Analysis of household electricity consumption

User guide

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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

Which can be installed with pip install [name].

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

Opening the program

Method 1:

Double-click the file

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
```

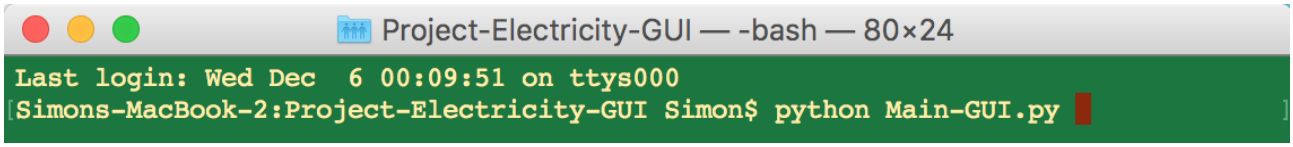
Or

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\
```

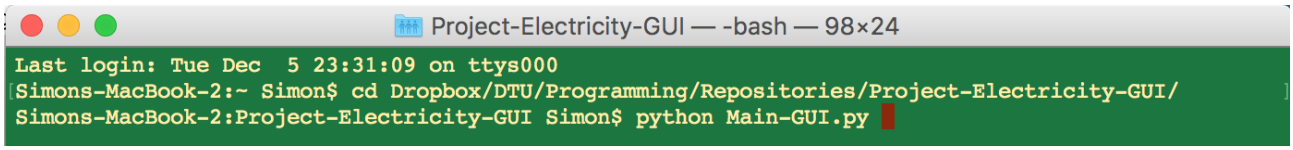
Mac OS:

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



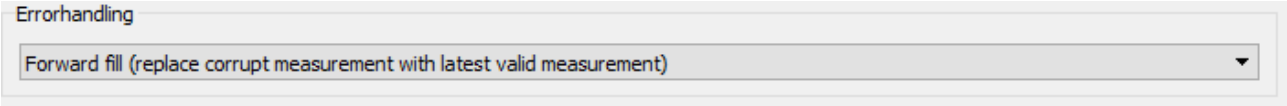
Loading data

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

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

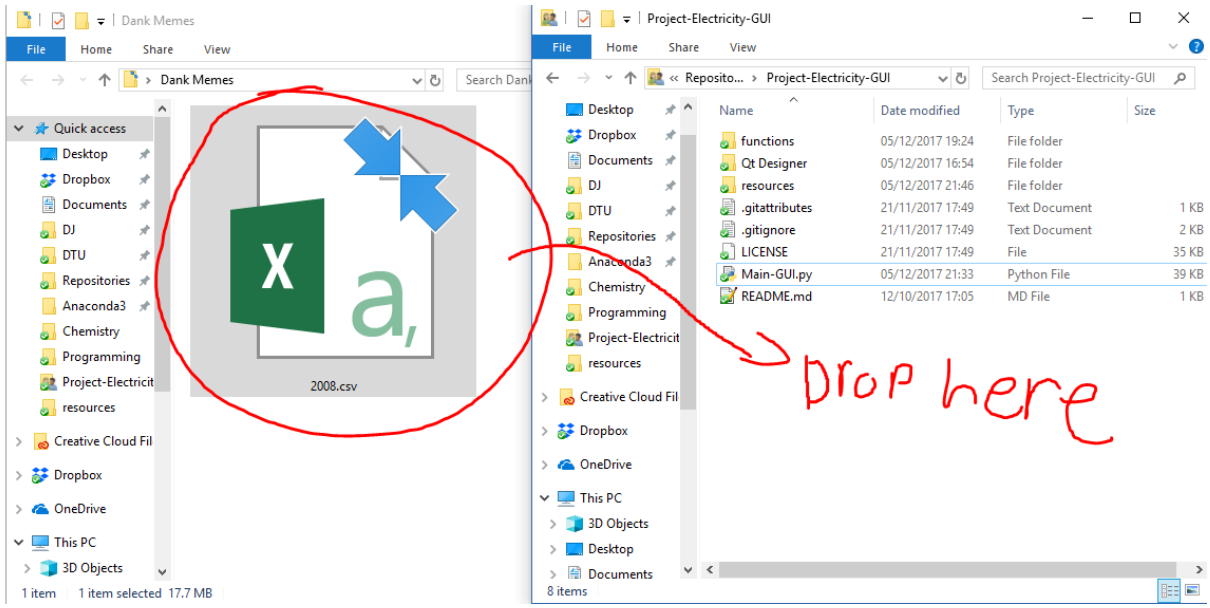
Define error handling type

Choose one of the 3 modes to handle errors in the data

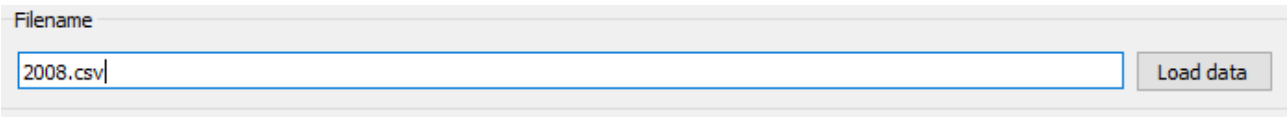


By filename

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

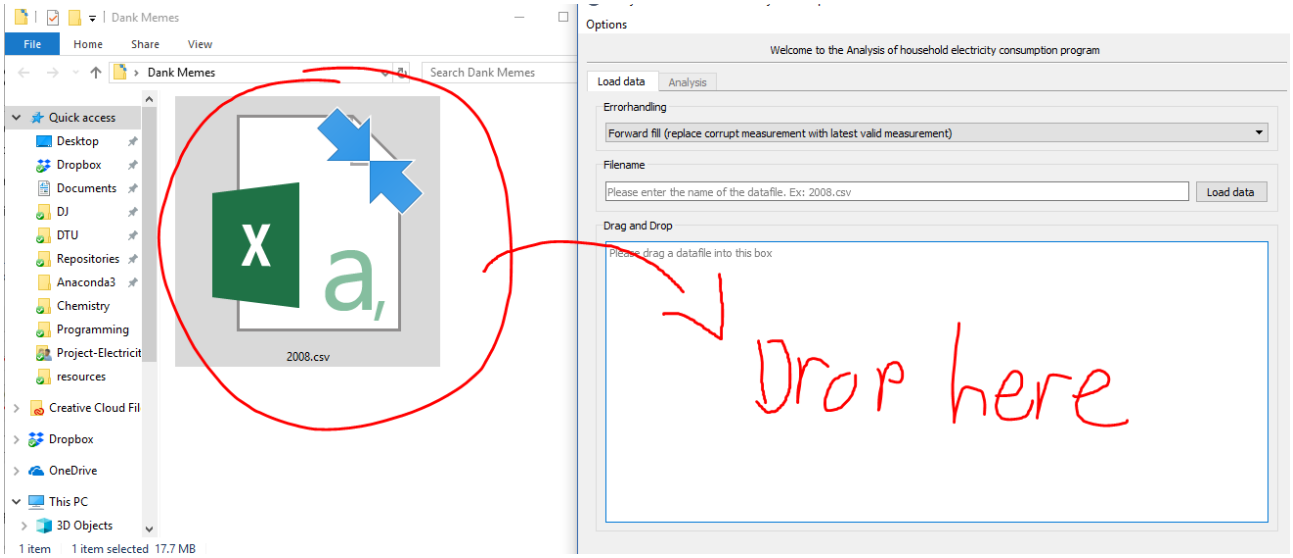


Then enter the filename, with its extension and hit ENTER or click “Load data”



By drag and drop

Drag the datafile into the Drag and drop box

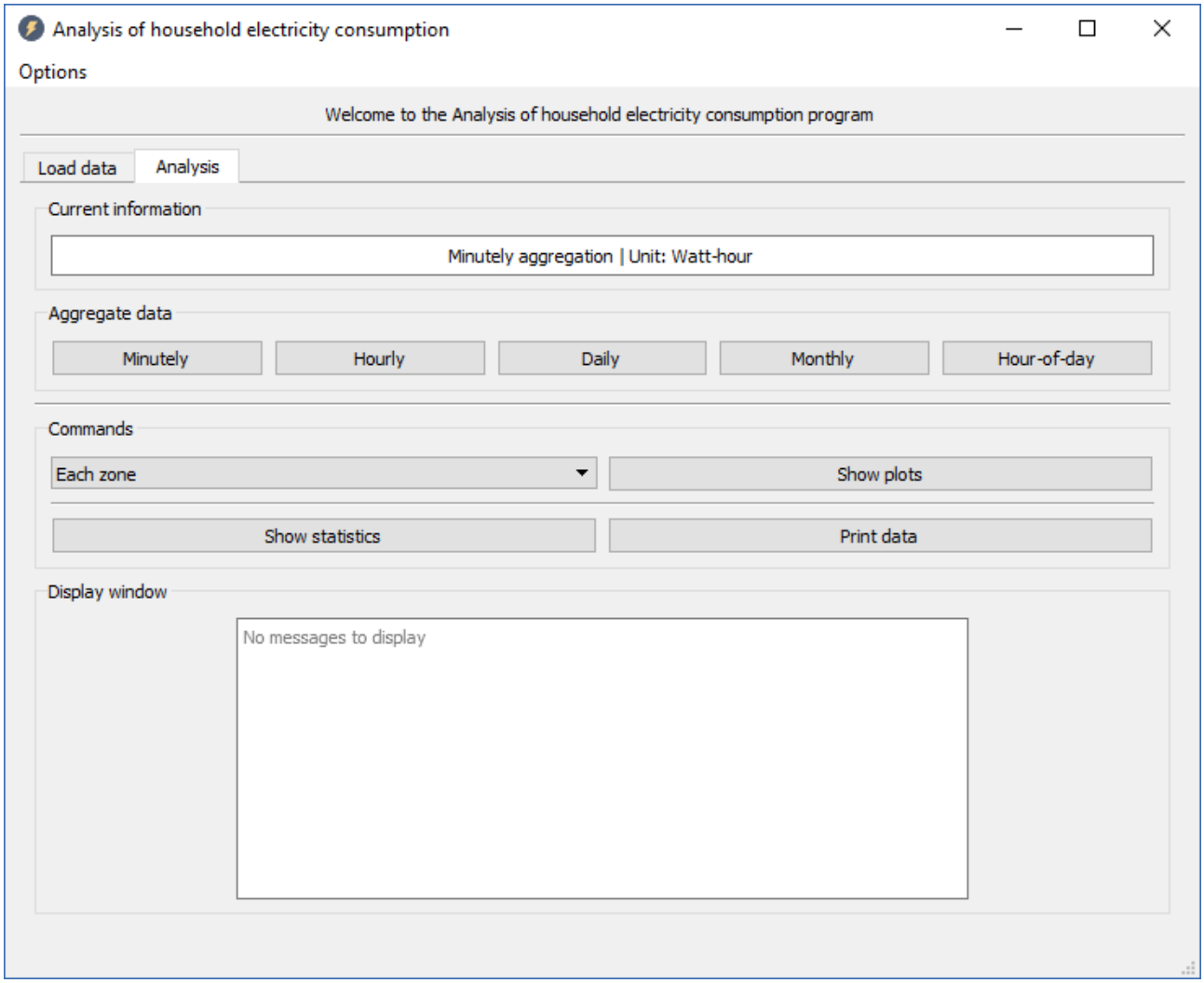


Important!

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



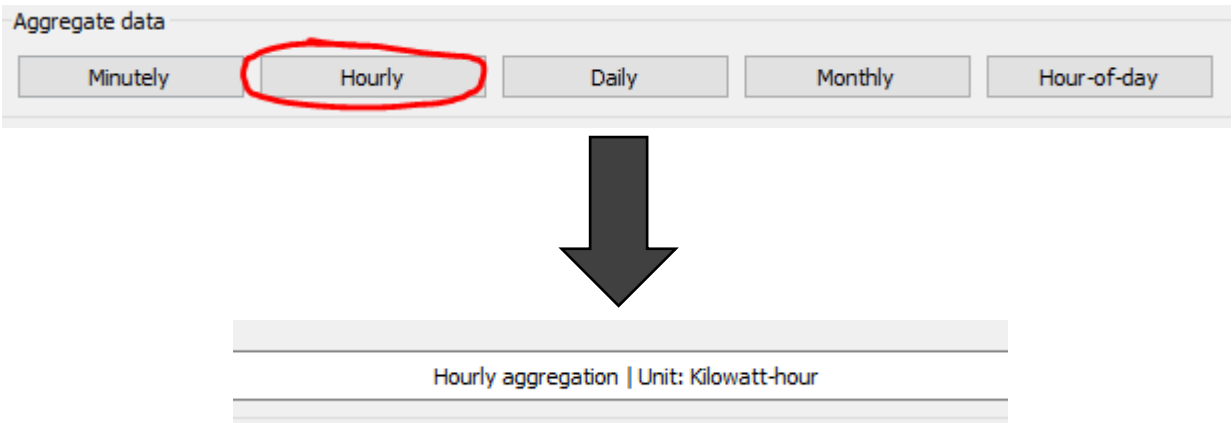
Each element will be explained in the following section

Current information

Displays the current aggregation and unit of power

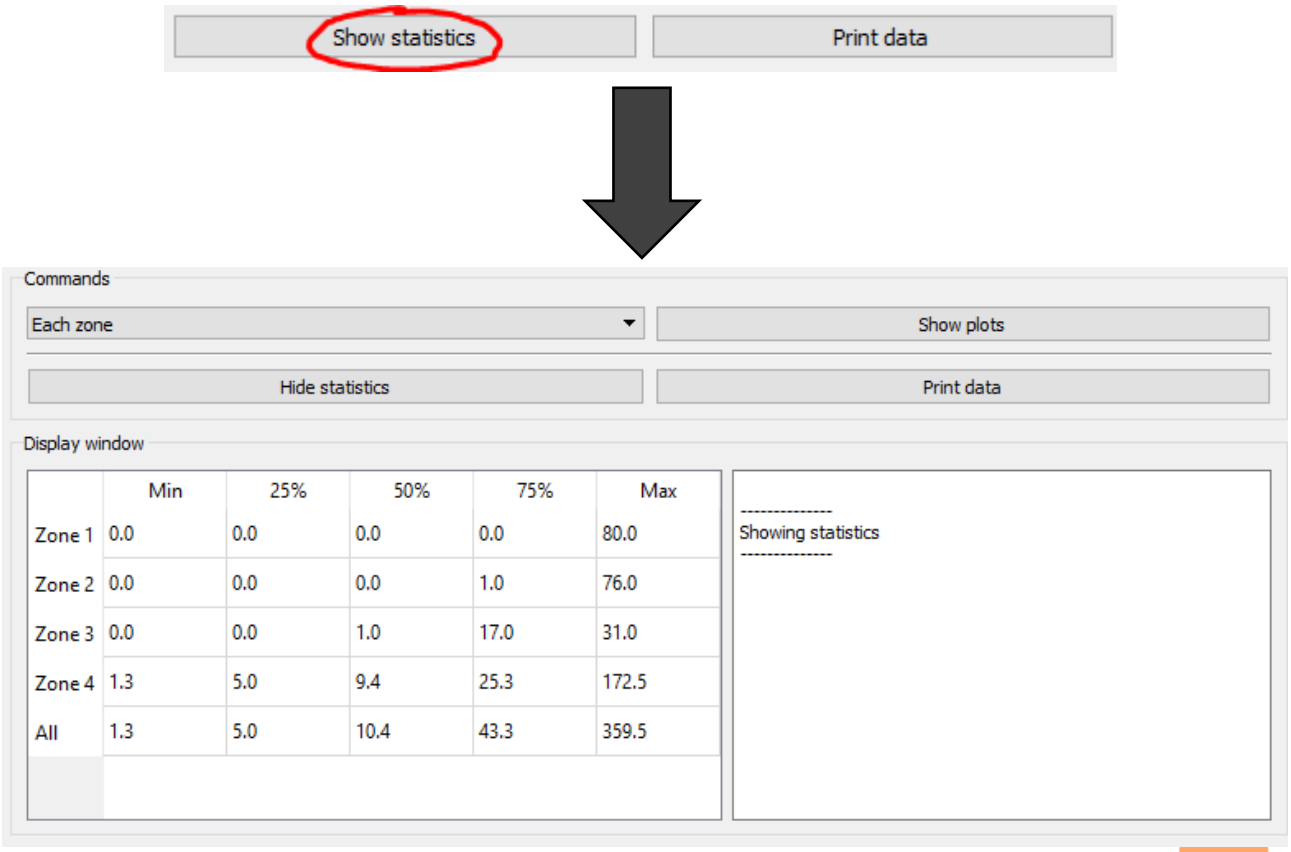
Aggregate data

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

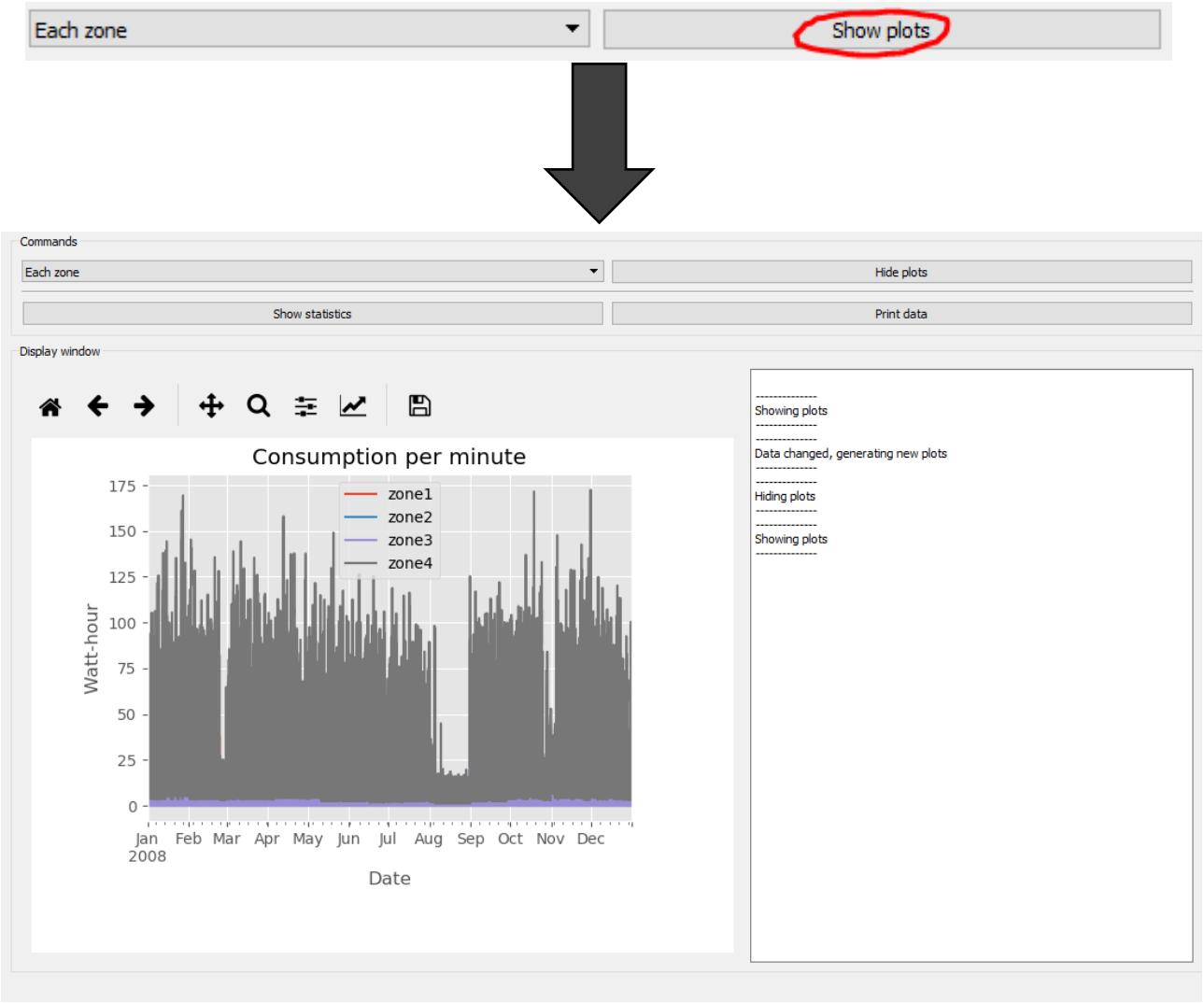
Click “Show statistics” to show the statistics of the current aggregate data. Adjust window size to see all statistics at once



Click “Hide statistics” to hide the statistics window again

Plotting

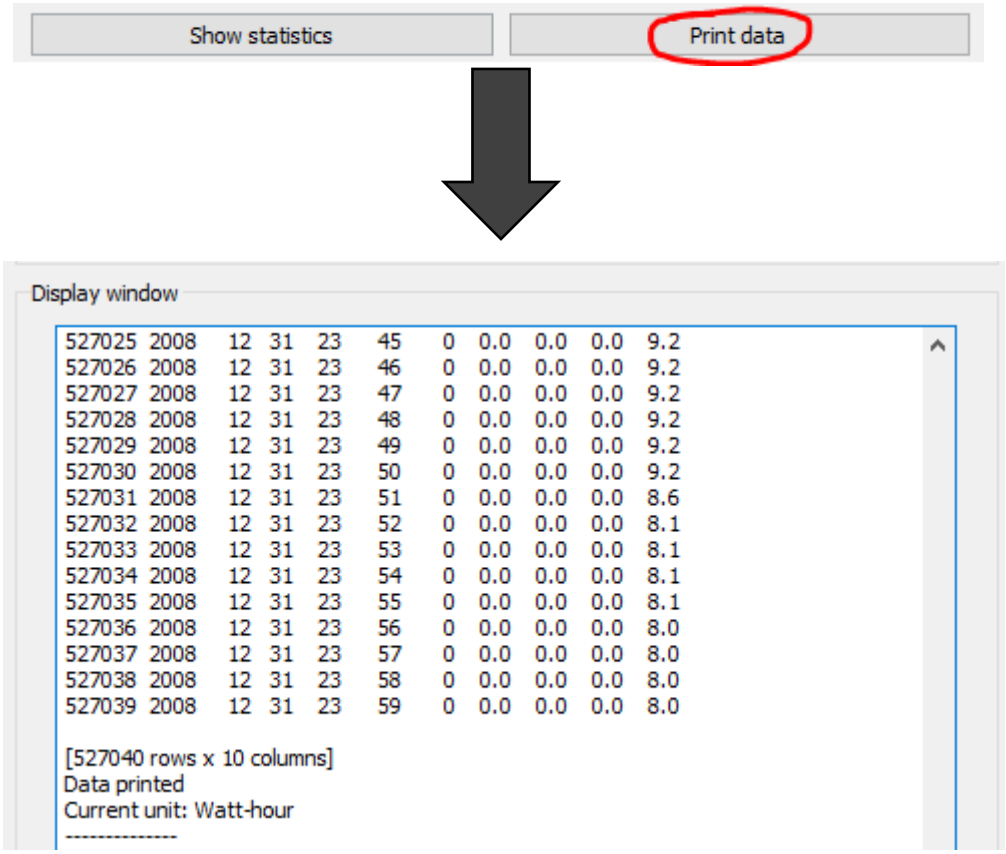
Choose how to plot data (each or all zones) and click “Show plots”. It is suggested to make the window larger when plotting.



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

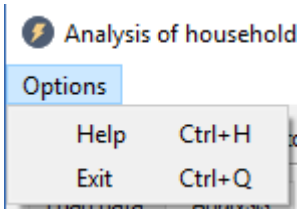


Additional information

Tips!

Options

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



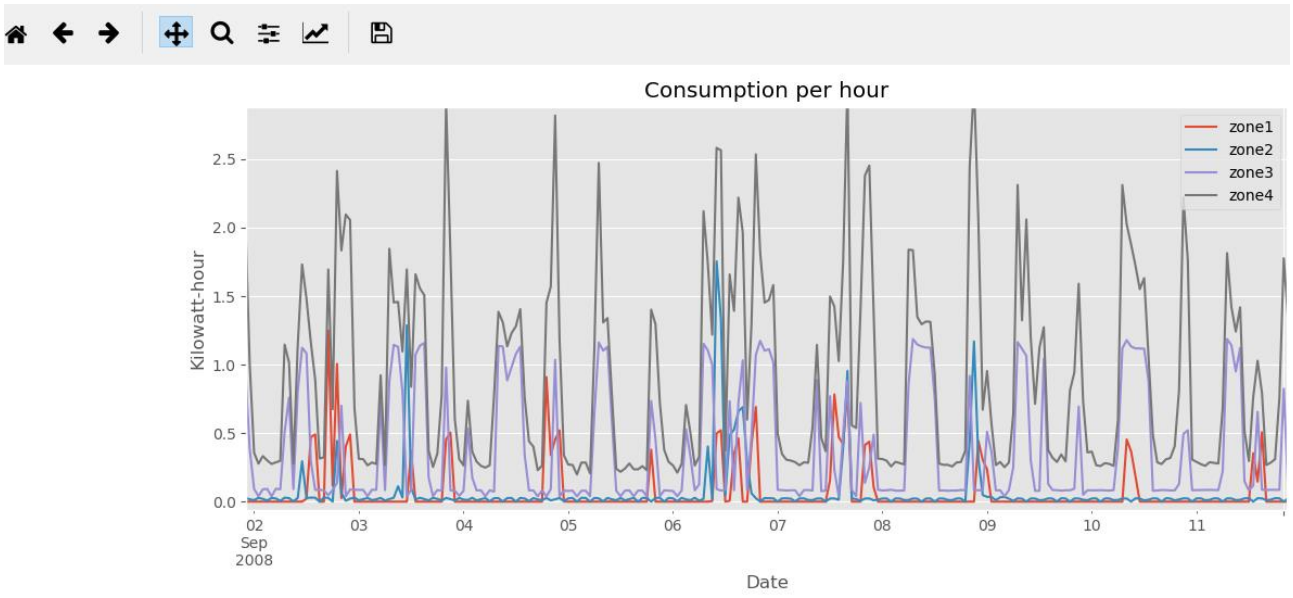
Help: Shows this file

Exit: Exits the program

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



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