ParticleSettings(ID)

base classes — `bpy_struct`, `ID`

class bpy.types.**ParticleSettings(ID)**

Particle settings, reusable by multiple particle systems

active_instanceweight

TYPE:

`ParticleDupliWeight`, (readonly)

active_instanceweight_index

TYPE:

int in [0, inf], default 0

active_texture

Active texture slot being displayed

TYPE:

`Texture`

active_texture_index

Index of active texture slot

TYPE:

int in [0, 17], default 0

adaptive_angle

How many degrees path has to curve to make another render segment

TYPE:

int in [0, 45], default 5

adaptive_pixel

How many pixels path has to cover to make another render segment

TYPE:

int in [0, 50], default 3

angular_velocity_factor

Angular velocity amount (in radians per second)

TYPE:

float in [-200, 200], default 0.0

angular_velocity_mode

What axis is used to change particle rotation with time

TYPE:

enum in ['NONE', 'VELOCITY', 'HORIZONTAL', 'VERTICAL', 'GLOBAL_X', 'GLOBAL_Y', 'GLOBAL_Z', 'RAND'], defau 'VELOCITY'

animation_data

Animation data for this data-block

TYPE:

> [AnimData](#) , (readonly)

apply_effector_to_children

> Apply effectors to children

> **TYPE:**
>
> > boolean, default False

apply_guide_to_children

> **TYPE:**
>
> > boolean, default False

bending_random

> Random stiffness of hairs

> **TYPE:**
>
> > float in [0, 1], default 0.0

boids

> **TYPE:**
>
> > [BoidSettings](#) , (readonly)

branch_threshold

> Threshold of branching

> **TYPE:**
>
> > float in [0, 1], default 0.0

brownian_factor

> Amount of random, erratic particle movement

> **TYPE:**
>
> > float in [0, 200], default 0.0

child_length

> Length of child paths

> **TYPE:**
>
> > float in [0, 1], default 1.0

child_length_threshold

> Amount of particles left untouched by child path length

> **TYPE:**
>
> > float in [0, 1], default 0.0

child_parting_factor

> Create parting in the children based on parent strands

> **TYPE:**
>
> > float in [0, 1], default 0.0

child_parting_max

> Maximum root to tip angle (tip distance/root distance for long hair)

> **TYPE:**
>
> > float in [0, 180], default 0.0

child_parting_min

Minimum root to tip angle (tip distance/root distance for long hair)

TYPE:

float in [0, 180], default 0.0

child_percent

Number of children per parent

TYPE:

int in [0, 100000], default 10

child_radius

Radius of children around parent

TYPE:

float in [0, 100000], default 0.2

child_roundness

Roundness of children around parent

TYPE:

float in [0, 1], default 0.0

child_size

A multiplier for the child particle size

TYPE:

float in [0.001, 100000], default 1.0

child_size_random

Random variation to the size of the child particles

TYPE:

float in [0, 1], default 0.0

child_type

Create child particles

TYPE:

enum in ['NONE', 'SIMPLE', 'INTERPOLATED'], default 'NONE'

clump_curve

Curve defining clump tapering

TYPE:

[CurveMapping](), (readonly)

clump_factor

Amount of clumping

TYPE:

float in [-1, 1], default 0.0

clump_noise_size

Size of clump noise

TYPE:

float in [1e-05, 100000], default 1.0

clump_shape

Shape of clumping

TYPE:

float in [-0.999, 0.999], default 0.0

collision_collection

Limit colliders to this collection

TYPE:

Collection

color_maximum

Maximum length of the particle color vector

TYPE:

float in [0.01, 100], default 1.0

count

Total number of particles

TYPE:

int in [0, inf], default 1000

courant_target

The relative distance a particle can move before requiring more subframes (target Courant number); 0.01 to 0.3 is the recommended range

TYPE:

float in [0.0001, 10], default 0.2

create_long_hair_children

Calculate children that suit long hair well

TYPE:

boolean, default False

damping

Amount of damping

TYPE:

float in [0, 1], default 0.0

display_color

Display additional particle data as a color

TYPE:

enum in ['NONE', 'MATERIAL', 'VELOCITY', 'ACCELERATION'], default 'MATERIAL'

display_method

How particles are displayed in viewport

TYPE:

enum in ['NONE', 'RENDER', 'DOT', 'CIRC', 'CROSS', 'AXIS'], default 'RENDER'

display_percentage

Percentage of particles to display in 3D view

> **TYPE:**
>> int in [0, 100], default 100

display_size

Size of particles on viewport

> **TYPE:**
>> float in [0, 1000], default 0.1

display_step

How many steps paths are displayed with (power of 2)

> **TYPE:**
>> int in [0, 10], default 2

distribution

How to distribute particles on selected element

> **TYPE:**
>> enum in ['JIT', 'RAND', 'GRID'], default 'JIT'

drag_factor

Amount of air drag

> **TYPE:**
>> float in [0, 1], default 0.0

effect_hair

Hair stiffness for effectors

> **TYPE:**
>> float in [0, 1], default 0.0

effector_amount

How many particles are effectors (0 is all particles)

> **TYPE:**
>> int in [0, 10000], default 0

effector_weights

> **TYPE:**
>> EffectorWeights, (readonly)

emit_from

Where to emit particles from

> **TYPE:**
>> enum in ['VERT', 'FACE', 'VOLUME'], default 'FACE'

factor_random

Give the starting velocity a random variation

> **TYPE:**
>> float in [0, 200], default 0.0

fluid

TYPE:

> [SPHFluidSettings](#), (readonly)

force_field_1

> **TYPE:**
>
> > [FieldSettings](#), (readonly)

force_field_2

> **TYPE:**
>
> > [FieldSettings](#), (readonly)

frame_end

> Frame number to stop emitting particles
>
> **TYPE:**
>
> > float in [-1.04857e+06, 1.04857e+06], default 200.0

frame_start

> Frame number to start emitting particles
>
> **TYPE:**
>
> > float in [-1.04857e+06, 1.04857e+06], default 1.0

grid_random

> Add random offset to the grid locations
>
> **TYPE:**
>
> > float in [0, 1], default 0.0

grid_resolution

> The resolution of the particle grid
>
> **TYPE:**
>
> > int in [1, 250], default 10

hair_length

> Length of the hair
>
> **TYPE:**
>
> > float in [0, 1000], default 0.0

hair_step

> Number of hair segments
>
> **TYPE:**
>
> > int in [2, 32767], default 5

hexagonal_grid

> Create the grid in a hexagonal pattern
>
> **TYPE:**
>
> > boolean, default False

instance_collection

> Show objects in this collection in place of particles
>
> **TYPE:**

`Collection`

instance_object

Show this object in place of particles

TYPE:

`Object`

instance_weights

Weights for all of the objects in the instance collection

TYPE:

`bpy_prop_collection` of `ParticleDupliWeight` , (readonly)

integrator

Algorithm used to calculate physics, from the fastest to the most stable and accurate: Midpoint, Euler, Verlet, RK4

TYPE:

enum in ['EULER', 'VERLET', 'MIDPOINT', 'RK4'], default 'MIDPOINT'

invert_grid

Invert what is considered object and what is not

TYPE:

boolean, default False

is_fluid

Particles were created by a fluid simulation

TYPE:

boolean, default False, (readonly)

jitter_factor

Amount of jitter applied to the sampling

TYPE:

float in [0, 2], default 1.0

keyed_loops

Number of times the keys are looped

TYPE:

int in [1, 10000], default 1

keys_step

TYPE:

int in [0, 32767], default 5

kink

Type of periodic offset on the path

TYPE:

enum in ['NO', 'CURL', 'RADIAL', 'WAVE', 'BRAID', 'SPIRAL'], default 'NO'

kink_amplitude

The amplitude of the offset

TYPE:

TYPE:

> float in [-100000, 100000], default 0.2

kink_amplitude_clump

> How much clump affects kink amplitude

TYPE:

> float in [0, 1], default 1.0

kink_amplitude_random

> Random variation of the amplitude

TYPE:

> float in [0, 1], default 0.0

kink_axis

> Which axis to use for offset

TYPE:

> enum in Axis Xyz Items, default 'Z'

kink_axis_random

> Random variation of the orientation

TYPE:

> float in [0, 1], default 0.0

kink_extra_steps

> Extra steps for resolution of special kink features

TYPE:

> int in [1, inf], default 4

kink_flat

> How flat the hairs are

TYPE:

> float in [0, 1], default 0.0

kink_frequency

> The frequency of the offset (1/total length)

TYPE:

> float in [-100000, 100000], default 2.0

kink_shape

> Adjust the offset to the beginning/end

TYPE:

> float in [-0.999, 0.999], default 0.0

length_random

> Give path length a random variation

TYPE:

> float in [0, 1], default 0.0

lifetime

Life span of the particles

TYPE:

float in [1, 1.04857e+06], default 50.0

lifetime_random

Give the particle life a random variation

TYPE:

float in [0, 1], default 0.0

line_length_head

Length of the line's head

TYPE:

float in [0, 100000], default 0.0

line_length_tail

Length of the line's tail

TYPE:

float in [0, 100000], default 0.0

lock_boids_to_surface

Constrain boids to a surface

TYPE:

boolean, default False

mass

Mass of the particles

TYPE:

float in [1e-08, 100000], default 1.0

material

Index of material slot used for rendering particles

TYPE:

int in [1, 32767], default 1

material_slot

Material slot used for rendering particles

TYPE:

enum in ['DUMMY'], default 'DUMMY'

normal_factor

Let the surface normal give the particle a starting velocity

TYPE:

float in [-1000, 1000], default 1.0

object_align_factor

Let the emitter object orientation give the particle a starting velocity

TYPE:

mathutils.Vector of 3 items in [-200, 200], default (0.0, 0.0, 0.0)

object_factor

Let the object give the particle a starting velocity

TYPE:

float in [-200, 200], default 0.0

particle_factor

Let the target particle give the particle a starting velocity

TYPE:

float in [-200, 200], default 0.0

particle_size

The size of the particles

TYPE:

float in [0.001, 100000], default 0.05

path_end

End time of path

TYPE:

float in [-inf, inf], default 1.0

path_start

Starting time of path

TYPE:

float in [-inf, inf], default 0.0

phase_factor

Rotation around the chosen orientation axis

TYPE:

float in [-1, 1], default 0.0

phase_factor_random

Randomize rotation around the chosen orientation axis

TYPE:

float in [0, 2], default 0.0

physics_type

Particle physics type

TYPE:

enum in ['NO', 'NEWTON', 'KEYED', 'BOIDS', 'FLUID'], default 'NEWTON'

radius_scale

Multiplier of diameter properties

TYPE:

float in [0, inf], default 0.01

react_event

The event of target particles to react on

TYPE:

enum in ['DEATH', 'COLLIDE', 'NEAR'], default 'DEATH'

reactor_factor

Let the vector away from the target particle's location give the particle a starting velocity

TYPE:

float in [-10, 10], default 0.0

render_step

How many steps paths are rendered with (power of 2)

TYPE:

int in [0, 20], default 3

render_type

How particles are rendered

TYPE:

enum in ['NONE', 'HALO', 'LINE', 'PATH', 'OBJECT', 'COLLECTION'], default 'HALO'

rendered_child_count

Number of children per parent for rendering

TYPE:

int in [0, 100000], default 100

root_radius

Strand diameter width at the root

TYPE:

float in [0, inf], default 1.0

rotation_factor_random

Randomize particle orientation

TYPE:

float in [0, 1], default 0.0

rotation_mode

Particle orientation axis (does not affect Explode modifier's results)

TYPE:

enum in ['NONE', 'NOR', 'NOR_TAN', 'VEL', 'GLOB_X', 'GLOB_Y', 'GLOB_Z', 'OB_X', 'OB_Y', 'OB_Z'], default 'VEL'

roughness_1

Amount of location dependent roughness

TYPE:

float in [0, 100000], default 0.0

roughness_1_size

Size of location dependent roughness

TYPE:

float in [0.01, 100000], default 1.0

roughness_2

Amount of random roughness

Amount of random roughness

TYPE:

float in [0, 100000], default 0.0

roughness_2_size

Size of random roughness

TYPE:

float in [0.01, 100000], default 1.0

roughness_2_threshold

Amount of particles left untouched by random roughness

TYPE:

float in [0, 1], default 0.0

roughness_curve

Curve defining roughness

TYPE:

`CurveMapping`, (readonly)

roughness_end_shape

Shape of endpoint roughness

TYPE:

float in [0, 10], default 1.0

roughness_endpoint

Amount of endpoint roughness

TYPE:

float in [0, 100000], default 0.0

shape

Strand shape parameter

TYPE:

float in [-1, 1], default 0.0

show_guide_hairs

Show guide hairs

TYPE:

boolean, default False

show_hair_grid

Show hair simulation grid

TYPE:

boolean, default False

show_health

Display boid health

TYPE:

boolean, default False

show_number

Show particle number

TYPE:

boolean, default False

show_size

Show particle size

TYPE:

boolean, default False

show_unborn

Show particles before they are emitted

TYPE:

boolean, default False

show_velocity

Show particle velocity

TYPE:

boolean, default False

size_random

Give the particle size a random variation

TYPE:

float in [0, 1], default 0.0

subframes

Subframes to simulate for improved stability and finer granularity simulations (dt = timestep / (subframes + 1))

TYPE:

int in [0, 1000], default 0

tangent_factor

Let the surface tangent give the particle a starting velocity

TYPE:

float in [-1000, 1000], default 0.0

tangent_phase

Rotate the surface tangent

TYPE:

float in [-1, 1], default 0.0

texture_slots

Texture slots defining the mapping and influence of textures

TYPE:

`ParticleSettingsTextureSlots bpy_prop_collection` of `ParticleSettingsTextureSlot`, (readonly)

time_tweak

A multiplier for physics timestep (1.0 means one frame = 1/25 seconds)

TYPE:

float in [0, 100], default 1.0

timestep

The simulation timestep per frame (seconds per frame)

TYPE:

float in [0.0001, 100], default 0.0

tip_radius

Strand diameter width at the tip

TYPE:

float in [0, inf], default 0.0

trail_count

Number of trail particles

TYPE:

int in [1, 100000], default 0

twist

Number of turns around parent along the strand

TYPE:

float in [-100000, 100000], default 0.0

twist_curve

Curve defining twist

TYPE:

`CurveMapping`, (readonly)

type

Particle type

TYPE:

enum in ['EMITTER', 'HAIR'], default 'EMITTER'

use_absolute_path_time

Path timing is in absolute frames

TYPE:

boolean, default False

use_adaptive_subframes

Automatically set the number of subframes

TYPE:

boolean, default False

use_advanced_hair

Use full physics calculations for growing hair

TYPE:

boolean, default False

use_close_tip

Set tip radius to zero

TYPE:

boolean, default True

use_clump_curve

Use a curve to define clump tapering

TYPE:

boolean, default False

use_clump_noise

Create random clumps around the parent

TYPE:

boolean, default False

use_collection_count

Use object multiple times in the same collection

TYPE:

boolean, default False

use_collection_pick_random

Pick objects from collection randomly

TYPE:

boolean, default False

use_dead

Show particles after they have died

TYPE:

boolean, default False

use_die_on_collision

Particles die when they collide with a deflector object

TYPE:

boolean, default False

use_dynamic_rotation

Particle rotations are affected by collisions and effectors

TYPE:

boolean, default False

use_emit_random

Emit in random order of elements

TYPE:

boolean, default True

use_even_distribution

Use even distribution from faces based on face areas or edge lengths

TYPE:

boolean, default True

use_global_instance

Use object's global coordinates for duplication

TYPE:

boolean, default False

use_hair_bspline

Interpolate hair using B-Splines

TYPE:

boolean, default False

use_modifier_stack

Emit particles from mesh with modifiers applied (must use same subdivision surface level for viewport and render for correct results)

TYPE:

boolean, default False

use_multiply_size_mass

Multiply mass by particle size

TYPE:

boolean, default False

use_parent_particles

Render parent particles

TYPE:

boolean, default False

use_react_multiple

React multiple times

TYPE:

boolean, default False

use_react_start_end

Give birth to unreacted particles eventually

TYPE:

boolean, default False

use_regrow_hair

Regrow hair for each frame

TYPE:

boolean, default False

use_render_adaptive

Display steps of the particle path

TYPE:

boolean, default False

use_rotation_instance

Use object's rotation for duplication (global x-axis is aligned particle rotation axis)

TYPE:

boolean, default False

use_rotations

Calculate particle rotations

TYPE:

boolean, default False

use_roughness_curve

Use a curve to define roughness

TYPE:

boolean, default False

use_scale_instance

Use object's scale for duplication

TYPE:

boolean, default True

use_self_effect

Particle effectors affect themselves

TYPE:

boolean, default False

use_size_deflect

Use particle's size in deflection

TYPE:

boolean, default False

use_strand_primitive

Use the strand primitive for rendering

TYPE:

boolean, default False

use_twist_curve

Use a curve to define twist

TYPE:

boolean, default False

use_velocity_length

Multiply line length by particle speed

TYPE:

boolean, default False

use_whole_collection

Use whole collection at once

TYPE:

boolean, default False

userjit

Emission locations per face (0 = automatic)

TYPE:

int in [0, 1000], default 0

virtual_parents

Relative amount of virtual parents

TYPE:

float in [0, 1], default 0.0

classmethod bl_rna_get_subclass(id, default=None)

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The RNA type or default when not found.

RETURN TYPE:

`bpy.types.Struct` subclass

classmethod bl_rna_get_subclass_py(id, default=None)

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The class or default when not found.

RETURN TYPE:

type

Inherited Properties

- `bpy_struct.id_data`
- `ID.name`
- `ID.name_full`
- `ID.id_type`
- `ID.session_uid`
- `ID.is_evaluated`
- `ID.original`
- `ID.users`
- `ID.use_fake_user`
- `ID.use_extra_user`
- `ID.is_embedded_data`

- `ID.is_missing`
- `ID.is_runtime_data`
- `ID.is_editable`
- `ID.tag`
- `ID.is_library_indirect`
- `ID.library`
- `ID.library_weak_reference`
- `ID.asset_data`
- `ID.override_library`
- `ID.preview`

Inherited Functions

- `bpy_struct.as_pointer`
- `bpy_struct.driver_add`
- `bpy_struct.driver_remove`
- `bpy_struct.get`
- `bpy_struct.id_properties_clear`
- `bpy_struct.id_properties_ensure`

- `bpy_struct.type_recast`
- `bpy_struct.values`
- `ID.rename`
- `ID.evaluated_get`
- `ID.copy`
- `ID.asset_mark`

- [bpy_struct.id_properties_ui](#)
- [bpy_struct.is_property_hidden](#)
- [bpy_struct.is_property_overridable_library](#)
- [bpy_struct.is_property_readonly](#)
- [bpy_struct.is_property_set](#)
- [bpy_struct.items](#)
- [bpy_struct.keyframe_delete](#)
- [bpy_struct.keyframe_insert](#)
- [bpy_struct.keys](#)
- [bpy_struct.path_from_id](#)
- [bpy_struct.path_resolve](#)
- [bpy_struct.pop](#)
- [bpy_struct.property_overridable_library_set](#)
- [bpy_struct.property_unset](#)
- [ID.asset_clear](#)
- [ID.asset_generate_preview](#)
- [ID.override_create](#)
- [ID.override_hierarchy_create](#)
- [ID.user_clear](#)
- [ID.user_remap](#)
- [ID.make_local](#)
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- [ID.animation_data_clear](#)
- [ID.update_tag](#)
- [ID.preview_ensure](#)
- [ID.bl_rna_get_subclass](#)
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