

# Playing God. © Mark Jeffers

In the beginning God created the heavens and the earth...

These days all you need to accomplish that same task is a reasonably well endowed PC and a 3D package like Caligari trueSpace.

The following tutorial is a demonstration of how simply you can make stunning space backgrounds for your 3D creations

## 1. Getting Started

In this first tutorial we will create a planetary scene involving one large planet with two smaller satellites.

## 2. Let there be light

Since this is going to be a space scene we need to set up the lighting environment first of all. By setting up your light(s) first, your preview renderings will give you a better idea how the final product will appear.

In space scenes involving planets I prefer to use a single infinite light source. This simulates, most accurately, the light coming from a sun. The first step will be to eliminate all existing lights in the scene and replace them with a single infinite light source.

### 1. Open a new scene.

2. Under the preferences option in the File sub-menu remove all lights by selecting the no lights option.



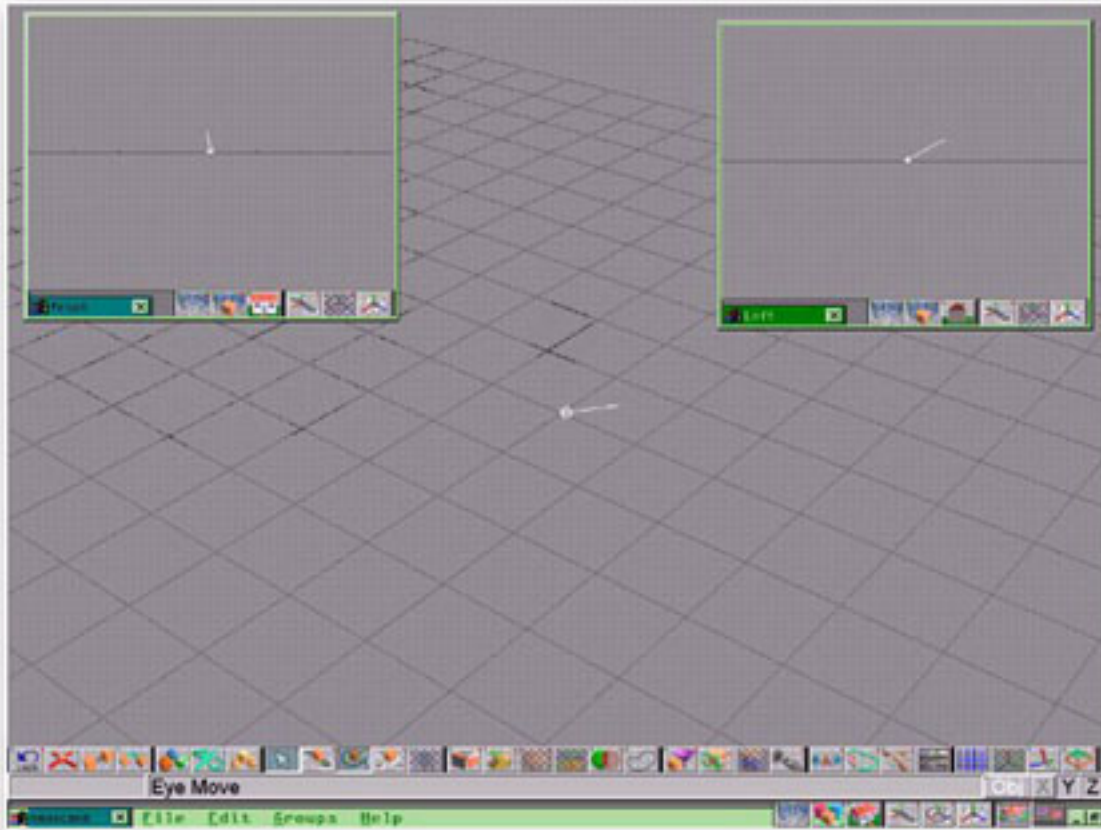
Preferences Panel

3. Now, activate the geometric primitives panel and left click on the infinite light icon. (If you aren't sure which button that is just hold the pointer over the various icons and observe the names changing in the help bar area of the screen - just below the top row of tool icons).

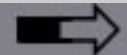


Primitives Panel

4. You should now have a single arrow pointing down on your screen. Using the rotate tool, rotate the light source about 90 degrees so that the light will be coming at the objects we create from the left side of the screen. The exact angle and position is absolutely at your discretion.



Above: This is the initial position I decided on for the light source.



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### 3. Dividing the Heavens.

Now that we have created our "sun" we need something for it to shine on. The planets that will be created in this scene are nothing more than sphere primitives with various planet looking textures applied.

1. If it's not already activated, activate the the geometric primitives panel.



Primitives Panel

2. First of all we need to raise the resolution of the sphere primitive to 32x32 so as to avoid creating the planet of the "jaggies".

To gain access to the sphere properties dialogue box simply right click over the sphere primitive icon.

A dialogue box should appear just above the primitives box. (See image below: Figure A). Then create a sphere primitive by left clicking on the sphere primitive tool.

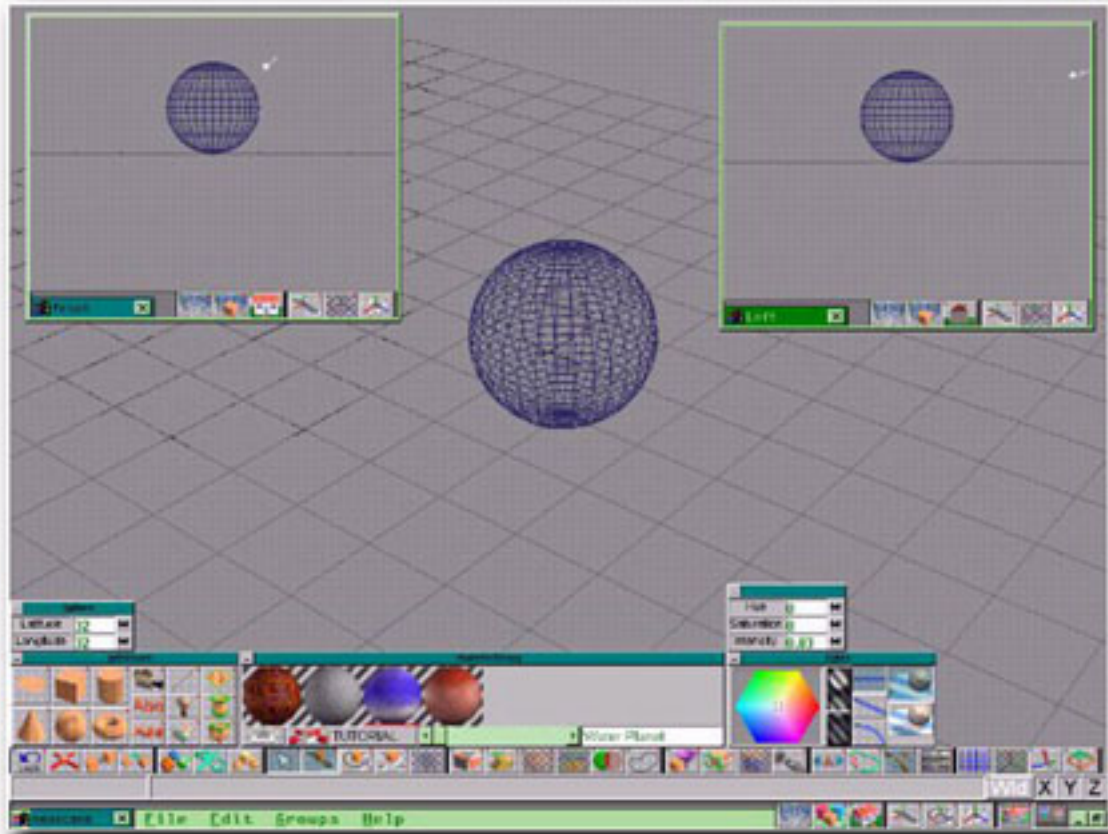


Figure A

3. Next comes giving the planet its surface texture. To load the included material library file activate the materials library control box by left clicking on the material library icon. Load the material library by left clicking on material library name box. This should activate a file dialogue box where you will be able to locate the TUTORIAL.MLB file. (Figure A)
4. Once the material library is loaded select the blue and white Water Planet material and apply it to the sphere. (Figure A)

5. To create the other two planet objects simply copy the existing planet or create two new spheres. Make one much larger and the other slightly smaller. Apply the Red Planet texture to the largest sphere and the Moon / Asteriod texture to the smallest sphere. The placement is entirely up to you. You can see from Figure B (next page) and the scene file in the tutorial package the relative size and positions that I chose for my version of this scene.



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## 4. And now the Heavens

Adding the stars is simple. All you have to do is specify a background file. I've included a star background in the tutorial package STARS.TGA. To use this background:

1. Right click on the render icon (doesn't matter which one is active) and you will activate the Rendering Options dialogue box.
2. Left click in the blank box to the right of the background check box. This will activate the Get Texture Map file dialogue box. Select the desired image you wish to use as a background image (in this case STARS.TGA) and you're ready to go.



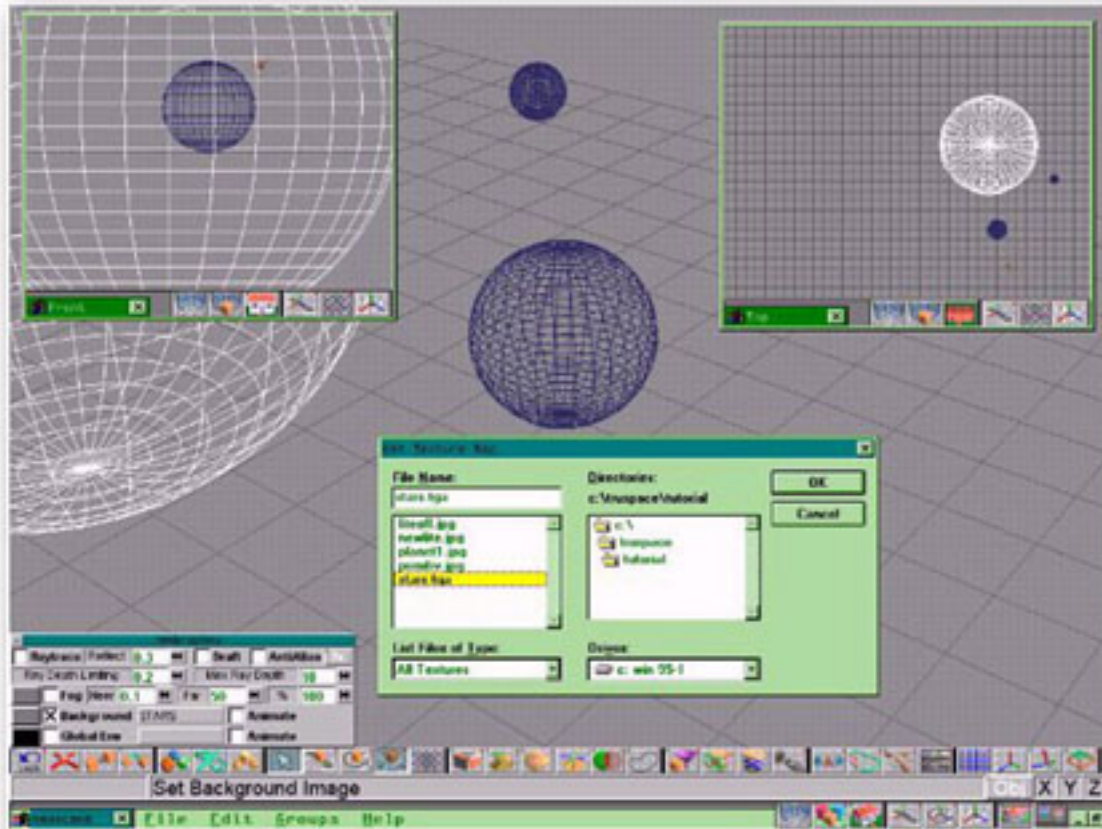


Figure B

## 5. Final Adjustments & There you have it!

Some items you might want to tweak to suit your personal taste:

1. The placement of the light is important to the type of effect you get on the spheres. You can move the position of the light to get full, half or quarter lighting on the surface of the sphere. I chose a light position that gave quarter lighting (that is - approximately one quarter of the object was illuminated by the light source).



2. To achieve different cloud patterns or a different mix of dark to light on the planets with cloud patterns, simply rotate the planets along the x,y and z axis until you achieve a look that you like.
3. Varying the intensity of the light can give similar effects.

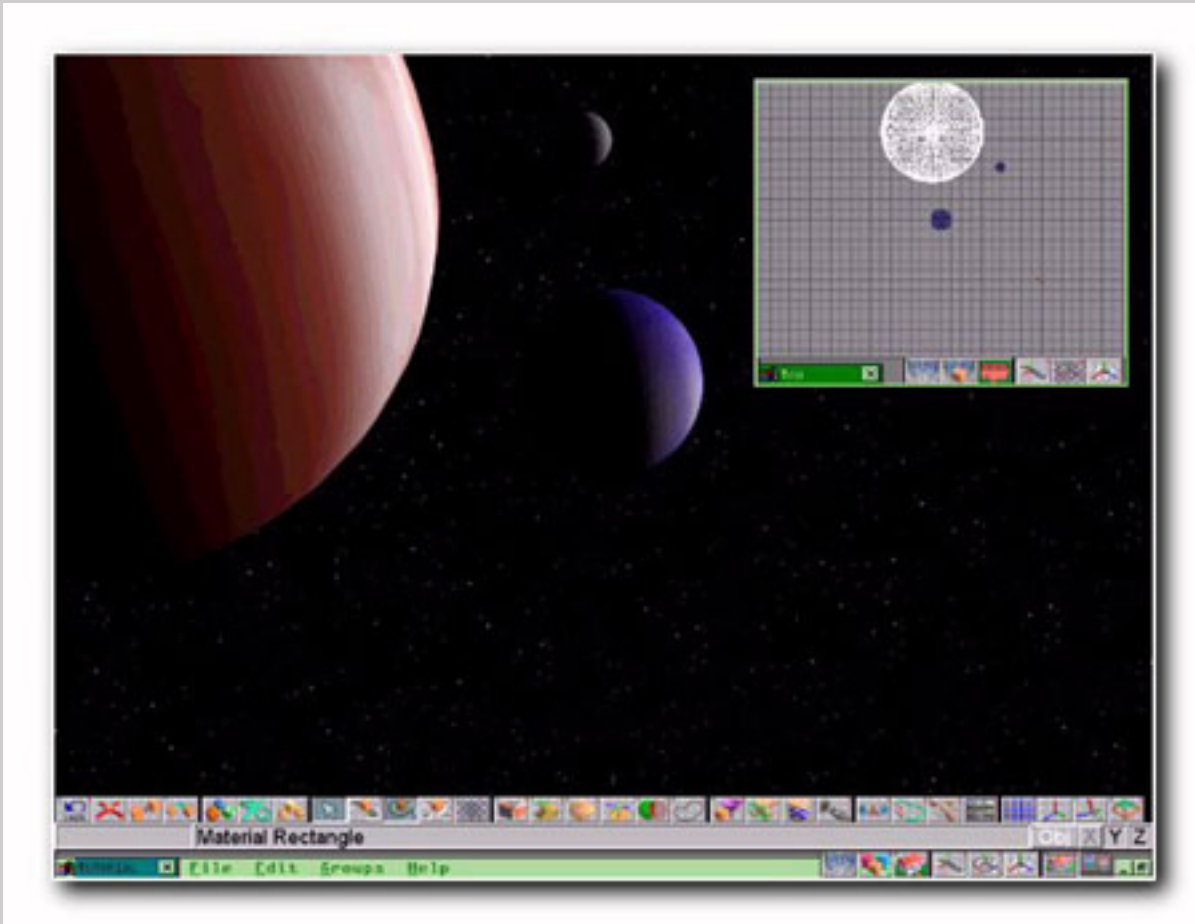
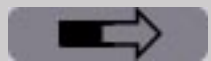


Figure C - There you have it!!



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## 6. Notes

### The Materials

The Red Planet and the Blue Planet were created using the marble procedural textures. You can use the procedural texture controls to alter these and create new textures to obtain a wide variety of effects.

### Tips

1. Try not to have too many reps in a longitudinal (between the poles) direction this will help you avoid symmetrical patterns that have a tiled look to them.
2. The sharpness setting is important for the look of the clouds. Sharper veins look less like clouds and more like lightning.
3. The distortion setting will affect how much of the surface is covered by the clouds and how (seemingly) translucent they are. This is also be affected by the transparency settings.

Moon/Asteroid was created using a solid color combined with a texture map.

### Tips

1. You can achieve varying degrees of roughness by adjusting the amplitude setting on the texture map control panel. I find that settings in the -0.1 to 0.1 range look the most realistic up close. If the object is a little more distant like the moon in this scene a higher amplitude setting is necessary so that the surface detail is visible. Go easy on the amplitude setting it's easy to over do.
2. This texture (ORANGE.TAB) can also be used in conjunction with the procedural marble textures to give the clouds some added depth.

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