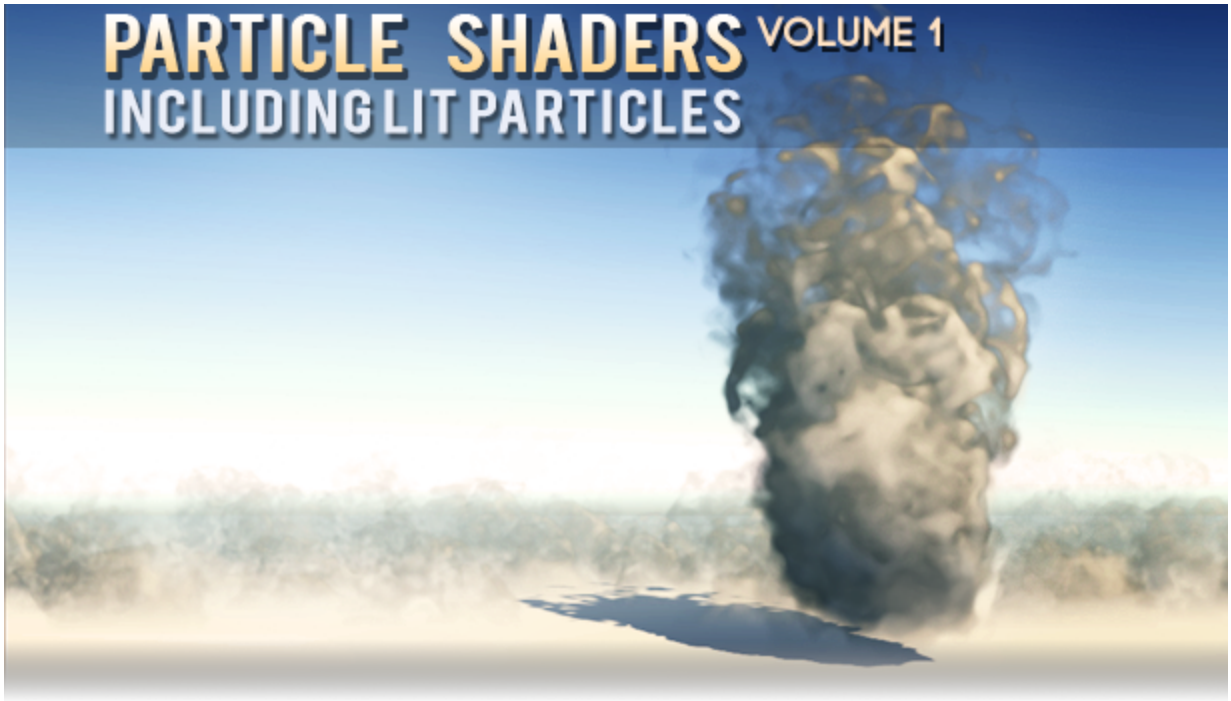


version 1.0 for Unity 5

documentation version: 1.0 (16.04.2015)
online version

Particle Shaders Volume 1 version 1.0 for Unity 5
TABLE OF CONTENTS:

Package contents

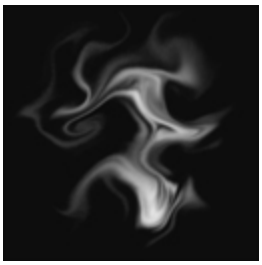
Particle Shaders Volume 1 consists of six particle shaders:

- Lit Alpha Blend
- Lit Alpha Erosion
- Lit Alpha Blend Emissive
- Lit Alpha Erosion Emissive
- Alpha Erosion (unlit)
- Additive Alpha Erosion (unlit)

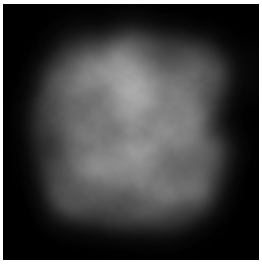
Each shader has two versions, one with Soft Particles and one without.

EM_Particles_Lit_Fallback is a special kind of shader file which is used only to generate shadow-casting pass for lit particles. It is hidden in material inspector so you won't accidentally use it.

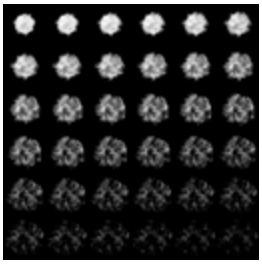
Particle Shaders Volume 1 also contains five particle textures ready to use with your effects!



smoke_01
Works great with alpha erosion shaders.

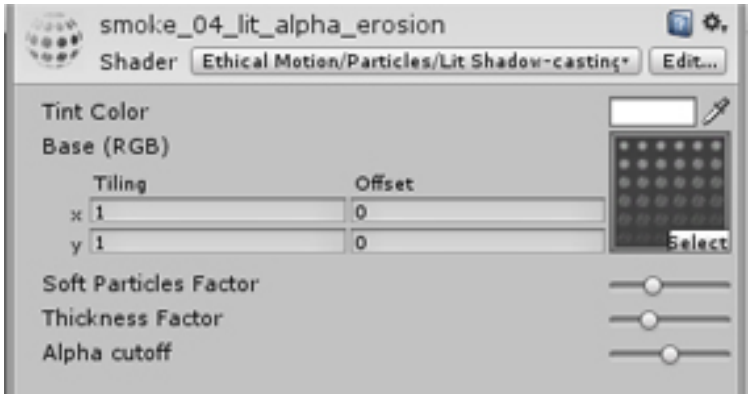


smoke_02
Looks best with Lit Alpha Blended shader. You should use it for very subtle and soft effects like dust rising from the ground.



smoke_03, smoke_03_clear, smoke_03_matted
6x6 animated texture sheets which work nicely with all types of shaders. You may use them to create dust, extinguishers, smokes etc. Each version has slightly different appearance. Pick the one that suits your needs.

Features



Soft Particles Factor

It samples scene depth and softens particles which intersect with geometry (available in Unity 4 Pro and any version of Unity 5). Low factor results in soft edges.

Thickness Factor

Determines how strong self-shadowing is.

Alpha Cutoff

Determines how much the alpha channel of the particle is affecting its shadow.

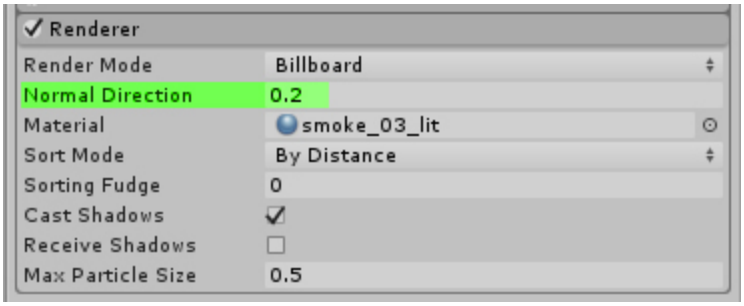
Setup

Lit Particles Setup

In order to properly use Lit particles you only need to do two things:
1. Create a material with proper shader
2. Define “Normal Direction” value in Shuriken

“Normal Direction” can be found in “Renderer” tab inside Shuriken Particle System.

By default, Shuriken’s particle normals are always facing the camera. “Normal Direction” changes the bending of the normals. Value of 0 creates spherical normals while value of 1 results in flat, camera-facing normals. Lit particles are generating self-shadowing based on the normal of the particle. Thus, adding more bend in them results in softer look. Suggested value lies between 0.1 to 0.2 .



It is also recommended to set “Sort Mode” to “By Distance”. This way you will avoid graphical artifacts of particles popping in front of other particles while moving. This is especially important with Lit Particles because of varied lightness values.

Shadows

Lit Particle Shaders use Alpha channel of your texture to generate shadows. A Material which has texture without Alpha channel may not work correctly. You can reference supplied sample textures which are compatible with shadow-casting feature.

After assigning proper texture you simply check “Cast Shadows” in the “Renderer” tab.
Self Shadowing works independently of “Cast Shadows” option.

Workflow

General notes

Particle Shaders Volume 1 workflow is exactly the same as built-in shaders workflow. You create a material, define it's properties and assign it to your particle system just like you would normally do. Nonetheless, some shaders have specific features which you should be aware of.

Alpha Blended shaders

Simple Lit shader.

Alpha is calculated based on material's alpha multiplied by Shuriken color modules.

Alpha formula:

texture_alpha * tint_color_alpha * shuriken_alpha

Alpha Erosion shaders

Simple Lit shader.

Alpha is calculated in unique way - material's alpha is subtracted by Shuriken color modules. Particles appear to be "eaten away" rather than fading smoothly.
If you need to change the overall alpha simply reduce texture's alpha channel intensity or alpha value in **Tint Color** property of material. Changing alpha value inside Shuriken will modulate erosion effect. Best results are achieved when texture's alpha has a lot of tonal diversity.

Alpha formula:

texture_alpha * tint_color_alpha - absolute(1 - shuriken_alpha)

Emissive shaders

Self-illuminated Lit shader.

Emissive shaders have self-illuminating feature. It allows you to glow your particles in the dark. Imagine smoke coming out of a fireplace- you can add smoke illumination by using Emissive shader.

Base (non-emissive) color is based on texture's color and **Tint Color** material property. Emissive color is driven by Shuriken color modules.

Color formula:

texture_color * tint_color + shuriken_color