

Steempipe's Gstudio White Papers

Module 1 – Sky Cubes

Rev. 12.16.03.01

By: Eric Hendrickson-Lambert
<http://steempipe.technicalfoundry.com>
steempipe@technicalfoundry.com

This Edition

This is the first module in what will most likely be a series of work derived from many resources and “trial by fire”. This edition highlights the use of a *Terragen* script to render the 6 images for out skycube and the ease in which *IrfanView* can stitch them in series. It is assumed that you are familiar with how to make the skycube work in WED and are familiar with *Terragen's* usage.

The SkyCube Module consists of the following chapters:

- 1). Generating the scene in Terragen
- 2). Rendering the views with a Terragen script
- 3). Making the skycube “panorama” in IrfanView

In the down loadable archive there are (1) *Terragen* script files, this document, and a *Readme.txt* file. I suggest putting all these in a “Project” directory someplace on your computer and working from there. For building this document I put mine in a folder called [C:\Sky Factory\](#). To follow along you may want to do the same.

I did not put any paths in the Terragen scripts, so you should be able to run them from any drive or directory that you choose and the resulting renders should show up where the script is run from.

Software Used

The software used to develop this were:

Terragen v0.9.19

<http://www.planetside.co.uk/terrigen/>

IrfanView v3.85 + the all_plugins.zip package

<http://www.irfanview.com>

3D GameStudio A6.20.0 Commercial (MED v6.12, WED v6.11)

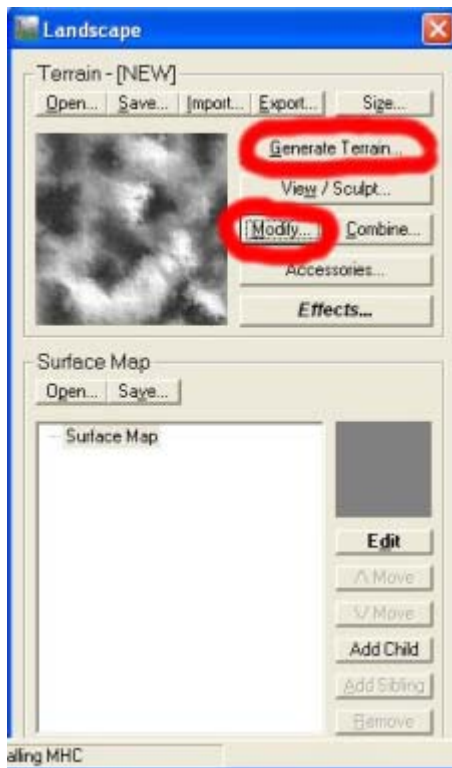
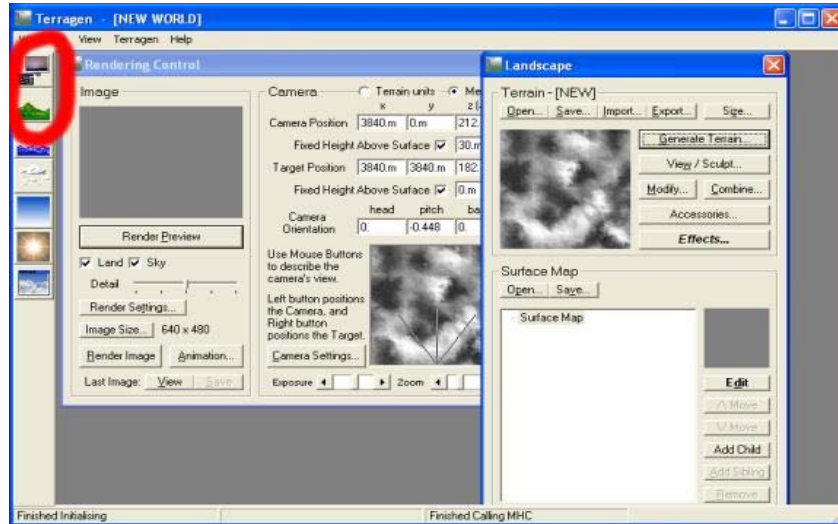
<http://www.3dgamestudio.com>

I have used the free graphics programs because they are widely available to everyone and they do the job quite well. These methods most likely can be adapted pretty well to other graphic editing packages. IrfanView works out well for making the “panoramic” image file because you will not need to line the (6) images up by hand, which can be a tedious task

Chapter 1 - Generating The Scene In Terragen

I am going to go over some basic things here. This is not intended to be a full-blown tutorial for creating terrains in *Terragen* as there are plenty of sites and tutorials dedicated to that. However, if you are new to *Terragen* it may help.

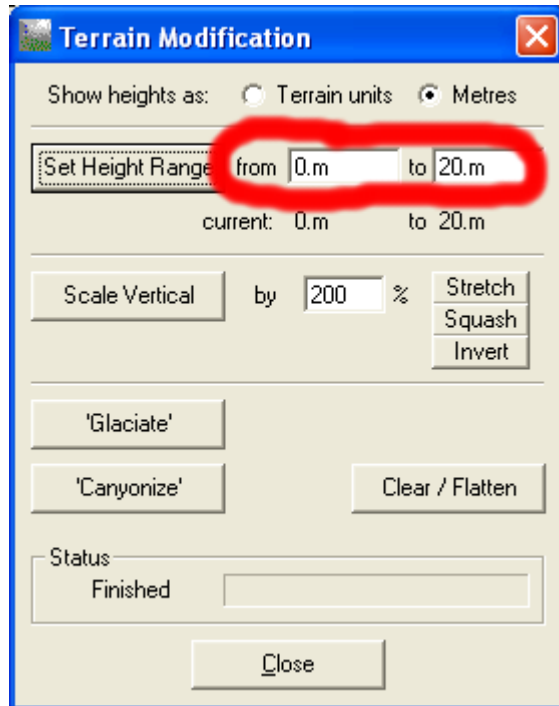
Fire up Terragen. If you cannot see the *Rendering Window* and/or the *Landscape Window* then click these (2) buttons on the left.



Lets make a basic, automatically generated, terrain. Click on “**Generate Terrain**”.



At this point I will not get too excited about tweaking things. I am simply just looking for a good quality sky. If you click “**Render Preview**” in the *Rendering Window* things are probably somewhat jagged right now.



I have decided to flatten the relief of the terrain. I will click the “**Modify**” button in the *Landscape Window* and will impose a height range of 0 to 20 meters. Then I will click “**Set Height Range**” and “**Close**”.

Note: *In later days you may be interested in making a cube with jagged mountains in the scene. The thing you will need to be aware of is that the camera Z altitude in the script file will have to be changed so that there are no terrain features blocking your rendering view in a distracting manner.*

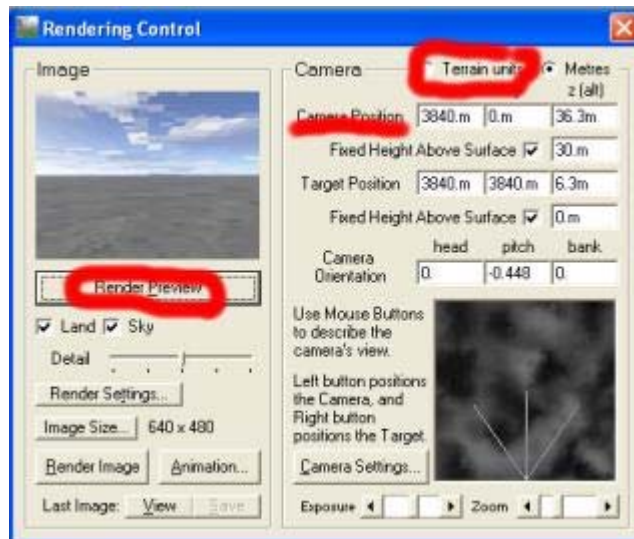
Save your TER file now in case something goes haywire. Point to your project directory and save the thing. I saved it as “*terrain.ter*”. Again, my project directory is located at <C:\Sky Factory\>.



At this time we could play with *cloud settings*, *atmosphere settings*, & *sun settings* if we desired to change the overall scene. We could also save our world and/or different settings as we see fit.

Lets take a moment and play around in the *Rendering Window* and verify that our views are what we would like to see.

For this we will plug some numbers that into the *Rendering Window* that will be used by the script.



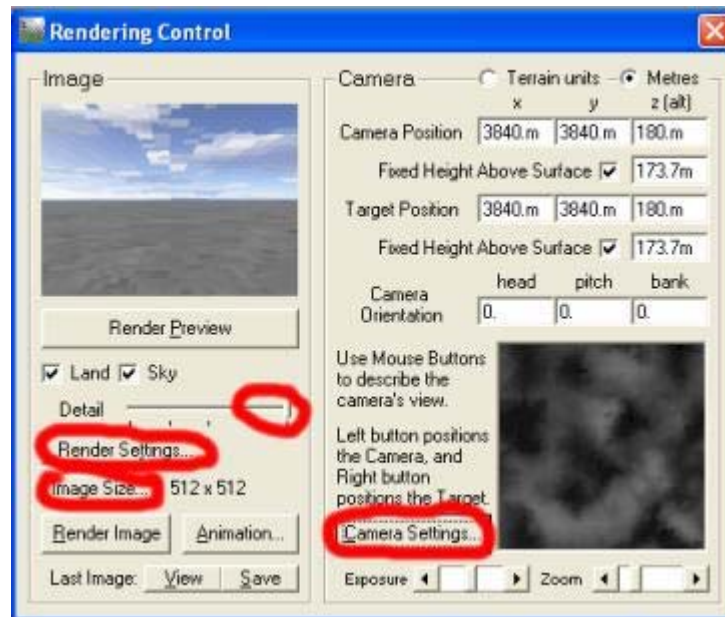
(**Note:** You will have to check “Terrain Units” to use these particular settings.)

Enter the following in the appropriate fields in the *Render Window*.

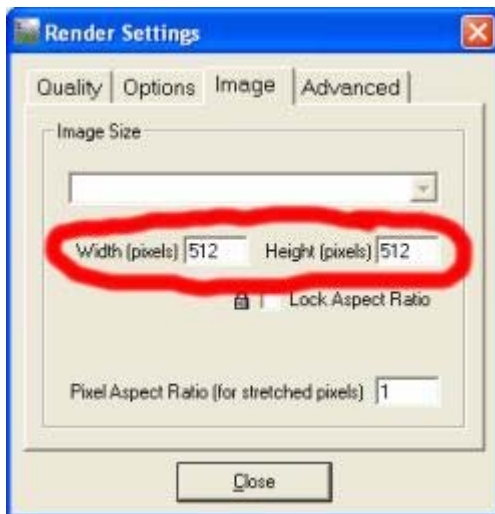
Camera Position (campos)	128,128,6	
Target Position (tarpos)	128,128,6	
Head and Pitch (camh and camp)	180 & 0	~ render a preview (south)
“”	-90 & 0	~ render a preview (west)
“”	0 & 0	~ render a preview (north)
“”	90 & 0	~ render a preview (east)

If you like what you see then it is time to set up the rendering quality and picture size.

Move the **Detail** slider all the way to the right.



Click **Render Settings** and navigate thru the tabs and set the following items.

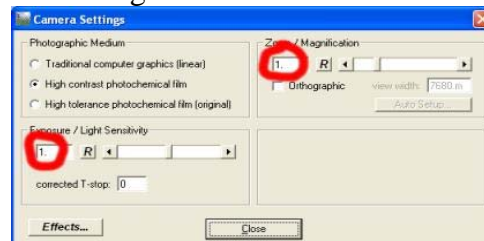


Set your image size to 512w x 512h



Set the accuracies to high

In the **Render Window**, click the **Camera Settings** button and set **Zoom** and **Exposure** settings both to the value of 1.

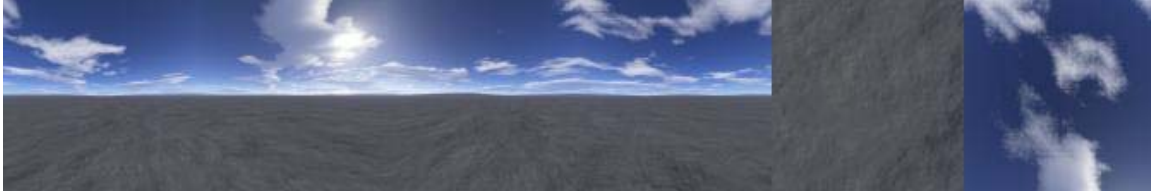


Chapter 2 – Rendering The Views With A Terragen Script

I won't go into the details of the script as that can be found at the *Terragen* site or in it's directory as an *Example.tgs*. Overall it is pretty self-explanatory. However, I will point out a few things and I urge you to view it in Notepad and digest some of it. The script is a nice feature because it saves us the hassle of having to type these things in all the time.

We will be rendering the files in the order that *Gstudio* is expecting them (*1= south, 2= east (west in Terragen), 3=north, 5=west (east in Terragen), 5=down, 6=up*).

By stitching them in that order we can make a seamless skin for the engine.



A typical section of script looks like this:

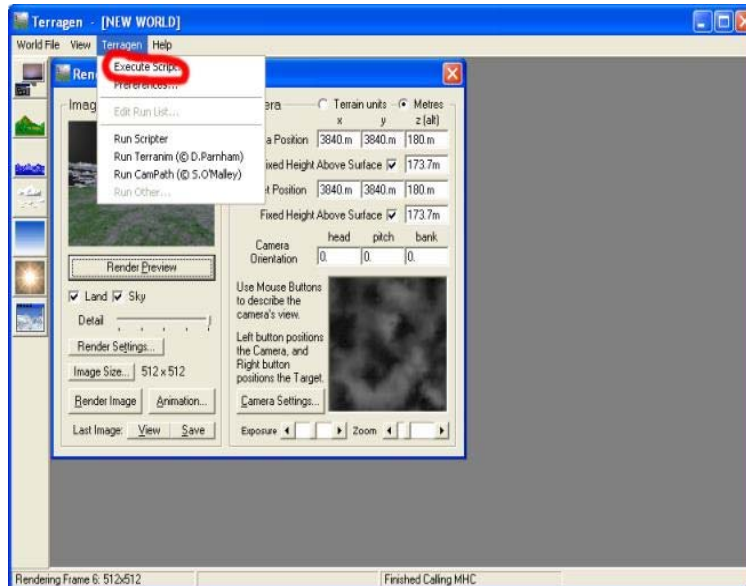
;What we will call the series of BMP's. Terragen will append a number series to this.
initanim "sky", 1 ; Init animation named "sky" and start with frame 1

;south
campos 128,128,6 *;These are in terrain units. Can be meters.*
tarpos 128,128,6
camh 180 *;Heading*
camp 0 *;Pitch*
camb 0
zoom 1 *;Just an override*
sundir -60,25 *;This will override your sliders.*
Exp 1 *;Just an override*
frend *;Render the frame.*

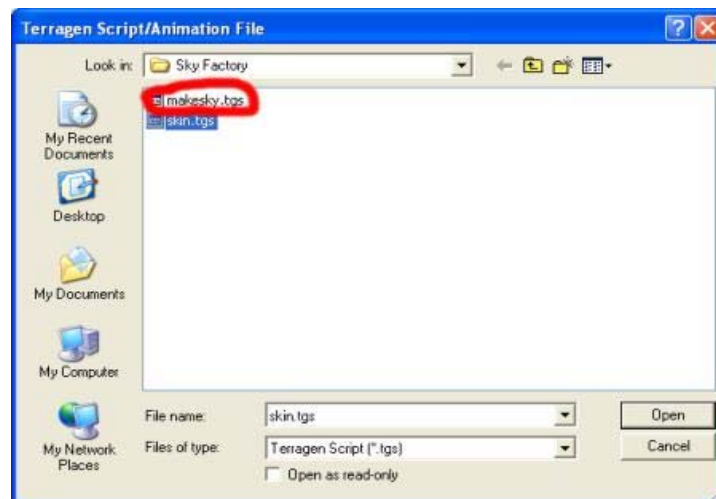
This is pretty typical of all six views, save for the changes in the camp and *camh* settings. (Remember, the Z digit in the *campos* and *tarpos* values would be adjusted if you need to get higher above your terrain.)

This script can be edited in any basic Notepad type editor.

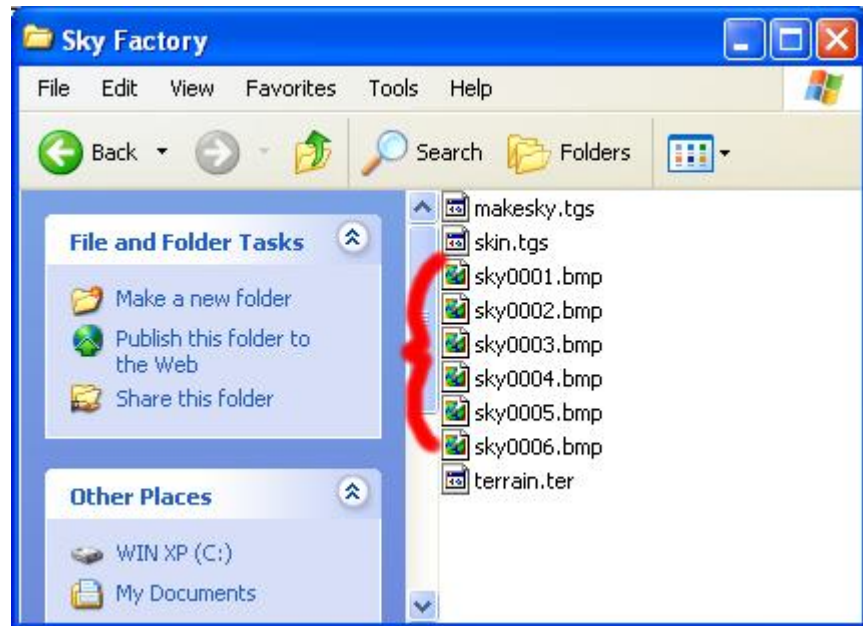
Lets execute the script *makesky.tgs* from the menu *Terragen... Execute Script...*



Browse to where you unpacked the archive (in my case it is [C:\Sky Factory\](#).) and open “*makesky.tgs*”.



After the script completes running you will find, in the directory where you ran the script from, that there will be (6) new BMP files that represent our renderings.

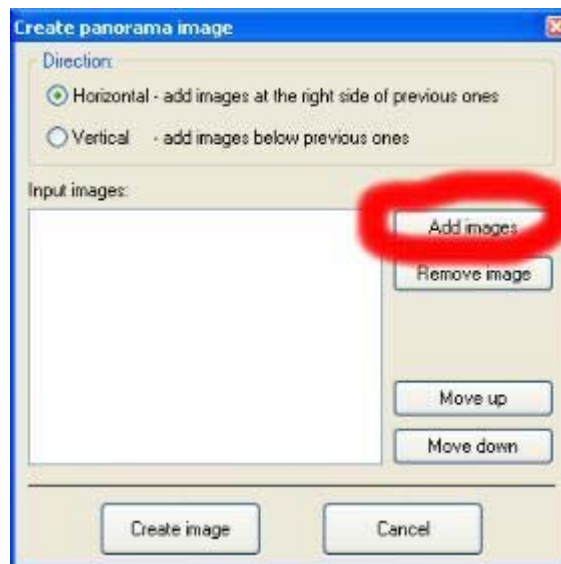
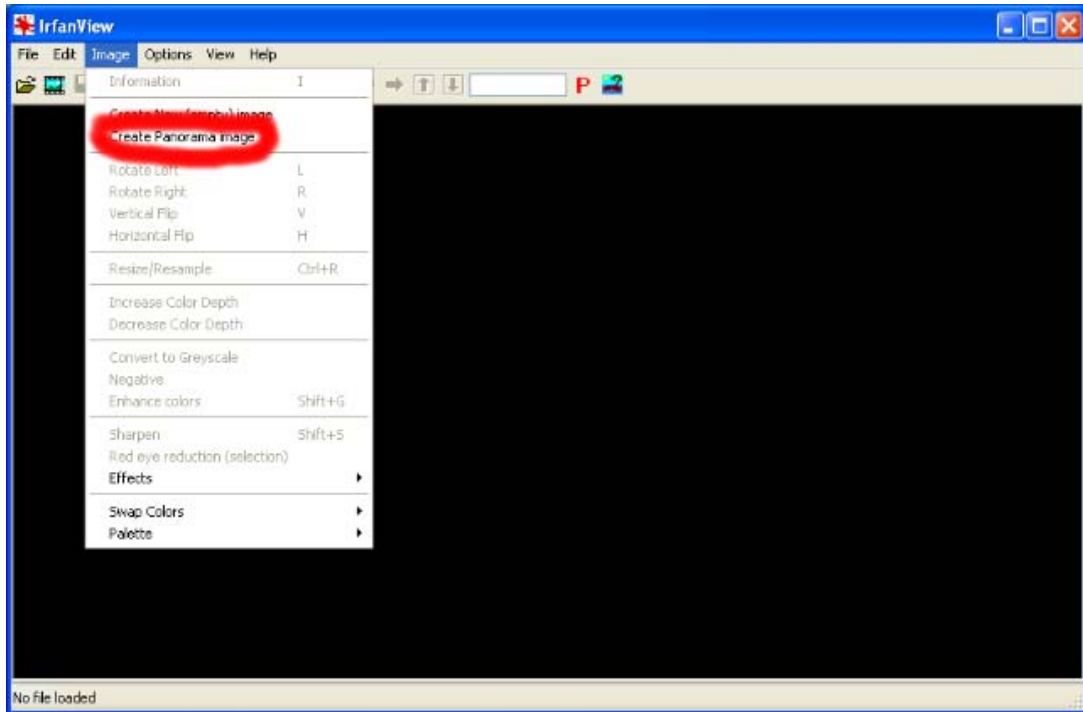


Chapter 3 – Making The Sky cube Panorama In IrfanView

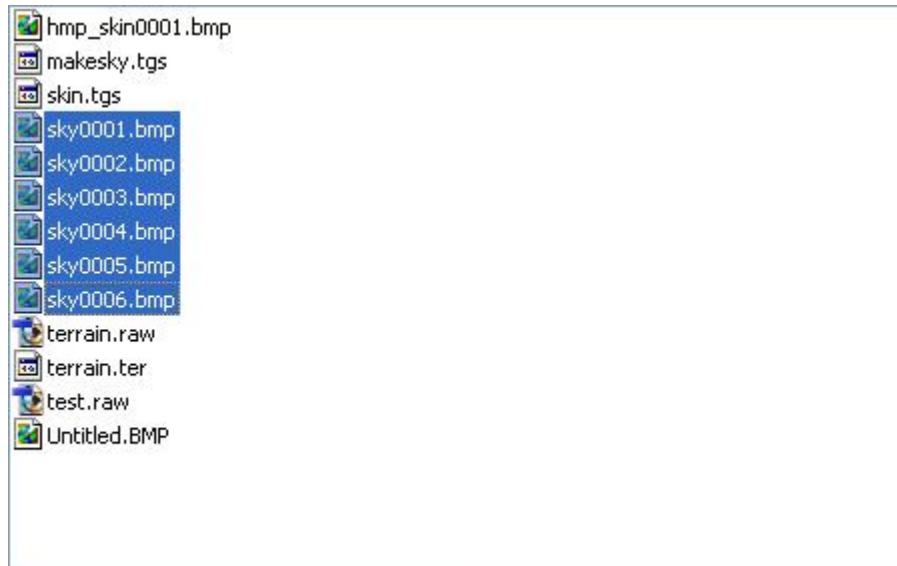
For this we will be using our (6) rendered views from Terragen.

Fire up *IrfanView*. Stitching the necessary files together to create our panoramic strip is a breeze with this fine little program.

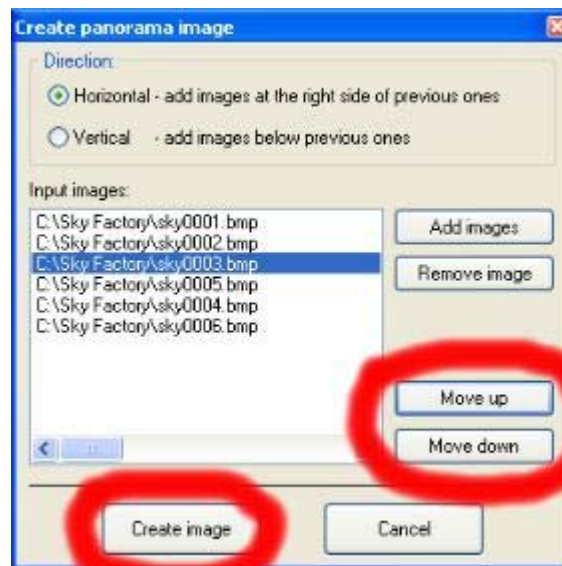
Select *Image...Create Panorama Image...*



From our project directory we select the files we want to stitch.

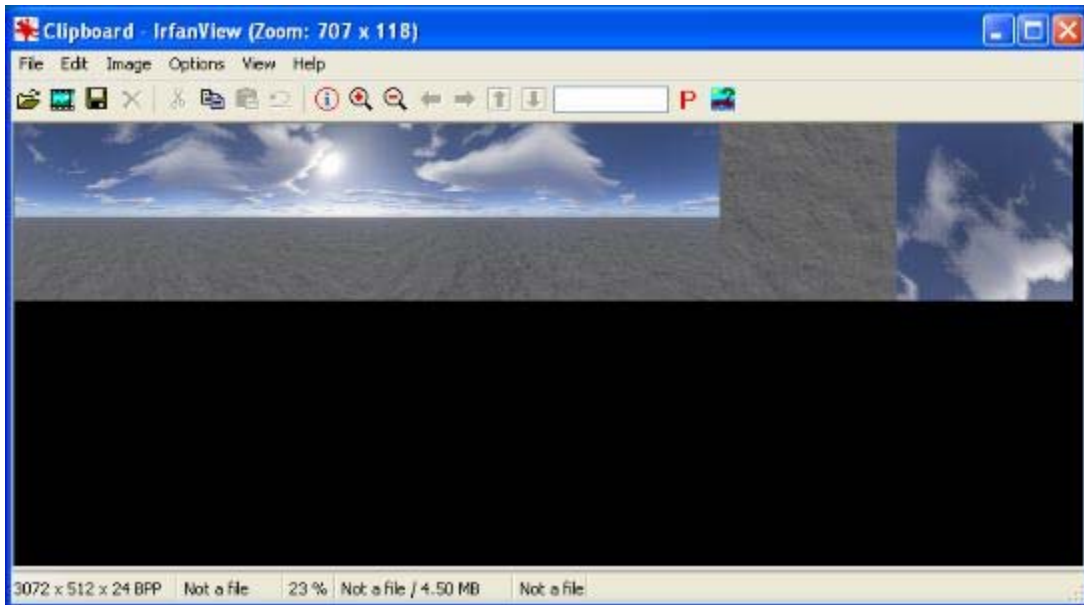


When the images appear in the list box as below it will be necessary to use the ***Move Up/Move Down*** buttons to put them in the correct sequence. This is easy because we have them in numerical order.



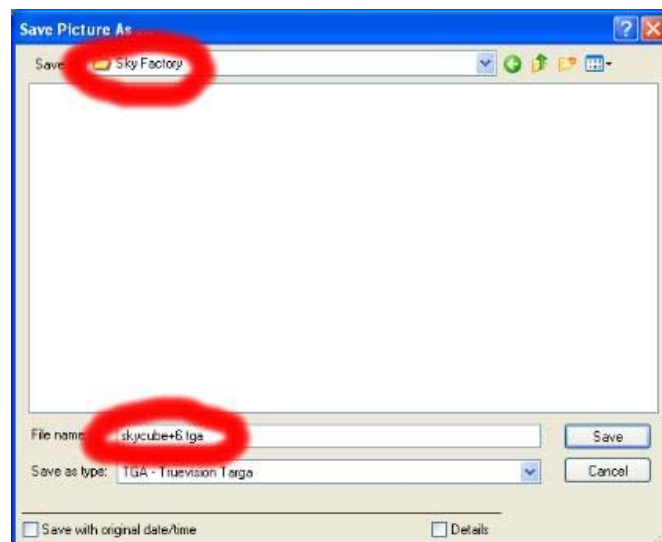
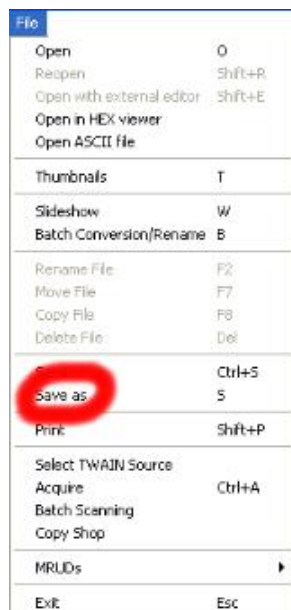
When done.... press ***Create Image***.

Auto-magically we have the panoramic strip in the necessary sequence.



Now I will save this as a TGA file and *be sure to add the proper naming convention* that the A6 engine will require. That being the, *filename+6.tga* name.

For this tutorial I am saving it as *skycube+6.tga*, and it is being stored in my project directory of [C:\Sky Factory\](#). Later, all the necessary images will be brought over to my *Gstudio* work folder.



Thats it... incorporate it into your level.