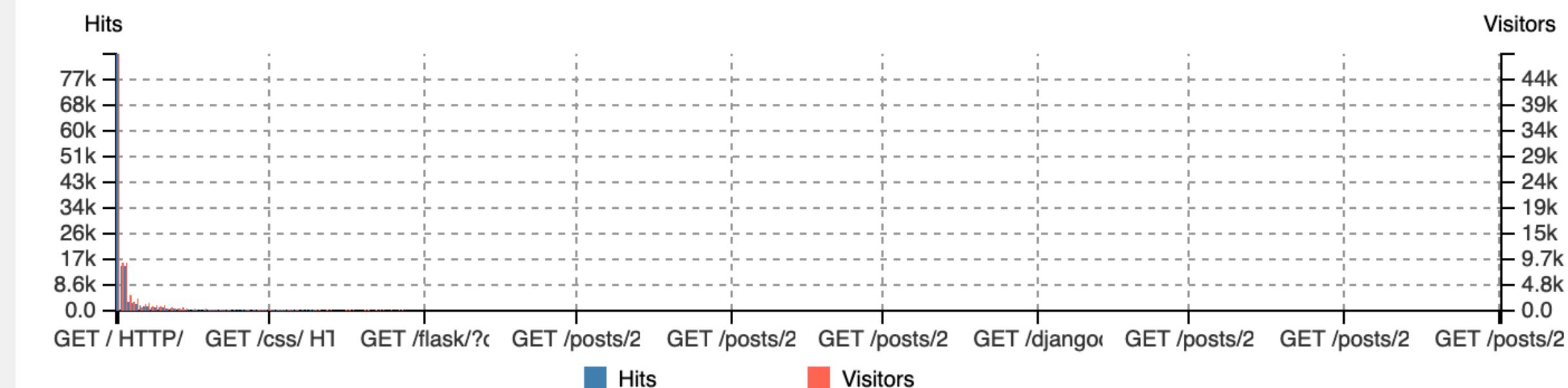
Panel Options ▾



REQUESTED FILES (URLS)

TOP REQUESTS SORTED BY HITS [AVGTS, CUMTS, MAXTS, MTHD, PROTO]

Panel Options ▾



✓ fedidevs.com

99.994% uptime



Response times

Downtime

Down for 7 minutes

Mar 12, 2024

0.45 s

0.30 s

0.15 s

0.0 s

07:00pm

10:00pm

01:00am

04:00am

07:00am

10:00am

01:00pm

04:00pm

✓ surfcams.pecar.me

99.991% uptime



Response times

This might not be a good idea

But it is possible

And it could be fun

Hardware

Raspberry Pi

SD Cards

Limited number of write-and-erase cycles

USB Drives

Displays



Software

Raspberry Pi OS

Python

```
python3 -m pip  
/usr/bin/python3: No module named pip
```

```
apt install python-full
```

python.org

```
./configure  
make  
make test  
sudo make install
```

Example 1

Searching "All Mailbo..."
Found 836 results

wave-watcher@psywerx.net
Strong wind on 2022-01-31 12:00:00!

Archive -...ogle (All Mail) 30 January 2022 at 22:00

Wave Watcher

Strong winds detected!

2022-01-31 12:00:00

[View details](#)

Prognoza Wind

Prognoza Waves

Happy surfing!

wave-wat... Arc... 01/05/2023
Re: [anze3db/wave-watcher] Bu...
...ID: <anze3db/wave-watcher/pull/13/issue_event/9139069942@gith...

wave-wat... Arc... 30/01/2022
Strong wind on 2022-01-31 12:0...
Wave Watcher Strong winds detected! 2022-01-31 12:00:00 Vi...

wave-wat... Arc... 29/01/2022
Strong wind on 2022-01-31 12:0...
Wave Watcher Strong winds detected! 2022-01-31 12:00:00 Vi...

wave-wat... Arc... 17/01/2022
Strong wind on 2022-01-20 00:...
Wave Watcher Strong winds detected! 2022-01-20 00:00:00 2...

wave-wat... Arc... 02/01/2022
Strong wind on 2022-01-04 12:0...
Wave Watcher Strong winds detected! 2022-01-04 12:00:00 2...

wave-wat... Arc... 24/12/2021
Strong wind on 2021-12-25 12:0...
Wave Watcher Strong winds detected! 2021-12-25 12:00:00 Vi...

wave-wat... Arc... 23/12/2021
Strong wind on 2021-12-24 12:0...
Wave Watcher Strong winds detected! 2021-12-24 12:00:00 2...

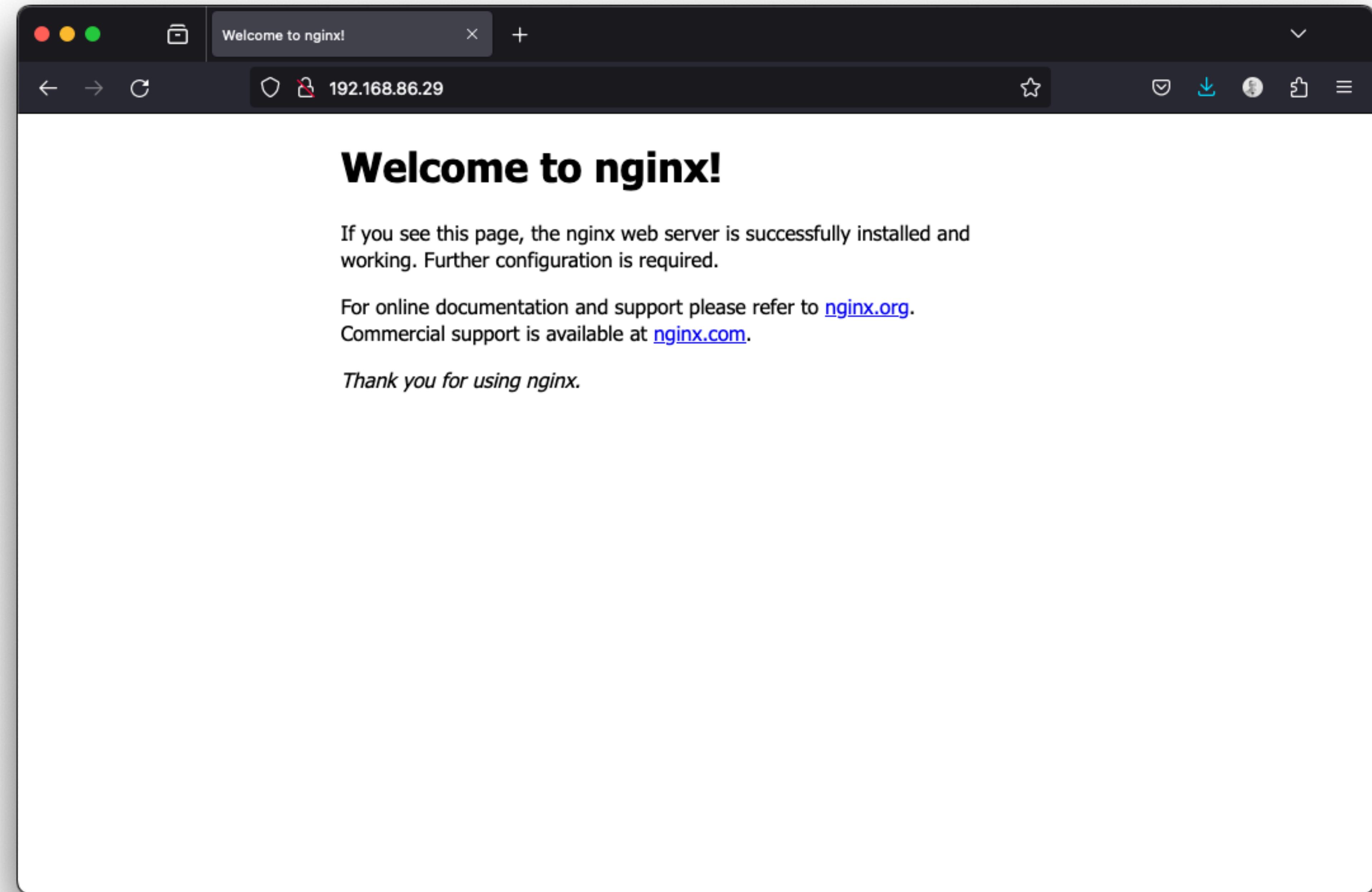
wave-wat... Arc... 06/12/2021
Strong wind on 2021-12-08 12:0...
Wave Watcher Strong winds detected! 2021-12-08 12:00:00 2...

wave-wat... Arc... 05/12/2021
Strong wind on 2021-12-08 13:0...
Wave Watcher Strong winds detected! 2021-12-08 13:00:00 Vi...



nginx

apt install nginx



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Example 2

★ Favorites

- Carcavelos
- Guincho
- Costa de Caparica
- Praia Grande
- Ribeira d'Ilhas
- Lagide

Carcavelos

- Carcavelos
- Calhau
- Overview
- Tricana
- Reef
- FPS
- Praia da Torre
- São Pedro do Estoril
- São João do Estoril
- Santo Amaro
- Santo Amaro
- Paço de Arcos
- Caxias

Guincho

- Guincho
- Norte
- Crismina
- Overview

How to put it on the internet?

Port forwarding



Port management

...

raspberrypi
192.168.86.29
dc:a6:32:11:e6:30
22 → 22 (TCP)



raspberrypi
192.168.86.29
dc:a6:32:11:e6:30
80 → 80 (TCP)



raspberrypi
192.168.86.29
dc:a6:32:11:e6:30
443 → 443 (TCP)



Danger

#	HITS ▾	VISITORS ▾	TX. AMOUNT ▾	METHOD ▾	PROTOCOL ▾	DATA ▾
MIN.	1 (00.02%)	—	—	—	—	—
MAX.	91 (01.41%)	—	13.84 KiB (01.51%)	—	—	—
AVG.	3 (00.05%)	—	468 B (00.05%)	—	—	—
1	91 (00.02%)	0 (00.00%)	13.8 KiB (00.00%)	GET	HTTP/2	//xmlrpc.php?rsd
2	91 (00.02%)	0 (00.00%)	13.8 KiB (00.00%)	GET	HTTP/2	//blog/wp-includes/wlwmanifest.xml
3	91 (00.02%)	0 (00.00%)	13.8 KiB (00.00%)	GET	HTTP/2	//web/wp-includes/wlwmanifest.xml
4	91 (00.02%)	0 (00.00%)	13.8 KiB (00.00%)	GET	HTTP/2	//wordpress/wp-includes/wlwmanifest.xml
5	91 (00.02%)	0 (00.00%)	13.8 KiB (00.00%)	GET	HTTP/2	//wp/wp-includes/wlwmanifest.xml
6	91 (00.02%)	0 (00.00%)	13.8 KiB (00.00%)	GET	HTTP/2	//2019/wp-includes/wlwmanifest.xml
7	91 (00.02%)	0 (00.00%)	13.8 KiB (00.00%)	GET	HTTP/2	//shop/wp-includes/wlwmanifest.xml

TOT. **6,468** — **914.8 KiB** — — **2,001**



home@raspberrypi: ~

```
Nov 19 01:32:06 raspberrypi sshd[124639]: Received disconnect from 223.171.46.146 port 58358:11: Bye Bye [preauth]
Nov 19 01:32:06 raspberrypi sshd[124639]: Disconnected from invalid user dev 223.171.46.146 port 58358 [preauth]
Nov 19 01:32:07 raspberrypi sshd[124641]: Invalid user deploy from 107.173.160.154 port 40870
Nov 19 01:32:07 raspberrypi sshd[124641]: Received disconnect from 107.173.160.154 port 40870:11: Bye Bye [preauth]
Nov 19 01:32:07 raspberrypi sshd[124641]: Disconnected from invalid user deploy 107.173.160.154 port 40870 [preauth]
Nov 19 01:32:11 raspberrypi sshd[124643]: Invalid user user1 from 181.2.151.236 port 38092
Nov 19 01:32:12 raspberrypi sshd[124643]: Received disconnect from 181.2.151.236 port 38092:11: Bye Bye [preauth]
Nov 19 01:32:12 raspberrypi sshd[124643]: Disconnected from invalid user user1 181.2.151.236 port 38092 [preauth]
Nov 19 01:32:15 raspberrypi sshd[124647]: Invalid user oracle from 180.151.215.230 port 35098
Nov 19 01:32:15 raspberrypi sshd[124647]: Received disconnect from 180.151.215.230 port 35098:11: Bye Bye [preauth]
Nov 19 01:32:15 raspberrypi sshd[124647]: Disconnected from invalid user oracle 180.151.215.230 port 35098 [preauth]
Nov 19 01:32:16 raspberrypi sshd[124651]: Invalid user odoo from 167.71.67.44 port 47668
Nov 19 01:32:16 raspberrypi sshd[124651]: Received disconnect from 167.71.67.44 port 47668:11: Bye Bye [preauth]
Nov 19 01:32:16 raspberrypi sshd[124651]: Disconnected from invalid user odoo 167.71.67.44 port 47668 [preauth]
Nov 19 01:32:16 raspberrypi sshd[124649]: Invalid user test from 162.241.126.244 port 44424
Nov 19 01:32:16 raspberrypi sshd[124649]: Received disconnect from 162.241.126.244 port 44424:11: Bye Bye [preauth]
Nov 19 01:32:16 raspberrypi sshd[124649]: Disconnected from invalid user test 162.241.126.244 port 44424 [preauth]
Nov 19 01:32:29 raspberrypi sshd[124654]: Invalid user ubuntu from 1.12.255.20 port 40594
Nov 19 01:32:29 raspberrypi sshd[124656]: Invalid user minecraft from 103.133.36.6 port 34916
Nov 19 01:32:29 raspberrypi sshd[124654]: Received disconnect from 1.12.255.20 port 40594:11: Bye Bye [preauth]
Nov 19 01:32:29 raspberrypi sshd[124654]: Disconnected from invalid user ubuntu 1.12.255.20 port 40594 [preauth]
Nov 19 01:32:29 raspberrypi sshd[124656]: Received disconnect from 103.133.36.6 port 34916:11: Bye Bye [preauth]
Nov 19 01:32:29 raspberrypi sshd[124656]: Disconnected from invalid user minecraft 103.133.36.6 port 34916 [preauth]
Nov 19 01:32:32 raspberrypi sshd[124660]: Invalid user odoo from 43.130.158.82 port 38930
Nov 19 01:32:32 raspberrypi sshd[124660]: Received disconnect from 43.130.158.82 port 38930:11: Bye Bye [preauth]
Nov 19 01:32:32 raspberrypi sshd[124660]: Disconnected from invalid user odoo 43.130.158.82 port 38930 [preauth]
Nov 19 01:32:47 raspberrypi sshd[124663]: Received disconnect from 43.131.39.140 port 46752:11: Bye Bye [preauth]
Nov 19 01:32:47 raspberrypi sshd[124663]: Disconnected from authenticating user postgres 43.131.39.140 port 46752 [preauth]
Nov 19 01:33:03 raspberrypi sshd[124667]: Invalid user test from 159.203.170.197 port 60204
Nov 19 01:33:03 raspberrypi sshd[124667]: Received disconnect from 159.203.170.197 port 60204:11: Bye Bye [preauth]
Nov 19 01:33:03 raspberrypi sshd[124667]: Disconnected from invalid user test 159.203.170.197 port 60204 [preauth]
Nov 19 01:33:13 raspberrypi sshd[124672]: Invalid user toor from 107.173.160.154 port 36296
Nov 19 01:33:13 raspberrypi sshd[124672]: Received disconnect from 107.173.160.154 port 36296:11: Bye Bye [preauth]
Nov 19 01:33:13 raspberrypi sshd[124672]: Disconnected from invalid user toor 107.173.160.154 port 36296 [preauth]
Nov 19 01:33:17 raspberrypi sshd[124674]: Invalid user kali from 180.151.215.230 port 61240
Nov 19 01:33:17 raspberrypi sshd[124674]: Received disconnect from 180.151.215.230 port 61240:11: Bye Bye [preauth]
```

Domain names

DNS

CloudFlare

Dynamic IP

ipster

`ipster` is a command line tool that keeps your CloudFlare DNS record in sync with your Raspberry Pi's IP 🤖

Install and Run

```
wget https://github.com/anze3db/ipster/releases/download/24.1/ipster.pi
chmod +x ./ipster.pi
./ipster.pi
```

`ipster` will need access to your CloudFlare account so you'll have to create an [API_TOKEN](#) (use the Edit Zone DNS template).

Run with the necessary environment variables:

```
IPSTER_CLOUDFLARE_API_TOKEN=xxxxxxxxxx_yyyyyyyyyyyyyyyyyyyyyyyyyy IPSTER_CLOUDFLARE_ZONE_NAME
```

Required environmental variables:

- `IPSTER_CLOUDFLARE_API_TOKEN` - your CloudFlare [API_TOKEN](#) (Use the Edit zone DNS template).
- `IPSTER_CLOUDFLARE_ZONE_NAME` - your CloudFlare zone name. Usually your domain name e.g. `example.com`.
- `IPSTER_CLOUDFLARE_DNS_RECORD_NAME` - the CloudFlare DNS record that you want to keep in sync e.g. `home.example.com`.

Example 3



PyCon Italia

PyCon Italia will take place on May 22-25 in Florence, Italy.

22nd of May 2024: Beginners' Day

23rd to the 25th of May 2024: Main conference days (Talks, Workshops and more)

Visit <https://2024.pycon.it> for more info!

Follow the [official Mastodon account](#) to be up to date.

Edit

[Filter by most active accounts](#)

 Paolo Melchiorre at #PyConIT (21)

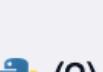
 Anže  @ #PyConIT (13)

 Andrea Grandi @ PyCon Italia (10)

 Florian Haas (8)  PyCon Italia (7)

 Cheuk Ting Ho (7)  mborus (4)

 Jodie Burchell  (3)

 Clément Robert  (2)

 Nafiul Islam (2)



Paolo Melchiorre at #PyConIT

[@fosstodon.org@paulox](https://fosstodon.org@paulox)

[May 21, 2024](#)

Tomorrow PyCon Italia 2024 will begin 

Everything's ready to welcome many Pythonistas to the beautiful city of Florence



I'm ready to meet you all, please stop by and say hello 

[#PyCon](#) [#PyConIT](#) [#PyConIT24](#) [#PyConIT2024](#) [#PyConItalia](#)

Free streaming 

2024.pycon.it/en



☆ 21

↻ 4

💬 4

nginx + Django

```
pip install django  
django-admin startproject  
python manage.py runserver
```

Gunicorn

```
import multiprocessing

bind = "unix:fedidevs.sock"
workers = multiprocessing.cpu_count() + 1
threads = multiprocessing.cpu_count() * 2
proc_name = "fedidevs"
loglevel = "info"
pidfile = "gunicorn.pid"
```

SystemD

/etc/systemd/system/fedidevs.service

[Unit]

Description=Fedidevs

[Service]

Type=simple

Restart=always

RestartSec=1

ExecStart=/home/anze/fedidevs/start.sh

[Install]

WantedBy=multi-user.target

/home/anze/fedidevs/start.sh

```
. .venv/bin/activate  
gunicorn fedidevs.wsgi
```

```
sudo systemctl enable fedidevs.service
```

```
sudo systemctl start fedidevs.service
```

nginx config

```
server {  
  
    server_name fedidevs.com;  
  
    location / {  
        proxy_set_header Host $http_host;  
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;  
        proxy_set_header X-Forwarded-Proto $scheme;  
        proxy_set_header Upgrade $http_upgrade;  
        proxy_set_header Connection $connection_upgrade;  
        proxy_redirect off;  
        proxy_buffering off;  
        proxy_pass http://fedidevs_gunicorn;  
    }  
}  
  
upstream fedidevs_gunicorn {  
    server unix:///home/fedidevs/fedidevs.sock;  
}
```

```
server {  
  
    server_name fedidevs.com;  
  
    location / {  
        proxy_set_header Host $http_host;  
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;  
        proxy_set_header X-Forwarded-Proto $scheme;  
        proxy_set_header Upgrade $http_upgrade;  
        proxy_set_header Connection $connection_upgrade;  
        proxy_redirect off;  
        proxy_buffering off;  
        proxy_pass http://fedidevs_gunicorn;  
    }  
}  
  
upstream fedidevs_gunicorn {  
    server unix:///home/fedidevs/fedidevs.sock;  
}
```

Https?

 Your SSL/TLS encryption mode is **Flexible**

This setting was last changed 8 years ago



- Off (not secure) [i](#)
No encryption applied
- Flexible**
Encrypts traffic between the browser and Cloudflare
- Full
Encrypts end-to-end, using a self signed certificate on the server
- Full (strict)
Encrypts end-to-end, but requires a trusted CA or Cloudflare Origin CA certificate on the server

sudo certbot --nginx

Databases

SQLite

```
sqlite3 db.sq3 ".backup 'db.bck.sq3'"
```

Postgres

```
pg_dump yourdb > location.sql
```

Deployments

GitHub Action

```
#!/bin/bash

. .venv/bin/activate

git pull

pip install -r requirements.txt

python manage.py collectstatic --noinput

python manage.py migrate

sudo kill -hup `cat gunicorn.pid`

sudo systemctl restart fedidevs-worker
```

Summary

- Raspberry Pi + a fast SD card
- Raspberry Pi OS and install Python
- Nginx for the webserver
- Gunicorn to serve your Django
- SystemD to make sure your services keep running
- SQLite for storage
- GitHub Actions with SSH to do deployments

Questions?

@anze3db



<https://pyconit2024.pecar.me>