Uvicorn ASGI web server

CONCEPTS

main:app means module:variable. Uvicorn serves ASGI apps (FastAPI, Starlette, Django ASGI) and listens on 127.0.0.1:8000 by default.

Client browser
↓ HTTPS
nginx TLS, static
↓ unix socket
Uvicorn HTTP and ASGI
↓ ASGI
Your app FastAPI etc.

Defaults to 127.0.0.1, so a container needs --host 0.0.0.0 or it is unreachable from outside.

--reload and --workers cannot be combined. Use --reload for development only, workers or Gunicorn for production.

RUN

uvicorn *<module>*:*<app>*
Serve an ASGI app

uvicorn --factory *<module>*:*<func>*
Treat app as a factory

uvicorn *<module>*:*<app>* **--reload**
Auto-restart on file change

uvicorn *<module>*:*<app>* **--workers** *<n>*
Run n worker processes

uvicorn --version
Print the version

uvicorn --help
List all options

python -m uvicorn *<module>*:*<app>*
Run via the interpreter

BINDING

--host *<addr>*
Bind address (default 127.0.0.1)

--port *<n>*
Bind port (default 8000)

--uds *<path>*
Bind a Unix socket

RELOAD

--reload
Watch files and restart

--reload-dir *<dir>*
Watch this directory only

WORKERS AND LIMITS

--workers *<n>*
Number of worker processes

--timeout-keep-alive *<sec>*
Idle keep-alive timeout (default 5)

kill -HUP *<pid>*
Gracefully restart workers

PROTOCOLS

--http *<impl>*
h11 or httptools

LOGGING

--log-level *<level>*
critical, error, warning, info, debug, trace

--no-access-log
Silence request lines

HTTPS AND PROXIES

--ssl-keyfile *<key>* **--ssl-certfile** *<crt>*
Serve HTTPS directly

--proxy-headers
Read X-Forwarded-For and -Proto

--forwarded-allow-ips *<ips>*
Trusted proxy IPs or sockets

Behind nginx over a Unix socket, set X-Forwarded-For and X-Forwarded-Proto in the proxy and list the proxy in --forwarded-allow-ips.

GUNICORN AND CODE

Gunicorn with Uvicorn workers

```
pip install uvicorn-worker
gunicorn main:app -w 4 -k
uvicorn_worker.UvicornWorker
```

Run from Python

```
import uvicorn
if __name__ == "__main__":
    uvicorn.run("main:app",
host="0.0.0.0", port=8000, reload=True)
```