

Data logger for devices connected via TCP

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1 Project structure

This project is consist of two programs. First one is server which communicate with devices by TCP-socket and process data. Parsed data from are stored simultaneously to database and files on the disk.

Data can be accessed by reading files or database and also by web-interface which is visualise data packages on the map. Internet connection is needed to fully usage of this interface. While the map is loaded from the third-party services. The map is also contain address and airspace information which is also loaded from online API.

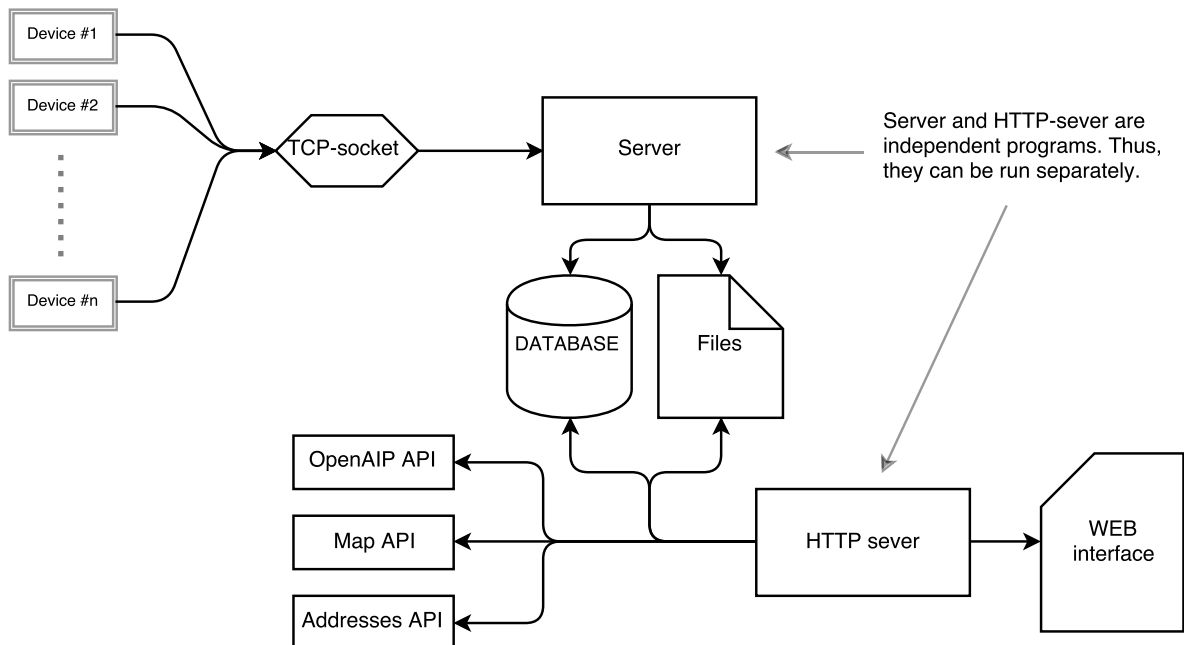


Figure 1: Diagram of the system and interconnection in it.

The figure ?? shows arrangement of the system. As can be seen there are two application "Server" and "HTTP Server". They carry their function and don't interact with each other.

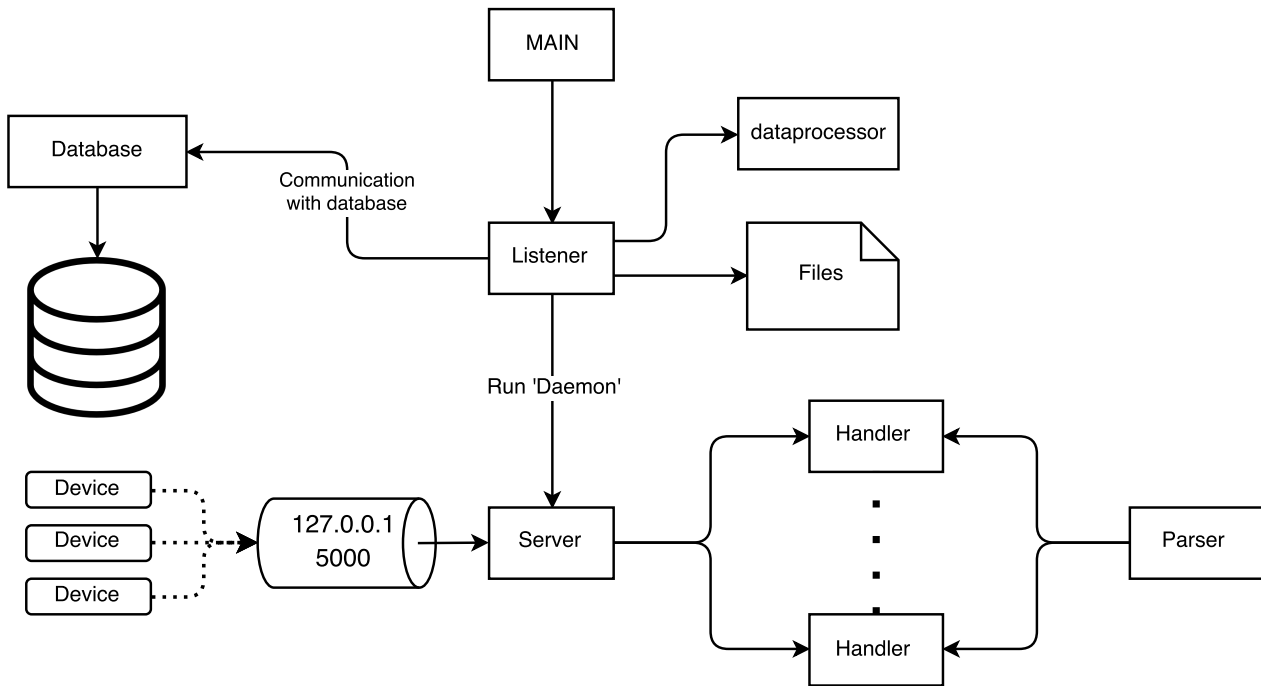


Figure 2: Workflow of the database program.

Which allows us to run them separately. Server can be seen as a producer of the data and HTTP server is just interface to visualise them. Data can't be changed from the HTTP server.

In the figure ?? can be seen structure of the server program. It is using multithreading approach to communicate with the several devices at once. When device sets connection unique handler is created only for this connection. If connection is closed handler is also stops.

Handlers parses received data from the devices. Processed data sent to "Listener" entity which make some more changes in data (to correctly save it to database) and then store it in the filesystem and database.

2 Installation

Ubuntu linux platform is used to test and run this software. Program is written in Python 3 and use MySQL database for storing data. Therefore there are several packages required to run it properly.

To install application on the Ubuntu machine follow next instruction:

1. Download *.tar archive and put it somewhere on the targeted machine.
2. Unpack it (using for example tar command).
3. You will see catalog which should contain some files and source code of the program.
4. Open config.cfg and edit it as you need. This is configuration file for the program it will be parsed and used for installation process.

5. After setting configuration find install.sh script. Run it.
6. Follow the instruction shown by script installation process. You will be asked about installation of system packages, login information for database and few other things.
7. If there is no error messages installation is successfully finished.

After finishing installation there should be new user on the target machine. Name of this user is specified in the configuration file. Login to this user (for example by using 'sudo username' command) and in the home directory (/home/username) there should be catalog named as in configuration file.

TODO. Go into catalog. Run scripts for server and web-interface.

3 Usage

Web-interface by default available on the address `http://127.0.0.1:8001` or on the network address of the target machine with port `8001`.

If you need to access to all created files they can be found in the `name_of_server/data` catalog.

To run the server go to the server catalog and run main.py script. For example: `python3 ./main.py`.

You should see logging output of the server.

Web-interface is run similar way. Go to `name_of_server/gui` and run manage.py script, by using following command: `python ./manage.py runserver 8001`.