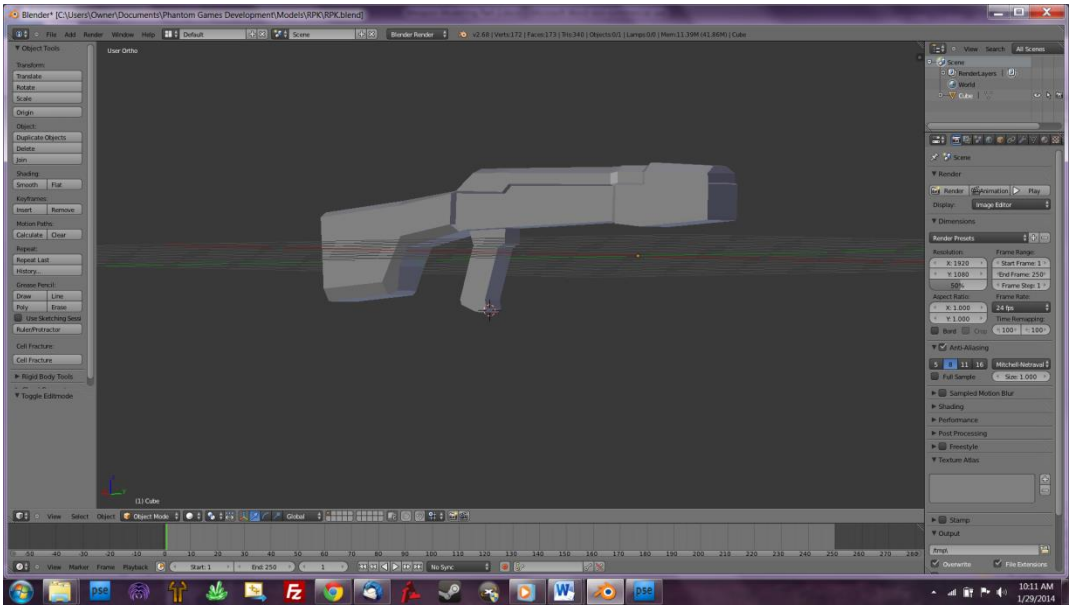
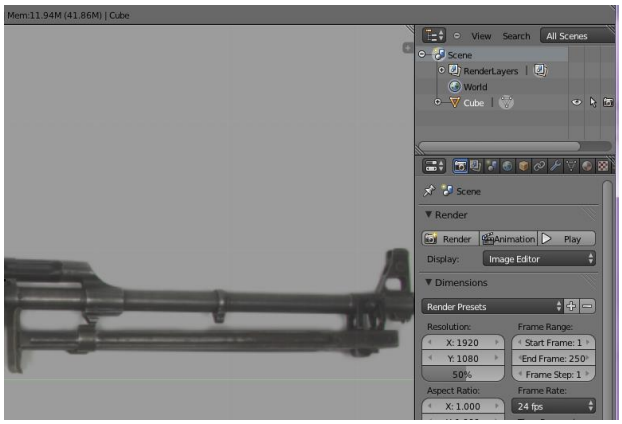
Advanced FPS Kit
Tutorials
Weapon Modelling (Part 3)

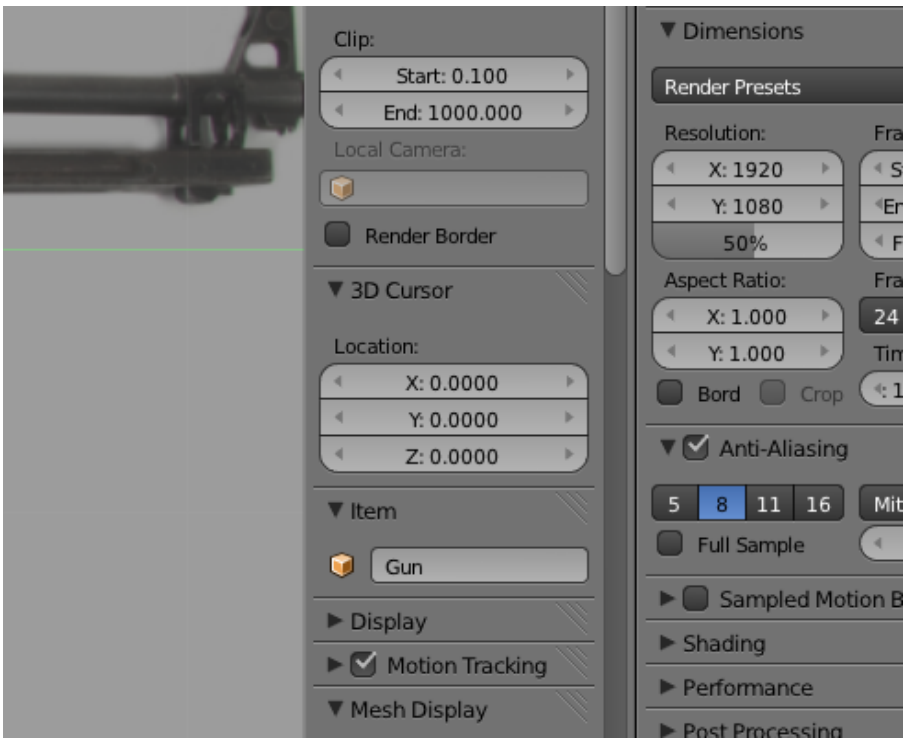
Welcome to part three of this modelling tutorial. Last time we completed most of the model by means of the tool presented in part one with a few new introductions. You should now have completed most of the generic shape of the gun with a few notable objects missing. We finished off last time with this:



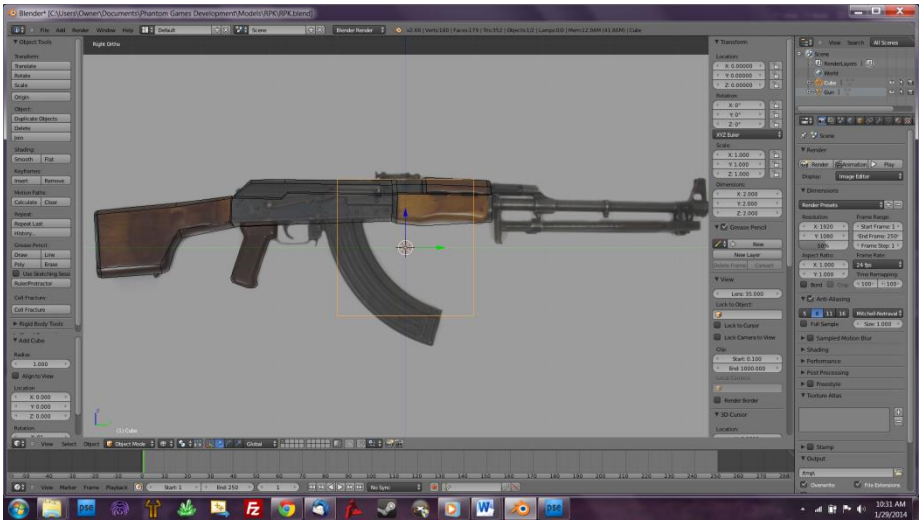
Now, this part of the tutorial will really dig into some more advanced stuff that will require some more hotkeys, menus, ect. The first thing we're going to do is introduce the concept of Groups. Groups are simply objects that are as stated grouped together, in terms of meshes, our current gun is a "Group" of cube meshes. Now, I want to create a new group for our gun's Clip. But first let's introduce the location of this option.



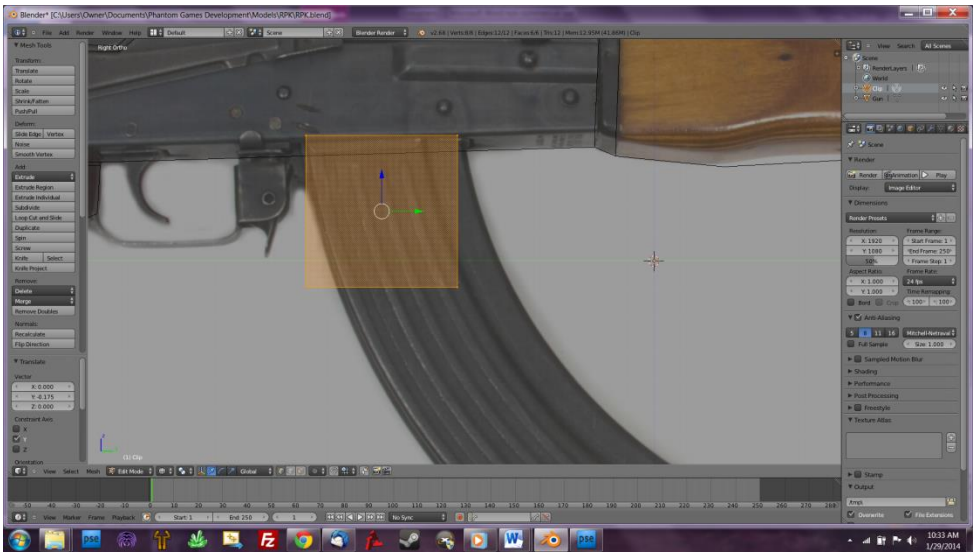
Yep, that's right; you've been staring at it for quite some time now. Our current group "Cube" has been used for our current mesh, but that's boring, so I'll change the name of it to gun (Right click it and select Rename). Now, unfortunately for myself, I went and committed the cardinal sin of Blender by left clicking when I was doing the last tutorial (slaps self). If you do the same, there's an easy way to fix that. Press N to re-open our edit menu we had earlier, and you'll see a nice little "3D-Cursor" option which you can type in 0 on X, Y, and Z, to get the cursor back at 0.



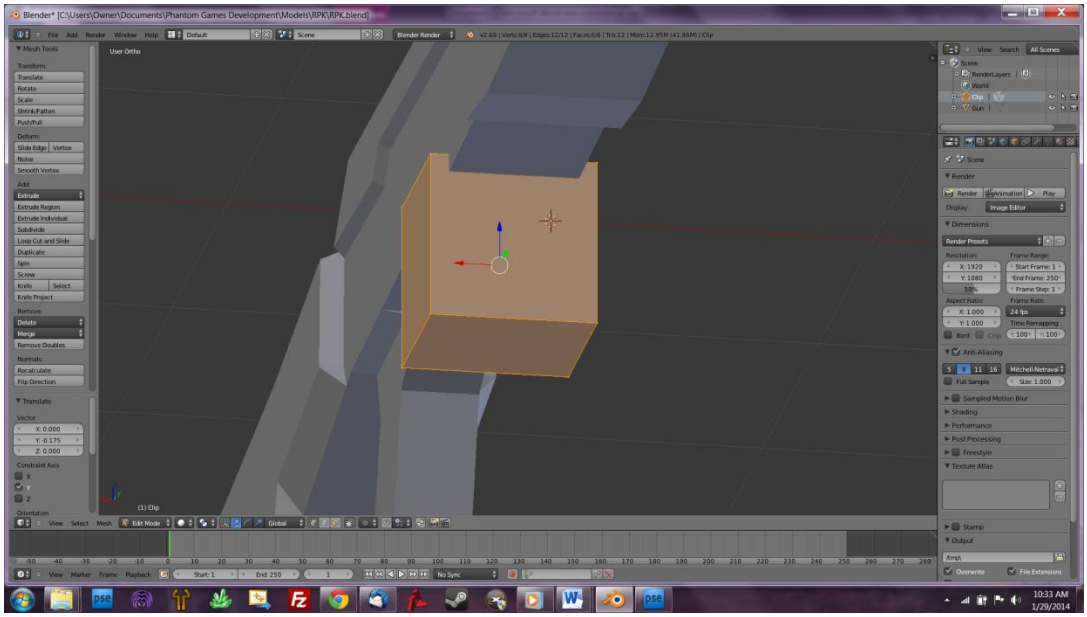
Now, onto group making! Flip over to object mode by pressing TAB. And we'll use our mesh add command from part one (Shift+A) to add another cube mesh.



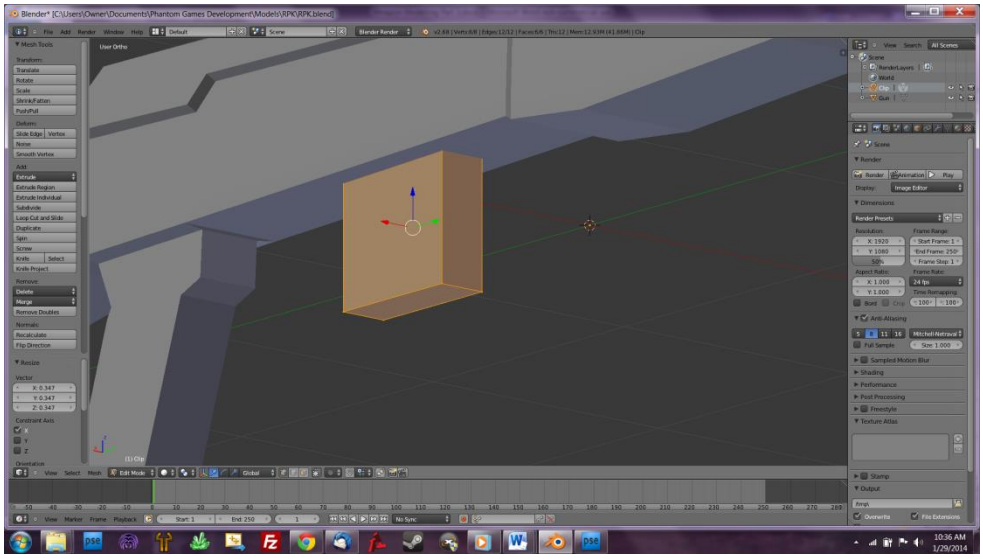
Notice how I now have two different groups in my list. Rename the second to clip, and flip back to edit mode by pressing TAB. Following our practice from part one, I position and scale my new cube down to size.



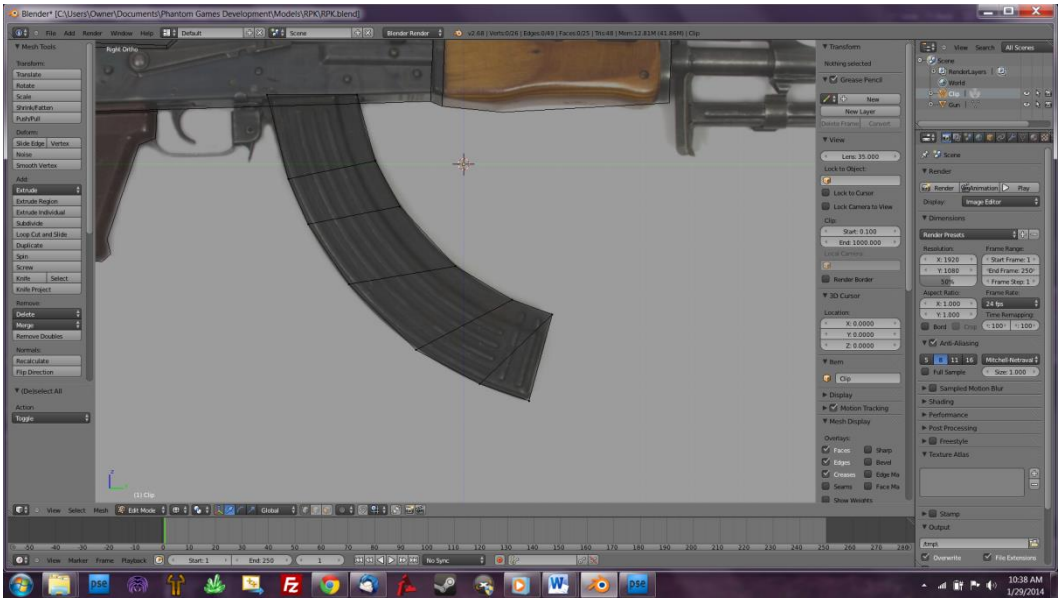
Now, as it stands right now, we have a very silly little problem, I'll let this picture show you ☺



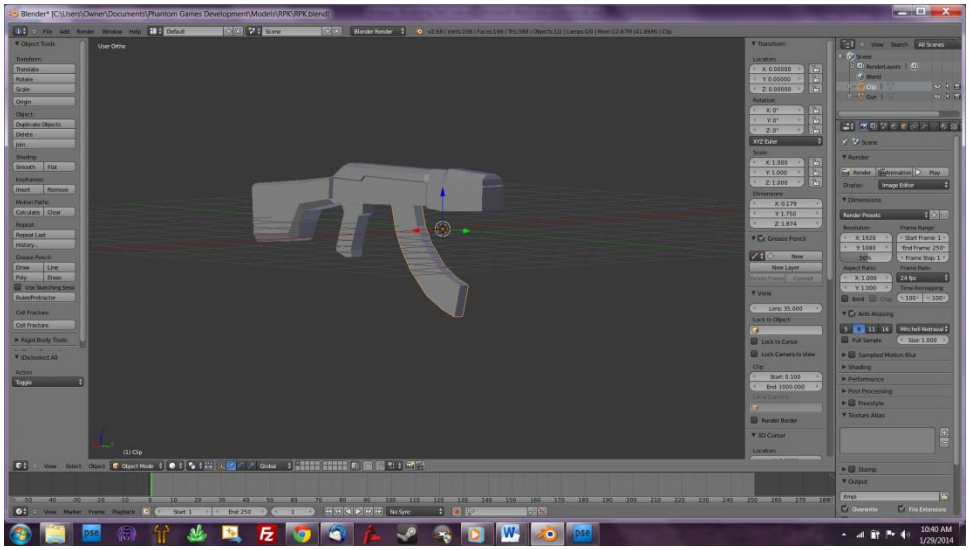
So, let's scale that down quite a bit on the X axis, since gun clips are considerably smaller than their respective guns.



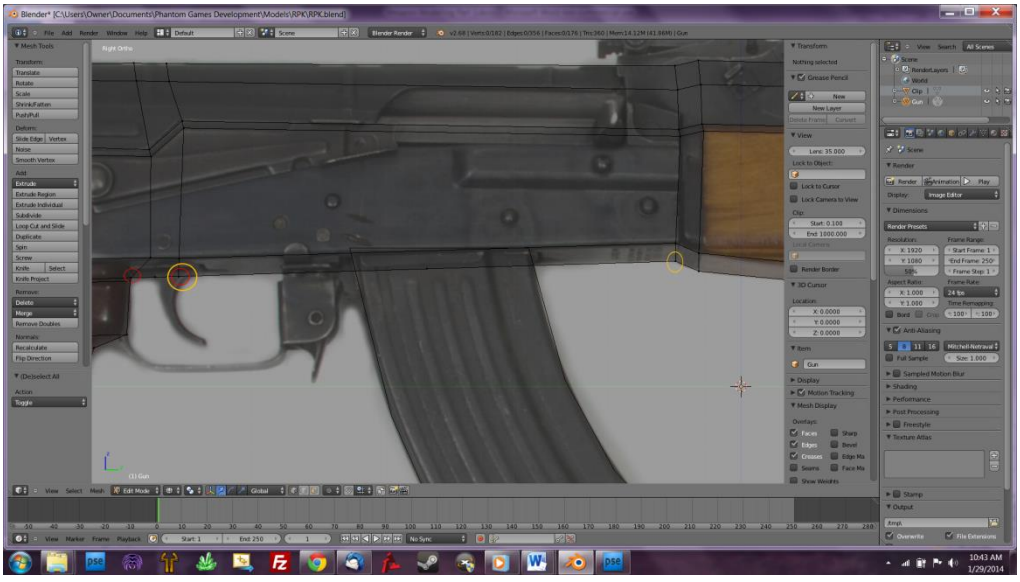
And now back in the side view, use all of my prior teachings to build your clip.



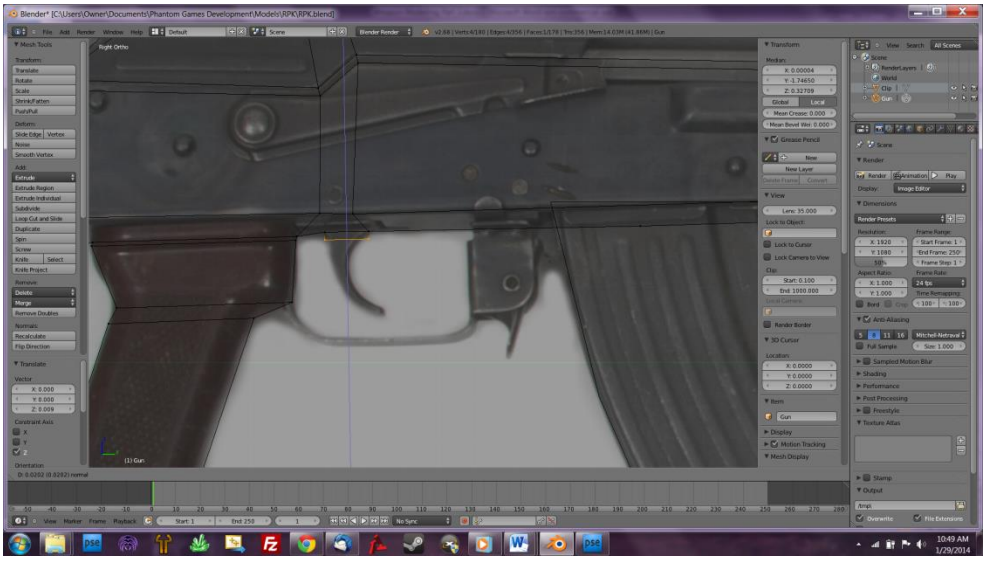
Now before you jump into the next portion of modelling we need to flip back over to object mode (TAB). We need to re-select our gun itself.



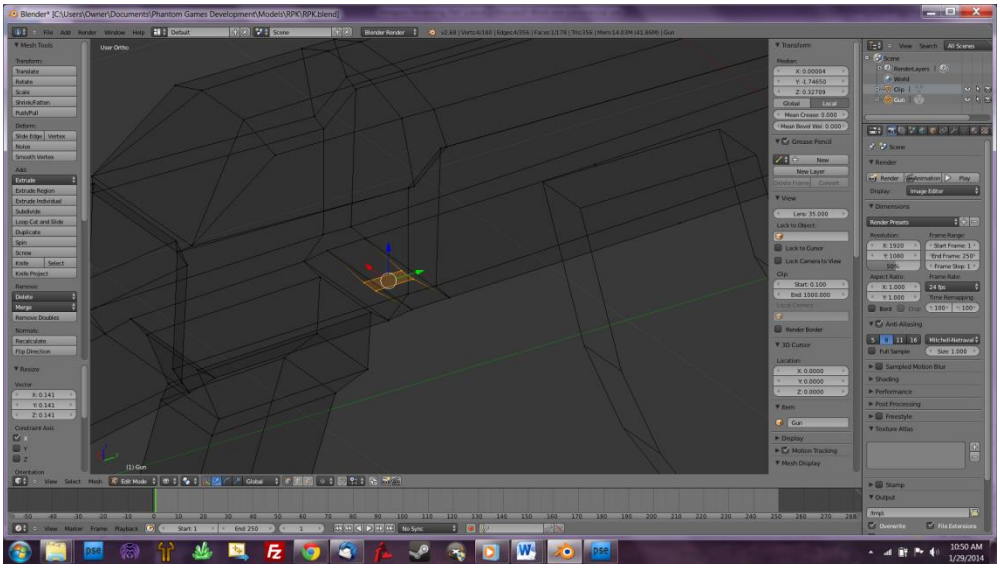
Right click the gun's body to re-select the gun itself, and then you may jump back into edit mode to proceed. The next thing I want to do is the gun's trigger. Before we start that, we need to make two more subdivisions of the gun's body. I have circled the vertices that need this action performed.



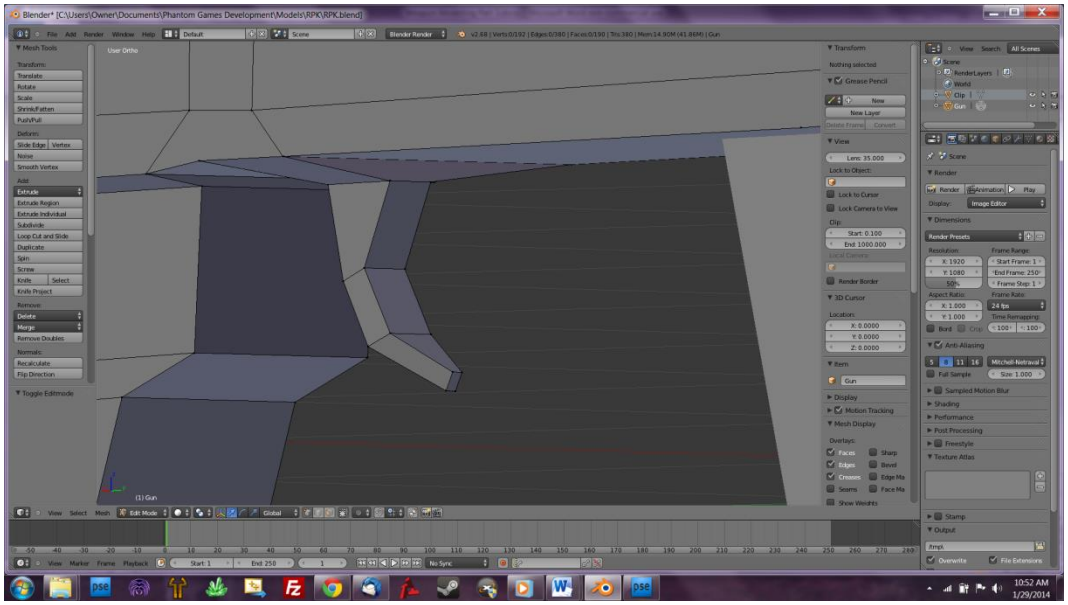
Don't forget to merge those extra X vertices on the bottom of the gun now. There will be five vertices for the vertex subdivided twice, so make sure you get all of the extras before proceeding. We'll start with the trigger itself since it's relatively easy. Select the two vertices that make the trigger and move them slightly up, and then extrude down.



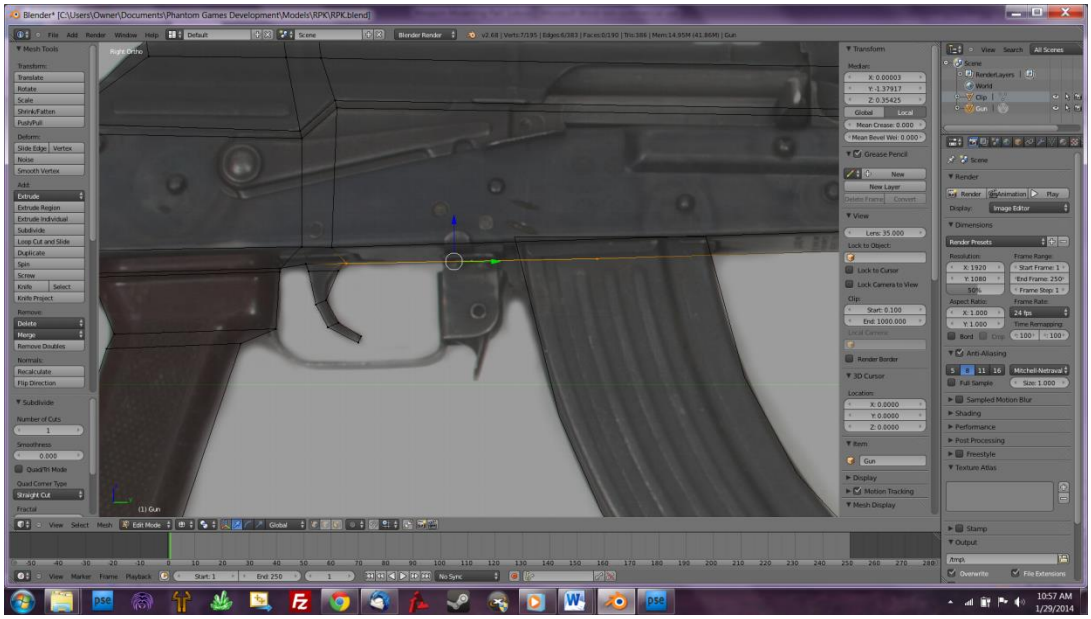
You'll want to significantly scale the X axis of the trigger down since they're usually quite small:



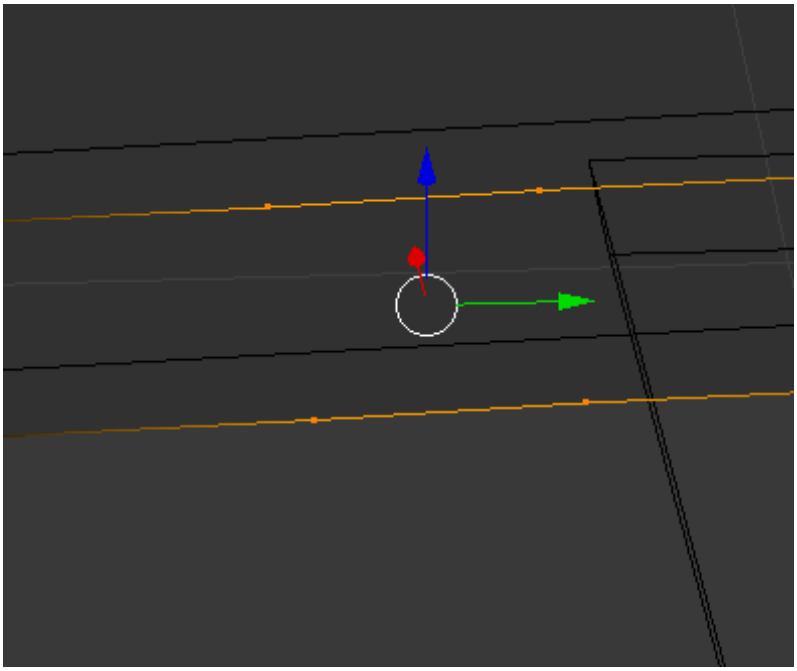
From there it's a simple extrude, reposition, and repeat exercise, similar to that of the grip and the clip. For visual appeal, it never hurts to scale down the 'X' axis as you move down, or just scale down the last of the x axis to be very close to that of merging, without actually doing so:



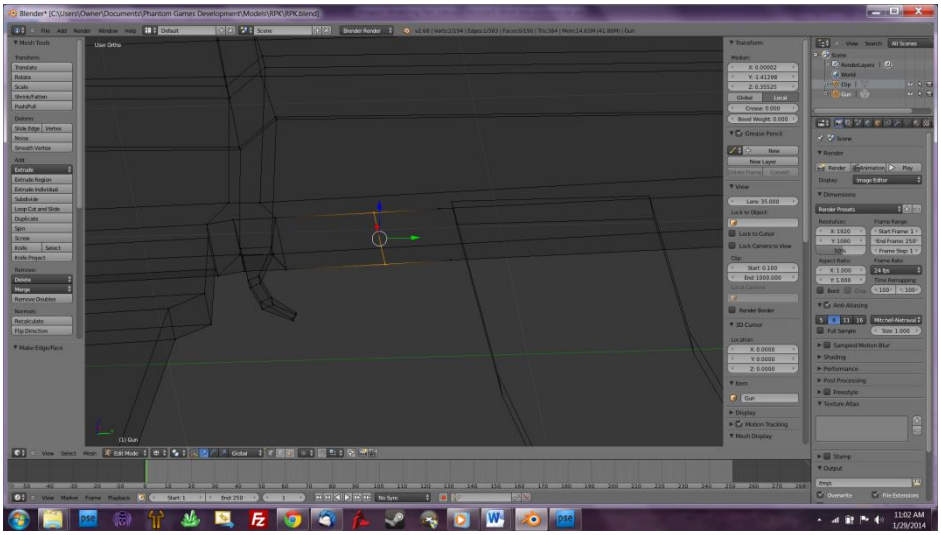
Next up is the metallic finger grip that surrounds the clip of the gun. To do so, let's make one more subdivision of the bottom of the gun, don't forget to clean up the excess vertices (there should only be one this time).



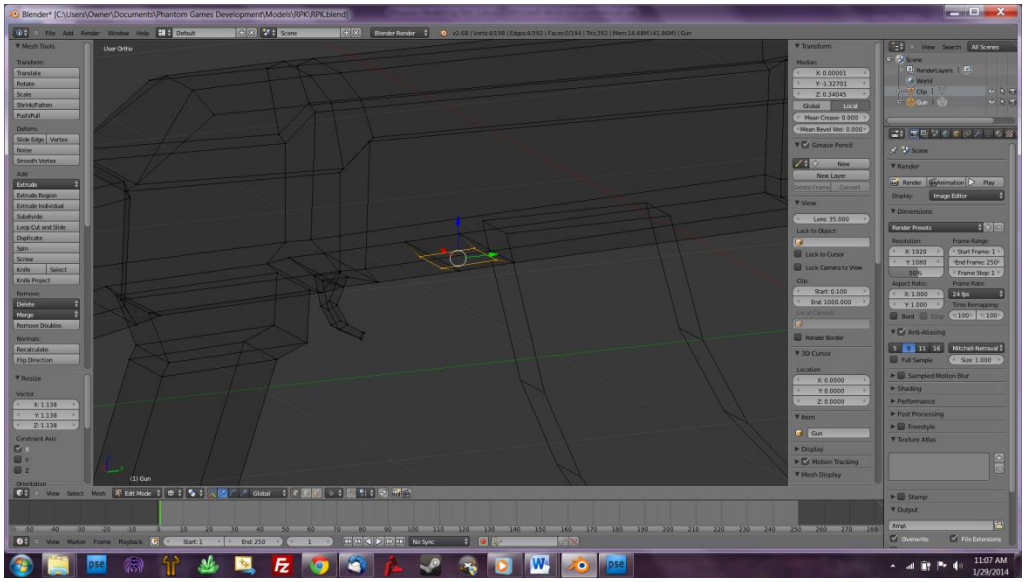
Reposition the two subdivided vertices. Before you proceed, we'll need another tool. As it stands right now the subdivided vertices appear like this:



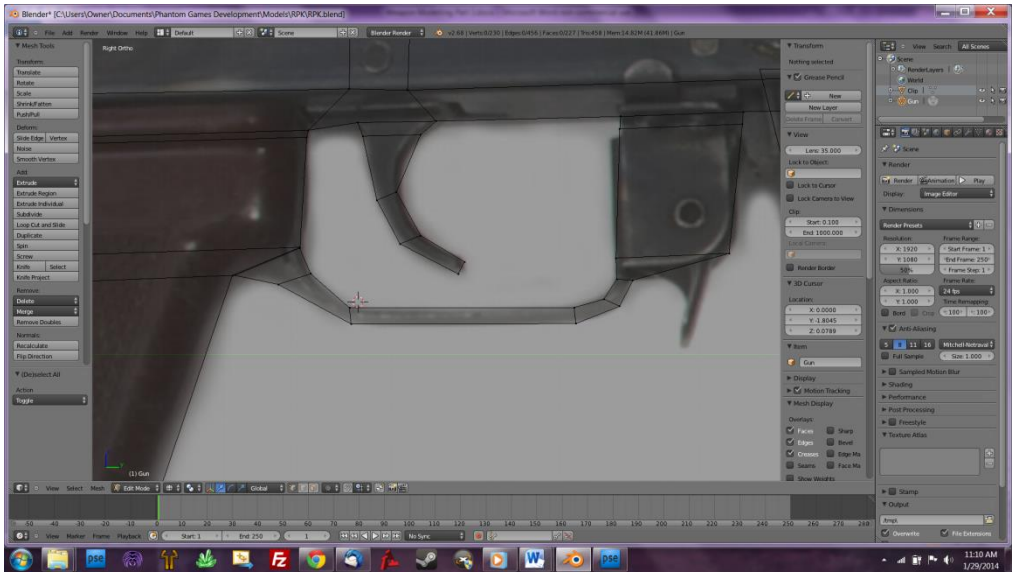
As you may have noticed, there are no lines between the vertices, and that's a problem. There won't be a connecting mesh on those sides and we'll get two planes instead of one cube. To fix this we'll use the face tool to get our lines. Select one pair and press F to draw the line, and then do the same for the other.



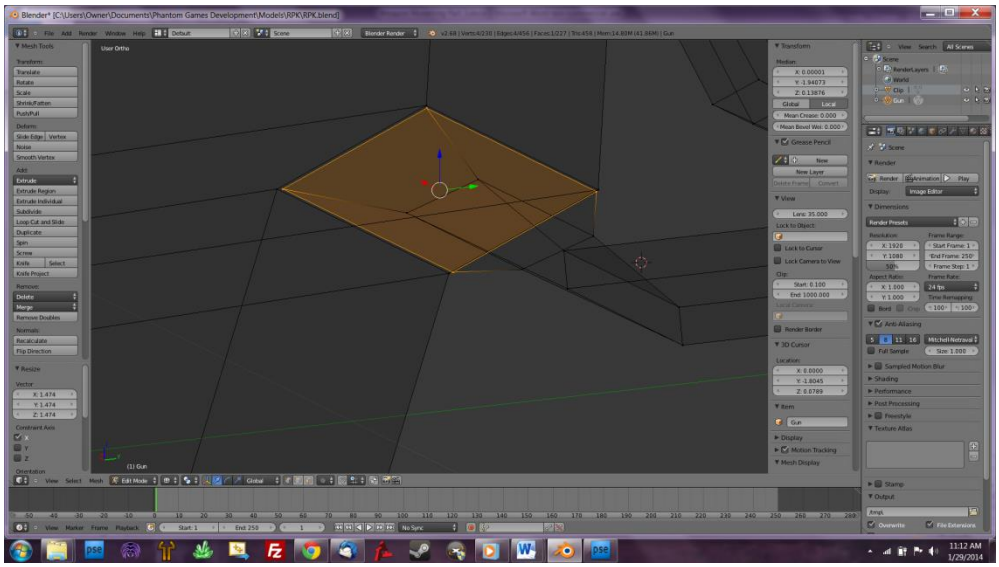
Now we can safely extrude down in our side view. You'll notice as you're moving this one down it will be quite "flexible" compared to the others. That's because there's no bottom face on the cube. We'll get to that in a bit. Like you did with the trigger and grip, start with a small extrude down and scale it down significantly on the 'X', not so much as the trigger, but scale it down.



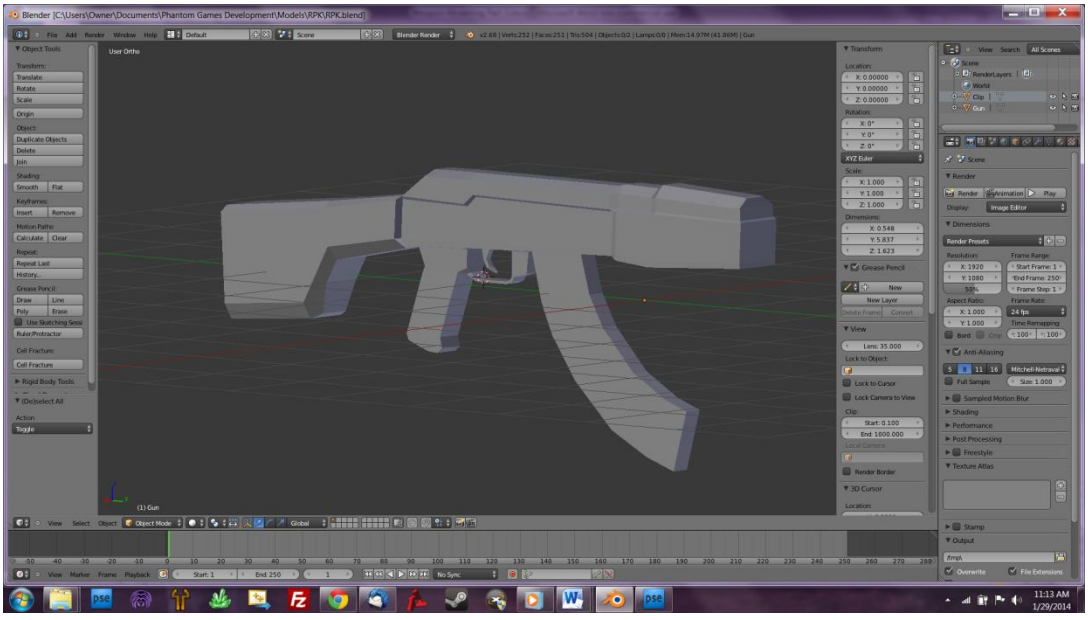
Now before you deselect anything or continue extruding, we can fix our little missing face problem right now by using the Face tool to fill it in (F), so go ahead and do that now. From there it's a simple rinse-wash routine of extrude, move, scale, repeat, ect. Until you've got something like this:



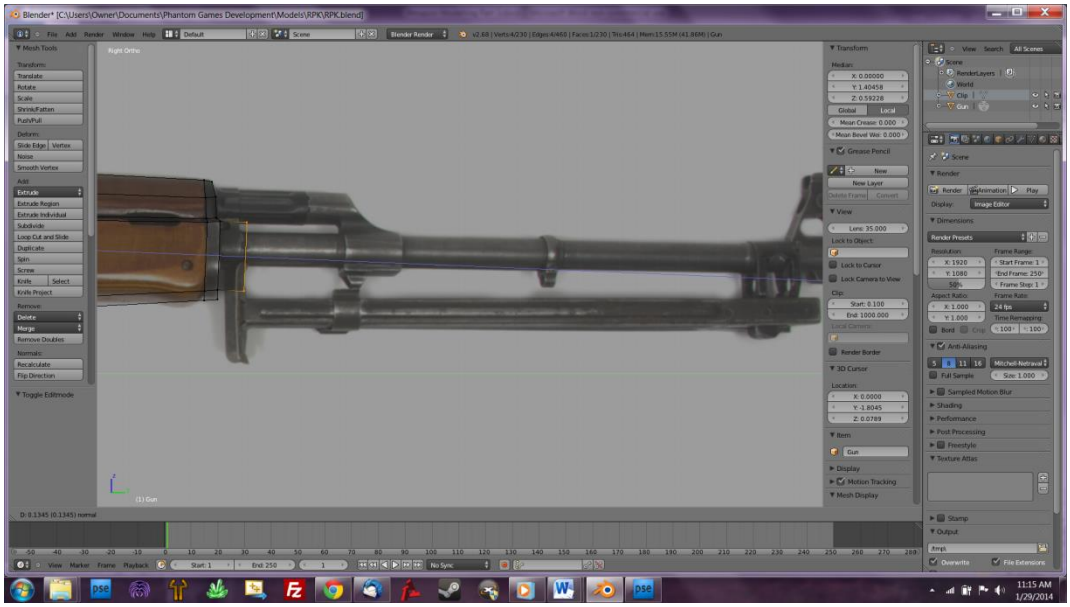
For that little piece on the far left of the trigger grip, you scan simply use a custom angle to scale it to be the same size as the piece along the grip we made in part two, and then merge accordingly.



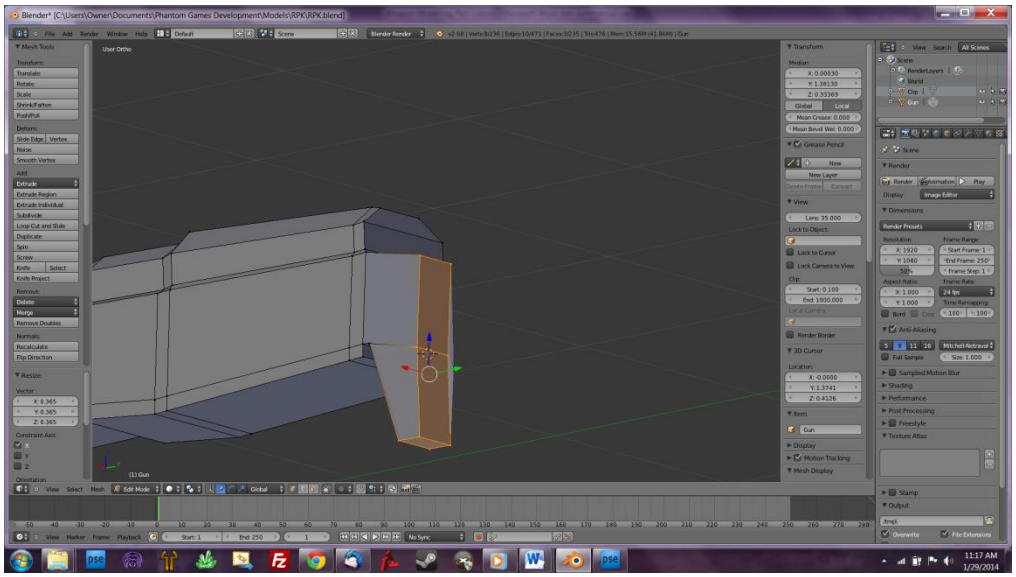
Once done, we have a gun that now looks like this:



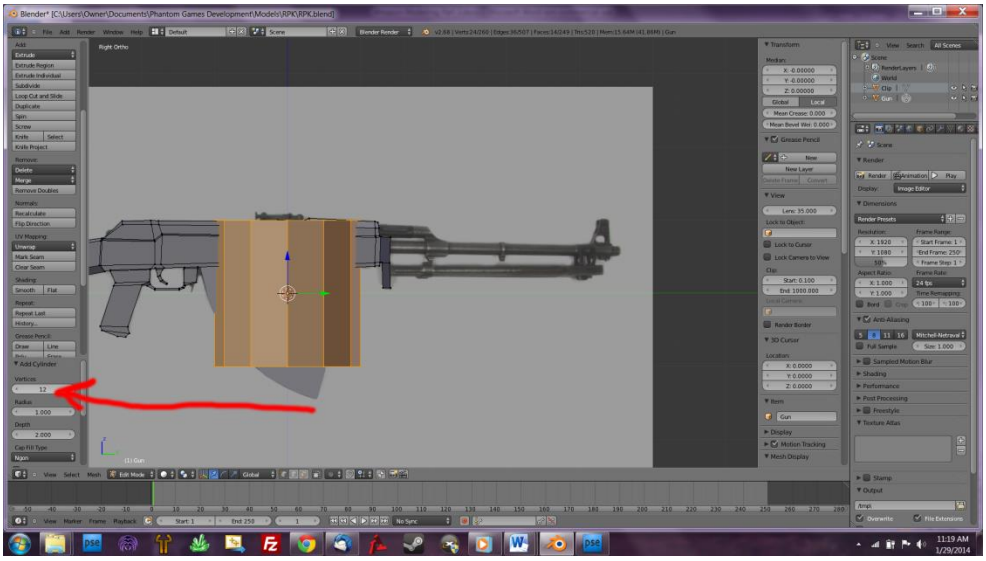
Now for the last, and probably the most annoying looking part of the RPK model, that wonderful barrel and its metallic side piece. To start this, we'll do a little extrusion of the current "edge" of the gun as shown below:



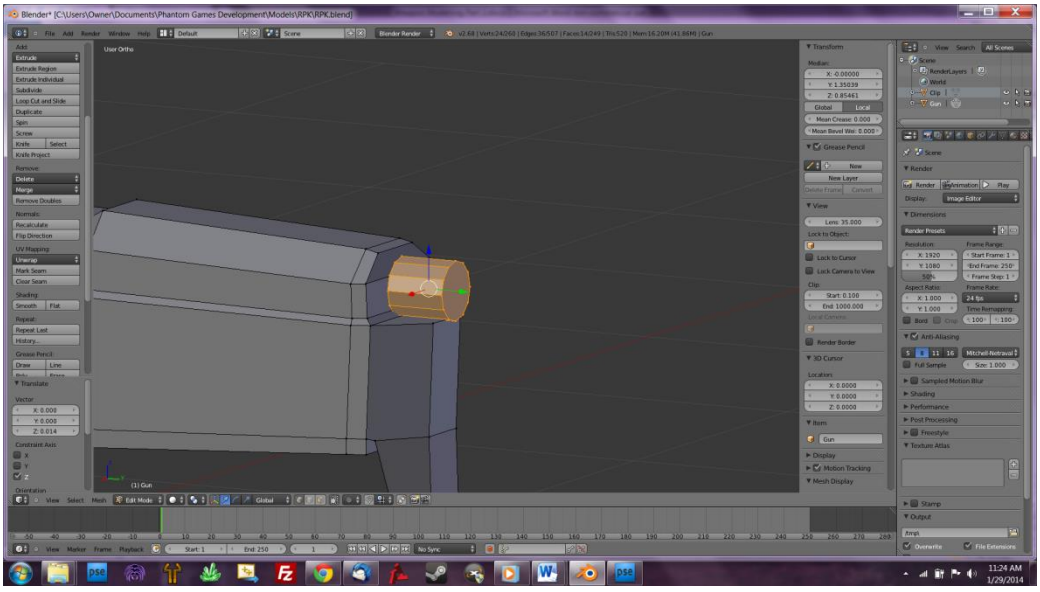
I'll use a quick little subdivide-extrude on the piece I just made to get that bottom little sliver (don't forget the extra vertices) [I performed the subdivision on the bottom vertices]. Then I perform a quick X scale along the added vertices to get the proper looking form of the metal piece:



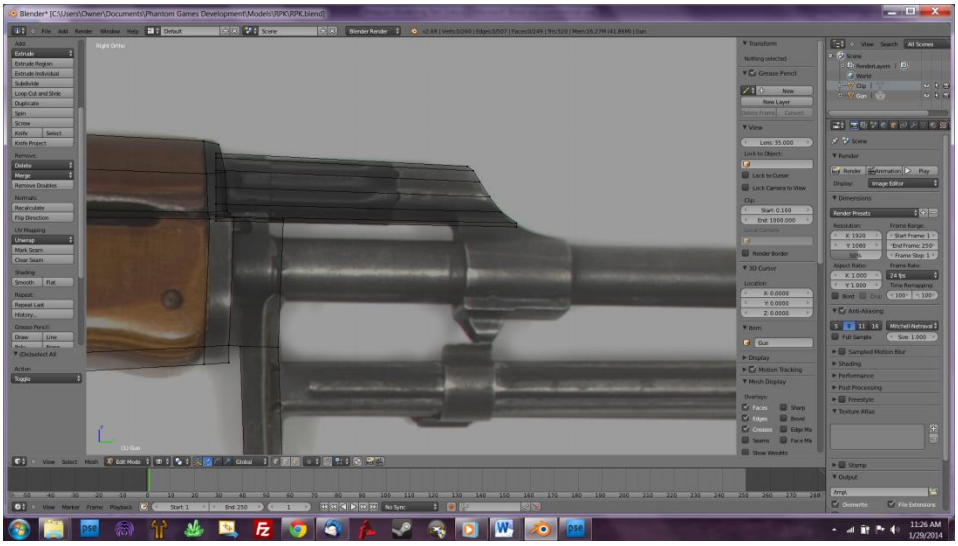
And last but certainly not least, the barrel of the gun itself. While still in edit mode (make sure the cursor is still at 0,0,0) press Shift+A to add a new mesh, but this time, we'll need a cylinder. Remember, we want a low-poly model, so before clicking or doing anything, mouse over to the Vertices option and reduce it to 12 or something like that.



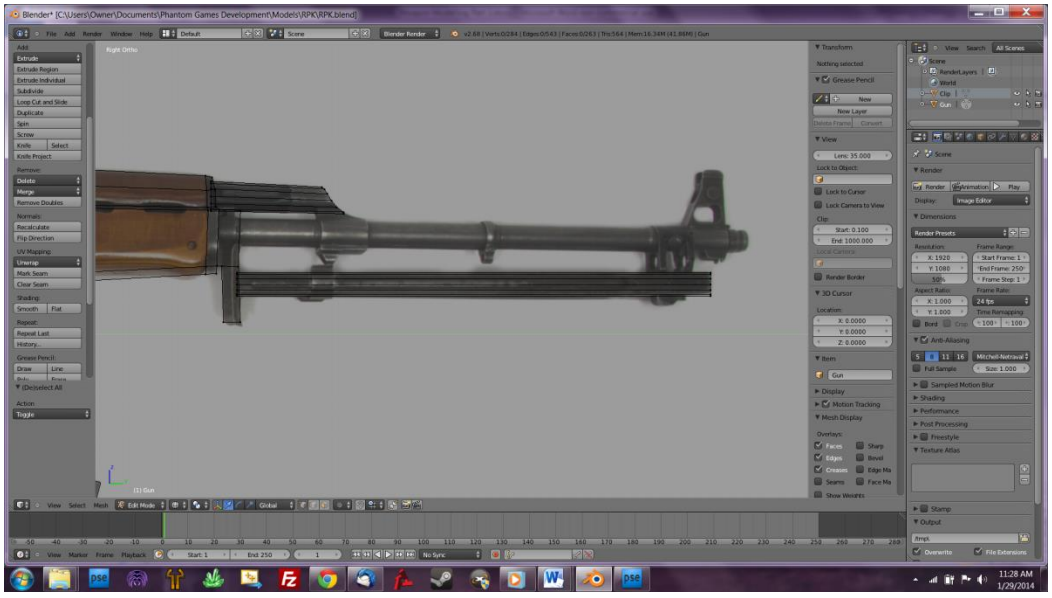
Now, we've got a little 'issue'. The cylinder is pointing up, not to the side. To fix this, you'll need the Rotate tool (R), which is also an "axis-specific" (R, X rotates along x for example) tool. We just want a general 90 degree rotation so press R then type 90 and press Enter. You may then proceed to move and scale the cylinder. I'll do the non-gun barrel ones first. Make sure, like the clip, you actually look at the cylinder in the custom angles to see if it "fits".



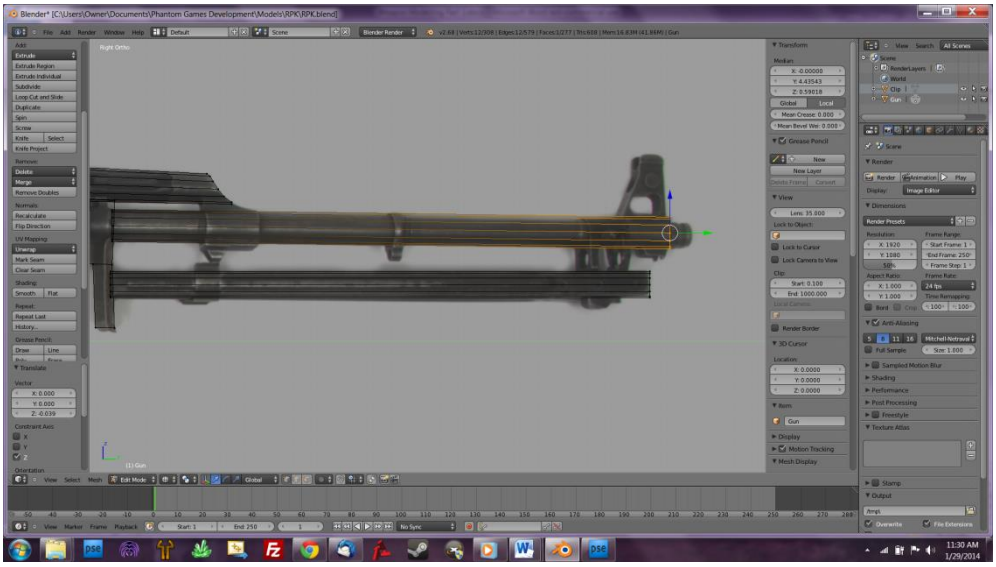
From there, I use the side view to accomplish the needed look of the cylinder as it relates to my RPK.



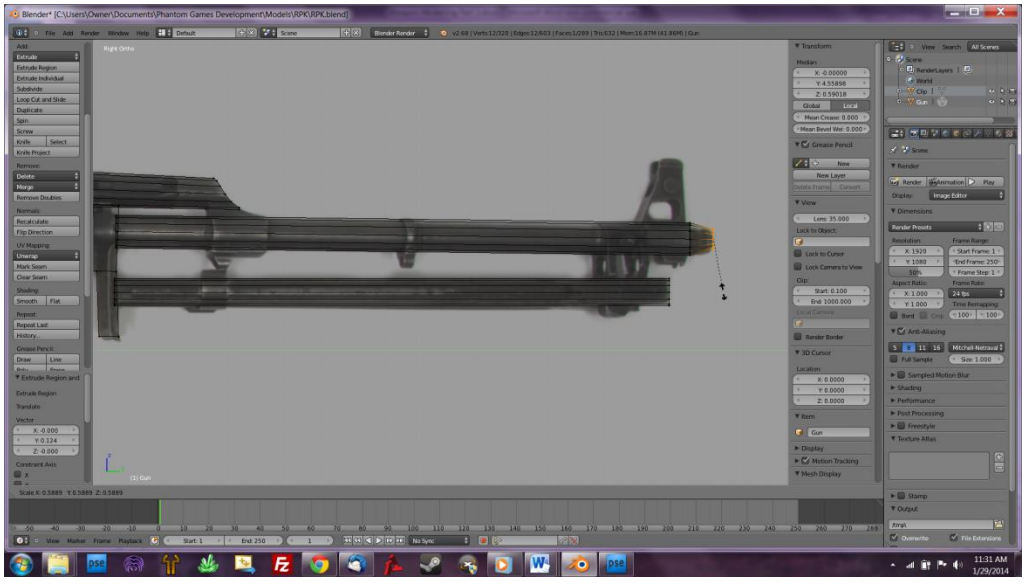
Using the same options as earlier, I now add another mesh and rotate, scale, ect, for the bottom.



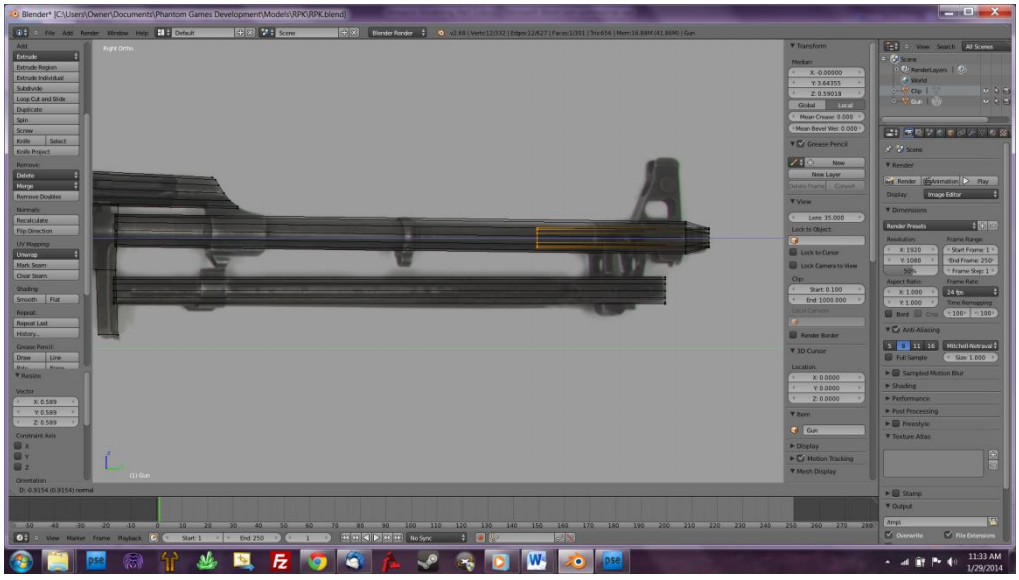
And then I'll start the gun barrel itself by doing the exact same thing.



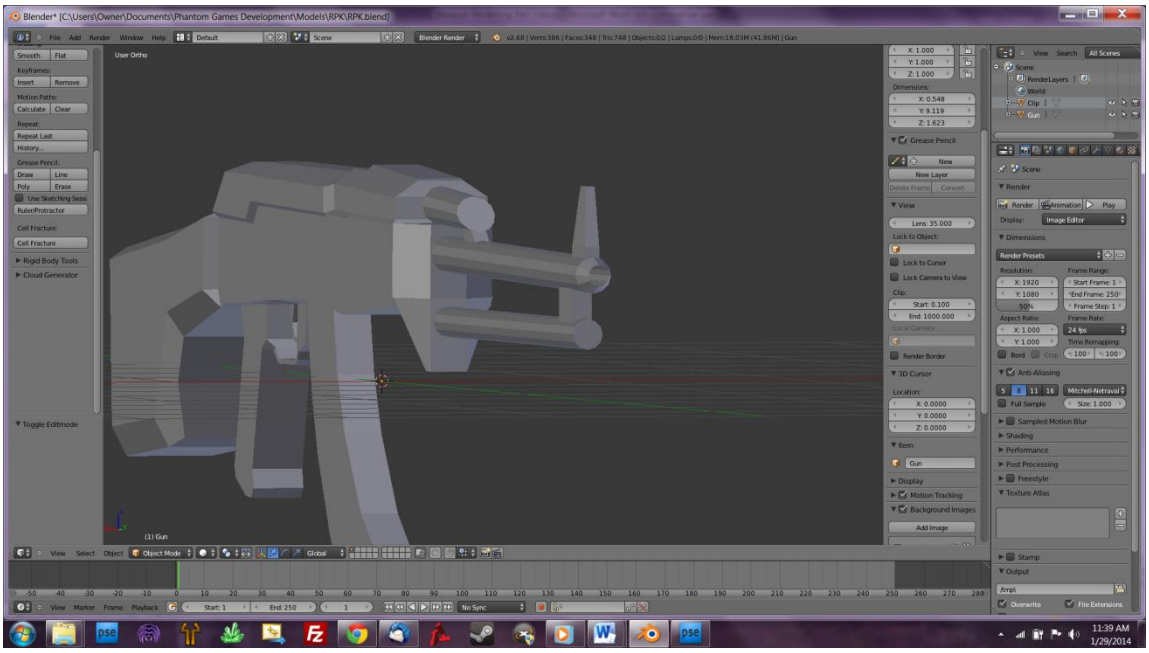
All I need to do here, is extrude out and scale it down on all axis's (just press S and scale it down)



To actually accomplish the "barrel" look of a gun, make another extrusion with the smaller one still selected, and drag it backwards into the existing cylinder like so:

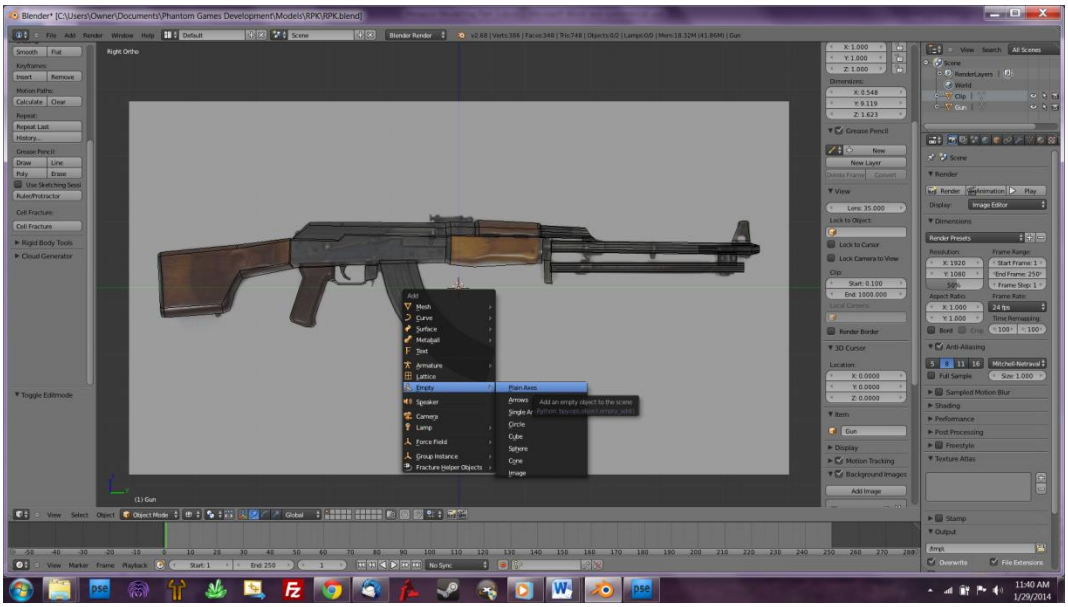


As for the amount of detail you want to put into the remaining parts of the gun, I leave that to you to decide. You can simply use all of the existing tools I have shown you to accomplish these things. As for my gun, I went ahead and did the attachment pieces for my barrels. I just used Shift+A to add new cubes, and moved and scaled them into position. Here is the final product:

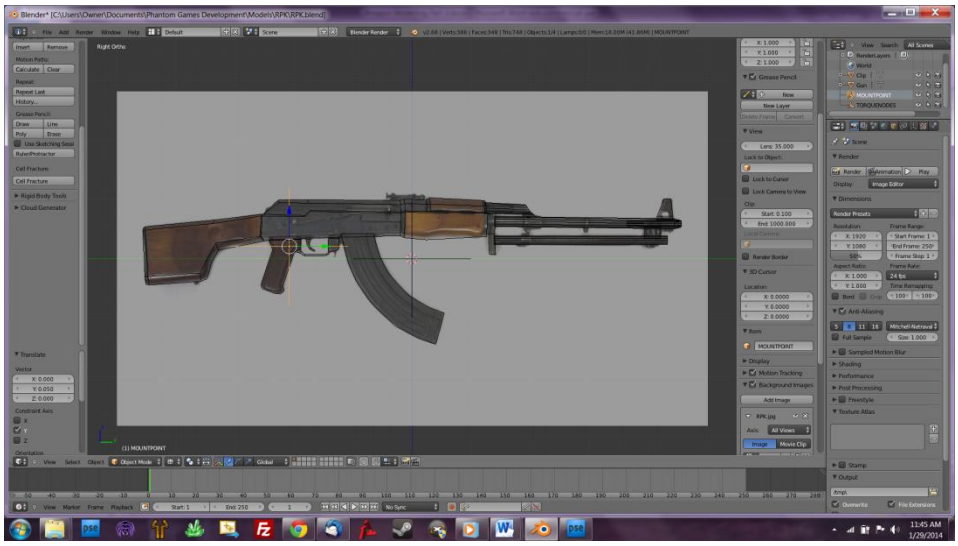


Now the last thing we need to do here is quite Torque-Specific so just hang with me for just a moment while we do the last bit. Go back to object mode, and side view, with your cursor at 0,0,0.

We want to add (Shift+A) what's called a Plane Axis, or as others would call them a Node from the torque perspective. This will control aspects such as where the player holds the gun, and where the bullets are fired from. So, let's add the first of four:



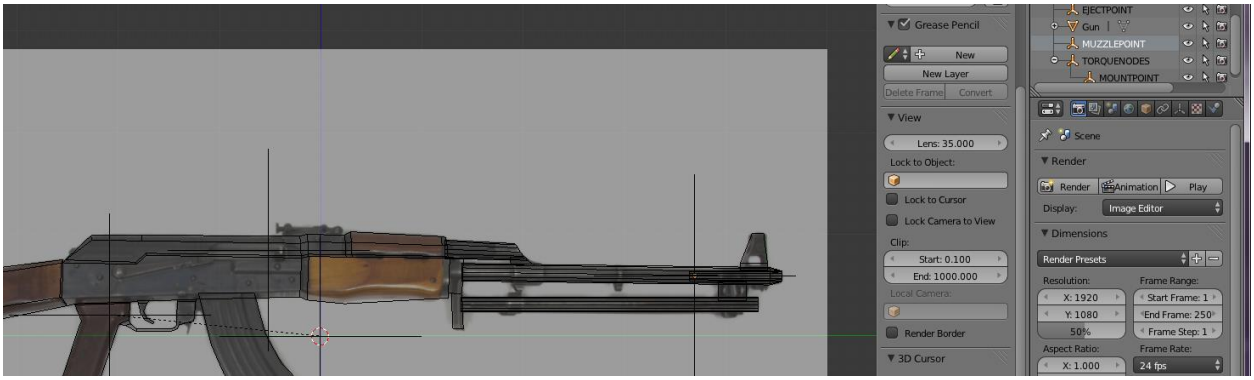
It will now appear in the object list. You will name it TORQUENODES and leave it at the origin. Now add another one and name it MOUNTPOINT. This is the node that tells Torque where the player's hand must "grab" the gun at, so go ahead and move it over to your handle:



Now we need to do what is called Object Parenting, or basically the hierarchy of the nodes. For the purpose of third-person models, just stick with this standard and you'll be fine.

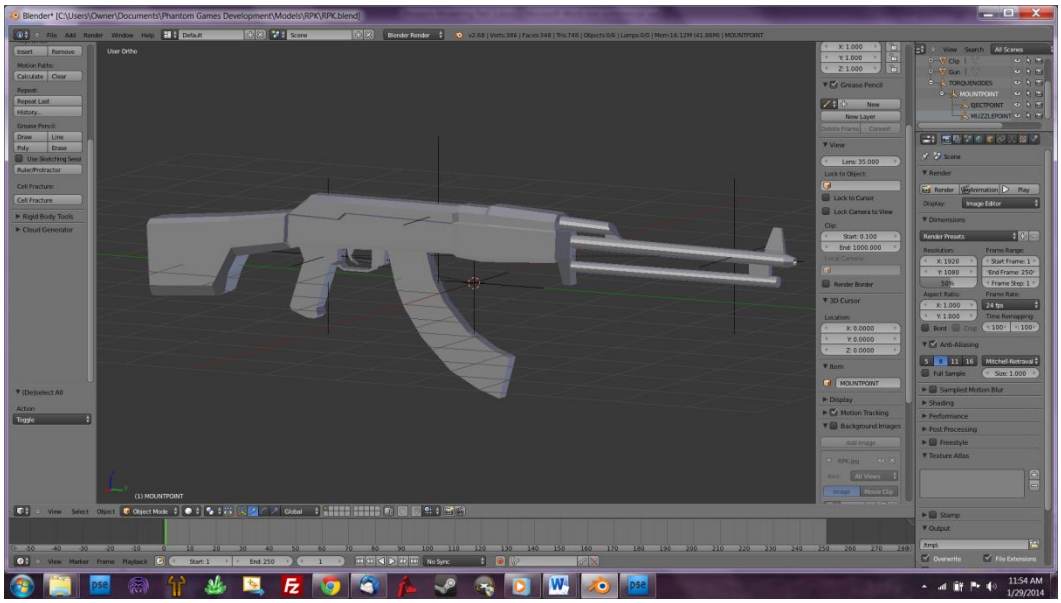
Start by selecting the MOUNTPOINT node (right click it), then hold Shift and right click the TORQUENODES node to select it. To parent it with both objects selected press Ctrl+P and select the first option. In the object list you'll now have this:

Now we need to add two more nodes. The first is called EJECTPOINT, which is where the bullet casings will shoot out of the gun. The other is MUZZLEPOINT, which is where the projectiles themselves will spawn (this goes inside the barrel).



From the hierarchy perspective, both of these must be child objects of the MOUNTPOINT node, so select EJECTPOINT/MUZZLEPOINT first, then MOINTPOINT and parent them like before:

And congratulations, you've successfully created your very first model! Now, before you try to export to DAE and jump into Torque with this there are a few more things you need to do before you can actually see or use the gun, but this was one of the hard parts! And I must say, we did a pretty good job on this too!



So, next time, I'll introduce Materials, and I'll walk you through the UV-Unwrap and Texturing process to make the gun nice and shiny for your players to use in the game.