

"ProBuilder" Documentation

12-20-2012; v1.7.3

tutorial videos + more at:

["www.sixbysevenstudio.com"](http://www.sixbysevenstudio.com)

["www.sixbysevenstudio.com/forum"](http://www.sixbysevenstudio.com/forum)

Please register your copy, for frequent Updates and Info!

Once registered, you can request a Unity 3.x compatible version of ProBuilder

To register, just send an email with your invoice number to ["contact@sixbysevenstudio.com"](mailto:contact@sixbysevenstudio.com). I update these tools often, and registering keeps you up-to-date! Plus, I really like to keep in touch and see how these tools are helping you. I will never use/sell/etc your email for anything other than sixbysevenstudio.com info, I hate spam too!

Installation and Setup

You need to set up a few quick things for ProBuilder to do it's awesome work:

1. If this is an upgrade, you must completely remove the old ProBuilder installation:
 - a. If you have v1.6 or above:
 - i. Delete the folder called "ProBuilder" in "Assets/6by7"
 - ii. Delete the folder called "UVTool" in "Assets/6by7"
 - b. If you have v1.5 or lower:
 - i. Delete the folder called "ProBuilder" in "Assets/Editor/6by7"
 - ii. Delete the folder called "ProBuilder" in "Assets/6by7"
2. If you haven't already, open Unity and double-click the ProBuilder package to install it
3. Go to the tag manager, and add the tag "BuilderBox", and "ProGroupsManager"
4. Create the ProBuilder window by choosing "Window" from the top menu bar, then "6by7", then "ProBuilder".
5. Place your window- the code is setup to work in a vertical layout, so I recommend drag-and-dropping it over to the left or right side of the screen.
6. Click "Activate" in the window, and you are ready to go!

Using ProBuilder

ProBuilder is so simple, you may actually need to "unlearn" some habits. It uses a simpler, faster, more direct method of building, but is still very efficient and powerful.

There is no cutting, chamfering, extruding, beveling, etc. Relax, think simple! With ProBuilder, you build everything much like Legos- many boxes, simple editing. Check out the demo videos on ["www.sixbysevenstudio.com"](http://www.sixbysevenstudio.com) for a visual demonstration!

1. Step 1: Create

- a. Create a new box by clicking "New Box" (I did say "simple").
2. Step 2: Edit
 - a. Don't use the "scale" tool! It won't break anything, but isn't good to use.
 - b. To edit geometry, click "Edit Geometry" (also simple!), with one or more boxes selected.
To move a single vertex, simply click on a it, then drag it around with the Unity-standard movement handles.
 - c. You can drag-select to grab multiple vertices at once.
 - d. To select all the verts on a face- just click the face!
3. Step 3: Texture
 - a. To edit textures click on "Edit Textures", with one or more boxes selected. A window will open with a whole list of new options- don't panic, they are just as simple! Select one or more faces by clicking on them, or drag-selecting, and then:
 - i. Select a material by drag-and-dropping it into the Material slot (very top)
 - ii. You can also select a material via the Unity Material Browser by simply clicking on the standard "dot" next to the material slot, then double clicking any material in the browser
 - iii. Now that you have a material selected, simply CTRL-right-click on any face to apply that material
 - iv. ...or, select multiple faces and click the "Apply" button to mass-apply the chosen material
4. Step 4: UV Control
 - a. UV Control is managed via the same interface as textures. Enter "Edit Texture" mode, select the faces to edit, and then:
 - i. Mirror the texture horizontally by clicking "Flip U"
 - ii. Mirror the texture Vertically by clicking "Flip V"
 - iii. Swap the U and V alignment by clicking "Swap U/V"
 - iv. Force the texture to always fill it's plane, without stretching, but enabling the "Fill" checkbox
 - v. Change the "Scale" values to control how the texture tiles in X (horizontal) and Y (vertical) directions
 - vi. Change the "Offset" values to move the the texture Left/Right (X) or Up/Down (Y)
 - vii. Rotate the texture using the "Rotation" value- most useful for flipping 90 or 180 degrees.
 - viii. Enable the "World Space" checkbox to force textures into world-space coordinates

Collision

ProBuilder does not normally generate colliders for each box, since it is much more efficient to build non-colliding boxes for visuals, and then place larger, simpler boxes, . Don't worry though- when you do need collision, ProBuilder does all the work, in the click of a button!

1. Press “Enable Collider” to have ProBuilder create and assign a properly sized Mesh Collider for each selected box.
2. Press “Disable Collider” to remove the Mesh Collider from all selected boxes.

Optimization/Vis Toggles

ProBuilder features some very powerful and handy optimization features. Keeping with the theme, they are all very simple to use and obvious in their purpose.

Optimization in ProBuilder, much like Hammer, is automated based on a few special materials. You simply place these materials on a surface, and ProBuilder does the rest. This has the added bonus of making it very easy to see exactly what type of “Special” any box/face is.

1. NoDraw- disables rendering, occlusion, and lightmapping for the face. Use this on any faces that won’t be seen by the player, and don’t need to do anything special.
2. Occluder- disables rendering and lightmapping, enables occlusion for the face. Use this on faces that should occlude (all box faces are automatically “occludee”). An extremely efficient way to make use of the Unity occlusion system!
3. Collider- same as NoDraw, except applies a see-through collision material that works very well for visualizing collision volumes.
4. Trigger- same as Collider, except the material has an orange color, useful for visualizing triggers and other non-colliding volumes.

At any point, you can:

1. Click “Toggle NoDraw” to instantly toggle the visibility of NoDraw faces.
 - a. You must toggle NoDraw visibility ON before rendering Lightmaps- see “Lightmapping”, below
 - b. Make sure to do toggle NoDraw visibility OFF before building your game
2. Click “Toggle Zones” instantly toggle the visibility of Trigger, Collision, or Occlusion faces.
 - a. You must toggle Zone visibility ON before building Occlusion data
 - b. Make sure to toggle Zone visibility OFF before building your game

Lightmapping

ProBuilder works great with Lightmaps, and takes care of all the complex work automatically. It even auto-generates a fully “normalized” UV2 channel for each object, on the fly! This allows beautifully smooth gradients and crisp, clean edges, which you can’t get with the built-in geometry. The only work you need to do is make sure you toggle ON NoDraw visibility before rendering your lightmap- otherwise light will pass right through the hidden NoDraw plane and create “light leaks”. See the section just above for details on toggling NoDraw visibility, it’s a single click!

Utilities

ProBuilder comes with several utilities for advanced-use scenarios.

WARNING: ONLY USE THESE IF YOU ARE CERTAIN YOU NEED TO, THE EFFECTS CANNOT BE UNDONE!

1. Strip Builder Boxes
 - a. This utility will strip ALL ProBuilder scripts from the selected boxes
 - b. Any “NoDraw” faces will be deleted, and any Zone faces will be unhidden
2. Clear Flags
 - a. This utility will clear the “flags” on all selected items.
 - b. If you don’t know what those are, you probably shouldn’t be using this Utility!

Extra

Documentation is like a cookbook- it’s great reference, but lousy teaching. To really get the most out of ProBuilder, be sure to check out all the videos and info at “www.sixbysevenstudio.com”.

Don’t forget to join the sixbyseven forum, where you can find all sorts of community help, advice, and inspiration: “www.sixbysevenstudio.com/forum”

Lastly, I always love to see how these tools help others- send me your own images or videos, and I will post them up on the official page as well!