
Subject: 3ds max and STL

Posted by [BasOink](#) on Sun, 12 Feb 2012 13:40:06 GMT

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Hello,

I have some difficulties editing STL files with 3ds max. I've made several parts of a human figure and saved them separately as a STL with one shell. I tried to join the several files on a framework by importing them in one project in 3ds max and performing boolean operations.

But after the boolean process and exporting the combined file as an STL, it was suddenly not manifold anymore and shows many shells.

I tried to find out what went wrong and I imported a healthy STL made of one shell in 3ds max. Without changing anything I exported it again as STL and opened the file in Netfabb. The file contained many holes and shells (See attached files).

I can only conclude that 3ds max does something to STL files, which makes them unstable. Is there a way to edit STL in 3ds max without being confronted to these problems? And if not, are there programs which do not have these problems?

Greetings,

Bas Oink

File Attachments

1) [torso after 3dsmax.STL](#), downloaded 56 times

2) [torso before 3dsmax.stl](#), downloaded 38 times

Subject: Re: 3ds max and STL

Posted by [christopherlowe](#) on Sun, 12 Feb 2012 15:17:27 GMT

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why are you doing this?

shapeways can print stl files with multiple shells just fine. that is assuming that each shell is water tight.

assuming that you still want to Boolean these parts in MAX i would suggest 100% that the parts are water tight... no flipped normals, and no missing polys, then and only then would i boolean them together...

i would suggest, as many who have seen my rants before know, that you download BLENDER and boolean the parts in there. i can walk you through that process if you like.

chris

Subject: Re: 3ds max and STL

Posted by [BasOink](#) on Sun, 12 Feb 2012 15:55:17 GMT

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I know that shapeways has no difficulty printing multiple shells. I've created the framework with the several parts of the human figure before, consisting of multiple shells. I sent it to Shapeways and a few weeks later received a perfect print.

But for my meanings the resolution of the FUD print was not enough. I try to create a mother model for a 1/35 model kit, which I want to duplicate with silicone molds. The details are too small to sand or polish the print.

Therefore I searched for an alternative printing method, which would live up to my demands. So I sent my model (which I also sent to shapeways) to a company which prints models with the envisiontec ultra. They stated that they could do nothing with the model because it had several deviations and contained multiple shells, and the envisiontec could not print multiple shells.

So that's the reason why I try to convert the model of the framework with several parts of the figure into a STL which consists of one shell.

Before importing the parts into 3ds max I checked them with netfabb cloud and minimagics, to be absolutely sure that the files I imported would be OK. Does this also mean that they are watertight, with no flipped normals and without missing polygons? If so, I still have no idea why 3ds max is giving me a hard time.

Following your suggestion, I've downloaded blender. I have to say, the lay-out is, to say at least, confusing. Especially when you are used to an interface of 3ds max. I appreciate your offer to walk me through the boolean process.

Subject: Re: 3ds max and STL

Posted by [christopherlowe](#) on Sun, 12 Feb 2012 16:24:31 GMT

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i have heard that there are machines that could do incredible detail. at what price though...

blender can be a little daunting but very rewarding. there are some similarities to MAX that you can utilize and make good with.

i have used MAX as well as many other programs and i have to say that there are quirks to all of them. i have not used the latest version of MAX though and i have heard that there was some real work done to the boolean code to make it more reliable...

i am not sure but there might be a simple explanation in MAX to why things are not working... it might be easy to fix...

in MAX, after the boolean operation, convert to editable mesh.
in point modify mode hit ctrl-A to select all points. then in the merge tool put it down to 0.00 and merge... this will merge all points that are directly on top of each other.

see if that works. if you are still interested in Blender i would suggest that you dl the newest release candidate and have a go at it...the newest RC came out on Thursday.

chris

Subject: Re: 3ds max and STL
Posted by [stonysmith](#) on Sun, 12 Feb 2012 16:56:44 GMT
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If you open the model in Netfabb and the zoom into the bottom of the model, you will see this:

Make special note of the triangle(s) I've circled in blue. Netfabb hilighted them in red, because it thinks there is a problem there. These triangles are at best 'odd'. For one thing, they're very, very small, and they don't contribute to the overall topology your'e trying to achieve. I would consider removing them. The difficulty is that you've got the same sort of 'oddity' at other points around your model.

Let me try to explain by an example:

I took a regular cube, and welded a pyramid onto the top of it. Then, I took the pyramid and rotated it such that the top point of the pyramid is inside of the cube. This mesh is "solid", "watertight", "2-manifold", and several other things, but.. it's still not "right". Note in particular that the blue face is now contained completely within the body of the object.

If you work with this model in both Netfabb and Meshlab, they'll report that blue face as "intersecting faces". I have yet to find a good way to deal with those. It's likely that MAX is trying

to "fix" them by throwing them out as separate shells.. I know that Truespace does the same kind of thing. It'll make a mess out of the (hidden) blue face.

One thing I've noted.. this seems to happen more if the area of the offending triangle is very small.

Here is one possible fix for your model:

- Open the STL in Netfabb
- Select Repair
- Select the main shell of the model
- Remove selected triangles

At this point, observe that the remaining shells don't truly contribute anything to the overall geometry of the model, and can likely be discarded.

- Abort the Repair... (bringing back the main shell)
- Select Repair again
- Select the main shell of the model
- Select "Extract selected triangles as part"
- Export this new part, ignoring the original model

This removes all those little tiny shells that weren't really contributing anything useful, but you may still have to deal with 'odd' triangles as I discussed above.

Note: if someone's got a good way for dealing with intersecting faces, I'd love to hear it.

File Attachments

- 1) [torso.jpg](#), downloaded 298 times
 - 2) [test2.jpg](#), downloaded 289 times
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