Subject: YouTube Tutorial: Model Grouping for 3D printing
Posted by aeron203 on Fri, 30 Sep 2011 16:38:12 GMT
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I often group parts together so that I don't have to spend extra time uploading many parts, or to get around minimum model sizes and avoid start-up fees for models with many tiny pieces. The incentive to do this has now increased with the recent changes in pricing structure that now reflect the labor involved in processing.

I use many different approaches to do this depending on my needs, but I've come up with a generic workflow that should work in most cases. It uses only free software: Meshlab, Sketchup and blender. You could actually do the whole job only using any one of these, but my tutorial leverages the strengths of each program and gives enough of an introduction that you will quickly be familiarized with all three of these essential tools.

Model Grouping for 3D Printing Part 1 - Preparing the model in Meshlab

The basic process starts with preparing the file in Meshlab. Meshlab is very powerful and precise, but not particularly intuitive. The first video gives you only what you need to know to accomplish a few of the basics that Meshlab does really well, but is harder in Sketchup and Blender.

Model Grouping for 3D Printing Part 2 - Building the frame in Sketchup

In part 2, Sketchup is used to build a support frame around the model. I chose Sketchup because of it's ability to assist in quickly creating basic shapes that don't need a lot of editing to repair and modify.

Model Grouping for 3D Printing Part 3 - Creating the array in Blender

In Part 3, the Array modifier in Blender is used to make many copies of the model, position exactly so that the frames will join together. This method is best because it is procedural. That is, you can easily go back and edit the number of parts in the array if you exceed the polygon limit, or have too much volume, for example.

I did not focus much on details like control of units and wall thickness here, since it is beyond the scope and has enough complexity that it should have it's own tutorial. If anyone has any trouble following this, please let me know where you got hung up and I'll try to give some quick hints to help you on your way.

Subject: Re: YouTube Tutorial: Model Grouping for 3D printing
Posted by eTraxx on Sun, 09 Oct 2011 11:09:23 GMT
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Just found this post and the links to the tutorials. Great stuff. Beats manually doing something similar just in Sketchup. Thanks a lot!

Subject: Re: YouTube Tutorial: Model Grouping for 3D printing
Posted by aeron203 on Sun, 09 Oct 2011 15:31:15 GMT
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I'm glad you found it helpful.

One thing I forgot to mention, though it seems obvious, is to locate your connections on a side where any leftover marks will be less visible. I should have flipped the model to make this more apparent. It is easy to trim the sprues with a hobby knife, as long as you connect it in a flat or convex area of the model. Corners work well.