SPLINE PARTICLES MANUAL

1. Changelog

v1.0 - Initial version

2. What's inside

First of all: Thanks for buying this package!

In this package you will find:

1. "SplineParticles.cs" : This is the basic script to make the particles follow a path
2. "SplineParticlesEmitterFollowPath.cs" : This will move a particle object over a spline path
3. "Spline.dll": Used to draw and get data from splines
4. A sample scene with some particle effects

NOTE: If you need a spline tool, to move any object on a path and make any kind of calculations use one of the specific asset store packages like this http://u3d.as/content/dmitrii-prihodko/spline-editor/2Bv

3. How it works

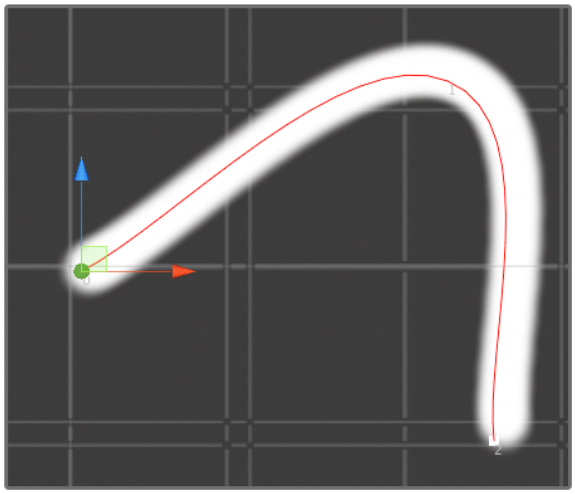
I would like to explain you how this works under the hood to get a clear picture of what this extension does and what doesn't.

What the script does is analyze the given spline path and create three velocity curves, one per axis, and pass them to the "Velocity over lifetime" particle module. This have the HUGE advantage of having **ZERO** overhead at run time, so its perfect for mobile. The cons is that every particle has the exact same speed over lifetime (if you don't modify it with other particle system module, like "force over lifetime") and you can't change the path at runtime.

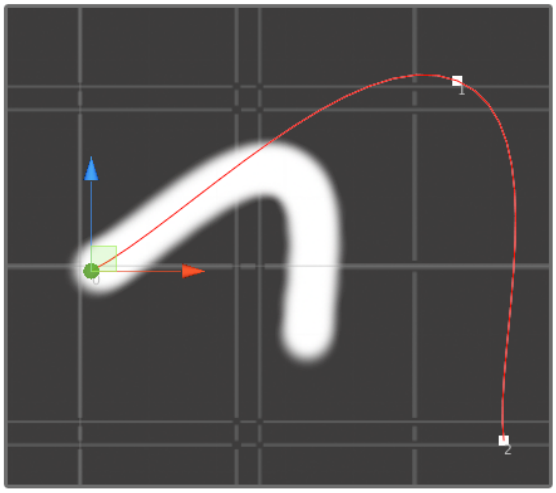
Have in mind that the longer the path the more velocity curve points must be add, and this can lead to accumulative calc errors, making the particles not following the path exactly.

The time to travel through the spline is defined by the particle life time. This is hugely important. Remember that what it's being configured is the "Velocity over life time" module, so if you put a "Random life" you will se particles that follow the same path but with different length.

Star lifetime: Original



Star lifetime: Original/2



To have this package working perfectly the particle system should be configured in this way:

1. Star speed: 0
2. Start lifetime: Constant value
3. Velocity over life time: Enabled, and the “space” set to “Local”, and “Curve”

Of course you can change everything you need to get your desired effect, but this is the recommended settings for the first tries.

4. Step-by-step

This section will guide you in the process of making a SplineParticle system:

1. Add an empty GameObject to the scene
2. Add the script “SplineParticles” to that GameObject
3. Create the spline using the “Append point” button and moving them around. **CAUTION!!!: THE POINT 0 MUST BE IN THE LOCAL POSITION (0,0,0)**
4. A spline path must have at least two points
5. If the option “Auto Enable Particle Velocity Curves” is enabled, press the “Create velocity curve”
6. Now you will see the particles following the path

5. Configuring the system

Here there is a description of all the configurable options that the system has.

Spline Particles

1. Wrap mode: **Once** or **Loop**. How the particles are going to behave when they arrive to the end of the spline. If **Loop** is selected, the variable “**Loops**” will determine the number of loops to make
2. Reparameterization: **None** or **Simple**. Used to tweak the path when problem arises

3. Spline path: The path to follow. If you don't set any spline, it will use one in the same gameObject
4. Enable Spline Draw: Hide or show the spline path (Only in editor)
5. Velocity Curve X,Y,Z: The curves that are going to be set on the particle system
6. Enable Continuos Editor Update: When set to TRUE the velocity curves will be automatically created when modifying any property of the script
7. Auto enable particle velocity curve: Will automatically configure the particle system with the default values
8. Is spiral: If you want to make spiral movements.
    8.1. Spiral loops: Number of loops
    8.2. Spiral amplitude: Amplitude size of the loops
    8.3. Spiral axis: In which axis will the spiral be created
9. Path subdivisions: This determines the number of points that are going to be created in the curve. The lower this value the higher the number of points
10. Path simplify margin: Set the permitted error value when simplifying the curve
11. Create velocity curve button: Creates the curve with the current data and configures the particle system
12. Set velocity curve button: Sends the current "Velocity curves" to the particle system
13. Clear velocity curve button: It Clears all the "Velocity curves"

SplineParticlesEmitterFollowPath

This scripts made a gameObject follow a spline path while emitting particles. This is calculated on runtime but the cost is almost insignificant .

1. Particle path: The path to follow
2. Orient to path: If true the gameObject will point its forward vector to the direction of the movement
3. Custom time: If its 0, the duration of the particle system will be used to determine the speed
4. Offset: Set a position offset form the spline path