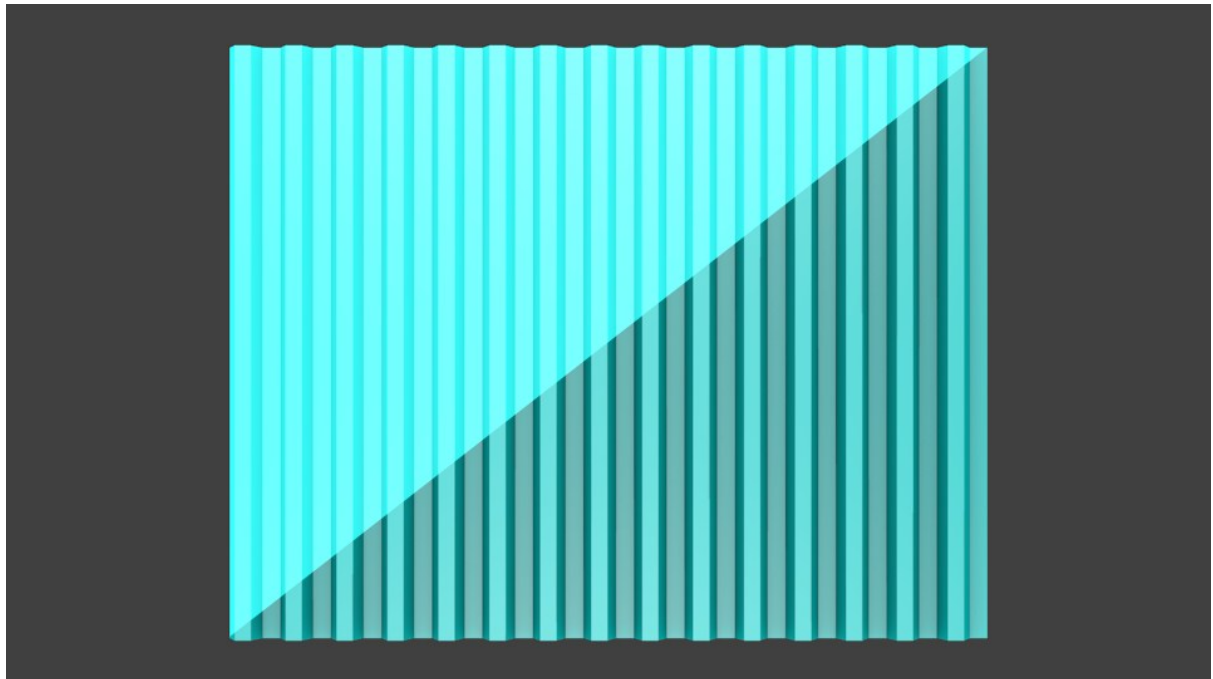


# How to Create AO textures in Blender 2.6+



By Milpol © 2012

The purpose of this tutorial is to enable users to correctly set up Blender V-2.6+ to create an Ambient Occlusion texture to the object that they are creating in Blender for use in Farm Simulator 2011.

What is an AO (Ambient occlusion) texture?

An AO texture is an artificial creation of shadow to a set of surfaces to create the impression of depth to the human eye as the actual colour of the surface has not changed; in a texture format that has been UV Mapped to an object in a 3D program like Blender.

Although this tutorial assumes that you are able to navigate Blender and create objects, new users with a very basic skill set should be able to complete this tutorial if they follow the steps outlined.

A test Blend file will be included for use in the tutorial.

Let's Start, first open Blender V-2.6+ (versions 2.60 to the current version 2.63a will work), delete the default cube and load the tutorial blend file supplied.

You should have a blender screen that looks like Fig-1.

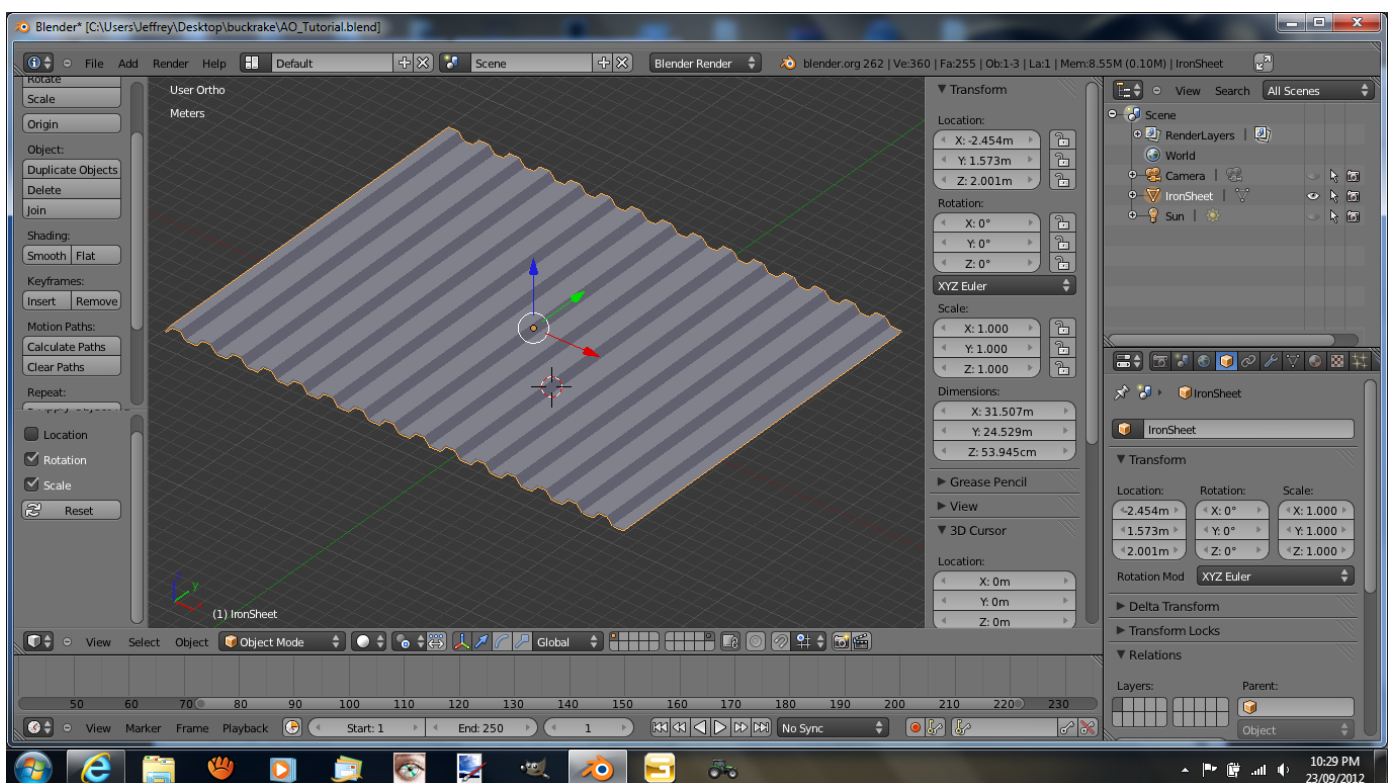


Fig-1.

From here, click save to save your file (you do not need to change any settings to blender for scale or size as this has been pre-set for you)!

Now, add a material to your object. Right click on your object to make it active, I have chosen a shade of blue as it will give a good example of an AO texture in the final render. You should now have an object that has a material applied to it as per Fig-2.

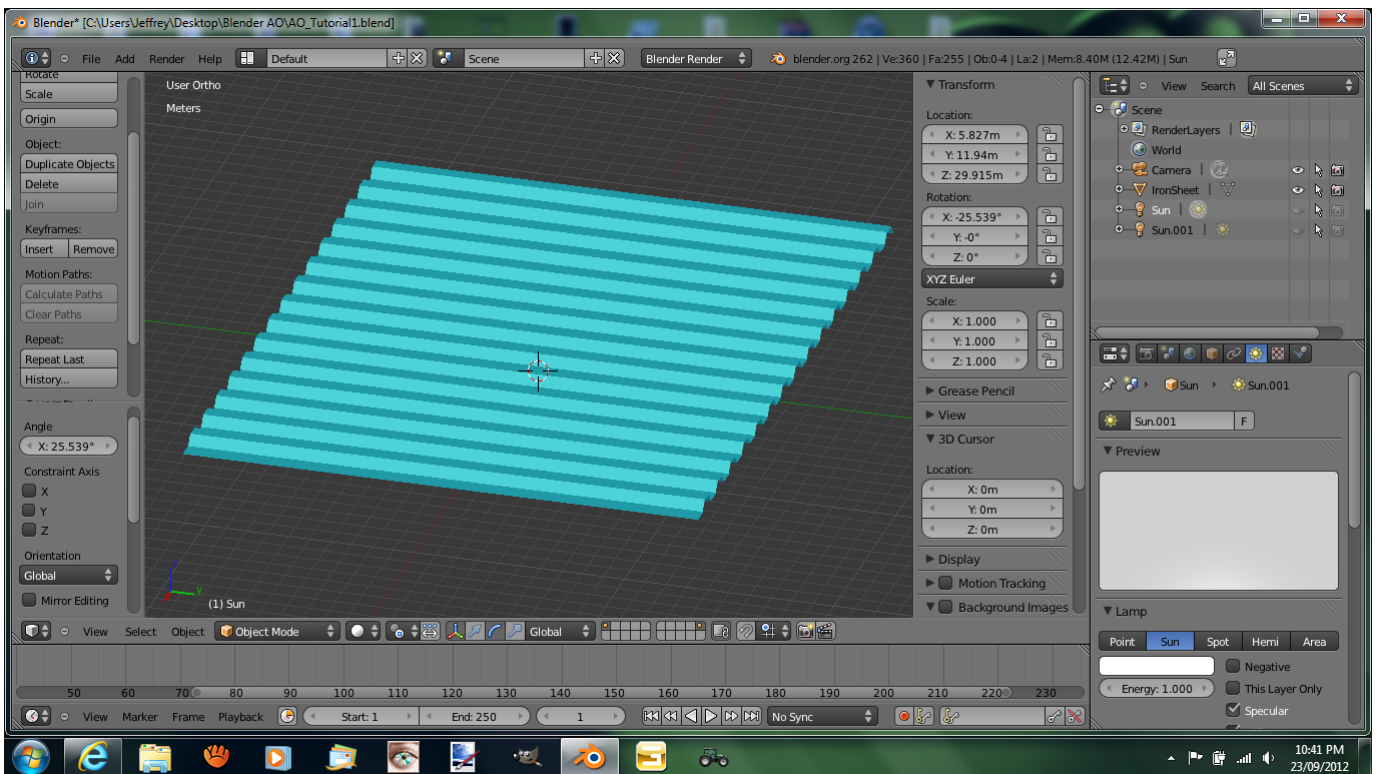


Fig-2.

We now need to split our screen into two parts to enable us to view our Model and our UV Texture map as per Fig-3.

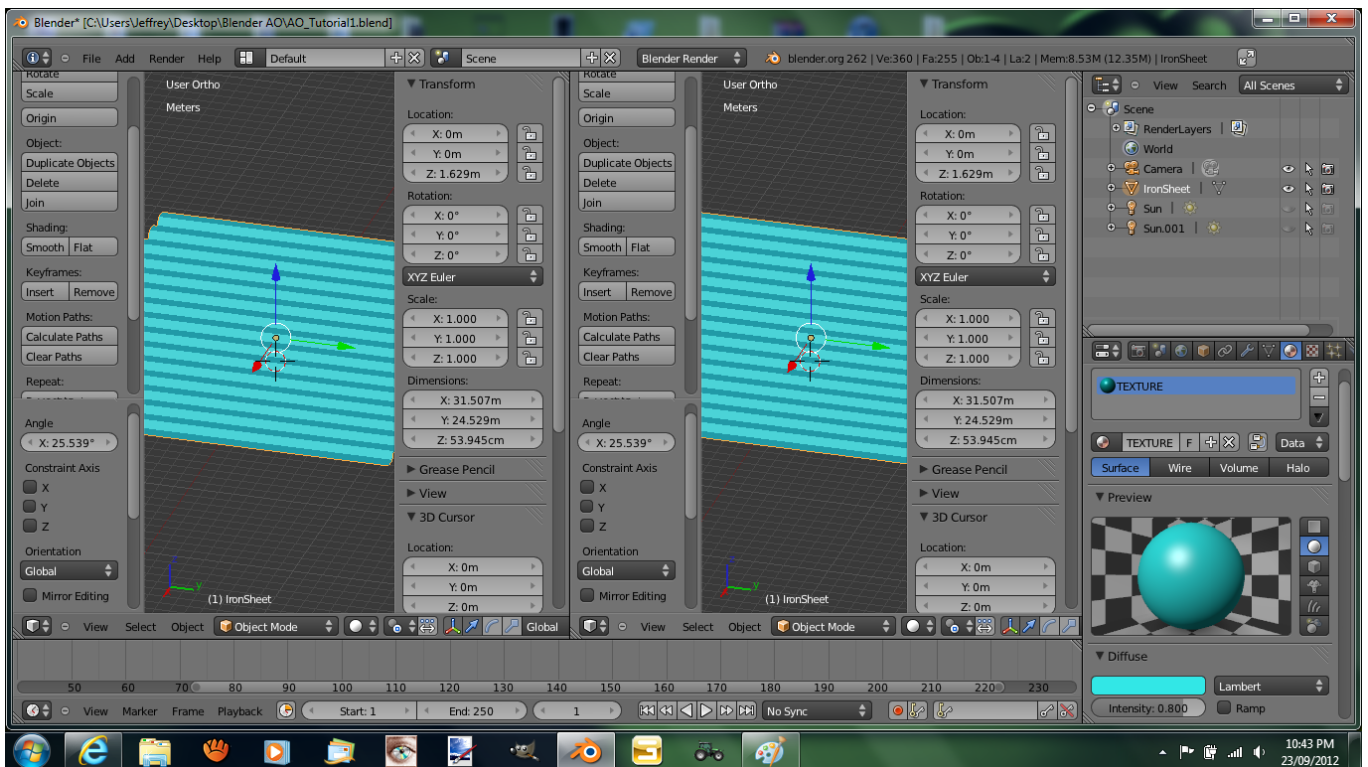


Fig-3.

Place your mouse cursor in the right window and press T and N to close the side menus. In the left window, click on the small cube on the bottom left to open the menu and select UV/Image editor as per Fig-4.

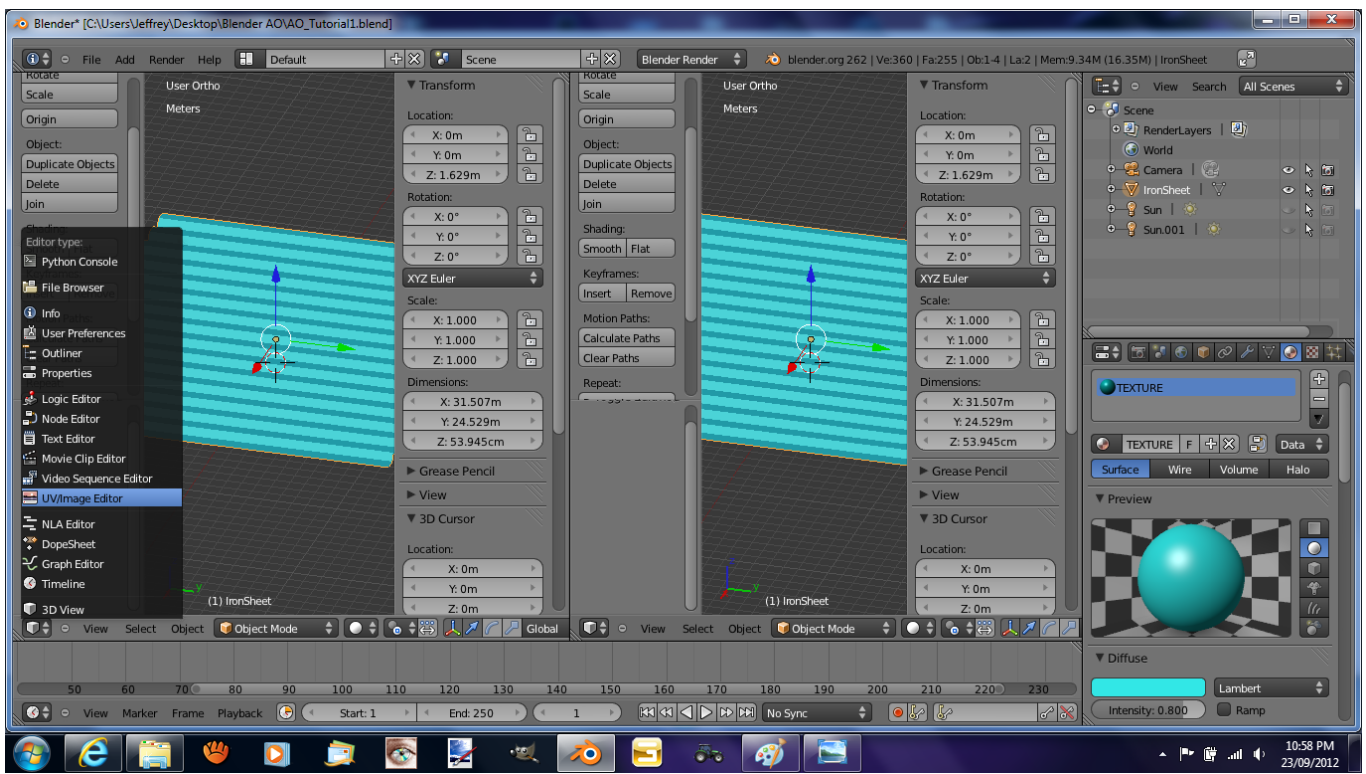


Fig-4.

Your left window should now look like Fig-5.

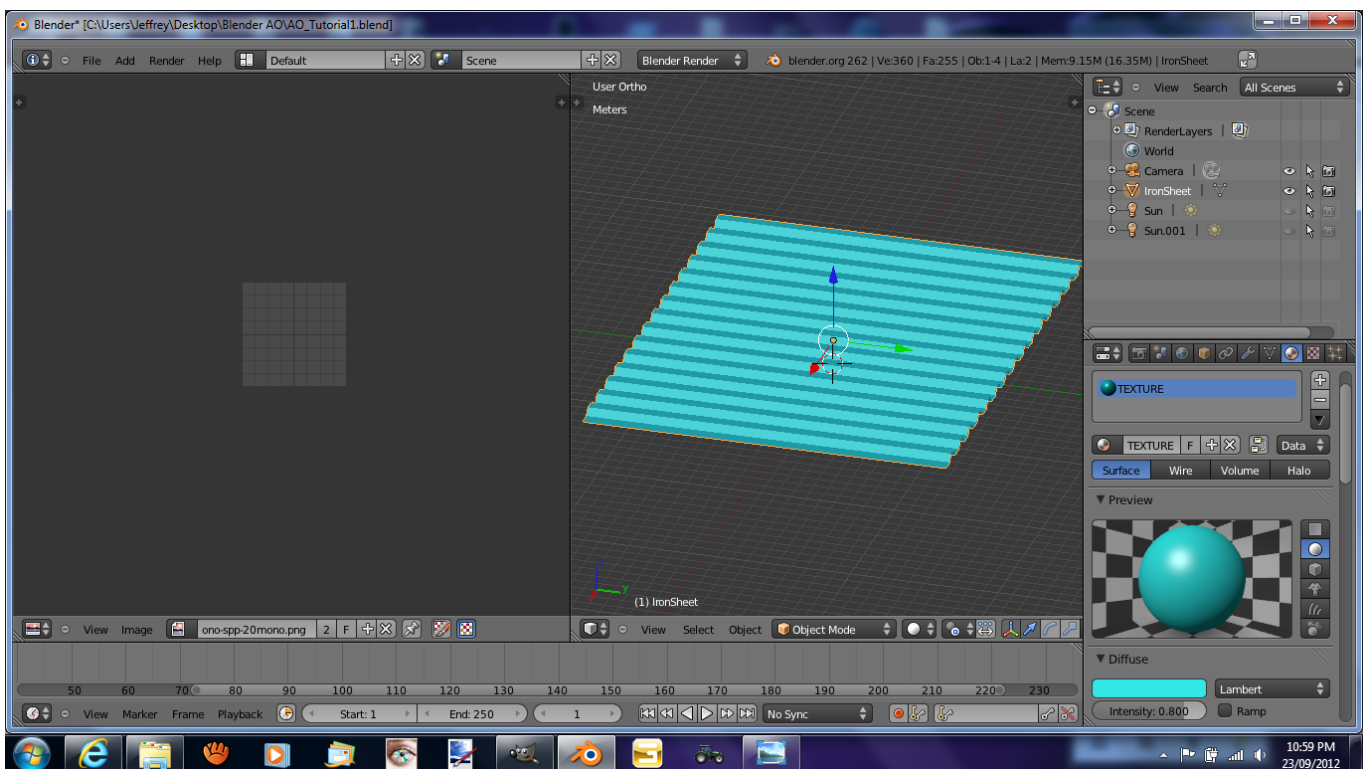




Fig-5.

Next, we need to change our object from Object Mode (in the right window) to Edit mode. With your cursor in the right window, press the Tab key once and your object will now be in Edit mode. Next, click as indicated in Fig-6. And open the menu Fig-7 and create a new texture. Call this texture “Texture-AO”, your screen will change and look like Fig-8.

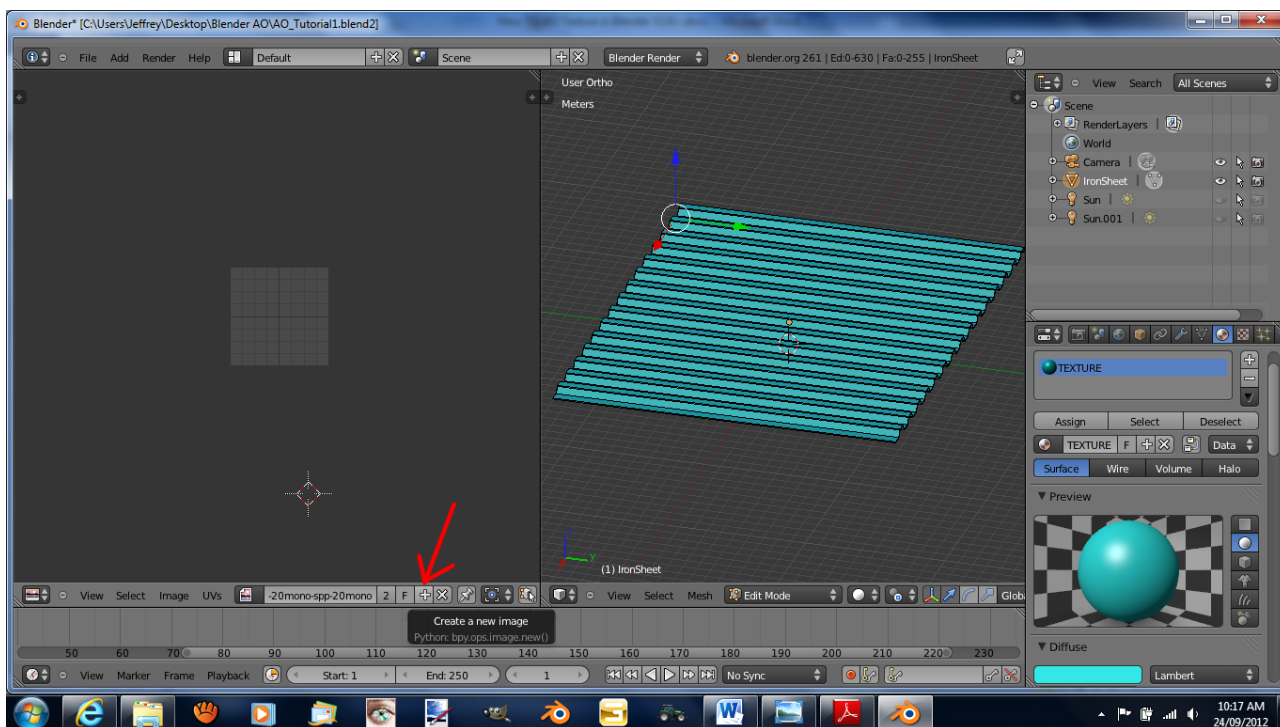


Fig-6.

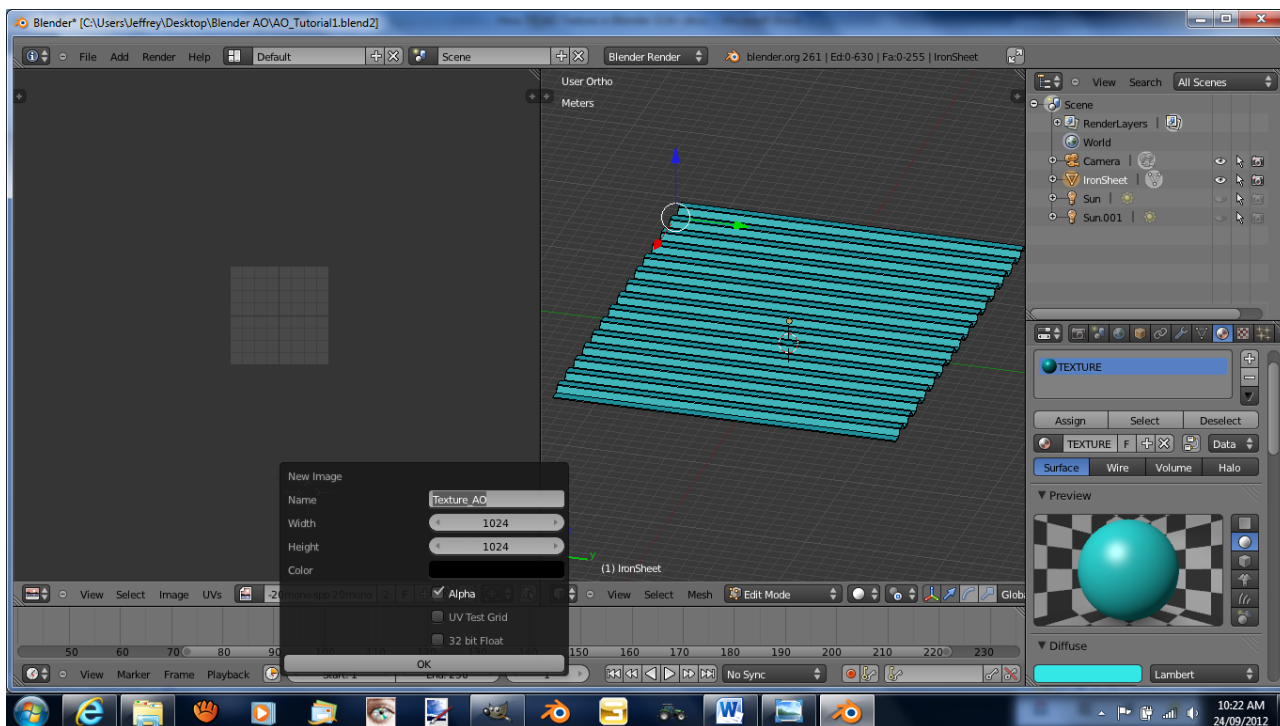


Fig-7.

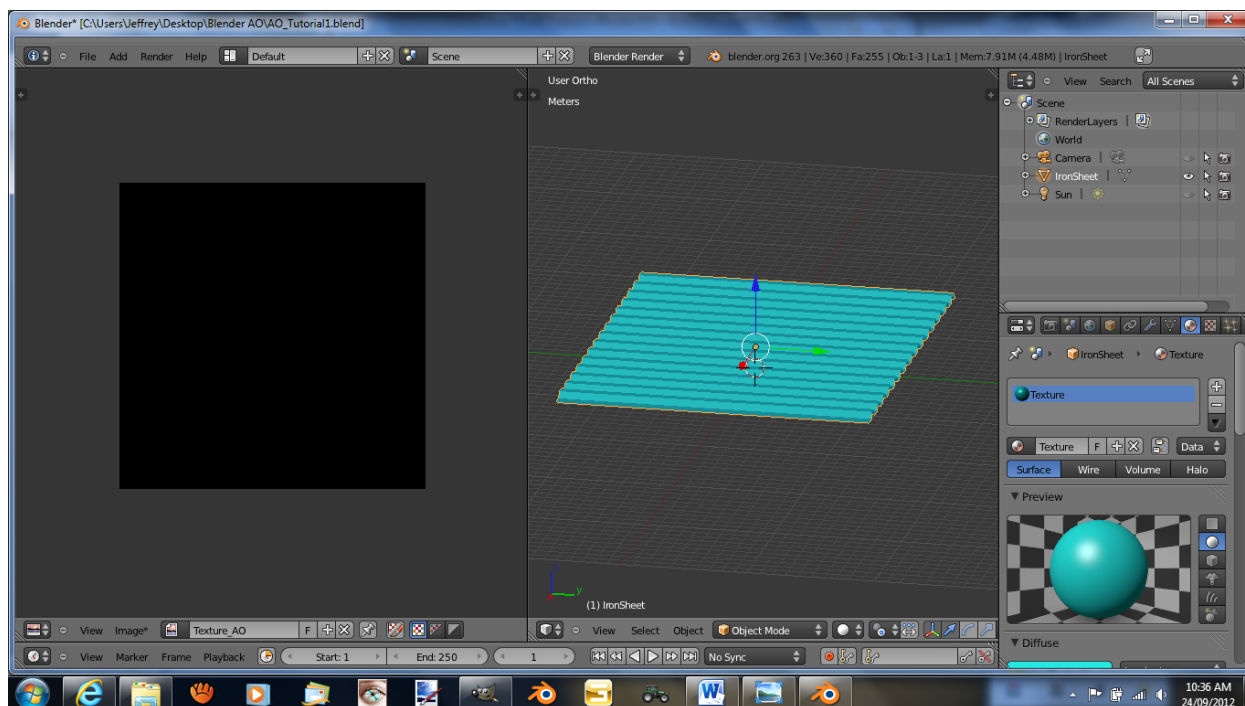


Fig-8.

Now we need to UV unwrap our model, as we are in Edit Mode our object needs all of its polygon surfaces selected.

To do this, press “A” (with your cursor in the right window) to select all surfaces.

Note, if your object is active already, to ensure all surface are active and no polygons are missed, press “A” to deselect the object, then, press “A” again to select everything.

Your screen should look like Fig-9.

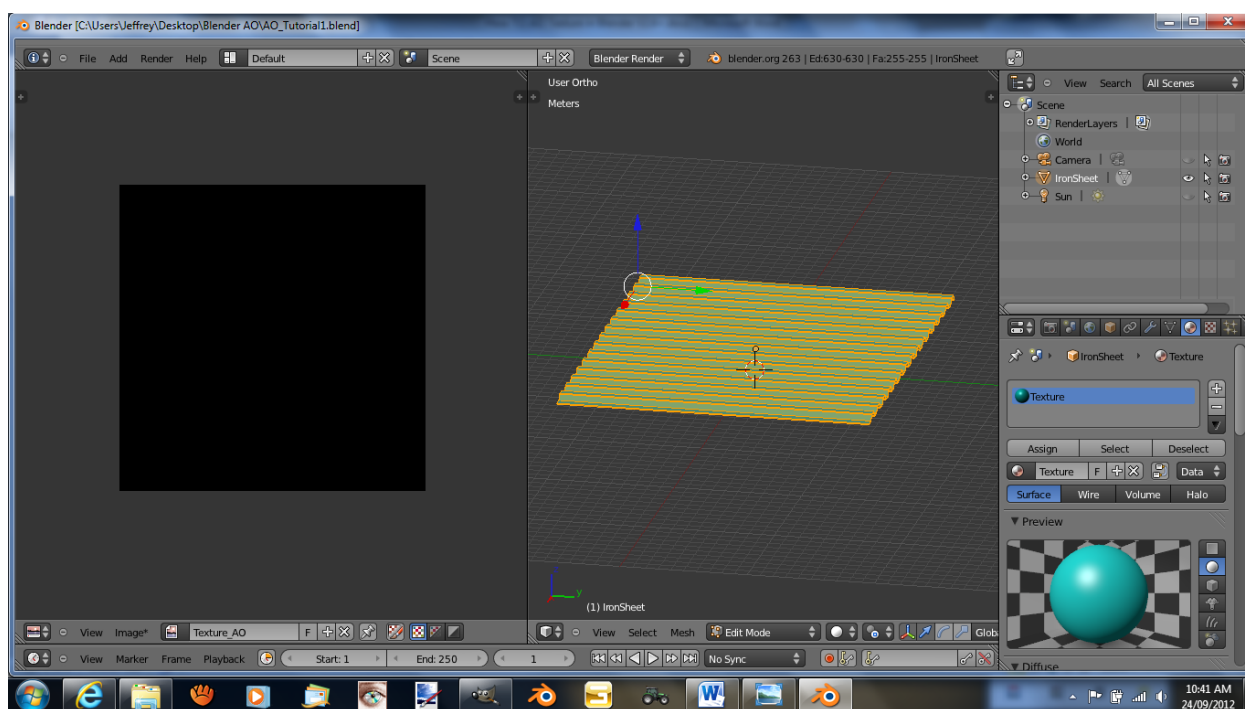


Fig-9.

With your cursor in the right window, press “U” and from the menu that pops up in Fig-10. Click on “Smart UV Project”.

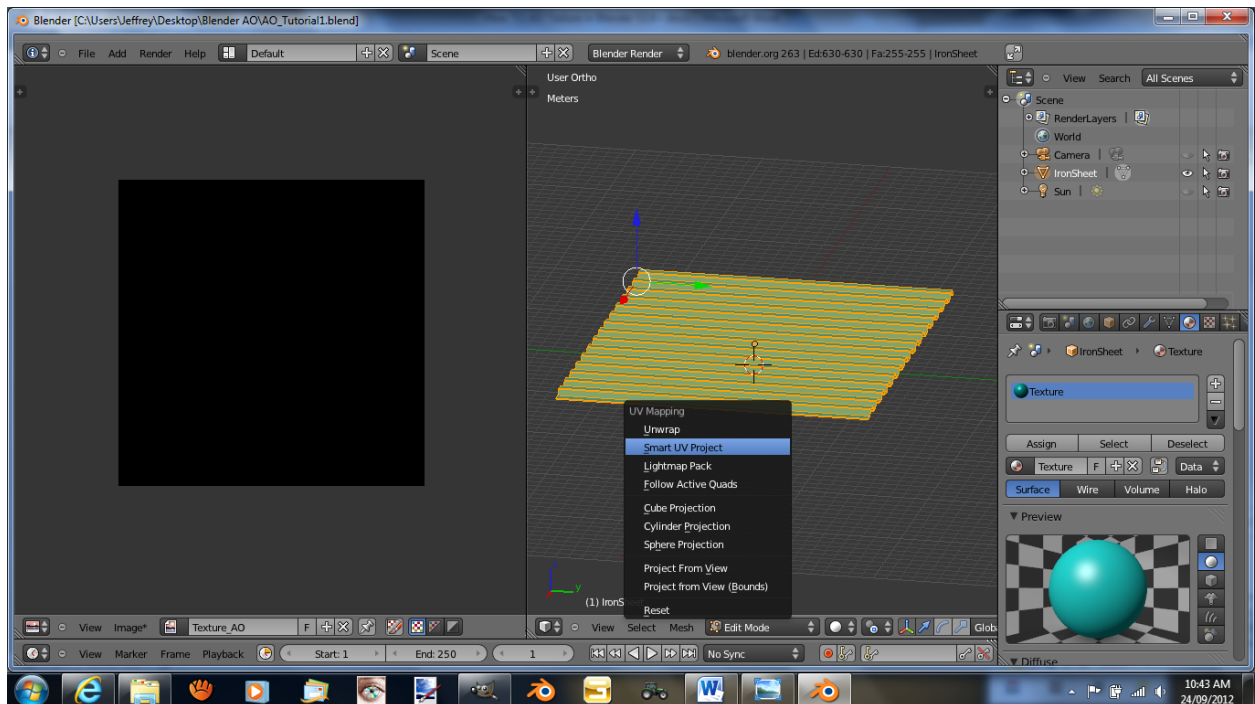


Fig-10.

Click OK from the following menu that pops up as per Fig-11.

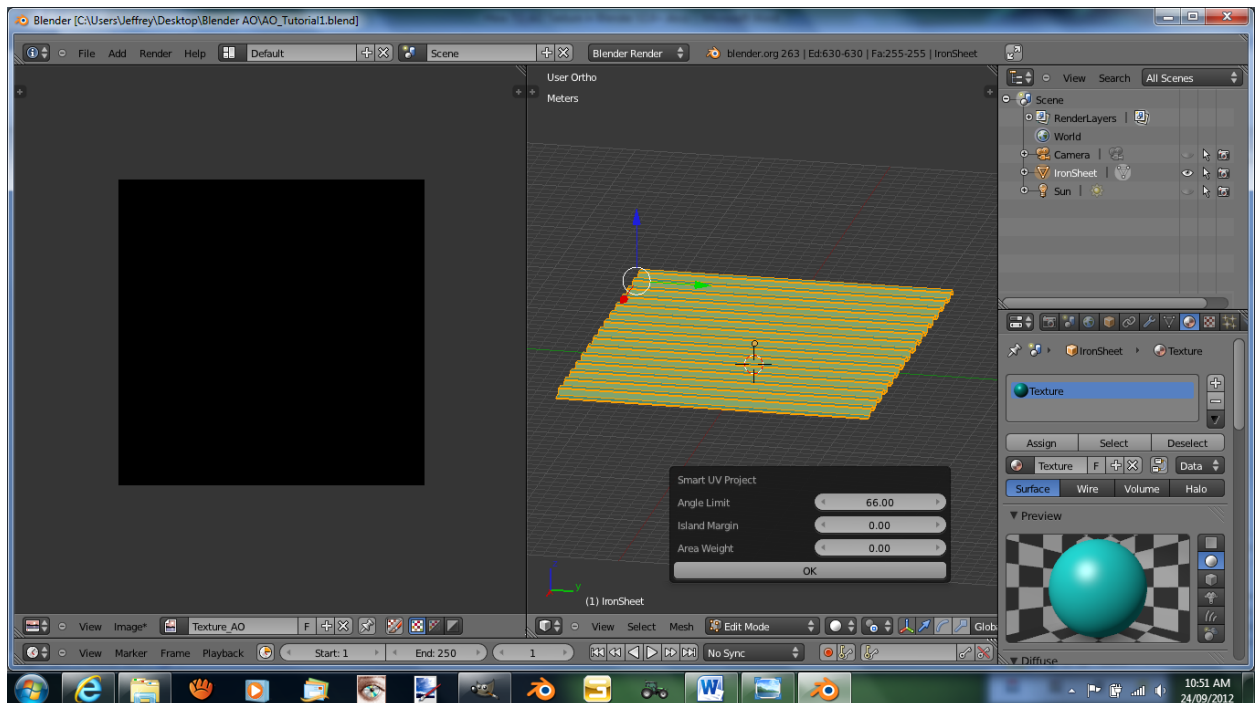


Fig-11.

You will now see the following screen, do not be alarmed that your new texture in the left screen has vanished, this is normal, see Fig 12.

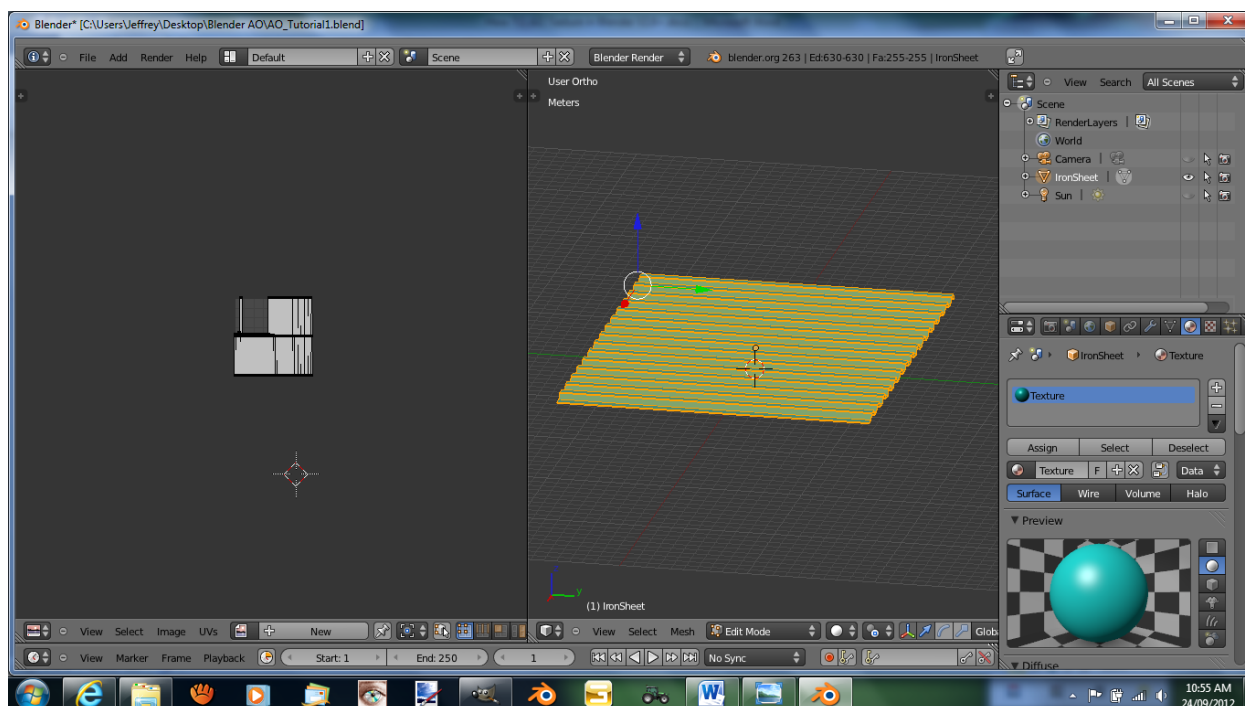


Fig-12.

From here, place your cursor into the left window and press “A” and select all polygons (Fig-13.).

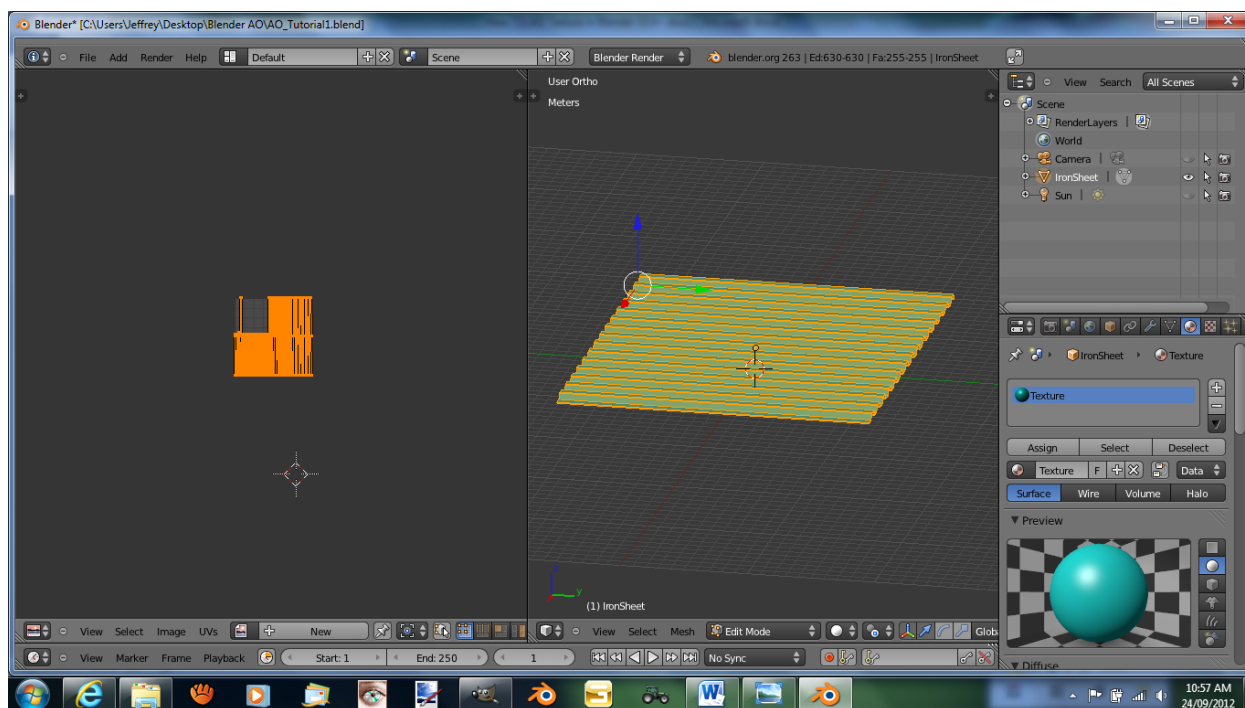


Fig-13.

From here, with your cursor in the left window, click on the image icon as per Fig-14.

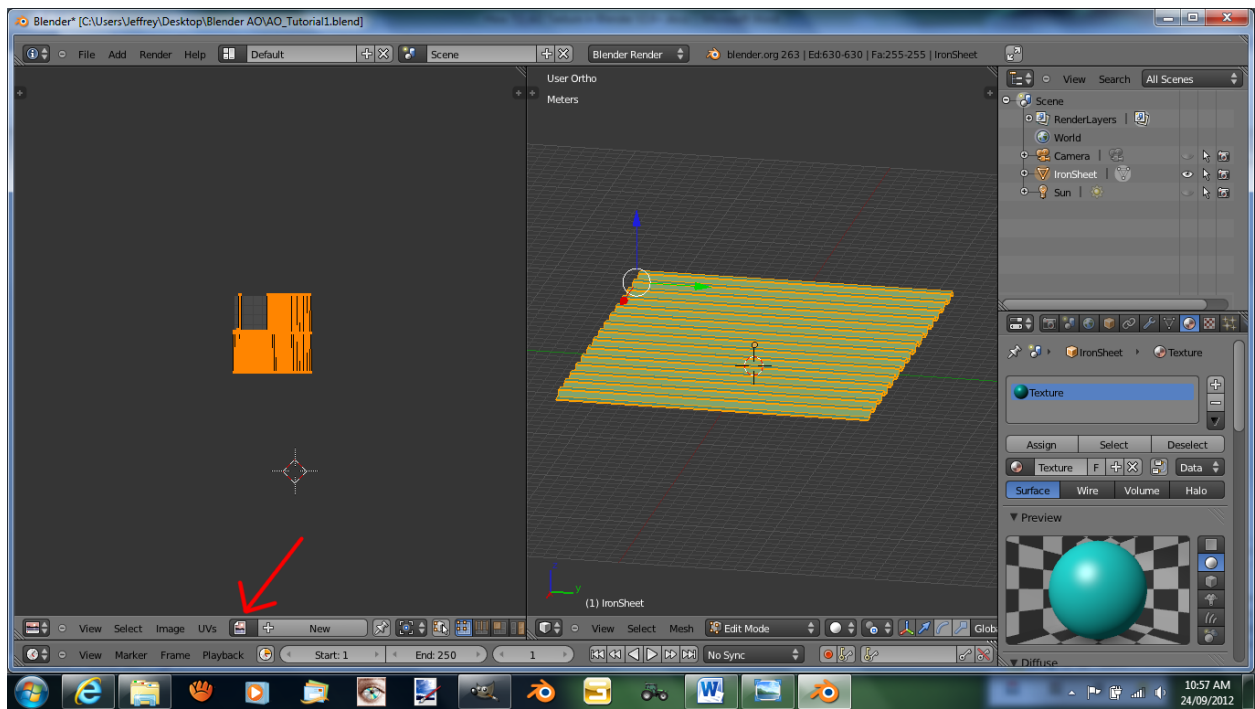


Fig-14.

Now, select the texture you created previously as per Fig-15 and you will reload that texture Fig-16.

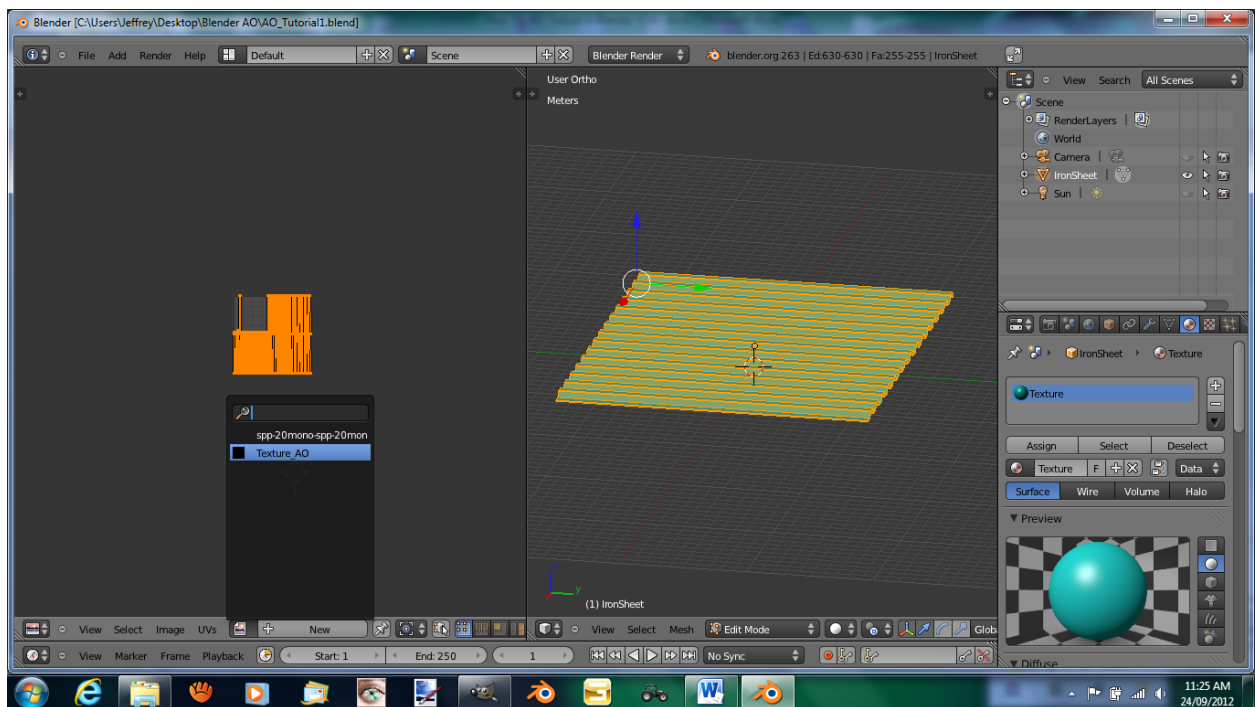


Fig-15.



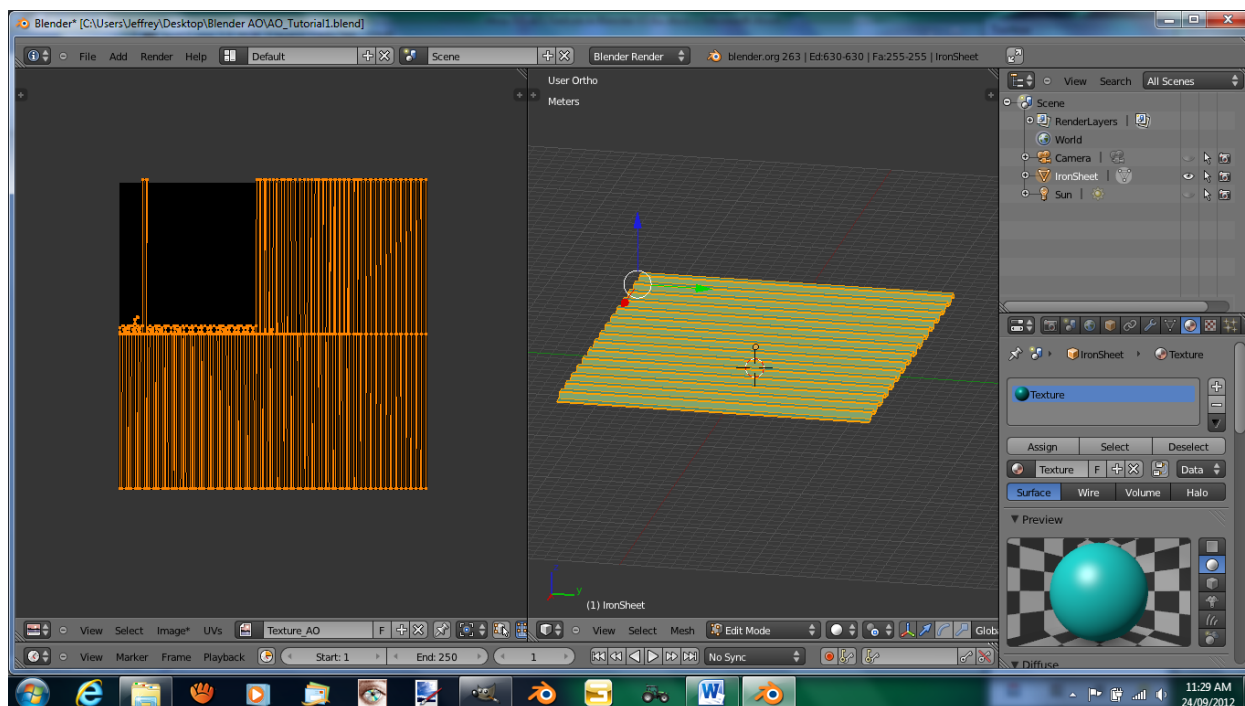


Fig-16.

As you will notice in the left window, your selected UP Unwrapped polygons exceed the size of your texture. With your cursor in the left window, press “S” for scale, and by dragging your mouse and resize the polygons to fit the texture, Fig-17.

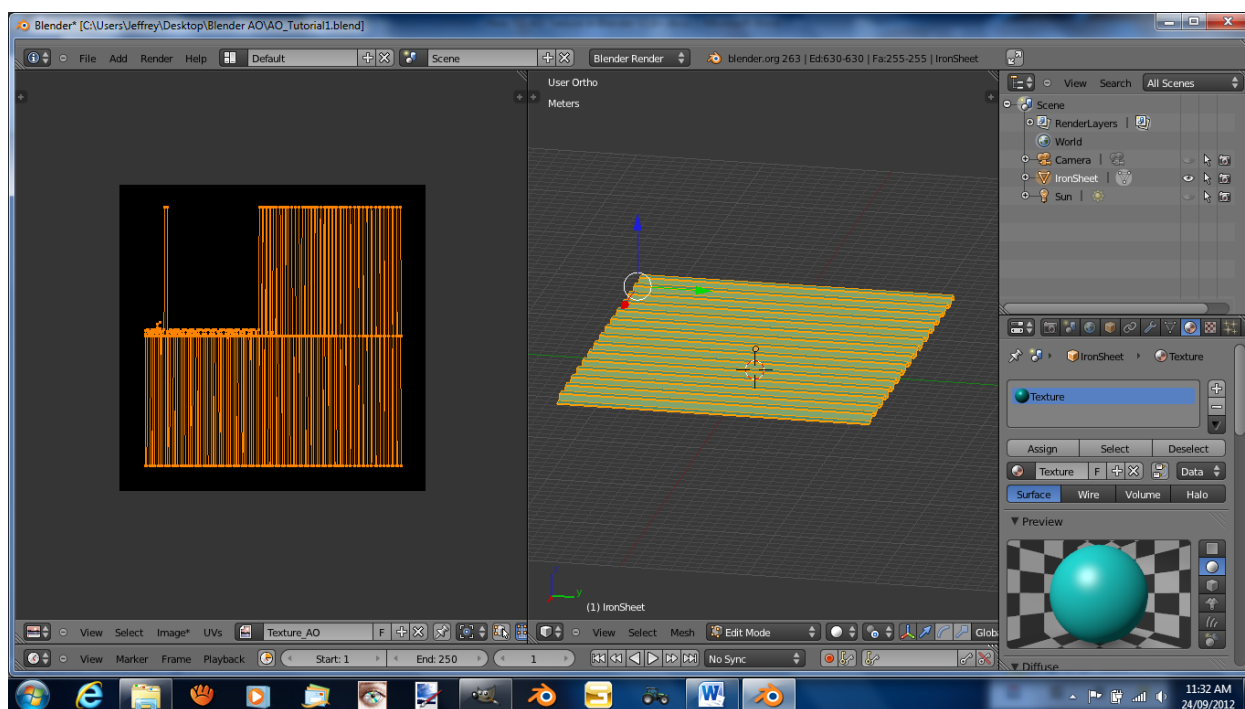


Fig-17.

We now need to set Blender up to create our AO texture. To do this, select World Mode Fig-18. And click on it.

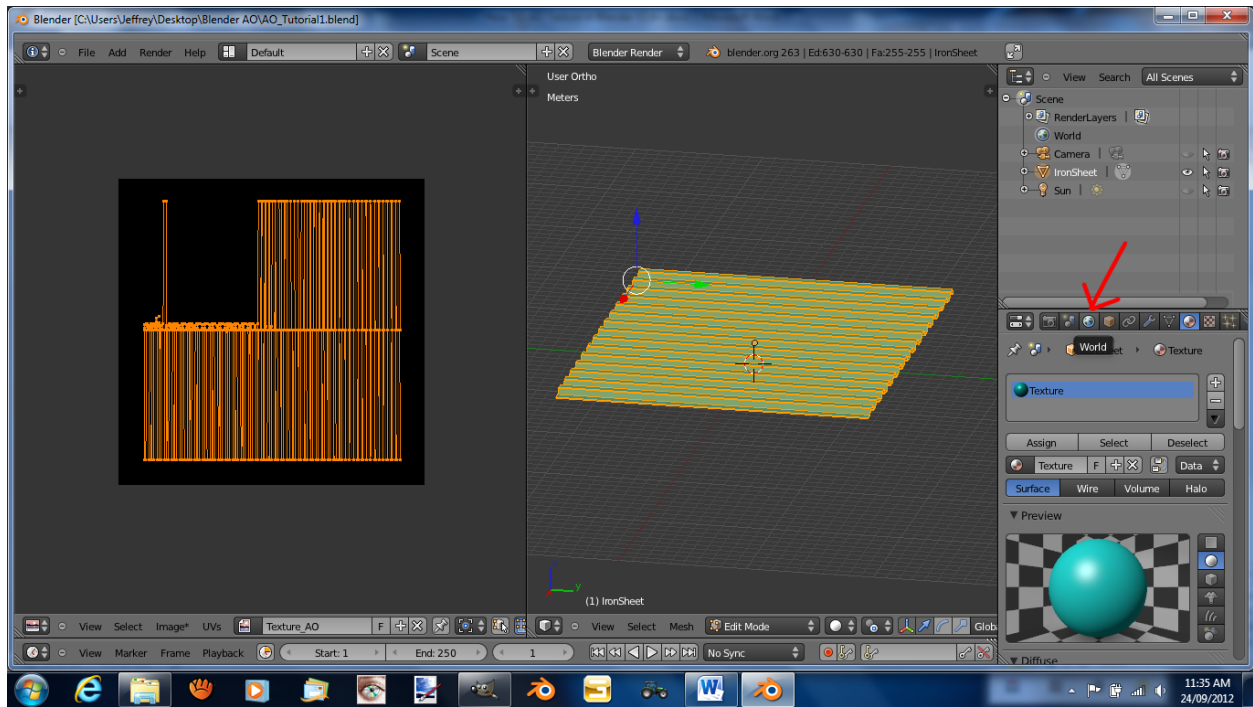


Fig-18.

From the new menu, scroll down until you see the heading for Ambient Occlusion and place a tick in the box, Fig-19.

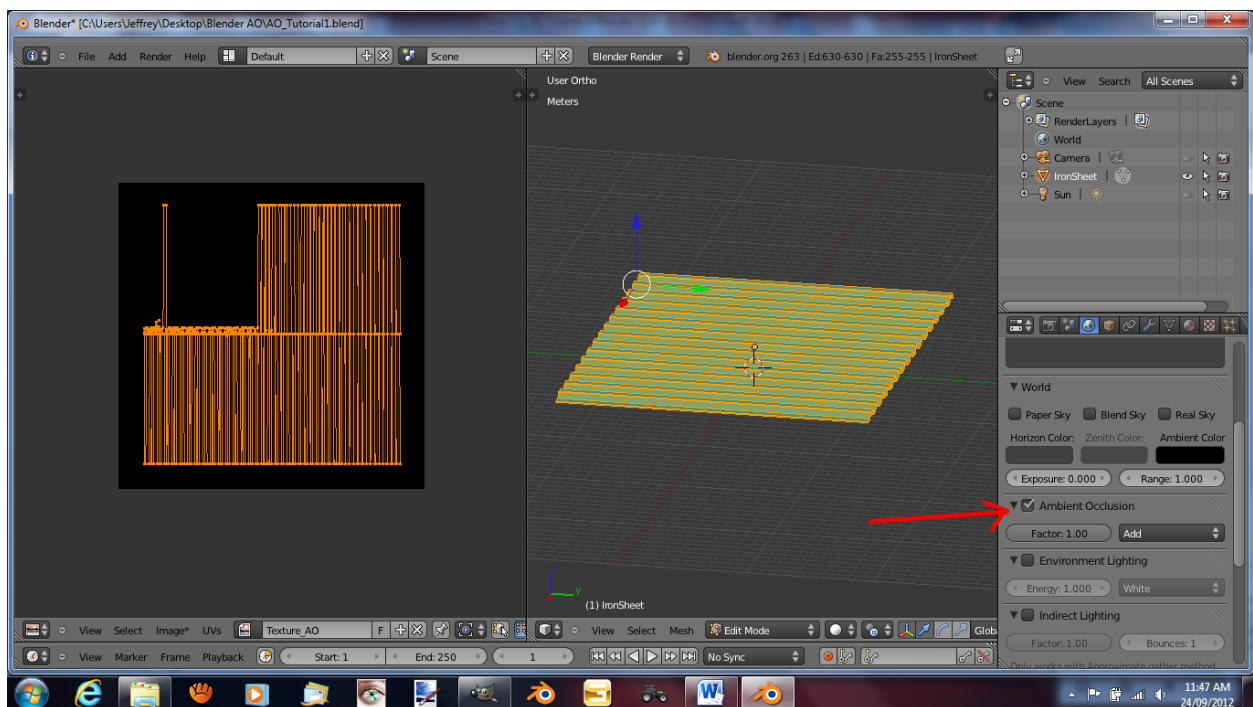


Fig-19.

Whilst in the same menu block, scroll down further until you come to the heading “Gather” and look for the sub-heading “Constant QMC”, under that, you will see a “Samples:5”, click on this and change it to 20. Fig-20 to 21.

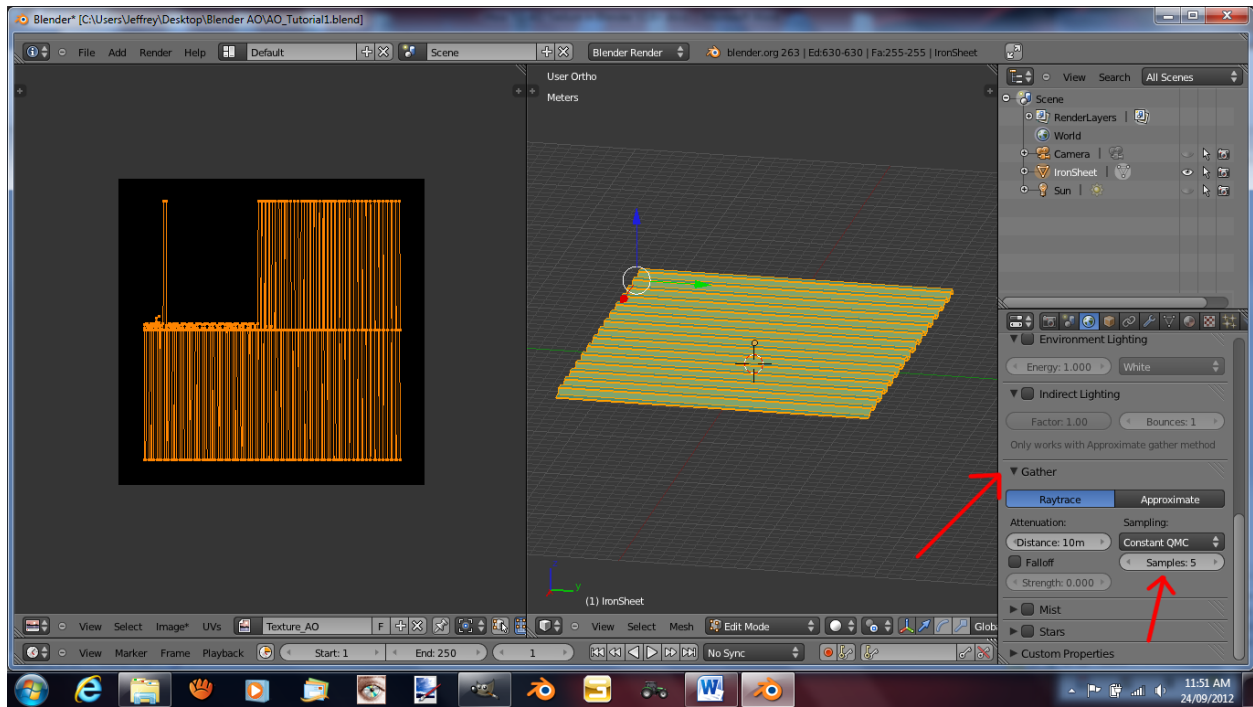


Fig-20.

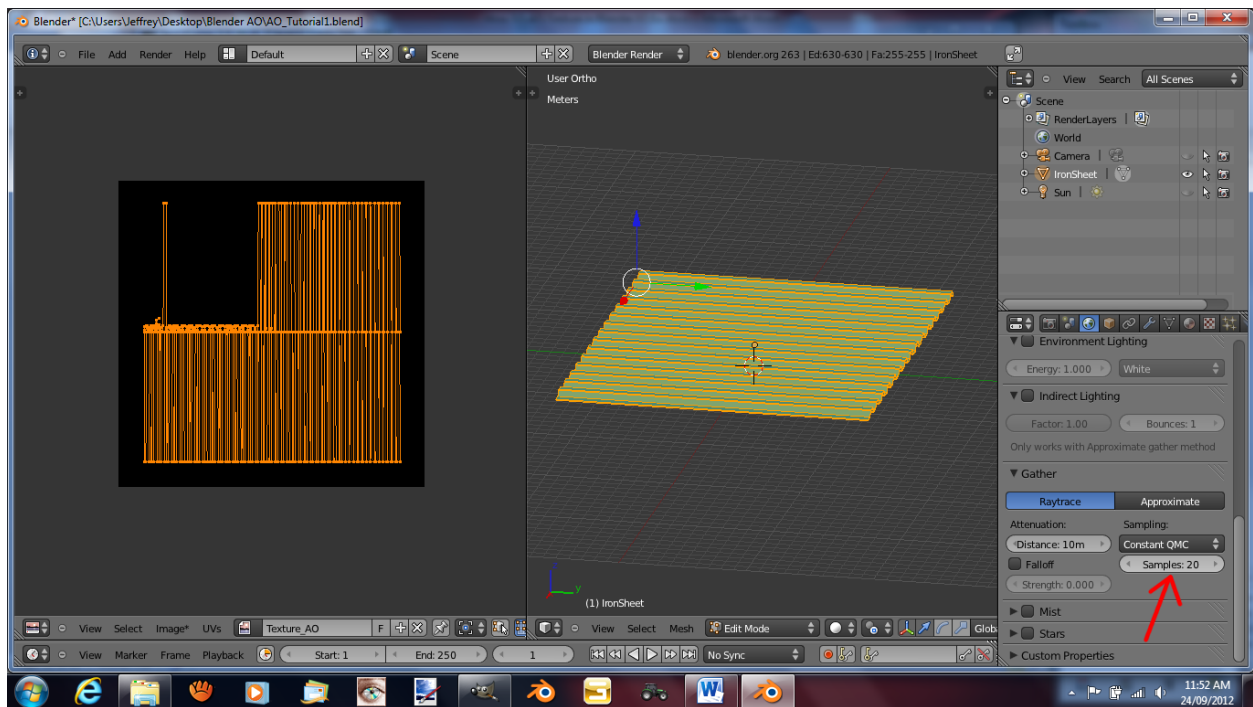


Fig-21.

If you haven't already done so, now would be a good time to save your project.

What we have done is to increase the sample rate for the texture that will give us a smoother shadow, you can increase to a larger sample rate but there will be little benefit. As we have increased our sample rate, the render process will also take longer so when you create your texture, have a little patience, especially users with lower end computers.

From here, click on the Render tab as indicated in Fig-22.

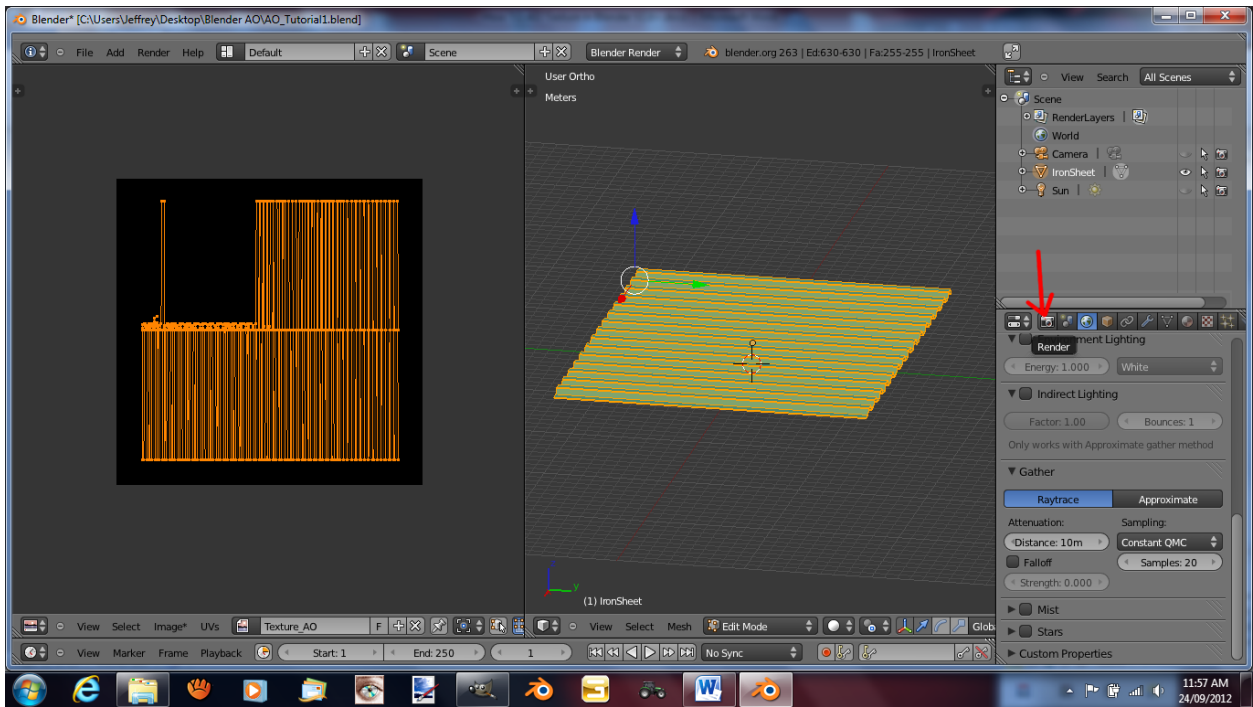


Fig-22.

Your menu should now look like Fig-23.

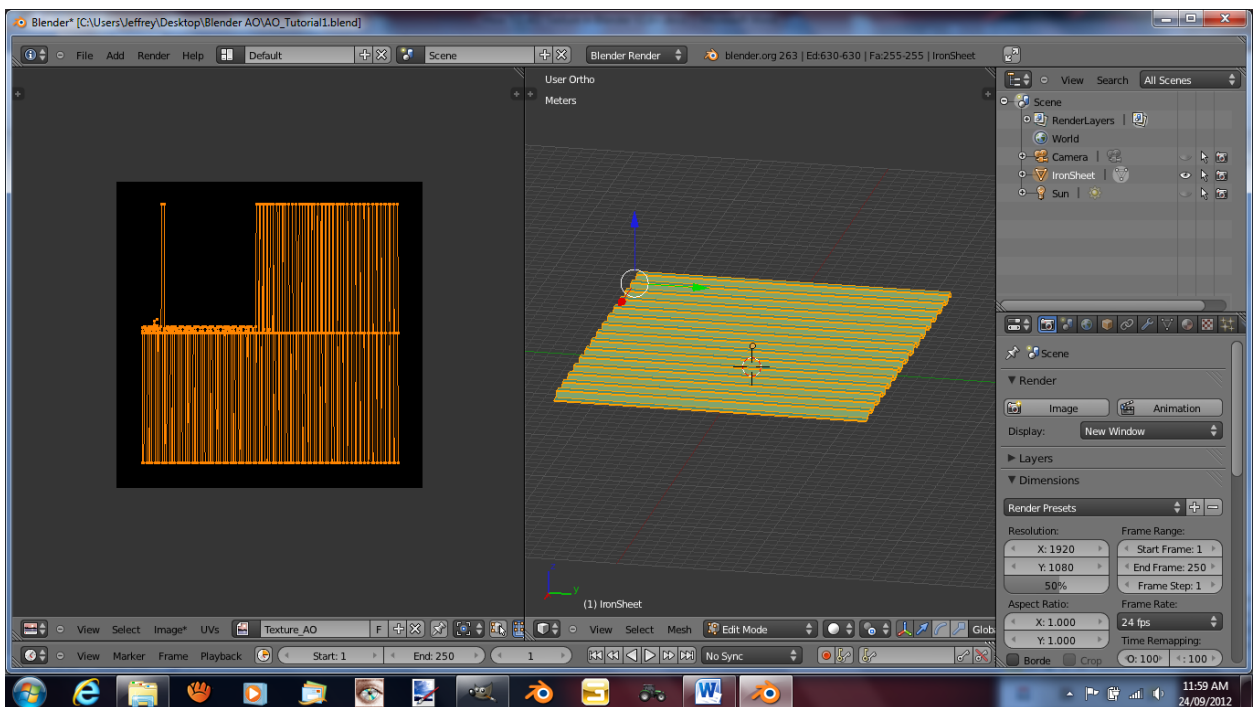


Fig-23.

Scroll down the new menu to the bottom and you will see (you may need to open the sub-menu) the BAKE tab As per Fig-24.

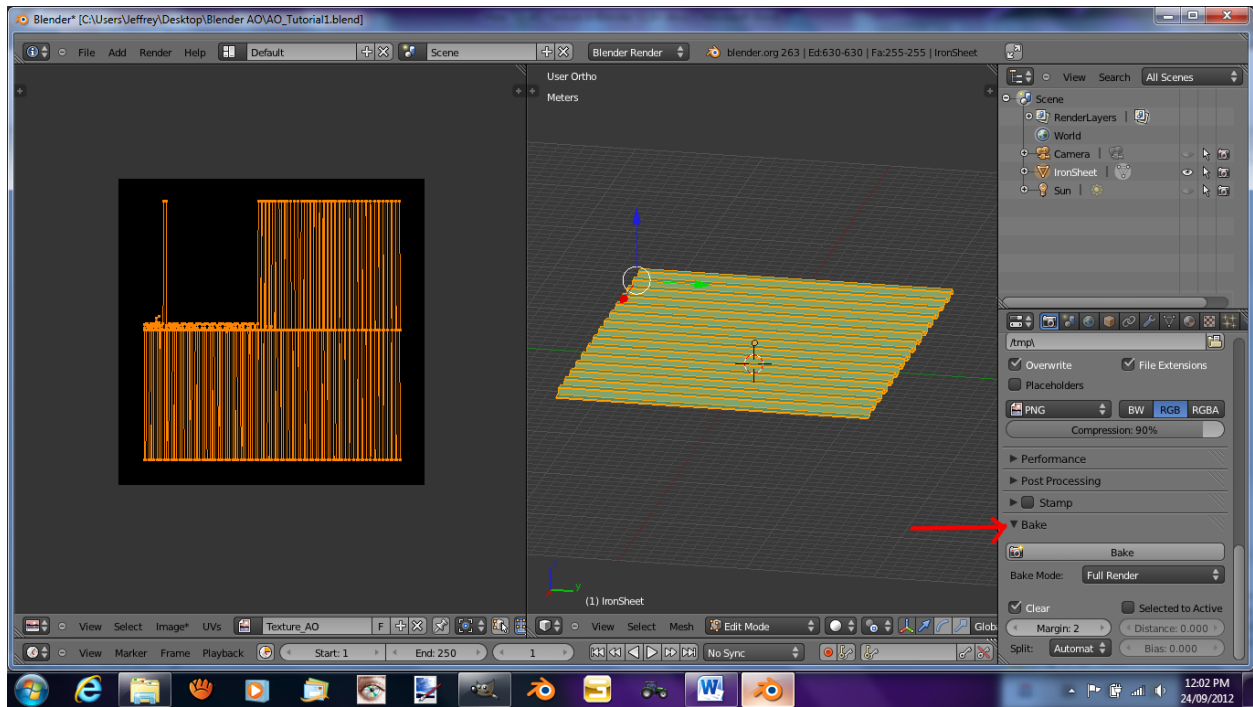


Fig-24.

Under the Bake button, you will see a menu heading called “Full Render”, click on this and select “Ambient Occlusion”, Fig-25. Above the bake button, you will also see a blue setting called “RGB”, select “RGBA” just to the right ! Now save your project (you have now set blender to create an AO Texture), Fig-26.

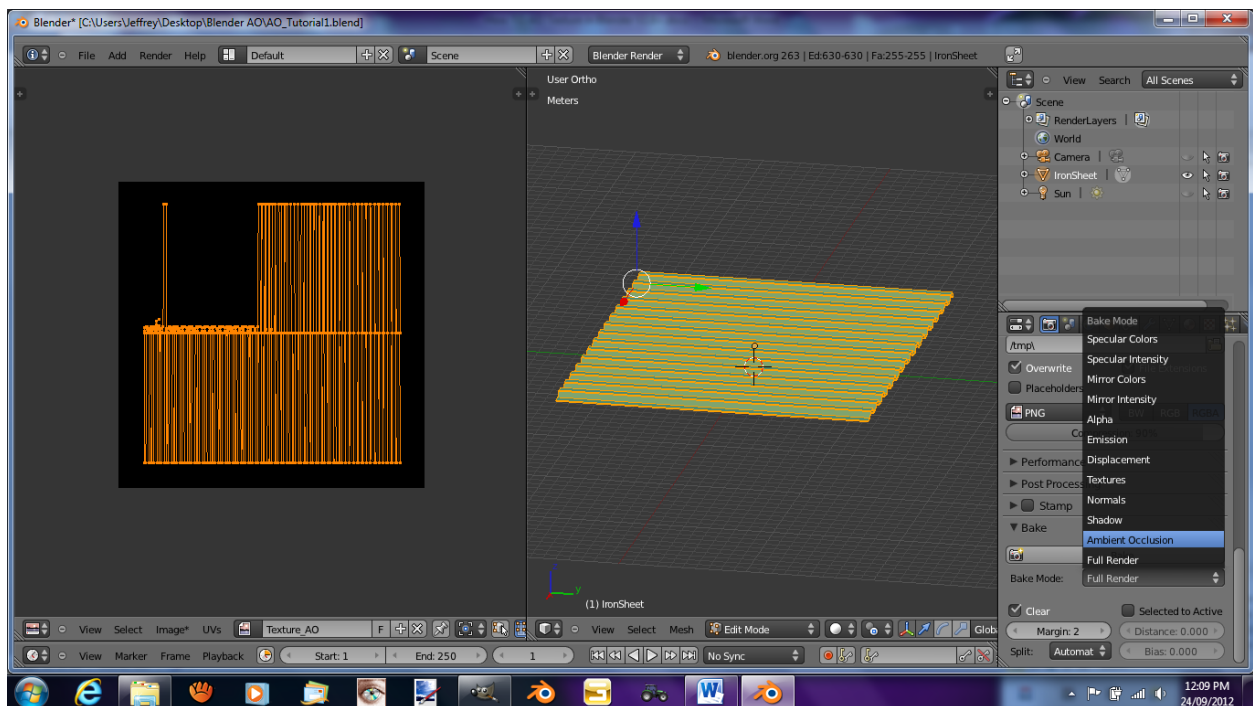


Fig-25.



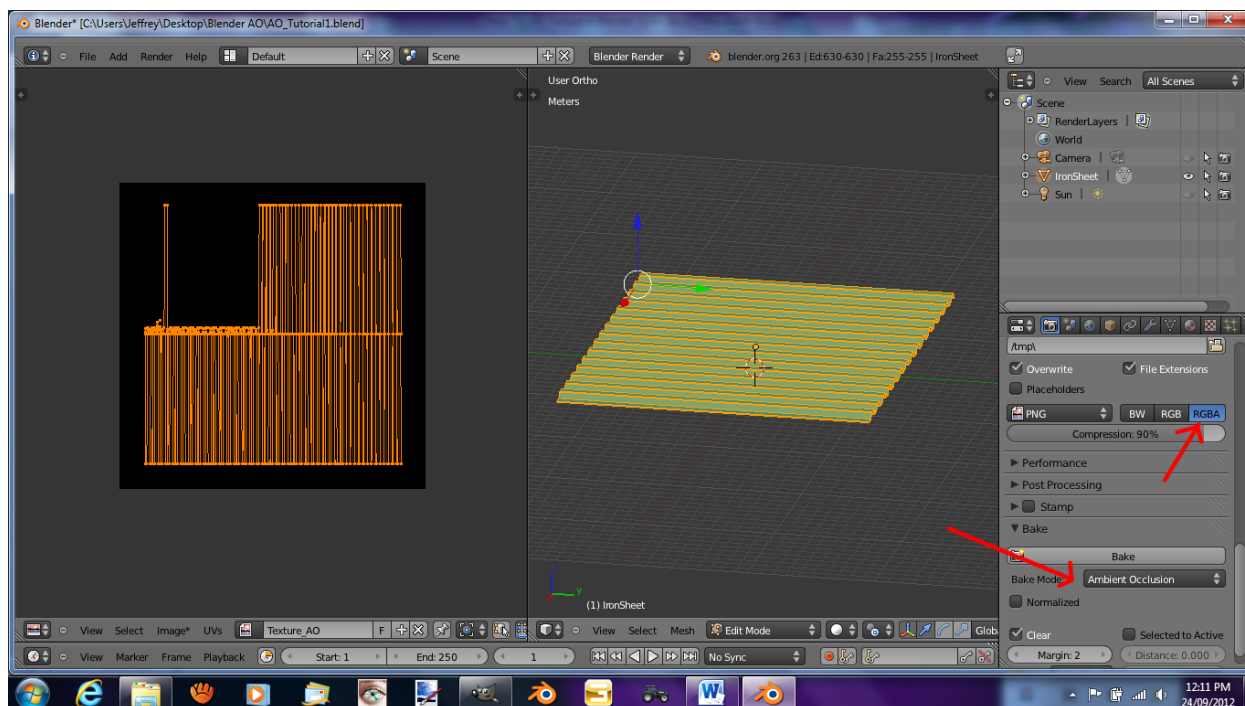


Fig-26.

From here, we are now ready to create our AO texture. Click camera icon for your lighting to turn it off and then click on the Bake button and wait for the status indicator to complete (here you will need patience depending on the complexity of your Mod and power of your computer). Fig-27.

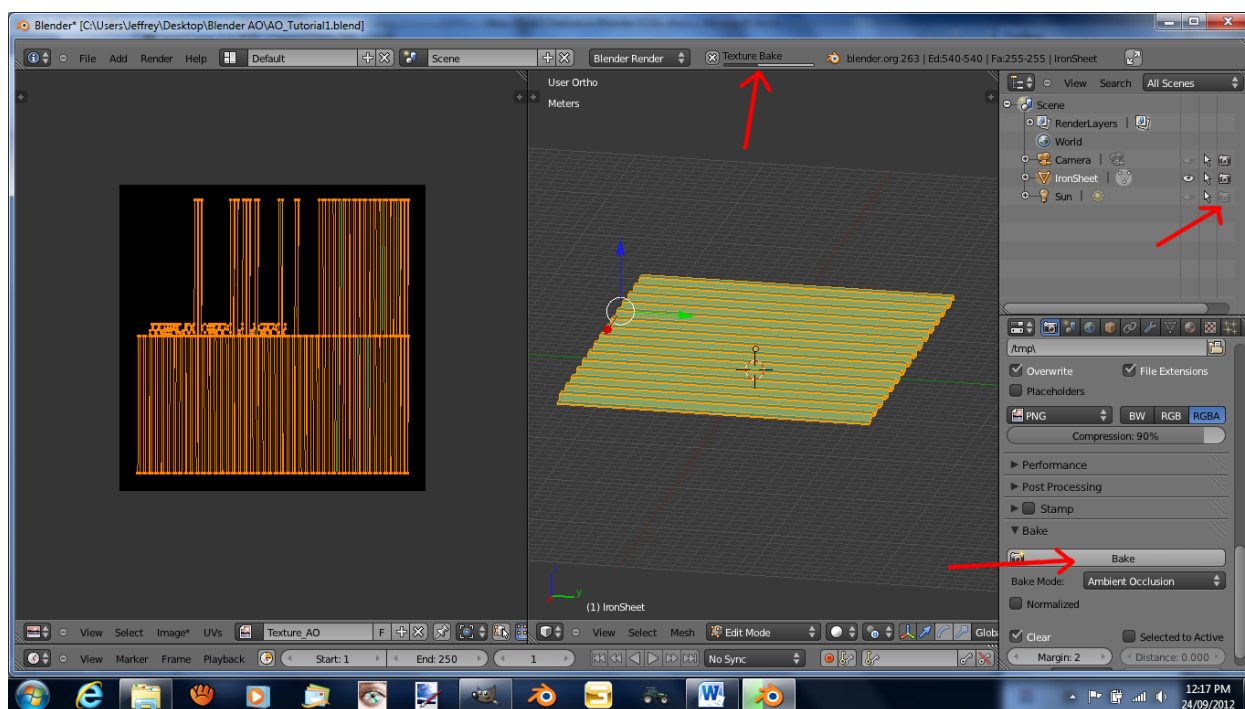


Fig-27.

Once the render process has completed, you can check your results by pressing “A” with your mouse cursor in the right window to deselect all polygons whilst in edit mode. Fig-28.

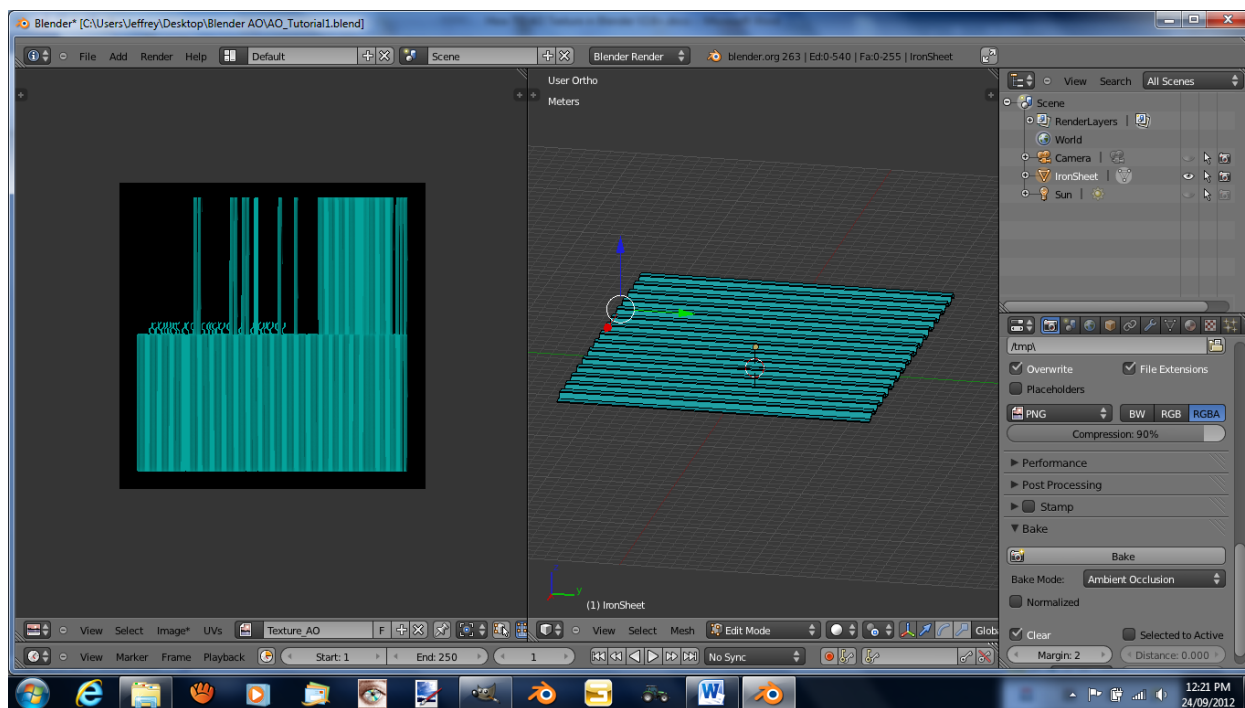


Fig-28.

If your Texture in the left window is mostly Black or completely Black and does not look like Fig-28. Then you have your polygon faces in the wrong direction and need to flip all of the polygon faces (normal) and re-bake the texture.

If your Texture looks like Fig-28. Then you have correctly created your AO Texture, we now need to save this texture (now would also be a good time to save your project if you have not already done so).

To save your newly created AO Texture, in the left window, click on “Image\*” as per Fig-29. And from the menu, select “Save Image As” or just click F3 (with your mouse cursor in the left window). Fig-30.

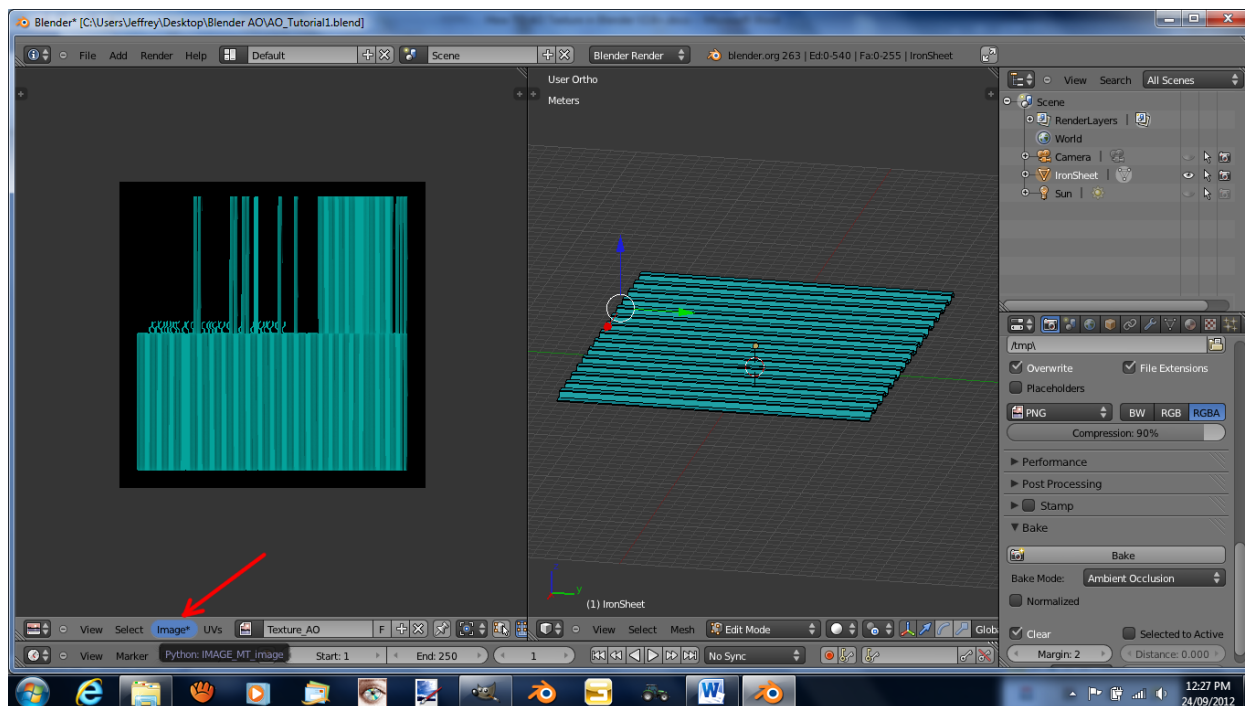


Fig-29.

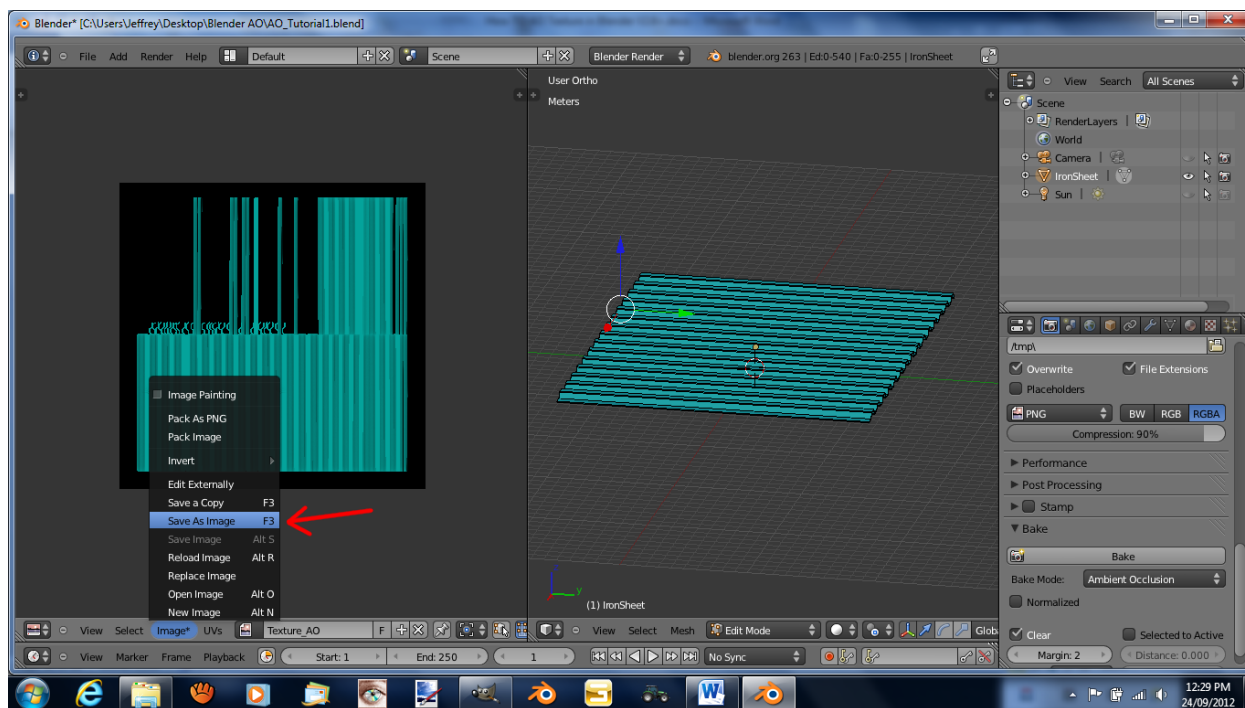


Fig-30.

Save your image to the same folder that your project blender file (supplied with the tutorial) is and save it as **Texture\_AO.png** (save the file as a .PNG file as this will allow you to reduce the image down in size after you have created your i3d file without loss of detail, **DO NOT** save as a .JPG file).

You have now created and saved your AO Texture. All that is left is to apply the texture to the model, save the file and output/export as an i3d file ready for use in Farm Simulator 2011.

To do this, we need to ensure our cursor is in the right window and press “A” to select and activate all polygons as before, click on our Texture tab and ensure that we tell Blender the correct Texture data to display. Fig-31.

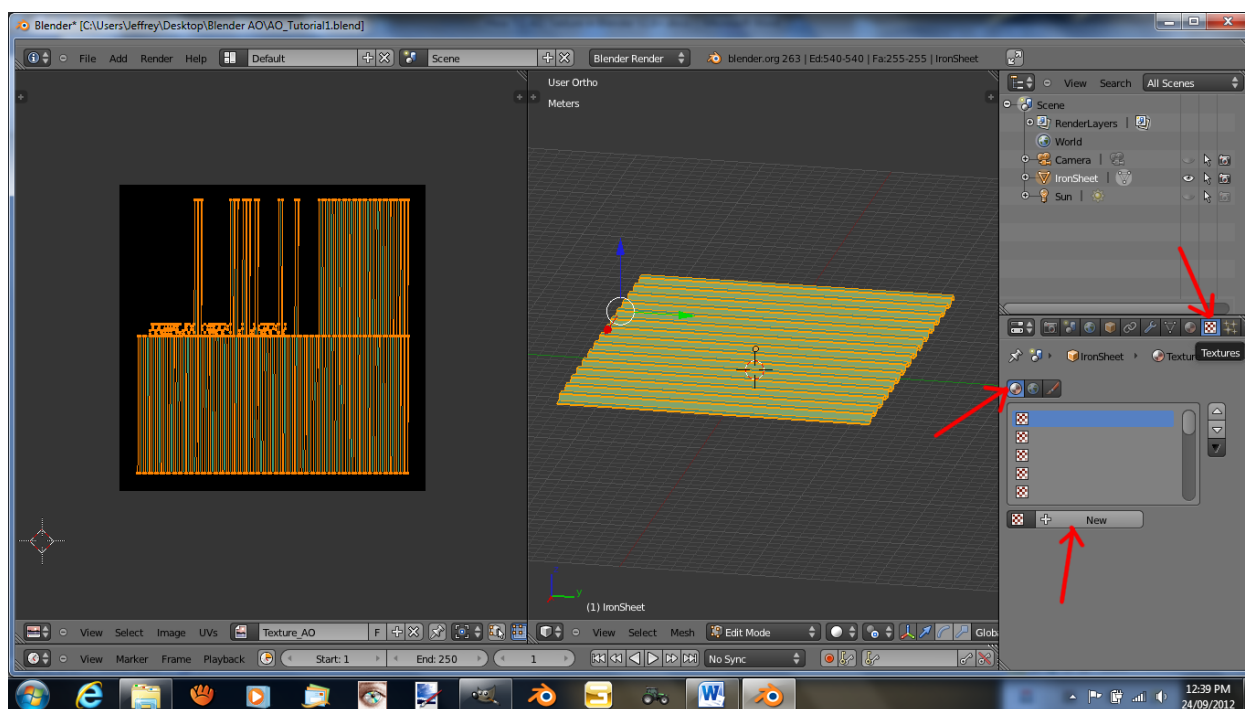


Fig-31.

From here, click on “NEW”, your menu will change to Fig-32. From here, click on the tab showing “Clouds” and from the popup menu, select “Image or Movie”, Fig-33, then click on lower button “Open” and browse to where you have saved your texture.

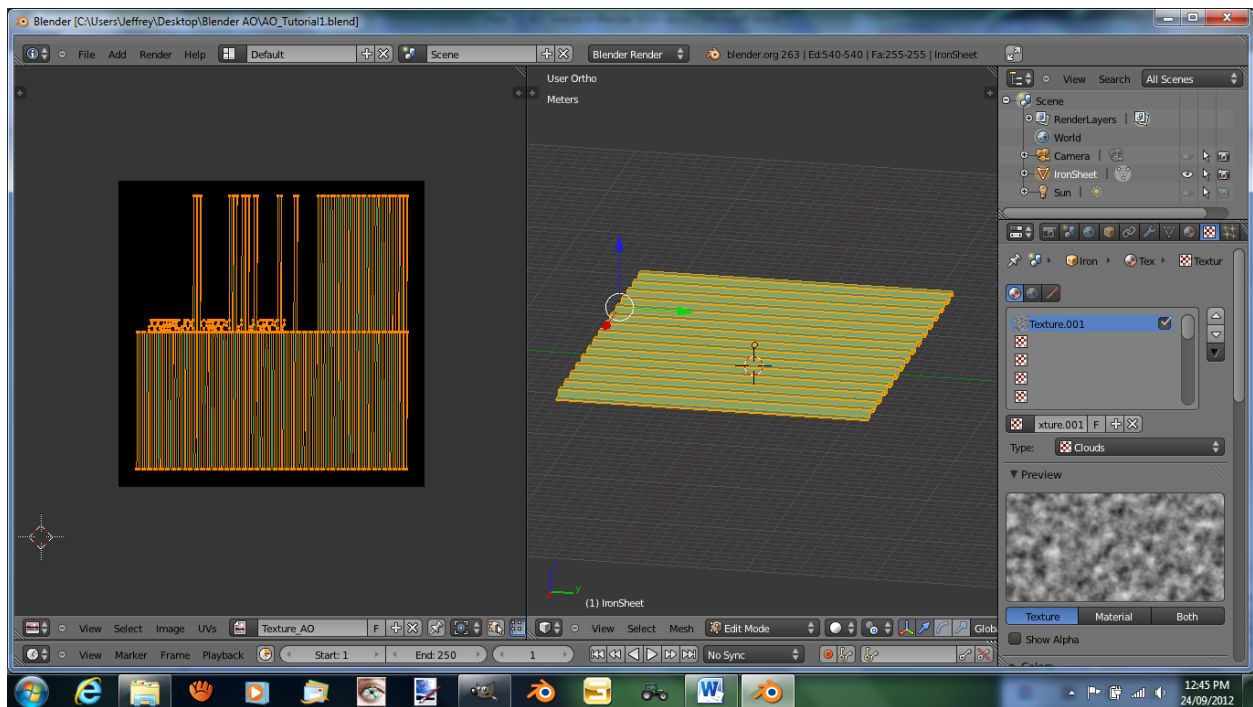


Fig-32.

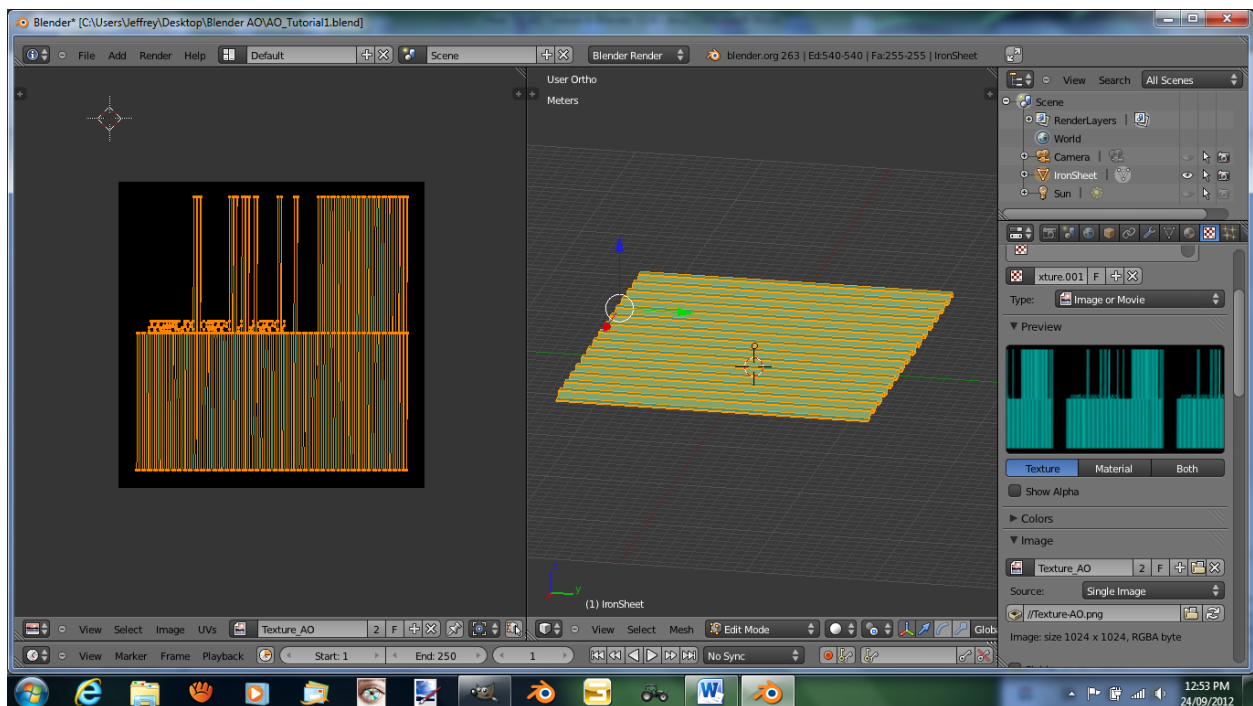


Fig-33.

From here, scroll down the menu until you see the “Mapping” tab as per Fig-34.



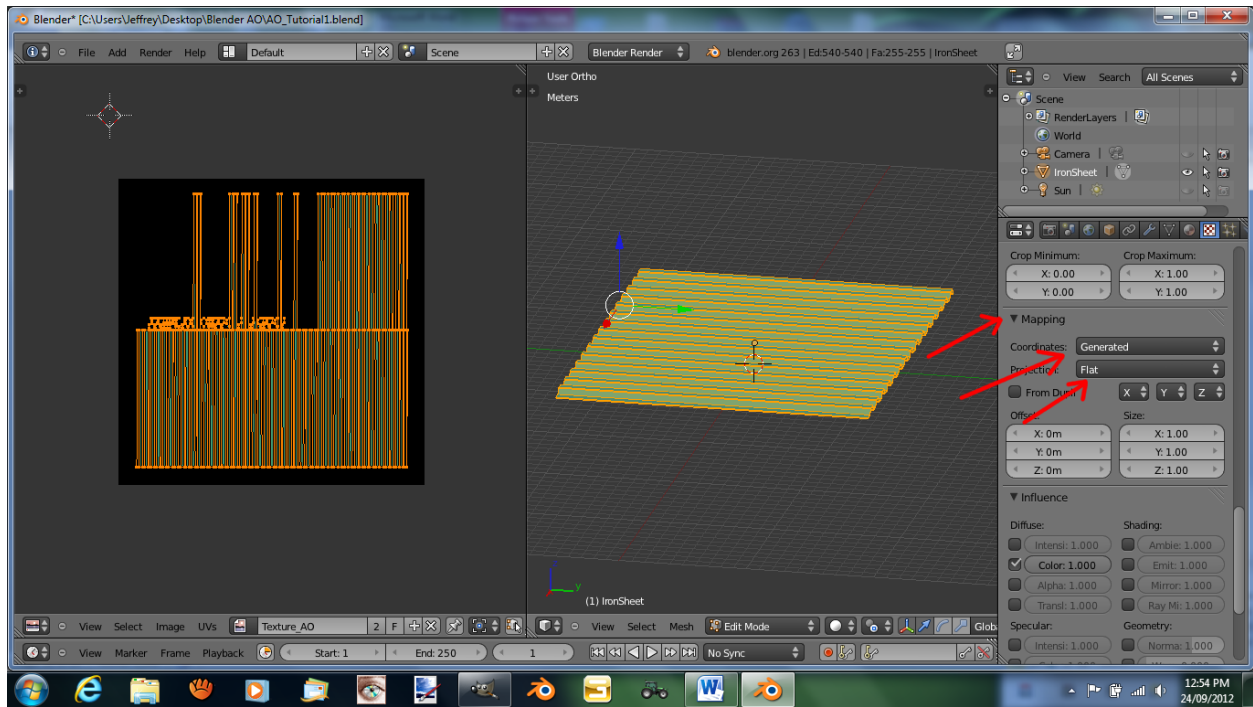


Fig-34.

As indicated in Fig-34, you have navigated to the Mapping tab, click on the word “Generated” and from the menu that appears, choose “UV”, under where it has changed to “UV” click on the word “Map” and choose the option “UVMap” (it should be the only option available). Fig-35.

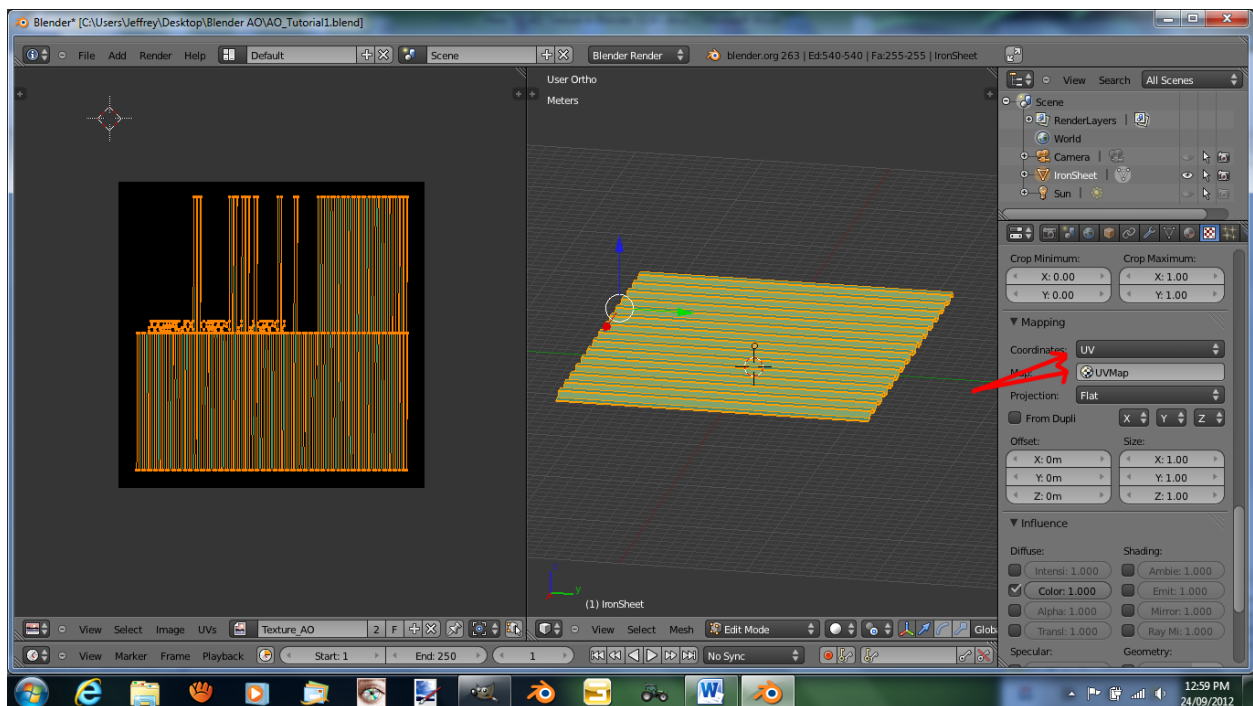


Fig-35.

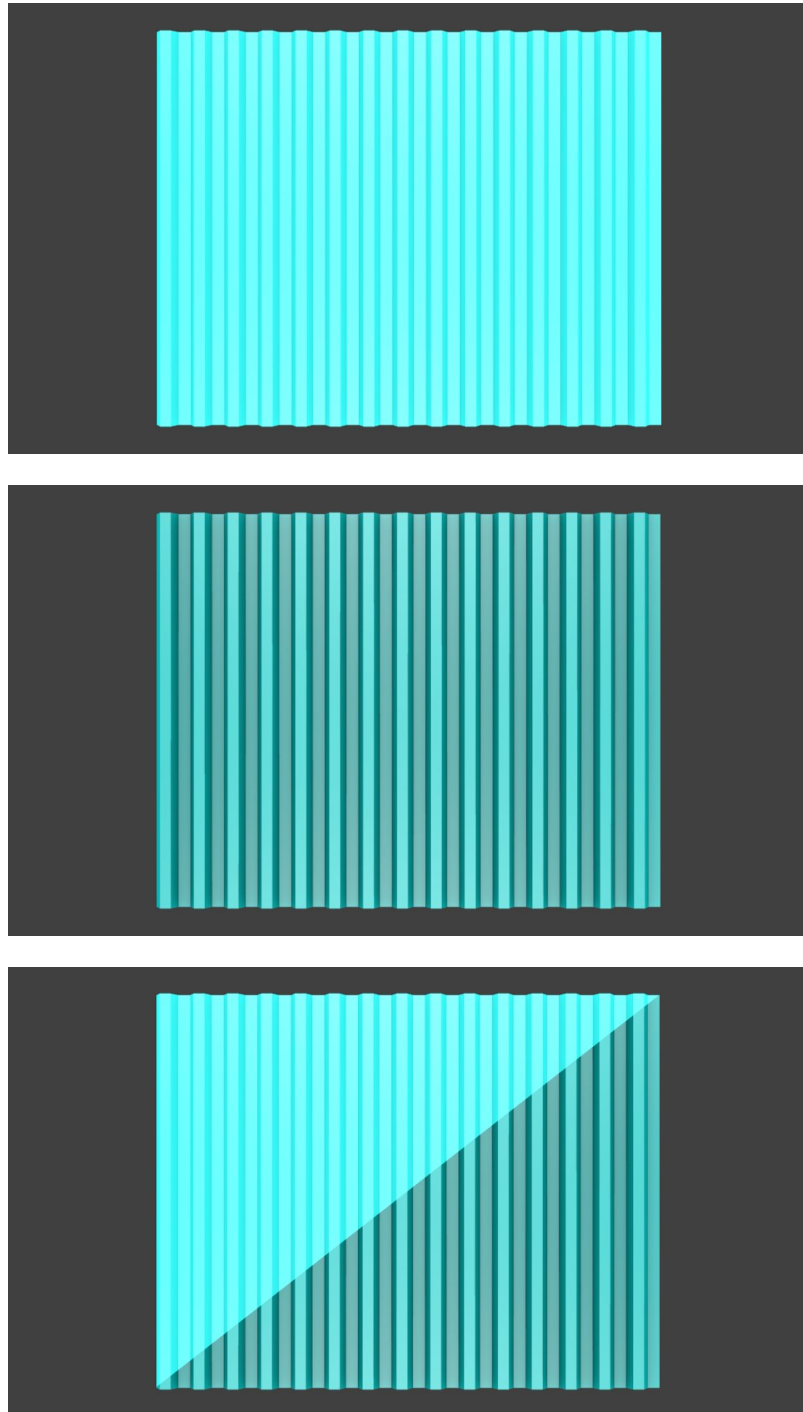
You have now mapped your texture to your image, now **SAVE** your project.



From here you can close the left window and from your work window, revert to “Object Mode”, ensure your object is selected, press Ctrl+A and choose “Rotation and Scale” then export your object as an i3d file ready for use in Farm Simulator 2011 and GE.

Here are screen shots of your Object with a material applied, a material applied with an AO texture and a split shot to show you the difference. You will be able to see how, by the use of an AO texture, you create the optical illusion of depth and shape by the clever use of shadows.

One thing to think about is, the use of shadows is how we actually perceive both, depth, motion and shape in the real world. Without shadows, we would be unable to discern shape, depth and motion.



**I hope you have found this tutorial helpful and enjoyed the process, some of you may have found some of the steps a repetition of your current knowledge or skill set but I have tried to encompass everyone regardless of their level or skill set.**

**Some things to consider, this tutorial has only encompassed a single texture. You can create multiple colour AO textures by having multiple material colours set to your object (polygons have a different material colour applied to them) and you can create an AO texture to multiple Objects within the working viewport onto a single AO texture.**

**If you would like to see a further tutorial on how to do this, please contact me at the LS\_UK website and send me a PM.**