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NodeSocketShader(NodeSocketStandard)

base classes — bpy_struct , NodeSocket , NodeSocketStandard

class bpy.types.**NodeSocketShader(NodeSocketStandard)**

Shader socket of a node

links

List of node links from or to this socket.

TYPE:

NodeLinks

Note

Takes O(len(nodetree.links)) time.

(readonly)

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
- NodeSocket.name
- NodeSocket.label
- NodeSocket.identifier
- NodeSocket.description
- NodeSocket.is_output
- NodeSocket.hide
- NodeSocket.enabled
- NodeSocket.link_limit
- NodeSocket.is_linked
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- NodeSocket.show_expanded
- NodeSocket.hide_value
- NodeSocket.pin_gizmo
- NodeSocket.node
- NodeSocket.type
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- NodeSocket.bl_idname
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- NodeSocket.bl_subtype_label
- NodeSocket.links
- NodeSocketStandard.links

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
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- bpy_struct.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
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- bpy_struct.items
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- bpy_struct.path_from_id
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- bpy_struct.type_recast
- bpy_struct.values
- NodeSocket.draw
- NodeSocket.draw_color
- NodeSocket.draw_color_simple
- NodeSocket.bl_rna_get_subclass
- NodeSocket.bl_rna_get_subclass_py
- NodeSocketStandard.draw
- NodeSocketStandard.draw_color
- NodeSocketStandard.draw_color_simple
- NodeSocketStandard.bl_rna_get_subclass
- NodeSocketStandard.bl_rna_get_subclass_py

OperatorStrokeElement(PropertyGroup)

base classes — bpy_struct, PropertyGroup

class bpy.types.**OperatorStrokeElement(PropertyGroup)**

is_start

TYPE:

boolean, default False

location

TYPE:

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

mouse

TYPE:

mathutils.Vector of 2 items in [-inf, inf], default (0.0, 0.0)

mouse_event

TYPE:

mathutils.Vector of 2 items in [-inf, inf], default (0.0, 0.0)

pressure

Tablet pressure

TYPE:

float in [0, 1], default 0.0

size

Brush size in screen space

TYPE:

float in [0, inf], default 0.0

time

TYPE:

float in [0, inf], default 0.0

x_tilt

TYPE:

float in [-1, 1], default 0.0

y_tilt

TYPE:

float in [-1, 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

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
- PropertyGroup.name

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.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
- bpy_struct.type_recast
- bpy_struct.values
- PropertyGroup.bl_rna_get_subclass
- PropertyGroup.bl_rna_get_subclass_py

OverDropStrip(EffectStrip)

base classes — bpy_struct, Strip, EffectStrip

class bpy.types.**OverDropStrip(EffectStrip)**

Over Drop Strip

input_1

First input for the effect strip

TYPE:

Strip, (never None)

input_2

Second input for the effect strip

TYPE:

Strip, (never None)

input_count

TYPE:

int in [0, inf], default 0, (readonly)

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
- Strip.name
- Strip.type
- Strip.select
- Strip.select_left_handle
- Strip.select_right_handle
- Strip.mute
- Strip.lock
- Strip.frame_final_duration
- Strip.color_tag
- Strip.modifiers
- Strip.use_cache_raw
- Strip.use_cache_preprocessed
- Strip.use_cache_composite
- Strip.override_cache_settings
- Strip.show_retiming_keys
- EffectStrip.use_deinterlace
- EffectStrip.alpha_mode

- Strip.frame_duration
- Strip.frame_start
- Strip.frame_final_start
- Strip.frame_final_end
- Strip.frame_offset_start
- Strip.frame_offset_end
- Strip.channel
- Strip.use_linear_modifiers
- Strip.blend_type
- Strip.blend_alpha
- Strip.effect_fader
- Strip.use_default_fade
- EffectStrip.use_flip_x
- EffectStrip.use_flip_y
- EffectStrip.use_float
- EffectStrip.use_reverse_frames
- EffectStrip.color_multiply
- EffectStrip.multiply_alpha
- EffectStrip.color_saturation
- EffectStrip.strobe
- EffectStrip.transform
- EffectStrip.crop
- EffectStrip.use_proxy
- EffectStrip.proxy

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.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
- bpy_struct.type_recast
- bpy_struct.values
- Strip.strip_elem_from_frame
- Strip.swap
- Strip.move_to_meta
- Strip.parent_meta
- Strip.invalidate_cache
- Strip.split
- Strip.bl_rna_get_subclass
- Strip.bl_rna_get_subclass_py
- EffectStrip.bl_rna_get_subclass
- EffectStrip.bl_rna_get_subclass_py

PackedFile(bpy_struct)

base class — bpy_struct

class bpy.types.**PackedFile(bpy_struct)**

External file packed into the .blend file

data

Raw data (bytes, exact content of the embedded file)

TYPE:

byte string, default “”, (readonly, never None)

size

Size of packed file in bytes

TYPE:

int in [-inf, inf], default 0, (readonly)

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

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.id_properties_clear
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- bpy_struct.property_overridable_library_set

- bpy_struct.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values

References

- Image.packed_file
- ImagePackedFile.packed_file
- Library.packed_file
- Sound.packed_file
- VectorFont.packed_file
- Volume.packed_file

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Paint(bpy_struct)

base class — bpy_struct

subclasses — CurvesSculpt, GpPaint, GpSculptPaint, GpVertexPaint, GpWeightPaint, ImagePaint, SculptVertexPaint

class bpy.types.**Paint(bpy_struct)**

brush

Active brush

TYPE:

Brush, (readonly)

brush_asset_reference

A weak reference to the matching brush asset, used e.g. to restore the last used brush on file load

TYPE:

AssetWeakReference, (readonly)

cavity_curve

Editable cavity curve

TYPE:

CurveMapping, (readonly, never None)

eraser_brush

Default eraser brush for quickly alternating with the main brush

TYPE:

Brush

eraser_brush_asset_reference

A weak reference to the matching brush asset, used e.g. to restore the last used brush on file load

TYPE:

AssetWeakReference, (readonly)

palette

Active Palette

TYPE:

Palette

show_brush

TYPE:

boolean, default False

show_brush_on_surface

TYPE:

boolean, default False

show_low_resolution

For multires, show low resolution while navigating the view

TYPE:

boolean, default False

tile_offset

Stride at which tiled strokes are copied

TYPE:

mathutils.Vector of 3 items in [0.01, inf], default (0.0, 0.0, 0.0)

tile_x

Tile along X axis

TYPE:

boolean, default False

tile_y

Tile along Y axis

TYPE:

boolean, default False

tile_z

Tile along Z axis

TYPE:

boolean, default False

use_cavity

Mask painting according to mesh geometry cavity

TYPE:

boolean, default False

use_sculpt_delay_updates

Update the geometry when it enters the view, providing faster view navigation

TYPE:

boolean, default False

use_symmetry_feather

Reduce the strength of the brush where it overlaps symmetrical daubs

TYPE:

boolean, default False

use_symmetry_x

Mirror brush across the X axis

TYPE:

boolean, default False

use_symmetry_y

Mirror brush across the Y axis

TYPE:

boolean, default False

use_symmetry_z

Mirror brush across the Z axis

Mirror brush across the Z axis

TYPE:
boolean, default False

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`

Inherited Functions

- `bpy_struct.as_pointer`
- `bpy_struct.driver_add`
- `bpy_struct.driver_remove`
- `bpy_struct.get`
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- `bpy_struct.id_properties_ui`
- `bpy_struct.is_property_hidden`
- `bpy_struct.is_property_overridable_library`
- `bpy_struct.is_property_readonly`
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- `bpy_struct.items`
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- `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`
- `bpy_struct.type_recast`
- `bpy_struct.values`

PaintCurve(ID)

base classes — bpy_struct, ID

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

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.id_properties_ui
- bpy_struct.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.type_recast
- bpy_struct.values
- ID.rename
- ID.evaluated_get
- ID.copy
- ID.asset_mark
- ID.asset_clear
- ID.asset_generate_preview
- ID.override_create

- 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.override_hierarchy_create
- ID.user_clear
- ID.user_remap
- ID.make_local
- ID.user_of_id
- ID.animation_data_create
- ID.animation_data_clear
- ID.update_tag
- ID.preview_ensure
- ID.bl_rna_get_subclass
- ID.bl_rna_get_subclass_py

References

- BlendData.paint_curves
- Brush.paint_curve

PaintModeSettings(bpy_struct)

base class — bpy_struct

class bpy.types.**PaintModeSettings(bpy_struct)**

Properties of paint mode

canvas_image

Image used as painting target

TYPE:

Image

canvas_source

Source to select canvas from

TYPE:

enum in [‘COLOR_ATTRIBUTE’, ‘MATERIAL’, ‘IMAGE’], default ‘MATERIAL’

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

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.id_properties_ui
- bpy_struct.is_property_hidden
- 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.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values

References

- ToolSettings.paint_mode

Palette(ID)

base classes — bpy_struct , ID

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

colors

TYPE:

PaletteColors bpy_prop_collection of PaletteColor , (readonly)

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

- bpy_struct.id_properties_ensure
- 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_mark
- ID.asset_clear
- ID.asset_generate_preview
- ID.override_create
- ID.override_hierarchy_create
- ID.user_clear
- ID.user_remap
- ID.make_local
- ID.user_of_id
- ID.animation_data_create
- ID.animation_data_clear
- ID.update_tag
- ID.preview_ensure
- ID.bl_rna_get_subclass
- ID.bl_rna_get_subclass_py

References

- BlendData.palettes
- BlendDataPalettes.new
- BlendDataPalettes.remove
- Paint.palette

PaletteColor(bpy_struct)

base class — bpy_struct

class bpy.types.**PaletteColor(bpy_struct)**

color

TYPE:

mathutils.Color of 3 items in [0, 1], default (0.0, 0.0, 0.0)

strength

TYPE:

float in [0, 1], default 0.0

weight

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

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.id_properties_ui
- bpy_struct.is_property_hidden
- 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.is_property_overridable_library
- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values

References

- Palette.colors
- PaletteColors.active
- PaletteColors.new
- PaletteColors.remove

PaletteColors(bpy_struct)

base class — bpy_struct

class bpy.types.**PaletteColors(bpy_struct)**

Collection of palette colors

active

TYPE:

PaletteColor

new()

Add a new color to the palette

RETURNS:

The newly created color

RETURN TYPE:

PaletteColor

remove(color)

Remove a color from the palette

PARAMETERS:

color (PaletteColor , (never None)) – The color to remove

clear()

Remove all colors from the palette

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

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.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
- bpy_struct.type_recast
- bpy_struct.values

References

- Palette.colors

Panel(bpy_struct)

Basic Panel Example

This script is a simple panel which will draw into the object properties section.

Notice the 'CATEGORY_PT_name' `Panel.bl_idname`, this is a naming convention for panels.

Note

Panel subclasses must be registered for blender to use them.

```
import bpy


class HelloWorldPanel(bpy.types.Panel):
    bl_idname = "OBJECT_PT_hello_world"
    bl_label = "Hello World"
    bl_space_type = 'PROPERTIES'
    bl_region_type = 'WINDOW'
    bl_context = "object"

    def draw(self, context):
        self.layout.label(text="Hello World")


bpy.utils.register_class(HelloWorldPanel)
```

Simple Object Panel

This panel has a `Panel.poll` and `Panel.draw_header` function, even though the contents is basic this closely resembles blenders panels.

```
import bpy


class ObjectSelectPanel(bpy.types.Panel):
    bl_idname = "OBJECT_PT_select"
    bl_label = "Select"
    bl_space_type = 'PROPERTIES'
    bl_region_type = 'WINDOW'
    bl_context = "object"
    bl_options = {'DEFAULT_CLOSED'}

    @classmethod
    def poll(cls, context):
        return (context.object is not None)

    def draw_header(self, context):
        layout = self.layout
        layout.label(text="My Select Panel")

    def draw(self, context):
        layout = self.layout
```

```
        box = layout.box()
        box.label(text="Selection Tools")
        box.operator("object.select_all").action = 'TOGGLE'
        row = box.row()
        row.operator("object.select_all").action = 'INVERT'
        row.operator("object.select_random")


bpy.utils.register_class(ObjectSelectPanel)
```

Mix-in Classes

A mix-in parent class can be used to share common properties and `Menu.poll` function.

```
import bpy


class View3DPanel:
    bl_space_type = 'VIEW_3D'
    bl_region_type = 'UI'
    bl_category = "Tool"

    @classmethod
    def poll(cls, context):
        return (context.object is not None)


class PanelOne(View3DPanel, bpy.types.Panel):
    bl_idname = "VIEW3D_PT_test_1"
    bl_label = "Panel One"

    def draw(self, context):
        self.layout.label(text="Small Class")


class PanelTwo(View3DPanel, bpy.types.Panel):
    bl_idname = "VIEW3D_PT_test_2"
    bl_label = "Panel Two"

    def draw(self, context):
        self.layout.label(text="Also Small Class")


bpy.utils.register_class(PanelOne)
bpy.utils.register_class(PanelTwo)
```

base class — `bpy_struct`

class bpy.types.**Panel(bpy_struct)**

Panel containing UI elements

bl_category

The category (tab) in which the panel will be displayed, when applicable

TYPE:

string, default “”, (never None)

bl_context

The context in which the panel belongs to. (TODO: explain the possible combinations bl_context/bl_region_type/bl_space_type)

TYPE:

string, default “”, (never None)

bl_description

The panel tooltip

TYPE:

string, default “”

bl_idname

If this is set, the panel gets a custom ID, otherwise it takes the name of the class used to define the panel. For example, if the class name is “OBJECT_PT_hello”, and bl_idname is not set by the script, then bl_idname = “OBJECT_PT_hello”.

TYPE:

string, default “”, (never None)

bl_label

The panel label, shows up in the panel header at the right of the triangle used to collapse the panel

TYPE:

string, default “”, (never None)

bl_options

Options for this panel type

- `DEFAULT_CLOSED` Default Closed – Defines if the panel has to be open or collapsed at the time of its creation.
- `HIDE_HEADER` Hide Header – If set to False, the panel shows a header, which contains a clickable arrow to collapse the panel and th label (see bl_label).
- `INSTANCED` Instanced Panel – Multiple panels with this type can be used as part of a list depending on data external to the UI. Used tc create panels for the modifiers and other stacks..
- `HEADER_LAYOUT_EXPAND` Expand Header Layout – Allow buttons in the header to stretch and shrink to fill the entire layout width.

TYPE:

enum set in {‘DEFAULT_CLOSED’, ‘HIDE_HEADER’, ‘INSTANCED’, ‘HEADER_LAYOUT_EXPAND’}, default {‘DEFAULT_CLOSED’}

bl_order

Panels with lower numbers are default ordered before panels with higher numbers

TYPE:

int in [0, inf], default 0

bl_owner_id

The ID owning the data displayed in the panel, if any

TYPE:

string, default “”, (never None)

bl_parent_id

If this is set, the panel becomes a sub-panel

TYPE:

string, default “”, (never None)

bl_region_type

The region where the panel is going to be used in

TYPE:

enum in Region Type Items, default ‘WINDOW’

bl_space_type

The space where the panel is going to be used in

TYPE:

enum in Space Type Items, default ‘EMPTY’

bl_translation_context

Specific translation context, only define when the label needs to be disambiguated from others using the exact same label

TYPE:

string, default “*”, (never None)

bl_ui_units_x

When set, defines popup panel width

TYPE:

int in [0, inf], default 0

custom_data

Panel data

TYPE:

`Constraint`, (readonly)

is_popover

TYPE:

boolean, default False, (readonly)

layout

Defines the structure of the panel in the UI

TYPE:

`UILayout`, (readonly)

text

XXX todo

TYPE:

string, default “”, (never None)

use_pin

Show the panel on all tabs

TYPE:

boolean, default False

classmethod poll(context)

If this method returns a non-null output, then the panel can be drawn

RETURN TYPE:

RETURN TYPE:
boolean

draw(context)

Draw UI elements into the panel UI layout

draw_header(context)

Draw UI elements into the panel's header UI layout

draw_header_preset(context)

Draw UI elements for presets in the panel's header

classmethod append(draw_func)

Append a draw function to this menu, takes the same arguments as the menus draw function

classmethod is_extended()

classmethod prepend(draw_func)

Prepend a draw function to this menu, takes the same arguments as the menus draw function

classmethod remove(draw_func)

Remove a draw function that has been added to this menu

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`

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.items`
- `bpy_struct.keyframe_delete`
- `bpy_struct.keyframe_insert`
- `bpy_struct.keys`
- `bpy_struct.path_from_id`
- `bpy_struct.path_resolve`

- 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.pop
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values

Skip to content

Particle(bpy_struct)

base class — bpy_struct

class bpy.types.**Particle(bpy_struct)**

Particle in a particle system

alive_state

TYPE:

enum in ['DEAD', 'UNBORN', 'ALIVE', 'DYING'], default 'DEAD'

angular_velocity

TYPE:

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

birth_time

TYPE:

float in [-inf, inf], default 0.0

die_time

TYPE:

float in [-inf, inf], default 0.0

hair_keys

TYPE:

bpy_prop_collection of ParticleHairKey, (readonly)

is_exist

TYPE:

boolean, default False, (readonly)

is_visible

TYPE:

boolean, default False, (readonly)

lifetime

TYPE:

float in [-inf, inf], default 0.0

location

TYPE:

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

particle_keys

TYPE:

bpy_prop_collection of ParticleKey, (readonly)

prev_angular_velocity

TYPE:

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

prev_location

TYPE:

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

prev_rotation

TYPE:

mathutils.Quaternion rotation of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

prev_velocity

TYPE:

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

rotation

TYPE:

mathutils.Quaternion rotation of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

size

TYPE:

float in [-inf, inf], default 0.0

velocity

TYPE:

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

uv_on_emitter(modifier)

Obtain UV coordinates for a particle on an evaluated mesh.

PARAMETERS:

modifier (ParticleSystemModifier , (never None)) – Particle modifier from an evaluated object

RETURNS:

uv

RETURN TYPE:

mathutils.Vector of 2 items in [-inf, inf]

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

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.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
- bpy_struct.type_recast
- bpy_struct.values

References

- ParticleHairKey.co_object
- ParticleHairKey.co_object_set
- ParticleSystem.mcol_on_emitter
- ParticleSystem.particles
- ParticleSystem.uv_on_emitter

Skip to content

PARTICLE_UL_particle_systems(UIList)

base classes — bpy_struct , UIList

class bpy.types.**PARTICLE_UL_particle_systems(UIList)**

draw_item(_context, layout, data, item, icon, _active_data, _active_propname, _index, _flt_flag)

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
- UIList.bl_idname
- UIList.list_id
- UIList.layout_type
- UIList.use_filter_show
- UIList.filter_name
- UIList.use_filter_invert
- UIList.use_filter_sort_alpha
- UIList.use_filter_sort_reverse
- UIList.use_filter_sort_lock
- UIList.bitflag_filter_item

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.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.path_resolve
- bpy_struct.pop
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values
- UIList.draw_item
- UIList.draw_filter
- UIList.filter_items
- UIList.append
- UIList.is_extended
- UIList.prepend

- bpy_struct.keyframe_delete
- bpy_struct.keyframe_insert
- bpy_struct.keys
- bpy_struct.path_from_id

- UIList.remove
- UIList.bl_rna_get_subclass
- UIList.bl_rna_get_subclass_py

Previous
OverDropStrip(EffectStrip)

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PHYSICS_UL_dynapaint_surfaces(UILi

Report issue on this page

ParticleBrush(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleBrush(bpy_struct)**

Particle editing brush

count

Particle count

TYPE:

int in [1, 1000], default 10

curve

TYPE:

CurveMapping, (readonly)

length_mode

- GROW Grow – Make hairs longer.
- SHRINK Shrink – Make hairs shorter.

TYPE:

enum in [‘GROW’, ‘SHRINK’], default ‘GROW’

puff_mode

- ADD Add – Make hairs more puffy.
- SUB Sub – Make hairs less puffy.

TYPE:

enum in [‘ADD’, ‘SUB’], default ‘ADD’

size

Radius of the brush in pixels

TYPE:

int in [1, 32767], default 50

steps

Brush steps

TYPE:

int in [1, 32767], default 10

strength

Brush strength

TYPE:

float in [0.001, 1], default 0.5

use_puff_volume

Apply puff to unselected end-points (helps maintain hair volume when puffing root)

TYPE:

boolean, default False

classmethod bl_rna_get_subclass(id, default=None)

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`

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.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`
- `bpy_struct.type_recast`
- `bpy_struct.values`

References

- `ParticleEdit.brush`

ParticleDupliWeight(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleDupliWeight(bpy_struct)**

Weight of a particle instance object in a collection

count

The number of times this object is repeated with respect to other objects

TYPE:

int in [0, 32767], default 0

name

Particle instance object name

TYPE:

string, default “”, (readonly, never None)

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

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.id_properties_ui
- bpy_struct.is_property_hidden
- 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.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values

References

- ParticleSettings.active_instanceweight
- ParticleSettings.instance_weights

Skip to content

ParticleEdit(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleEdit(bpy_struct)**

Properties of particle editing mode

brush

TYPE:

ParticleBrush, (readonly)

default_key_count

How many keys to make new particles with

TYPE:

int in [2, 32767], default 5

display_step

How many steps to display the path with

TYPE:

int in [1, 10], default 2

emitter_distance

Distance to keep particles away from the emitter

TYPE:

float in [-inf, inf], default 0.25

fade_frames

How many frames to fade

TYPE:

int in [1, 100], default 2

is_editable

A valid edit mode exists

TYPE:

boolean, default False, (readonly)

is_hair

Editing hair

TYPE:

boolean, default False, (readonly)

object

The edited object

TYPE:

Object, (readonly)

select_mode

Particle select and display mode

- `PATH` Path – Path edit mode.
- `POINT` Point – Point select mode.
- `TIP` Tip – Tip select mode.

TYPE:
enum in ['PATH', 'POINT', 'TIP'], default 'PATH'

shape_object

Outer shape to use for tools

TYPE:
`Object`

show_particles

Display actual particles

TYPE:
boolean, default False

tool

- `COMB` Comb – Comb hairs.
- `SMOOTH` Smooth – Smooth hairs.
- `ADD` Add – Add hairs.
- `LENGTH` Length – Make hairs longer or shorter.
- `PUFF` Puff – Make hairs stand up.
- `CUT` Cut – Cut hairs.
- `WEIGHT` Weight – Weight hair particles.

TYPE:
enum in ['COMB', 'SMOOTH', 'ADD', 'LENGTH', 'PUFF', 'CUT', 'WEIGHT'], default 'COMB'

type

TYPE:
enum in ['PARTICLES', 'SOFT_BODY', 'CLOTH'], default 'PARTICLES'

use_auto_velocity

Calculate point velocities automatically

TYPE:
boolean, default True

use_default_interpolate

Interpolate new particles from the existing ones

TYPE:
boolean, default False

use_emitter_deflect

Keep paths from intersecting the emitter

TYPE:
boolean, default True

use_fade_time

Fade paths and keys further away from current frame

TYPE:

TYPE:
boolean, default False

use_preserve_length
Keep path lengths constant

TYPE:
boolean, default True

use_preserve_root
Keep root keys unmodified

TYPE:
boolean, default True

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`

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.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`
- `bpy_struct.type_recast`
- `bpy_struct.values`

References

- `ToolSettings.particle_edit`

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ParticleHairKey(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleHairKey(bpy_struct)**

Particle key for hair particle system

co

Location of the hair key in object space

TYPE:

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

co_local

Location of the hair key in its local coordinate system, relative to the emitting face

TYPE:

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

time

Relative time of key over hair length

TYPE:

float in [0, inf], default 0.0

weight

Weight for cloth simulation

TYPE:

float in [0, 1], default 0.0

co_object(object, modifier, particle)

Obtain hairkey location with particle and modifier data

PARAMETERS:

- **object** (Object, (never None)) – Object
- **modifier** (ParticleSystemModifier, (never None)) – Particle modifier
- **particle** (Particle, (never None)) – hair particle

RETURNS:

Co, Exported hairkey location

RETURN TYPE:

mathutils.Vector of 3 items in [-inf, inf]

co_object_set(object, modifier, particle, co)

Set hairkey location with particle and modifier data

PARAMETERS:

- **object** (Object, (never None)) – Object
- **modifier** (ParticleSystemModifier, (never None)) – Particle modifier
- **particle** (Particle, (never None)) – hair particle
- **co** (mathutils.Vector of 3 items in [-inf, inf]) – Co, Specified hairkey location

classmethod bl_rna_get_subclass(id, default=None)

PARAMETERS:

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`

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.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`
- `bpy_struct.type_recast`
- `bpy_struct.values`

References

- `Particle.hair_keys`

ParticleInstanceModifier(Modifier)

base classes — bpy_struct , Modifier

class bpy.types.**ParticleInstanceModifier(Modifier)**

Particle system instancing modifier

axis

Pole axis for rotation

TYPE:

enum in Axis Xyz Items, default 'Z'

index_layer_name

Custom data layer name for the index

TYPE:

string, default "", (never None)

object

Object that has the particle system

TYPE:

Object

particle_amount

Amount of particles to use for instancing

TYPE:

float in [0, 1], default 1.0

particle_offset

Relative offset of particles to use for instancing, to avoid overlap of multiple instances

TYPE:

float in [0, 1], default 0.0

particle_system

TYPE:

ParticleSystem

particle_system_index

TYPE:

int in [1, 32767], default 1

position

Position along path

TYPE:

float in [0, 1], default 1.0

random_position

Randomize position along path

TYPE:

float in [0, 1], default 0.0

float in [0, 1], default 0.0

random_rotation

Randomize rotation around path

TYPE:

float in [0, 1], default 0.0

rotation

Rotation around path

TYPE:

float in [0, 1], default 0.0

show_alive

Show instances when particles are alive

TYPE:

boolean, default True

show_dead

Show instances when particles are dead

TYPE:

boolean, default True

show_unborn

Show instances when particles are unborn

TYPE:

boolean, default True

space

Space to use for copying mesh data

- `LOCAL` Local – Use offset from the particle object in the instance object.
- `WORLD` World – Use world space offset in the instance object.

TYPE:

enum in ['LOCAL', 'WORLD'], default 'WORLD'

use_children

Create instances from child particles

TYPE:

boolean, default False

use_normal

Create instances from normal particles

TYPE:

boolean, default True

use_path

Create instances along particle paths

TYPE:

boolean, default False

use_preserve_shape

Don't stretch the object

TYPE:

boolean, default False

use_size

Use particle size to scale the instances

TYPE:

boolean, default False

value_layer_name

Custom data layer name for the randomized value

TYPE:

string, default "", (never None)

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`
- `Modifier.name`
- `Modifier.type`
- `Modifier.show_viewport`
- `Modifier.show_render`
- `Modifier.show_in_editmode`
- `Modifier.show_on_cage`
- `Modifier.show_expanded`
- `Modifier.is_active`
- `Modifier.use_pin_to_last`
- `Modifier.is_override_data`
- `Modifier.use_apply_on_spline`
- `Modifier.execution_time`
- `Modifier.persistent_uid`

Inherited Functions

- `bpy_struct.as_pointer`
- `bpy_struct.driver_add`
- `bpy_struct.driver_remove`
- `bpy_struct.get`
- `bpy_struct.keyframe_delete`
- `bpy_struct.keyframe_insert`
- `bpy_struct.keys`
- `bpy_struct.path_from_id`

- bpy_struct.get
- bpy_struct.id_properties_clear
- bpy_struct.id_properties_ensure
- 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.path_from_id
- bpy_struct.path_resolve
- bpy_struct.pop
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values
- Modifier.bl_rna_get_subclass
- Modifier.bl_rna_get_subclass_py

ParticleKey(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleKey(bpy_struct)**

Key location for a particle over time

angular_velocity

Key angular velocity

TYPE:

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

location

Key location

TYPE:

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

rotation

Key rotation quaternion

TYPE:

mathutils.Quaternion rotation of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

time

Time of key over the simulation

TYPE:

float in [0, inf], default 0.0

velocity

Key velocity

TYPE:

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

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.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
- bpy_struct.type_recast
- bpy_struct.values

References

- Particle.particle_keys

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:

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
- ID.user_of_id
- ID.animation_data_create
- ID.animation_data_clear
- ID.update_tag
- ID.preview_ensure
- ID.bl_rna_get_subclass
- ID.bl_rna_get_subclass_py

References

- bpy.context.particle_settings
- BlendData.particles
- BlendDataParticles.new
- BlendDataParticles.remove
- ParticleSystem.settings

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ParticleSettingsTextureSlot(TextureSlot)

base classes — bpy_struct, TextureSlot

class bpy.types.**ParticleSettingsTextureSlot(TextureSlot)**

Texture slot for textures in a Particle Settings data-block

clump_factor

Amount texture affects child clump

TYPE:

float in [-inf, inf], default 1.0

damp_factor

Amount texture affects particle damping

TYPE:

float in [-inf, inf], default 1.0

density_factor

Amount texture affects particle density

TYPE:

float in [-inf, inf], default 1.0

field_factor

Amount texture affects particle force fields

TYPE:

float in [-inf, inf], default 1.0

gravity_factor

Amount texture affects particle gravity

TYPE:

float in [-inf, inf], default 1.0

kink_amp_factor

Amount texture affects child kink amplitude

TYPE:

float in [-inf, inf], default 1.0

kink_freq_factor

Amount texture affects child kink frequency

TYPE:

float in [-inf, inf], default 1.0

length_factor

Amount texture affects child hair length

TYPE:

float in [-inf, inf], default 1.0

life_factor

Amount texture affects particle life time

TYPE:

float in [-inf, inf], default 1.0

mapping

- `FLAT` Flat – Map X and Y coordinates directly.
- `CUBE` Cube – Map using the normal vector.
- `TUBE` Tube – Map with Z as central axis.
- `SPHERE` Sphere – Map with Z as central axis.

TYPE:

enum in ['FLAT', 'CUBE', 'TUBE', 'SPHERE'], default 'FLAT'

mapping_x

TYPE:

enum in ['NONE', 'X', 'Y', 'Z'], default 'X'

mapping_y

TYPE:

enum in ['NONE', 'X', 'Y', 'Z'], default 'Y'

mapping_z

TYPE:

enum in ['NONE', 'X', 'Y', 'Z'], default 'Z'

object

Object to use for mapping with Object texture coordinates

TYPE:

`Object`

rough_factor

Amount texture affects child roughness

TYPE:

float in [-inf, inf], default 1.0

size_factor

Amount texture affects physical particle size

TYPE:

float in [-inf, inf], default 1.0

texture_coords

Texture coordinates used to map the texture onto the background

- `GLOBAL` Global – Use global coordinates for the texture coordinates.
- `OBJECT` Object – Use linked object's coordinates for texture coordinates.
- `UV` UV – Use UV coordinates for texture coordinates.
- `ORCO` Generated – Use the original undeformed coordinates of the object.
- `STRAND` Strand / Particle – Use normalized strand texture coordinate (1D) or particle age (X) and trail position (Y).

TYPE:

enum in ['GLOBAL', 'OBJECT', 'UV', 'ORCO', 'STRAND'], default 'UV'

time_factor

Amount texture affects particle emission time

TYPE:

float in [-inf, inf], default 1.0

twist_factor

Amount texture affects child twist

TYPE:

float in [-inf, inf], default 1.0

use_map_clump

Affect the child clumping

TYPE:

boolean, default False

use_map_damp

Affect the particle velocity damping

TYPE:

boolean, default False

use_map_density

Affect the density of the particles

TYPE:

boolean, default False

use_map_field

Affect the particle force fields

TYPE:

boolean, default False

use_map_gravity

Affect the particle gravity

TYPE:

boolean, default False

use_map_kink_amp

Affect the child kink amplitude

TYPE:

boolean, default False

use_map_kink_freq

Affect the child kink frequency

TYPE:

boolean, default False

use_map_length

Affect the child hair length

TYPE:

boolean, default False

use_map_life

Affect the life time of the particles

TYPE:

boolean, default False

use_map_rough

Affect the child rough

TYPE:

boolean, default False

use_map_size

Affect the particle size

TYPE:

boolean, default False

use_map_time

Affect the emission time of the particles

TYPE:

boolean, default True

use_map_twist

Affect the child twist

TYPE:

boolean, default False

use_map_velocity

Affect the particle initial velocity

TYPE:

boolean, default False

uv_layer

UV map to use for mapping with UV texture coordinates

TYPE:

string, default “”, (never None)

velocity_factor

Amount texture affects particle initial velocity

TYPE:

float in [-inf, inf], default 1.0

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

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
- TextureSlot.texture
- TextureSlot.name
- TextureSlot.offset
- TextureSlot.scale
- TextureSlot.color
- TextureSlot.blend_type
- TextureSlot.default_value
- TextureSlot.output_node

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.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
- bpy_struct.type_recast
- bpy_struct.values
- TextureSlot.bl_rna_get_subclass
- TextureSlot.bl_rna_get_subclass_py

References

- ParticleSettings.texture_slots
- ParticleSettingsTextureSlots.add
- ParticleSettingsTextureSlots.create

Skip to content

ParticleSettingsTextureSlots(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleSettingsTextureSlots(bpy_struct)**

Collection of texture slots

classmethod add()

add

RETURNS:

The newly initialized mtex

RETURN TYPE:

ParticleSettingsTextureSlot

classmethod create(index)

create

PARAMETERS:

index (*int in [0, inf]*) – Index, Slot index to initialize

RETURNS:

The newly initialized mtex

RETURN TYPE:

ParticleSettingsTextureSlot

classmethod clear(index)

clear

PARAMETERS:

index (*int in [0, inf]*) – Index, Slot index to clear

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

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.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
- bpy_struct.type_recast
- bpy_struct.values

References

- ParticleSettings.texture_slots

Skip to content

ParticleSystem(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleSystem(bpy_struct)**

Particle system in an object

active_particle_target

TYPE:

ParticleTarget, (readonly)

active_particle_target_index

TYPE:

int in [0, inf], default 0

child_particles

Child particles generated by the particle system

TYPE:

bpy_prop_collection of ChildParticle, (readonly)

child_seed

Offset in the random number table for child particles, to get a different randomized result

TYPE:

int in [0, inf], default 0

cloth

Cloth dynamics for hair

TYPE:

ClothModifier, (readonly, never None)

dt_frac

The current simulation time step size, as a fraction of a frame

TYPE:

float in [0.00990099, 1], default 0.0, (readonly)

has_multiple_caches

Particle system has multiple point caches

TYPE:

boolean, default False, (readonly)

invert_vertex_group_clump

Negate the effect of the clump vertex group

TYPE:

boolean, default False

invert_vertex_group_density

Negate the effect of the density vertex group

TYPE:

boolean, default False

boolean, default False

invert_vertex_group_field

Negate the effect of the field vertex group

TYPE:

boolean, default False

invert_vertex_group_kink

Negate the effect of the kink vertex group

TYPE:

boolean, default False

invert_vertex_group_length

Negate the effect of the length vertex group

TYPE:

boolean, default False

invert_vertex_group_rotation

Negate the effect of the rotation vertex group

TYPE:

boolean, default False

invert_vertex_group_roughness_1

Negate the effect of the roughness 1 vertex group

TYPE:

boolean, default False

invert_vertex_group_roughness_2

Negate the effect of the roughness 2 vertex group

TYPE:

boolean, default False

invert_vertex_group_roughness_end

Negate the effect of the roughness end vertex group

TYPE:

boolean, default False

invert_vertex_group_size

Negate the effect of the size vertex group

TYPE:

boolean, default False

invert_vertex_group_tangent

Negate the effect of the tangent vertex group

TYPE:

boolean, default False

invert_vertex_group_twist

Negate the effect of the twist vertex group

TYPE:

boolean, default False

invert_vertex_group_velocity

Negate the effect of the velocity vertex group

TYPE:

boolean, default False

is_editable

Particle system can be edited in particle mode

TYPE:

boolean, default False, (readonly)

is_edited

Particle system has been edited in particle mode

TYPE:

boolean, default False, (readonly)

is_global_hair

Hair keys are in global coordinate space

TYPE:

boolean, default False, (readonly)

name

Particle system name

TYPE:

string, default “”, (never None)

parent

Use this object’s coordinate system instead of global coordinate system

TYPE:

`Object`

particles

Particles generated by the particle system

TYPE:

`bpy_prop_collection` of `Particle`, (readonly)

point_cache

TYPE:

`PointCache`, (readonly, never None)

reactor_target_object

For reactor systems, the object that has the target particle system (empty if same object)

TYPE:

`Object`

reactor_target_particle_system

For reactor systems, index of particle system on the target object

TYPE:

int in [1, 32767], default 0

seed

Offset in the random number table, to get a different randomized result

TYPE:

int in [0, inf], default 0

settings

Particle system settings

TYPE:

`ParticleSettings`, (never None)

targets

Target particle systems

TYPE:

`bpy_prop_collection` of `ParticleTarget`, (readonly)

use_hair_dynamics

Enable hair dynamics using cloth simulation

TYPE:

boolean, default False

use_keyed_timing

Use key times

TYPE:

boolean, default False

vertex_group_clump

Vertex group to control clump

TYPE:

string, default “”, (never None)

vertex_group_density

Vertex group to control density

TYPE:

string, default “”, (never None)

vertex_group_field

Vertex group to control field

TYPE:

string, default “”, (never None)

vertex_group_kink

Vertex group to control kink

TYPE:

string, default “”, (never None)

vertex_group_length

vertex_group_length

Vertex group to control length

TYPE:

string, default “”, (never None)

vertex_group_rotation

Vertex group to control rotation

TYPE:

string, default “”, (never None)

vertex_group_roughness_1

Vertex group to control roughness 1

TYPE:

string, default “”, (never None)

vertex_group_roughness_2

Vertex group to control roughness 2

TYPE:

string, default “”, (never None)

vertex_group_roughness_end

Vertex group to control roughness end

TYPE:

string, default “”, (never None)

vertex_group_size

Vertex group to control size

TYPE:

string, default “”, (never None)

vertex_group_tangent

Vertex group to control tangent

TYPE:

string, default “”, (never None)

vertex_group_twist

Vertex group to control twist

TYPE:

string, default “”, (never None)

vertex_group_velocity

Vertex group to control velocity

TYPE:

string, default “”, (never None)

co_hair(object, *, particle_no=0, step=0)

Obtain cache hair data

PARAMETERS:

- **object** (`Object`, (never None)) – Object
- **particle_no** (*int in [-inf, inf], (optional)*) – Particle no
- **step** (*int in [-inf, inf], (optional)*) – step no

RETURNS:

Co, Exported hairkey location

RETURN TYPE:

`mathutils.Vector` of 3 items in [-inf, inf]

uv_on_emitter(modifier, particle, *, particle_no=0, uv_no=0)

Obtain uv for all particles

PARAMETERS:

- **modifier** (`ParticleSystemModifier`, (never None)) – Particle modifier
- **particle** (`Particle`, (never None)) – Particle
- **particle_no** (*int in [-inf, inf], (optional)*) – Particle no
- **uv_no** (*int in [-inf, inf], (optional)*) – UV no

RETURNS:

uv

RETURN TYPE:

`mathutils.Vector` of 2 items in [-inf, inf]

mcol_on_emitter(modifier, particle, *, particle_no=0, vcol_no=0)

Obtain mcol for all particles

PARAMETERS:

- **modifier** (`ParticleSystemModifier`, (never None)) – Particle modifier
- **particle** (`Particle`, (never None)) – Particle
- **particle_no** (*int in [-inf, inf], (optional)*) – Particle no
- **vcol_no** (*int in [-inf, inf], (optional)*) – vcol no

RETURNS:

mcol

RETURN TYPE:

`mathutils.Color` of 3 items in [0, inf]

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

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.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
- bpy_struct.type_recast
- bpy_struct.values

References

- bpy.context.particle_system
- bpy.context.particle_system_editable
- DepsgraphObjectInstance.particle_system
- DynamicPaintBrushSettings.particle_system
- FluidFlowSettings.particle_system
- Object.particle_systems
- ParticleInstanceModifier.particle_system
- ParticleSystemModifier.particle_system
- ParticleSystems.active
- ShaderNodeTexPointDensity.particle_system

ParticleSystemModifier(Modifier)

base classes — bpy_struct , Modifier

class bpy.types.**ParticleSystemModifier(Modifier)**

Particle system simulation modifier

particle_system

Particle System that this modifier controls

TYPE:

ParticleSystem , (readonly, never None)

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
- Modifier.name
- Modifier.type
- Modifier.show_viewport
- Modifier.show_render
- Modifier.show_in_editmode
- Modifier.show_on_cage
- Modifier.show_expanded
- Modifier.is_active
- Modifier.use_pin_to_last
- Modifier.is_override_data
- Modifier.use_apply_on_spline
- Modifier.execution_time
- Modifier.persistent_uid

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.id_properties_ui
- 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.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.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values
- Modifier.bl_rna_get_subclass
- Modifier.bl_rna_get_subclass_py

References

- Particle.uv_on_emitter
- ParticleHairKey.co_object
- ParticleHairKey.co_object_set
- ParticleSystem.mcol_on_emitter
- ParticleSystem.uv_on_emitter

ParticleSystems(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleSystems(bpy_struct)**

Collection of particle systems

active

Active particle system being displayed

TYPE:

ParticleSystem, (readonly)

active_index

Index of active particle system slot

TYPE:

int in [0, inf], default 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

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.id_properties_ui
- bpy_struct.is_property_hidden
- 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.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values

References

- Object.particle_systems

ParticleTarget(bpy_struct)

base class — bpy_struct

class bpy.types.**ParticleTarget(bpy_struct)**

Target particle system

alliance

TYPE:

enum in [‘FRIEND’, ‘NEUTRAL’, ‘ENEMY’], default ‘NEUTRAL’

duration

TYPE:

float in [0, 1.04857e+06], default 0.0

is_valid

Keyed particles target is valid

TYPE:

boolean, default False

name

Particle target name

TYPE:

string, default “”, (readonly, never None)

object

The object that has the target particle system (empty if same object)

TYPE:

Object

system

The index of particle system on the target object

TYPE:

int in [1, inf], default 0

time

TYPE:

float in [0, 1.04857e+06], 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

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.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
- bpy_struct.type_recast
- bpy_struct.values

References

- ParticleSystem.active_particle_target
- ParticleSystem.targets

PathCompare(bpy_struct)

base class — bpy_struct

class bpy.types.**PathCompare(bpy_struct)**

Match paths against this value

path

TYPE:

string, default “”, (never None)

use_glob

Enable wildcard globbing

TYPE:

boolean, default False

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

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.id_properties_ui
- bpy_struct.is_property_hidden
- bpy_struct.is_property_overridable_library
- 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

- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.type_recast
- bpy_struct.values

References

- PathCompareCollection.new
- PathCompareCollection.remove
- Preferences.autoexec_paths

PathCompareCollection(bpy_struct)

base class — bpy_struct

class bpy.types.**PathCompareCollection(bpy_struct)**

Collection of paths

classmethod new()

Add a new path

RETURN TYPE:

PathCompare

classmethod remove(pathcmp)

Remove path

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

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.id_properties_ui
- bpy_struct.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
- 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
- bpy_struct.type_recast

- bpy_struct.is_property_set
- bpy_struct.values

References

- Preferences.autoexec_paths