HeatmapGenerator Manual

Appendix 1 – MacOSX Tips (VERY IMPORTANT)

Make sure that R is already installed on your computer from http://cran.rstudio.com/. Then:

1. Go to Finder --> Applications --> Utilities --> Terminal.
2. Type the following one letter: R
3. Then type install.packages("gplots"), then select a CRAN mirror of your choice depending on your geographic location.
4. When making heatmaps from text files (such as EXAMPLE.txt), make sure that these text files are formatted *exactly* like EXAMPLE.txt (provided for you in the HeatmapGenerator_MAC_OSX folder) and make sure that you keep them housed inside the HeatmapGenerator_MAC_OSX folder at all times.

FOR MAC OSX, THE ABOVE INSTRUCTIONS ARE ALL YOU NEED TO GET HEATMAPGENERATOR FULLY FUNCTIONAL!!

WINDOWS SPECIFIC INSTRUCTIONS AND OTHER USEFUL INFORMATION:

I. Installation
   a. Prerequisites:
      i. HeatmapGenerator requires you to have R installed on your machine. Rscript must be accessible from the command line. To find out if you have this capability from Windows create a command prompt by typing "cmd" in your Start search bar and clicking on "cmd.exe". In Mac, go to Finder, then click on Applications, then click on Utilities, then click on Terminal. Then type in: "where Rscript" or "which Rscript" (depending on if you are using Windows or Mac, respectively). If a directory path to the executable is successfully shown then the executable will run. If not, the user then needs to add the path to a global environment variable (see Appendix A) such that the program can find the Rscript executable.
      ii. *gplots* is a required R package for heatmap generation. A version of *gplots* is given with the executable bundle, so if it is not installed on your environment then the executable will install it. For Mac tips on how to install *gplots* see Appendix 1.
      iii. *stats* is also a required package for heatmap generation. *stats* is a general package that is downloaded in most R downloadable environments.
   b. Installation
      i. All the user needs to do for the executable is run the .exe file as it stands to get the main screen.

II. Create a new heatmap
   a. Change color
      i. To change the colors of the heatmap click on the radio buttons for the low color value and the high color value. Note that this must be done before the "Create New Heatmap" button is pressed, as this is the info that is passed to the R interpreter.
   b. Output file type
      i. The user can specify a .png output instead of a .tiff output and a .jpg output.
   c. Heatmap Type
      i. Simple heatmap uses the *heatmap* function
      ii. Advanced heatmap uses the *heatmap.2* function within *gplots*.
   d. Click on the "Create New Heatmap" button.
   e. Enter in the matrix data (i.e., select your .txt file of choice).
      i. NOTE: Format of the input file must be exactly like the EXAMPLE.txt file. There can be no spaces in file names or gene names, and the file must be tab delimited.
      ii. Data can be continuous data or integers.
   f. The resulting heatmap preview will show up in a new window.
      i. Also created in the main directory of the program is a .jpg and a .tiff by default. These images are high-resolution images that are publication-quality.

III. Get existing heatmap

a. To view existing heatmaps the executable refers to the previously generated images in the main directory of the executable.
    i. If the user clicks on a heatmap and clicks on "Choose from Existing Heatmaps" the same preview window will pop-up the heatmap that was previously generated.

Appendix A – Adding directory to global path in Windows

If the user does not have access to Rscript from the command line the user needs to do one of the following two options (depending on your computer setup):

1. Click on Start and open the Control Panel
2. Click on User Accounts
3. Click on the Change my environment variables in the left hand column
4. Click on Edit for the PATH variable and add the path to the R executables. For example:
    a. Add ";C:\Program Files\R\R-3.1.2\bin" to the end of the "Path variable"
        i. Notice here that the separation from what was written before is based on the semicolon; this could be different on your machine.
5. Press OK on everything, close the Control Panel, and restart the executable.

OR:

1. Click on Start and **right-click** on Computer
2. Click on Properties
3. Click on Advanced system settings in the left hand column
4. Click on Environmental Variables
5. Find the variable "Path" and proceed to edit it: add the path to the R executables. For example:
    a. Add ";C:\Program Files\R\R-3.1.2\bin" to the end of the "Path variable"
        i. This is the directory that contains the R executable. It could be a different directory, depending on where you installed R on your computer. Simply make sure that you end your path with "\bin".
6. Press OK on everything and restart the executable.