# Particle Emission

**Class** : BillboardParticleEmitter

**Name Space**: Drawing Objects

Description: Billboard particle emission was built with optimization and speed in mind. Each particle does not contain its own drawing object for display, instead only the data needed to display. This emitter may use both 3D models or animated sprite billboards in 3D space to display. Vertices are dynamically created depending on each particle in the emitter's list, or a single model iterates through the particles and draw's their data.

Many display and behavior parameters are found in the composed *EmitterSettings* class.

**MaxParticles**: The maximum amount of particles this emitter may have on any cycle.

**MaxDistance:** The maximum distance a particle may travel away from the emitter's position.

**MaxLife:** The maximum milliseconds each particle may exist for.

**Spread:** Random modulator of initial velocity, more spread will scatter each particle's initial velocity around the emitter's vector.

**SpawnRadius**: The box or sphere in which all particles will emit from.

**Frequency**: Time between particle spawns in milliseconds

**GrowForMillies / ShrinkForMillies**: adding to these variables will scale the object in and out of existance. If *GrowForMillies = 500* the first half second of the particles existence will be uniformly scaling from 0 to 1.

**ShowForMillies / FadeForMillies**: adding to these variables will fade the object in and out of existence, using the same algorithm as *Grow/Shrink* parameters.

**Speed**: The initial velocity in which all newly created particles receive, modulated by *Spread*.

**SpeedVariance**: This variable will randomize the initial speed in which newly created particles receive.



