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Subject: Boolean ops on la large mesh  
Posted by [bib993](#) on Sun, 27 Jan 2013 14:16:36 GMT  
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Hello,

Do you know what free software can do boolean operations on a large mesh? Maybe Blender?

I've got a 1M faces hollow mesh and I just need to make an escape hole. I usually use Daz3D Hexagon but It fails on such a large mesh.

Thanks in advance for any tip!

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Subject: Re: Boolean ops on la large mesh  
Posted by [Fredd](#) on Sun, 27 Jan 2013 15:07:23 GMT  
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Have you checked to make sure all normals on both meshes are oriented correctly and manifold? These are the leading causes of boolean operation failure.

With a million faces it may not print also.

Yup, Blender can do the boolean difference mod to create an escape hole. If worse comes to worse you can always manually create 1. remove an equal amount of faces from both the outer surface and inner. connect the outer verts of both holes with edges, then create the connecting wall joining the two surfaces by filling holes.

Keith

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Sun, 27 Jan 2013 15:21:07 GMT  
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Both meshes look clean in Netfabb. Actually the model has got a large flat base and I'd like to make a large hole in it, in addition the walls have got a complex structure so manually it's not workable. I'll try Blender, thanks!

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Mon, 28 Jan 2013 06:23:04 GMT  
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Blender fails as well. After hours of processing, nothing happens. I have made sure it works on small meshes, so I guess that the mesh is too large.

Too bad Meshlab can't do boolean operation, because to me this is the fastest and most stable program to handle larges meshes.

Any other idea is welcome.

Thanks

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Subject: Re: Boolean ops on la large mesh  
Posted by [JACANT](#) on Mon, 28 Jan 2013 15:32:23 GMT  
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Have you tried Netfabb Cloud?  
<http://cloud.netfabb.com/>  
Then when it is one shell, try to boolean subtract the hole in blender.

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Mon, 28 Jan 2013 15:43:56 GMT  
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Hi Rob,

As far as I understand, Netfabb Cloud is similar to Netfabb Studio. My problem is not to repair the mesh. In Netfabb Studio my mesh is absolutely clean, no holes, no flipped triangles, no manifold issues, etc...

My problem is to find a software that is strong enough to make a boolean operation on a large mesh (almost 1M faces) without crashing. I have a very recent and very powerful PC, so it's not a hardware issue.

- Meshlab is very good at handling large meshes but there is no way to perform a boolean operation
- Netfab is also comfortable with large meshes, but the boolean function is part of the Pro version (not free)

- Blender and Hexagon can do boolean operations very well, but they crash with such a big mesh.

Any other suggestion is welcome!

Thanks

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Mon, 28 Jan 2013 15:46:42 GMT  
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Just saw your update.

My model has got 2 shells: the outer shell and the inner shell. Like a regular hollow model. I do not see why it would be an issue, maybe I'm wrong. Do you think Netfabb Cloud repair function is better than Netfab Studio?

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Mon, 28 Jan 2013 15:59:54 GMT  
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Here is a screenshot of the hollow model in Netfab. I'd like to remove the "flat" bottom.

1348695 edges  
899130 faces  
2 shells  
0 Border edges  
0 invalid orientation  
0 hole

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Subject: Re: Boolean ops on la large mesh  
Posted by [stonysmith](#) on Mon, 28 Jan 2013 16:30:51 GMT  
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Have you tried using the Netfabb Basic "cut" operator?  
Move the slider for the Z dimensions to just above the flat part you're trying to remove and then apply the cut.

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Mon, 28 Jan 2013 16:58:09 GMT  
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Rob: I tried Netfabb cloud and interestingly enough, it removed the inner shell, so the model is not hollow anymore, back to square one

stonysmith:

Thanks a lot, I had not realized it was possible to do these basic cuts in the free version of Netfabb studio.

So I went ahead and cut the bottom. I made sure to uncheck the "triangulate cuts" option otherwise Netfabb adds the bottom again.

It's not a perfect solution, because I would have preferred to keep the side walls and remove only the flat bottom by boooling out a cylinder, but I can accept this compromise!

So I get a cut mesh (see first image below). And of course, it needs to be repaired. The problem is that when I repair it, Netfabb retriangulates the mesh and builds the bottom again (see 2nd image below). Any idea how to prevent Netfabb from doing this? I guess I need to execute individual repair actions, not the automatic repair, but which actions?

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Subject: Re: Boolean ops on la large mesh  
Posted by [JACANT](#) on Mon, 28 Jan 2013 16:58:50 GMT  
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This software will do it. It is just a 30 day trial.  
<http://www.marcam.de/cms/viscam-mesh.84.en.html>

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Subject: Re: Boolean ops on la large mesh  
Posted by [Fredd](#) on Mon, 28 Jan 2013 18:23:55 GMT  
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BOOLEAN 102:

For the boolean difference modifier to be applied to connect an interior meshes surface to an outer meshes surface(a tunnel);

1. As well as both surfaces being manifold, the inner meshes face normals need to point to the center, the outers away from the center.

2. The difference modifier can only be applied to 1 mesh, having another object selected to perform the operation which should be manifold, and normals facing outward (a cylinder with both ends capped. no ngons). So both inner and outer meshes need to be joined into 1 mesh

Try again using this info. Select the inner and outer surface, join them into 1 mesh. Create a closed ended cylinder with proper radius for the escape hole. It has to intersect the outer and inner surfaces of the joined mesh. Select the joined mesh, apply the boolean difference mod, select the cylinder as the object, apply. I think it was not amount of faces that would not allow a boolean in blender or hexagon, it was just not joining the inner and outer surfaces into 1 mesh

There was a post here similar to your problem of the base being refilled Jacant solved  
[http://www.shapeways.com/forum/index.php?t=msg&&th=11769&goto=57735#msg\\_57735](http://www.shapeways.com/forum/index.php?t=msg&&th=11769&goto=57735#msg_57735)  
Pretty simple fix in netfabb

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Mon, 28 Jan 2013 18:58:23 GMT  
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Keith:

1. That was already the case, The inner shell normals are oriented towards the center, the outer shell normals towards the outside.

2. I had already joined the inner and outer shells into one single mesh.

Thanks for the advice but I still think this is a size issue. I'll try on a highly decimated version. If it fails, then it was not a size issue, let's see...

Thanks

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Subject: Re: Boolean ops on la large mesh  
Posted by [JACANT](#) on Mon, 28 Jan 2013 19:48:31 GMT  
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If you send me the file by PM or my email below. I would be happy to see if I could fix it for you.

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Subject: Re: Boolean ops on la large mesh  
Posted by [JACANT](#) on Tue, 29 Jan 2013 00:34:53 GMT  
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I think the only way to do this is use a cylinder to Boolean 'UNION' at the base to make it flat, at the thickness to go through both shells. If that unions together OK. Then use another cylinder slightly smaller in diameter than the first by the wall thickness you want, and Boolean 'SUBTRACT. You should end up with a flat base.  
You will have to do this in the software that originally created the file. Before it was exported as an STL file

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Subject: Re: Boolean ops on la large mesh  
Posted by [bib993](#) on Tue, 29 Jan 2013 10:32:32 GMT  
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Thanks Rob for the good ideas. Unfortunately my original program is a fractal generator that doesn't allow to easily manipulate multiple simple shapes like cylinders. My workflow is probably very different from traditional 3D modeling and design because I heavily rely on the voxel concept, and that generates numerous but interesting challenges!

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Subject: Re: Boolean ops on la large mesh  
Posted by [stop4stuff](#) on Thu, 31 Jan 2013 11:03:48 GMT  
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The old tech Imagine3D is my main modelling tool - I use it to perform 'slicing' operations on a daily basis, ok it has hiccups every so often but what it does when slicing multiple shells is pure magic. Every shell is sliced by every other shell, leaving a collection of parts that can be selected

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and merged back together for a seamless new shell construction.

Paul

stop4stuff Modeller for hireShapeways Shop - Controller PendantTwitterYouTube

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Subject: Re: Boolean ops on la large mesh  
Posted by [Polygonica](#) on Fri, 07 Feb 2014 10:34:23 GMT  
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Apologies for arriving late at this thread.

Our Polygonica software toolkit is perfect for this - fast, automatic and robust booleans on the largest of meshes.

Please contact us at [info@polygonica.com](mailto:info@polygonica.com) for more information.

[www.polygonica.com](http://www.polygonica.com)

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Subject: Re: Boolean ops on la large mesh  
Posted by [DesignbyDalton](#) on Thu, 27 Feb 2014 17:37:52 GMT  
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Zbrush could do that shelling.

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