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## Colorify calculation modes

Colorify shaders come in 2 main varieties: real-time and baked recolor mask.

Real-time shaders perform color range calculations each frame, and can be used for dynamic effects, but they are more performance-heavy and mobile versions of these shaders do not support hue filtering.

Baked mask shaders use recolor masks that need to be baked in editor. These shaders can't change color ranges at runtime (but they CAN change colors), but they're much faster and can provide precise filtering even on mobile devices. Also, you can edit generated mask with any image editor.

### Colorify recolor modes

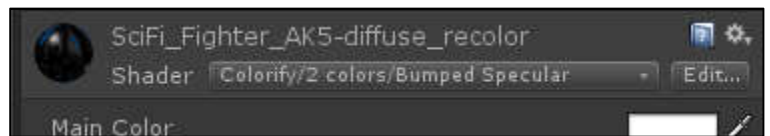
By default Colorify uses rgb-recolor mode, which changes color of your designated areas while taking into account RGB variations of underlying texture. This preserve subtle variations of hue, but can cause problems when recoloring very bright areas into black, or when your recolor hue interval is too big.

In these cases, Colorify Standard PBS shaders include luminosity recolor mode. This mode only accessible with masked calculation mode, and it will make hue of recolored area unified. It will give you much more consistent results, but will remove any hue variations in recolored area.

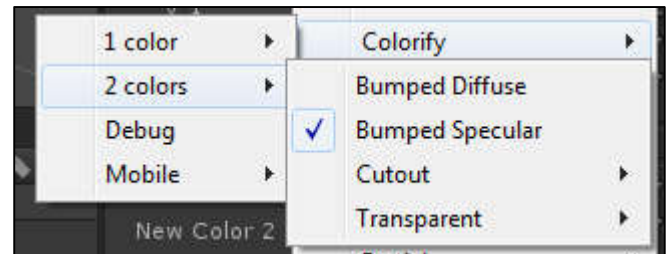
## How to use Colorify (real-time versions of shaders):

Read this even if you want to use baked recolor masks mode.

- 1) Select material you need to repaint



- 2) Choose shader from “Colorify/Real-time” subfolder. Colorify shaders come in 3 varieties: “1 color”, “2 colors” and “Mobile”. 1 color and 2 colors are shader model 3.0 shaders that allow you to repaint 1 or 2 color ranges on your texture. 2 colors shaders are slower, so try to use 1 color where it’s possible. Mobile shaders are shader model 2.0 shaders that use simplified algorithms.



*Note: If you’re using Unity 5 standard shader variant, you can choose 1 or 2 colors, real-time or masked version by choosing shader parameters.*

- 3) Choose “Pattern color” in the material window. This color and colors close to it will be repainted.



- 4) Choose “New color”. This color will be painted instead of “Pattern color”.

- 5) Set up range and Hue range variables that will define how large of color range will be repainted.

Range defines color range in RGB space, so the lesser range, the lesser variance in overall color will be allowed (including brightness).

Hue range defines variations in hue only. It’s used to truncate undesirable recoloring of pixels close enough in RGB range to the pattern color. Be warned that grey colors also have hue value that’s usually undetectable to the eye. Use “dropper” color picker to see what hue it really have.

**NOTE: Mobile real-time shaders don’t support hue range truncation.**

For examples of usage of range and hue range, see example scene.

- 6) If you use 2 colors versions of shaders, repeat the process for second set of parameters.

### HINT #1:

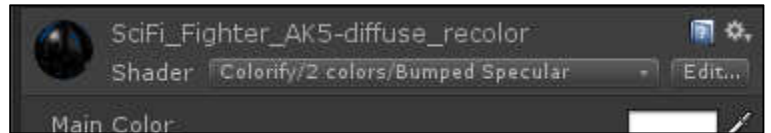
If your texture have predominantly white(or grey) color you need to repaint, set main color to a slight shade of one of the rgb colors (100% red, green or blue) to shift hue of the white-grey parts to one hue value.

### HINT #2:

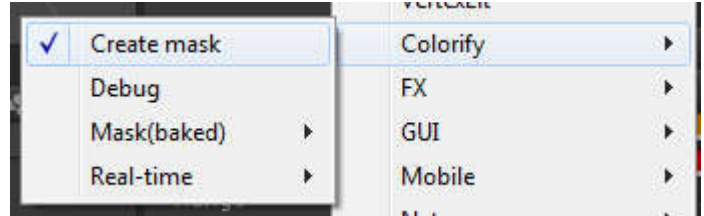
Texture compression can alter hue values of grey areas in a “blocky” way. If that’s the case with your texture, try widening hue range or, if you can afford it performance-wise, switching texture to truecolor.

## How to use Colorify (baked mask versions of shaders):

1) Select material you need to repaint



2) First you need to bake recolor mask. Choose "Colorify/Create mask" shader and set up your colors and ranges the same way as in real-time shaders. When you're satisfied with recolor options, press either "Generate PNG mask" or "Generate JPG mask".



Generated mask will be put in the same folder as main texture of the material with "\_mask" suffix. If you already generated mask and want to preserve it(it will be overwritten by default), rename old mask.

3) Choose specific shader from "Colorify/Mask(baked)" folder. Your generated mask will already be put in "Recolor mask" texture slot, but you can put any texture in it. Note that these shaders don't need range and hue range parameters (since mask contains all info about color ranges), but they still need original color values to correctly perform recoloring. Please don't change "Patter color" values after mask generation unless you know what you're doing.

### Recolor mask format:

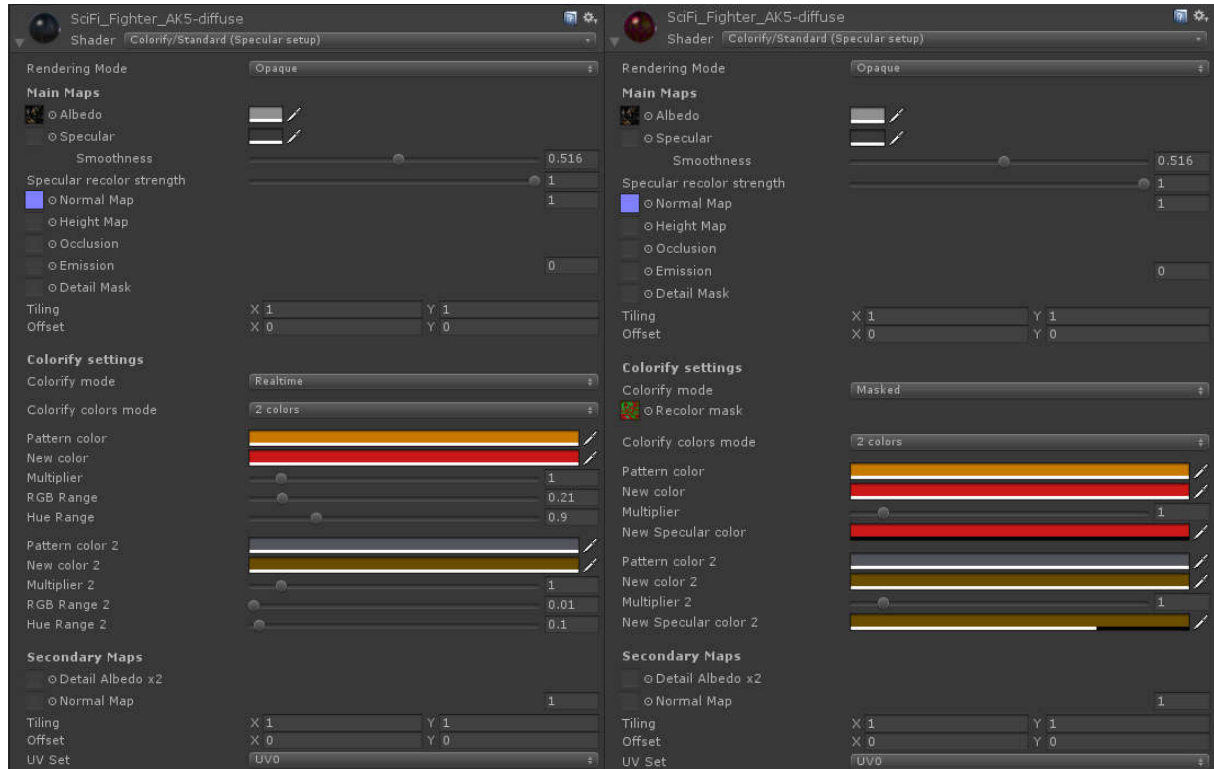
Recolor mask uses red and green channels to store info about recolor coefficients - red channel for color #1 and green channel for color #2. Blue channel contains overall luminosity of the texture and is used in luminosity recolor mode.

## Standard PBS shaders.

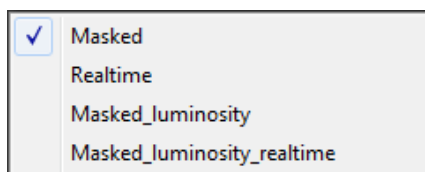
Colorify include Unity 5 PBS shaders and provide additional inspector for those shaders.

There's 2 more shaders included alongside usual metallic and specular variations: metallic backside shader that will render backside with correct normal (cull back), and specular shader with cull turned off that will render both front and back of your objects, although back normals will be incorrect.

Colorify Standard PBS shader inspector:



Modes:



**Masked\_luminosity\_realtime** mode will use mask for color coefficients, but will calculate luminosity of main texture in realtime. Use this mode if you manually modified recolor mask and changed blue channel of it, or when your albedo texture is changing in realtime.

Color **Multiplier** can be used for manipulating resulting color. It's useful when using luminosity recolor mode with very dark or very bright underlying texture.

**Specular recolor strength** allows you to change specular color and smoothness of recolored areas. **New specular color** alpha is used as smoothness.

## Usage for dynamic recoloring in your code:

You can change your material parameters during runtime by using **Material.SetFloat** and **Material.SetColor**.

More info available at Unity Script Reference:

<http://docs.unity3d.com/ScriptReference/Material.SetFloat.html>

<http://docs.unity3d.com/ScriptReference/Material.SetColor.html>

List of parameter names and ranges:

Parameter	Internal name for scripting purposes	Range	Default value
Pattern Color	<code>_PatCol</code>	Color	white
New Color	<code>_NewColor</code>	Color	white
Range	<code>_Range</code>	0.0 – 2.0	0.01
HueRange	<code>_HueRange</code>	0.0 – 4.0	0.1
Pattern Color 2	<code>_PatCol2</code>	Color	white
New Color 2	<code>_NewColor2</code>	Color	white
Range 2	<code>_Range2</code>	0.0 – 2.0	0.01
HueRange 2	<code>_HueRange2</code>	0.0 – 4.0	0.1

Unity 5 PBS only:

Specular recolor strength	<code>_ColorifySpecStrength</code>	0.0 – 1.0	0.3
New Specular color	<code>_NewSpecularColor</code>	Color	white
New Specular color 2	<code>_NewSpecularColor2</code>	Color	white
Multiplier	<code>_ColorifyMultiplier</code>	0.0 – 10.0	1
Multiplier 2	<code>_ColorifyMultiplier2</code>	0.0 – 10.0	1

## Contact info

Please send all your questions, suggestions and bug reports to:

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