

Cellular Network Map

Real deployment data for cellular networks can be very convenient when elaborating simulation scenarios in scientific papers. In the following, we present an automation tool that enables to extract the geographical data of the base stations for the mobile operators in France.

You need a working python distribution with the following packages:

- [selenium](#)
- [matplotlib](#)

You also need to have a valid subscription on the [ANFR](#) (Agence Nationale des Fréquences) website.

1. Download or fork my repository from [GitHub](#).
2. Launch the crawler script from your command line. The argument of the script corresponds to the postal code as in:

```
python antennes-mobiles-crawler.py 75014
```

You should obtain a text file named `network-map-75014.txt` in the `/data` directory. This file contains information on the antennas in the selected geographical area.

```
66007; 2G 3G 4G; BOUYGUES TELECOM; 1995-09-01; 2014-09-26; 156 R LÉON  
MAURICE NORDMANN; 75013; PARIS-13E--ARRONDISSEMENT; Oui;  
351124; 2G 3G 4G; BOUYGUES TELECOM; 2004-08-20; 2014-12-05; 22/24 R DU  
FAUBOURG ST JACQUES; 75014; PARIS-14E--ARRONDISSEMENT; Oui;
```

The only missing information is the geographic position of the antennas. For this, you need the information from [ANFR](#).

3. Go to [ANFR](#), select the same city as previously and download the data (you should sign in and you will receive data by mail). Download the obtained data in `data/cartoradio-75014/`.
4. Launch the coordinate generation script:

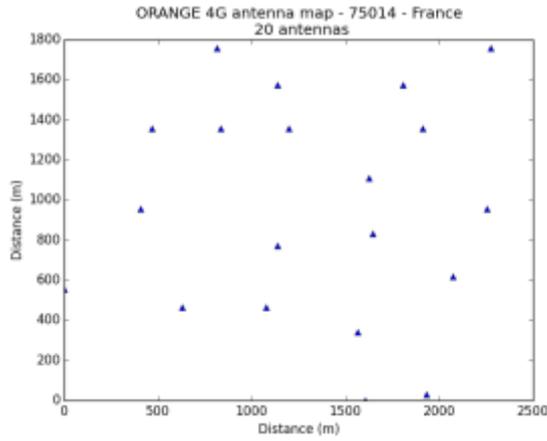
```
python antenna-coordinate-generation.py 75014 orange 4G
```

- The first argument is the postal code.
- The second argument is the operator name and must be chosen from: orange - free - bouygues - sfr
- The last argument is the network type: 2G - 3G - 4G

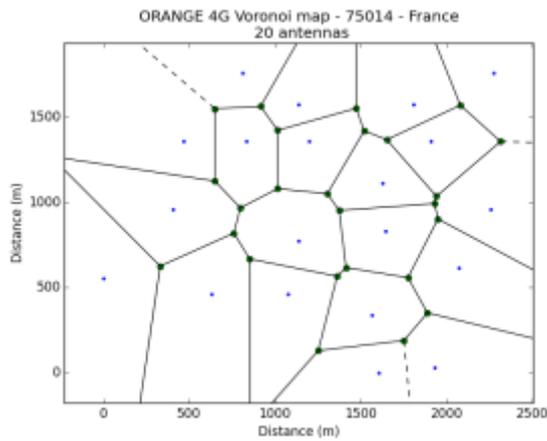
5. Watch back and enjoy!

The output of the previous script consists of three files:

- A command file `75014_ORANGE_4G_antenna_coordinates.m`, that you can simply load in MATLAB for your simulations.
- A figure plot of the antenna positions `75014-ORANGE-4G-antenna-map.png`.



- A figure plot of the Voronoi diagram (the set of points in the geographic area closer to each antenna) 75014 - ORANGE - 4G - voronoi - map .png.



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