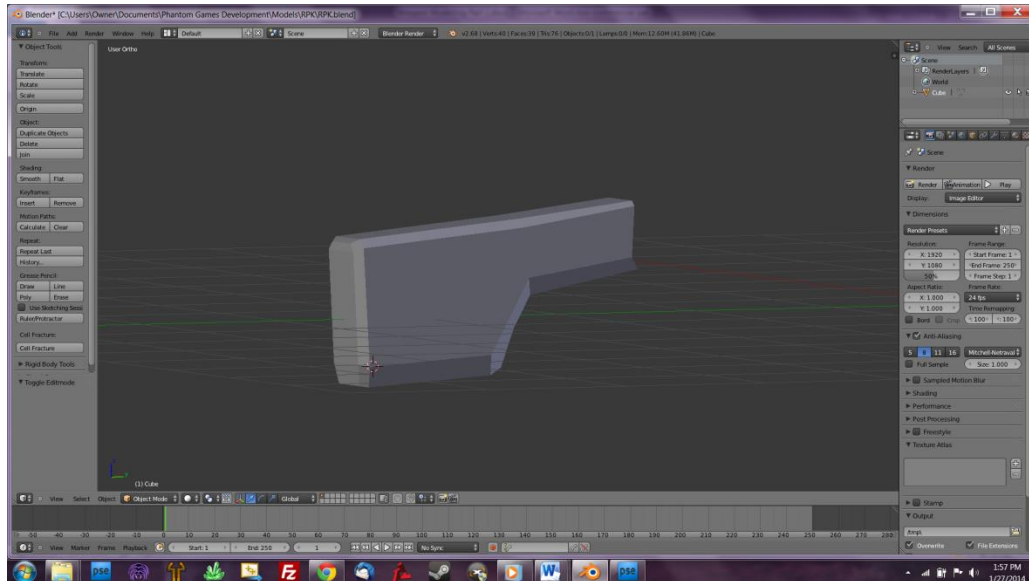


Advanced FPS Kit Tutorials

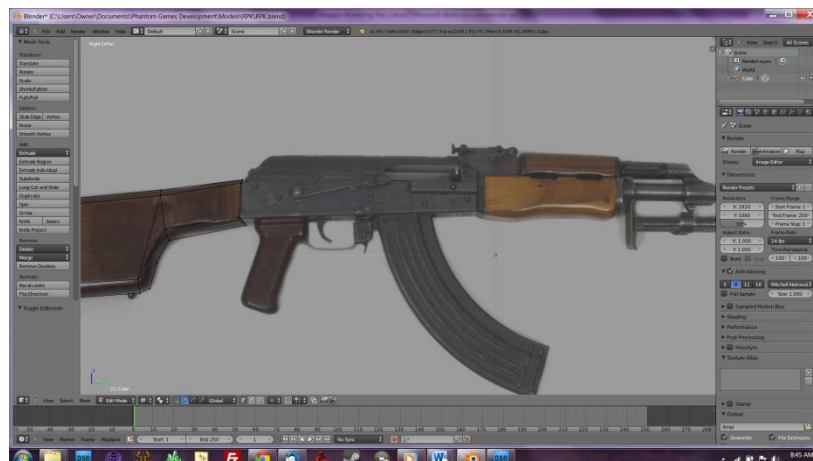
Weapon Modelling (Part 2)

Welcome to part two of this modelling tutorial. As you recall from last time, we were in the process of modelling a RPK machine gun and we completed the wooden back of the gun like so:



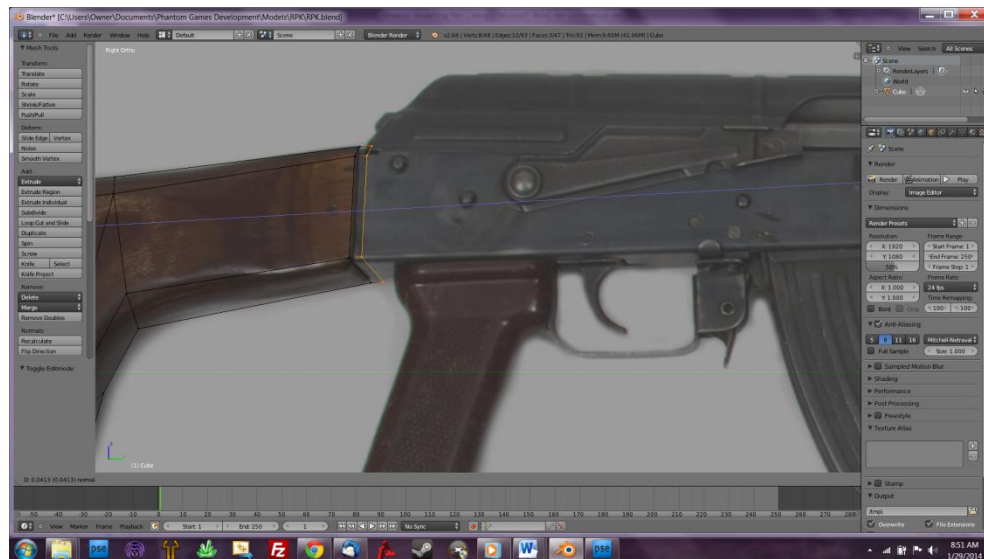
Part two of this tutorial is going to be less focused on hotkey teaching, and more focused on the technique, and fine detail associated with modelling weapons. I'll leave a few hotkey reminders here and there, but at this point, they should be starting to become quite familiar to you.

So, the next thing we need to work on is the middle interior of the weapon, mainly the metal part of the gun. So let's take a peek at what we have to work with:

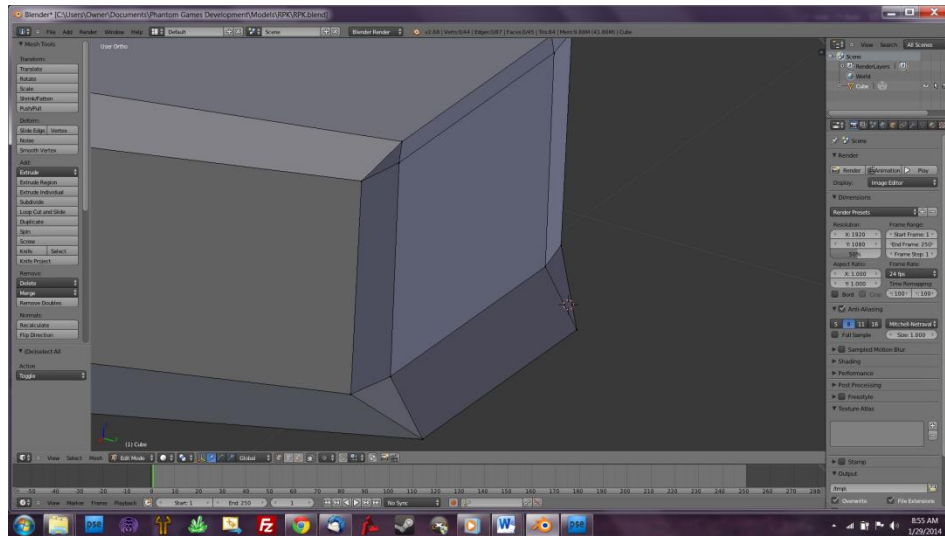


First, make sure you're back in Edit Mode if you're not (TAB), and turn vertex transparency (Z) on if it's not.

So, the first thing I notice here is the metallic portion on the bottom is flat compared to our wooden pieces which curve downward, that will present a little challenge. Next, is that the metallic piece has less "width" compared to the wooden piece. You've also got to be mindful about the top of the metal which does appear to curve, all of these, advantages of a good image as we discussed in part 1. We also have the gun's grip and trigger to deal with, but I'll come back to that in part 3. So, let's go ahead and start with the metal. First thing I want to do is get the bottom correct, so let's extrude our current side (E).



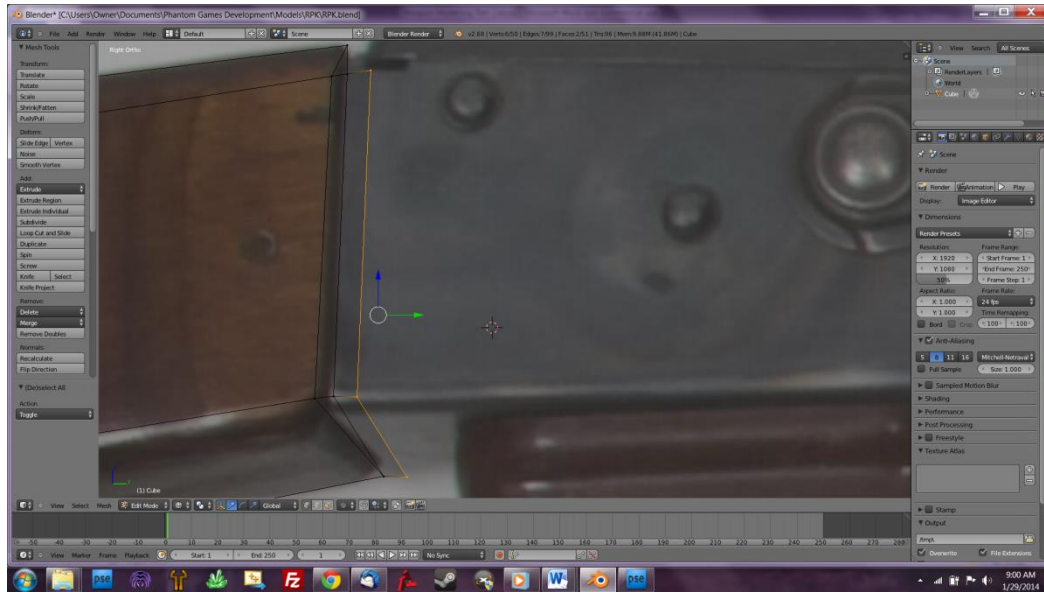
Now, one advantage we have from part one, is that there is already three different "widths", separated by our vertices. This will make the job a little easier to do. You will also learn that while having the reference image is nice, modelling can be an art of using the image to draw a shape, while using the custom angles to achieve the look. To get the look I need here, I'll use my custom angle.



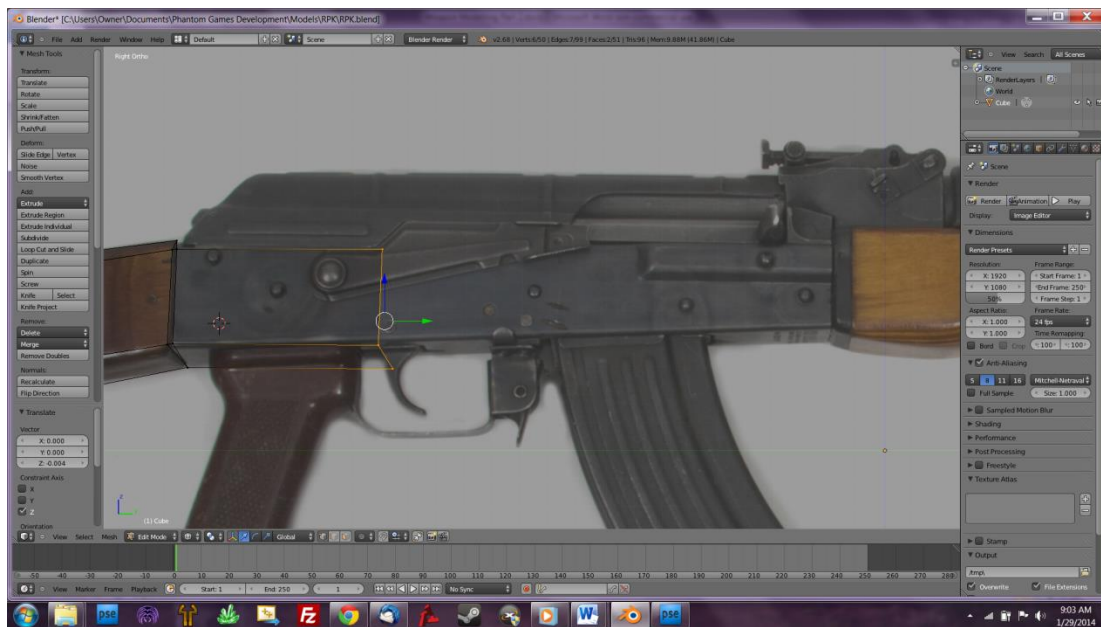
So, I've done a few things here. First, I leveled out the center of this to match the scale of the bottom and the top, to accomplish this, I simply used the scale tool on the 'x' axis (**S, X**). This fixes our little issue with the differing sizes. Secondly, I actually merged the two top and two bottom vertices (**Alt+M**). Returning now to the size view (**NUMPAD 3**), I have this:



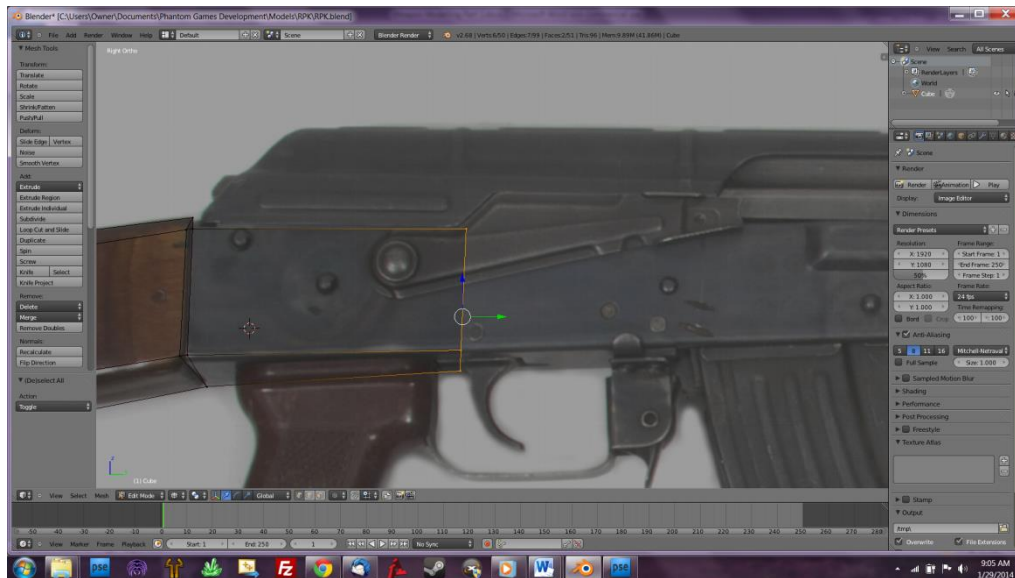
What I'm actually going to do next is rid myself of the top vertex for the time being and simply extrude all but that one, why will become clear momentarily.



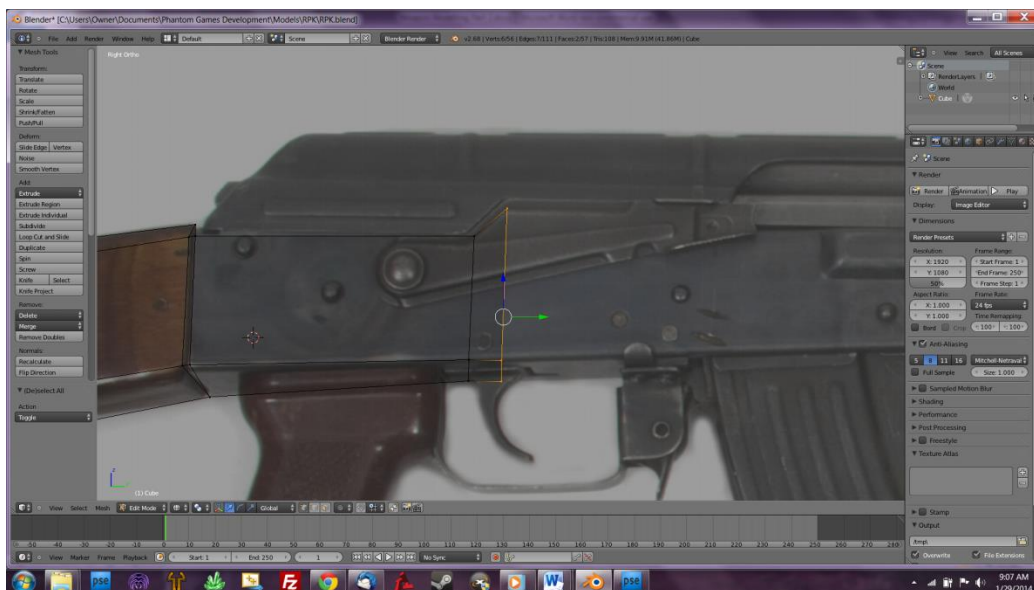
You should be able to notice in my image here, there's a little notch in the section by the top, so simply not extruding the top vertex while doing the others will suffice, This will also allow us to create our third (top) size layer for the curve later on, Now I'm just going to zoom out and drag the whole layer across just to a point.



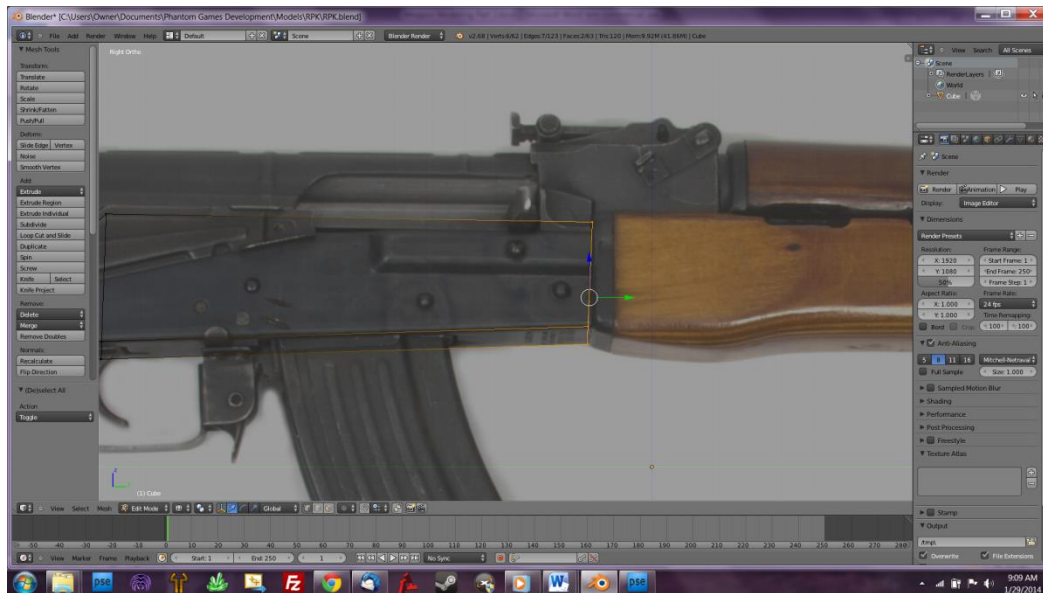
Now things get a little interesting. The top of our current layer now expands upward, while the bottom slowly moves up as well, I also see that my bottom is now outside the image and I need to bring the layer up to meet it properly. So, I'll do that first.



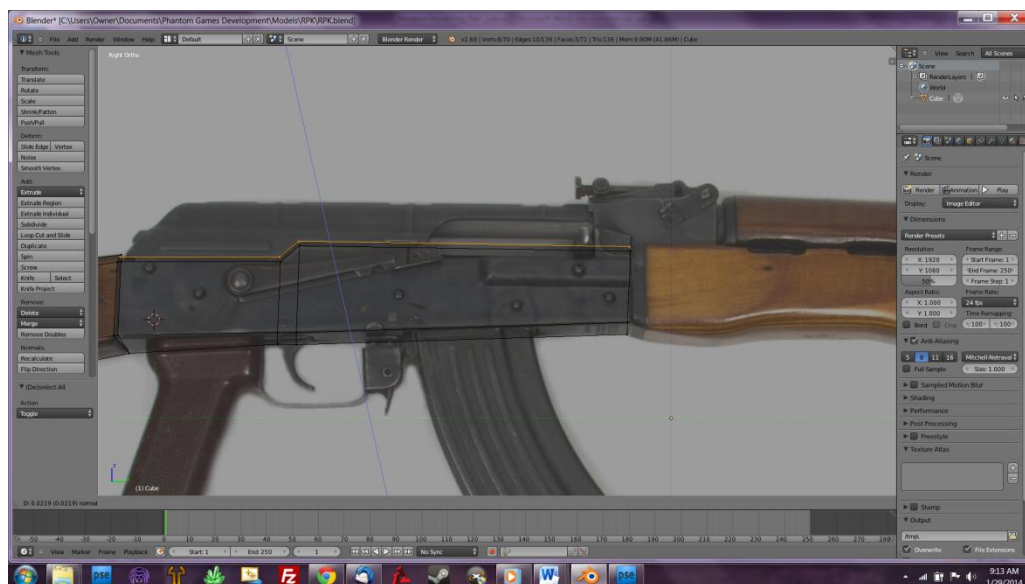
Now, I could simply continue dragging along, but to obtain that effect I'm looking for of the gun's metal top layer, I'll just make another extrusion at this point.



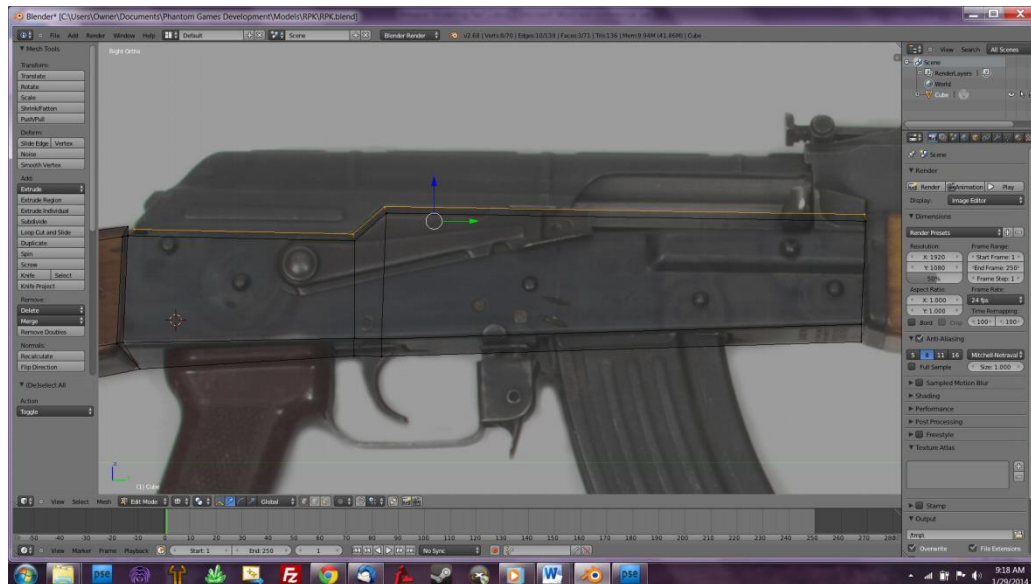
And then extrude and scale again, dragging it all the way to the end of the metal bounds as shown below.



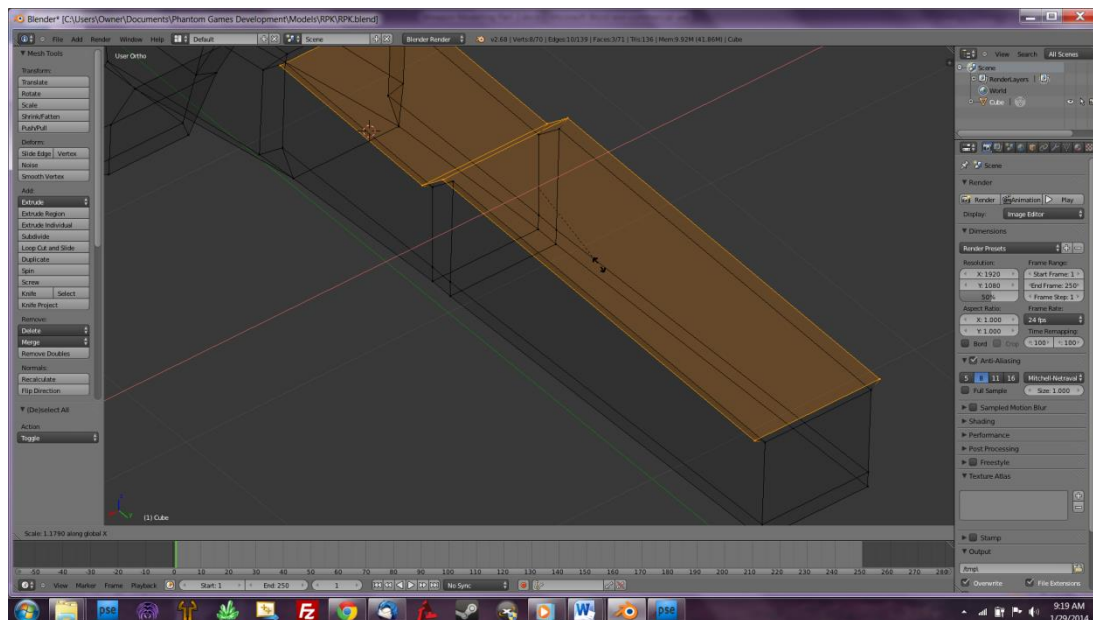
So, as you can see, we're going to have a little thing to consider later on with that re-chamber lever on the gun later on, for the purposes of a third person model, you really don't need it unless you're going for an extremely high level of detail. I'll leave that to you, you'll need some more tools to accomplish a good one, and I'll go into more detail regarding that in part 3. So, let's finish up that metal top. I'll now want to extrude the entire top layer of vertices we've created and only make a small extrusion.



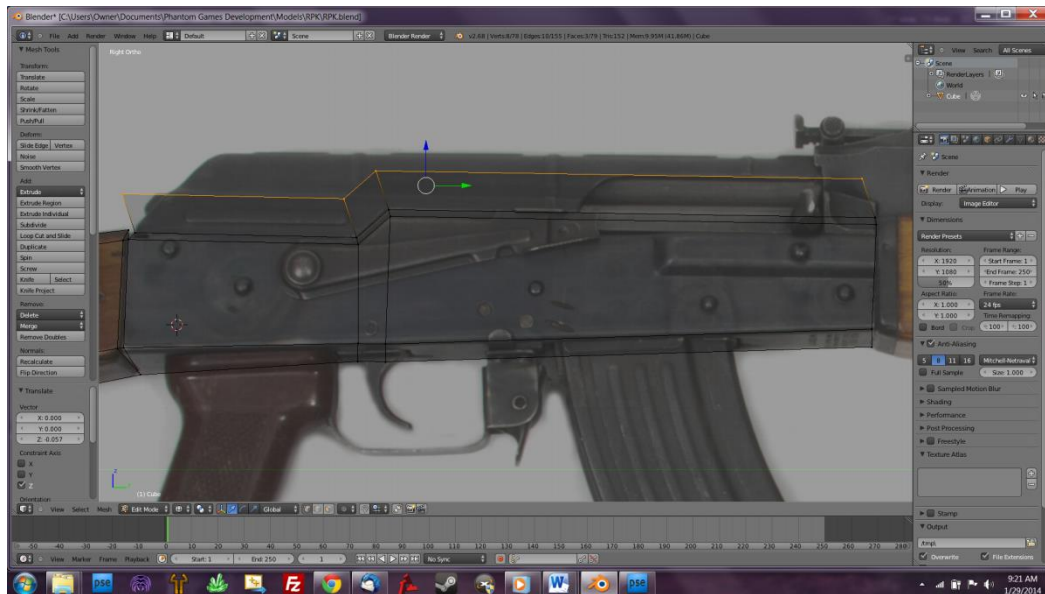
Now we're just going to quickly adjust the positioning along the current axis's, especially along the left side. Once you're done, reselect the top layer you just extruded:



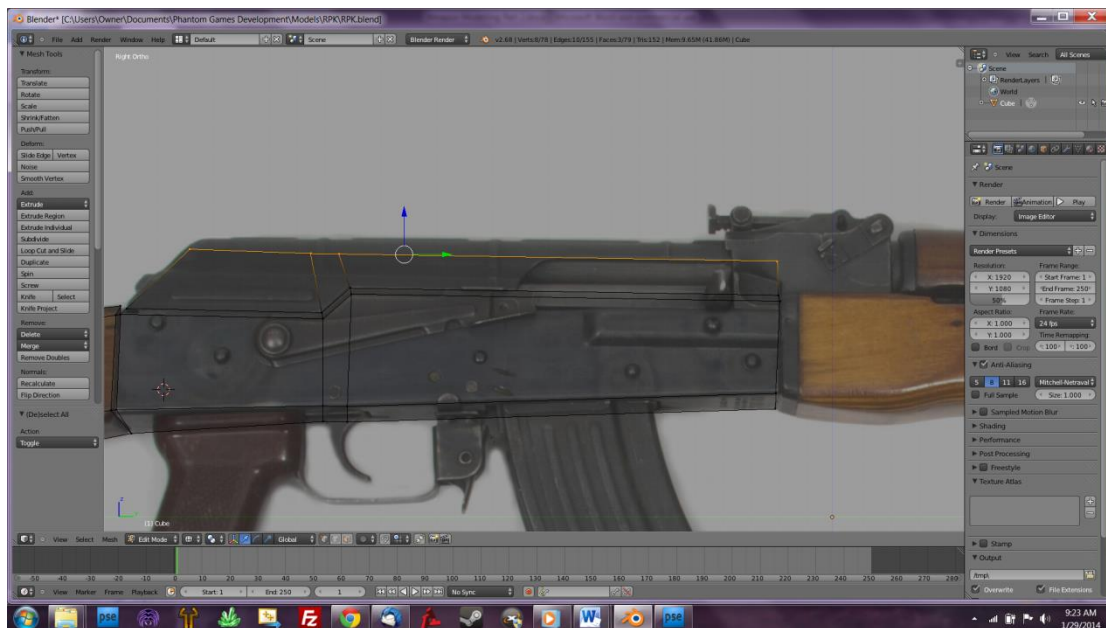
And now using a custom angle, increase (slightly), the scale of the X axis.



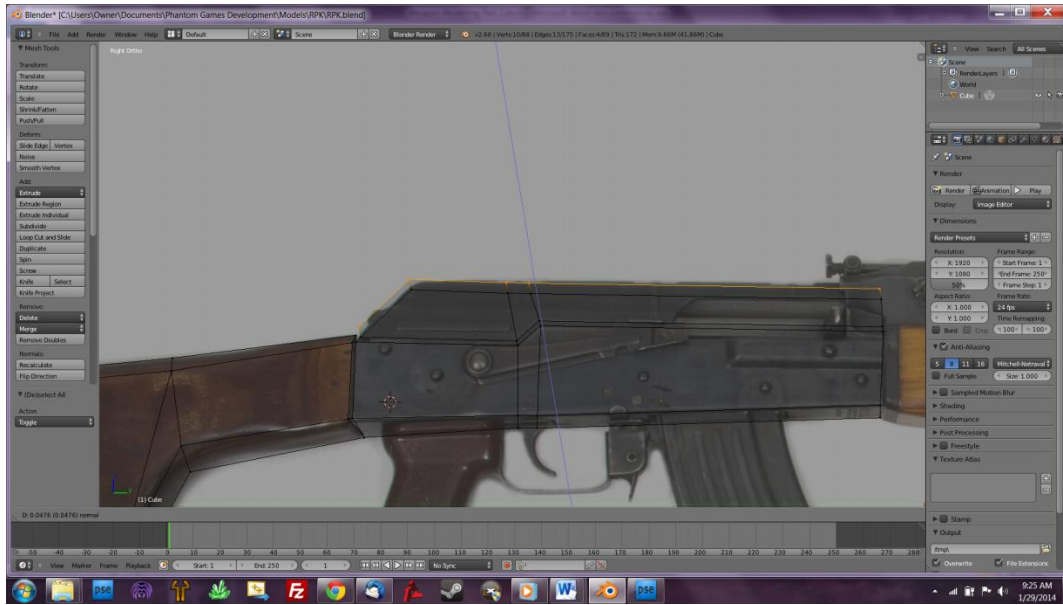
And now go back into the side view (No hotkey this time, you should know it ☺), and we're going to extrude (again). Drag the extrusion a good way up, but not all the way to the top, recall, we need to do a smoothing of the top (similar to the top and bottom of the wooden handles we did back in part one).



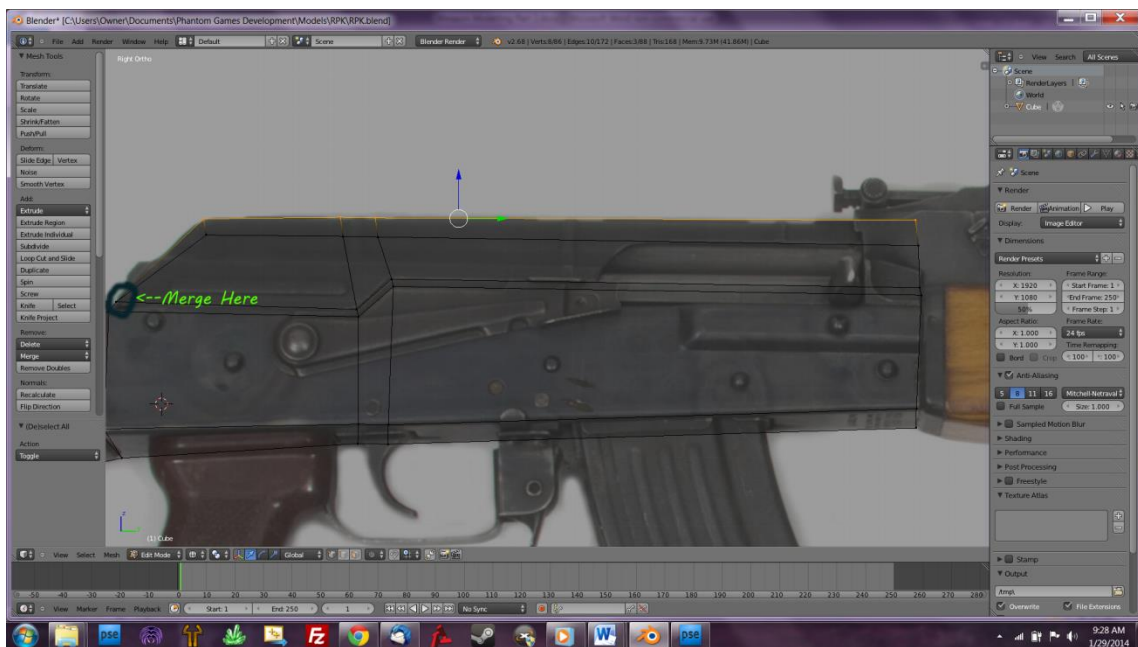
Adjust the position of the vertices to be more “fitting” to our gun. Don’t worry about the metal on the far right, we’ll get to that shortly.



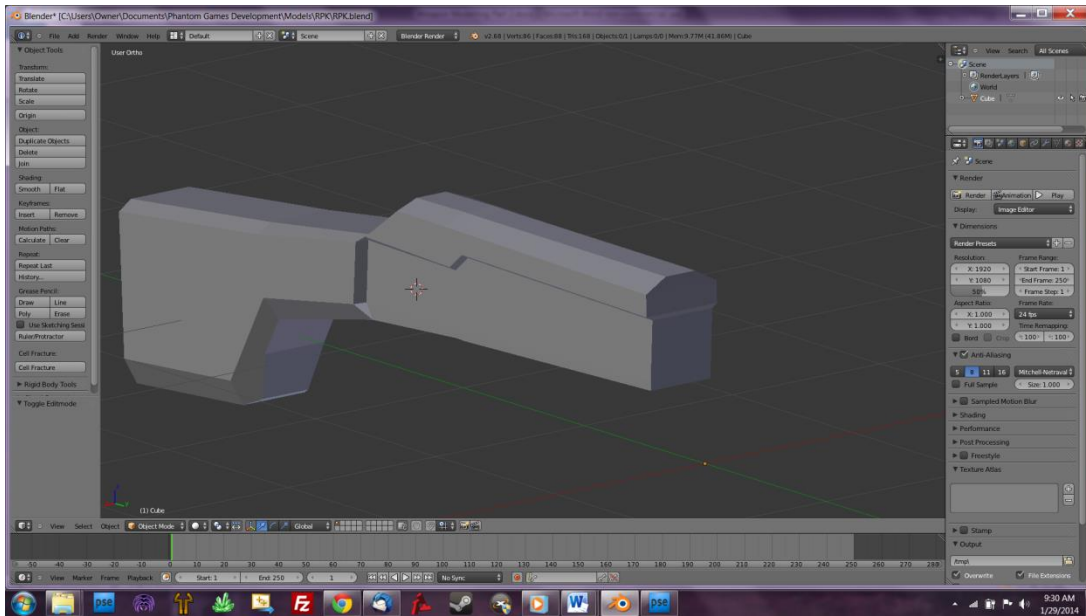
We now have a metal layer of the gun with a slight ‘x’ extrusion higher than the bottom, I also left a little bit of room in the back to smooth that as well, so let’s make another extrusion (select the vertex to the left of the leftmost one shown in that picture)



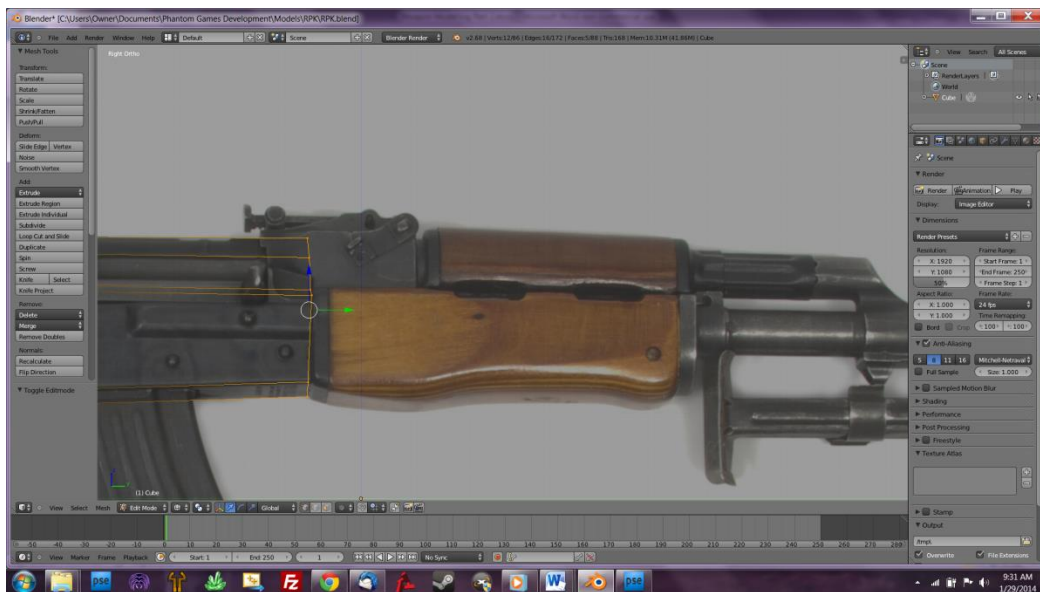
And now we're just going to move all of our vertices around a bit to fit the image nicely, I'm also going to merge the one on the bottom.



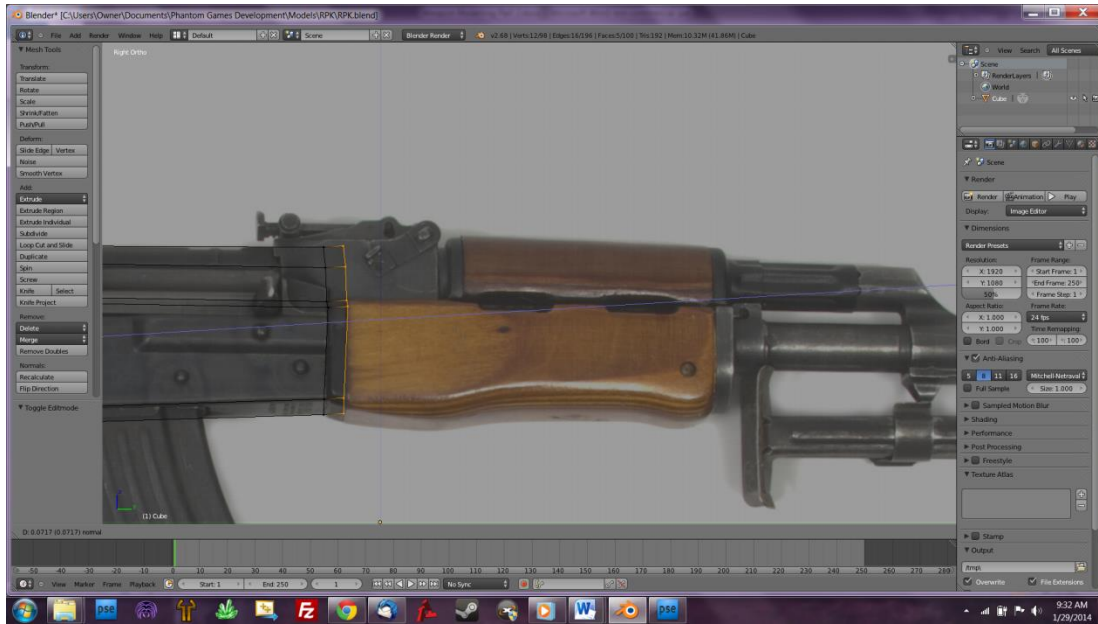
And now, using the custom angle, scale down the x axis to obtain that curved look, and once you've got that, you should now have something that looks a bit like this:



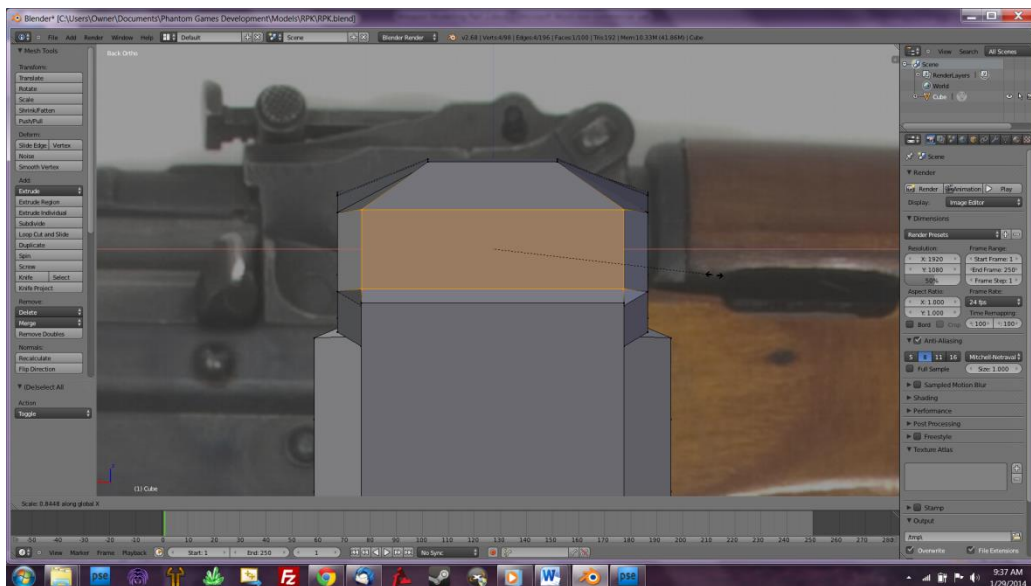
So far, so good! Now, head back to side view, and let's take care of the next part.



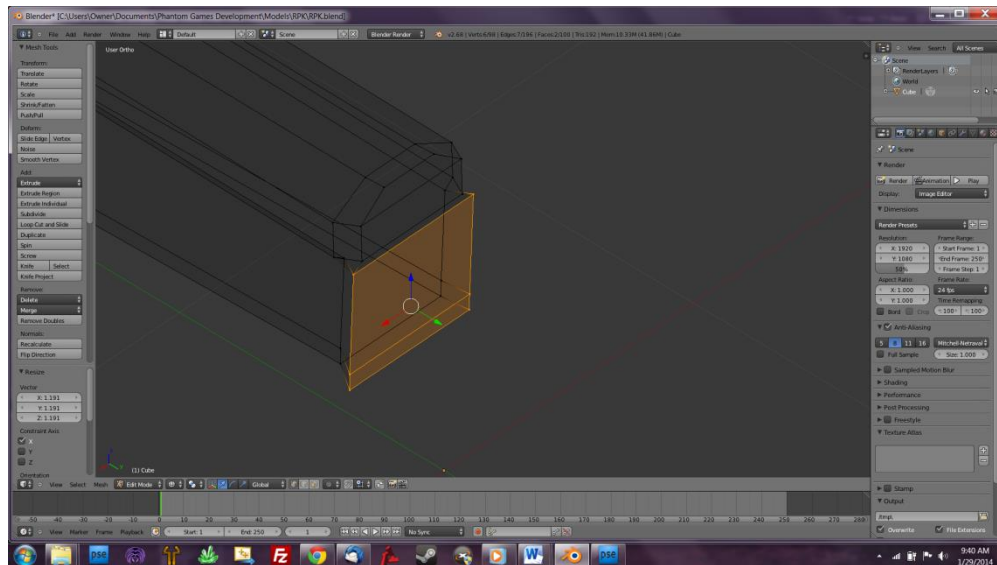
Now we've got a little bit of a trick going on here. As you can see, we've still got some metal left on the top, but now we've got some bigger wood pieces to handle here, this will introduce a little tiny problem to get by, but overall it won't be too difficult to accomplish. So, extrude to the right, and stop right where the metal meets the wood first.



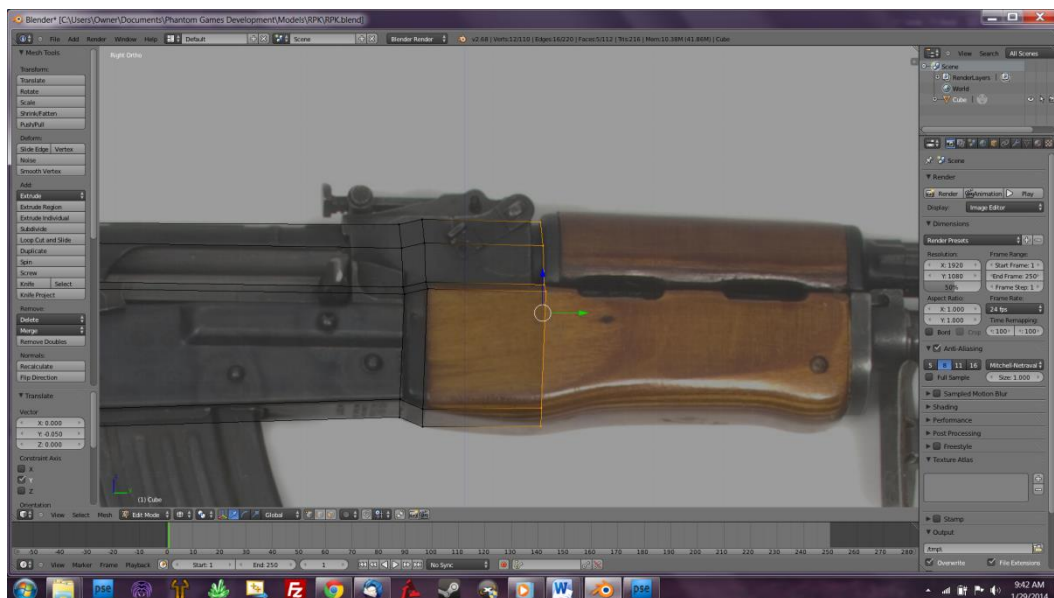
Apply prior knowledge to fix up the vertices to be in their proper locations (also, I'm going to completely ignore those small metal parts on the top). Next thing we need to notice is that the wood is "bigger" in width than our top piece, so let's get that done now. You'll a new angle to accomplish this, the "back" view (**Ctrl+Numpad 1**). What I've done here is simply bringing the piece we grew in 'x' before to accomplish that near looking grove back down to match the old scale.



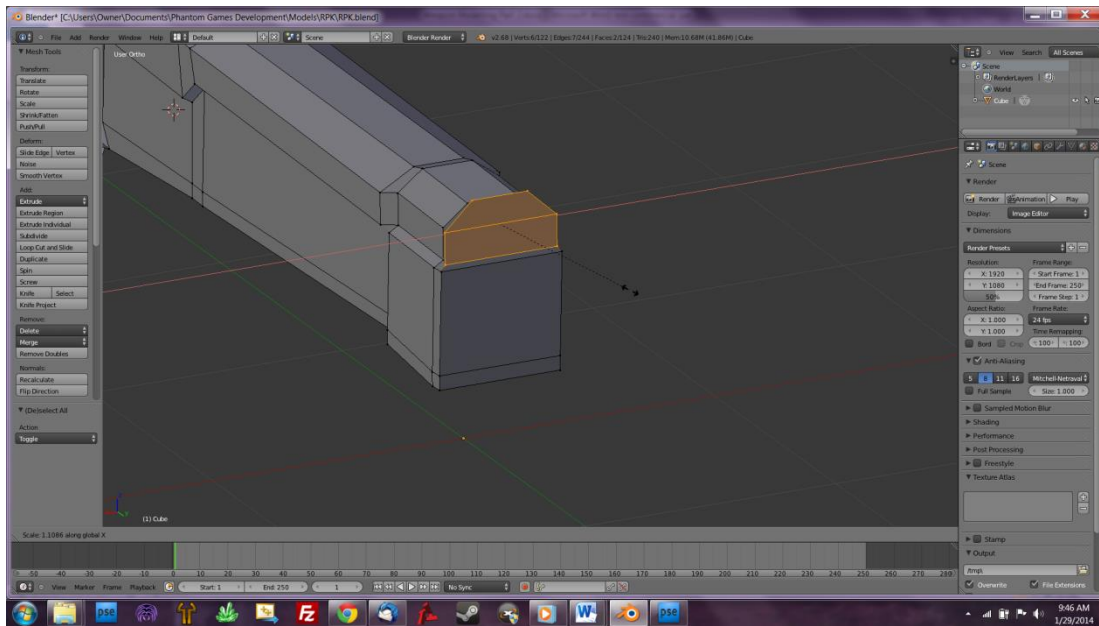
Now, we'll move into a custom angle and grow the other pieces along the 'x' axis (grow is another term for scale).



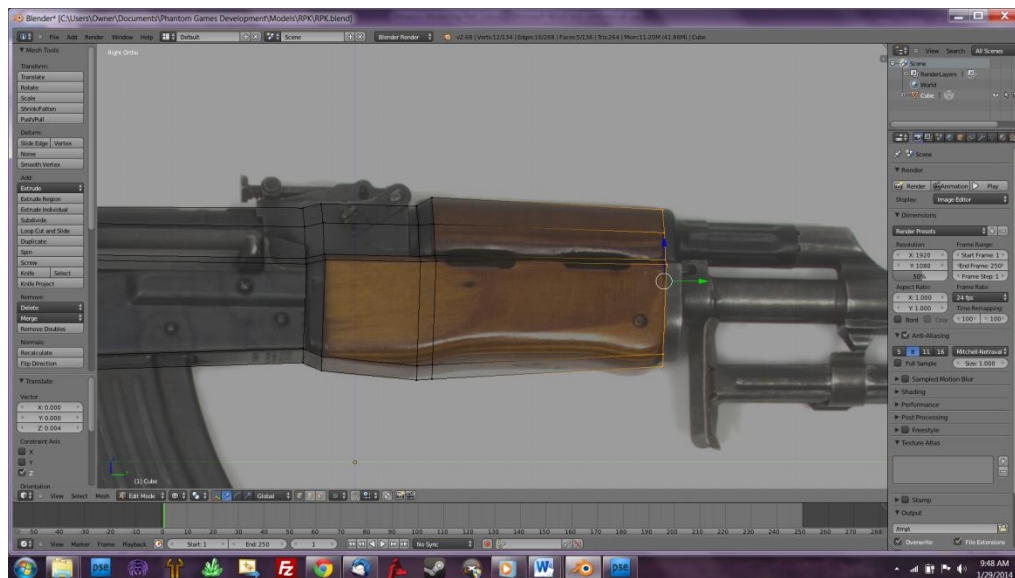
Now, go back into side view and extrude the layer up to the point where the top metal starts to grow (we'll get there), from there you know the whole vertex adjustment drill.



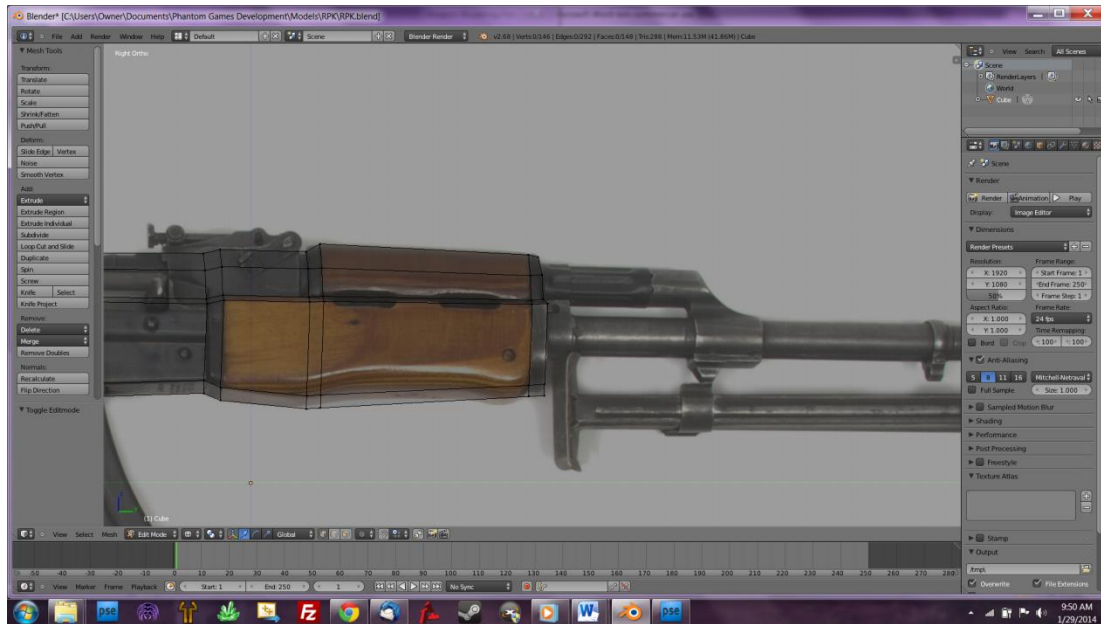
Now, the top is going to “grow” the meet the scale of the wood on the bottom. Also notice there’s holes in the wood there. If this were a high quality model, I’d show you how to do that, however, this is a third person model and that won’t be too much of a problem to handle. So go ahead and adjust the vertices and then make the next extrusion to where the last of the metal becomes wood. Since you’re already getting good at this stuff, I’ll skip the picture of the extrusion. Select the top three vertices and scale them along ‘x’ to obtain the metal becoming wood scale:



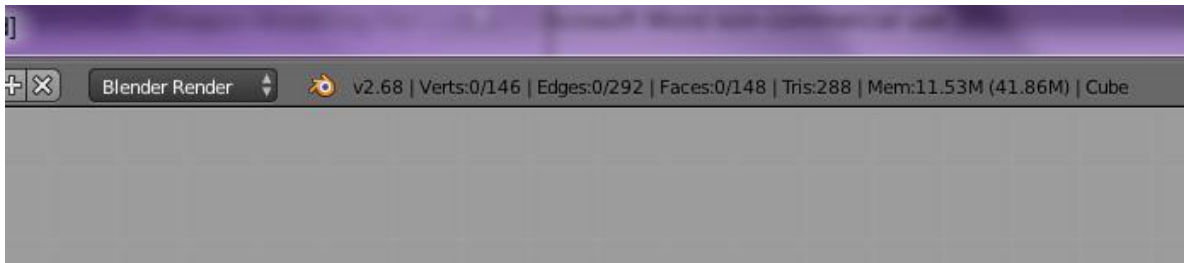
I kept the scale of the top a little smaller than that of the bottom, how you handle your own version is up to you. Back in side view, extrude to the end of the wood.



And then we'll make another extrusion for the metal part.

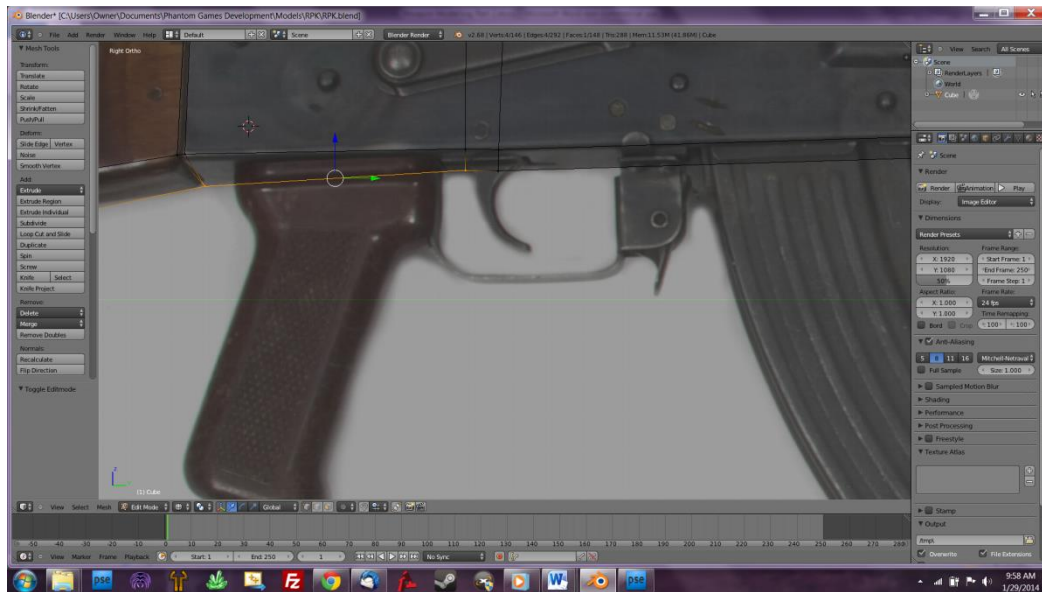


Now before we move on, we need to talk about two different things. Up until this point, we've been extruding and scaling the same cube. This is perfectly fine for the application but now I need to introduce a new term, Poly-Count. The Poly-Count of a model is how many polygons the model is using. The higher this number is, the more calculations Torque needs to render it. Basically, really high quality models take a ton (and I mean like 50K – 100K+) of Polygons. So far, we've been doing a very... very.. good job.

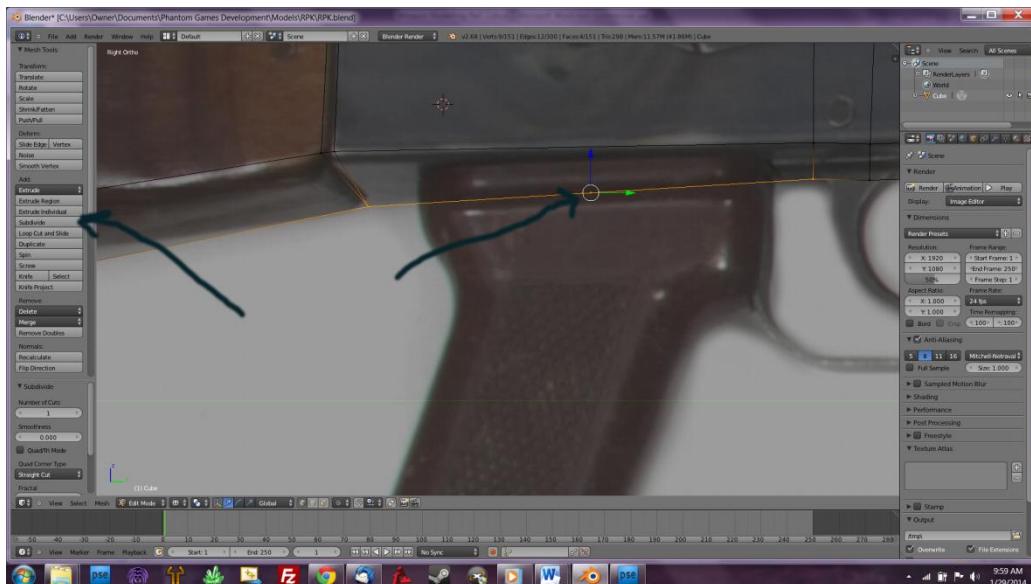


At the top of your screen you'll see these numbers. The Poly-Count of our model is currently 576. For our purposes, assume its Tris*2. For a good third person model, you want to keep this number as low as possible, usually below 5000 is good.

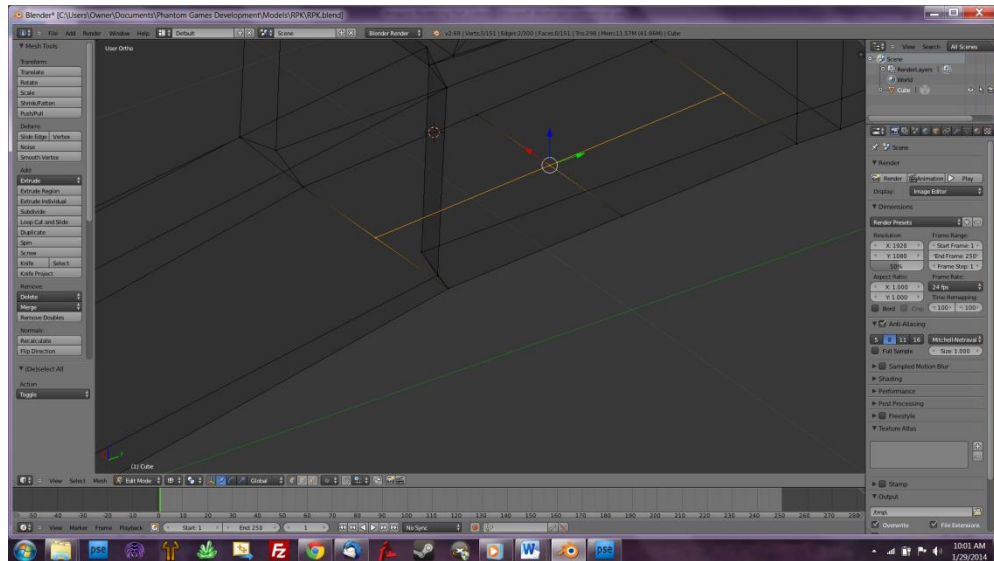
Now before we jump into more advanced crap, which is what the next thing is going to require, we'll finish off the easy parts of the model and to do this, I'm going to teach you a new tool. You may recall back in part one when I first introduced merging, I briefly mentioned the opposite of merging, which is Subdividing. In order to do the weapon's "grip", we're going to employ this tool. Move on over to the grip on the image and select the two relevant vertices:



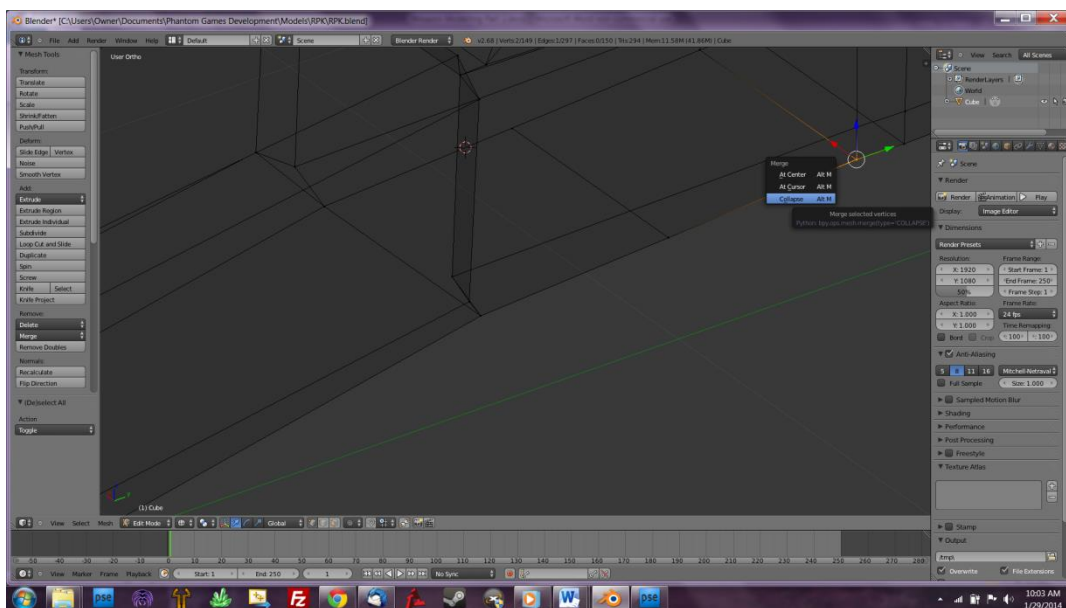
On the left side of your screen you'll see the Subdivide button, click it one time. You'll get a new vertex in the middle of the selection.



Now, the important thing about the subdivide tool is that it creates vertices along all relevant axis's, so now we have new x and y vertices, we only need the "one" in the middle, so head over to the custom angle below and make the selection:

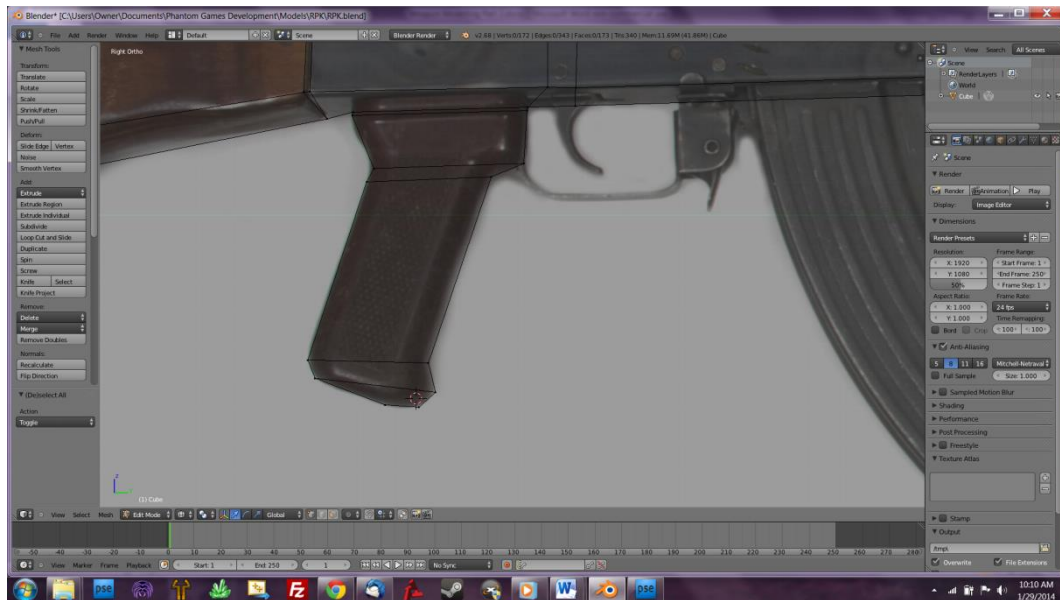


Drag it over to the right edge by the other nodes, and one by one either merge at center or use the Collapse option in the merge (they both will do the same thing).

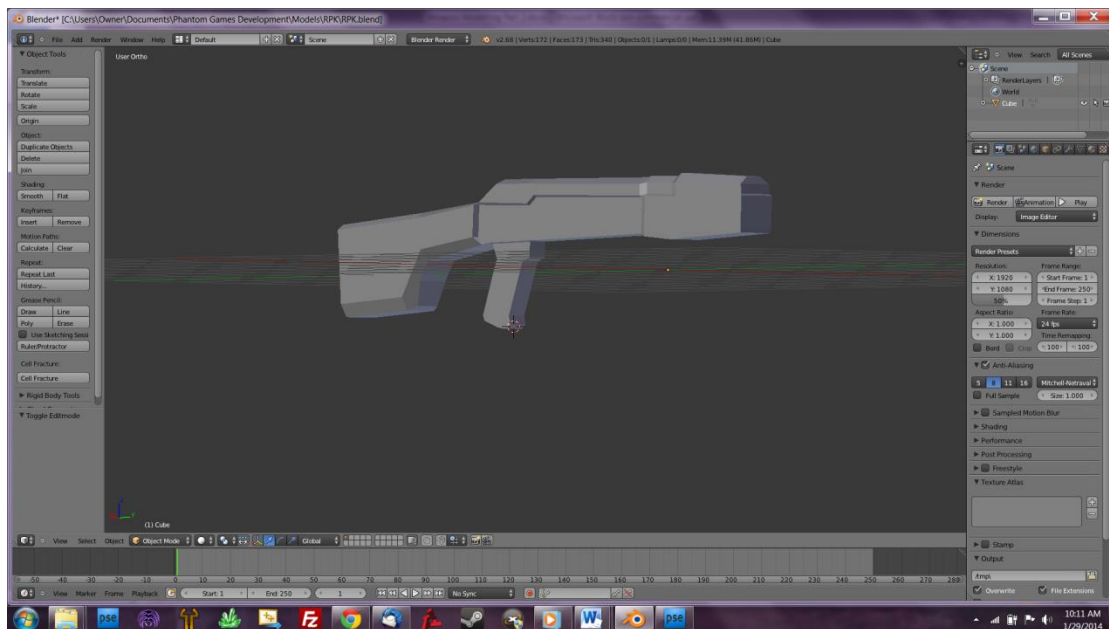


Now back in our side view we're going to drag our two right-most vertices to the edges of the grip, and then extrude down slightly.

And lastly, make a few more extrusions going down to complete the grip of the gun.



Now our gun looks like this:



In the next tutorial I'll finish up this model by teaching you some more advanced tools and help you prepare the model for the final steps of this tutorial.