Flint

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This object allows you to use the Flint Particle Engine created by Richard Lord in your MMF2 SWF applications.

Renderers

Bitmap Renderer
Bitmap Line Renderer
Display Renderer
Pixel Renderer

Particle Position

Set X
Set Y

Particle Count

Steady
Blast

Shapes

Dot
Radial Dot
Ellipse
Line
Rectangle
Star

Zones

Line Zone
Collision Zone
Death Zone
Disc Zone
Rectangle Zone

Actions

Velocity
Disc Velocity
DiscSector Velocity
Scale
RandomDrift
Gravity Well
Mutual Gravity
Acceleration
Lifetime
Emitter Rotation

Filters

Blur
Color Blend
Color Matrix
Color Change
Alpha

Effects

Move Particles
Age Particles
Age Particles (Ease In)
Age Particles (Ease Out)
Age Particles (Ease In Out)
Rotate To Direction
Linear Drag
Fade
Approach Neighbors
Match Velocity
Minimum Distance
Speed Limit
Bounding Box
Explosion

Start Emitter
Run Emitter Ahead
Stop Emitter

Renderers

Bitmap Renderer

The BitmapRenderer draws particles onto a single Bitmap display object.
The region of the particle system covered by this bitmap object must be defined in the canvas property of the BitmapRenderer.
Particles outside this region are not drawn.

X,Y,Width,Height,Glow X,Glow Y,Glow Quality

X = X Coordinate
Y = Y Coordinate
Width = Width of the Canvas
Height = Height of the Canvas
Glow X = Amount of X Coordinate Glow To Apply To The Renderer
Glow Y = Amount of Y Coordinate Glow To Apply To The Renderer
Glow Quality = Quality of Glow Applied To The Renderer (Higher is slower!)

Bitmap Line Renderer

The BitmapLineRenderer draws particles as continuous lines on a Bitmap display object. This is useful for effects like hair and grass.
The BitmapLineRenderer uses the color and alpha of the particle for the color of the current line segment, and uses the scale of the particle for the line width.

X,Y,Width,Height,Glow X,Glow Y,Glow Quality

X = X Coordinate
Y = Y Coordinate
Width = Width of the Canvas
Height = Height of the Canvas
Glow X = Amount of X Coordinate Glow To Apply To The Renderer
Glow Y = Amount of Y Coordinate Glow To Apply To The Renderer
Glow Quality = Quality of Glow Applied To The Renderer (Higher is slower!)

Display Renderer

The DisplayRenderer adds particles to its display list and lets the flash player render them in its usual way..

None

Pixel Renderer

The PixelRenderer draws particles as single pixels on a Bitmap display object.
The region of the particle system covered by this bitmap object must be defined in the canvas property of the PixelRenderer.
Particles outside this region are not drawn.

X,Y,Width,Height,Glow X,Glow Y,Glow Quality

X = X Coordinate
Y = Y Coordinate
Width = Width of the Canvas
Height = Height of the Canvas
Glow X = Amount of X Coordinate Glow To Apply To The Renderer
Glow Y = Amount of Y Coordinate Glow To Apply To The Renderer
Glow Quality = Quality of Glow Applied To The Renderer (Higher is slower!)

Particle Position

This property sets the x and y coordinates of the emitter manually, if you are not using a zone, or want to force the x and y positions manually.

X,Y

X = X Coordinate of the Emitter
Y = Y Coordinate of the Emitter

Particle Count

This property sets the amount of particles the emitter will emit.

Steady: This will emit a steady amount of particles per second as specified, after the emitter is started.
Blast: This will emit a blast of particles per second as specified each time the emitter is started.

Steady (Amount Per Second)
Blast (Amount Per Second)

Shapes

Dot

This adds a circular dot as the shape for the particle emitter.

Radius,Color

Radius = The size of the dot in pixels
Color = The starting color of the dot shaped particle

Radial Dot

This adds a circular dot with a gradient fill that fades to transparency at the edge of the dot as the shape for the particle emitter.

Radius,Color

Radius = The size of the radial dot in pixels
Color = The starting color of the radial dot shaped particle

Ellipse

This adds an ellipse(oval) as the shape for the particle emitter.

Width,Height,Color

Width = The width of the ellipse
Height = The height of the ellipse
Color = The starting color of the ellipse shaped particle

Line

This adds a simple line as the shape for the particle emitter.

Length,Color

Length = The length of the line
Color = The starting color of the line shaped particle

Rectangle

This adds a rectangle as the shape for the particle emitter.

Width,Height,Color

Width = The width of the rectangle
Height = The height of the rectangle
Color = The starting color of the rectangle shaped particle

Star

This adds a star as the shape for the particle emitter.

Radius,Color

Radius = The size of the star in pixels
Color = The starting color of the star shaped particle

Zones

Line Zone

This adds a line zone showing the particle emitter the area in which to produce the particles. Useful for creating snow, rain, etc.

Start X,Start Y,End X,End Y

Start X = The Starting X Coordinate of the line zone
Start Y = The Starting Y Coordinate of the line zone
End X = The Ending X Coordinate of the line zone
End Y = The Ending Y Coordinate of the line zone

Collision Zone

This adds a collision zone showing the particle emitter the area in which to produce a collision. Useful for creating collisions with objects.

Left,Top,Right,Bottom

Left = The left Coordinates of the collision zone
Top = The top Coordinates of the collision zone
Right = The right Coordinates of the collision zone
Bottom = The bottom Coordinates of the collision zone

Death Zone

This adds a death zone showing the particle emitter the area in which to kill particles. Very useful to keep the framerate high by destroying particles if they leave the frame area.

Left,Top,Right,Bottom,Safe Zone

Left = The left Coordinates of the Death zone
Top = The top Coordinates of the Death zone
Right = The right Coordinates of the Death zone
Bottom = The bottom Coordinates of the Death zone
Safe Zone = False - Kill if outside the zone, True - Kill if inside the zone

Disc Zone

The DiscZone zone defines a circular zone in which to emit particles. The zone may have a hole in the middle, like a doughnut.

X,Y,Outer,Inner

X = The X Coordinates of the Disc zone
Y = The Y Coordinates of the Disc zone
Outer = The outer radius of the Disc zone
Inner = The inner radius of the Disc zone

Rectangle Zone

This adds a rectangle zone showing the particle emitter the area where to emit particles. Useful for creating particles in certain areas on screen.

Left,Top,Right,Bottom

Left = The left Coordinates of the rectangle zone
Top = The top Coordinates of the rectangle zone
Right = The right Coordinates of the rectangle zone
Bottom = The bottom Coordinates of the rectangle zone

Velocity

This adds velocity to the particles emitted.

X,Y

X = X amount of Velocity
Y = Y amount of Velocity

Disc Velocity

This adds velocity to the particles emitted in a circular direction.

X,Y,Outer,Inner

X = X amount of Velocity
Y = Y amount of Velocity
Outer = Outside radius of the circular zone
Inner = Inside radius of the circular zone

DiscSector Velocity

This adds velocity to the particles emitted in a circular direction with the ability to set minimum and maximum angles for the particles.

X,Y,Outer,Inner,Minimum,Maximum

X = X amount of Velocity
Y = Y amount of Velocity
Outer = Outside radius of the circular zone
Inner = Inside radius of the circular zone
Minimum = Minimum angle of the particles
Maximum = Maximum angle of the particles

Scale

This adds a random size scale to the particles between the min and max values.

Min,Max

Min = Minimum Scale (1.0 = normal)
Max = Maximum Scale (1.0 = normal)

RandomDrift

This makes the particles drift vertically and horizontally. Useful for snow, smoke, etc.

Max Horizontal,Max Vertical

Max Horizontal = Maximum Drift per Second
Max Vertical = Maximum Drift per Second

Gravity Well

The GravityWell action applies a force on the particles to draw them towards a single point.
The force applied is inversely proportional to the square of the distance from the particles to the well, in accordance with Newton's law of gravity.

Power,X,Y,Range

Power = The amount of power the gravity well pulls with
X = X Coordinate of the well
Y = Y Coordinate of the well
Range = The range in which to affect particles

Mutual Gravity

The MutualGravity Action applies forces to attract each particle towards the other particles.
The force applied is inversely proportional to the square of the distance between the particles, in accordance with Newton's law of gravity.
This simulates the effect of gravity over large distances (as between planets, for example).

Power,Max,Range

Power = The amount of power to attract
Max = Maximum distance to affect the particles
Range = The range in which to affect particles

Acceleration

This adds acceleration to the particles.

X,Y

X = X Coordinate amount per Second
Y = Y Coordinate amount per Second

Lifetime

The Lifetime Initializer sets a lifetime for the particle. It is usually combined with the Age action to age the particle over its lifetime and destroy the particle at the end of its lifetime.

Minimum,Maximum

Minimum = Minimum Lifetime
Maximum = Maximum Lifetime

Emitter Rotation

Indicates the rotation of the Emitter, in degrees, within the particle system's coordinate space.

Angular Velocity

Angular Velocity = Velocity to rotate in degrees

Filters

Blur

This adds a blur filter to the particles emitted.

X,Y,Quality

X = X amount of Blur
Y = Y amount of Blur
Quality = The quality of the blur filter (Higher is slower!)

Color Blend

This adds a color blend filter to the particles emitted.

Color,Color

Color = Color 1 to blend together
Color = Color 2 to blend together

Color Matrix

This adds a color matrix (A matrix of floating-point values from zero to one, inclusive, that can be multiplied with a color vector to effect a color transform.) filter to the particles emitted.

Matrix

Matrix = String of matrix values (eg "1.0,0.8,0.4,0.4,1.0")

Color Change

The ColorChange action alters the color of the particle as it ages. It uses the particle's energy level to decide what color to display.

Color,Color

Color = Color 1 to change from
Color = Color 2 to to change to

Alpha

Alpha sets the alpha transparency of the particles.

Minimum,Maximum

Minimum = Min Alpha to apply over the particles lifetime
Maximum = Max Alpha to apply over the particles lifetime

Move Particles

The Move action updates the position of the particle based on its velocity. It uses a Euler integrator to calculate the new position.
If you want an emitter's particles to move then you must add a Move action, or a similar custom action, to the emitter.

None

Age Particles

The Age action operates in conjunction with the Lifetime action.
The Age effect then ages the particles over time, altering their energy to reflect their age.
This energy can then be used by actions like Fade and Color Change, to alter the appearance of the particles as they age.

None

Age Particles (Ease In)

The same as Age, but with a smooth ease-in transition.

None

Age Particles (Ease Out)

The same as Age, but with a smooth ease-out transition.

None

Age Particles (Ease In Out)

The same as Age, but with smooth ease-in and ease-out transitions.

None

Rotate To Direction

The Rotate To Direction effect updates the rotation of the particles so that they always point in the direction they are traveling.

None

Linear Drag

The Linear Drag effect applies drag to the particle to slow them down when moving. The drag force is proportional to the speed of the particles.

Amount

Amount = The amount of drag to apply to the particles

Fade

The Fade effect adjusts the particles alpha as they age. It uses the particles energy level to decide what color to display.

Starting,Ending

Starting = The amount of alpha to start the particles with
Ending = The amount of alpha to end the particles with

Approach Neighbors

The Approach Neighbors effect applies an acceleration to the particle to draw it towards other nearby particles. The size of the acceleration is constant, only the direction varies.
This differentiates this effect from the Mutual Gravity action, where the acceleration is proportional to the distance between the particles.

Max Distance,Acceleration

Max Distance = The max distance the particles can be affected by
Acceleration = The amount of acceleration to apply

Match Velocity

The Match Velocity effect applies an acceleration to each particle to match its velocity to that of its nearest neighbors.

Max Distance,Acceleration

Max Distance = The max distance the particles can be affected by
Acceleration = The amount of acceleration to apply

Minimum Distance

The Minimum Distance effect applies acceleration to the particles to maintain a minimum distance between them and their neighbors.

Min Distance,Acceleration

Min Distance = The min distance the particles can be affected by
Acceleration = The amount of acceleration to apply

Speed Limit

The Minimum Distance effect applies acceleration to the particles to maintain a minimum distance between them and their neighbors.

Speed

Speed = The max speed the particles can move

Bounding Box

The Bounding Box effect confines each particle to a rectangle region. The particle bounces back off the sides of the rectangle when it reaches the edge. The bounce treats the particle as a circular body.

Left,Top,Right,Bottom,Bounce

Left = The left Coordinates of the box
Top = The top Coordinates of the box
Right = The right Coordinates of the box
Bottom = The bottom Coordinates of the box
Bounce = 0: No Energy Loss, 1: Elastic Response, Less Than 1: Lose Energy

Explosion

The Explosion effect applies a force on the particles to push them away from a single point - the center of the explosion. The force occurs instantaneously at the central point of the explosion and then ripples out in a shock wave.

Power,X,Y,Expansion,Depth

Power = The power of the explosion
X = The X Coordinate of the explosion
Y = The Y Coordinate of the explosion
Expansion = The rate at which the shockwave moves out from the explosion, in pixels per second.
Depth = The size of the shockwave, front to back

Start Emitter

This starts the emitter, thus creating particles.

None

Run Emitter Ahead

This runs the emitter ahead, in seconds.
(Example: Starting an emitter creating snow, would start the snowfall from the top of the screen. Running ahead 10 sec would fill the screen with snow.)

Seconds

Seconds = The amount of seconds to run the emitter ahead in time

Stop Emitter

This stops the emitter.

None