Analysis of Household Electricity Consumption

User Guide

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Table of contents

Prerequisites 2
Opening the program 3
Loading data 4
Analyze data 6
Current information 6
Aggregate data 7
Statistics 7
Plotting 8
Print data 9
Additional information 10
Tips! 10
Credits (Copyright) 11

Prerequisites

In order to run the program the following software needs to be installed:

- Python (>=3.6.x)
- PDF-rendering program (Such as Adobe Acrobat)

And the following modules for python:

- PyQt5
- Pandas
- Matplotlib
- Numpy
- *Pygame (optional)*

Which can be installed with pip install [name].

See: https://pip.pypa.io/en/stable/installing/ if in doubt

It is also important to add python to your PATH, which can be done when installing Anaconda (https://www.anaconda.com/download/) or manually (google it)

Opening the program

Method 1:

Double-click the file (Assuming .py files are opened with python.exe)

Method 2:

Windows:

Open cmd at file location (shift + right click) and type: python Main-GUI.py

```
E:\Dropbox\DTU\Programming\Repositories\Project-Electricity-GUI>python Main-GUI.py
```

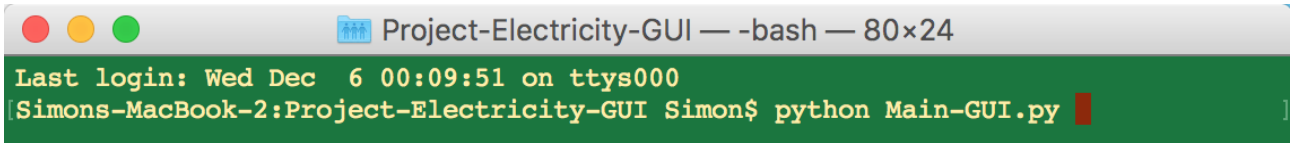
Or

Open cmd and navigate to file location: cd (insert path) and type: python Main-GUI.py

```
E:\>cd \Dropbox\DTU\Programming\Repositories\Project-Electricity-GUI\
```

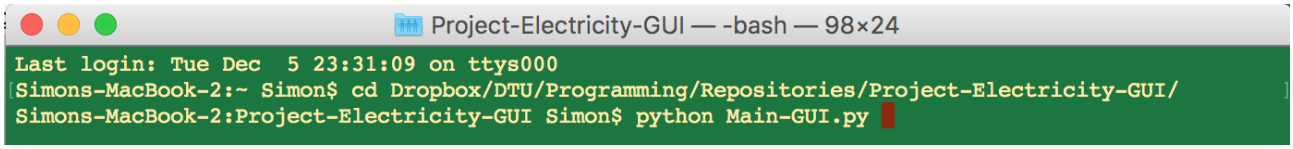
Mac OS:

Open terminal at file location (shift + right click on folder) and type: Main-GUI.py



Or

Open terminal and navigate to file location: cd (insert path) and type: python Main-GUI.py



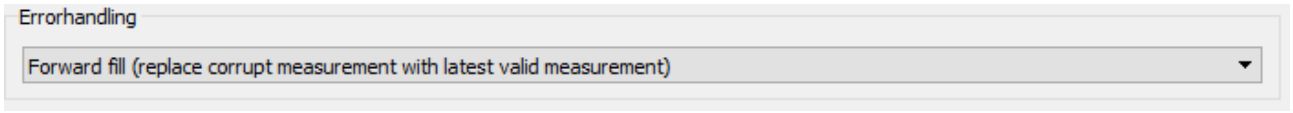
Loading data

It is assumed that the user has a valid .csv file containing data of a household's electricity consumption with the columns: [year,month,day,hour,minute,second,zone1,zone2,zone3,zone4]

Where zone1 .. zone4 represents how many watt-hours are consumed at the time

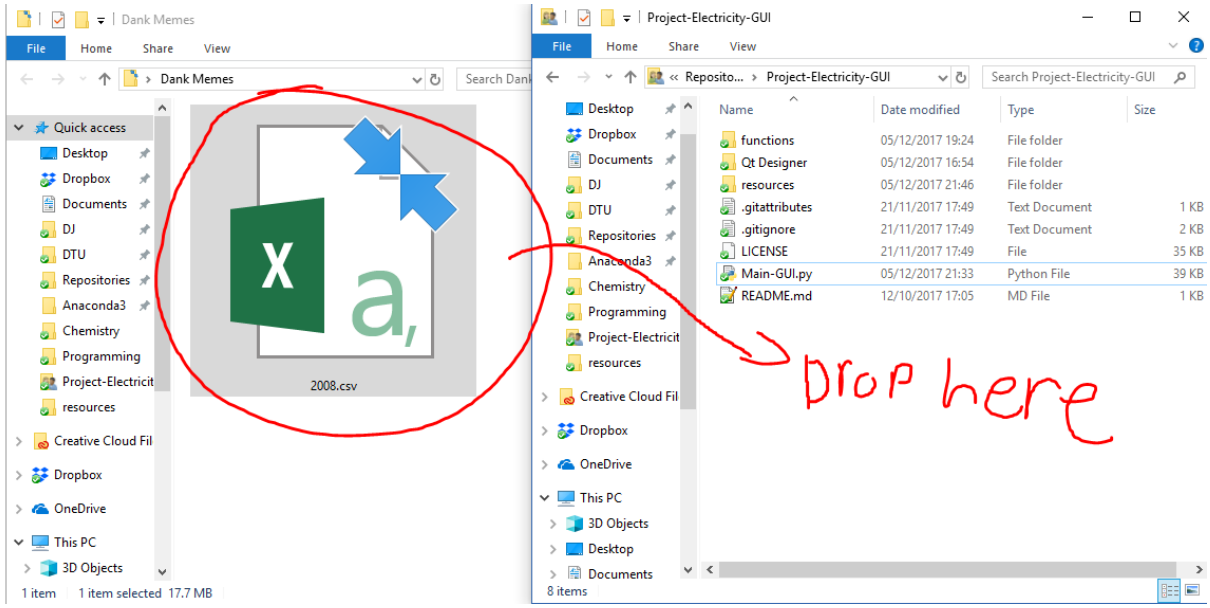
Define error handling type

Choose one of the 3 modes to handle errors in the data (Forward fill, backwards fill, drop)

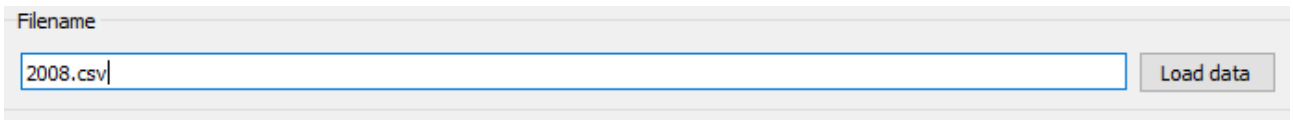


By filename

First drop the datafile into the SAME folder as Main-GUI.py

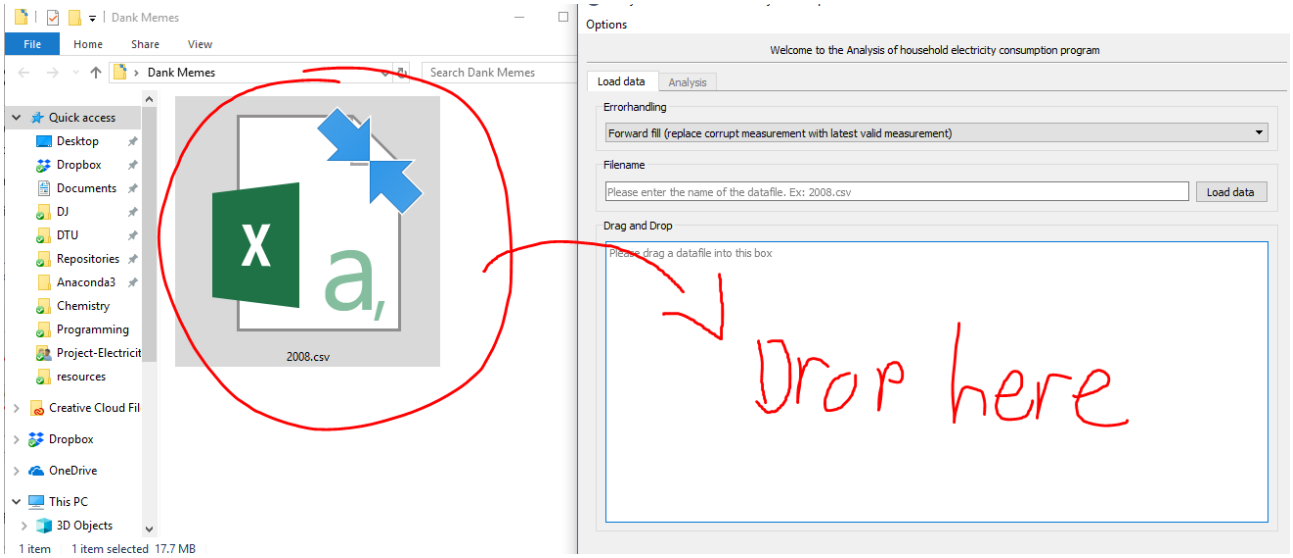


Then enter the filename, with its extension and hit ENTER or click "Load data"



By drag and drop

Drag the datafile into the Drag and Drop box

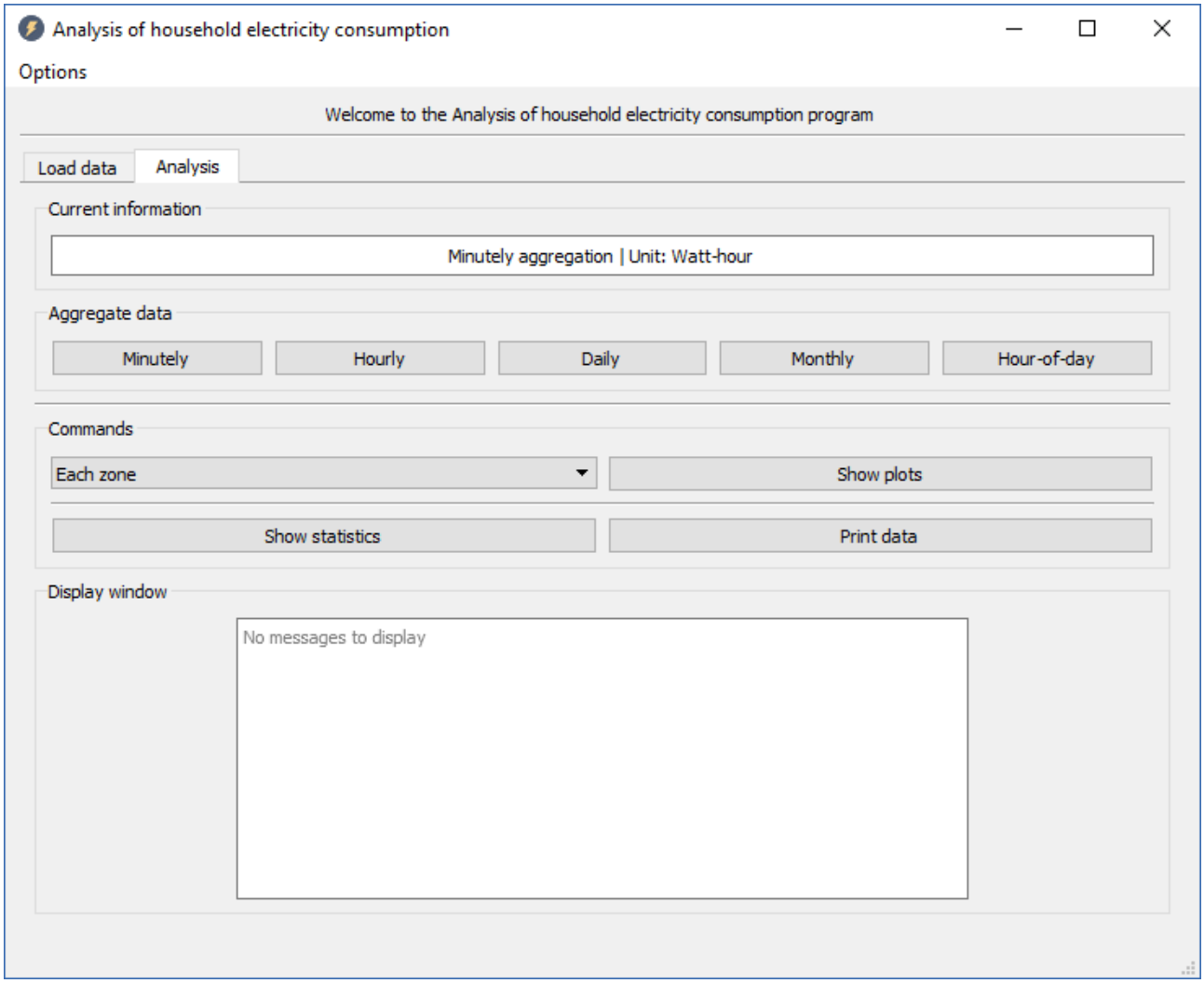


Important!

The program runs best when it is maximized or in full screen mode (press F11 on windows)

Analyze data

You will now see the following screen



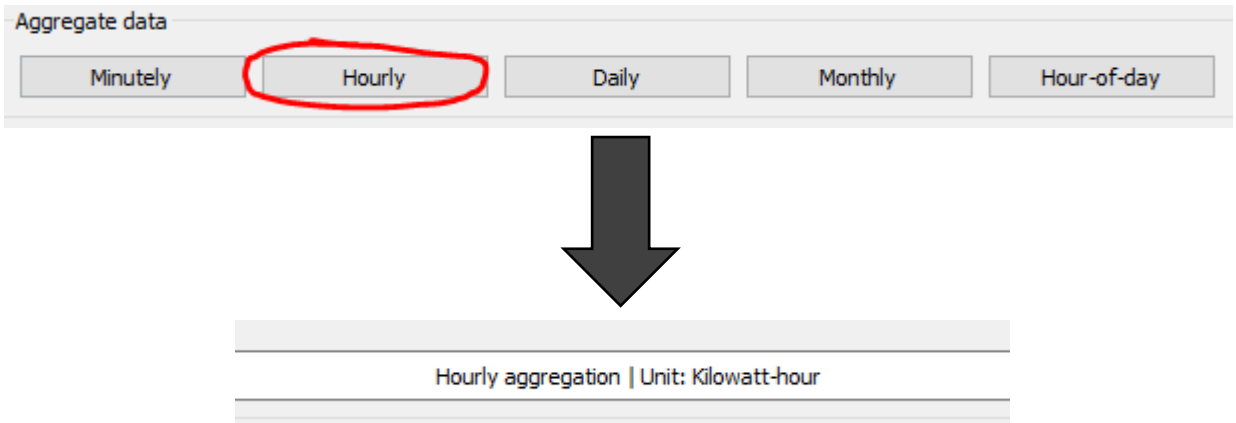
Each element will be explained in the following section

Current information

Displays the current aggregation and unit of power

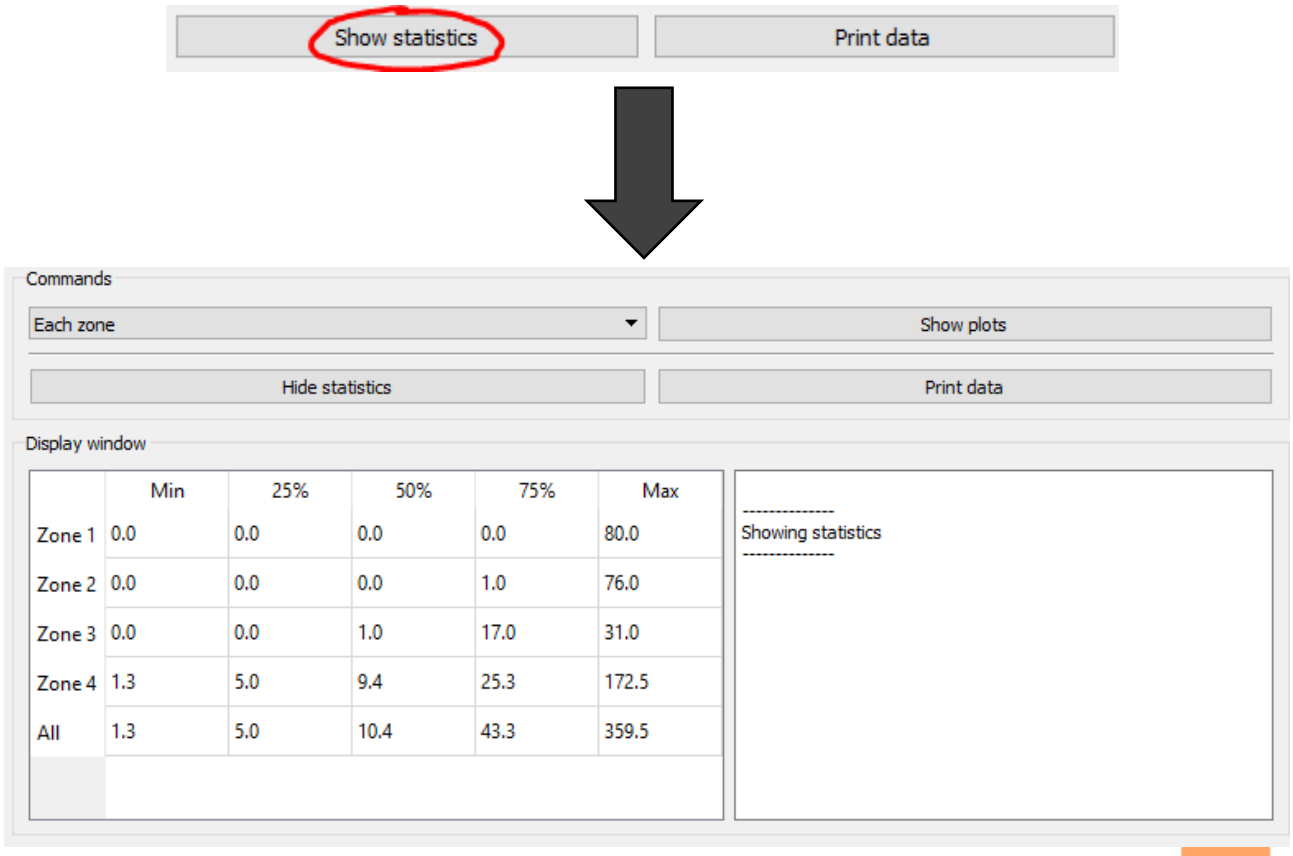
Aggregate data

Will aggregate the data according to the button clicked. Hour-of-day represents the hourly average in the intervals [00:00-01:00[,[01:00-02:00[,…,[23:00-00:00[.



Statistics

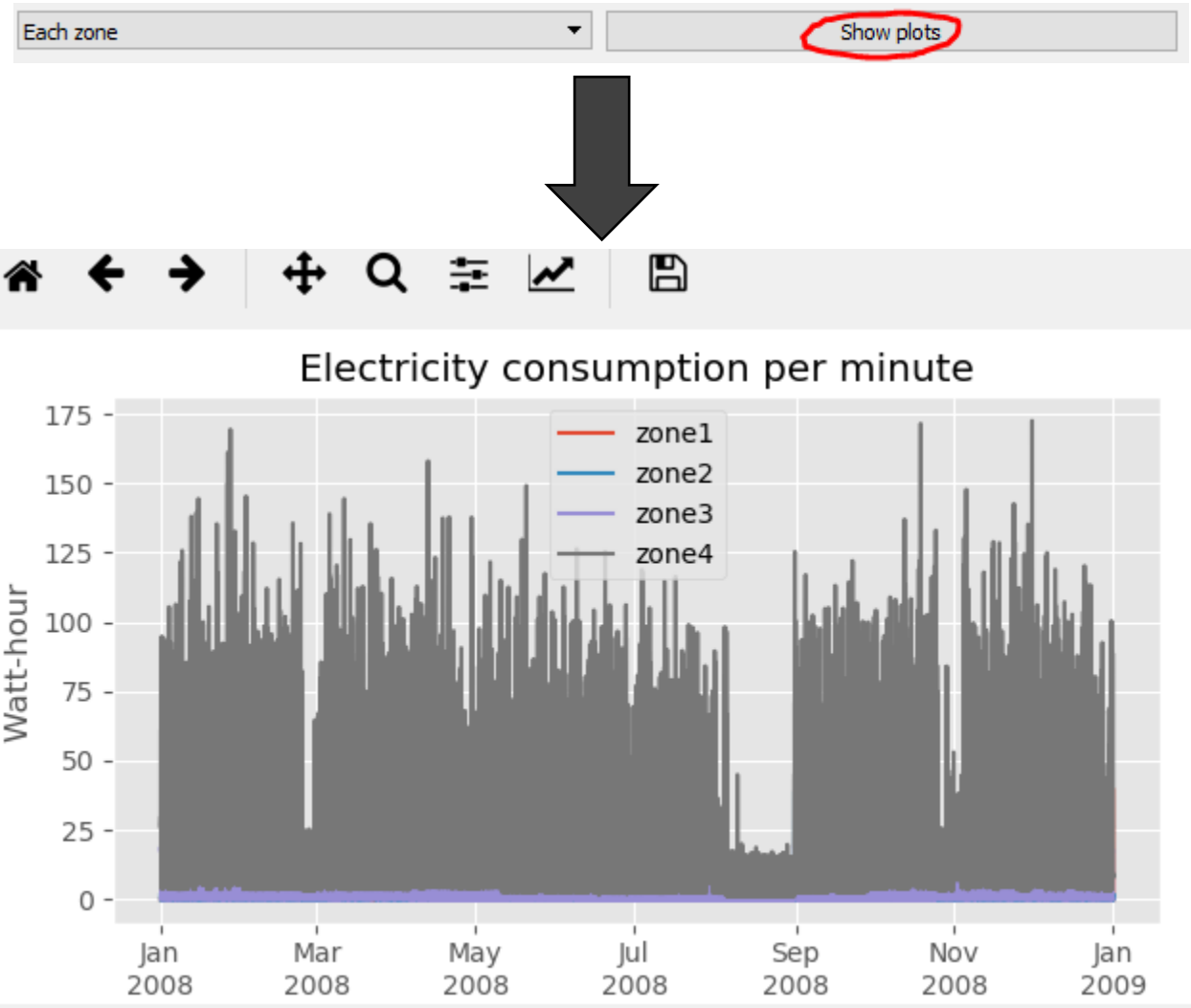
Click “Show statistics” to show the statistics of the current aggregate data. Adjust window size to see all statistics at once



Click “Hide statistics” to hide the statistics window again

Plotting

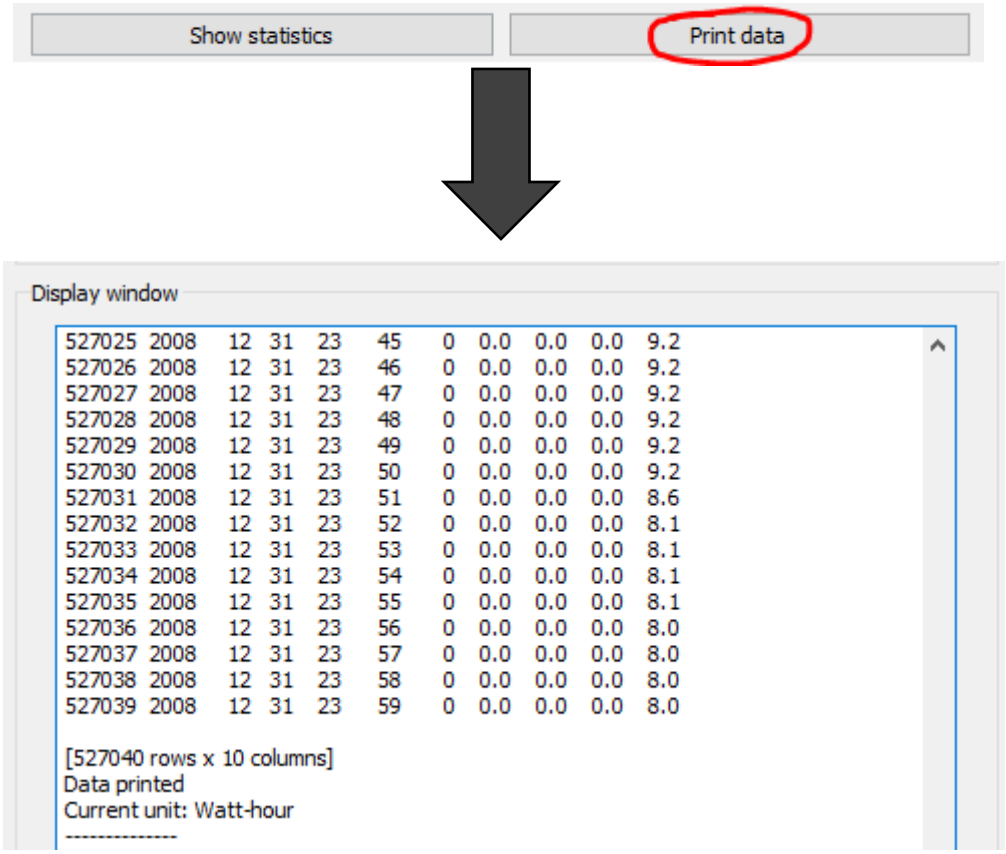
Choose how to plot data (each or all zones) and click “Show plots”. It is suggested to make the window larger when plotting. The dropdown menu to the left of “Show plots” decides how to plot the data



Click “Hide plots” to hide the plots. *Larger plots, such as consumption per minute will make the program slower.*

Print data

Press “Print data” to print the current data in its raw format

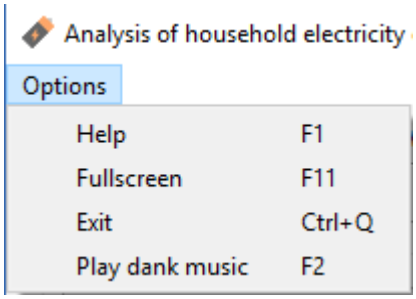


Additional information

Tips!

Options

If you click the “Options” button you can see different actions which can be clicked or called by the corresponding shortcut



Help: Shows this file

Fullscreen: Opens in fullscreen

Exit: Exits the program

Play dank music: Plays dank music

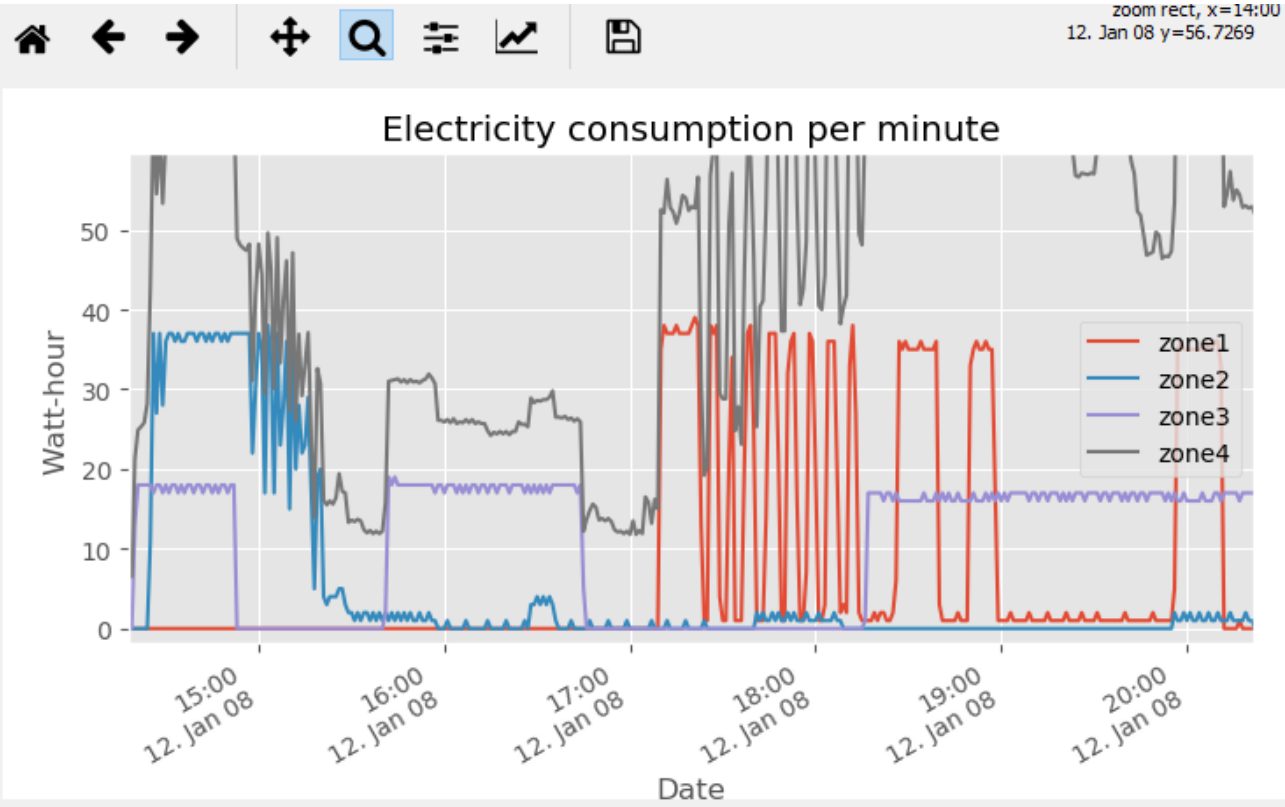
Tool- and status tips

These are tips that show up when hovering you mouse above a button, widget or almost anything relevant in the program. The status tip is seen in the bottom of the program and the tooltip is seen after 2 seconds of hovering your mouse over the object.

Plotting

You can navigate through the plots by using the toolbar above the plots (Strongly recommended being in maximized mode when doing this)

For example you can zoom in to get



Credits (Copyright)

Creator of icon: Squid.ink