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# **xSGE Particles Documentation**

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xSGE is a collection of extensions for the SGE licensed under the GNU General Public License. They are designed to give additional features to free/libre software games which aren't necessary, but are nice to have.

xSGE extensions are not dependent on any particular SGE implementation. They should work with any implementation that follows the specification.

This extension provides particle effects for the SGE.



## XSGE\_PARTICLE CLASSES

### `xsge_particle.Emitter`

```
class xsge_particle.Emitter(x, y, z=0, interval=1, chance=1, particle_cls=<class  
    'xsge_particle.Particle'>, particle_args=None, particle_kwargs=None,  
    particle_lambda_args=None, particle_lambda_kwargs=None, tangi-  
    ble=False, **kwargs)
```

Class for object emitters. These are `sge.dsp.Object` objects which create other `sge.dsp.Object` objects of a specified class at a specified interval.

To randomize the way particles are created, extend `event_create_particle()` in a derived class.

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**Note:** An alarm with the name "`__emitter`" in `event_alarm()` is used to control the timing. It is initially set by `event_create()`.

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#### **interval**

The number of frames to wait in between the creation of each particle (adjusted for delta timing).

#### **chance**

The chance (out of 1) of a particle actually being created at each iteration. This can be used to make particle generation uneven.

#### **particle\_cls**

The class to use for the particles created. Any class derived from `sge.dsp.Object` will work.

#### **particle\_args**

The ordered arguments to pass to created particles' constructor methods. If set to `None`, an empty list is used.

#### **particle\_kwargs**

The keyword arguments to pass to created particles' constructor methods. If set to `None`, an empty dictionary is used.

#### **particle\_lambda\_args**

A list of functions which, when a particle is about to be created, are called and have the returned values passed to the particle's constructor method instead of the corresponding index of `particle_args`. This emitter is passed to each of these functions as the first argument.

Values in the list set to `None` are ignored. If this list is longer than `particle_args`, any arguments not set by either of these lists are set to `None`.

If set to `None`, an empty list is used.

### **particle\_lambda\_kwargs**

A dictionary of functions which, when a particle is about to be created, are called and have the returned values passed to the particle's constructor method instead of the corresponding key of `particle_kwargs`. This emitter is passed to each of these functions as the first argument.

If set to `None`, an empty dictionary is used.

## **xsge\_particle.Emitter Methods**

```
Emitter.__init__(x, y, z=0, interval=1, chance=1, particle_cls=<class 'xsge_particle.Particle'>,
                 particle_args=None, particle_kwargs=None, particle_lambda_args=None, particle_lambda_kwargs=None,
                 tangible=False, **kwargs)
```

Arguments set the respective initial attributes of the object. See the documentation for `Emitter` for more information.

`x`, `y`, `z`, `tangible`, and all arguments passed to `kwargs` are passed as the corresponding arguments to the constructor method of `sge.dsp.Object`.

## **xsge\_particle.Emitter Event Methods**

```
Emitter.event_create_particle(particle)
```

Called immediately after the emitter creates a particle.

Arguments:

- `particle` – The particle object just created.

## **xsge\_particle.Particle**

```
class xsge_particle.Particle(x, y, z=0, tangible=False, **kwargs)
```

Base class for particles. It is identical to `sge.dsp.Object`, except that it is intangible by default.

## **xsge\_particle.Particle Methods**

```
Particle.__init__(x, y, z=0, tangible=False, **kwargs)
```

`x`, `y`, `z`, `tangible`, and all arguments passed to `kwargs` are passed as the corresponding arguments to the constructor method of the parent class.

## **xsge\_particle.AnimationParticle**

```
class xsge_particle.AnimationParticle(x, y, z=0, tangible=False, **kwargs)
```

Class for particle objects which animate once and are then destroyed. It is otherwise identical to `Particle`.

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**Note:** `event_animation_end()` is used to control the destruction.

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## xsge\_particle.TimedParticle

**class** xsge\_particle.**TimedParticle** (*x, y, z=0, life=None, tangible=False, \*\*kwargs*)

Class for particle objects which are destroyed after a designated amount of time. It is otherwise identical to *Particle*.

---

**Note:** An alarm with the name "`__life`" in `event_alarm()` is used to control the timing. It is initially set by `event_create()`.

---

### **life**

The number of frames (adjusted for delta timing) after which the particle is destroyed. Setting this attribute resets the "`__life`" alarm to the given value. Set to `None` to disable timed destruction.

## xsge\_particle.TimedParticle Methods

`TimedParticle.__init__` (*x, y, z=0, life=None, tangible=False, \*\*kwargs*)

Arguments set the respective initial attributes of the object. See the documentation for *TimedParticle* for more information.

`x`, `y`, `z`, `tangible`, and all arguments passed to `kwargs` are passed as the corresponding arguments to the constructor method of the parent class.

## xsge\_particle.BubbleParticle

**class** xsge\_particle.**BubbleParticle** (*x, y, z=0, turn\_factor=1, min\_angle=180, max\_angle=0, tangible=False, \*\*kwargs*)

Class for particle objects which randomly change their move directions.

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**Note:** `event_step()` is used to control this behavior. `move_direction` is manipulated.

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### **turn\_factor**

The largest amount of rotation possible.

### **min\_angle**

The lowest possible angle permitted.

### **max\_angle**

The highest possible angle permitted.

## xsge\_particle.BubbleParticle Methods

`BubbleParticle.__init__` (*x, y, z=0, turn\_factor=1, min\_angle=180, max\_angle=0, tangible=False, \*\*kwargs*)

Arguments set the respective initial attributes of the object. See the documentation for *TimedParticle* for more information.

`x`, `y`, `z`, `tangible`, and all arguments passed to `kwargs` are passed as the corresponding arguments to the constructor method of the parent class.

## **xsg\_particle.AnimationBubbleParticle**

**class** xsg\_particle.**AnimationBubbleParticle**(*x*, *y*, *z=0*, *turn\_factor=1*, *min\_angle=180*,  
*max\_angle=0*, *tangible=False*, **\*\*kwargs**)

Inherits the features of both *AnimationParticle* and *BubbleParticle*.

## **xsg\_particle.TimedBubbleParticle**

**class** xsg\_particle.**TimedBubbleParticle**(*x*, *y*, *z=0*, *life=None*, *tangible=False*, **\*\*kwargs**)

Inherits the features of both *TimedParticle* and *BubbleParticle*.

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