



Wilberforce Wireframe User Manual

0.9.1beta

Introduction

Wilberforce Wireframe (WW) is a Shader for Unity 5 (5.3.6 or higher)

Online documentation can be found [here](#).

You can buy Wilberforce Wireframe at [Unity Asset Store](#).

Wilberforce Wireframe is currently in Beta and your feedback is welcome! Please share your ideas and features you would like to see with us at projectwilberforce@gmail.com.

Features:

- Blending between wirecolor and fillcolor
- Supports Transparent Render Queue
- Option for removing diagonal edges
- Option for perspective display of lines (line appears thinner as distance from camera increases)
- Flat shading of the fill color
- Rendering of back faces (transparent double-sided objects)

Planned features (FUTURE):

- Interaction with scene lights
- Phong shading (single-pass optimization), including textures
- Better lines caps
- Dashed lines
- Better diagonal edges removal method
- Alternative calculation supporting DirectX 9 level hardware

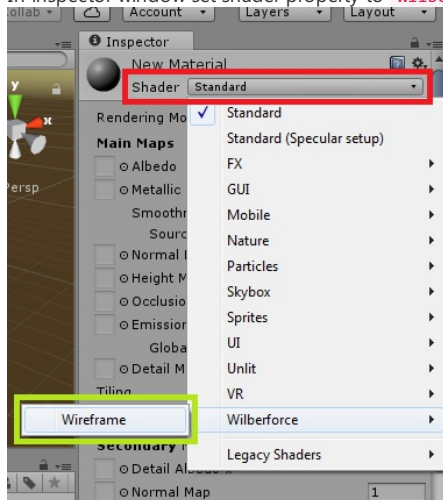
See [forum for discussion](#) and contact us at projectwilberforce@gmail.com for additional support.

Requirements

- Unity 5 (5.3.6 or higher; all editions including Personal)
- Works on following graphic APIs: *DirectX 11*, *DirectX 12*, *OpenGLCore*, *OpenGLES3*
- Windows, Mac, Linux

Installation

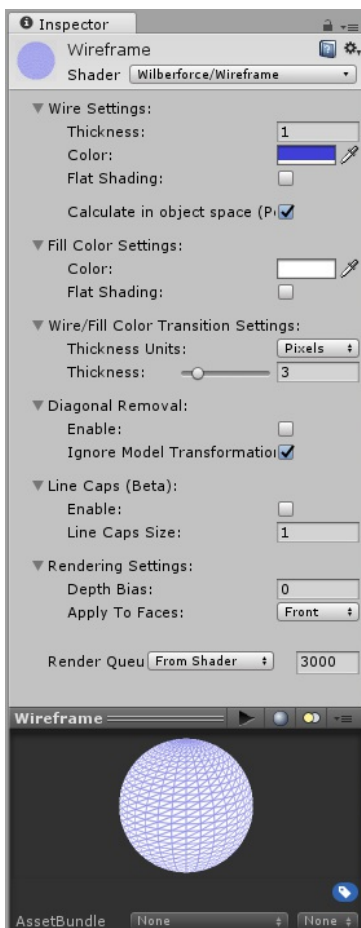
1. Import from Asset Store.
2. Create new material
3. Select created material
4. In inspector window set shader property to **Wilberforce/Wireframe**



5. Apply material to mesh by drag&dropping to desired object in hierarchy window or choosing it in the mesh inspector
6. Check included demo scenes on possible usage

Parameters

WW material behaviour is controlled by following parameters:



Wire Settings

Thickness How thick the line appears.

Color Color of the line (can be transparent).

Flat Shading Wires are shaded based on their orientation to camera (cosine of surface normal and view vector).

Calculate in Object Space (Perspective) Perspective display - line appears thinner as distance from camera increases.

Fill Color Settings

Color Color of the rest of the face (can be transparent).

Flat Shading Rest of the face is shaded based on their orientation to camera (cosine of surface normal and view vector).

Wire/Fill Color Transition Settings

Controls for appearance of transition between wire and fill color (anti-aliasing).

Thickness Units Units in which is thickness of the transition between wire and fill color specified.

Pixels : option is default and recommended; **Relative to Wire Thickness** : option will scale together with change in wire thickness

Thickness Thickness/width of the transition.

Diagonal Removal

Removes wire on longest edge of each triangle

Enable Enables diagonal removal.

Ignore Model Transformations This will not take transformations (position, rotation, scale) of model into account when removing diagonals. Recommended for dynamic meshes.

Line Caps (Beta)

Enable Switch on to display line caps (making the line thicker in the corners).

Line Caps Size How thick the line caps are.

Rendering Settings

Depth Biass Offsets depth of wire by given amount - use this to combat Z-fighting or for interesting effect.

Apply to faces On what sides of surfaces will be effect applied.

Front : default option; **Back** : use to make a backface material for "see-through" double-sided mesh. **Both** : both face sides visible

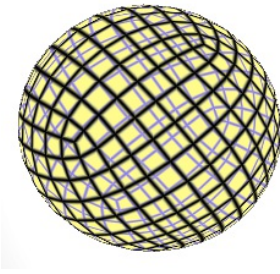
How to

Basic usage

Using the shader is straightforward - simply assign shader as described in Installation section and adjust parameters.

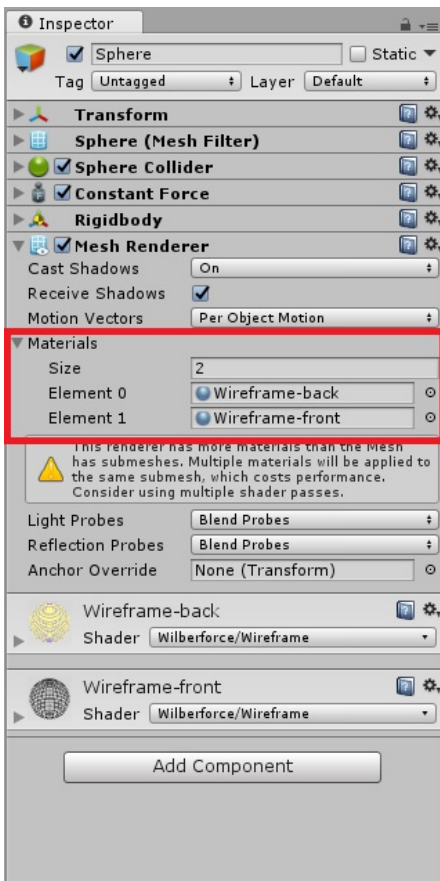
Note that you can combine wireframe shader material with another materials on same object (by setting fill color to transparent, you can make underlying material visible).

Transparent objects (Double-sided mesh)



Most interesting effect can be achieved by rendering the object transparent, with wireframe edges visible. To achieve this, you have to apply this shader twice - once for front faces with transparent fill color and second time for back faces:

1. Create two separate materials and assign **Wilberforce/Wireframe** shader to them
2. Set Apply to faces parameter to **Front** for one material, **Back** for another.
3. Set fill color to transparent (or semi-transparent) for material with **Front** faces rendering
4. Select object you want to render and open **Materials** section in Inspector Window. Set **Size** parameter to 2 (or more)
5. Assign our two materials to selected object (see picture below)



Contact Information

In case of questions or further issues, please contact us at projectwilberforce@gmail.com