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Camera and Image Effects

In this chapter, we will cover:

- Creating a particle effect using Shuriken

Creating particle effects using Shuriken

Since Unity 3.5 much more impressive effects can be created using particle systems. Many effects that used to need scripting can be achieved entirely through Shuriken particle system settings.

Getting ready...

It is useful to review important properties, and parameter value selection methods of Unity particle systems, before actually trying to work with them in the editor itself.

Some of the fundamental **properties** of particle systems include:

- **energy** (how long a particle will 'live' until it is destroyed)
- **looping** – whether the whole population of particles will be recreated again once the last particle has 'died'
- **speed, direction, rotation** – each particle has its own transform, and when a new particle is created the particle system determines (from the settings you have chosen) that particle's direction and speed of movement, and any rotation

In addition it is important to understand the different methods that **values are chosen** for particle properties:

- **constant** – value the same for all particles

- **curve** – how the values will change over the duration of each cycle of the particle system (e.g. particles start small and get larger over time)
- **random number between maximum and minimum constants** – values are randomly chosen from the same range over each cycle of the particle system system
- **random number between two curves** – this allows the range of values from which values are chosen to change over the duration of each cycle of the particle system
  - o   the figure shows two particle-size curves, that ensures particles start small (between 0.0 and 0.2), and get larger over the 3 second (x-axis) cycle length. However, the size of particles is random between the two curves (a value always chosen in the 'red' zone), so towards the end of the cycle, particles will be a random size between 1.0 and 2.8
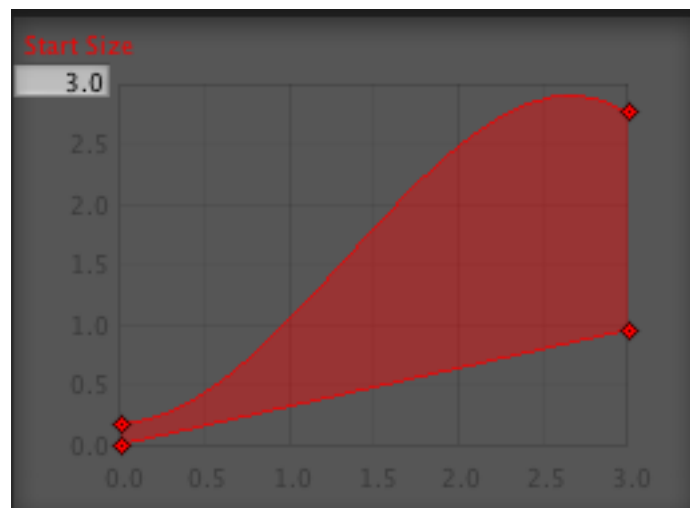

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How to do it...

1. Create a new Unity project and import the Particles Unity package
2. Create a new particle system
3. Reset the particle system to its defaults by choosing Reset from the component's Context menu in the Inspector

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NOTE: To view the Context menu either right click the component's name, or click the tiny gear icon at the top right of the component's section in the Inspector
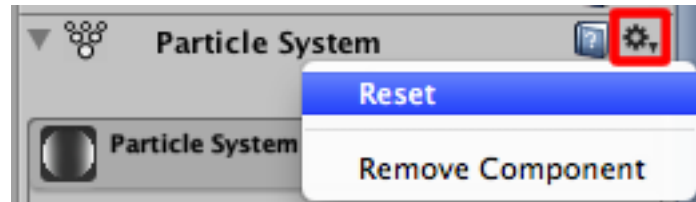
4. Switch on (check) Wireframe for the Render section of the particle system.

Wireframes can aids understanding the position and movement of particles by drawing a blue bounding rectangle around each particle in the **Scene** window, and a white bounding rectangle around the complete set of particles each frame.
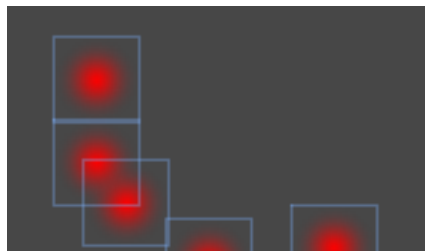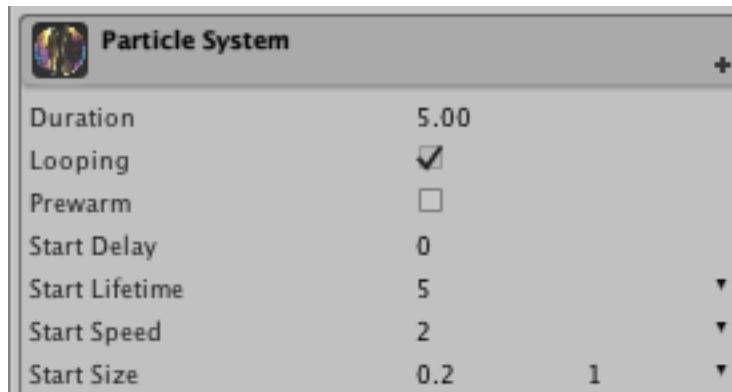
5. Display the Renderer properties (double click the darker grey title bar), and change the renderer's *Material* to *SoapBubble*

You'll find materials from the Unity particles package located in the Project folder as follows: Standard Assets > Particles > Sources > Materials

Renderer		
Render Mode	Billboard	▼
Material	⬤ SoapBubble	⊙

6. Set the *Start Speed* to 2, and set the *Start Size* to a random number between the constants 0.2 and 1

Particle System			
Duration	5.00		
Looping	✓		
Prewarm	☐		
Start Delay	0		
Start Lifetime	5		▼
Start Speed	2		▼
Start Size	0.2	1	▼

How it works...

You've created a particle system, which emits different sized rising particles showing a soap bubble. They move relatively slowly (since you reduced Start Speed to 2). Each particle shows a soap bubble, since you set the rendered to use a material which had a soap bubble texture image. The bubbles vary in size, since you change their Start Size to be a random number between 0.2 and 1. They float upwards because the system is rotated by -90 on the X-axis (the default settings you ensured by clicking Reset).

There's more...

Here is some information on how to fine tune and customize this recipe:

Scrubbing back and forward through the particle animation

A nice feature to easily review that the particle system's behavior is as desired is the ability to 'scrub' (move back and forward through the animation). This is achieved by

clicking and dragging left or right on "Playback Time' text in the particle Preview Panel in the Scene window.

Particle Effect

Simulate	Stop
Playback Speed	1.00
Playback Time	6.54
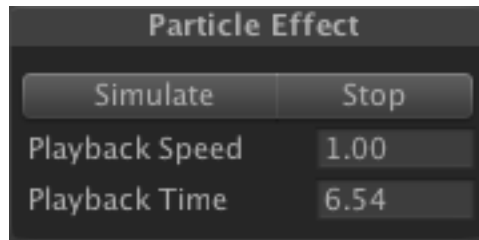
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Learn more from the Unity documentation

Unity particle systems with Shuriken can very powerful, and therefore complex components of games. The Unity manual provides several pages dedicated to introducing and describing this system. You'll find the *ParticleSystems.html* file in the */Documentation/Manual/* section of the Unity website, and also in your own computer's Unity application folder.

Add effects through Particle Effects

Opening the Window | Particle Effect and clicking the plus symbol adds addition particle sub-systems. Complex effects can be created through particle systems working at different times with different settings.

See also