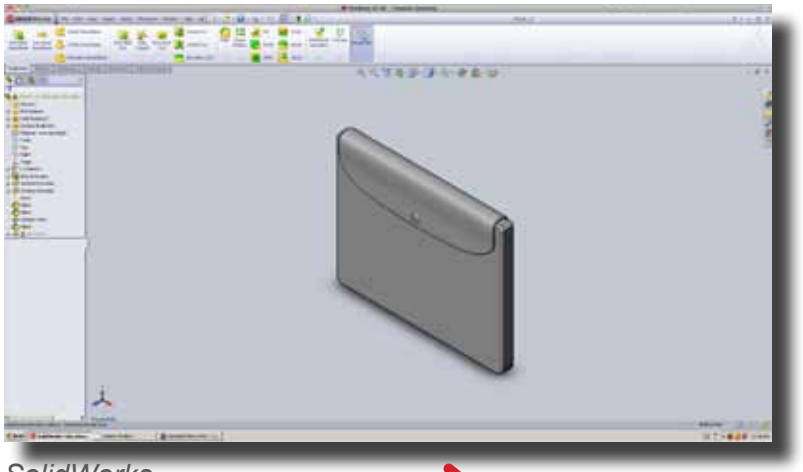
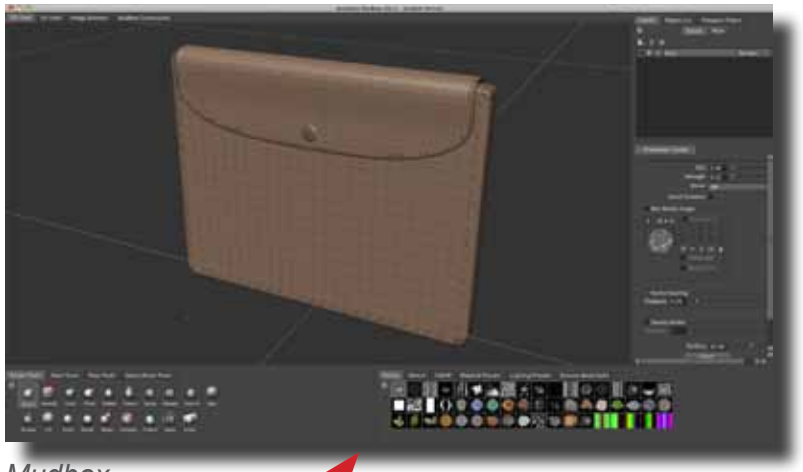
Mudbox - Converting CAD Data to Polygons

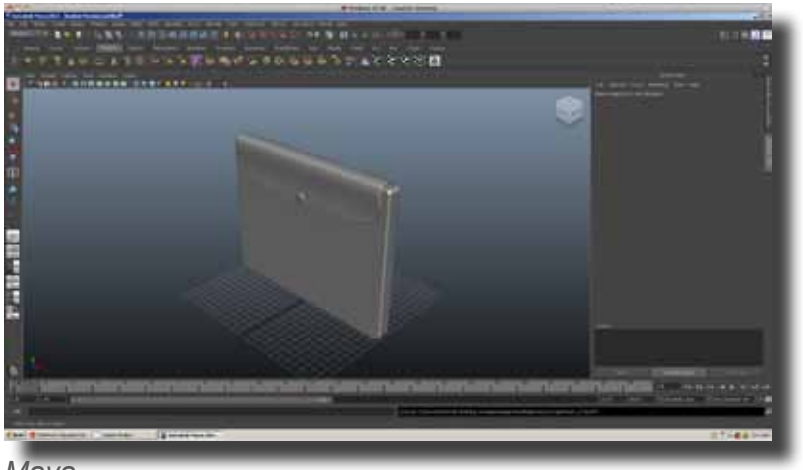
Mudbox is a 3d polygon sculpting program that allows you to easily sculpt and project free form shapes and textures into geometry. Soft forms like bags, totes or sneakers can easily have textures and stitching added for additional realism. Textures can also be painted onto the form in 3d to add realism. Mudbox does require that the geometry be in polygons so subdivision levels can easily added for additional details. This tutorials covers the process of converting a SolidWorks or Alias model (solid or surface data) into polygons through Maya. Once the models have been converted into polygons, they can be easily open in Mudbox.



SolidWorks



Mudbox



Maya

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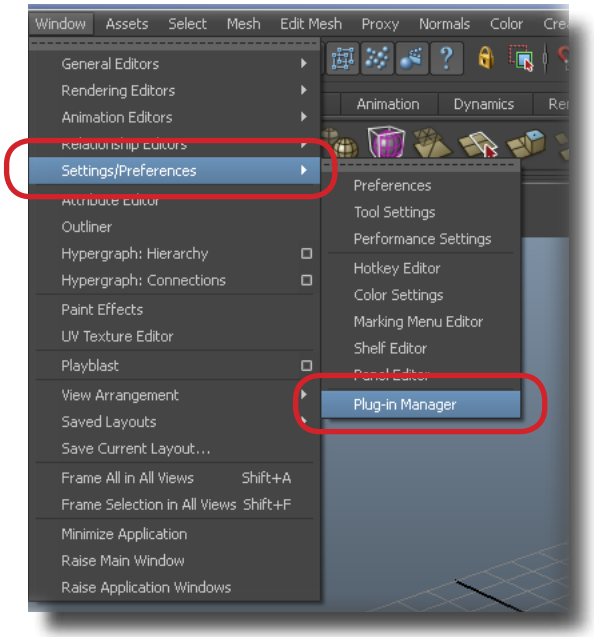
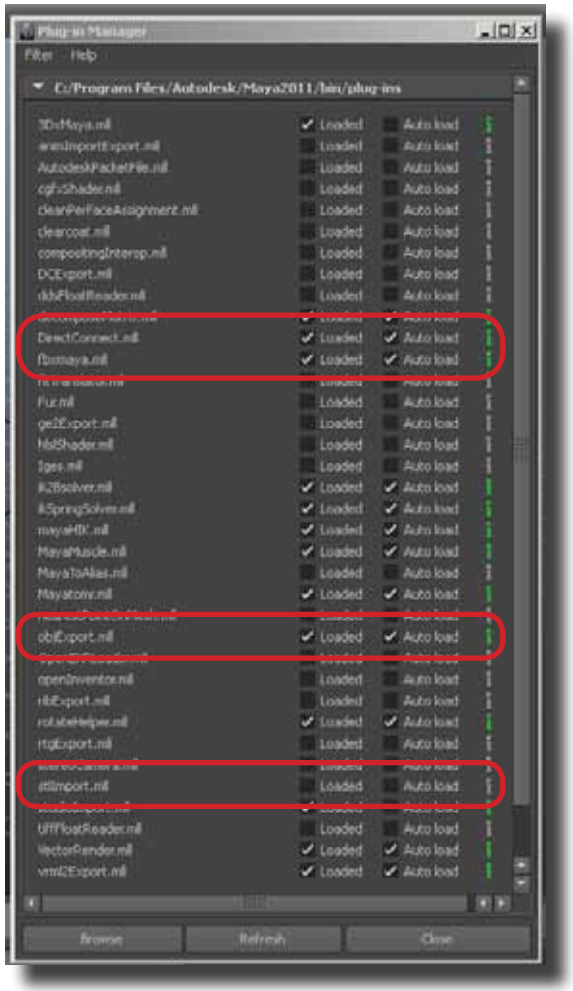
Step 1 Open Maya and make sure the correct plug-ins are loaded for importing and exporting the 3d model. Go to Window > Settings/Preferences > Plug-in Manager (A). Check the Loaded and Auto Load columns for the following plug-ins:

- DirectConnect
- fbxmaya
- objExport
- studioImport

A



B



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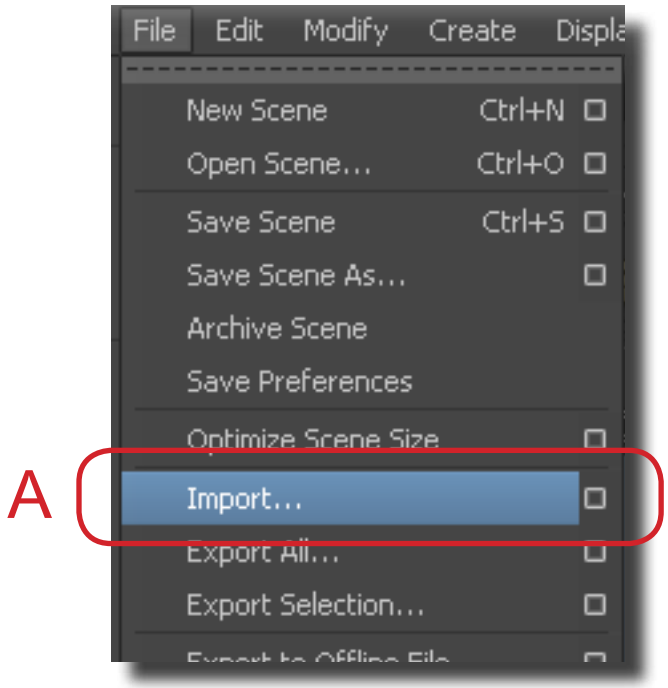
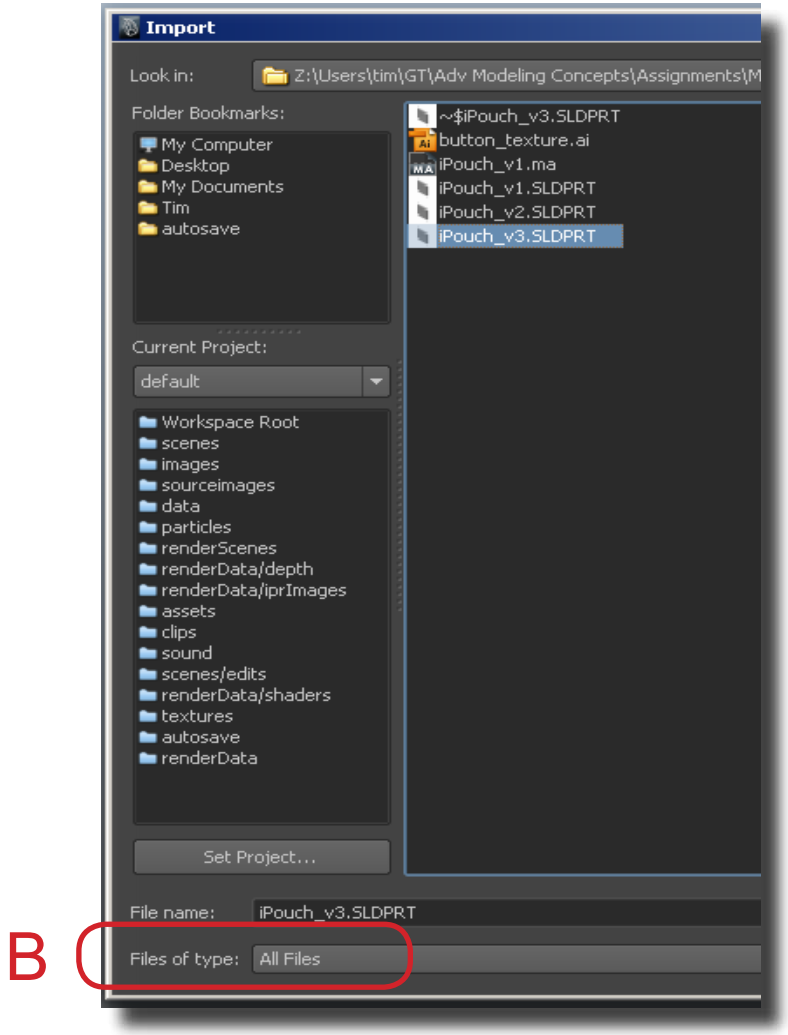
Step 2 Open the 3d model in Maya by importing it into a new file. Go to File > Import ... (A). Make sure the File Type is set to “All Files” (B).





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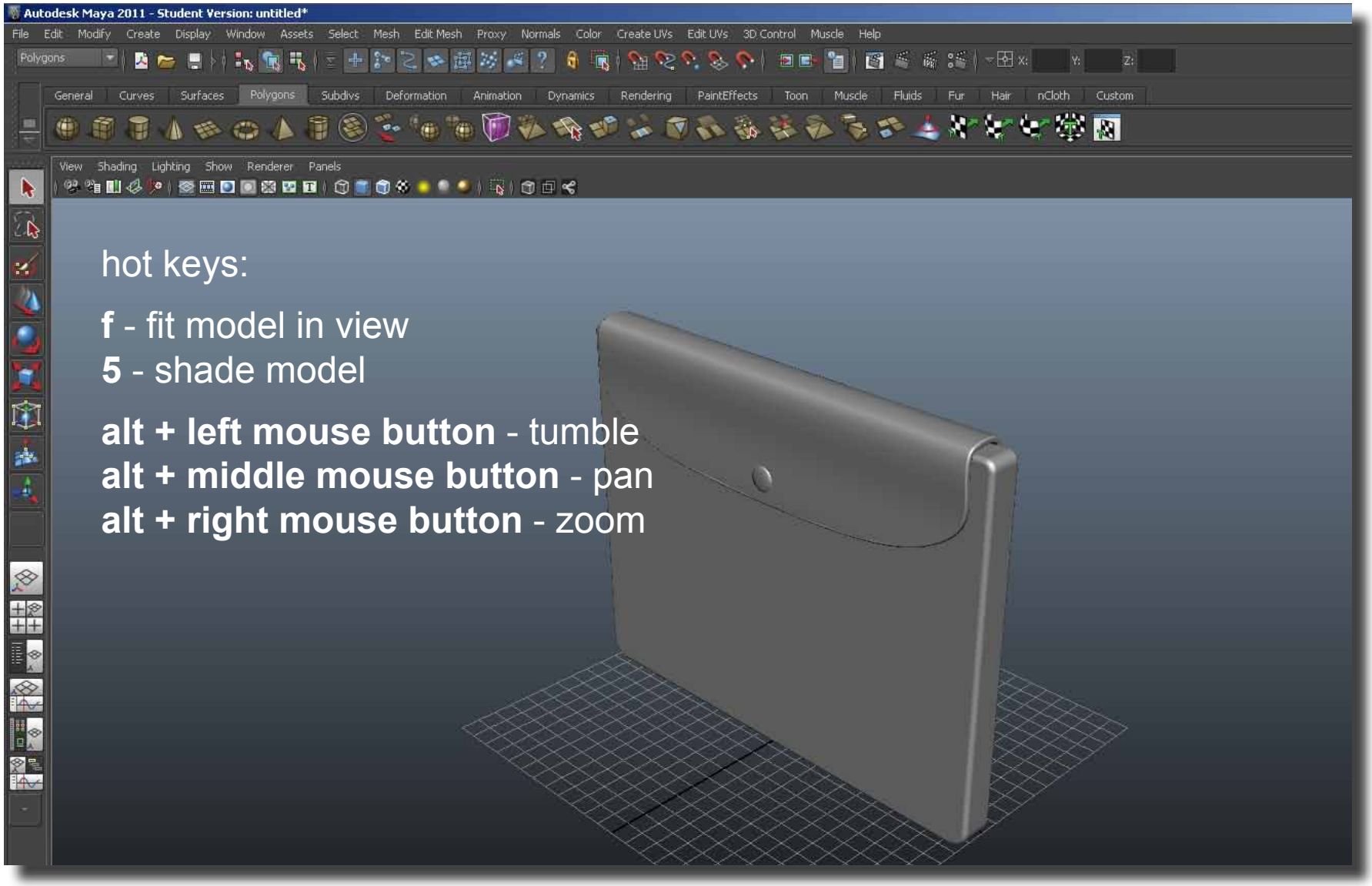
Step 3 Review the model in Maya to make sure it is complete and without any problems. The model is surface data no matter if is a SolidWorks or a Alias file. Below are some useful hot keys for viewing and navigating in Maya.



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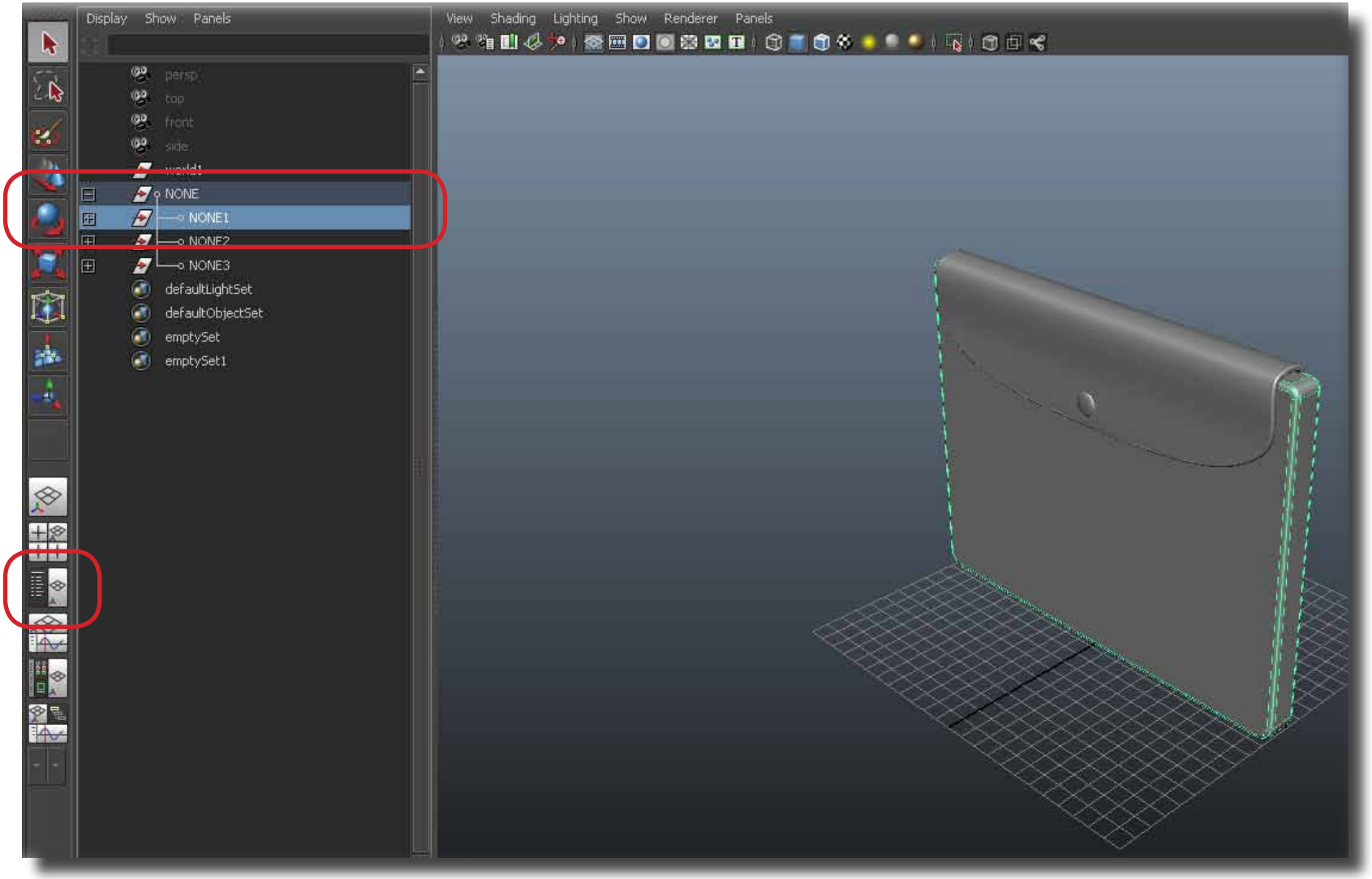
Step 4 To convert the individual components, open the Perp/Outliner view (A) and click on the plus icon next to the "NONE" item in the drawing tree (B). Then select the first item below the top group.



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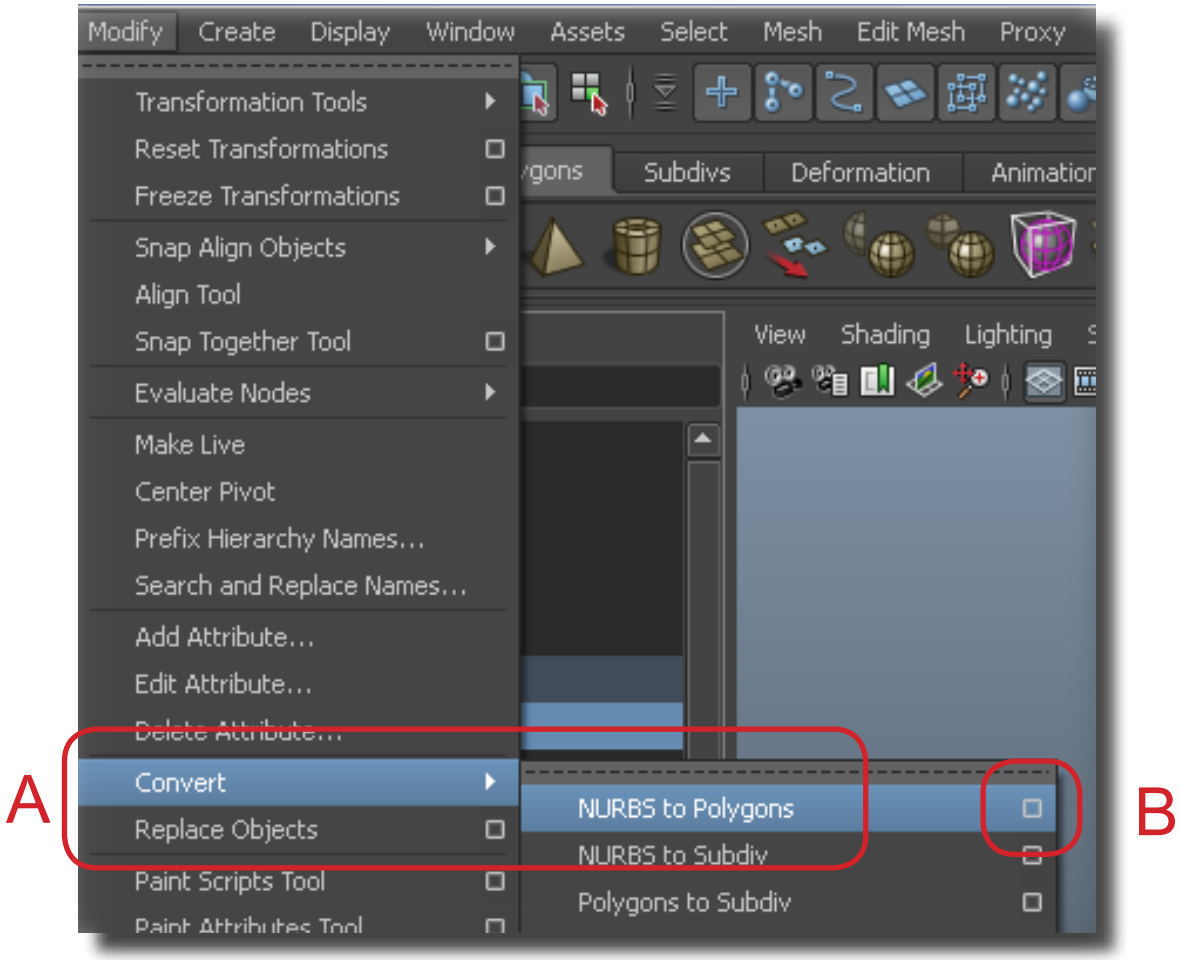
Step 5 To convert the component, go to Modify > Convert > NURBS to Polygons (A). Make sure to select the square icon (B) at the end of the menu item to open the option box.



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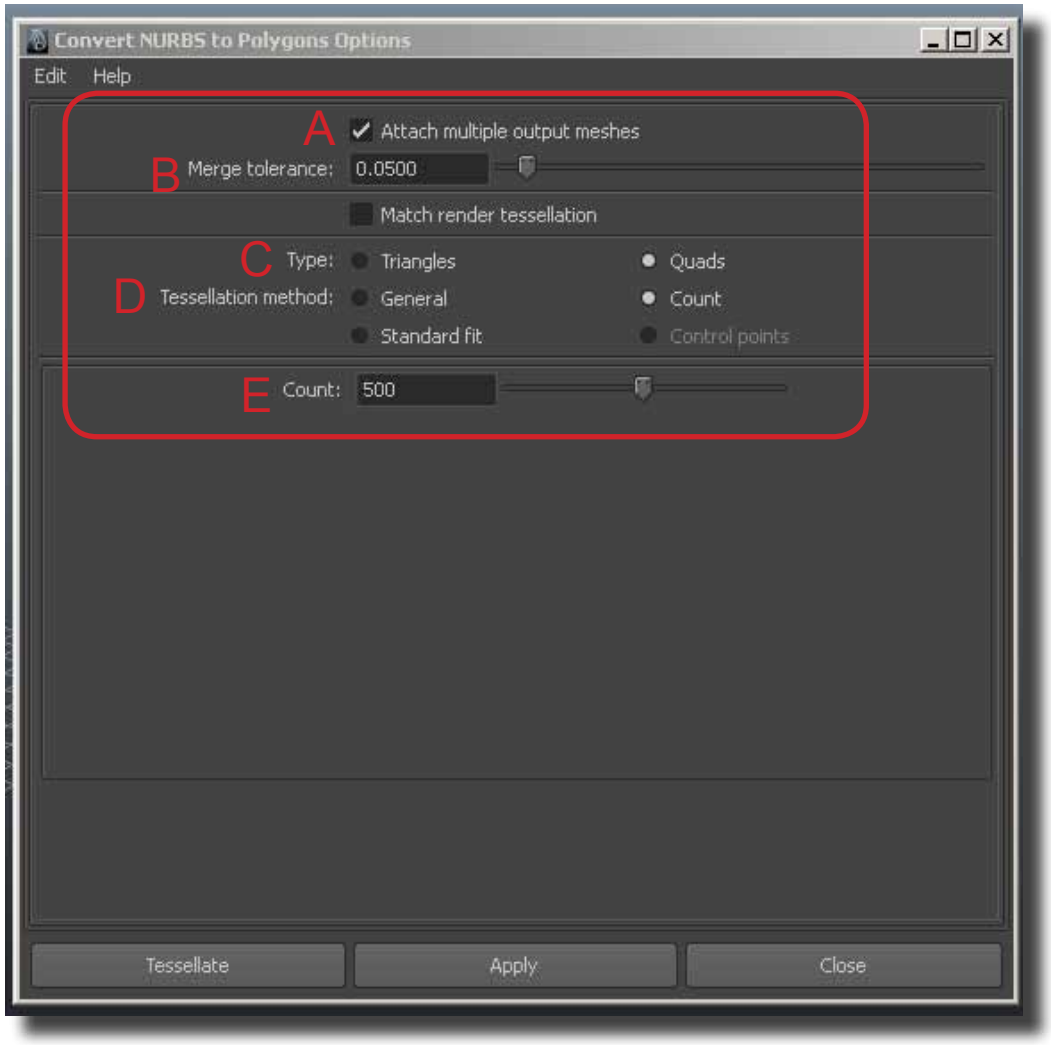
Step 6 In the option box that opens up for converting NURBS to polygons, make the following changes: select Attach multiple output meshes (A), set Merge tolerance to .05 (B), change Type to Quads (C), Tessellation method to Count (D) and Count to between 500 to 1000 (E) depending on form.



NOTE: Using the "Count" method for tessellation is a good, general method to convert to polygons. Depending on your form, the actual Count number may need to be increased or decreased. Start with 500 and go through the complete process of exporting and importing into Mudbox. See how the form looks and if necessary, reconvert at a different number.

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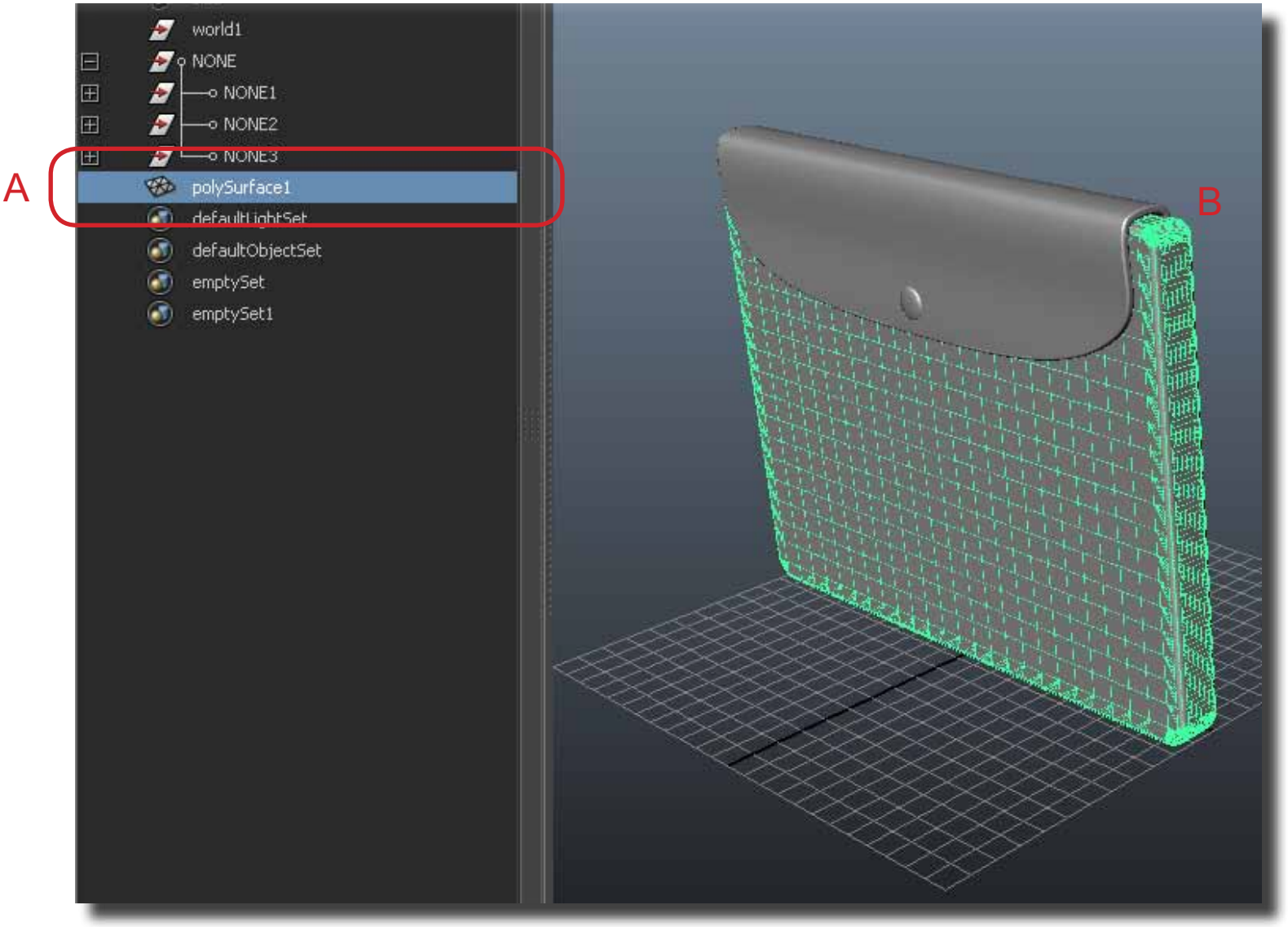
Step 7 Make note that the converted form should be a single ploygon object (in this example a “polySurface”, A & B). If multiply objects are listed in the Outliner, then delete the objects and re-convert. Make sure the “Attach multiple output meshes” option is selected.



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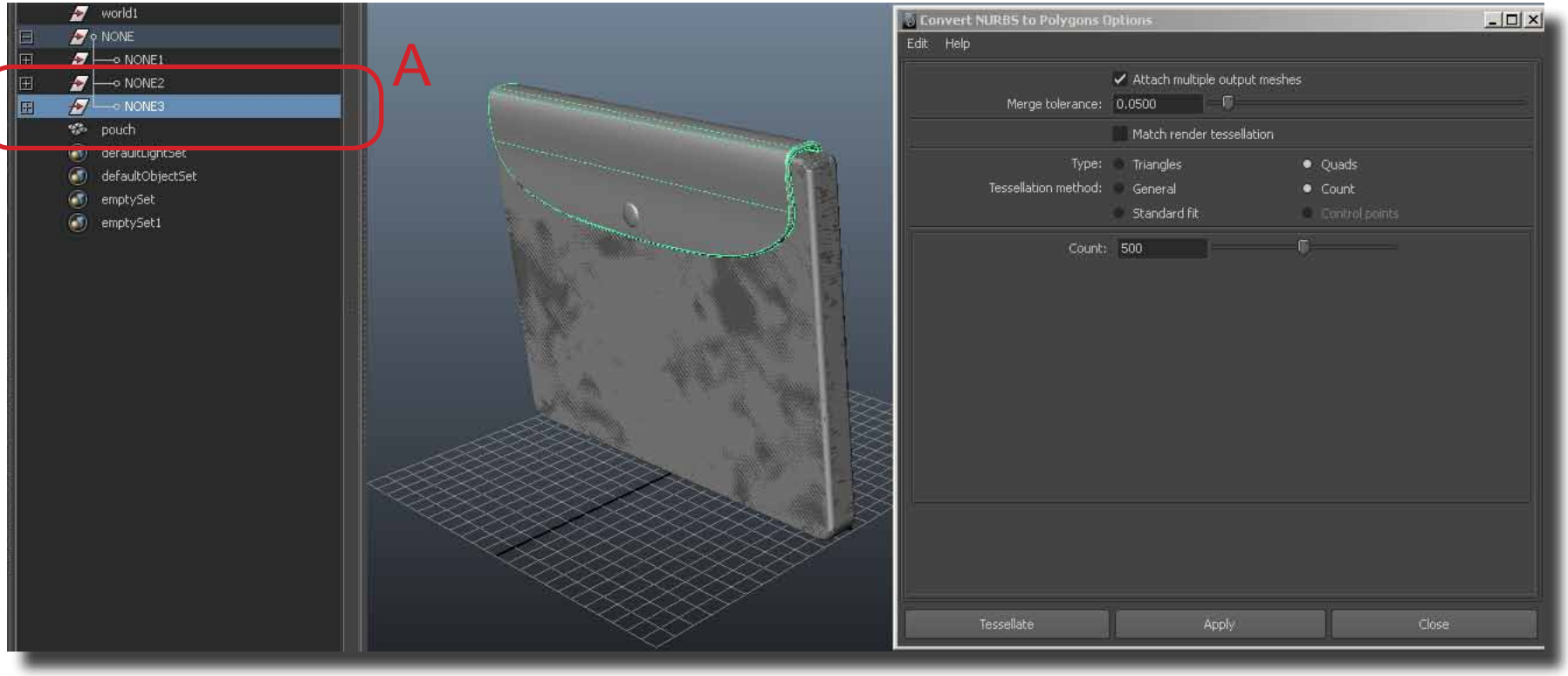
Step 8 Repeat the steps 5 - 7 to convert the other parts of the object (A). For simpler forms, the count number can be decreased or Triangles can be used. See next step.



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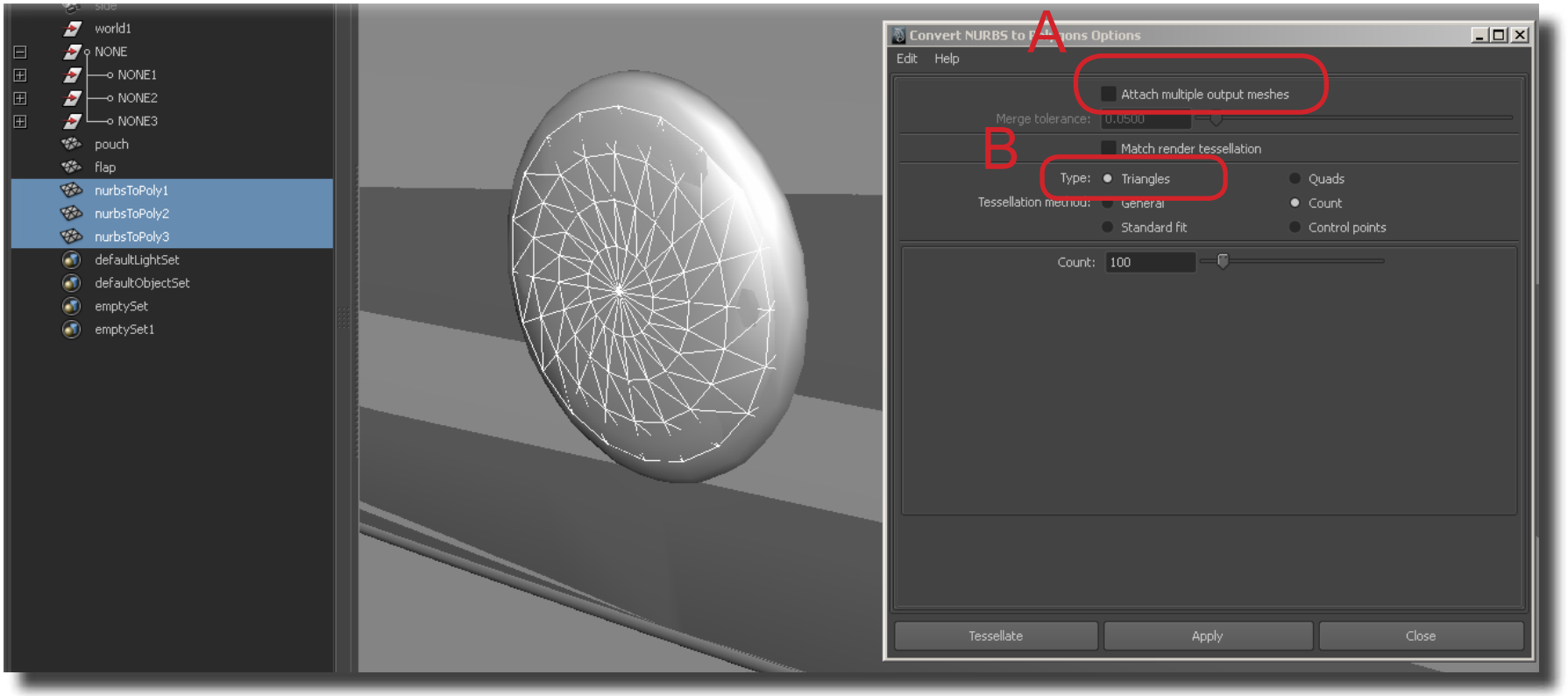
Step 9 If an object is not going to be sculpted in Mudbox but simple painted, then it does not need to have Attach multiple output meshes (A) selected. As well, Triangles (B) are a better choice for some types of polygons. Triangles fit a revolved form better.



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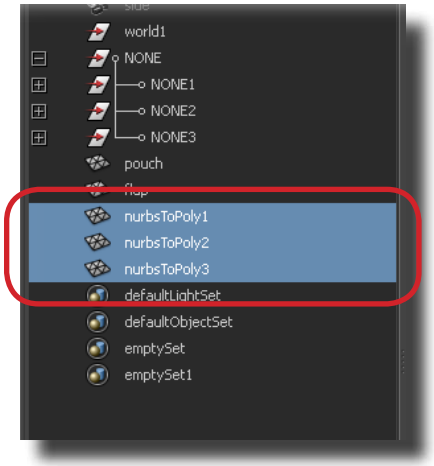
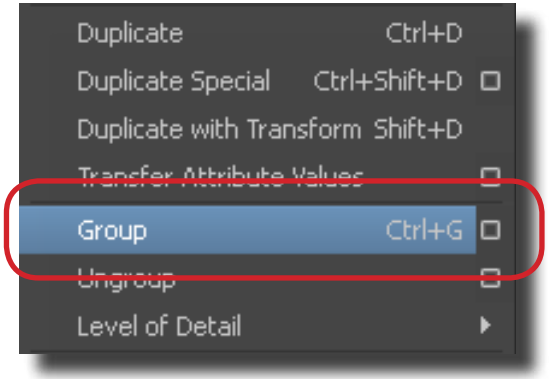
Step 10 To handle multiply polygons easier in Mudbox, select all the individual polyset (A) and choose Edit > Group (B) to make one polyset (C). Note a group of polysets cannot be sculpted (edges will pull apart) but only painted.

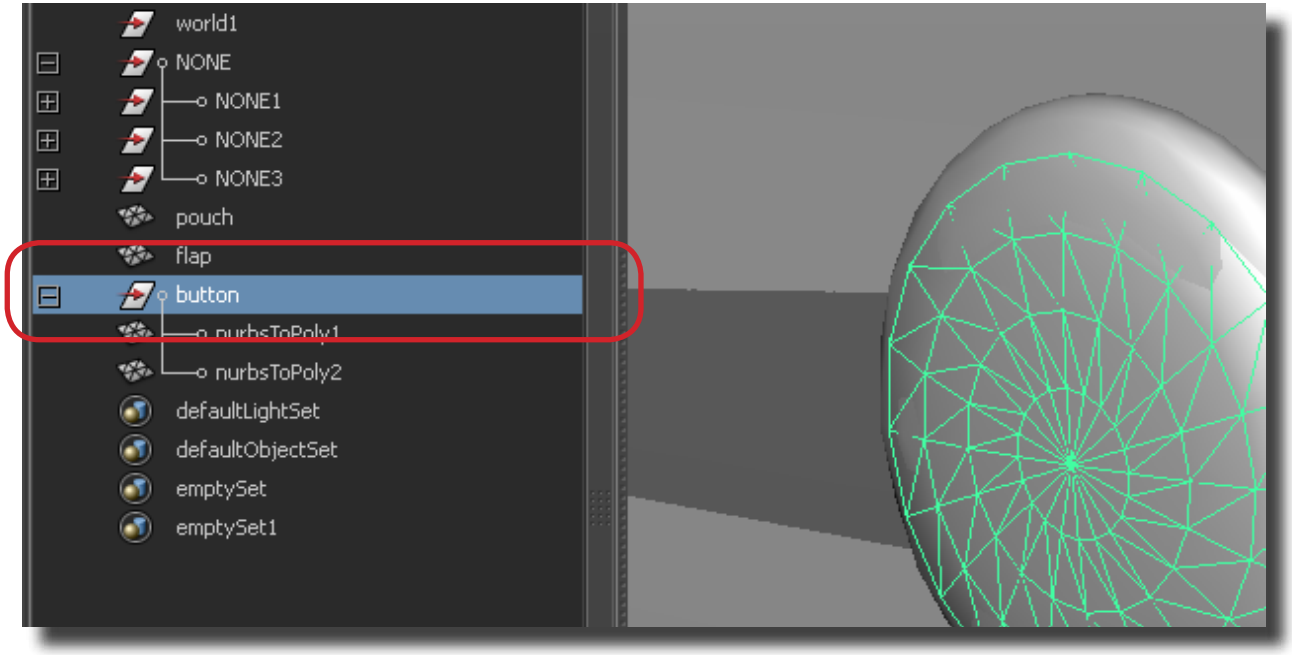
A



B



C



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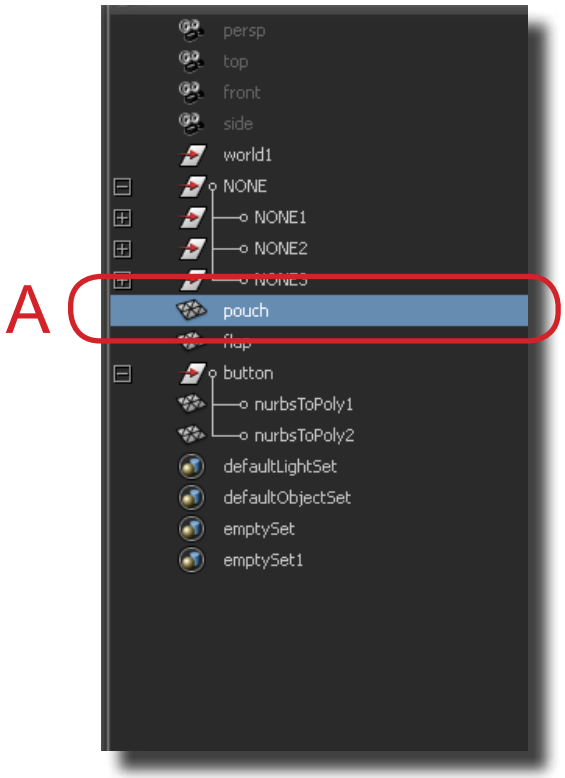
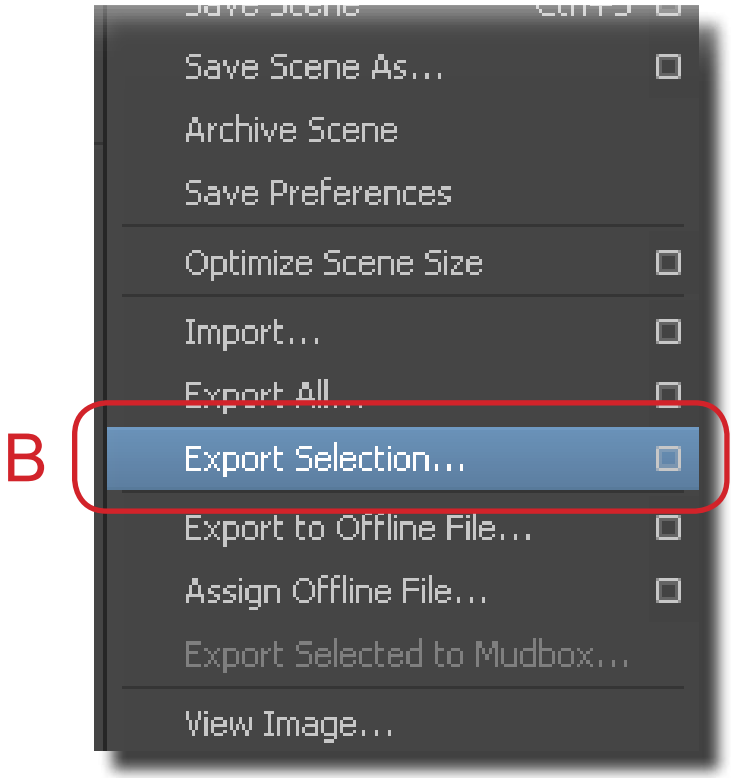
Step 11 Export individual objects separately. Select the object in the Outliner (A) and go to File > Export Selection (B). Make sure to select the Option Box icon at the end of the menu.





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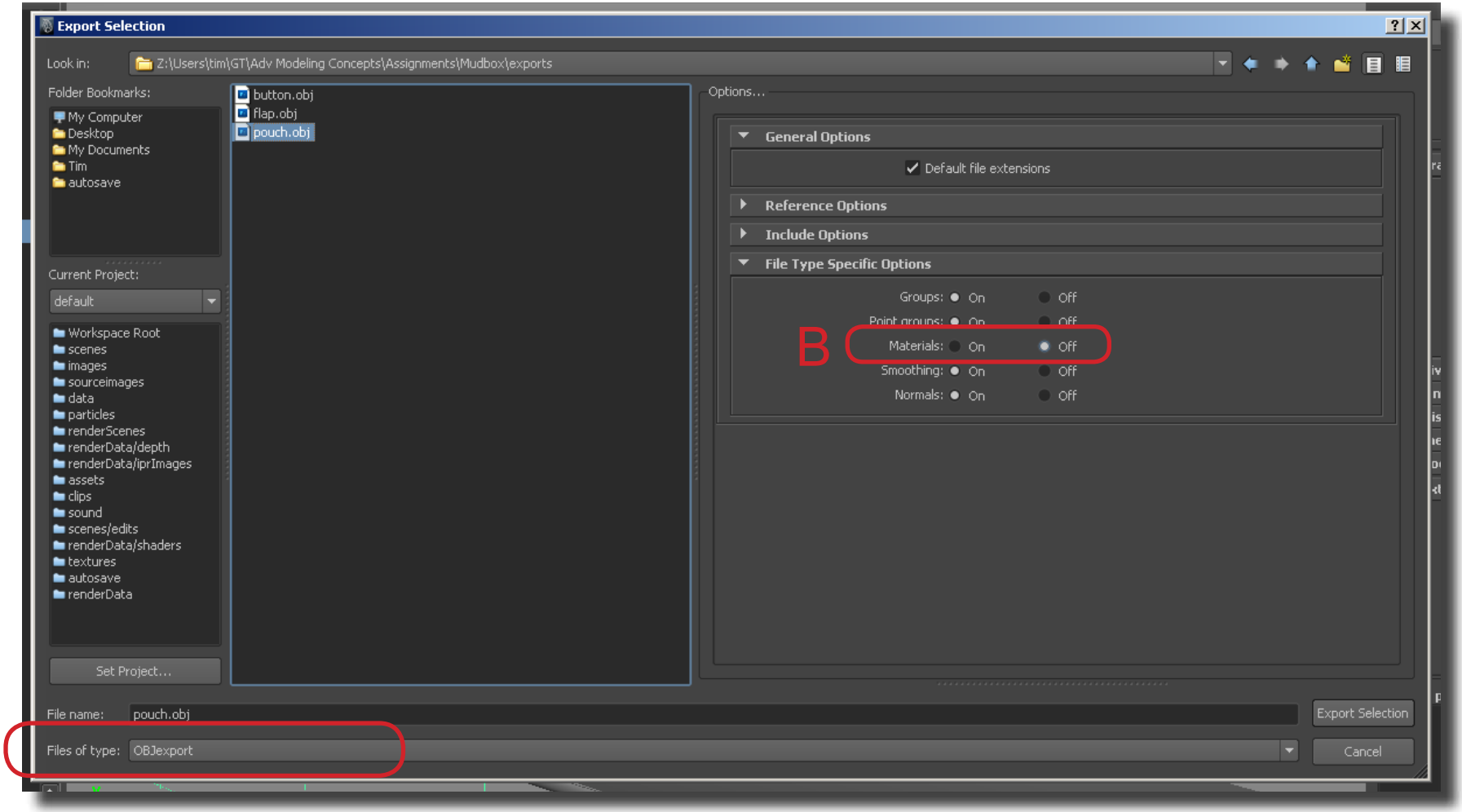
Step 12 Set the file type to OBJexport (A). If the Options panel is available, turn off the Material Option (B).



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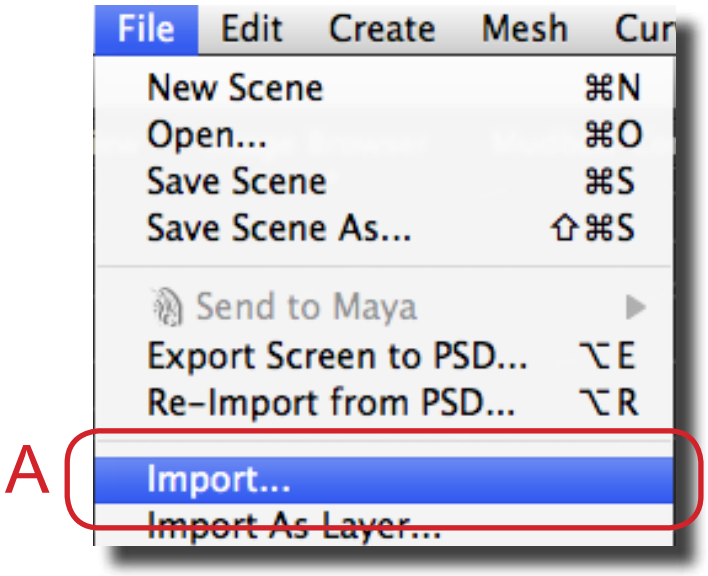
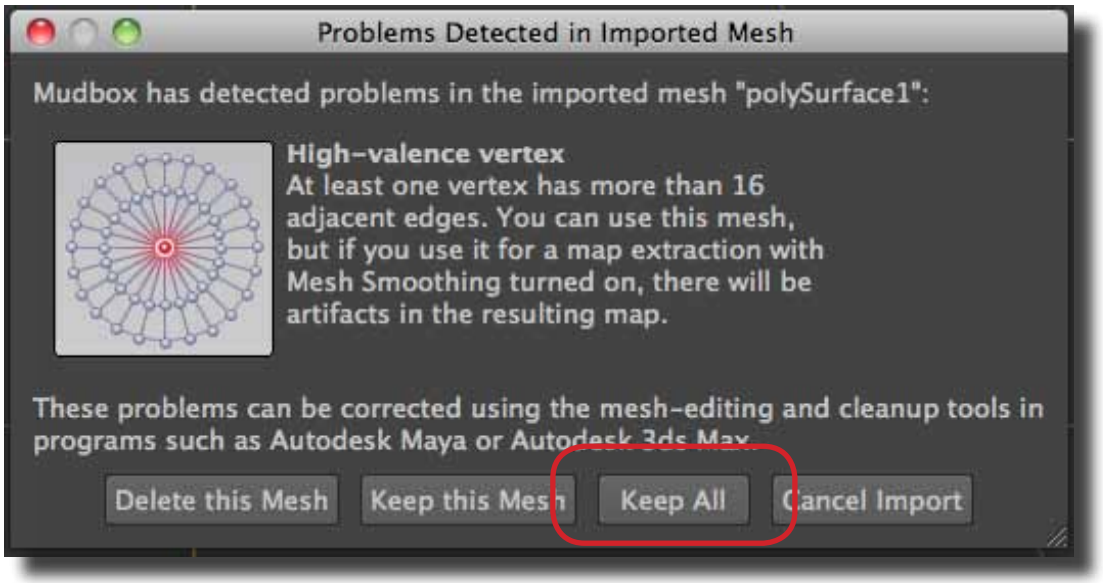
Step 13 Start Mudbox and choose File > Import ... Select the obj file. Image B indicates a typical issue with poly meshes that have been converted from CAD data. An issue like this type is acceptable so choose Keep All (B).





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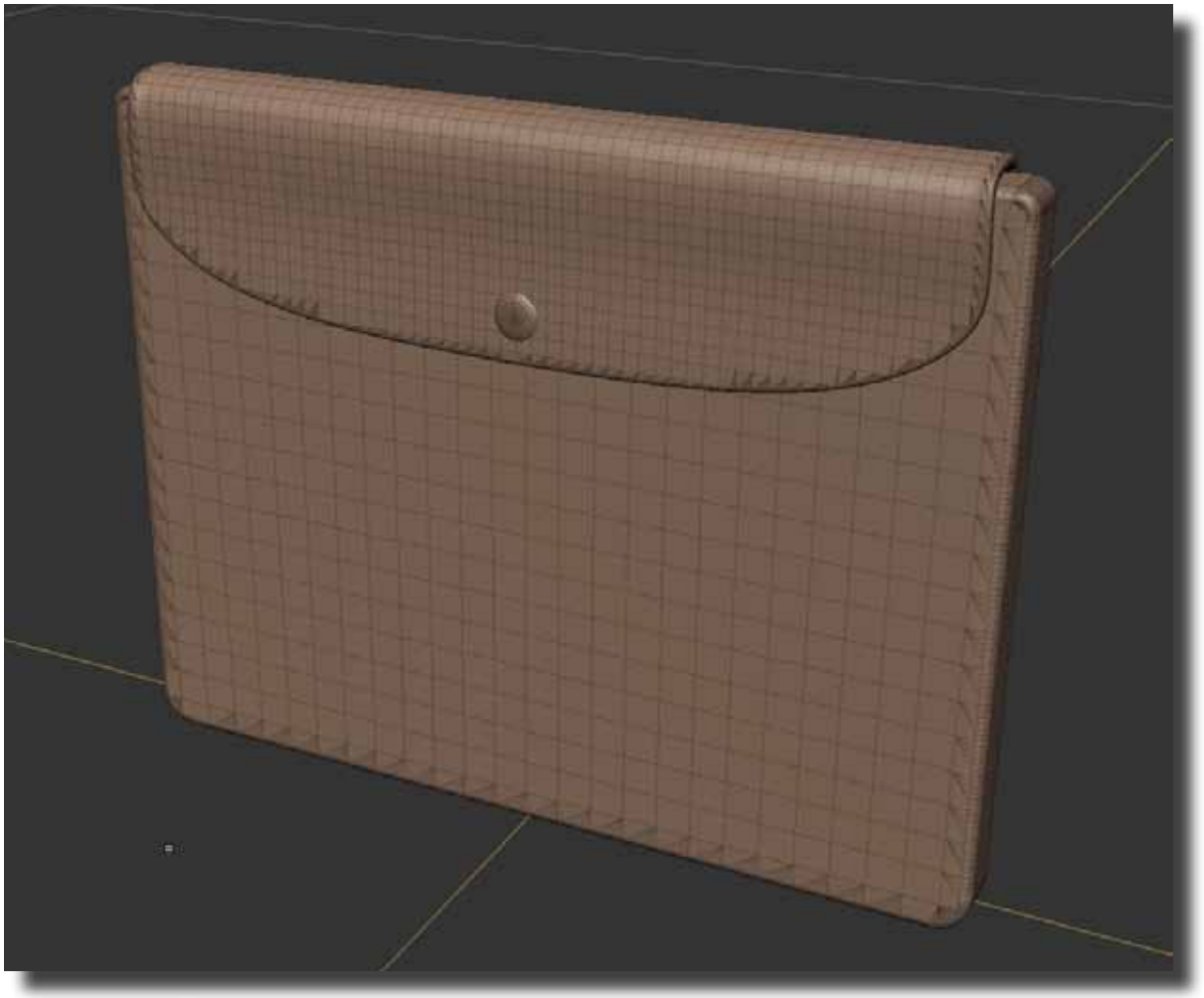
Step 14 Repeat the last step to import all the separate objects.



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