

Tutorial

Importing CC2 maps into Fractal Terrains

by Ralf Schemmann (ralf.schemmann@cityweb.de) with the help of Joe Slayton and John A. Tomkins (Thanks guys!)

Fractal Terrains (FT) is first and foremost a tool to create a new world from scratch. While this is great for SF games and first-time world-builders, many people want to import their existing worlds into FT to use the programs useful functions on their setting. Such an import is certainly possible, but it is not part of FT's basic functionality and requires a series of steps incorporating additional software. This tutorial is meant to provide a guide to this process.

Warning: This tutorial assumes a certain familiarity with CC2 and Fractal Terrains. Refer to the respective manuals or get help from the CC2 Mailing list (<http://groups.yahoo.com/group/cc2-dev-1>), if you need help with the programs.

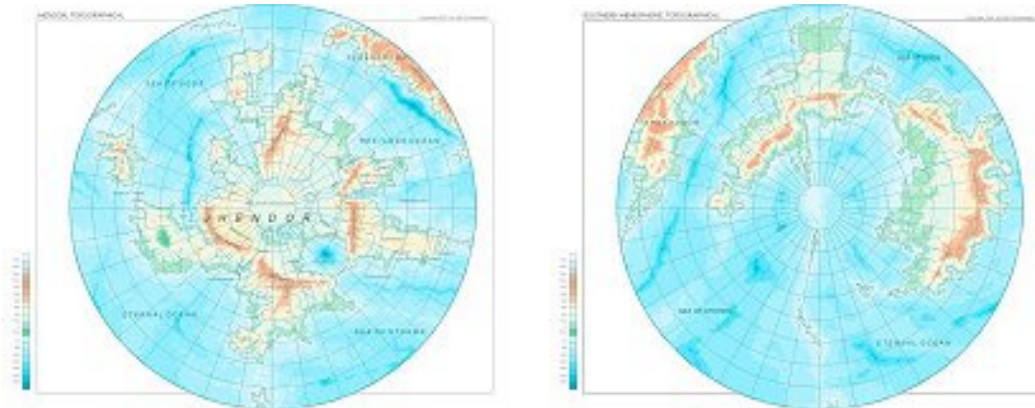
It also often mentions different types of map projections. To get an overview of these take a look at the FT manual, it contains an introduction to the topic. World atlases usually also provide an overview of the topic.

1. Getting the right CC2 maps

To start you need a height contour map of the world (or part of it) you want to import into FT. The higher the amount of detail it has, the better the FT image will be, but basically any level of resolution will do.

You also need to know the projection your map is. The easiest to import will be an equirectangular one with a dimension of 2:1, i.e. the image's width is twice its height. Other projections are possible by using an additional piece of software, and this tutorial will use a polar projection to show the necessary steps. If you have a 2:1 rectangular map of your world, simply skip steps 3 and 4.

Example: I will use the following two maps to get my world into FT:



These maps are polar projections (Azimuthal equidistant) of the northern and southern hemispheres of my world. Together they cover the whole of the world's surface.

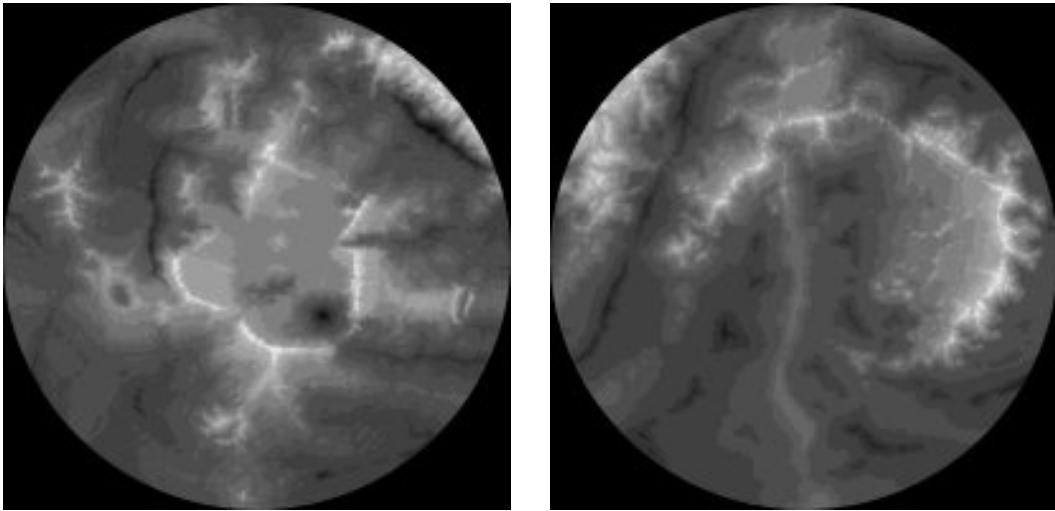
2. Generating greyscale height bitmaps

To get the height information represented by the map contours into FT we need a greyscale bitmap, where lighter shades represent higher altitude. The easiest way to insure that the progression from dark to light is correct, is to change the colours in CC2.

Save your map under a new name and delete everything but the contours, so you do not have any excess stuff that might get into the way. Beginning from the lowest contour change the colours into shades of grey (colour numbers 240 to 255 in CC2). If these are not enough you can add black (0) and white (15) for the lowest and highest contour respectively. Change the background colour to black (View -> Background Colour) and save as a Windows bitmap. Be

sure to set the Clipboard options to appropriate dimensions. 2000x2000 pixels is fine for a polar projection.

Example: The resulting images look like this:



3. Converting the image to an equirectangular projection

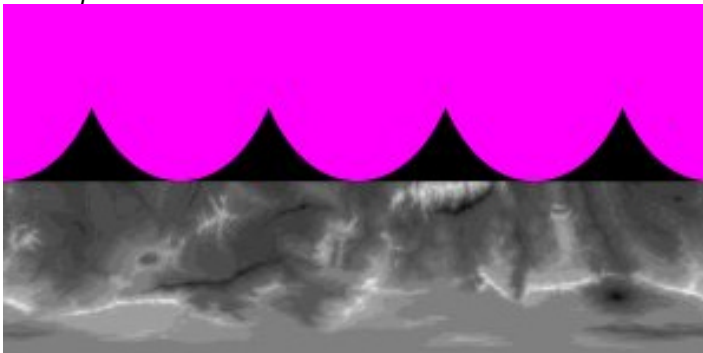
This step posed the greatest hurdle for me until I learned that Joe Slayton has written a piece of software just for this purpose. You can download it at <http://www.ridgenet.net/~jslayton/ReprojectImage.zip> (Case-sensitive address!).

It is a simple executable that needs no installation. Just start it up by double-clicking on the *.exe file.

WARNING! ReprojectImage.exe is a work in progress and may produce some strange results if the world view is not exactly polar or equatorial. Fiddle around with the settings until you find one that works for you.

From the start screen browse to your black-and-white CC2 export and load it up and hit continue. Change the map projection to the one of your map, adjust the settings to match the view shown by your bitmap, and then continue. Set the width of your image to 1024, 2048 or 4096 depending on how much detail you want and what your machine can handle. Save the result.

Example: I do the above procedure twice, once for each of my polar projections. As one map covers only half the globe, I have to adjust the scale of the map accordingly. I enter 2.0 into the appropriate field and set the latitude (lat) to -90 for a polar projection. The result for one of the maps looks like this:



If the bitmap does cover the whole globe, ReprojectImage fills the empty areas with magenta. You could simply fill that area with black in a paint program, but as we are lacing the globe together anyway it is not necessary here.

4. Lacing bitmaps together

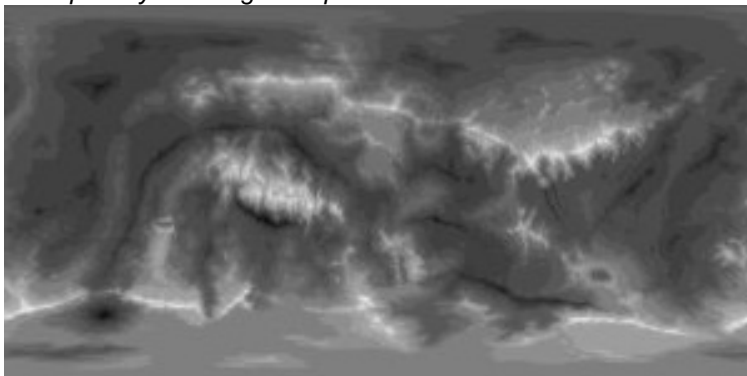
If your maps cover only part of the globe (as the ones in my example do), you need to put the resulting bitmaps into one image. You can use a common paint program like Paint Shop Pro or Photoshop for this. Simply copy the needed parts from one image into the other and place them correctly. The transitions might not be 100% correct, but you can either ignore this or do some editing within the paint program to make the transitions seamless.

5. Final adjustments to the bitmap

Because the oncoming step of exporting from Wilbur and importing into FT will flip the map horizontally, be sure that in your bitmap north is south and vice versa. This will save you a step later.

Using an image editor like Paint Shop Pro, Photoshop or Gimp save the final image as an 8-bit greyscale Windows bitmap (256 colours) otherwise the next step will not work.

Example: My resulting bitmap looks like this.

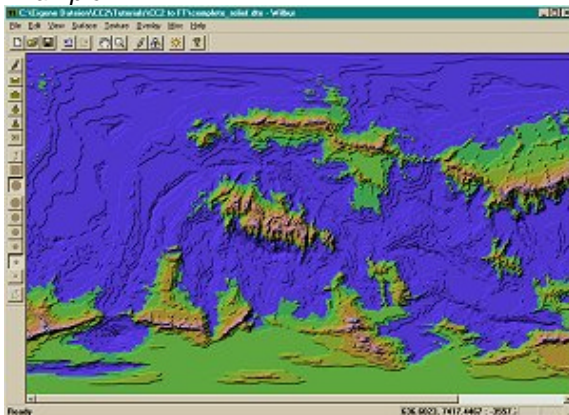


6. Generating a height data file with Wilbur

As Fractal Terrains cannot import a greyscale surface bitmap directly we need to use Wilbur another piece of software by Joe Slayton. Wilbur is included on the FT CD.

Start Wilbur (double-click on the executable) and load your greyscale bitmap as an "8bit BMP surface" (NOT as a Bitmap Texture!). Hit the Relight button (the little sun icon on the icon bar). Then you need to rescale the heights and depths of the image, because the bitmap sets the lowest depth at 0 (zero) and the greatest height at 1. To scale that into correct heights for your world, go to Surface -> Point Process -> Scale... Select "To Range" and enter the highest and lowest points on your world map. Wilbur should now show an image like this:

Example:



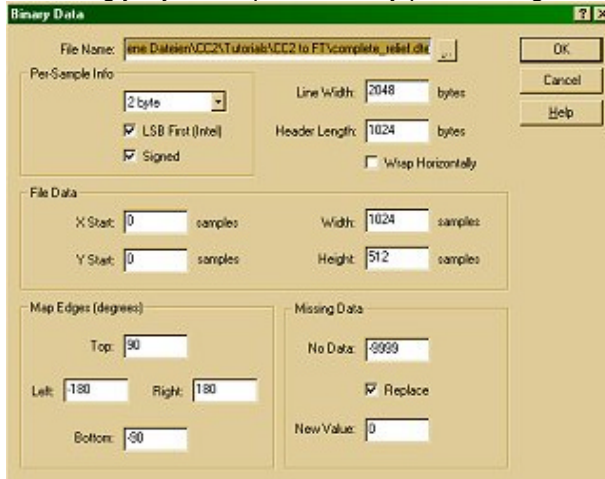
Now you can save the image in a format FT can read. Use a Muse DTED surface (*.dte) from the Wilbur "Save As" dialog.

7. Importing the data into FT

We are almost finished. Start FT and choose File -> New -> Binary File. Choose your *.dte file as the elevation file. FT should set most of the parameters automatically, but here they are for reference:

2-byte, LSB First, Signed, Header Length=1024, Line Width to image width*2 (the image with times 2), Width and Height to the image width and height.

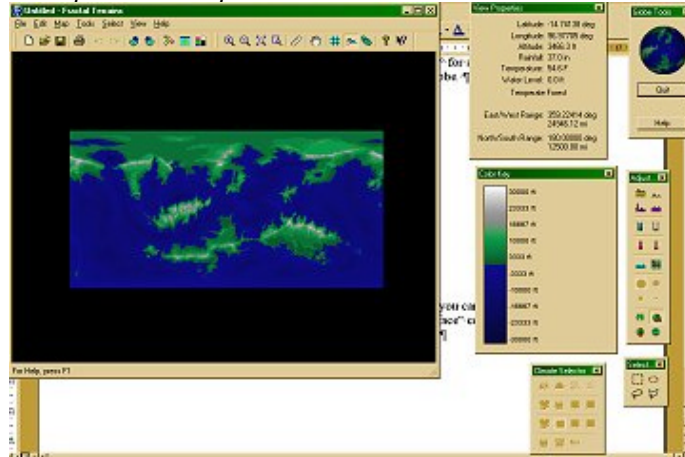
The map edges should be set to 90°, 180°, -180° and -90° for a complete world map. Adjust accordingly if your map covers only part of the globe.



Your world map is now available in Fractal Terrains and you can play around with it to your hearts content. Unless you use the “Burn Into surface” command you will need to keep the *.dte data file around, as FT refers to the file.

You will notice that your contour lines will become large plateaux with steep borders in FT. This effect is the natural consequence of our conversion process, but can at least be lessened by post production within FT. This is a topic for another tutorial however.

Example: Our completed world looks like this in FT.



Fractal Terrains (FT) and Campaign Cartographer 2 (CC2) are software products by ProFantasy Software Ltd. (<http://www.profantasy.com>). Wilbur and ReprojectImage are the work of Joe Slayton (<http://www.ridgenet.net/~jslayton>).

For more examples of my work with CC2 and FT visit my webpage at <http://www.jhendor.de/>. Feedback to ralf.schemmann@cityweb.de.