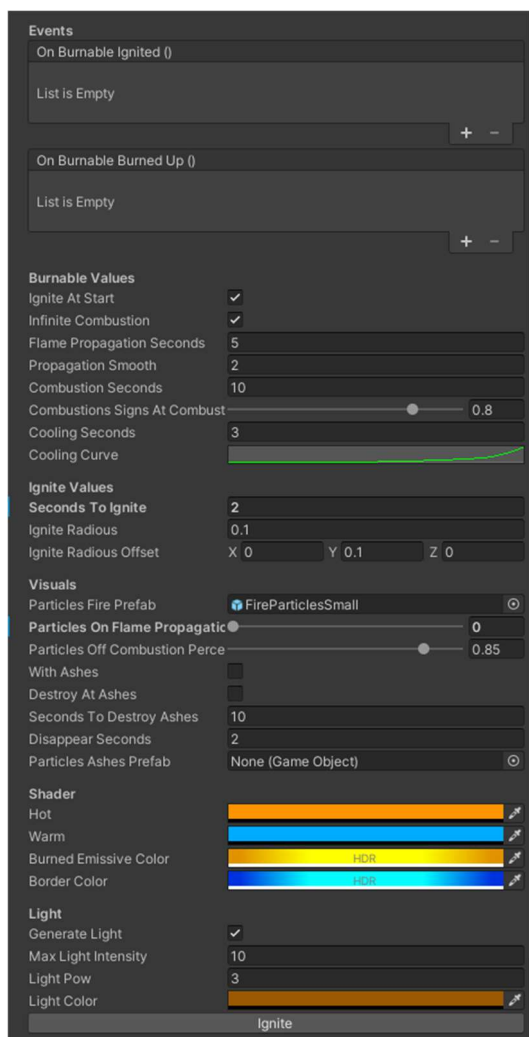# Fernando Olea - Fire System (Documentation)

Requirements:

Available for built in render pipeline. HDRP/URP soon.
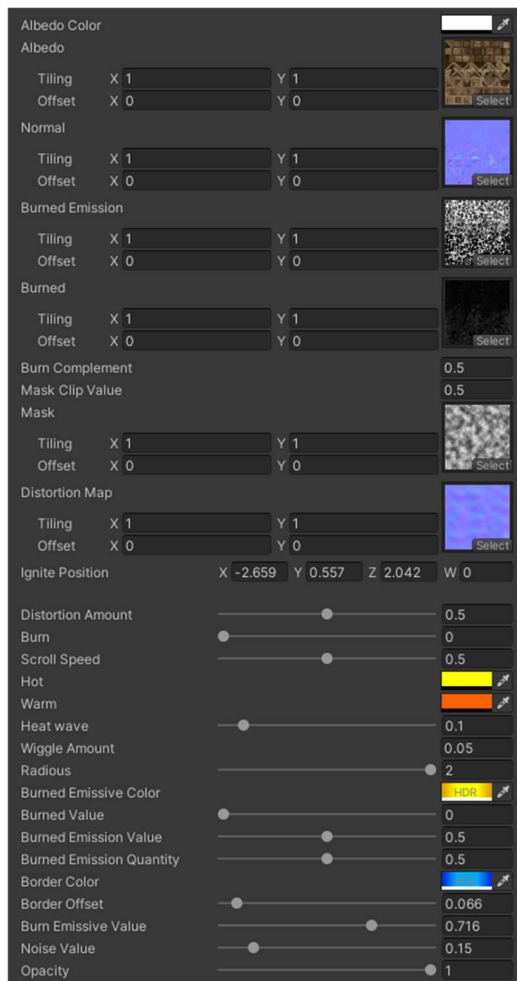
How it Works

Make objects burnable with **BurnableObject.cs** script.

Add **BurnableObject**"component to an object which it has **MeshRenderer** component.

BurnableObject component will generate a needed material for the object. The generated material will be generated with **BurnShader** shader:

Albedo Color				
Albedo				
Tiling	X 1	Y 1		
Offset	X 0	Y 0		
Normal				
Tiling	X 1	Y 1		
Offset	X 0	Y 0		
Burned Emission				
Tiling	X 1	Y 1		
Offset	X 0	Y 0		
Burned				
Tiling	X 1	Y 1		
Offset	X 0	Y 0		
Burn Complement			0.5	
Mask Clip Value			0.5	
Mask				
Tiling	X 1	Y 1		
Offset	X 0	Y 0		
Distortion Map				
Tiling	X 1	Y 1		
Offset	X 0	Y 0		
Ignite Position	X -2.659	Y 0.557	Z 2.042	W 0
Distortion Amount			0.5	
Burn			0	
Scroll Speed			0.5	
Hot				
Warm				
Heat wave			0.1	
Wiggle Amount			0.05	
Radious			2	
Burned Emissive Color			HDR	
Burned Value			0	
Burned Emission Value			0.5	
Burned Emission Quantity			0.5	
Border Color				
Border Offset			0.066	
Burn Emissive Value			0.716	
Noise Value			0.15	
Opacity			1	

BurnabeObject component is fully configurable:

Burnable Values

bool igniteAtStart -> The object ignites when the game starts
bool infiniteCombustion -> The object has infinite combustion
float flamePropagationSeconds -> Duration in seconds to propagate flame over the whole object
float propagationSmooth -> Value to adjust propagation around the whole object
float combustionSeconds -> Duration in seconds that object is burning,
float combustionsSignsAtCombustionPercent -> Combustion's percent when it shows burn signs
float coolingSeconds -> Duration in seconds to cool down object
AnimationCurve coolingCurve -> Curve used to describe cooling

Ignite Values

float secondsToIgnite -> Duration in seconds to ignite another burnable object when it's in its area
float igniteRadious -> Defines radius of the sphere area which it ignites other burnable objects (Representing by red wire sphere gizmo)
Vector3 igniteRadiousOffset -> Offset of the sphere area

Visuals

GameObject particlesFirePrefab -> Particle system which spawn over the whole object when it combusts
float particlesOnFlamePropagationPercent -> Propagation's percent when particle system spawns
float particlesOffCombustionPercent -> Combustion's percent when particle system stops emit
bool withAshes -> Active / Deactive ashes spawn when object is cold
bool destroyAtAshes -> Destroy Gameobject when object becomes ashes
float secondsToDestroyAshes -> Duration in seconds to destroy ashes after ashes spawn
float disappearSeconds -> Duration in seconds to disappear object when object is cold
GameObject particlesAshesPrefab -> Ashes particle system prefab

Shader

Color hot -> Shader Hot color
Color warm -> Shader Warm color
Color burnedEmissiveColor -> Burned signs color
Color borderColor -> Color of the flame propagation border

Light

bool generateLight -> Generate light
float maxLightIntensity -> Max intensity of the light
float lightPow -> Light intensity exponential increase value
Color lightColor -> Color of the light

Support

If any issue, please contact us. We will reply as soon as possible. Email: Fernando.olea.dev@gmail.com