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Subject: Reducing number of shells  
Posted by [Robjames112](#) on Thu, 26 Jul 2012 12:13:56 GMT  
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I have about 5 components left to an object, but I can't get them down to one shell. I've tried the repair and stitching functions in netfabb but to no avail. Bear with me as I'm self taught starting about 3 days ago but I could use some help.

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Subject: Re: Reducing number of shells  
Posted by [Fredd](#) on Thu, 26 Jul 2012 14:53:14 GMT  
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Could you post a pic. Boolean union might solve your problems with making it manifold

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Subject: Re: Reducing number of shells  
Posted by [Robjames112](#) on Thu, 26 Jul 2012 15:04:11 GMT  
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Here is one of the files

#### File Attachments

1) [pulley.stl](#), downloaded 67 times

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Subject: Re: Reducing number of shells  
Posted by [stonysmith](#) on Thu, 26 Jul 2012 15:34:33 GMT  
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What software did you create this with?

The problem here is that every triangle of the STL is a separate shell.. What you need instead is for all the triangles to be ONE shell.

Attached is a repaired version.

#### File Attachments

1) [pulley2.stl](#), downloaded 63 times

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Subject: Re: Reducing number of shells  
Posted by [Robjames112](#) on Thu, 26 Jul 2012 15:57:39 GMT  
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It was made in Sketch up and converted to STL in MeshLab

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Subject: Re: Reducing number of shells  
Posted by [Robjames112](#) on Thu, 26 Jul 2012 16:00:35 GMT  
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Right, I think I have it, if you'd oblige I wouldn't mind you seeing if there's anything wrong.

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Subject: Re: Reducing number of shells  
Posted by [Fredd](#) on Fri, 27 Jul 2012 18:34:42 GMT  
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What caused the main problem seemed to be several of the face normals were facing the wrong direction. The normals direction indicates a surface at the starting point of the normal. So for example, you create a cube, flip the normal of 1 face. The cube is still manifold(watertight) but with that normal facing inward, Shapeways regards that faces surface to be inside the cube, not on the outer surface like the other 5, which face outward, so its rejected.

Yea its sorta picky, but makes sense when the model needs to be represented in real terms, not just a subject for a render.

Duplicated vertices can also cause numerous problems.

Just remember to check to see that the normals of a mesh are pointing in the direction that will designate a surface throughout its design. Especially after any operation on the mesh(boolean, subdivision, mirroring,...)

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Subject: Re: Reducing number of shells  
Posted by [Robjames112](#) on Fri, 27 Jul 2012 19:57:57 GMT  
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Thanks! JACANT actually pointed that out and gave me some steps to fix it.

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Subject: Re: Reducing number of shells

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Posted by [Fredd](#) on Fri, 27 Jul 2012 20:13:26 GMT  
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For a good mesh error repair program, Netfabb basic works well. Takes a few easy steps

- 1.Import STL
  2. If a warning sign appears in far right corner  
Click the repair icon at top(Red Cross)
  4. In the new panel that opens up to the right, click Automatic repair/default repair/execute
  - 5 click Apply repair/remove mesh in the same panel.
  6. To make sure all is fixed, click New Analysis button(next to Red Cross) This will give you a updated analysis on the mesh
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