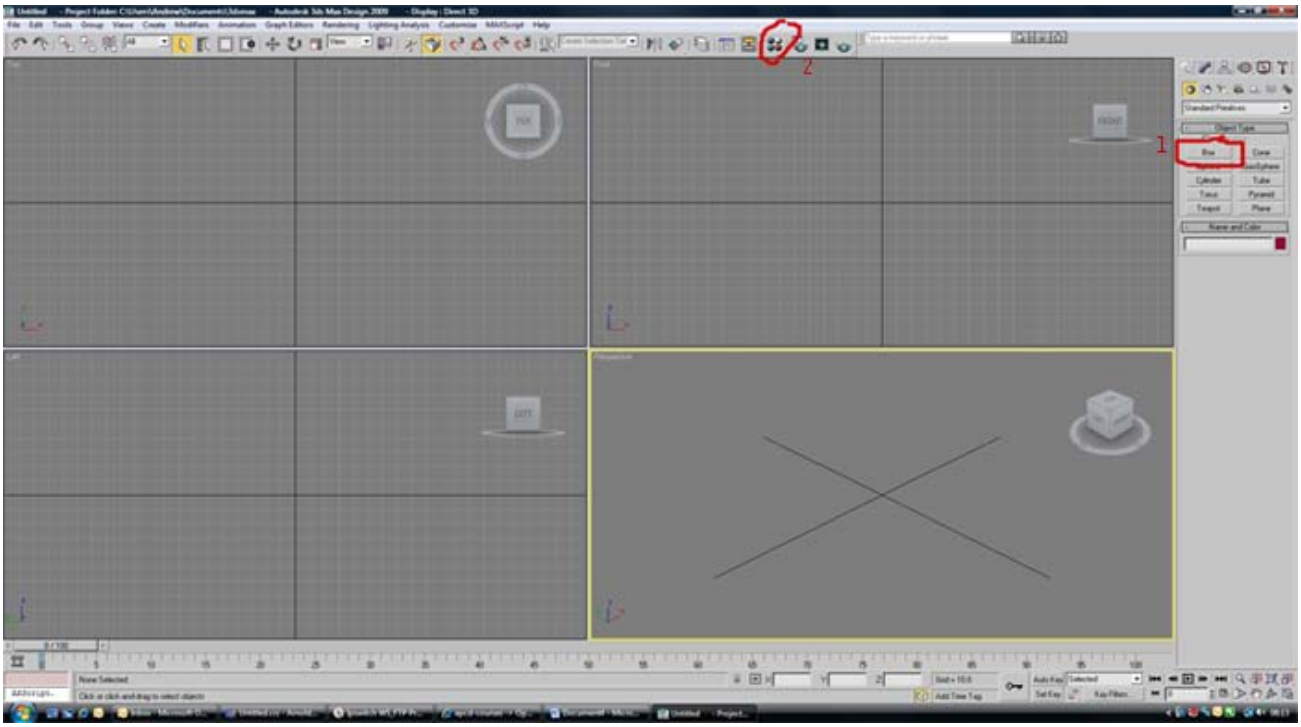
Creating 3D Objects for APCD
A Tutorial by Mogulbasher

This tutorial covers three phases. Creating and mapping the object, converting the object into apcd format and importing the object into apcd

Creating and Mapping the 3D Object

Ok, lets start by firing up 3DS Max here is the opening screen. Start by selecting the box button (1) to draw a box. Left click and hold in the perspective view to draw the base of the box and then release the mouse. Drag the mouse upwards to determine the height and when done press the left mouse button. We now have a box.

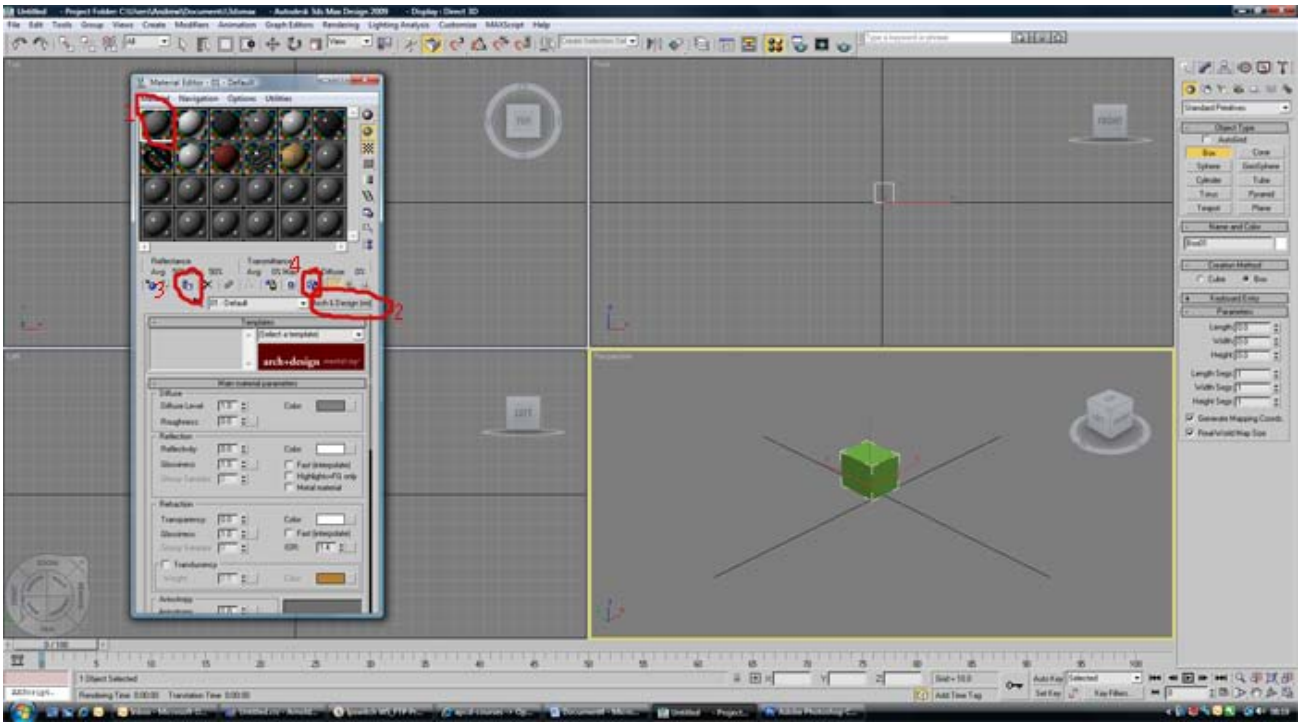


Now we need to find a material to add to the box. Click the material button (2). Up pops the material editor. There are 4 buttons I want to point out here.

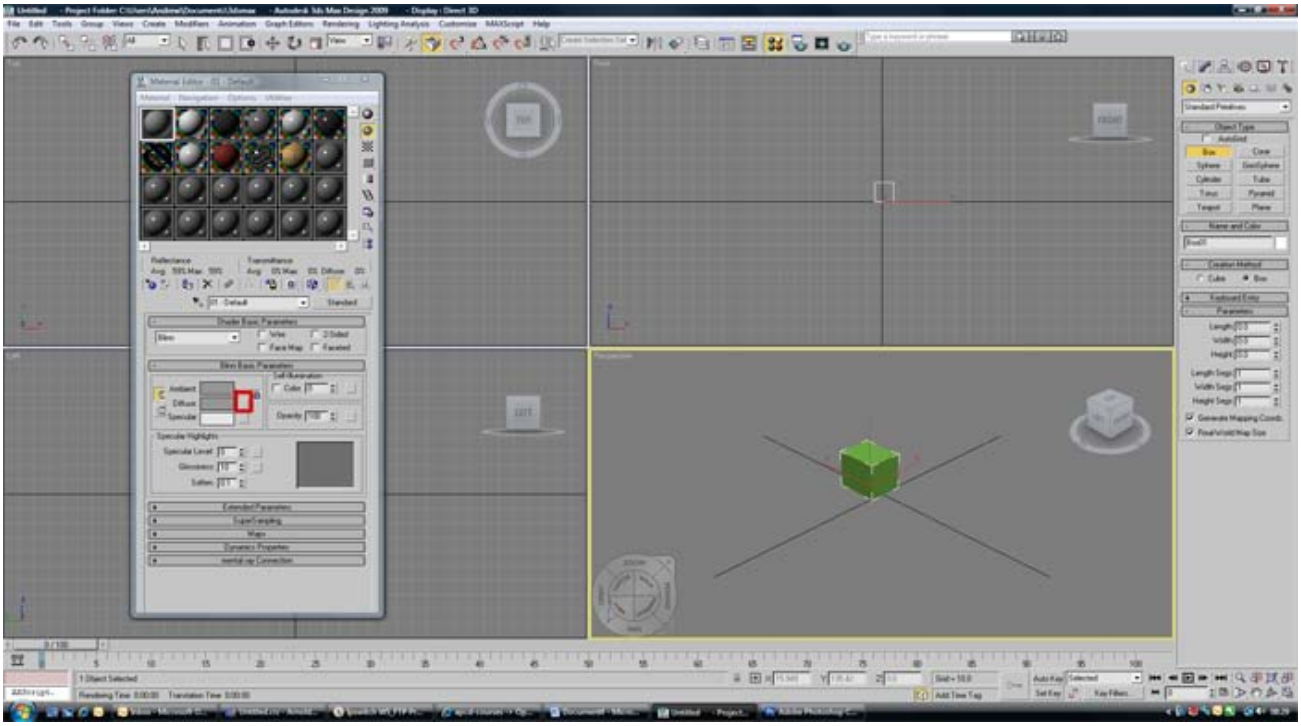
Button 1. Each of these spheres can be assigned a texture. So go ahead and click on the left uppermost sphere.

Button 2 is the type of texture. The default is architectural and Design. We need to change this to Standard. So go ahead and click button2 and select Standard and click ok.

For reference Button 3 assigns the selected texture to the highlighted object in the main window and button 4 tells the program to display the texture that is assigned.

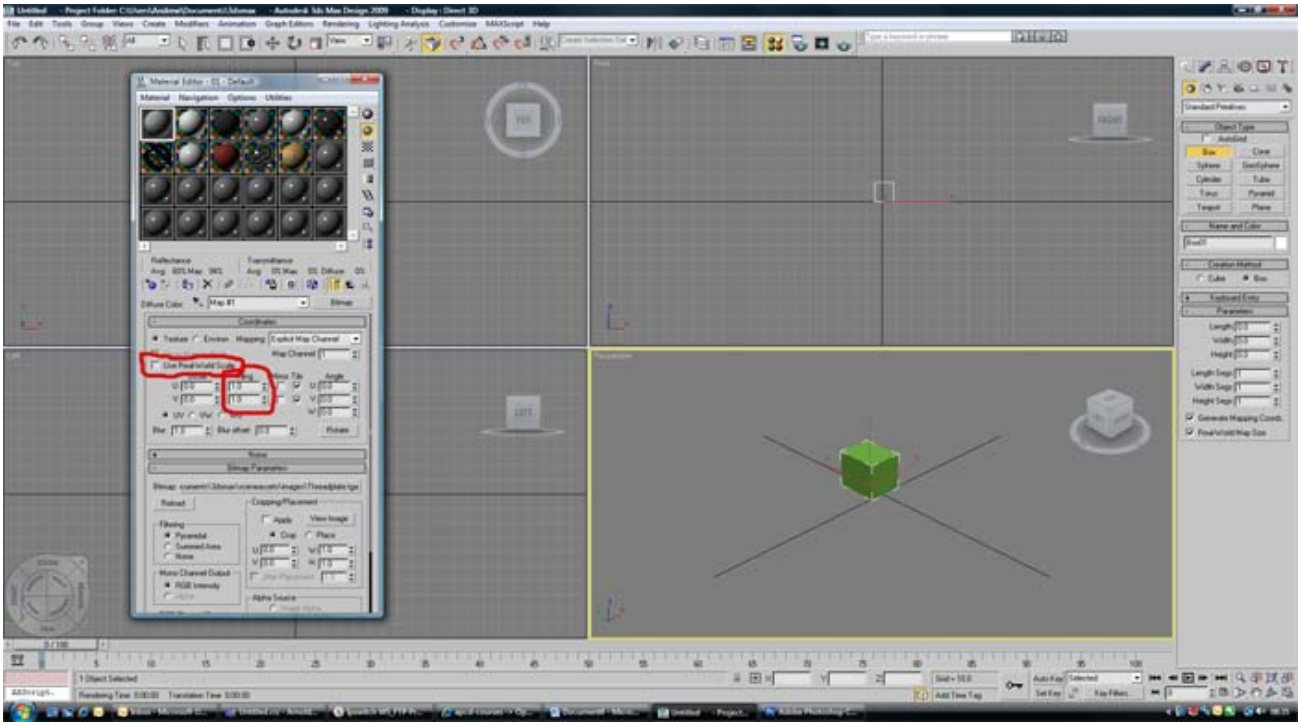


Ok now that we have changed the sphere to standard we should see something like this.



I want to draw your attention to the highlighted button to the right of the gray cell to the right of diffuse. Click on this button and in the popup select bitmap. What we want to do is assign a bitmap to this sphere. So go ahead and select the bitmap and click ok.

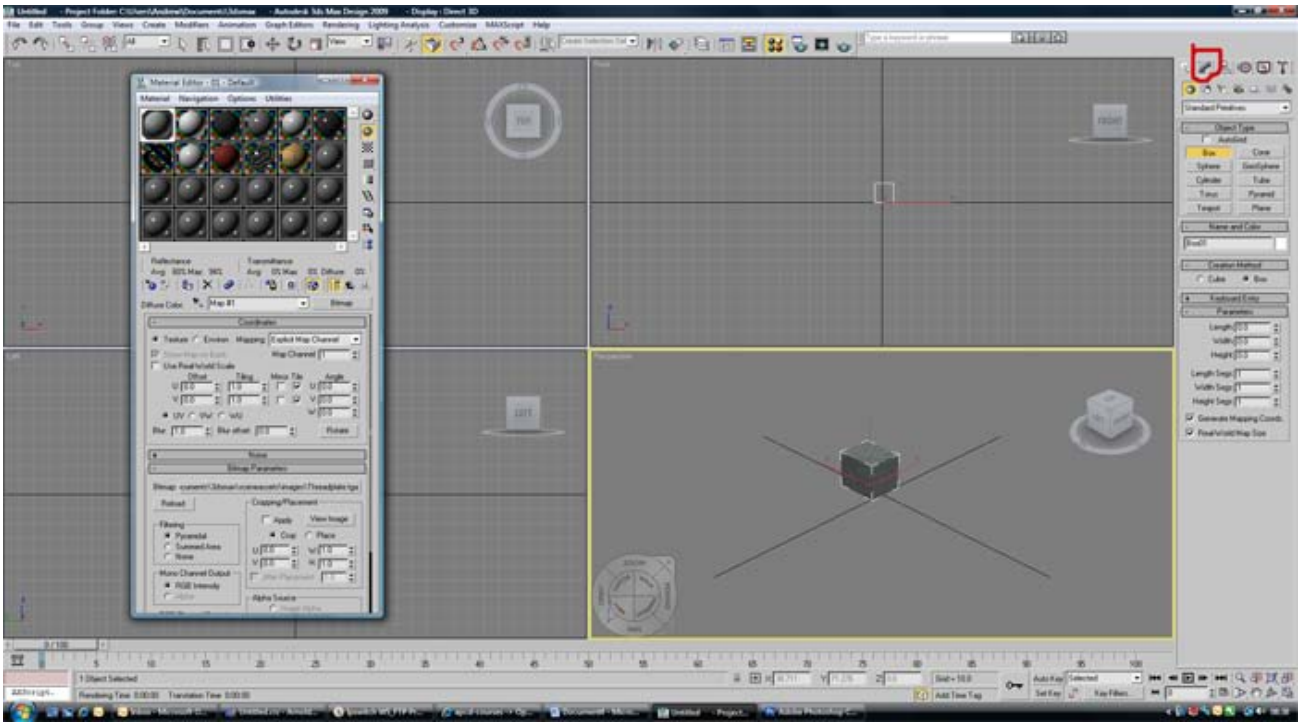
Browse to your texture (for the purposes of this tutorial we will use the included threadplate.tga file) and click ok. You should now see a screen like the following.



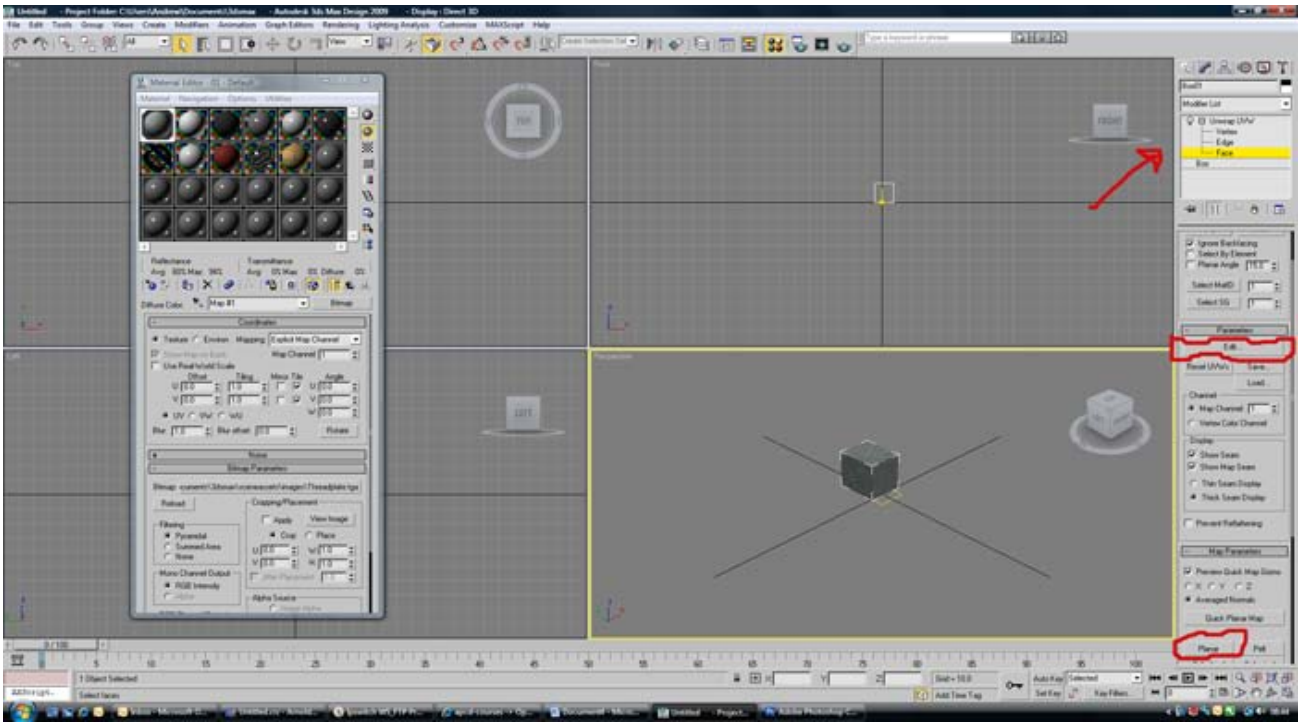
What you need to do now is to make sure Real World Scale is UNCHECKED and that you have set the tiling to 1. See highlighted red areas.

Ok once you have done that, making sure the box is still selected apply the texture to the box using button 3 from the earlier slide and then displaying the texture by clicking button 4. You should see something like this. Clearly the texture is unmapped at this point but we have the texture assigned to the box.

Now we need to map the texture. The only mapping we need to do in Max is called Unwrap UVW.

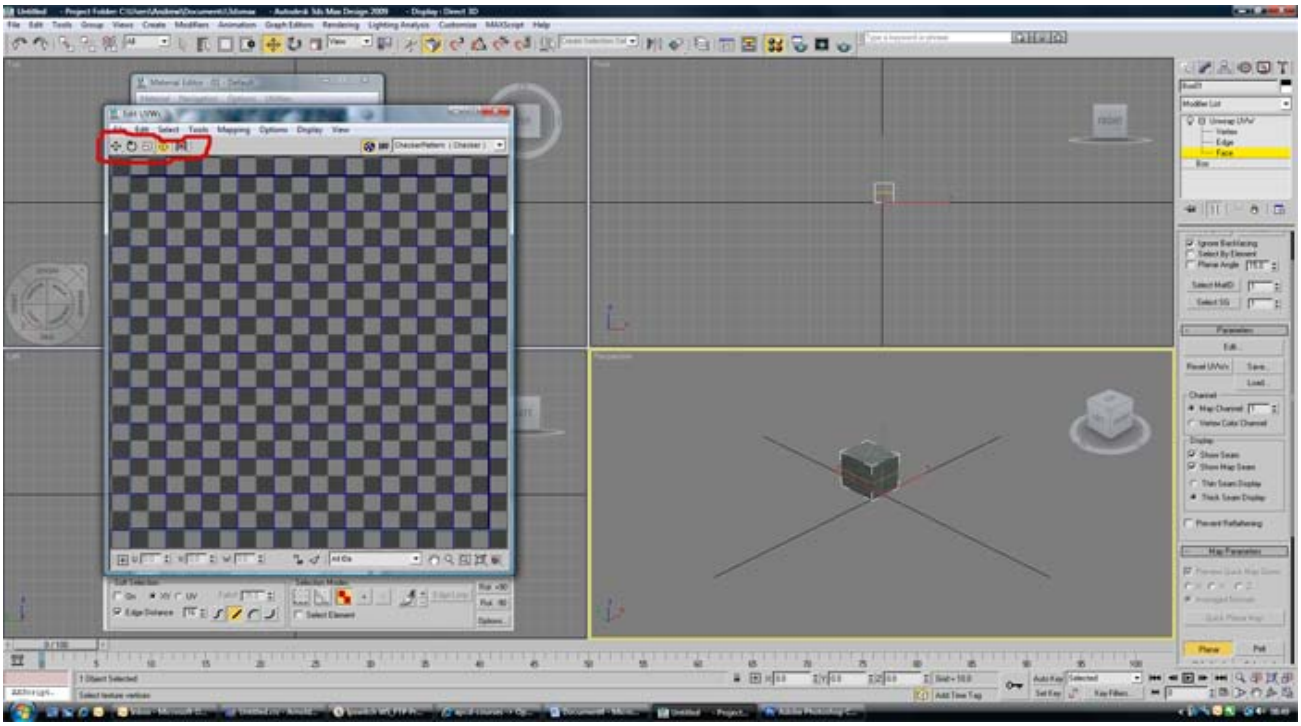


So to start the mapping we need to click the modifier button (see above image circled in red. Go ahead and click this button. Click the drop down arrow next to Modifier List and select Unwrap UVW and you will see that the Unwrap UVW modifier has been added to the modifier list above your Box. While we are at it go ahead and click the + next to Unwrap UVW and select face. You should now see something like this.

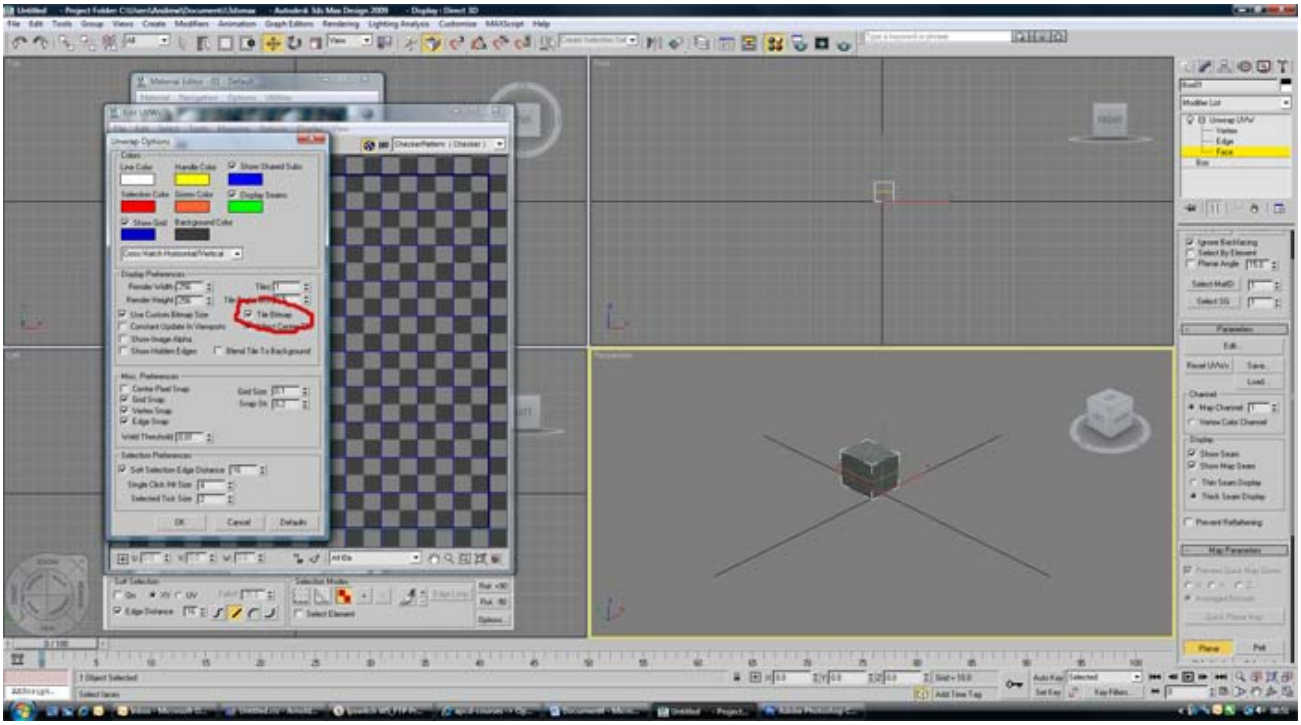


Ok, now there are 2 buttons we need to focus on here. The first is the planar button under the Map Parameters section and the other is the Edit button under the Parameters section. If you cant see these sections (small screen) then you can slide the menu up and down like the mapping menu in apcd by clicking in a non active area and sliding the mouse up and down (its like a hand dragging).

Ok, go ahead and click the planar button. This tells max we are going to do all of our mappings using planar maps (it is what APCD expects) and then click the edit button. This will bring up the mapping window.

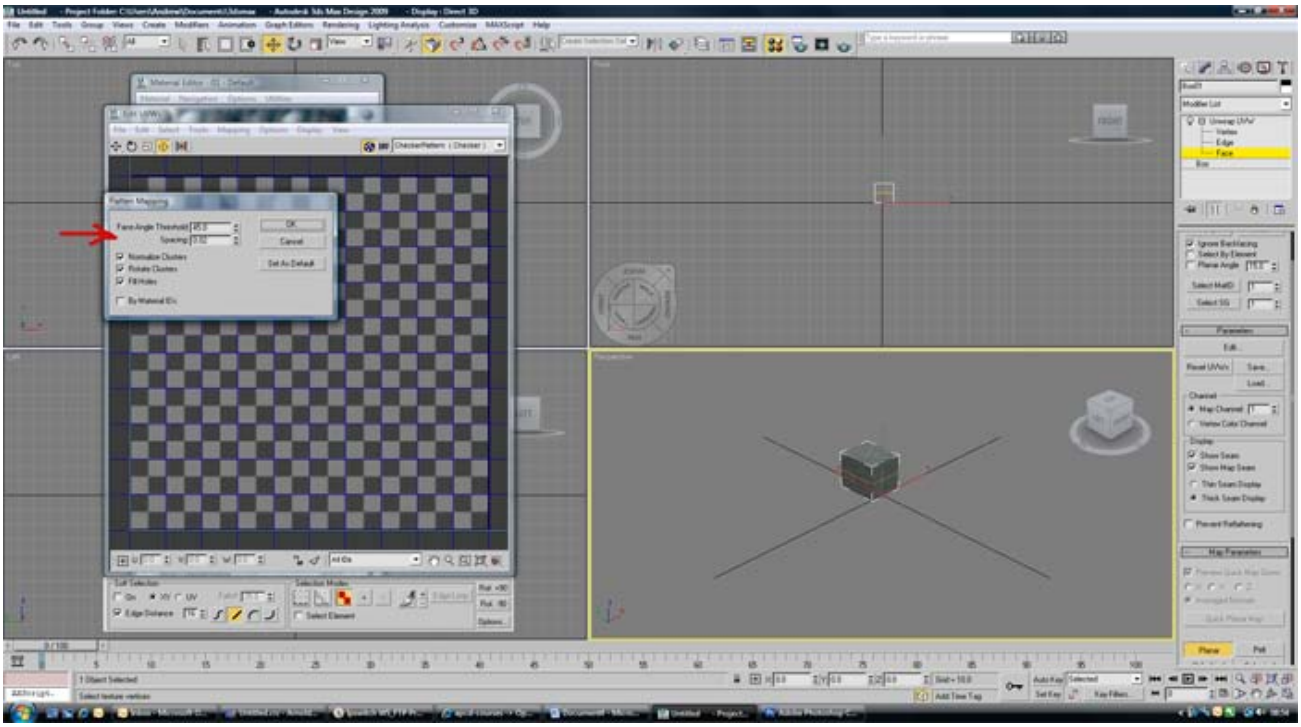


I am going to highlight the menu in red which allows us to scale move and rotate our maps we will be using later. Next we need to make sure that we are not tiling the texture so go ahead and click in the mapping window the options menu and select properties.

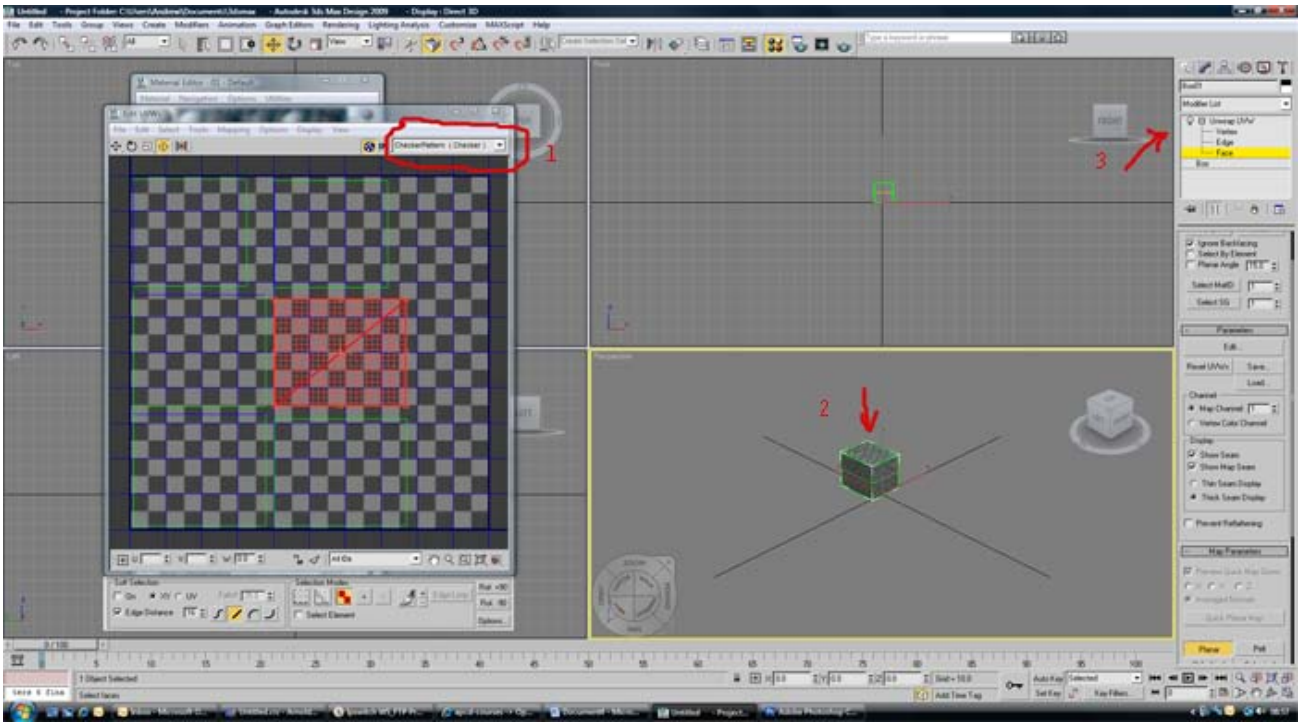


Now make sure that tile bitmap is unchecked and click ok

The next thing we need to do is to flatten our box into planar maps so go ahead and select the mapping menu and select flatten mapping. You should see this

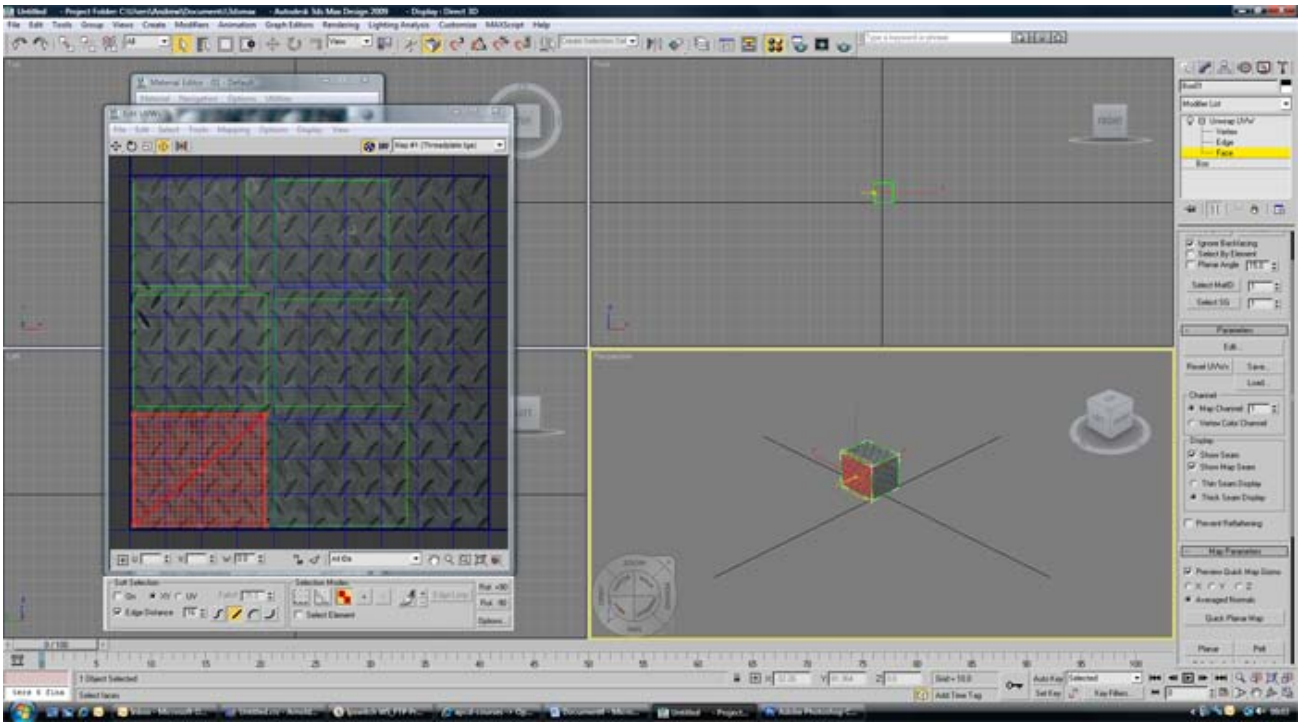


The only interesting option here is the Face Angle Threshold (0-100) The lower the number the more pieces our box will be broken up into. You can try playing with different settings and using the edit undo (from the main app menu not the mapping menu) if you like but for the purposes of this tutorial I am going to leave it at the default value of 45. Once you click ok you should see something like this.



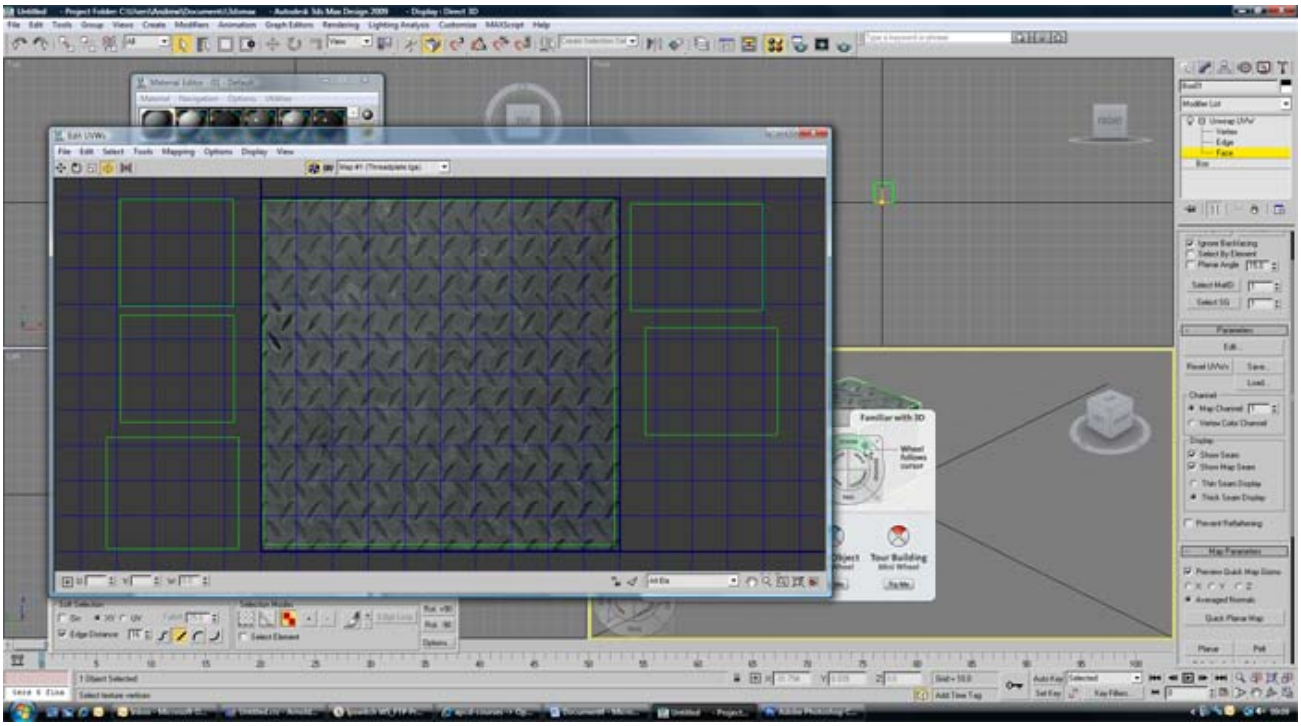
What this has done is break up our box into 6 individual squares which we are going to map individually in 6 planar maps. I want to point out the dropdown 1 shown in red. If you click this and instead of the checkerboard you select the texture we are using you will see the background change.

One of the other interesting features here is that you can select faces in the main window and see which face it is in the mapping window. There is a small bug here in Max where in order to get around it go to the section 3 highlighted and click on vertex and then click back on face. Now select different faces in the main window (2) and see the different faces in the mapping window selected. You should also be able to see the mapping effects in the main window. See next image.

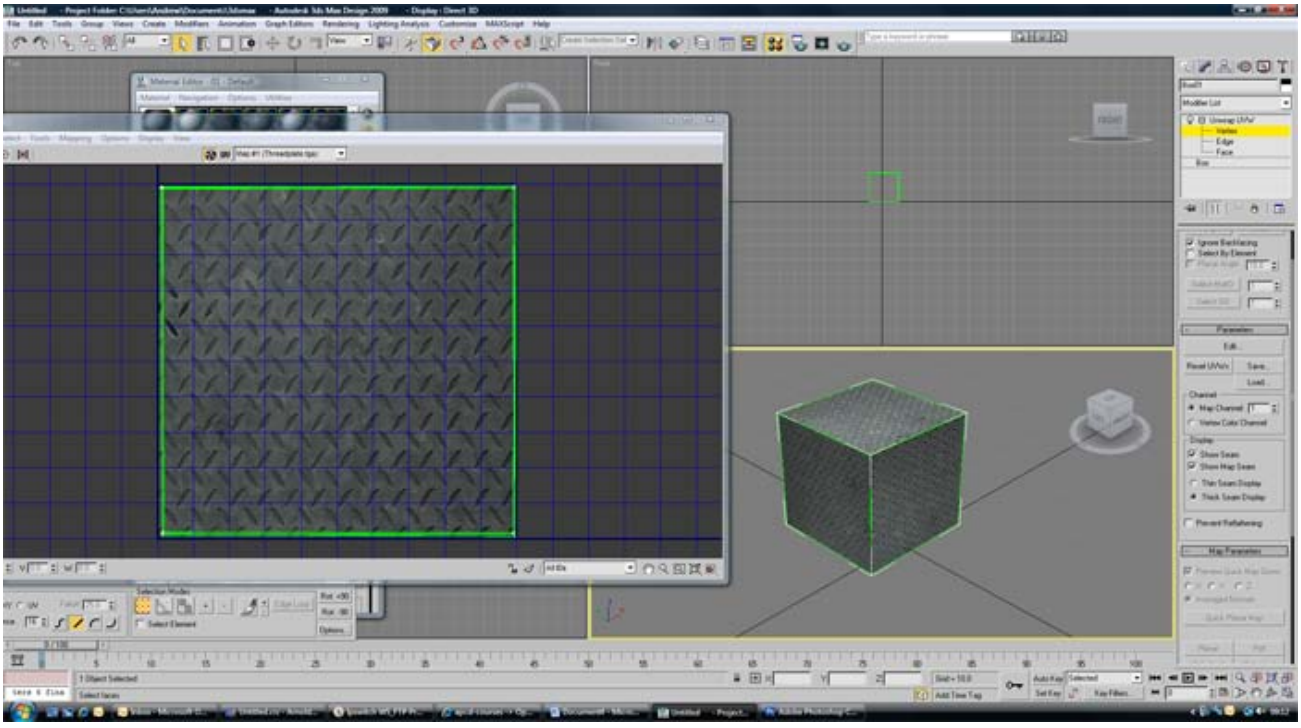


As you can see we are pretty much complete. We could leave it like this or we could use the whole face plate for our mapping. To demonstrate we will do this now. Go back to the upper right hand corner and select vertex. Now we are going to drag the vertices of one of the squares into the corners of the texture. Before I do my moving around I like to drag each of the pieces outside of the texture window using the move button (the 4 way arrows).

When you are done it should look something like this.



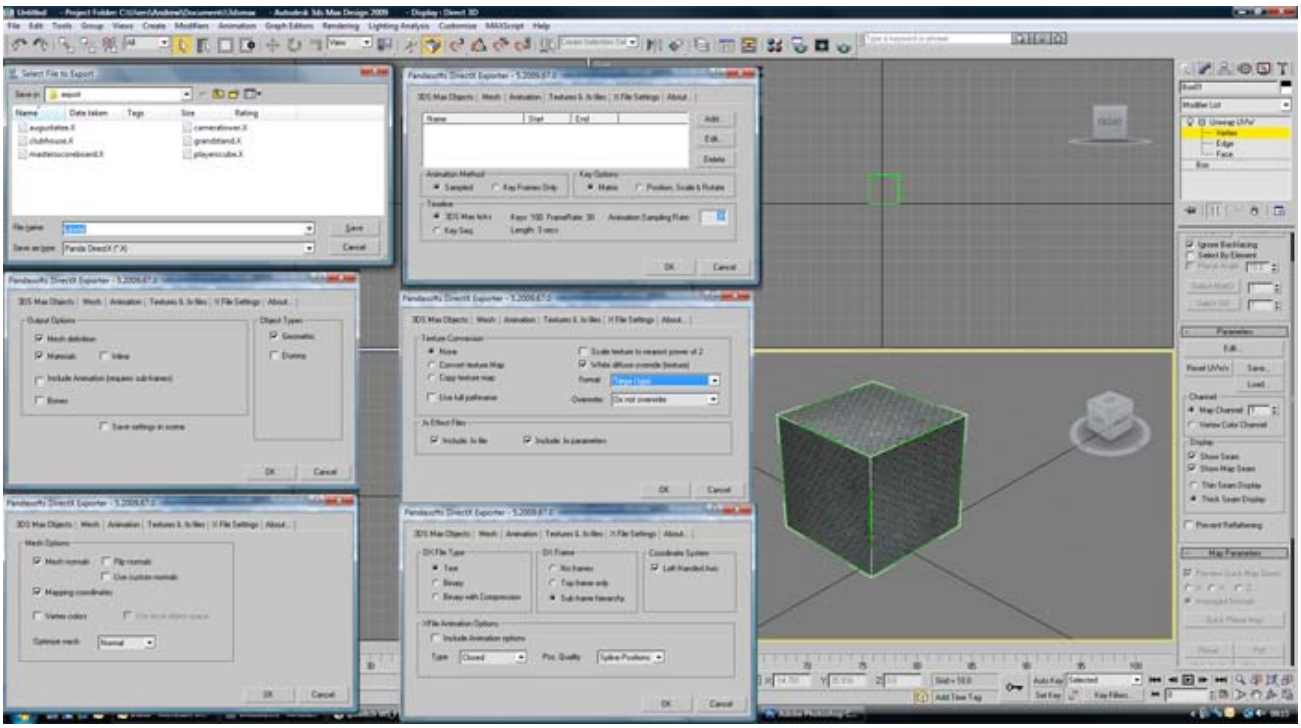
And then after we have moved all 6 squares vertices to cover the whole texture like this.



Note how the threadplate is now mapped to the cube. We are done. We can close the material and mapping windows.

Next we need to export our object to a Direct X file.

Assuming you have installed the pandasoft DirectX export plugin for 3Ds Max, go to the main menu and select file export and in the save as type select pandasoft X. The image below shows this as well as each of the save file options pages.



Once done click ok and we are now done with 3DS Max.

Converting into APCD Format

Ok we have a DirectX file called tutorial.X and we have a tga file called Threadplate.tga. We need to make sure these are in the same directory. Now fire up the links and apcd tools application and select the #D object convertor. This has a simple one button interface so click it and browse to the tutorial.X file we created and click ok.

The application will take anywhere from a few seconds to a minute depending on the complexity of the object but once done it will have created 2 files in the 3D objects folder of links and apcd tool application

Tutorial.XYZ and tutorial.MAP

Importing into APCD

Ok before we dive into this APCD needs three files not two. Remember the preview image of 3D objects that is shown to allow you to pick the object you want. Well we need one of those. So take a screenshot of your object (either in 3DSMax or DirectX Viewer if you have it) and make a 256x256 TGA 32 bit with an alpha channel (just like a 2D object) and save it in the 3D Objects folder with the MAP and XYZ file. RENAME THE EXTENSION to .PRV from tga in windows explorer.

Ok now we have our three files .XYZ, .MAP and .PRV

Fire up the apcd, click on planting tab. Open up the object library and click File Import

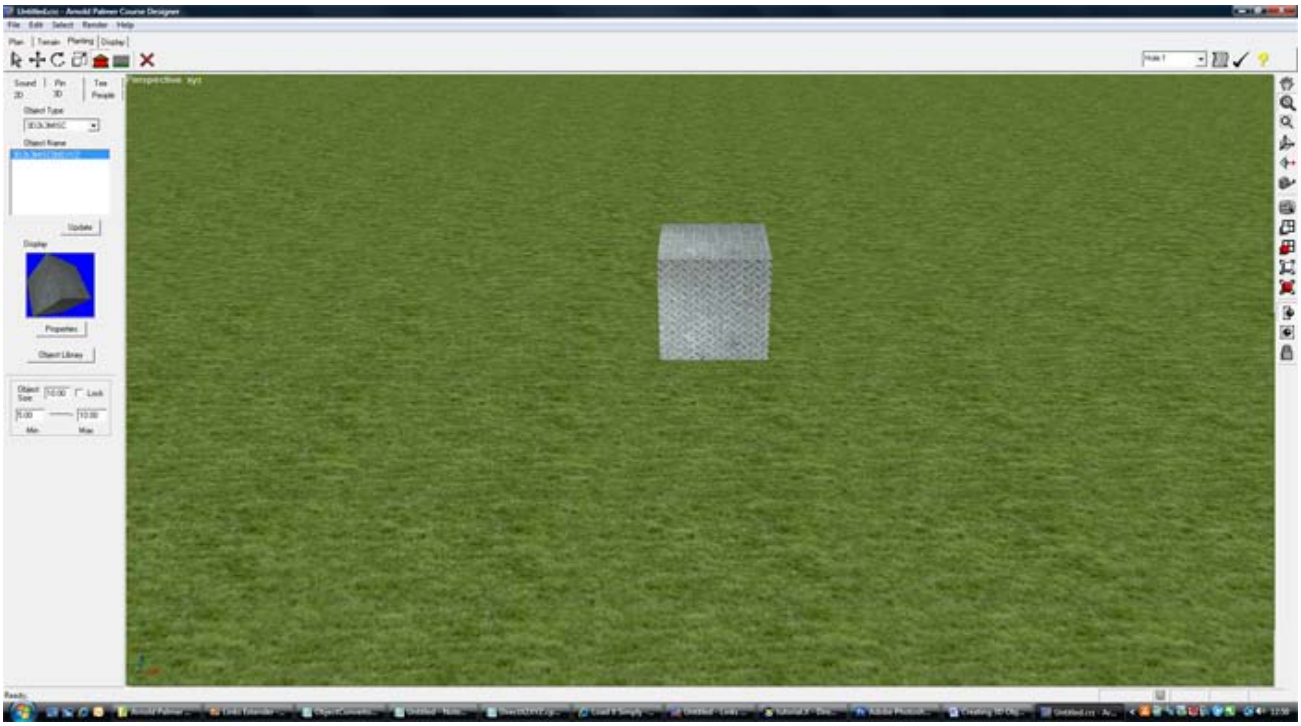
Browse to the 3dobjects folder your 3 files are in. Note the default file type is hardcoded by Microsoft as *.TGA but fortunately we can ignore this. Start typing in the filename box tutorial and you will see the 3 files show up, select the tutorial.XYZ file and click open

You should now see the tga file showing (that you renamed to PRV) and options to select default min max. Change what you need to change and under object type click new type if one of the existing 3D object types is not suitable. For the purposes of this tutorial I created a new type called 3D2K3MISC and click ok

Click ok to accept the object. Now click the objects tab and select the 3D2K3MISC object from the drop down box. NOTE make sure 3D objects is selected in the radio button on the right.

Select your new object and click Add to Current Planting Set. Close the object library and say yes when it asks you if you want to save.

Now in the main planting window make sure you have 3D objects selected and select 3D2K3MISC from the drop down and you should see your new object there. Plant it and it should look like this.



That’s it you are done!