StatPlanet Graph Maker

Interactive Data Visualization Software
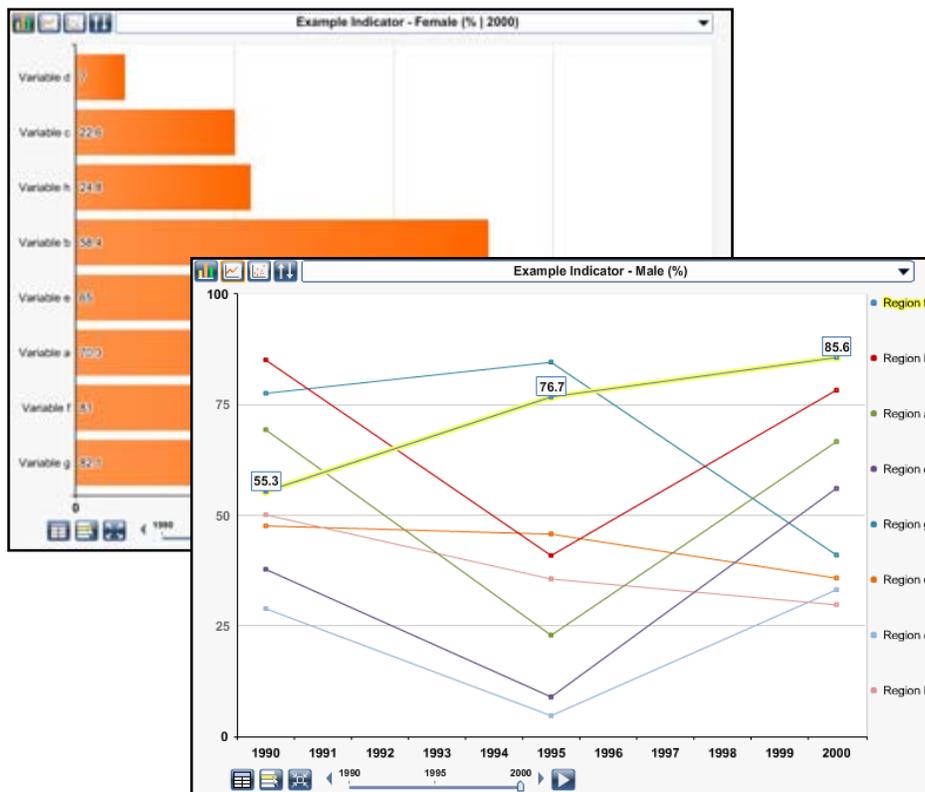
Author: Frank van Cappelle

http://www.sacmeq.org/statplanet

July 2009

Table of Contents

1. What is StatPlanet

StatPlanet is a powerful interactive data visualization and mapping tool. It is used by international organizations such as UNESCO, SACMEQ and the Global Environmental Facility to communicate and more easily interpret data. One of the greatest strengths of StatPlanet is that it enables also non-technical users to explore statistics through its user-friendly interface. Moreover, the software automates the normally complex processes of converting raw data into interactive maps and visualizations. This enables even non-technical users to create interactive maps and visualizations with relative ease. The software can be downloaded and used free of charge.

Three versions of StatPlanet are currently available: StatPlanet, StatPlanet Map Maker and StatPlanet Graph Maker. The original StatPlanet comes with data for over 250 indicators on world development, and for 210 countries, in the following domains: demographic, education, environment, gender, health and socio-economic. The data comes from many different sources, such as UNESCO, SACMEQ and the World Health Organization. StatPlanet Map Maker and Graph Maker are downloadable versions of StatPlanet through which it is possible to add and visualize one's own data. They are available both as a stand-alone application for offline use, and as a web-based application which can be published online.

The aim of StatPlanet is to promote evidence-based decision making by improving and facilitating the communication and interpretation of information. StatPlanet does this by providing (i) attractive interactive visualizations which facilitate the interpretation of information, (ii) a user friendly interface that is accessible also to non-technical users, (iii) automated data visualization (including the processes of merging and synchronizing data from different sources), and (iv) an easy to disseminate software system which can enable anyone to explore and create data visualizations - regardless of technical skills, availability of Internet connectivity, and computer hardware or software.

StatPlanet was conceptualized and is being developed by Frank van Cappelle since 2005. Since 2008, the development of a tailored version of StatPlanet is being undertaken as part of the SACMEQ research programme at the UNESCO International Institute for Educational Planning (IIEP).

For more information:

- SACMEQ website: http://www.sacmeq.org/statplanet

- UNESCO website: http://www.iiep.unesco.org/?id=703&

2. System requirements

StatPlanet was designed to be usable in as many places as possible. It can be used online as well as offline for those without an Internet connection. It is very small in size (less than 3 MB), which makes it easy to disseminate. For example, it can be distributed via USB flash drive (USB stick) and is small enough to send as an e-mail attachment. The software does not require installation. This is important for dissemination as many people do not have the necessary administrator rights on their workplace PC to install new software.

StatPlanet runs in the Adobe Flash Player, which has the following minimum system requirements[1]. As can be seen in the table the system requirements are low, and any computer purchased within the past 7 years should be able to run StatPlanet.

Windows®	Macintosh	Linux®
Intel® Pentium® II 450MHz, AMD Athlon™ 600MHz or faster processor (or equivalent)	PowerPC® G3 500MHz or faster processor Intel Core™ Duo 1.33GHz or faster processor	Modern processor (800MHz or faster)
128MB of RAM	128MB of RAM	512MB of RAM, 128MB of graphics memory
128MB of VRAM*		

*Recommended for GPU hardware acceleration–dependent features. Flash Player will use software mode for systems that do not meet the system requirements.

---

[1] http://www.adobe.com/products/flashplayer/systemreqs/

3. Features and user guide

3.1   Graph window

Bar chart

Click the 'graph' button in the bottom-left corner of the screen to create bar charts and switch between horizontal and vertical bar chart.

Use the "sort" button to sort the graph from lowest to highest, highest to lowest, highest to lowest starting in the middle, or alphabetically.

Time series / Line graph

In the top left of the Graph window (see "Bar chart" above) you will find the time series (or line graph) button. When you click on this button, a list of variables appears which you can add to the time series graph. Click on a variable to add it to the graph, and click on it again if you wish to to remove it. (See also **Variable selection window** below).

Use the "sort" button to sort the time series labels.

Scatter Plot

In the top left of the Graph window you will find the scatter plot button. Clicking on the button will automatically use the selected indicator as the x-axis variable. You need to select a second indicator as the y-axis variable.

Select y-axis / x-axis indicator

Click on the y-axis or x-axis label, then select an indicator from the drop-down menu.

Use the drop-down menu in the top of the graph window to change the scale of the 'bubbles' according to a selected indicator.

Use the 'options' icon in the graph window to show or hide the trendline. Move the mouse over the trendline to see the slope and trendline equation.

Adjust graph scale

The graph scale can be adjusted by clicking on the top or bottom graph values. The value can then be edited in the popup window.

3.2   Data table window

Click the 'table' button in the bottom-left corner of the screen to get a data table of the selected indicator. If an indicator has been bookmarked, the data for both the bookmarked and selected indicator will be displayed. The table also shows the mean, standard deviation and range.

Online version (StatPlanet website): Save / Export table
You can save the table as a .CSV file which can be opened by most spreadsheets (such as Excel). You can find the save table button in the top-right corner of the table window.

Offline version: Copy table
The offline version of StatPlanet does not allow you to save the data as a file. Instead, you can copy the entire table into Excel using the 'copy' button, and then 'paste' it in Excel. If you do not have Excel, you can also do the following: (i) paste the data into a basic text editor such as Notepad, (ii) save the document as 'data.html', (iii) open the file using your Web Browser.

3.3   Selecting variables

Countries can selected in various ways. An efficient way of finding and selecting a variable is through the **Variable selection** window, as explained below. However, a variable can also be selected by clicking on it in the data table window, or in the bar chart or scatter plot graph.

Click the 'select' button in the bottom-left corner of the screen to get a list of variables. Then click to select the variable you wish to show on the map or in the graph window. If the list of variables is very long, you can press the first letter of a variable name to quickly jump to this variable in the list.

Select button
Press the Select button to confirm your selection. Any variables which are not selected will be removed from view.
Note: for the time series graph, there is no need to press this button as the variables will appear in the graph window as soon as you click on them.

Deselect All button
Press the Deselect All button to clear your selection.

Refresh button
The Refresh button . It only appears after you have clicked the Select button.

Remove countries
To remove countries, select the countries you wish to remove and press this button.

3.4   Time slider

Use the slider or click on the arrow buttons to change the year. Click on the play button to show changes over time as an animation, starting from the beginning. The animation speed can be set in the Options window.

3.5   Fullscreen

Fullscreen: Click on this button in the bottom-left of the screen to either switch to fullscreen mode, or go back to normal window mode.

4. Adding your own data

4.1 Basic steps for adding data

Manually add data:

1.	**OPEN** data editor	Open the file **StatPlanet_data_editor.xls** – make sure that Macros are enabled. To remove the example data, press the button **Clear data**.
2.	**REPLACE** data	Replace the example data and names with your own. Make sure to maintain the same data structure (see also **4.3** Troubleshooting).
3.	**SAVE** data	Press the **Save** button. This saves your data as **data.csv** (a Comma delimited text file).

Import data automatically from a file:

1.	**OPEN** data editor	Open the file **StatPlanet_data_editor.xls** – make sure that Macros are enabled. To remove the example data, press the button **Clear data**.
2.	**IMPORT** data	Replace the variable names (Variable a, b etc.) with the variable (header) names in the file you wish to import data from. Press the **Save data** button to save the new names. Then click on **Import data** button and select the file[2] containing the data you wish to import. See also: **- 4.2** Importing data **- 4.5** Adding data manually (using Excel or other software).
3.	**SAVE** data	Press the **Save** button again. This saves your data as **data.csv** (a Comma delimited text file).

NOTE: Two copies of the file are automatically saved – one in the directory 'web' for publishing online, and one in the directory 'offline' for viewing in a stand-alone desktop application.

---

[2] You can find many good sources of downloadable, publicly available data on the StatPlanet website (above).

AFTER STEP 3, RUN STATPLANET:

- **Web**: In the directory 'web' click on **StatPlanet.html** to run StatPlanet in your web-browser.

- **Offline**: In the directory 'offline' click on the file **StatPlanet.exe** (with the ⓕ icon).

To publish StatPlanet containing your data **online**, all you need to do is to upload the contents of the folder **Web** to a web-server. This folder contains the following files:

- StatPlanet.html   (the webpage which displays your interactive graph)
- StatPlanet.swf   (file which shows loading progress)
- content.swf   (the actual software)
- data.csv   (the data)
- AC_RunActiveContent.js (required to run 'Flash' content)

Files: (inside StatPlanet_GraphMaker.zip)

4.2   Importing data

You can import any file which can be read by Excel (e.g. CSV, TXT, XLS, XLSX). The structure of your data does not matter. There is only one criterion for successfully importing data: the variable names in your data set need to match one of the various possible spellings of variable names listed in the Excel sheet **'Variable names'** in the Data Editor*. However, unusual data structures may sometimes cause problems (see **4.3 Troubleshooting** below). Also note that StatPlanet sees a "dot" as the decimal separator.

If the import was not 100 percent successful, an **error message** will be displayed listing the variables ('headers' in your data set) which could not be identified. For example, the variable 'Eastern Cape Province' in the Data Editor may have a different name in the data file being imported, such as 'ECP'. To fix the problem, go to the Excel sheet **'Variable names'** and add this name from the file you are importing under the corresponding header. In this example, the name 'ECP' would be added under the variable name 'Eastern Cape Province'. You can use the same approach for other headers in your data set (e.g. YEAR) so that the import macro can correctly identify them. Once you have added the new names, run the import macro again to import the data correctly.

* Note that the import macro removes spaces in variable names and converts special characters (e.g. "é") into regular characters (e.g. "e") during the import. This allows for a wider range of variable name spellings to be detected. Whether variable names use upper or lowercase does not matter. Data importing has been successfully tested with a wide variety of data sources. To import country data, please use StatPlanet Map Maker[3].

4.3   Troubleshooting

If you have saved your data but it cannot be read by StatPlanet, most likely there is a problem with the data structure. Please see point 4 below to see how to structure data by year (or other time point). Data should start with the more recent time point. Also make sure that the indicators listed for each year are exactly the same, and are listed in the same order.

If the import fails, check your data file for the following issues:

1. **Spelling of variable names**: If the spelling of any of the variable names cannot be identified, the data for these variables will not be imported. **4.3 Importing data** above explains how to solve this problem.
2. **Merged cells**: Most commonly the merged cells are 'headers' For example, two columns or rows of data may have the same header (e.g. "Life Expectancy"). To fix this problem, split the merged cells (Right click -> Format Cells -> uncheck the box 'Merge cells'). One of the two cells will now be empty, leaving one of the columns (or rows) without a header. To fix this, copy and paste the header into the empty cell as shown below.

Life Expectancy	
2000	**2005**
76	76
59	62

Life Expectancy	Life Expectancy
2000	**2005**
76	76
59	62

---

[3] Available from http://www.sacmeq.org/statplanet/

3. **Variable names appear more than once**: If the same variable name appears more than once in your data file, the import macro will only import the data associated with the first one. The easiest way to fix this problem is to create separate files for each list of variable names, and import them one by one.
4. **No year indicated in the data file, or cannot be detected**:
    All indicators are arranged according to year. You need to add the year to your data set as the header of a row or column (depending on how your data is structured). Alternatively, you can import the data and add the year afterwards. The data needs to be structured as follows (see for example the structure of the sample data in StatPlanet_data_editor.xls):

    - Group (sort) your indicators according to year. Insert a new row above each group of indicators. In this new row add the year in the YEAR column. Leave the neighbouring cell in the INDICATOR column blank;
    - Note that the YEAR column should be blank in the cells next to the indicators:

YEAR	INDICATOR
2001	
	indicator1
	indicator2
2000	
	indicator1
	indicator2

5. **Decimal point:** StatPlanet reads a "dot" as decimal separator (for example 0.75), and a "comma" as a thousands separator (for example 1,000).

4.4   Optional parameters

1. **Unit:** The unit only needs to be specified for the list of indicators below the first year in the series.

2. **Information in a popup:** It is possible to add variable-specific information which will be shown in a popup when the mouse moves over the variable in the graph. This information needs to be added in the very first row in the empty cell below the corresponding variable name. (These cells are otherwise empty, as variable data starts in the next row).

Click the button 'More options' to show the following options (if you are using Excel):

3. **GRAPH_MIN / GRAPH_MAX:** if you wish to use your own maximum and minimum values for the graph, you can set them here. However, for this to work you also have to go to the worksheet 'Settings' and change the value of 'Adjust scale - indicator' to FALSE. This prevents StatPlanet from automatically adjusting the graph scale and ignoring the values you have entered here.

4.5   Adding data manually / without macros

You can also edit the data file directly (for example, if you are using software other than Excel). Open the file **data.csv** and add or copy your data below the header "GLOBAL" i.e. from row 16 onwards.

If the software you are using can open Excel files, you can also edit the data in the file StatPlanet_data_editor.xls, inside the worksheet 'Data'. This worksheet has been formatted for easy editing.

When you are done, save the data as a 'comma seperated' csv file and replace the file **data.csv**.

4.6   Changing settings and appearance

Go to the worksheet 'Settings' to customize StatPlanet, such as the appearance of the map. After making any changes to the settings, press the button **Save Settings**. You can try out all the different options 'live' in StatPlanet (see for example the 'Appearance' tab in the Options window).

4.7   Changing language and translation

StatPlanet has been translated in French, Spanish and Dutch. You can use any of these translations or create your own translation in the worksheet 'Text-Translation'. Click the corresponding save button to save the translation you wish to use.