STATPLANET 2.3
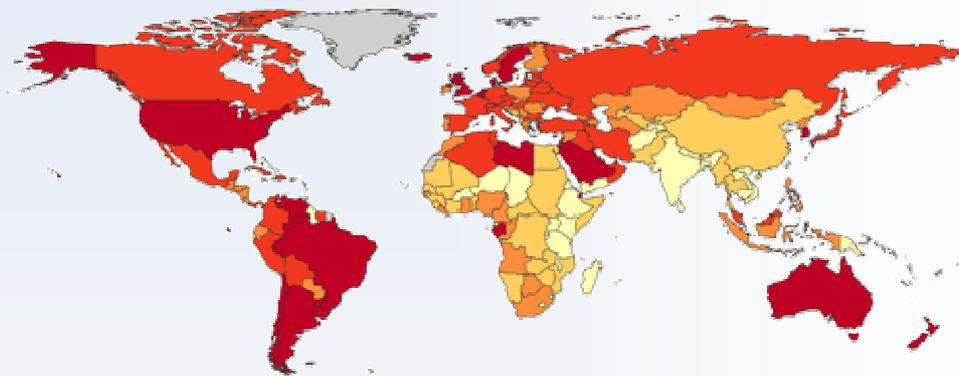## USER GUIDE

Frank van Cappelle

www.sacmeq.org/statplanet

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1. WHAT IS STATPLANET

StatPlanet is a powerful interactive data visualization and mapping tool. It is used by many different kinds of organizations including UN agencies, Fortune 500 companies, government departments, NGOs, schools and universities to communicate and explore data. StatPlanet is not only for adults – it is also used by children (ages 9 and above) to learn about the world through interactive maps.

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. You can import your own data into StatPlanet, as well as your own maps (both Flash maps and ESRI shapefile maps) – or you can use the included world or USA maps.

StatPlanet comes in different versions to cater to different needs. All versions of StatPlanet are free except for StatPlanet Plus, which has more advanced features such as support for large datasets. All versions of StatPlanet can be used both as a stand-alone application for offline use, and as a web-based application which can be published online. The offline version of StatPlanet Plus is free for non-commercial purposes.

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. From 2008 to 2010, the development of a tailored version of StatPlanet was 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

2. STATPLANET SYSTEM REQUIREMENTS

StatPlanet was designed to be usable in as many places as possible regardless of the available computers and infrastructure. It can be used online, through an intranet as well as offline – making it usable in places where there is no Internet connectivity. It is easy to disseminate due to its very small size – small enough to fit on any USB flash drive (USB stick) or to be sent as an e-mail attachment. The software does not require installation, so even those without administrator rights on their PC can run both the offline and online versions.

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.

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

3. STATPLANET FEATURES AND OPTIONS
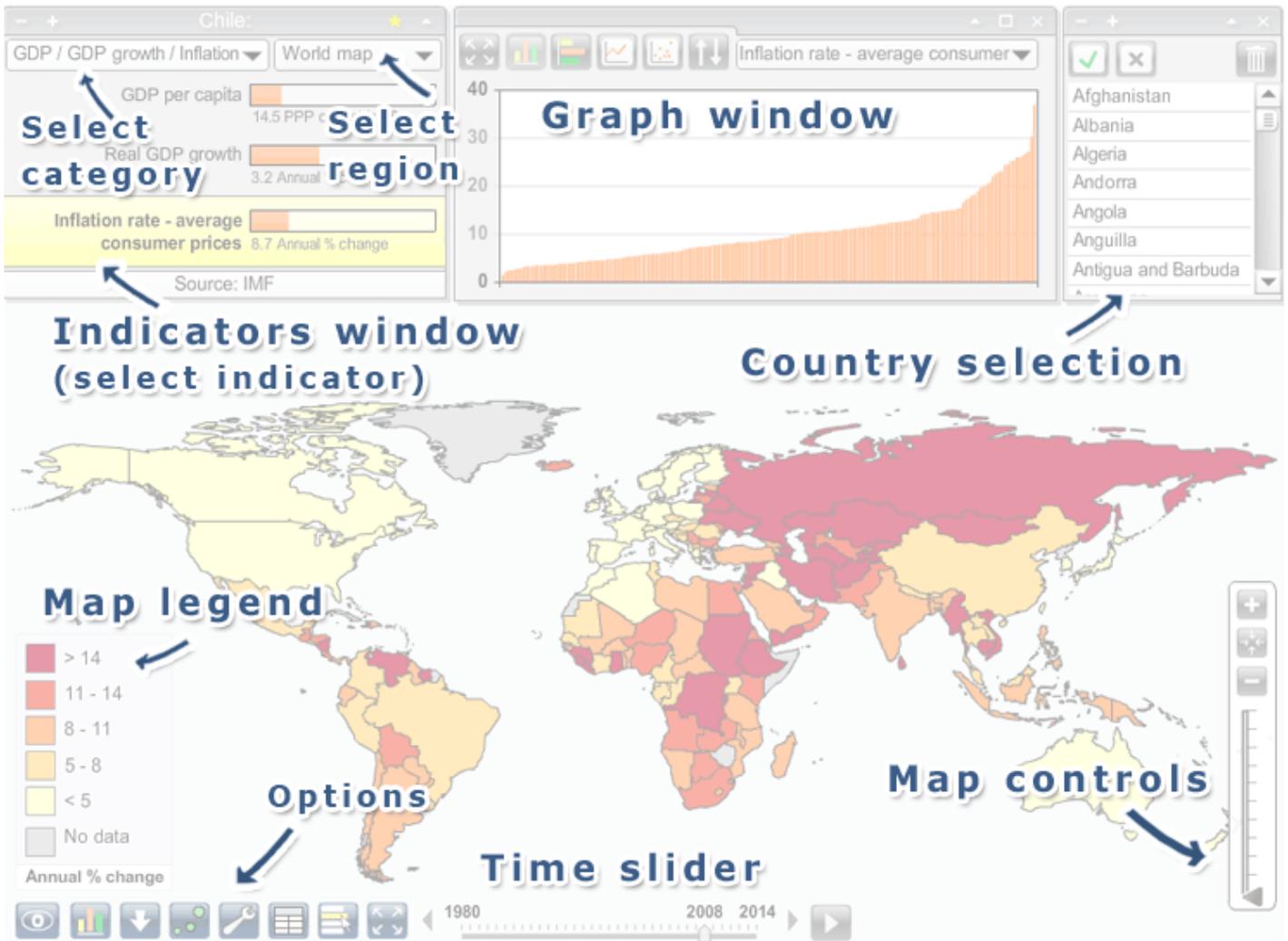
3.1 Thematic map

Choropleth Map

This is the main thematic map type in StatPlanet. The map legend shows which map colors are associated with each data range (for example, higher values may be shaded in increasingly darker colors). Both the map colors and the data range can be customized (see *Map legend* below). In version 2.1, the possibility of creating qualitative or descriptive maps was introduced. These types of maps convey non-numerical information, such as which languages are spoken in different regions.

Proportional Symbol Map

A proportional symbol map scales symbols (usually circles) according to the indicator being mapped. Each symbol can represent a country or other map region. In StatPlanet the symbol

map is overlaid on top of the choropleth map (see above). This means that two data sets can be shown on the same map – one for the choropleth map and one for the symbol map.

To show the symbol map, click the symbol icon (shown on the left) in the bottom-left corner of the screen. If you have bookmarked an indicator, the symbol map represents the data for the bookmarked indicator, whereas the choropleth map represents the data for the selected indicator. (If the bookmarked indicator is currently selected, both the symbol map and the choropleth map represent the bookmarked indicator).

Select country on the world map

- **Mouse over a country**: Moving the mouse over a country on the world map brings up a popup containing information about that particular country for the selected indicator (as well as the bookmarked indicator, if there is one). In addition, the country data for all indicators in the current category is shown in the i*ndicators panel*.

- **Click on a country**: You can select a country by clicking on it in the map. This will highlight the country in the graph, and can also be used to define a custom region. See also the *country selection panel*.

Map legend

Map colors: Clicking on any of the colors in the legend will bring up a color selection panel. In this panel you can change both the colors (either Sequential or Diverging color schemes), as well as the number of color classes (between 3 and 9). The color schemes are from the Color Brewer website (http://colorbrewer2.org/), which is an excellent resource for more information on selecting map colors.

Data range: To adjust the data range of the map legend, click on the top or bottom value. Use the popup to increment or decrement the value, or enter a whole new value. The intermediate values will be adjusted automatically.

Custom maps (national / regional / state maps etc.)

You can use StatPlanet Map Maker to insert your own maps, using the included map template (map.fla). This requires the Adobe Flash software. (See: *5. Importing a map into StatPlanet*)

Save/export (category version of StatPlanet only)
You can find the save/export button in the bottom-left corner of the screen. This button enables you to save the current map or graph as an image, or download the data as a CSV file.

To change the image type, size or quality, use the options panel. This feature is only available in the online version on the StatPlanet website. However, it is possible to save an image of a map produced with your own data if you download StatPlanet Map Maker. You need to open StatPlanet in the directory 'Offline', click the icon shown on the left, and take a 'Print Screen' (Prt Scr button on the keyboard). This saves the contents of the screen, so that it can be pasted

in an image editor or document.

Please include a reference to StatPlanet if you are publishing the image.

Map navigation controls:

The map zoom controls are normally hidden from view. Move the mouse towards the bottom-right of the screen to make them appear.

- **Zoom**: You can zoom in and out of the map using the 'zoom in' and 'zoom out' buttons, or by dragging the zoom slider up or down. If your mouse has a scroll wheel, you can also use this to zoom in and out.
- **Moving the map**: click and drag the map with the mouse to move it to a new position.
- **Restore map position**: the button shown on the left restores the map to the original coordinates for the selected region.

3.2   Indicators panel

Select category
Use the drop-down menu in the top of the indicators panel to select a new category (online version only).

Select regions
Use the drop-down menu in the top of the indicators panel to select and zoom into a different region, such as 'Africa' or 'Europe'. It is also possible to select countries to define a custom region (see *Country selection panel*).
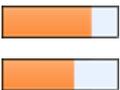
Indicator bars
The bars are scaled in proportion to the maximum value of that particular indicator for all countries in the selected region. For example, if the value for country X is 20 and the maximum value for all countries is 100, the bar will be scaled at 20%.

Bookmark indicator
Click the 'star' button in the indicators panel to bookmark the selected indicator. The bookmarked indicator will stay even when you switch to another category. This allows you to (i) create scatter plot graphs, (ii) compare the bookmarked indicator with indicators from other categories, and (iii) compare two indicators through the choropleth map (representing the selected indicator) and the proportional symbol map (representing the bookmarked indicator).

Indicator definitions
If a definition exists for an indicator, the definition will appear in a popup when moving the mouse over the indicator. The definition only shows for the indicator which is selected or bookmarked.

3.3   Graph panel

Bar chart

Click the 'graph' button in the bottom-left corner of the screen to open or close the Graph panel. You will find the same graph button in the graph panel. Use this button to switch between horizontal and vertical bar charts.

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

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

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

Scatter Plot

In the top left of the Graph panel (see "Bar chart" above) 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.

The x-axis and y-axis variables can be selected in the Graph panel (see below), or in the Indicators panel (see **Bookmark indicator** above).

Press the 'play' button to see an animation of changes over time, with each bubble moving to the corresponding x and y positions (depending on whether data is available for each time interval). If 'Show trails' is selected (next to the play button), each bubble will leave a trail to mark previous positions over time.

Select x-axis / y-axis indicator

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

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

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

Adjust graph size

To change the graph size, move the mouse to the sides or corners of the graph panel until you see the cursor change to look like the one shown on the left. Click and hold down the left mouse button, then drag the panel to the size you want . Release the mouse button once you have the right size.

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 panel.

3.4   Options panel

Click the 'options' button in the bottom-left corner of the screen to open the options panel.

Map:

- Map colors: map background, map borders, map text color, map text outline color, etc.);

- Map text size;

- Map symbol size (proportional symbol map symbols);

- Map legend - estimate best value distribution: adjust the values so that there is a more equal distribution of countries for each color class. This will usually result in a map with a better distribution of colors. If this is switched off, the value range for each color class will be set at equal intervals based on the highest and lowest value in the data range.

- Map legend - show maximum & minimum values

- Map legend colors.

Graph/Chart:

- Graph colors: background, bar & scatter points, scatter point borders;

- Graph text size;

- Transparency level of graph area (bars / bubbles);

- Size of bubbles (scatter plot graph);

- Bullet graph.

General options:

- Animation duration;
- Decimal places shown;
- **Adjust the map/graph scale**: StatPlanet automatically adjusts the map and graph scale to suit the data set. However, in some cases you may wish to keep it fixed, for example if you made some changes to it yourself. You can set (or prevent) the automatic updating of the map/graph scale on (i) changing indicator, (ii) changing region, (iii) changing year. The default setting is for StatPlanet to adjust the scale when changing indicator or region,

but not year.

If you have chosen to not have the map scale updated, the map legend has a shortcut which you can use to 'refresh' the map legend at at any time for the current indicator, year and region:

Save/export map: (online version only)

- Set the **image type**: PNG or JPEG
- Change the **image size** as % of original
- Change the **image quality** (for JPEG images only)

3.5   Data table panel

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.

Save / Export table (StatPlanet Plus only)
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 panel.

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.

3.6   Selecting countries

Countries can selected in various ways. An efficient way of finding and selecting a country is through the country selection panel, as explained below. However, a country can also be selected by clicking on it in the world map, in the data table panel, or in the bar chart or scatter plot graph. In each case the country will be highlighted in all of these StatPlanet components.

Click the 'select' button in the bottom-left corner of the screen to get a list of countries. Then click to select the countries you wish to show on the map or in the graph panel. To narrow down the list of countries, select a region from the drop-down menu in the top-right corner of the screen. You can also press the first letter of a country name to quickly jump to a country 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 countries will appear in the graph panel 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.

3.7   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 panel.

3.8   View menu (show/hide items)

Move the mouse over the 'View' button in the bottom-left of the screen to see various options for showing or hiding map & graph elements, and other StatPlanet components.

- Show or hide country/region names on the map or graph (country names can be shown in full, in abbreviated form or as ISO3 codes);
- Show or hide country statistics on the map or graph (country statistics can only be shown on the horizontal bar chart);
- Show or hide the map popup and its components - bar chart, indicator and statistic;
- Show or hide various panels.

3.9   Options panel (resizing/scaling)

Shrink / enlarge panels: Use the buttons shown on the left to shrink or enlarge the StatPlanet panels. This may be useful for space management when you have several panels open at the same time, or to focus in on certain areas.

Minimize / maximize panels: Use these buttons to minimize or maximize the panels. The **indicators panel** has a special minimized state in which indicators can still be selected.

Adjust graph panel size
Drag and drop the graph panel borders to adjust the size.

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

Additional notes:

- When switching categories, StatPlanet will remember which year was selected and check if data exists for this year in the new category. If there is no data for this year, it will select the year closest to the previously selected year for which data is available in the new category.
- When switching maps (e.g. world map to country map, or from regional map to district map), StatPlanet will check if the same category and indicator exist in the new map. If it cannot be found, the first category/indicator in the data set will be selected.

4. IMPORTING ESRI SHAPEFILE MAPS

These are instructions for StatPlanet Plus.
For StatPlanet Lite, see http://www.sacmeq.org/statplanet/StatPlanet-lite.html.

Instructions for loading your own ESRI shapefiles into StatPlanet:

1. Go to the folder containing the shapefile version of StatPlanet, go to the folder 'map'.

2. Remove the included example shapefiles (map of Indonesia), and copy your own shapefiles here.
   *both offline and web versions have a map folder; if you are using both, copy them to both map folders (i.e. "my_statplanet\map" and "my_statplanet\web\map").

3. Rename your files (e.g. xyz.shp and xyz.dbf) to "map.shp" and "map.dbf"

4. Open the StatPlanet_data_editor file. Click on the button 'Setup shapefile' (in the top-left).

5. Select the "map.dbf" file in the 'map' folder, and follow the instructions.

6. Run StatPlanet to see the results with the included sample data.

You can now start importing or inserting data for your map, but first you may wish to modify the map position and add text labels.

Map positioning:

To change the position and size of the map, move the mouse to the bottom-right of the screen to see the map zoom controls:

- **Zoom**: You can zoom in and out of the map using the 'zoom in' and 'zoom out' buttons, or by dragging the zoom slider up or down. If your mouse has a scroll wheel, you can also use this to zoom in and out.
- **Moving the map**: click and drag the map with the mouse to move it to a new position.

Once the map is in the right position, right-click and select 'Copy map coordinates'. In the StatPlanet Data Editor, go to the sheet 'Map regions', select the cell below 'X'. Then paste the coordinates here.

Text labels:

1. To show the text labels for the map, click on 'Show text labels' in the StatPlanet Data Editor (sheet Import, below the Save button).

2. Click on "Save data" and open StatPlanet to see the results. It is likely that the position of some or all of the text labels will need some adjusting.

3. To adjust the position of the text labels, right click anywhere in StatPlanet and select 'Move text labels' in the menu. Click on any of the text labels to drag them to a new position.

4. Once you have finished moving the text labels, right click and select 'Copy text label coordinates' in the menu.

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5. In StatPlanet, go to the sheet 'Settings'. Select the cell next to 'Text label coordinates', and paste the coordinates here. (You may also wish to modify other settings in this sheet, such as the text font size.)

6. Click on 'Save settings' (or alternatively, 'Save data' in the Import data screen). The coordinates have now been saved for when you next open StatPlanet.

7. In the sheet 'Settings', you can also change additional settings such as the font size of the text labels.

Finding a map:

The following are useful websites for finding free shapefiles (regional / administrative boundaries maps). Note that you need to download the boundary files in the ".SHP" format.

- Map Library - http://www.maplibrary.org/ - Public domain maps for most countries in the world.

- UN SALB - http://www.unsalb.org/ - Second Administrative Level Boundaries data set project. These maps are free but copyright rests with the UN. The maps are validated by the National Mapping Agencies (NMA) of each UN Member State.

- US Census Bureau - http://www.census.gov/geo/www/cob/bdy_files.html - USA County and District Cartographic Boundary Files.

Instructions for loading shapefiles without using Excel:

1. Copy your map shapefiles as explained above.

2. Copy and paste the country IDs from the map.dbf file to replace the existing ones in the file data.csv.

3. Copy and paste the country names from the map.dbf file to replace the existing ones in the bottom of the file settings.csv.

4. Copy the ID column header name, and paste it next to 'DBF-ID' in the file settings.csv.

Note: The ID column may not contain spaces or symbols, and should have unique values only.

GIS Shapefile Reader - Source Code

The source code for reading the shapefiles is included in the directory SHPreader. It can be compiled to the file SHPreader.swf, which is read by StatPlanet.

The code was written by Edwin van Rijkom under the LGPL license, with some additions by Andy Woodruff, and some slight modifications for use in StatPlanet.

If you wish to change the names of the map files being read, you can change this in SHPreader.as, and publish it as SHPreader.swf through the file SHPreader.fla.

For more information, see: http://shp.riaforge.org/

5. ADDING OR IMPORTING DATA

5.1   Basic steps for adding data – country-level data example

Note: to add your own data you need to download StatPlanet Map Maker, StatPlanet Plus or StatPlanet Lite: http://www.sacmeq.org/statplanet.

1.		**Download**	Download StatPlanet Map Maker and extract the files to your computer.
2.		**Open**	In the folder 'World_Map', open StatPlanet_data_editor. Make sure macros are enabled. Press the 'Clear data' button to remove the example data.
3.		**Import**	Press the Import data button and select a file containing data you wish to import. You can also add data manually using any spreadsheet software.
4.		**Save**	Press the 'Save data' button. This saves the data to the file data.csv.
5.		**View**	Click on **StatPlanet.exe** 🌐 to view the results.
6.		**Publish**	Copy the contents of the folder 'Web' to your website to publish it online.

To publish StatPlanet Map Maker **online**, all you need to do is to upload the contents of the folder **Web** to the website (web-server). This folder contains the following files:

- StatPlanet.html   (the webpage which displays your interactive map)

- StatPlanet_small.html (alternative with smaller map embedded inside a webpage)

- StatPlanet.swf   (file which shows loading progress)

- content.swf   (the actual software)

- settings.csv   (settings in comma-separated values format)

- data.csv   (data in comma-separated values format)

- swfobject.js (required to run 'Flash' content)

Contents of StatPlanet_Map_Maker.zip

- User Guide (User_Guide_StatPlanet.pdf)

- StatPlanet Map Maker Software License (License_Terms.pdf)

- **World_Map**
  - Create interactive maps using the included World Map.

- **USA_Map**
  - Create interactive maps using the included USA Map.

- **Custom_Map**
  - Design or import a map using the map template (map.fla).
  (requires Adobe Flash CS3 or higher)
  - Includes an example map (map_example.fla), a province map of Kenya.

Enable macros in Excel:

When you open StatPlanet_Data_Editor.xls you will normally get a message asking you whether you wish to enable macros. The message depends on the version of Excel.

- **Excel 2007 or newer:** In the top of the screen, next to 'Security Warning', click the button 'Options'. Select 'Enable this content' and click on 'OK'.

- **Older versions of Excel:** Select 'Enable macros' in the popup window.

If you do not receive this message, the macro security level in Excel is set to high. Follow the instructions below to change the security level to a lower setting.

- **Excel 2007 or newer:** Click the Microsoft Office Button (top-left) and click Excel Options. In the Popular category, check 'Show Developer tab in the Ribbon' (if it is not already checked). Click on 'OK', then select the Developer tab. Click on 'Macro security' (on the left). Select 'Disable all macros with notification'.

- **Older versions of Excel:** In the Tools menu, go to -> Macro -> Security. Change the security level to Medium.

5.2   Importing data

Using the included StatPlanet Data Editor, it is possible to import data automatically. The Data Editor is Excel-based, so data can be imported from many different file formats (including CSV, TXT, XLS, XLSX, DBF and HTML).

The Data Editor automatically recognizes the structure of the data in the file being imported. It also recognizes the vast majority of the many possible variations of country names (in the world map version of StatPlanet). The import should therefore succeed in most cases without having to make any changes to the data file. In case of problems, see "troubleshooting" below.

The Data Editor uses the names in the Excel sheet 'Import names' and looks for corresponding names and statistics in the data file (in the world map version, this sheet contains country names, but it can also contain for example region names or district names, depending on the map used). The Data Editor automatically restructures the data in the format that is accepted by StatPlanet.

A criterion for the import to be successful is that any country name *only appears once* in the data file being imported. Also note that StatPlanet sees a "dot" as the decimal separator.

Importing HTML or PDF files

- HTML: To import data from a web-page, simply save the web-page and import it like any other file. If the import fails, it could be that the import/map/country names and statistics are too far down the page. In this case, open the file in Excel, and remove the rows up to the point that the data starts. Then import the file again. Alternatively, copy and paste the tables in the web-page into a new Excel document.

- PDF: Tables in PDF files can usually be copied and pasted into an Excel file. Select (highlight) the table with the mouse, right-click and select "Copy as Table" or "Save as Table" from the menu. See also this helpful guide from McGill University:
  http://www.library.mcgill.ca/edrs/services/publications/howto/pdftoxls/pdftoexcel.html

  as well as this free tool to convert a PDF to an Excel file:
  http://www.pdftoexcelonline.com

Names not recognized

Names of map regions in the data file which are not recognized are displayed once the import is complete. For example, if in your data file the country 'Afghanistan' is indicated with the abbreviation 'Afg', this abbreviation will not be recognized by the data editor. To fix the problem, go to the Excel sheet 'Import names' and add 'Afg' in an empty cell below the corresponding country - 'Afghanistan'. You can use the same approach for other headers in your data set so that the import macro can correctly identify them. Then, run the import macro again to import the data correctly.

Note that the import macro removes spaces in the sheet "Import names" and converts special characters (e.g. "é") into regular characters (e.g. "e") during the import. This allows for a wider range of country name spellings to be detected. Whether the names in your file use upper or lowercase does not matter. The world map version recognizes English and French country name spellings and a number of variations of these spellings. Automatic data importing has been successfully tested with many different sources of data with different data structures and country name variations, including the CIA Factbook, Ethnologue, IMF, ITU, Nation Master, OECD, UBS, UIS, UNAIDS, UNDP, UNESCO, UNICEF, UNSTATS, WHO and the World Bank.

The Data Editor is registered as an open source project on SourceForge and any contributions or improvements you make to the software are very welcome. (https://sourceforge.net/projects/statplaneteditr/).

5.3   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 names**: If the spelling of any of the country/map/region names cannot be identified, the corresponding data will not be imported. See "Names not recognized" above for more information on how to resolve this problem.
2. **Names appear more than once**: If the same country/map/region names appear more than once in your data file, the import macro will only import the data associated with the first one.

This structure will not be imported correctly:

Country	Dimension	High	Medium	Low
Afghanistan	A	6	3	2
	B	7	5	2
Albania	A	9	6	3
	B	12	5	2
Algeria	A	11	5	1
	B	21	11	9
Andorra	A	15	14	12
	B	14	11	10

This structure needs to be re-arranged with one country/map/region name per row, as shown below (alternatively, it may be easier in some cases to split the data into several files and import them separately).

This structure will import correctly:

Country	A - High	A - Medium	A - Low	B - High	B - Medium	B - Low
Afghanistan	6	3	2	7	5	2
Albania	9	6	3	12	5	2
Algeria	11	5	1	21	11	9
Andorra	15	14	12	14	11	10

3. **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

4. **Decimal point:** StatPlanet reads a "dot" as decimal separator (for example 0.75). Avoid using commas, spaces or other symbols in numbers to ensure that they are read properly by StatPlanet.

6. CUSTOMIZING STATPLANET

6.1   General settings and customizations

General settings for customizing StatPlanet can be found in the Excel sheet 'Settings'. After making any changes to the settings, press the button **Save Settings**. You can try out most of the different options 'live' in StatPlanet through the general options panel and the map legend options panel. See below for customizing StatPlanet at an indicator or category level (for example, specify different map colors for different indicators).

6.2   Customizations and metadata at category & indicator level

In StatPlanet_Data_Editor.xls, there are several columns which can be used to define optional parameters. The different columns and their usage is explained below.

> **IMPORTANT:** CUSTOMIZATIONS, SUCH AS AN INDICATOR DESCRIPTION, SHOULD ONLY BE SPECIFIED FOR THOSE INDICATORS IN THE <u>FIRST</u> (OR HIGHEST) YEAR. THEY DO NOT NEED TO BE REPEATED FOR ALL YEARS IN THE SERIES.

- **Data Source**

  The source of your data can be added in the same row as the year in the column "SOURCE". It only needs to be added for the first (highest) year in the series. In StatPlanet Plus, it can be specified for each category or sub-category of data.

  You can choose to use HTML code if you want to add a link to the source website, for example:

  My Source.

  Make sure you to use only single quotes '-' rather than double quotes ("-"), as double quotes are used to indicate the presence of commas (the data.csv file is a comma separated values file).

- **Indicator Description**

  Add a description for each indicator in this column, which will appear as a popup in StatPlanet when moving the mouse over the indicator.

  As noted above, the description only needs to be added for the list of indicators below the first year in the series. If you have two or more indicators with the same description, you only need to enter the description once. For the other indicators, instead of a description enter the Excel row number (in the sheet 'Import') where the description you want to re-use is located.

- **Indicator Unit**

  The unit for the indicator, for example '%'.

- **Customize Map**

  In this column you can customize the map legend for each indicator. It is possible to customize the map legend values (either text or numbers), colors, as well as the number of color categories.

  The map legend can be customized in StatPlanet itself, and then copied and pasted into the data file. In StatPlanet, select the indicator for which you wish to customize the map legend. Then click on any of the colors or values inside the map legend panel in the bottom-left corner to customize the map. Once you are satisfied with the map legend you have just customized, right-click anywhere inside StatPlanet and select 'Copy map legend' from the menu. Open the StatPlanet_Data_Editor file. Select the cell below the column header 'MAP', in the corresponding indicator row (for which you customized the map legend). Select 'paste' to insert the custom map legend. If there is data for multiple years, this only needs to be pasted in the row for the first year in the series. Click on 'Save data' to see the results the next time you open StatPlanet.

  More details on customizing the map legend, including how to create a qualitative map, are provided below. If you wish to create a qualitative map legend (based on categories such as 'high', 'medium', 'low'), rather than a quantitative legend (based on numeric value ranges), you need to follow the approach described in (iv) below.

  (i) Map legend with custom values

  - Use the following format to specify the values for the map legend, as well as the number of color classes:
    0=[value0] 1=[value1] 2=[value2] 3=[value3] 4=[value4]
    etc.

  - Example 1a: A legend with 4 color classes:
    0=[55] 1=[40] 2=[20]

  - Example 1b: A legend with 5 color classes:
    0=[70] 1=[65] 2=[60] 3=[55]

    Map legend for Example 1b:

With max / min values hidden	With max / min values shown
> 70	70 - max value
65-70	65-70
60-65	60-65
55-60	55-60
< 55	min value – 55

(ii) Map legend with custom colors

- Use the following format to specify the colors for the map legend, as well as the number of color classes:
  0=[color0] 1=[color1] 2=[color2] 3=[color3] 4=[color4]
  etc.

- Example 2: A legend with 4 color classes:
  0=[0x238B45] 1=[0x66C2A4] 2=[0xB2E2E2] 3=[0xEDF8FB]

(iii) Map legend with custom colors and values

- Use the following format to specify the colors for the map legend, as well as the number of color classes:
  0=[color0][value0] 1=[color1][value1] 2=[color2][value2] 3=[color3][value3] 4=[color4]

  Note that this format is slightly different from the previous ones, because 5 colors are specified (colors 0 to 4) but only 4 values (values 0 to 3). As illustrated in example 1b above, a legend with 5 color classes requires only 4 values to be specified (a legend with 4 color class requires only 3 values, and so on).

- Example 3: A legend with 4 color classes and custom values:
  0=[0x2171B5][3] 1=[0x6BAED6][2] 2=[0xBDD7E7][1] 3=[0xEFF3FF]

(iv) Qualitative (descriptive) map legend

- Use the following format to specify the map legend colors, the corresponding labels, as well as the number of color classes. Countries are assigned a value which corresponds to one of the numbers below. For example, if the country 'Afghanistan' is given a value of '0', it will be associated with 'color0' and 'label0'.

  0=[color0][label0] 1=[color1][label1] 2=[color2][label2] 3=[color3][label3]
  4=[color4][label4]
  etc.

- Example 4: A legend with 8 color classes:
  0=[0x377EB8][Arabic] 1=[0xE41A1C][Bengali] 2=[0x4DAF4A][English]
  3=[0x984EA3][Hindi] 4=[0xFF7F00][Mandarin] 5=[0xFFFF33][Portuguese]
  6=[0xA65628][Russian] 7=[0xF781BF][Spanish]

- Map legend for Example 4:

Color	Label
0x377EB8	Arabic

0xE41A1C	Bengali
0x4DAF4A	English
0x984EA3	Hindi
0xFF7F00	Mandarin
0xFFFF33	Portuguese
0xA65628	Russian
0xF781BF	Spanish

- **Customize Graph**

  If you wish to use your own maximum and minimum values for the graph, you can set them in the "GRAPH" column. Specify the minimum / maximum values in parentheses in the format: **[min-value][max-value]**

  For example, for a minimum value of 0 and a maximum value of 80, enter the following:

  [0][80]

  You can also specify the color of the graph in the format **[color-code]**, for example:

  [0x78C679]

  To specify minimum / maximum values as well as color, use the format **[min-value][max-value][color-code],** for example:

  [0][90][0x78C679]

- **Link To Other Data Files**

  (StatPlanet Plus only). The column "FILE" is used to link to other data files, when data is spread out over multiple files This is useful to reduce the initial download time, and only download data for a particular category when a user selects this category. To load data for a particular category from another file, specify the file name in the top row for this category, for example "data_category2.csv".The file can also be inside a ZIP, for example "data_category2.zip". Each data file has the same structure as the original data file.

- **Options**

  o **Default year:** It is possible to specify the default year to be selected for a particular category. To do so, specify the year in the column "OPTIONS". In StatPlanet Plus, this would need to be inserted in the same row as the category name. In other versions of StatPlanet, this would be the first row of data in the StatPlanet Data Editor.

  y=[2007]

- o **No division:** By default, if an indicator has numbers over a million they will be divided by 1000 000, and 'million' will be added as the unit. To prevent this behavior for a particular indicator, insert the following in the column "OPTIONS" in the indicator row for the first year in the series:

  nodiv

- o **Scale for indicator panel bars:** The bars in the indicator panel are scaled according to the highest value for a country or region in that indicator. This means that each indicator bar has its own scale. However, in some cases you may wish the bars of all the indicators to be along the same scale. In this case, insert the following in the column "OPTIONS" in the indicator rows you wish to be along the same scale:

  samescale

  Please note that this needs to be inserted in the rows for the first year in the series, and that the indicators need to be in the same category.

- **Data type**
  The column "TYPE" will be used to specify the data type in future versions of StatPlanet. This will enable additional interface and visualization options.

6.3   Country / region specific information and/or links

Country / region specific information can be shown in a popup when the mouse moves over the country / region in the map or graph panel. This information needs to be added in the very first row in the empty cell below the corresponding country name. (These cells are empty, because country data starts in the next row).

You can insert plain text, or HTML text with formatting, for example:

My text

Links to documents or web-pages can also be specified in the row below the corresponding country name. The document or web-page will open when the user clicks on a country for which a link has been specified. An example of a link would be:

http://www.mywebsite.com/document.pdf

It is also possible to have both text and a download link, by inserting the link as HTML code. For example:

Insert additional information here

Custom maps (e.g. province / state / region maps) To add data for new map areas or regions, first add the map area/region as follows:

1. Open the StatPlanet Data Editor and in the worksheet "Import" go all the way to the last country at the end of row 2.

2. In the empty cells in row 2, add the names of your new data types (for example "Sub-Saharan Africa").

3. Press the button **Save data**. The names of your new data types have now been added.

6.4 Custom 'zoom-to' map regions

You can add, remove or change the region names in the worksheet 'Map regions'. For example, in a world map a custom region could be Africa. Clicking on Africa from StatPlanet's region selection drop-down menu would zoom into the African continent and display map and graph data only for African countries.

Map regions have the following elements:

- **Name** (col. 1)**:** The names of the map regions you wish to define. If you wish to group regions into a sub-menu, insert the name of your sub-menu just like any region name. Then for the subsequent region names below, add '>' if you wish to include them in this sub-menu (the principle is the same as with the categorization of indicators). In the example below, "My sub-menu" is the name of your sub-menu, and the symbol ">" is used to define the two regions to be included in this sub-menu:

  > Region 1
  > Region 2
  > My sub-menu
  > \> Region 3 (inside sub-menu)
  > \> Region 4 (inside sub-menu)
  > Region 5 (not inside sub-menu)
  > etc.

- **Map coordinates** (col. 2-4)**:** The X and Y coordinates and ZOOM level for the defined regions. To get these coordinates, open your map in StatPlanet and zoom into the map area you wish to add (e.g. zoom into Africa and click and drag the map so Africa fills the screen). Once you are satisfied with the map position, right-click anywhere in StatPlanet and select 'copy map coordinates'. Go back to the Excel sheet 'Map regions', and 'paste' the coordinates in the corresponding row for the region.

- **Color** (col. 5 - optional)**:** The color for each region which will be used to color the bubbles in the scatter plot graph. It is also possible to color the bar chart using the region colors. A region colors needs to be specified as a "hex color", for example "0x0000FF" for blue.

- **Link** (col. 6 – optional, StatPlanet Plus only)**:** Insert a link or URL, for example to link a map name with another copy of StatPlanet with this map embedded.

- **Codes** (col. 7 onwards)**:** Columns 7 onwards contain the codes for the countries or map areas in each region (these are ISO3 country codes for the world map version of StatPlanet). The codes for each country or map area can be found in the top row of the sheet 'Data'. To add countries or map areas to a

custom region, add the codes in columns 7 onwards without leaving any empty cells between them.

6.5   Adding data directly (with or without Excel)

You can edit the data files **data.csv** and **settings.csv** directly without using the Excel-based Data Editor. These two files can be edited using any spreadsheet software.

The data needs to be saved as a CSV ('comma separated values') file.

6.6   Language and translation

StatPlanet is available in French, Spanish, German, Bahasa Indonesia (courtesy of the Government of Indonesia) and Dutch. Select the language you wish to use in the sheet 'Settings'. To edit any of the translations or create a new translation, see the Excel sheet 'Text-Translations'.

7. REDUCING THE DOWNLOAD SIZE OF YOUR WEB APPLICATION

StatPlanet is optimized to keep the file size as small as possible. The following is a list of measures which can be implemented to reduce the file size of your interactive maps even further:

1. **ZIP the data file(s):** this can reduce the file size by as much as 70 percent. StatPlanet will automatically detect whether the data is inside a ZIP or not. The name of the ZIP archive needs to be "data.zip". If you have multiple data files (StatPlanet Plus only), these can also be zipped.

2. **Decimal places:** file sizes can often be reduced by around 50 percent if you round numbers to two or three decimal places. A macro is included in the StatPlanet Data Editor for rounding all the numbers in the Excel sheet 'Import' to two decimal places. The macro is called "RoundToDecimalPlaces" and can be adjusted as required.

3. **CSV file format:** the CSV file format was chosen because it keeps the size of the data file to an absolute minimum, because data values are separated only by commas. In comparison, XML files are often several times bigger when containing the equivalent amount of data.

4. **No duplication:** indicator names and descriptions do not need to be duplicated in the data file. If you are using the StatPlanet Data Editor, any duplicate indicator names will automatically be replaced with the '-' symbol. Indicator names only need to be indicated for the very first year of a data series. For indicator descriptions, duplication can also be avoided – see the section "Indicator Description" for more information.

5. **Reduce map size (shapefile version only):** the maps themselves are often much bigger than StatPlanet and the data files combined. GIS software can be used to reduce the level of map detail. There is also a free utility called MapShaper – www.mapshaper.org . However, when using MapShaper the exported map still needs to be imported and then exported again using GIS software to make it compatible with StatPlanet.

8. DESIGNING A MAP USING ADOBE FLASH

To create custom interactive maps using StatPlanet, you need the following:

- StatPlanet Map Maker

- Adobe Flash CS4 or higher

- A map file in vector format, either Adobe Illustrator (.ai), FreeHand (.fh*, .ft*), or Adobe Flash (.swf). (See also: Converting images into a suitable vector format)

For an example of what the final result could look like, see the file 'map_example.fla' (shown below).

StatPlanet Example Map of Kenya (map_example.fla)
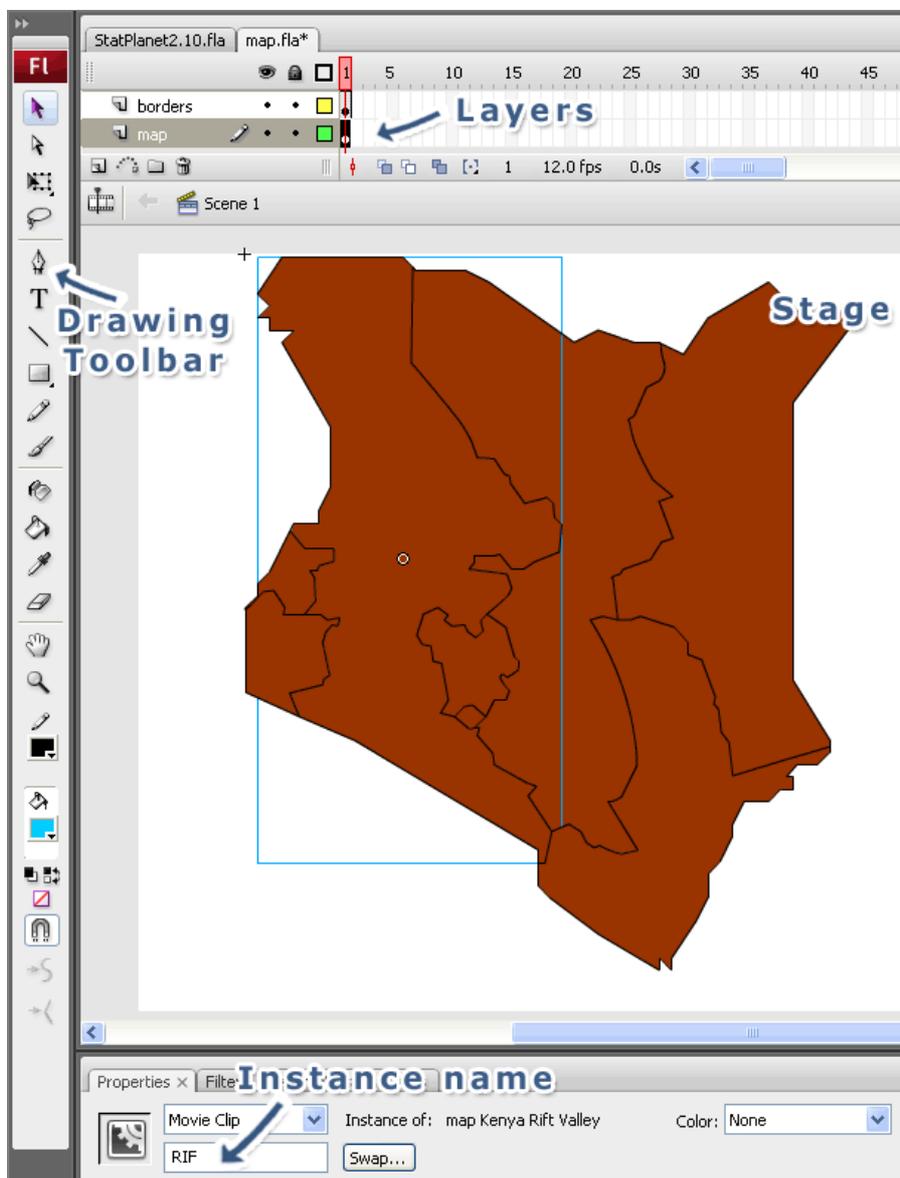
8.1 Using the map template

To prepare the map so it can be loaded into StatPlanet, you need to open the **map template** - 'map.fla' - which is in the 'StatPlanet_Custom_Map' folder. This file contains the following four layers:

- Map layer: This layer will contain the map shapes (e.g. regions or provinces).

- Borders layer: This layer will contain the map borders.

(Note: since version 2.3, map text labels are automatically generated and no longer need to be added manually).

Step 1. Map layer

Before inserting your map into the map template (map.fla), it may be easiest to edit it first in a new document.

- Open a new document (File -> New).

- Import your map. Go to File -> Import to Stage, and select your map file.

- Once the map is imported, select and remove the details you do not need such as text labels, roads, etc. (Click outside the selected area to deselect it, then click on any of the details you wish to remove and press delete).

- Select all (Edit -> Select all).

- Break apart the shapes of your map by pressing CTRL+B (or using the menu: Modify -> Break Apart). You may need to repeat this several times until the shapes cannot be broken apart any further.

  - **What to do if a rectangle appears which covers your map:**
    In some cases a rectangle may suddenly appear which was previously hidden from view. If this is the case, click anywhere outside the selection area to deselect it. Then click on the rectangle and press 'delete'. You should now see the map again. (Note: if you did 'Break Apart' one too many times, the rectangle and your map merge, and the map disappears. You will need to go back and redo this, and remove the rectangle while it is still a seperate shape).

- Select all (Edit -> Select all).

- Copy the map (Edit -> Copy).

- Open the map template (map.fla).

- Select the first frame in the timeline in the layer 'map' (normally in the top of the screen, see also the example screenshot above - the first frame looks like a white rectangle with a circle in it).

- Paste your map (Edit -> Paste in Place).

- Double-click on the map borders. This should normally select all the borders in one go. Otherwise, hold down the Shift key and double click on the remaining borders. Once you have all your borders selected, change the border thickness in the Properties Panel. Click on the drop-down which currently has 'Solid'

selected, and change this to 'hairline'. If the borders are different colors, make them one color by clicking in the color selection box. Select any color (for example black).

- Now select the different shapes of your map one by one and convert each of them into a Movie Clip. To convert them into a Movie Clip, press F8 (or use the menu: Modify -> Convert to Symbol).

  o **What to do if shapes do not separate properly:**
  In some cases the shapes of your map may not have separated properly, because the borders are not properly joined up. You can either draw existing borders to make them join up, or draw them in using the pencil tool. To join them up, you can click on the edge of one of the lines just at the point where it does not join up, and drag the line to where it should join. Alternatively, click on the Pencil Tool in the Drawing Toolbar (normally on the left). Then draw in the lines where the gap exists. If this is done correctly, the shapes should now be separated.

  o **What to do if your map consists only of map boundaries, not shapes:**
  If your map consists only of map boundaries or borders, you can fill the boundaries with the 'Paint Bucket Tool'. Select the 'Paint Bucket Tool' in the Drawing Toolbar (normally on the left) and click within the map boundaries you wish to fill. It can be filled using any color.

- Assign an instance name to each of the movie clips. The instance name can be entered in the properties panel which is normally below the stage (see also the example screenshot above).

- The instance name cannot contain spaces. Therefore, you may wish to assign a 'code' rather than the actual name. The actual name can be defined later in the StatPlanet Data Editor, where it can include spaces.

- The size / position of the map can be adjusted at a later stage in the Data Editor (in the Excel sheet 'Settings').

Step 2. Borders layer

- Once you have created the map Movie Clips, your borders may have become hidden from view. To make them appear again, you need to select all the map Movie Clips you just created one by one, while holding the SHIFT key. Once you have selected all of them, select Edit -> Cut. You should see the map boundaries reappear.

- Now select the map borders by double-clicking on any part of them. This should normally select all the borders in one go. Otherwise, hold down the SHIFT key and double click on any of the borders which are not yet selected. Once you have selected all the borders, press CTRL + G (or use the menu: Modify -> Group).

- Once you have grouped all the map borders, you can place all the Movie Clips back again. Select Edit -> Paste in Place. While the Movie Clips are still selected, right-click on any of them, and from the popup menu select Arrange -> Send to Back. Now your map borders should appear on top of the map.

- Click anywhere outside the selection area to deselect it. Then click somewhere on the map borders. This requires some precision so that you do not accidentally click on one of the map Movie Clips instead. Once you have selected the borders, go to Edit -> Cut. Then select the first frame in the 'borders' layer in the timeline panel, and go to Edit -> Paste in Place.

- While the borders are still selected, turn them into a Movie Clip by pressing F8 (or using the menu: Modfiy -> Convert to Symbol).

- In the Movie Clip properties panel below the stage, give the Borders Movie Clip the instance name: borders.

Step 3. Publish your map file

- Once your map is ready, publish the file (File -> Publish).

- Go to the directory containing map.fla. You should see a new file, 'map.swf'. Copy and paste this file into the directory "Web" (for the online version of StatPlanet), replacing the existing 'map.swf'.

Step 4. Linking the map in StatPlanet Data Editor

- In StatPlanet_data_editor.xls, first insert the 'real names' of your map regions, and then the 'instance names' or codes which you used in the map file (map.fla).

- In the sheet 'Import', replace the example names (which are Kenya province names) with your own names, in the order that you wish. Then press the button 'Save data'.

- Go to the sheet 'Data' (see the sheet names in the bottom left of Excel). In the top row you should see a list of example codes (CEN, COA, EAS, etc.). Remove these codes and replace them with the codes (instance names) you have used in your map file. They should be in the same order as the map names in the sheet 'Import'. (in the example, the order of map regions in the sheet 'Import' is Central, Coast, Eastern...etc., and the corresponding codes in the sheet 'Data' are CEN, COA, EAS, etc.).

- Go back to the sheet 'Import' and insert the data for your map regions here. You can also use the 'Import data' button to import your data from a file automatically. If the import fails, it is most likely because the names of map regions in the file you are importing could not be recognized. In that case, you need to add them in the sheet 'Import names'. See also the section on "Importing data".

- Once the data has been added, press the button 'Save data'.

- Go back to the directory Offline and open StatPlanet.exe to see your map in action. Or go to the directory Web and open the file StatPlanet.html to open it in a web-browser. If you wish to publish your interactive map on a website, copy and paste the contents of the folder 'Web' to the web-server. See also the file 'StatPlanet_small.html' for an example of how the map can be integrated into an existing web-page.

Step 5. Map positioning: (optional)

To change the position and size of the map, move the mouse to the bottom-right of the screen to see the map zoom controls:

- **Zoom**: You can zoom in and out of the map using the 'zoom in' and 'zoom out' buttons, or by dragging the zoom slider up or down. If your mouse has a scroll wheel, you can also use this to zoom in and out.
- **Moving the map**: click and drag the map with the mouse to move it to a new position.

Once the map is in the right position, right-click and select 'Copy map coordinates'. In the StatPlanet Data Editor, go to the sheet 'Map regions', select the cell below 'X'. Then paste the coordinates here.

Step 6. Text labels: (optional)

8. To hide/show the text labels for the map, click on 'Show text labels' in the StatPlanet Data Editor (sheet Import, below the Save button).

9. Click on "Save data" and open StatPlanet to see the results. It is likely that the position of some or all of the text labels will need some adjusting.

10. To adjust the position of the text labels, right click anywhere in StatPlanet and select 'Move text labels' in the menu. Click on any of the text labels to drag them to a new position.

11. Once you have finished moving the text labels, right click and select 'Copy text label coordinates' in the menu.

12. In StatPlanet, go to the sheet 'Settings'. Select the cell next to 'Text label coordinates', and paste the coordinates here. (You may also wish to modify other settings in this sheet, such as the text font size.)

13. Click on 'Save settings' (or alternatively, 'Save data' in the Import data screen). The coordinates have now been saved for when you next open StatPlanet.

14. In the sheet 'Settings', you can also change additional settings such as the font size of the text labels.

8.2 Converting images into a suitable vector format

Converting a GIS shape file (.SHP) into a vector format recognized by Adobe Flash

Maps for GIS (Geographic Information Systems) are commonly exchanged as ESRI Shapefiles. Such files can be converted into Adobe Illustrator vector files using software such as ArcGIS or MAPublisher. Converting the file in ArcGIS can be done as follows: select 'File -> Export Map'. In the 'Save as' drop-down select 'AI' as the file format. Then click on 'Save'. Adobe Illustrator (AI) files can be imported directly into Flash.

You may also wish to open the image first in Adobe Illustrator, export the image as a Flash SWF file, and import the SWF into Flash. Importing an SWF file sometimes leads to better results than importing an AI file.

If you do not have access to such software, you could try a free Shapefile to SVG converter called shp2svg. See below for converting an SVG image into a format recognized by Flash.

Converting a vector image (such as SVG) into a vector format recognized by Adobe Flash

Use Adobe Illustrator to open the file, and then export the file into the right format. It seems that the best results are achieved when using Adobe Illustrator to export the image as an Adobe Flash SWF, then importing the SWF into Flash.

If you do not have Adobe Illustrator, you could try converting the file using the free vector graphics editor Inkscape. You may also wish to try this free SVG2SWF conversion tool.

Converting a Bitmap image into a vector format (e.g. GIF, JPG, PNG, BMP)

It is impossible to perfectly convert a Bitmap image into a vector one, but with some experimentation it is possible to achieve good results. To convert a Bitmap image, first import it into Flash (File -> Import to Stage). Then select the image, and select Modify -> Bitmap -> Trace Bitmap.

You will need to experiment with the following trace settings to get optimal results:

- **Color threshold:** Increase this value to decrease the number of colors in the resulting vector image. (When comparing two pixels, if the difference in the RGB color values is less than the color threshold specified here, they are considered to be the same color).

- **Minimum area:** Increase this value to decrease the number of shapes in the resulting vector image. This is the number of surrounding pixels considered when assigning a color to a pixel.

- **Curve fit:** How smoothly the outlines will be drawn.

- **Corner threshold:** Select how many corners you wish to keep.

The following values illustrate what settings to use if you wish to create a vector that most closely resembles the original bitmap. However, the settings below are not recommended due to the large number of shapes created. These settings may also cause the Flash software to crash.

- **Color Threshold:** 10

- **Minimum Area:** 1 pixel

- **Curve Fit:** Pixels

- **Corner Threshold:** Many Corners

Manually tracing the outlines

If automatically tracing the image does not lead to the desired results, you can draw the outlines by hand. Unless your map if quite large or complex, this is not necessarily a very long process. It can be done as follows:

1. Convert the map into a Movie Clip (Modify -> Convert to Symbol).

2. In the properties panel below, click on the 'Color' drop-down and select 'Alpha'. Change the value to around '30%' (so you can still see the outlines of the map clearly).

3. Insert a new layer (Insert -> Timeline -> Layer).

4. Select the Line tool for the Drawing Toolbar, and draw the outlines in this new layer following the outlines of the map in the layer below. Make sure that all the lines are touching. To draw a curve, first draw a straight line. Then, click somewhere in the middle of the line, and drag it one way or another.

5. Select the Paint Bucket tool and click inside the borders to create your map regions. If it does not work, the borders you have drawn are probably not touching. Zoom in to see if you can detect the breach.

6. Remove the bottom layer containing your bitmap image.

7. Follow the steps above to convert your map for use in StatPlanet.