

**DIGICRAFTS**



Textured Wire  
Animated Wire  
Projector Effect  
Wide range of shader  
and more...

Easy  
Wireframe **Pro**

## EasyWireframe Pro

Ultimate wireframe Shader

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Document version 2.0

Support email: [support@digicrafts.com.hk](mailto:support@digicrafts.com.hk)

# Introduction

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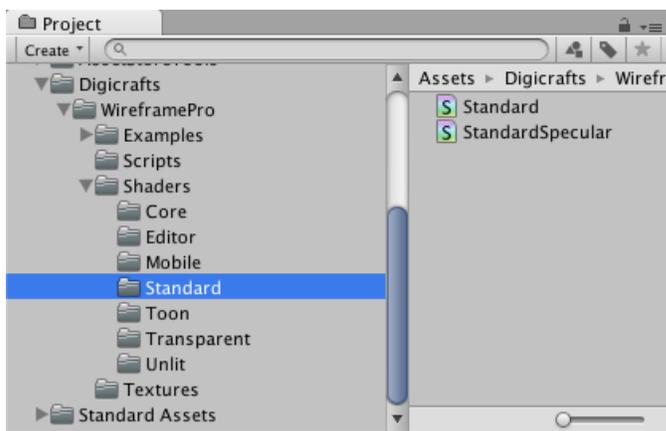
**Easy Wireframe Pro** is a shader package that display mesh wireframe with various effect. Textured wireframe and animated effect make it different from other wireframe shader in the market.

**Easy Wireframe Pro** depends on a barycentric information store in the mesh. **Easy Wireframe Pro** has a simplified workflow to generate the information. You can add the barycentric information from context menu. No extra mesh generation step is needed.

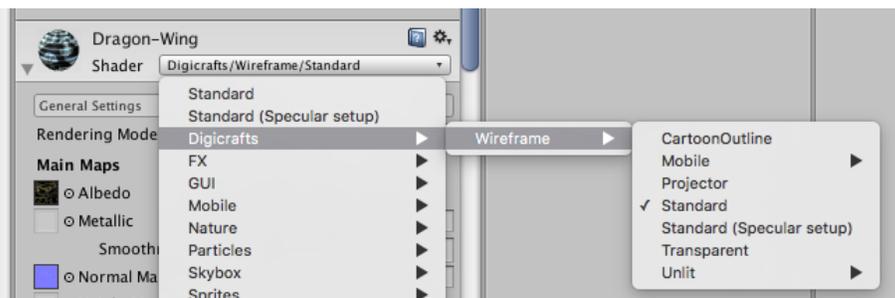
## Install the package

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1. Download and import the **Easy Wireframe Pro** Shader package from Asset Store
2. Shaders are located within the folder Digicrafts/WireframePro/Shaders.



3. Now, you can select wireframe shader from the shader section in your material inspector. The shader is inside “Digicrafts/Wireframe” section.

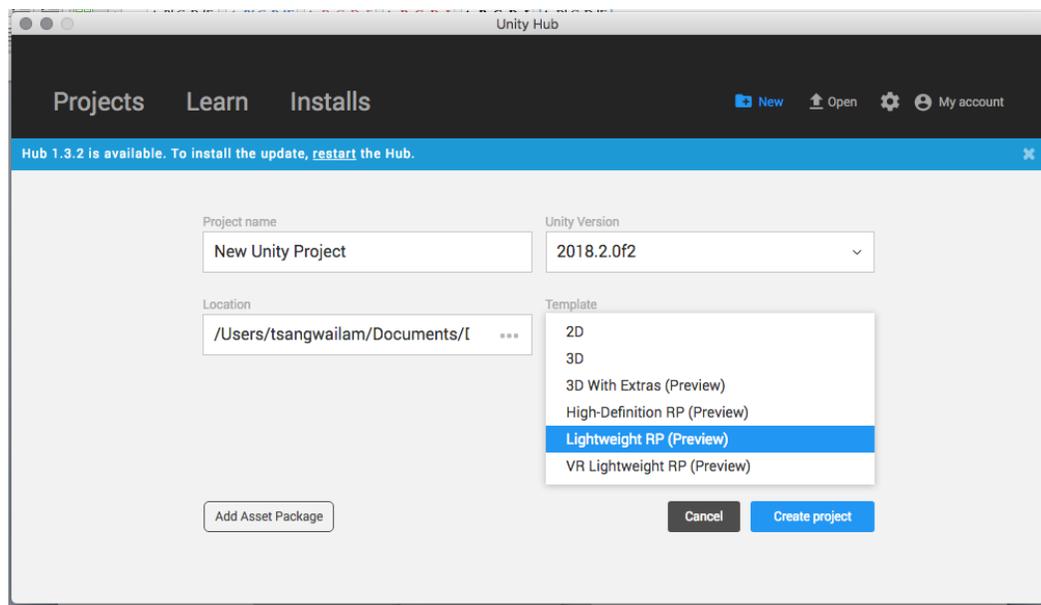


4. Examples are located in the “Digicrafts/WireframePro/Examples”. (Note: To make the examples work correctly, you need to call “Update All Wireframe Data” in menu Assets>Update All Wireframe Data.)

## Installation for Shader Graph Plugin

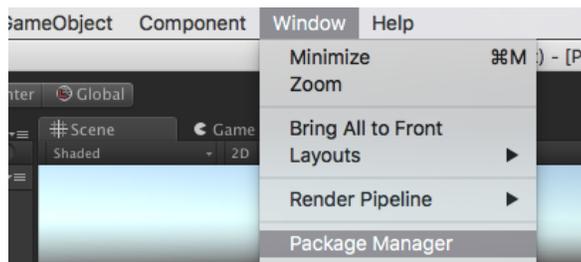
### **Shader Graph plugin only work with Unity 2018.2+**

1. If you start a new project, create a new project with Light Weight Render Pipeline support. **Skip to step 8 if you start a new project with Light Weight Render Pipeline.**



2. Or, if you already have a project. Add Light Weight Render Pipeline from Package Manager.

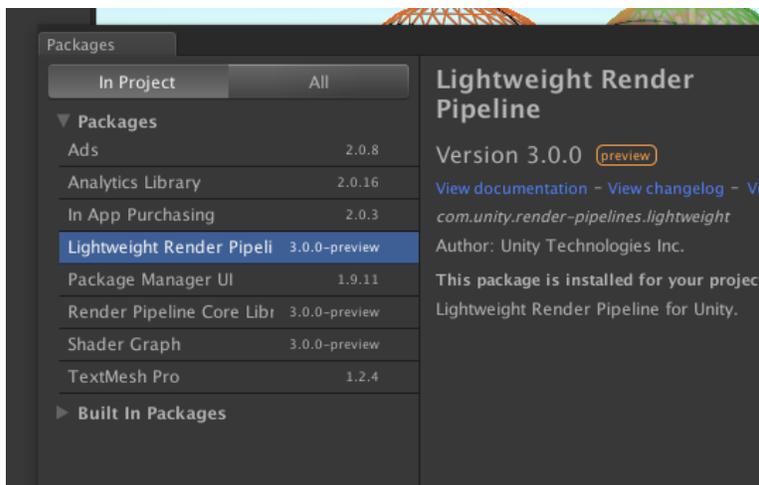
Open Package Manager from menu *Window>Package Manager*.



3. Select “All” in package selection



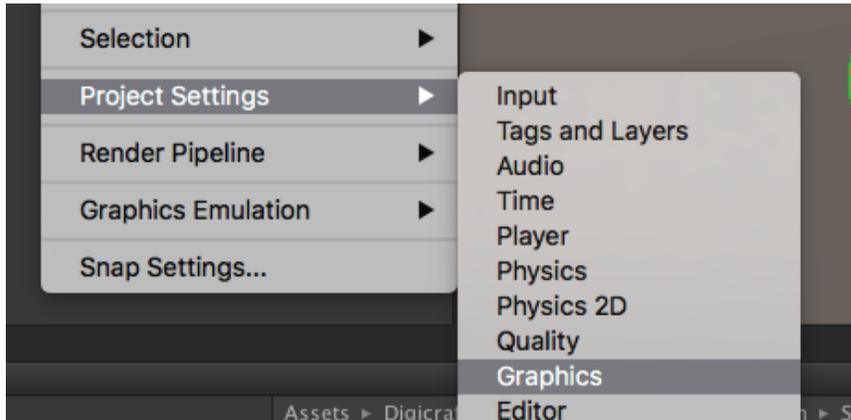
4. Select and install packages called “Render Pipeline Core”, “Lightweight Render Pipeline” and “Shader Graph”. Select version 3.0.0 or up for best compatible. ***Please use 5.13.0+ if you are using Unity 2019.***



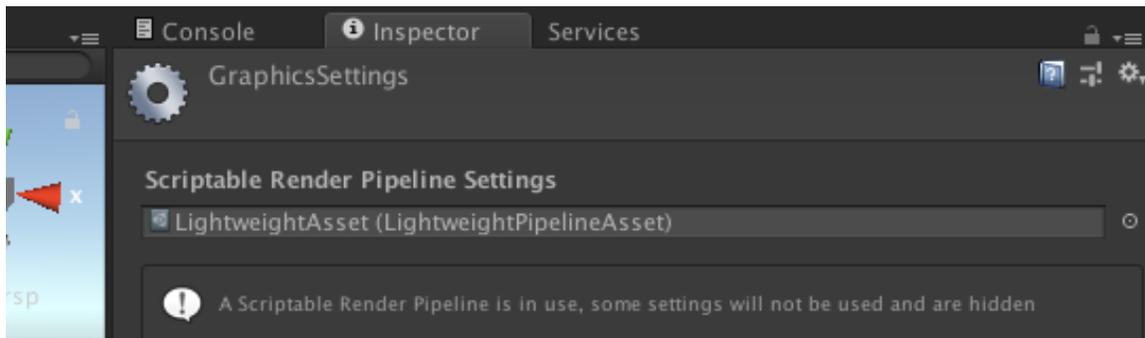
5. Create a Lightweight Pipeline Asset from the create menu.



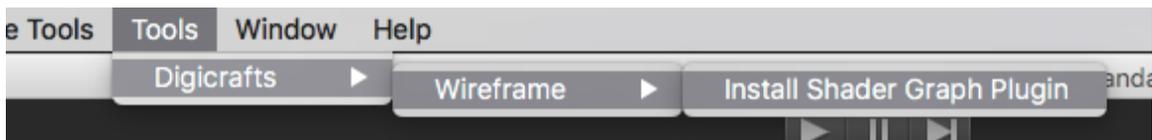
6. Open Graphics settings from menu>Edit>Project Settings>Graphics.



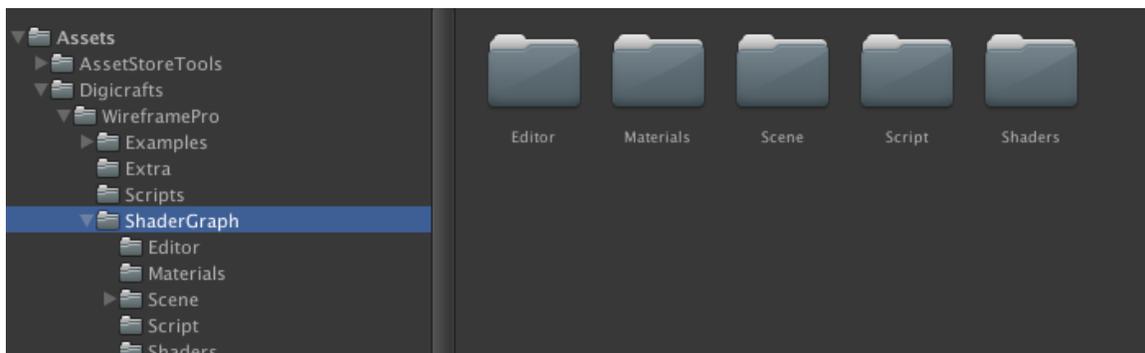
7. Assign the Lightweight Pipeline Asset to the Scriptable Render Pipeline Settings.



8. Install Wireframe Shader Graph Plugin from **Tools>Digicrafts>Wireframe>Install Shader Graph Plugin**



9. Now the plugin is installed in Shader Graph folder.



## Before using the shader

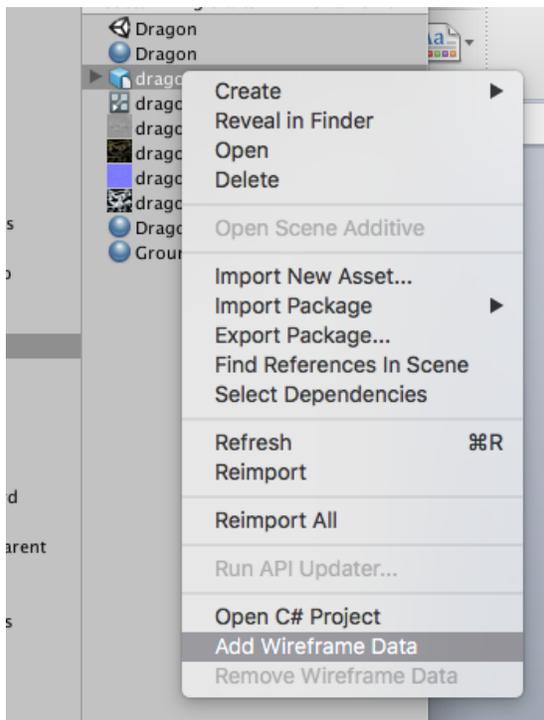
*Notices: You can skip the step in this section if you going to use the shaders work only for DX11/OpenGL 3.2+ or using the Render Pipeline shader.*

**Easy Wireframe Pro** depends on a barycentric information store in the mesh. **Easy Wireframe Pro** has a simplified workflow to generate the information.

To prepare the model use with wireframe shaders, you can right click on the model asset from the project window. Then select “Add wireframe data” in the context menu.

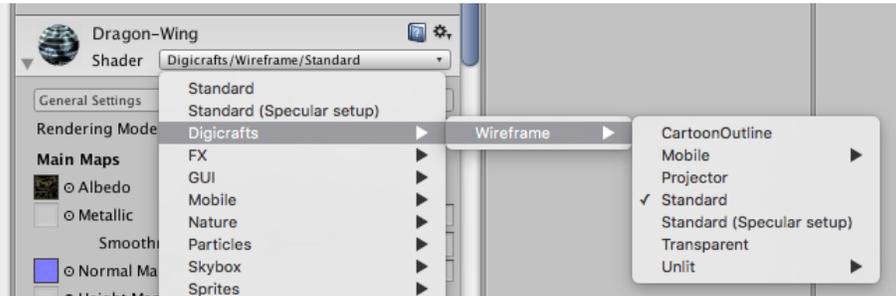
**Easy Wireframe Pro** will store the barycentric information in uv4 channel.

By the process of generate the barycentruc information. The vertex count may increase. Since there is limitation on vertex count (64k) in one mech. I suggest you to avoid using meshes with more than 32768 vertices.



# Types of Shader

**Easy Wireframe Pro** contains five main types of shader. Shaders are organized in categories and under the “Digicrafts/Wireframe” section of the shader selector.



**Transparent** – transparent wireframe.

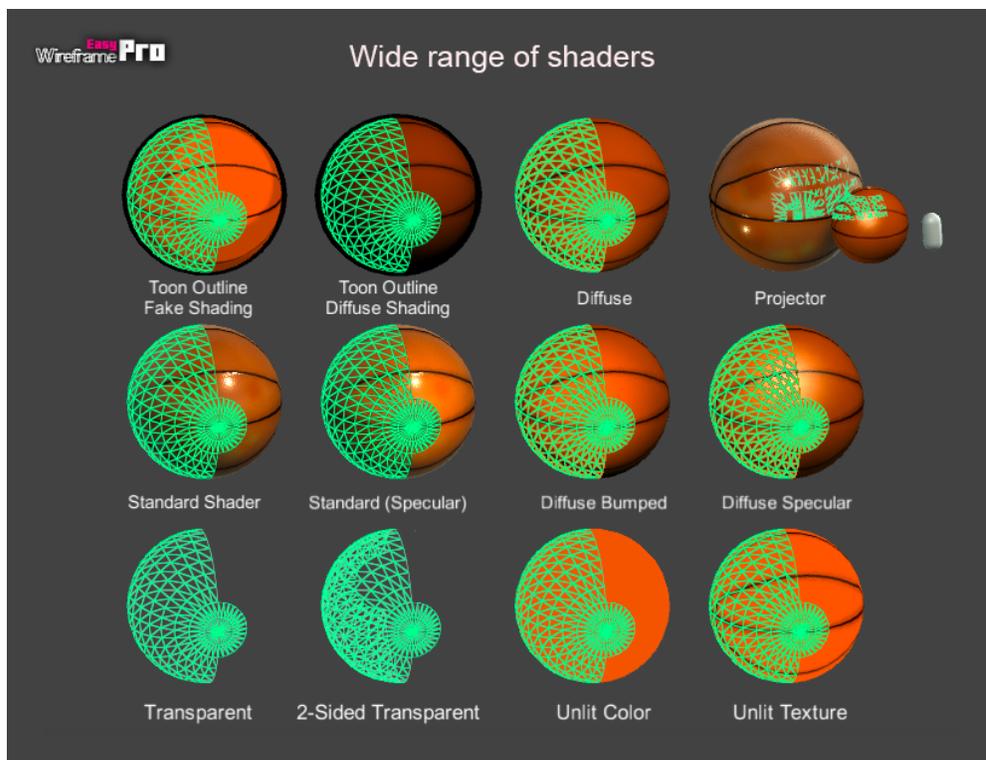
**Unlit** – wireframe with unlighted color and texture.

**Standard** – wireframe with full lighting and PBR effects.

**Mobile** – wireframe with diffuse and specular color. Best for mobile.

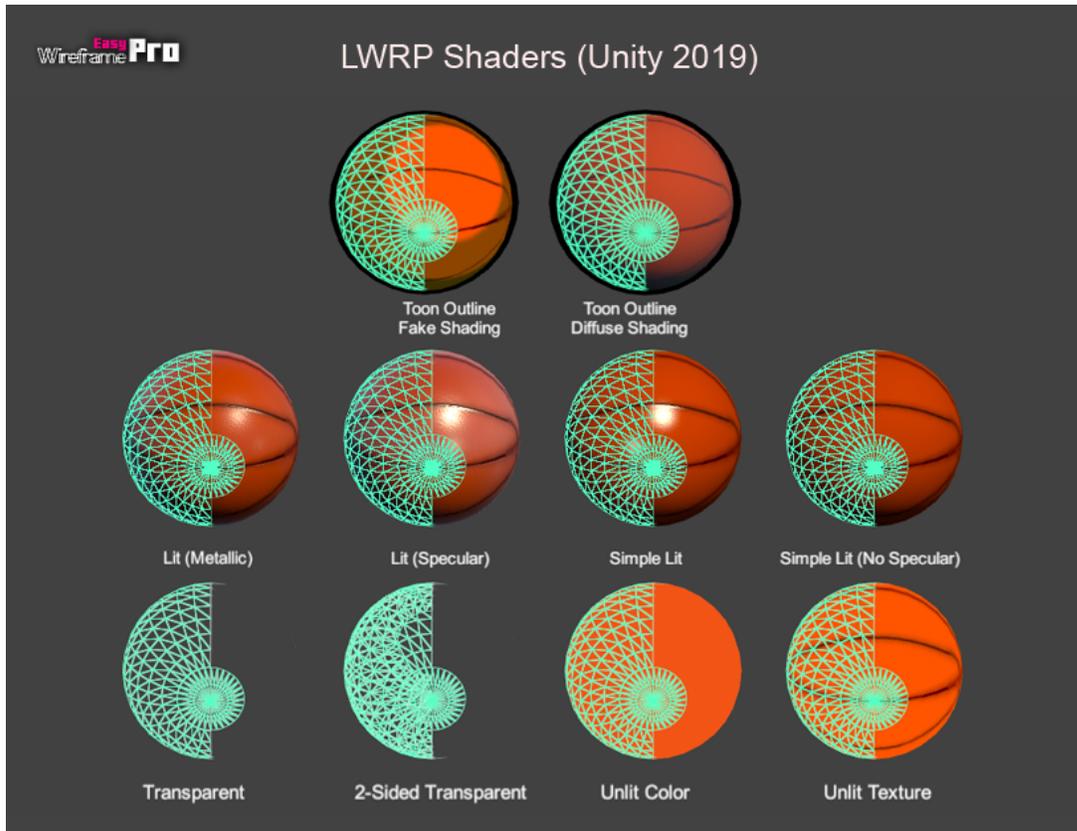
**Toon** – wireframe on toon shader with outline.

**Projector** – shader use with the projector.



## LWRP Shaders

The package included a series of shader use with Light Weight Render Pipeline. They support Unity 2019 with LWRP project. They are under LWRP category in the Digicrafts shader list.



**Transparent** – transparent wireframe.

**Unlit** – wireframe with unlighted color and texture.

**Lit** – wireframe with full lighting effects.

**Simple Lit** – wireframe with diffuse and specular color. Optimized for mobile and less power device.

**Toon** – wireframe on toon shader with outline.

## DX11 Shaders

There are some shaders which only work with DX11/OpenGL 3.2+. You can find in sub section DX11.

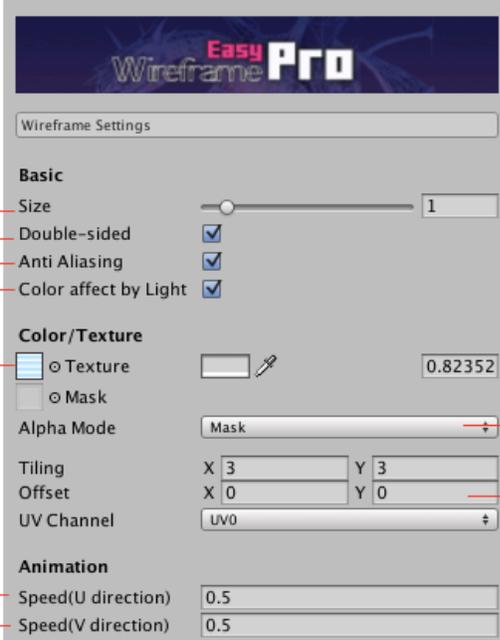
**DX11/Transparent** –transparent wireframe work without mesh preprocess

**DX11/Unlit** – wireframe with unlighted color and texture work without mesh preprocess.

**DX11/Standard** – wireframe with full lighting and PBR effects work without mesh preprocess.

# Inspector

**Easy Wireframe Pro** comes with a easy to use inspector which allow you to customize the wireframe effect. You can find this inspector in the shader menu of the shaders in **Easy Wireframe Pro** package.



The image shows a screenshot of the 'Easy Wireframe Pro' inspector panel. The panel is titled 'Wireframe Settings' and is divided into several sections: 'Basic', 'Color/Texture', and 'Animation'. Red lines connect various settings to descriptive text annotations on the left and right sides of the panel.

**Size**  
Thickness of the wireframe

**Doubled-sided**  
Enable/disable double-sided wireframe

**Anti Aliasing**  
Enable/disable anti-aliasing

**Color affect by light**  
Allows wireframe color affect by diffuse/ambient/specular, etc. Depends on shader type

**Texture/Color**  
Set the color and texture of the wireframe

**Texture UV Speed**  
Speed of UV animation (in second)

**Alpha Mode**

**Color**  
Alpha set by color property

**Texture Alpha**  
Alpha follows main texture alpha inverted

**Texture Alpha Invert**  
Alpha follows main texture inverted alpha

**Mask**  
Alpha defined by mask texture

**UV Settings**  
Set the tiling and offset value of the wireframe texture. Specify the uv channel use for wireframe texture

**Wireframe Settings**

**Basic**

- Size: 1
- Double-sided:
- Anti Aliasing:
- Color affect by Light:

**Color/Texture**

- Texture: 0.82352
- Mask
- Alpha Mode: Mask
- Tiling: X 3, Y 3
- Offset: X 0, Y 0
- UV Channel: UV0

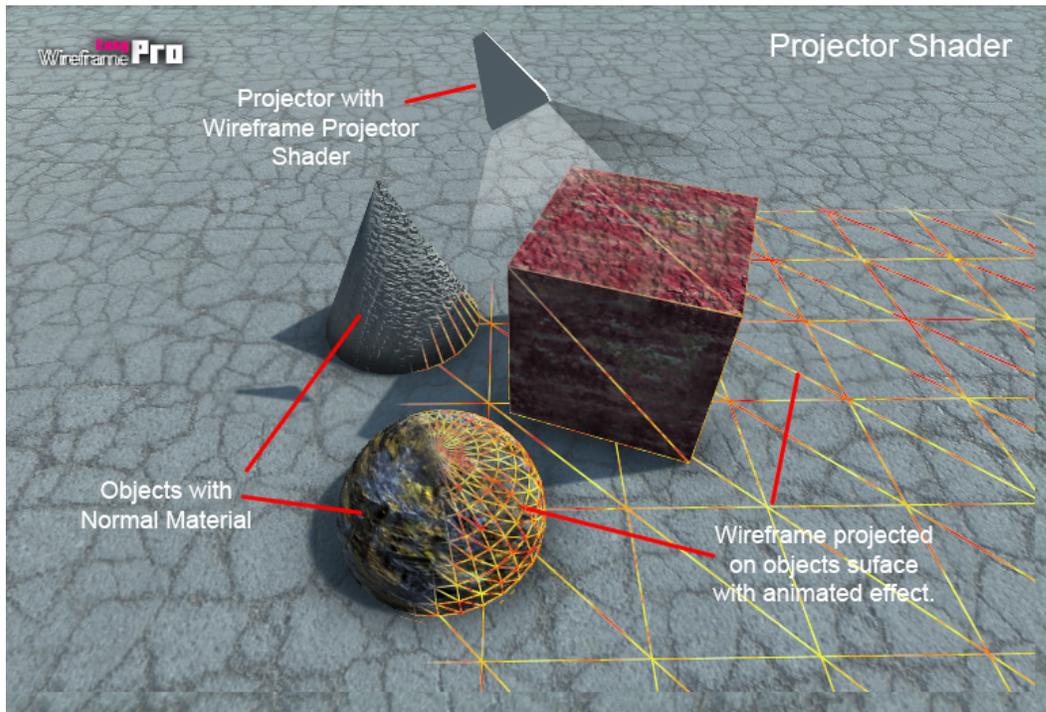
**Animation**

- Speed(U direction): 0.5
- Speed(V direction): 0.5

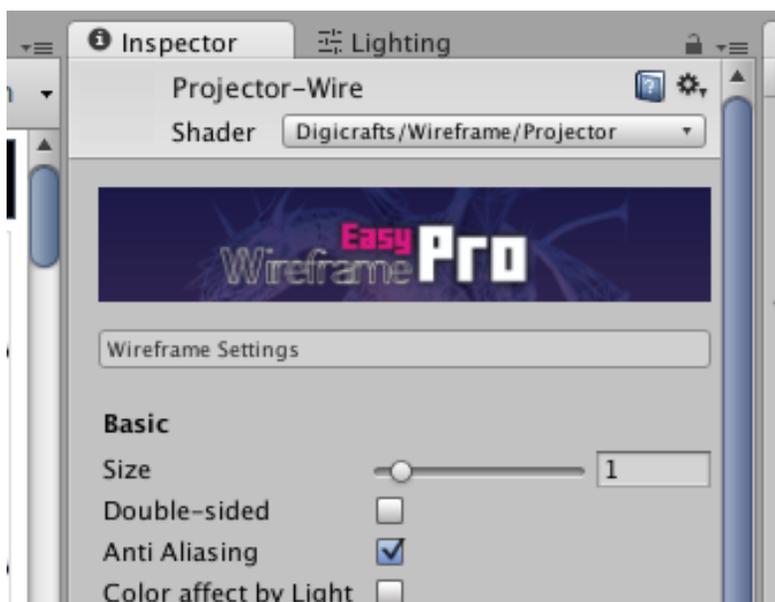
# Setup Projector Effect

**Easy Wireframe Pro** allows you to setup a projector effect like an X-ray scanner.

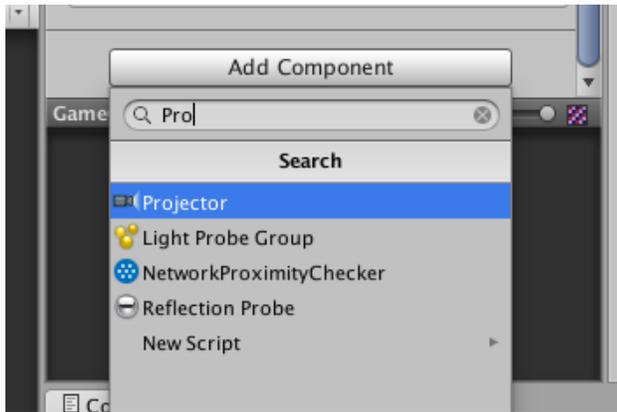
*Projector effect is not supported in Unity 2019 with LWRP*



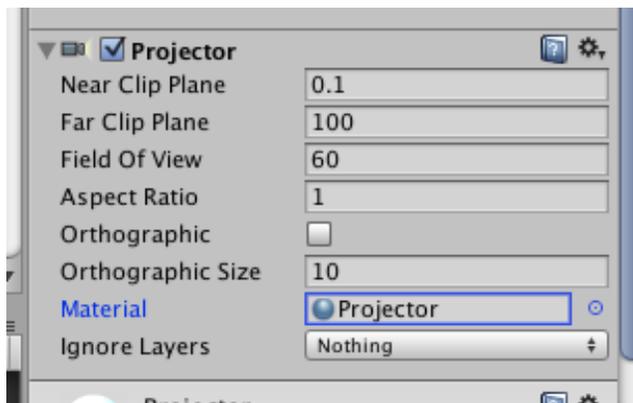
1. Create a new material and assign the “Projector” shader.



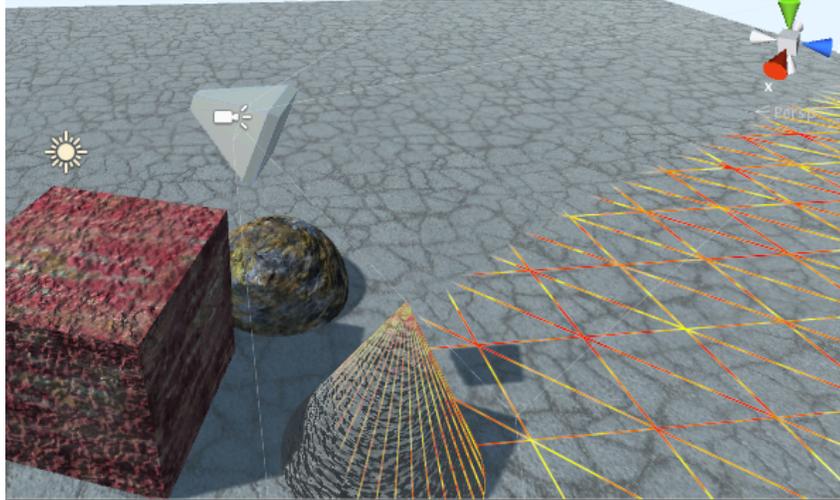
2. Create an empty GameObject or use existing GameObject.
3. Select the GameObject from the hierarchy window.
4. Click the “Add Component” button at the bottom.
5. Type “Projector” and select.



6. From the projector inspector. Choose the created projector material.



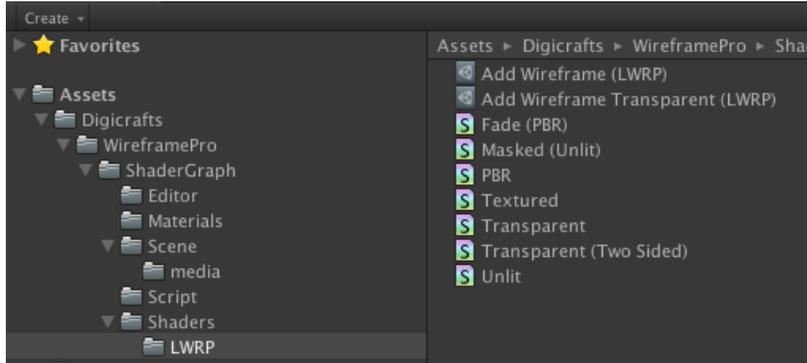
7. You can tweak the projector settings and position in order to project the wireframe into your object.



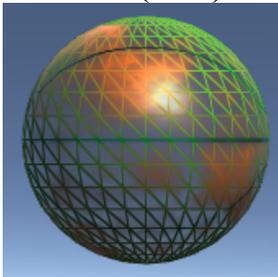
# Use Shader Graph Plugin

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In the package, we included several ready-to-use shaders (LWRP). You can find the shaders inside the folder show below. To edit the shader, you can double click on the shader and edit with shader graph.

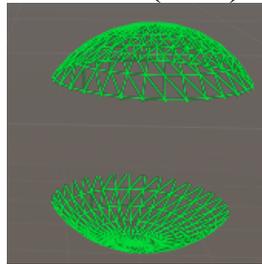


**Fade (PBR)**



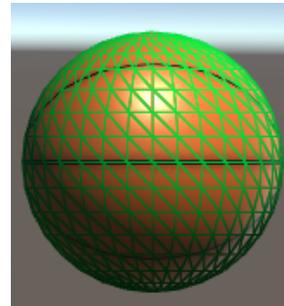
Shader fade between wireframe and base texture. Best for fade appear effect.

**Masked (Unlit)**



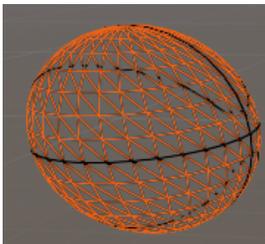
Wireframe can be masked with alpha texture.

**PBR**



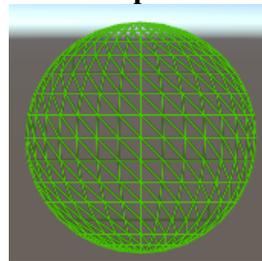
Standard PBR shader with wireframe on top.

**Textured**



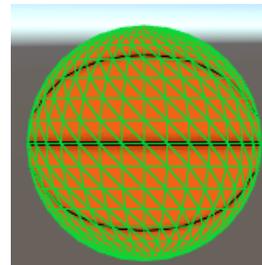
Textured wireframe shader.

**Transparent**



Transparent wireframe shader.

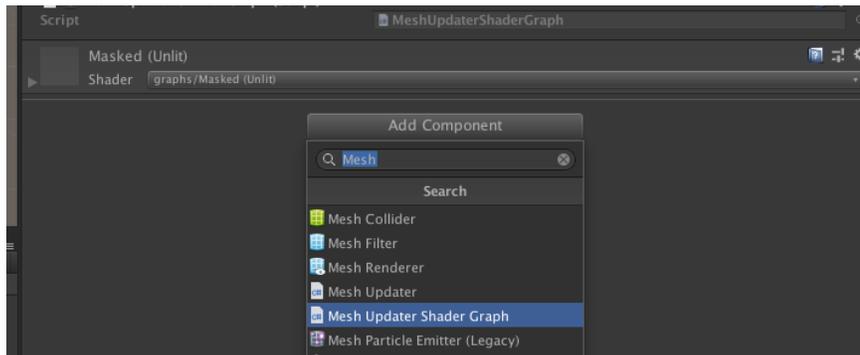
**Unlit**



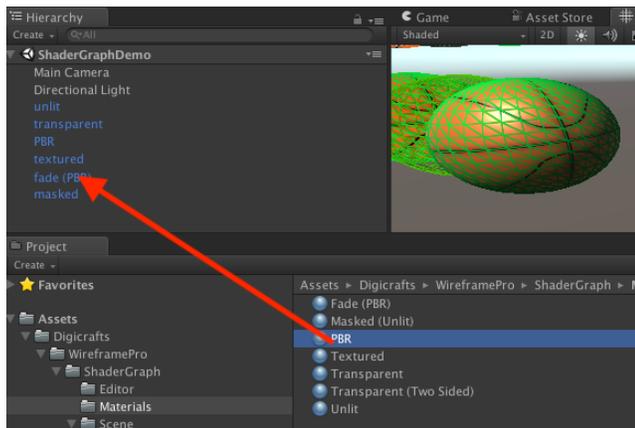
Simple unlit base color with wireframe on top.

## Before Using the shader

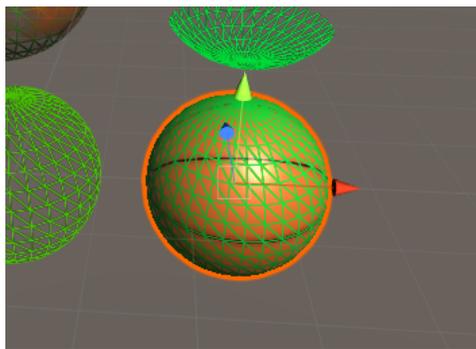
1. We need wireframe data in the model/mesh in order to work with the wireframe shader. We already included a script to apply the data automatically. You can select the GameObject that need the wireframe effect. Add the script “**Mesh Updater Shader Graph**” by click on the “Add Component” button.



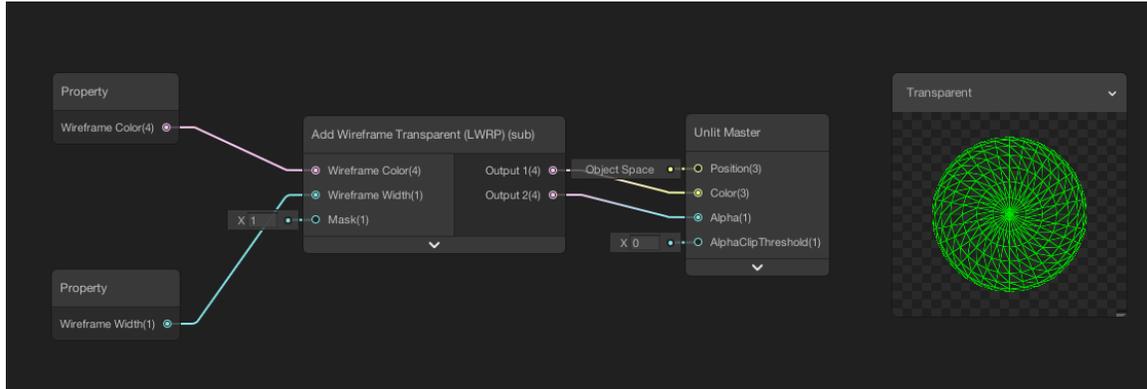
2. Then, drag and drop the included material to your GameObject and apply the effect.



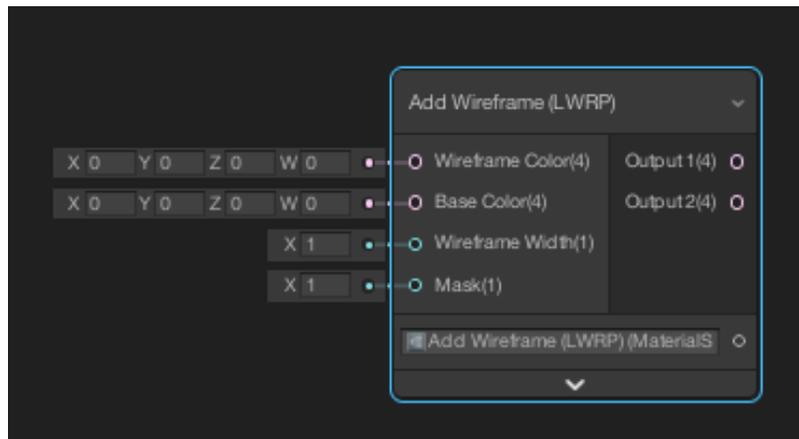
3. Now you should see the wireframe applied.



## Create your own shader graph



If you need to create your own shader effect, we have included nodes in Shader Graph to add wireframe effect.

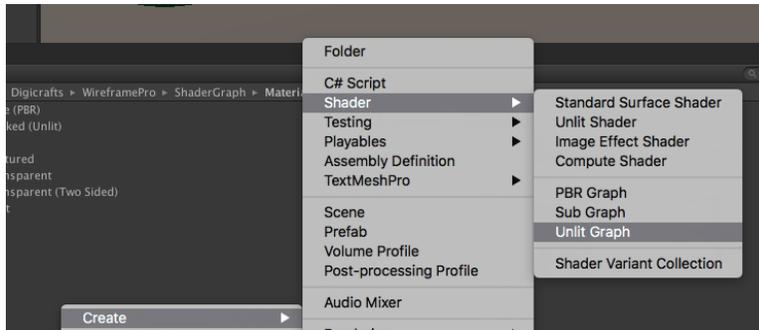


Input	Type	Description
Wireframe Color	Color	Color of the wireframe
Base Color	Color	Color of the base
Wireframe Width	Vector1	Width of the wireframe
Mask	Vector1	Masking of the wireframe

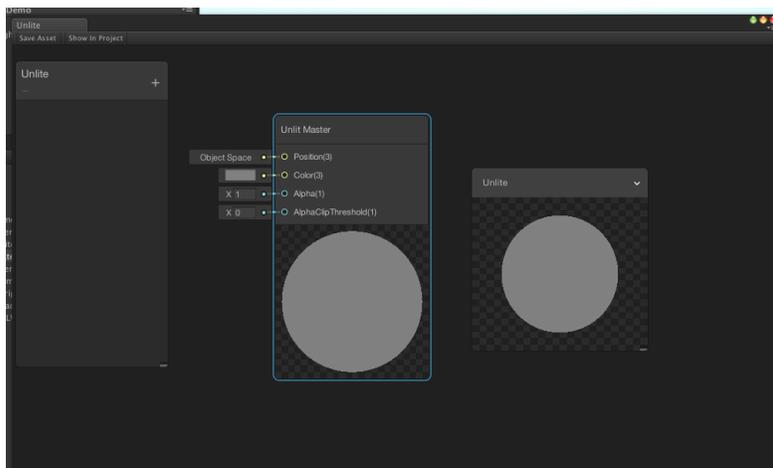
Output	Type	Description
Output 1	Color	Color value of the wireframe.
Output 2	Vector1	Alpha value of the wireframe

## Example: Create transparent Unlit wireframe shader

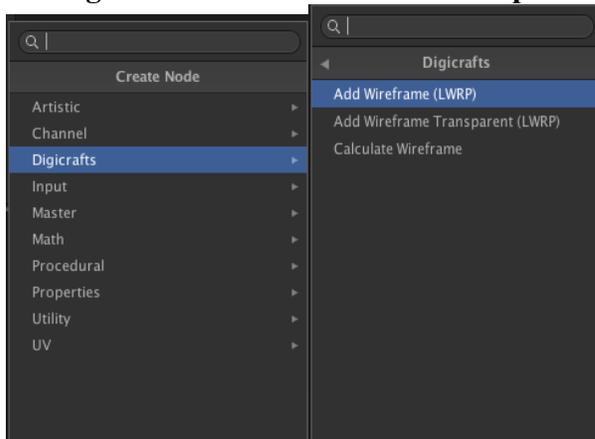
1. Create an Unlit Graph from create *menu>Shader>Unlit Graph*.



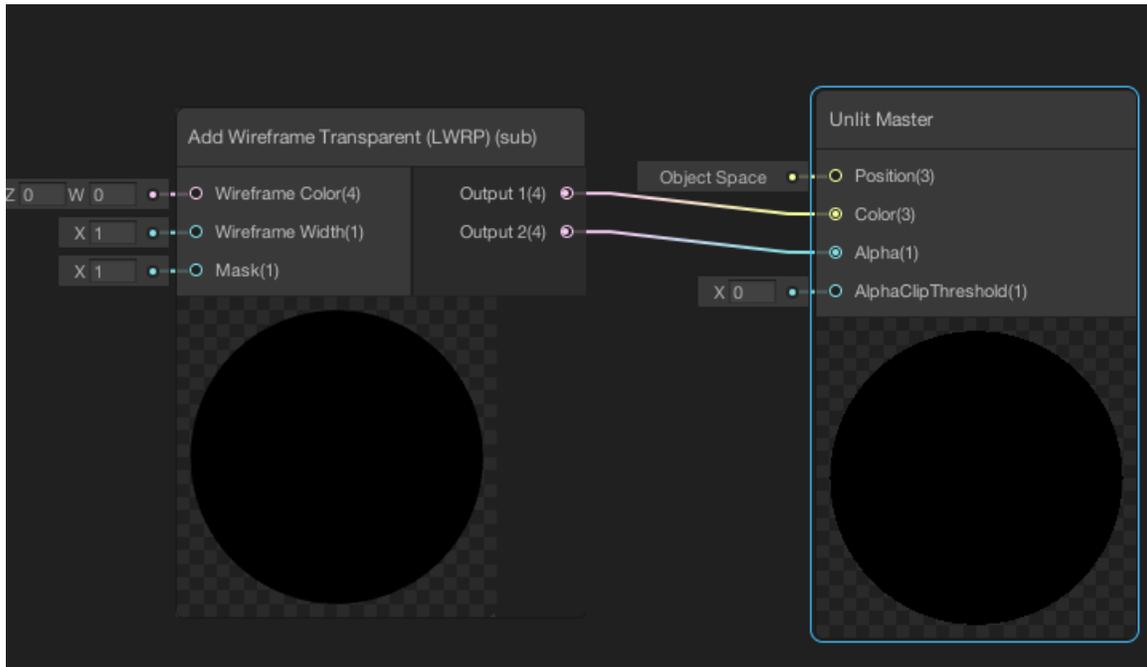
2. Open the shader in *Shader Graph* by double click on the file.



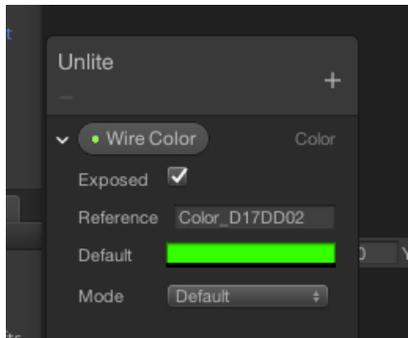
3. Right click on the Shader Graph window. Create a node from the node menu **Digicrafts>Add Wireframe Transparent (LRWP)**.



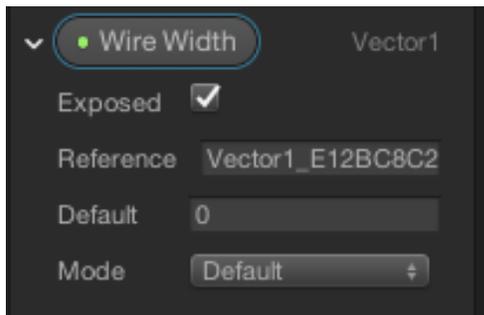
4. Connect the **Output1** to the **Color port** of the Unlit Master node. And **Output2** to the **Alpha port**.



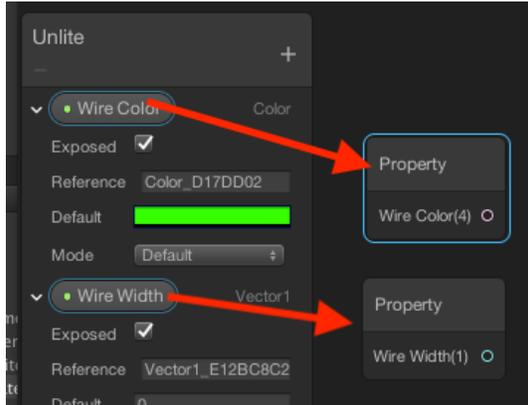
5. Create a Color property in the properties panel. Use to specify the wire color.



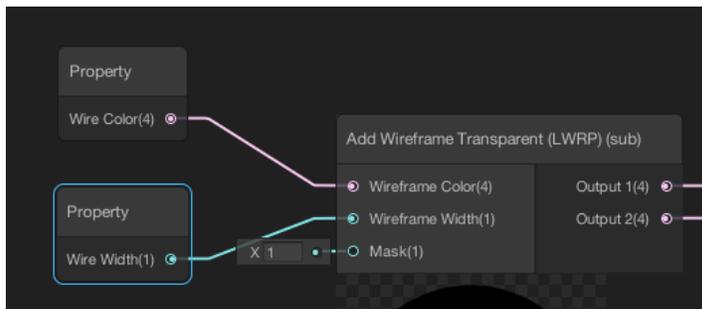
6. Create a Vector 1 property to specify the width of the wireframe.



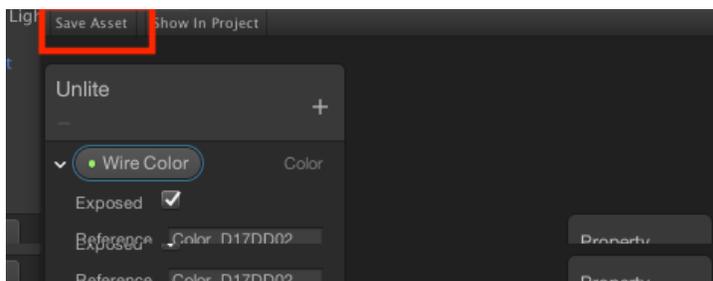
7. Drag and drop the properties to the graph.



8. Connect the port to the wireframe node.



9. Save and compile the graph.



10. Now, the shader is ready to use. You can select from the shader menu.

