Canvas Particle Emitter

Version 1.3

Thank you for purchasing Canvas Particle Emitter.
Canvas Particle Emitter is a UGUI component that render particles using Unity UI Canvas Render. It is fast and light, and it will provide resources for you to create stunning effects within your interfaces.
Please follow this documentation to explore the features of Canvas Particle Emitter.

What's included
These are the folders that comes with Canvas Particle Emitter

Documentation
: Here is this documentation, a short info about the script and the change log file.

Editor
: The editor folder holds the scripts that make the interface between the user and the core script.

Resources
: Here are some prefabs of particles effects using Canvas Particle Emitter Component.

Scenes
: A demo scene using the prefabs provided and showing the uses of the emitter public functions.

Scripts
: The main script of the particle emitter.

Sprites
: Some texture sprites ready to apply into the particles, free to use on any project.

How create an emitter
Canvas Particle Emitter is provided as a Unity Component and can be accessed through three diferent ways:

- Go to menu Component -> UI -> Canvas Particle Emitter to add the component to the selected object.
- Go to menu GameObject -> UI -> Canvas Particle Emitter to create an emitter game object with the component attached to it. If there is a selected object, the emitter creator search for a Canvas into its parent. If no Canvas component is found, the script creates one.
- The third way to create a Canvas Particle Emitter is clicking with right mouse button into the Hierarchy panel and choose the option UI -> Canvas Particle Emitter.

Canvas Particle Emitter behaves as any other UI component and as it inherit from Graphic class.

You cannot add this componente into a Gameobject that already have a Graphic Component (Ex. Image, Button).

You can use as many Canvas Particle Emitter as you want inside a Canvas. But each emitter need to be in it's own GameObject.
You can nest a Gameobject with Canvas Particle Emitter as you usually do with any other UI Components, using Sibling Index to sort the Z position of the particle.

Mostly all the emitter and particle properties can be animated using Animation Curves, Lerp or Tween.

Functions and variables

Public Functions

public void StartEmitter()
Start emition of particles.
This function must be called when the PlayOnAwake is setted to false or when the Emitter Duration is greater than 0 and the emitter had emitted all particles.

public void PauseEmitter()
This function pauses the particle emission but keep current particles moving until they die.

public void StopEmitter()
Stop the particle emission and instantly delete all particles, clearing the object.

public void RestartEmitter()
Instantly stop and replay the particles.

public void FreezeEmitter()
Pause the particle emission and freeze all particle already emitted.

public void UnFreezeEmitter()
Unfreeze a freezed emitter.

Properties

Property	Function
Emitter info	
Particles Number (int)	Read only property that shows how many particles is being rendered at that frame.
Is Active (bool)	Read only property that return a bool of the particles emission state of the emitter. Paused or stopped emitter return false.
Is Playing (bool)	Read only property that returns the playing state of the particles. Freezed emitter return false.
Emitter properties	
Play On Awake (bool)	The emitter start to emit particle automatically when the object is created.
Emitter Rate (float)	How many cycles of emission per second.
Perticles Per Emission (int)	Number of particles emitted per emission cycle.
Max Particles (int)	The maximum numbers of particles of the emitter. New particles are created only when old particles were removed. If this attribute is set to 0, the emitter does not use the maximum number of particles
Duration (float)	The length of time that the particles will be emitted. When the emitter time reaches the Duration, the emitter is paused and the function StartEmitter() must be activated to play again. If the Duration is set to 0 the emitter emits particles forever.
Emitter Shape (enum)	Choose the type of emitter. The option are Point, Directional, Rect, Circle, Line
Point	Emit particles in all directions from a single point.
Directional	Emit particles through a given direction.
Direction (float)	The angle of the emission in degrees.
Spread (float)	The variation of the main angle, in degrees.
Rect Emitter	Emit particles through a rectangle shape
Type	Choose the type of the rect particle emitter
Area	Emit particles inside the area of the rect

Edges	Emit particles through the edges of the rect
Vertices	Emit particles through the 4 vertices of the rect
Rect (rect)	Define the rect to be used by emitter. This property is used only if the Rect Transform property is empty
Rect Transform (RectTransform)	Uses an object RectTransform as source of the emitter rect
Circle Emitter	Emit particles through the shape of a regular polygon, from a regular triangle to a circle.
Type	Choose the type of the circular emitter
Edge	Emit particles through the edges of the polygon
Vertices	Emit particles through the all vertices of the polygon
Radius (float)	Set the polygon radius
Segments (int)	Set the number of segments of the polygon emitter. This property goes from 3 to 100 segments.
Line Emitter	Emit particles from a line
First Point (Vector2)	Set the first line point
Second Point (Vector2)	Set the second line point
Direction (float)	The angle of the emission in degrees.
Spread (float)	The variation of the main angle, in degrees.
Gravity (Vector 2)	Set an acceleration force into positive or negative directions of X and Y axis.
Wave frequency (Vector 2)	Set the frequency of the wave force. Greater the value, smallest and fastest the waves.
Wave amplitude (Vector 2)	Set the intensity of the wave force of both axis.
Turbulence frequency (Vector 2)	Set the frequency of the turbulence force. Greater the value, smallest and fastest the waves.
Turbulence frequency (Vector 2)	Set the intensity of the turbulence force of X and Y axis.

Particles Life Span	
Life (float)	Set how long the particles lives before being removed from emitter.
Min Random Life (float)	The minimum value of a random modifier of particles lifetime.
Max Random Life (float)	The maximum value of a random modifier of particles lifetime.
Particles Size	
Size	Set the particle initial size.
Life Size (animation curve)	Set a particle size multiplier along the particle life.
Random Size(float)	Set the value for random size multiplier.
Aspect Ratio (float)	Change the aspect ratio of the particles. This atribute allow non-square particles.
Particles Speed	
Speed (float)	The main particle speed.
Min Random Speed (float)	The minimum value of a random speed multiplier.
Max Random Speed(float)	The maximum value of a random speed multiplier.
Particle Orientation	
Aligned Rotation	Set the rotation of the particle aligned with it's motion path.
Stretchable (bool)	Stretch the particles based on its velocity. Visible only when Aligned Rotation set to ON.
Multiplier (float)	Multiplier to the stretch value. Visible only when Stretchable set to ON.
Angle (float)	The angle, in degrees, of all particles.
Min Random Angle (float)	The minimum value of a random angle multiplier.
Max Random Angle (float)	The maximum value of a random angle multiplier.

Spin Velocity (float)	The spin velocity of the particles.
Min Random Spin Vel (float)	The minimum value of a random spin speed multiplier.
Max Random Spin Vel (float)	The maximum value of a random spin speed multiplier.
Particles Color / Texture	
Texture (Texture 2d)	Set a texture file to be used by the particles.
Use texture aspect ratio (bool)	Set the particle aspect ration based on the texture aspect ratio. If Texture List is greater than zero, this atribute set the particle aspect ration to the aspect ratio of its corresponding texture or each animation frame texture.
Texture List (texure array)	An array of textures to be randomically applied to the particles.
Animated Texture (bool)	Turns ON or OFF the particle texture animation. When ON the particles will cycle the textures in the texture list to create the texure animation. Only visible if, Texture List is greater than 0.
Random Start (bool)	If OFF, all textures will use the same texture frame along animation, otherwise each particle will have it's own animation frame. Only visible if Animated Texture is ON.
Frame Rate (float)	Controls the framerate of the texture animation (the timming needed to change from one texture to other). Only visible if Animated Texture is ON.
Use Life Color (bool)	Turns ON or OFF the Life Color ramp.
Life Color (gradient)	A Gradient ramp texture that sets the particle color along its life.
Color (Color)	The color of the the particles. If a texture is used, the color add a tint to the texture. If you want to use the full texture colors, set this property to white.
Random Red (float)	Adds a random value into the red channel of the particle color.
Random Green (float)	Adds a random value into the green channel of the particle color.
Random Blue (float)	Adds a random value into the blue channel of the particle color.
Color Array (Color[])	Set an array of colors to be randomically applied to the particles. When this property is set to 0 the emitter uses the Particle Color and Random Color Channels attributes, otherwise it uses the array of colors.

Opaticy (float)	Control the transparency of the particle where 0 is fully transparent and 1 is fully opaque.
Life Opacity Multiplier (animation curve)	A curve that control a multiplier value for particle transparency along its life.