Blender Index

Release 2.53 - UNSTABLE API

Blender Foundation

September 03, 2010

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This document is an API reference for Blender 2.53 . built Unknown.

An introduction to Blender and Python can be found at <http://wiki.blender.org/index.php/Dev:2.5/Py/API/Intro>

A PDF version of this document is also available

Warning: The Python API in Blender is **UNSTABLE**, It should only be used for testing, any script written now may break in future releases.

The following areas are subject to change.

- operator names and arguments
- render api
- function calls with the data api (any function calls with values accessed from bpy.data), including functions for importing and exporting meshes
- class registration (Operator, Panels, Menus, Headers)
- modules: bpy.props, blf)
- members in the bpy.context have to be reviewed
- python defined modal operators, especially drawing callbacks are highly experemental

These parts of the API are relatively stable and are unlikely to change significantly

- data API, access to attributes of blender data such as mesh verts, material color, timeline frames and scene objects
- user interface functions for defining buttons, creation of menus, headers, panels
- modules: bgl, mathutils and geometry
- game engine modules

CHAPTER

ONE

APPLICATION MODULES

1.1 Data Access (bpy.data)

This module is used for all blender/python access.

```
import bpy


# print all objects
for obj in bpy.data.objects:
    print(obj.name)


# print all scene names in a list
print(bpy.data.scenes.keys())


# remove mesh Cube
if "Cube" in bpy.data.meshes:
    mesh = bpy.data.meshes["Cube"]
    print("removing mesh", mesh)
    bpy.data.meshes.unlink(mesh)


# write images into a file next to the blend
import os
file = open(os.path.splitext(bpy.data.filepath)[0] + ".txt", 'w')

for image in bpy.data.images:
    file.write("%s %dx%d\n" % (image.filepath, image.size[0], image.size[1]))

file.close()
```

bpy.**data**
Access to blenders internal data

Type bpy.types.Main

1.2 Operators (bpy.ops)

1.2.1 Action Operators

bpy.ops.action.**clean**(*threshold=0.001*)
Simplify F-Curves by removing closely spaced keyframes

Parameters

- **threshold** (*float in [0, inf], (optional)*) – Threshold

bpy.ops.action.**clickselect**(*left_right='OFF'*, *extend=False*, *column=False*)
Select keyframes by clicking on them

Parameters

- **left_right** (*enum in ['CHECK', 'OFF', 'LEFT', 'RIGHT'], (optional, never None)*) – Left Right
- **extend** (*boolean, (optional)*) – Extend Select
- **column** (*boolean, (optional)*) – Column Select

bpy.ops.action.**copy**()
Copy selected keyframes to the copy/paste buffer

bpy.ops.action.**delete**()
Remove all selected keyframes

bpy.ops.action.**duplicate**(*mode=17*)
Make a copy of all selected keyframes

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.action.**extrapolation_type**(*type='CONSTANT'*)
Set extrapolation mode for selected F-Curves

Parameters

- **type** (*enum in ['CONSTANT', 'LINEAR'], (optional, never None)*) – Type

bpy.ops.action.**frame_jump**()
Set the current frame to the average frame of the selected keyframes

bpy.ops.action.**handle_type**(*type='FREE'*)
Set type of handle for selected keyframes

Parameters

- **type** (*enum in ['FREE', 'VECTOR', 'ALIGNED', 'AUTO', 'ANIM_CLAMPED'], (optional, never None)*) – Type

bpy.ops.action.**interpolation_type**(*type='CONSTANT'*)
Set interpolation mode for the F-Curve segments starting from the selected keyframes

Parameters

- **type** (*enum in ['CONSTANT', 'LINEAR', 'BEZIER'], (optional, never None)*) – Type

bpy.ops.action.**keyframe_insert**(*type='ALL'*)
Insert keyframes for the specified channels

Parameters

- **type** (*enum in ['ALL', 'SEL', 'GROUP'], (optional, never None)*) – Type

bpy.ops.action.**keyframe_type**(*type='KEYFRAME'*)
Set type of keyframe for the seleced keyframes

Parameters

- **type** (*enum in ['KEYFRAME', 'BREAKDOWN', 'EXTREME'], (optional, never None)*) – Type

bpy.ops.action.**mirror**(*type='CFRA'*)
Flip selected keyframes over the selected mirror line

Parameters

- **type** (*enum in ['CFRA', 'XAXIS', 'MARKER'], (optional, never None)*) – Type

bpy.ops.action.**new**()
Create new action

bpy.ops.action.**paste**()
Paste keyframes from copy/paste buffer for the selected channels, starting on the current frame

bpy.ops.action.**previewrange_set**()
Set Preview Range based on extents of selected Keyframes

bpy.ops.action.**sample**()
Add keyframes on every frame between the selected keyframes

bpy.ops.action.**select_all_toggle**(*invert=False*)
Toggle selection of all keyframes

Parameters

- **invert** (*boolean, (optional)*) – Invert

bpy.ops.action.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*, *axis_range=False*)
Select all keyframes within the specified region

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max
- **axis_range** (*boolean, (optional)*) – Axis Range

bpy.ops.action.**select_column**(*mode='KEYS'*)
Select all keyframes on the specified frame(s)

Parameters

- **mode** (*enum in ['KEYS', 'CFRA', 'MARKERS_COLUMN', 'MARKERS_BETWEEN'], (optional, never None)*) – Mode

bpy.ops.action.**select_less**()
Deselect keyframes on ends of selection islands

bpy.ops.action.**select_linked**()
Select keyframes occurring the same F-Curves as selected ones

bpy.ops.action.**select_more**()
Select keyframes beside already selected ones

bpy.ops.action.**snap**(*type='CFRA'*)
Snap selected keyframes to the times specified

Parameters

- **type** (*enum in ['CFRA', 'NEAREST_FRAME', 'NEAREST_SECOND', 'NEAREST_MARKER'], (optional, never None)*) – Type

bpy.ops.action.**view_all**()
Reset viewable area to show full keyframe range

1.2.2 Anim Operators

bpy.ops.anim.**change_frame**(*frame=0*)
Interactively change the current frame number

Parameters

- **frame** (*int in [-300000, 300000], (optional)*) – Frame

bpy.ops.anim.**channels_click**(*extend=False*, *children_only=False*)
Handle mouse-clicks over animation channels

Parameters

- **extend** (*boolean, (optional)*) – Extend Select
- **children_only** (*boolean, (optional)*) – Select Children Only

bpy.ops.anim.**channels_collapse**(*all=True*)
Collapse (i.e. close) all selected expandable animation channels

Parameters

- **all** (*boolean, (optional)*) – All, Collapse all channels (not just selected ones)

bpy.ops.anim.**channels_delete**()
Delete all selected animation channels

bpy.ops.anim.**channels_editable_toggle**(*mode='TOGGLE'*, *type='PROTECT'*)
Toggle editability of selected channels

Parameters

- **mode** (*enum in ['TOGGLE', 'DISABLE', 'ENABLE', 'INVERT'], (optional, never None)*) – Mode
- **type** (*enum in ['PROTECT', 'MUTE'], (optional, never None)*) – Type

bpy.ops.anim.**channels_expand**(*all=True*)
Expand (i.e. open) all selected expandable animation channels

Parameters

- **all** (*boolean, (optional)*) – All, Expand all channels (not just selected ones)

bpy.ops.anim.**channels_select_all_toggle**(*invert=False*)
Toggle selection of all animation channels

Parameters

- **invert** (*boolean, (optional)*) – Invert

bpy.ops.anim.**channels_select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Select all animation channels within the specified region

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.anim.**channels_setting_disable**(*mode='DISABLE'*, *type='PROTECT'*)
Disable specified setting on all selected animation channels

Parameters

- **mode** (*enum in ['TOGGLE', 'DISABLE', 'ENABLE', 'INVERT'], (optional, never None)*) – Mode
- **type** (*enum in ['PROTECT', 'MUTE'], (optional, never None)*) – Type

bpy.ops.anim.**channels_setting_enable**(*mode='ENABLE'*, *type='PROTECT'*)
Enable specified setting on all selected animation channels

Parameters

- **mode** (*enum in ['TOGGLE', 'DISABLE', 'ENABLE', 'INVERT'], (optional, never None)*) – Mode
- **type** (*enum in ['PROTECT', 'MUTE'], (optional, never None)*) – Type

bpy.ops.anim.**channels_setting_toggle**(*mode='INVERT'*, *type='PROTECT'*)
Invert specified setting on all selected animation channels

Parameters

- **mode** (*enum in ['TOGGLE', 'DISABLE', 'ENABLE', 'INVERT'], (optional, never None)*) – Mode
- **type** (*enum in ['PROTECT', 'MUTE'], (optional, never None)*) – Type

bpy.ops.anim.**channels_visibility_set**()
Make only the selected animation channels visible in the Graph Editor

bpy.ops.anim.**channels_visibility_toggle**()
Toggle visibility in Graph Editor of all selected animation channels

bpy.ops.anim.**copy_driver_button**()
Copy the driver for the highlighted button

bpy.ops.anim.**driver_button_add**(*all=True*)
Add driver(s) for the property(s) connected represented by the highlighted button

Parameters

- **all** (*boolean, (optional)*) – All, Create drivers for all elements of the array.

bpy.ops.anim.**driver_button_remove**(*all=True*)
Remove the driver(s) for the property(s) connected represented by the highlighted button

Parameters

- **all** (*boolean, (optional)*) – All, Delete drivers for all elements of the array.

bpy.ops.anim.**keyframe_delete**(*type=0*, *confirm_success=True*)
Delete keyframes on the current frame for all properties in the specified Keying Set

Parameters

- **type** (*int in [-inf, inf], (optional)*) – Keying Set Number, Index (determined internally) of the Keying Set to use
- **confirm_success** (*boolean, (optional)*) – Confirm Successful Insert, Show a popup when the keyframes get successfully added

bpy.ops.anim.**keyframe_delete_button**(*all=True*)
Undocumented (contribute)

Parameters

- **all** (*boolean, (optional)*) – All, Delete keyfames from all elements of the array.

bpy.ops.anim.**keyframe_delete_v3d**()
Undocumented (contribute)

bpy.ops.anim.**keyframe_insert**(*type=0*, *confirm_success=True*)
Insert keyframes on the current frame for all properties in the specified Keying Set

Parameters

- **type** (*int in [-inf, inf], (optional)*) – Keying Set Number, Index (determined internally) of the Keying Set to use
- **confirm_success** (*boolean, (optional)*) – Confirm Successful Insert, Show a popup when the keyframes get successfully added

bpy.ops.anim.**keyframe_insert_button**(*all=True*)
Undocumented (contribute)

Parameters

- **all** (*boolean, (optional)*) – All, Insert a keyframe for all element of the array.

bpy.ops.anim.**keyframe_insert_menu**(*type=0*, *confirm_success=False*, *always_prompt=False*)
Undocumented (contribute)

Parameters

- **type** (*int in [-inf, inf], (optional)*) – Keying Set Number, Index (determined internally) of the Keying Set to use
- **confirm_success** (*boolean, (optional)*) – Confirm Successful Insert, Show a popup when the keyframes get successfully added
- **always_prompt** (*boolean, (optional)*) – Always Show Menu

bpy.ops.anim.**keying_set_active_set**(*type=0*)
Undocumented (contribute)

Parameters

- **type** (*int in [-inf, inf], (optional)*) – Keying Set Number, Index (determined internally) of the Keying Set to use

bpy.ops.anim.**keying_set_add**()
Add a new (empty) Keying Set to the active Scene

bpy.ops.anim.**keying_set_export**(*filepath=""*, *filter_text=True*, *filter_python=True*, *filter_folder=True*)
Export Keying Set to a python script.

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath to write file to.
- **filter_text** (*boolean, (optional)*) – Filter text
- **filter_python** (*boolean, (optional)*) – Filter python
- **filter_folder** (*boolean, (optional)*) – Filter folders

File ui/properties_scene.py:222

bpy.ops.anim.**keying_set_path_add**()
Add empty path to active Keying Set

bpy.ops.anim.**keying_set_path_remove**()
Remove active Path from active Keying Set

bpy.ops.anim.**keying_set_remove**()
Remove the active Keying Set

bpy.ops.anim.**keyingset_button_add**(*all=True*)
Undocumented (contribute)

Parameters

- **all** (*boolean, (optional)*) – All, Add all elements of the array to a Keying Set.

bpy.ops.anim.**keyingset_button_remove**()
Undocumented (contribute)

bpy.ops.anim.**paste_driver_button**()
Paste the driver in the copy/paste buffer for the highlighted button

bpy.ops.anim.**previewrange_clear**()
Undocumented (contribute)

bpy.ops.anim.**previewrange_set**(*xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Undocumented (contribute)

Parameters

- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.anim.**time_toggle**()
Undocumented (contribute)

bpy.ops.anim.**update_data_paths**()
Update data paths from 2.53 to edited data paths of drivers and fcurves

File op/animsys_update.py:688

1.2.3 Armature Operators

bpy.ops.armature.**align**()
Align selected bones to the active bone (or to their parent)

bpy.ops.armature.**armature_layers**(*layers=(False, False)*)
Change the visible armature layers

Parameters

- **layers** (*boolean array of 32 items, (optional)*) – Layer, Armature layers to make visible

bpy.ops.armature.**autoside_names**(*type='XAXIS'*)
Automatically renames the selected bones according to which side of the target axis they fall on

Parameters

- **type** (*enum in ['XAXIS', 'YAXIS', 'ZAXIS'], (optional)*) – Axis, Axis tag names with.

bpy.ops.armature.**bone_layers**(*layers=(False, False)*)
Change the layers that the selected bones belong to

Parameters

- **layers** (*boolean array of 32 items, (optional)*) – Layer, Armature layers that bone belongs to

bpy.ops.armature.**bone_primitive_add**(*name="Bone"*)
Undocumented (contribute)

Parameters

- **name** (*string, (optional)*) – Name, Name of the newly created bone

bpy.ops.armature.**calculate_roll**(*type='GLOBALUP'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['GLOBALUP', 'CURSOR'], (optional, never None)*) – Type

bpy.ops.armature.**click_extrude**()
Undocumented (contribute)

bpy.ops.armature.**delete**()
Undocumented (contribute)

bpy.ops.armature.**duplicate**()
Undocumented (contribute)

bpy.ops.armature.**duplicate_move**(*ARMATURE_OT_duplicate=None, TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **ARMATURE_OT_duplicate** (ARMATURE_OT_duplicate, (optional)) – Duplicate Selected Bone(s)
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.armature.**extrude**(*forked=False*)
Undocumented (contribute)

Parameters

- **forked** (*boolean, (optional)*) – Forked

bpy.ops.armature.**extrude_forked**(*ARMATURE_OT_extrude=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **ARMATURE_OT_extrude** (ARMATURE_OT_extrude, (optional)) – Extrude
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.armature.**extrude_move**(*ARMATURE_OT_extrude=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **ARMATURE_OT_extrude** (ARMATURE_OT_extrude, (optional)) – Extrude
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.armature.**fill**()
Add bone between selected joint(s) and/or 3D-Cursor

bpy.ops.armature.**flags_set**(*type='DRAWWIRE'*, *mode='CLEAR'*)
Set flags for armature bones

Parameters

- **type** (*enum in ['DRAWWIRE', 'DEFORM', 'MULT_VG', 'HINGE', 'NO_SCALE', 'LOCKED'], (optional, never None)*) – Type
- **mode** (*enum in ['CLEAR', 'ENABLE', 'TOGGLE'], (optional, never None)*) – Mode

bpy.ops.armature.**flip_names**()
Flips (and corrects) the names of selected bones

bpy.ops.armature.**merge**(*type='WITHIN_CHAIN'*)
Merge continuous chains of selected bones

Parameters

- **type** (*enum in ['WITHIN_CHAIN'], (optional, never None)*) – Type

bpy.ops.armature.**parent_clear**(*type='CLEAR'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['CLEAR', 'DISCONNECT'], (optional, never None)*) – ClearType, What way to clear parenting

bpy.ops.armature.**parent_set**(*type='CONNECTED'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['CONNECTED', 'OFFSET'], (optional, never None)*) – ParentType, Type of parenting

bpy.ops.armature.**select_all**(*action='TOGGLE'*)
Undocumented (contribute)

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.armature.**select_hierarchy**(*direction='PARENT'*, *extend=False*)
Undocumented (contribute)

Parameters

- **direction** (*enum in ['PARENT', 'CHILD'], (optional, never None)*) – Direction
- **extend** (*boolean, (optional)*) – Add to Selection

bpy.ops.armature.**select_inverse**()
Undocumented (contribute)

bpy.ops.armature.**select_linked**(*extend=False*)
Undocumented (contribute)

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.

bpy.ops.armature.**separate**()
Isolate selected bones into a separate armature

bpy.ops.armature.**subdivide_multi**(*number_cuts=2*)
Undocumented (contribute)

Parameters

- **number_cuts** (*int in [1, inf], (optional)*) – Number of Cuts

bpy.ops.armature.**subdivide_simple**()
Undocumented (contribute)

bpy.ops.armature.**subdivs**(*type='SIMPLE'*, *number_cuts=2*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['SIMPLE', 'MULTI'], (optional)*) – Type
- **number_cuts** (*int in [1, inf], (optional)*) – Number of Cuts

bpy.ops.armature.**switch_direction**()
Undocumented (contribute)

1.2.4 Boid Operators

bpy.ops.boid.**rule_add**(*type='GOAL'*)
Add a boid rule to the current boid state

Parameters

- **type** (*enum in ['GOAL', 'AVOID', 'AVOID_COLLISION', 'SEPARATE', 'FLOCK', 'FOLLOW_LEADER', 'AVERAGE_SPEED', 'FIGHT'], (optional)*) – Type

bpy.ops.boid.**rule_del**()
Undocumented (contribute)

bpy.ops.boid.**rule_move_down**()
Move boid rule down in the list

bpy.ops.boid.**rule_move_up**()
Move boid rule up in the list

bpy.ops.boid.**state_add**()
Add a boid state to the particle system

bpy.ops.boid.**state_del**()
Undocumented (contribute)

bpy.ops.boid.**state_move_down**()
Move boid state down in the list

bpy.ops.boid.**state_move_up**()
Move boid state up in the list

1.2.5 Brush Operators

bpy.ops.brush.**add**()
Add brush by mode type

bpy.ops.brush.**curve_preset**(*shape='SMOOTH'*)
Set brush shape

Parameters

- **shape** (*enum in ['SHARP', 'SMOOTH', 'MAX', 'LINE', 'ROUND', 'ROOT'], (optional)*) – Mode

bpy.ops.brush.**reset**()
Return brush to defaults based on current tool

bpy.ops.brush.**scale_size**(*scalar=1.0*)
Change brush size by a scalar

Parameters

- **scalar** (*float in [0, 2], (optional)*) – Scalar, Factor to scale brush size by

1.2.6 Buttons Operators

bpy.ops.buttons.**file_browse**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=False*, *filemode=9*, *relative_path=False*)
Open a file browser, Hold Shift to open the file, Alt to browse containing directory

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files

- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file

bpy.ops.buttons.**toolbox**()
Display button panel toolbox

1.2.7 Cloth Operators

bpy.ops.cloth.**preset_add**(*name=""*)
Add a Cloth Preset

Parameters

- **name** (*string, (optional)*) – Name, Name of the preset, used to make the path name

File op/presets.py:40

1.2.8 Console Operators

bpy.ops.console.**autocomplete**()
Evaluate the namespace up until the cursor and give a list of options or complete the name if there is only one

File ui/space_console.py:145

bpy.ops.console.**banner**()
Print a message whem the terminal initializes

File ui/space_console.py:162

bpy.ops.console.**clear**(*scrollback=True*, *history=False*)
Clear text by type

Parameters

- **scrollback** (*boolean, (optional)*) – Scrollback, Clear the scrollback history
- **history** (*boolean, (optional)*) – History, Clear the command history

bpy.ops.console.**copy**()
Copy selected text to clipboard

bpy.ops.console.**delete**(*type='NEXT_CHARACTER'*)
Delete text by cursor position

Parameters

- **type** (*enum in ['NEXT_CHARACTER', 'PREVIOUS_CHARACTER'], (optional, never None)*) – Type, Which part of the text to delete.

bpy.ops.console.**execute**()
Execute the current console line as a python expression

File ui/space_console.py:123

bpy.ops.console.**history_append**(*text=""*, *current_character=0*, *remove_duplicates=False*)
Append history at cursor position

Parameters

- **text** (*string, (optional)*) – Text, Text to insert at the cursor position.
- **current_character** (*int in [0, inf], (optional)*) – Cursor, The index of the cursor.
- **remove_duplicates** (*boolean, (optional)*) – Remove Duplicates, Remove duplicate items in the history

bpy.ops.console.**history_cycle**(*reverse=False*)
Cycle through history

Parameters

- **reverse** (*boolean, (optional)*) – Reverse, reverse cycle history

bpy.ops.console.**insert**(*text=""*)
Insert text at cursor position

Parameters

- **text** (*string, (optional)*) – Text, Text to insert at the cursor position.

bpy.ops.console.**language**(*language=""*)
Set the current language for this console

Parameters

- **language** (*string, (optional)*) – Language

File ui/space_console.py:185

bpy.ops.console.**move**(*type='LINE_BEGIN'*)
Move cursor position

Parameters

- **type** (*enum in ['LINE_BEGIN', 'LINE_END', 'PREVIOUS_CHARACTER', 'NEXT_CHARACTER', 'PREVIOUS_WORD', 'NEXT_WORD'], (optional, never None)*) – Type, Where to move cursor to.

bpy.ops.console.**paste**()
Paste text from clipboard

bpy.ops.console.**report_copy**()
Copy selected reports to Clipboard

bpy.ops.console.**report_delete**()
Delete selected reports

bpy.ops.console.**report_replay**()
Replay selected reports

bpy.ops.console.**scrollback_append**(*text=""*, *type='OUTPUT'*)
Append scrollback text by type

Parameters

- **text** (*string, (optional)*) – Text, Text to insert at the cursor position.
- **type** (*enum in ['OUTPUT', 'INPUT', 'INFO', 'ERROR'], (optional)*) – Type, Console output type.

bpy.ops.console.**select_all_toggle**()
(de)select all reports

bpy.ops.console.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Toggle border selection

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.console.**select_pick**(*report_index=0*)
Select reports by index

Parameters

- **report_index** (*int in [0, inf], (optional)*) – Report, The index of the report.

bpy.ops.console.**select_set**()
Set the console selection

1.2.9 Constraint Operators

bpy.ops.constraint.**childof_clear_inverse**(*constraint=""*, *owner='OBJECT'*)
Clear inverse correction for ChildOf constraint

Parameters

- **constraint** (*string, (optional)*) – Constraint, Name of the constraint to edit
- **owner** (*enum in ['OBJECT', 'BONE'], (optional)*) – Owner, The owner of this constraint

bpy.ops.constraint.**childof_set_inverse**(*constraint=""*, *owner='OBJECT'*)
Set inverse correction for ChildOf constraint

Parameters

- **constraint** (*string, (optional)*) – Constraint, Name of the constraint to edit
- **owner** (*enum in ['OBJECT', 'BONE'], (optional)*) – Owner, The owner of this constraint

bpy.ops.constraint.**delete**()
Remove constraint from constraint stack

bpy.ops.constraint.**limitdistance_reset**(*constraint=""*, *owner='OBJECT'*)
Reset limiting distance for Limit Distance Constraint

Parameters

- **constraint** (*string, (optional)*) – Constraint, Name of the constraint to edit
- **owner** (*enum in ['OBJECT', 'BONE'], (optional)*) – Owner, The owner of this constraint

bpy.ops.constraint.**move_down**(*constraint=""*, *owner='OBJECT'*)
Move constraint down in constraint stack

Parameters

- **constraint** (*string, (optional)*) – Constraint, Name of the constraint to edit

- **owner** (*enum in ['OBJECT', 'BONE'], (optional)*) – Owner, The owner of this constraint

bpy.ops.constraint.**move_up**(*constraint=""*, *owner='OBJECT'*)
Move constraint up in constraint stack

Parameters

- **constraint** (*string, (optional)*) – Constraint, Name of the constraint to edit
- **owner** (*enum in ['OBJECT', 'BONE'], (optional)*) – Owner, The owner of this constraint

bpy.ops.constraint.**stretchto_reset**(*constraint=""*, *owner='OBJECT'*)
Reset original length of bone for Stretch To Constraint

Parameters

- **constraint** (*string, (optional)*) – Constraint, Name of the constraint to edit
- **owner** (*enum in ['OBJECT', 'BONE'], (optional)*) – Owner, The owner of this constraint

1.2.10 Curve Operators

bpy.ops.curve.**cyclic_toggle**(*direction='CYCLIC_U'*)
Undocumented (contribute)

Parameters

- **direction** (*enum in ['CYCLIC_U', 'CYCLIC_V'], (optional, never None)*) – Direction, Direction to make surface cyclic in.

bpy.ops.curve.**de_select_first**()
Undocumented (contribute)

bpy.ops.curve.**de_select_last**()
Undocumented (contribute)

bpy.ops.curve.**delete**(*type='SELECTED'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['SELECTED', 'SEGMENT', 'ALL'], (optional, never None)*) – Type, Which elements to delete.

bpy.ops.curve.**duplicate**(*mode=1*)
Undocumented (contribute)

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.curve.**extrude**(*mode=1*)
Undocumented (contribute)

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.curve.**handle_type_set**(*type='AUTOMATIC'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['AUTOMATIC', 'VECTOR', 'TOGGLE_FREE_ALIGN', 'ALIGN', 'FREE_ALIGN'], (optional, never None)*) – Type, Spline type

bpy.ops.curve.**hide**(*unselected=False*)
Undocumented (contribute)

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Hide unselected rather than selected.

bpy.ops.curve.**make_segment**()
Undocumented (contribute)

bpy.ops.curve.**primitive_bezier_circle_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Construct a Bezier Circle

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.curve.**primitive_bezier_curve_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Construct a Bezier Curve

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.curve.**primitive_nurbs_circle_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Construct a Nurbs Circle

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.

- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.curve.**primitive_nurbs_curve_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Nurbs Curve

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.curve.**primitive_nurbs_path_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Path

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.curve.**radius_set**(*radius=1.0*)

Undocumented (contribute)

Parameters

- **radius** (*float in [0, inf], (optional)*) – Radius

bpy.ops.curve.**reveal**()

Undocumented (contribute)

bpy.ops.curve.**select_all**(*action='TOGGLE'*)
Undocumented (contribute)

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.curve.**select_inverse**()
Undocumented (contribute)

bpy.ops.curve.**select_less**()
Undocumented (contribute)

bpy.ops.curve.**select_linked**(*deselect=False*, *location=(0, 0)*)
Undocumented (contribute)

Parameters

- **deselect** (*boolean, (optional)*) – Deselect, Deselect linked control points rather than selecting them.
- **location** (*int array of 2 items in [0, inf], (optional)*) – Location

bpy.ops.curve.**select_more**()
Undocumented (contribute)

bpy.ops.curve.**select_next**()
Undocumented (contribute)

bpy.ops.curve.**select_nth**(*nth=2*)
Undocumented (contribute)

Parameters

- **nth** (*int in [2, 100], (optional)*) – Nth Selection

bpy.ops.curve.**select_previous**()
Undocumented (contribute)

bpy.ops.curve.**select_random**(*percent=50.0*, *extend=False*)
Undocumented (contribute)

Parameters

- **percent** (*float in [0, 100], (optional)*) – Percent, Percentage of elements to select randomly.
- **extend** (*boolean, (optional)*) – Extend Selection, Extend selection instead of deselecting everything first.

bpy.ops.curve.**select_row**()
Undocumented (contribute)

bpy.ops.curve.**separate**()
Undocumented (contribute)

bpy.ops.curve.**shade_flat**()
Undocumented (contribute)

bpy.ops.curve.**shade_smooth**()
Undocumented (contribute)

bpy.ops.curve.**smooth**()
Undocumented (contribute)

bpy.ops.curve.**smooth_radius**()
Undocumented (contribute)

bpy.ops.curve.**spin**(*center=(0.0, 0.0, 0.0)*, *axis=(0.0, 0.0, 0.0)*)
Undocumented (contribute)

Parameters

- **center** (*float array of 3 items in [-inf, inf], (optional)*) – Center, Center in global view space
- **axis** (*float array of 3 items in [-1, 1], (optional)*) – Axis, Axis in global view space

bpy.ops.curve.**spline_type_set**(*type='POLY'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['POLY', 'BEZIER', 'NURBS'], (optional)*) – Type, Spline type

bpy.ops.curve.**spline_weight_set**(*weight=1.0*)
Undocumented (contribute)

Parameters

- **weight** (*float in [0, 1], (optional)*) – Weight

bpy.ops.curve.**subdivide**(*number_cuts=1*)
Undocumented (contribute)

Parameters

- **number_cuts** (*int in [1, 100], (optional)*) – Number of cuts

bpy.ops.curve.**switch_direction**()
Undocumented (contribute)

bpy.ops.curve.**tilt_clear**()
Undocumented (contribute)

bpy.ops.curve.**vertex_add**(*location=(0.0, 0.0, 0.0)*)
Undocumented (contribute)

Parameters

- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location to add new vertex at.

1.2.11 Ed Operators

bpy.ops.ed.**redo**()
Redo previous action

bpy.ops.ed.**undo**()
Undo previous action

1.2.12 Export Operators

bpy.ops.export.**ply**(*filepath=""*, *check_existing=True*, *use_modifiers=True*, *use_normals=True*, *use_colors=True*, *use_uv_coords=True*)
Export a single object as a stanford PLY with normals, colours and texture coordinates.

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for exporting the file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **use_modifiers** (*boolean, (optional)*) – Apply Modifiers, Apply Modifiers to the exported mesh
- **use_normals** (*boolean, (optional)*) – Normals, Export Normals for smooth and hard shaded faces
- **use_colors** (*boolean, (optional)*) – Vertex Colors, Exort the active vertex color layer
- **use_uv_coords** (*boolean, (optional)*) – UVs, Exort the active UV layer

File op/io_mesh_ply/__init__.py:46

1.2.13 Export_scene Operators

bpy.ops.export_scene.**autodesk_3ds** (*filepath=""*, *check_existing=True*)
Export to 3DS file format (.3ds)

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for exporting the file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files

File op/io_scene_3ds/__init__.py:56

bpy.ops.export_scene.**fbx** (*filepath=""*, *check_existing=True*, *TX_ZROT90=False*, *ANIM_OPTIMIZE_PRECISSION=6.0*, *EXP_MESH_APPLY_MOD=True*, *ANIM_OPTIMIZE=True*, *EXP_IMAGE_COPY=False*, *EXP_OBS_SELECTED=True*, *EXP_ARMATURE=True*, *EXP_LAMP=True*, *EXP_CAMERA=True*, *BATCH_OWN_DIR=True*, *ANIM_ENABLE=True*, *TX_SCALE=1.0*, *ANIM_ACTION_ALL=False*, *EXP_EMPTY=True*, *BATCH_GROUP=False*, *EXP_MESH_HQ_NORMALS=True*, *TX_XROT90=True*, *TX_YROT90=False*, *BATCH_ENABLE=False*, *BATCH_FILE_PREFIX=""*, *EXP_MESH=True*)
Selection to an ASCII Autodesk FBX

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for exporting the file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **TX_ZROT90** (*boolean, (optional)*) – Rot Z90, Rotate all objects 90 degrees about the Z axis
- **ANIM_OPTIMIZE_PRECISSION** (*float in [1, 16], (optional)*) – Precision, Tolerence for comparing double keyframes (higher for greater accuracy)
- **EXP_MESH_APPLY_MOD** (*boolean, (optional)*) – Modifiers, Apply modifiers to mesh objects
- **ANIM_OPTIMIZE** (*boolean, (optional)*) – Optimize Keyframes, Remove double keyframes

- **EXP_IMAGE_COPY** (*boolean, (optional)*) – Copy Image Files, Copy image files to the destination path
- **EXP_OBS_SELECTED** (*boolean, (optional)*) – Selected Objects, Export selected objects on visible layers
- **EXP_ARMATURE** (*boolean, (optional)*) – Armatures, Export armature objects
- **EXP_LAMP** (*boolean, (optional)*) – Lamps, Export lamp objects
- **EXP_CAMERA** (*boolean, (optional)*) – Cameras, Export camera objects
- **BATCH_OWN_DIR** (*boolean, (optional)*) – Own Dir, Create a dir for each exported file
- **ANIM_ENABLE** (*boolean, (optional)*) – Enable Animation, Export keyframe animation
- **TX_SCALE** (*float in [0.01, 1000], (optional)*) – Scale, Scale all data, (Note! some imports dont support scaled armatures)
- **ANIM_ACTION_ALL** (*boolean, (optional)*) – All Actions, Use all actions for armatures, if false, use current action
- **EXP_EMPTY** (*boolean, (optional)*) – Empties, Export empty objects
- **BATCH_GROUP** (*boolean, (optional)*) – Group > File, Export each group as an FBX file, if false, export each scene as an FBX file
- **EXP_MESH_HQ_NORMALS** (*boolean, (optional)*) – HQ Normals, Generate high quality normals
- **TX_XROT90** (*boolean, (optional)*) – Rot X90, Rotate all objects 90 degrees about the X axis
- **TX_YROT90** (*boolean, (optional)*) – Rot Y90, Rotate all objects 90 degrees about the Y axis
- **BATCH_ENABLE** (*boolean, (optional)*) – Enable Batch, Automate exporting multiple scenes or groups to files
- **BATCH_FILE_PREFIX** (*string, (optional)*) – Prefix, Prefix each file with this name
- **EXP_MESH** (*boolean, (optional)*) – Meshes, Export mesh objects

File op/io_scene_fbx/__init__.py:70

bpy.ops.export_scene.**obj**(*filepath=""*, *check_existing=True*, *group_by_material=False*, *use_all_scenes=False*, *use_rotate_x90=True*, *use_modifiers=True*, *use_hq_normals=True*, *copy_images=False*, *group_by_object=False*, *use_animation=False*, *keep_vertex_order=False*, *use_selection=False*, *use_blen_objects=True*, *use_uvs=True*, *use_normals=False*, *use_materials=True*, *use_edges=True*, *use_nurbs=False*, *use_vertex_groups=False*, *use_triangles=False*)

Save a Wavefront OBJ File

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for exporting the file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **group_by_material** (*boolean, (optional)*) – Material Groups
- **use_all_scenes** (*boolean, (optional)*) – All Scenes
- **use_rotate_x90** (*boolean, (optional)*) – Rotate X90

- **use_modifiers** (*boolean, (optional)*) – Apply Modifiers, Apply modifiers (preview resolution)
- **use_hq_normals** (*boolean, (optional)*) – High Quality Normals
- **copy_images** (*boolean, (optional)*) – Copy Images
- **group_by_object** (*boolean, (optional)*) – Objects as OBJ Groups
- **use_animation** (*boolean, (optional)*) – Animation
- **keep_vertex_order** (*boolean, (optional)*) – Keep Vertex Order
- **use_selection** (*boolean, (optional)*) – Selection Only, Export selected objects only
- **use_blen_objects** (*boolean, (optional)*) – Objects as OBJ Objects
- **use_uvs** (*boolean, (optional)*) – UVs
- **use_normals** (*boolean, (optional)*) – Normals
- **use_materials** (*boolean, (optional)*) – Materials
- **use_edges** (*boolean, (optional)*) – Edges
- **use_nurbs** (*boolean, (optional)*) – Nurbs
- **use_vertex_groups** (*boolean, (optional)*) – Polygroups
- **use_triangles** (*boolean, (optional)*) – Triangulate

File op/io_scene_obj/__init__.py:114

`bpy.ops.export_scene.`**`x3d`**(*filepath=""*, *check_existing=True*, *use_compress=False*, *use_triangulate=False*, *use_apply_modifiers=True*)

Export selection to Extensible 3D file (.x3d)

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for exporting the file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **use_compress** (*boolean, (optional)*) – Compress, GZip the resulting file, requires a full python install
- **use_triangulate** (*boolean, (optional)*) – Triangulate, Triangulate quads.
- **use_apply_modifiers** (*boolean, (optional)*) – Apply Modifiers, Use transformed mesh data from each object

File op/io_scene_x3d/__init__.py:42

1.2.14 Export_shape Operators

`bpy.ops.export_shape.`**`mdd`**(*filepath=""*, *check_existing=True*, *frame_end=250*, *fps=25*, *frame_start=1*)

Animated mesh to MDD vertex keyframe file

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for exporting the file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files

- **frame_end** (*int in [1, 300000], (optional)*) – End Frame, End frame for baking
- **fps** (*int in [1, 120], (optional)*) – Frames Per Second, Number of frames/second
- **frame_start** (*int in [1, 300000], (optional)*) – Start Frame, Start frame for baking

File op/io_shape_mdd/__init__.py:83

1.2.15 File Operators

bpy.ops.file.**bookmark_add**()
Add a bookmark for the selected/active directory

bpy.ops.file.**bookmark_toggle**()
Toggle bookmarks display

bpy.ops.file.**cancel**()
Cancel loading of selected file

bpy.ops.file.**delete**()
Delete selected file

bpy.ops.file.**delete_bookmark**(*index=-1*)
Delete selected bookmark

Parameters

- **index** (*int in [-1, 20000], (optional)*) – Index

bpy.ops.file.**directory_new**()
Create a new directory

bpy.ops.file.**execute**(*need_active=False*)
Execute selected file

Parameters

- **need_active** (*boolean, (optional)*) – Need Active, Only execute if there's an active selected file in the file list.

bpy.ops.file.**filenum**(*increment=1*)
Increment number in filename

Parameters

- **increment** (*int in [0, 100], (optional)*) – Increment

bpy.ops.file.**find_missing_files**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=False*, *filemode=9*)
Undocumented (contribute)

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files

- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file

bpy.ops.file.**hidedot**()
Toggle hide hidden dot files

bpy.ops.file.**highlight**()
Highlight selected file(s)

bpy.ops.file.**make_paths_absolute**()
Undocumented (contribute)

bpy.ops.file.**make_paths_relative**()
Undocumented (contribute)

bpy.ops.file.**next**()
Move to next folder

bpy.ops.file.**pack_all**()
Undocumented (contribute)

bpy.ops.file.**parent**()
Move to parent directory

bpy.ops.file.**previous**()
Move to previous folder

bpy.ops.file.**refresh**()
Refresh the file list

bpy.ops.file.**rename**()
Rename file or file directory

bpy.ops.file.**report_missing_files**()
Undocumented (contribute)

bpy.ops.file.**select**(*extend=False*, *fill=False*)
Activate/select file

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.
- **fill** (*boolean, (optional)*) – Fill, Select everything beginning with the last selection.

bpy.ops.file.**select_all_toggle**()
Select/deselect all files

bpy.ops.file.**select_bookmark**(*dir=""*)
Select a bookmarked directory

Parameters

- **dir** (*string, (optional)*) – Dir

bpy.ops.file.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Activate/select the file(s) contained in the border

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.file.**select_execute**(*FILE_OT_select=None*, *FILE_OT_execute=None*)
Undocumented (contribute)

Parameters

- **FILE_OT_select** (FILE_OT_select, (optional)) – Activate/Select File, Activate/select file
- **FILE_OT_execute** (FILE_OT_execute, (optional)) – Execute File Window, Execute selected file

bpy.ops.file.**smoothscroll**()
Smooth scroll to make editable file visible.

bpy.ops.file.**unpack_all**(*method='USE_LOCAL'*)
Undocumented (contribute)

Parameters

- **method** (*enum in ['USE_LOCAL', 'WRITE_LOCAL', 'USE_ORIGINAL', 'WRITE_ORIGINAL', 'KEEP', 'ASK'], (optional)*) – Method, How to unpack.

1.2.16 Fluid Operators

bpy.ops.fluid.**bake**()
Bake fluid simulation

1.2.17 Font Operators

bpy.ops.font.**buffer_paste**()
Paste text from OS buffer

bpy.ops.font.**case_set**(*case='LOWER'*)
Set font case

Parameters

- **case** (*enum in ['LOWER', 'UPPER'], (optional)*) – Case, Lower or upper case.

bpy.ops.font.**case_toggle**()
Toggle font case

bpy.ops.font.**change_character**(*delta=1*)
Change font character code

Parameters

- **delta** (*int in [-255, 255], (optional)*) – Delta, Number to increase or decrease character code with.

bpy.ops.font.**change_spacing**(*delta=1*)
Change font spacing

Parameters

- **delta** (*int in [-20, 20], (optional)*) – Delta, Amount to decrease or increasing character spacing with.

bpy.ops.font.**delete**(*type='ALL'*)
Delete text by cursor position

Parameters

- **type** (*enum in ['ALL', 'NEXT_CHARACTER', 'PREVIOUS_CHARACTER', 'SELECTION', 'NEXT_OR_SELECTION', 'PREVIOUS_OR_SELECTION'], (optional, never None)*) – Type, Which part of the text to delete.

bpy.ops.font.**file_paste**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=True*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*)
Paste contents from file

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file

bpy.ops.font.**insert_lorem**()
Insert placeholder text

bpy.ops.font.**line_break**(*ctrl=False*)
Insert line break at cursor position

Parameters

- **ctrl** (*boolean, (optional)*) – Ctrl

bpy.ops.font.**move**(*type='LINE_BEGIN'*)
Move cursor to position type

Parameters

- **type** (*enum in ['LINE_BEGIN', 'LINE_END', 'PREVIOUS_CHARACTER', 'NEXT_CHARACTER', 'PREVIOUS_WORD', 'NEXT_WORD', 'PREVIOUS_LINE', 'NEXT_LINE', 'PREVIOUS_PAGE', 'NEXT_PAGE'], (optional, never None)*) – Type, Where to move cursor to.

bpy.ops.font.**move_select**(*type='LINE_BEGIN'*)
Make selection from current cursor position to new cursor position type

Parameters

- **type** (*enum in ['LINE_BEGIN', 'LINE_END', 'PREVIOUS_CHARACTER', 'NEXT_CHARACTER', 'PREVIOUS_WORD', 'NEXT_WORD', 'PREVIOUS_LINE', 'NEXT_LINE', 'PREVIOUS_PAGE', 'NEXT_PAGE'], (optional, never None)*) – Type, Where to move cursor to, to make a selection.

bpy.ops.font.**open**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=True*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*)
Undocumented (contribute)

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file

bpy.ops.font.**style_set**(*style='BOLD'*, *clear=False*)
Set font style

Parameters

- **style** (*enum in ['BOLD', 'ITALIC', 'UNDERLINE', 'SMALL_CAPS'], (optional)*) – Style, Style to set selection to.
- **clear** (*boolean, (optional)*) – Clear, Clear style rather than setting it.

bpy.ops.font.**style_toggle**(*style='BOLD'*)
Toggle font style

Parameters

- **style** (*enum in ['BOLD', 'ITALIC', 'UNDERLINE', 'SMALL_CAPS'], (optional, never None)*) – Style, Style to set selection to.

bpy.ops.font.**text_copy**()
Copy selected text to clipboard

bpy.ops.font.**text_cut**()
Cut selected text to clipboard

bpy.ops.font.**text_insert**(*text=""*)
Insert text at cursor position

Parameters

- **text** (*string, (optional)*) – Text, Text to insert at the cursor position.

bpy.ops.font.**text_paste**()
Paste text from clipboard

bpy.ops.font.**textbox_add**()
Add a new text box

bpy.ops.font.**textbox_remove**(*index=0*)
Remove the textbox

Parameters

- **index** (*int in [0, inf], (optional)*) – Index, The current text box.

bpy.ops.font.**unlink**()
Unlink active font data block

1.2.18 Gpencil Operators

bpy.ops.gpencil.**active_frame_delete**()
Delete the active frame for the active Grease Pencil datablock

bpy.ops.gpencil.**convert**(*type='PATH'*)
Convert the active Grease Pencil layer to a new Object

Parameters

- **type** (*enum in ['PATH', 'CURVE'], (optional)*) – Type

bpy.ops.gpencil.**data_add**()
Add new Grease Pencil datablock

bpy.ops.gpencil.**data_unlink**()
Unlink active Grease Pencil datablock

bpy.ops.gpencil.**draw**(*mode='DRAW'*, *stroke=None*)
Make annotations on the active data

Parameters

- **mode** (*enum in ['DRAW', 'DRAW_STRAIGHT', 'ERASER'], (optional, never None)*) – Mode, Way to intepret mouse movements.
- **stroke** (Collection of `OperatorStrokeElement`, (optional)) – Stroke

bpy.ops.gpencil.**layer_add**()
Add new Grease Pencil layer for the active Grease Pencil datablock

1.2.19 Graph Operators

bpy.ops.graph.**bake**()
Bake selected F-Curves to a set of sampled points defining a similar curve

bpy.ops.graph.**clean**(*threshold=0.001*)
Simplify F-Curves by removing closely spaced keyframes

Parameters

- **threshold** (*float in [0, inf], (optional)*) – Threshold

bpy.ops.graph.**click_insert**(*frame=1.0*, *value=1.0*)
Insert new keyframe at the cursor position for the active F-Curve

Parameters

- **frame** (*float in [-inf, inf], (optional)*) – Frame Number, Frame to insert keyframe on
- **value** (*float in [-inf, inf], (optional)*) – Value, Value for keyframe on

bpy.ops.graph.**clickselect**(*left_right='OFF'*, *extend=False*, *column=False*, *curves=False*)
Select keyframes by clicking on them

Parameters

- **left_right** (*enum in ['CHECK', 'OFF', 'LEFT', 'RIGHT'], (optional, never None)*) – Left Right
- **extend** (*boolean, (optional)*) – Extend Select
- **column** (*boolean, (optional)*) – Column Select, Select all keyframes that occur on the same frame as the one under the mouse
- **curves** (*boolean, (optional)*) – Only Curves, Select all the keyframes in the curve

bpy.ops.graph.**copy**()
Copy selected keyframes to the copy/paste buffer

bpy.ops.graph.**cursor_set**(*frame=0*, *value=0.0*)
Interactively set the current frame number and value cursor

Parameters

- **frame** (*int in [-300000, 300000], (optional)*) – Frame
- **value** (*float in [1.17549e-38, inf], (optional)*) – Value

bpy.ops.graph.**delete**()
Remove all selected keyframes

bpy.ops.graph.**duplicate**(*mode=1*)
Make a copy of all selected keyframes

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.graph.**euler_filter**()
Fixes the most common causes of gimbal lock in the fcurves of the active bone

File op/fcurve_euler_filter.py:55

bpy.ops.graph.**extrapolation_type**(*type='CONSTANT'*)
Set extrapolation mode for selected F-Curves

Parameters

- **type** (*enum in ['CONSTANT', 'LINEAR'], (optional, never None)*) – Type

bpy.ops.graph.**fmodifier_add**(*type='NULL'*, *only_active=True*)
Add F-Modifiers to the selected F-Curves

Parameters

- **type** (*enum in ['NULL', 'GENERATOR', 'FNGENERATOR', 'ENVELOPE', 'CYCLES', 'NOISE', 'FILTER', 'PYTHON', 'LIMITS', 'STEPPED'], (optional, never None)*) – Type
- **only_active** (*boolean, (optional)*) – Only Active, Only add F-Modifier to active F-Curve.

bpy.ops.graph.**fmodifier_copy**()
Copy the F-Modifier(s) of the active F-Curve.

bpy.ops.graph.**fmodifier_paste**()
Add copied F-Modifiers to the selected F-Curves

bpy.ops.graph.**frame_jump**()
Set the current frame to the average frame of the selected keyframes

bpy.ops.graph.**ghost_curves_clear**()
Clear F-Curve snapshots (Ghosts) for active Graph Editor

bpy.ops.graph.**ghost_curves_create**()
Create snapshot (Ghosts) of selected F-Curves as background aid for active Graph Editor

bpy.ops.graph.**handle_type**(*type='FREE'*)
Set type of handle for selected keyframes

Parameters

- **type** (*enum in ['FREE', 'VECTOR', 'ALIGNED', 'AUTO', 'ANIM_CLAMPED'], (optional, never None)*) – Type

bpy.ops.graph.**handles_view_toggle**()
Undocumented (contribute)

bpy.ops.graph.**interpolation_type**(*type='CONSTANT'*)
Set interpolation mode for the F-Curve segments starting from the selected keyframes

Parameters

- **type** (*enum in ['CONSTANT', 'LINEAR', 'BEZIER'], (optional, never None)*) – Type

bpy.ops.graph.**keyframe_insert**(*type='ALL'*)
Insert keyframes for the specified channels

Parameters

- **type** (*enum in ['ALL', 'SEL'], (optional, never None)*) – Type

bpy.ops.graph.**mirror**(*type='CFRA'*)
Flip selected keyframes over the selected mirror line

Parameters

- **type** (*enum in ['CFRA', 'VALUE', 'YAXIS', 'XAXIS', 'MARKER'], (optional, never None)*) – Type

bpy.ops.graph.**paste**()
Paste keyframes from copy/paste buffer for the selected channels, starting on the current frame

bpy.ops.graph.**previewrange_set**()
Undocumented (contribute)

bpy.ops.graph.**properties**()
Undocumented (contribute)

bpy.ops.graph.**sample**()
Add keyframes on every frame between the selected keyframes

bpy.ops.graph.**select_all_toggle**(*invert=False*)
Toggle selection of all keyframes

Parameters

- **invert** (*boolean, (optional)*) – Invert

bpy.ops.graph.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*, *axis_range=False*, *include_handles=False*)
Select all keyframes within the specified region

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max
- **axis_range** (*boolean, (optional)*) – Axis Range
- **include_handles** (*boolean, (optional)*) – Include Handles, Are handles tested individually against the selection criteria

bpy.ops.graph.**select_column**(*mode='KEYS'*)
Select all keyframes on the specified frame(s)

Parameters

- **mode** (*enum in ['KEYS', 'CFRA', 'MARKERS_COLUMN', 'MARKERS_BETWEEN'], (optional, never None)*) – Mode

bpy.ops.graph.**select_less**()
Deselect keyframes on ends of selection islands

bpy.ops.graph.**select_linked**()
Select keyframes occurring the same F-Curves as selected ones

bpy.ops.graph.**select_more**()
Select keyframes beside already selected ones

bpy.ops.graph.**smooth**()
Apply weighted moving means to make selected F-Curves less bumpy

bpy.ops.graph.**snap**(*type='CFRA'*)
Snap selected keyframes to the chosen times/values

Parameters

- **type** (*enum in ['CFRA', 'VALUE', 'NEAREST_FRAME', 'NEAREST_SECOND', 'NEAREST_MARKER', 'HORIZONTAL'], (optional, never None)*) – Type

bpy.ops.graph.**sound_bake**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=True*, *filter_python=False*, *filter_font=False*, *filter_sound=True*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *low=0.0*, *high=100000.0*, *attack=0.005*, *release=0.2*, *threshold=0.0*, *accumulate=False*, *use_additive=False*, *square=False*, *sthreshold=0.1*)
Bakes a sound wave to selected F-Curves

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **low** (*float in [0, 100000], (optional)*) – Lowest frequency
- **high** (*float in [0, 100000], (optional)*) – Highest frequency
- **attack** (*float in [0, 2], (optional)*) – Attack time
- **release** (*float in [0, 5], (optional)*) – Release time
- **threshold** (*float in [0, 1], (optional)*) – Threshold
- **accumulate** (*boolean, (optional)*) – Accumulate
- **use_additive** (*boolean, (optional)*) – Additive
- **square** (*boolean, (optional)*) – Square
- **sthreshold** (*float in [0, 1], (optional)*) – Square Threshold

bpy.ops.graph.**view_all**()
Reset viewable area to show full keyframe range

1.2.20 Group Operators

bpy.ops.group.**create**(*name="Group"*)
Create an object group from selected objects

Parameters

- **name** (*string, (optional)*) – Name, Name of the new group

bpy.ops.group.**objects_add_active**()
Add the object to an object group that contains the active object

bpy.ops.group.**objects_remove**()
Remove selected objects from all groups

bpy.ops.group.**objects_remove_active**()
Remove the object from an object group that contains the active object

1.2.21 Help Operators

bpy.ops.help.**operator_cheat_sheet**()
Set the current language for this console

File ui/space_info.py:334

1.2.22 Image Operators

bpy.ops.image.**curves_point_set**(*point='BLACK_POINT'*)
Undocumented (contribute)

Parameters

- **point** (*enum in ['BLACK_POINT', 'WHITE_POINT'], (optional, never None)*) – Point, Set black point or white point for curves.

bpy.ops.image.**cycle_render_slot**()
Undocumented (contribute)

bpy.ops.image.**external_edit**(*filepath=""*)
Edit image in an external application

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to an image file

File op/image.py:58

bpy.ops.image.**new**(*name="Untitled"*, *width=1024*, *height=1024*, *color=(0.0, 0.0, 0.0, 1.0)*, *alpha=True*, *uv_test_grid=False*, *float=False*)
Undocumented (contribute)

Parameters

- **name** (*string, (optional)*) – Name, Image datablock name.
- **width** (*int in [1, inf], (optional)*) – Width, Image width.
- **height** (*int in [1, inf], (optional)*) – Height, Image height.
- **color** (*float array of 4 items in [0, inf], (optional)*) – Color, Default fill color.
- **alpha** (*boolean, (optional)*) – Alpha, Create an image with an alpha channel.
- **uv_test_grid** (*boolean, (optional)*) – UV Test Grid, Fill the image with a grid for UV map testing.
- **float** (*boolean, (optional)*) – 32 bit Float, Create image with 32 bit floating point bit depth.

bpy.ops.image.**open**(*filepath=""*, *filter_blender=False*, *filter_image=True*, *filter_movie=True*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*)
Undocumented (contribute)

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files

- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file

bpy.ops.image.**pack**(*as_png=False*)
Pack an image as embedded data into the .blend file

Parameters

- **as_png** (*boolean, (optional)*) – Pack As PNG, Pack image as lossless PNG.

bpy.ops.image.**project_apply**()
Select object matching a naming pattern

File op/image.py:177

bpy.ops.image.**project_edit**()
Select object matching a naming pattern

File op/image.py:115

bpy.ops.image.**properties**()
Undocumented (contribute)

bpy.ops.image.**record_composite**()
Undocumented (contribute)

bpy.ops.image.**reload**()
Undocumented (contribute)

bpy.ops.image.**replace**(*filepath=""*, *filter_blender=False*, *filter_image=True*, *filter_movie=True*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*)
Undocumented (contribute)

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files

- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file

bpy.ops.image.**sample**()
Undocumented (contribute)

bpy.ops.image.**sample_line**(*xstart=0*, *xend=0*, *ystart=0*, *yend=0*, *cursor=1002*)
Undocumented (contribute)

Parameters

- **xstart** (*int in [-inf, inf], (optional)*) – X Start
- **xend** (*int in [-inf, inf], (optional)*) – X End
- **ystart** (*int in [-inf, inf], (optional)*) – Y Start
- **yend** (*int in [-inf, inf], (optional)*) – Y End
- **cursor** (*int in [0, inf], (optional)*) – Cursor, Mouse cursor style to use during the modal operator

bpy.ops.image.**save**()
Undocumented (contribute)

bpy.ops.image.**save_as**(*file_type='PNG'*, *filepath=""*, *check_existing=True*, *filter_blender=False*, *filter_image=True*, *filter_movie=True*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*, *copy=False*)
Undocumented (contribute)

Parameters

- **file_type** (*enum in ['TARGA', 'TARGA RAW', 'PNG', 'BMP', 'JPEG', 'IRIS'], (optional, never None)*) – File Type, File type to save image as.
- **filepath** (*string, (optional)*) – File Path, Path to file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders

- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **copy** (*boolean, (optional)*) – Copy, Create a new image file without modifying the current image in blender

bpy.ops.image.**save_dirty**()
Select object matching a naming pattern

File op/image.py:92

bpy.ops.image.**save_sequence**()
Undocumented (contribute)

bpy.ops.image.**scopes**()
Undocumented (contribute)

bpy.ops.image.**toolbox**()
Undocumented (contribute)

bpy.ops.image.**unpack**(*method='USE_LOCAL'*, *image=""*)
Save an image packed in the .blend file to disk

Parameters

- **method** (*enum in ['USE_LOCAL', 'WRITE_LOCAL', 'USE_ORIGINAL', 'WRITE_ORIGINAL'], (optional)*) – Method, How to unpack.
- **image** (*string, (optional)*) – Image Name, Image datablock name to unpack.

bpy.ops.image.**view_all**()
Undocumented (contribute)

bpy.ops.image.**view_pan**(*offset=(0.0, 0.0)*)
Undocumented (contribute)

Parameters

- **offset** (*float array of 2 items in [-inf, inf], (optional)*) – Offset, Offset in floating point units, 1.0 is the width and height of the image.

bpy.ops.image.**view_selected**()
Undocumented (contribute)

bpy.ops.image.**view_zoom**(*factor=0.0*)
Undocumented (contribute)

Parameters

- **factor** (*float in [0, inf], (optional)*) – Factor, Zoom factor, values higher than 1.0 zoom in, lower values zoom out.

bpy.ops.image.**view_zoom_in**()
Undocumented (contribute)

bpy.ops.image.**view_zoom_out**()
Undocumented (contribute)

bpy.ops.image.**view_zoom_ratio**(*ratio=0.0*)
Undocumented (contribute)

Parameters

- **ratio** (*float in [0, inf], (optional)*) – Ratio, Zoom ratio, 1.0 is 1:1, higher is zoomed in, lower is zoomed out.

1.2.23 Import_anim Operators

bpy.ops.import_anim.**bvh**(*filepath=""*, *rotate_mode='NATIVE'*, *scale=0.1*, *frame_start=1*, *loop=False*)

Load a OBJ Motion Capture File

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for importing the file
- **rotate_mode** (*enum in ['QUATERNION', 'NATIVE', 'XYZ', 'XZY', 'YXZ', 'YZX', 'ZXY', 'ZYX'], (optional)*) – Rotation, Rotation conversion.
- **scale** (*float in [0.0001, 1e+06], (optional)*) – Scale, Scale the BVH by this value
- **frame_start** (*int in [-inf, inf], (optional)*) – Start Frame, Starting frame for the animation
- **loop** (*boolean, (optional)*) – Loop, Loop the animation playback

File op/io_anim_bvh/__init__.py:57

1.2.24 Import_scene Operators

bpy.ops.import_scene.**autodesk_3ds**(*filepath=""*, *constrain_size=10.0*, *use_image_search=True*, *use_apply_transform=False*)

Import from 3DS file format (.3ds)

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for importing the file
- **constrain_size** (*float in [0, 1000], (optional)*) – Size Constraint, Scale the model by 10 until it reacehs the size constraint. Zero Disables.
- **use_image_search** (*boolean, (optional)*) – Image Search, Search subdirectories for any assosiated images (Warning, may be slow)
- **use_apply_transform** (*boolean, (optional)*) – Apply Transform, Workaround for object transformations importing incorrectly

File op/io_scene_3ds/__init__.py:44

bpy.ops.import_scene.**obj**(*filepath=""*, *CREATE_FGONS=True*, *CREATE_EDGES=True*, *CREATE_SMOOTH_GROUPS=True*, *SPLIT_OBJECTS=True*, *IMAGE_SEARCH=True*, *POLYGROUPS=True*, *CLAMP_SIZE=0.0*, *ROTATE_X90=True*, *SPLIT_GROUPS=True*)

Load a Wavefront OBJ File

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for importing the file
- **CREATE_FGONS** (*boolean, (optional)*) – NGons as FGons, Import faces with more then 4 verts as fgons
- **CREATE_EDGES** (*boolean, (optional)*) – Lines as Edges, Import lines and faces with 2 verts as edge

- **CREATE_SMOOTH_GROUPS** (*boolean, (optional)*) – Smooth Groups, Surround smooth groups by sharp edges
- **SPLIT_OBJECTS** (*boolean, (optional)*) – Object, Import OBJ Objects into Blender Objects
- **IMAGE_SEARCH** (*boolean, (optional)*) – Image Search, Search subdirs for any assosiated images (Warning, may be slow)
- **POLYGROUPS** (*boolean, (optional)*) – Poly Groups, Import OBJ groups as vertex groups.
- **CLAMP_SIZE** (*float in [0, 1000], (optional)*) – Clamp Scale, Clamp the size to this maximum (Zero to Disable)
- **ROTATE_X90** (*boolean, (optional)*) – -X90, Rotate X 90.
- **SPLIT_GROUPS** (*boolean, (optional)*) – Group, Import OBJ Groups into Blender Objects

File op/io_scene_obj/__init__.py:55

1.2.25 Import_shape Operators

bpy.ops.import_shape.**mdd**(*filepath=""*, *frame_step=1*, *frame_start=0*)
Import MDD vertex keyframe file to shape keys

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath used for importing the file
- **frame_step** (*int in [1, 1000], (optional)*) – Step
- **frame_start** (*int in [-300000, 300000], (optional)*) – Start Frame, Start frame for inserting animation

File op/io_shape_mdd/__init__.py:48

1.2.26 Info Operators

bpy.ops.info.**reports_display_update**()
Undocumented (contribute)

1.2.27 Lamp Operators

bpy.ops.lamp.**sunsky_preset_add**(*name=""*)
Add a Sky & Atmosphere Preset

Parameters

- **name** (*string, (optional)*) – Name, Name of the preset, used to make the path name

File op/presets.py:40

1.2.28 Lattice Operators

bpy.ops.lattice.**make_regular**()
Set UVW control points a uniform distance apart

bpy.ops.lattice.**select_all**(*action='TOGGLE'*)
Change selection of all UVW control points

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

1.2.29 Logic Operators

bpy.ops.logic.**actuator_add**(*type=''*, *name=""*, *object=""*)
Add a actuator to the active object

Parameters

- **type** (*enum in [], (optional)*) – Type, Type of actuator to add
- **name** (*string, (optional)*) – Name, Name of the Actuator to add
- **object** (*string, (optional)*) – Object, Name of the Object to add the Actuator to

bpy.ops.logic.**actuator_move**(*actuator=""*, *object=""*, *direction='UP'*)
Move Actuator

Parameters

- **actuator** (*string, (optional)*) – Actuator, Name of the actuator to edit
- **object** (*string, (optional)*) – Object, Name of the object the actuator belongs to
- **direction** (*enum in ['UP', 'DOWN'], (optional)*) – Direction, Move Up or Down

bpy.ops.logic.**actuator_remove**(*actuator=""*, *object=""*)
Remove a actuator from the active object

Parameters

- **actuator** (*string, (optional)*) – Actuator, Name of the actuator to edit
- **object** (*string, (optional)*) – Object, Name of the object the actuator belongs to

bpy.ops.logic.**controller_add**(*type='LOGIC_AND'*, *name=""*, *object=""*)
Add a controller to the active object

Parameters

- **type** (*enum in ['LOGIC_AND', 'LOGIC_OR', 'LOGIC_NAND', 'LOGIC_NOR', 'LOGIC_XOR', 'LOGIC_XNOR', 'EXPRESSION', 'PYTHON'], (optional)*) – Type, Type of controller to add
- **name** (*string, (optional)*) – Name, Name of the Controller to add
- **object** (*string, (optional)*) – Object, Name of the Object to add the Controller to

bpy.ops.logic.**controller_move**(*controller=""*, *object=""*, *direction='UP'*)
Move Controller

Parameters

- **controller** (*string, (optional)*) – Controller, Name of the controller to edit
- **object** (*string, (optional)*) – Object, Name of the object the controller belongs to
- **direction** (*enum in ['UP', 'DOWN'], (optional)*) – Direction, Move Up or Down

bpy.ops.logic.**controller_remove**(*controller=""*, *object=""*)
Remove a controller from the active object

Parameters

- **controller** (*string, (optional)*) – Controller, Name of the controller to edit
- **object** (*string, (optional)*) – Object, Name of the object the controller belongs to

bpy.ops.logic.**links_cut**(*path=None*, *cursor=9*)
Undocumented (contribute)

Parameters

- **path** (Collection of OperatorMousePath, (optional)) – path
- **cursor** (*int in [0, inf], (optional)*) – Cursor

bpy.ops.logic.**properties**()
Toggle display properties panel

bpy.ops.logic.**sensor_add**(*type=''*, *name=""*, *object=""*)
Add a sensor to the active object

Parameters

- **type** (*enum in [], (optional)*) – Type, Type of sensor to add
- **name** (*string, (optional)*) – Name, Name of the Sensor to add
- **object** (*string, (optional)*) – Object, Name of the Object to add the Sensor to

bpy.ops.logic.**sensor_move**(*sensor=""*, *object=""*, *direction='UP'*)
Move Densor

Parameters

- **sensor** (*string, (optional)*) – Sensor, Name of the sensor to edit
- **object** (*string, (optional)*) – Object, Name of the object the sensor belongs to
- **direction** (*enum in ['UP', 'DOWN'], (optional)*) – Direction, Move Up or Down

bpy.ops.logic.**sensor_remove**(*sensor=""*, *object=""*)
Remove a sensor from the active object

Parameters

- **sensor** (*string, (optional)*) – Sensor, Name of the sensor to edit
- **object** (*string, (optional)*) – Object, Name of the object the sensor belongs to

1.2.30 Marker Operators

bpy.ops.marker.**add**()
Add a new time marker

bpy.ops.marker.**camera_bind**()
Bind the active camera to selected markers(s)

bpy.ops.marker.**delete**()
Delete selected time marker(s)

bpy.ops.marker.**duplicate**(*frames=0*)
Duplicate selected time marker(s)

Parameters

- **frames** (*int in [-inf, inf], (optional)*) – Frames

bpy.ops.marker.**make_links_scene**(*scene=''*)
Link markers to another scene

Parameters

- **scene** (*enum in [], (optional)*) – Scene

bpy.ops.marker.**move**(*frames=0*)
Move selected time marker(s)

Parameters

- **frames** (*int in [-inf, inf], (optional)*) – Frames

bpy.ops.marker.**select**(*extend=False*, *camera=False*)
Select time marker(s)

Parameters

- **extend** (*boolean, (optional)*) – Extend, extend the selection
- **camera** (*boolean, (optional)*) – Camera, Select the camera

bpy.ops.marker.**select_all**(*action='TOGGLE'*)
Change selection of all time markers

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.marker.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Select all time markers using border selection

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

1.2.31 Material Operators

bpy.ops.material.**copy**()
Copy the material settings and nodes

bpy.ops.material.**new**()
Add a new material

bpy.ops.material.**paste**()
Paste the material settings and nodes

bpy.ops.material.**sss_preset_add**(*name=""*)
Add a Subsurface Scattering Preset

Parameters

- **name** (*string, (optional)*) – Name, Name of the preset, used to make the path name

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1.2.32 Mball Operators

bpy.ops.mball.**delete_metaelems**()
Delete selected metaelement(s)

bpy.ops.mball.**duplicate_metaelems**(*mode=1*)
Delete selected metaelement(s)

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.mball.**hide_metaelems**(*unselected=False*)
Hide (un)selected metaelement(s)

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Hide unselected rather than selected.

bpy.ops.mball.**reveal_metaelems**()
Reveal all hidden metaelements

bpy.ops.mball.**select_all**(*action='TOGGLE'*)
Change selection of all meta elements

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.mball.**select_inverse_metaelems**()
Select inverse of (un)selected metaelements

bpy.ops.mball.**select_random_metaelems**(*percent=0.5*)
Randomly select metaelements

Parameters

- **percent** (*float in [0, 1], (optional)*) – Percent, Percentage of metaelems to select randomly.

1.2.33 Mesh Operators

bpy.ops.mesh.**beautify_fill**()
Rearrange geometry on a selected surface to avoid skinny faces

bpy.ops.mesh.**blend_from_shape**(*shape=''*, *blend=1.0*, *add=True*)
Blend in shape from a shape key

Parameters

- **shape** (*enum in [], (optional)*) – Shape, Shape key to use for blending.
- **blend** (*float in [-inf, inf], (optional)*) – Blend, Blending factor.
- **add** (*boolean, (optional)*) – Add, Add rather then blend between shapes.

bpy.ops.mesh.**colors_mirror**(*axis='X'*)
Mirror UV/image color layer

Parameters

- **axis** (*enum in ['X', 'Y'], (optional)*) – Axis, Axis to mirror colors around.

bpy.ops.mesh.**colors_rotate**(*direction='CW'*)
Rotate UV/image color layer

Parameters

- **direction** (*enum in ['CW', 'CCW'], (optional)*) – Direction, Direction to rotate edge around.

bpy.ops.mesh.**delete**(*type='VERT'*)
Delete selected vertices, edges or faces

Parameters

- **type** (*enum in ['VERT', 'EDGE', 'FACE', 'ALL', 'EDGE_FACE', 'ONLY_FACE', 'EDGE_LOOP'], (optional, never None)*) – Type, Method used for deleting mesh data

bpy.ops.mesh.**delete_edgeloop**()
Delete an edge loop by merging the faces on each side to a single face loop

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bpy.ops.mesh.**drop_named_image**(*name="Image"*, *filepath="Path"*)
Assigns Image to active UV layer, or creates a UV layer

Parameters

- **name** (*string, (optional)*) – Name, Image name to assign.
- **filepath** (*string, (optional)*) – Filepath, Path to image file

bpy.ops.mesh.**dupli_extrude_cursor**()
Duplicate and extrude selected vertices, edges or faces towards 3D Cursor

bpy.ops.mesh.**duplicate**(*mode=1*)
Duplicate selected vertices, edges or faces

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.mesh.**duplicate_move**(*MESH_OT_duplicate=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **MESH_OT_duplicate** (MESH_OT_duplicate, (optional)) – Duplicate, Duplicate selected vertices, edges or faces
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.mesh.**edge_face_add**()
Add an edge or face to selected

bpy.ops.mesh.**edge_flip**()
Flip selected edge or adjoining faces

bpy.ops.mesh.**edge_rotate**(*direction='CW'*)
Rotate selected edge or adjoining faces

Parameters

- **direction** (*enum in ['CW', 'CCW'], (optional)*) – Direction, Direction to rotate the edge around.

bpy.ops.mesh.**edgering_select**(*extend=False*)
Select an edge ring

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend the selection

bpy.ops.mesh.**edges_select_sharp**(*sharpness=0.01*)
Marked selected edges as sharp

Parameters

- **sharpness** (*float in [0, inf], (optional)*) – sharpness

bpy.ops.mesh.**extrude**(*type='REGION'*)
Extrude selected vertices, edges or faces

Parameters

- **type** (*enum in ['REGION', 'FACES', 'EDGES', 'VERTS'], (optional, never None)*) – Type

bpy.ops.mesh.**extrude_edges_move**(*MESH_OT_extrude=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **MESH_OT_extrude** (MESH_OT_extrude, (optional)) – Extrude, Extrude selected vertices, edges or faces
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.mesh.**extrude_faces_move**(*MESH_OT_extrude=None*, *TRANSFORM_OT_shrink_fatten=None*)
Undocumented (contribute)

Parameters

- **MESH_OT_extrude** (MESH_OT_extrude, (optional)) – Extrude, Extrude selected vertices, edges or faces
- **TRANSFORM_OT_shrink_fatten** (TRANSFORM_OT_shrink_fatten, (optional)) – Shrink/Fatten, Shrink/fatten selected vertices along normals

bpy.ops.mesh.**extrude_region_move**(*MESH_OT_extrude=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **MESH_OT_extrude** (MESH_OT_extrude, (optional)) – Extrude, Extrude selected vertices, edges or faces
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.mesh.**extrude_repeat**(*offset=2.0*, *steps=10*)
Extrude selected vertices, edges or faces repeatedly

Parameters

- **offset** (*float in [0, 100], (optional)*) – Offset
- **steps** (*int in [0, 180], (optional)*) – Steps

bpy.ops.mesh.**extrude_vertices_move**(*MESH_OT_extrude=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **MESH_OT_extrude** (MESH_OT_extrude, (optional)) – Extrude, Extrude selected vertices, edges or faces
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.mesh.**faces_miror_uv**()
Copy mirror UV coordinates on the X axis based on a mirrored mesh

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bpy.ops.mesh.**faces_select_interior**()
Select faces where all edges have more then 2 face users.

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bpy.ops.mesh.**faces_select_linked_flat**(*sharpness=0.0*)
Select linked faces by angle

Parameters

- **sharpness** (*float in [0, inf], (optional)*) – sharpness

bpy.ops.mesh.**faces_shade_flat**()
Display faces 'flat'

bpy.ops.mesh.**faces_shade_smooth**()
Display faces 'smooth' (using vertex normals)

bpy.ops.mesh.**fgon_clear**()
Clear fgon from selected face

bpy.ops.mesh.**fgon_make**()
Make fgon from selected faces

bpy.ops.mesh.**fill**()
Create a segment, edge or face

bpy.ops.mesh.**flip_normals**()
Toggle the direction of selected face's vertex and face normals

bpy.ops.mesh.**hide**(*unselected=False*)
Hide (un)selected vertices, edges or faces

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Hide unselected rather than selected.

bpy.ops.mesh.**knife_cut**(*type='EXACT'*, *path=None*, *num_cuts=1*, *cursor=9*)
Cut selected edges and faces into parts

Parameters

- **type** (*enum in ['EXACT', 'MIDPOINTS', 'MULTICUT'], (optional, never None)*) – Type
- **path** (Collection of OperatorMousePath, (optional)) – path
- **num_cuts** (*int in [1, 256], (optional)*) – Number of Cuts, Only for Multi-Cut
- **cursor** (*int in [0, inf], (optional)*) – Cursor

bpy.ops.mesh.**loop_multi_select**(*ring=False*)
Select a loop of connected edges by connection type

Parameters

- **ring** (*boolean, (optional)*) – Ring

bpy.ops.mesh.**loop_select**(*extend=False*, *ring=False*)
Select a loop of connected edges

Parameters

- **extend** (*boolean, (optional)*) – Extend Select
- **ring** (*boolean, (optional)*) – Select Ring

bpy.ops.mesh.**loop_to_region**()
Select a loop of connected edges as a region

bpy.ops.mesh.**loopcut**(*number_cuts=1*)
Add a new loop between existing loops

Parameters

- **number_cuts** (*int in [1, inf], (optional)*) – Number of Cuts

bpy.ops.mesh.**loopcut_slide**(*MESH_OT_loopcut=None*, *TRANSFORM_OT_edge_slide=None*)
Undocumented (contribute)

Parameters

- **MESH_OT_loopcut** (MESH_OT_loopcut, (optional)) – Loop Cut, Add a new loop between existing loops
- **TRANSFORM_OT_edge_slide** (TRANSFORM_OT_edge_slide, (optional)) – Edge Slide, Slide an edge loop along a mesh

bpy.ops.mesh.**mark_seam**(*clear=False*)
(un)mark selected edges as a seam

Parameters

- **clear** (*boolean, (optional)*) – Clear

bpy.ops.mesh.**mark_sharp**(*clear=False*)
(un)mark selected edges as sharp

Parameters

- **clear** (*boolean, (optional)*) – Clear

bpy.ops.mesh.**merge**(*type='CENTER'*, *uvs=False*)
Merge selected vertices

Parameters

- **type** (*enum in ['FIRST', 'LAST', 'CENTER', 'CURSOR', 'COLLAPSE'], (optional, never None)*) – Type, Merge method to use.
- **uvs** (*boolean, (optional)*) – UVs, Move UVs according to merge.

bpy.ops.mesh.**normals_make_consistent**(*inside=False*)
Flip all selected vertex and face normals in a consistent direction

Parameters

- **inside** (*boolean, (optional)*) – Inside

bpy.ops.mesh.**primitive_circle_add**(*vertices=32*, *radius=1.0*, *fill=False*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a circle mesh

Parameters

- **vertices** (*int in [-inf, inf], (optional)*) – Vertices
- **radius** (*float in [0, inf], (optional)*) – Radius
- **fill** (*boolean, (optional)*) – Fill
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_cone_add**(*vertices=32*, *radius=1.0*, *depth=1.0*, *cap_end=False*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a conic mesh (ends filled)

Parameters

- **vertices** (*int in [-inf, inf], (optional)*) – Vertices
- **radius** (*float in [0, inf], (optional)*) – Radius
- **depth** (*float in [0, inf], (optional)*) – Depth
- **cap_end** (*boolean, (optional)*) – Cap End
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_cube_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a cube mesh

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_cylinder_add**(*vertices=32*, *radius=1.0*, *depth=1.0*, *cap_ends=True*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a cylinder mesh

Parameters

- **vertices** (*int in [-inf, inf], (optional)*) – Vertices
- **radius** (*float in [0, inf], (optional)*) – Radius
- **depth** (*float in [0, inf], (optional)*) – Depth
- **cap_ends** (*boolean, (optional)*) – Cap Ends
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_grid_add**(*x_subdivisions=10*, *y_subdivisions=10*, *size=1.0*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a grid mesh

Parameters

- **x_subdivisions** (*int in [-inf, inf], (optional)*) – X Subdivisions
- **y_subdivisions** (*int in [-inf, inf], (optional)*) – Y Subdivisions
- **size** (*float in [0, inf], (optional)*) – Size
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.

- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_ico_sphere_add**(*subdivisions=2*, *size=1.0*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct an Icosphere mesh

Parameters

- **subdivisions** (*int in [0, inf], (optional)*) – Subdivisions
- **size** (*float in [0, inf], (optional)*) – Size
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_monkey_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Suzanne mesh

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_plane_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a filled planar mesh with 4 vertices

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.

- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**primitive_torus_add**(*minor_radius=0.25*, *minor_segments=12*, *major_segments=48*, *use_abso=False*, *abso_minor_rad=0.5*, *abso_major_rad=1.0*, *location=(0.0, 0.0, 0.0)*, *major_radius=1.0*, *rotation=(0.0, 0.0, 0.0)*)

Add a torus mesh

Parameters

- **minor_radius** (*float in [0.01, 100], (optional)*) – Minor Radius, Radius of the torus' cross section
- **minor_segments** (*int in [3, 256], (optional)*) – Minor Segments, Number of segments for the minor ring of the torus
- **major_segments** (*int in [3, 256], (optional)*) – Major Segments, Number of segments for the main ring of the torus
- **use_abso** (*boolean, (optional)*) – Use Int+Ext Controls, Use the Int / Ext controls for torus dimensions
- **abso_minor_rad** (*float in [0.01, 100], (optional)*) – Inside Radius, Total Interior Radius of the torus
- **abso_major_rad** (*float in [0.01, 100], (optional)*) – Exterior Radius, Total Exterior Radius of the torus
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location
- **major_radius** (*float in [0.01, 100], (optional)*) – Major Radius, Radius from the origin to the center of the cross sections
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation

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bpy.ops.mesh.**primitive_uv_sphere_add**(*segments=32*, *ring_count=16*, *size=1.0*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a UV sphere mesh

Parameters

- **segments** (*int in [-inf, inf], (optional)*) – Segments
- **ring_count** (*int in [-inf, inf], (optional)*) – Rings
- **size** (*float in [0, inf], (optional)*) – Size
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.

- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.mesh.**quads_convert_to_tris**()
Convert selected quads to triangles

bpy.ops.mesh.**region_to_loop**()
Select a region as a loop of connected edges

bpy.ops.mesh.**remove_doubles**(*limit=0.0001*)
Remove duplicate vertices

Parameters

- **limit** (*float in [1e-06, 50], (optional)*) – Merge Threshold, Minimum distance between merged verts

bpy.ops.mesh.**reveal**()
Reveal all hidden vertices, edges and faces

bpy.ops.mesh.**rip**(*constraint_axis=(False, False, False)*, *constraint_orientation=''*, *mirror=False*, *release_confirm=False*)
Rip selection from mesh (quads only)

Parameters

- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.mesh.**rip_move**(*MESH_OT_rip=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **MESH_OT_rip** (MESH_OT_rip, (optional)) – Rip, Rip selection from mesh (quads only)
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.mesh.**screw**(*steps=9*, *turns=1*, *center=(0.0, 0.0, 0.0)*, *axis=(0.0, 0.0, 0.0)*)
Extrude selected vertices in screw-shaped rotation around the cursor in indicated viewport

Parameters

- **steps** (*int in [0, inf], (optional)*) – Steps, Steps
- **turns** (*int in [0, inf], (optional)*) – Turns, Turns
- **center** (*float array of 3 items in [-inf, inf], (optional)*) – Center, Center in global view space
- **axis** (*float array of 3 items in [-1, 1], (optional)*) – Axis, Axis in global view space

bpy.ops.mesh.**select_all**(*action='TOGGLE'*)
Change selection of all vertices, edges or faces

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.mesh.**select_axis**(*mode='POSITIVE'*, *axis='X_AXIS'*)
Select all data in the mesh on a single axis

Parameters

- **mode** (*enum in ['POSITIVE', 'NEGATIVE', 'ALIGNED'], (optional)*) – Axis Mode, Axis side to use when selecting
- **axis** (*enum in ['X_AXIS', 'Y_AXIS', 'Z_AXIS'], (optional)*) – Axis, Select the axis to compare each vertex on

bpy.ops.mesh.**select_by_number_vertices**(*type='TRIANGLES'*)
Select vertices or faces by vertex count

Parameters

- **type** (*enum in ['TRIANGLES', 'QUADS', 'OTHER'], (optional)*) – Type, Type of elements to select.

bpy.ops.mesh.**select_inverse**()
Select inverse of (un)selected vertices, edges or faces

bpy.ops.mesh.**select_less**()
Select less vertices, edges or faces connected to initial selection

bpy.ops.mesh.**select_linked**(*limit=False*)
Select all vertices linked to the active mesh

Parameters

- **limit** (*boolean, (optional)*) – Limit by Seams

bpy.ops.mesh.**select_linked_pick**(*deselect=False*, *limit=False*)
(un)select all vertices linked to the active mesh

Parameters

- **deselect** (*boolean, (optional)*) – Deselect
- **limit** (*boolean, (optional)*) – Limit by Seams

bpy.ops.mesh.**select_mirror**(*extend=False*)
Select mesh items at mirrored locations

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend the existing selection

bpy.ops.mesh.**select_more**()
Select more vertices, edges or faces connected to initial selection

bpy.ops.mesh.**select_non_manifold**()
Select all non-manifold vertices or edges

bpy.ops.mesh.**select_nth**(*nth=2*)
Undocumented (contribute)

Parameters

- **nth** (*int in [2, 100], (optional)*) – Nth Selection

bpy.ops.mesh.**select_random**(*percent=50.0*, *extend=False*)
Randomly select vertices

Parameters

- **percent** (*float in [0, 100], (optional)*) – Percent, Percentage of elements to select randomly.
- **extend** (*boolean, (optional)*) – Extend Selection, Extend selection instead of deselecting everything first.

bpy.ops.mesh.**select_shortest_path**(*extend=False*)
Select shortest path between two selections

Parameters

- **extend** (*boolean, (optional)*) – Extend Select

bpy.ops.mesh.**select_similar**(*type='NORMAL'*)
Select similar vertices, edges or faces by property types

Parameters

- **type** (*enum in ['NORMAL', 'FACE', 'VGROUP', 'LENGTH', 'DIR', 'FACE', 'FACE_ANGLE', 'CREASE', 'SEAM', 'SHARP', 'MATERIAL', 'IMAGE', 'AREA', 'PERIMETER', 'NORMAL', 'COPLANAR'], (optional, never None)*) – Type

bpy.ops.mesh.**select_vertex_path**(*type='EDGE_LENGTH'*)
Select shortest path between two vertices by distance type

Parameters

- **type** (*enum in ['EDGE_LENGTH', 'TOPOLOGICAL'], (optional)*) – Type, Method to compute distance.

bpy.ops.mesh.**separate**(*type='SELECTED'*)
Separate selected geometry into a new mesh

Parameters

- **type** (*enum in ['SELECTED', 'MATERIAL', 'LOOSE'], (optional, never None)*) – Type

bpy.ops.mesh.**shape_propagate_to_all**()
Apply selected vertex locations to all other shape keys

bpy.ops.mesh.**solidify**(*thickness=0.01*)
Create a solid skin by extruding, compensating for sharp angles

Parameters

- **thickness** (*float in [-inf, inf], (optional)*) – Thickness

bpy.ops.mesh.**sort_faces**(*type='VIEW_AXIS'*)
The faces of the active Mesh Object are sorted, based on the current view.

Parameters

- **type** (*enum in ['VIEW_AXIS', 'CURSOR_DISTANCE', 'MATERIAL', 'SELECTION', 'RANDOMIZE'], (optional, never None)*) – Type

bpy.ops.mesh.**spin**(*steps=9*, *dupli=False*, *degrees=90.0*, *center=(0.0, 0.0, 0.0)*, *axis=(0.0, 0.0, 0.0)*)
Extrude selected vertices in a circle around the cursor in indicated viewport

Parameters

- **steps** (*int in [0, inf], (optional)*) – Steps, Steps
- **dupli** (*boolean, (optional)*) – Dupli, Make Duplicates

- **degrees** (*float in [-inf, inf], (optional)*) – Degrees, Degrees
- **center** (*float array of 3 items in [-inf, inf], (optional)*) – Center, Center in global view space
- **axis** (*float array of 3 items in [-1, 1], (optional)*) – Axis, Axis in global view space

bpy.ops.mesh.**split**()
Split selected geometry into separate disconnected mesh

bpy.ops.mesh.**sticky_add**()
Add sticky UV texture layer

bpy.ops.mesh.**sticky_remove**()
Remove sticky UV texture layer

bpy.ops.mesh.**subdivide**(*number_cuts=1*, *smoothness=0.0*, *fractal=0.0*, *corner_cut_pattern='INNER_VERTEX'*)
Subdivide selected edges

Parameters

- **number_cuts** (*int in [1, inf], (optional)*) – Number of Cuts
- **smoothness** (*float in [0, inf], (optional)*) – Smoothness, Smoothness factor.
- **fractal** (*float in [0, inf], (optional)*) – Fractal, Fractal randomness factor.
- **corner_cut_pattern** (*enum in ['PATH', 'INNER_VERTEX', 'FAN'], (optional)*) – Corner Cut Pattern, Topology pattern to use to fill a face after cutting across its corner

bpy.ops.mesh.**tris_convert_to_quads**()
Convert selected triangles to quads

bpy.ops.mesh.**uv_texture_add**()
Add UV texture layer

bpy.ops.mesh.**uv_texture_remove**()
Remove UV texture layer

bpy.ops.mesh.**uvs_mirror**(*axis='X'*)
Mirror selected UVs

Parameters

- **axis** (*enum in ['X', 'Y'], (optional)*) – Axis, Axis to mirror UVs around.

bpy.ops.mesh.**uvs_rotate**(*direction='CW'*)
Rotate selected UVs

Parameters

- **direction** (*enum in ['CW', 'CCW'], (optional)*) – Direction, Direction to rotate UVs around.

bpy.ops.mesh.**vertex_color_add**()
Add vertex color layer

bpy.ops.mesh.**vertex_color_remove**()
Remove vertex color layer

bpy.ops.mesh.**vertices_smooth**(*repeat=1*, *xaxis=True*, *yaxis=True*, *zaxis=True*)
Flatten angles of selected vertices

Parameters

- **repeat** (*int in [1, 100], (optional)*) – Smooth Iterations
- **xaxis** (*boolean, (optional)*) – X-Axis, Smooth along the X axis.

- **yaxis** (*boolean, (optional)*) – Y-Axis, Smooth along the Y axis.
- **zaxis** (*boolean, (optional)*) – Z-Axis, Smooth along the Z axis.

1.2.34 Nla Operators

bpy.ops.nla.**action_sync_length**(*active=True*)
Sychronise the length of the referenced Action with the lengths used in the strip

Parameters

- **active** (*boolean, (optional)*) – Active Strip Only, Only sync the active length for the active strip.

bpy.ops.nla.**actionclip_add**(*action=''*)
Add an Action-Clip strip (i.e. an NLA Strip referencing an Action) to the active track

Parameters

- **action** (*enum in [], (optional, never None)*) – Action

bpy.ops.nla.**apply_scale**()
Apply scaling of selected strips to their referenced Actions

bpy.ops.nla.**bake**(*frame_end=250*, *step=1*, *frame_start=1*, *only_selected=True*)
Bake animation to an Action

Parameters

- **frame_end** (*int in [1, 300000], (optional)*) – End Frame, End frame for baking
- **step** (*int in [1, 120], (optional)*) – Frame Step, Frame Step
- **frame_start** (*int in [1, 300000], (optional)*) – Start Frame, Start frame for baking
- **only_selected** (*boolean, (optional)*) – Only Selected

File op/nla.py:150

bpy.ops.nla.**channels_click**(*extend=False*)
Undocumented (contribute)

Parameters

- **extend** (*boolean, (optional)*) – Extend Select

bpy.ops.nla.**clear_scale**()
Reset scaling of selected strips

bpy.ops.nla.**click_select**(*left_right='OFF'*, *extend=False*)
Undocumented (contribute)

Parameters

- **left_right** (*enum in ['CHECK', 'OFF', 'LEFT', 'RIGHT'], (optional, never None)*) – Left Right
- **extend** (*boolean, (optional)*) – Extend Select

bpy.ops.nla.**delete**()
Delete selected strips

bpy.ops.nla.**delete_tracks**()
Delete selected NLA-Tracks and the strips they contain

bpy.ops.nla.**duplicate**(*mode=1*)
Duplicate selected NLA-Strips, adding the new strips in new tracks above the originals

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.nla.**fmodifier_add**(*type='NULL'*, *only_active=False*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['NULL', 'GENERATOR', 'FNGENERATOR', 'ENVELOPE', 'CYCLES', 'NOISE', 'FILTER', 'PYTHON', 'LIMITS', 'STEPPED'], (optional, never None)*) – Type
- **only_active** (*boolean, (optional)*) – Only Active, Only add F-Modifier of the specified type to the active strip.

bpy.ops.nla.**fmodifier_copy**()
Copy the F-Modifier(s) of the active NLA-Strip.

bpy.ops.nla.**fmodifier_paste**()
Add copied F-Modifiers to the selected NLA-Strips

bpy.ops.nla.**meta_add**()
Add new meta-strips incorporating the selected strips

bpy.ops.nla.**meta_remove**()
Separate out the strips held by the selected meta-strips

bpy.ops.nla.**move_down**()
Move selected strips down a track if there's room

bpy.ops.nla.**move_up**()
Move selected strips up a track if there's room

bpy.ops.nla.**mute_toggle**()
Mute or un-muted selected strips

bpy.ops.nla.**properties**()
Undocumented (contribute)

bpy.ops.nla.**select_all_toggle**(*invert=False*)
Undocumented (contribute)

Parameters

- **invert** (*boolean, (optional)*) – Invert

bpy.ops.nla.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*, *axis_range=False*)
Undocumented (contribute)

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max
- **axis_range** (*boolean, (optional)*) – Axis Range

bpy.ops.nla.**snap**(*type='CFRA'*)
Move start of strips to specified time

Parameters

- **type** (*enum in ['CFRA', 'NEAREST_FRAME', 'NEAREST_SECOND', 'NEAREST_MARKER'], (optional, never None)*) – Type

bpy.ops.nla.**split**()
Split selected strips at their midpoints

bpy.ops.nla.**tracks_add**(*above_selected=False*)
Add NLA-Tracks above/after the selected tracks

Parameters

- **above_selected** (*boolean, (optional)*) – Above Selected, Add a new NLA Track above every existing selected one.

bpy.ops.nla.**transition_add**()
Add a transition strip between two adjacent selected strips

bpy.ops.nla.**tweakmode_enter**()
Enter tweaking mode for the action referenced by the active strip

bpy.ops.nla.**tweakmode_exit**()
Exit tweaking mode for the action referenced by the active strip

1.2.35 Node Operators

bpy.ops.node.**add_file**(*filepath=""*, *filter_blender=False*, *filter_image=True*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *name="Image"*)
Add a file node to the current node editor

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **name** (*string, (optional)*) – Name, Datablock name to assign.

bpy.ops.node.**backimage_move**()
Undocumented (contribute)

bpy.ops.node.**backimage_zoom**(*factor=1.2*)
Undocumented (contribute)

Parameters

- **factor** (*float in [0, 10], (optional)*) – Factor

bpy.ops.node.**delete**()
Delete selected nodes

bpy.ops.node.**duplicate**()
Duplicate the nodes

bpy.ops.node.**duplicate_move**(*NODE_OT_duplicate=None*, *TRANSFORM_OT_translate=None*)
Undocumented (contribute)

Parameters

- **NODE_OT_duplicate** (NODE_OT_duplicate, (optional)) – Duplicate Nodes, Duplicate the nodes
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.node.**group_edit**()
Edit node group

bpy.ops.node.**group_make**()
Make group from selected nodes

bpy.ops.node.**group_ungroup**()
Ungroup selected nodes

bpy.ops.node.**hide_socket_toggle**()
Toggle unused node socket display

bpy.ops.node.**hide_toggle**()
Toggle hiding of selected nodes

bpy.ops.node.**link**()
Undocumented (contribute)

bpy.ops.node.**link_make**(*replace=False*)
Makes a link between selected output in input sockets

Parameters

- **replace** (*boolean, (optional)*) – Replace, Replace socket connections with the new links

bpy.ops.node.**link_viewer**()
Link to Viewer Node

bpy.ops.node.**links_cut**(*path=None*, *cursor=9*)
Undocumented (contribute)

Parameters

- **path** (Collection of OperatorMousePath, (optional)) – path
- **cursor** (*int in [0, inf], (optional)*) – Cursor

bpy.ops.node.**mute_toggle**()
Toggle muting of the nodes

bpy.ops.node.**preview_toggle**()
Toggle preview display for selected nodes

bpy.ops.node.**properties**()
Toggles the properties panel display

bpy.ops.node.**read_fullsamplelayers**()
Undocumented (contribute)

bpy.ops.node.**read_renderlayers**()
Undocumented (contribute)

bpy.ops.node.**resize**()
Undocumented (contribute)

bpy.ops.node.**select**(*mouse_x=0*, *mouse_y=0*, *extend=False*)
Undocumented (contribute)

Parameters

- **mouse_x** (*int in [-inf, inf], (optional)*) – Mouse X
- **mouse_y** (*int in [-inf, inf], (optional)*) – Mouse Y
- **extend** (*boolean, (optional)*) – Extend

bpy.ops.node.**select_all**()
(De)select all nodes

bpy.ops.node.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*, *tweak=False*)
Undocumented (contribute)

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max
- **tweak** (*boolean, (optional)*) – Tweak, Only activate when mouse is not over a node - useful for tweak gesture

bpy.ops.node.**select_link_viewer**(*NODE_OT_select=None*, *NODE_OT_link_viewer=None*)
Undocumented (contribute)

Parameters

- **NODE_OT_select** (`NODE_OT_select`, (optional)) – Select
- **NODE_OT_link_viewer** (`NODE_OT_link_viewer`, (optional)) – Link to Viewer Node, Link to Viewer Node

bpy.ops.node.**select_linked_from**()
Select nodes linked from the selected ones

bpy.ops.node.**select_linked_to**()
Select nodes linked to the selected ones

bpy.ops.node.**select_same_type**()
Select all the same type

bpy.ops.node.**select_same_type_next**()
Select the next node of the same type.

bpy.ops.node.**select_same_type_prev**()
Select the prev node of the same type.

bpy.ops.node.**show_cyclic_dependencies**()
Sort the nodes and show the cyclic dependencies between the nodes

bpy.ops.node.**view_all**()
Undocumented (contribute)

bpy.ops.node.**visibility_toggle**(*mouse_x=0*, *mouse_y=0*)
Handle clicks on node header buttons

Parameters

- **mouse_x** (*int in [-inf, inf], (optional)*) – Mouse X
- **mouse_y** (*int in [-inf, inf], (optional)*) – Mouse Y

1.2.36 Object Operators

bpy.ops.object.**add**(*type='EMPTY'*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Add an object to the scene

Parameters

- **type** (*enum in ['MESH', 'CURVE', 'SURFACE', 'META', 'TEXT', 'ARMATURE', 'LATTICE', 'EMPTY', 'CAMERA', 'LAMP'], (optional)*) – Type
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**add_named**(*linked=False*, *name="Cube"*)
Add named object

Parameters

- **linked** (*boolean, (optional)*) – Linked, Duplicate object but not object data, linking to the original data.
- **name** (*string, (optional)*) – Name, Object name to add.

bpy.ops.object.**add_named_cursor**(*name="Cube"*, *VIEW3D_OT_cursor3d=None*, *OBJECT_OT_add_named=None*)
Undocumented (contribute)

Parameters

- **name** (*string, (optional)*) – Name, Object name to add.

- **VIEW3D_OT_cursor3d** (VIEW3D_OT_cursor3d, (optional)) – Set 3D Cursor, Set the location of the 3D cursor
- **OBJECT_OT_add_named** (OBJECT_OT_add_named, (optional)) – Add Named Object, Add named object

bpy.ops.object.**align**(*align_y=False*, *align_x=False*, *align_z=False*, *align_mode='OPT_2'*, *relative_to='OPT_4'*)

Align Objects

Parameters

- **align_y** (*boolean, (optional)*) – Align Y, Align in the Y axis
- **align_x** (*boolean, (optional)*) – Align X, Align in the X axis
- **align_z** (*boolean, (optional)*) – Align Z, Align in the Z axis
- **align_mode** (*enum in ['OPT_1', 'OPT_2', 'OPT_3'], (optional)*) – Align Mode:
- **relative_to** (*enum in ['OPT_1', 'OPT_2', 'OPT_3', 'OPT_4'], (optional)*) – Relative To:

File op/object_align.py:270

bpy.ops.object.**armature_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Add an armature object to the scene

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**armature_human_advanced_add**()

Add an advanced human metarig base

File op/add_armature_human.py:591

bpy.ops.object.**bake_image**()

Bake image textures of selected objects

bpy.ops.object.**camera_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Add a camera object to the scene

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.

- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**constraint_add**(*type=''*)
Add a constraint to the active object

Parameters

- **type** (*enum in ['COPY_LOCATION', 'COPY_ROTATION', 'COPY_SCALE', 'COPY_TRANSFORMS', 'LIMIT_DISTANCE', 'LIMIT_LOCATION', 'LIMIT_ROTATION', 'LIMIT_SCALE', 'MAINTAIN_VOLUME', 'TRANSFORM', 'CLAMP_TO', 'DAMPED_TRACK', 'IK', 'LOCKED_TRACK', 'SPLINE_IK', 'STRETCH_TO', 'TRACK_TO', 'ACTION', 'CHILD_OF', 'FLOOR', 'FOLLOW_PATH', 'PIVOT', 'RIGID_BODY_JOINT', 'SCRIPT', 'SHRINKWRAP'], (optional)*) – Type

bpy.ops.object.**constraint_add_with_targets**(*type=''*)
Add a constraint to the active object, with target (where applicable) set to the selected Objects/Bones

Parameters

- **type** (*enum in ['COPY_LOCATION', 'COPY_ROTATION', 'COPY_SCALE', 'COPY_TRANSFORMS', 'LIMIT_DISTANCE', 'LIMIT_LOCATION', 'LIMIT_ROTATION', 'LIMIT_SCALE', 'MAINTAIN_VOLUME', 'TRANSFORM', 'CLAMP_TO', 'DAMPED_TRACK', 'IK', 'LOCKED_TRACK', 'SPLINE_IK', 'STRETCH_TO', 'TRACK_TO', 'ACTION', 'CHILD_OF', 'FLOOR', 'FOLLOW_PATH', 'PIVOT', 'RIGID_BODY_JOINT', 'SCRIPT', 'SHRINKWRAP'], (optional, never None)*) – Type

bpy.ops.object.**constraints_clear**()
Clear all the constraints for the active Object only

bpy.ops.object.**constraints_copy**()
Copy constraints to other selected objects.

bpy.ops.object.**convert**(*target='MESH', keep_original=False*)
Convert selected objects to another type

Parameters

- **target** (*enum in ['CURVE', 'MESH'], (optional, never None)*) – Target, Type of object to convert to.
- **keep_original** (*boolean, (optional)*) – Keep Original, Keep original objects instead of replacing them.

bpy.ops.object.**delete**()
Delete selected objects

bpy.ops.object.**drop_named_material**(*name="Material"*)
Undocumented (contribute)

Parameters

- **name** (*string, (optional)*) – Name, Material name to assign.

bpy.ops.object.**duplicate**(*linked=False, mode=1*)
Duplicate selected objects

Parameters

- **linked** (*boolean, (optional)*) – Linked, Duplicate object but not object data, linking to the original data.
- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.object.**duplicate_move**(*OBJECT_OT_duplicate=None*, *TRANSFORM_OT_translate=None*)

Undocumented (contribute)

Parameters

- **OBJECT_OT_duplicate** (OBJECT_OT_duplicate, (optional)) – Duplicate, Duplicate selected objects
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.object.**duplicate_move_linked**(*OBJECT_OT_duplicate=None*, *TRANSFORM_OT_translate=None*)

Undocumented (contribute)

Parameters

- **OBJECT_OT_duplicate** (OBJECT_OT_duplicate, (optional)) – Duplicate, Duplicate selected objects
- **TRANSFORM_OT_translate** (TRANSFORM_OT_translate, (optional)) – Translate, Translate selected items

bpy.ops.object.**duplicates_make_real**()

Make dupli objects attached to this object real

bpy.ops.object.**editmode_toggle**()

Toggle object's editmode

bpy.ops.object.**effector_add**(*type='FORCE'*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Add an empty object with a physics effector to the scene

Parameters

- **type** (*enum in ['FORCE', 'WIND', 'VORTEX', 'MAGNET', 'HARMONIC', 'CHARGE', 'LENNARDJ', 'TEXTURE', 'GUIDE', 'BOID', 'TURBULENCE', 'DRAG'], (optional)*) – Type
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**explode_refresh**(*modifier=""*)

Refresh data in the Explode modifier

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**game_property_clear**()
Undocumented (contribute)

bpy.ops.object.**game_property_copy**(*operation='COPY'*, *property=''*)
Undocumented (contribute)

Parameters

- **operation** (*enum in ['REPLACE', 'MERGE', 'COPY'], (optional)*) – Operation
- **property** (*enum in [], (optional)*) – Property, Properties to copy

bpy.ops.object.**game_property_new**()
Undocumented (contribute)

bpy.ops.object.**game_property_remove**(*index=0*)
Undocumented (contribute)

Parameters

- **index** (*int in [0, inf], (optional)*) – Index, Property index to remove

bpy.ops.object.**group_add**()
Add an object to a new group

bpy.ops.object.**group_instance_add**(*group=''*, *view_align=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Add a dupligroup instance

Parameters

- **group** (*enum in [], (optional)*) – Group
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**group_link**(*group=''*)
Add an object to an existing group

Parameters

- **group** (*enum in [], (optional)*) – Group

bpy.ops.object.**group_remove**()
Undocumented (contribute)

bpy.ops.object.**hide_render_clear**()
Reveal the render object by setting the hide render flag

bpy.ops.object.**hide_render_clear_all**()
Reveal all render objects by setting the hide render flag

File op/object.py:562

bpy.ops.object.**hide_render_set**(*unselected=False*)
Hide the render object by setting the hide render flag

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Hide unselected rather than selected objects.

bpy.ops.object.**hide_view_clear**()
Reveal the object by setting the hide flag

bpy.ops.object.**hide_view_set**(*unselected=False*)
Hide the object by setting the hide flag

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Hide unselected rather than selected objects.

bpy.ops.object.**hook_add_newob**()
Hook selected vertices to the first selected Object

bpy.ops.object.**hook_add_selob**()
Hook selected vertices to the first selected Object

bpy.ops.object.**hook_assign**(*modifier=''*)
Assign the selected vertices to a hook

Parameters

- **modifier** (*enum in [], (optional)*) – Modifier, Modifier number to assign to.

bpy.ops.object.**hook_recenter**(*modifier=''*)
Set hook center to cursor position

Parameters

- **modifier** (*enum in [], (optional)*) – Modifier, Modifier number to assign to.

bpy.ops.object.**hook_remove**(*modifier=''*)
Remove a hook from the active object

Parameters

- **modifier** (*enum in [], (optional)*) – Modifier, Modifier number to remove.

bpy.ops.object.**hook_reset**(*modifier=''*)
Recalculate and clear offset transformation

Parameters

- **modifier** (*enum in [], (optional)*) – Modifier, Modifier number to assign to.

bpy.ops.object.**hook_select**(*modifier=''*)
Selects effected vertices on mesh

Parameters

- **modifier** (*enum in [], (optional)*) – Modifier, Modifier number to remove.

bpy.ops.object.**isolate_type_render**()
Hide unselected render objects of same type as active by setting the hide render flag

File op/object.py:543

bpy.ops.object.**join**()
Join selected objects into active object

bpy.ops.object.**join_shapes**()
Merge selected objects to shapes of active object

bpy.ops.object.**join_uvs**()
Copy UV Layout to objects with matching geometry

File op/object.py:464

bpy.ops.object.**lamp_add**(*type='POINT'*, *view_align=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Add a lamp object to the scene

Parameters

- **type** (*enum in ['POINT', 'SUN', 'SPOT', 'HEMI', 'AREA'], (optional)*) – Type
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**location_apply**()

Apply the object's location to its data

bpy.ops.object.**location_clear**()

Clear the object's location

bpy.ops.object.**logic_bricks_copy**()

Copy logic bricks to other selected objects.

bpy.ops.object.**make_dupli_face**()

Make linked objects into dupli-faces

File op/object.py:532

bpy.ops.object.**make_links_data**(*type='OBDATA'*)

Make links from the active object to other selected objects

Parameters

- **type** (*enum in ['OBDATA', 'MATERIAL', 'ANIMATION', 'DUPLIGROUP', 'MODIFIERS'], (optional)*) – Type

bpy.ops.object.**make_links_scene**(*scene=''*)

Make linked data local to each object

Parameters

- **scene** (*enum in [], (optional)*) – Scene

bpy.ops.object.**make_local**(*type='SELECTED_OBJECTS'*)

Make library linked datablocks local to this file

Parameters

- **type** (*enum in ['SELECTED_OBJECTS', 'SELECTED_OBJECTS_DATA', 'ALL'], (optional, never None)*) – Type

bpy.ops.object.**make_single_user**(*type='ALL'*, *object=False*, *obdata=False*, *material=False*, *texture=False*, *animation=False*)

Make linked data local to each object

Parameters

- **type** (*enum in ['SELECTED_OBJECTS', 'ALL'], (optional)*) – Type

- **object** (*boolean, (optional)*) – Object, Make single user objects
- **obdata** (*boolean, (optional)*) – Object Data, Make single user object data
- **material** (*boolean, (optional)*) – Materials, Make materials local to each datablock
- **texture** (*boolean, (optional)*) – Textures, Make textures local to each material
- **animation** (*boolean, (optional)*) – Animation Data, Make animation data local to each object

bpy.ops.object.**material_slot_add**()
Add a new material slot or duplicate the selected one

bpy.ops.object.**material_slot_assign**()
Assign the material in the selected material slot to the selected vertices

bpy.ops.object.**material_slot_copy**()
Copies materials to other selected objects

bpy.ops.object.**material_slot_deselect**()
Deselect vertices assigned to the selected material slot

bpy.ops.object.**material_slot_remove**()
Remove the selected material slot

bpy.ops.object.**material_slot_select**()
Select vertices assigned to the selected material slot

bpy.ops.object.**meshdeform_bind**(*modifier=""*)
Bind mesh to cage in mesh deform modifier

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**metaball_add**(*type='MBALL_BALL'*, *view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Add an metaball object to the scene

Parameters

- **type** (*enum in ['MBALL_BALL', 'MBALL_CAPSULE', 'MBALL_PLANE', 'MBALL_CUBE', 'MBALL_ELLIPSOID'], (optional, never None)*) – Primitive
- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**mode_set**(*mode='OBJECT'*, *toggle=False*)
Sets the object interaction mode

Parameters

- **mode** (*enum in ['OBJECT', 'EDIT', 'SCULPT', 'VERTEX_PAINT', 'WEIGHT_PAINT', 'TEXTURE_PAINT', 'PARTICLE_EDIT', 'POSE'], (optional, never None)*) – Mode
- **toggle** (*boolean, (optional)*) – Toggle

bpy.ops.object.**modifier_add**(*type='SUBSURF'*)
Add a modifier to the active object

Parameters

- **type** (*enum in ['ARRAY', 'BEVEL', 'BOOLEAN', 'BUILD', 'DECIMATE', 'EDGE_SPLIT', 'MASK', 'MIRROR', 'MULTIRES', 'SCREW', 'SOLIDIFY', 'SUBSURF', 'UV_PROJECT', 'ARMATURE', 'CAST', 'CURVE', 'DISPLACE', 'HOOK', 'LATTICE', 'MESH_DEFORM', 'SHRINKWRAP', 'SIMPLE_DEFORM', 'SMOOTH', 'WAVE', 'CLOTH', 'COLLISION', 'EXPLODE', 'FLUID_SIMULATION', 'PARTICLE_INSTANCE', 'PARTICLE_SYSTEM', 'SMOKE', 'SOFT_BODY', 'SURFACE'], (optional)*) – Type

bpy.ops.object.**modifier_apply**(*apply_as='DATA'*, *modifier=""*)
Apply modifier and remove from the stack

Parameters

- **apply_as** (*enum in ['DATA', 'SHAPE'], (optional)*) – Apply as, How to apply the modifier to the geometry
- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**modifier_convert**(*modifier=""*)
Convert particles to a mesh object

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**modifier_copy**(*modifier=""*)
Duplicate modifier at the same position in the stack

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**modifier_move_down**(*modifier=""*)
Move modifier down in the stack

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**modifier_move_up**(*modifier=""*)
Move modifier up in the stack

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**modifier_remove**(*modifier=""*)
Remove a modifier from the active object

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**move_to_layer**(*layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Move the object to different layers

Parameters

- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**multires_external_pack**()
Pack displacements from an external file

bpy.ops.object.**multires_external_save**(*filepath=""*, *check_existing=True*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=True*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*, *modifier=""*)
Save displacements to an external file

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**multires_higher_levels_delete**(*modifier=""*)
Undocumented (contribute)

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**multires_reshape**(*modifier=""*)
Copy vertex coordinates from other object

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**multires_subdivide**(*modifier=""*)
Add a new level of subdivision

Parameters

- **modifier** (*string, (optional)*) – Modifier, Name of the modifier to edit

bpy.ops.object.**origin_clear**()
Clear the object's origin

bpy.ops.object.**origin_set**(*type='GEOMETRY_ORIGIN'*, *center='MEDIAN'*)
Set the object's origin, by either moving the data, or set to center of data, or use 3d cursor

Parameters

- **type** (*enum in ['GEOMETRY_ORIGIN', 'ORIGIN_GEOMETRY', 'ORIGIN_CURSOR'], (optional, never None)*) – Type
- **center** (*enum in ['MEDIAN', 'BOUNDS'], (optional, never None)*) – Center

bpy.ops.object.**parent_clear**(*type='CLEAR'*)
Clear the object's parenting

Parameters

- **type** (*enum in ['CLEAR', 'CLEAR_KEEP_TRANSFORM', 'CLEAR_INVERSE'], (optional, never None)*) – Type

bpy.ops.object.**parent_no_inverse_set**()
Set the object's parenting without setting the inverse parent correction

bpy.ops.object.**parent_set**(*type='OBJECT'*)
Set the object's parenting

Parameters

- **type** (*enum in ['OBJECT', 'ARMATURE', 'ARMATURE_NAME', 'ARMATURE_AUTO', 'ARMATURE_ENVELOPE', 'BONE', 'CURVE', 'FOLLOW', 'PATH_CONST', 'LATTICE', 'VERTEX', 'TRIA'], (optional, never None)*) – Type

bpy.ops.object.**particle_system_add**()
Add a particle system

bpy.ops.object.**particle_system_remove**()
Remove the selected particle system

bpy.ops.object.**paths_calculate**()
Calculate paths for the selected bones

bpy.ops.object.**paths_clear**()
Clear path caches for selected bones

bpy.ops.object.**posemode_toggle**()
Enables or disables posing/selecting bones

bpy.ops.object.**proxy_make**(*object=""*, *type='DEFAULT'*)
Add empty object to become local replacement data of a library-linked object

Parameters

- **object** (*string, (optional)*) – Proxy Object, Name of lib-linked/grouped object to make a proxy for.
- **type** (*enum in ['DEFAULT'], (optional, never None)*) – Type, Group object

bpy.ops.object.**randomize_transform**(*use_scale=True*, *random_seed=0*, *loc=(0.0, 0.0, 0.0)*, *scale_min=0.15*, *use_loc=True*, *scale=(0.0, 0.0, 0.0)*, *use_rot=True*, *scale_even=False*, *rot=(0.0, 0.0, 0.0)*)

Randomize objects loc/rot/scale

Parameters

- **use_scale** (*boolean, (optional)*) – Randomize Scale, Randomize the scale values
- **random_seed** (*int in [0, 1000], (optional)*) – Random Seed, Seed value for the random generator
- **loc** (*float array of 3 items in [-100, 100], (optional)*) – Location, Maximun distance the objects can spread over each axis
- **scale_min** (*float in [-1, 1], (optional)*) – Minimun Scale Factor, Lowest scale percentage possible
- **use_loc** (*boolean, (optional)*) – Randomize Location, Randomize the scale values
- **scale** (*float array of 3 items in [-100, 100], (optional)*) – Scale, Maximum scale randomization over each axis
- **use_rot** (*boolean, (optional)*) – Randomize Rotation, Randomize the rotation values
- **scale_even** (*boolean, (optional)*) – Scale Even, Use the same scale value for all axis
- **rot** (*float array of 3 items in [-180, 180], (optional)*) – Rotation, Maximun rotation over each axis

File op/object_randomize_transform.py:120

bpy.ops.object.**rotation_apply**()
Apply the object's rotation to its data

bpy.ops.object.**rotation_clear**()
Clear the object's rotation

bpy.ops.object.**scale_apply**()
Apply the object's scale to its data

bpy.ops.object.**scale_clear**()
Clear the object's scale

bpy.ops.object.**select_all**(*action='TOGGLE'*)
Change selection of all visible objects in scene

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.object.**select_by_layer**(*extend=False*, *layers=1*)
Select all visible objects on a layer

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.
- **layers** (*int in [1, 20], (optional)*) – Layer

bpy.ops.object.**select_by_type**(*extend=False*, *type='MESH'*)
Select all visible objects that are of a type

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.
- **type** (*enum in ['MESH', 'CURVE', 'SURFACE', 'META', 'TEXT', 'ARMATURE', 'LATTICE', 'EMPTY', 'CAMERA', 'LAMP'], (optional)*) – Type

bpy.ops.object.**select_camera**()
Select object matching a naming pattern

File op/object.py:87

bpy.ops.object.**select_grouped**(*extend=False*, *type='CHILDREN_RECURSIVE'*)
Select all visible objects grouped by various properties

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.
- **type** (*enum in ['CHILDREN_RECURSIVE', 'CHILDREN', 'PARENT', 'SIBLINGS', 'TYPE', 'LAYER', 'GROUP', 'HOOK', 'PASS', 'COLOR', 'PROPERTIES'], (optional, never None)*) – Type

bpy.ops.object.**select_hierarchy**(*extend=False*, *direction='PARENT'*)
Select object relative to the active objects position in the hierarchy

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend the existing selection
- **direction** (*enum in ['PARENT', 'CHILD'], (optional, never None)*) – Direction, Direction to select in the hierarchy

File op/object.py:117

bpy.ops.object.**select_inverse**()
Invert selection of all visible objects

bpy.ops.object.**select_linked**(*extend=False*, *type='OBDATA'*)
Select all visible objects that are linked

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.
- **type** (*enum in ['OBDATA', 'MATERIAL', 'TEXTURE', 'DUPGROUP', 'PARTICLE', 'LIBRARY', 'LIBRARY_OBDATA'], (optional, never None)*) – Type

bpy.ops.object.**select_mirror**(*extend=False*)
Select the Mirror objects of the selected object eg. L.sword -> R.sword

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.

bpy.ops.object.**select_name**(*name=""*, *extend=False*)
Select an object with this name

Parameters

- **name** (*string, (optional)*) – Name, Object name to select.
- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.

bpy.ops.object.**select_pattern**(*extend=True*, *pattern="*"*, *case_sensitive=False*)
Select object matching a naming pattern

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend the existing selection
- **pattern** (*string, (optional)*) – Pattern, Name filter using '*' and '?' wildcard chars
- **case_sensitive** (*boolean, (optional)*) – Case Sensitive, Do a case sensitive compare

File op/object.py:35

bpy.ops.object.**select_random**(*percent=50.0*, *extend=False*)
Set select on random visible objects

Parameters

- **percent** (*float in [0, 100], (optional)*) – Percent, Percentage of objects to select randomly
- **extend** (*boolean, (optional)*) – Extend Selection, Extend selection instead of deselecting everything first.

bpy.ops.object.**select_same_group**(*group=""*)
Select object in the same group

Parameters

- **group** (*string, (optional)*) – Group, Name of the group to select.

bpy.ops.object.**shade_flat**()
Undocumented (contribute)

bpy.ops.object.**shade_smooth**()
Undocumented (contribute)

bpy.ops.object.**shape_key_add**(*from_mix=True*)
Undocumented (contribute)

Parameters

- **from_mix** (*boolean, (optional)*) – From Mix, Create the new shape key from the existing mix of keys.

bpy.ops.object.**shape_key_clear**()
Clear weights for all shape keys

bpy.ops.object.**shape_key_mirror**()
Undocumented (contribute)

bpy.ops.object.**shape_key_move**(*type='UP'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['UP', 'DOWN'], (optional)*) – Type

bpy.ops.object.**shape_key_remove**()
Undocumented (contribute)

bpy.ops.object.**shape_key_transfer**(*use_clamp=False*, *mode='OFFSET'*)
Copy another selected objects active shape to this one by applying the relative offsets

Parameters

- **use_clamp** (*boolean, (optional)*) – Clamp Offset, Clamp the transformation to the distance each vertex moves in the original shape.

- **mode** (*enum in ['OFFSET', 'RELATIVE_FACE', 'RELATIVE_EDGE'], (optional)*) – Transformation Mode, Method to apply relative shape positions to the new shape

File op/object.py:390

bpy.ops.object.**slow_parent_clear**()
Clear the object's slow parent

bpy.ops.object.**slow_parent_set**()
Set the object's slow parent

bpy.ops.object.**subdivision_set**(*level=1*, *relative=False*)
Sets a Subdivision Surface Level (1-5)

Parameters

- **level** (*int in [-100, 100], (optional)*) – Level
- **relative** (*boolean, (optional)*) – Relative, Apply the subsurf level as an offset relative to the current level

File op/object.py:177

bpy.ops.object.**text_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Add a text object to the scene

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.object.**track_clear**(*type='CLEAR'*)
Clear tracking constraint or flag from object

Parameters

- **type** (*enum in ['CLEAR', 'CLEAR_KEEP_TRANSFORM'], (optional, never None)*) – Type

bpy.ops.object.**track_set**(*type='DAMPTRACK'*)
Make the object track another object, either by constraint or old way or locked track

Parameters

- **type** (*enum in ['DAMPTRACK', 'TRACKTO', 'LOCKTRACK'], (optional, never None)*) – Type

bpy.ops.object.**vertex_group_add**()
Undocumented (contribute)

bpy.ops.object.**vertex_group_assign**(*new=False*)
Undocumented (contribute)

Parameters

- **new** (*boolean, (optional)*) – New, Assign vertex to new vertex group.

bpy.ops.object.**vertex_group_blend**()
Undocumented (contribute)

bpy.ops.object.**vertex_group_clean**(*limit=0.01*, *all_groups=False*, *keep_single=False*)
Remove Vertex Group assignments which aren't required

Parameters

- **limit** (*float in [0, 1], (optional)*) – Limit, Remove weights under this limit.
- **all_groups** (*boolean, (optional)*) – All Groups, Clean all vertex groups.
- **keep_single** (*boolean, (optional)*) – Keep Single, Keep verts assigned to at least one group when cleaning.

bpy.ops.object.**vertex_group_copy**()
Undocumented (contribute)

bpy.ops.object.**vertex_group_copy_to_linked**()
Copy Vertex Groups to all users of the same Geometry data

bpy.ops.object.**vertex_group_copy_to_selected**()
Copy Vertex Groups to other selected objects with matching indicies

bpy.ops.object.**vertex_group_deselect**()
Undocumented (contribute)

bpy.ops.object.**vertex_group_invert**(*auto_assign=True*, *auto_remove=True*)
Undocumented (contribute)

Parameters

- **auto_assign** (*boolean, (optional)*) – Add Weights, Add verts from groups that have zero weight before inverting.
- **auto_remove** (*boolean, (optional)*) – Remove Weights, Remove verts from groups that have zero weight after inverting.

bpy.ops.object.**vertex_group_levels**(*offset=0.0*, *gain=1.0*)
Undocumented (contribute)

Parameters

- **offset** (*float in [-1, 1], (optional)*) – Offset, Value to add to weights.
- **gain** (*float in [0, inf], (optional)*) – Gain, Value to multiply weights by.

bpy.ops.object.**vertex_group_mirror**(*mirror_weights=True*, *flip_group_names=True*)
Mirror weights, and flip vertex group names, copying when only one side is selected

Parameters

- **mirror_weights** (*boolean, (optional)*) – Mirror Weights, Mirror weights.
- **flip_group_names** (*boolean, (optional)*) – Flip Groups, Flip vertex group names while mirroring.

bpy.ops.object.**vertex_group_move**(*direction='UP'*)
Undocumented (contribute)

Parameters

- **direction** (*enum in ['UP', 'DOWN'], (optional)*) – Direction, Direction to move, UP or DOWN

bpy.ops.object.**vertex_group_normalize**()
Undocumented (contribute)

bpy.ops.object.**vertex_group_normalize_all**(*lock_active=True*)
Undocumented (contribute)

Parameters

- **lock_active** (*boolean, (optional)*) – Lock Active, Keep the values of the active group while normalizing others.

bpy.ops.object.**vertex_group_remove**(*all=False*)
Undocumented (contribute)

Parameters

- **all** (*boolean, (optional)*) – All, Remove from all vertex groups.

bpy.ops.object.**vertex_group_remove_from**(*all=False*)
Undocumented (contribute)

Parameters

- **all** (*boolean, (optional)*) – All, Remove from all vertex groups.

bpy.ops.object.**vertex_group_select**()
Undocumented (contribute)

bpy.ops.object.**vertex_group_set_active**(*group=''*)
Set the active vertex group

Parameters

- **group** (*enum in [], (optional)*) – Group, Vertex group to set as active.

bpy.ops.object.**vertex_group_sort**()
Sorts vertex groups alphabetically

bpy.ops.object.**vertex_parent_set**()
Parent selected objects to the selected vertices

bpy.ops.object.**visual_transform_apply**()
Apply the object's visual transformation to its data

1.2.37 Outliner Operators

bpy.ops.outliner.**data_operation**(*type='SELECT'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['SELECT', 'DESELECT', 'HIDE', 'UNHIDE'], (optional)*) – Data Operation

bpy.ops.outliner.**drivers_add_selected**()
Add drivers to selected items

bpy.ops.outliner.**drivers_delete_selected**()
Delete drivers assigned to selected items

bpy.ops.outliner.**expanded_toggle**()
Expand/Collapse all items

bpy.ops.outliner.**group_operation**(*type='UNLINK'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['UNLINK', 'LOCAL', 'LINK', 'TOGVIS', 'TOGSEL', 'TOGREN'], (optional)*) – Group Operation

bpy.ops.outliner.**id_operation**(*type='UNLINK'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['UNLINK', 'LOCAL'], (optional)*) – ID data Operation

bpy.ops.outliner.**item_activate**(*extend=True*)
Undocumented (contribute)

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection for activation.

bpy.ops.outliner.**item_openclose**(*all=True*)
Undocumented (contribute)

Parameters

- **all** (*boolean, (optional)*) – All, Close or open all items.

bpy.ops.outliner.**item_rename**()
Undocumented (contribute)

bpy.ops.outliner.**keyingset_add_selected**()
Undocumented (contribute)

bpy.ops.outliner.**keyingset_remove_selected**()
Undocumented (contribute)

bpy.ops.outliner.**object_operation**(*type='SELECT'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['SELECT', 'DESELECT', 'DELETE', 'TOGVIS', 'TOGSEL', 'TOGREN'], (optional)*) – Object Operation

bpy.ops.outliner.**operation**()
Undocumented (contribute)

bpy.ops.outliner.**renderability_toggle**()
Toggle the renderbility of selected items

bpy.ops.outliner.**selectability_toggle**()
Toggle the selectability

bpy.ops.outliner.**selected_toggle**()
Toggle the Outliner selection of items

bpy.ops.outliner.**show_active**()
Adjust the view so that the active Object is shown centered

bpy.ops.outliner.**show_hierarchy**()
Open all object entries and close all others

bpy.ops.outliner.**show_one_level**(*open=True*)
Undocumented (contribute)

Parameters

- **open** (*boolean, (optional)*) – Open, Expand all entries one level deep.

bpy.ops.outliner.**visibility_toggle**()
Toggle the visibility of selected items

1.2.38 Paint Operators

bpy.ops.paint.**clone_cursor_set**(*location=(0.0, 0.0, 0.0)*)
Undocumented (contribute)

Parameters

- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Cursor location in world space coordinates.

bpy.ops.paint.**face_select_all**(*action='TOGGLE'*)
Change selection for all faces

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.paint.**face_select_linked**()
Select linked faces

bpy.ops.paint.**face_select_linked_pick**(*extend=False*)
Select linked faces

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend the existing selection

bpy.ops.paint.**grab_clone**(*delta=(0.0, 0.0)*)
Undocumented (contribute)

Parameters

- **delta** (*float array of 2 items in [-inf, inf], (optional)*) – Delta, Delta offset of clone image in 0.0..1.0 coordinates.

bpy.ops.paint.**image_from_view**(*filepath=""*)
Make an image from the current 3D view for re-projection

Parameters

- **filepath** (*string, (optional)*) – File Path, Name of the file

bpy.ops.paint.**image_paint**(*stroke=None*)
Undocumented (contribute)

Parameters

- **stroke** (Collection of `OperatorStrokeElement`, (optional)) – Stroke

bpy.ops.paint.**image_paint_radial_control**(*initial_value=0.0, new_value=0.0, mode='SIZE', initial_mouse=(0, 0), color=(1.0, 1.0, 1.0, 0.5), texture_color=(1.0, 1.0, 1.0, 1.0)*)
Undocumented (contribute)

Parameters

- **initial_value** (*float in [0, inf], (optional)*) – Initial Value

- **new_value** (*float in [0, inf], (optional)*) – New Value
- **mode** (*enum in ['SIZE', 'STRENGTH', 'ANGLE'], (optional)*) – Mode
- **initial_mouse** (*int array of 2 items in [-inf, inf], (optional)*) – Initial Mouse
- **color** (*float array of 4 items in [0, inf], (optional)*) – Color, Radial control color
- **texture_color** (*float array of 4 items in [0, inf], (optional)*) – Texture Color, Radial control texture color

bpy.ops.paint.**project_image**(*image=''*)
Project an edited render from the active camera back onto the object

Parameters

- **image** (*enum in [], (optional)*) – Image

bpy.ops.paint.**sample_color**(*location=(0, 0)*)
Undocumented (contribute)

Parameters

- **location** (*int array of 2 items in [0, inf], (optional)*) – Location, Cursor location in region coordinates.

bpy.ops.paint.**texture_paint_radial_control**(*initial_value=0.0*, *new_value=0.0*, *mode='SIZE'*, *initial_mouse=(0, 0)*, *color=(1.0, 1.0, 1.0, 0.5)*, *texture_color=(1.0, 1.0, 1.0, 1.0)*)
Undocumented (contribute)

Parameters

- **initial_value** (*float in [0, inf], (optional)*) – Initial Value
- **new_value** (*float in [0, inf], (optional)*) – New Value
- **mode** (*enum in ['SIZE', 'STRENGTH', 'ANGLE'], (optional, never None)*) – Mode
- **initial_mouse** (*int array of 2 items in [-inf, inf], (optional)*) – Initial Mouse
- **color** (*float array of 4 items in [0, inf], (optional)*) – Color, Radial control color
- **texture_color** (*float array of 4 items in [0, inf], (optional)*) – Texture Color, Radial control texture color

bpy.ops.paint.**texture_paint_toggle**()
Undocumented (contribute)

bpy.ops.paint.**vertex_color_dirt**(*dirt_angle=0.0*, *blur_iterations=1*, *clean_angle=180.0*, *dirt_only=False*, *blur_strength=1.0*)
This script projection unwraps the selected faces of a mesh. it operates on all selected mesh objects, and can be used unwrap selected faces, or all faces.

Parameters

- **dirt_angle** (*float in [0, 180], (optional)*) – Dirt Angle, Less then 90 limits the angle used in the tonal range
- **blur_iterations** (*int in [0, 40], (optional)*) – Blur Iterations, Number times to blur the colors. (higher blurs more)
- **clean_angle** (*float in [0, 180], (optional)*) – Highlight Angle, Less then 90 limits the angle used in the tonal range
- **dirt_only** (*boolean, (optional)*) – Dirt Only, Dont calculate cleans for convex areas

- **blur_strength** (*float in [0.01, 1], (optional)*) – Blur Strength, Blur strength per iteration

File op/vertexpaint_dirt.py:164

bpy.ops.paint.**vertex_color_set**()
Undocumented (contribute)

bpy.ops.paint.**vertex_paint**(*stroke=None*)
Undocumented (contribute)

Parameters

- **stroke** (Collection of `OperatorStrokeElement`, (optional)) – Stroke

bpy.ops.paint.**vertex_paint_radial_control**(*initial_value=0.0*, *new_value=0.0*, *mode='SIZE'*, *initial_mouse=(0, 0)*, *color=(1.0, 1.0, 1.0, 0.5)*, *texture_color=(1.0, 1.0, 1.0, 1.0)*)
Undocumented (contribute)

Parameters

- **initial_value** (*float in [0, inf], (optional)*) – Initial Value
- **new_value** (*float in [0, inf], (optional)*) – New Value
- **mode** (*enum in ['SIZE', 'STRENGTH', 'ANGLE'], (optional, never None)*) – Mode
- **initial_mouse** (*int array of 2 items in [-inf, inf], (optional)*) – Initial Mouse
- **color** (*float array of 4 items in [0, inf], (optional)*) – Color, Radial control color
- **texture_color** (*float array of 4 items in [0, inf], (optional)*) – Texture Color, Radial control texture color

bpy.ops.paint.**vertex_paint_toggle**()
Undocumented (contribute)

bpy.ops.paint.**weight_from_bones**(*type='AUTOMATIC'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['AUTOMATIC', 'ENVELOPES'], (optional, never None)*) – Type, Method to use for assigning weights.

bpy.ops.paint.**weight_paint**(*stroke=None*)
Undocumented (contribute)

Parameters

- **stroke** (Collection of `OperatorStrokeElement`, (optional)) – Stroke

bpy.ops.paint.**weight_paint_radial_control**(*initial_value=0.0*, *new_value=0.0*, *mode='SIZE'*, *initial_mouse=(0, 0)*, *color=(1.0, 1.0, 1.0, 0.5)*, *texture_color=(1.0, 1.0, 1.0, 1.0)*)
Undocumented (contribute)

Parameters

- **initial_value** (*float in [0, inf], (optional)*) – Initial Value
- **new_value** (*float in [0, inf], (optional)*) – New Value
- **mode** (*enum in ['SIZE', 'STRENGTH', 'ANGLE'], (optional, never None)*) – Mode
- **initial_mouse** (*int array of 2 items in [-inf, inf], (optional)*) – Initial Mouse
- **color** (*float array of 4 items in [0, inf], (optional)*) – Color, Radial control color

- **texture_color** (*float array of 4 items in [0, inf], (optional)*) – Texture Color, Radial control texture color

bpy.ops.paint.**weight_paint_toggle**()
Undocumented (contribute)

bpy.ops.paint.**weight_set**()
Undocumented (contribute)

1.2.39 Particle Operators

bpy.ops.particle.**brush_edit**(*stroke=None*)
Undocumented (contribute)

Parameters

- **stroke** (Collection of `OperatorStrokeElement`, (optional)) – Stroke

bpy.ops.particle.**brush_radial_control**(*initial_value=0.0*, *new_value=0.0*, *mode='SIZE'*, *initial_mouse=(0, 0)*, *color=(1.0, 1.0, 1.0, 0.5)*, *texture_color=(1.0, 1.0, 1.0, 1.0)*)
Undocumented (contribute)

Parameters

- **initial_value** (*float in [0, inf], (optional)*) – Initial Value
- **new_value** (*float in [0, inf], (optional)*) – New Value
- **mode** (*enum in ['SIZE', 'STRENGTH', 'ANGLE'], (optional, never None)*) – Mode
- **initial_mouse** (*int array of 2 items in [-inf, inf], (optional)*) – Initial Mouse
- **color** (*float array of 4 items in [0, inf], (optional)*) – Color, Radial control color
- **texture_color** (*float array of 4 items in [0, inf], (optional)*) – Texture Color, Radial control texture color

bpy.ops.particle.**connect_hair**(*all=False*)
Connect hair to the emitter mesh

Parameters

- **all** (*boolean, (optional)*) – All hair, Connect all hair systems to the emitter mesh

bpy.ops.particle.**delete**(*type='PARTICLE'*)
Undocumented (contribute)

Parameters

- **type** (*enum in ['PARTICLE', 'KEY'], (optional, never None)*) – Type, Delete a full particle or only keys.

bpy.ops.particle.**disconnect_hair**(*all=False*)
Disconnect hair from the emitter mesh

Parameters

- **all** (*boolean, (optional)*) – All hair, Disconnect all hair systems from the emitter mesh

bpy.ops.particle.**dupliob_copy**()
Duplicate the current dupliobject

bpy.ops.particle.**dupliob_move_down**()
Move dupli object down in the list

bpy.ops.particle.**dupliob_move_up**()
Move dupli object up in the list

bpy.ops.particle.**dupliob_remove**()
Remove the selected dupliobject

bpy.ops.particle.**edited_clear**()
Undocumented (contribute)

bpy.ops.particle.**hide**(*unselected=False*)
Undocumented (contribute)

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Hide unselected rather than selected.

bpy.ops.particle.**mirror**()
Undocumented (contribute)

bpy.ops.particle.**new**()
Add new particle settings

bpy.ops.particle.**new_target**()
Add a new particle target

bpy.ops.particle.**particle_edit_toggle**()
Undocumented (contribute)

bpy.ops.particle.**rekey**(*keys=2*)
Undocumented (contribute)

Parameters

- **keys** (*int in [2, inf], (optional)*) – Number of Keys

bpy.ops.particle.**remove_doubles**(*threshold=0.0002*)
Undocumented (contribute)

Parameters

- **threshold** (*float in [0, inf], (optional)*) – Threshold, Threshold distance withing which particles are removed

bpy.ops.particle.**reveal**()
Undocumented (contribute)

bpy.ops.particle.**select_all**(*action='TOGGLE'*)
Undocumented (contribute)

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.particle.**select_inverse**()
Undocumented (contribute)

bpy.ops.particle.**select_less**()
Undocumented (contribute)

bpy.ops.particle.**select_linked**(*deselect=False*, *location=(0, 0)*)
Undocumented (contribute)

Parameters

- **deselect** (*boolean, (optional)*) – Deselect, Deselect linked keys rather than selecting them.

- **location** (*int array of 2 items in [0, inf], (optional)*) – Location

bpy.ops.particle.**select_more**()
Undocumented (contribute)

bpy.ops.particle.**select_roots**()
Undocumented (contribute)

bpy.ops.particle.**select_tips**()
Undocumented (contribute)

bpy.ops.particle.**subdivide**()
Undocumented (contribute)

bpy.ops.particle.**target_move_down**()
Move particle target down in the list

bpy.ops.particle.**target_move_up**()
Move particle target up in the list

bpy.ops.particle.**target_remove**()
Remove the selected particle target

bpy.ops.particle.**weight_set**(*factor=1.0*)
Undocumented (contribute)

Parameters

- **factor** (*float in [0, 1], (optional)*) – Factor

1.2.40 Pose Operators

bpy.ops.pose.**armature_apply**()
Apply the current pose as the new rest pose

bpy.ops.pose.**armature_layers**(*layers=(False, False)*)
Change the visible armature layers

Parameters

- **layers** (*boolean array of 32 items, (optional)*) – Layer, Armature layers to make visible

bpy.ops.pose.**autoside_names**(*axis='XAXIS'*)
Automatically renames the selected bones according to which side of the target axis they fall on

Parameters

- **axis** (*enum in ['XAXIS', 'YAXIS', 'ZAXIS'], (optional)*) – Axis, Axis tag names with.

bpy.ops.pose.**bone_layers**(*layers=(False, False)*)
Change the layers that the selected bones belong to

Parameters

- **layers** (*boolean array of 32 items, (optional)*) – Layer, Armature layers that bone belongs to

bpy.ops.pose.**breakdown**(*prev_frame=0*, *next_frame=0*, *percentage=0.5*)
Create a suitable breakdown pose on the current frame

Parameters

- **prev_frame** (*int in [-300000, 300000], (optional)*) – Previous Keyframe, Frame number of keyframe immediately before the current frame.
- **next_frame** (*int in [-300000, 300000], (optional)*) – Next Keyframe, Frame number of keyframe immediately after the current frame.
- **percentage** (*float in [0, 1], (optional)*) – Percentage, Weighting factor for the sliding operation

bpy.ops.pose.**constraint_add**(*type=''*)
Add a constraint to the active bone

Parameters

- **type** (*enum in ['COPY_LOCATION', 'COPY_ROTATION', 'COPY_SCALE', 'COPY_TRANSFORMS', 'LIMIT_DISTANCE', 'LIMIT_LOCATION', 'LIMIT_ROTATION', 'LIMIT_SCALE', 'MAINTAIN_VOLUME', 'TRANSFORM', 'CLAMP_TO', 'DAMPED_TRACK', 'IK', 'LOCKED_TRACK', 'SPLINE_IK', 'STRETCH_TO', 'TRACK_TO', 'ACTION', 'CHILD_OF', 'FLOOR', 'FOLLOW_PATH', 'PIVOT', 'RIGID_BODY_JOINT', 'SCRIPT', 'SHRINKWRAP'], (optional)*) – Type

bpy.ops.pose.**constraint_add_with_targets**(*type=''*)
Add a constraint to the active bone, with target (where applicable) set to the selected Objects/Bones

Parameters

- **type** (*enum in ['COPY_LOCATION', 'COPY_ROTATION', 'COPY_SCALE', 'COPY_TRANSFORMS', 'LIMIT_DISTANCE', 'LIMIT_LOCATION', 'LIMIT_ROTATION', 'LIMIT_SCALE', 'MAINTAIN_VOLUME', 'TRANSFORM', 'CLAMP_TO', 'DAMPED_TRACK', 'IK', 'LOCKED_TRACK', 'SPLINE_IK', 'STRETCH_TO', 'TRACK_TO', 'ACTION', 'CHILD_OF', 'FLOOR', 'FOLLOW_PATH', 'PIVOT', 'RIGID_BODY_JOINT', 'SCRIPT', 'SHRINKWRAP'], (optional, never None)*) – Type

bpy.ops.pose.**constraints_clear**()
Clear all the constraints for the selected bones

bpy.ops.pose.**constraints_copy**()
Copy constraints to other selected bones.

bpy.ops.pose.**copy**()
Copies the current pose of the selected bones to copy/paste buffer

bpy.ops.pose.**flags_set**(*type='DRAWWIRE'*, *mode='CLEAR'*)
Set flags for armature bones

Parameters

- **type** (*enum in ['DRAWWIRE', 'DEFORM', 'MULT_VG', 'HINGE', 'NO_SCALE', 'LOCKED'], (optional, never None)*) – Type
- **mode** (*enum in ['CLEAR', 'ENABLE', 'TOGGLE'], (optional, never None)*) – Mode

bpy.ops.pose.**flip_names**()
Flips (and corrects) the names of selected bones

bpy.ops.pose.**group_add**()
Add a new bone group

bpy.ops.pose.**group_assign**(*type=0*)
Add selected bones to the chosen bone group

Parameters

- **type** (*int in [0, 10], (optional)*) – Bone Group Index

bpy.ops.pose.**group_deselect**()
Deselect bones of active Bone Group

bpy.ops.pose.**group_remove**()
Removes the active bone group

bpy.ops.pose.**group_select**()
Select bones in active Bone Group

bpy.ops.pose.**group_unassign**()
Remove selected bones from all bone groups

bpy.ops.pose.**hide**(*unselected=False*)
Undocumented (contribute)

Parameters

- **unselected** (*boolean, (optional)*) – Unselected

bpy.ops.pose.**ik_add**(*with_targets=True*)
Add IK Constraint to the active Bone

Parameters

- **with_targets** (*boolean, (optional)*) – With Targets, Assign IK Constraint with targets derived from the select bones/objects

bpy.ops.pose.**ik_clear**()
Remove all IK Constraints from selected bones

bpy.ops.pose.**loc_clear**()
Undocumented (contribute)

bpy.ops.pose.**metarig_assign**()
Assign to the active posebone

File ui/properties_data_armature_rigify.py:270

bpy.ops.pose.**metarig_clear**()
Clear type from the active posebone

File ui/properties_data_armature_rigify.py:289

bpy.ops.pose.**metarig_generate**()
Generates a metarig from the active armature

File ui/properties_data_armature_rigify.py:150

bpy.ops.pose.**metarig_graph**()
Create a graph from the active armature through graphviz

File ui/properties_data_armature_rigify.py:209

bpy.ops.pose.**metarig_reload**()
Re-Scan the metarig package directory for scripts

File ui/properties_data_armature_rigify.py:117

bpy.ops.pose.**metarig_sample_add**(*metarig_type=""*)
Create a sample metarig to be modified before generating the final rig.

Parameters

- **metarig_type** (*string, (optional)*) – Type, Name of the rig type to generate a sample of, a blank string for all

File ui/properties_data_armature_rigify.py:188

bpy.ops.pose.**metarig_to_script**(*filepath=""*)
Write the edit armature out as a python script

Parameters

- **filepath** (*string, (optional)*) – File Path, File path used for exporting the Armature file

File ui/properties_data_armature_rigify.py:237

bpy.ops.pose.**metarig_validate**()
Validate a metarig from the active armature

File ui/properties_data_armature_rigify.py:170

bpy.ops.pose.**paste**(*flipped=False*)
Pastes the stored pose on to the current pose

Parameters

- **flipped** (*boolean, (optional)*) – Flipped on X-Axis

bpy.ops.pose.**paths_calculate**()
Calculate paths for the selected bones

bpy.ops.pose.**paths_clear**()
Clear path caches for selected bones

bpy.ops.pose.**push**(*prev_frame=0*, *next_frame=0*, *percentage=0.5*)
Exaggerate the current pose

Parameters

- **prev_frame** (*int in [-300000, 300000], (optional)*) – Previous Keyframe, Frame number of keyframe immediately before the current frame.
- **next_frame** (*int in [-300000, 300000], (optional)*) – Next Keyframe, Frame number of keyframe immediately after the current frame.
- **percentage** (*float in [0, 1], (optional)*) – Percentage, Weighting factor for the sliding operation

bpy.ops.pose.**quaternions_flip**()
Flip quaternion values to achieve desired rotations, while maintaining the same orientations

bpy.ops.pose.**relax**(*prev_frame=0*, *next_frame=0*, *percentage=0.5*)
Make the current pose more similar to its surrounding ones

Parameters

- **prev_frame** (*int in [-300000, 300000], (optional)*) – Previous Keyframe, Frame number of keyframe immediately before the current frame.
- **next_frame** (*int in [-300000, 300000], (optional)*) – Next Keyframe, Frame number of keyframe immediately after the current frame.

- **percentage** (*float in [0, 1], (optional)*) – Percentage, Weighting factor for the sliding operation

bpy.ops.pose.**reveal**()
Undocumented (contribute)

bpy.ops.pose.**rot_clear**()
Undocumented (contribute)

bpy.ops.pose.**scale_clear**()
Undocumented (contribute)

bpy.ops.pose.**select_all**(*action='TOGGLE'*)
Undocumented (contribute)

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.pose.**select_constraint_target**()
Undocumented (contribute)

bpy.ops.pose.**select_grouped**(*extend=False*, *type='LAYER'*)
Select all visible bones grouped by various properties

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.
- **type** (*enum in ['LAYER', 'GROUP'], (optional, never None)*) – Type

bpy.ops.pose.**select_hierarchy**(*direction='PARENT'*, *extend=False*)
Undocumented (contribute)

Parameters

- **direction** (*enum in ['PARENT', 'CHILD'], (optional, never None)*) – Direction
- **extend** (*boolean, (optional)*) – Add to Selection

bpy.ops.pose.**select_inverse**()
Undocumented (contribute)

bpy.ops.pose.**select_linked**(*extend=False*)
Undocumented (contribute)

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.

bpy.ops.pose.**select_parent**()
Undocumented (contribute)

bpy.ops.pose.**visual_transform_apply**()
Apply final constrained position of pose bones to their transform.

1.2.41 Poselib Operators

bpy.ops.poselib.**browse_interactive**(*pose_index=-1*)
Interactively browse poses in 3D-View

Parameters

- **pose_index** (*int in [-2, inf], (optional)*) – Pose, Index of the pose to apply (-2 for no change to pose, -1 for poselib active pose)

bpy.ops.poselib.**pose_add**(*frame=1*, *name="Pose"*)
Add the current Pose to the active Pose Library

Parameters

- **frame** (*int in [0, inf], (optional)*) – Frame, Frame to store pose on
- **name** (*string, (optional)*) – Pose Name, Name of newly added Pose

bpy.ops.poselib.**pose_remove**(*pose='DEFAULT'*)
Remove nth pose from the active Pose Library

Parameters

- **pose** (*enum in ['DEFAULT'], (optional, never None)*) – Pose, The pose to remove

bpy.ops.poselib.**pose_rename**(*pose=''*, *name="RenamedPose"*)
Rename nth pose from the active Pose Library

Parameters

- **pose** (*enum in ['DEFAULT'], (optional, never None)*) – Pose, The pose to rename
- **name** (*string, (optional)*) – New Pose Name, New name for pose

1.2.42 Ptcache Operators

bpy.ops.ptcache.**add**()
Undocumented (contribute)

bpy.ops.ptcache.**bake**(*bake=False*)
Undocumented (contribute)

Parameters

- **bake** (*boolean, (optional)*) – Bake

bpy.ops.ptcache.**bake_all**(*bake=True*)
Undocumented (contribute)

Parameters

- **bake** (*boolean, (optional)*) – Bake

bpy.ops.ptcache.**bake_from_cache**()
Undocumented (contribute)

bpy.ops.ptcache.**free_bake**()
Undocumented (contribute)

bpy.ops.ptcache.**free_bake_all**()
Undocumented (contribute)

bpy.ops.ptcache.**remove**()
Undocumented (contribute)

1.2.43 Render Operators

bpy.ops.render.**netclientanim**()
Start rendering an animation on network

File io/netrender/operators.py:96

bpy.ops.render.**netclientblacklistslave**()
Operator documentation text, will be used for the operator tooltip and python docs.

File io/netrender/operators.py:241

bpy.ops.render.**netclientcancel**()
Cancel the selected network rendering job.

File io/netrender/operators.py:349

bpy.ops.render.**netclientcancelall**()
Cancel all running network rendering jobs.

File io/netrender/operators.py:378

bpy.ops.render.**netclientdownload**()
Download render results from the network

File io/netrender/operators.py:407

bpy.ops.render.**netclientscan**()
Listen on network for master server broadcasting its address and port.

File io/netrender/operators.py:452

bpy.ops.render.**netclientsend**()
Send Render Job to the Network

File io/netrender/operators.py:140

bpy.ops.render.**netclientsendframe**()
Send Render Job with current frame to the Network

File io/netrender/operators.py:170

bpy.ops.render.**netclientslaves**()
Refresh status about available Render slaves

File io/netrender/operators.py:302

bpy.ops.render.**netclientstart**()
Start network rendering service

File io/netrender/operators.py:123

bpy.ops.render.**netclientstatus**()
Refresh the status of the current jobs

File io/netrender/operators.py:200

bpy.ops.render.**netclientweb**()
Open new window with information about running rendering jobs

File io/netrender/operators.py:476

bpy.ops.render.**netclientwhitelistslave**()
Operator documentation text, will be used for the operator tooltip and python docs.

File io/netrender/operators.py:271

bpy.ops.render.**netslavebake**()
NEED DESCRIPTION

File io/netrender/operators.py:38

bpy.ops.render.**opengl**(*animation=False*, *view_context=True*)
OpenGL render active viewport

Parameters

- **animation** (*boolean, (optional)*) – Animation
- **view_context** (*boolean, (optional)*) – View Context, Use the current 3D view for rendering, else use scene settings.

bpy.ops.render.**play_rendered_anim**()
Plays back rendered frames/movies using an external player.

File op/screen_play_rendered_anim.py:73

bpy.ops.render.**preset_add**(*name=""*)
Add a Render Preset

Parameters

- **name** (*string, (optional)*) – Name, Name of the preset, used to make the path name

File op/presets.py:40

bpy.ops.render.**render**(*animation=False*, *layer=""*, *scene=""*)
Render active scene

Parameters

- **animation** (*boolean, (optional)*) – Animation
- **layer** (*string, (optional)*) – Render Layer, Single render layer to re-render
- **scene** (*string, (optional)*) – Scene, Re-render single layer in this scene

bpy.ops.render.**view_cancel**()
Cancel show render view

bpy.ops.render.**view_show**()
Toggle show render view

1.2.44 Scene Operators

bpy.ops.scene.**delete**()
Delete active scene

bpy.ops.scene.**new**(*type='EMPTY'*)
Add new scene by type

Parameters

- **type** (*enum in ['EMPTY', 'LINK_OBJECTS', 'LINK_OBJECT_DATA', 'FULL_COPY'], (optional)*) – Type

bpy.ops.scene.**render_layer_add**()
Add a render layer

bpy.ops.scene.**render_layer_remove**()
Remove the selected render layer

1.2.45 Screen Operators

bpy.ops.screen.**actionzone**(*modifier=0*)
Handle area action zones for mouse actions/gestures

Parameters

- **modifier** (*int in [0, 2], (optional)*) – modifier, modifier state

bpy.ops.screen.**animation_cancel**()
Cancel animation, returning to the original frame

bpy.ops.screen.**animation_play**(*reverse=False*, *sync=False*)
Play animation

Parameters

- **reverse** (*boolean, (optional)*) – Play in Reverse, Animation is played backwards
- **sync** (*boolean, (optional)*) – Sync, Drop frames to maintain framerate

bpy.ops.screen.**animation_step**()
Step through animation by position

bpy.ops.screen.**area_dupli**()
Duplicate selected area into new window

bpy.ops.screen.**area_join**(*min_x=-100*, *min_y=-100*, *max_x=-100*, *max_y=-100*)
Join selected areas into new window

Parameters

- **min_x** (*int in [-inf, inf], (optional)*) – X 1
- **min_y** (*int in [-inf, inf], (optional)*) – Y 1
- **max_x** (*int in [-inf, inf], (optional)*) – X 2
- **max_y** (*int in [-inf, inf], (optional)*) – Y 2

bpy.ops.screen.**area_move**(*x=0*, *y=0*, *delta=0*)
Move selected area edges

Parameters

- **x** (*int in [-inf, inf], (optional)*) – X
- **y** (*int in [-inf, inf], (optional)*) – Y
- **delta** (*int in [-inf, inf], (optional)*) – Delta

bpy.ops.screen.**area_split**(*direction='HORIZONTAL'*, *factor=0.5*)
Split selected area into new windows

Parameters

- **direction** (*enum in ['HORIZONTAL', 'VERTICAL'], (optional, never None)*) – Direction
- **factor** (*float in [0, 1], (optional)*) – Factor

bpy.ops.screen.**area_swap**()
Swap selected areas screen positions

bpy.ops.screen.**back_to_previous**()
Revert back to the original screen layout, before fullscreen area overlay

bpy.ops.screen.**delete**()
Delete active screen

bpy.ops.screen.**frame_jump**(*end=False*)
Jump to first/last frame in frame range

Parameters

- **end** (*boolean, (optional)*) – Last Frame, Jump to the last frame of the frame range.

bpy.ops.screen.**frame_offset**(*delta=0*)
Undocumented (contribute)

Parameters

- **delta** (*int in [-inf, inf], (optional)*) – Delta

bpy.ops.screen.**header_flip**()
Undocumented (contribute)

bpy.ops.screen.**header_toolbox**()
Display header region toolbox

bpy.ops.screen.**keyframe_jump**(*next=True*)
Jump to previous/next keyframe

Parameters

- **next** (*boolean, (optional)*) – Next Keyframe

bpy.ops.screen.**new**()
Add a new screen

bpy.ops.screen.**redo_last**()
Display menu for last action performed

bpy.ops.screen.**region_flip**()
Undocumented (contribute)

bpy.ops.screen.**region_quadview**()
Split selected area into camera, front, right & top views

bpy.ops.screen.**region_scale**()
Scale selected area

bpy.ops.screen.**repeat_history**(*index=0*)
Display menu for previous actions performed

Parameters

- **index** (*int in [0, inf], (optional)*) – Index

bpy.ops.screen.**repeat_last**()
Repeat last action

bpy.ops.screen.**screen_full_area**()
Toggle display selected area as fullscreen

bpy.ops.screen.**screen_set**(*delta=0*)
Cycle through available screens

Parameters

- **delta** (*int in [-inf, inf], (optional)*) – Delta

bpy.ops.screen.**screencast**(*filepath=""*, *full=True*)
Undocumented (contribute)

Parameters

- **filepath** (*string, (optional)*) – filepath
- **full** (*boolean, (optional)*) – Full Screen

bpy.ops.screen.**screenshot**(*filepath=""*, *check_existing=True*, *filter_blender=False*, *filter_image=True*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *full=True*)
Undocumented (contribute)

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **full** (*boolean, (optional)*) – Full Screen

bpy.ops.screen.**userpref_show**()
Show/hide user preferences

1.2.46 Script Operators

bpy.ops.script.**execute_preset**(*filepath=""*, *preset_name=""*, *menu_idname=""*)
Executes a preset

Parameters

- **filepath** (*string, (optional)*) – Path, Path of the Python file to execute
- **preset_name** (*string, (optional)*) – Preset Name, Name of the Preset being executed
- **menu_idname** (*string, (optional)*) – Menu ID Name, ID name of the menu this was called from

File op/presets.py:84

bpy.ops.script.**python_file_run**(*filepath=""*)
Run Python file

Parameters

- **filepath** (*string, (optional)*) – Path

bpy.ops.script.**reload**()
Reload Scripts

1.2.47 Sculpt Operators

bpy.ops.sculpt.**brush_stroke**(*stroke=None*, *mode='NORMAL'*, *ignore_background_click=False*)
Undocumented (contribute)

Parameters

- **stroke** (Collection of `OperatorStrokeElement`, (optional)) – Stroke
- **mode** (*enum in ['NORMAL', 'INVERT', 'SMOOTH'], (optional, never None)*) – Sculpt Stroke Mode, Action taken when a sculpt stroke is made
- **ignore_background_click** (*boolean, (optional)*) – Ignore Background Click, Clicks on the background do not start the stroke

bpy.ops.sculpt.**radial_control**(*initial_value=0.0*, *new_value=0.0*, *mode='SIZE'*, *initial_mouse=(0, 0)*, *color=(1.0, 1.0, 1.0, 0.5)*, *texture_color=(1.0, 1.0, 1.0, 1.0)*)
Undocumented (contribute)

Parameters

- **initial_value** (*float in [0, inf], (optional)*) – Initial Value
- **new_value** (*float in [0, inf], (optional)*) – New Value
- **mode** (*enum in ['SIZE', 'STRENGTH', 'ANGLE'], (optional, never None)*) – Mode
- **initial_mouse** (*int array of 2 items in [-inf, inf], (optional)*) – Initial Mouse
- **color** (*float array of 4 items in [0, inf], (optional)*) – Color, Radial control color
- **texture_color** (*float array of 4 items in [0, inf], (optional)*) – Texture Color, Radial control texture color

bpy.ops.sculpt.**sculptmode_toggle**()
Undocumented (contribute)

bpy.ops.sculpt.**set_persistent_base**()
Undocumented (contribute)

1.2.48 Sequencer Operators

bpy.ops.sequencer.**copy**()
Undocumented (contribute)

bpy.ops.sequencer.**crossfade_sounds**()
Do crossfading volume animation of two selected sound strips.

File op/sequencer.py:40

bpy.ops.sequencer.**cut**(*frame=0*, *type='SOFT'*, *side='BOTH'*)
Cut the selected strips

Parameters

- **frame** (*int in [-inf, inf], (optional)*) – Frame, Frame where selected strips will be cut
- **type** (*enum in ['SOFT', 'HARD'], (optional, never None)*) – Type, The type of cut operation to perform on strips
- **side** (*enum in ['LEFT', 'RIGHT', 'BOTH'], (optional, never None)*) – Side, The side that remains selected after cutting

bpy.ops.sequencer.**cut_multicam**(*camera=1*)
Cut multicam strip and select camera.

Parameters

- **camera** (*int in [1, 32], (optional)*) – Camera

File op/sequencer.py:94

bpy.ops.sequencer.**deinterlace_selected_movies**()
Deinterlace all selected movie sources.

File op/sequencer.py:129

bpy.ops.sequencer.**delete**()
Erase selected strips from the sequencer

bpy.ops.sequencer.**duplicate**(*mode=1*)
Duplicate the selected strips

Parameters

- **mode** (*int in [0, inf], (optional)*) – Mode

bpy.ops.sequencer.**effect_strip_add**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=False*, *filemode=9*, *relative_path=False*, *frame_start=0*, *frame_end=0*, *channel=1*, *replace_sel=True*, *type='CROSS'*, *color=(0.0, 0.0, 0.0)*)
Add an effect to the sequencer, most are applied on top of existing strips

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files

- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **frame_start** (*int in [-inf, inf], (optional)*) – Start Frame, Start frame of the sequence strip
- **frame_end** (*int in [-inf, inf], (optional)*) – End Frame, End frame for the color strip
- **channel** (*int in [1, 32], (optional)*) – Channel, Channel to place this strip into
- **replace_sel** (*boolean, (optional)*) – Replace Selection, replace the current selection
- **type** (*enum in ['CROSS', 'ADD', 'SUBTRACT', 'ALPHA_OVER', 'ALPHA_UNDER', 'GAMMA_CROSS', 'MULTIPLY', 'OVER_DROP', 'PLUGIN', 'WIPE', 'GLOW', 'TRANSFORM', 'COLOR', 'SPEED', 'MULTICAM'], (optional)*) – Type, Sequencer effect type
- **color** (*float array of 3 items in [0, 1], (optional)*) – Color, Initialize the strip with this color (only used when type='COLOR')

bpy.ops.sequencer.**image_strip_add**(*directory=""*, *filter_blender=False*, *filter_image=True*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*, *frame_start=0*, *frame_end=0*, *channel=1*, *replace_sel=True*, *files=None*)

Add an image or image sequence to the sequencer

Parameters

- **directory** (*string, (optional)*) – Directory, Directory of the file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **frame_start** (*int in [-inf, inf], (optional)*) – Start Frame, Start frame of the sequence strip
- **frame_end** (*int in [-inf, inf], (optional)*) – End Frame, End frame for the color strip
- **channel** (*int in [1, 32], (optional)*) – Channel, Channel to place this strip into
- **replace_sel** (*boolean, (optional)*) – Replace Selection, replace the current selection
- **files** (Collection of `OperatorFileListElement`, (optional)) – Files

bpy.ops.sequencer.**images_separate**(*length=1*)
On image sequences strips, it return a strip for each image

Parameters

- **length** (*int in [1, 1000], (optional)*) – Length, Length of each frame

bpy.ops.sequencer.**lock**()
Lock the active strip so that it can't be transformed

bpy.ops.sequencer.**meta_make**()
Group selected strips into a metastrip

bpy.ops.sequencer.**meta_separate**()
Put the contents of a metastrip back in the sequencer

bpy.ops.sequencer.**meta_toggle**()
Toggle a metastrip (to edit enclosed strips)

bpy.ops.sequencer.**movie_strip_add**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=True*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*, *frame_start=0*, *channel=1*, *replace_sel=True*, *files=None*, *sound=True*)
Add a movie strip to the sequencer

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **frame_start** (*int in [-inf, inf], (optional)*) – Start Frame, Start frame of the sequence strip
- **channel** (*int in [1, 32], (optional)*) – Channel, Channel to place this strip into
- **replace_sel** (*boolean, (optional)*) – Replace Selection, replace the current selection
- **files** (Collection of `OperatorFileListElement`, (optional)) – Files
- **sound** (*boolean, (optional)*) – Sound, Load sound with the movie

bpy.ops.sequencer.**mute**(*unselected=False*)
Mute selected strips

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Mute unselected rather than selected strips.

bpy.ops.sequencer.**next_edit**()
Move frame to next edit point

bpy.ops.sequencer.**paste**()
Undocumented (contribute)

bpy.ops.sequencer.**previous_edit**()
Move frame to previous edit point

bpy.ops.sequencer.**properties**()
Open sequencer properties panel

bpy.ops.sequencer.**reassign_inputs**()
Reassign the inputs for the effects strip

bpy.ops.sequencer.**refresh_all**()
Refresh the sequencer editor

bpy.ops.sequencer.**reload**()
Reload strips in the sequencer

bpy.ops.sequencer.**rendersize**()
Set render size and aspect from active sequence

bpy.ops.sequencer.**scene_strip_add**(*frame_start=0*, *channel=1*, *replace_sel=True*, *scene=''*)
Add a strip to the sequencer using a blender scene as a source

Parameters

- **frame_start** (*int in [-inf, inf], (optional)*) – Start Frame, Start frame of the sequence strip
- **channel** (*int in [1, 32], (optional)*) – Channel, Channel to place this strip into
- **replace_sel** (*boolean, (optional)*) – Replace Selection, replace the current selection
- **scene** (*enum in [], (optional)*) – Scene

bpy.ops.sequencer.**select**(*extend=False*, *linked_handle=False*, *left_right=False*, *linked_time=False*)
Select a strip (last selected becomes the "active strip")

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend the selection.
- **linked_handle** (*boolean, (optional)*) – Linked Handle, Select handles next to the active strip.
- **left_right** (*boolean, (optional)*) – Left/Right, select based on the frame side the cursor is on.
- **linked_time** (*boolean, (optional)*) – Linked Time, Select other strips at the same time.

bpy.ops.sequencer.**select_active_side**(*side='BOTH'*)
Select strips on the nominated side of the active strip

Parameters

- **side** (*enum in ['LEFT', 'RIGHT', 'BOTH'], (optional)*) – Side, The side of the handle that is selected

bpy.ops.sequencer.**select_all_toggle**()
Select or deselect all strips

bpy.ops.sequencer.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Enable border select mode

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.sequencer.**select_handles**(*side='BOTH'*)
Select manipulator handles on the sides of the selected strip

Parameters

- **side** (*enum in ['LEFT', 'RIGHT', 'BOTH'], (optional)*) – Side, The side of the handle that is selected

bpy.ops.sequencer.**select_inverse**()
Select unselected strips

bpy.ops.sequencer.**select_less**()
Shrink the current selection of adjacent selected strips

bpy.ops.sequencer.**select_linked**()
Select all strips adjacent to the current selection

bpy.ops.sequencer.**select_linked_pick**(*extend=False*)
Select a chain of linked strips nearest to the mouse pointer

Parameters

- **extend** (*boolean, (optional)*) – Extend, extend the selection

bpy.ops.sequencer.**select_more**()
Select more strips adjacent to the current selection

bpy.ops.sequencer.**snap**(*frame=0*)
Frame where selected strips will be snapped

Parameters

- **frame** (*int in [-inf, inf], (optional)*) – Frame, Frame where selected strips will be snapped

bpy.ops.sequencer.**sound_strip_add**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=True*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*, *frame_start=0*, *channel=1*, *replace_sel=True*, *files=None*, *cache=False*)
Add a sound strip to the sequencer

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files

- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **frame_start** (*int in [-inf, inf], (optional)*) – Start Frame, Start frame of the sequence strip
- **channel** (*int in [1, 32], (optional)*) – Channel, Channel to place this strip into
- **replace_sel** (*boolean, (optional)*) – Replace Selection, replace the current selection
- **files** (Collection of `OperatorFileListElement`, (optional)) – Files
- **cache** (*boolean, (optional)*) – Cache, Cache the sound in memory.

`bpy.ops.sequencer.`**`swap`**(*side='RIGHT'*)
Swap active strip with strip to the left

Parameters

- **side** (*enum in ['LEFT', 'RIGHT'], (optional, never None)*) – Side, Side of the strip to swap

`bpy.ops.sequencer.`**`swap_data`**()
Swap 2 sequencer strips

`bpy.ops.sequencer.`**`unlock`**()
Unlock the active strip so that it can't be transformed

`bpy.ops.sequencer.`**`unmute`**(*unselected=False*)
Un-Mute unselected rather than selected strips

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, UnMute unselected rather than selected strips.

`bpy.ops.sequencer.`**`view_all`**()
View all the strips in the sequencer

`bpy.ops.sequencer.`**`view_all_preview`**()
Zoom preview to fit in the area

`bpy.ops.sequencer.`**`view_ghost_border`**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Enable border select mode

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min

- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.sequencer.**view_selected**()
Zoom the sequencer on the selected strips

bpy.ops.sequencer.**view_toggle**()
Toggle between sequencer views (sequence, preview, both)

bpy.ops.sequencer.**view_zoom_ratio**(*ratio=1.0*)
Undocumented (contribute)

Parameters

- **ratio** (*float in [0, inf], (optional)*) – Ratio, Zoom ratio, 1.0 is 1:1, higher is zoomed in, lower is zoomed out.

1.2.49 Sketch Operators

bpy.ops.sketch.**cancel_stroke**()
Undocumented (contribute)

bpy.ops.sketch.**convert**()
Undocumented (contribute)

bpy.ops.sketch.**delete**()
Undocumented (contribute)

bpy.ops.sketch.**draw_preview**(*snap=False*)
Undocumented (contribute)

Parameters

- **snap** (*boolean, (optional)*) – Snap

bpy.ops.sketch.**draw_stroke**(*snap=False*)
Undocumented (contribute)

Parameters

- **snap** (*boolean, (optional)*) – Snap

bpy.ops.sketch.**finish_stroke**()
Undocumented (contribute)

bpy.ops.sketch.**gesture**(*snap=False*)
Undocumented (contribute)

Parameters

- **snap** (*boolean, (optional)*) – Snap

bpy.ops.sketch.**select**()
Undocumented (contribute)

1.2.50 Sound Operators

bpy.ops.sound.**open**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=True*, *filter_python=False*, *filter_font=False*, *filter_sound=True*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*, *cache=False*)
Load a sound file

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **cache** (*boolean, (optional)*) – Cache, Cache the sound in memory.

bpy.ops.sound.**pack**()
Pack the sound into the current blend file

bpy.ops.sound.**unpack**(*method='USE_LOCAL'*)
Unpack the sound to the samples filename

Parameters

- **method** (*enum in ['USE_LOCAL', 'WRITE_LOCAL', 'USE_ORIGINAL', 'WRITE_ORIGINAL'], (optional)*) – Method, How to unpack.

1.2.51 Surface Operators

bpy.ops.surface.**primitive_nurbs_surface_circle_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)
Construct a Nurbs surface Circle

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.

- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.surface.**primitive_nurbs_surface_curve_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Nurbs surface Curve

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.surface.**primitive_nurbs_surface_cylinder_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Nurbs surface Cylinder

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.surface.**primitive_nurbs_surface_sphere_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Nurbs surface Sphere

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.surface.**primitive_nurbs_surface_surface_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Nurbs surface Patch

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

bpy.ops.surface.**primitive_nurbs_surface_torus_add**(*view_align=False*, *enter_editmode=False*, *location=(0.0, 0.0, 0.0)*, *rotation=(0.0, 0.0, 0.0)*, *layers=(False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)*)

Construct a Nurbs surface Torus

Parameters

- **view_align** (*boolean, (optional)*) – Align to View, Align the new object to the view.
- **enter_editmode** (*boolean, (optional)*) – Enter Editmode, Enter editmode when adding this object.
- **location** (*float array of 3 items in [-inf, inf], (optional)*) – Location, Location for the newly added object.
- **rotation** (*float array of 3 items in [-inf, inf], (optional)*) – Rotation, Rotation for the newly added object
- **layers** (*boolean array of 20 items, (optional)*) – Layer

1.2.52 Text Operators

bpy.ops.text.**comment**()
Convert selected text to comment

bpy.ops.text.**convert_whitespace**(*type='SPACES'*)
Convert whitespaces by type

Parameters

- **type** (*enum in ['SPACES', 'TABS'], (optional)*) – type, Type of whitespace to convert to.

bpy.ops.text.**copy**()
Copy selected text to clipboard

bpy.ops.text.**cursor_set**(*select=False*)
Set cursor selection

Parameters

- **select** (*boolean, (optional)*) – Select, Set selection end rather than cursor.

bpy.ops.text.**cut**()
Cut selected text to clipboard

bpy.ops.text.**delete**(*type='NEXT_CHARACTER'*)
Delete text by cursor position

Parameters

- **type** (*enum in ['NEXT_CHARACTER', 'PREVIOUS_CHARACTER', 'NEXT_WORD', 'PREVIOUS_WORD'], (optional, never None)*) – Type, Which part of the text to delete.

bpy.ops.text.**find**()
Find specified text

bpy.ops.text.**find_set_selected**()
Find specified text and set as selected

bpy.ops.text.**indent**()
Indent selected text

bpy.ops.text.**insert**(*text=""*)
Insert text at cursor position

Parameters

- **text** (*string, (optional)*) – Text, Text to insert at the cursor position.

bpy.ops.text.**jump**(*line=1*)
Jump cursor to line

Parameters

- **line** (*int in [1, inf], (optional)*) – Line, Line number to jump to.

bpy.ops.text.**line_break**()
Insert line break at cursor position

bpy.ops.text.**line_number**()
The current line number

bpy.ops.text.**make_internal**()
Make active text file internal

bpy.ops.text.**mark_all**()
Mark all specified text

bpy.ops.text.**markers_clear**()
Clear all markers

bpy.ops.text.**move**(*type='LINE_BEGIN'*)
Move cursor to position type

Parameters

- **type** (*enum in ['LINE_BEGIN', 'LINE_END', 'FILE_TOP', 'FILE_BOTTOM', 'PREVIOUS_CHARACTER', 'NEXT_CHARACTER', 'PREVIOUS_WORD', 'NEXT_WORD', 'PREVIOUS_LINE', 'NEXT_LINE', 'PREVIOUS_PAGE', 'NEXT_PAGE'], (optional, never None)*) – Type, Where to move cursor to.

bpy.ops.text.**move_select**(*type='LINE_BEGIN'*)
Make selection from current cursor position to new cursor position type

Parameters

- **type** (*enum in ['LINE_BEGIN', 'LINE_END', 'FILE_TOP', 'FILE_BOTTOM', 'PREVIOUS_CHARACTER', 'NEXT_CHARACTER', 'PREVIOUS_WORD', 'NEXT_WORD', 'PREVIOUS_LINE', 'NEXT_LINE', 'PREVIOUS_PAGE', 'NEXT_PAGE'], (optional, never None)*) – Type, Where to move cursor to, to make a selection.

bpy.ops.text.**new**()
Create a new text data block

bpy.ops.text.**next_marker**()
Move to next marker

bpy.ops.text.**open**(*filepath=""*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=True*, *filter_font=False*, *filter_sound=False*, *filter_text=True*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *internal=False*)
Open a new text data block

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files

- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **internal** (*boolean, (optional)*) – Make internal, Make text file internal after loading

bpy.ops.text.**overwrite_toggle**()
Toggle overwrite while typing

bpy.ops.text.**paste**(*selection=False*)
Paste text from clipboard

Parameters

- **selection** (*boolean, (optional)*) – Selection, Paste text selected elsewhere rather than copied, X11 only.

bpy.ops.text.**previous_marker**()
Move to previous marker

bpy.ops.text.**properties**()
Toggle text properties panel

bpy.ops.text.**refresh_pyconstraints**()
Refresh all pyconstraints

bpy.ops.text.**reload**()
Reload active text data block from its file

bpy.ops.text.**replace**()
Replace text with the specified text

bpy.ops.text.**replace_set_selected**()
Replace text with specified text and set as selected

bpy.ops.text.**resolve_conflict**(*resolution='IGNORE'*)
When external text is out of sync, resolve the conflict

Parameters

- **resolution** (*enum in ['IGNORE', 'RELOAD', 'SAVE', 'MAKE_INTERNAL'], (optional)*) – Resolution, How to solve conflict due to different in internal and external text.

bpy.ops.text.**run_script**()
Run active script

bpy.ops.text.**save**()
Save active text data block

bpy.ops.text.**save_as**(*filepath=""*, *check_existing=True*, *filter_blender=False*, *filter_image=False*, *filter_movie=False*, *filter_python=True*, *filter_font=False*, *filter_sound=False*, *filter_text=True*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*)
Save active text file with options

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file

- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file

bpy.ops.text.**scroll**(*lines=1*)
Scroll text screen

Parameters

- **lines** (*int in [-inf, inf], (optional)*) – Lines, Number of lines to scroll.

bpy.ops.text.**scroll_bar**(*lines=1*)
Scroll text screen

Parameters

- **lines** (*int in [-inf, inf], (optional)*) – Lines, Number of lines to scroll.

bpy.ops.text.**select_all**()
Select all text

bpy.ops.text.**select_line**()
Select text by line

bpy.ops.text.**to_3d_object**(*split_lines=False*)
Create 3d text object from active text data block

Parameters

- **split_lines** (*boolean, (optional)*) – Split Lines, Create one object per line in the text.

bpy.ops.text.**uncomment**()
Convert selected comment to text

bpy.ops.text.**unindent**()
Unindent selected text

bpy.ops.text.**unlink**()
Unlink active text data block

1.2.53 Texture Operators

bpy.ops.texture.**envmap_clear**()
Discard the environment map and free it from memory

bpy.ops.texture.**envmap_clear_all**()
Discard all environment maps in the .blend file and free them from memory

bpy.ops.texture.**envmap_save**(*filepath=""*, *check_existing=True*, *filter_blender=False*, *filter_image=True*, *filter_movie=True*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=9*, *relative_path=False*)
Save the current generated Environment map to an image file

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file

bpy.ops.texture.**new**()
Add a new texture

bpy.ops.texture.**slot_copy**()
Copy the material texture settings and nodes

bpy.ops.texture.**slot_move**(*type='UP'*)
Move texture slots up and down

Parameters

- **type** (*enum in ['UP', 'DOWN'], (optional)*) – Type

bpy.ops.texture.**slot_paste**()
Copy the texture settings and nodes

1.2.54 Time Operators

bpy.ops.time.**end_frame_set**()
Set the end frame

bpy.ops.time.**start_frame_set**()
Set the start frame

bpy.ops.time.**view_all**()
Show the entire playable frame range

1.2.55 Transform Operators

bpy.ops.transform.**create_orientation**(*name=""*, *use=False*, *overwrite=False*)
Create transformation orientation from selection

Parameters

- **name** (*string, (optional)*) – Name, Text to insert at the cursor position.
- **use** (*boolean, (optional)*) – Use after creation, Select orientation after its creation
- **overwrite** (*boolean, (optional)*) – Overwrite previous, Overwrite previously created orientation with same name

bpy.ops.transform.**delete_orientation**()
Delete transformation orientation

bpy.ops.transform.**edge_crease**(*value=0.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)
Change the crease of edges

Parameters

- **value** (*float in [-1, 1], (optional)*) – Factor
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**edge_slide**(*value=0.0*, *mirror=False*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)
Slide an edge loop along a mesh

Parameters

- **value** (*float in [-1, 1], (optional)*) – Factor
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal

- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**mirror**(*constraint_axis=(False, False, False)*, *constraint_orientation=''*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *release_confirm=False*)

Mirror selected vertices around one or more axes

Parameters

- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**push_pull**(*value=0.0*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Push/Pull selected items

Parameters

- **value** (*float in [-inf, inf], (optional)*) – Distance
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**resize**(*value=(1.0, 1.0, 1.0), constraint_axis=(False, False, False), constraint_orientation='', mirror=False, proportional='DISABLED', proportional_edit_falloff='SMOOTH', proportional_size=1.0, snap=False, snap_target='CLOSEST', snap_point=(0.0, 0.0, 0.0), snap_align=False, snap_normal=(0.0, 0.0, 0.0), release_confirm=False*)

Resize selected items

Parameters

- **value** (*float array of 3 items in [-inf, inf], (optional)*) – Vector
- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**rotate**(*value=(0.0), axis=(0.0, 0.0, 0.0), constraint_axis=(False, False, False), constraint_orientation='', mirror=False, proportional='DISABLED', proportional_edit_falloff='SMOOTH', proportional_size=1.0, snap=False, snap_target='CLOSEST', snap_point=(0.0, 0.0, 0.0), snap_align=False, snap_normal=(0.0, 0.0, 0.0), release_confirm=False*)

Rotate selected items

Parameters

- **value** (*float array of 1 items in [-inf, inf], (optional)*) – Angle
- **axis** (*float array of 3 items in [-inf, inf], (optional)*) – Axis, The axis around which the transformation occurs
- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing

- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**select_orientation**(*orientation=''*)

Select transformation orientation

Parameters

- **orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation

bpy.ops.transform.**seq_slide**(*value=(1.0, 1.0), snap=False, snap_target='CLOSEST', snap_point=(0.0, 0.0, 0.0), snap_align=False, snap_normal=(0.0, 0.0, 0.0), release_confirm=False*)

Slide a sequence strip in time

Parameters

- **value** (*float array of 2 items in [-inf, inf], (optional)*) – angle
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**shear**(*value=0.0, mirror=False, proportional='DISABLED', proportional_edit_falloff='SMOOTH', proportional_size=1.0, snap=False, snap_target='CLOSEST', snap_point=(0.0, 0.0, 0.0), snap_align=False, snap_normal=(0.0, 0.0, 0.0), release_confirm=False*)

Shear selected items along the horizontal screen axis

Parameters

- **value** (*float in [-inf, inf], (optional)*) – Offset
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing

- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**shrink_fatten**(*value=0.0*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Shrink/fatten selected vertices along normals

Parameters

- **value** (*float in [-inf, inf], (optional)*) – Offset
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**snap_type**(*type='INCREMENT'*)

Set the snap element type

Parameters

- **type** (*enum in ['INCREMENT', 'VERTEX', 'EDGE', 'FACE', 'VOLUME'], (optional, never None)*) – Type, Set the snap element type

bpy.ops.transform.**tilt**(*value=(0.0)*, *constraint_axis=(False, False, False)*, *constraint_orientation=''*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Tilt selected control vertices of 3d curve

Parameters

- **value** (*float array of 1 items in [-inf, inf], (optional)*) – Angle
- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**tosphere**(*value=0.0*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Move selected vertices outward in a spherical shape around mesh center

Parameters

- **value** (*float in [0, 1], (optional)*) – Factor
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options

- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**trackball**(*value=(1.0, 1.0)*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Trackball style rotation of selected items

Parameters

- **value** (*float array of 2 items in [-inf, inf], (optional)*) – angle
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**transform**(*mode='DUMMY'*, *value=(0.0, 0.0, 0.0, 0.0)*, *axis=(0.0, 0.0, 0.0)*, *constraint_axis=(False, False, False)*, *constraint_orientation=''*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Transform selected items by mode type

Parameters

- **mode** (*enum in ['INIT', 'DUMMY', 'TRANSLATION', 'ROTATION', 'RESIZE', 'TOSPHERE', 'SHEAR', 'WARP', 'SHRINKFATTEN', 'TILT', 'TRACKBALL', 'PUSHPULL', 'CREASE', 'MIRROR', 'BONESIZE', 'BONE_ENVELOPE', 'CURVE_SHRINKFATTEN', 'BONE_ROLL', 'TIME_TRANSLATE', 'TIME_SLIDE',*

'TIME_SCALE', 'TIME_EXTEND', 'BAKE_TIME', 'BEVEL', 'BWEIGHT', 'ALIGN', 'EDGESLIDE', 'SEQSLIDE'], (optional, never None)) – Mode

- **value** (*float array of 4 items in [-inf, inf], (optional)*) – Values
- **axis** (*float array of 3 items in [-inf, inf], (optional)*) – Axis, The axis around which the transformation occurs
- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**translate**(*value=(0.0, 0.0, 0.0)*, *constraint_axis=(False, False, False)*, *constraint_orientation=''*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Translate selected items

Parameters

- **value** (*float array of 3 items in [-inf, inf], (optional)*) – Vector
- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size

- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.transform.**warp**(*value=(0.0)*, *mirror=False*, *proportional='DISABLED'*, *proportional_edit_falloff='SMOOTH'*, *proportional_size=1.0*, *snap=False*, *snap_target='CLOSEST'*, *snap_point=(0.0, 0.0, 0.0)*, *snap_align=False*, *snap_normal=(0.0, 0.0, 0.0)*, *release_confirm=False*)

Warp selected items around the cursor

Parameters

- **value** (*float array of 1 items in [-inf, inf], (optional)*) – Angle
- **mirror** (*boolean, (optional)*) – Mirror Editing
- **proportional** (*enum in ['DISABLED', 'ENABLED', 'CONNECTED'], (optional, never None)*) – Proportional Editing
- **proportional_edit_falloff** (*enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], (optional, never None)*) – Proportional Editing Falloff, Falloff type for proportional editing mode.
- **proportional_size** (*float in [0, inf], (optional)*) – Proportional Size
- **snap** (*boolean, (optional)*) – Use Snapping Options
- **snap_target** (*enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], (optional, never None)*) – Target
- **snap_point** (*float array of 3 items in [-inf, inf], (optional)*) – Point
- **snap_align** (*boolean, (optional)*) – Align with Point Normal
- **snap_normal** (*float array of 3 items in [-inf, inf], (optional)*) – Normal
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

1.2.56 Ui Operators

bpy.ops.ui.**copy_data_path_button**()

Copy the RNA data path for this property to the clipboard

bpy.ops.ui.**copy_to_selected_button**(*all=True*)

Copy property from this object to selected objects or bones

Parameters

- **all** (*boolean, (optional)*) – All, Reset to default values all elements of the array.

bpy.ops.ui.**eyedropper**()

Sample a color from the Blender Window to store in a property

bpy.ops.ui.**reset_default_button**(*all=True*)
Reset this property's value to its default value

Parameters

- **all** (*boolean, (optional)*) – All, Reset to default values all elements of the array.

bpy.ops.ui.**reset_default_theme**()
Reset to the default theme colors

1.2.57 Uv Operators

bpy.ops.uv.**align**(*axis='ALIGN_AUTO'*)
Align selected UV vertices to an axis

Parameters

- **axis** (*enum in ['ALIGN_AUTO', 'ALIGN_X', 'ALIGN_Y'], (optional)*) – Axis, Axis to align UV locations on.

bpy.ops.uv.**average_islands_scale**()
Undocumented (contribute)

bpy.ops.uv.**circle_select**(*x=0*, *y=0*, *radius=0*, *gesture_mode=0*)
Select UV vertices using circle selection

Parameters

- **x** (*int in [-inf, inf], (optional)*) – X
- **y** (*int in [-inf, inf], (optional)*) – Y
- **radius** (*int in [-inf, inf], (optional)*) – Radius
- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode

bpy.ops.uv.**cube_project**(*cube_size=1.0*, *correct_aspect=True*, *clip_to_bounds=False*, *scale_to_bounds=False*)
Undocumented (contribute)

Parameters

- **cube_size** (*float in [0, inf], (optional)*) – Cube Size, Size of the cube to project on.
- **correct_aspect** (*boolean, (optional)*) – Correct Aspect, Map UV's taking image aspect ratio into account.
- **clip_to_bounds** (*boolean, (optional)*) – Clip to Bounds, Clip UV coordinates to bounds after unwrapping.
- **scale_to_bounds** (*boolean, (optional)*) – Scale to Bounds, Scale UV coordinates to bounds after unwrapping.

bpy.ops.uv.**cursor_set**(*location=(0.0, 0.0)*)
Set 2D cursor location

Parameters

- **location** (*float array of 2 items in [-inf, inf], (optional)*) – Location, Cursor location in 0.0-1.0 coordinates.

bpy.ops.uv.**cylinder_project**(*direction='VIEW_ON_EQUATOR'*, *align='POLAR_ZX'*, *radius=1.0*, *correct_aspect=True*, *clip_to_bounds=False*, *scale_to_bounds=False*)
Undocumented (contribute)

Parameters

- **direction** (*enum in ['VIEW_ON_EQUATOR', 'VIEW_ON_POLES', 'ALIGN_TO_OBJECT'], (optional)*) – Direction, Direction of the sphere or cylinder.
- **align** (*enum in ['POLAR_ZX', 'POLAR_ZY'], (optional)*) – Align, How to determine rotation around the pole.
- **radius** (*float in [0, inf], (optional)*) – Radius, Radius of the sphere or cylinder.
- **correct_aspect** (*boolean, (optional)*) – Correct Aspect, Map UV's taking image aspect ratio into account.
- **clip_to_bounds** (*boolean, (optional)*) – Clip to Bounds, Clip UV coordinates to bounds after unwrapping.
- **scale_to_bounds** (*boolean, (optional)*) – Scale to Bounds, Scale UV coordinates to bounds after unwrapping.

bpy.ops.uv.**export_layout**(*export_all=False*, *filepath=""*, *check_existing=True*, *mode='SVG'*)
Export the Mesh as SVG

Parameters

- **export_all** (*boolean, (optional)*) – All UV's, Export all UVs in this mesh (not just the visible ones)
- **filepath** (*string, (optional)*) – File Path, File path used for exporting the SVG file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **mode** (*enum in ['SVG', 'EPS'], (optional)*) – Format, File format to export the UV layout to

File op/uv.py:101

bpy.ops.uv.**follow_active_quads**(*mode='LENGTH'*)
Follow UVs from active quads along continuous face loops

Parameters

- **mode** (*enum in ['EVEN', 'LENGTH'], (optional)*) – Edge Length Mode, Method to space UV edge loops

File op/uvcalc_follow_active.py:255

bpy.ops.uv.**hide**(*unselected=False*)
Hide (un)selected UV vertices

Parameters

- **unselected** (*boolean, (optional)*) – Unselected, Hide unselected rather than selected.

bpy.ops.uv.**minimize_stretch**(*fill_holes=True*, *blend=0.0*, *iterations=0*)
Reduce UV stretching by relaxing angles

Parameters

- **fill_holes** (*boolean, (optional)*) – Fill Holes, Virtual fill holes in mesh before unwrapping, to better avoid overlaps and preserve symmetry.
- **blend** (*float in [0, 1], (optional)*) – Blend, Blend factor between stretch minimized and original.

- **iterations** (*int in [0, inf], (optional)*) – Iterations, Number of iterations to run, 0 is unlimited when run interactively.

bpy.ops.uv.**pack_islands**()
Undocumented (contribute)

bpy.ops.uv.**pin**(*clear=False*)
Set/clear selected UV vertices as anchored between multiple unwrap operations

Parameters

- **clear** (*boolean, (optional)*) – Clear, Clear pinning for the selection instead of setting it.

bpy.ops.uv.**project_from_view**(*orthographic=False*, *correct_aspect=True*, *clip_to_bounds=False*, *scale_to_bounds=False*)
Undocumented (contribute)

Parameters

- **orthographic** (*boolean, (optional)*) – Orthographic, Use orthographic projection.
- **correct_aspect** (*boolean, (optional)*) – Correct Aspect, Map UV's taking image aspect ratio into account.
- **clip_to_bounds** (*boolean, (optional)*) – Clip to Bounds, Clip UV coordinates to bounds after unwrapping.
- **scale_to_bounds** (*boolean, (optional)*) – Scale to Bounds, Scale UV coordinates to bounds after unwrapping.

bpy.ops.uv.**reset**()
Undocumented (contribute)

bpy.ops.uv.**reveal**()
Reveal all hidden UV vertices

bpy.ops.uv.**select**(*extend=False*, *location=(0.0, 0.0)*)
Select UV vertice

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection rather than clearing the existing selection.
- **location** (*float array of 2 items in [-inf, inf], (optional)*) – Location, Mouse location in normalized coordinates, 0.0 to 1.0 is within the image bounds.

bpy.ops.uv.**select_all**(*action='TOGGLE'*)
Change selection of all UV vertices

Parameters

- **action** (*enum in ['TOGGLE', 'SELECT', 'DESELECT', 'INVERT'], (optional, never None)*) – Action, Selection action to execute

bpy.ops.uv.**select_border**(*pinned=False*, *gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Select UV vertices using border selection

Parameters

- **pinned** (*boolean, (optional)*) – Pinned, Border select pinned UVs only.
- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max

- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.uv.**select_inverse**()
Select inverse of (un)selected UV vertices

bpy.ops.uv.**select_linked**(*extend=False*)
Select all UV vertices linked to the active UV map

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection rather than clearing the existing selection.

bpy.ops.uv.**select_linked_pick**(*extend=False*, *location=(0.0*, *0.0)*)
Select all UV vertices linked under the mouse

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection rather than clearing the existing selection.
- **location** (*float array of 2 items in [-inf, inf], (optional)*) – Location, Mouse location in normalized coordinates, 0.0 to 1.0 is within the image bounds.

bpy.ops.uv.**select_loop**(*extend=False*, *location=(0.0*, *0.0)*)
Select a loop of connected UV vertices

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection rather than clearing the existing selection.
- **location** (*float array of 2 items in [-inf, inf], (optional)*) – Location, Mouse location in normalized coordinates, 0.0 to 1.0 is within the image bounds.

bpy.ops.uv.**select_pinned**()
Select all pinned UV vertices

bpy.ops.uv.**smart_project**(*angle_limit=66.0*, *island_margin=0.0*)
This script projection unwraps the selected faces of a mesh. it operates on all selected mesh objects, and can be used unwrap selected faces, or all faces.

Parameters

- **angle_limit** (*float in [1, 89], (optional)*) – Angle Limit, lower for more projection groups, higher for less distortion.
- **island_margin** (*float in [0, 1], (optional)*) – Island Margin, Margin to reduce bleed from adjacent islands.

File op/uvcalc_smart_project.py:1131

bpy.ops.uv.**snap_cursor**(*target='PIXELS'*)
Snap cursor to target type

Parameters

- **target** (*enum in ['PIXELS', 'SELECTION'], (optional)*) – Target, Target to snap the selected UV's to.

bpy.ops.uv.**snap_selection**(*target='PIXELS'*)
Snap selected UV vertices to target type

Parameters

- **target** (*enum in ['PIXELS', 'CURSOR', 'ADJACENT_UNSELECTED'], (optional)*) – Target, Target to snap the selected UV's to.

bpy.ops.uv.**sphere_project**(*direction='VIEW_ON_EQUATOR'*, *align='POLAR_ZX'*, *correct_aspect=True*, *clip_to_bounds=False*, *scale_to_bounds=False*)
Undocumented (contribute)

Parameters

- **direction** (*enum in ['VIEW_ON_EQUATOR', 'VIEW_ON_POLES', 'ALIGN_TO_OBJECT'], (optional)*) – Direction, Direction of the sphere or cylinder.
- **align** (*enum in ['POLAR_ZX', 'POLAR_ZY'], (optional)*) – Align, How to determine rotation around the pole.
- **correct_aspect** (*boolean, (optional)*) – Correct Aspect, Map UV's taking image aspect ratio into account.
- **clip_to_bounds** (*boolean, (optional)*) – Clip to Bounds, Clip UV coordinates to bounds after unwrapping.
- **scale_to_bounds** (*boolean, (optional)*) – Scale to Bounds, Scale UV coordinates to bounds after unwrapping.

bpy.ops.uv.**stitch**(*use_limit=True*, *limit=0.01*)
Stitch selected UV vertices by proximity

Parameters

- **use_limit** (*boolean, (optional)*) – Use Limit, Stitch UVs within a specified limit distance.
- **limit** (*float in [0, inf], (optional)*) – Limit, Limit distance in normalized coordinates.

bpy.ops.uv.**tile_set**(*tile=(0, 0)*)
Set UV image tile coordinates

Parameters

- **tile** (*int array of 2 items in [0, inf], (optional)*) – Tile, Tile coordinate.

bpy.ops.uv.**unlink_selection**()
Unlink selected UV vertices from active UV map

bpy.ops.uv.**unwrap**(*method='ANGLE_BASED'*, *fill_holes=True*, *correct_aspect=True*)
Undocumented (contribute)

Parameters

- **method** (*enum in ['ANGLE_BASED', 'CONFORMAL'], (optional, never None)*) – Method, Unwrapping method. Angle Based usually gives better results than Conformal, while being somewhat slower.
- **fill_holes** (*boolean, (optional)*) – Fill Holes, Virtual fill holes in mesh before unwrapping, to better avoid overlaps and preserve symmetry.
- **correct_aspect** (*boolean, (optional)*) – Correct Aspect, Map UV's taking image aspect ratio into account.

bpy.ops.uv.**weld**()
Weld selected UV vertices together

1.2.58 View2d Operators

bpy.ops.view2d.**pan**(*deltax=0*, *deltay=0*)
Pan the view

Parameters

- **deltax** (*int in [-inf, inf], (optional)*) – Delta X
- **deltay** (*int in [-inf, inf], (optional)*) – Delta Y

bpy.ops.view2d.**reset**()
Reset the view

bpy.ops.view2d.**scroll_down**(*deltax=0*, *deltay=0*)
Scroll the view down

Parameters

- **deltax** (*int in [-inf, inf], (optional)*) – Delta X
- **deltay** (*int in [-inf, inf], (optional)*) – Delta Y

bpy.ops.view2d.**scroll_left**(*deltax=0*, *deltay=0*)
Scroll the view left

Parameters

- **deltax** (*int in [-inf, inf], (optional)*) – Delta X
- **deltay** (*int in [-inf, inf], (optional)*) – Delta Y

bpy.ops.view2d.**scroll_right**(*deltax=0*, *deltay=0*)
Scroll the view right

Parameters

- **deltax** (*int in [-inf, inf], (optional)*) – Delta X
- **deltay** (*int in [-inf, inf], (optional)*) – Delta Y

bpy.ops.view2d.**scroll_up**(*deltax=0*, *deltay=0*)
Scroll the view up

Parameters

- **deltax** (*int in [-inf, inf], (optional)*) – Delta X
- **deltay** (*int in [-inf, inf], (optional)*) – Delta Y

bpy.ops.view2d.**scroller_activate**()
Scroll view by mouse click and drag

bpy.ops.view2d.**zoom**(*deltax=0.0*, *deltay=0.0*)
Zoom in/out the view

Parameters

- **deltax** (*float in [-inf, inf], (optional)*) – Delta X
- **deltay** (*float in [-inf, inf], (optional)*) – Delta Y

bpy.ops.view2d.**zoom_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Zoom in the view to the nearest item contained in the border

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode

- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.view2d.**zoom_in**(*zoomfacx=0.0*, *zoomfacy=0.0*)
Zoom in the view

Parameters

- **zoomfacx** (*float in [-inf, inf], (optional)*) – Zoom Factor X
- **zoomfacy** (*float in [-inf, inf], (optional)*) – Zoom Factor Y

bpy.ops.view2d.**zoom_out**(*zoomfacx=0.0*, *zoomfacy=0.0*)
Zoom out the view

Parameters

- **zoomfacx** (*float in [-inf, inf], (optional)*) – Zoom Factor X
- **zoomfacy** (*float in [-inf, inf], (optional)*) – Zoom Factor Y

1.2.59 View3d Operators

bpy.ops.view3d.**add_background_image**(*name="Image"*, *filepath="Path"*)
Add a new background image

Parameters

- **name** (*string, (optional)*) – Name, Image name to assign.
- **filepath** (*string, (optional)*) – Filepath, Path to image file

bpy.ops.view3d.**camera_to_view**()
Set camera view to active view

bpy.ops.view3d.**clip_border**(*xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Set the view clipping border

Parameters

- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.view3d.**cursor3d**()
Set the location of the 3D cursor

bpy.ops.view3d.**edit_mesh_extrude_individual_move**()
Extrude individual elements and move

File ui/space_view3d.py:1441

bpy.ops.view3d.**edit_mesh_extrude_move_normal**()
Extrude and move along normals

File ui/space_view3d.py:1467

bpy.ops.view3d.**enable_manipulator**(*translate=False*, *rotate=False*, *scale=False*)
Enable the transform manipulator for use

Parameters

- **translate** (*boolean, (optional)*) – Translate, Enable the translate manipulator
- **rotate** (*boolean, (optional)*) – Rotate, Enable the rotate manipulator
- **scale** (*boolean, (optional)*) – Scale, Enable the scale manipulator

bpy.ops.view3d.**fly**()
Interactively fly around the scene

bpy.ops.view3d.**game_start**()
Start game engine

bpy.ops.view3d.**layers**(*nr=1*, *extend=False*, *toggle=True*)
Toggle layer(s) visibility

Parameters

- **nr** (*int in [0, 20], (optional)*) – Number, The layer number to set, zero for all layers
- **extend** (*boolean, (optional)*) – Extend, Add this layer to the current view layers
- **toggle** (*boolean, (optional)*) – Toggle, Toggle the layer

bpy.ops.view3d.**localview**()
Toggle display of selected object(s) separately and centered in view

bpy.ops.view3d.**manipulator**(*constraint_axis=(False, False, False)*, *constraint_orientation=''*, *release_confirm=False*)
Manipulate selected item by axis

Parameters

- **constraint_axis** (*boolean array of 3 items, (optional)*) – Constraint Axis
- **constraint_orientation** (*enum in ['GLOBAL', 'NORMAL', 'GIMBAL', 'LOCAL', 'VIEW'], (optional, never None)*) – Orientation, Transformation orientation
- **release_confirm** (*boolean, (optional)*) – Confirm on Release, Always confirm operation when releasing button

bpy.ops.view3d.**move**()
Move the view

bpy.ops.view3d.**object_as_camera**()
Set the active object as the active camera for this view or scene

bpy.ops.view3d.**properties**()
Toggles the properties panel display

bpy.ops.view3d.**remove_background_image**(*index=0*)
Remove a background image from the 3D view

Parameters

- **index** (*int in [0, inf], (optional)*) – Index, Background image index to remove

bpy.ops.view3d.**render_border**(*xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Set the boundries of the border render and enables border render

Parameters

- **xmin** (*int in [-inf, inf], (optional)*) – X Min

- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

bpy.ops.view3d.**rotate**()
Rotate the view

bpy.ops.view3d.**select**(*extend=False*, *center=False*, *enumerate=False*)
Activate/select item(s)

Parameters

- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first.
- **center** (*boolean, (optional)*) – Center, Use the object center when selecting (object mode only).
- **enumerate** (*boolean, (optional)*) – Enumerate, List objects under the mouse (object mode only).

bpy.ops.view3d.**select_border**(*gesture_mode=0*, *xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*, *extend=True*)
Select items using border selection

Parameters

- **gesture_mode** (*int in [-inf, inf], (optional)*) – Gesture Mode
- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max
- **extend** (*boolean, (optional)*) – Extend, Extend selection instead of deselecting everything first

bpy.ops.view3d.**select_circle**(*x=0*, *y=0*, *radius=0*, *gesture_mode=0*)
Select items using circle selection

Parameters

- **x** (*int in [-inf, inf], (optional)*) – X
- **y** (*int in [-inf, inf], (optional)*) – Y
- **radius** (*int in [-inf, inf], (optional)*) – Radius
- **gesture_mode** (*int in [-inf, inf], (optional)*) – Event Type

bpy.ops.view3d.**select_lasso**(*path=None*, *deselect=False*)
Select items using lasso selection

Parameters

- **path** (Collection of `OperatorMousePath`, (optional)) – Path
- **deselect** (*boolean, (optional)*) – Deselect, Deselect rather than select items.

bpy.ops.view3d.**smoothview**()
The time to animate the change of view (in milliseconds)

bpy.ops.view3d.**snap_cursor_to_active**()
Snap cursor to active item

bpy.ops.view3d.**snap_cursor_to_center**()
Snap cursor to the Center

bpy.ops.view3d.**snap_cursor_to_grid**()
Snap cursor to nearest grid node

bpy.ops.view3d.**snap_cursor_to_selected**()
Snap cursor to center of selected item(s)

bpy.ops.view3d.**snap_selected_to_cursor**()
Snap selected item(s) to cursor

bpy.ops.view3d.**snap_selected_to_grid**()
Snap selected item(s) to nearest grid node

bpy.ops.view3d.**toolshelf**()
Toggles tool shelf display

bpy.ops.view3d.**view_all**(*center=False*)
View all objects in scene

Parameters

- **center** (*boolean, (optional)*) – Center

bpy.ops.view3d.**view_center_camera**()
Center the camera view

bpy.ops.view3d.**view_center_cursor**()
Centers the view so that the cursor is in the middle of the view

bpy.ops.view3d.**view_orbit**(*type='ORBITLEFT'*)
Orbit the view

Parameters

- **type** (*enum in ['ORBITLEFT', 'ORBITRIGHT', 'ORBITUP', 'ORBITDOWN'], (optional, never None)*) – Orbit, Direction of View Orbit

bpy.ops.view3d.**view_pan**(*type='PANLEFT'*)
Pan the view

Parameters

- **type** (*enum in ['PANLEFT', 'PANRIGHT', 'PANUP', 'PANDOWN'], (optional, never None)*) – Pan, Direction of View Pan

bpy.ops.view3d.**view_persportho**()
Switch the current view from perspective/orthographic

bpy.ops.view3d.**view_selected**()
Move the view to the selection center

bpy.ops.view3d.**viewnumpad**(*type='FRONT'*, *align_active=False*)
Set the view

Parameters

- **type** (*enum in ['FRONT', 'BACK', 'LEFT', 'RIGHT', 'TOP', 'BOTTOM', 'CAMERA'], (optional, never None)*) – View, The Type of view
- **align_active** (*boolean, (optional)*) – Align Active, Align to the active objects axis

bpy.ops.view3d.**zoom**(*delta=0*, *mx=0*, *my=0*)
Zoom in/out in the view

Parameters

- **delta** (*int in [-inf, inf], (optional)*) – Delta
- **mx** (*int in [0, inf], (optional)*) – Zoom Position X
- **my** (*int in [0, inf], (optional)*) – Zoom Position Y

bpy.ops.view3d.**zoom_border**(*xmin=0*, *xmax=0*, *ymin=0*, *ymax=0*)
Zoom in the view to the nearest object contained in the border

Parameters

- **xmin** (*int in [-inf, inf], (optional)*) – X Min
- **xmax** (*int in [-inf, inf], (optional)*) – X Max
- **ymin** (*int in [-inf, inf], (optional)*) – Y Min
- **ymax** (*int in [-inf, inf], (optional)*) – Y Max

1.2.60 Wm Operators

bpy.ops.wm.**addon_disable**(*module=""*)
Disable an addon

Parameters

- **module** (*string, (optional)*) – Module, Module name of the addon to disable

File ui/space_userpref.py:1106

bpy.ops.wm.**addon_enable**(*module=""*)
Enable an addon

Parameters

- **module** (*string, (optional)*) – Module, Module name of the addon to enable

File ui/space_userpref.py:1069

bpy.ops.wm.**addon_expand**(*module=""*)
Display more information on this add-on

Parameters

- **module** (*string, (optional)*) – Module, Module name of the addon to expand

File ui/space_userpref.py:1198

bpy.ops.wm.**addon_install**(*filepath=""*, *module=""*, *filter_python=True*, *filter_folder=True*)
Install an addon

Parameters

- **filepath** (*string, (optional)*) – File Path, File path to write file to
- **module** (*string, (optional)*) – Module, Module name of the addon to disable
- **filter_python** (*boolean, (optional)*) – Filter python
- **filter_folder** (*boolean, (optional)*) – Filter folders

File ui/space_userpref.py:1142

bpy.ops.wm.**call_menu**(*name=""*)
Undocumented (contribute)

Parameters

- **name** (*string, (optional)*) – Name, Name of the menu

bpy.ops.wm.**context_cycle_enum**(*reverse=False*, *data_path=""*)
Toggle a context value.

Parameters

- **reverse** (*boolean, (optional)*) – Reverse, Cycle backwards
- **data_path** (*string, (optional)*) – Context Attributes, rna context string

File op/wm.py:286

bpy.ops.wm.**context_cycle_int**(*reverse=False*, *data_path=""*)

Set a context value. Useful for cycling active material, vertex keys, groups' etc.

Parameters

- **reverse** (*boolean, (optional)*) – Reverse, Cycle backwards
- **data_path** (*string, (optional)*) – Context Attributes, rna context string

File op/wm.py:252

bpy.ops.wm.**context_modal_mouse**(*initial_x=0*, *data_path_iter=""*, *invert=False*, *input_scale=0.01*, *data_path_item=""*)
Adjust arbitrary values with mouse input

Parameters

- **data_path_iter** (*string, (optional)*) – The data path relative to the context, must point to an iterable.
- **invert** (*boolean, (optional)*) – Invert the mouse input
- **input_scale** (*float in [-inf, inf], (optional)*) – Scale the mouse movement by this value before applying the delta
- **data_path_item** (*string, (optional)*) – The data path from each iterable to the value (int or float)

File op/wm.py:441

bpy.ops.wm.**context_scale_int**(*always_step=True*, *data_path=""*, *value=1.0*)
Scale an int context value.

Parameters

- **always_step** (*boolean, (optional)*) – Always Step, Always adjust the value by a minimum of 1 when 'value' is not 1.0.
- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*float in [-inf, inf], (optional)*) – Value, Assign value

File op/wm.py:114

bpy.ops.wm.**context_set_boolean**(*data_path=""*, *value=True*)
Set a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*boolean, (optional)*) – Value, Assignment value

File op/wm.py:64

bpy.ops.wm.**context_set_enum**(*data_path=""*, *value=""*)
Set a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*string, (optional)*) – Value, Assignment value (as a string)

File op/wm.py:64

bpy.ops.wm.**context_set_float**(*data_path=""*, *value=0.0*, *relative=False*)
Set a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*float in [-inf, inf], (optional)*) – Value, Assignment value
- **relative** (*boolean, (optional)*) – Relative, Apply relative to the current value (delta)

File op/wm.py:64

bpy.ops.wm.**context_set_id**(*data_path=""*, *value=""*)
Toggle a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*string, (optional)*) – Value, Assign value

File op/wm.py:339

bpy.ops.wm.**context_set_int**(*data_path=""*, *value=0*, *relative=False*)
Set a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*int in [-inf, inf], (optional)*) – Value, Assign value
- **relative** (*boolean, (optional)*) – Relative, Apply relative to the current value (delta)

File op/wm.py:64

bpy.ops.wm.**context_set_string**(*data_path=""*, *value=""*)
Set a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*string, (optional)*) – Value, Assign value

File op/wm.py:64

bpy.ops.wm.**context_set_value**(*data_path=""*, *value=""*)
Set a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value** (*string, (optional)*) – Value, Assignment value (as a string)

File op/wm.py:190

bpy.ops.wm.**context_toggle**(*data_path=""*)
Toggle a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string

File op/wm.py:205

bpy.ops.wm.**context_toggle_enum**(*data_path=""*, *value_1=""*, *value_2=""*)
Toggle a context value.

Parameters

- **data_path** (*string, (optional)*) – Context Attributes, rna context string
- **value_1** (*string, (optional)*) – Value, Toggle enum
- **value_2** (*string, (optional)*) – Value, Toggle enum

File op/wm.py:229

bpy.ops.wm.**debug_menu**(*debugval=0*)
Open a popup to set the debug level

Parameters

- **debugval** (*int in [-10000, 10000], (optional)*) – Debug Value

bpy.ops.wm.**doc_edit**(*doc_new=""*, *doc_id=""*)
Load online reference docs

Parameters

- **doc_new** (*string, (optional)*) – Edit Description
- **doc_id** (*string, (optional)*) – Doc ID

File op/wm.py:563

bpy.ops.wm.**doc_view**(*doc_id=""*)
Load online reference docs

Parameters

- **doc_id** (*string, (optional)*) – Doc ID

File op/wm.py:518

bpy.ops.wm.**exit_blender**()
Quit Blender

bpy.ops.wm.**interaction_preset_add**(*name=""*)
Add an Application Interaction Preset

Parameters

- **name** (*string, (optional)*) – Name, Name of the preset, used to make the path name

File op/presets.py:40

bpy.ops.wm.**keyconfig_export**(*filepath="keymap.py"*, *filter_text=True*, *filter_python=True*, *kc_name=""*, *filter_folder=True*)

Export key configuration to a python script

Parameters

- **filepath** (*string, (optional)*) – File Path, Filepath to write file to
- **filter_text** (*boolean, (optional)*) – Filter text
- **filter_python** (*boolean, (optional)*) – Filter python
- **kc_name** (*string, (optional)*) – KeyConfig Name, Name to save the key config as
- **filter_folder** (*boolean, (optional)*) – Filter folders

File ui/space_userpref_keymap.py:589

bpy.ops.wm.**keyconfig_import**(*keep_original=True*, *filepath="keymap.py"*, *filter_folder=True*, *filter_text=True*, *filter_python=True*)

Import key configuration from a python script

Parameters

- **keep_original** (*boolean, (optional)*) – Keep original, Keep original file after copying to configuration folder
- **filepath** (*string, (optional)*) – File Path, Filepath to write file to
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filter_text** (*boolean, (optional)*) – Filter text
- **filter_python** (*boolean, (optional)*) – Filter python

File ui/space_userpref_keymap.py:521

bpy.ops.wm.**keyconfig_remove**()

Remove key config

File ui/space_userpref_keymap.py:773

bpy.ops.wm.**keyconfig_test**()

Test keyconfig for conflicts

File ui/space_userpref_keymap.py:488

bpy.ops.wm.**keyitem_add**()

Add key map item

File ui/space_userpref_keymap.py:729

bpy.ops.wm.**keyitem_remove**(*item_id=0*)

Remove key map item

Parameters

- **item_id** (*int in [-inf, inf], (optional)*) – Item Identifier, Identifier of the item to remove

File ui/space_userpref_keymap.py:755

bpy.ops.wm.**keyitem_restore**(*item_id=0*)

Restore key map item

Parameters

- **item_id** (*int in [-inf, inf], (optional)*) – Item Identifier, Identifier of the item to remove

File ui/space_userpref_keymap.py:714

bpy.ops.wm.**keymap_edit**()
Edit stored key map

File ui/space_userpref_keymap.py:680

bpy.ops.wm.**keymap_restore**(*all=False*)
Restore key map(s)

Parameters

- **all** (*boolean, (optional)*) – All Keymaps, Restore all keymaps to default

File ui/space_userpref_keymap.py:694

bpy.ops.wm.**link_append**(*filepath=""*, *directory=""*, *filename=""*, *filter_blender=True*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=1*, *relative_path=False*, *link=True*, *autoselect=True*, *active_layer=True*, *instance_groups=True*, *files=None*)
Link or Append from a Library .blend file

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **directory** (*string, (optional)*) – Directory, Directory of the file
- **filename** (*string, (optional)*) – File Name, Name of the file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **relative_path** (*boolean, (optional)*) – Relative Path, Select the file relative to the blend file
- **link** (*boolean, (optional)*) – Link, Link the objects or datablocks rather than appending
- **autoselect** (*boolean, (optional)*) – Select, Select the linked objects
- **active_layer** (*boolean, (optional)*) – Active Layer, Put the linked objects on the active layer
- **instance_groups** (*boolean, (optional)*) – Instance Groups, Create instances for each group as a DupliGroup
- **files** (Collection of `OperatorFileListElement`, (optional)) – Files

bpy.ops.wm.**memory_statistics**()
Print memory statistics to the console

bpy.ops.wm.**open_mainfile**(*filepath=""*, *filter_blender=True*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=8*, *load_ui=True*, *use_scripts=True*)

Open a Blender file

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **load_ui** (*boolean, (optional)*) – Load UI, Load user interface setup in the .blend file
- **use_scripts** (*boolean, (optional)*) – Trusted Source, Allow blend file execute scripts automatically, default available from system preferences

bpy.ops.wm.**path_open**(*filepath=""*)

Open a path in a file browser

Parameters

- **filepath** (*string, (optional)*) – File Path

File op/wm.py:476

bpy.ops.wm.**properties_add**(*data_path=""*)

Internal use (edit a property data_path)

Parameters

- **data_path** (*string, (optional)*) – Property Edit, Property data_path edit

File op/wm.py:710

bpy.ops.wm.**properties_edit**(*description=""*, *min=0.0*, *max=1.0*, *data_path=""*, *value=""*, *property=""*)

Internal use (edit a property data_path)

Parameters

- **description** (*string, (optional)*) – Tip
- **min** (*float in [-inf, inf], (optional)*) – Min
- **max** (*float in [-inf, inf], (optional)*) – Max

- **data_path** (*string, (optional)*) – Property Edit, Property data_path edit
- **value** (*string, (optional)*) – Property Value, Property value edit
- **property** (*string, (optional)*) – Property Name, Property name edit

File op/wm.py:643

bpy.ops.wm.**properties_remove**(*property=""*, *data_path=""*)
Internal use (edit a property data_path)

Parameters

- **property** (*string, (optional)*) – Property Name, Property name edit
- **data_path** (*string, (optional)*) – Property Edit, Property data_path edit

File op/wm.py:737

bpy.ops.wm.**read_homefile**(*factory=False*)
Open the default file (doesn't save the current file)

Parameters

- **factory** (*boolean, (optional)*) – Factory Settings

bpy.ops.wm.**recover_auto_save**(*filepath=""*, *filter_blender=True*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=False*, *filemode=8*)
Open an automatically saved file to recover it

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file

bpy.ops.wm.**recover_last_session**()
Open the last closed file ("quit.blend")

bpy.ops.wm.**redraw_timer**(*type='DRAW'*, *iterations=10*)
Simple redraw timer to test the speed of updating the interface

Parameters

- **type** (*enum in ['DRAW', 'DRAW_SWAP', 'DRAW_WIN', 'DRAW_WIN_SWAP', 'ANIM_STEP', 'ANIM_PLAY', 'UNDO'], (optional, never None)*) – Type

- **iterations** (*int in [1, inf], (optional)*) – Iterations, Number of times to redraw

bpy.ops.wm.**save_as_mainfile**(*filepath=""*, *check_existing=True*, *filter_blender=True*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=8*, *compress=False*, *relative_remap=True*, *copy=False*)

Save the current file in the desired location

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files
- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **compress** (*boolean, (optional)*) – Compress, Write compressed .blend file
- **relative_remap** (*boolean, (optional)*) – Remap Relative, Remap relative paths when saving in a different directory
- **copy** (*boolean, (optional)*) – Save Copy, Save a copy of the actual working state but does not make saved file active.

bpy.ops.wm.**save_homefile**()

Make the current file the default .blend file

bpy.ops.wm.**save_mainfile**(*filepath=""*, *check_existing=True*, *filter_blender=True*, *filter_image=False*, *filter_movie=False*, *filter_python=False*, *filter_font=False*, *filter_sound=False*, *filter_text=False*, *filter_btx=False*, *filter_collada=False*, *filter_folder=True*, *filemode=8*, *compress=False*, *relative_remap=False*)

Save the current Blender file

Parameters

- **filepath** (*string, (optional)*) – File Path, Path to file
- **check_existing** (*boolean, (optional)*) – Check Existing, Check and warn on overwriting existing files
- **filter_blender** (*boolean, (optional)*) – Filter .blend files
- **filter_image** (*boolean, (optional)*) – Filter image files

- **filter_movie** (*boolean, (optional)*) – Filter movie files
- **filter_python** (*boolean, (optional)*) – Filter python files
- **filter_font** (*boolean, (optional)*) – Filter font files
- **filter_sound** (*boolean, (optional)*) – Filter sound files
- **filter_text** (*boolean, (optional)*) – Filter text files
- **filter_btx** (*boolean, (optional)*) – Filter btx files
- **filter_collada** (*boolean, (optional)*) – Filter COLLADA files
- **filter_folder** (*boolean, (optional)*) – Filter folders
- **filemode** (*int in [1, 9], (optional)*) – File Browser Mode, The setting for the file browser mode to load a .blend file, a library or a special file
- **compress** (*boolean, (optional)*) – Compress, Write compressed .blend file
- **relative_remap** (*boolean, (optional)*) – Remap Relative, Remap relative paths when saving in a different directory

bpy.ops.wm.**search_menu**()
Undocumented (contribute)

bpy.ops.wm.**splash**()
Opens a blocking popup region with release info

bpy.ops.wm.**url_open**(*url=""*)
Open a website in the Webbrowser

Parameters

- **url** (*string, (optional)*) – URL, URL to open

File op/wm.py:463

bpy.ops.wm.**window_duplicate**()
Duplicate the current Blender window

bpy.ops.wm.**window_fullscreen_toggle**()
Toggle the current window fullscreen

1.2.61 World Operators

bpy.ops.world.**new**()
Add a new world

1.3 Types (bpy.types)

1.3.1 Action(ID)

base classes — bpy_struct, ID

class bpy.types.**Action**(*ID*)
A collection of F-Curves for animation

fcurves
The individual F-Curves that make up the Action

Type ActionFCurves collection of FCurve, (readonly)

frame_range
The final frame range of all fcurves within this action

Type float array of 2 items in [-inf, inf], default (0.0, 0.0), (readonly)

groups
Convenient groupings of F-Curves

Type ActionGroups collection of ActionGroup, (readonly)

pose_markers
Markers specific to this Action, for labeling poses

Type ActionPoseMarkers collection of TimelineMarker, (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- ActionActuator.action
- ActionConstraint.action

- AnimData.action
- BlendData.actions
- MainActions.new
- MainActions.remove
- NlaStrip.action
- Object.pose_library
- ShapeActionActuator.action
- SpaceDopeSheetEditor.action

1.3.2 ActionActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**ActionActuator**(*Actuator*)

Actuator to control the object movement

action

Type Action

frame_blend_in

Number of frames of motion blending

Type int in [0, 32767], default 0

frame_end

Type int in [0, 300000], default 0

frame_property

Assign the action's current frame number to this property

Type string, default ""

frame_start

Type int in [0, 300000], default 0

play_mode

Action playback type

Type enum in ['PLAY', 'FLIPPER', 'LOOPSTOP', 'LOOPEND', 'PROPERTY'], default 'PLAY'

priority

Execution priority - lower numbers will override actions with higher numbers. With 2 or more actions at once, the overriding channels must be lower in the stack

Type int in [0, 100], default 0

property

Use this property to define the Action position

Type string, default ""

use_continue_last_frame

Restore last frame when switching on/off, otherwise play from the start each time

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.3 ActionConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**ActionConstraint**(*Constraint*)

Map an action to the transform axes of a bone

action

Type Action

frame_end

Last frame of the Action to use

Type int in [-300000, 300000], default 0

frame_start

First frame of the Action to use

Type int in [-300000, 300000], default 0

max

Maximum value for target channel range

Type float in [-1000, 1000], default 0.0

min

Minimum value for target channel range

Type float in [-1000, 1000], default 0.0

subtarget

Type string, default “”

target
Target Object

Type Object

transform_channel
Transformation channel from the target that is used to key the Action

Type enum in [’LOCATION_X’, ‘LOCATION_Y’, ‘LOCATION_Z’, ‘ROTATION_X’, ‘ROTATION_Y’, ‘ROTATION_Z’, ‘SCALE_X’, ‘SCALE_Y’, ‘SCALE_Z’], default ‘ROTATION_X’

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.4 ActionFCurves(bpy_struct)

base class — bpy_struct

class bpy.types.**ActionFCurves**(*bpy_struct*)
Collection of action fcurves

new(*data_path*, *array_index=0*, *action_group=""*)
Add a keyframe to the curve.

Parameters

- **data_path** (*string*) – Data Path, FCurve data path to use.
- **array_index** (*int in [0, inf], (optional)*) – Index, Array index.
- **action_group** (*string, (optional)*) – Action Group, Acton group to add this fcurve into.

Returns Newly created fcurve

Return type FCurve

remove(*fcurve*)
Remove action group.

Parameters

- **fcurve** (FCurve, (never None)) – FCurve to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Action.fcurves

1.3.5 ActionGroup(bpy_struct)

base class — bpy_struct

class bpy.types.**ActionGroup**(*bpy_struct*)
Groups of F-Curves

channels
F-Curves in this group

Type Collection of FCurve, (readonly)

custom_color
Index of custom color set

Type int in [-inf, inf], default 0

lock
Action Group is locked

Type boolean, default False

name

Type string, default ""

select
Action Group is selected

Type boolean, default False

show_expanded
Action Group is expanded

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Action.groups
- ActionGroups.new
- ActionGroups.remove
- FCurve.group

1.3.6 ActionGroups(bpy_struct)

base class — bpy_struct

class bpy.types.**ActionGroups**(*bpy_struct*)
Collection of action groups

new(*name*)
Add a keyframe to the curve.

Parameters

- **name** (*string*) – New name for the action group.

Returns Newly created action group

Return type ActionGroup

remove(*action_group*)
Remove action group.

Parameters

- **action_group** (ActionGroup, (never None)) – Action group to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Action.groups

1.3.7 ActionPoseMarkers(bpy_struct)

base class — bpy_struct

class bpy.types.**ActionPoseMarkers**(*bpy_struct*)
Collection of timeline markers

new(*name*)
Add a pose marker to the action.

Parameters

- **name** (*string*) – New name for the marker (not unique).

Returns Newly created marker

Return type TimelineMarker

remove(*marker*)
Remove a timeline marker.

Parameters

- **marker** (TimelineMarker, (never None)) – Timeline marker to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Action.pose_markers

1.3.8 Actuator(bpy_struct)

base class — bpy_struct

subclasses — ShapeActionActuator, VisibilityActuator, FCurveActuator, MessageActuator, RandomActuator, Filter2DActuator, GameActuator, CameraActuator, ArmatureActuator, SoundActuator, ParentActuator, SceneActuator, StateActuator, ActionActuator, PropertyActuator, ObjectActuator, ConstraintActuator, EditObjectActuator

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

Actuator to apply actions in the game engine

name

Type string, default ""

pin

Display when not linked to a visible states controller

Type boolean, default False

show_expanded

Set actuator expanded in the user interface

Type boolean, default False

type

Type enum in ['ACTION', 'ARMATURE', 'CAMERA', 'CONSTRAINT', 'EDIT_OBJECT', 'F-Curve', 'FILTER_2D', 'GAME', 'MESSAGE', 'OBJECT', 'PARENT', 'PROPERTY', 'RANDOM', 'SCENE', 'SHAPE_ACTION', 'SOUND', 'STATE', 'VISIBILITY'], default 'OBJECT'

link(*controller*)

Link the actuator to a controller.

Parameters

- **controller** (Controller) – Controller to link to.

unlink(*controller*)

Unlink the actuator from a controller.

Parameters

- **controller** (Controller) – Controller to unlink from.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Controller.link
- Controller.unlink
- GameObjectSettings.actuators

1.3.9 ActuatorSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**ActuatorSensor**(*Sensor*)

Sensor to detect state modifications of actuators

actuator

Actuator name, actuator active state modifications will be detected

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.10 Addon(bpy_struct)

base class — bpy_struct

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

Python addons to be loaded automatically

module

Module name

Type string, default ""

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Addons.new
- Addons.remove
- UserPreferences.addons

1.3.11 Addons(bpy_struct)

base class — bpy_struct

class bpy.types.**Addons**(*bpy_struct*)
Collection of add-ons

classmethod new()
Add a new addon

Returns Addon datablock.

Return type Addon

classmethod remove(*addon*)
Remove addon.

Parameters

- **addon** (Addon, (never None)) – Addon to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.addons

1.3.12 AlwaysSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**AlwaysSensor**(*Sensor*)
Sensor to generate continuous pulses

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.13 AndController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**AndController**(*Controller*)
Controller passing on events based on a logical AND operation

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.14 AnimData(bpy_struct)

base class — bpy_struct

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

Animation data for datablock

action

Active Action for this datablock

Type Action

action_blend_type

Method used for combining Active Action's result with result of NLA stack

Type enum in ['REPLACE', 'ADD', 'SUBTRACT', 'MULITPLY'], default 'REPLACE'

action_extrapolation

Action to take for gaps past the Active Action's range (when evaluating with NLA)

Type enum in ['NOTHING', 'HOLD', 'HOLD_FORWARD'], default 'HOLD'

action_influence

Amount the Active Action contributes to the result of the NLA stack

Type float in [0, 1], default 1.0

drivers
The Drivers/Expressions for this datablock

Type Collection of FCurve, (readonly)

nla_tracks
NLA Tracks (i.e. Animation Layers)

Type Collection of NlaTrack, (readonly)

use_nla
NLA stack is evaluated when evaluating this block

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Armature.animation_data
- Camera.animation_data
- Curve.animation_data
- ID.animation_data_create
- Key.animation_data
- Lamp.animation_data
- Material.animation_data
- Mesh.animation_data
- MetaBall.animation_data
- NodeTree.animation_data
- Object.animation_data
- ParticleSettings.animation_data
- Scene.animation_data

- Texture.animation_data
- World.animation_data

1.3.15 AnimViz(bpy_struct)

base class — bpy_struct

class bpy.types.**AnimViz**(*bpy_struct*)
Settings for the visualisation of motion

motion_path
Motion Path settings for visualisation

Type AnimVizMotionPaths, (readonly, never None)

onion_skin_frames
Onion Skinning (ghosting) settings for visualisation

Type AnimVizOnionSkinning, (readonly, never None)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.animation_visualisation
- Pose.animation_visualisation

1.3.16 AnimVizMotionPaths(bpy_struct)

base class — bpy_struct

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

Motion Path settings for animation visualisation

bake_location

When calculating Bone Paths, use Head or Tips

Type enum in ['HEADS', 'TAILS'], default 'TAILS'

frame_after

Number of frames to show after the current frame (only for 'Around Current Frame' Onion-skinning method)

Type int in [1, 150000], default 0

frame_before

Number of frames to show before the current frame (only for 'Around Current Frame' Onion-skinning method)

Type int in [1, 150000], default 0

frame_end

End frame of range of paths to display/calculate (not for 'Around Current Frame' Onion-skinning method)

Type int in [-inf, inf], default 0

frame_start

Starting frame of range of paths to display/calculate (not for 'Around Current Frame' Onion-skinning method)

Type int in [-inf, inf], default 0

frame_step

Number of frames between paths shown (not for 'On Keyframes' Onion-skinning method)

Type int in [1, 100], default 0

show_frame_numbers

Show frame numbers on Motion Paths

Type boolean, default False

show_keyframe_action_all

For bone motion paths, search whole Action for keyframes instead of in group with matching name only (is slower)

Type boolean, default False

show_keyframe_highlight

Emphasize position of keyframes on Motion Paths

Type boolean, default False

show_keyframe_numbers

Show frame numbers of Keyframes on Motion Paths

Type boolean, default False

type

Type of range to show for Motion Paths

Type enum in ['CURRENT_FRAME', 'RANGE'], default 'RANGE'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- AnimViz.motion_path

1.3.17 AnimVizOnionSkinning(bpy_struct)

base class — bpy_struct

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

Onion Skinning settings for animation visualisation

frame_after

Number of frames to show after the current frame (only for 'Around Current Frame' Onion-skinning method)

Type int in [0, 30], default 0

frame_before

Number of frames to show before the current frame (only for 'Around Current Frame' Onion-skinning method)

Type int in [0, 30], default 0

frame_end

End frame of range of Ghosts to display (not for 'Around Current Frame' Onion-skinning method)

Type int in [-inf, inf], default 0

frame_start

Starting frame of range of Ghosts to display (not for 'Around Current Frame' Onion-skinning method)

Type int in [-inf, inf], default 0

frame_step
Number of frames between ghosts shown (not for 'On Keyframes' Onion-skinning method)

Type int in [1, 20], default 0

show_only_selected
For Pose-Mode drawing, only draw ghosts for selected bones

Type boolean, default False

type
Method used for determining what ghosts get drawn

Type enum in ['NONE', 'CURRENT_FRAME', 'RANGE', 'KEYS'], default 'NONE'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- AnimViz.onion_skin_frames

1.3.18 AnyType(bpy_struct)

base class — bpy_struct

class bpy.types.**AnyType**(*bpy_struct*)
RNA type used for pointers to any possible data

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyingSetInfo.generate
- UILayout.context_pointer_set
- UILayout.prop
- UILayout.prop_enum
- UILayout.prop_menu_enum
- UILayout.prop_search
- UILayout.prop_search
- UILayout.props_enum
- UILayout.template_ID
- UILayout.template_ID_preview
- UILayout.template_any_ID
- UILayout.template_color_ramp
- UILayout.template_color_wheel
- UILayout.template_curve_mapping
- UILayout.template_histogram
- UILayout.template_image
- UILayout.template_layers
- UILayout.template_layers
- UILayout.template_list
- UILayout.template_list
- UILayout.template_path_builder
- UILayout.template_vectorscope
- UILayout.template_waveform

1.3.19 Area(bpy_struct)

base class — bpy_struct

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

Area in a subdivided screen, containing an editor

active_space
Space currently being displayed in this area

Type Space, (readonly)

regions
Regions this area is subdivided in

Type Collection of Region, (readonly)

show_menus
Show menus in the header

Type boolean, default False

spaces
Spaces contained in this area, the first space is active

Type Collection of Space, (readonly)

type
Space type

Type enum in ['EMPTY', 'VIEW_3D', 'GRAPH_EDITOR', 'OUTLINER', 'PROPERTIES', 'FILE_BROWSER', 'IMAGE_EDITOR', 'INFO', 'SEQUENCE_EDITOR', 'TEXT_EDITOR', 'AUDIO_WINDOW', 'DOPESHEET_EDITOR', 'NLA_EDITOR', 'SCRIPTS_WINDOW', 'TIMELINE', 'NODE_EDITOR', 'LOGIC_EDITOR', 'CONSOLE', 'USER_PREFERENCES'], default 'EMPTY'

tag_redraw()
tag_redraw

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Context.area
- Screen.areas

1.3.20 AreaLamp(Lamp)

base classes — bpy_struct, ID, Lamp

class bpy.types.**AreaLamp**(*Lamp*)

Directional area lamp

gamma

Light gamma correction value

Type float in [-inf, inf], default 0.0

shadow_adaptive_threshold

Threshold for Adaptive Sampling (Raytraced shadows)

Type float in [0, 1], default 0.0

shadow_color

Color of shadows cast by the lamp

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

shadow_method

Method to compute lamp shadow with

Type enum in ['NOSHADOW', 'RAY_SHADOW'], default 'NOSHADOW'

shadow_ray_sample_method

Method for generating shadow samples: Adaptive QMC is fastest, Constant QMC is less noisy but slower

Type enum in ['ADAPTIVE_QMC', 'CONSTANT_QMC', 'CONSTANT_JITTERED'], default 'CONSTANT_JITTERED'

shadow_ray_samples_x

Amount of samples taken extra (samples x samples)

Type int in [1, 64], default 0

shadow_ray_samples_y

Amount of samples taken extra (samples x samples)

Type int in [1, 64], default 0

shadow_soft_size

Light size for ray shadow sampling (Raytraced shadows)

Type float in [-inf, inf], default 0.0

shape

Shape of the area lamp

Type enum in ['SQUARE', 'RECTANGLE'], default 'SQUARE'

size

Size of the area of the area Lamp, X direction size for Rectangle shapes

Type float in [-inf, inf], default 0.0

size_y
Size of the area of the area Lamp in the Y direction for Rectangle shapes

Type float in [-inf, inf], default 0.0

use_dither
Use 2x2 dithering for sampling (Constant Jittered sampling)

Type boolean, default False

use_jitter
Use noise for sampling (Constant Jittered sampling)

Type boolean, default False

use_only_shadow
Causes light to cast shadows only without illuminating objects

Type boolean, default False

use_shadow_layer
Causes only objects on the same layer to cast shadows

Type boolean, default False

use_umbra
Emphasize parts that are fully shadowed (Constant Jittered sampling)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Lamp.active_texture
- Lamp.active_texture_index
- Lamp.animation_data
- Lamp.color
- Lamp.use_diffuse
- Lamp.distance
- Lamp.energy
- Lamp.use_own_layer
- Lamp.use_negative
- Lamp.use_specular
- Lamp.texture_slots
- Lamp.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add

- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.21 Armature(ID)

base classes — bpy_struct, ID

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

Armature datablock containing a hierarchy of bones, usually used for rigging characters

animation_data

Animation data for this datablock

Type AnimData, (readonly)

bones

Type ArmatureBones collection of Bone, (readonly)

draw_type

Type enum in ['OCTAHEDRAL', 'STICK', 'BBONE', 'ENVELOPE'], default 'OCTAHEDRAL'

edit_bones

Type ArmatureEditBones collection of EditBone, (readonly)

ghost_frame_end

End frame of range of Ghosts to display (not for 'Around Current Frame' Onion-skinning method)

Type int in [-inf, inf], default 0

ghost_frame_start

Starting frame of range of Ghosts to display (not for 'Around Current Frame' Onion-skinning method)

Type int in [-inf, inf], default 0

ghost_size

Frame step for Ghosts (not for 'On Keyframes' Onion-skinning method)

Type int in [1, 20], default 0

ghost_step

Number of frame steps on either side of current frame to show as ghosts (only for 'Around Current Frame' Onion-skinning method)

Type int in [0, 30], default 0

ghost_type
Method of Onion-skinning for active Action

Type enum in ['CURRENT_FRAME', 'RANGE', 'KEYS'], default 'CURRENT_FRAME'

layers
Armature layer visibility

Type boolean array of 32 items, default (False, False)

layers_protected
Protected layers in Proxy Instances are restored to Proxy settings on file reload and undo

Type boolean array of 32 items, default (False, False)

pose_position
Show armature in binding pose or final posed state

Type enum in ['POSE', 'REST'], default 'POSE'

show_axes
Draw bone axes

Type boolean, default False

show_bone_custom_shapes
Draw bones with their custom shapes

Type boolean, default False

show_group_colors
Draw bone group colors

Type boolean, default False

show_names
Draw bone names

Type boolean, default False

show_only_ghost_selected

Type boolean, default False

use_auto_ik
Add temporaral IK constraints while grabbing bones in Pose Mode

Type boolean, default False

use_deform_delay
Don't deform children when manipulating bones in Pose Mode

Type boolean, default False

use_deform_envelopes
Enable Bone Envelopes when defining deform

Type boolean, default False

use_deform_preserve_volume
Enable deform rotation with Quaternions

Type boolean, default False

use_deform_vertex_groups
Enable Vertex Groups when defining deform

Type boolean, default False

use_mirror_x
Apply changes to matching bone on opposite side of X-Axis

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.armatures
- MainArmatures.new
- MainArmatures.remove

1.3.22 ArmatureActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**ArmatureActuator**(*Actuator*)

Actuator to ..

bone

Bone on which the constraint is defined

Type string, default “”

constraint

Name of the constraint you want to control

Type string, default “”

mode

Type enum in [’RUN’, ‘ENABLE’, ‘DISABLE’, ‘SETTARGET’, ‘SETWEIGHT’], default ‘RUN’

secondary_target

Set weight of this constraint

Type Object

target

Set this object as the target of the constraint

Type Object

weight

Set weight of this constraint

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.23 ArmatureBones(bpy_struct)

base class — bpy_struct

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

Collection of armature bones

active

Armatures active bone

Type Bone

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Armature.bones

1.3.24 ArmatureEditBones(bpy_struct)

base class — bpy_struct

class bpy.types.**ArmatureEditBones**(*bpy_struct*)
Collection of armature edit bones

active
Armatures active edit bone

Type EditBone

new(*name*)
Add a new bone.

Parameters

- **name** (*string*) – New name for the bone

Returns Newly created edit bone

Return type EditBone

remove(*bone*)
Remove an existing bone from the armature

Parameters

- **bone** (EditBone, (never None)) – EditBone to remove

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Armature.edit_bones

1.3.25 ArmatureModifier(Modifier)

base classes — bpy_struct, Modifier

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

Armature deformation modifier

invert_vertex_group

Invert vertex group influence

Type boolean, default False

object

Armature object to deform with

Type Object

use_bone_envelopes

Type boolean, default False

use_deform_preserve_volume

Deform rotation interpolation with quaternions

Type boolean, default False

use_multi_modifier

Use same input as previous modifier, and mix results using overall vgroup

Type boolean, default False

use_vertex_groups

Type boolean, default False

vertex_group

Vertex group name

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.26 ArmatureSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**ArmatureSensor**(*Sensor*)

Sensor to detect values and changes in values of IK solver

bone

Identify the bone to check value from

Type string, default “”

constraint

Identify the bone constraint to check value from

Type string, default “”

test_type

Type of value and test

Type enum in [’STATECHG’, ‘LINERRORBELOW’, ‘LINERRORABOVE’, ‘ROTERRORBELOW’, ‘ROTERRORBELOW’], default ‘STATECHG’

value

Specify value to be used in comparison

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.27 ArrayModifier(Modifier)

base classes — bpy_struct, Modifier

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

Array duplication modifier

constant_offset_displace

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

count

Number of duplicates to make

Type int in [1, inf], default 0

curve

Curve object to fit array length to

Type Object

end_cap

Mesh object to use as an end cap

Type Object

fit_length

Length to fit array within

Type float in [0, inf], default 0.0

fit_type

Array length calculation method

Type enum in ['FIXED_COUNT', 'FIT_LENGTH', 'FIT_CURVE'], default 'FIXED_COUNT'

merge_threshold

Limit below which to merge vertices

Type float in [0, inf], default 0.0

offset_object

Type Object

relative_offset_displace

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

start_cap
Mesh object to use as a start cap

Type Object

use_constant_offset
Add a constant offset

Type boolean, default False

use_merge_vertices
Merge vertices in adjacent duplicates

Type boolean, default False

use_merge_vertices_cap
Merge vertices in first and last duplicates

Type boolean, default False

use_object_offset
Add another object's transformation to the total offset

Type boolean, default False

use_relative_offset
Add an offset relative to the object's bounding box

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

1.3.28 BackgroundImage(bpy_struct)

base class — bpy_struct

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

Image and settings for display in the 3d View background

image

Image displayed and edited in this space

Type Image

image_user

Parameters defining which layer, pass and frame of the image is displayed

Type ImageUser, (readonly, never None)

offset_x

Offsets image horizontally from the world origin

Type float in [-inf, inf], default 0.0

offset_y

Offsets image vertically from the world origin

Type float in [-inf, inf], default 0.0

show_expanded

Show the expanded in the user interface

Type boolean, default False

size

Scaling factor for the background image

Type float in [0, inf], default 0.0

transparency

Amount to blend the image against the background color

Type float in [0, 1], default 0.0

view_axis

The axis to display the image on

Type enum in ['LEFT', 'RIGHT', 'BACK', 'FRONT', 'BOTTOM', 'TOP', 'ALL', 'CAMERA'], default 'ALL'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SpaceView3D.background_images

1.3.29 BevelModifier(Modifier)

base classes — bpy_struct, Modifier

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

Bevel modifier to make edges and vertices more rounded

angle_limit

Angle above which to bevel edges

Type float in [0, 180], default 0.0

edge_weight_method

What edge weight to use for weighting a vertex

Type enum in ['AVERAGE', 'SHARPEST', 'LARGEST'], default 'AVERAGE'

limit_method

Type enum in ['NONE', 'ANGLE', 'WEIGHT'], default 'NONE'

use_only_vertices

Bevel verts/corners, not edges

Type boolean, default False

width

Bevel value/amount

Type float in [0, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.30 BezierSplinePoint(bpy_struct)

base class — bpy_struct

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

Bezier curve point with two handles

co

Coordinates of the control point

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_left

Coordinates of the first handle

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_left_type

Handle types

Type enum in ['FREE', 'AUTO', 'VECTOR', 'ALIGNED'], default 'FREE'

handle_right
Coordinates of the second handle

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_right_type
Handle types

Type enum in ['FREE', 'AUTO', 'VECTOR', 'ALIGNED'], default 'FREE'

hide
Visibility status

Type boolean, default False

radius
Radius for bevelling

Type float in [-inf, inf], default 0.0, (readonly)

select_control_point
Control point selection status

Type boolean, default False

select_left_handle
Handle 1 selection status

Type boolean, default False

select_right_handle
Handle 2 selection status

Type boolean, default False

tilt
Tilt in 3D View

Type float in [-inf, inf], default 0.0

weight
Softbody goal weight

Type float in [0.01, 100], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Spline.bezier_points

1.3.31 BlendData(bpy_struct)

base class — bpy_struct

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

Main data structure representing a .blend file and all its datablocks

actions

Action datablocks.

Type MainActions collection of Action, (readonly)

armatures

Armature datablocks.

Type MainArmatures collection of Armature, (readonly)

brushes

Brush datablocks.

Type MainBrushes collection of Brush, (readonly)

cameras

Camera datablocks.

Type MainCameras collection of Camera, (readonly)

curves

Curve datablocks.

Type MainCurves collection of Curve, (readonly)

debug

Print debugging information in console

Type boolean, default False

filepath

Path to the .blend file

Type string, default "", (readonly)

fonts

Vector font datablocks.

Type MainFonts collection of VectorFont, (readonly)

grease_pencil

Grease Pencil datablocks.

Type Collection of GreasePencil, (readonly)

groups
Group datablocks.

Type MainGroups collection of Group, (readonly)

images
Image datablocks.

Type MainImages collection of Image, (readonly)

is_dirty
Has the current session been saved to disk as a .blend file

Type boolean, default False, (readonly)

lamps
Lamp datablocks.

Type MainLamps collection of Lamp, (readonly)

lattices
Lattice datablocks.

Type MainLattices collection of Lattice, (readonly)

libraries
Library datablocks.

Type Collection of Library, (readonly)

materials
Material datablocks.

Type MainMaterials collection of Material, (readonly)

meshes
Mesh datablocks.

Type MainMeshes collection of Mesh, (readonly)

metaballs
Metaball datablocks.

Type MainMetaBalls collection of MetaBall, (readonly)

node_groups
Node group datablocks.

Type MainNodeTrees collection of NodeTree, (readonly)

objects
Object datablocks.

Type MainObjects collection of Object, (readonly)

particles
Particle datablocks.

Type MainParticles collection of ParticleSettings, (readonly)

scenes
Scene datablocks.

Type MainScenes collection of Scene, (readonly)

screens
Screen datablocks.

Type Collection of Screen, (readonly)

scripts
Script datablocks (DEPRECATED).

Type Collection of ID, (readonly)

shape_keys
Key datablocks.

Type Collection of Key, (readonly)

sounds
Sound datablocks.

Type Collection of Sound, (readonly)

texts
Text datablocks.

Type MainTexts collection of Text, (readonly)

textures
Texture datablocks.

Type MainTextures collection of Texture, (readonly)

window_managers
Window manager datablocks.

Type Collection of WindowManager, (readonly)

worlds
World datablocks.

Type MainWorlds collection of World, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Context.blend_data

1.3.32 BlendTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**BlendTexture**(*Texture*)

Procedural color blending texture

progression

Sets the style of the color blending

Type enum in ['LINEAR', 'QUADRATIC', 'EASING', 'DIAGONAL', 'SPHERICAL', 'QUADRATIC_SPHERE', 'RADIAL'], default 'LINEAR'

use_flip_axis

Flips the texture's X and Y axis

Type enum in ['HORIZONTAL', 'VERTICAL'], default 'HORIZONTAL'

users_material

Materials that use this texture (readonly)

users_object_modifier

Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material

- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.33 BlenderRNA(bpy_struct)

base class — bpy_struct

class bpy.types.**BlenderRNA**(*bpy_struct*)
Blender RNA structure definitions

structs

Type Collection of Struct, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

1.3.34 BoidRule(bpy_struct)

base class — bpy_struct

subclasses — BoidRuleAvoidCollision, BoidRuleAverageSpeed, BoidRuleAvoid, BoidRuleFight, BoidRuleFollowLeader, BoidRuleGoal

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

name
Boid rule name

Type string, default ""

type

Type enum in ['GOAL', 'AVOID', 'AVOID_COLLISION', 'SEPARATE', 'FLOCK', 'FOLLOW_LEADER', 'AVERAGE_SPEED', 'FIGHT'], default 'GOAL', (readonly)

use_in_air
Use rule when boid is flying

Type boolean, default False

use_on_land
Use rule when boid is on land

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BoidSettings.active_boid_state
- BoidState.active_boid_rule
- BoidState.rules

1.3.35 BoidRuleAverageSpeed(BoidRule)

base classes — bpy_struct, BoidRule

class bpy.types.**BoidRuleAverageSpeed**(*BoidRule*)

level
How much velocity's z-component is kept constant

Type float in [0, 1], default 0.0

speed
Percentage of maximum speed

Type float in [0, 1], default 0.0

wander
How fast velocity's direction is randomized

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- BoidRule.name
- BoidRule.use_in_air
- BoidRule.use_on_land
- BoidRule.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.36 BoidRuleAvoid(BoidRule)

base classes — bpy_struct, BoidRule

class bpy.types.**BoidRuleAvoid**(*BoidRule*)

fear_factor
Avoid object if danger from it is above this threshold

Type float in [0, 100], default 0.0

object
Object to avoid

Type Object

use_predict
Predict target movement

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- BoidRule.name
- BoidRule.use_in_air
- BoidRule.use_on_land
- BoidRule.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.37 BoidRuleAvoidCollision(BoidRule)

base classes — bpy_struct, BoidRule

class bpy.types.**BoidRuleAvoidCollision**(*BoidRule*)

look_ahead
Time to look ahead in seconds

Type float in [0, 100], default 0.0

use_avoid
Avoid collision with other boids

Type boolean, default False

use_avoid_collision
Avoid collision with deflector objects

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- BoidRule.name
- BoidRule.use_in_air
- BoidRule.use_on_land
- BoidRule.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.38 BoidRuleFight(BoidRule)

base classes — bpy_struct, BoidRule

class bpy.types.**BoidRuleFight**(*BoidRule*)

distance
Attack boids at max this distance

Type float in [0, 100], default 0.0

flee_distance
Flee to this distance

Type float in [0, 100], default 0.0

Inherited Properties

- bpy_struct.id_data
- BoidRule.name
- BoidRule.use_in_air
- BoidRule.use_on_land
- BoidRule.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.39 BoidRuleFollowLeader(BoidRule)

base classes — bpy_struct, BoidRule

class bpy.types.**BoidRuleFollowLeader**(*BoidRule*)

distance
Distance behind leader to follow

Type float in [0, 100], default 0.0

object
Follow this object instead of a boid

Type Object

queue_count
How many boids in a line

Type int in [0, 100], default 0

use_line
Follow leader in a line

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- BoidRule.name
- BoidRule.use_in_air
- BoidRule.use_on_land
- BoidRule.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.40 BoidRuleGoal(BoidRule)

base classes — bpy_struct, BoidRule

class bpy.types.**BoidRuleGoal**(*BoidRule*)

object
Goal object

Type Object

use_predict
Predict target movement

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- BoidRule.name
- BoidRule.use_in_air
- BoidRule.use_on_land
- BoidRule.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.41 BoidSettings(bpy_struct)

base class — bpy_struct

class bpy.types.**BoidSettings**(*bpy_struct*)
Settings for boid physics

accuracy
Accuracy of attack

Type float in [0, 1], default 0.0

active_boid_state

Type BoidRule, (readonly)

active_boid_state_index

Type int in [0, inf], default 0

aggression
Boid will fight this times stronger enemy

Type float in [0, 100], default 0.0

air_acc_max
Maximum acceleration in air (relative to maximum speed)

Type float in [0, 1], default 0.0

air_ave_max
Maximum angular velocity in air (relative to 180 degrees)

Type float in [0, 1], default 0.0

air_personal_space
Radius of boids personal space in air (% of particle size)

Type float in [0, 10], default 0.0

air_speed_max
Maximum speed in air

Type float in [0, 100], default 0.0

air_speed_min
Minimum speed in air (relative to maximum speed)

Type float in [0, 1], default 0.0

bank
Amount of rotation around velocity vector on turns

Type float in [0, 2], default 0.0

health
Initial boid health when born

Type float in [0, 100], default 0.0

height
Boid height relative to particle size

Type float in [0, 2], default 0.0

land_acc_max
Maximum acceleration on land (relative to maximum speed)

Type float in [0, 1], default 0.0

land_ave_max
Maximum angular velocity on land (relative to 180 degrees)

Type float in [0, 1], default 0.0

land_jump_speed
Maximum speed for jumping

Type float in [0, 100], default 0.0

land_personal_space
Radius of boids personal space on land (% of particle size)

Type float in [0, 10], default 0.0

land_smooth
How smoothly the boids land

Type float in [0, 10], default 0.0

land_speed_max
Maximum speed on land

Type float in [0, 100], default 0.0

land_stick_force
How strong a force must be to start effecting a boid on land

Type float in [0, 1000], default 0.0

range
The maximum distance from which a boid can attack

Type float in [0, 100], default 0.0

states

Type Collection of BoidState, (readonly)

strength
Maximum caused damage on attack per second

Type float in [0, 100], default 0.0

use_climb
Allow boids to climb goal objects

Type boolean, default False

use_flight
Allow boids to move in air

Type boolean, default False

use_land
Allow boids to move on land

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleSettings.boids

1.3.42 BoidState(bpy_struct)

base class — bpy_struct

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

Boid state for boid physics

active_boid_rule

Type BoidRule, (readonly)

active_boid_rule_index

Type int in [0, inf], default 0

falloff

Type float in [0, 10], default 0.0

name

Boid state name

Type string, default ""

rule_fuzzy

Type float in [0, 1], default 0.0

rules

Type Collection of BoidRule, (readonly)

ruleset_type

How the rules in the list are evaluated

Type enum in ['FUZZY', 'RANDOM', 'AVERAGE'], default 'FUZZY'

volume

Type float in [0, 100], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BoidSettings.states

1.3.43 Bone(bpy_struct)

base class — bpy_struct

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

Bone in an Armature datablock

bbone_in

Length of first Bezier Handle (for B-Bones only)

Type float in [0, 2], default 0.0

bbone_out

Length of second Bezier Handle (for B-Bones only)

Type float in [0, 2], default 0.0

bbone_segments

Number of subdivisions of bone (for B-Bones only)

Type int in [1, 32], default 0

children

Bones which are children of this bone

Type Collection of Bone, (readonly)

envelope_distance

Bone deformation distance (for Envelope deform only)

Type float in [0, 1000], default 0.0

envelope_weight

Bone deformation weight (for Envelope deform only)

Type float in [0, 1000], default 0.0

head

Location of head end of the bone relative to its parent

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

head_local

Location of head end of the bone relative to armature

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

head_radius
Radius of head of bone (for Envelope deform only)

Type float in [-inf, inf], default 0.0

hide
Bone is not visible when it is not in Edit Mode (i.e. in Object or Pose Modes)

Type boolean, default False

hide_select
Bone is able to be selected

Type boolean, default False

layers
Layers bone exists in

Type boolean array of 32 items, default (False, False)

matrix
3x3 bone matrix

Type float array of 9 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

matrix_local
4x4 bone matrix relative to armature

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

name

Type string, default “”

parent
Parent bone (in same Armature)

Type Bone, (readonly)

select

Type boolean, default False

show_wire
Bone is always drawn as Wireframe regardless of viewport draw mode. Useful for non-obstructive custom bone shapes

Type boolean, default False

tail
Location of tail end of the bone

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

tail_local
Location of tail end of the bone relative to armature

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

tail_radius
Radius of tail of bone (for Envelope deform only)

Type float in [-inf, inf], default 0.0

use_connect
When bone has a parent, bone's head is struck to the parent's tail

Type boolean, default False, (readonly)

use_cyclic_offset
When bone doesn't have a parent, it receives cyclic offset effects

Type boolean, default False

use_deform
Bone does not deform any geometry

Type boolean, default False

use_envelope_multiply
When deforming bone, multiply effects of Vertex Group weights with Envelope influence

Type boolean, default False

use_hinge
Bone inherits rotation or scale from parent bone

Type boolean, default False

use_inherit_scale
Bone inherits scaling from parent bone

Type boolean, default False

use_local_location
Bone location is set in local space

Type boolean, default False

basename
The name of this bone before any '.' character (readonly)

center
The midpoint between the head and the tail. (readonly)

children
A list of all the bones children. (readonly)

children_recursive
a list of all children from this bone. (readonly)

children_recursive_basename
Returns a chain of children with the same base name as this bone Only direct chains are supported, forks caused by multiple children with matching basenames will terminate the function and not be returned.

(readonly)

length
The distance from head to tail, when set the head is moved to fit the length.

parent_recursive
A list of parents, starting with the immediate parent (readonly)

vector
The direction this bone is pointing. Utility function for (tail - head) (readonly)

x_axis
Vector pointing down the x-axis of the bone.

(readonly)

y_axis
Vector pointing down the x-axis of the bone.

(readonly)

z_axis
Vector pointing down the x-axis of the bone.

(readonly)

parent_index(*parent_test*)
The same as 'bone in other_bone.parent_recursive' but saved generating a list.

translate(*vec*)
Utility function to add *vec* to the head and tail of this bone.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Armature.bones
- ArmatureBones.active
- Bone.children
- Bone.parent
- PoseBone.bone

1.3.44 BoneGroup(bpy_struct)

base class — bpy_struct

class bpy.types.**BoneGroup**(*bpy_struct*)
Groups of Pose Channels (Bones)

color_set
Custom color set to use

Type enum in ['DEFAULT', 'THEME01', 'THEME02', 'THEME03', 'THEME04', 'THEME05', 'THEME06', 'THEME07', 'THEME08', 'THEME09', 'THEME10', 'THEME11', 'THEME12', 'THEME13', 'THEME14', 'THEME15', 'THEME16', 'THEME17', 'THEME18', 'THEME19', 'THEME20', 'CUSTOM'], default 'DEFAULT'

colors
Copy of the colors associated with the group's color set

Type ThemeBoneColorSet, (readonly, never None)

name

Type string, default ""

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BoneGroups.active
- Pose.bone_groups
- PoseBone.bone_group

1.3.45 BoneGroups(bpy_struct)

base class — bpy_struct

class bpy.types.**BoneGroups**(*bpy_struct*)
Collection of bone groups

active
Active bone group for this pose

Type BoneGroup

active_index
Active index in bone groups array

Type int in [-inf, inf], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Pose.bone_groups

1.3.46 BooleanModifier(Modifier)

base classes — bpy_struct, Modifier

class bpy.types.**BooleanModifier**(*Modifier*)
Boolean operations modifier

object
Mesh object to use for Boolean operation

Type Object

operation

Type enum in ['INTERSECT', 'UNION', 'DIFFERENCE'], default 'INTERSECT'

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.47 BooleanProperty(Property)

base classes — bpy_struct, Property

class bpy.types.**BooleanProperty**(*Property*)

RNA boolean property definition

array_length

Maximum length of the array, 0 means unlimited

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

default

Default value for this number

Type boolean, default False, (readonly)

default_array

Default value for this array

Type boolean array of 3 items, default (False, False, False), (readonly)

Inherited Properties

- bpy_struct.id_data
- Property.name
- Property.srna
- Property.description
- Property.identifier
- Property.is_never_none
- Property.is_readonly
- Property.is_runtime
- Property.is_registered
- Property.is_registered_optional
- Property.is_required
- Property.is_output
- Property.subtype
- Property.type
- Property.unit

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.48 Brush(ID)

base classes — bpy_struct, ID

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

Brush datablock for storing brush settings for painting and sculpting

auto_smooth_factor

Amount of smoothing to automatically apply to each stroke

Type float in [0, 1], default 0.0

blend

Brush blending mode

Type enum in ['MIX', 'ADD', 'SUB', 'MUL', 'LIGHTEN', 'DARKEN', 'ERASE_ALPHA', 'ADD_ALPHA'], default 'MIX'

clone_alpha
Opacity of clone image display

Type float in [0, 1], default 0.0

clone_image
Image for clone tool

Type Image

clone_offset

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

color

Type float array of 3 items in [0, 1], default (0.0, 0.0, 0.0)

crease_pinch_factor
How much the crease brush pinches

Type float in [0, 1], default 0.666667

cursor_color_add
Color of cursor when adding

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

cursor_color_subtract
Color of cursor when subtracting

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

curve
Editable falloff curve

Type CurveMapping, (readonly, never None)

direction

Type enum in ['ADD', 'SUBTRACT'], default 'ADD'

icon_filepath
File path to brush icon

Type string, default ""

imagepaint_tool

Type enum in ['DRAW', 'SOFTEN', 'SMEAR', 'CLONE'], default 'DRAW'

jitter
Jitter the position of the brush while painting

Type float in [0, 1], default 0.0

normal_weight
How much grab will pull vertexes out of surface during a grab

Type float in [0, 1], default 0.0

plane_offset
Adjusts plane on which the brush acts towards or away from the object surface

Type float in [-2, 2], default 0.0

plane_trim
If a vertex is further from offset plane than this then it is not affected

Type float in [0, 1], default 0.5

rate
Interval between paints for Airbrush

Type float in [0.0001, 10000], default 0.0

sculpt_plane

Type enum in ['AREA', 'VIEW', 'X', 'Y', 'Z'], default 'AREA'

sculpt_tool

Type enum in ['BLOB', 'CLAY', 'CREASE', 'DRAW', 'FILL', 'FLATTEN', 'GRAB', 'INFLATE', 'LAYER', 'NUDGE', 'PINCH', 'ROTATE', 'SCRAPE', 'SMOOTH', 'SNAKE_HOOK', 'THUMB'], default 'BLOB'

size
Radius of the brush in pixels

Type int in [1, 2000], default 0

smooth_stroke_factor
Higher values give a smoother stroke

Type float in [0.5, 0.99], default 0.0

smooth_stroke_radius
Minimum distance from last point before stroke continues

Type int in [10, 200], default 0

spacing
Spacing between brush daubs as a percentage of brush diameter

Type int in [1, 1000], default 0

strength
How powerful the effect of the brush is when applied

Type float in [0, 10], default 0.5

stroke_method

Type enum in ['DOTS', 'DRAG_DOT', 'SPACE', 'ANCHORED', 'AIRBRUSH'], default 'DOTS'

texture

Type Texture

texture_angle_source_no_random

Type enum in ['USER', 'RAKE'], default 'USER'

texture_angle_source_random

Type enum in ['USER', 'RAKE', 'RANDOM'], default 'USER'

texture_overlay_alpha

Type int in [1, 100], default 0

texture_sample_bias
Value added to texture samples

Type float in [-1, 1], default 0.0

texture_slot

Type BrushTextureSlot, (readonly)

unprojected_radius
Radius of brush in Blender units

Type float in [0.001, inf], default 0.0

use_accumulate
Accumulate stroke dabs on top of each other

Type boolean, default False

use_adaptive_space
Space daubs according to surface orientation instead of screen space

Type boolean, default False

use_airbrush
Keep applying paint effect while holding mouse (spray)

Type boolean, default False

use_alpha
When this is disabled, lock alpha while painting

Type boolean, default False

use_anchor
Keep the brush anchored to the initial location

Type boolean, default False

use_custom_icon
Set the brush icon from an image file

Type boolean, default False

use_edge_to_edge
Drag anchor brush from edge-to-edge

Type boolean, default False

use_frontface
Brush only affects vertexes that face the viewer

Type boolean, default False

use_inverse_smooth_pressure
Lighter pressure causes more smoothing to be applied

Type boolean, default False

use_locked_size
When locked brush stays same size relative to object; when unlocked brush size is given in pixels

Type boolean, default False

use_offset_pressure
Enable tablet pressure sensitivity for offset

Type boolean, default False

use_original_normal
When locked keep using normal of surface where stroke was initiated

Type boolean, default False

use_paint_sculpt
Use this brush in sculpt mode

Type boolean, default False

use_paint_texture
Use this brush in texture paint mode

Type boolean, default False

use_paint_vertex
Use this brush in vertex paint mode

Type boolean, default False

use_paint_weight
Use this brush in weight paint mode

Type boolean, default False

use_persistent
Sculpts on a persistent layer of the mesh

Type boolean, default False

use_plane_trim
Enable Plane Trim

Type boolean, default False

use_pressure_jitter
Enable tablet pressure sensitivity for jitter

Type boolean, default False

use_pressure_size
Enable tablet pressure sensitivity for size

Type boolean, default False

use_pressure_spacing
Enable tablet pressure sensitivity for spacing

Type boolean, default False

use_pressure_strength
Enable tablet pressure sensitivity for strength

Type boolean, default False

use_rake
Rotate the brush texture to match the stroke direction

Type boolean, default False

use_random_rotation
Rotate the brush texture at random

Type boolean, default False

use_restore_mesh
Allows a single dot to be carefully positioned

Type boolean, default False

use_smooth_stroke
Brush lags behind mouse and follows a smoother path

Type boolean, default False

use_space
Limit brush application to the distance specified by spacing

Type boolean, default False

use_space_atten
Automatically adjusts strength to give consistent results for different spacings

Type boolean, default False

use_texture_overlay
Show texture in viewport

Type boolean, default False

use_wrap
Enable torus wrapping while painting

Type boolean, default False

vertexpaint_tool

Type enum in ['MIX', 'ADD', 'SUB', 'MUL', 'BLUR', 'LIGHTEN', 'DARKEN'], default 'MIX'

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.brushes
- MainBrushes.new
- MainBrushes.remove
- Paint.brush

1.3.49 BrushTextureSlot(TextureSlot)

base classes — bpy_struct, TextureSlot

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

Texture slot for textures in a Brush datablock

angle

Defines brush texture rotation

Type float in [0, 6.28319], default 0.0

map_mode

Type enum in ['FIXED', 'TILED', '3D'], default 'FIXED'

Inherited Properties

- bpy_struct.id_data
- TextureSlot.name
- TextureSlot.blend_type
- TextureSlot.color
- TextureSlot.default_value
- TextureSlot.invert
- TextureSlot.offset
- TextureSlot.output_node
- TextureSlot.use_rgb_to_intensity
- TextureSlot.scale
- TextureSlot.use_stencil
- TextureSlot.texture

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

References

- Brush.texture_slot

1.3.50 BuildModifier(Modifier)

base classes — bpy_struct, Modifier

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

Build effect modifier

frame_duration

Specify the total time the build effect requires

Type float in [1, 300000], default 0.0

frame_start

Specify the start frame of the effect

Type float in [-300000, 300000], default 0.0

seed

Specify the seed for random if used

Type int in [1, 300000], default 0

use_random_order

Randomize the faces or edges during build

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.51 Camera(ID)

base classes — bpy_struct, ID

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

Camera datablock for storing camera settings

angle

Perspective Camera lens field of view in degrees

Type float in [0.00640536, 3.01675], default 0.0

animation_data

Animation data for this datablock

Type AnimData, (readonly)

clip_end

Camera far clipping distance

Type float in [1, inf], default 0.0

clip_start

Camera near clipping distance

Type float in [0, inf], default 0.0

dof_distance

Distance to the focus point for depth of field

Type float in [0, 5000], default 0.0

dof_object

Use this object to define the depth of field focal point

Type Object

draw_size

Apparent size of the Camera object in the 3D View

Type float in [0.1, 1000], default 0.0

lens
Perspective Camera lens value in millimeters

Type float in [1, 5000], default 0.0

lens_unit
Unit to edit lens in for the user interface

Type enum in ['MILLIMETERS', 'DEGREES'], default 'MILLIMETERS'

ortho_scale
Orthographic Camera scale (similar to zoom)

Type float in [0.01, 1000], default 0.0

passepartout_alpha
Opacity (alpha) of the darkened overlay in Camera view

Type float in [0, 1], default 0.0

shift_x
Perspective Camera horizontal shift

Type float in [-10, 10], default 0.0

shift_y
Perspective Camera vertical shift

Type float in [-10, 10], default 0.0

show_limits
Draw the clipping range and focus point on the camera

Type boolean, default False

show_mist
Draw a line from the Camera to indicate the mist area

Type boolean, default False

show_name
Show the active Camera's name in Camera view

Type boolean, default False

show_passepartout
Show a darkened overlay outside the image area in Camera view

Type boolean, default False

show_title_safe
Show indicators for the title safe zone in Camera view

Type boolean, default False

type
Camera types

Type enum in ['PERSP', 'ORTHO'], default 'PERSP'

use_panorama
Render the scene with a cylindrical camera for pseudo-fisheye lens effects

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.cameras
- MainCameras.new
- MainCameras.remove

1.3.52 CameraActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**CameraActuator**(*Actuator*)

Actuator to ..

axis

Specify the axis the Camera will try to get behind

Type enum in ['X', 'Y'], default 'X'

height

Type float in [-inf, inf], default 0.0

max

Type float in [-inf, inf], default 0.0

min

Type float in [-inf, inf], default 0.0

object
Look at this Object

Type Object

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.53 CastModifier(Modifier)

base classes — bpy_struct, Modifier

class bpy.types.**CastModifier**(*Modifier*)
Cast modifier to cast to other shapes

cast_type

Type enum in ['SPHERE', 'CYLINDER', 'CUBOID'], default 'SPHERE'

factor

Type float in [-inf, inf], default 0.0

object
Control object: if available, its location determines the center of the effect

Type Object

radius
Only deform vertices within this distance from the center of the effect (leave as 0 for infinite.)

Type float in [0, inf], default 0.0

size
Size of projection shape (leave as 0 for auto.)

Type float in [0, inf], default 0.0

use_radius_as_size
Use radius as size of projection shape (0 = auto)

Type boolean, default False

use_transform
Use object transform to control projection shape

Type boolean, default False

use_x

Type boolean, default False

use_y

Type boolean, default False

use_z

Type boolean, default False

vertex_group
Vertex group name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.54 ChannelDriverVariables(bpy_struct)

base class — bpy_struct

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

Collection of channel driver Variables

new()

Add a new variable for the driver.

Returns Newly created Driver Variable.

Return type DriverVariable

remove(*variable*)

Remove an existing variable from the driver.

Parameters

- **variable** (DriverVariable, (never None)) – Variable to remove from the driver.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- Driver.variables

1.3.55 ChildOfConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**ChildOfConstraint**(*Constraint*)

Creates constraint-based parent-child relationship

subtarget

Type string, default ""

target

Target Object

Type Object

use_location_x

Use X Location of Parent

Type boolean, default False

use_location_y

Use Y Location of Parent

Type boolean, default False

use_location_z

Use Z Location of Parent

Type boolean, default False

use_rotation_x

Use X Rotation of Parent

Type boolean, default False

use_rotation_y

Use Y Rotation of Parent

Type boolean, default False

use_rotation_z

Use Z Rotation of Parent

Type boolean, default False

use_scale_x

Use X Scale of Parent

Type boolean, default False

use_scale_y

Use Y Scale of Parent

Type boolean, default False

use_scale_z
Use Z Scale of Parent

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.56 ChildParticle(bpy_struct)

base class — bpy_struct

class bpy.types.**ChildParticle**(*bpy_struct*)
Child particle interpolated from simulated or edited particles

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleSystem.child_particles

1.3.57 ClampToConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**ClampToConstraint**(*Constraint*)

Constrains an object's location to the nearest point along the target path

main_axis

Main axis of movement

Type enum in ['CLAMPTO_AUTO', 'CLAMPTO_X', 'CLAMPTO_Y', 'CLAMPTO_Z'], default 'CLAMPTO_AUTO'

target

Target Object

Type Object

use_cyclic

Treat curve as cyclic curve (no clamping to curve bounding box

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded

- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.58 ClothCollisionSettings(bpy_struct)

base class — bpy_struct

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

Cloth simulation settings for self collision and collision with other objects

collision_quality

How many collision iterations should be done. (higher is better quality but slower)

Type int in [1, 20], default 0

distance_min

Minimum distance between collision objects before collision response takes in

Type float in [0.001, 1], default 0.0

friction

Friction force if a collision happened. (higher = less movement)

Type float in [0, 80], default 0.0

group

Limit colliders to this Group

Type Group

self_collision_quality

How many self collision iterations should be done. (higher is better quality but slower)

Type int in [1, 10], default 0

self_distance_min
0.5 means no distance at all, 1.0 is maximum distance

Type float in [0.5, 1], default 0.0

self_friction
Friction/damping with self contact

Type float in [0, 80], default 0.0

use_collision
Enable collisions with other objects

Type boolean, default False

use_self_collision
Enable self collisions

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ClothModifier.collision_settings

1.3.59 ClothModifier(Modifier)

base classes — bpy_struct, Modifier

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

Cloth simulation modifier

collision_settings

Type ClothCollisionSettings, (readonly, never None)

point_cache

Type PointCache, (readonly, never None)

settings

Type ClothSettings, (readonly, never None)

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleSystem.cloth

1.3.60 ClothSettings(bpy_struct)

base class — bpy_struct

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

Cloth simulation settings for an object

air_damping

Air has normally some thickness which slows falling things down

Type float in [0, 10], default 0.0

bending_stiffness

Wrinkle coefficient. (higher = less smaller but more big wrinkles)

Type float in [0, 10000], default 0.0

bending_stiffness_max

Maximum bending stiffness value

Type float in [0, 10000], default 0.0

collider_friction

Type float in [0, 1], default 0.0

effector_weights

Type EffectorWeights, (readonly)

goal_default

Default Goal (vertex target position) value, when no Vertex Group used

Type float in [0, 1], default 0.0

goal_friction

Goal (vertex target position) friction

Type float in [0, 50], default 0.0

goal_max

Goal maximum, vertex group weights are scaled to match this range

Type float in [0, 1], default 0.0

goal_min

Goal minimum, vertex group weights are scaled to match this range

Type float in [0, 1], default 0.0

goal_spring

Goal (vertex target position) spring stiffness

Type float in [0, 0.999], default 0.0

gravity

Gravity or external force vector

Type float array of 3 items in [-100, 100], default (0.0, 0.0, 0.0)

internal_friction

Type float in [0, 1], default 0.0

mass

Mass of cloth material

Type float in [0, 10], default 0.0

pin_stiffness

Pin (vertex target position) spring stiffness

Type float in [0, 50], default 0.0

pre_roll
Simulation starts on this frame

Type int in [0, 200], default 0

quality
Quality of the simulation in steps per frame. (higher is better quality but slower)

Type int in [4, 80], default 0

rest_shape_key
Shape key to use the rest spring lengths from

Type ShapeKey

spring_damping
Damping of cloth velocity. (higher = more smooth, less jiggling)

Type float in [0, 50], default 0.0

structural_stiffness
Overall stiffness of structure

Type float in [0, 10000], default 0.0

structural_stiffness_max
Maximum structural stiffness value

Type float in [0, 10000], default 0.0

use_pin_cloth
Enable pinning of cloth vertices to other objects/positions

Type boolean, default False

use_stiffness_scale
If enabled, stiffness can be scaled along a weight painted vertex group

Type boolean, default False

vertex_group_bending
Vertex group for fine control over bending stiffness

Type string, default “”

vertex_group_mass
Vertex Group for pinning of vertices

Type string, default “”

vertex_group_structural_stiffness
Vertex group for fine control over structural stiffness

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ClothModifier.settings

1.3.61 CloudsTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**CloudsTexture**(*Texture*)

Procedural noise texture

cloud_type

Type enum in ['GREYSCALE', 'COLOR'], default 'GREYSCALE'

nabla

Size of derivative offset used for calculating normal

Type float in [0.001, 0.1], default 0.0

noise_basis

Sets the noise basis used for turbulence

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

noise_depth

Sets the depth of the cloud calculation

Type int in [0, inf], default 0

noise_scale

Sets scaling for noise input

Type float in [0.0001, inf], default 0.0

noise_type

Type enum in ['SOFT_NOISE', 'HARD_NOISE'], default 'SOFT_NOISE'

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy

- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.62 CollectionProperty(Property)

base classes — bpy_struct, Property

class bpy.types.**CollectionProperty**(*Property*)
RNA collection property to define lists, arrays and mappings

fixed_type
Fixed pointer type, empty if variable type

Type Struct, (readonly)

Inherited Properties

- bpy_struct.id_data
- Property.name
- Property.srna
- Property.description
- Property.identifier
- Property.is_never_none
- Property.is_readonly
- Property.is_runtime
- Property.is_registered
- Property.is_registered_optional
- Property.is_required
- Property.is_output
- Property.subtype
- Property.type
- Property.unit

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.63 CollisionModifier(Modifier)

base classes — bpy_struct, Modifier

class bpy.types.**CollisionModifier**(*Modifier*)
Collision modifier defining modifier stack position used for collision

settings

Type CollisionSettings, (readonly, never None)

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.64 CollisionSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**CollisionSensor**(*Sensor*)
Sensor to detect objects colliding with the current object, with more settings than the Touch sensor

material
Only look for Objects with this material

Type string, default “”

property
Only look for Objects with this property

Type string, default “”

use_material
Toggle collision on material or property

Type boolean, default False

use_pulse
Changes to the set of colliding objects generates pulse

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.65 CollisionSettings(bpy_struct)

base class — bpy_struct

class bpy.types.**CollisionSettings**(*bpy_struct*)
Collision settings for object in physics simulation

absorption
How much of effector force gets lost during collision with this object (in percent)

Type float in [0, 1], default 0.0

damping
Amount of damping during collision

Type float in [0, 1], default 0.0

damping_factor
Amount of damping during particle collision

Type float in [0, 1], default 0.0

damping_random
Random variation of damping

Type float in [0, 1], default 0.0

friction_factor
Amount of friction during particle collision

Type float in [0, 1], default 0.0

friction_random
Random variation of friction

Type float in [0, 1], default 0.0

permeability
Chance that the particle will pass through the mesh

Type float in [0, 1], default 0.0

stickness
Amount of stickness to surface collision

Type float in [0, 10], default 0.0

thickness_inner
Inner face thickness

Type float in [0.001, 1], default 0.0

thickness_outer
Outer face thickness

Type float in [0.001, 1], default 0.0

use
Enable this objects as a collider for physics systems

Type boolean, default False

use_particle_kill
Kill collided particles

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- CollisionModifier.settings
- Object.collision

1.3.66 ColorRamp(bpy_struct)

base class — bpy_struct

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

Color ramp mapping a scalar value to a color

elements

Type ColorRampElements collection of ColorRampElement, (readonly)

interpolation

Type enum in ['EASE', 'CARDINAL', 'LINEAR', 'B_SPLINE', 'CONSTANT'], default 'LINEAR'

evaluate(*position*)

Evaluate ColorRamp

Parameters

- **position** (*float in [0, 1]*) – Position, Evaluate ColorRamp at position

Returns Color, Color at given position

Return type float array of 4 items in [-inf, inf]

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- CompositorNodeValToRGB.color_ramp
- Material.diffuse_ramp
- Material.specular_ramp
- PointDensity.color_ramp
- ShaderNodeValToRGB.color_ramp
- Texture.color_ramp
- TextureNodeValToRGB.color_ramp
- UserPreferencesSystem.weight_color_range

1.3.67 ColorRampElement(bpy_struct)

base class — bpy_struct

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

Element defining a color at a position in the color ramp

color

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

position

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ColorRamp.elements
- ColorRampElements.new
- ColorRampElements.remove

1.3.68 ColorRampElements(bpy_struct)

base class — bpy_struct

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

Collection of Color Ramp Elements

new(*position*)

Add element to ColorRamp

Parameters

- **position** (*float in [0, 1]*) – Position, Position to add element

Returns New element.

Return type ColorRampElement

remove(*element*)

Delete element from ColorRamp

Parameters

- **element** (ColorRampElement, (never None)) – Element to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ColorRamp.elements

1.3.69 ColorSequence(EffectSequence)

base classes — bpy_struct, Sequence, EffectSequence

class bpy.types.**ColorSequence**(*EffectSequence*)
Sequence strip creating an image filled with a single g

color

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select

- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade
- EffectSequence.color_balance
- EffectSequence.use_float
- EffectSequence.crop
- EffectSequence.use_deinterlace
- EffectSequence.use_reverse_frames
- EffectSequence.use_flip_x
- EffectSequence.use_flip_y
- EffectSequence.color_multiply
- EffectSequence.use_premultiply
- EffectSequence.proxy
- EffectSequence.use_proxy_custom_directory
- EffectSequence.use_proxy_custom_file
- EffectSequence.color_saturation
- EffectSequence.strobe
- EffectSequence.transform
- EffectSequence.use_color_balance
- EffectSequence.use_crop
- EffectSequence.use_proxy
- EffectSequence.use_translation

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.70 CompositorNode(Node)

base classes — bpy_struct, Node

subclasses — CompositorNodeSepHSVA, CompositorNodeValToRGB, CompositorNodeSepYCCA, CompositorNodeSetAlpha, CompositorNodeCrop, CompositorNodeMath, CompositorNodeCurveRGB, CompositorNodeNormal, CompositorNodeDilateErode, CompositorNodeGamma, CompositorNodeRotate, CompositorNodeLensdist, CompositorNodeLumaMatte, CompositorNodeTranslate, CompositorNodeCombYCCA, CompositorNodeBilateralblur, CompositorNodeZcombine, CompositorNodeFilter, CompositorNodePremulKey, CompositorNodeMixRGB, CompositorNodeTime, CompositorNodeValue, CompositorNodeHueCorrect, CompositorNodeIDMask, CompositorNodeVecBlur, CompositorNodeRLayers, CompositorNodeComposite, CompositorNodeCombRGBA, CompositorNodeViewer, CompositorNodeCombHSVA, CompositorNodeOutputFile, CompositorNodeInvert, CompositorNodeFlip, CompositorNodeDistanceMatte, CompositorNodeRGBToBW, CompositorNodeCombYUVA, CompositorNodeBlur, CompositorNodeDefocus, CompositorNodeGlare, CompositorNodeDiffMatte, CompositorNodeImage, CompositorNodeDBlur, CompositorNodeMapValue, CompositorNodeBrightContrast, CompositorNodeTexture, CompositorNodeLevels, CompositorNodeNormalize, CompositorNodeChannelMatte, CompositorNodeRGB, CompositorNodeColorSpill, CompositorNodeSepRGBA, CompositorNodeScale, CompositorNodeMapUV, CompositorNodeChromaMatte, CompositorNodeDisplace, CompositorNodeColorBalance, CompositorNodeTonemap, CompositorNodeAlphaOver, CompositorNodeColorMatte, CompositorNodeHueSat, CompositorNodeSepYUVA, CompositorNodeCurveVec, CompositorNodeSplitViewer

class bpy.types.**CompositorNode**(*Node*)

type

Type enum in ['VIEWER', 'RGB', 'VALUE', 'MIX_RGB', 'VALTORGB', 'RGBTOBW', 'NORMAL', 'CURVE_VEC', 'CURVE_RGB', 'ALPHAOVER', 'BLUR', 'FILTER', 'MAP_VALUE', 'TIME', 'VECBLUR', 'SEPRGBA', 'SEPHSVA', 'SETALPHA', 'HUE_SAT', 'IMAGE', 'R_LAYERS', 'COMPOSITE', 'OUTPUT_FILE', 'TEXTURE', 'TRANSLATE', 'ZCOMBINE', 'COMBRGBA', 'DILATEERODE', 'ROTATE', 'SCALE', 'SEPYCCA', 'COMBYCCA', 'SEPYUVA', 'COMBYUVA', 'DIFF_MATTE', 'COLOR_SPILL', 'CHROMA_MATTE', 'CHANNEL_MATTE', 'FLIP', 'SPLITVIEWER', 'MAP_UV', 'ID_MASK', 'DEFOCUS', 'DISPLACE', 'COMBHSVA', 'MATH', 'LUMA_MATTE', 'BRIGHTCONTRAST', 'GAMMA', 'INVERT', 'NORMALIZE', 'CROP', 'DBLUR', 'BILATERALBLUR', 'PREMULKEY', 'DISTANCE_MATTE', 'LEVELS', 'COLOR_MATTE', 'COLORBALANCE', 'HUECORRECT', 'GLARE', 'TONEMAP', 'LENSDIST', 'SCRIPT', 'GROUP'], default 'VIEWER', (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.71 CompositorNodeAlphaOver(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeAlphaOver**(*CompositorNode*)

premul
Mix Factor

Type float in [0, 1], default 0.0

use_premultiply

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.72 CompositorNodeBilateralblur(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeBilateralblur**(*CompositorNode*)

iterations

Type int in [1, 128], default 0

sigma_color

Type float in [0.01, 3], default 0.0

sigma_space

Type float in [0.01, 30], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.73 CompositorNodeBlur(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeBlur**(*CompositorNode*)

factor

Type float in [0, 2], default 0.0

factor_x

Type float in [0, 1], default 0.0

factor_y

Type float in [0, 1], default 0.0

filter_type

Type enum in ['FLAT', 'TENT', 'QUAD', 'CUBIC', 'GAUSS', 'FAST_GAUSS', 'CATROM', 'MITCH'], default 'FLAT'

size_x

Type int in [0, 256], default 0

size_y

Type int in [0, 256], default 0

use_bokeh
Uses circular filter (slower)

Type boolean, default False

use_gamma_correction
Applies filter on gamma corrected values

Type boolean, default False

use_relative
Use relative (percent) values to define blur radius

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.74 CompositorNodeBrightContrast(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeBrightContrast**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.75 CompositorNodeChannelMatte(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeChannelMatte**(*CompositorNode*)

color_space

Type enum in ['RGB', 'HSV', 'YUV', 'YCC'], default 'RGB'

limit_channel
Limit by this channels value

Type enum in ['R', 'G', 'B'], default 'R'

limit_max
Values higher than this setting are 100% opaque

Type float in [0, 1], default 0.0

limit_method
Algorithm to use to limit channel

Type enum in ['SINGLE', 'MAX'], default 'SINGLE'

limit_min
Values lower than this setting are 100% keyed

Type float in [0, 1], default 0.0

matte_channel
Channel used to determine matte

Type enum in ['R', 'G', 'B'], default 'R'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.76 CompositorNodeChromaMatte(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeChromaMatte**(*CompositorNode*)

gain
Alpha gain

Type float in [0, 1], default 0.0

lift
Alpha lift

Type float in [0, 1], default 0.0

shadow_adjust
Adjusts the brightness of any shadows captured

Type float in [0, 1], default 0.0

threshold
Tolerance below which colors will be considered as exact matches

Type float in [0, 30], default 0.0

tolerance
Tolerance for a color to be considered a keying color

Type float in [1, 80], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.77 CompositorNodeColorBalance(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeColorBalance**(*CompositorNode*)

correction_method

Type enum in ['LIFT_GAMMA_GAIN', 'OFFSET_POWER_SLOPE'], default 'LIFT_GAMMA_GAIN'

gain
Correction for Highlights

Type float array of 3 items in [-inf, inf], default (1.0, 1.0, 1.0)

gamma
Correction for Midtones

Type float array of 3 items in [-inf, inf], default (1.0, 1.0, 1.0)

lift
Correction for Shadows

Type float array of 3 items in [-inf, inf], default (1.0, 1.0, 1.0)

offset
Correction for Shadows

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

power
Correction for Midtones

Type float array of 3 items in [-inf, inf], default (1.0, 1.0, 1.0)

slope
Correction for Highlights

Type float array of 3 items in [-inf, inf], default (1.0, 1.0, 1.0)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.78 CompositorNodeColorMatte(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeColorMatte**(*CompositorNode*)

color_hue
Hue tolerance for colors to be considered a keying color

Type float in [0, 1], default 0.0

color_saturation
Saturation Tolerance for the color

Type float in [0, 1], default 0.0

color_value
Value Tolerance for the color

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.79 CompositorNodeColorSpill(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeColorSpill**(*CompositorNode*)

channel

Type enum in ['R', 'G', 'B'], default 'R'

limit_channel

Type enum in ['R', 'G', 'B'], default 'R'

limit_method

Type enum in ['SIMPLE', 'AVERAGE'], default 'SIMPLE'

ratio
Scale limit by value

Type float in [0.5, 1.5], default 0.0

unspill_blue
Blue spillmap scale

Type float in [0, 1.5], default 0.0

unspill_green
Green spillmap scale

Type float in [0, 1.5], default 0.0

unspill_red
Red spillmap scale

Type float in [0, 1.5], default 0.0

use_unspill
Compensate all channels (diffenrently) by hand

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.80 CompositorNodeCombHSVA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeCombHSVA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.81 CompositorNodeCombRGBA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeCombRGBA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.82 CompositorNodeCombYCCA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeCombYCCA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.83 CompositorNodeCombYUVA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeCombYUVA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.84 CompositorNodeComposite(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeComposite**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.85 CompositorNodeCrop(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeCrop**(*CompositorNode*)

max_x

Type int in [0, 10000], default 0

max_y

Type int in [0, 10000], default 0

min_x

Type int in [0, 10000], default 0

min_y

Type int in [0, 10000], default 0

rel_max_x

Type float in [0, 1], default 0.0

rel_max_y

Type float in [0, 1], default 0.0

rel_min_x

Type float in [0, 1], default 0.0

rel_min_y

Type float in [0, 1], default 0.0

relative
Use relative values to crop image

Type boolean, default False

use_crop_size
Whether to crop the size of the input image

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.86 CompositorNodeCurveRGB(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeCurveRGB**(*CompositorNode*)

mapping

Type CurveMapping, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.87 CompositorNodeCurveVec(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeCurveVec**(*CompositorNode*)

mapping

Type CurveMapping, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.88 CompositorNodeDBlur(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeDBlur**(*CompositorNode*)

angle

Type float in [0, 360], default 0.0

center_x

Type float in [0, 1], default 0.0

center_y

Type float in [0, 1], default 0.0

distance

Type float in [-1, 1], default 0.0

iterations

Type int in [1, 32], default 0

spin

Type float in [-360, 360], default 0.0

use_wrap

Type boolean, default False

zoom

Type float in [0, 100], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.89 CompositorNodeDefocus(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeDefocus**(*CompositorNode*)

angle
Bokeh shape rotation offset in degrees

Type int in [0, 90], default 0

blur_max
blur limit, maximum CoC radius, 0=no limit

Type float in [0, 10000], default 0.0

bokeh

Type enum in ['OCTAGON', 'HEPTAGON', 'HEXAGON', 'PENTAGON', 'SQUARE', 'TRIANGLE', 'CIRCLE'], default 'CIRCLE'

f_stop
Amount of focal blur, 128=infinity=perfect focus, half the value doubles the blur radius

Type float in [0, 128], default 0.0

samples
Number of samples (16=grainy, higher=less noise)

Type int in [16, 256], default 0

threshold
CoC radius threshold, prevents background bleed on in-focus midground, 0=off

Type float in [0, 100], default 0.0

use_gamma_correction
Enable gamma correction before and after main process

Type boolean, default False

use_preview
Enable sampling mode, useful for preview when using low samplecounts

Type boolean, default False

use_zbuffer
Disable when using an image as input instead of actual zbuffer (auto enabled if node not image based, eg. time node)

Type boolean, default False

z_scale
Scales the Z input when not using a zbuffer, controls maximum blur designated by the color white or input value 1

Type float in [0, 1000], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.90 CompositorNodeDiffMatte(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeDiffMatte**(*CompositorNode*)

falloff
Color distances below this additional threshold are partially keyed

Type float in [0, 1], default 0.0

tolerance
Color distances below this threshold are keyed

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.91 CompositorNodeDilateErode(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeDilateErode**(*CompositorNode*)

distance
Distance to grow/shrink (number of iterations)

Type int in [-100, 100], default 0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.92 CompositorNodeDisplace(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeDisplace**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.93 CompositorNodeDistanceMatte(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeDistanceMatte**(*CompositorNode*)

falloff
Color distances below this additional threshold are partially keyed

Type float in [0, 1], default 0.0

tolerance
Color distances below this threshold are keyed

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.94 CompositorNodeFilter(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeFilter**(*CompositorNode*)

filter_type

Type enum in ['SOFTEN', 'SHARPEN', 'LAPLACE', 'SOBEL', 'PREWITT', 'KIRSCH', 'SHADOW'], default 'SOFTEN'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.95 CompositorNodeFlip(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeFlip**(*CompositorNode*)

axis

Type enum in ['X', 'Y', 'XY'], default 'X'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.96 CompositorNodeGamma(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeGamma**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.97 CompositorNodeGlare(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeGlare**(*CompositorNode*)

angle_offset
Streak angle offset in degrees

Type float in [0, 180], default 0.0

color_modulation
Amount of Color Modulation, modulates colors of streaks and ghosts for a spectral dispersion effect

Type float in [0, 1], default 0.0

fade
Streak fade-out factor

Type float in [0.75, 1], default 0.0

glare_type

Type enum in ['GHOSTS', 'STREAKS', 'FOG_GLOW', 'SIMPLE_STAR'], default 'SIMPLE_STAR'

iterations

Type int in [2, 5], default 0

mix
-1 is original image only, 0 is exact 50/50 mix, 1 is processed image only

Type float in [-1, 1], default 0.0

quality
If not set to high quality, the effect will be applied to a low-res copy of the source image

Type enum in ['HIGH', 'MEDIUM', 'LOW'], default 'HIGH'

size
Glow/glare size (not actual size; relative to initial size of bright area of pixels)

Type int in [6, 9], default 0

streaks
Total number of streaks

Type int in [2, 16], default 0

threshold
The glare filter will only be applied to pixels brighter than this value

Type float in [0, 1000], default 0.0

use_rotate_45
Simple star filter: add 45 degree rotation offset

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.98 CompositorNodeHueCorrect(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeHueCorrect**(*CompositorNode*)

mapping

Type CurveMapping, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.99 CompositorNodeHueSat(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeHueSat**(*CompositorNode*)

color_hue

Type float in [0, 1], default 0.0

color_saturation

Type float in [0, 2], default 0.0

color_value

Type float in [0, 2], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.100 CompositorNodeIDMask(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeIDMask**(*CompositorNode*)

index
Pass index number to convert to alpha

Type int in [0, 10000], default 0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.101 CompositorNodeImage(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeImage**(*CompositorNode*)

frame_duration
Number of images used in animation

Type int in [0, 300000], default 0

frame_offset
Offsets the number of the frame to use in the animation

Type int in [-300000, 300000], default 0

frame_start

Type int in [1, 300000], default 0

image

Type Image

layer

Type enum in ['PLACEHOLDER'], default 'PLACEHOLDER'

use_auto_refresh

Type boolean, default False

use_cyclic

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.102 CompositorNodeInvert(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeInvert**(*CompositorNode*)

invert_alpha

Type boolean, default False

invert_rgb

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.103 CompositorNodeLensdist(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeLensdist**(*CompositorNode*)

use_fit
For positive distortion factor only: scale image such that black areas are not visible

Type boolean, default False

use_jitter
Enable/disable jittering; faster, but also noisier

Type boolean, default False

use_projector
Enable/disable projector mode. Effect is applied in horizontal direction only

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.104 CompositorNodeLevels(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeLevels**(*CompositorNode*)

channel

Type enum in ['COMBINED_RGB', 'RED', 'GREEN', 'BLUE', 'LUMINANCE'], default 'COMBINED_RGB'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.105 CompositorNodeLumaMatte(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeLumaMatte**(*CompositorNode*)

limit_max
Values higher than this setting are 100% opaque

Type float in [0, 1], default 0.0

limit_min
Values lower than this setting are 100% keyed

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.106 CompositorNodeMapUV(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeMapUV**(*CompositorNode*)

alpha

Type int in [0, 100], default 0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.107 CompositorNodeMapValue(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeMapValue**(*CompositorNode*)

max

Type float array of 1 items in [-1000, 1000], default (0.0)

min

Type float array of 1 items in [-1000, 1000], default (0.0)

offset

Type float array of 1 items in [-1000, 1000], default (0.0)

size

Type float array of 1 items in [-1000, 1000], default (0.0)

use_max

Type boolean, default False

use_min

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.108 CompositorNodeMath(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeMath**(*CompositorNode*)

operation

Type enum in ['ADD', 'SUBTRACT', 'MULTIPLY', 'DIVIDE', 'SINE', 'COSINE', 'TANGENT', 'ARCSINE', 'ARCCOSINE', 'ARCTANGENT', 'POWER', 'LOGARITHM', 'MINIMUM', 'MAXIMUM', 'ROUND', 'LESS_THAN', 'GREATER_THAN'], default 'ADD'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.109 CompositorNodeMixRGB(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeMixRGB**(*CompositorNode*)

blend_type

Type enum in ['MIX', 'ADD', 'SUBTRACT', 'MULTIPLY', 'SCREEN', 'OVERLAY', 'DIVIDE', 'DIFFERENCE', 'DARKEN', 'LIGHTEN', 'DODGE', 'BURN', 'COLOR', 'VALUE', 'SATURATION', 'HUE', 'SOFT_LIGHT', 'LINEAR_LIGHT'], default 'MIX'

use_alpha
Include alpha of second input in this operation

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.110 CompositorNodeNormal(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeNormal**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.111 CompositorNodeNormalize(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeNormalize**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.112 CompositorNodeOutputFile(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeOutputFile**(*CompositorNode*)

exr_codec

Type enum in ['NONE', 'PXR24', 'ZIP', 'PIZ', 'RLE'], default 'NONE'

filepath

Output path for the image, same functionality as render output.

Type string, default ""

frame_end

Type int in [0, 300000], default 0

frame_start

Type int in [0, 300000], default 0

image_type

Type enum in ['TARGA', 'RAW_TARGA', 'PNG', 'BMP', 'JPEG', 'IRIS', 'RADIANCE_HDR', 'CINEON', 'DPX', 'OPENEXR'], default 'TARGA'

quality

Type int in [1, 100], default 0

use_exr_half

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.113 CompositorNodePremulKey(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodePremulKey**(*CompositorNode*)

mapping
Conversion between premultiplied alpha and key alpha

Type enum in ['KEY_TO_PREMUL', 'PREMUL_TO_KEY'], default 'KEY_TO_PREMUL'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.114 CompositorNodeRGB(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeRGB**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.115 CompositorNodeRGBToBW(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeRGBToBW**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.116 CompositorNodeRLayers(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeRLayers**(*CompositorNode*)

layer

Type enum in ['PLACEHOLDER'], default 'PLACEHOLDER'

scene

Type Scene

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.117 CompositorNodeRotate(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeRotate**(*CompositorNode*)

filter_type
Method to use to filter rotation

Type enum in ['NEAREST', 'BILINEAR', 'BICUBIC'], default 'NEAREST'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.118 CompositorNodeScale(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeScale**(*CompositorNode*)

space
Coordinate space to scale relative to

Type enum in ['RELATIVE', 'ABSOLUTE', 'SCENE_SIZE', 'RENDER_SIZE'], default 'RELATIVE'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.119 CompositorNodeSepHSVA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeSepHSVA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.120 CompositorNodeSepRGBA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeSepRGBA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.121 CompositorNodeSepYCCA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeSepYCCA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.122 CompositorNodeSepYUVA(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeSepYUVA**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.123 CompositorNodeSetAlpha(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeSetAlpha**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.124 CompositorNodeSplitViewer(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeSplitViewer**(*CompositorNode*)

axis

Type enum in ['X', 'Y'], default 'X'

factor

Type int in [0, 100], default 0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.125 CompositorNodeTexture(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeTexture**(*CompositorNode*)

node_output
For node-based textures, which output node to use

Type int in [-32768, 32767], default 0

texture

Type Texture

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.126 CompositorNodeTime(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeTime**(*CompositorNode*)

curve

Type CurveMapping, (readonly)

frame_end

Type int in [-32768, 32767], default 0

frame_start

Type int in [-32768, 32767], default 0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.127 CompositorNodeTonemap(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeTonemap**(*CompositorNode*)

adaptation
If 0, global; if 1, based on pixel intensity

Type float in [0, 1], default 0.0

contrast
Set to 0 to use estimate from input image

Type float in [0, 1], default 0.0

correction
If 0, same for all channels; if 1, each independent

Type float in [0, 1], default 0.0

gamma
If not used, set to 1

Type float in [0.001, 3], default 0.0

intensity
If less than zero, darkens image; otherwise, makes it brighter

Type float in [-8, 8], default 0.0

key
The value the average luminance is mapped to

Type float in [0, 1], default 0.0

offset
Normally always 1, but can be used as an extra control to alter the brightness curve

Type float in [0.001, 10], default 0.0

tonemap_type

Type enum in ['RD_PHOTORECEPTOR', 'RH_SIMPLE'], default 'RH_SIMPLE'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.128 CompositorNodeTranslate(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeTranslate**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data

- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.129 CompositorNodeValToRGB(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeValToRGB**(*CompositorNode*)

color_ramp

Type ColorRamp, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add

- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.130 CompositorNodeValue(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeValue**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.131 CompositorNodeVecBlur(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeVecBlur**(*CompositorNode*)

factor
Scaling factor for motion vectors; actually 'shutter speed' in frames

Type float in [0, 2], default 0.0

samples

Type int in [1, 256], default 0

speed_max
Maximum speed, or zero for none

Type int in [0, 1024], default 0

speed_min
Minimum speed for a pixel to be blurred; used to separate background from foreground

Type int in [0, 1024], default 0

use_curved
Interpolate between frames in a bezier curve, rather than linearly

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.132 CompositorNodeViewer(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeViewer**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.133 CompositorNodeZcombine(CompositorNode)

base classes — bpy_struct, Node, CompositorNode

class bpy.types.**CompositorNodeZcombine**(*CompositorNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- CompositorNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.134 ConsoleLine(bpy_struct)

base class — bpy_struct

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

Input line for the interactive console

body

Text in the line

Type string, default “”

current_character

Type int in [-inf, inf], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SpaceConsole.history
- SpaceConsole.scrollback

1.3.135 Constraint(bpy_struct)

base class — bpy_struct

subclasses — KinematicConstraint, CopyScaleConstraint, ShrinkwrapConstraint, FollowPathConstraint, LockedTrackConstraint, CopyTransformsConstraint, PythonConstraint, LimitDistanceConstraint, TransformConstraint, PivotConstraint, StretchToConstraint, LimitRotationConstraint, LimitLocationConstraint, ChildOfConstraint, CopyRotationConstraint, LimitScaleConstraint, DampedTrackConstraint, TrackToConstraint, ClampToConstraint, SplineIKConstraint, MaintainVolumeConstraint, RigidBodyJointConstraint, FloorConstraint, ActionConstraint, CopyLocationConstraint

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

Constraint modifying the transformation of objects and bones

active

Constraint is the one being edited

Type boolean, default False

error_location

Amount of residual error in Blender space unit for constraints that work on position

Type float in [-inf, inf], default 0.0, (readonly)

error_rotation

Amount of residual error in radiant for constraints that work on orientation

Type float in [-inf, inf], default 0.0, (readonly)

influence

Amount of influence constraint will have on the final solution

Type float in [0, 1], default 0.0

is_proxy_local

Constraint was added in this proxy instance (i.e. did not belong to source Armature)

Type boolean, default False

is_valid

Constraint has invalid settings and will not be evaluated

Type boolean, default False, (readonly)

mute

Enable/Disable Constraint

Type boolean, default False

name
Constraint name

Type string, default “”

owner_space
Space that owner is evaluated in

Type enum in [’WORLD’, ‘POSE’, ‘LOCAL_WITH_PARENT’, ‘LOCAL’], default ‘WORLD’

show_expanded
Constraint’s panel is expanded in UI

Type boolean, default False

target_space
Space that target is evaluated in

Type enum in [’WORLD’, ‘POSE’, ‘LOCAL_WITH_PARENT’, ‘LOCAL’], default ‘WORLD’

type

Type enum in [’COPY_LOCATION’, ‘COPY_ROTATION’, ‘COPY_SCALE’, ‘COPY_TRANSFORMS’, ‘LIMIT_DISTANCE’, ‘LIMIT_LOCATION’, ‘LIMIT_ROTATION’, ‘LIMIT_SCALE’, ‘MAINTAIN_VOLUME’, ‘TRANSFORM’, ‘CLAMP_TO’, ‘DAMPED_TRACK’, ‘IK’, ‘LOCKED_TRACK’, ‘SPLINE_IK’, ‘STRETCH_TO’, ‘TRACK_TO’, ‘ACTION’, ‘CHILD_OF’, ‘FLOOR’, ‘FOLLOW_PATH’, ‘PIVOT’, ‘RIGID_BODY_JOINT’, ‘SCRIPT’, ‘SHRINKWRAP’], default ‘COPY_LOCATION’, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.constraints
- ObjectConstraints.active
- ObjectConstraints.new
- ObjectConstraints.remove
- PoseBone.constraints
- PoseBoneConstraints.active
- PoseBoneConstraints.new
- PoseBoneConstraints.remove
- UILayout.template_constraint

1.3.136 ConstraintActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**ConstraintActuator**(*Actuator*)

Actuator to handle Constraints

angle_max

Maximum angle (in degree) allowed with target direction. No correction is done if angle with target direction is between min and max

Type float in [-inf, inf], default 0.0

angle_min

Minimum angle (in degree) to maintain with target direction. No correction is done if angle with target direction is between min and max

Type float in [-inf, inf], default 0.0

damping

Damping factor: time constant (in frame) of low pass filter

Type int in [0, 32767], default 0

damping_rotation

Use a different damping for orientation

Type int in [0, 32767], default 0

direction

Set the direction of the ray

Type enum in ['NONE', 'DIRPX', 'DIRPY', 'DIRPZ', 'DIRNX', 'DIRNY', 'DIRNZ'], default 'NONE'

direction_axis

Select the axis to be aligned along the reference direction

Type enum in ['NONE', 'DIRPX', 'DIRPY', 'DIRPZ', 'DIRNX', 'DIRNY', 'DIRNZ'], default 'NONE'

distance

Set the maximum length of ray

Type float in [-inf, inf], default 0.0

fh_damping

Damping factor of the Fh spring force

Type float in [-inf, inf], default 0.0

fh_height
Height of the Fh area

Type float in [-inf, inf], default 0.0

limit

Type enum in ['NONE', 'LOCX', 'LOCY', 'LOCZ'], default 'NONE'

limit_max

Type float in [-inf, inf], default 0.0

limit_min

Type float in [-inf, inf], default 0.0

material
Ray detects only Objects with this material

Type string, default ""

mode
The type of the constraint

Type enum in ['LOC', 'DIST', 'ORI', 'FH'], default 'LOC'

property
Ray detect only Objects with this property

Type string, default ""

range
Set the maximum length of ray

Type float in [-inf, inf], default 0.0

rotation_max
Reference Direction

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

spring
Spring force within the Fh area

Type float in [-inf, inf], default 0.0

time
Maximum activation time in frame, 0 for unlimited

Type int in [-32768, 32767], default 0

use_fh_normal
Add a horizontal spring force on slopes

Type boolean, default False

use_fh_paralel_axis
Keep object axis parallel to normal

Type boolean, default False

use_force_distance
Force distance of object to point of impact of ray

Type boolean, default False

use_local
Set ray along object's axis or global axis

Type boolean, default False

use_material_detect
Detect material instead of property

Type boolean, default False

use_normal
Set object axis along (local axis) or parallel (global axis) to the normal at hit position

Type boolean, default False

use_persistent
Persistent actuator: stays active even if ray does not reach target

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.137 ConstraintTarget(bpy_struct)

base class — bpy_struct

class bpy.types.**ConstraintTarget**(*bpy_struct*)
Target object for multi-target constraints

subtarget

Type string, default ""

target
Target Object

Type Object

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- PythonConstraint.targets

1.3.138 Context(bpy_struct)

base class — bpy_struct

class bpy.types.**Context** (*bpy_struct*)
Current windowmanager and data context

area

Type Area, (readonly)

blend_data

Type BlendData, (readonly)

mode

Type enum in ['EDIT_MESH', 'EDIT_CURVE', 'EDIT_SURFACE', 'EDIT_TEXT', 'EDIT_ARMATURE', 'EDIT_METABALL', 'EDIT_LATTICE', 'POSE', 'SCULPT', 'PAINT_WEIGHT', 'PAINT_VERTEX', 'PAINT_TEXTURE', 'PARTICLE', 'OBJECT'], default 'EDIT_MESH', (readonly)

region

Type Region, (readonly)

region_data

Type RegionView3D, (readonly)

scene

Type Scene, (readonly)

screen

Type Screen, (readonly)

space_data

Type Space, (readonly)

tool_settings

Type ToolSettings, (readonly)

user_preferences

Type UserPreferences, (readonly)

window

Type Window, (readonly)

window_manager

Type WindowManager, (readonly)

static copy (*self*)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Header.draw
- KeyingSetInfo.generate
- KeyingSetInfo.iterator
- KeyingSetInfo.poll
- Macro.draw
- Macro.poll
- Menu.draw
- Menu.poll
- Operator.draw
- Operator.execute
- Operator.invoke
- Operator.modal
- Operator.poll
- Panel.draw
- Panel.draw_header
- Panel.poll

1.3.139 ControlFluidSettings(FluidSettings)

base classes — bpy_struct, FluidSettings

class bpy.types.**ControlFluidSettings**(*FluidSettings*)

Fluid simulation settings for objects controlling the motion of fluid in the simulation

attraction_radius

Specifies the force field radius around the control object

Type float in [0, 10], default 0.0

attraction_strength

Force strength for directional attraction towards the control object

Type float in [-10, 10], default 0.0

end_time

Specifies time when the control particles are deactivated

Type float in [0, 100], default 0.0

quality

Specifies the quality which is used for object sampling. (higher = better but slower)

Type float in [5, 100], default 0.0

start_time

Specifies time when the control particles are activated

Type float in [0, 100], default 0.0

use

Object contributes to the fluid simulation

Type boolean, default False

use_reverse_frames
Reverse control object movement

Type boolean, default False

velocity_radius
Specifies the force field radius around the control object

Type float in [0, 10], default 0.0

velocity_strength
Force strength of how much of the control object's velocity is influencing the fluid velocity

Type float in [0, 10], default 0.0

Inherited Properties

- bpy_struct.id_data
- FluidSettings.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.140 Controller(bpy_struct)

base class — bpy_struct

subclasses — ExpressionController, XnorController, PythonController, AndController, NorController, OrController, XorController, NandController

class bpy.types.**Controller**(*bpy_struct*)
Game engine logic brick to process events, connecting sensors to actuators

name

Type string, default ""

show_expanded
Set controller expanded in the user interface

Type boolean, default False

states
Set Controller state index (1 to 30)

Type int in [1, 30], default 0

type

Type enum in ['LOGIC_AND', 'LOGIC_OR', 'LOGIC_NAND', 'LOGIC_NOR', 'LOGIC_XOR', 'LOGIC_XNOR', 'EXPRESSION', 'PYTHON'], default 'LOGIC_AND'

use_priority
Mark controller for execution before all non-marked controllers (good for startup scripts)

Type boolean, default False

link(*sensor=None*, *actuator=None*)
Link the controller with a sensor/actuator.

Parameters

- **sensor** (Sensor, (optional)) – Sensor to link the controller to.
- **actuator** (Actuator, (optional)) – Actuator to link the controller to.

unlink(*sensor=None*, *actuator=None*)
Unlink the controller from a sensor/actuator.

Parameters

- **sensor** (Sensor, (optional)) – Sensor to unlink the controller from.
- **actuator** (Actuator, (optional)) – Actuator to unlink the controller from.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- Actuator.link
- Actuator.unlink
- GameObjectSettings.controllers
- Sensor.link
- Sensor.unlink

1.3.141 CopyLocationConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**CopyLocationConstraint**(*Constraint*)

Copies the location of the target

head_tail

Target along length of bone: Head=0, Tail=1

Type float in [0, 1], default 0.0

invert_x

Invert the X location

Type boolean, default False

invert_y

Invert the Y location

Type boolean, default False

invert_z

Invert the Z location

Type boolean, default False

subtarget

Type string, default “”

target

Target Object

Type Object

use_offset

Add original location into copied location

Type boolean, default False

use_x

Copy the target’s X location

Type boolean, default False

use_y

Copy the target’s Y location

Type boolean, default False

use_z
Copy the target's Z location

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.142 CopyRotationConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**CopyRotationConstraint**(*Constraint*)
Copies the rotation of the target

invert_x
Invert the X rotation

Type boolean, default False

invert_y
Invert the Y rotation

Type boolean, default False

invert_z
Invert the Z rotation

Type boolean, default False

subtarget

Type string, default “”

target
Target Object

Type Object

use_offset
Add original rotation into copied rotation

Type boolean, default False

use_x
Copy the target’s X rotation

Type boolean, default False

use_y
Copy the target’s Y rotation

Type boolean, default False

use_z
Copy the target’s Z rotation

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.143 CopyScaleConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**CopyScaleConstraint**(*Constraint*)

Copies the scale of the target

subtarget

Type string, default ""

target

Target Object

Type Object

use_offset

Add original scale into copied scale

Type boolean, default False

use_x

Copy the target's X scale

Type boolean, default False

use_y

Copy the target's Y scale

Type boolean, default False

use_z

Copy the target's Z scale

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute

- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.144 CopyTransformsConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**CopyTransformsConstraint**(*Constraint*)

Copies all the transforms of the target

head_tail

Target along length of bone: Head=0, Tail=1

Type float in [0, 1], default 0.0

subtarget

Type string, default ""

target

Target Object

Type Object

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active

- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.145 Curve(ID)

base classes — bpy_struct, ID

subclasses — SurfaceCurve, TextCurve

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

Curve datablock storing curves, splines and NURBS

animation_data

Animation data for this datablock

Type AnimData, (readonly)

bevel_depth

Bevel depth when not using a bevel object

Type float in [-inf, inf], default 0.0

bevel_object

Curve object name that defines the bevel shape

Type Object

bevel_resolution

Bevel resolution when depth is non-zero and no specific bevel object has been defined

Type int in [0, 32], default 0

dimensions
Select 2D or 3D curve type

Type enum in ['2D', '3D'], default '2D'

eval_time
Parametric position along the length of the curve that Objects 'following' it should be at. Position is evaluated by dividing by the 'Path Length' value

Type float in [-inf, inf], default 0.0

extrude
Amount of curve extrusion when not using a bevel object

Type float in [0, inf], default 0.0

materials

Type IDMaterials collection of Material, (readonly)

offset
Offset the curve to adjust the width of a text

Type float in [-inf, inf], default 0.0

path_duration
The number of frames that are needed to traverse the path, defining the maximum value for the 'Evaluation Time' setting

Type int in [1, 300000], default 0

render_resolution_u
Surface resolution in U direction used while rendering. Zero skips this property

Type int in [0, inf], default 0

render_resolution_v
Surface resolution in V direction used while rendering. Zero skips this property

Type int in [0, inf], default 0

resolution_u
Surface resolution in U direction

Type int in [1, inf], default 0

resolution_v
Surface resolution in V direction

Type int in [1, inf], default 0

shape_keys

Type Key, (readonly)

show_handles
Display bezier handles in editmode

Type boolean, default False

show_normal_face
Display 3D curve normals in editmode

Type boolean, default False

splines
Collection of splines in this curve data object

Type CurveSplines collection of Spline, (readonly)

taper_object
Curve object name that defines the taper (width)

Type Object

texspace_location
Texture space location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

texspace_size
Texture space size

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

twist_mode
The type of tilt calculation for 3D Curves

Type enum in ['Z_UP', 'MINIMUM', 'TANGENT'], default 'Z_UP'

twist_smooth
Smoothing iteration for tangents

Type float in [-inf, inf], default 0.0

use_auto_texspace
Adjusts active object's texture space automatically when transforming object

Type boolean, default False

use_deform_bounds
Use the mesh bounds to clamp the deformation

Type boolean, default False

use_fill_back
Draw filled back for extruded/beveled curves

Type boolean, default False

use_fill_deform
Fill curve after applying deformation

Type boolean, default False

use_fill_front
Draw filled front for extruded/beveled curves

Type boolean, default False

use_map_on_length
Generate texture mapping coordinates following the curve direction, rather than the local bounding box

Type boolean, default False

use_path
Enable the curve to become a translation path

Type boolean, default False

use_path_follow
Make curve path children to rotate along the path

Type boolean, default False

use_radius
Option for paths: apply the curve radius with path following it and deforming

Type boolean, default False

use_stretch
Option for curve-deform: makes deformed child to stretch along entire path

Type boolean, default False

use_time_offset
Children will use TimeOffs value as path distance offset

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.curves
- MainCurves.new
- MainCurves.remove

1.3.146 CurveMap(bpy_struct)

base class — bpy_struct

class bpy.types.**CurveMap**(*bpy_struct*)
Curve in a curve mapping

extend
Extrapolate the curve or extend it horizontally

Type enum in ['HORIZONTAL', 'EXTRAPOLATED'], default 'HORIZONTAL', (readonly)

points

Type Collection of CurveMapPoint, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- CurveMapping.curves

1.3.147 CurveMapPoint(bpy_struct)

base class — bpy_struct

class bpy.types.**CurveMapPoint**(*bpy_struct*)
Point of a curve used for a curve mapping

handle_type
Curve interpolation at this point: bezier or vector

Type enum in ['AUTO', 'VECTOR'], default 'AUTO', (readonly)

location
X/Y coordinates of the curve point

Type float array of 2 items in [-inf, inf], default (0.0, 0.0), (readonly)

select
Selection state of the curve point

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- CurveMap.points

1.3.148 CurveMapping(bpy_struct)

base class — bpy_struct

class bpy.types.**CurveMapping**(*bpy_struct*)
Curve mapping to map color, vector and scalar values to other values using a user defined curve

black_level
For RGB curves, the color that black is mapped to

Type float array of 3 items in [-1000, 1000], default (0.0, 0.0, 0.0)

clip_max_x

Type float in [-100, 100], default 0.0

clip_max_y

Type float in [-100, 100], default 0.0

clip_min_x

Type float in [-100, 100], default 0.0

clip_min_y

Type float in [-100, 100], default 0.0

curves

Type Collection of CurveMap, (readonly)

use_clip
Force the curve view to fit a defined boundary

Type boolean, default False

white_level
For RGB curves, the color that white is mapped to

Type float array of 3 items in [-1000, 1000], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Brush.curve
- CompositorNodeCurveRGB.mapping
- CompositorNodeCurveVec.mapping
- CompositorNodeHueCorrect.mapping
- CompositorNodeTime.curve
- ParticleBrush.curve

- PointLamp.falloff_curve
- ShaderNodeRGBCurve.mapping
- ShaderNodeVectorCurve.mapping
- SpaceImageEditor.curves
- SpotLamp.falloff_curve
- TextureNodeCurveRGB.mapping
- TextureNodeCurveTime.curve

1.3.149 CurveModifier(Modifier)

base classes — bpy_struct, Modifier

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

Curve deformation modifier

deform_axis

The axis that the curve deforms along

Type enum in ['POS_X', 'POS_Y', 'POS_Z', 'NEG_X', 'NEG_Y', 'NEG_Z'], default 'POS_X'

object

Curve object to deform with

Type Object

vertex_group

Vertex group name

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.150 CurveSplines(bpy_struct)

base class — bpy_struct

class bpy.types.**CurveSplines**(*bpy_struct*)
Collection of curve splines

active
Active curve spline

Type Object

new(*type*)
Add a new spline to the curve.

Parameters

- **type** (*enum in ['POLY', 'BEZIER', 'BSPLINE', 'CARDINAL', 'NURBS']*) – type for the new spline.

Returns The newly created spline.

Return type Spline

remove(*spline*)
Remove a spline from a curve.

Parameters

- **spline** (Spline, (never None)) – The spline to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Curve.splines

1.3.151 DampedTrackConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**DampedTrackConstraint**(*Constraint*)

Points toward target by taking the shortest rotation path

subtarget

Type string, default ""

target

Target Object

Type Object

track_axis

Axis that points to the target object

Type enum in ['TRACK_X', 'TRACK_Y', 'TRACK_Z', 'TRACK_NEGATIVE_X', 'TRACK_NEGATIVE_Y', 'TRACK_NEGATIVE_Z'], default 'TRACK_X'

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add

- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.152 DecimateModifier(Modifier)

base classes — bpy_struct, Modifier

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

Decimation modifier

face_count

The current number of faces in the decimated mesh

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

ratio

Defines the ratio of triangles to reduce to

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.153 DelaySensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**DelaySensor**(*Sensor*)

Sensor to send delayed events

delay

Delay in number of logic tics before the positive trigger (default 60 per second)

Type int in [0, 5000], default 0

duration

If >0, delay in number of logic tics before the negative trigger following the positive trigger

Type int in [0, 5000], default 0

use_repeat

Toggle repeat option. If selected, the sensor restarts after Delay+Dur logic tics

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.154 DisplaceModifier(Modifier)

base classes — bpy_struct, Modifier

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

Displacement modifier

direction

Type enum in ['X', 'Y', 'Z', 'NORMAL', 'RGB_TO_XYZ'], default 'X'

mid_level

Material value that gives no displacement

Type float in [0, 1], default 0.0

strength

Type float in [-inf, inf], default 0.0

texture

Type Texture

texture_coordinate_object

Type Object

texture_coords

Type enum in ['LOCAL', 'GLOBAL', 'OBJECT', 'UV'], default 'LOCAL'

uv_layer

UV layer name

Type string, default ""

vertex_group

Vertex group name

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport

- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.155 DistortedNoiseTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**DistortedNoiseTexture**(*Texture*)

Procedural distorted noise texture

distortion

Type float in [0, 10], default 0.0

nabla

Size of derivative offset used for calculating normal

Type float in [0.001, 0.1], default 0.0

noise_basis

Sets the noise basis used for turbulence

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

noise_distortion

Sets the noise basis for the distortion

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

noise_scale

Sets scaling for noise input

Type float in [0.0001, inf], default 0.0

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy

- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.156 DomainFluidSettings(FluidSettings)

base classes — bpy_struct, FluidSettings

class bpy.types.**DomainFluidSettings**(*FluidSettings*)

Fluid simulation settings for the domain of a fluid simulation

compressibility

Allowed compressibility due to gravitational force for standing fluid. (directly affects simulation step size)

Type float in [0.001, 0.1], default 0.0

end_time

Simulation time of the last blender frame (in seconds)

Type float in [0, 100], default 0.0

filepath

Directory (and/or filename prefix) to store baked fluid simulation files in

Type string, default “”

generate_particles

Amount of particles to generate (0=off, 1=normal, >1=more)

Type float in [0, 10], default 0.0

gravity

Gravity in X, Y and Z direction

Type float array of 3 items in [-1000.1, 1000.1], default (0.0, 0.0, 0.0)

grid_levels

Number of coarsened grids to use (-1 for automatic)

Type int in [-1, 4], default 0

memory_estimate

Estimated amount of memory needed for baking the domain

Type string, default “”, (readonly)

partial_slip_factor

Amount of mixing between no- and free-slip, 0 is no slip and 1 is free slip

Type float in [0, 1], default 0.0

preview_resolution

Preview resolution in X,Y and Z direction

Type int in [1, 100], default 0

render_display_mode

How to display the mesh for rendering

Type enum in [’GEOMETRY’, ‘PREVIEW’, ‘FINAL’], default ‘GEOMETRY’

resolution

Domain resolution in X,Y and Z direction

Type int in [1, 1024], default 0

simulation_scale
Size of the simulation domain in metres

Type float in [0.001, 10], default 0.0

slip_type

Type enum in ['NOSLIP', 'PARTIALSLIP', 'FREESLIP'], default 'NOSLIP'

start_time
Simulation time of the first blender frame (in seconds)

Type float in [0, 100], default 0.0

surface_smooth
Amount of surface smoothing. A value of 0 is off, 1 is normal smoothing and more than 1 is extra smoothing

Type float in [0, 5], default 0.0

surface_subdivisions
Number of isosurface subdivisions. This is necessary for the inclusion of particles into the surface generation. Warning - can lead to longer computation times!

Type int in [0, 5], default 0

tracer_particles
Number of tracer particles to generate

Type int in [0, 10000], default 0

use_reverse_frames
Reverse fluid frames

Type boolean, default False

use_speed_vectors
Generate speed vectors for vector blur

Type boolean, default False

use_time_override
Use a custom start and end time (in seconds) instead of the scene's timeline

Type boolean, default False

viewport_display_mode
How to display the mesh in the viewport

Type enum in ['GEOMETRY', 'PREVIEW', 'FINAL'], default 'GEOMETRY'

viscosity_base
Viscosity setting: value that is multiplied by 10 to the power of (exponent*-1)

Type float in [0, 10], default 0.0

viscosity_exponent
Negative exponent for the viscosity value (to simplify entering small values e.g. 5*10^-6.)

Type int in [0, 10], default 0

viscosity_preset
Set viscosity of the fluid to a preset value, or use manual input

Type enum in ['MANUAL', 'WATER', 'OIL', 'HONEY'], default 'MANUAL'

Inherited Properties

- bpy_struct.id_data
- FluidSettings.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.157 DopeSheet(bpy_struct)

base class — bpy_struct

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

Settings for filtering the channels shown in Animation Editors

filter_group

Group that included Object should be a member of

Type Group

show_armatures

Include visualization of Armature related Animation data

Type boolean, default False

show_cameras

Include visualization of Camera related Animation data

Type boolean, default False

show_curves

Include visualization of Curve related Animation data

Type boolean, default False

show_expanded_summary

Collapse summary when shown, so all other channels get hidden. (DopeSheet Editors Only)

Type boolean, default False

show_hidden

Include channels from objects/bone that aren't visible

Type boolean, default False

show_lamps
Include visualization of Lamp related Animation data

Type boolean, default False

show_materials
Include visualization of Material related Animation data

Type boolean, default False

show_meshes
Include visualization of Mesh related Animation data

Type boolean, default False

show_metaballs
Include visualization of Metaball related Animation data

Type boolean, default False

show_missing_nla
Include Animation Data blocks with no NLA data. (NLA Editor only)

Type boolean, default False

show_nodes
Include visualization of Node related Animation data

Type boolean, default False

show_only_group_objects
Only include channels from Objects in the specified Group

Type boolean, default False

show_only_selected
Only include channels relating to selected objects and data

Type boolean, default False

show_particles
Include visualization of Particle related Animation data

Type boolean, default False

show_scenes
Include visualization of Scene related Animation data

Type boolean, default False

show_shapekeys
Include visualization of ShapeKey related Animation data

Type boolean, default False

show_summary
Display an additional 'summary' line. (DopeSheet Editors only)

Type boolean, default False

show_textures
Include visualization of Texture related Animation data

Type boolean, default False

show_transforms
Include visualization of Object-level Animation data (mostly Transforms)

Type boolean, default False

show_worlds
Include visualization of World related Animation data

Type boolean, default False

source
ID-Block representing source data, currently ID_SCE (for Dopesheet), and ID_SC (for Grease Pencil)

Type ID, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SpaceDopeSheetEditor.dopesheet
- SpaceGraphEditor.dopesheet
- SpaceNLA.dopesheet

1.3.158 Driver(bpy_struct)

base class — bpy_struct

class bpy.types.**Driver**(*bpy_struct*)
Driver for the value of a setting based on an external value

expression
Expression to use for Scripted Expression

Type string, default “”

is_valid
Driver could not be evaluated in past, so should be skipped

Type boolean, default False

show_debug_info
Show intermediate values for the driver calculations to allow debugging of drivers

Type boolean, default False

type
Driver type

Type enum in [’AVERAGE’, ‘SUM’, ‘SCRIPTED’, ‘MIN’, ‘MAX’], default ‘AVERAGE’

variables
Properties acting as inputs for this driver

Type ChannelDriverVariables collection of DriverVariable, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- FCurve.driver

1.3.159 DriverTarget(bpy_struct)

base class — bpy_struct

class bpy.types.**DriverTarget**(*bpy_struct*)
Source of input values for driver variables

bone_target
Name of PoseBone to use as target

Type string, default ""

data_path
RNA Path (from ID-block) to property used

Type string, default ""

id
ID-block that the specific property used can be found from (id_type property must be set first)

Type ID

id_type
Type of ID-block that can be used

Type enum in ['ACTION', 'ARMATURE', 'BRUSH', 'CAMERA', 'CURVE', 'FONT', 'GREASEPENCIL', 'GROUP', 'IMAGE', 'KEY', 'LAMP', 'LIBRARY', 'LATTICE', 'MATERIAL', 'META', 'MESH', 'NODETREE', 'OBJECT', 'PARTICLE', 'SCENE', 'SCREEN', 'SOUND', 'TEXT', 'TEXTURE', 'WORLD', 'WINDOWMANAGER'], default 'OBJECT'

transform_type
Driver variable type

Type enum in ['LOC_X', 'LOC_Y', 'LOC_Z', 'ROT_X', 'ROT_Y', 'ROT_Z', 'SCALE_X', 'SCALE_Y', 'SCALE_Z'], default 'LOC_X'

use_local_space_transform
Use transforms in Local Space (as opposed to the worldspace default)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- DriverVariable.targets

1.3.160 DriverVariable(bpy_struct)

base class — bpy_struct

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

Variable from some source/target for driver relationship

name

Name to use in scripted expressions/functions. (No spaces or dots are allowed. Also, must not start with a symbol or digit)

Type string, default “”

targets

Sources of input data for evaluating this variable

Type Collection of DriverTarget, (readonly)

type

Driver variable type

Type enum in [’SINGLE_PROP’, ‘TRANSFORMS’, ‘ROTATION_DIFF’, ‘LOC_DIFF’], default ‘SINGLE_PROP’

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ChannelDriverVariables.new
- ChannelDriverVariables.remove
- Driver.variables

1.3.161 DupliObject(bpy_struct)

base class — bpy_struct

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

An object duplicate

matrix

Object duplicate transformation matrix

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

matrix_original

The original matrix of this object before it was duplicated

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

object

Object being duplicated

Type Object, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.dupli_list

1.3.162 EdgeSplitModifier(Modifier)

base classes — bpy_struct, Modifier

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

Edge splitting modifier to create sharp edges

split_angle

Angle above which to split edges

Type float in [0, 180], default 0.0

use_edge_angle

Split edges with high angle between faces

Type boolean, default False

use_edge_sharp

Split edges that are marked as sharp

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.163 EditBone(bpy_struct)

base class — bpy_struct

class bpy.types.**EditBone**(*bpy_struct*)
Editmode bone in an Armature datablock

bbone_in
Length of first Bezier Handle (for B-Bones only)

Type float in [0, 2], default 0.0

bbone_out
Length of second Bezier Handle (for B-Bones only)

Type float in [0, 2], default 0.0

bbone_segments
Number of subdivisions of bone (for B-Bones only)

Type int in [1, 32], default 0

envelope_distance
Bone deformation distance (for Envelope deform only)

Type float in [0, 1000], default 0.0

envelope_weight
Bone deformation weight (for Envelope deform only)

Type float in [0, 1000], default 0.0

head
Location of head end of the bone

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

head_radius
Radius of head of bone (for Envelope deform only)

Type float in [-inf, inf], default 0.0

hide
Bone is not visible when in Edit Mode

Type boolean, default False

hide_select
Bone is able to be selected

Type boolean, default False

layers
Layers bone exists in

Type boolean array of 32 items, default (False, False)

lock
Bone is not able to be transformed when in Edit Mode

Type boolean, default False

matrix
Read-only matrix calculated from the roll (armature space)

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0), (readonly)

name

Type string, default ""

parent
Parent edit bone (in same Armature)

Type EditBone

roll
Bone rotation around head-tail axis

Type float in [-inf, inf], default 0.0

select

Type boolean, default False

select_head

Type boolean, default False

select_tail

Type boolean, default False

show_wire
Bone is always drawn as Wireframe regardless of viewport draw mode. Useful for non-obstructive custom bone shapes

Type boolean, default False

tail
Location of tail end of the bone

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

tail_radius
Radius of tail of bone (for Envelope deform only)

Type float in [-inf, inf], default 0.0

use_connect
When bone has a parent, bone's head is struck to the parent's tail

Type boolean, default False

use_cyclic_offset
When bone doesn't have a parent, it receives cyclic offset effects

Type boolean, default False

use_deform
Bone does not deform any geometry

Type boolean, default False

use_envelope_multiply
When deforming bone, multiply effects of Vertex Group weights with Envelope influence

Type boolean, default False

use_hinge
Bone inherits rotation or scale from parent bone

Type boolean, default False

use_inherit_scale
Bone inherits scaling from parent bone

Type boolean, default False

use_local_location
Bone location is set in local space

Type boolean, default False

basename
The name of this bone before any '.' character (readonly)

center
The midpoint between the head and the tail. (readonly)

children
A list of all the bones children. (readonly)

children_recursive
a list of all children from this bone. (readonly)

children_recursive_basename
Returns a chain of children with the same base name as this bone Only direct chains are supported, forks caused by multiple children with matching basenames will terminate the function and not be returned.

(readonly)

length
The distance from head to tail, when set the head is moved to fit the length.

parent_recursive
A list of parents, starting with the immediate parent (readonly)

vector
The direction this bone is pointing. Utility function for (tail - head) (readonly)

x_axis
Vector pointing down the x-axis of the bone.

(readonly)

y_axis
Vector pointing down the x-axis of the bone.

(readonly)

z_axis
Vector pointing down the x-axis of the bone.

(readonly)

align_roll(*vector*)
Align the bone to a localspace roll so the Z axis points in the direction of the vector given.

Parameters

- **vector** (*float array of 3 items in [-inf, inf]*) – Vector

align_orientation(*other*)
Align this bone to another by moving its tail and settings its roll the length of the other bone is not used.

parent_index(*parent_test*)
The same as 'bone in other_bone.parent_recursive' but saved generating a list.

transform(*matrix*)
Transform the the bones head, tail, roll and envalope (when the matrix has a scale component). Expects a 4x4 or 3x3 matrix.

translate(*vec*)
Utility function to add *vec* to the head and tail of this bone.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Armature.edit_bones
- ArmatureEditBones.active
- ArmatureEditBones.new
- ArmatureEditBones.remove
- EditBone.parent

1.3.164 EditObjectActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**EditObjectActuator**(*Actuator*)
Actuator used to edit objects

angular_velocity
Angular velocity upon creation

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

dynamic_operation

Type enum in ['RESTOREDYN', 'SUSPENDDYN', 'ENABLERIGIDBODY', 'DISABLE-RIGIDBODY', 'SETMASS'], default 'RESTOREDYN'

linear_velocity
Velocity upon creation

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

mass
The mass of the object

Type float in [-inf, inf], default 0.0

mesh
Replace the existing, when left blank 'Phys' will remake the existing physics mesh

Type Mesh

mode
The mode of the actuator

Type enum in ['ADDOBJECT', 'ENDOBJECT', 'REPLACEMESH', 'TRACKTO', 'DYNAMICS'], default 'ADDOBJECT'

object
Add this Object and all its children (cant be on an visible layer)

Type Object

time
Duration the new Object lives or the track takes

Type int in [-inf, inf], default 0

track_object
Track to this Object

Type Object

use_3d_tracking
Enable 3D tracking

Type boolean, default False

use_local_angular_velocity
Apply the rotation locally

Type boolean, default False

use_local_linear_velocity
Apply the transformation locally

Type boolean, default False

use_replace_display_mesh
Replace the display mesh

Type boolean, default False

use_replace_physics_mesh
Replace the physics mesh (triangle bounds only - compound shapes not supported)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.165 EffectSequence(Sequence)

base classes — bpy_struct, Sequence

subclasses — GlowSequence, PluginSequence, ColorSequence, TransformSequence, WipeSequence, SpeedControlSequence

class bpy.types.**EffectSequence**(*Sequence*)

Sequence strip applying an effect on the images created by other strips

color_balance

Type SequenceColorBalance, (readonly)

color_multiply

Type float in [0, 20], default 0.0

color_saturation

Type float in [0, 20], default 0.0

crop

Type SequenceCrop, (readonly)

proxy

Type SequenceProxy, (readonly)

strobe
Only display every nth frame

Type float in [1, 30], default 0.0

transform

Type SequenceTransform, (readonly)

use_color_balance
(3-Way color correction) on input

Type boolean, default False

use_crop
Crop image before processing

Type boolean, default False

use_deinterlace
For video movies to remove fields

Type boolean, default False

use_flip_x
Flip on the X axis

Type boolean, default False

use_flip_y
Flip on the Y axis

Type boolean, default False

use_float
Convert input to float data

Type boolean, default False

use_premultiply
Convert RGB from key alpha to premultiplied alpha

Type boolean, default False

use_proxy
Use a preview proxy for this strip

Type boolean, default False

use_proxy_custom_directory
Use a custom directory to store data

Type boolean, default False

use_proxy_custom_file
Use a custom file to read proxy data from

Type boolean, default False

use_reverse_frames
Reverse frame order

Type boolean, default False

use_translation
Translate image before processing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.166 EffectorWeights(bpy_struct)

base class — bpy_struct

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

Effector weights for physics simulation

all

All effector's weight

Type float in [-200, 200], default 0.0

apply_to_hair_growing

Use force fields when growing hair

Type boolean, default False

boid

Boid effector weight

Type float in [-200, 200], default 0.0

charge

Charge effector weight

Type float in [-200, 200], default 0.0

curve_guide

Curve guide effector weight

Type float in [-200, 200], default 0.0

drag

Drag effector weight

Type float in [-200, 200], default 0.0

force

Force effector weight

Type float in [-200, 200], default 0.0

gravity

Global gravity weight

Type float in [-200, 200], default 0.0

group

Limit effectors to this Group

Type Group

harmonic

Harmonic effector weight

Type float in [-200, 200], default 0.0

lennardjones

Lennard-Jones effector weight

Type float in [-200, 200], default 0.0

magnetic

Magnetic effector weight

Type float in [-200, 200], default 0.0

texture
Texture effector weight

Type float in [-200, 200], default 0.0

turbulence
Turbulence effector weight

Type float in [-200, 200], default 0.0

vortex
Vortex effector weight

Type float in [-200, 200], default 0.0

wind
Wind effector weight

Type float in [-200, 200], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ClothSettings.effector_weights
- ParticleSettings.effector_weights
- SmokeDomainSettings.effector_weights
- SoftBodySettings.effector_weights

1.3.167 EnumProperty(Property)

base classes — bpy_struct, Property

class bpy.types.**EnumProperty**(*Property*)

RNA enumeration property definition, to choose from a number of predefined options

default

Default value for this enum

Type enum in ['DUMMY'], default 'DUMMY', (readonly)

items

Possible values for the property

Type Collection of EnumPropertyItem, (readonly)

Inherited Properties

- bpy_struct.id_data
- Property.name
- Property.srna
- Property.description
- Property.identifier
- Property.is_never_none
- Property.is_readonly
- Property.is_runtime
- Property.is_registered
- Property.is_registered_optional
- Property.is_required
- Property.is_output
- Property.subtype
- Property.type
- Property.unit

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.168 EnumPropertyItem(bpy_struct)

base class — bpy_struct

class bpy.types.**EnumPropertyItem**(*bpy_struct*)
Definition of a choice in an RNA enum property

description
Description of the item's purpose

Type string, default "", (readonly)

identifier
Unique name used in the code and scripting

Type string, default "", (readonly)

name
Human readable name

Type string, default "", (readonly)

value
Value of the item

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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- EnumProperty.items

1.3.169 EnvironmentMap(bpy_struct)

base class — bpy_struct

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

Environment map created by the renderer and cached for subsequent renders

clip_end

Objects further than this are not visible to map

Type float in [0.01, inf], default 0.0

clip_start

Objects nearer than this are not visible to map

Type float in [0.01, inf], default 0.0

depth

Number of times a map will be rendered recursively (mirror effects.)

Type int in [0, 5], default 0

layers_ignore

Hide objects on these layers when generating the Environment Map

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

mapping

Type enum in ['CUBE', 'PLANE'], default 'CUBE'

resolution

Pixel resolution of the rendered environment map

Type int in [50, 4096], default 0

source

Type enum in ['STATIC', 'ANIMATED', 'IMAGE_FILE'], default 'STATIC'

viewpoint_object

Object to use as the environment map's viewpoint location

Type Object

zoom

Type float in [0.1, 5], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- EnvironmentMapTexture.environment_map

1.3.170 EnvironmentMapTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**EnvironmentMapTexture**(*Texture*)

Environment map texture

environment_map

Gets the environment map associated with this texture

Type EnvironmentMap, (readonly)

filter_eccentricity

Maximum eccentricity. Higher gives less blur at distant/oblique angles, but is also slower

Type int in [1, 256], default 0

filter_probes

Maximum number of samples. Higher gives less blur at distant/oblique angles, but is also slower

Type int in [1, 256], default 0

filter_size

Multiplies the filter size used by MIP Map and Interpolation

Type float in [0.1, 50], default 0.0

filter_type

Texture filter to use for sampling image

Type enum in ['BOX', 'EWA', 'FELINE', 'AREA'], default 'BOX'

image

Source image file to read the environment map from

Type Image

image_user

Parameters defining which layer, pass and frame of the image is displayed

Type ImageUser, (readonly)

use_filter_size_min

Use Filter Size as a minimal filter value in pixels

Type boolean, default False

use_mipmap

Uses auto-generated MIP maps for the image

Type boolean, default False

use_mipmap_gauss
Uses Gauss filter to sample down MIP maps

Type boolean, default False

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.171 Event(bpy_struct)

base class — bpy_struct

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

Window Manager Event

alt

True when the Alt/Option key is held

Type boolean, default False, (readonly)

ascii

Single ASCII character for this event

Type string, default "", (readonly)

ctrl

True when the Ctrl key is held

Type boolean, default False, (readonly)

mouse_prev_x

The window relative vertical location of the mouse

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

mouse_prev_y

The window relative horizontal location of the mouse

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

mouse_region_x

The region relative vertical location of the mouse

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

mouse_region_y

The region relative horizontal location of the mouse

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

mouse_x

The window relative vertical location of the mouse

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

mouse_y

The window relative horizontal location of the mouse

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

oskey

True when the Cmd key is held

Type boolean, default False, (readonly)

shift
True when the Shift key is held

Type boolean, default False, (readonly)

type

Type enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], default 'NONE', (readonly)

value
The type of event, only applies to some

Type enum in ['ANY', 'NOTHING', 'PRESS', 'RELEASE', 'CLICK', 'DOUBLE_CLICK'], default 'NOTHING', (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Operator.invoke
- Operator.modal
- WindowManager.invoke_props_popup

1.3.172 ExplodeModifier(Modifier)

base classes — bpy_struct, Modifier

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

Explosion effect modifier based on a particle system

protect

Clean vertex group edges

Type float in [0, 1], default 0.0

show_alive

Show mesh when particles are alive

Type boolean, default False

show_dead

Show mesh when particles are dead

Type boolean, default False

show_unborn

Show mesh when particles are unborn

Type boolean, default False

use_edge_split

Split face edges for nicer shrapnel

Type boolean, default False

use_size

Use particle size for the shrapnel

Type boolean, default False

vertex_group

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage

- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.173 ExpressionController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**ExpressionController**(*Controller*)

Controller passing on events based on the evaluation of an expression

expression

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.174 FCurve(bpy_struct)

base class — bpy_struct

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

F-Curve defining values of a period of time

array_index

Index to the specific property affected by F-Curve if applicable

Type int in [-inf, inf], default 0

color

Color of the F-Curve in the Graph Editor

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

color_mode

Method used to determine color of F-Curve in Graph Editor

Type enum in ['AUTO_RAINBOW', 'AUTO_RGB', 'CUSTOM'], default 'AUTO_RAINBOW'

data_path

RNA Path to property affected by F-Curve

Type string, default ""

driver

Channel Driver (only set for Driver F-Curves)

Type Driver, (readonly)

extrapolation

Type enum in ['CONSTANT', 'LINEAR'], default 'CONSTANT'

group

Action Group that this F-Curve belongs to

Type ActionGroup

hide

F-Curve and its keyframes are hidden in the Graph Editor graphs

Type boolean, default False

is_valid

False when F-Curve could not be evaluated in past, so should be skipped when evaluating

Type boolean, default False

keyframe_points
User-editable keyframes

Type FCurveKeyframePoints collection of Keyframe, (readonly)

lock
F-Curve's settings cannot be edited

Type boolean, default False

modifiers
Modifiers affecting the shape of the F-Curve

Type FCurveModifiers collection of FModifier, (readonly)

mute
F-Curve is not evaluated

Type boolean, default False

sampled_points
Sampled animation data

Type Collection of FCurveSample, (readonly)

select
F-Curve is selected for editing

Type boolean, default False

use_auto_handle_clamp
All auto-handles for F-Curve are clamped

Type boolean, default False

evaluate(*frame*)
Evaluate fcurve.

Parameters

- **frame** (*float in [-inf, inf]*) – Frame, Evaluate fcurve at given frame

Returns Position, FCurve position

Return type float in [-inf, inf]

range()
Get the time extents for F-Curve.

Returns Range, Min/Max values

Return type float array of 2 items in [-inf, inf]

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Action.fcurves
- ActionFCurves.new
- ActionFCurves.remove
- ActionGroup.channels
- AnimData.drivers
- NlaStrip.fcurves

1.3.175 FCurveActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**FCurveActuator**(*Actuator*)

Actuator to animate the object

apply_to_children

Update F-Curve on all children Objects as well

Type boolean, default False

frame_end

Type int in [-inf, inf], default 0

frame_property

Assign the action's current frame number to this property

Type string, default ""

frame_start

Type int in [-inf, inf], default 0

play_type

Specify the way you want to play the animation

Type enum in ['PLAY', 'PINGPONG', 'FLIPPER', 'STOP', 'END', 'PROP'], default 'PLAY'

property

Use this property to define the F-Curve position

Type string, default ""

use_additive
F-Curve is added to the current loc/rot/scale in global or local coordinate according to Local flag

Type boolean, default False

use_force
Apply F-Curve as a global or local force depending on the local option (dynamic objects only)

Type boolean, default False

use_local
Let the F-Curve act in local coordinates, used in Force and Add mode

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.176 FCurveKeyframePoints(bpy_struct)

base class — bpy_struct

class bpy.types.**FCurveKeyframePoints**(*bpy_struct*)
Collection of keyframe points

add(*frame*, *value*, *replace=False*, *needed=False*, *fast=False*)
Add a keyframe point to a F-Curve.

Parameters

- **frame** (*float in [-inf, inf]*) – X Value of this keyframe point
- **value** (*float in [-inf, inf]*) – Y Value of this keyframe point
- **replace** (*boolean, (optional)*) – Replace, Replace existing keyframes
- **needed** (*boolean, (optional)*) – Needed, Only adds keyframes that are needed
- **fast** (*boolean, (optional)*) – Fast, Fast keyframe insertion to avoid recalculating the curve each time

Returns Newly created keyframe

Return type Keyframe

remove(*keyframe*, *fast=False*)
Remove keyframe from an fcurve.

Parameters

- **keyframe** (Keyframe, (never None)) – Keyframe to remove.
- **fast** (*boolean, (optional)*) – Fast, Fast keyframe removal to avoid recalculating the curve each time

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- FCurve.keyframe_points

1.3.177 FCurveModifiers(bpy_struct)

base class — bpy_struct

class bpy.types.**FCurveModifiers**(*bpy_struct*)
Collection of F-Curve Modifiers

active
Active F-Curve Modifier

Type FModifier

new(*type*)
Add a constraint to this object

Parameters

- **type** (*enum in ['NULL', 'GENERATOR', 'FNGENERATOR', 'ENVELOPE', 'CYCLES', 'NOISE', 'FILTER', 'PYTHON', 'LIMITS', 'STEPPED']*) – Constraint type to add.

Returns New fmodifier.

Return type FModifier

remove(*modifier*)
Remove a modifier from this fcurve.

Parameters

- **modifier** (FModifier, (never None)) – Removed modifier.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- FCurve.modifiers

1.3.178 FCurveSample(bpy_struct)

base class — bpy_struct

class bpy.types.**FCurveSample**(*bpy_struct*)
Sample point for F-Curve

co
Point coordinates

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

select
Selection status

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- FCurve.sampled_points

1.3.179 FModifier(bpy_struct)

base class — bpy_struct

subclasses — FModifierCycles, FModifierFunctionGenerator, FModifierPython, FModifierLimits, FModifierEnvelope, FModifierNoise, FModifierStepped, FModifierGenerator

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

Modifier for values of F-Curve

active

F-Curve Modifier is the one being edited

Type boolean, default False

is_valid

F-Curve Modifier has invalid settings and will not be evaluated

Type boolean, default False, (readonly)

mute

F-Curve Modifier will not be evaluated

Type boolean, default False

show_expanded

F-Curve Modifier's panel is expanded in UI

Type boolean, default False

type

F-Curve Modifier Type

Type enum in ['NULL', 'GENERATOR', 'FNGENERATOR', 'ENVELOPE', 'CYCLES', 'NOISE', 'FILTER', 'PYTHON', 'LIMITS', 'STEPPED'], default 'NULL', (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- FCurve.modifiers
- FCurveModifiers.active
- FCurveModifiers.new
- FCurveModifiers.remove
- NlaStrip.modifiers

1.3.180 FModifierCycles(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierCycles**(*FModifier*)

Repeats the values of the modified F-Curve

cycles_after

Maximum number of cycles to allow after last keyframe. (0 = infinite)

Type float in [-inf, inf], default 0.0

cycles_before

Maximum number of cycles to allow before first keyframe. (0 = infinite)

Type float in [-inf, inf], default 0.0

mode_after

Cycling mode to use after last keyframe

Type enum in ['NONE', 'REPEAT', 'REPEAT_OFFSET', 'MIRROR'], default 'NONE'

mode_before

Cycling mode to use before first keyframe

Type enum in ['NONE', 'REPEAT', 'REPEAT_OFFSET', 'MIRROR'], default 'NONE'

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute
- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.181 FModifierEnvelope(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierEnvelope**(*FModifier*)

Scales the values of the modified F-Curve

control_points

Control points defining the shape of the envelope

Type Collection of FModifierEnvelopeControlPoint, (readonly)

default_max

Upper distance from Reference Value for 1:1 default influence

Type float in [-inf, inf], default 0.0

default_min

Lower distance from Reference Value for 1:1 default influence

Type float in [-inf, inf], default 0.0

reference_value

Value that envelope's influence is centered around / based on

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute
- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.182 FModifierEnvelopeControlPoint(bpy_struct)

base class — bpy_struct

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

Control point for envelope F-Modifier

frame

Frame this control-point occurs on

Type float in [-inf, inf], default 0.0

max

Upper bound of envelope at this control-point

Type float in [-inf, inf], default 0.0

min

Lower bound of envelope at this control-point

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- FModifierEnvelope.control_points

1.3.183 FModifierFunctionGenerator(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierFunctionGenerator**(*FModifier*)

Generates values using a Built-In Function

amplitude

Scale factor determining the maximum/minimum values

Type float in [-inf, inf], default 0.0

function_type

Type of built-in function to use

Type enum in ['SIN', 'COS', 'TAN', 'SQRT', 'LN', 'SINC'], default 'SIN'

phase_multiplier

Scale factor determining the 'speed' of the function

Type float in [-inf, inf], default 0.0

phase_offset

Constant factor to offset time by for function

Type float in [-inf, inf], default 0.0

use_additive

Values generated by this modifier are applied on top of the existing values instead of overwriting them

Type boolean, default False

value_offset

Constant factor to offset values by

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute
- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.184 FModifierGenerator(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierGenerator**(*FModifier*)

Deterministically generates values for the modified F-Curve

coefficients

Coefficients for 'x' (starting from lowest power of x^0)

Type float array of 32 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

mode

Type of generator to use

Type enum in ['POLYNOMIAL', 'POLYNOMIAL_FACTORISED'], default 'POLYNOMIAL'

poly_order

The highest power of 'x' for this polynomial. (number of coefficients - 1)

Type int in [-inf, inf], default 0

use_additive

Values generated by this modifier are applied on top of the existing values instead of overwriting them

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute
- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.185 FModifierLimits(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierLimits**(*FModifier*)

Limits the time/value ranges of the modified F-Curve

max_x

Highest X value to allow

Type float in [-inf, inf], default 0.0

max_y

Highest Y value to allow

Type float in [-inf, inf], default 0.0

min_x

Lowest X value to allow

Type float in [-inf, inf], default 0.0

min_y

Lowest Y value to allow

Type float in [-inf, inf], default 0.0

use_max_x

Use the maximum X value

Type boolean, default False

use_max_y

Use the maximum Y value

Type boolean, default False

use_min_x

Use the minimum X value

Type boolean, default False

use_min_y
Use the minimum Y value

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute
- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.186 FModifierNoise(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierNoise**(*FModifier*)
Gives randomness to the modified F-Curve

blend_type
Method of modifying the existing F-Curve

Type enum in ['REPLACE', 'ADD', 'SUBTRACT', 'MULTIPLY'], default 'REPLACE'

depth
Amount of fine level detail present in the noise

Type int in [0, 32767], default 0

phase
A random seed for the noise effect

Type float in [-inf, inf], default 0.0

scale
Scaling (in time) of the noise

Type float in [-inf, inf], default 0.0

strength
Amplitude of the noise - the amount that it modifies the underlying curve

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute
- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.187 FModifierPython(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierPython**(*FModifier*)
Performs user-defined operation on the modified F-Curve

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute

- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.188 FModifierStepped(FModifier)

base classes — bpy_struct, FModifier

class bpy.types.**FModifierStepped**(*FModifier*)

Holds each interpolated value from the F-Curve for several frames without changing the timing

frame_end

Frame that modifier's influence ends (if applicable)

Type float in [-inf, inf], default 0.0

frame_offset

Reference number of frames before frames get held. Use to get hold for '1-3' vs '5-7' holding patterns

Type float in [-inf, inf], default 0.0

frame_start

Frame that modifier's influence starts (if applicable)

Type float in [-inf, inf], default 0.0

frame_step

Number of frames to hold each value

Type float in [-inf, inf], default 0.0

use_frame_end

Restrict modifier to only act before its 'end' frame

Type boolean, default False

use_frame_start

Restrict modifier to only act after its 'start' frame

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- FModifier.active
- FModifier.is_valid
- FModifier.show_expanded
- FModifier.mute
- FModifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.189 FieldSettings(bpy_struct)

base class — bpy_struct

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

Field settings for an object in physics simulation

apply_to_location

Effect particles' location

Type boolean, default False

apply_to_rotation

Effect particles' dynamic rotation

Type boolean, default False

distance_max

Maximum distance for the field to work

Type float in [0, 1000], default 0.0

distance_min

Minimum distance for the field's fall-off

Type float in [0, 1000], default 0.0

falloff_power

Falloff power (real gravitational falloff = 2)

Type float in [0, 10], default 0.0

falloff_type
Fall-off shape

Type enum in ['SPHERE', 'TUBE', 'CONE'], default 'SPHERE'

flow
Convert effector force into air flow velocity

Type float in [0, 10], default 0.0

guide_clump_amount
Amount of clumping

Type float in [-1, 1], default 0.0

guide_clump_shape
Shape of clumping

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

guide_free
Guide-free time from particle life's end

Type float in [0, 0.99], default 0.0

guide_kink_amplitude
The amplitude of the offset

Type float in [0, 10], default 0.0

guide_kink_axis
Which axis to use for offset

Type enum in ['X', 'Y', 'Z'], default 'X'

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

Type float in [0, 10], default 0.0

guide_kink_shape
Adjust the offset to the beginning/end

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

guide_kink_type
Type of periodic offset on the curve

Type enum in ['NONE', 'CURL', 'RADIAL', 'WAVE', 'BRAID', 'ROTATION', 'ROLL'], default 'NONE'

guide_minimum
The distance from which particles are affected fully

Type float in [0, 1000], default 0.0

harmonic_damping
Damping of the harmonic force

Type float in [0, 10], default 0.0

inflow
Inwards component of the vortex force

Type float in [-10, 10], default 0.0

linear_drag
Drag component proportional to velocity

Type float in [-2, 2], default 0.0

noise
Noise of the force

Type float in [0, 10], default 0.0

quadratic_drag
Drag component proportional to the square of velocity

Type float in [-2, 2], default 0.0

radial_falloff
Radial falloff power (real gravitational falloff = 2)

Type float in [0, 10], default 0.0

radial_max
Maximum radial distance for the field to work

Type float in [0, 1000], default 0.0

radial_min
Minimum radial distance for the field's fall-off

Type float in [0, 1000], default 0.0

rest_length
Rest length of the harmonic force

Type float in [0, 1000], default 0.0

seed
Seed of the noise

Type int in [1, 128], default 0

shape
Which direction is used to calculate the effector force

Type enum in ['POINT', 'PLANE', 'SURFACE', 'POINTS'], default 'POINT'

size
Size of the noise

Type float in [0, 10], default 0.0

strength
Strength of force field

Type float in [-1000, 1000], default 0.0

texture
Texture to use as force

Type Texture

texture_mode
How the texture effect is calculated (RGB & Curl need a RGB texture else Gradient will be used instead)

Type enum in ['RGB', 'GRADIENT', 'CURL'], default 'RGB'

texture_nabla
Defines size of derivative offset used for calculating gradient and curl

Type float in [0.0001, 1], default 0.0

type
Type of field

Type enum in ['NONE', 'FORCE', 'WIND', 'VORTEX', 'MAGNET', 'HARMONIC', 'CHARGE', 'LENNARDJ', 'TEXTURE', 'GUIDE', 'BOID', 'TURBULENCE', 'DRAG'], default 'NONE'

use_2d_force
Apply force only in 2d

Type boolean, default False

use_absorption
Force gets absorbed by collision objects

Type boolean, default False

use_global_coords
Use effector/global coordinates for turbulence

Type boolean, default False

use_guide_path_add
Based on distance/falloff it adds a portion of the entire path

Type boolean, default False

use_guide_path_weight
Use curve weights to influence the particle influence along the curve

Type boolean, default False

use_max_distance
Use a maximum distance for the field to work

Type boolean, default False

use_min_distance
Use a minimum distance for the field's fall-off

Type boolean, default False

use_multiple_springs
Every point is effected by multiple springs

Type boolean, default False

use_object_coords
Use object/global coordinates for texture

Type boolean, default False

use_radial_max
Use a maximum radial distance for the field to work

Type boolean, default False

use_radial_min
Use a minimum radial distance for the field's fall-off

Type boolean, default False

use_root_coords
Texture coordinates from root particle locations

Type boolean, default False

z_direction
Effect in full or only positive/negative Z direction

Type enum in ['BOTH', 'POSITIVE', 'NEGATIVE'], default 'BOTH'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.field
- ParticleSettings.force_field_1
- ParticleSettings.force_field_2

1.3.190 FileSelectParams(bpy_struct)

base class — bpy_struct

class bpy.types.**FileSelectParams**(*bpy_struct*)
File Select Parameters

directory
Directory displayed in the file browser

Type string, default ""

display_type
Display mode for the file list

Type enum in ['FILE_SHORTDISPLAY', 'FILE_LONGDISPLAY', 'FILE_IMGDISPLAY'], default 'FILE_SHORTDISPLAY'

filename
Active file in the file browser

Type string, default “”

show_hidden
Show hidden dot files

Type boolean, default False

sort_method

Type enum in [’FILE_SORT_ALPHA’, ‘FILE_SORT_EXTENSION’, ‘FILE_SORT_TIME’, ‘FILE_SORT_SIZE’], default ‘FILE_SORT_ALPHA’

title
Title for the file browser

Type string, default “”, (readonly)

use_filter
Enable filtering of files

Type boolean, default False

use_filter_blender
Show .blend files

Type boolean, default False

use_filter_folder
Show folders

Type boolean, default False

use_filter_font
Show font files

Type boolean, default False

use_filter_image
Show image files

Type boolean, default False

use_filter_movie
Show movie files

Type boolean, default False

use_filter_script
Show script files

Type boolean, default False

use_filter_sound
Show sound files

Type boolean, default False

use_filter_text
Show text files

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SpaceFileBrowser.params

1.3.191 Filter2DActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**Filter2DActuator**(*Actuator*)

Actuator to ..

filter_pass

Set filter order

Type int in [0, 99], default 0

glsl_shader

Type Text

mode

Type enum in ['ENABLE', 'DISABLE', 'REMOVE', 'MOTIONBLUR', 'BLUR', 'SHARPEN', 'DILATION', 'EROSION', 'LAPLACIAN', 'SOBEL', 'PREWITT', 'GRAYSCALE', 'SEPIA', 'INVERT', 'CUSTOMFILTER'], default 'REMOVE'

motion_blur_factor

Set motion blur factor

Type float in [0, 1], default 0.0

use_motion_blur
Enable/Disable Motion Blur

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.192 FloatProperty(Property)

base classes — bpy_struct, Property

class bpy.types.**FloatProperty**(*Property*)
RNA floating pointer number property definition

array_length
Maximum length of the array, 0 means unlimited

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

default
Default value for this number

Type float in [-inf, inf], default 0.0, (readonly)

default_array
Default value for this array

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0), (readonly)

hard_max
Maximum value used by buttons

Type float in [-inf, inf], default 0.0, (readonly)

hard_min
Minimum value used by buttons

Type float in [-inf, inf], default 0.0, (readonly)

precision
Number of digits after the dot used by buttons

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

soft_max
Maximum value used by buttons

Type float in [-inf, inf], default 0.0, (readonly)

soft_min
Minimum value used by buttons

Type float in [-inf, inf], default 0.0, (readonly)

step
Step size used by number buttons, for floats 1/100th of the step size

Type float in [0, inf], default 0.0, (readonly)

Inherited Properties

- bpy_struct.id_data
- Property.name
- Property.srna
- Property.description
- Property.identifier
- Property.is_never_none
- Property.is_readonly
- Property.is_runtime
- Property.is_registered
- Property.is_registered_optional
- Property.is_required
- Property.is_output
- Property.subtype
- Property.type
- Property.unit

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

1.3.193 FloorConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**FloorConstraint**(*Constraint*)

Uses the target object for location limitation

floor_location

Location of target that object will not pass through

Type enum in ['FLOOR_X', 'FLOOR_Y', 'FLOOR_Z', 'FLOOR_NEGATIVE_X', 'FLOOR_NEGATIVE_Y', 'FLOOR_NEGATIVE_Z'], default 'FLOOR_X'

offset

Offset of floor from object origin

Type float in [0, 100], default 0.0

subtarget

Type string, default ""

target

Target Object

Type Object

use_rotation

Use the target's rotation to determine floor

Type boolean, default False

use_sticky

Immobilize object while constrained

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space

- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.194 FluidFluidSettings(FluidSettings)

base classes — bpy_struct, FluidSettings

class bpy.types.**FluidFluidSettings**(*FluidSettings*)

Fluid simulation settings for the fluid in the simulation

initial_velocity

Initial velocity of fluid

Type float array of 3 items in [-1000.1, 1000.1], default (0.0, 0.0, 0.0)

use

Object contributes to the fluid simulation

Type boolean, default False

use_animated_mesh

Export this mesh as an animated one. Slower, only use if really necessary (e.g. armatures or parented objects), animated pos/rot/scale IPOs do not require it

Type boolean, default False

volume_initialization

Volume initialization type

Type enum in ['VOLUME', 'SHELL', 'BOTH'], default 'VOLUME'

Inherited Properties

- bpy_struct.id_data

- FluidSettings.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.195 FluidSettings(bpy_struct)

base class — bpy_struct

subclasses — FluidFluidSettings, ControlFluidSettings, DomainFluidSettings, InflowFluidSettings, ObstacleFluidSettings, ParticleFluidSettings, OutflowFluidSettings

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

Fluid simulation settings for an object taking part in the simulation

type

Type of participation in the fluid simulation

Type enum in ['NONE', 'DOMAIN', 'FLUID', 'OBSTACLE', 'INFLOW', 'OUTFLOW', 'PARTICLE', 'CONTROL'], default 'NONE'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- FluidSimulationModifier.settings

1.3.196 FluidSimulationModifier(Modifier)

base classes — bpy_struct, Modifier

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

Fluid simulation modifier

settings

Settings for how this object is used in the fluid simulation

Type FluidSettings, (readonly, never None)

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.197 FollowPathConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**FollowPathConstraint**(*Constraint*)

Locks motion to the target path

forward_axis

Axis that points forward along the path

Type enum in ['FORWARD_X', 'FORWARD_Y', 'FORWARD_Z', 'TRACK_NEGATIVE_X', 'TRACK_NEGATIVE_Y', 'TRACK_NEGATIVE_Z'], default 'FORWARD_X'

offset

Offset from the position corresponding to the time frame

Type int in [-300000, 300000], default 0

offset_factor

Percentage value defining target position along length of bone

Type float in [0, 1], default 0.0

target

Target Object

Type Object

up_axis

Axis that points upward

Type enum in ['UP_X', 'UP_Y', 'UP_Z'], default 'UP_X'

use_curve_follow

Object will follow the heading and banking of the curve

Type boolean, default False

use_curve_radius

Objects scale by the curve radius

Type boolean, default False

use_fixed_location

Object will stay locked to a single point somewhere along the length of the curve regardless of time

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute

- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.198 Function(bpy_struct)

base class — bpy_struct

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

RNA function definition

description

Description of the Function's purpose

Type string, default "", (readonly)

identifier

Unique name used in the code and scripting

Type string, default "", (readonly)

is_registered

Function is registered as callback as part of type registration

Type boolean, default False, (readonly)

is_registered_optional

Function is optionally registered as callback part of type registration

Type boolean, default False, (readonly)

parameters

Parameters for the function

Type Collection of Property, (readonly)

use_self
Function does not pass its self as an argument (becomes a class method in python)

Type boolean, default False, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Struct.functions

1.3.199 GPencilFrame(bpy_struct)

base class — bpy_struct

class bpy.types.**GPencilFrame**(*bpy_struct*)
Collection of related sketches on a particular frame

frame_number
The frame on which this sketch appears

Type int in [0, 300000], default 0

is_edited
Frame is being edited (painted on)

Type boolean, default False

select
Frame is selected for editing in the DopeSheet

Type boolean, default False

strokes
Freehand curves defining the sketch on this frame

Type Collection of GPencilStroke, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- GPencilLayer.active_frame
- GPencilLayer.frames

1.3.200 GPencilLayer(bpy_struct)

base class — bpy_struct

class bpy.types.**GPencilLayer**(*bpy_struct*)
Collection of related sketches

active
Set active layer for editing

Type boolean, default False

active_frame
Frame currently being displayed for this layer

Type GPencilFrame, (readonly)

alpha
Layer Opacity

Type float in [0.3, 1], default 0.0

color
Color for all strokes in this layer

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frames
Sketches for this layer on different frames

Type Collection of GPencilFrame, (readonly)

ghost_range_max
Maximum number of frames on either side of the active frame to show (0 = show the 'first' available sketch on either side)

Type int in [0, 120], default 0

hide
Set layer Visibility

Type boolean, default False

info
Layer name

Type string, default ""

line_width
Thickness of strokes (in pixels)

Type int in [1, 10], default 0

lock
Protect layer from further editing and/or frame changes

Type boolean, default False

lock_frame
Lock current frame displayed by layer

Type boolean, default False

select
Layer is selected for editing in the DopeSheet

Type boolean, default False

show_points
Draw the points which make up the strokes (for debugging purposes)

Type boolean, default False

use_onion_skinning
Ghost frames on either side of frame

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- GreasePencil.layers

1.3.201 GPencilStroke(bpy_struct)

base class — bpy_struct

class bpy.types.**GPencilStroke**(*bpy_struct*)
Freehand curve defining part of a sketch

points
Stroke data points

Type Collection of GPencilStrokePoint, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- GPencilFrame.strokes

1.3.202 GPencilStrokePoint(bpy_struct)

base class — bpy_struct

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

Data point for freehand stroke curve

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

pressure

Pressure of tablet at point when drawing it

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- GPencilStroke.points

1.3.203 GameActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**GameActuator**(*Actuator*)

filename
Load this blend file, use the "//" prefix for a path relative to the current blend file

Type string, default ""

mode

Type enum in ['START', 'RESTART', 'QUIT', 'SAVECFG', 'LOADCFG'], default 'START'

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.204 GameBooleanProperty(GameProperty)

base classes — bpy_struct, GameProperty

class bpy.types.**GameBooleanProperty**(*GameProperty*)
Game engine user defined Boolean property

value
Property value

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- GameProperty.name
- GameProperty.show_debug
- GameProperty.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.205 GameFloatProperty(GameProperty)

base classes — bpy_struct, GameProperty

class bpy.types.**GameFloatProperty**(*GameProperty*)
Game engine user defined floating pointer number property

value
Property value

Type float in [-10000, 10000], default 0.0

Inherited Properties

- bpy_struct.id_data
- GameProperty.name
- GameProperty.show_debug
- GameProperty.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.206 GameIntProperty(GameProperty)

base classes — bpy_struct, GameProperty

class bpy.types.**GameIntProperty**(*GameProperty*)

Game engine user defined integer number property

value

Property value

Type int in [-10000, 10000], default 0

Inherited Properties

- bpy_struct.id_data
- GameProperty.name
- GameProperty.show_debug
- GameProperty.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.207 GameObjectSettings(bpy_struct)

base class — bpy_struct

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

Game engine related settings for the object

actuators

Game engine actuators to act on events

Type Collection of Actuator, (readonly)

collision_bounds_type

Selects the collision type

Type enum in ['BOX', 'SPHERE', 'CYLINDER', 'CONE', 'CONVEX_HULL', 'TRIANGLE_MESH', 'CAPSULE'], default 'BOX'

collision_margin

Extra margin around object for collision detection, small amount required for stability

Type float in [0, 1], default 0.0

controllers

Game engine controllers to process events, connecting sensor to actuators

Type Collection of Controller, (readonly)

damping

General movement damping

Type float in [0, 1], default 0.0

form_factor

Form factor scales the inertia tensor

Type float in [0, 1], default 0.0

friction_coefficients

Relative friction coefficient in the in the X, Y and Z directions, when anisotropic friction is enabled

Type float array of 3 items in [0, 1], default (0.0, 0.0, 0.0)

lock_location_x

Disable simulation of linear motion along the X axis

Type boolean, default False

lock_location_y

Disable simulation of linear motion along the Y axis

Type boolean, default False

lock_location_z

Disable simulation of linear motion along the Z axis

Type boolean, default False

lock_rotation_x
Disable simulation of angular motion along the X axis

Type boolean, default False

lock_rotation_y
Disable simulation of angular motion along the Y axis

Type boolean, default False

lock_rotation_z
Disable simulation of angular motion along the Z axis

Type boolean, default False

mass
Mass of the object

Type float in [0.01, 10000], default 0.0

physics_type
Selects the type of physical representation

Type enum in ['NO_COLLISION', 'STATIC', 'DYNAMIC', 'RIGID_BODY', 'SOFT_BODY', 'OCCLUDE', 'SENSOR'], default 'NO_COLLISION'

properties
Game engine properties

Type Collection of GameProperty, (readonly)

radius
Radius of bounding sphere and material physics

Type float in [0.01, 10], default 0.0

rotation_damping
General rotation damping

Type float in [0, 1], default 0.0

sensors
Game engine sensor to detect events

Type Collection of Sensor, (readonly)

show_actuators
Shows actuators for this object in the user interface

Type boolean, default False

show_controllers
Shows controllers for this object in the user interface

Type boolean, default False

show_debug_state
Print state debug info in the game engine

Type boolean, default False

show_sensors
Shows sensors for this object in the user interface

Type boolean, default False

show_state_panel
Show state panel

Type boolean, default False

soft_body
Settings for Bullet soft body simulation

Type GameSoftBodySettings, (readonly)

states_initial
Initial state when the game starts

Type boolean array of 30 items, default (False, False)

states_visible
State determining which controllers are displayed

Type boolean array of 30 items, default (False, False)

use_activity_culling
Disable simulation of angular motion along the Z axis

Type boolean, default False

use_actor
Object is detected by the Near and Radar sensor

Type boolean, default False

use_all_states
Set all state bits

Type boolean, default False

use_anisotropic_friction
Enable anisotropic friction

Type boolean, default False

use_collision_bounds
Specify a collision bounds type other than the default

Type boolean, default False

use_collision_compound
Add children to form a compound collision object

Type boolean, default False

use_ghost
Object does not restitute collisions, like a ghost

Type boolean, default False

use_material_physics
Use physics settings in materials

Type boolean, default False

use_rotate_from_normal
Use face normal to rotate object, so that it points away from the surface

Type boolean, default False

use_sleep
Disable auto (de)activation in physics simulation

Type boolean, default False

used_states
States which are being used by controllers

Type boolean array of 30 items, default (False, False), (readonly)

velocity_max
Clamp velocity to this maximum speed

Type float in [0, 1000], default 0.0

velocity_min
Clamp velocity to this minimum speed (except when totally still)

Type float in [0, 1000], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.game

1.3.208 GameProperty(bpy_struct)

base class — bpy_struct

subclasses — GameStringProperty, GameIntProperty, GameBooleanProperty, GameFloatProperty, GameTimerProperty

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

Game engine user defined object property

name

Available as GameObject attributes in the game engine's python API

Type string, default ""

show_debug

Print debug information for this property

Type boolean, default False

type

Type enum in ['BOOL', 'INT', 'FLOAT', 'STRING', 'TIMER'], default 'BOOL'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- GameObjectSettings.properties

1.3.209 GameSoftBodySettings(bpy_struct)

base class — bpy_struct

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

Soft body simulation settings for an object in the game engine

cluster_iterations

Specify the number of cluster iterations

Type int in [1, 128], default 0

collision_margin

Collision margin for soft body. Small value makes the algorithm unstable

Type float in [0.01, 1], default 0.0

dynamic_friction

Dynamic Friction

Type float in [0, 1], default 0.0

linear_stiffness

Linear stiffness of the soft body links

Type float in [0, 1], default 0.0

location_iterations

Position solver iterations

Type int in [0, 10], default 0

shape_threshold

Shape matching threshold

Type float in [0, 1], default 0.0

use_bending_constraints

Enable bending constraints

Type boolean, default False

use_cluster_rigid_to_softbody

Enable cluster collision between soft and rigid body

Type boolean, default False

use_cluster_soft_to_softbody

Enable cluster collision between soft and soft body

Type boolean, default False

use_shape_match

Enable soft body shape matching goal

Type boolean, default False

weld_threshold

Welding threshold: distance between nearby vertices to be considered equal => set to 0.0 to disable welding test and speed up scene loading (ok if the mesh has no duplicates)

Type float in [0, 0.01], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- GameObjectSettings.soft_body

1.3.210 GameStringProperty(GameProperty)

base classes — bpy_struct, GameProperty

class bpy.types.**GameStringProperty**(*GameProperty*)

Game engine user defined text string property

value

Property value

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- GameProperty.name
- GameProperty.show_debug
- GameProperty.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.211 GameTimerProperty(GameProperty)

base classes — bpy_struct, GameProperty

class bpy.types.**GameTimerProperty**(*GameProperty*)

Game engine user defined timer property

value

Property value

Type float in [-10000, 10000], default 0.0

Inherited Properties

- bpy_struct.id_data
- GameProperty.name
- GameProperty.show_debug
- GameProperty.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.212 GlowSequence(EffectSequence)

base classes — bpy_struct, Sequence, EffectSequence

class bpy.types.**GlowSequence**(*EffectSequence*)

Sequence strip creating a glow effect

blur_radius

Radius of glow effect

Type float in [0.5, 20], default 0.0

boost_factor

Brightness multiplier

Type float in [0, 10], default 0.0

clamp

rightness limit of intensity

Type float in [0, 1], default 0.0

quality

Accuracy of the blur effect

Type int in [1, 5], default 0

threshold

Minimum intensity to trigger a glow

Type float in [0, 1], default 0.0

use_only_boost

Show the glow buffer only

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start

- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade
- EffectSequence.color_balance
- EffectSequence.use_float
- EffectSequence.crop
- EffectSequence.use_deinterlace
- EffectSequence.use_reverse_frames
- EffectSequence.use_flip_x
- EffectSequence.use_flip_y
- EffectSequence.color_multiply
- EffectSequence.use_premultiply
- EffectSequence.proxy
- EffectSequence.use_proxy_custom_directory
- EffectSequence.use_proxy_custom_file
- EffectSequence.color_saturation
- EffectSequence.strobe
- EffectSequence.transform
- EffectSequence.use_color_balance
- EffectSequence.use_crop
- EffectSequence.use_proxy
- EffectSequence.use_translation

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.213 GreasePencil(ID)

base classes — bpy_struct, ID

class bpy.types.**GreasePencil**(*ID*)
Freehand annotation sketchbook

draw_mode

Type enum in ['CURSOR', 'VIEW', 'SURFACE', 'STROKE'], default 'VIEW'

layers

Type Collection of GPencilLayer, (readonly)

use_stroke_endpoints
Only use the first and last parts of the stroke for snapping

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.grease_pencil
- NodeTree.grease_pencil
- Object.grease_pencil
- Scene.grease_pencil
- SpaceImageEditor.grease_pencil

1.3.214 Group(ID)

base classes — bpy_struct, ID

class bpy.types.**Group**(*ID*)
Group of Object datablocks

dupli_offset
Offset from the origin to use when instancing as DupliGroup

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

layers
Layers visible when this groups is instanced as a dupli

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

objects
A collection of this groups objects

Type GroupObjects collection of Object, (readonly)

users_dupli_group
The dupli group this group is used in (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create

- ID.animation_data_clear

References

- BlendData.groups
- ClothCollisionSettings.group
- DopeSheet.filter_group
- EffectorWeights.group
- MainGroups.new
- MainGroups.remove
- Material.light_group
- Object.dupli_group
- ParticleSettings.dupli_group
- RenderLayer.light_override
- SceneRenderLayer.light_override
- SmokeDomainSettings.collision_group
- SmokeDomainSettings.effector_group
- SmokeDomainSettings.fluid_group

1.3.215 GroupObjects(bpy_struct)

base class — bpy_struct

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

Collection of group objects

link(*object*)

Add this object to a group

Parameters

- **object** (Object) – Object to add.

unlink(*object*)

Remove this object to a group

Parameters

- **object** (Object) – Object to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

References

- Group.objects

1.3.216 Header(bpy_struct)

base class — bpy_struct

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

Editor header containing UI elements.

bl_idname

If this is set, the header 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_HT_hello", and bl_idname is not set by the script, then bl_idname = "OBJECT_HT_hello"

Type string, default ""

bl_space_type

The space where the header is going to be used in.

Type enum in ['EMPTY', 'VIEW_3D', 'GRAPH_EDITOR', 'OUTLINER', 'PROPERTIES', 'FILE_BROWSER', 'IMAGE_EDITOR', 'INFO', 'SEQUENCE_EDITOR', 'TEXT_EDITOR', 'AUDIO_WINDOW', 'DOPESHEET_EDITOR', 'NLA_EDITOR', 'SCRIPTS_WINDOW', 'TIMELINE', 'NODE_EDITOR', 'LOGIC_EDITOR', 'CONSOLE', 'USER_PREFERENCES'], default 'EMPTY'

layout

Defines the structure of the header in the UI.

Type UILayout, (readonly)

draw(*context*)

Draw UI elements into the header UI layout.

classmethod append(*draw_func*)

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

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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.217 HemiLamp(Lamp)

base classes — bpy_struct, ID, Lamp

class bpy.types.**HemiLamp**(*Lamp*)

180 degree constant lamp

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Lamp.active_texture
- Lamp.active_texture_index
- Lamp.animation_data
- Lamp.color
- Lamp.use_diffuse
- Lamp.distance
- Lamp.energy
- Lamp.use_own_layer
- Lamp.use_negative
- Lamp.use_specular
- Lamp.texture_slots
- Lamp.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.218 Histogram(bpy_struct)

base class — bpy_struct

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

Statistical view of the levels of color in an image

mode

Channels to display when drawing the histogram

Type enum in ['LUMA', 'RGB', 'R', 'G', 'B'], default 'LUMA'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scopes.histogram
- SpaceImageEditor.sample_histogram

1.3.219 HookModifier(Modifier)

base classes — bpy_struct, Modifier

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

Hook modifier to modify the location of vertices

falloff

If not zero, the distance from the hook where influence ends

Type float in [0, inf], default 0.0

force

Relative force of the hook

Type float in [0, 1], default 0.0

object

Parent Object for hook, also recalculates and clears offset

Type Object

subtarget

Name of Parent Bone for hook (if applicable), also recalculates and clears offset

Type string, default “”

vertex_group

Vertex group name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.220 ID(bpy_struct)

base class — bpy_struct

subclasses — Lattice, Library, Key, NodeTree, MetaBall, Text, World, Lamp, Brush, Armature, Mesh, VectorFont, GreasePencil, Sound, ParticleSettings, Scene, Object, WindowManager, Texture, Curve, Action, Group, Screen, Material, Image, Camera

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

Base type for datablocks, defining a unique name, linking from other libraries and garbage collection

library

Library file the datablock is linked from

Type Library, (readonly)

name

Unique datablock ID name

Type string, default “”

tag

Tools can use this to tag data, (initial state is undefined)

Type boolean, default False

use_fake_user

Saves this datablock even if it has no users

Type boolean, default False

users

Number of times this datablock is referenced

Type int in [0, 32767], default 0, (readonly)

copy()

Create a copy of this datablock (not supported for all datablocks).

Returns New copy of the ID.

Return type ID

user_clear()
Clears the user count of a datablock so its not saved, on reload the data will be removed.

animation_data_create()
Create animation data to this ID, note that not all ID types support this.

Returns New animation data or NULL.

Return type AnimData

animation_data_clear()
Clear animation on this this ID.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.scripts
- DopeSheet.source
- DriverTarget.id
- ID.copy
- Key.user
- KeyingSetPath.id
- KeyingSetPaths.add
- MainObjects.new
- Object.data
- SpaceNodeEditor.id
- SpaceNodeEditor.id_from
- SpaceProperties.pin_id
- UILayout.template_path_builder

- UILayout.template_preview
- UILayout.template_preview

1.3.221 IDMaterials(bpy_struct)

base class — bpy_struct

class bpy.types.**IDMaterials**(*bpy_struct*)
Collection of materials

append(*material*)
Add a new material to Mesh.

Parameters

- **material** (Material) – Material to add.

pop(*index*)
Add a new material to Mesh.

Parameters

- **index** (*int in [0, inf]*) – Frame number to set.

Returns Material to add.

Return type Material

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Curve.materials

- Mesh.materials
- MetaBall.materials

1.3.222 IDProperty(bpy_struct)

base class — bpy_struct

class bpy.types.**IDProperty**(*bpy_struct*)
Property that stores arbitrary, user defined properties

collection

Type Collection of IDPropertyGroup, (readonly)

double

Type float in [-inf, inf], default 0.0

double_array

Type float array of 1 items in [-inf, inf], default (0.0)

float

Type float in [-inf, inf], default 0.0

float_array

Type float array of 1 items in [-inf, inf], default (0.0)

group

Type IDPropertyGroup, (readonly)

int

Type int in [-inf, inf], default 0

int_array

Type int array of 1 items in [-inf, inf], default (0,)

string

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.223 IDPropertyGroup(bpy_struct)

base class — bpy_struct

subclasses — NetRenderSettings, OperatorFileListElement, PoseTemplateSettings, NetRenderSlave, OperatorMousePath, NetRenderJob, OperatorStrokeElement, PoseTemplate

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

Group of ID properties

name

Unique name used in the code and scripting

Type string, default ""

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- IDProperty.collection
- IDProperty.group

1.3.224 IKParam(bpy_struct)

base class — bpy_struct

subclasses — Itasc

class bpy.types.**IKParam**(*bpy_struct*)
Base type for IK solver parameters

ik_solver
IK solver for which these parameters are defined, 0 for Legacy, 1 for iTaSC

Type enum in ['LEGACY', 'ITASC'], default 'LEGACY', (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Pose.ik_param

1.3.225 Image(ID)

base classes — bpy_struct, ID

class bpy.types.**Image**(*ID*)
Image datablock referencing an external or packed image

bindcode
OpenGL bindcode

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

depth
Image bit depth

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

display_aspect
Display Aspect for this image, does not affect rendering

Type float array of 2 items in [0.1, 5000], default (0.0, 0.0)

field_order
Order of video fields. Select which lines are displayed first

Type enum in ['EVEN', 'ODD'], default 'EVEN'

file_format
Format used for re-saving this file

Type enum in ['BMP', 'IRIS', 'PNG', 'JPEG', 'TARGA', 'TARGA_RAW', 'AVI_JPEG', 'AVI_RAW', 'FRAMESERVER'], default 'TARGA'

filepath
Image/Movie file name

Type string, default ""

filepath_raw
Image/Movie file name (without data refreshing)

Type string, default ""

fps
Speed of the animation in frames per second

Type int in [1, 100], default 0

frame_end
End frame of an animated texture

Type int in [0, 128], default 0

frame_start
Start frame of an animated texture

Type int in [0, 128], default 0

generated_height
Generated image height

Type int in [1, 16384], default 0

generated_type
Generated image type

Type enum in ['BLANK', 'UV_GRID', 'COLOR_GRID'], default 'BLANK'

generated_width
Generated image width

Type int in [1, 16384], default 0

has_data
True if this image has data

Type boolean, default False, (readonly)

is_dirty
Image has changed and is not saved

Type boolean, default False, (readonly)

mapping
Mapping type to use for this image in the game engine

Type enum in ['UV', 'REFLECTION'], default 'UV'

packed_file

Type PackedFile, (readonly)

size
Width and height in pixels, zero when image data cant be loaded

Type int array of 2 items in [-inf, inf], default (0, 0), (readonly)

source
Where the image comes from

Type enum in ['FILE', 'SEQUENCE', 'MOVIE', 'GENERATED', 'VIEWER'], default 'FILE'

tiles_x
Degree of repetition in the X direction

Type int in [1, 16], default 0

tiles_y
Degree of repetition in the Y direction

Type int in [1, 16], default 0

type
How to generate the image

Type enum in ['IMAGE', 'MULTILAYER', 'UV_TEST', 'RENDER_RESULT', 'COMPOSITING'], default 'IMAGE', (readonly)

use_animation
Use as animated texture in the game engine

Type boolean, default False

use_clamp_x
Disable texture repeating horizontally

Type boolean, default False

use_clamp_y
Disable texture repeating vertically

Type boolean, default False

use_fields
Use fields of the image

Type boolean, default False

use_premultiply
Convert RGB from key alpha to premultiplied alpha

Type boolean, default False

use_tiles
Use of tilemode for faces (default shift-LMB to pick the tile for selected faces)

Type boolean, default False

save_render(*filepath*, *scene=None*)
Save image to a specific path using a scenes render settings

Parameters

- **filepath** (*string*) – Save path.
- **scene** (Scene, (optional)) – Scene to take image parameters from

save()
Save image to its source path

reload()
Reload the image from its source path

update()
Update the display image from the floating point buffer

gl_load(*filter=9985*, *mag=9729*)
Load the image into OpenGL graphics memory

Parameters

- **filter** (*int in [-inf, inf], (optional)*) – Filter, The texture minifying function
- **mag** (*int in [-inf, inf], (optional)*) – Magnification, The texture magnification function

Returns Error, OpenGL error value

Return type int in [-inf, inf]

gl_free()
Free the image from OpenGL graphics memory

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BackgroundImage.image
- BlendData.images
- Brush.clone_image
- CompositorNodeImage.image
- EnvironmentMapTexture.image
- ImageTexture.image
- MainImages.load
- MainImages.new
- MainImages.remove
- MeshTextureFace.image
- SpaceImageEditor.image
- TextureNodeImage.image
- UILayout.template_image_layers
- UVProjectModifier.image
- VoxelDataTexture.image

1.3.226 ImagePaint(Paint)

base classes — bpy_struct, Paint

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

Properties of image and texture painting mode

invert_stencil

Invert the stencil layer

Type boolean, default False

normal_angle

Paint most on faces pointing towards the view according to this angle

Type int in [0, 90], default 0

screen_grab_size

Size to capture the image for re-projecting

Type int array of 2 items in [512, 16384], default (0, 0)

seam_bleed

Extend paint beyond the faces UVs to reduce seams (in pixels, slower)

Type int in [0, 32767], default 0

show_brush

Enables brush shape while not drawing

Type boolean, default False

show_brush_draw
Enables brush shape while drawing

Type boolean, default False

use_backface_culling
Ignore faces pointing away from the view (faster)

Type boolean, default False

use_clone_layer
Use another UV layer as clone source, otherwise use 3D the cursor as the source

Type boolean, default False

use_normal_falloff
Paint most on faces pointing towards the view

Type boolean, default False

use_occlude
Only paint onto the faces directly under the brush (slower)

Type boolean, default False

use_projection
Use projection painting for improved consistency in the brush strokes

Type boolean, default False

use_stencil_layer
Set the mask layer from the UV layer buttons

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Paint.brush
- Paint.show_low_resolution
- Paint.show_brush
- Paint.show_brush_on_surface

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ToolSettings.image_paint

1.3.227 ImageSequence(Sequence)

base classes — bpy_struct, Sequence

class bpy.types.**ImageSequence**(*Sequence*)

Sequence strip to load one or more images

animation_offset_end

Animation end offset (trim end)

Type int in [0, inf], default 0

animation_offset_start

Animation start offset (trim start)

Type int in [0, inf], default 0

color_balance

Type SequenceColorBalance, (readonly)

color_multiply

Type float in [0, 20], default 0.0

color_saturation

Type float in [0, 20], default 0.0

crop

Type SequenceCrop, (readonly)

directory

Type string, default “”

elements

Type Collection of SequenceElement, (readonly)

proxy

Type SequenceProxy, (readonly)

strobe

Only display every nth frame

Type float in [1, 30], default 0.0

transform

Type SequenceTransform, (readonly)

use_color_balance
(3-Way color correction) on input

Type boolean, default False

use_crop
Crop image before processing

Type boolean, default False

use_deinterlace
For video movies to remove fields

Type boolean, default False

use_flip_x
Flip on the X axis

Type boolean, default False

use_flip_y
Flip on the Y axis

Type boolean, default False

use_float
Convert input to float data

Type boolean, default False

use_premultiply
Convert RGB from key alpha to premultiplied alpha

Type boolean, default False

use_proxy
Use a preview proxy for this strip

Type boolean, default False

use_proxy_custom_directory
Use a custom directory to store data

Type boolean, default False

use_proxy_custom_file
Use a custom file to read proxy data from

Type boolean, default False

use_reverse_frames
Reverse frame order

Type boolean, default False

use_translation
Translate image before processing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name

- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.228 ImageTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**ImageTexture**(*Texture*)

checker_distance
Sets distance between checker tiles

Type float in [0, 0.99], default 0.0

crop_max_x
Sets maximum X value to crop the image

Type float in [-10, 10], default 0.0

crop_max_y
Sets maximum Y value to crop the image

Type float in [-10, 10], default 0.0

crop_min_x
Sets minimum X value to crop the image

Type float in [-10, 10], default 0.0

crop_min_y
Sets minimum Y value to crop the image

Type float in [-10, 10], default 0.0

extension
Sets how the image is extrapolated past its original bounds

Type enum in ['EXTEND', 'CLIP', 'CLIP_CUBE', 'REPEAT', 'CHECKER'], default 'EXTEND'

filter_eccentricity
Maximum eccentricity. Higher gives less blur at distant/oblique angles, but is also slower

Type int in [1, 256], default 0

filter_probes
Maximum number of samples. Higher gives less blur at distant/oblique angles, but is also slower

Type int in [1, 256], default 0

filter_size
Multiplies the filter size used by MIP Map and Interpolation

Type float in [0.1, 50], default 0.0

filter_type
Texture filter to use for sampling image

Type enum in ['BOX', 'EWA', 'FELINE', 'AREA'], default 'BOX'

image

Type Image

image_user
Parameters defining which layer, pass and frame of the image is displayed

Type ImageUser, (readonly)

invert_alpha
Inverts all the alpha values in the image

Type boolean, default False

normal_space
Sets space of normal map image

Type enum in ['CAMERA', 'WORLD', 'OBJECT', 'TANGENT'], default 'CAMERA'

repeat_x
Sets a repetition multiplier in the X direction

Type int in [1, 512], default 0

repeat_y
Sets a repetition multiplier in the Y direction

Type int in [1, 512], default 0

use_alpha
Uses the alpha channel information in the image

Type boolean, default False

use_calculate_alpha
Calculates an alpha channel based on RGB values in the image

Type boolean, default False

use_checker_even
Sets even checker tiles

Type boolean, default False

use_checker_odd
Sets odd checker tiles

Type boolean, default False

use_filter_size_min
Use Filter Size as a minimal filter value in pixels

Type boolean, default False

use_flip_axis
Flips the texture's X and Y axis

Type boolean, default False

use_interpolation
Interpolates pixels using Area filter

Type boolean, default False

use_mipmap
Uses auto-generated MIP maps for the image

Type boolean, default False

use_mipmap_gauss
Uses Gauss filter to sample down MIP maps

Type boolean, default False

use_mirror_x
Mirrors the image repetition on the X direction

Type boolean, default False

use_mirror_y
Mirrors the image repetition on the Y direction

Type boolean, default False

use_normal_map
Uses image RGB values for normal mapping

Type boolean, default False

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy

- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.229 ImageUser(bpy_struct)

base class — bpy_struct

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

Parameters defining how an Image datablock is used by another datablock

fields_per_frame

The number of fields per rendered frame (2 fields is 1 image)

Type int in [1, 300000], default 0

frame_duration

Sets the number of images of a movie to use

Type int in [0, 300000], default 0

frame_offset

Offsets the number of the frame to use in the animation

Type int in [-300000, 300000], default 0

frame_start

Sets the global starting frame of the movie

Type int in [1, 300000], default 0

multilayer_layer

Layer in multilayer image

Type int in [0, 32767], default 0, (readonly)

multilayer_pass

Pass in multilayer image

Type int in [0, 32767], default 0, (readonly)

use_auto_refresh

Always refresh image on frame changes

Type boolean, default False

use_cyclic

Cycle the images in the movie

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BackgroundImage.image_user
- EnvironmentMapTexture.image_user
- ImageTexture.image_user
- SpaceImageEditor.image_user
- UILayout.template_image
- UILayout.template_image_layers
- VoxelDataTexture.image_user

1.3.230 InflowFluidSettings(FluidSettings)

base classes — bpy_struct, FluidSettings

class bpy.types.**InflowFluidSettings**(*FluidSettings*)

Fluid simulation settings for objects adding fluids in the simulation

inflow_velocity

Initial velocity of fluid

Type float array of 3 items in [-1000.1, 1000.1], default (0.0, 0.0, 0.0)

use

Object contributes to the fluid simulation

Type boolean, default False

use_animated_mesh

Export this mesh as an animated one. Slower, only use if really necessary (e.g. armatures or parented objects), animated pos/rot/scale IPOs do not require it

Type boolean, default False

use_local_coords

Use local coordinates for inflow. (e.g. for rotating objects)

Type boolean, default False

volume_initialization

Volume initialization type

Type enum in ['VOLUME', 'SHELL', 'BOTH'], default 'VOLUME'

Inherited Properties

- bpy_struct.id_data
- FluidSettings.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.231 InputKeyMapPanel(Panel)

base classes — bpy_struct, Panel

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

classmethod append(*draw_func*)
Prepend an draw function to this menu, takes the same arguments as the menus draw function.

draw_entry(*display_keymaps*, *entry*, *col*, *level=0*)

draw_filtered(*display_keymaps*, *filter_text*, *layout*)

draw_hierarchy(*display_keymaps*, *layout*)

draw_keymaps(*context*, *layout*)

draw_km(*display_keymaps*, *kc*, *km*, *children*, *layout*, *level*)

draw_kmi(*display_keymaps*, *kc*, *km*, *kmi*, *layout*, *level*)

indented_layout(*layout*, *level*)

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

Inherited Properties

- bpy_struct.id_data
- Panel.bl_context
- Panel.bl_idname
- Panel.bl_label
- Panel.layout
- Panel.bl_options
- Panel.bl_region_type
- Panel.bl_space_type
- Panel.text

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Panel.poll
- Panel.draw
- Panel.draw_header
- Panel.append
- Panel.prepend
- Panel.remove

1.3.232 IntProperty(Property)

base classes — bpy_struct, Property

class bpy.types.**IntProperty**(*Property*)

RNA integer number property definition

array_length

Maximum length of the array, 0 means unlimited

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

default

Default value for this number

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

default_array
Default value for this array

Type int array of 3 items in [-inf, inf], default (0, 0, 0), (readonly)

hard_max
Maximum value used by buttons

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

hard_min
Minimum value used by buttons

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

soft_max
Maximum value used by buttons

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

soft_min
Minimum value used by buttons

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

step
Step size used by number buttons, for floats 1/100th of the step size

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

Inherited Properties

- bpy_struct.id_data
- Property.name
- Property.srna
- Property.description
- Property.identifier
- Property.is_never_none
- Property.is_readonly
- Property.is_runtime
- Property.is_registered
- Property.is_registered_optional
- Property.is_required
- Property.is_output
- Property.subtype
- Property.type
- Property.unit

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

1.3.233 Itasc(IKParam)

base classes — bpy_struct, IKParam

class bpy.types.**Itasc**(*IKParam*)

Parameters for the iTaSC IK solver

damping_epsilon

Singular value under which damping is progressively applied. Higher values=more stability, less reactivity. Default=0.1

Type float in [0, 1], default 0.0

damping_max

Maximum damping coefficient when singular value is nearly 0. Higher values=more stability, less reactivity. Default=0.5

Type float in [0, 1], default 0.0

feedback

Feedback coefficient for error correction. Average response time=1/feedback. Default=20

Type float in [0, 100], default 0.0

iterations

Maximum number of iterations for convergence in case of reiteration

Type int in [1, 1000], default 0

mode

Type enum in ['ANIMATION', 'SIMULATION'], default 'ANIMATION'

precision

Precision of convergence in case of reiteration

Type float in [0, 0.1], default 0.0

reiteration_method

Defines if the solver is allowed to reiterate (converges until precision is met) on none, first or all frames

Type enum in ['NEVER', 'INITIAL', 'ALWAYS'], default 'NEVER'

solver

Solving method selection: Automatic damping or manual damping

Type enum in ['SDLS', 'DLS'], default 'SDLS'

step_count

Divides the frame interval into this many steps

Type int in [1, 50], default 0

step_max
Higher bound for timestep in second in case of automatic substeps

Type float in [0, 1], default 0.0

step_min
Lower bound for timestep in second in case of automatic substeps

Type float in [0, 0.1], default 0.0

use_auto_step
Automatically determine the optimal number of steps for best performance/accuracy trade off

Type boolean, default False

velocity_max
Maximum joint velocity in rad/s. Default=50

Type float in [0, 100], default 0.0

Inherited Properties

- bpy_struct.id_data
- IKParam.ik_solver

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.234 JoystickSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**JoystickSensor**(*Sensor*)
Sensor to detect joystick events

axis_direction
The direction of the axis

Type enum in ['RIGHTAXIS', 'UPAXIS', 'LEFTAXIS', 'DOWNAXIS'], default 'RIGHTAXIS'

axis_number
Specify which axis pair to use, 1 is usually the main direction input

Type int in [1, 2], default 0

axis_threshold
Specify the precision of the axis

Type int in [0, 32768], default 0

button_number
Specify which button to use

Type int in [0, 18], default 0

event_type
The type of event this joystick sensor is triggered on

Type enum in ['BUTTON', 'AXIS', 'HAT', 'AXIS_SINGLE'], default 'BUTTON'

hat_direction
Specify hat direction

Type enum in ['UP', 'DOWN', 'LEFT', 'RIGHT', 'UPRIGHT', 'DOWNLEFT', 'UPLEFT', 'DOWNRIGHT'], default 'UP'

hat_number
Specify which hat to use

Type int in [1, 2], default 0

joystick_index
Specify which joystick to use

Type int in [0, 7], default 0

single_axis_number
Specify a single axis (verticle/horizontal/other) to detect

Type int in [1, 16], default 0

use_all_events
Triggered by all events on this joysticks current type (axis/button/hat)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.235 Key(ID)

base classes — bpy_struct, ID

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

Shape keys datablock containing different shapes of geometric datablocks

animation_data

Animation data for this datablock

Type AnimData, (readonly)

keys

Shape keys

Type Collection of ShapeKey, (readonly)

reference_key

Type ShapeKey, (readonly, never None)

slurph

Creates a delay in amount of frames in applying keypositions, first vertex goes first

Type int in [-500, 500], default 0

use_relative

Makes shape keys relative

Type boolean, default False

user

Datablock using these shape keys

Type ID, (readonly, never None)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.shape_keys
- Curve.shape_keys
- Lattice.shape_keys
- Mesh.shape_keys

1.3.236 KeyConfig(bpy_struct)

base class — bpy_struct

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

Input configuration, including keymaps

is_user_defined

Indicates that a keyconfig was defined by the user

Type boolean, default False, (readonly)

keymaps

Key maps configured as part of this configuration

Type KeyMaps collection of KeyMap, (readonly)

name
Name of the key configuration

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyConfigurations.active
- KeyConfigurations.default
- KeyConfigurations.new
- KeyConfigurations.remove
- WindowManager.keyconfigs

1.3.237 KeyConfigurations(bpy_struct)

base class — bpy_struct

class bpy.types.**KeyConfigurations**(*bpy_struct*)
Collection of KeyConfigs

active
Active wm KeyConfig

Type KeyConfig

default

Type KeyConfig, (readonly)

new(*name*)
new

Parameters

- **name** (*string*) – Name

Returns Key Configuration, Added key configuration.

Return type KeyConfig

remove(*keyconfig*)
remove

Parameters

- **keyconfig** (KeyConfig) – Key Configuration, Removed key configuration.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- WindowManager.keyconfigs

1.3.238 KeyMap(bpy_struct)

base class — bpy_struct

class bpy.types.**KeyMap**(*bpy_struct*)
Input configuration, including keymaps

is_modal
Indicates that a keymap is used for translate modal events for an operator

Type boolean, default False, (readonly)

is_user_defined
Keymap is defined by the user

Type boolean, default False

items
Items in the keymap, linking an operator to an input event

Type KeyMapItems collection of KeyMapItem, (readonly)

name
Name of the key map

Type string, default "", (readonly)

region_type
Optional region type keymap is associated with

Type enum in ['WINDOW', 'HEADER', 'CHANNELS', 'TEMPORARY', 'UI', 'TOOLS', 'TOOL_PROPS', 'PREVIEW'], default 'WINDOW', (readonly)

show_expanded_children
Children expanded in the user interface

Type boolean, default False

show_expanded_items
Expanded in the user interface

Type boolean, default False

space_type
Optional space type keymap is associated with

Type enum in ['EMPTY', 'VIEW_3D', 'GRAPH_EDITOR', 'OUTLINER', 'PROPERTIES', 'FILE_BROWSER', 'IMAGE_EDITOR', 'INFO', 'SEQUENCE_EDITOR', 'TEXT_EDITOR', 'AUDIO_WINDOW', 'DOPESHEET_EDITOR', 'NLA_EDITOR', 'SCRIPTS_WINDOW', 'TIMELINE', 'NODE_EDITOR', 'LOGIC_EDITOR', 'CONSOLE', 'USER_PREFERENCES'], default 'EMPTY', (readonly)

active()
active

Returns Key Map, Active key map.

Return type KeyMap

copy_to_user()
copy_to_user

Returns Key Map, User editable key map.

Return type KeyMap

restore_to_default()
restore_to_default

restore_item_to_default(*item*)
restore_item_to_default

Parameters

- **item** (KeyMapItem, (never None)) – Item

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyConfig.keymaps
- KeyMap.active
- KeyMap.copy_to_user
- KeyMaps.find
- KeyMaps.find_modal
- KeyMaps.new
- UserPreferencesInput.edited_keymaps

1.3.239 KeyMapItem(bpy_struct)

base class — bpy_struct

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

Item in a Key Map

active

Activate or deactivate item

Type boolean, default False

alt

Alt key pressed

Type boolean, default False

any

Any modifier keys pressed

Type boolean, default False

ctrl
Control key pressed

Type boolean, default False

id
ID of the item

Type int in [-32768, 32767], default 0, (readonly)

idname
Identifier of operator to call on input event

Type string, default ""

key_modifier
Regular key pressed as a modifier

Type enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], default 'NONE'

map_type
Type of event mapping

Type enum in ['KEYBOARD', 'TWEAK', 'MOUSE', 'TEXTINPUT', 'TIMER'], default 'KEYBOARD'

name
Name of operator to call on input event

Type string, default "", (readonly)

oskey
Operating system key pressed

Type boolean, default False

properties
Properties to set when the operator is called

Type OperatorProperties, (readonly)

propvalue
The value this event translates to in a modal keymap

Type enum in ['NONE'], default 'NONE'

shift
Shift key pressed

Type boolean, default False

show_expanded
Show key map event and property details in the user interface

Type boolean, default False

type
Type of event

Type enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], default 'NONE'

value

Type enum in ['ANY', 'NOTHING', 'PRESS', 'RELEASE', 'CLICK', 'DOUBLE_CLICK'], default 'NOTHING'

compare(*item*)
compare

Parameters

- **item** (KeyMapItem) – Item

Returns Comparison result

Return type boolean

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyMap.items
- KeyMap.restore_item_to_default
- KeyMapItem.compare
- KeyMapItems.from_id
- KeyMapItems.new
- KeyMapItems.new_modal
- KeyMapItems.remove

1.3.240 KeyMapItems(bpy_struct)

base class — bpy_struct

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

Collection of keymap items

new(*idname*, *type*, *value*, *any=False*, *shift=False*, *ctrl=False*, *alt=False*, *oskey=False*, *key_modifier='NONE'*)

new

Parameters

- **idname** (*string*) – Operator Identifier
- **type** (*enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE',*

'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2']) – Type

- **value** (*enum in ['ANY', 'NOTHING', 'PRESS', 'RELEASE', 'CLICK', 'DOUBLE_CLICK']*) – Value
- **any** (*boolean, (optional)*) – Any
- **shift** (*boolean, (optional)*) – Shift
- **ctrl** (*boolean, (optional)*) – Ctrl
- **alt** (*boolean, (optional)*) – Alt
- **oskey** (*boolean, (optional)*) – OS Key
- **key_modifier** (*enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], (optional)*) – Key Modifier

Returns Item, Added key map item.

Return type KeyMapItem

new_modal(*propvalue*, *type*, *value*, *any=False*, *shift=False*, *ctrl=False*, *alt=False*, *oskey=False*, *key_modifier='NONE'*)

new_modal

Parameters

- **propvalue** (*string*) – Property Value
- **type** (*enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE',*

'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2']) – Type

- **value** (*enum in ['ANY', 'NOTHING', 'PRESS', 'RELEASE', 'CLICK', 'DOUBLE_CLICK']*) – Value
- **any** (*boolean, (optional)*) – Any
- **shift** (*boolean, (optional)*) – Shift
- **ctrl** (*boolean, (optional)*) – Ctrl
- **alt** (*boolean, (optional)*) – Alt
- **oskey** (*boolean, (optional)*) – OS Key
- **key_modifier** (*enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], (optional)*) – Key Modifier

Returns Item, Added key map item.

Return type KeyMapItem

remove(*item*)
remove

Parameters

- **item** (KeyMapItem) – Item

from_id(*id*)
from_id

Parameters

- **id** (*int in [-inf, inf]*) – id, ID of the item

Returns Item

Return type KeyMapItem

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyMap.items

1.3.241 KeyMaps(bpy_struct)

base class — bpy_struct

class bpy.types.**KeyMaps**(*bpy_struct*)
Collection of keymaps

new(*name*, *space_type='EMPTY'*, *region_type='WINDOW'*, *modal=False*)
new

Parameters

- **name** (*string*) – Name
- **space_type** (*enum in ['EMPTY', 'VIEW_3D', 'GRAPH_EDITOR', 'OUTLINER', 'PROPERTIES', 'FILE_BROWSER', 'IMAGE_EDITOR', 'INFO', 'SEQUENCE_EDITOR', 'TEXT_EDITOR', 'AUDIO_WINDOW', 'DOPESHEET_EDITOR', 'NLA_EDITOR', 'SCRIPTS_WINDOW', 'TIMELINE', 'NODE_EDITOR', 'LOGIC_EDITOR', 'CONSOLE', 'USER_PREFERENCES'], (optional)*) – Space Type
- **region_type** (*enum in ['WINDOW', 'HEADER', 'CHANNELS', 'TEMPORARY', 'UI', 'TOOLS', 'TOOL_PROPS', 'PREVIEW'], (optional)*) – Region Type
- **modal** (*boolean, (optional)*) – Modal

Returns Key Map, Added key map.

Return type KeyMap

find(*name*, *space_type='EMPTY'*, *region_type='WINDOW'*)
find

Parameters

- **name** (*string*) – Name
- **space_type** (*enum in ['EMPTY', 'VIEW_3D', 'GRAPH_EDITOR', 'OUTLINER', 'PROPERTIES', 'FILE_BROWSER', 'IMAGE_EDITOR', 'INFO', 'SEQUENCE_EDITOR', 'TEXT_EDITOR', 'AUDIO_WINDOW', 'DOPESHEET_EDITOR', 'NLA_EDITOR', 'SCRIPTS_WINDOW', 'TIMELINE', 'NODE_EDITOR', 'LOGIC_EDITOR', 'CONSOLE', 'USER_PREFERENCES'], (optional)*) – Space Type
- **region_type** (*enum in ['WINDOW', 'HEADER', 'CHANNELS', 'TEMPORARY', 'UI', 'TOOLS', 'TOOL_PROPS', 'PREVIEW'], (optional)*) – Region Type

Returns Key Map, Corresponding key map.

Return type KeyMap

find_modal(*name*)
find_modal

Parameters

- **name** (*string*) – Operator Name

Returns Key Map, Corresponding key map.

Return type KeyMap

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyConfig.keymaps

1.3.242 KeyboardSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**KeyboardSensor**(*Sensor*)

Sensor to detect keyboard events

key

Type enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], default 'NONE'

log

Property that receive the keystrokes in case a string is logged

Type string, default ""

modifier_key_1
Modifier key code

Type enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], default 'NONE'

modifier_key_2
Modifier key code

Type enum in ['NONE', 'LEFTMOUSE', 'MIDDLEMOUSE', 'RIGHTMOUSE', 'BUTTON4MOUSE', 'BUTTON5MOUSE', 'ACTIONMOUSE', 'SELECTMOUSE', 'MOUSEMOVE', 'INBETWEEN_MOUSEMOVE', 'TRACKPADPAN', 'TRACKPADZOOM', 'MOUSEROTATE', 'WHEELUPMOUSE', 'WHEELDOWNMOUSE', 'WHEELINMOUSE', 'WHEELOUTMOUSE', 'EVT_TWEAK_L', 'EVT_TWEAK_M', 'EVT_TWEAK_R', 'EVT_TWEAK_A', 'EVT_TWEAK_S', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'ZERO', 'ONE', 'TWO', 'THREE', 'FOUR', 'FIVE', 'SIX', 'SEVEN', 'EIGHT', 'NINE', 'LEFT_CTRL', 'LEFT_ALT', 'LEFT_SHIFT', 'RIGHT_ALT', 'RIGHT_CTRL', 'RIGHT_SHIFT', 'COMMAND', 'ESC', 'TAB', 'RET', 'SPACE', 'LINE_FEED', 'BACK_SPACE', 'DEL', 'SEMI_COLON', 'PERIOD', 'COMMA', 'QUOTE', 'ACCENT_GRAVE', 'MINUS', 'SLASH', 'BACK_SLASH', 'EQUAL', 'LEFT_BRACKET', 'RIGHT_BRACKET', 'LEFT_ARROW', 'DOWN_ARROW', 'RIGHT_ARROW', 'UP_ARROW', 'NUMPAD_2', 'NUMPAD_4', 'NUMPAD_6', 'NUMPAD_8', 'NUMPAD_1', 'NUMPAD_3', 'NUMPAD_5', 'NUMPAD_7', 'NUMPAD_9', 'NUMPAD_PERIOD', 'NUMPAD_SLASH', 'NUMPAD_ASTERIX', 'NUMPAD_0', 'NUMPAD_MINUS', 'NUMPAD_ENTER', 'NUMPAD_PLUS', 'F1', 'F2', 'F3', 'F4', 'F5', 'F6', 'F7', 'F8', 'F9', 'F10', 'F11', 'F12', 'F13', 'F14', 'F15', 'F16', 'F17', 'F18', 'F19', 'PAUSE', 'INSERT', 'HOME', 'PAGE_UP', 'PAGE_DOWN', 'END', 'WINDOW_DEACTIVATE', 'TIMER', 'TIMER0', 'TIMER1', 'TIMER2'], default 'NONE'

target
Property that indicates whether to log keystrokes as a string

Type string, default ""

use_all_keys
Trigger this sensor on any keystroke

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.243 Keyframe(bpy_struct)

base class — bpy_struct

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

Bezier curve point with two handles defining a Keyframe on an F-Curve

co

Coordinates of the control point

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

handle_left

Coordinates of the first handle

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

handle_left_type
Handle types

Type enum in ['FREE', 'AUTO', 'VECTOR', 'ALIGNED'], default 'FREE'

handle_right
Coordinates of the second handle

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

handle_right_type
Handle types

Type enum in ['FREE', 'AUTO', 'VECTOR', 'ALIGNED'], default 'FREE'

interpolation
Interpolation method to use for segment of the curve from this Keyframe until the next Keyframe

Type enum in ['CONSTANT', 'LINEAR', 'BEZIER'], default 'CONSTANT'

select_control_point
Control point selection status

Type boolean, default False

select_left_handle
Handle 1 selection status

Type boolean, default False

select_right_handle
Handle 2 selection status

Type boolean, default False

type
The type of keyframe

Type enum in ['KEYFRAME', 'BREAKDOWN', 'EXTREME'], default 'KEYFRAME'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- FCurve.keyframe_points
- FCurveKeyframePoints.add
- FCurveKeyframePoints.remove

1.3.244 KeyingSet(bpy_struct)

base class — bpy_struct

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

Settings that should be keyframed together

is_path_absolute

Keying Set defines specific paths/settings to be keyframed (i.e. is not reliant on context info)

Type boolean, default False, (readonly)

name

Type string, default ""

paths

Keying Set Paths to define settings that get keyframed together

Type KeyingSetPaths collection of KeyingSetPath, (readonly)

type_info

Callback function defines for built-in Keying Sets

Type KeyingSetInfo, (readonly)

use_insertkey_needed

Only insert keyframes where they're needed in the relevant F-Curves

Type boolean, default False

use_insertkey_visual

Insert keyframes based on 'visual transforms'

Type boolean, default False

use_insertkey_xyz_to_rgb

Color for newly added transformation F-Curves (Location, Rotation, Scale) and also Color is based on the transform axis

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyingSetInfo.generate
- KeyingSetInfo.iterator
- KeyingSets.active
- KeyingSets.new
- KeyingSetsAll.active
- Scene.keying_sets
- Scene.keying_sets_all

1.3.245 KeyingSetInfo(bpy_struct)

base class — bpy_struct

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

Callback function defines for builtin Keying Sets

bl_idname

Type string, default “”

bl_label

Type string, default “”

use_insertkey_needed

Only insert keyframes where they’re needed in the relevant F-Curves

Type boolean, default False

use_insertkey_visual

Insert keyframes based on ‘visual transforms’

Type boolean, default False

use_insertkey_xyz_to_rgb

Color for newly added transformation F-Curves (Location, Rotation, Scale) and also Color is based on the transform axis

Type boolean, default False

poll(*context*)
Test if Keying Set can be used or not

Return type boolean

iterator(*context*, *ks*)
Call generate() on the structs which have properties to be keyframed

generate(*context*, *ks*, *data*)
Add Paths to the Keying Set to keyframe the properties of the given data

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyingSet.type_info

1.3.246 KeyingSetPath(bpy_struct)

base class — bpy_struct

class bpy.types.**KeyingSetPath**(*bpy_struct*)
Path to a setting for use in a Keying Set

array_index
Index to the specific setting if applicable

Type int in [-inf, inf], default 0

data_path
Path to property setting

Type string, default “”

group
Name of Action Group to assign setting(s) for this path to

Type string, default “”

group_method
Method used to define which Group-name to use

Type enum in [’NAMED’, ‘NONE’, ‘KEYINGSET’], default ‘NAMED’

id
ID-Block that keyframes for Keying Set should be added to (for Absolute Keying Sets only)

Type ID

id_type
Type of ID-block that can be used

Type enum in [’ACTION’, ‘ARMATURE’, ‘BRUSH’, ‘CAMERA’, ‘CURVE’, ‘FONT’, ‘GREASEPENCIL’, ‘GROUP’, ‘IMAGE’, ‘KEY’, ‘LAMP’, ‘LIBRARY’, ‘LATTICE’, ‘MATERIAL’, ‘META’, ‘MESH’, ‘NODETREE’, ‘OBJECT’, ‘PARTICLE’, ‘SCENE’, ‘SCREEN’, ‘SOUND’, ‘TEXT’, ‘TEXTURE’, ‘WORLD’, ‘WINDOWMANAGER’], default ‘OBJECT’

use_entire_array
When an ‘array/vector’ type is chosen (Location, Rotation, Color, etc.), entire array is to be used

Type boolean, default False

use_insertkey_needed
Only insert keyframes where they’re needed in the relevant F-Curves

Type boolean, default False

use_insertkey_visual
Insert keyframes based on ‘visual transforms’

Type boolean, default False

use_insertkey_xyz_to_rgb
Color for newly added transformation F-Curves (Location, Rotation, Scale) and also Color is based on the transform axis

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyingSet.paths
- KeyingSetPaths.active
- KeyingSetPaths.add
- KeyingSetPaths.remove

1.3.247 KeyingSetPaths(bpy_struct)

base class — bpy_struct

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

Collection of keying set paths

active

Active Keying Set used to insert/delete keyframes

Type KeyingSetPath

active_index

Current Keying Set index

Type int in [-inf, inf], default 0

add(*target_id*, *data_path*, *index=-1*, *group_method='KEYINGSET'*, *group_name=""*)

Add a new path for the Keying Set.

Parameters

- **target_id** (ID) – Target ID, ID-Datablock for the destination.
- **data_path** (*string*) – Data-Path, RNA-Path to destination property.
- **index** (*int in [-1, inf], (optional)*) – Index, The index of the destination property (i.e. axis of Location/Rotation/etc.), or -1 for the entire array.
- **group_method** (*enum in ['NAMED', 'NONE', 'KEYINGSET'], (optional)*) – Grouping Method, Method used to define which Group-name to use.
- **group_name** (*string, (optional)*) – Group Name, Name of Action Group to assign destination to (only if grouping mode is to use this name).

Returns New Path, Path created and added to the Keying Set

Return type KeyingSetPath

remove(*path*)
Remove the given path from the Keying Set.

Parameters

- **path** (KeyingSetPath, (never None)) – Path

clear()
Remove all the paths from the Keying Set.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyingSet.paths

1.3.248 KeyingSets(bpy_struct)

base class — bpy_struct

class bpy.types.**KeyingSets**(*bpy_struct*)
Scene keying sets

active
Active Keying Set used to insert/delete keyframes

Type KeyingSet

active_index
Current Keying Set index (negative for 'builtin' and positive for 'absolute')

Type int in [-inf, inf], default 0

new(*name="KeyingSet"*, *absolute=True*, *insertkey_needed=False*, *insertkey_visual=False*)
Add a new Keying Set to Scene.

Parameters

- **name** (*string, (optional)*) – Name, Name of Keying Set
- **absolute** (*boolean, (optional)*) – Absolute, Keying Set defines specific paths/settings to be keyframed (i.e. is not reliant on context info)
- **insertkey_needed** (*boolean, (optional)*) – Insert Keyframes - Only Needed, Only insert keyframes where they're needed in the relevant F-Curves.
- **insertkey_visual** (*boolean, (optional)*) – Insert Keyframes - Visual, Insert keyframes based on 'visual transforms'.

Returns Newly created Keying Set.

Return type KeyingSet

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.keying_sets

1.3.249 KeyingSetsAll(bpy_struct)

base class — bpy_struct

class bpy.types.**KeyingSetsAll**(*bpy_struct*)
All available keying sets

active
Active Keying Set used to insert/delete keyframes

Type KeyingSet

active_index
Current Keying Set index (negative for 'builtin' and positive for 'absolute')

Type int in [-inf, inf], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.keying_sets_all

1.3.250 KinematicConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**KinematicConstraint**(*Constraint*)
Inverse Kinematics

chain_count
How many bones are included in the IK effect - 0 uses all bones

Type int in [0, 255], default 0

distance
Radius of limiting sphere

Type float in [0, 100], default 0.0

ik_type

Type enum in ['COPY_POSE', 'DISTANCE'], default 'COPY_POSE'

iterations
Maximum number of solving iterations

Type int in [1, 10000], default 0

limit_mode
Distances in relation to sphere of influence to allow

Type enum in ['LIMITDIST_INSIDE', 'LIMITDIST_OUTSIDE', 'LIMITDIST_ONSURFACE'], default 'LIMITDIST_INSIDE'

lock_location_x
Constraint position along X axis

Type boolean, default False

lock_location_y
Constraint position along Y axis

Type boolean, default False

lock_location_z
Constraint position along Z axis

Type boolean, default False

lock_rotation_x
Constraint rotation along X axis

Type boolean, default False

lock_rotation_y
Constraint rotation along Y axis

Type boolean, default False

lock_rotation_z
Constraint rotation along Z axis

Type boolean, default False

orient_weight
For Tree-IK: Weight of orientation control for this target

Type float in [0.01, 1], default 0.0

pole_angle
Pole rotation offset

Type float in [-3.14159, 3.14159], default 0.0

pole_subtarget

Type string, default ""

pole_target
Object for pole rotation

Type Object

reference_axis
Constraint axis Lock options relative to Bone or Target reference

Type enum in ['BONE', 'TARGET'], default 'BONE'

subtarget

Type string, default ""

target
Target Object

Type Object

use_location
Chain follows position of target

Type boolean, default False

use_rotation
Chain follows rotation of target

Type boolean, default False

use_stretch
Enable IK Stretching

Type boolean, default False

use_tail
Include bone's tail as last element in chain

Type boolean, default False

use_target
Disable for targetless IK

Type boolean, default False

weight
For Tree-IK: Weight of position control for this target

Type float in [0.01, 1], default 0.0

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.251 Lamp(ID)

base classes — bpy_struct, ID

subclasses — SpotLamp, AreaLamp, HemiLamp, PointLamp, SunLamp

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

Lamp datablock for lighting a scene

active_texture

Active texture slot being displayed

Type Texture

active_texture_index

Index of active texture slot

Type int in [0, 17], default 0

animation_data

Animation data for this datablock

Type AnimData, (readonly)

color

Light color

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

distance

Falloff distance - the light is at half the original intensity at this point

Type float in [0, inf], default 0.0

energy

Amount of light that the lamp emits

Type float in [-inf, inf], default 0.0

texture_slots

Texture slots defining the mapping and influence of textures

Type Collection of LampTextureSlot, (readonly)

type

Type of Lamp

Type enum in ['POINT', 'SUN', 'SPOT', 'HEMI', 'AREA'], default 'POINT'

use_diffuse
Lamp does diffuse shading

Type boolean, default False

use_negative
Lamp casts negative light

Type boolean, default False

use_own_layer
Illuminates objects only on the same layer the lamp is on

Type boolean, default False

use_specular
Lamp creates specular highlights

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.lamps
- MainLamps.new
- MainLamps.remove

1.3.252 LampSkySettings(bpy_struct)

base class — bpy_struct

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

Sky related settings for a sun lamp

atmosphere_distance_factor

Multiplier to convert blender units to physical distance

Type float in [0, 500], default 0.0

atmosphere_extinction

Extinction scattering contribution factor

Type float in [0, 1], default 0.0

atmosphere_inscattering

Scatter contribution factor

Type float in [0, 1], default 0.0

atmosphere_turbidity

Sky turbidity

Type float in [1, 30], default 0.0

backscattered_light

Backscattered light

Type float in [-1, 1], default 0.0

horizon_brightness

Horizon brightness

Type float in [0, 20], default 0.0

sky_blend

Blend factor with sky

Type float in [0, 2], default 0.0

sky_blend_type

Blend mode for combining sun sky with world sky

Type enum in ['MIX', 'ADD', 'MULTIPLY', 'SUBTRACT', 'SCREEN', 'DIVIDE', 'DIFFERENCE', 'DARKEN', 'LIGHTEN', 'OVERLAY', 'DODGE', 'BURN', 'HUE', 'SATURATION', 'VALUE', 'COLOR'], default 'MIX'

sky_color_space

Color space to use for internal XYZ->RGB color conversion

Type enum in ['SMPTE', 'REC709', 'CIE'], default 'SMPTE'

sky_exposure

Strength of sky shading exponential exposure correction

Type float in [0, 20], default 0.0

spread
Horizon Spread

Type float in [0, 10], default 0.0

sun_brightness
Sun brightness

Type float in [0, 10], default 0.0

sun_intensity
Sun intensity

Type float in [0, 10], default 0.0

sun_size
Sun size

Type float in [0, 10], default 0.0

use_atmosphere
Apply sun effect on atmosphere

Type boolean, default False

use_sky
Apply sun effect on sky

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SunLamp.sky

1.3.253 LampTextureSlot(TextureSlot)

base classes — bpy_struct, TextureSlot

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

Texture slot for textures in a Lamp datablock

color_factor

Amount texture affects color values

Type float in [-inf, inf], default 0.0

object

Object to use for mapping with Object texture coordinates

Type Object

shadow_factor

Amount texture affects shadow

Type float in [-inf, inf], default 0.0

texture_coords

Type enum in ['GLOBAL', 'VIEW', 'OBJECT'], default 'GLOBAL'

use_map_color

Lets the texture affect the basic color of the lamp

Type boolean, default False

use_map_shadow

Lets the texture affect the shadow color of the lamp

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- TextureSlot.name
- TextureSlot.blend_type
- TextureSlot.color
- TextureSlot.default_value
- TextureSlot.invert
- TextureSlot.offset
- TextureSlot.output_node
- TextureSlot.use_rgb_to_intensity
- TextureSlot.scale
- TextureSlot.use_stencil
- TextureSlot.texture

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Lamp.texture_slots

1.3.254 Lattice(ID)

base classes — bpy_struct, ID

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

Lattice datablock defining a grid for deforming other objects

interpolation_type_u

Type enum in ['KEY_LINEAR', 'KEY_CARDINAL', 'KEY_BSPLINE'], default 'KEY_LINEAR'

interpolation_type_v

Type enum in ['KEY_LINEAR', 'KEY_CARDINAL', 'KEY_BSPLINE'], default 'KEY_LINEAR'

interpolation_type_w

Type enum in ['KEY_LINEAR', 'KEY_CARDINAL', 'KEY_BSPLINE'], default 'KEY_LINEAR'

points

Points of the lattice

Type Collection of LatticePoint, (readonly)

points_u

Points in U direction (can't be changed when there are shape keys)

Type int in [1, 64], default 0

points_v

Points in V direction (can't be changed when there are shape keys)

Type int in [1, 64], default 0

points_w
Points in W direction (can't be changed when there are shape keys)

Type int in [1, 64], default 0

shape_keys

Type Key, (readonly)

use_outside
Only draw, and take into account, the outer vertices

Type boolean, default False

vertex_group
Vertex group to apply the influence of the lattice

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.lattices
- MainLattices.new
- MainLattices.remove

1.3.255 LatticeModifier(Modifier)

base classes — bpy_struct, Modifier

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

Lattice deformation modifier

object

Lattice object to deform with

Type Object

vertex_group

Vertex group name

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.256 LatticePoint(bpy_struct)

base class — bpy_struct

class bpy.types.**LatticePoint**(*bpy_struct*)
Point in the lattice grid

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0), (readonly)

co_deform

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

groups
Weights for the vertex groups this point is member of

Type Collection of VertexGroupElement, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Lattice.points

1.3.257 Library(ID)

base classes — bpy_struct, ID

class bpy.types.**Library**(*ID*)
External .blend file from which data is linked

filepath
Path to the library .blend file

Type string, default “”

parent

Type Library, (readonly)

users_id
ID datablocks which use this library (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.libraries
- ID.library
- Library.parent

1.3.258 LimitDistanceConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**LimitDistanceConstraint**(*Constraint*)

Limits the distance from target object

distance

Radius of limiting sphere

Type float in [0, 100], default 0.0

limit_mode

Distances in relation to sphere of influence to allow

Type enum in ['LIMITDIST_INSIDE', 'LIMITDIST_OUTSIDE', 'LIMITDIST_ONSURFACE'], default 'LIMITDIST_INSIDE'

subtarget

Type string, default ""

target

Target Object

Type Object

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.259 LimitLocationConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**LimitLocationConstraint**(*Constraint*)

Limits the location of the constrained object

max_x

Highest X value to allow

Type float in [-1000, 1000], default 0.0

max_y

Highest Y value to allow

Type float in [-1000, 1000], default 0.0

max_z

Highest Z value to allow

Type float in [-1000, 1000], default 0.0

min_x

Lowest X value to allow

Type float in [-1000, 1000], default 0.0

min_y

Lowest Y value to allow

Type float in [-1000, 1000], default 0.0

min_z

Lowest Z value to allow

Type float in [-1000, 1000], default 0.0

use_max_x

Use the maximum X value

Type boolean, default False

use_max_y

Use the maximum Y value

Type boolean, default False

use_max_z

Use the maximum Z value

Type boolean, default False

use_min_x

Use the minimum X value

Type boolean, default False

use_min_y
Use the minimum Y value

Type boolean, default False

use_min_z
Use the minimum Z value

Type boolean, default False

use_transform_limit
Transforms are affected by this constraint as well

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.260 LimitRotationConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**LimitRotationConstraint**(*Constraint*)

Limits the rotation of the constrained object

max_x

Highest X value to allow

Type float in [-1000, 1000], default 0.0

max_y

Highest Y value to allow

Type float in [-1000, 1000], default 0.0

max_z

Highest Z value to allow

Type float in [-1000, 1000], default 0.0

min_x

Lowest X value to allow

Type float in [-1000, 1000], default 0.0

min_y

Lowest Y value to allow

Type float in [-1000, 1000], default 0.0

min_z

Lowest Z value to allow

Type float in [-1000, 1000], default 0.0

use_limit_x

Use the minimum X value

Type boolean, default False

use_limit_y

Use the minimum Y value

Type boolean, default False

use_limit_z

Use the minimum Z value

Type boolean, default False

use_transform_limit

Transforms are affected by this constraint as well

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location

- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.261 LimitScaleConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**LimitScaleConstraint**(*Constraint*)

Limits the scaling of the constrained object

max_x

Highest X value to allow

Type float in [-1000, 1000], default 0.0

max_y

Highest Y value to allow

Type float in [-1000, 1000], default 0.0

max_z

Highest Z value to allow

Type float in [-1000, 1000], default 0.0

min_x

Lowest X value to allow

Type float in [-1000, 1000], default 0.0

min_y

Lowest Y value to allow

Type float in [-1000, 1000], default 0.0

min_z
Lowest Z value to allow

Type float in [-1000, 1000], default 0.0

use_max_x
Use the maximum X value

Type boolean, default False

use_max_y
Use the maximum Y value

Type boolean, default False

use_max_z
Use the maximum Z value

Type boolean, default False

use_min_x
Use the minimum X value

Type boolean, default False

use_min_y
Use the minimum Y value

Type boolean, default False

use_min_z
Use the minimum Z value

Type boolean, default False

use_transform_limit
Transforms are affected by this constraint as well

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.262 LockedTrackConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**LockedTrackConstraint**(*Constraint*)

Points toward the target along the track axis, while locking the other axis

lock_axis

Axis that points upward

Type enum in ['LOCK_X', 'LOCK_Y', 'LOCK_Z'], default 'LOCK_X'

subtarget

Type string, default ""

target

Target Object

Type Object

track_axis

Axis that points to the target object

Type enum in ['TRACK_X', 'TRACK_Y', 'TRACK_Z', 'TRACK_NEGATIVE_X', 'TRACK_NEGATIVE_Y', 'TRACK_NEGATIVE_Z'], default 'TRACK_X'

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation

- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.263 Macro(bpy_struct)

base class — bpy_struct

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

Storage of a macro operator being executed, or registered after execution

bl_description

Type string, default “”

bl_idname

Type string, default “”

bl_label

Type string, default “”

bl_options

Options for this operator type

Type enum in [’REGISTER’, ‘UNDO’, ‘BLOCKING’, ‘MACRO’, ‘GRAB_POINTER’], default ‘REGISTER’

name

Type string, default “”, (readonly)

properties

Type OperatorProperties, (readonly, never None)

report(*type*, *message*)

report

Parameters

- **type** (*enum in ['DEBUG', 'INFO', 'OPERATOR', 'WARNING', 'ERROR', 'ERROR_INVALID_INPUT', 'ERROR_INVALID_CONTEXT', 'ERROR_OUT_OF_MEMORY']*) – Type
- **message** (*string*) – Report Message

classmethod **poll**(*context=None*)
Test if the operator can be called or not.

Return type boolean

draw(*context=None*)
Draw function for the operator.

define(*opname*)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.264 MagicTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**MagicTexture**(*Texture*)
Procedural noise texture

noise_depth
Sets the depth of the cloud calculation

Type int in [0, inf], default 0

turbulence
Sets the turbulence of the bandnoise and ringnoise types

Type float in [0.0001, inf], default 0.0

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy

- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.265 MainActions(bpy_struct)

base class — bpy_struct

class bpy.types.**MainActions**(*bpy_struct*)
Collection of actions

new(*name*)
Add a new action to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New action datablock.

Return type Action

remove(*action*)
Remove a action from the current blendfile.

Parameters

- **action** (Action, (never None)) – Action to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.actions

1.3.266 MainArmatures(bpy_struct)

base class — bpy_struct

class bpy.types.**MainArmatures**(*bpy_struct*)
Collection of armatures

new(*name*)
Add a new armature to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New armature datablock.

Return type Armature

remove(*armature*)
Remove a armature from the current blendfile.

Parameters

- **armature** (Armature, (never None)) – Armature to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.armatures

1.3.267 MainBrushes(bpy_struct)

base class — bpy_struct

class bpy.types.**MainBrushes**(*bpy_struct*)
Collection of brushes

new(*name*)
Add a new brush to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New brush datablock.

Return type Brush

remove(*brush*)
Remove a brush from the current blendfile.

Parameters

- **brush** (Brush, (never None)) – Brush to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.brushes

1.3.268 MainCameras(bpy_struct)

base class — bpy_struct

class bpy.types.**MainCameras**(*bpy_struct*)
Collection of cameras

new(*name*)
Add a new camera to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New camera datablock.

Return type Camera

remove(*camera*)
Remove a camera from the current blendfile.

Parameters

- **camera** (Camera, (never None)) – Camera to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.cameras

1.3.269 MainCurves(bpy_struct)

base class — bpy_struct

class bpy.types.**MainCurves**(*bpy_struct*)
Collection of curves

new(*name*, *type*)
Add a new curve to the main database

Parameters

- **name** (*string*) – New name for the datablock.
- **type** (*enum in ['CURVE', 'SURFACE', 'TEXT']*) – Type, The type of curve to add

Returns New curve datablock.

Return type Curve

remove(*curve*)
Remove a curve from the current blendfile.

Parameters

- **curve** (Curve, (never None)) – Curve to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.curves

1.3.270 MainFonts(bpy_struct)

base class — bpy_struct

class bpy.types.**MainFonts**(*bpy_struct*)
Collection of fonts

load(*filepath*)
Load a new font into the main database

Parameters

- **filepath** (*string*) – path of the font to load.

Returns New font datablock.

Return type VectorFont

remove(*vfont*)
Remove a font from the current blendfile.

Parameters

- **vfont** (VectorFont, (never None)) – Font to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.fonts

1.3.271 MainGroups(bpy_struct)

base class — bpy_struct

class bpy.types.**MainGroups**(*bpy_struct*)
Collection of groups

new(*name*)
Add a new group to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New group datablock.

Return type Group

remove(*group*)
Remove a group from the current blendfile.

Parameters

- **group** (Group, (never None)) – Group to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.groups

1.3.272 MainImages(bpy_struct)

base class — bpy_struct

class bpy.types.**MainImages**(*bpy_struct*)
Collection of images

new(*name*, *width=1024*, *height=1024*, *alpha=False*, *float_buffer=False*)
Add a new image to the main database

Parameters

- **name** (*string*) – New name for the datablock.
- **width** (*int in [1, inf], (optional)*) – Width of the image.
- **height** (*int in [1, inf], (optional)*) – Height of the image.
- **alpha** (*boolean, (optional)*) – Alpha, Use alpha channel
- **float_buffer** (*boolean, (optional)*) – Float Buffer, Create an image with floating point color

Returns New image datablock.

Return type Image

load(*filepath*)
Load a new image into the main database

Parameters

- **filepath** (*string*) – path of the file to load.

Returns New image datablock.

Return type Image

remove(*image*)
Remove an image from the current blendfile.

Parameters

- **image** (Image, (never None)) – Image to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.images

1.3.273 MainLamps(bpy_struct)

base class — bpy_struct

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

Collection of lamps

new(*name*)

Add a new lamp to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New lamp datablock.

Return type Lamp

remove(*lamp*)

Remove a lamp from the current blendfile.

Parameters

- **lamp** (Lamp, (never None)) – Lamp to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

References

- BlendData.lamps

1.3.274 MainLattices(bpy_struct)

base class — bpy_struct

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

Collection of lattices

new(*name*)

Add a new lattice to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New lattices datablock.

Return type Lattice

remove(*lattice*)

Remove a lattice from the current blendfile.

Parameters

- **lattice** (Lattice, (never None)) – Lattice to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.lattices

1.3.275 MainMaterials(bpy_struct)

base class — bpy_struct

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

Collection of materials

new(*name*)

Add a new material to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New material datablock.

Return type Material

remove(*material*)

Remove a material from the current blendfile.

Parameters

- **material** (Material, (never None)) – Material to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.materials

1.3.276 MainMeshes(bpy_struct)

base class — bpy_struct

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

Collection of meshes

new(*name*)

Add a new mesh to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New mesh datablock.

Return type Mesh

remove(*mesh*)

Remove a mesh from the current blendfile.

Parameters

- **mesh** (Mesh, (never None)) – Mesh to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.meshes

1.3.277 MainMetaBalls(bpy_struct)

base class — bpy_struct

class bpy.types.**MainMetaBalls**(*bpy_struct*)
Collection of metaballs

new(*name*)
Add a new metaball to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New metaball datablock.

Return type MetaBall

remove(*metaball*)
Remove a metaball from the current blendfile.

Parameters

- **metaball** (MetaBall, (never None)) – MetaBall to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- BlendData.metaballs

1.3.278 MainNodeTrees(bpy_struct)

base class — bpy_struct

class bpy.types.**MainNodeTrees**(*bpy_struct*)
Collection of node trees

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.node_groups

1.3.279 MainObjects(bpy_struct)

base class — bpy_struct

class bpy.types.**MainObjects**(*bpy_struct*)
Collection of objects

new(*name*, *object_data*)
Add a new object to the main database

Parameters

- **name** (*string*) – New name for the datablock.
- **object_data** (ID) – Object data or None for an empty object.

Returns New object datablock.

Return type Object

remove(*object*)
Remove a object from the current blendfile.

Parameters

- **object** (Object, (never None)) – Object to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.objects

1.3.280 MainParticles(bpy_struct)

base class — bpy_struct

class bpy.types.**MainParticles**(*bpy_struct*)
Collection of particle settings

new(*name*)
Add a new particle settings instance to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New particle settings datablock.

Return type ParticleSettings

remove(*particle*)
Remove a particle settings instance from the current blendfile.

Parameters

- **particle** (ParticleSettings, (never None)) – Particle Settings to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.particles

1.3.281 MainScenes(bpy_struct)

base class — bpy_struct

class bpy.types.**MainScenes**(*bpy_struct*)
Collection of scenes

new(*name*)
Add a new scene to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New scene datablock.

Return type Scene

remove(*scene*)
Remove a scene from the current blendfile.

Parameters

- **scene** (Scene, (never None)) – Scene to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.scenes

1.3.282 MainTexts(bpy_struct)

base class — bpy_struct

class bpy.types.**MainTexts**(*bpy_struct*)
Collection of texts

new(*name*)
Add a new text to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New text datablock.

Return type Text

remove(*text*)
Remove a text from the current blendfile.

Parameters

- **text** (Text, (never None)) – Text to remove.

load(*filepath*)
Add a new text to the main database from a file

Parameters

- **filepath** (*string*) – path for the datablock.

Returns New text datablock.

Return type Text

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.texts

1.3.283 MainTextures(bpy_struct)

base class — bpy_struct

class bpy.types.**MainTextures**(*bpy_struct*)
Collection of groups

new(*name*, *type*)
Add a new texture to the main database

Parameters

- **name** (*string*) – New name for the datablock.
- **type** (*enum in ['NONE', 'BLEND', 'CLOUDS', 'DISTORTED_NOISE', 'ENVIRONMENT_MAP', 'IMAGE', 'MAGIC', 'MARBLE', 'MUSGRAVE', 'NOISE', 'POINT_DENSITY', 'STUCCI', 'VORONOI', 'VOXEL_DATA', 'WOOD']*) – Type, The type of texture to add

Returns New texture datablock.

Return type Texture

remove(*texture*)
Remove a texture from the current blendfile.

Parameters

- **texture** (Texture, (never None)) – Texture to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.textures

1.3.284 MainWorlds(bpy_struct)

base class — bpy_struct

class bpy.types.**MainWorlds**(*bpy_struct*)
Collection of worlds

new(*name*)
Add a new world to the main database

Parameters

- **name** (*string*) – New name for the datablock.

Returns New world datablock.

Return type World

remove(*world*)
Remove a world from the current blendfile.

Parameters

- **world** (World, (never None)) – World to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlendData.worlds

1.3.285 MaintainVolumeConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**MaintainVolumeConstraint**(*Constraint*)
Maintains a constant volume along a single scaling axis

free_axis
The free scaling axis of the object

Type enum in ['SAMEVOL_X', 'SAMEVOL_Y', 'SAMEVOL_Z'], default 'SAMEVOL_X'

volume
Volume of the bone at rest

Type float in [0.001, 100], default 0.0

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.286 MarbleTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**MarbleTexture**(*Texture*)
Procedural noise texture

marble_type

Type enum in ['SOFT', 'SHARP', 'SHARPER'], default 'SOFT'

nabla
Size of derivative offset used for calculating normal

Type float in [0.001, 0.1], default 0.0

noise_basis
Sets the noise basis used for turbulence

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

noise_depth
Sets the depth of the cloud calculation

Type int in [0, inf], default 0

noise_scale
Sets scaling for noise input

Type float in [0.0001, inf], default 0.0

noise_type

Type enum in ['SOFT_NOISE', 'HARD_NOISE'], default 'SOFT_NOISE'

noisebasis_2

Type enum in ['SIN', 'SAW', 'TRI'], default 'SIN'

turbulence
Sets the turbulence of the bandnoise and ringnoise types

Type float in [0.0001, inf], default 0.0

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha

- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.287 MaskModifier(Modifier)

base classes — bpy_struct, Modifier

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

Mask modifier to hide parts of the mesh

armature

Armature to use as source of bones to mask

Type Object

invert_vertex_group

Use vertices that are not part of region defined

Type boolean, default False

mode

Type enum in ['VERTEX_GROUP', 'ARMATURE'], default 'VERTEX_GROUP'

vertex_group

Vertex group name

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.288 Material(ID)

base classes — bpy_struct, ID

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

Material datablock to defined the appearance of geometric objects for rendering

active_node_material

Active node material

Type Material

active_texture

Active texture slot being displayed

Type Texture

active_texture_index

Index of active texture slot

Type int in [0, 17], default 0

alpha

Alpha transparency of the material

Type float in [0, 1], default 0.0

ambient
Amount of global ambient color the material receives

Type float in [0, 1], default 0.0

animation_data
Animation data for this datablock

Type AnimData, (readonly)

darkness
Minnaert darkness

Type float in [0, 2], default 0.0

diffuse_color

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

diffuse_fresnel
Power of Fresnel

Type float in [0, 5], default 0.0

diffuse_fresnel_factor
Blending factor of Fresnel

Type float in [0, 5], default 0.0

diffuse_intensity
Amount of diffuse reflection

Type float in [0, 1], default 0.0

diffuse_ramp
Color ramp used to affect diffuse shading

Type ColorRamp, (readonly)

diffuse_ramp_blend

Type enum in ['MIX', 'ADD', 'MULTIPLY', 'SUBTRACT', 'SCREEN', 'DIVIDE', 'DIFFERENCE', 'DARKEN', 'LIGHTEN', 'OVERLAY', 'DODGE', 'BURN', 'HUE', 'SATURATION', 'VALUE', 'COLOR', 'SOFT LIGHT', 'LINEAR LIGHT'], default 'MIX'

diffuse_ramp_factor
Blending factor (also uses alpha in Colorband)

Type float in [0, 1], default 0.0

diffuse_ramp_input

Type enum in ['SHADER', 'ENERGY', 'NORMAL', 'RESULT'], default 'SHADER'

diffuse_shader

Type enum in ['LAMBERT', 'OREN_NAYAR', 'TOON', 'MINNAERT', 'FRESNEL'], default 'LAMBERT'

diffuse_toon_size
Size of diffuse toon area

Type float in [0, 3.14], default 0.0

diffuse_toon_smooth
Smoothness of diffuse toon area

Type float in [0, 1], default 0.0

emit
Amount of light to emit

Type float in [0, inf], default 0.0

halo
Halo settings for the material

Type MaterialHalo, (readonly, never None)

invert_z
Renders material's faces with an inverted Z buffer (scanline only)

Type boolean, default False

light_group
Limit lighting to lamps in this Group

Type Group

mirror_color
Mirror color of the material

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

node_tree
Node tree for node based materials

Type NodeTree, (readonly)

offset_z
Gives faces an artificial offset in the Z buffer for Z transparency

Type float in [-inf, inf], default 0.0

physics
Game physics settings

Type MaterialPhysics, (readonly, never None)

preview_render_type
Type of preview render

Type enum in ['FLAT', 'SPHERE', 'CUBE', 'MONKEY', 'HAIR', 'SPHERE_A'], default 'FLAT'

raytrace_mirror
Raytraced reflection settings for the material

Type MaterialRaytraceMirror, (readonly, never None)

raytrace_transparency
Raytraced transparency settings for the material

Type MaterialRaytraceTransparency, (readonly, never None)

roughness
Oren-Nayar Roughness

Type float in [0, 3.14], default 0.0

shadow_buffer_bias
Factor to multiply shadow buffer bias with (0 is ignore.)

Type float in [0, 10], default 0.0

shadow_cast_alpha
Shadow casting alpha, in use for Irregular and Deep shadow buffer

Type float in [0.001, 1], default 0.0

shadow_ray_bias
Shadow raytracing bias to prevent terminator problems on shadow boundary

Type float in [0, 0.25], default 0.0

specular_alpha
Alpha transparency for specular areas

Type float in [0, 1], default 0.0

specular_color
Specular color of the material

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

specular_hardness

Type int in [1, 511], default 0

specular_intensity

Type float in [0, 1], default 0.0

specular_ior

Type float in [1, 10], default 0.0

specular_ramp
Color ramp used to affect specular shading

Type ColorRamp, (readonly)

specular_ramp_blend

Type enum in ['MIX', 'ADD', 'MULTIPLY', 'SUBTRACT', 'SCREEN', 'DIVIDE', 'DIFFERENCE', 'DARKEN', 'LIGHTEN', 'OVERLAY', 'DODGE', 'BURN', 'HUE', 'SATURATION', 'VALUE', 'COLOR', 'SOFT LIGHT', 'LINEAR LIGHT'], default 'MIX'

specular_ramp_factor
Blending factor (also uses alpha in Colorband)

Type float in [0, 1], default 0.0

specular_ramp_input

Type enum in ['SHADER', 'ENERGY', 'NORMAL', 'RESULT'], default 'SHADER'

specular_shader

Type enum in ['COOKTORR', 'PHONG', 'BLINN', 'TOON', 'WARDISO'], default 'COOKTORR'

specular_slope
The standard deviation of surface slope

Type float in [0, 0.4], default 0.0

specular_toon_size
Size of specular toon area

Type float in [0, 1.53], default 0.0

specular_toon_smooth
Smoothness of specular toon area

Type float in [0, 1], default 0.0

strand
Strand settings for the material

Type MaterialStrand, (readonly, never None)

subsurface_scattering
Subsurface scattering settings for the material

Type MaterialSubsurfaceScattering, (readonly, never None)

texture_slots
Texture slots defining the mapping and influence of textures

Type Collection of MaterialTextureSlot, (readonly)

translucency
Amount of diffuse shading on the back side

Type float in [0, 1], default 0.0

transparency_method
Method to use for rendering transparency

Type enum in ['Z_TRANSPARENCY', 'RAYTRACE'], default 'Z_TRANSPARENCY'

type
Material type defining how the object is rendered

Type enum in ['SURFACE', 'WIRE', 'VOLUME', 'HALO'], default 'SURFACE'

use_cast_approximate
Allow this material to cast shadows when using approximate ambient occlusion.

Type boolean, default False

use_cast_buffer_shadows
Allow this material to cast shadows from shadow buffer lamps

Type boolean, default False

use_cast_shadows_only
Makes objects with this material appear invisible, only casting shadows (not rendered)

Type boolean, default False

use_cubic
Use cubic interpolation for diffuse values, for smoother transitions

Type boolean, default False

use_diffuse_ramp
Toggle diffuse ramp operations

Type boolean, default False

use_face_texture
Replaces the object's base color with color from face assigned image textures

Type boolean, default False

use_face_texture_alpha
Replaces the object's base alpha value with alpha from face assigned image textures

Type boolean, default False

use_full_oversampling
Force this material to render full shading/textures for all anti-aliasing samples

Type boolean, default False

use_light_group_exclusive
Material uses the light group exclusively - these lamps are excluded from other scene lighting

Type boolean, default False

use_mist
Use mist with this material (in world settings)

Type boolean, default False

use_nodes
Use shader nodes to render the material

Type boolean, default False

use_object_color
Modulate the result with a per-object color

Type boolean, default False

use_only_shadow
Renders shadows as the material's alpha value, making materials transparent except for shadowed areas

Type boolean, default False

use_ray_shadow_bias
Prevents raytraced shadow errors on surfaces with smooth shaded normals (terminator problem)

Type boolean, default False

use_raytrace
Include this material and geometry that uses it in ray tracing calculations

Type boolean, default False

use_shadeless
Makes this material insensitive to light or shadow

Type boolean, default False

use_shadows
Allows this material to receive shadows

Type boolean, default False

use_sky
Renders this material with zero alpha, with sky background in place (scanline only)

Type boolean, default False

use_specular_ramp
Toggle specular ramp operations

Type boolean, default False

use_tangent_shading
Use the material's tangent vector instead of the normal for shading - for anisotropic shading effects

Type boolean, default False

use_textures
Enable/Disable each texture

Type boolean array of 18 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

use_transparency
Render material as transparent

Type boolean, default False

use_transparent_shadows
Allow this object to receive transparent shadows casted through other objects

Type boolean, default False

use_vertex_color_light
Add vertex colors as additional lighting

Type boolean, default False

use_vertex_color_paint
Replaces object base color with vertex colors (multiplies with 'texture face' face assigned textures)

Type boolean, default False

volume
Volume settings for the material

Type MaterialVolume, (readonly, never None)

add_texture(*texture*, *texture_coords='UV'*, *map_to='COLOR'*)
Add a texture to material's free texture slot.

Parameters

- **texture** (Texture) – Texture, Texture to add.
- **texture_coords** (*enum in ['GLOBAL', 'OBJECT', 'UV', 'ORCO', 'STRAND', 'STICKY', 'WINDOW', 'NORMAL', 'REFLECTION', 'STRESS', 'TANGENT'], (optional)*) – Source of texture coordinate information.
- **map_to** (*enum in ['COLOR', 'NORMAL', 'SPECULAR_COLOR', 'MIRROR', 'REFLECTION', 'SPECULARITY', 'EMIT', 'ALPHA', 'HARDNESS', 'RAY_MIRROR', 'TRANSLUCENCY', 'AMBIENT', 'DISPLACEMENT', 'WARP'], (optional)*) – Controls which material property the texture affects.

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.materials
- Curve.materials
- IDMaterials.append
- IDMaterials.pop
- MainMaterials.new
- MainMaterials.remove
- Material.active_node_material
- MaterialSlot.material
- Mesh.materials
- MetaBall.materials
- Object.active_material
- RenderLayer.material_override
- SceneRenderLayer.material_override
- ShaderNodeExtendedMaterial.material
- ShaderNodeMaterial.material
- TouchSensor.material

1.3.289 MaterialHalo(bpy_struct)

base class — bpy_struct

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

Halo particle effect settings for a Material datablock

add

Sets the strength of the add effect

Type float in [0, 1], default 0.0

flare_boost

Gives the flare extra strength

Type float in [0.1, 10], default 0.0

flare_seed
Specifies an offset in the flare seed table

Type int in [0, 255], default 0

flare_size
Sets the factor by which the flare is larger than the halo

Type float in [0.1, 25], default 0.0

flare_subflare_count
Sets the number of subflares

Type int in [1, 32], default 0

flare_subflare_size
Sets the dimension of the subflares, dots and circles

Type float in [0.1, 25], default 0.0

hardness
Sets the hardness of the halo

Type int in [0, 127], default 0

line_count
Sets the number of star shaped lines rendered over the halo

Type int in [0, 250], default 0

ring_count
Sets the number of rings rendered over the halo

Type int in [0, 24], default 0

seed
Randomizes ring dimension and line location

Type int in [0, 255], default 0

size
Sets the dimension of the halo

Type float in [0, 100], default 0.0

star_tip_count
Sets the number of points on the star shaped halo

Type int in [3, 50], default 0

use_extreme_alpha
Uses extreme alpha

Type boolean, default False

use_flare_mode
Renders halo as a lensflare

Type boolean, default False

use_lines
Renders star shaped lines over halo

Type boolean, default False

use_ring
Renders rings over halo

Type boolean, default False

use_shaded
Lets halo receive light and shadows from external objects

Type boolean, default False

use_soft
Softens the edges of halos at intersections with other geometry

Type boolean, default False

use_star
Renders halo as a star

Type boolean, default False

use_texture
Gives halo a texture

Type boolean, default False

use_vertex_normal
Uses the vertex normal to specify the dimension of the halo

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Material.halo

1.3.290 MaterialPhysics(bpy_struct)

base class — bpy_struct

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

Physics settings for a Material datablock

damping

Damping of the spring force, when inside the physics distance area

Type float in [0, 1], default 0.0

distance

Distance of the physics area

Type float in [0, 20], default 0.0

elasticity

Elasticity of collisions

Type float in [0, 1], default 0.0

force

Upward spring force, when inside the physics distance area

Type float in [0, 1], default 0.0

friction

Coulomb friction coefficient, when inside the physics distance area

Type float in [0, 100], default 0.0

use_normal_align

Align dynamic game objects along the surface normal, when inside the physics distance area

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- Material.physics

1.3.291 MaterialRaytraceMirror(bpy_struct)

base class — bpy_struct

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

Raytraced reflection settings for a Material datablock

depth

Maximum allowed number of light inter-reflections

Type int in [0, 10], default 0

distance

Maximum distance of reflected rays. Reflections further than this range fade to sky color or material color

Type float in [0, 10000], default 0.0

fade_to

The color that rays with no intersection within the Max Distance take. Material color can be best for indoor scenes, sky color for outdoor

Type enum in ['FADE_TO_SKY', 'FADE_TO_MATERIAL'], default 'FADE_TO_SKY'

fresnel

Power of Fresnel for mirror reflection

Type float in [0, 5], default 0.0

fresnel_factor

Blending factor for Fresnel

Type float in [0, 5], default 0.0

gloss_anisotropic

The shape of the reflection, from 0.0 (circular) to 1.0 (fully stretched along the tangent

Type float in [0, 1], default 0.0

gloss_factor

The shininess of the reflection. Values < 1.0 give diffuse, blurry reflections

Type float in [0, 1], default 0.0

gloss_samples

Number of cone samples averaged for blurry reflections

Type int in [0, 1024], default 0

gloss_threshold

Threshold for adaptive sampling. If a sample contributes less than this amount (as a percentage), sampling is stopped

Type float in [0, 1], default 0.0

reflect_factor

Sets the amount mirror reflection for raytrace

Type float in [0, 1], default 0.0

use
Enable raytraced reflections

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Material.raytrace_mirror

1.3.292 MaterialRaytraceTransparency(bpy_struct)

base class — bpy_struct

class bpy.types.**MaterialRaytraceTransparency**(*bpy_struct*)
Raytraced refraction settings for a Material datablock

depth
Maximum allowed number of light inter-refractions

Type int in [0, 10], default 0

depth_max
Maximum depth for light to travel through the transparent material before becoming fully filtered (0.0 is disabled)

Type float in [0, 100], default 0.0

falloff
Falloff power for transmissivity filter effect (1.0 is linear)

Type float in [0.1, 10], default 0.0

filter
Amount to blend in the material's diffuse color in raytraced transparency (simulating absorption)

Type float in [0, 1], default 0.0

fresnel
Power of Fresnel for transparency (Ray or ZTransp)

Type float in [0, 5], default 0.0

fresnel_factor
Blending factor for Fresnel

Type float in [1, 5], default 0.0

gloss_factor
The clarity of the refraction. Values < 1.0 give diffuse, blurry refractions

Type float in [0, 1], default 0.0

gloss_samples
Number of cone samples averaged for blurry refractions

Type int in [0, 1024], default 0

gloss_threshold
Threshold for adaptive sampling. If a sample contributes less than this amount (as a percentage), sampling is stopped

Type float in [0, 1], default 0.0

ior
Sets angular index of refraction for raytraced refraction

Type float in [1, 3], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- Material.raytrace_transparency

1.3.293 MaterialSlot(bpy_struct)

base class — bpy_struct

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

Material slot in an object

link

Link material to object or the object's data

Type enum in ['OBJECT', 'DATA'], default 'DATA'

material

Material datablock used by this material slot

Type Material

name

Material slot name

Type string, default "", (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.material_slots

1.3.294 MaterialStrand(bpy_struct)

base class — bpy_struct

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

Strand settings for a Material datablock

blend_distance

Worldspace distance over which to blend in the surface normal

Type float in [0, 10], default 0.0

root_size

Start size of strands in pixels or Blender units

Type float in [0, inf], default 0.0

shape

Positive values make strands rounder, negative makes strands spiky

Type float in [-0.9, 0.9], default 0.0

size_min

Minimum size of strands in pixels

Type float in [0.001, 10], default 0.0

tip_size

End size of strands in pixels or Blender units

Type float in [0, inf], default 0.0

use_blender_units

Use Blender units for widths instead of pixels

Type boolean, default False

use_surface_diffuse

Make diffuse shading more similar to shading the surface

Type boolean, default False

use_tangent_shading

Uses direction of strands as normal for tangent-shading

Type boolean, default False

uv_layer

Name of UV layer to override

Type string, default “”

width_fade

Transparency along the width of the strand

Type float in [0, 2], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Material.strand

1.3.295 MaterialSubsurfaceScattering(bpy_struct)

base class — bpy_struct

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

Diffuse subsurface scattering settings for a Material datablock

back

Back scattering weight

Type float in [0, 10], default 0.0

color

Scattering color

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

color_factor

Blend factor for SSS colors

Type float in [0, 1], default 0.0

error_threshold

Error tolerance (low values are slower and higher quality)

Type float in [-inf, inf], default 0.0

front
Front scattering weight

Type float in [0, 2], default 0.0

ior
Index of refraction (higher values are denser)

Type float in [-inf, inf], default 0.0

radius
Mean red/green/blue scattering path length

Type float array of 3 items in [0.001, inf], default (0.0, 0.0, 0.0)

scale
Object scale factor

Type float in [-inf, inf], default 0.0

texture_factor
Texture scatting blend factor

Type float in [0, 1], default 0.0

use
Enable diffuse subsurface scatting effects in a material

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Material.subsurface_scattering

1.3.296 MaterialTextureSlot(TextureSlot)

base classes — bpy_struct, TextureSlot

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

Texture slot for textures in a Material datablock

alpha_factor

Amount texture affects alpha

Type float in [-inf, inf], default 0.0

ambient_factor

Amount texture affects ambient

Type float in [-inf, inf], default 0.0

density_factor

Amount texture affects density

Type float in [-inf, inf], default 0.0

diffuse_color_factor

Amount texture affects diffuse color

Type float in [-inf, inf], default 0.0

diffuse_factor

Amount texture affects diffuse reflectivity

Type float in [-inf, inf], default 0.0

displacement_factor

Amount texture displaces the surface

Type float in [-inf, inf], default 0.0

emission_color_factor

Amount texture affects emission color

Type float in [-inf, inf], default 0.0

emission_factor

Amount texture affects emission

Type float in [-inf, inf], default 0.0

emit_factor

Amount texture affects emission

Type float in [-inf, inf], default 0.0

hardness_factor

Amount texture affects hardness

Type float in [-inf, inf], default 0.0

mapping

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

mapping_x

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

mapping_y

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

mapping_z

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

mirror_factor
Amount texture affects mirror color

Type float in [-inf, inf], default 0.0

normal_factor
Amount texture affects normal values

Type float in [-inf, inf], default 0.0

normal_map_space

Type enum in ['CAMERA', 'WORLD', 'OBJECT', 'TANGENT'], default 'CAMERA'

object
Object to use for mapping with Object texture coordinates

Type Object

raymir_factor
Amount texture affects ray mirror

Type float in [-inf, inf], default 0.0

reflection_color_factor
Amount texture affects color of out-scattered light

Type float in [-inf, inf], default 0.0

reflection_factor
Amount texture affects brightness of out-scattered light

Type float in [-inf, inf], default 0.0

scattering_factor
Amount texture affects scattering

Type float in [-inf, inf], default 0.0

specular_color_factor
Amount texture affects specular color

Type float in [-inf, inf], default 0.0

specular_factor
Amount texture affects specular reflectivity

Type float in [-inf, inf], default 0.0

texture_coords

Type enum in ['GLOBAL', 'OBJECT', 'UV', 'ORCO', 'STRAND', 'STICKY', 'WINDOW', 'NORMAL', 'REFLECTION', 'STRESS', 'TANGENT'], default 'GLOBAL'

translucency_factor
Amount texture affects translucency

Type float in [-inf, inf], default 0.0

transmission_color_factor
Amount texture affects result color after light has been scattered/absorbed

Type float in [-inf, inf], default 0.0

use
Enable this material texture slot

Type boolean, default False

use_from_dupli
Dupli's instanced from verts, faces or particles, inherit texture coordinate from their parent

Type boolean, default False

use_from_original
Dupli's derive their object coordinates from the original objects transformation

Type boolean, default False

use_map_alpha
Causes the texture to affect the alpha value

Type boolean, default False

use_map_ambient
Causes the texture to affect the value of ambient

Type boolean, default False

use_map_color_diffuse
Causes the texture to affect basic color of the material

Type boolean, default False

use_map_color_emission
Causes the texture to affect the color of emission

Type boolean, default False

use_map_color_reflection
Causes the texture to affect the color of scattered light

Type boolean, default False

use_map_color_spec
Causes the texture to affect the specularity color

Type boolean, default False

use_map_color_transmission
Causes the texture to affect the result color after other light has been scattered/absorbed

Type boolean, default False

use_map_density
Causes the texture to affect the volume's density

Type boolean, default False

use_map_diffuse
Causes the texture to affect the value of the materials diffuse reflectivity

Type boolean, default False

use_map_displacement
Let the texture displace the surface

Type boolean, default False

use_map_emission
Causes the texture to affect the volume's emission

Type boolean, default False

use_map_emit
Causes the texture to affect the emit value

Type boolean, default False

use_map_hardness
Causes the texture to affect the hardness value

Type boolean, default False

use_map_mirror
Causes the texture to affect the mirror color

Type boolean, default False

use_map_normal
Causes the texture to affect the rendered normal

Type boolean, default False

use_map_raymir
Causes the texture to affect the ray-mirror value

Type boolean, default False

use_map_reflect
Causes the texture to affect the reflected light's brightness

Type boolean, default False

use_map_scatter
Causes the texture to affect the volume's scattering

Type boolean, default False

use_map_specular
Causes the texture to affect the value of specular reflectivity

Type boolean, default False

use_map_translucency
Causes the texture to affect the translucency value

Type boolean, default False

use_map_warp
Let the texture warp texture coordinates of next channels

Type boolean, default False

use_old_bump
Use old bump mapping (backwards compatibility option)

Type boolean, default False

uv_layer
UV layer to use for mapping with UV texture coordinates

Type string, default ""

warp_factor
Amount texture affects texture coordinates of next channels

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- TextureSlot.name
- TextureSlot.blend_type
- TextureSlot.color
- TextureSlot.default_value
- TextureSlot.invert
- TextureSlot.offset
- TextureSlot.output_node
- TextureSlot.use_rgb_to_intensity
- TextureSlot.scale
- TextureSlot.use_stencil
- TextureSlot.texture

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Material.texture_slots

1.3.297 MaterialVolume(bpy_struct)

base class — bpy_struct

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

Volume rendering settings for a Material datablock

asymmetry

Back scattering (-1.0) to Forward scattering (1.0) and the range in between

Type float in [-1, 1], default 0.0

cache_resolution
Resolution of the voxel grid, low resolutions are faster, high resolutions use more memory

Type int in [0, 1024], default 0

density
The base density of the volume

Type float in [0, 1], default 0.0

density_scale
Multiplier for the material's density

Type float in [0, inf], default 0.0

depth_threshold
Stop ray marching early if transmission drops below this luminance - higher values give speedups in dense volumes at the expense of accuracy

Type float in [0, 1], default 0.0

emission
Amount of light that gets emitted by the volume

Type float in [0, inf], default 0.0

emission_color

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

light_method
Method of shading, attenuating, and scattering light through the volume

Type enum in ['SHADELESS', 'SHADOWED', 'SHADED', 'MULTIPLE_SCATTERING', 'SHADED_PLUS_MULTIPLE_SCATTERING'], default 'SHADELESS'

ms_diffusion
Diffusion factor, the strength of the blurring effect

Type float in [0, inf], default 0.0

ms_intensity
Multiplier for multiple scattered light energy

Type float in [0, inf], default 0.0

ms_spread
Proportional distance over which the light is diffused

Type float in [0, inf], default 0.0

reflection
Multiplier to make out-scattered light brighter or darker (non-physically correct)

Type float in [0, inf], default 0.0

reflection_color
Colour of light scattered out of the volume (does not affect transmission)

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scattering
Amount of light that gets scattered out by the volume - the more out-scattering, the shallower the light will penetrate

Type float in [0, inf], default 0.0

step_method
Method of calculating the steps through the volume

Type enum in ['RANDOMIZED', 'CONSTANT'], default 'RANDOMIZED'

step_size
Distance between subsequent volume depth samples

Type float in [0, inf], default 0.0

transmission_color
Result color of the volume, after other light has been scattered/absorbed

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

use_external_shadows
Receive shadows from sources outside the volume (temporary)

Type boolean, default False

use_light_cache
Pre-calculate the shading information into a voxel grid, speeds up shading at slightly less accuracy

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Material.volume

1.3.298 Menu(bpy_struct)

base class — bpy_struct

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

Editor menu containing buttons

bl_idname

If this is set, the menu 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_MT_hello", and bl_idname is not set by the script, then bl_idname = "OBJECT_MT_hello"

Type string, default ""

bl_label

The menu label

Type string, default ""

layout

Defines the structure of the menu in the UI.

Type UILayout, (readonly)

classmethod poll(*context*)

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

Return type boolean

draw(*context*)

Draw UI elements into the menu UI layout.

classmethod append(*draw_func*)

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

draw_preset(*context*)

Define these on the subclass - preset_operator - preset_subdir

path_menu(*searchpaths*, *operator*, *props_default={}*)

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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.299 Mesh(ID)

base classes — bpy_struct, ID

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

Mesh datablock defining geometric surfaces

animation_data

Animation data for this datablock

Type AnimData, (readonly)

auto_smooth_angle

Defines maximum angle between face normals that 'Auto Smooth' will operate on

Type int in [1, 80], default 0

edges

Edges of the mesh

Type MeshEdges collection of MeshEdge, (readonly)

faces

Faces of the mesh

Type MeshFaces collection of MeshFace, (readonly)

layers_float

Type Collection of MeshFloatPropertyLayer, (readonly)

layers_int

Type Collection of MeshIntPropertyLayer, (readonly)

layers_string

Type Collection of MeshStringPropertyLayer, (readonly)

materials

Type IDMaterials collection of Material, (readonly)

shape_keys

Type Key, (readonly)

show_all_edges

Displays all edges for wireframe in all view modes in the 3D view

Type boolean, default False

show_double_sided
Render/display the mesh with double or single sided lighting

Type boolean, default False

show_edge_bevel_weight
Displays weights created for the Bevel modifier

Type boolean, default False

show_edge_crease
Displays creases created for subsurf weighting

Type boolean, default False

show_edge_seams
Displays UV unwrapping seams

Type boolean, default False

show_edge_sharp
Displays sharp edges, used with the EdgeSplit modifier

Type boolean, default False

show_edges
Displays selected edges using highlights in the 3D view and UV editor

Type boolean, default False

show_extra_edge_angle
Displays the angles in the selected edges in degrees, Using global values when set in the transform panel

Type boolean, default False

show_extra_edge_length
Displays selected edge lengths, Using global values when set in the transform panel

Type boolean, default False

show_extra_face_area
Displays the area of selected faces, Using global values when set in the transform panel

Type boolean, default False

show_faces
Displays all faces as shades in the 3D view and UV editor

Type boolean, default False

show_normal_face
Displays face normals as lines

Type boolean, default False

show_normal_vertex
Displays vertex normals as lines

Type boolean, default False

sticky
Sticky texture coordinates

Type Collection of MeshSticky, (readonly)

texco_mesh
Derive texture coordinates from another mesh

Type Mesh

texspace_location
Texture space location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

texspace_size
Texture space size

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

texture_mesh
Use another mesh for texture indices (vertex indices must be aligned)

Type Mesh

total_edge_sel
Selected edge count in editmode

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

total_face_sel
Selected face count in editmode

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

total_vert_sel
Selected vertex count in editmode

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

use_auto_smooth
Treats all set-smoothed faces with angles less than the specified angle as 'smooth' during render

Type boolean, default False

use_auto_texspace
Adjusts active object's texture space automatically when transforming object

Type boolean, default False

use_mirror_topology
Use topology based mirroring

Type boolean, default False

use_mirror_x
X Axis mirror editing

Type boolean, default False

use_paint_mask
Face selection masking for painting

Type boolean, default False

uv_texture_clone
UV texture to be used as cloning source

Type MeshTextureFaceLayer

uv_texture_clone_index
Clone UV texture index

Type int in [0, inf], default 0

uv_texture_stencil
UV texture to mask the painted area

Type MeshTextureFaceLayer

uv_texture_stencil_index
Mask UV texture index

Type int in [0, inf], default 0

uv_textures

Type UVTextures collection of MeshTextureFaceLayer, (readonly)

vertex_colors

Type VertexColors collection of MeshColorLayer, (readonly)

vertices
Vertices of the mesh

Type MeshVertices collection of MeshVertex, (readonly)

edge_face_count
(readonly)

edge_face_count_dict
(readonly)

edge_keys
(readonly)

transform(*matrix*)
Transform mesh vertices by a matrix.

Parameters

- **matrix** (*float array of 16 items in [-inf, inf]*) – Matrix.

calc_normals()
Calculate vertex normals.

update(*calc_edges=False*)
update

Parameters

- **calc_edges** (*boolean, (optional)*) – Calculate Edges, Force recalculation of edges.

edge_loops_from_edges(*edges=None*)
Edge loops defined by edges

Takes me.edges or a list of edges and returns the edge loops

return a list of vertex indices. [[1, 6, 7, 2], ...]

closed loops have matching start and end values.

edge_loops_from_faces(*faces=None*, *seams=()*)
Edge loops defined by faces

Takes me.faces or a list of faces and returns the edge loops These edge loops are the edges that sit between quads, so they dont touch 1 quad, note: not connected will make 2 edge loops, both only containing 2 edges.

return a list of edge key lists [[(0,1), (4, 8), (3,8)], ...]

return a list of edge vertex index lists

from_pydata(*verts*, *edges*, *faces*)
Make a mesh from a list of verts/edges/faces Until we have a nicer way to make geometry, use this.

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.meshes
- EditObjectActuator.mesh
- MainMeshes.new
- MainMeshes.remove
- Mesh.texco_mesh
- Mesh.texture_mesh
- Object.create_mesh

1.3.300 MeshColor(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshColor**(*bpy_struct*)
Vertex colors for a face in a Mesh

color1

Type float array of 3 items in [0, 1], default (0.0, 0.0, 0.0)

color2

Type float array of 3 items in [0, 1], default (0.0, 0.0, 0.0)

color3

Type float array of 3 items in [0, 1], default (0.0, 0.0, 0.0)

color4

Type float array of 3 items in [0, 1], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MeshColorLayer.data

1.3.301 MeshColorLayer(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshColorLayer**(*bpy_struct*)
Layer of vertex colors in a Mesh datablock

active
Sets the layer as active for display and editing

Type boolean, default False

active_render
Sets the layer as active for rendering

Type boolean, default False

data

Type Collection of MeshColor, (readonly)

name

Type string, default ""

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.vertex_colors
- VertexColors.active
- VertexColors.new

1.3.302 MeshDeformModifier(Modifier)

base classes — bpy_struct, Modifier

class bpy.types.**MeshDeformModifier**(*Modifier*)
Mesh deformation modifier to deform with other meshes

invert_vertex_group
Invert vertex group influence

Type boolean, default False

is_bound
Whether geometry has been bound to control cage

Type boolean, default False, (readonly)

object
Mesh object to deform with

Type Object

precision
The grid size for binding

Type int in [2, 10], default 0

use_dynamic_bind
Recompute binding dynamically on top of other deformers (slower and more memory consuming.)

Type boolean, default False

vertex_group
Vertex group name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.303 MeshEdge(bpy_struct)

base class — bpy_struct

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

Edge in a Mesh datablock

bevel_weight

Weight used by the Bevel modifier

Type float in [-inf, inf], default 0.0

crease

Weight used by the Subsurf modifier for creasing

Type float in [-inf, inf], default 0.0

hide

Type boolean, default False

index

Index number of the vertex

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

is_fgon

Fgon edge

Type boolean, default False

is_loose

Loose edge

Type boolean, default False

select

Type boolean, default False

use_edge_sharp

Sharp edge for the EdgeSplit modifier

Type boolean, default False

use_seam

Seam edge for UV unwrapping

Type boolean, default False

vertices

Vertex indices

Type int array of 2 items in [0, inf], default (0, 0)

key

(readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.edges

1.3.304 MeshEdges(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshEdges**(*bpy_struct*)
Collection of mesh edges

add(*count=0*)
add

Parameters

- **count** (*int in [0, inf], (optional)*) – Count, Number of vertices to add.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.edges

1.3.305 MeshFace(bpy_struct)

base class — bpy_struct

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

Face in a Mesh datablock

area

read only area of the face

Type float in [0, inf], default 0.0, (readonly)

hide

Type boolean, default False

index

Index number of the vertex

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

material_index

Type int in [0, 32767], default 0

normal

local space unit length normal vector for this face

Type float array of 3 items in [-1, 1], default (0.0, 0.0, 0.0), (readonly)

select

Type boolean, default False

use_smooth

Type boolean, default False

vertices

Vertex indices

Type int array of 4 items in [0, inf], default (0, 0, 0, 0)

vertices_raw

Fixed size vertex indices array

Type int array of 4 items in [0, inf], default (0, 0, 0, 0)

center
The midpoint of the face. (readonly)

edge_keys
(readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.faces

1.3.306 MeshFaces(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshFaces**(*bpy_struct*)
Collection of mesh faces

active
The active face for this mesh

Type int in [-inf, inf], default 0

active_tface
Active Texture Face

Type MeshTextureFace, (readonly)

add(*count=0*)
add

Parameters

- **count** (*int in [0, inf], (optional)*) – Count, Number of vertices to add.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.faces

1.3.307 MeshFloatProperty(bpy_struct)

base class — bpy_struct

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

User defined floating point number value in a float properties layer

value

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MeshFloatPropertyLayer.data

1.3.308 MeshFloatPropertyLayer(bpy_struct)

base class — bpy_struct

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

User defined layer of floating pointer number values

data

Type Collection of MeshFloatProperty, (readonly)

name

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.layers_float

1.3.309 MeshIntProperty(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshIntProperty**(*bpy_struct*)
User defined integer number value in an integer properties layer

value

Type int in [-inf, inf], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MeshIntPropertyLayer.data

1.3.310 MeshIntPropertyLayer(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshIntPropertyLayer**(*bpy_struct*)
User defined layer of integer number values

data

Type Collection of MeshIntProperty, (readonly)

name

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.layers_int

1.3.311 MeshSticky(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshSticky**(*bpy_struct*)
Stricky texture coordinate

co
Sticky texture coordinate location

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.sticky

1.3.312 MeshStringProperty(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshStringProperty**(*bpy_struct*)
User defined string text value in a string properties layer

value

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MeshStringPropertyLayer.data

1.3.313 MeshStringPropertyLayer(bpy_struct)

base class — bpy_struct

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

User defined layer of string text values

data

Type Collection of MeshStringProperty, (readonly)

name

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.layers_string

1.3.314 MeshTextureFace(bpy_struct)

base class — bpy_struct

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

UV mapping, texturing and game engine data for a face

blend_type

Transparency blending mode

Type enum in ['OPAQUE', 'ADD', 'ALPHA', 'CLIPALPHA'], default 'OPAQUE'

hide

Make face invisible

Type boolean, default False

image

Type Image

pin_uv

Type boolean array of 4 items, default (False, False, False, False)

select_uv

Type boolean array of 4 items, default (False, False, False, False)

use_alpha_sort

Enable sorting of faces for correct alpha drawing (slow, use Clip Alpha instead when possible)

Type boolean, default False

use_billboard

Billboard with Z-axis constraint

Type boolean, default False

use_bitmap_text

Enable bitmap text on face

Type boolean, default False

use_blend_shared

Blend vertex colors across face when vertices are shared

Type boolean, default False

use_collision

Use face for collision and ray-sensor detection

Type boolean, default False

use_halo

Screen aligned billboard

Type boolean, default False

use_image

Render face with texture

Type boolean, default False

use_light
Use light for face

Type boolean, default False

use_object_color
Use ObColor instead of vertex colors

Type boolean, default False

use_shadow_cast
Face is used for shadow

Type boolean, default False

use_twoside
Render face two-sided

Type boolean, default False

uv

Type float array of 8 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

uv1

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

uv2

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

uv3

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

uv4

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

uv_raw
Fixed size UV coordinates array

Type float array of 8 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MeshFaces.active_tface
- MeshTextureFaceLayer.data

1.3.315 MeshTextureFaceLayer(bpy_struct)

base class — bpy_struct

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

Layer of texture faces in a Mesh datablock

active

Sets the layer as active for display and editing

Type boolean, default False

active_clone

Sets the layer as active for cloning

Type boolean, default False

active_render

Sets the layer as active for rendering

Type boolean, default False

data

Type Collection of MeshTextureFace, (readonly)

name

Type string, default ""

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.uv_texture_clone
- Mesh.uv_texture_stencil
- Mesh.uv_textures
- UVTextures.active
- UVTextures.new

1.3.316 MeshVertex(bpy_struct)

base class — bpy_struct

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

Vertex in a Mesh datablock

bevel_weight

Weight used by the Bevel modifier 'Only Vertices' option

Type float in [-inf, inf], default 0.0

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

groups

Weights for the vertex groups this vertex is member of

Type Collection of VertexGroupElement, (readonly)

hide

Type boolean, default False

index

Index number of the vertex

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

normal

Vertex Normal

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

select

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.vertices

1.3.317 MeshVertices(bpy_struct)

base class — bpy_struct

class bpy.types.**MeshVertices**(*bpy_struct*)
Collection of mesh vertices

add(*count=0*)
add

Parameters

- **count** (*int in [0, inf], (optional)*) – Count, Number of vertices to add.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.vertices

1.3.318 MessageActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**MessageActuator**(*Actuator*)

Actuator to ..

body_message

Optional message body Text

Type string, default “”

body_property

The message body will be set by the Property Value

Type string, default “”

body_type

Toggle message type: either Text or a PropertyName

Type enum in [’TEXT’, ‘PROPERTY’], default ‘TEXT’

subject

Optional message subject. This is what can be filtered on

Type string, default “”

to_property

Optional send message to objects with this name only, or empty to broadcast

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin

- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.319 MessageSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**MessageSensor**(*Sensor*)

Sensor to detect incoming messages

subject

Optional subject filter: only accept messages with this subject, or empty for all

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.320 MetaBall(ID)

base classes — bpy_struct, ID

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

Metaball datablock to defined blobby surfaces

animation_data

Animation data for this datablock

Type AnimData, (readonly)

elements

Meta elements

Type MetaBallElements collection of MetaElement, (readonly)

materials

Type IDMaterials collection of Material, (readonly)

render_resolution

Polygonization resolution in rendering

Type float in [0.05, 1], default 0.0

resolution

Polygonization resolution in the 3D viewport

Type float in [0.05, 1], default 0.0

texspace_location

Texture space location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

texspace_size

Texture space size

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

threshold
Influence of meta elements

Type float in [0, 5], default 0.0

update_method
Metaball edit update behavior

Type enum in ['UPDATE_ALWAYS', 'HALFRES', 'FAST', 'NEVER'], default 'UPDATE_ALWAYS'

use_auto_texspace
Adjusts active object's texture space automatically when transforming object

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.metaballs

- MainMetaBalls.new
- MainMetaBalls.remove

1.3.321 MetaBallElements(bpy_struct)

base class — bpy_struct

class bpy.types.**MetaBallElements**(*bpy_struct*)
Collection of metaball elements

active
Last selected element

Type MetaElement, (readonly)

new(*type='BALL'*)
Add a new spline to the curve.

Parameters

- **type** (*enum in ['BALL', 'CAPSULE', 'PLANE', 'ELLIPSOID', 'CUBE'], (optional)*) – type for the new meta element.

Returns The newly created metaelement.

Return type MetaElement

remove(*element*)
Remove a spline from a curve.

Parameters

- **element** (MetaElement, (never None)) – The element to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MetaBall.elements

1.3.322 MetaElement(bpy_struct)

base class — bpy_struct

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

Blobby element in a MetaBall datablock

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

hide

Hide element

Type boolean, default False

radius

Type float in [0, inf], default 0.0

rotation

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

size_x

Size of element, use of components depends on element type

Type float in [0, 20], default 0.0

size_y

Size of element, use of components depends on element type

Type float in [0, 20], default 0.0

size_z

Size of element, use of components depends on element type

Type float in [0, 20], default 0.0

stiffness

Stiffness defines how much of the element to fill

Type float in [0, 10], default 0.0

type

Metaball types

Type enum in ['BALL', 'CAPSULE', 'PLANE', 'ELLIPSOID', 'CUBE'], default 'BALL'

use_negative

Set metaball as negative one

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MetaBall.elements
- MetaBallElements.active
- MetaBallElements.new
- MetaBallElements.remove

1.3.323 MetaSequence(Sequence)

base classes — bpy_struct, Sequence

class bpy.types.**MetaSequence**(*Sequence*)

Sequence strip to group other strips as a single sequence strip

animation_offset_end

Animation end offset (trim end)

Type int in [0, inf], default 0

animation_offset_start

Animation start offset (trim start)

Type int in [0, inf], default 0

color_balance

Type SequenceColorBalance, (readonly)

color_multiply

Type float in [0, 20], default 0.0

color_saturation

Type float in [0, 20], default 0.0

crop

Type SequenceCrop, (readonly)

proxy

Type SequenceProxy, (readonly)

sequences

Type Collection of Sequence, (readonly)

strobe
Only display every nth frame

Type float in [1, 30], default 0.0

transform

Type SequenceTransform, (readonly)

use_color_balance
(3-Way color correction) on input

Type boolean, default False

use_crop
Crop image before processing

Type boolean, default False

use_deinterlace
For video movies to remove fields

Type boolean, default False

use_flip_x
Flip on the X axis

Type boolean, default False

use_flip_y
Flip on the Y axis

Type boolean, default False

use_float
Convert input to float data

Type boolean, default False

use_premultiply
Convert RGB from key alpha to premultiplied alpha

Type boolean, default False

use_proxy
Use a preview proxy for this strip

Type boolean, default False

use_proxy_custom_directory
Use a custom directory to store data

Type boolean, default False

use_proxy_custom_file
Use a custom file to read proxy data from

Type boolean, default False

use_reverse_frames
Reverse frame order

Type boolean, default False

use_translation
Translate image before processing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.324 MirrorModifier(Modifier)

base classes — bpy_struct, Modifier

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

Mirroring modifier

merge_threshold

Distance from axis within which mirrored vertices are merged

Type float in [0, inf], default 0.0

mirror_object

Object to use as mirror

Type Object

use_clip

Prevents vertices from going through the mirror during transform

Type boolean, default False

use_mirror_u

Mirror the U texture coordinate around the 0.5 point

Type boolean, default False

use_mirror_v

Mirror the V texture coordinate around the 0.5 point

Type boolean, default False

use_mirror_vertex_groups

Mirror vertex groups (e.g. .R->.L)

Type boolean, default False

use_x

Enable X axis mirror

Type boolean, default False

use_y

Enable Y axis mirror

Type boolean, default False

use_z

Enable Z axis mirror

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode

- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.325 Modifier(bpy_struct)

base class — bpy_struct

subclasses — FluidSimulationModifier, BevelModifier, SolidifyModifier, SmokeModifier, UVProjectModifier, DecimateModifier, ExplodeModifier, SmoothModifier, SoftBodyModifier, BooleanModifier, ArrayModifier, LatticeModifier, BuildModifier, ClothModifier, ParticleSystemModifier, SubsurfModifier, CurveModifier, ScrewModifier, MaskModifier, ShrinkwrapModifier, CollisionModifier, CastModifier, WaveModifier, ParticleInstanceModifier, SurfaceModifier, SimpleDeformModifier, DisplaceModifier, ArmatureModifier, MeshDeformModifier, HookModifier, EdgeSplitModifier, MultiresModifier, MirrorModifier

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

Modifier affecting the geometry data of an object

name

Modifier name

Type string, default ""

show_expanded

Set modifier expanded in the user interface

Type boolean, default False

show_in_editmode

Use modifier while in the edit mode

Type boolean, default False

show_on_cage
Enable direct editing of modifier control cage

Type boolean, default False

show_render
Use modifier during rendering

Type boolean, default False

show_viewport
Realtime display of a modifier

Type boolean, default False

type

Type enum in ['ARRAY', 'BEVEL', 'BOOLEAN', 'BUILD', 'DECIMATE', 'EDGE_SPLIT', 'MASK', 'MIRROR', 'MULTIRES', 'SCREW', 'SOLIDIFY', 'SUBSURF', 'UV_PROJECT', 'ARMATURE', 'CAST', 'CURVE', 'DISPLACE', 'HOOK', 'LATTICE', 'MESH_DEFORM', 'SHRINKWRAP', 'SIMPLE_DEFORM', 'SMOOTH', 'WAVE', 'CLOTH', 'COLLISION', 'EXPLODE', 'FLUID_SIMULATION', 'PARTICLE_INSTANCE', 'PARTICLE_SYSTEM', 'SMOKE', 'SOFT_BODY', 'SURFACE'], default 'ARRAY', (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.modifiers
- ObjectModifiers.new
- ObjectModifiers.remove
- UILayout.template_modifier

1.3.326 MotionPath(bpy_struct)

base class — bpy_struct

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

Cache of the worldspace positions of an element over a frame range

frame_end

End frame of the stored range

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

frame_start

Starting frame of the stored range

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

is_modified

Path is being edited

Type boolean, default False

length

Number of frames cached

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

points

Cached positions per frame

Type Collection of MotionPathVert, (readonly)

use_bone_head

For PoseBone paths, use the bone head location when calculating this path

Type boolean, default False, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- Object.motion_path
- PoseBone.motion_path

1.3.327 MotionPathVert(bpy_struct)

base class — bpy_struct

class bpy.types.**MotionPathVert** (*bpy_struct*)
Cached location on path

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

select
Path point is selected for editing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MotionPath.points

1.3.328 MouseSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**MouseSensor**(*Sensor*)
Sensor to detect mouse events

mouse_event
Specify the type of event this mouse sensor should trigger on

Type enum in ['LEFTCLICK', 'MIDDLECLICK', 'RIGHTCLICK', 'WHEELUP', 'WHEELDOWN', 'MOVEMENT', 'MOUSEOVER', 'MOUSEOVERANY'], default 'LEFTCLICK'

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.329 MovieSequence(Sequence)

base classes — bpy_struct, Sequence

class bpy.types.**MovieSequence**(*Sequence*)
Sequence strip to load a video

animation_offset_end
Animation end offset (trim end)

Type int in [0, inf], default 0

animation_offset_start
Animation start offset (trim start)

Type int in [0, inf], default 0

color_balance

Type SequenceColorBalance, (readonly)

color_multiply

Type float in [0, 20], default 0.0

color_saturation

Type float in [0, 20], default 0.0

crop

Type SequenceCrop, (readonly)

filepath

Type string, default “”

mpeg_preseek
For MPEG movies, preseek this many frames

Type int in [0, 50], default 0

proxy

Type SequenceProxy, (readonly)

strobe
Only display every nth frame

Type float in [1, 30], default 0.0

transform

Type SequenceTransform, (readonly)

use_color_balance
(3-Way color correction) on input

Type boolean, default False

use_crop
Crop image before processing

Type boolean, default False

use_deinterlace
For video movies to remove fields

Type boolean, default False

use_flip_x
Flip on the X axis

Type boolean, default False

use_flip_y
Flip on the Y axis

Type boolean, default False

use_float
Convert input to float data

Type boolean, default False

use_premultiply
Convert RGB from key alpha to premultiplied alpha

Type boolean, default False

use_proxy
Use a preview proxy for this strip

Type boolean, default False

use_proxy_custom_directory
Use a custom directory to store data

Type boolean, default False

use_proxy_custom_file
Use a custom file to read proxy data from

Type boolean, default False

use_reverse_frames
Reverse frame order

Type boolean, default False

use_translation
Translate image before processing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader

- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.330 MulticamSequence(Sequence)

base classes — bpy_struct, Sequence

class bpy.types.**MulticamSequence**(*Sequence*)

Sequence strip to perform multicam editing: select channel from below

animation_offset_end

Animation end offset (trim end)

Type int in [0, inf], default 0

animation_offset_start

Animation start offset (trim start)

Type int in [0, inf], default 0

color_balance

Type SequenceColorBalance, (readonly)

color_multiply

Type float in [0, 20], default 0.0

color_saturation

Type float in [0, 20], default 0.0

crop

Type SequenceCrop, (readonly)

multicam_source

Type int in [0, 31], default 0

proxy

Type SequenceProxy, (readonly)

strobe
Only display every nth frame

Type float in [1, 30], default 0.0

transform

Type SequenceTransform, (readonly)

use_color_balance
(3-Way color correction) on input

Type boolean, default False

use_crop
Crop image before processing

Type boolean, default False

use_deinterlace
For video movies to remove fields

Type boolean, default False

use_flip_x
Flip on the X axis

Type boolean, default False

use_flip_y
Flip on the Y axis

Type boolean, default False

use_float
Convert input to float data

Type boolean, default False

use_premultiply
Convert RGB from key alpha to premultiplied alpha

Type boolean, default False

use_proxy
Use a preview proxy for this strip

Type boolean, default False

use_proxy_custom_directory
Use a custom directory to store data

Type boolean, default False

use_proxy_custom_file
Use a custom file to read proxy data from

Type boolean, default False

use_reverse_frames
Reverse frame order

Type boolean, default False

use_translation
Translate image before processing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.331 MultiresModifier(Modifier)

base classes — bpy_struct, Modifier

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

Multiresolution mesh modifier

filepath

Path to external displacements file

Type string, default ""

is_external

Store multires displacements outside the .blend file, to save memory

Type boolean, default False, (readonly)

levels

Number of subdivisions to use in the viewport

Type int in [0, 255], default 0

render_levels

Type int in [0, 255], default 0

sculpt_levels

Number of subdivisions to use in sculpt mode

Type int in [0, 255], default 0

show_only_control_edges

Skip drawing/rendering of interior subdivided edges

Type boolean, default False

subdivision_type

Selects type of subdivision algorithm

Type enum in ['CATMULL_CLARK', 'SIMPLE'], default 'CATMULL_CLARK'

total_levels

Number of subdivisions for which displacements are stored

Type int in [0, 255], default 0, (readonly)

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.332 MusgraveTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**MusgraveTexture**(*Texture*)

Procedural musgrave texture

dimension_max

Highest fractal dimension

Type float in [0.0001, 2], default 0.0

gain

The gain multiplier

Type float in [0, 6], default 0.0

lacunarity

Gap between successive frequencies

Type float in [0, 6], default 0.0

musgrave_type

Type enum in ['MULTIFRACTAL', 'RIDGED_MULTIFRACTAL', 'HYBRID_MULTIFRACTAL', 'FBM', 'HETERO_TERRAIN'], default 'MULTIFRACTAL'

nabla

Size of derivative offset used for calculating normal

Type float in [0.001, 0.1], default 0.0

noise_basis

Sets the noise basis used for turbulence

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

noise_intensity

Type float in [0, 10], default 0.0

noise_scale
Sets scaling for noise input

Type float in [0.0001, inf], default 0.0

octaves
Number of frequencies used

Type float in [0, 8], default 0.0

offset
The fractal offset

Type float in [0, 6], default 0.0

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.333 NET_RENDER(RenderEngine)

base classes — bpy_struct, RenderEngine

class bpy.types.**NET_RENDER**(*RenderEngine*)

render(*scene*)

render_client(*scene*)

render_master(*scene*)

render_slave(*scene*)

Inherited Properties

- bpy_struct.id_data
- RenderEngine.bl_idname
- RenderEngine.bl_label
- RenderEngine.bl_use_postprocess
- RenderEngine.bl_use_preview

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- RenderEngine.render
- RenderEngine.begin_result
- RenderEngine.update_result
- RenderEngine.end_result
- RenderEngine.test_break
- RenderEngine.update_stats

1.3.334 NandController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**NandController**(*Controller*)
Controller passing on events based on a logical NAND operation

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.335 NearSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**NearSensor**(*Sensor*)
Sensor to detect nearby objects

distance
Trigger distance

Type float in [0, 10000], default 0.0

property
Only look for objects with this property

Type string, default “”

reset_distance

Type float in [0, 10000], default 0.0

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.336 NetRenderJob(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

class bpy.types.**NetRenderJob**(*IDPropertyGroup*)

name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- NetRenderSettings.jobs

1.3.337 NetRenderSettings(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

class bpy.types.**NetRenderSettings**(*IDPropertyGroup*)

active_blacklisted_slave_index

Type int in [-1, 65535], default -1

active_job_index

Type int in [-1, 65535], default -1

active_slave_index

Type int in [-1, 65535], default -1

chunks
Number of frame to dispatch to each slave in one chunk

Type int in [1, 65535], default 5

job_category
Category of the job

Type string, default “”

job_id
id of the last sent render job

Type string, default “”

job_name
Name of the job

Type string, default “[default]”

jobs

Type Collection of NetRenderJob, (readonly)

mode
Mode of operation of this instance

Type enum in [’RENDER_CLIENT’, ‘RENDER_MASTER’, ‘RENDER_SLAVE’], default ‘RENDER_CLIENT’

path
Path for temporary files

Type string, default “/tmp/”

priority
Priority of the job

Type int in [1, 10], default 1

server_address
IP or name of the master render server

Type string, default “[default]”

server_port
port of the master render server

Type int in [1, 65535], default 8000

slaves

Type Collection of NetRenderSlave, (readonly)

slaves_blacklist

Type Collection of NetRenderSlave, (readonly)

use_master_broadcast
broadcast master server address on local network

Type boolean, default True

use_master_clear
delete saved files on exit

Type boolean, default False

use_slave_clear
delete downloaded files on exit

Type boolean, default True

use_slave_output_log
Output render text log to console as well as sending it to the master

Type boolean, default True

use_slave_thumb
Generate thumbnails on slaves instead of master

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.network_render

1.3.338 NetRenderSlave(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

class bpy.types.**NetRenderSlave**(*IDPropertyGroup*)

name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- NetRenderSettings.slaves
- NetRenderSettings.slaves_blacklist

1.3.339 NlaStrip(bpy_struct)

base class — bpy_struct

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

A container referencing an existing Action

action

Action referenced by this strip

Type Action

action_frame_end

Type float in [-inf, inf], default 0.0

action_frame_start

Type float in [-inf, inf], default 0.0

active
NLA Strip is active

Type boolean, default False, (readonly)

blend_in
Number of frames at start of strip to fade in influence

Type float in [-inf, inf], default 0.0

blend_out

Type float in [-inf, inf], default 0.0

blend_type
Method used for combining strip's result with accumulated result

Type enum in ['REPLACE', 'ADD', 'SUBTRACT', 'MULITPLY'], default 'REPLACE'

extrapolation
Action to take for gaps past the strip extents

Type enum in ['NOTHING', 'HOLD', 'HOLD_FORWARD'], default 'HOLD'

fcurves
F-Curves for controlling the strip's influence and timing

Type Collection of FCurve, (readonly)

frame_end

Type float in [-inf, inf], default 0.0

frame_start

Type float in [-inf, inf], default 0.0

influence
Amount the strip contributes to the current result

Type float in [0, 1], default 0.0

modifiers
Modifiers affecting all the F-Curves in the referenced Action

Type Collection of FModifier, (readonly)

mute
NLA Strip is not evaluated

Type boolean, default False

name

Type string, default ""

repeat
Number of times to repeat the action range

Type float in [0.1, 1000], default 0.0

scale
Scaling factor for action

Type float in [0.0001, 1000], default 0.0

select
NLA Strip is selected

Type boolean, default False

strip_time
Frame of referenced Action to evaluate

Type float in [-inf, inf], default 0.0

strips
NLA Strips that this strip acts as a container for (if it is of type Meta)

Type Collection of NlaStrip, (readonly)

type
Type of NLA Strip

Type enum in ['CLIP', 'TRANSITION', 'META'], default 'CLIP', (readonly)

use_animated_influence
Influence setting is controlled by an F-Curve rather than automatically determined

Type boolean, default False

use_animated_time
Strip time is controlled by an F-Curve rather than automatically determined

Type boolean, default False

use_animated_time_cyclic
Cycle the animated time within the action start & end

Type boolean, default False

use_auto_blend
Number of frames for Blending In/Out is automatically determined from overlapping strips

Type boolean, default False

use_reverse
NLA Strip is played back in reverse order (only when timing is automatically determined)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- NlaStrip.strips
- NlaTrack.strips

1.3.340 NlaTrack(bpy_struct)

base class — bpy_struct

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

A animation layer containing Actions referenced as NLA strips

active

NLA Track is active

Type boolean, default False, (readonly)

is_solo

NLA Track is evaluated itself (i.e. active Action and all other NLA Tracks in the same AnimData block are disabled)

Type boolean, default False, (readonly)

lock

NLA Track is locked

Type boolean, default False

mute

NLA Track is not evaluated

Type boolean, default False

name

Type string, default “”

select

NLA Track is selected

Type boolean, default False

strips

NLA Strips on this NLA-track

Type Collection of NlaStrip, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- AnimData.nla_tracks

1.3.341 Node(bpy_struct)

base class — bpy_struct

subclasses — TextureNode, ShaderNode, CompositorNode, NodeGroup

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

Node in a node tree

inputs

Type Collection of NodeSocket, (readonly)

location

Type float array of 2 items in [-10000, 10000], default (0.0, 0.0)

name

Node name

Type string, default “”

outputs

Type Collection of NodeSocket, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- NodeTree.nodes

1.3.342 NodeGroup(Node)

base classes — bpy_struct, Node

class bpy.types.**NodeGroup**(*Node*)

nodetree

Type NodeTree

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

1.3.343 NodeSocket(bpy_struct)

base class — bpy_struct

class bpy.types.**NodeSocket**(*bpy_struct*)
Input or output socket of a node

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Node.inputs
- Node.outputs

1.3.344 NodeTree(ID)

base classes — bpy_struct, ID

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

Node tree consisting of linked nodes used for materials, textures and compositing

animation_data

Animation data for this datablock

Type AnimData, (readonly)

grease_pencil

Grease Pencil datablock

Type GreasePencil

nodes

Type Collection of Node, (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.node_groups
- Material.node_tree

- NodeGroup.nodetree
- Scene.nodetree
- SpaceNodeEditor.nodetree
- Texture.node_tree

1.3.345 NoiseTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**NoiseTexture**(*Texture*)
Procedural noise texture

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.346 NorController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**NorController**(*Controller*)

Controller passing on events based on a logical NOR operation

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.347 Object(ID)

base classes — bpy_struct, ID

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

Object datablock defining an object in a scene

active_material

Active material being displayed

Type Material

active_material_index

Index of active material slot

Type int in [0, inf], default 0

active_shape_key

Current shape key

Type ShapeKey, (readonly)

active_shape_key_index

Current shape key index

Type int in [-32768, 32767], default 0

animation_data

Animation data for this datablock

Type AnimData, (readonly)

animation_visualisation

Animation data for this datablock

Type AnimViz, (readonly, never None)

bound_box

Objects bound box in object-space coordinates

Type float array of 24 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0), (readonly)

collision

Settings for using the objects as a collider in physics simulation

Type CollisionSettings, (readonly)

color

Object color and alpha, used when faces have the ObColor mode enabled

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

constraints

Constraints affecting the transformation of the object

Type ObjectConstraints collection of Constraint, (readonly)

data

Object data

Type ID

delta_location

Extra translation added to the location of the object

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

delta_rotation_euler
Extra rotation added to the rotation of the object (when using Euler rotations)

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

delta_rotation_quaternion
Extra rotation added to the rotation of the object (when using Quaternion rotations)

Type float array of 4 items in [-inf, inf], default (1.0, 0.0, 0.0, 0.0)

delta_scale
Extra scaling added to the scale of the object

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

dimensions
Absolute bounding box dimensions of the object

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

draw_bounds_type
Object boundary display type

Type enum in ['BOX', 'SPHERE', 'CYLINDER', 'CONE', 'POLYHEDRON', 'CAPSULE'], default 'BOX'

draw_type
Maximum draw type to display object with in viewport

Type enum in ['BOUNDS', 'WIRE', 'SOLID', 'TEXTURED'], default 'BOUNDS'

dupli_faces_scale
Scale the DupliFace objects

Type float in [0.001, 10000], default 0.0

dupli_frames_end
End frame for DupliFrames

Type int in [-300000, 300000], default 0

dupli_frames_off
Recurring frames to exclude from the Dupliframes

Type int in [0, 300000], default 0

dupli_frames_on
Number of frames to use between DupOff frames

Type int in [0, 300000], default 0

dupli_frames_start
Start frame for DupliFrames

Type int in [-300000, 300000], default 0

dupli_group
Instance an existing group

Type Group

dupli_list
Object duplis

Type Collection of DupliObject, (readonly)

dupli_type
If not None, object duplication method to use

Type enum in ['NONE', 'FRAMES', 'VERTS', 'FACES', 'GROUP'], default 'NONE'

empty_draw_size
Size of display for empties in the viewport

Type float in [0.0001, 1000], default 0.0

empty_draw_type
Viewport display style for empties

Type enum in ['ARROWS', 'SINGLE_ARROW', 'PLAIN_AXES', 'CIRCLE', 'CUBE', 'SPHERE', 'CONE'], default 'ARROWS'

field
Settings for using the objects as a field in physics simulation

Type FieldSettings, (readonly)

game
Game engine related settings for the object

Type GameObjectSettings, (readonly, never None)

grease_pencil
Grease Pencil datablock

Type GreasePencil

hide
Restrict visibility in the viewport

Type boolean, default False

hide_render
Restrict renderability

Type boolean, default False

hide_select
Restrict selection in the viewport

Type boolean, default False

is_duplicator

Type boolean, default False, (readonly)

layers
Layers the object is on

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

location
Location of the object

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

lock_location
Lock editing of location in the interface

Type boolean array of 3 items, default (False, False, False)

lock_rotation
Lock editing of rotation in the interface

Type boolean array of 3 items, default (False, False, False)

lock_rotation_w
Lock editing of 'angle' component of four-component rotations in the interface

Type boolean, default False

lock_rotations_4d
Lock editing of four component rotations by components (instead of as Eulers)

Type boolean, default False

lock_scale
Lock editing of scale in the interface

Type boolean array of 3 items, default (False, False, False)

material_slots
Material slots in the object

Type Collection of MaterialSlot, (readonly)

matrix_local
Parent relative transformation matrix

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

matrix_world
Worldspace transformation matrix

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

mode
Object interaction mode

Type enum in ['OBJECT', 'EDIT', 'SCULPT', 'VERTEX_PAINT', 'WEIGHT_PAINT', 'TEXTURE_PAINT', 'PARTICLE_EDIT', 'POSE'], default 'OBJECT', (readonly)

modifiers
Modifiers affecting the geometric data of the object

Type ObjectModifiers collection of Modifier, (readonly)

motion_path
Motion Path for this element

Type MotionPath, (readonly)

parent
Parent Object

Type Object

parent_bone
Name of parent bone in case of a bone parenting relation

Type string, default ""

parent_type
Type of parent relation

Type enum in ['OBJECT', 'CURVE', 'KEY', 'ARMATURE', 'LATTICE', 'VERTEX', 'VERTEX_3', 'BONE'], default 'OBJECT'

parent_vertices
Indices of vertices in cases of a vertex parenting relation

Type int array of 3 items in [0, inf], default (0, 0, 0), (readonly)

particle_systems
Particle systems emitted from the object

Type ParticleSystems collection of ParticleSystem, (readonly)

pass_index
Index # for the IndexOB render pass

Type int in [0, 32767], default 0

pose
Current pose for armatures

Type Pose, (readonly)

pose_library
Action used as a pose library for armatures

Type Action, (readonly)

proxy
Library object this proxy object controls

Type Object, (readonly)

proxy_group
Library group duplicator object this proxy object controls

Type Object, (readonly)

rotation_axis_angle
Angle of Rotation for Axis-Angle rotation representation

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 1.0, 0.0)

rotation_euler
Rotation in Eulers

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

rotation_mode

Type enum in ['QUATERNION', 'XYZ', 'XZY', 'YXZ', 'YZX', 'ZXY', 'ZYX', 'AXIS_ANGLE'], default 'QUATERNION'

rotation_quaternion
Rotation in Quaternions

Type float array of 4 items in [-inf, inf], default (1.0, 0.0, 0.0, 0.0)

scale
Scaling of the object

Type float array of 3 items in [-inf, inf], default (1.0, 1.0, 1.0)

select
Object selection state

Type boolean, default False

show_axis
Displays the object's origin and axis

Type boolean, default False

show_bounds
Displays the object's bounds

Type boolean, default False

show_name
Displays the object's name

Type boolean, default False

show_shape_key
Always show the current Shape for this Object

Type boolean, default False

show_texture_space
Displays the object's texture space

Type boolean, default False

show_transparent
Enables transparent materials for the object (Mesh only)

Type boolean, default False

show_wire
Adds the object's wireframe over solid drawing

Type boolean, default False

show_x_ray
Makes the object draw in front of others

Type boolean, default False

soft_body
Settings for soft body simulation

Type SoftBodySettings, (readonly)

time_offset
Animation offset in frames for F-Curve and dupligroup instances

Type float in [-300000, 300000], default 0.0

track_axis
Axis that points in 'forward' direction

Type enum in ['POS_X', 'POS_Y', 'POS_Z', 'NEG_X', 'NEG_Y', 'NEG_Z'], default 'POS_X'

type
Type of Object

Type enum in ['EMPTY', 'MESH', 'CURVE', 'SURFACE', 'TEXT', 'META', 'LAMP', 'CAMERA', 'LATTICE', 'ARMATURE'], default 'EMPTY', (readonly)

up_axis
Axis that points in the upward direction

Type enum in ['X', 'Y', 'Z'], default 'X'

use_dupli_faces_scale
Scale dupli based on face size

Type boolean, default False

use_dupli_frames_speed
Set dupliframes to use the frame

Type boolean, default False

use_dupli_vertices_rotation
Rotate dupli according to vertex normal

Type boolean, default False

use_shape_key_edit_mode
Apply shape keys in edit mode (for Meshes only)

Type boolean, default False

use_slow_parent
Create a delay in the parent relationship

Type boolean, default False

use_time_offset_add_parent
Add the parents time offset value

Type boolean, default False

use_time_offset_edit
Use time offset when inserting keys and display time offset for F-Curve and action views

Type boolean, default False

use_time_offset_parent
Apply the time offset to this objects parent relationship

Type boolean, default False

use_time_offset_particle
Let the time offset work on the particle effect

Type boolean, default False

vertex_groups
Vertex groups of the object

Type VertexGroups collection of VertexGroup, (readonly)

children
All the children of this object (readonly)

users_group
The groups this object is in (readonly)

users_scene
The scenes this object is in (readonly)

create_mesh(*scene*, *apply_modifiers*, *settings*)
Create a Mesh datablock with modifiers applied.

Parameters

- **scene** (Scene, (never None)) – Scene within which to evaluate modifiers.
- **apply_modifiers** (*boolean*) – Apply modifiers.

- **settings** (*enum in ['PREVIEW', 'RENDER']*) – Modifier settings to apply.

Returns Mesh created from object, remove it if it is only used for export.

Return type Mesh

create_dupli_list(*scene*)
Create a list of dupli objects for this object, needs to be freed manually with free_dupli_list.

Parameters

- **scene** (Scene, (never None)) – Scene within which to evaluate duplis.

free_dupli_list()
Free the list of dupli objects.

find_armature()
Find armature influencing this object as a parent or via a modifier.

Returns Armature object influencing this object or NULL.

Return type Object

add_shape_key(*name="Key"*, *from_mix=True*)
Add shape key to an object.

Parameters

- **name** (*string, (optional)*) – Unique name for the new keylock.
- **from_mix** (*boolean, (optional)*) – Create new shape from existing mix of shapes.

Returns New shape keyblock.

Return type ShapeKey

ray_cast(*start*, *end*)
Cast a ray onto in object space.

Return (location, normal, index) *location*, The hit location of this ray cast, float array of 3 items in [-inf, inf]

normal, The face normal at the ray cast hit location, float array of 3 items in [-inf, inf]

index, The face index, -1 when no intersection is found., int in [-inf, inf]

update(*scene*, *object=True*, *data=True*, *time=True*)
Tag the object to update its display data.

Parameters

- **object** (*boolean, (optional)*) – Tag the object for updating
- **data** (*boolean, (optional)*) – Tag the objects display data for updating
- **time** (*boolean, (optional)*) – Tag the object time related data for updating

is_visible(*scene*)
Determine if object is visible in a given scene.

Returns Object visibility.

Return type boolean

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- ActionConstraint.target
- ArmatureActuator.secondary_target
- ArmatureActuator.target
- ArmatureModifier.object
- ArrayModifier.curve
- ArrayModifier.end_cap
- ArrayModifier.offset_object
- ArrayModifier.start_cap
- BlendData.objects
- BoidRuleAvoid.object
- BoidRuleFollowLeader.object
- BoidRuleGoal.object
- BooleanModifier.object
- Camera.dof_object
- CameraActuator.object
- CastModifier.object
- ChildOfConstraint.target

- ClampToConstraint.target
- ConstraintTarget.target
- CopyLocationConstraint.target
- CopyRotationConstraint.target
- CopyScaleConstraint.target
- CopyTransformsConstraint.target
- Curve.bevel_object
- Curve.taper_object
- CurveModifier.object
- CurveSplines.active
- DampedTrackConstraint.target
- DisplaceModifier.texture_coordinate_object
- DupliObject.object
- EditObjectActuator.object
- EditObjectActuator.track_object
- EnvironmentMap.viewpoint_object
- FloorConstraint.target
- FollowPathConstraint.target
- Group.objects
- GroupObjects.link
- GroupObjects.unlink
- HookModifier.object
- KinematicConstraint.pole_target
- KinematicConstraint.target
- LampTextureSlot.object
- LatticeModifier.object
- LimitDistanceConstraint.target
- LockedTrackConstraint.target
- MainObjects.new
- MainObjects.remove
- MaskModifier.armature
- MaterialTextureSlot.object
- MeshDeformModifier.object
- MirrorModifier.mirror_object
- Object.find_armature
- Object.parent
- Object.proxy
- Object.proxy_group
- ObjectActuator.reference_object
- ObjectBase.object
- ParentActuator.object
- ParticleEdit.object
- ParticleInstanceModifier.object
- ParticleSettings.billboard_object
- ParticleSettings.dupli_object
- ParticleSystem.parent
- ParticleSystem.reactor_target_object
- ParticleTarget.object
- PivotConstraint.target
- PointDensity.object
- PoseBone.custom_shape
- PropertyActuator.object
- RigidBodyJointConstraint.child
- RigidBodyJointConstraint.target

- Scene.camera
- Scene.objects
- SceneActuator.camera
- SceneObjects.active
- SceneObjects.link
- SceneObjects.unlink
- SceneSequence.scene_camera
- ScrewModifier.object
- ShrinkwrapConstraint.target
- ShrinkwrapModifier.auxiliary_target
- ShrinkwrapModifier.target
- SimpleDeformModifier.origin
- SpaceView3D.camera
- SpaceView3D.lock_object
- SplineIKConstraint.target
- StretchToConstraint.target
- TextCurve.follow_curve
- TimelineMarker.camera
- ToolSettings.etch_template
- TrackToConstraint.target
- TransformConstraint.target
- UVProjector.object
- VoxelData.domain_object
- WaveModifier.start_position_object
- WaveModifier.texture_coords_object
- WorldTextureSlot.object

1.3.348 ObjectActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**ObjectActuator**(*Actuator*)

Actuator to control the object movement

angular_velocity

Sets the angular velocity

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

damping

Number of frames to reach the target velocity

Type int in [-32768, 32767], default 0

derivate_coefficient

Not required, high values can cause instability

Type float in [-inf, inf], default 0.0

force

Sets the force

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

force_max_x

Set the upper limit for force

Type float in [-inf, inf], default 0.0

force_max_y
Set the upper limit for force

Type float in [-inf, inf], default 0.0

force_max_z
Set the upper limit for force

Type float in [-inf, inf], default 0.0

force_min_x
Set the lower limit for force

Type float in [-inf, inf], default 0.0

force_min_y
Set the lower limit for force

Type float in [-inf, inf], default 0.0

force_min_z
Set the lower limit for force

Type float in [-inf, inf], default 0.0

integral_coefficient
Low value (0.01) for slow response, high value (0.5) for fast response

Type float in [-inf, inf], default 0.0

linear_velocity
Sets the linear velocity (in Servo mode it sets the target relative linear velocity, it will be achieved by automatic application of force. Null velocity is a valid target)

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

mode
Specify the motion system

Type enum in ['OBJECT_NORMAL', 'OBJECT_SERVO'], default 'OBJECT_NORMAL'

offset_location
Sets the location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

offset_rotation
Sets the rotation

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

proportional_coefficient
Typical value is 60x integral coefficient

Type float in [-inf, inf], default 0.0

reference_object
Reference object for velocity calculation, leave empty for world reference

Type Object

torque
Sets the torque

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

use_add_linear_velocity
Toggles between ADD and SET linV

Type boolean, default False

use_local_angular_velocity
Angular velocity is defined in local coordinates

Type boolean, default False

use_local_force
Force is defined in local coordinates

Type boolean, default False

use_local_linear_velocity
Velocity is defined in local coordinates

Type boolean, default False

use_local_location
Location is defined in local coordinates

Type boolean, default False

use_local_rotation
Rotation is defined in local coordinates

Type boolean, default False

use_local_torque
Torque is defined in local coordinates

Type boolean, default False

use_servo_limit_x
Set limit to force along the X axis

Type boolean, default False

use_servo_limit_y
Set limit to force along the Y axis

Type boolean, default False

use_servo_limit_z
Set limit to force along the Z axis

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.349 ObjectBase(bpy_struct)

base class — bpy_struct

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

An object instance in a scene

layers

Layers the object base is on

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

object

Object this base links to

Type Object, (readonly)

select

Object base selection state

Type boolean, default False

layers_from_view(*view*)

Sets the object layers from a 3D View (use when adding an object in local view).

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.object_bases
- SceneBases.active
- SceneObjects.link

1.3.350 ObjectConstraints(bpy_struct)

base class — bpy_struct

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

Collection of object constraints

active

Active Object constraint

Type Constraint

new(*type*)

Add a new constraint to this object

Parameters

- **type** (*enum in ['COPY_LOCATION', 'COPY_ROTATION', 'COPY_SCALE', 'COPY_TRANSFORMS', 'LIMIT_DISTANCE', 'LIMIT_LOCATION', 'LIMIT_ROTATION', 'LIMIT_SCALE', 'MAINTAIN_VOLUME', 'TRANSFORM', 'CLAMP_TO', 'DAMPED_TRACK', 'IK', 'LOCKED_TRACK', 'SPLINE_IK', 'STRETCH_TO', 'TRACK_TO', 'ACTION', 'CHILD_OF', 'FLOOR', 'FOLLOW_PATH', 'PIVOT', 'RIGID_BODY_JOINT', 'SCRIPT', 'SHRINKWRAP']*) – Constraint type to add.

Returns New constraint.

Return type Constraint

remove(*constraint*)

Remove a constraint from this object.

Parameters

- **constraint** (Constraint, (never None)) – Removed constraint.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.constraints

1.3.351 ObjectModifiers(bpy_struct)

base class — bpy_struct

class bpy.types.**ObjectModifiers**(*bpy_struct*)
Collection of object modifiers

new(*name*, *type*)
Add a new modifier.

Parameters

- **name** (*string*) – New name for the bone.
- **type** (*enum in ['ARRAY', 'BEVEL', 'BOOLEAN', 'BUILD', 'DECIMATE', 'EDGE_SPLIT', 'MASK', 'MIRROR', 'MULTIRES', 'SCREW', 'SOLIDIFY', 'SUBSURF', 'UV_PROJECT', 'ARMATURE', 'CAST', 'CURVE', 'DISPLACE', 'HOOK', 'LATTICE', 'MESH_DEFORM', 'SHRINKWRAP', 'SIMPLE_DEFORM', 'SMOOTH', 'WAVE', 'CLOTH', 'COLLISION', 'EXPLODE', 'FLUID_SIMULATION', 'PARTICLE_INSTANCE', 'PARTICLE_SYSTEM', 'SMOKE', 'SOFT_BODY', 'SURFACE']*) – Modifier type to add.

Returns Newly created modifier.

Return type Modifier

remove (*modifier*)
Remove an existing modifier from the object.

Parameters

- **modifier** (Modifier, (never None)) – Modifier to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.modifiers

1.3.352 ObstacleFluidSettings(FluidSettings)

base classes — bpy_struct, FluidSettings

class bpy.types.**ObstacleFluidSettings** (*FluidSettings*)
Fluid simulation settings for obstacles in the simulation

impact_factor
This is an unphysical value for moving objects - it controls the impact an obstacle has on the fluid, =0 behaves a bit like outflow (deleting fluid), =1 is default, while >1 results in high forces. Can be used to tweak total mass

Type float in [-2, 10], default 0.0

partial_slip_factor
Amount of mixing between no- and free-slip, 0 is no slip and 1 is free slip

Type float in [0, 1], default 0.0

slip_type

Type enum in ['NOSLIP', 'PARTIALSLIP', 'FREESLIP'], default 'NOSLIP'

use
Object contributes to the fluid simulation

Type boolean, default False

use_animated_mesh
Export this mesh as an animated one. Slower, only use if really necessary (e.g. armatures or parented objects), animated pos/rot/scale IPOs do not require it

Type boolean, default False

volume_initialization
Volume initialization type

Type enum in ['VOLUME', 'SHELL', 'BOTH'], default 'VOLUME'

Inherited Properties

- bpy_struct.id_data
- FluidSettings.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.353 Operator(bpy_struct)

base class — bpy_struct

class bpy.types.**Operator**(*bpy_struct*)
Storage of an operator being executed, or registered after execution

bl_description

Type string, default ""

bl_idname

Type string, default ""

bl_label

Type string, default “”

bl_options
Options for this operator type

Type enum in [’REGISTER’, ‘UNDO’, ‘BLOCKING’, ‘MACRO’, ‘GRAB_POINTER’], default ‘REGISTER’

has_reports
Operator has a set of reports (warnings and errors) from last execution

Type boolean, default False, (readonly)

layout

Type UILayout, (readonly)

name

Type string, default “”, (readonly)

properties

Type OperatorProperties, (readonly, never None)

report(*type*, *message*)
report

Parameters

- **type** (*enum in [’DEBUG’, ‘INFO’, ‘OPERATOR’, ‘WARNING’, ‘ERROR’, ‘ERROR_INVALID_INPUT’, ‘ERROR_INVALID_CONTEXT’, ‘ERROR_OUT_OF_MEMORY’]*) – Type
- **message** (*string*) – Report Message

classmethod poll(*context=None*)
Test if the operator can be called or not.

Return type boolean

execute(*context=None*)
Execute the operator.

Returns result

Return type enum in [’RUNNING_MODAL’, ‘CANCELLED’, ‘FINISHED’, ‘PASS_THROUGH’]

invoke(*context=None*, *event=None*)
Invoke the operator.

Returns result

Return type enum in [’RUNNING_MODAL’, ‘CANCELLED’, ‘FINISHED’, ‘PASS_THROUGH’]

modal(*context=None*, *event=None*)
Modal operator function.

Returns result

Return type enum in [’RUNNING_MODAL’, ‘CANCELLED’, ‘FINISHED’, ‘PASS_THROUGH’]

draw(*context=None*)
Draw function for the operator.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- WindowManager.add_fileselect
- WindowManager.add_modal_handler
- WindowManager.invoke_popup
- WindowManager.invoke_props_dialog
- WindowManager.invoke_props_popup
- WindowManager.invoke_search_popup
- WindowManager.operators

1.3.354 OperatorFileListElement(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

class bpy.types.**OperatorFileListElement**(*IDPropertyGroup*)

name
the name of a file or directory within a file list

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.355 OperatorMousePath(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

class bpy.types.**OperatorMousePath**(*IDPropertyGroup*)

Mouse path values for operators that record such paths

loc

Mouse location

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

time

Time of mouse location

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add

- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.356 OperatorProperties(bpy_struct)

base class — bpy_struct

class bpy.types.**OperatorProperties**(*bpy_struct*)
Input properties of an Operator

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- KeyMapItem.properties
- Macro.properties
- Operator.properties
- OperatorTypeMacro.properties
- UILayout.operator

1.3.357 OperatorStrokeElement(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

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

location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

mouse

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

pen_flip

Type boolean, default False

pressure

Tablet pressure

Type float in [0, 1], default 0.0

time

Type float in [0, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.358 OperatorTypeMacro(bpy_struct)

base class — bpy_struct

class bpy.types.**OperatorTypeMacro**(*bpy_struct*)
Storage of a sub operator in a macro after it has been added

properties

Type OperatorProperties, (readonly, never None)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.359 OrController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**OrController**(*Controller*)
Controller passing on events based on a logical OR operation

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add

- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.360 OutflowFluidSettings(FluidSettings)

base classes — bpy_struct, FluidSettings

class bpy.types.**OutflowFluidSettings**(*FluidSettings*)

Fluid simulation settings for objects removing fluids from the simulation

use

Object contributes to the fluid simulation

Type boolean, default False

use_animated_mesh

Export this mesh as an animated one. Slower, only use if really necessary (e.g. armatures or parented objects), animated pos/rot/scale IPOs do not require it

Type boolean, default False

volume_initialization

Volume initialization type

Type enum in ['VOLUME', 'SHELL', 'BOTH'], default 'VOLUME'

Inherited Properties

- bpy_struct.id_data
- FluidSettings.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

1.3.361 PackedFile(bpy_struct)

base class — bpy_struct

class bpy.types.**PackedFile**(*bpy_struct*)
External file packed into the .blend file

size
Size of packed file in bytes

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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Image.packed_file
- Sound.packed_file
- VectorFont.packed_file

1.3.362 Paint(bpy_struct)

base class — bpy_struct

subclasses — VertexPaint, Sculpt, ImagePaint

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

brush
Active Brush

Type Brush

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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.363 Panel(bpy_struct)

base class — bpy_struct

subclasses — InputKeyMapPanel

class bpy.types.**Panel**(*bpy_struct*)
Panel containing UI elements

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 ""

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 ""

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 ""

bl_options
Options for this panel type

Type enum in ['DEFAULT_CLOSED', 'HIDE_HEADER'], default 'DEFAULT_CLOSED'

bl_region_type
The region where the panel is going to be used in.

Type enum in ['WINDOW', 'HEADER', 'CHANNELS', 'TEMPORARY', 'UI', 'TOOLS', 'TOOL_PROPS', 'PREVIEW'], default 'WINDOW'

bl_space_type
The space where the panel is going to be used in.

Type enum in ['EMPTY', 'VIEW_3D', 'GRAPH_EDITOR', 'OUTLINER', 'PROPERTIES', 'FILE_BROWSER', 'IMAGE_EDITOR', 'INFO', 'SEQUENCE_EDITOR', 'TEXT_EDITOR', 'AUDIO_WINDOW', 'DOPESHEET_EDITOR', 'NLA_EDITOR', 'SCRIPTS_WINDOW', 'TIMELINE', 'NODE_EDITOR', 'LOGIC_EDITOR', 'CONSOLE', 'USER_PREFERENCES'], default 'EMPTY'

layout
Defines the structure of the panel in the UI.

Type UILayout, (readonly)

text
XXX todo

Type string, default ""

classmethod poll(*context*)
If this method returns a non-null output, then the panel can be drawn.

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.

classmethod append(*draw_func*)
Prepend an draw function to this menu, takes the same arguments as the menus draw function.

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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.364 ParentActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**ParentActuator**(*Actuator*)

mode

Type enum in ['SETPARENT', 'REMOVEPARENT'], default 'SETPARENT'

object
Set this object as parent

Type Object

use_compound
Add this object shape to the parent shape (only if the parent shape is already compound)

Type boolean, default False

use_ghost
Make this object ghost while parented (only if not compound)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.365 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 float array 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

is_exist

Type boolean, default False, (readonly)

is_hair

Type Collection of ParticleHairKey, (readonly)

is_visible

Type boolean, default False, (readonly)

keys

Type Collection of ParticleKey, (readonly)

lifetime

Type float in [-inf, inf], default 0.0

location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

prev_angular_velocity

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

prev_location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

prev_rotation

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

prev_velocity

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

rotation

Type float array 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 float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleSystem.particles

1.3.366 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 0

curve

Type CurveMapping, (readonly)

length_mode

Type enum in ['GROW', 'SHRINK'], default 'GROW'

puff_mode

Type enum in ['ADD', 'SUB'], default 'ADD'

size

Brush size

Type int in [1, inf], default 0

steps

Brush steps

Type int in [1, inf], default 0

strength

Brush strength

Type float in [0.001, 1], default 0.0

use_puff_volume

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

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleEdit.brush

1.3.367 ParticleDupliWeight(bpy_struct)

base class — bpy_struct

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

Weight of a particle dupliobject in a group

count

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

Type int in [0, inf], default 0

name

Particle dupliobject name

Type string, default "", (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleSettings.active_dupliweight
- ParticleSettings.dupli_weights

1.3.368 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, inf], default 0

draw_step

How many steps to draw the path with

Type int in [2, 10], default 0

emitter_distance

Distance to keep particles away from the emitter

Type float in [0, inf], default 0.0

fade_frames

How many frames to fade

Type int in [2, 100], default 0

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

Type enum in ['PATH', 'POINT', 'TIP'], default 'PATH'

show_particles
Draw actual particles

Type boolean, default False

tool

Type enum in ['NONE', '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 False

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 False

use_fade_time
Fade paths and keys further away from current frame

Type boolean, default False

use_preserve_length
Keep path lengths constant

Type boolean, default False

use_preserve_root
Keep root keys unmodified

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ToolSettings.particle_edit

1.3.369 ParticleFluidSettings(FluidSettings)

base classes — bpy_struct, FluidSettings

class bpy.types.**ParticleFluidSettings**(*FluidSettings*)

Fluid simulation settings for objects storing fluid particles generated by the simulation

alpha_influence

Amount of particle alpha change, inverse of size influence: 0=off (all same alpha), 1=full. (large particles get lower alphas, smaller ones higher values)

Type float in [0, 2], default 0.0

filepath

Directory (and/or filename prefix) to store and load particles from

Type string, default “”

particle_influence

Amount of particle size scaling: 0=off (all same size), 1=full (range 0.2-2.0), >1=stronger

Type float in [0, 2], default 0.0

show_tracer

Show tracer particles

Type boolean, default False

use_drops

Show drop particles

Type boolean, default False

use_floats

Show floating foam particles

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- FluidSettings.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.370 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 float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

co_hair_space

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

Type float array 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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Particle.is_hair

1.3.371 ParticleInstanceModifier(Modifier)

base classes — bpy_struct, Modifier

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

Particle system instancing modifier

axis

Pole axis for rotation

Type enum in ['X', 'Y', 'Z'], default 'X'

object

Object that has the particle system

Type Object

particle_system_index

Type int in [1, 10], default 0

position

Position along path

Type float in [0, 1], default 0.0

random_position

Randomize position along path

Type float in [0, 1], default 0.0

show_alive
Show instances when particles are alive

Type boolean, default False

show_dead
Show instances when particles are dead

Type boolean, default False

show_unborn
Show instances when particles are unborn

Type boolean, default False

use_children
Create instances from child particles

Type boolean, default False

use_normal
Create instances from normal particles

Type boolean, default False

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

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.372 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 float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

location

Key location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

rotation

Key rotation quaterion

Type float array 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 float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Particle.keys

1.3.373 ParticleSettings(ID)

base classes — bpy_struct, ID

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

Particle settings, reusable by multiple particle systems

active_dupliweight

Type ParticleDupliWeight, (readonly)

active_dupliweight_index

Type int in [0, inf], default 0

adaptive_angle

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

Type int in [0, 45], default 0

adaptive_pixel

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

Type int in [0, 50], default 0

angular_velocity_factor

Angular velocity amount

Type float in [-200, 200], default 0.0

angular_velocity_mode

Particle angular velocity mode

Type enum in ['NONE', 'SPIN', 'RAND'], default 'NONE'

animation_data

Animation data for this datablock

Type AnimData, (readonly)

apply_effector_to_children

Apply effectors to children

Type boolean, default False

apply_guide_to_children

Type boolean, default False

billboard_align
In respect to what the billboards are aligned

Type enum in ['X', 'Y', 'Z', 'VIEW', 'VEL'], default 'X'

billboard_animation
How to animate billboard textures

Type enum in ['NONE', 'TIME', 'ANGLE'], default 'NONE'

billboard_object
Billboards face this object (default is active camera)

Type Object

billboard_offset

Type float array of 2 items in [-100, 100], default (0.0, 0.0)

billboard_offset_split
How to offset billboard textures

Type enum in ['NONE', 'LINEAR', 'RANDOM'], default 'NONE'

billboard_tilt
Tilt of the billboards

Type float in [-1, 1], default 0.0

billboard_tilt_random
Random tilt of the billboards

Type float in [0, 1], default 0.0

billboard_uv_split
Amount of rows/columns to split UV coordinates for billboards

Type int in [1, 100], default 0

boids

Type BoidSettings, (readonly)

branch_threshold
Threshold of branching

Type float in [0, 1], default 0.0

brownian_factor
Specify the amount of Brownian motion

Type float in [0, 200], default 0.0

child_length
Length of child paths

Type float in [0, 1], default 0.0

child_length_threshold
Amount of particles left untouched by child path length

Type float in [0, 1], default 0.0

child_nbr
Amount of children/parent

Type int in [0, 100000], default 0

child_radius
Radius of children around parent

Type float in [0, 10], default 0.0

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 0.0

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', 'PARTICLES', 'FACES'], default 'NONE'

clump_factor
Amount of clumping

Type float in [-1, 1], default 0.0

clump_shape
Shape of clumping

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

count
Total number of particles

Type int in [0, 10000000], default 0

damping
Specify the amount of damping

Type float in [0, 1], default 0.0

distribution
How to distribute particles on selected element

Type enum in ['JIT', 'RAND', 'GRID'], default 'JIT'

drag_factor
Specify the amount of air-drag

Type float in [0, 1], default 0.0

draw_method
How particles are drawn in viewport

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

draw_percentage
Percentage of particles to display in 3D view

Type int in [0, 100], default 0

draw_size
Size of particles on viewport in pixels (0=default)

Type int in [0, 1000], default 0

draw_step
How many steps paths are drawn with (power of 2)

Type int in [0, 7], default 0

dupli_group
Show Objects in this Group in place of particles

Type Group

dupli_object
Show this Object in place of particles

Type Object

dupli_weights
Weights for all of the objects in the dupli group

Type Collection of ParticleDupliWeight, (readonly)

effect_hair
Hair stiffness for effectors

Type float in [0, 1], default 0.0

effector_weights

Type EffectorWeights, (readonly)

emit_from
Where to emit particles from

Type enum in ['VERT', 'FACE', 'VOLUME', 'PARTICLE'], default 'VERT'

factor_random
Give the starting speed 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 # to stop emitting particles

Type float in [-300000, 300000], default 0.0

frame_start
Frame # to start emitting particles

Type float in [-300000, 300000], default 0.0

grid_resolution
The resolution of the particle grid

Type int in [1, 46], default 0

hair_step
Number of hair segments

Type int in [2, 50], default 0

integrator
Select physics integrator type

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

invert_grid
Invert what is considered object and what is not

Type boolean, default False

jitter_factor
Amount of jitter applied to the sampling

Type float in [0, 2], default 0.0

keyed_loops
Number of times the keys are looped

Type int in [1, 10000], default 0

keys_step

Type int in [0, inf], default 0

kink
Type of periodic offset on the path

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

kink_amplitude
The amplitude of the offset

Type float in [-100000, 100000], default 0.0

kink_axis
Which axis to use for offset

Type enum in ['X', 'Y', 'Z'], default 'X'

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

Type float in [-100000, 100000], default 0.0

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
Specify the life span of the particles

Type float in [1, 300000], default 0.0

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_billboard
Lock the billboards align axis

Type boolean, default False

lock_boids_to_surface
Constrain boids to a surface

Type boolean, default False

mass
Specify the mass of the particles

Type float in [0.001, 100000], default 0.0

material
Specify material used for the particles

Type int in [1, 16], default 0

normal_factor
Let the surface normal give the particle a starting speed

Type float in [-1000, 1000], default 0.0

object_align_factor
Let the emitter object orientation give the particle a starting speed

Type float array of 3 items in [-200, 200], default (0.0, 0.0, 0.0)

object_factor
Let the object give the particle a starting speed

Type float in [-200, 200], default 0.0

particle_factor
Let the target particle give the particle a starting speed

Type float in [-200, 200], default 0.0

particle_size
The size of the particles

Type float in [0.001, 100000], default 0.0

path_end
End time of drawn path

Type float in [-inf, inf], default 0.0

path_start
Starting time of drawn path

Type float in [-inf, inf], default 0.0

phase_factor
Initial rotation phase

Type float in [-1, 1], default 0.0

phase_factor_random
Randomize rotation phase

Type float in [0, 1], default 0.0

physics_type
Particle physics type

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

react_event
The event of target particles to react on

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

reaction_shape
Power of reaction strength dependence on distance to target

Type float in [0, 10], default 0.0

reactor_factor
Let the vector away from the target particles location give the particle a starting speed

Type float in [-10, 10], default 0.0

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

Type int in [0, 9], default 0

render_type
How particles are rendered

Type enum in ['NONE', 'HALO', 'LINE', 'PATH', 'OBJECT', 'GROUP', 'BILLBOARD'], default 'NONE'

rendered_child_count
Amount of children/parent for rendering

Type int in [0, 100000], default 0

rotation_factor_random
Randomize rotation

Type float in [0, 1], default 0.0

rotation_mode
Particles initial rotation

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

roughness_1
Amount of location dependent rough

Type float in [0, 100000], default 0.0

roughness_1_size
Size of location dependent rough

Type float in [0.01, 100000], default 0.0

roughness_2
Amount of random rough

Type float in [0, 100000], default 0.0

roughness_2_size
Size of random rough

Type float in [0.01, 100000], default 0.0

roughness_2_threshold
Amount of particles left untouched by random rough

Type float in [0, 1], default 0.0

roughness_end_shape
Shape of end point rough

Type float in [0, 10], default 0.0

roughness_endpoint
Amount of end point rough

Type float in [0, 100000], default 0.0

show_health
Draw boid health

Type boolean, default False

show_material_color
Draw particles using material's diffuse color

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

simplify_rate
Speed of simplification

Type float in [0, 1], default 0.0

simplify_refsize
Reference size in pixels, after which simplification begins

Type int in [1, 32768], default 0

simplify_transition
Transition period for fading out strands

Type float in [0, 1], default 0.0

simplify_viewport
Speed of Simplification

Type float in [0, 0.999], default 0.0

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

Type int in [0, 1000], default 0

tangent_factor
Let the surface tangent give the particle a starting speed

Type float in [-1000, 1000], default 0.0

tangent_phase
Rotate the surface tangent

Type float in [-1, 1], default 0.0

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

Type float in [0, 100], default 0.0

trail_count
Number of trail particles

Type int in [1, 100000], default 0

type

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

use_absolute_path_time
Path timing is in absolute frames

Type boolean, default False

use_animate_branching
Animate branching

Type boolean, default False

use_branching
Branch child paths from each other

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
Sets rotation to dynamic/constant

Type boolean, default False

use_emit_random
Emit in random order of elements

Type boolean, default False

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

Type boolean, default False

use_global_dupli
Use object's global coordinates for duplication

Type boolean, default False

use_group_count
Use object multiple times in the same group

Type boolean, default False

use_group_pick_random
Pick objects from group randomly

Type boolean, default False

use_hair_bspline
Interpolate hair using B-Splines

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_render_adaptive
Draw steps of the particle path

Type boolean, default False

use_render_emitter
Render emitter Object also

Type boolean, default False

use_self_effect
Particle effectors effect themselves

Type boolean, default False

use_simplify
Remove child strands as the object becomes smaller on the screen

Type boolean, default False

use_simplify_viewport

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_symmetric_branching
Start and end points are the same

Type boolean, default False

use_velocity_length
Multiply line length by particle speed

Type boolean, default False

use_whole_group
Use whole group at once

Type boolean, default False

userjit
Emission locations / 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

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.particles
- MainParticles.new
- MainParticles.remove
- ParticleSystem.settings

1.3.374 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

billboard_normal_uv

UV Layer to control billboard normals

Type string, default “”

billboard_split_uv

UV Layer to control billboard splitting

Type string, default “”

billboard_time_index_uv

UV Layer to control billboard time index (X-Y)

Type string, default “”

child_particles
Child particles generated by the particle system

Type Collection of ChildParticle, (readonly)

cloth
Cloth dynamics for hair

Type ClothModifier, (readonly, never None)

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

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_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 ""

parent
Use this object's coordinate system instead of global coordinate system

Type Object

particles
Particles generated by the particle system

Type 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, inf], 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 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 “”

vertex_group_density
Vertex group to control density

Type string, default “”

vertex_group_field
Vertex group to control field

Type string, default “”

vertex_group_kink
Vertex group to control kink

Type string, default “”

vertex_group_length
Vertex group to control length

Type string, default “”

vertex_group_rotation
Vertex group to control rotation

Type string, default “”

vertex_group_roughness_1
Vertex group to control roughness 1

Type string, default “”

vertex_group_roughness_2
Vertex group to control roughness 2

Type string, default “”

vertex_group_roughness_end
Vertex group to control roughness end

Type string, default “”

vertex_group_size
Vertex group to control size

Type string, default “”

vertex_group_tangent
Vertex group to control tangent

Type string, default “”

vertex_group_velocity
Vertex group to control velocity

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.particle_systems
- ParticleSystemModifier.particle_system
- ParticleSystems.active
- PointDensity.particle_system
- SmokeFlowSettings.particle_system

1.3.375 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)

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode

- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.376 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

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add

- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.particle_systems

1.3.377 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, 30000], default 0.0

is_valid

Keyed particles target is valid

Type boolean, default False

name

Particle target name

Type string, default "", (readonly)

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, 30000], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleSystem.active_particle_target
- ParticleSystem.targets

1.3.378 PivotConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**PivotConstraint**(*Constraint*)

Rotate around a different point

head_tail

Target along length of bone: Head=0, Tail=1

Type float in [0, 1], default 0.0

offset

Offset of pivot from target (when set), or from owner's location (when Fixed Position is off), or the absolute pivot point

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

rotation_range

Rotation range on which pivoting should occur

Type enum in ['ALWAYS_ACTIVE', 'NX', 'NY', 'NZ', 'X', 'Y', 'Z'], default 'NX'

subtarget

Type string, default ""

target
Target Object, defining the position of the pivot when defined

Type Object

use_relative_location
Offset will be an absolute point in space instead of relative to the target

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.379 PluginSequence(EffectSequence)

base classes — bpy_struct, Sequence, EffectSequence

class bpy.types.**PluginSequence**(*EffectSequence*)
Sequence strip applying an effect, loaded from an external plugin

filename

Type string, default "", (readonly)

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade
- EffectSequence.color_balance
- EffectSequence.use_float
- EffectSequence.crop
- EffectSequence.use_deinterlace
- EffectSequence.use_reverse_frames
- EffectSequence.use_flip_x
- EffectSequence.use_flip_y
- EffectSequence.color_multiply
- EffectSequence.use_premultiply
- EffectSequence.proxy
- EffectSequence.use_proxy_custom_directory
- EffectSequence.use_proxy_custom_file
- EffectSequence.color_saturation
- EffectSequence.strobe
- EffectSequence.transform
- EffectSequence.use_color_balance
- EffectSequence.use_crop
- EffectSequence.use_proxy
- EffectSequence.use_translation

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.380 PluginTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**PluginTexture**(*Texture*)

External plugin texture

users_material

Materials that use this texture (readonly)

users_object_modifier

Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material

- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.381 PointCache(bpy_struct)

base class — bpy_struct

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

Point cache for physics simulations

filepath

Cache file path

Type string, default ""

frame_end

Frame on which the simulation stops

Type int in [1, 300000], default 0

frame_start

Frame on which the simulation starts

Type int in [1, 300000], default 0

frame_step

Number of frames between cached frames

Type int in [1, 20], default 0

frames_skipped

Type boolean, default False, (readonly)

index

Index number of cache files

Type int in [-1, 100], default 0

info
Info on current cache status

Type string, default "", (readonly)

is_baked

Type boolean, default False, (readonly)

is_baking

Type boolean, default False, (readonly)

is_outdated

Type boolean, default False, (readonly)

name
Cache name

Type string, default ""

point_caches
Point cache list

Type PointCaches collection of PointCache, (readonly)

use_disk_cache
Save cache files to disk (.blend file must be saved first)

Type boolean, default False

use_external
Read cache from an external location

Type boolean, default False

use_library_path
Use this files path when library linked into another file.

Type boolean, default False

use_quick_cache
Update simulation with cache steps

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

References

- ClothModifier.point_cache
- ParticleSystem.point_cache
- PointCache.point_caches
- SmokeDomainSettings.point_cache_high
- SmokeDomainSettings.point_cache_low
- SoftBodyModifier.point_cache

1.3.382 PointCaches(bpy_struct)

base class — bpy_struct

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

Collection of point caches

active_index

Type int in [0, inf], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- PointCache.point_caches

1.3.383 PointDensity(bpy_struct)

base class — bpy_struct

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

Point density settings

color_ramp

Type ColorRamp, (readonly)

color_source

Data to derive color results from

Type enum in ['CONSTANT', 'PARTICLE_AGE', 'PARTICLE_SPEED', 'PARTICLE_VELOCITY'], default 'CONSTANT'

falloff

Method of attenuating density by distance from the point

Type enum in ['STANDARD', 'SMOOTH', 'SOFT', 'CONSTANT', 'ROOT'], default 'STANDARD'

falloff_soft

Softness of the 'soft' falloff option

Type float in [0.01, inf], default 0.0

noise_basis

Noise formula used for turbulence

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

object

Object to take point data from

Type Object

particle_cache_space

Co-ordinate system to cache particles in

Type enum in ['OBJECT_LOCATION', 'OBJECT_SPACE', 'WORLD_SPACE'], default 'OBJECT_LOCATION'

particle_system

Particle System to render as points

Type ParticleSystem

point_source

Point data to use as renderable point density

Type enum in ['PARTICLE_SYSTEM', 'OBJECT'], default 'PARTICLE_SYSTEM'

radius
Radius from the shaded sample to look for points within

Type float in [0.001, inf], default 0.0

speed_scale
Multiplier to bring particle speed within an acceptable range

Type float in [0.001, 100], default 0.0

turbulence_depth
Level of detail in the added turbulent noise

Type int in [0, inf], default 0

turbulence_influence
Method for driving added turbulent noise

Type enum in ['STATIC', 'PARTICLE_VELOCITY', 'PARTICLE_AGE', 'GLOBAL_TIME'], default 'STATIC'

turbulence_scale
Scale of the added turbulent noise

Type float in [0.01, inf], default 0.0

turbulence_strength

Type float in [0.01, inf], default 0.0

use_turbulence
Add directed noise to the density at render-time

Type boolean, default False

vertex_cache_space
Co-ordinate system to cache vertices in

Type enum in ['OBJECT_LOCATION', 'OBJECT_SPACE', 'WORLD_SPACE'], default 'OBJECT_LOCATION'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- PointDensityTexture.point_density

1.3.384 PointDensityTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**PointDensityTexture**(*Texture*)

Settings for the Point Density texture

point_density

The point density settings associated with this texture

Type PointDensity, (readonly)

users_material

Materials that use this texture (readonly)

users_object_modifier

Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.385 PointLamp(Lamp)

base classes — bpy_struct, ID, Lamp

class bpy.types.**PointLamp**(*Lamp*)

Omnidirectional point lamp

falloff_curve

Custom Lamp Falloff Curve

Type CurveMapping, (readonly)

falloff_type

Intensity Decay with distance

Type enum in ['CONSTANT', 'INVERSE_LINEAR', 'INVERSE_SQUARE', 'CUSTOM_CURVE', 'LINEAR_QUADRATIC_WEIGHTED'], default 'CONSTANT'

linear_attenuation

Linear distance attenuation

Type float in [0, 1], default 0.0

quadratic_attenuation

Quadratic distance attenuation

Type float in [0, 1], default 0.0

shadow_adaptive_threshold

Threshold for Adaptive Sampling (Raytraced shadows)

Type float in [0, 1], default 0.0

shadow_color

Color of shadows cast by the lamp

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

shadow_method
Method to compute lamp shadow with

Type enum in ['NOSHADOW', 'RAY_SHADOW'], default 'NOSHADOW'

shadow_ray_sample_method
Method for generating shadow samples: Adaptive QMC is fastest, Constant QMC is less noisy but slower

Type enum in ['ADAPTIVE_QMC', 'CONSTANT_QMC'], default 'ADAPTIVE_QMC'

shadow_ray_samples
Amount of samples taken extra (samples x samples)

Type int in [1, 64], default 0

shadow_soft_size
Light size for ray shadow sampling (Raytraced shadows)

Type float in [-inf, inf], default 0.0

use_only_shadow
Causes light to cast shadows only without illuminating objects

Type boolean, default False

use_shadow_layer
Causes only objects on the same layer to cast shadows

Type boolean, default False

use_sphere
Sets light intensity to zero beyond lamp distance

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Lamp.active_texture
- Lamp.active_texture_index
- Lamp.animation_data
- Lamp.color
- Lamp.use_diffuse
- Lamp.distance
- Lamp.energy
- Lamp.use_own_layer
- Lamp.use_negative
- Lamp.use_specular
- Lamp.texture_slots
- Lamp.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.386 PointerProperty(Property)

base classes — bpy_struct, Property

class bpy.types.**PointerProperty**(*Property*)

RNA pointer property to point to another RNA struct

fixed_type

Fixed pointer type, empty if variable type

Type Struct, (readonly)

Inherited Properties

- bpy_struct.id_data
- Property.name
- Property.srna
- Property.description
- Property.identifier
- Property.is_never_none
- Property.is_readonly
- Property.is_runtime
- Property.is_registered
- Property.is_registered_optional
- Property.is_required
- Property.is_output
- Property.subtype
- Property.type
- Property.unit

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.387 Pose(bpy_struct)

base class — bpy_struct

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

A collection of pose channels, including settings for animating bones

animation_visualisation

Animation data for this datablock

Type AnimViz, (readonly, never None)

bone_groups

Groups of the bones

Type BoneGroups collection of BoneGroup, (readonly)

bones

Individual pose bones for the armature

Type Collection of PoseBone, (readonly)

ik_param

Parameters for IK solver

Type IKParam, (readonly)

ik_solver

Selection of IK solver for IK chain, current choice is 0 for Legacy, 1 for iTaSC

Type enum in ['LEGACY', 'ITASC'], default 'LEGACY'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.pose

1.3.388 PoseBone(bpy_struct)

base class — bpy_struct

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

Channel defining pose data for a bone in a Pose

bone

Bone associated with this PoseBone

Type Bone, (readonly, never None)

bone_group

Bone Group this pose channel belongs to

Type BoneGroup

bone_group_index

Bone Group this pose channel belongs to (0=no group)

Type int in [-32768, 32767], default 0

child

Child of this pose bone

Type PoseBone, (readonly)

constraints

Constraints that act on this PoseChannel

Type PoseBoneConstraints collection of Constraint, (readonly)

custom_shape

Object that defines custom draw type for this bone

Type Object

custom_shape_transform
Bone that defines the display transform of this custom shape

Type PoseBone

head
Location of head of the channel's bone

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0), (readonly)

ik_linear_weight
Weight of scale constraint for IK

Type float in [0, 1], default 0.0

ik_max_x
Maximum angles for IK Limit

Type float in [0, 3.14159], default 0.0

ik_max_y
Maximum angles for IK Limit

Type float in [0, 3.14159], default 0.0

ik_max_z
Maximum angles for IK Limit

Type float in [0, 3.14159], default 0.0

ik_min_x
Minimum angles for IK Limit

Type float in [-3.14159, 0], default 0.0

ik_min_y
Minimum angles for IK Limit

Type float in [-3.14159, 0], default 0.0

ik_min_z
Minimum angles for IK Limit

Type float in [-3.14159, 0], default 0.0

ik_rotation_weight
Weight of rotation constraint for IK

Type float in [0, 1], default 0.0

ik_stiffness_x
IK stiffness around the X axis

Type float in [0, 0.99], default 0.0

ik_stiffness_y
IK stiffness around the Y axis

Type float in [0, 0.99], default 0.0

ik_stiffness_z
IK stiffness around the Z axis

Type float in [0, 0.99], default 0.0

ik_stretch
Allow scaling of the bone for IK

Type float in [0, 1], default 0.0

is_in_ik_chain
Is part of an IK chain

Type boolean, default False, (readonly)

location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

lock_ik_x
Disallow movement around the X axis

Type boolean, default False

lock_ik_y
Disallow movement around the Y axis

Type boolean, default False

lock_ik_z
Disallow movement around the Z axis

Type boolean, default False

lock_location
Lock editing of location in the interface

Type boolean array of 3 items, default (False, False, False)

lock_rotation
Lock editing of rotation in the interface

Type boolean array of 3 items, default (False, False, False)

lock_rotation_w
Lock editing of 'angle' component of four-component rotations in the interface

Type boolean, default False

lock_rotations_4d
Lock editing of four component rotations by components (instead of as Eulers)

Type boolean, default False

lock_scale
Lock editing of scale in the interface

Type boolean array of 3 items, default (False, False, False)

matrix
Final 4x4 matrix for this channel

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0), (readonly)

matrix_channel
4x4 matrix, before constraints

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0), (readonly)

matrix_local
Matrix representing the parent relative location, scale and rotation. Provides an alternative access to these properties.

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

motion_path
Motion Path for this element

Type MotionPath, (readonly)

name

Type string, default ""

parent
Parent of this pose bone

Type PoseBone, (readonly)

rotation_axis_angle
Angle of Rotation for Axis-Angle rotation representation

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 1.0, 0.0)

rotation_euler
Rotation in Eulers

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

rotation_mode

Type enum in ['QUATERNION', 'XYZ', 'XZY', 'YXZ', 'YZX', 'ZXY', 'ZYX', 'AXIS_ANGLE'], default 'QUATERNION'

rotation_quaternion
Rotation in Quaternions

Type float array of 4 items in [-inf, inf], default (1.0, 0.0, 0.0, 0.0)

scale

Type float array of 3 items in [-inf, inf], default (1.0, 1.0, 1.0)

select

Type boolean, default False

tail
Location of tail of the channel's bone

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0), (readonly)

use_ik_limit_x
Limit movement around the X axis

Type boolean, default False

use_ik_limit_y
Limit movement around the Y axis

Type boolean, default False

use_ik_limit_z
Limit movement around the Z axis

Type boolean, default False

use_ik_linear_control
Apply channel size as IK constraint if stretching is enabled

Type boolean, default False

use_ik_rotation_control
Apply channel rotation as IK constraint

Type boolean, default False

basename
The name of this bone before any '.' character (readonly)

center
The midpoint between the head and the tail. (readonly)

children
A list of all the bones children. (readonly)

children_recursive
a list of all children from this bone. (readonly)

children_recursive_basename
Returns a chain of children with the same base name as this bone Only direct chains are supported, forks caused by multiple children with matching basenames will terminate the function and not be returned.

(readonly)

length
The distance from head to tail, when set the head is moved to fit the length.

parent_recursive
A list of parents, starting with the immediate parent (readonly)

vector
The direction this bone is pointing. Utility function for (tail - head) (readonly)

x_axis
Vector pointing down the x-axis of the bone.

(readonly)

y_axis
Vector pointing down the x-axis of the bone.

(readonly)

z_axis
Vector pointing down the x-axis of the bone.

(readonly)

parent_index(*parent_test*)
The same as 'bone in other_bone.parent_recursive' but saved generating a list.

translate(*vec*)
Utility function to add *vec* to the head and tail of this bone.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Pose.bones
- PoseBone.child
- PoseBone.custom_shape_transform
- PoseBone.parent

1.3.389 PoseBoneConstraints(bpy_struct)

base class — bpy_struct

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

Collection of pose bone constraints

active

Active PoseChannel constraint

Type Constraint

new(*type*)

Add a constraint to this object

Parameters

- **type** (*enum in ['COPY_LOCATION', 'COPY_ROTATION', 'COPY_SCALE', 'COPY_TRANSFORMS', 'LIMIT_DISTANCE', 'LIMIT_LOCATION', 'LIMIT_ROTATION', 'LIMIT_SCALE', 'MAINTAIN_VOLUME', 'TRANSFORM', 'CLAMP_TO', 'DAMPED_TRACK', 'IK', 'LOCKED_TRACK', 'SPLINE_IK', 'STRETCH_TO', 'TRACK_TO', 'ACTION', 'CHILD_OF', 'FLOOR', 'FOLLOW_PATH', 'PIVOT', 'RIGID_BODY_JOINT', 'SCRIPT', 'SHRINKWRAP']*) – Constraint type to add.

Returns New constraint.

Return type Constraint

remove(*constraint*)
Remove a constraint from this object.

Parameters

- **constraint** (Constraint, (never None)) – Removed constraint.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- PoseBone.constraints

1.3.390 PoseTemplate(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

class bpy.types.**PoseTemplate**(*IDPropertyGroup*)

name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- PoseTemplateSettings.templates

1.3.391 PoseTemplateSettings(IDPropertyGroup)

base classes — bpy_struct, IDPropertyGroup

class bpy.types.**PoseTemplateSettings**(*IDPropertyGroup*)

active_template_index

Type int in [-1, 65535], default -1

templates

Type Collection of PoseTemplate, (readonly)

use_generate_deform_rig

Create a copy of the metarig, constrainted by the generated rig

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- IDPropertyGroup.name

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.pose_templates

1.3.392 Property(bpy_struct)

base class — bpy_struct

subclasses — PointerProperty, EnumProperty, IntProperty, CollectionProperty, BooleanProperty, FloatProperty, StringProperty

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

RNA property definition

description

Description of the property for tooltips

Type string, default "", (readonly)

identifier

Unique name used in the code and scripting

Type string, default "", (readonly)

is_never_none

True when this value can't be set to None

Type boolean, default False, (readonly)

is_output

True when this property is an output value from an RNA function

Type boolean, default False, (readonly)

is_readonly

Property is editable through RNA

Type boolean, default False, (readonly)

is_registered

Property is registered as part of type registration

Type boolean, default False, (readonly)

is_registered_optional
Property is optionally registered as part of type registration

Type boolean, default False, (readonly)

is_required
False when this property is an optional argument in an RNA function

Type boolean, default False, (readonly)

is_runtime
Property is editable through RNA

Type boolean, default False, (readonly)

name
Human readable name

Type string, default "", (readonly)

srna
Struct definition used for properties assigned to this item

Type Struct, (readonly)

subtype
Semantic interpretation of the property

Type enum in ['NONE', 'FILE_PATH', 'DIRECTORY_PATH', 'UNSIGNED', 'PERCENTAGE', 'FACTOR', 'ANGLE', 'TIME', 'DISTANCE', 'COLOR', 'TRANSLATION', 'DIRECTION', 'MATRIX', 'EULER', 'QUATERNION', 'XYZ', 'COLOR_GAMMA', 'LAYER', 'LAYER_MEMBERSHIP'], default 'NONE', (readonly)

type
Data type of the property

Type enum in ['BOOLEAN', 'INT', 'FLOAT', 'STRING', 'ENUM', 'POINTER', 'COLLECTION'], default 'BOOLEAN', (readonly)

unit
Type of units for this property

Type enum in ['NONE', 'LENGTH', 'AREA', 'VOLUME', 'ROTATION', 'TIME', 'VELOCITY', 'ACCELERATION'], default 'NONE', (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Function.parameters
- Struct.properties

1.3.393 PropertyActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**PropertyActuator**(*Actuator*)

Actuator to handle properties

mode

Type enum in ['ASSIGN', 'ADD', 'COPY', 'TOGGLE'], default 'ASSIGN'

object

Copy from this Object

Type Object

object_property

Copy this property

Type string, default ""

property

The name of the property

Type string, default ""

value

The value to use, use "" around strings

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.394 PropertySensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**PropertySensor**(*Sensor*)

Sensor to detect values and changes in values of properties

evaluation_type

Type of property evaluation

Type enum in ['PROPEQUAL', 'PROPNEQUAL', 'PROPINTERVAL', 'PROPCHANGED'], default 'PROPEQUAL'

property

Type string, default ""

value

Check for this value in types in Equal or Not Equal types

Type string, default ""

value_max

Specify maximum value in Interval type

Type string, default ""

value_min

Specify minimum value in Interval type

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Sensor.name

- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.395 PythonConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**PythonConstraint**(*Constraint*)

Uses Python script for constraint evaluation

has_script_error

The linked Python script has thrown an error

Type boolean, default False, (readonly)

target_count

Usually only 1-3 are needed

Type int in [-inf, inf], default 0

targets

Target Objects

Type Collection of ConstraintTarget, (readonly)

text

The text object that contains the Python script

Type Text

use_targets
Use the targets indicated in the constraint panel

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.396 PythonController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**PythonController**(*Controller*)
Controller executing a python script

mode
Python script type (textblock or module - faster)

Type enum in ['SCRIPT', 'MODULE'], default 'SCRIPT'

module
Module name and function to run e.g. "someModule.main". Internal texts and external python files can be used

Type string, default ""

text
Text datablock with the python script

Type Text

use_debug
Continuously reload the module from disk for editing external modules without restarting

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.397 RGBANodeSocket(bpy_struct)

base class — bpy_struct

class bpy.types.**RGBANodeSocket**(*bpy_struct*)
Input or output socket of a node

default_value
Default value of the socket when no link is attached

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

name
Socket name

Type string, default "", (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.398 RadarSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**RadarSensor**(*Sensor*)
Sensor to detect objects in a cone shaped radar emanating from the current object

angle
Opening angle of the radar cone

Type float in [0, 179.9], default 0.0

axis
Specify along which axis the radar cone is cast

Type enum in ['XAXIS', 'YAXIS', 'ZAXIS', 'NEGXAXIS', 'NEGYAXIS', 'NEGZAXIS'], default 'YAXIS'

distance
Depth of the radar cone

Type float in [0, 10000], default 0.0

property
Only look for Objects with this property

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.399 RandomActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**RandomActuator**(*Actuator*)
Actuator to ..

chance
Pick a number between 0 and 1. Success if you stay below this value

Type float in [0, 1], default 0.0

distribution
Choose the type of distribution

Type enum in ['RESTART', 'SET', 'CAMERA', 'ADDFRONT', 'ADDBACK', 'REMOVE', 'SUSPEND', 'RESUME', 'RESUME', 'RESUME'], default 'RESTART'

float_max
Choose a number from a range. Upper boundary of the range

Type float in [-1000, 1000], default 0.0

float_mean
A normal distribution. Mean of the distribution

Type float in [-1000, 1000], default 0.0

float_min
Choose a number from a range. Lower boundary of the range

Type float in [-1000, 1000], default 0.0

float_value
Always return this number

Type float in [0, 1], default 0.0

half_life_time
Negative exponential dropoff

Type float in [-1000, 1000], default 0.0

int_max
Choose a number from a range. Upper boundary of the range

Type int in [-1000, 1000], default 0

int_mean
Expected mean value of the distribution

Type float in [0.01, 100], default 0.0

int_min
Choose a number from a range. Lower boundary of the range

Type int in [-1000, 1000], default 0

int_value
Always return this number

Type int in [-inf, inf], default 0

property
Assign the random value to this property

Type string, default ""

seed
Initial seed of the random generator. Use Python for more freedom (choose 0 for not random)

Type int in [0, 300000], default 0

standard_derivation
A normal distribution. Standard deviation of the distribution

Type float in [-1000, 1000], default 0.0

use_always_true
Always false or always true

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.400 RandomSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**RandomSensor**(*Sensor*)
Sensor to send random events

seed
Initial seed of the generator. (Choose 0 for not random)

Type int in [0, 1000], default 0

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency

- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.401 RaySensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**RaySensor**(*Sensor*)

Sensor to detect intersections with a ray emanating from the current object

axis

Specify along which axis the ray is cast

Type enum in ['XAXIS', 'YAXIS', 'ZAXIS', 'NEGXAXIS', 'NEGYAXIS', 'NEGZAXIS'], default 'YAXIS'

material

Only look for Objects with this material

Type string, default ""

property

Only look for Objects with this property

Type string, default ""

range

Sense objects no farther than this distance

Type float in [0.01, 10000], default 0.0

ray_type
Toggle collision on material or property

Type enum in ['PROPERTY', 'MATERIAL'], default 'PROPERTY'

use_x_ray
Toggle X-Ray option (see through objects that don't have the property)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.402 Region(bpy_struct)

base class — bpy_struct

class bpy.types.**Region**(*bpy_struct*)
Region in a subdivided screen area

height
Region height

Type int in [0, 32767], default 0, (readonly)

id
Unique ID for this region

Type int in [-32768, 32767], default 0, (readonly)

type
Type of this region

Type enum in ['WINDOW', 'HEADER', 'CHANNELS', 'TEMPORARY', 'UI', 'TOOLS', 'TOOL_PROPS', 'PREVIEW'], default 'WINDOW', (readonly)

width
Region width

Type int in [0, 32767], default 0, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Area.regions
- Context.region

1.3.403 RegionView3D(bpy_struct)

base class — bpy_struct

class bpy.types.**RegionView3D**(*bpy_struct*)
3D View region data

lock_rotation
Lock view rotation in side views

Type boolean, default False

perspective_matrix
Current perspective matrix of the 3D region

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0), (readonly)

show_sync_view
Sync view position between side views

Type boolean, default False

use_box_clip
Clip objects based on what's visible in other side views

Type boolean, default False

view_distance
Distance to the view location

Type float in [0, inf], default 0.0

view_location
View pivot location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

view_matrix
Current view matrix of the 3D region

Type float array of 16 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0), (readonly)

view_perspective
View Perspective

Type enum in ['PERSP', 'ORTHO', 'CAMERA'], default 'ORTHO'

view_rotate_method
Rotation in quaternions (keep normalized)

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Context.region_data
- SpaceView3D.region_3d
- SpaceView3D.region_quadview

1.3.404 RenderEngine(bpy_struct)

base class — bpy_struct

subclasses — NET_RENDER

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

Render engine

bl_idname

Type string, default “”

bl_label

Type string, default “”

bl_use_postprocess

Type boolean, default False

bl_use_preview

Type boolean, default False

render(*scene=None*)

Render scene into an image.

begin_result(*x*, *y*, *w*, *h*)

begin_result

Parameters

- **x** (*int in [0, inf]*) – X
- **y** (*int in [0, inf]*) – Y
- **w** (*int in [0, inf]*) – Width
- **h** (*int in [0, inf]*) – Height

Returns Result

Return type RenderResult

update_result(*result*)
update_result

Parameters

- **result** (RenderResult) – Result

end_result(*result*)
end_result

Parameters

- **result** (RenderResult) – Result

test_break()
test_break

Returns Break

Return type boolean

update_stats(*stats*, *info*)
update_stats

Parameters

- **stats** (*string*) – Stats
- **info** (*string*) – Info

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.405 RenderLayer(bpy_struct)

base class — bpy_struct

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

exclude_ambient_occlusion
Exclude AO pass from combined

Type boolean, default False, (readonly)

exclude_emit
Exclude emission pass from combined

Type boolean, default False, (readonly)

exclude_environment
Exclude environment pass from combined

Type boolean, default False, (readonly)

exclude_indirect
Exclude indirect pass from combined

Type boolean, default False, (readonly)

exclude_reflection
Exclude raytraced reflection pass from combined

Type boolean, default False, (readonly)

exclude_refraction
Exclude raytraced refraction pass from combined

Type boolean, default False, (readonly)

exclude_shadow
Exclude shadow pass from combined

Type boolean, default False, (readonly)

exclude_specular
Exclude specular pass from combined

Type boolean, default False, (readonly)

invert_zmask
For Zmask, only render what is behind solid z values instead of in front

Type boolean, default False, (readonly)

layers
Scene layers included in this render layer

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False), (readonly)

layers_zmask
Zmask scene layers

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False), (readonly)

light_override
Group to override all other lights in this render layer

Type Group, (readonly)

material_override
Material to override all other materials in this render layer

Type Material, (readonly)

name
Render layer name

Type string, default "", (readonly)

passes

Type Collection of RenderPass, (readonly)

rect

Type float in [-inf, inf], default 0.0

use
Disable or enable the render layer

Type boolean, default False, (readonly)

use_all_z
Fill in Z values for solid faces in invisible layers, for masking

Type boolean, default False, (readonly)

use_edge_enhance
Render Edge-enhance in this Layer (only works for Solid faces)

Type boolean, default False, (readonly)

use_halo
Render Halos in this Layer (on top of Solid)

Type boolean, default False, (readonly)

use_pass_ambient_occlusion
Deliver AO pass

Type boolean, default False, (readonly)

use_pass_color
Deliver shade-less color pass

Type boolean, default False, (readonly)

use_pass_combined
Deliver full combined RGBA buffer

Type boolean, default False, (readonly)

use_pass_diffuse
Deliver diffuse pass

Type boolean, default False, (readonly)

use_pass_emit
Deliver emission pass

Type boolean, default False, (readonly)

use_pass_environment
Deliver environment lighting pass

Type boolean, default False, (readonly)

use_pass_indirect
Deliver indirect lighting pass

Type boolean, default False, (readonly)

use_pass_mist
Deliver mist factor pass (0.0-1.0)

Type boolean, default False, (readonly)

use_pass_normal
Deliver normal pass

Type boolean, default False, (readonly)

use_pass_object_index
Deliver object index pass

Type boolean, default False, (readonly)

use_pass_reflection
Deliver raytraced reflection pass

Type boolean, default False, (readonly)

use_pass_refraction
Deliver raytraced refraction pass

Type boolean, default False, (readonly)

use_pass_shadow
Deliver shadow pass

Type boolean, default False, (readonly)

use_pass_specular
Deliver specular pass

Type boolean, default False, (readonly)

use_pass_uv
Deliver texture UV pass

Type boolean, default False, (readonly)

use_pass_vector
Deliver speed vector pass

Type boolean, default False, (readonly)

use_pass_z
Deliver Z values pass

Type boolean, default False, (readonly)

use_sky
Render Sky in this Layer

Type boolean, default False, (readonly)

use_solid
Render Solid faces in this Layer

Type boolean, default False, (readonly)

use_strand
Render Strands in this Layer

Type boolean, default False, (readonly)

use_zmask
Only render what's in front of the solid z values

Type boolean, default False, (readonly)

use_ztransp
Render Z-Transparent faces in this Layer (On top of Solid and Halos)

Type boolean, default False, (readonly)

load_from_file(*filename*)
Copies the pixels of this renderlayer from an image file.

Parameters

- **filename** (*string*) – Filename, Filename to load into this render tile, must be no smaller then the renderlayer

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- RenderResult.layers

1.3.406 RenderLayers(bpy_struct)

base class — bpy_struct

class bpy.types.**RenderLayers**(*bpy_struct*)
Collection of render layers

active
Active Render Layer

Type SceneRenderLayer

active_index
Active index in render layer array

Type int in [-32768, 32767], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- RenderSettings.layers

1.3.407 RenderPass(bpy_struct)

base class — bpy_struct

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

channel_id

Type string, default "", (readonly)

channels

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

name

Type string, default "", (readonly)

rect

Type float in [-inf, inf], default 0.0

type

Type enum in ['COMBINED', 'Z', 'COLOR', 'DIFFUSE', 'SPECULAR', 'SHADOW', 'AO', 'REFLECTION', 'NORMAL', 'VECTOR', 'REFRACTION', 'OBJECT_INDEX', 'UV', 'MIST', 'EMIT', 'ENVIRONMENT'], default 'COMBINED', (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- RenderLayer.passes

1.3.408 RenderResult(bpy_struct)

base class — bpy_struct

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

Result of rendering, including all layers and passes

layers

Type Collection of RenderLayer, (readonly)

resolution_x

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

resolution_y

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

load_from_file(*filename*)
Copies the pixels of this render result from an image file.

Parameters

- **filename** (*string*) – File Name, Filename to load into this render tile, must be no smaller then the render result

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- RenderEngine.begin_result
- RenderEngine.end_result
- RenderEngine.update_result

1.3.409 RenderSettings(bpy_struct)

base class — bpy_struct

class bpy.types.**RenderSettings**(*bpy_struct*)
Rendering settings for a Scene datablock

alpha_mode
Representation of alpha information in the RGBA pixels

Type enum in ['SKY', 'PREMUL', 'STRAIGHT'], default 'SKY'

antialiasing_samples
Amount of anti-aliasing samples per pixel

Type enum in [‘5’, ‘8’, ‘11’, ‘16’], default ‘5’

bake_aa_mode

Type enum in [‘5’, ‘8’, ‘11’, ‘16’], default ‘5’

bake_bias
Bias towards faces further away from the object (in blender units)

Type float in [0, 1000], default 0.0

bake_distance
Maximum distance from active object to other object (in blender units

Type float in [0, 1000], default 0.0

bake_margin
Amount of pixels to extend the baked result with, as post process filter

Type int in [0, 32], default 0

bake_normal_space
Choose normal space for baking

Type enum in [’CAMERA’, ‘WORLD’, ‘OBJECT’, ‘TANGENT’], default ‘CAMERA’

bake_quad_split
Choose the method used to split a quad into 2 triangles for baking

Type enum in [’AUTO’, ‘FIXED’, ‘FIXED_ALT’], default ‘AUTO’

bake_type
Choose shading information to bake into the image

Type enum in [’FULL’, ‘AO’, ‘SHADOW’, ‘NORMALS’, ‘TEXTURE’, ‘DISPLACEMENT’], default ‘FULL’

border_max_x
Sets maximum X value for the render border

Type float in [0, 1], default 0.0

border_max_y
Sets maximum Y value for the render border

Type float in [0, 1], default 0.0

border_min_x
Sets minimum X value to for the render border

Type float in [0, 1], default 0.0

border_min_y
Sets minimum Y value for the render border

Type float in [0, 1], default 0.0

cineon_black
Log conversion reference blackpoint

Type int in [0, 1024], default 0

cineon_gamma
Log conversion gamma

Type float in [0, 10], default 0.0

cineon_white
Log conversion reference whitepoint

Type int in [0, 1024], default 0

color_mode
Choose BW for saving greyscale images, RGB for saving red, green and blue channels, AND RGBA for saving red, green, blue + alpha channels

Type enum in ['BW', 'RGB', 'RGBA'], default 'BW'

display_mode
Select where rendered images will be displayed

Type enum in ['SCREEN', 'AREA', 'WINDOW'], default 'SCREEN'

dither_intensity
Amount of dithering noise added to the rendered image to break up banding

Type float in [0, 2], default 0.0

edge_color

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

edge_threshold
Threshold for drawing outlines on geometry edges

Type int in [0, 255], default 0

engine
Engine to use for rendering

Type enum in ['BLENDER_RENDER'], default 'BLENDER_RENDER'

field_order
Order of video fields. Select which lines get rendered first, to create smooth motion for TV output

Type enum in ['EVEN_FIRST', 'ODD_FIRST'], default 'EVEN_FIRST'

file_extension
The file extension used for saving renders

Type string, default "", (readonly)

file_format
File format to save the rendered images as

Type enum in ['BMP', 'IRIS', 'PNG', 'JPEG', 'TARGA', 'TARGA_RAW', 'AVI_JPEG', 'AVI_RAW', 'FRAMESERVER'], default 'TARGA'

file_quality
Quality of JPEG images, AVI Jpeg and SGI movies, Compression for PNG's

Type int in [0, 100], default 0

filepath
Directory/name to save animations, # characters defines the position and length of frame numbers

Type string, default ""

filter_size
Pixel width over which the reconstruction filter combines samples

Type float in [0.5, 1.5], default 0.0

fps
Framerate, expressed in frames per second

Type int in [1, 120], default 0

fps_base
Framerate base

Type float in [0.1, 120], default 0.0

has_multiple_engines
More than one rendering engine is available

Type boolean, default False, (readonly)

is_movie_format
When true the format is a movie

Type boolean, default False, (readonly)

layers

Type RenderLayers collection of SceneRenderLayer, (readonly)

motion_blur_samples
Number of scene samples to take with motion blur

Type int in [1, 32], default 0

motion_blur_shutter
Time taken in frames between shutter open and close

Type float in [0.01, 10], default 0.0

octree_resolution
Resolution of raytrace accelerator. Use higher resolutions for larger scenes

Type enum in ['64', '128', '256', '512'], default '64'

parts_x
Number of horizontal tiles to use while rendering

Type int in [1, 512], default 0

parts_y
Number of vertical tiles to use while rendering

Type int in [1, 512], default 0

pixel_aspect_x
Horizontal aspect ratio - for anamorphic or non-square pixel output

Type float in [1, 200], default 0.0

pixel_aspect_y
Vertical aspect ratio - for anamorphic or non-square pixel output

Type float in [1, 200], default 0.0

pixel_filter_type
Reconstruction filter used for combining anti-aliasing samples

Type enum in ['BOX', 'TENT', 'QUADRATIC', 'CUBIC', 'CATMULLROM', 'GAUSSIAN', 'MITCHELL'], default 'BOX'

raytrace_method
Type of raytrace accelerator structure

Type enum in ['AUTO', 'OCTREE', 'BLIBVH', 'VBVH', 'SIMD_SVBVH', 'SIMD_QBVH'], default 'AUTO'

resolution_percentage
Percentage scale for render resolution

Type int in [0, 32767], default 0

resolution_x
Number of horizontal pixels in the rendered image

Type int in [4, 10000], default 0

resolution_y
Number of vertical pixels in the rendered image

Type int in [4, 10000], default 0

sequencer_gl_preview
Method to draw in the sequencer view

Type enum in ['BOUNDBOX', 'WIREFRAME', 'SOLID', 'TEXTURED'], default 'BOUNDBOX'

sequencer_gl_render
Method to draw in the sequencer view

Type enum in ['BOUNDBOX', 'WIREFRAME', 'SOLID', 'TEXTURED'], default 'BOUNDBOX'

simplify_ao_sss
Global approximate AA and SSS quality factor

Type float in [0, 1], default 0.0

simplify_child_particles
Global child particles percentage

Type float in [0, 1], default 0.0

simplify_shadow_samples
Global maximum shadow samples

Type int in [0, 32767], default 0

simplify_subdivision
Global maximum subdivision level

Type int in [0, 32767], default 0

stamp_background
Color to use behind stamp text

Type float array of 4 items in [0, 1], default (0.0, 0.0, 0.0, 0.0)

stamp_font_size
Size of the font used when rendering stamp text

Type int in [8, 64], default 0

stamp_foreground
Color to use for stamp text

Type float array of 4 items in [0, 1], default (0.0, 0.0, 0.0, 0.0)

stamp_note_text
Custom text to appear in the stamp note

Type string, default “”

threads
Number of CPU threads to use simultaneously while rendering (for multi-core/CPU systems)

Type int in [1, 64], default 0

threads_mode
Determine the amount of render threads used

Type enum in [’AUTO’, ‘FIXED’], default ‘AUTO’

use_antialiasing
Render and combine multiple samples per pixel to prevent jagged edges

Type boolean, default False

use_backbuf
Render backbuffer image

Type boolean, default False

use_bake_antialiasing
Enables Anti-aliasing

Type boolean, default False

use_bake_clear
Clear Images before baking

Type boolean, default False

use_bake_normalize
With displacement normalize to the distance, with ambient occlusion normalize without using material settings

Type boolean, default False

use_bake_selected_to_active
Bake shading on the surface of selected objects to the active object

Type boolean, default False

use_border
Render a user-defined border region, within the frame size. Note, this disables save_buffers and full_sample

Type boolean, default False

use_cineon_log
Convert to logarithmic color space

Type boolean, default False

use_color_management
Use linear workflow - gamma corrected imaging pipeline

Type boolean, default False

use_compositing
Process the render result through the compositing pipeline, if compositing nodes are enabled

Type boolean, default False

use_crop_to_border
Crop the rendered frame to the defined border size

Type boolean, default False

use_edge_enhance
Create a toon outline around the edges of geometry

Type boolean, default False

use_envmaps
Calculate environment maps while rendering

Type boolean, default False

use_fields
Render image to two fields per frame, for interlaced TV output

Type boolean, default False

use_fields_still
Disable the time difference between fields

Type boolean, default False

use_file_extension
Add the file format extensions to the rendered file name (eg: filename + .jpg)

Type boolean, default False

use_free_image_textures
Free all image texture from memory after render, to save memory before compositing

Type boolean, default False

use_free_unused_nodes
Free Nodes that are not used while compositing, to save memory

Type boolean, default False

use_full_sample
Save for every anti-aliasing sample the entire RenderLayer results. This solves anti-aliasing issues with compositing

Type boolean, default False

use_game_engine
Current rendering engine is a game engine

Type boolean, default False, (readonly)

use_instances
Instance support leads to effective memory reduction when using duplicates

Type boolean, default False

use_local_coords
Vertex coordinates are stored localy on each primitive. Increases memory usage, but may have impact on speed

Type boolean, default False

use_motion_blur
Use multi-sampled 3D scene motion blur

Type boolean, default False

use_overwrite
Overwrite existing files while rendering

Type boolean, default False

use_placeholder
Create empty placeholder files while rendering frames (similar to Unix 'touch')

Type boolean, default False

use_radiosity
Calculate radiosity in a pre-process before rendering

Type boolean, default False

use_raytrace
Pre-calculate the raytrace accelerator and render raytracing effects

Type boolean, default False

use_save_buffers
Save tiles for all RenderLayers and SceneNodes to files in the temp directory (saves memory, required for Full Sample)

Type boolean, default False

use_sequencer
Process the render (and composited) result through the video sequence editor pipeline, if sequencer strips exist

Type boolean, default False

use_sequencer_gl_preview

Type boolean, default False

use_sequencer_gl_render

Type boolean, default False

use_shadows
Calculate shadows while rendering

Type boolean, default False

use_simplify
Enable simplification of scene for quicker preview renders

Type boolean, default False

use_simplify_triangulate
Disables non-planer quads being triangulated

Type boolean, default False

use_single_layer
Only render the active layer

Type boolean, default False

use_sss
Calculate sub-surface scattering in materials rendering

Type boolean, default False

use_stamp
Render the stamp info text in the rendered image

Type boolean, default False

use_stamp_camera
Include the name of the active camera in image metadata

Type boolean, default False

use_stamp_date
Include the current date in image metadata

Type boolean, default False

use_stamp_filename
Include the filename of the .blend file in image metadata

Type boolean, default False

use_stamp_frame
Include the frame number in image metadata

Type boolean, default False

use_stamp_marker
Include the name of the last marker in image metadata

Type boolean, default False

use_stamp_note
Include a custom note in image metadata

Type boolean, default False

use_stamp_render_time
Include the render time in the stamp image

Type boolean, default False

use_stamp_scene
Include the name of the active scene in image metadata

Type boolean, default False

use_stamp_sequencer_strip
Include the name of the foreground sequence strip in image metadata

Type boolean, default False

use_stamp_time
Include the render frame as HH:MM:SS.FF in image metadata

Type boolean, default False

use_textures
Use textures to affect material properties

Type boolean, default False

use_tiff_16bit
Save TIFF with 16 bits per channel

Type boolean, default False

frame_path(*frame=-2147483648*)
Set scene frame updating all objects immediately.

Parameters

- **frame** (*int in [-inf, inf], (optional)*) – Frame number to use, if unset the current frame will be used.

Returns File Name, the resulting filename from the scenes render settings.

Return type string

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.render

1.3.410 RigidBodyJointConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**RigidBodyJointConstraint**(*Constraint*)

For use with the Game Engine

axis_x

Rotate pivot on X axis in degrees

Type float in [-6.28319, 6.28319], default 0.0

axis_y

Rotate pivot on Y axis in degrees

Type float in [-6.28319, 6.28319], default 0.0

axis_z

Rotate pivot on Z axis in degrees

Type float in [-6.28319, 6.28319], default 0.0

child
Child object

Type Object

pivot_type

Type enum in ['BALL', 'HINGE', 'CONE_TWIST', 'GENERIC_6_DOF'], default 'BALL'

pivot_x
Offset pivot on X

Type float in [-1000, 1000], default 0.0

pivot_y
Offset pivot on Y

Type float in [-1000, 1000], default 0.0

pivot_z
Offset pivot on Z

Type float in [-1000, 1000], default 0.0

show_pivot
Display the pivot point and rotation in 3D view

Type boolean, default False

target
Target Object

Type Object

use_linked_collision
Disable collision between linked bodies

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.411 SPHFluidSettings(bpy_struct)

base class — bpy_struct

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

Settings for particle fluids physics

buoyancy

Type float in [0, 1], default 0.0

fluid_radius

Fluid interaction Radius

Type float in [0, 2], default 0.0

rest_density

Density

Type float in [0, 100], default 0.0

rest_length

The Spring Rest Length (factor of interaction radius)

Type float in [0, 1], default 0.0

spring_force

Spring force constant

Type float in [0, 1], default 0.0

stiffness

Constant K - Stiffness

Type float in [0, 100], default 0.0

stiffness_near

Repulsion factor: stiffness_knear

Type float in [0, 100], default 0.0

viscosity_beta

Square viscosity factor

Type float in [0, 100], default 0.0

viscosity_omega
Linear viscosity

Type float in [0, 100], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ParticleSettings.fluid

1.3.412 Scene(ID)

base classes — bpy_struct, ID

class bpy.types.**Scene**(*ID*)
Scene consisting objects and defining time and render related settings

animation_data
Animation data for this datablock

Type AnimData, (readonly)

audio_distance_model
Distance model for distance attenuation calculation

Type enum in ['NONE', 'INVERSE', 'INVERSE_CLAMPED', 'LINEAR', 'LINEAR_CLAMPED', 'EXPONENT', 'EXPONENT_CLAMPED'], default 'NONE'

audio_doppler_factor
Pitch factor for Doppler effect calculation

Type float in [0, inf], default 0.0

audio_doppler_speed
Speed of sound for Doppler effect calculation

Type float in [0.01, inf], default 0.0

background_set
Background set scene

Type Scene

camera
Active camera used for rendering the scene

Type Object

cursor_location
3D cursor location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_current

Type int in [-300000, 300000], default 0

frame_end
Final frame of the playback/rendering range

Type int in [0, 300000], default 0

frame_preview_end
Alternative end frame for UI playback

Type int in [-inf, inf], default 0

frame_preview_start
Alternative start frame for UI playback

Type int in [-inf, inf], default 0

frame_start
First frame of the playback/rendering range

Type int in [0, 300000], default 0

frame_step
Number of frames to skip forward while rendering/playing back each frame

Type int in [0, 300000], default 0

game_settings

Type SceneGameData, (readonly, never None)

gravity
Constant acceleration in a given direction

Type float array of 3 items in [-200, 200], default (0.0, 0.0, 0.0)

grease_pencil
Grease Pencil datablock

Type GreasePencil

is_nla_tweakmode
Indicates whether there is any action referenced by NLA being edited. Strictly read-only

Type boolean, default False, (readonly)

keying_sets
Absolute Keying Sets for this Scene

Type KeyingSets collection of KeyingSet, (readonly)

keying_sets_all
All Keying Sets available for use (Builtins and Absolute Keying Sets for this Scene)

Type KeyingSetsAll collection of KeyingSet, (readonly)

layers
Layers visible when rendering the scene

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

network_render
Network Render Settings

Type NetRenderSettings, (readonly)

nodetree
Compositing node tree

Type NodeTree, (readonly)

object_bases

Type SceneBases collection of ObjectBase, (readonly)

objects

Type SceneObjects collection of Object, (readonly)

orientations

Type Collection of TransformOrientation, (readonly)

pose_templates
Pose Template Settings

Type PoseTemplateSettings, (readonly)

render

Type RenderSettings, (readonly, never None)

sequence_editor

Type SequenceEditor, (readonly)

sync_mode
How to sync playback

Type enum in ['NONE', 'FRAME_DROP', 'AUDIO_SYNC'], default 'NONE'

timeline_markers
Markers used in all timelines for the current scene

Type TimelineMarkers collection of TimelineMarker, (readonly)

tool_settings

Type ToolSettings, (readonly, never None)

unit_settings
Unit editing settings

Type UnitSettings, (readonly, never None)

use_audio
Play back of audio from Sequence Editor will be muted

Type boolean, default False

use_audio_scrub
Play audio from Sequence Editor while scrubbing

Type boolean, default False

use_audio_sync
Play back and sync with audio clock, dropping frames if frame display is too slow

Type boolean, default False

use_frame_drop
Play back dropping frames if frame display is too slow

Type boolean, default False

use_gravity
Use global gravity for all dynamics

Type boolean, default False

use_nodes
Enable the compositing node tree

Type boolean, default False

use_preview_range
Use an alternative start/end frame for UI playback, rather than the scene start/end frame

Type boolean, default False

use_stamp_note
User define note for the render stamping

Type string, default ""

world
World used for rendering the scene

Type World

statistics()
statistics

Returns Statistics

Return type string

frame_set(*frame*, *subframe=0.0*)
Set scene frame updating all objects immediately.

Parameters

- **frame** (*int in [-300000, 300000]*) – Frame number to set.
- **subframe** (*float in [0, 1], (optional)*) – Sub-frame time, between 0.0 and 1.0

update()
Update data tagged to be updated from previous access to data or operators.

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.scenes
- CompositorNodeRLayers.scene
- Context.scene
- Image.save_render
- MainScenes.new
- MainScenes.remove
- Object.create_dupli_list
- Object.create_mesh
- Object.is_visible
- Object.update
- RenderEngine.render
- Scene.background_set
- SceneActuator.scene
- SceneSequence.scene
- Screen.scene

1.3.413 SceneActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**SceneActuator**(*Actuator*)

Actuator to ..

camera

Set this Camera. Leave empty to refer to self object

Type Object

mode

Type enum in ['RESTART', 'SET', 'CAMERA', 'ADDFRONT', 'ADDBACK', 'REMOVE', 'SUSPEND', 'RESUME'], default 'RESTART'

scene

Set the Scene to be added/removed/paused/resumed

Type Scene

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.414 SceneBases(bpy_struct)

base class — bpy_struct

class bpy.types.**SceneBases**(*bpy_struct*)
Collection of scene bases

active
Active object base in the scene

Type ObjectBase

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.object_bases

1.3.415 SceneGameData(bpy_struct)

base class — bpy_struct

class bpy.types.**SceneGameData**(*bpy_struct*)
Game data for a Scene datablock

activity_culling_box_radius
Radius of the activity bubble, in Manhattan length. Objects outside the box are activity-culled

Type float in [0, 1000], default 0.0

depth
Displays bit depth of full screen display

Type int in [8, 32], default 0

dome_angle
Field of View of the Dome - it only works in mode Fisheye and Truncated

Type int in [-32768, 32767], default 0

dome_buffer_resolution
Buffer Resolution - decrease it to increase speed

Type float in [-inf, inf], default 0.0

dome_mode
Dome physical configurations

Type enum in ['FISHEYE', 'TRUNCATED_FRONT', 'TRUNCATED_REAR', 'ENVMAP', 'PANORAM_SPH'], default 'FISHEYE'

dome_tesselation
Tessellation level - check the generated mesh in wireframe mode

Type int in [-32768, 32767], default 0

dome_text
Custom Warp Mesh data file

Type Text

dome_tilt
Camera rotation in horizontal axis

Type int in [-32768, 32767], default 0

fps
The nominal number of game frames per second. Physics fixed timestep = 1/fps, independently of actual frame rate

Type int in [1, 250], default 0

frame_color
Set colour of the bars

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_type
Select the type of Framing you want

Type enum in ['LETTERBOX', 'EXTEND', 'SCALE'], default 'LETTERBOX'

frequency
Displays clock frequency of fullscreen display

Type int in [4, 2000], default 0

logic_step_max
Sets the maximum number of logic frame per game frame if graphics slows down the game, higher value allows better synchronization with physics

Type int in [1, 5], default 0

material_mode
Material mode to use for rendering

Type enum in ['TEXTURE_FACE', 'MULTITEXTURE', 'GLSL'], default 'TEXTURE_FACE'

occlusion_culling_resolution
The size of the occlusion buffer in pixel, use higher value for better precision (slower)

Type float in [128, 1024], default 0.0

physics_engine
Physics engine used for physics simulation in the game engine

Type enum in ['NONE', 'BULLET'], default 'NONE'

physics_gravity
Gravitational constant used for physics simulation in the game engine

Type float in [0, 25], default 0.0

physics_step_max
Sets the maximum number of physics step per game frame if graphics slows down the game, higher value allows physics to keep up with realtime

Type int in [1, 5], default 0

physics_step_sub
Sets the number of simulation substep per physic timestep, higher value give better physics precision

Type int in [1, 5], default 0

resolution_x
Number of horizontal pixels in the screen

Type int in [4, 10000], default 0

resolution_y
Number of vertical pixels in the screen

Type int in [4, 10000], default 0

show_debug_properties
Show properties marked for debugging while the game runs

Type boolean, default False

show_framerate_profile
Show framerate and profiling information while the game runs

Type boolean, default False

show_fullscreen
Starts player in a new fullscreen display

Type boolean, default False

show_physics_visualization
Show a visualization of physics bounds and interactions

Type boolean, default False

stereo

Type enum in ['NONE', 'STEREO', 'DOME'], default 'NONE'

stereo_eye_separation
Set the distance between the eyes - the camera focal length/30 should be fine

Type float in [0.01, 5], default 0.0

stereo_mode
Stereographic techniques

Type enum in ['QUADBUFFERED', 'ABOVEBELOW', 'INTERLACED', 'ANAGLYPH', 'SIDEBYSIDE', 'VINTERLACE'], default 'QUADBUFFERED'

use_activity_culling
Activity culling is enabled

Type boolean, default False

use_animation_record
Record animation to fcurves

Type boolean, default False

use_auto_start
Automatically start game at load time

Type boolean, default False

use_deprecation_warnings
Print warnings when using deprecated features in the python API

Type boolean, default False

use_display_lists
Use display lists to speed up rendering by keeping geometry on the GPU

Type boolean, default False

use_frame_rate
Respect the frame rate rather than rendering as many frames as possible

Type boolean, default False

use_glsl_extra_textures
Use extra textures like normal or specular maps for GLSL rendering

Type boolean, default False

use_glsl_lights
Use lights for GLSL rendering

Type boolean, default False

use_glsl_nodes
Use nodes for GLSL rendering

Type boolean, default False

use_glsl_ramps
Use ramps for GLSL rendering

Type boolean, default False

use_glsl_shaders
Use shaders for GLSL rendering

Type boolean, default False

use_glsl_shadows
Use shadows for GLSL rendering

Type boolean, default False

use_occlusion_culling
Use optimized Bullet DBVT tree for view frustum and occlusion culling

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.game_settings

1.3.416 SceneObjects(bpy_struct)

base class — bpy_struct

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

Collection of scene objects

active

Active object for this scene

Type Object

link(*object*)

Link object to scene, run scene.update() after.

Parameters

- **object** (Object) – Object to add to scene.

Returns The newly created base.

Return type ObjectBase

unlink(*object*)

Unlink object from scene.

Parameters

- **object** (Object) – Object to remove from scene.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.objects

1.3.417 SceneRenderLayer(bpy_struct)

base class — bpy_struct

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

Render layer

exclude_ambient_occlusion

Exclude AO pass from combined

Type boolean, default False

exclude_emit

Exclude emission pass from combined

Type boolean, default False

exclude_environment

Exclude environment pass from combined

Type boolean, default False

exclude_indirect

Exclude indirect pass from combined

Type boolean, default False

exclude_reflection
Exclude raytraced reflection pass from combined

Type boolean, default False

exclude_refraction
Exclude raytraced refraction pass from combined

Type boolean, default False

exclude_shadow
Exclude shadow pass from combined

Type boolean, default False

exclude_specular
Exclude specular pass from combined

Type boolean, default False

invert_zmask
For Zmask, only render what is behind solid z values instead of in front

Type boolean, default False

layers
Scene layers included in this render layer

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

layers_zmask
Zmask scene layers

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

light_override
Group to override all other lights in this render layer

Type Group

material_override
Material to override all other materials in this render layer

Type Material

name
Render layer name

Type string, default ""

use
Disable or enable the render layer

Type boolean, default False

use_all_z
Fill in Z values for solid faces in invisible layers, for masking

Type boolean, default False

use_edge_enhance
Render Edge-enhance in this Layer (only works for Solid faces)

Type boolean, default False

use_halo
Render Halos in this Layer (on top of Solid)

Type boolean, default False

use_pass_ambient_occlusion
Deliver AO pass

Type boolean, default False

use_pass_color
Deliver shade-less color pass

Type boolean, default False

use_pass_combined
Deliver full combined RGBA buffer

Type boolean, default False

use_pass_diffuse
Deliver diffuse pass

Type boolean, default False

use_pass_emit
Deliver emission pass

Type boolean, default False

use_pass_environment
Deliver environment lighting pass

Type boolean, default False

use_pass_indirect
Deliver indirect lighting pass

Type boolean, default False

use_pass_mist
Deliver mist factor pass (0.0-1.0)

Type boolean, default False

use_pass_normal
Deliver normal pass

Type boolean, default False

use_pass_object_index
Deliver object index pass

Type boolean, default False

use_pass_reflection
Deliver raytraced reflection pass

Type boolean, default False

use_pass_refraction
Deliver raytraced refraction pass

Type boolean, default False

use_pass_shadow
Deliver shadow pass

Type boolean, default False

use_pass_specular
Deliver specular pass

Type boolean, default False

use_pass_uv
Deliver texture UV pass

Type boolean, default False

use_pass_vector
Deliver speed vector pass

Type boolean, default False

use_pass_z
Deliver Z values pass

Type boolean, default False

use_sky
Render Sky in this Layer

Type boolean, default False

use_solid
Render Solid faces in this Layer

Type boolean, default False

use_strand
Render Strands in this Layer

Type boolean, default False

use_zmask
Only render what's in front of the solid z values

Type boolean, default False

use_ztransp
Render Z-Transparent faces in this Layer (On top of Solid and Halos)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- RenderLayers.active
- RenderSettings.layers

1.3.418 SceneSequence(Sequence)

base classes — bpy_struct, Sequence

class bpy.types.**SceneSequence**(*Sequence*)

Sequence strip to used the rendered image of a scene

animation_offset_end

Animation end offset (trim end)

Type int in [0, inf], default 0

animation_offset_start

Animation start offset (trim start)

Type int in [0, inf], default 0

color_balance

Type SequenceColorBalance, (readonly)

color_multiply

Type float in [0, 20], default 0.0

color_saturation

Type float in [0, 20], default 0.0

crop

Type SequenceCrop, (readonly)

proxy

Type SequenceProxy, (readonly)

scene

Scene that this sequence uses

Type Scene

scene_camera

Override the scenes active camera

Type Object

strobe
Only display every nth frame

Type float in [1, 30], default 0.0

transform

Type SequenceTransform, (readonly)

use_color_balance
(3-Way color correction) on input

Type boolean, default False

use_crop
Crop image before processing

Type boolean, default False

use_deinterlace
For video movies to remove fields

Type boolean, default False

use_flip_x
Flip on the X axis

Type boolean, default False

use_flip_y
Flip on the Y axis

Type boolean, default False

use_float
Convert input to float data

Type boolean, default False

use_premultiply
Convert RGB from key alpha to premultiplied alpha

Type boolean, default False

use_proxy
Use a preview proxy for this strip

Type boolean, default False

use_proxy_custom_directory
Use a custom directory to store data

Type boolean, default False

use_proxy_custom_file
Use a custom file to read proxy data from

Type boolean, default False

use_reverse_frames
Reverse frame order

Type boolean, default False

use_translation
Translate image before processing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.419 Scopes(bpy_struct)

base class — bpy_struct

class bpy.types.**Scopes**(*bpy_struct*)
Scopes for statistical view of an image

accuracy
Proportion of original image source pixel lines to sample

Type float in [0, 100], default 0.0

histogram
Histogram for viewing image statistics

Type Histogram, (readonly)

use_full_resolution
Sample every pixel of the image

Type boolean, default False

vectorscope_alpha
Opacity of the points

Type float in [0, 1], default 0.0

waveform_alpha
Opacity of the points

Type float in [0, 1], default 0.0

waveform_mode

Type enum in ['LUMA', 'RGB', 'YCBCR601', 'YCBCR709', 'YCBCRJPG'], default 'LUMA'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- SpaceImageEditor.scopes

1.3.420 Screen(ID)

base classes — bpy_struct, ID

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

Screen datablock, defining the layout of areas in a window

areas

Areas the screen is subdivided into

Type Collection of Area, (readonly)

is_animation_playing

Animation playback is active

Type boolean, default False, (readonly)

scene

Active scene to be edited in the screen

Type Scene, (never None)

show_fullscreen

An area is maximised, filling this screen

Type boolean, default False, (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.screens
- Context.screen
- Window.screen

1.3.421 ScrewModifier(Modifier)

base classes — bpy_struct, Modifier

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

Revolve edges

angle

Angle of revolution

Type float in [-inf, inf], default 0.0

axis

Screw axis

Type enum in ['X', 'Y', 'Z'], default 'X'

iterations

Number of times to apply the screw operation

Type int in [1, 10000], default 0

object

Object to define the screw axis

Type Object

render_steps

Number of steps in the revolution

Type int in [2, 10000], default 0

screw_offset

Offset the revolution along its axis

Type float in [-inf, inf], default 0.0

steps

Number of steps in the revolution

Type int in [2, 10000], default 0

use_normal_calculate
Calculate the order of edges (needed for meshes, but not curves)

Type boolean, default False

use_normal_flip
Flip normals of lathed faces

Type boolean, default False

use_object_screw_offset
Use the distance between the objects to make a screw

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.422 Sculpt(Paint)

base classes — bpy_struct, Paint

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

lock_x
Disallow changes to the X axis of vertices

Type boolean, default False

lock_y
Disallow changes to the Y axis of vertices

Type boolean, default False

lock_z
Disallow changes to the Z axis of vertices

Type boolean, default False

radial_symmetry
Number of times to copy strokes across the surface

Type int array of 3 items in [1, 64], default (1, 1, 1)

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

Type boolean, default False

use_threaded
Take advantage of multiple CPU cores to improve sculpting performance

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Paint.brush
- Paint.show_low_resolution
- Paint.show_brush
- Paint.show_brush_on_surface

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ToolSettings.sculpt

1.3.423 Sensor(bpy_struct)

base class — bpy_struct

subclasses — RaySensor, PropertySensor, MessageSensor, TouchSensor, JoystickSensor, CollisionSensor, RadarSensor, DelaySensor, RandomSensor, AlwaysSensor, ActuatorSensor, MouseSensor, ArmatureSensor, KeyboardSensor, NearSensor

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

Game engine logic brick to detect events

frequency

Delay between repeated pulses(in logic tics, 0=no delay)

Type int in [0, 10000], default 0

invert

Invert the level(output) of this sensor

Type boolean, default False

name

Sensor name

Type string, default ""

pin

Display when not linked to a visible states controller

Type boolean, default False

show_expanded

Set sensor expanded in the user interface

Type boolean, default False

type

Type enum in ['ACTUATOR', 'ALWAYS', 'ARMATURE', 'COLLISION', 'DELAY', 'JOYSTICK', 'KEYBOARD', 'MESSAGE', 'MOUSE', 'NEAR', 'PROPERTY', 'RADAR', 'RANDOM', 'RAY', 'TOUCH'], default 'ALWAYS'

use_level

Level detector, trigger controllers of new states(only applicable upon logic state transition)

Type boolean, default False

use_pulse_false_level
Activate FALSE level triggering (pulse mode)

Type boolean, default False

use_pulse_true_level
Activate TRUE level triggering (pulse mode)

Type boolean, default False

use_tap
Trigger controllers only for an instant, even while the sensor remains true

Type boolean, default False

link(*controller*)
Link the sensor to a controller.

Parameters

- **controller** (Controller) – Controller to link to.

unlink(*controller*)
Unlink the sensor from a controller.

Parameters

- **controller** (Controller) – Controller to unlink from.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Controller.link
- Controller.unlink

- GameObjectSettings.sensors

1.3.424 Sequence(bpy_struct)

base class — bpy_struct

subclasses — MulticamSequence, ImageSequence, SceneSequence, MetaSequence, SoundSequence, MovieSequence, EffectSequence

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

Sequence strip in the sequence editor

blend_alpha

Type float in [0, 1], default 0.0

blend_type

Type enum in ['REPLACE', 'CROSS', 'ADD', 'SUBTRACT', 'ALPHA_OVER', 'ALPHA_UNDER', 'GAMMA_CROSS', 'MULTIPLY', 'OVER_DROP'], default 'REPLACE'

channel

Y position of the sequence strip

Type int in [0, 31], default 0

effect_fader

Type float in [0, 1], default 0.0

frame_duration

The length of the contents of this strip before the handles are applied

Type int in [1, 300000], default 0, (readonly)

frame_final_duration

The length of the contents of this strip before the handles are applied

Type int in [1, 300000], default 0

frame_final_end

End frame displayed in the sequence editor after offsets are applied

Type int in [-inf, inf], default 0

frame_final_start

Start frame displayed in the sequence editor after offsets are applied, setting this is equivalent to moving the handle, not the actual start frame

Type int in [-inf, inf], default 0

frame_offset_end

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

frame_offset_start

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

frame_start

Type int in [-inf, inf], default 0

frame_still_end

Type int in [0, 300000], default 0, (readonly)

frame_still_start

Type int in [0, 300000], default 0, (readonly)

lock
Lock strip so that it can't be transformed

Type boolean, default False

mute

Type boolean, default False

name

Type string, default ""

select

Type boolean, default False

select_left_handle

Type boolean, default False

select_right_handle

Type boolean, default False

speed_fader

Type float in [-inf, inf], default 0.0

type

Type enum in ['IMAGE', 'META', 'SCENE', 'MOVIE', 'SOUND', 'CROSS', 'ADD', 'SUBTRACT', 'ALPHA_OVER', 'ALPHA_UNDER', 'GAMMA_CROSS', 'MULTIPLY', 'OVER_DROP', 'PLUGIN', 'WIPE', 'GLOW', 'TRANSFORM', 'COLOR', 'SPEED', 'MULTICAM'], default 'IMAGE', (readonly)

use_default_fade
Fade effect using the built-in default (usually make transition as long as effect strip)

Type boolean, default False

getStripElem(*frame*)
Return the strip element from a given frame or None.

Parameters

- **frame** (*int in [-300000, 300000]*) – Frame, The frame to get the strip element from

Returns strip element of the current frame

Return type SequenceElement

swap(*other*)
swap

Parameters

- **other** (Sequence) – Other

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- MetaSequence.sequences
- Sequence.swap
- SequenceEditor.active_strip
- SequenceEditor.meta_stack
- SequenceEditor.sequences
- SequenceEditor.sequences_all

1.3.425 SequenceColorBalance(bpy_struct)

base class — bpy_struct

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

Color balance parameters for a sequence strip

gain

Color balance gain (highlights)

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

gamma

Color balance gamma (midtones)

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

invert_gain

Type boolean, default False

invert_gamma

Type boolean, default False

invert_lift

Type boolean, default False

lift
Color balance lift (shadows)

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- EffectSequence.color_balance
- ImageSequence.color_balance
- MetaSequence.color_balance
- MovieSequence.color_balance
- MulticamSequence.color_balance
- SceneSequence.color_balance

1.3.426 SequenceCrop(bpy_struct)

base class — bpy_struct

class bpy.types.**SequenceCrop**(*bpy_struct*)
Cropping parameters for a sequence strip

max_x

Type int in [0, inf], default 0

max_y

Type int in [0, inf], default 0

min_x

Type int in [0, inf], default 0

min_y

Type int in [0, inf], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- EffectSequence.crop
- ImageSequence.crop
- MetaSequence.crop
- MovieSequence.crop
- MulticamSequence.crop
- SceneSequence.crop

1.3.427 SequenceEditor(bpy_struct)

base class — bpy_struct

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

Sequence editing data for a Scene datablock

active_strip

Type Sequence

meta_stack

Meta strip stack, last is currently edited meta strip

Type Collection of Sequence, (readonly)

overlay_frame
Sequencers active strip

Type int in [-inf, inf], default 0

overlay_lock

Type boolean, default False

sequences

Type Collection of Sequence, (readonly)

sequences_all

Type Collection of Sequence, (readonly)

show_overlay
Partial overlay ontop of the sequencer

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.sequence_editor

1.3.428 SequenceElement(bpy_struct)

base class — bpy_struct

class bpy.types.**SequenceElement**(*bpy_struct*)
Sequence strip data for a single frame

filename

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ImageSequence.elements
- Sequence.getStripElem

1.3.429 SequenceProxy(bpy_struct)

base class — bpy_struct

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

Proxy parameters for a sequence strip

directory

Location to store the proxy files

Type string, default “”

filepath

Location of custom proxy file

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- EffectSequence.proxy
- ImageSequence.proxy
- MetaSequence.proxy
- MovieSequence.proxy
- MulticamSequence.proxy
- SceneSequence.proxy

1.3.430 SequenceTransform(bpy_struct)

base class — bpy_struct

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

Transform parameters for a sequence strip

offset_x

Type int in [-inf, inf], default 0

offset_y

Type int in [-inf, inf], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- EffectSequence.transform
- ImageSequence.transform
- MetaSequence.transform
- MovieSequence.transform
- MulticamSequence.transform
- SceneSequence.transform

1.3.431 ShaderNode(Node)

base classes — bpy_struct, Node

subclasses — ShaderNodeHueSaturation, ShaderNodeVectorMath, ShaderNodeRGB, ShaderNodeCameraData, ShaderNodeSeparateRGB, ShaderNodeMath, ShaderNodeRGBToBW, ShaderNodeExtendedMaterial, ShaderNodeRGBCurve, ShaderNodeInvert, ShaderNodeMaterial, ShaderNodeValue, ShaderNodeMixRGB, ShaderNodeVectorCurve, ShaderNodeCombineRGB, ShaderNodeOutput, ShaderNodeValToRGB, ShaderNodeGeometry, ShaderNodeTexture, ShaderNodeMapping, ShaderNodeSqueeze, ShaderNodeNormal

class bpy.types.**ShaderNode**(*Node*)

Material shader node

type

Type enum in ['OUTPUT', 'MATERIAL', 'RGB', 'VALUE', 'MIX_RGB', 'VALTORGB', 'RGBTOBW', 'TEXTURE', 'NORMAL', 'GEOMETRY', 'MAPPING', 'CURVE_VEC', 'CURVE_RGB', 'CAMERA', 'MATH', 'VECT_MATH', 'SQUEEZE', 'MATERIAL_EXT', 'INVERT', 'SEPRGB', 'COMBRGB', 'HUE_SAT', 'SCRIPT', 'GROUP'], default 'OUTPUT', (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.432 ShaderNodeCameraData(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeCameraData**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.433 ShaderNodeCombineRGB(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeCombineRGB**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.434 ShaderNodeExtendedMaterial(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeExtendedMaterial**(*ShaderNode*)

invert_normal
Material Node uses inverted normal

Type boolean, default False

material

Type Material

use_diffuse
Material Node outputs Diffuse

Type boolean, default False

use_specular
Material Node outputs Specular

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.435 ShaderNodeGeometry(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeGeometry**(*ShaderNode*)

color_layer

Type string, default “”

uv_layer

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.436 ShaderNodeHueSaturation(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeHueSaturation**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.437 ShaderNodeInvert(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeInvert**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.438 ShaderNodeMapping(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeMapping**(*ShaderNode*)

location
Location offset for the input coordinate

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

max
Maximum value to clamp coordinate to

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

min
Minimum value to clamp coordinate to

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

rotation
Rotation offset for the input coordinate

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scale
Scale adjustment for the input coordinate

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

use_max
Clamp the output coordinate to a maximum value

Type boolean, default False

use_min
Clamp the output coordinate to a minimum value

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.439 ShaderNodeMaterial(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeMaterial**(*ShaderNode*)

invert_normal
Material Node uses inverted normal

Type boolean, default False

material

Type Material

use_diffuse
Material Node outputs Diffuse

Type boolean, default False

use_specular
Material Node outputs Specular

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.440 ShaderNodeMath(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeMath**(*ShaderNode*)

operation

Type enum in ['ADD', 'SUBTRACT', 'MULTIPLY', 'DIVIDE', 'SINE', 'COSINE', 'TANGENT', 'ARCSINE', 'ARCCOSINE', 'ARCTANGENT', 'POWER', 'LOGARITHM', 'MINIMUM', 'MAXIMUM', 'ROUND', 'LESS_THAN', 'GREATER_THAN'], default 'ADD'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.441 ShaderNodeMixRGB(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeMixRGB**(*ShaderNode*)

blend_type

Type enum in ['MIX', 'ADD', 'SUBTRACT', 'MULTIPLY', 'SCREEN', 'OVERLAY', 'DIVIDE', 'DIFFERENCE', 'DARKEN', 'LIGHTEN', 'DODGE', 'BURN', 'COLOR', 'VALUE', 'SATURATION', 'HUE', 'SOFT_LIGHT', 'LINEAR_LIGHT'], default 'MIX'

use_alpha

Include alpha of second input in this operation

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.442 ShaderNodeNormal(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeNormal**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name

- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.443 ShaderNodeOutput(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeOutput**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.444 ShaderNodeRGB(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeRGB**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.445 ShaderNodeRGBCurve(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeRGBCurve**(*ShaderNode*)

mapping

Type CurveMapping, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.446 ShaderNodeRGBToBW(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeRGBToBW**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.447 ShaderNodeSeparateRGB(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeSeparateRGB**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.448 ShaderNodeSqueeze(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeSqueeze**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.449 ShaderNodeTexture(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeTexture**(*ShaderNode*)

node_output
For node-based textures, which output node to use

Type int in [-32768, 32767], default 0

texture

Type Texture

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.450 ShaderNodeValToRGB(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeValToRGB**(*ShaderNode*)

color_ramp

Type ColorRamp, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.451 ShaderNodeValue(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeValue**(*ShaderNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.452 ShaderNodeVectorCurve(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeVectorCurve**(*ShaderNode*)

mapping

Type CurveMapping, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.453 ShaderNodeVectorMath(ShaderNode)

base classes — bpy_struct, Node, ShaderNode

class bpy.types.**ShaderNodeVectorMath**(*ShaderNode*)

operation

Type enum in ['ADD', 'SUBTRACT', 'AVERAGE', 'DOT_PRODUCT', 'CROSS_PRODUCT', 'NORMALIZE'], default 'ADD'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- ShaderNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.454 ShapeActionActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**ShapeActionActuator**(*Actuator*)

Actuator to control shape key animations

action

Type Action

frame_blend_in

Number of frames of motion blending

Type int in [0, 32767], default 0

frame_end

Type int in [0, 300000], default 0

frame_property

Assign the action's current frame number to this property

Type string, default ""

frame_start

Type int in [0, 300000], default 0

mode

Action playback type

Type enum in ['PLAY', 'FLIPPER', 'LOOPSTOP', 'LOOPEND', 'PROPERTY'], default 'PLAY'

priority

Execution priority - lower numbers will override actions with higher numbers. With 2 or more actions at once, the overriding channels must be lower in the stack

Type int in [0, 100], default 0

property
Use this property to define the Action position

Type string, default ""

use_continue_last_frame
Restore last frame when switching on/off, otherwise play from the start each time

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.455 ShapeKey(bpy_struct)

base class — bpy_struct

class bpy.types.**ShapeKey**(*bpy_struct*)
Shape key in a shape keys datablock

data

Type Collection of UnknownType, (readonly)

frame
Frame for absolute keys

Type float in [-inf, inf], default 0.0, (readonly)

interpolation
Interpolation type

Type enum in ['KEY_LINEAR', 'KEY_CARDINAL', 'KEY_BSPLINE'], default 'KEY_LINEAR'

mute
Mute this shape key

Type boolean, default False

name

Type string, default ""

relative_key
Shape used as a relative key

Type ShapeKey

slider_max
Maximum for slider

Type float in [-10, 10], default 1.0

slider_min
Minimum for slider

Type float in [-10, 10], default 0.0

value
Value of shape key at the current frame

Type float in [0, 1], default 0.0

vertex_group
Vertex weight group, to blend with basis shape

Type string, default ""

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ClothSettings.rest_shape_key
- Key.keys
- Key.reference_key
- Object.active_shape_key
- Object.add_shape_key
- ShapeKey.relative_key

1.3.456 ShapeKeyBezierPoint(bpy_struct)

base class — bpy_struct

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

Point in a shape key for bezier curves

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_left

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_right

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.457 ShapeKeyCurvePoint(bpy_struct)

base class — bpy_struct

class bpy.types.**ShapeKeyCurvePoint**(*bpy_struct*)
Point in a shape key for curves

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

tilt

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.458 ShapeKeyPoint(bpy_struct)

base class — bpy_struct

class bpy.types.**ShapeKeyPoint**(*bpy_struct*)
Point in a shape key

co

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.459 ShrinkwrapConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**ShrinkwrapConstraint**(*Constraint*)

Creates constraint-based shrinkwrap relationship

distance

Distance to Target

Type float in [0, 100], default 0.0

shrinkwrap_type

Selects type of shrinkwrap algorithm for target position

Type enum in ['NEAREST_SURFACE', 'PROJECT', 'NEAREST_VERTEX'], default 'NEAREST_SURFACE'

target

Target Object

Type Object

use_x

Projection over X Axis

Type boolean, default False

use_y

Projection over Y Axis

Type boolean, default False

use_z

Projection over Z Axis

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.460 ShrinkwrapModifier(Modifier)

base classes — bpy_struct, Modifier

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

Shrink wrapping modifier to shrink wrap and object to a target

auxiliary_target

Additional mesh target to shrink to

Type Object

offset

Distance to keep from the target

Type float in [0, inf], default 0.0

subsurf_levels
Number of subdivisions that must be performed before extracting vertices' positions and normals

Type int in [0, 6], default 0

target
Mesh target to shrink to

Type Object

use_cull_back_faces
Stop vertices from projecting to a back face on the target

Type boolean, default False

use_cull_front_faces
Stop vertices from projecting to a front face on the target

Type boolean, default False

use_keep_above_surface

Type boolean, default False

use_negative_direction
Allow vertices to move in the negative direction of axis

Type boolean, default False

use_positive_direction
Allow vertices to move in the positive direction of axis

Type boolean, default False

use_project_x

Type boolean, default False

use_project_y

Type boolean, default False

use_project_z

Type boolean, default False

vertex_group
Vertex group name

Type string, default ""

wrap_method

Type enum in ['NEAREST_SURFACEPOINT', 'PROJECT', 'NEAREST_VERTEX'], default 'NEAREST_SURFACEPOINT'

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport

- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.461 SimpleDeformModifier(Modifier)

base classes — bpy_struct, Modifier

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

Simple deformation modifier to apply effects such as twisting and bending

deform_method

Type enum in ['TWIST', 'BEND', 'TAPER', 'STRETCH'], default 'TWIST'

factor

Type float in [-inf, inf], default 0.0

limits

Lower/Upper limits for deform

Type float array of 2 items in [0, 1], default (0.0, 0.0)

lock_x

Type boolean, default False

lock_y

Type boolean, default False

origin

Origin of modifier space coordinates

Type Object

use_relative

Sets the origin of deform space to be relative to the object

Type boolean, default False

vertex_group
Vertex group name

Type string, default ""

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.462 SmokeCollSettings(bpy_struct)

base class — bpy_struct

class bpy.types.**SmokeCollSettings**(*bpy_struct*)
Smoke collision settings

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SmokeModifier.coll_settings

1.3.463 SmokeDomainSettings(bpy_struct)

base class — bpy_struct

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

Smoke domain settings

alpha

Higher value results in sinking smoke

Type float in [-5, 5], default 0.0

amplify

Enhance the resolution of smoke by this factor using noise

Type int in [1, 10], default 0

beta

Higher value results in faster rising smoke

Type float in [-5, 5], default 0.0

collision_extents

Selects which domain border will be treated as collision object.

Type enum in ['BORDEROPEN', 'BORDERVERTICAL', 'BORDERCLOSED'], default 'BORDEROPEN'

collision_group

Limit collisions to this group

Type Group

dissolve_speed

Dissolve Speed

Type int in [1, 10000], default 0

effector_group
Limit effectors to this group

Type Group

effector_weights

Type EffectorWeights, (readonly)

fluid_group
Limit fluid objects to this group

Type Group

noise_type
Noise method which is used for creating the high resolution

Type enum in ['NOISEWAVE'], default 'NOISEWAVE'

point_cache_compress_high_type
Compression method to be used

Type enum in ['CACHELIGHT', 'CACHEHEAVY'], default 'CACHELIGHT'

point_cache_compress_type
Compression method to be used

Type enum in ['CACHELIGHT', 'CACHEHEAVY'], default 'CACHELIGHT'

point_cache_high

Type PointCache, (readonly, never None)

point_cache_low

Type PointCache, (readonly, never None)

resolution_max
Maximal resolution used in the fluid domain

Type int in [24, 512], default 0

show_high_resolution
Show high resolution (using amplification)

Type boolean, default False

smooth_emitter
Smoothens emitted smoke to avoid blockiness.

Type boolean, default False

strength
Strength of wavelet noise

Type float in [0, 10], default 0.0

time_scale
Adjust simulation speed.

Type float in [0.2, 1.5], default 0.0

use_dissolve_smoke
Enable smoke to disappear over time

Type boolean, default False

use_dissolve_smoke_log
Using 1/x

Type boolean, default False

use_high_resolution
Enable high resolution (using amplification)

Type boolean, default False

vorticity
Amount of turbulence/rotation in fluid.

Type float in [0.01, 4], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SmokeModifier.domain_settings

1.3.464 SmokeFlowSettings(bpy_struct)

base class — bpy_struct

class bpy.types.**SmokeFlowSettings**(*bpy_struct*)
Smoke flow settings

density

Type float in [0.001, 1], default 0.0

initial_velocity
Smoke inherits it's velocity from the emitter particle

Type boolean, default False

particle_system
Particle systems emitted from the object

Type ParticleSystem

temperature
Temperature difference to ambient temperature

Type float in [-10, 10], default 0.0

use_absolute
Only allows given density value in emitter area.

Type boolean, default False

use_outflow
Deletes smoke from simulation

Type boolean, default False

velocity_factor
Multiplier to adjust velocity passed to smoke

Type float in [-2, 2], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SmokeModifier.flow_settings

1.3.465 SmokeModifier(Modifier)

base classes — bpy_struct, Modifier

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

Smoke simulation modifier

coll_settings

Type SmokeCollSettings, (readonly)

domain_settings

Type SmokeDomainSettings, (readonly)

flow_settings

Type SmokeFlowSettings, (readonly)

smoke_type

Type enum in ['NONE', 'DOMAIN', 'FLOW', 'COLLISION'], default 'NONE'

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.466 SmoothModifier(Modifier)

base classes — bpy_struct, Modifier

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

Smoothing effect modifier

factor

Type float in [-inf, inf], default 0.0

iterations

Type int in [-32768, 32767], default 0

use_x

Type boolean, default False

use_y

Type boolean, default False

use_z

Type boolean, default False

vertex_group

Vertex group name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.467 SoftBodyModifier(Modifier)

base classes — bpy_struct, Modifier

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

Soft body simulation modifier

point_cache

Type PointCache, (readonly, never None)

settings

Type SoftBodySettings, (readonly, never None)

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.468 SoftBodySettings(bpy_struct)

base class — bpy_struct

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

Soft body simulation settings for an object

aero

Make edges 'sail'

Type float in [0, 30000], default 0.0

aerodynamics_type

Method of calculating aerodynamic interaction

Type enum in ['SIMPLE', 'LIFT_FORCE'], default 'SIMPLE'

ball_damp

Blending to inelastic collision

Type float in [0.001, 1], default 0.0

ball_size

Absolute ball size or factor if not manual adjusted

Type float in [-10, 10], default 0.0

ball_stiff

Ball inflating pressure

Type float in [0.001, 100], default 0.0

bend

Bending Stiffness

Type float in [0, 10], default 0.0

choke

'Viscosity' inside collision target

Type int in [0, 100], default 0

collision_type

Choose Collision Type

Type enum in ['MANUAL', 'AVERAGE', 'MINIMAL', 'MAXIMAL', 'MINMAX'], default 'MANUAL'

damping

Edge spring friction

Type float in [0, 50], default 0.0

effector_weights

Type EffectorWeights, (readonly)

error_threshold

The Runge-Kutta ODE solver error limit, low value gives more precision, high values speed

Type float in [0.001, 10], default 0.0

friction

General media friction for point movements

Type float in [0, 50], default 0.0

fuzzy

Fuzziness while on collision, high values make collsion handling faster but less stable

Type int in [1, 100], default 0

goal_default
Default Goal (vertex target position) value, when no Vertex Group used

Type float in [0, 1], default 0.0

goal_friction
Goal (vertex target position) friction

Type float in [0, 50], default 0.0

goal_max
Goal maximum, vertex weights are scaled to match this range

Type float in [0, 1], default 0.0

goal_min
Goal minimum, vertex weights are scaled to match this range

Type float in [0, 1], default 0.0

goal_spring
Goal (vertex target position) spring stiffness

Type float in [0, 0.999], default 0.0

gravity
Apply gravitation to point movement

Type float in [-10, 10], default 0.0

location_mass_center
Location of Center of mass

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

mass
General Mass value

Type float in [0, 50000], default 0.0

plastic
Permanent deform

Type float in [0, 100], default 0.0

pull
Edge spring stiffness when longer than rest length

Type float in [0, 0.999], default 0.0

push
Edge spring stiffness when shorter than rest length

Type float in [0, 0.999], default 0.0

rotation_estimate
Estimated rotation matrix

Type float array of 9 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

scale_estimate
Estimated scale matrix

Type float array of 9 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

shear
Shear Stiffness

Type float in [0, 1], default 0.0

speed
Tweak timing for physics to control frequency and speed

Type float in [0.01, 100], default 0.0

spring_length
Alter spring length to shrink/blow up (unit %) 0 to disable

Type float in [0, 200], default 0.0

step_max
Maximal # solver steps/frame

Type int in [0, 30000], default 0

step_min
Minimal # solver steps/frame

Type int in [0, 30000], default 0

use_auto_step
Use velocities for automagic step sizes

Type boolean, default False

use_diagnose
Turn on SB diagnose console prints

Type boolean, default False

use_edge_collision
Edges collide too

Type boolean, default False

use_edges
Use Edges as springs

Type boolean, default False

use_estimate_matrix
estimate matrix .. split to COM , ROT ,SCALE

Type boolean, default False

use_face_collision
Faces collide too, can be very slow

Type boolean, default False

use_goal
Define forces for vertices to stick to animated position

Type boolean, default False

use_self_collision
Enable naive vertex ball self collision

Type boolean, default False

use_stiff_quads
Adds diagonal springs on 4-gons

Type boolean, default False

vertex_group_goal
Control point weight values

Type string, default “”

vertex_group_mass
Control point mass values

Type string, default “”

vertex_group_spring
Control point spring strength values

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.soft_body
- SoftBodyModifier.settings

1.3.469 SolidifyModifier(Modifier)

base classes — bpy_struct, Modifier

class bpy.types.**SolidifyModifier**(*Modifier*)
Create a solid skin by extruding, compensating for sharp angles

edge_crease_inner
Assign a crease to inner edges

Type float in [0, 1], default 0.0

edge_crease_outer
Assign a crease to outer edges

Type float in [0, 1], default 0.0

edge_crease_rim
Assign a crease to the edges making up the rim

Type float in [0, 1], default 0.0

invert_vertex_group
Invert the vertex group influence

Type boolean, default False

offset
Offset the thickness from the center

Type float in [-inf, inf], default 0.0

thickness
Thickness of the shell

Type float in [-inf, inf], default 0.0

use_even_offset
Maintain thickness by adjusting for sharp corners (slow, disable when not needed)

Type boolean, default False

use_quality_normals
Calculate normals which result in more even thickness (slow, disable when not needed)

Type boolean, default False

use_rim
Create edge loops between the inner and outer surfaces on face edges (slow, disable when not needed)

Type boolean, default False

use_rim_material
Use in the next material for rim faces

Type boolean, default False

vertex_group
Vertex group name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.470 Sound(ID)

base classes — bpy_struct, ID

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

Sound datablock referencing an external or packed sound file

filepath

Sound sample file used by this Sound datablock

Type string, default “”

packed_file

Type PackedFile, (readonly)

use_memory_cache

The sound file is decoded and loaded into RAM

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove

- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.sounds
- SoundActuator.sound
- SoundSequence.sound

1.3.471 SoundActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**SoundActuator**(*Actuator*)

Sound file

cone_inner_angle_3d

The angle of the inner cone

Type float in [-inf, inf], default 0.0

cone_outer_angle_3d

The angle of the outer cone

Type float in [-inf, inf], default 0.0

cone_outer_gain_3d

The gain outside the outer cone. The gain in the outer cone will be interpolated between this value and the normal gain in the inner cone

Type float in [-inf, inf], default 0.0

distance_3d_max

The maximum distance at which you can hear the sound

Type float in [-inf, inf], default 0.0

distance_3d_reference

The distance where the sound has a gain of 1.0

Type float in [-inf, inf], default 0.0

gain_3d_max
The maximum gain of the sound, no matter how near it is

Type float in [-inf, inf], default 0.0

gain_3d_min
The minimum gain of the sound, no matter how far it is away

Type float in [-inf, inf], default 0.0

mode

Type enum in ['PLAYSTOP', 'PLAYEND', 'LOOPSTOP', 'LOOPEND', 'LOOPBIDIRECTIONAL', 'LOOPBIDIRECTIONALSTOP'], default 'PLAYSTOP'

pitch
Sets the pitch of the sound

Type float in [-inf, inf], default 0.0

rolloff_factor_3d
The influence factor on volume depending on distance

Type float in [-inf, inf], default 0.0

sound

Type Sound

use_sound_3d
Enable/Disable 3D Sound

Type boolean, default False

volume
Sets the initial volume of the sound

Type float in [0, 2], default 0.0

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.472 SoundSequence(Sequence)

base classes — bpy_struct, Sequence

class bpy.types.**SoundSequence**(*Sequence*)

Sequence strip defining a sound to be played over a period of time

animation_offset_end

Animation end offset (trim end)

Type int in [0, inf], default 0

animation_offset_start

Animation start offset (trim start)

Type int in [0, inf], default 0

attenuation

Attenuation in dezibel

Type float in [-100, 40], default 0.0

filepath

Type string, default “”

sound

Sound datablock used by this sequence

Type Sound, (readonly)

volume

Playback volume of the sound

Type float in [0, 100], default 0.0

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration

- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.473 Space(bpy_struct)

base class — bpy_struct

subclasses — SpaceUserPreferences, SpaceOutliner, SpaceImageEditor, SpaceSequenceEditor, SpaceProperties, SpaceGraphEditor, SpaceLogicEditor, SpaceInfo, SpaceConsole, SpaceView3D, SpaceDopeSheetEditor, SpaceTextEditor, SpaceFileBrowser, SpaceNodeEditor, SpaceNLA, SpaceTimeline

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

Space data for a screen area

type

Space data type

Type enum in ['EMPTY', 'VIEW_3D', 'GRAPH_EDITOR', 'OUTLINER', 'PROPERTIES', 'FILE_BROWSER', 'IMAGE_EDITOR', 'INFO', 'SEQUENCE_EDITOR', 'TEXT_EDITOR', 'AUDIO_WINDOW', 'DOPESHEET_EDITOR', 'NLA_EDITOR', 'SCRIPTS_WINDOW', 'TIMELINE', 'NODE_EDITOR', 'LOGIC_EDITOR', 'CONSOLE', 'USER_PREFERENCES'], default 'EMPTY', (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Area.active_space
- Area.spaces
- Context.space_data

1.3.474 SpaceConsole(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceConsole**(*Space*)

Interactive python console

console_type

Console type

Type enum in ['PYTHON', 'REPORT'], default 'PYTHON'

font_size

Font size to use for displaying the text

Type int in [8, 32], default 0

history

Command history

Type Collection of ConsoleLine, (readonly)

language

Command line prompt language

Type string, default ""

prompt
Command line prompt

Type string, default “”

scrollback
Command output

Type Collection of ConsoleLine, (readonly)

select_end

Type int in [0, inf], default 0

select_start

Type int in [0, inf], default 0

show_report_debug
Display debug reporting info

Type boolean, default False

show_report_error
Display error text

Type boolean, default False

show_report_info
Display general information

Type boolean, default False

show_report_operator
Display the operator log

Type boolean, default False

show_report_warning
Display warnings

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.475 SpaceDopeSheetEditor(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceDopeSheetEditor**(*Space*)

DopeSheet space data

action

Action displayed and edited in this space

Type Action

auto_snap

Automatic time snapping settings for transformations

Type enum in ['NONE', 'STEP', 'FRAME', 'MARKER'], default 'NONE'

dopesheet

Settings for filtering animation data

Type DopeSheet, (readonly)

mode

Editing context being displayed

Type enum in ['DOPESHEET', 'ACTION', 'SHAPEKEY'], default 'ACTION'

show_frame_indicator

Show frame number beside the current frame indicator line

Type boolean, default False

show_seconds

Show timing in seconds not frames

Type boolean, default False, (readonly)

show_sliders

Show sliders beside F-Curve channels

Type boolean, default False

use_auto_merge_keyframes

Automatically merge nearby keyframes

Type boolean, default False

use_marker_sync

Sync Markers with keyframe edits

Type boolean, default False

use_realtime_update

When transforming keyframes, changes to the animation data are flushed to other views

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.476 SpaceFileBrowser(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceFileBrowser**(*Space*)

File browser space data

params

Parameters and Settings for the Filebrowser

Type FileSelectParams, (readonly)

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.477 SpaceGraphEditor(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceGraphEditor**(*Space*)

Graph Editor space data

auto_snap

Automatic time snapping settings for transformations

Type enum in ['NONE', 'STEP', 'FRAME', 'MARKER'], default 'NONE'

cursor_position_y

Graph Editor 2D-Value cursor - Y-Value component

Type float in [-inf, inf], default 0.0

dopesheet

Settings for filtering animation data

Type DopeSheet, (readonly)

has_ghost_curves

Graph Editor instance has some ghost curves stored

Type boolean, default False

mode

Editing context being displayed

Type enum in ['FCURVES', 'DRIVERS'], default 'FCURVES'

pivot_point

Pivot center for rotation/scaling

Type enum in ['BOUNDING_BOX_CENTER', 'CURSOR', 'INDIVIDUAL_ORIGINS'], default 'BOUNDING_BOX_CENTER'

show_cursor

Show 2D cursor

Type boolean, default False

show_frame_indicator

Show frame number beside the current frame indicator line

Type boolean, default False

show_handles

Show handles of Bezier control points

Type boolean, default False

show_seconds
Show timing in seconds not frames

Type boolean, default False, (readonly)

show_sliders
Show sliders beside F-Curve channels

Type boolean, default False

use_auto_merge_keyframes
Automatically merge nearby keyframes

Type boolean, default False

use_only_selected_curves_handles
Only keyframes of selected F-Curves are visible and editable

Type boolean, default False

use_only_selected_keyframe_handles
Only show and edit handles of selected keyframes

Type boolean, default False

use_realtime_update
When transforming keyframes, changes to the animation data are flushed to other views

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.478 SpaceImageEditor(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceImageEditor**(*Space*)

Image and UV editor space data

curves

Color curve mapping to use for displaying the image

Type CurveMapping, (readonly)

draw_channels

Channels of the image to draw

Type enum in ['COLOR', 'COLOR_ALPHA', 'ALPHA', 'Z_BUFFER'], default 'COLOR'

grease_pencil

Grease pencil data for this space

Type GreasePencil

image

Image displayed and edited in this space

Type Image

image_user

Parameters defining which layer, pass and frame of the image is displayed

Type ImageUser, (readonly, never None)

sample_histogram

Sampled colors along line

Type Histogram, (readonly)

scopes

Scopes to visualize image statistics.

Type Scopes, (readonly)

show_paint

Show paint related properties

Type boolean, default False, (readonly)

show_render

Show render related properties

Type boolean, default False, (readonly)

show_repeat

Draw the image repeated outside of the main view

Type boolean, default False

show_uvedit

Show UV editing related properties

Type boolean, default False, (readonly)

use_grease_pencil

Display and edit the grease pencil freehand annotations overlay

Type boolean, default False

use_image_paint
Enable image painting mode

Type boolean, default False

use_image_pin
Display current image regardless of object selection

Type boolean, default False

use_realtime_update
Update other affected window spaces automatically to reflect changes during interactive operations such as transform

Type boolean, default False

uv_editor
UV editor settings

Type SpaceUVEditor, (readonly, never None)

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.479 SpaceInfo(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceInfo**(*Space*)
Info space data

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.480 SpaceLogicEditor(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceLogicEditor**(*Space*)

Logic editor space data

show_actuators_active_object

Show actuators of active object

Type boolean, default False

show_actuators_active_states

Show only actuators connected to active states

Type boolean, default False

show_actuators_linked_controller

Show linked objects to the actuator

Type boolean, default False

show_actuators_selected_objects

Show actuators of all selected objects

Type boolean, default False

show_controllers_active_object

Show controllers of active object

Type boolean, default False

show_controllers_linked_controller

Show linked objects to sensor/actuator

Type boolean, default False

show_controllers_selected_objects
Show controllers of all selected objects

Type boolean, default False

show_sensors_active_object
Show sensors of active object

Type boolean, default False

show_sensors_active_states
Show only sensors connected to active states

Type boolean, default False

show_sensors_linked_controller
Show linked objects to the controller

Type boolean, default False

show_sensors_selected_objects
Show sensors of all selected objects

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.481 SpaceNLA(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceNLA**(*Space*)
NLA editor space data

auto_snap
Automatic time snapping settings for transformations

Type enum in ['NONE', 'STEP', 'FRAME', 'MARKER'], default 'NONE'

dopesheet
Settings for filtering animation data

Type DopeSheet, (readonly)

show_frame_indicator
Show frame number beside the current frame indicator line

Type boolean, default False

show_seconds
Show timing in seconds not frames

Type boolean, default False, (readonly)

show_strip_curves
Show influence curves on strips

Type boolean, default False

use_realtime_update
When transforming strips, changes to the animation data are flushed to other views

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.482 SpaceNodeEditor(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceNodeEditor**(*Space*)

Node editor space data

id

Datablock whose nodes are being edited

Type ID, (readonly)

id_from

Datablock from which the edited datablock is linked

Type ID, (readonly)

nodetree

Node tree being displayed and edited

Type NodeTree, (readonly)

show_backdrop

Use active Viewer Node output as backdrop for compositing nodes

Type boolean, default False

texture_type

Type of data to take texture from

Type enum in ['OBJECT', 'WORLD', 'BRUSH'], default 'OBJECT'

tree_type

Node tree type to display and edit

Type enum in ['MATERIAL', 'TEXTURE', 'COMPOSITING'], default 'MATERIAL'

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.483 SpaceOutliner(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceOutliner**(*Space*)

Outliner space data

display_mode

Type of information to display

Type enum in ['ALL_SCENES', 'CURRENT_SCENE', 'VISIBLE_LAYERS', 'SELECTED', 'ACTIVE', 'SAME_TYPES', 'GROUPS', 'LIBRARIES', 'SEQUENCE', 'DATABLOCKS', 'USER_PREFERENCES', 'KEYMAPS'], default 'ALL_SCENES'

filter_text

Live search filtering string

Type string, default ""

show_restrict_columns

Show column

Type boolean, default False

use_filter_case_sensitive

Only use case sensitive matches of search string

Type boolean, default False

use_filter_complete

Only use complete matches of search string

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.484 SpaceProperties(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceProperties**(*Space*)

Properties space data

align

Arrangement of the panels

Type enum in ['HORIZONTAL', 'VERTICAL'], default 'HORIZONTAL'

context

Type of active data to display and edit

Type enum in ['SCENE', 'RENDER', 'WORLD', 'OBJECT', 'CONSTRAINT', 'MODIFIER', 'DATA', 'BONE', 'BONE_CONSTRAINT', 'MATERIAL', 'TEXTURE', 'PARTICLE', 'PHYSICS'], default 'RENDER'

pin_id

Type ID

show_brush_texture

Show brush textures

Type boolean, default False

use_pin_id

Use the pinned context

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.485 SpaceSequenceEditor(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceSequenceEditor**(*Space*)

Sequence editor space data

display_channel

The channel number shown in the image preview. 0 is the result of all strips combined

Type int in [-5, 32], default 0

display_mode

The view mode to use for displaying sequencer output

Type enum in ['IMAGE', 'WAVEFORM', 'VECTOR_SCOPE', 'HISTOGRAM'], default 'IMAGE'

draw_overexposed

Show overexposed areas with zebra stripes

Type int in [0, 110], default 0

grease_pencil

Grease pencil data for this space

Type UnknownType, (readonly)

offset_x

Offsets image horizontally from the view center

Type float in [-inf, inf], default 0.0

offset_y

Offsets image horizontally from the view center

Type float in [-inf, inf], default 0.0

proxy_render_size

Draw preview using full resolution or different proxy resolutions

Type enum in ['NONE', 'SCENE', 'PROXY_25', 'PROXY_50', 'PROXY_75', 'FULL'], default 'SCENE'

show_frame_indicator

Show frame number beside the current frame indicator line

Type boolean, default False

show_frames

Draw frames rather than seconds

Type boolean, default False

show_safe_margin

Draw title safe margins in preview

Type boolean, default False

show_separate_color
Separate color channels in preview

Type boolean, default False

use_grease_pencil
Display and edit the grease pencil freehand annotations overlay

Type boolean, default False

use_marker_sync
Transform markers as well as strips

Type boolean, default False

view_type
The type of the Sequencer view (sequencer, preview or both)

Type enum in ['SEQUENCER', 'PREVIEW', 'SEQUENCER_PREVIEW'], default 'SEQUENCER'

zoom
Display zoom level

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.486 SpaceTextEditor(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceTextEditor**(*Space*)
Text editor space data

find_text
Text to search for with the find tool

Type string, default “”

font_size
Font size to use for displaying the text

Type int in [8, 32], default 0

replace_text
Text to replace selected text with using the replace tool

Type string, default “”

show_line_highlight
Highlight the current line

Type boolean, default False

show_line_numbers
Show line numbers next to the text

Type boolean, default False

show_syntax_highlight
Syntax highlight for scripting

Type boolean, default False

show_word_wrap
Wrap words if there is not enough horizontal space

Type boolean, default False

tab_width
Number of spaces to display tabs with

Type int in [2, 8], default 0

text
Text displayed and edited in this space

Type Text

use_find_all
Search in all text datablocks, instead of only the active one

Type boolean, default False

use_find_wrap
Search again from the start of the file when reaching the end

Type boolean, default False

use_live_edit
Run python while editing

Type boolean, default False

use_overwrite
Overwrite characters when typing rather than inserting them

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.487 SpaceTimeline(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceTimeline**(*Space*)

Timeline editor space data

cache_cloth

Show the active object's cloth point cache

Type boolean, default False

cache_particles

Show the active object's particle point cache

Type boolean, default False

cache_smoke

Show the active object's smoke cache

Type boolean, default False

cache_softbody

Show the active object's softbody point cache

Type boolean, default False

show_cache

Show the status of cached frames in the timeline

Type boolean, default False

show_frame_indicator

Show frame number beside the current frame indicator line

Type boolean, default False

show_only_selected
Show keyframes for active Object and/or its selected channels only

Type boolean, default False

use_play_3d_editors

Type boolean, default False

use_play_animation_editors

Type boolean, default False

use_play_image_editors

Type boolean, default False

use_play_node_editors

Type boolean, default False

use_play_properties_editors

Type boolean, default False

use_play_sequence_editors

Type boolean, default False

use_play_top_left_3d_editor

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.488 SpaceUVEditor(bpy_struct)

base class — bpy_struct

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

UV editor data for the image editor space

cursor_location

2D cursor location for this view

Type float array of 2 items in [-inf, inf], default (0.0, 0.0)

draw_stretch_type

Type of stretch to draw

Type enum in ['ANGLE', 'AREA'], default 'ANGLE'

edge_draw_type

Draw type for drawing UV edges

Type enum in ['OUTLINE', 'DASH', 'BLACK', 'WHITE'], default 'OUTLINE'

lock_bounds

Constraint to stay within the image bounds while editing

Type boolean, default False

pivot_point

Rotation/Scaling Pivot

Type enum in ['CENTER', 'MEDIAN', 'CURSOR'], default 'CENTER'

show_modified_edges

Draw edges after modifiers are applied

Type boolean, default False

show_normalized_coords

Display UV coordinates from 0.0 to 1.0 rather than in pixels

Type boolean, default False

show_other_objects

Draw other selected objects that share the same image

Type boolean, default False

show_smooth_edges

Draw UV edges anti-aliased

Type boolean, default False

show_stretch

Draw faces colored according to the difference in shape between UVs and their 3D coordinates (blue for low distortion, red for high distortion)

Type boolean, default False

sticky_select_mode

Automatically select also UVs sharing the same vertex as the ones being selected

Type enum in ['DISABLED', 'SHARED_LOCATION', 'SHARED_VERTEX'], default 'SHARED_LOCATION'

use_live_unwrap

Continuously unwrap the selected UV island while transforming pinned vertices

Type boolean, default False

use_snap_to_pixels
Snap UVs to pixel locations while editing

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- SpaceImageEditor.uv_editor

1.3.489 SpaceUserPreferences(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceUserPreferences**(*Space*)
User preferences space data

filter_text
Search term for filtering in the UI

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.490 SpaceView3D(Space)

base classes — bpy_struct, Space

class bpy.types.**SpaceView3D**(*Space*)

3D View space data

background_images

List of background images

Type Collection of BackgroundImage, (readonly)

camera

Active camera used in this view (when unlocked from the scene's active camera)

Type Object

clip_end

3D View far clipping distance

Type float in [1, inf], default 0.0

clip_start

3D View near clipping distance

Type float in [0, inf], default 0.0

current_orientation

Current Transformation orientation

Type TransformOrientation, (readonly)

cursor_location

3D cursor location for this view (dependent on local view setting)

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid_lines

The number of grid lines to display in perspective view

Type int in [0, 1024], default 0

grid_spacing
The distance between 3D View grid lines

Type float in [0, inf], default 0.0

grid_subdivisions
The number of subdivisions between grid lines

Type int in [1, 1024], default 0

layers
Layers visible in this 3D View

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False)

layers_used
Layers that contain something

Type boolean array of 20 items, default (False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False, False), (readonly)

lens
Lens angle (mm) in perspective view

Type float in [1, 250], default 0.0

local_view
Display an isolated sub-set of objects, apart from the scene visibility

Type SpaceView3D, (readonly)

lock_bone
3D View center is locked to this bone's position

Type string, default ""

lock_camera_and_layers
Use the scene's active camera and layers in this view, rather than local layers

Type boolean, default False

lock_object
3D View center is locked to this object's position

Type Object

pivot_point
Pivot center for rotation/scaling

Type enum in ['BOUNDING_BOX_CENTER', 'CURSOR', 'INDIVIDUAL_ORIGINS', 'MEDIAN_POINT', 'ACTIVE_ELEMENT'], default 'BOUNDING_BOX_CENTER'

region_3d
3D region in this space, in case of quad view the camera region

Type RegionView3D, (readonly)

region_quadview
3D region that defines the quad view settings

Type RegionView3D, (readonly)

show_all_objects_origin
Show the object origin center dot for all (selected and unselected) objects

Type boolean, default False

show_axis_x
Show the X axis line in perspective view

Type boolean, default False

show_axis_y
Show the Y axis line in perspective view

Type boolean, default False

show_axis_z
Show the Z axis line in perspective view

Type boolean, default False

show_background_images
Display reference images behind objects in the 3D View

Type boolean, default False

show_floor
Show the ground plane grid in perspective view

Type boolean, default False

show_manipulator
Use a 3D manipulator widget for controlling transforms

Type boolean, default False

show_only_render
Display only objects which will be rendered

Type boolean, default False

show_outline_selected
Show an outline highlight around selected objects in non-wireframe views

Type boolean, default False

show_relationship_lines
Show dashed lines indicating parent or constraint relationships

Type boolean, default False

show_textured_solid
Display face-assigned textures in solid view

Type boolean, default False

transform_orientation
Transformation orientation

Type enum in ['GLOBAL', 'LOCAL', 'GIMBAL', 'NORMAL', 'VIEW', 'CUSTOM'], default 'GLOBAL'

use_manipulator_rotate
Use the manipulator for rotation transformations

Type boolean, default False

use_manipulator_scale
Use the manipulator for scale transformations

Type boolean, default False

use_manipulator_translate
Use the manipulator for movement transformations

Type boolean, default False

use_occlude_geometry
Limit selection to visible (clipped with depth buffer)

Type boolean, default False

use_pivot_point_align
Manipulate object centers only

Type boolean, default False

viewport_shade
Method to display/shade objects in the 3D View

Type enum in ['BOUNDBOX', 'WIREFRAME', 'SOLID', 'TEXTURED'], default 'BOUNDBOX'

Inherited Properties

- bpy_struct.id_data
- Space.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ObjectBase.layers_from_view
- SpaceView3D.local_view

1.3.491 SpeedControlSequence(EffectSequence)

base classes — bpy_struct, Sequence, EffectSequence

class bpy.types.**SpeedControlSequence**(*EffectSequence*)
Sequence strip to control the speed of other strips

global_speed

Type float in [0, inf], default 0.0

use_curve_compress_y
Scale F-Curve value to get the target frame number, F-Curve value runs from 0.0 to 1.0

Type boolean, default False

use_curve_velocity
Interpret the F-Curve value as a velocity instead of a frame number

Type boolean, default False

use_frame_blend
Blend two frames into the target for a smoother result

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade
- EffectSequence.color_balance
- EffectSequence.use_float
- EffectSequence.crop
- EffectSequence.use_deinterlace
- EffectSequence.use_reverse_frames
- EffectSequence.use_flip_x
- EffectSequence.use_flip_y
- EffectSequence.color_multiply
- EffectSequence.use_premultiply
- EffectSequence.proxy

- EffectSequence.use_proxy_custom_directory
- EffectSequence.use_proxy_custom_file
- EffectSequence.color_saturation
- EffectSequence.strobe
- EffectSequence.transform
- EffectSequence.use_color_balance
- EffectSequence.use_crop
- EffectSequence.use_proxy
- EffectSequence.use_translation

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.492 Spline(bpy_struct)

base class — bpy_struct

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

Element of a curve, either Nurbs, Bezier or Polyline or a character with text objects

bezier_points

Collection of points for bezier curves only

Type SplineBezierPoints collection of BezierSplinePoint, (readonly)

character_index

Location of this character in the text data (only for text curves)

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

hide

Hide this curve in editmode

Type boolean, default False

material_index

Type int in [0, 32767], default 0

order_u
Nurbs order in the U direction (For splines and surfaces), Higher values let points influence a greater area

Type int in [2, 6], default 0

order_v
Nurbs order in the V direction (For surfaces only), Higher values let points influence a greater area

Type int in [2, 6], default 0

point_count_u
Total number points for the curve or surface in the U direction

Type int in [0, 32767], default 0, (readonly)

point_count_v
Total number points for the surface on the V direction

Type int in [0, 32767], default 0, (readonly)

points
Collection of points that make up this poly or nurbs spline

Type SplinePoints collection of SplinePoint, (readonly)

radius_interpolation
The type of radius interpolation for Bezier curves

Type enum in ['LINEAR', 'CARDINAL', 'BSPLINE', 'EASE'], default 'LINEAR'

resolution_u
Curve or Surface subdivisions per segment

Type int in [1, inf], default 0

resolution_v
Surface subdivisions per segment

Type int in [1, inf], default 0

tilt_interpolation
The type of tilt interpolation for 3D, Bezier curves

Type enum in ['LINEAR', 'CARDINAL', 'BSPLINE', 'EASE'], default 'LINEAR'

type
The interpolation type for this curve element

Type enum in ['POLY', 'BEZIER', 'BSPLINE', 'CARDINAL', 'NURBS'], default 'POLY'

use_bezier_u
Make this nurbs curve or surface act like a bezier spline in the U direction (Order U must be 3 or 4, Cyclic U must be disabled)

Type boolean, default False

use_bezier_v
Make this nurbs surface act like a bezier spline in the V direction (Order V must be 3 or 4, Cyclic V must be disabled)

Type boolean, default False

use_cyclic_u
Make this curve or surface a closed loop in the U direction

Type boolean, default False

use_cyclic_v
Make this surface a closed loop in the V direction

Type boolean, default False

use_endpoint_u
Make this nurbs curve or surface meet the endpoints in the U direction (Cyclic U must be disabled)

Type boolean, default False

use_endpoint_v
Make this nurbs surface meet the endpoints in the V direction (Cyclic V must be disabled)

Type boolean, default False

use_smooth
Smooth the normals of the surface or beveled curve

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Curve.splines
- CurveSplines.new
- CurveSplines.remove

1.3.493 SplineBezierPoints(bpy_struct)

base class — bpy_struct

class bpy.types.**SplineBezierPoints**(*bpy_struct*)
Collection of spline bezirt points

add(*number=1*)
Add a number of points to this spline.

Parameters

- **number** (*int in [-inf, inf], (optional)*) – Number, Number of points to add to the spline

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Spline.bezier_points

1.3.494 SplineIKConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**SplineIKConstraint**(*Constraint*)
Align 'n' bones along a curve

chain_count
How many bones are included in the chain

Type int in [1, 255], default 0

joint_bindings
(EXPERIENCED USERS ONLY) The relative positions of the joints along the chain as percentages

Type float array of 32 items in [0, 1], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

target
Curve that controls this relationship

Type Object

use_chain_offset
Offset the entire chain relative to the root joint

Type boolean, default False

use_curve_radius
Average radius of the endpoints is used to tweak the X and Z Scaling of the bones, on top of XZ Scale mode

Type boolean, default False

use_even_divisions
Ignore the relative lengths of the bones when fitting to the curve

Type boolean, default False

use_y_stretch
Stretch the Y axis of the bones to fit the curve

Type boolean, default False

xz_scale_mode
Method used for determining the scaling of the X and Z axes of the bones

Type enum in ['NONE', 'BONE_ORIGINAL', 'VOLUME_PRESERVE'], default 'NONE'

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.495 SplinePoint(bpy_struct)

base class — bpy_struct

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

Spline point without handles

co

Point coordinates

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

hide

Visibility status

Type boolean, default False

radius

Radius for bevelling

Type float in [-inf, inf], default 0.0, (readonly)

select

Selection status

Type boolean, default False

tilt

Tilt in 3D View

Type float in [-inf, inf], default 0.0

weight

Nurbs weight

Type float in [-inf, inf], default 0.0

weight_softbody

Softbody goal weight

Type float in [0.01, 100], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Spline.points

1.3.496 SplinePoints(bpy_struct)

base class — bpy_struct

class bpy.types.**SplinePoints**(*bpy_struct*)
Collection of spline points

add(*number=1*)
Add a number of points to this spline.

Parameters

- **number** (*int in [-inf, inf], (optional)*) – Number, Number of points to add to the spline

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Spline.points

1.3.497 SpotLamp(Lamp)

base classes — bpy_struct, ID, Lamp

class bpy.types.**SpotLamp**(*Lamp*)

Directional cone lamp

compression_threshold

Deep shadow map compression threshold

Type float in [0, 1], default 0.0

falloff_curve

Custom Lamp Falloff Curve

Type CurveMapping, (readonly)

falloff_type

Intensity Decay with distance

Type enum in ['CONSTANT', 'INVERSE_LINEAR', 'INVERSE_SQUARE', 'CUSTOM_CURVE', 'LINEAR_QUADRATIC_WEIGHTED'], default 'CONSTANT'

halo_intensity

Brightness of the spotlight's halo cone (Buffer Shadows)

Type float in [-inf, inf], default 0.0

halo_step

Volumetric halo sampling frequency

Type int in [0, 12], default 0

linear_attenuation

Linear distance attenuation

Type float in [0, 1], default 0.0

quadratic_attenuation

Quadratic distance attenuation

Type float in [0, 1], default 0.0

shadow_adaptive_threshold

Threshold for Adaptive Sampling (Raytraced shadows)

Type float in [0, 1], default 0.0

shadow_buffer_bias

Shadow buffer sampling bias

Type float in [0.001, 5], default 0.0

shadow_buffer_clip_end
Shadow map clip end beyond which objects will not generate shadows

Type float in [0, 9999], default 0.0

shadow_buffer_clip_start
Shadow map clip start: objects closer will not generate shadows

Type float in [0, 9999], default 0.0

shadow_buffer_samples
Number of shadow buffer samples

Type int in [1, 16], default 0

shadow_buffer_size
Resolution of the shadow buffer, higher values give crisper shadows but use more memory

Type int in [512, 10240], default 0

shadow_buffer_soft
Size of shadow buffer sampling area

Type float in [0, 100], default 0.0

shadow_buffer_type
Type of shadow buffer

Type enum in ['REGULAR', 'HALFWAY', 'IRREGULAR', 'DEEP'], default 'REGULAR'

shadow_color
Color of shadows cast by the lamp

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

shadow_filter_type
Type of shadow filter (Buffer Shadows)

Type enum in ['BOX', 'TENT', 'GAUSS'], default 'BOX'

shadow_method
Method to compute lamp shadow with

Type enum in ['NOSHADOW', 'BUFFER_SHADOW', 'RAY_SHADOW'], default 'NOSHADOW'

shadow_ray_sample_method
Method for generating shadow samples: Adaptive QMC is fastest, Constant QMC is less noisy but slower

Type enum in ['ADAPTIVE_QMC', 'CONSTANT_QMC'], default 'ADAPTIVE_QMC'

shadow_ray_samples
Amount of samples taken extra (samples x samples)

Type int in [1, 64], default 0

shadow_sample_buffers
Number of shadow buffers to render for better AA, this increases memory usage

Type enum in ['BUFFERS_1', 'BUFFERS_4', 'BUFFERS_9'], default 'BUFFERS_1'

shadow_soft_size
Light size for ray shadow sampling (Raytraced shadows)

Type float in [-inf, inf], default 0.0

show_cone
Draw transparent cone in 3D view to visualize which objects are contained in it

Type boolean, default False

spot_blend
The softness of the spotlight edge

Type float in [0, 1], default 0.0

spot_size
Angle of the spotlight beam in degrees

Type float in [0.0174533, 3.14159], default 0.0

use_auto_clip_end
Automatic calculation of clipping-end, based on visible vertices

Type boolean, default False

use_auto_clip_start
Automatic calculation of clipping-start, based on visible vertices

Type boolean, default False

use_halo
Renders spotlight with a volumetric halo (Buffer Shadows)

Type boolean, default False

use_only_shadow
Causes light to cast shadows only without illuminating objects

Type boolean, default False

use_shadow_layer
Causes only objects on the same layer to cast shadows

Type boolean, default False

use_sphere
Sets light intensity to zero beyond lamp distance

Type boolean, default False

use_square
Casts a square spot light shape

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Lamp.active_texture
- Lamp.active_texture_index
- Lamp.animation_data
- Lamp.color

- Lamp.use_diffuse
- Lamp.distance
- Lamp.energy
- Lamp.use_own_layer
- Lamp.use_negative
- Lamp.use_specular
- Lamp.texture_slots
- Lamp.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.498 StateActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**StateActuator**(*Actuator*)

Actuator to handle states

operation

Select the bit operation on object state mask

Type enum in ['SET', 'ADD', 'REMOVE', 'CHANGE'], default 'SET'

states

Type boolean array of 30 items, default (False, False)

Inherited Properties

- bpy_struct.id_data

- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.499 StretchToConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**StretchToConstraint**(*Constraint*)

Stretches to meet the target object

bulge

Factor between volume variation and stretching

Type float in [0, 100], default 0.0

head_tail

Target along length of bone: Head=0, Tail=1

Type float in [0, 1], default 0.0

keep_axis

Axis to maintain during stretch

Type enum in ['PLANE_X', 'PLANE_Z'], default 'PLANE_X'

rest_length

Length at rest position

Type float in [0, 100], default 0.0

subtarget

Type string, default ""

target
Target Object

Type Object

volume
Maintain the object's volume as it stretches

Type enum in ['VOLUME_XZX', 'VOLUME_X', 'VOLUME_Z', 'NO_VOLUME'], default 'VOLUME_XZX'

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.500 StringProperty(Property)

base classes — bpy_struct, Property

class bpy.types.**StringProperty**(*Property*)
RNA text string property definition

default
string default value

Type string, default "", (readonly)

length_max
Maximum length of the string, 0 means unlimited

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

Inherited Properties

- bpy_struct.id_data
- Property.name
- Property.srna
- Property.description
- Property.identifier
- Property.is_never_none
- Property.is_readonly
- Property.is_runtime
- Property.is_registered
- Property.is_registered_optional
- Property.is_required
- Property.is_output
- Property.subtype
- Property.type
- Property.unit

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Struct.name_property

1.3.501 Struct(bpy_struct)

base class — bpy_struct

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

RNA structure definition

base

Struct definition this is derived from

Type Struct, (readonly)

description

Description of the Struct's purpose

Type string, default "", (readonly)

functions

Type Collection of Function, (readonly)

identifier

Unique name used in the code and scripting

Type string, default "", (readonly)

name

Human readable name

Type string, default "", (readonly)

name_property

Property that gives the name of the struct

Type StringProperty, (readonly)

nested

Struct in which this struct is always nested, and to which it logically belongs

Type Struct, (readonly)

properties

Properties in the struct

Type Collection of Property, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BlenderRNA.structs
- CollectionProperty.fixed_type
- PointerProperty.fixed_type
- Property.srna
- Struct.base
- Struct.nested

1.3.502 StucciTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**StucciTexture**(*Texture*)

Procedural noise texture

noise_basis

Sets the noise basis used for turbulence

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

noise_scale

Sets scaling for noise input

Type float in [0.0001, inf], default 0.0

noise_type

Type enum in ['SOFT_NOISE', 'HARD_NOISE'], default 'SOFT_NOISE'

stucci_type

Type enum in ['PLASTIC', 'WALL_IN', 'WALL_OUT'], default 'PLASTIC'

turbulence

Sets the turbulence of the bandnoise and ringnoise types

Type float in [0.0001, inf], default 0.0

users_material

Materials that use this texture (readonly)

users_object_modifier

Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.503 SubsurfModifier(Modifier)

base classes — bpy_struct, Modifier

class bpy.types.**SubsurfModifier**(*Modifier*)
Subdivision surface modifier

levels
Number of subdivisions to perform

Type int in [0, 32767], default 0

render_levels
Number of subdivisions to perform when rendering

Type int in [0, 32767], default 0

show_only_control_edges
Skip drawing/rendering of interior subdivided edges

Type boolean, default False

subdivision_type
Selects type of subdivision algorithm

Type enum in ['CATMULL_CLARK', 'SIMPLE'], default 'CATMULL_CLARK'

use_subsurf_uv
Use subsurf to subdivide UVs

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.504 SunLamp(Lamp)

base classes — bpy_struct, ID, Lamp

class bpy.types.**SunLamp**(*Lamp*)

Constant direction parallel ray lamp

shadow_adaptive_threshold

Threshold for Adaptive Sampling (Raytraced shadows)

Type float in [0, 1], default 0.0

shadow_color

Color of shadows cast by the lamp

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

shadow_method

Method to compute lamp shadow with

Type enum in ['NOSHADOW', 'RAY_SHADOW'], default 'NOSHADOW'

shadow_ray_sample_method

Method for generating shadow samples: Adaptive QMC is fastest, Constant QMC is less noisy but slower

Type enum in ['ADAPTIVE_QMC', 'CONSTANT_QMC'], default 'ADAPTIVE_QMC'

shadow_ray_samples

Amount of samples taken extra (samples x samples)

Type int in [1, 64], default 0

shadow_soft_size

Light size for ray shadow sampling (Raytraced shadows)

Type float in [-inf, inf], default 0.0

sky

Sky related settings for sun lamps

Type LampSkySettings, (readonly, never None)

use_only_shadow

Causes light to cast shadows only without illuminating objects

Type boolean, default False

use_shadow_layer

Causes only objects on the same layer to cast shadows

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Lamp.active_texture
- Lamp.active_texture_index

- Lamp.animation_data
- Lamp.color
- Lamp.use_diffuse
- Lamp.distance
- Lamp.energy
- Lamp.use_own_layer
- Lamp.use_negative
- Lamp.use_specular
- Lamp.texture_slots
- Lamp.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.505 SurfaceCurve(Curve)

base classes — bpy_struct, ID, Curve

class bpy.types.**SurfaceCurve**(*Curve*)

Curve datablock used for storing surfaces

use_map_on_length

Generate texture mapping coordinates following the curve direction, rather than the local bounding box

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library

- ID.tag
- ID.users
- Curve.animation_data
- Curve.use_auto_texspace
- Curve.use_fill_back
- Curve.bevel_depth
- Curve.bevel_object
- Curve.bevel_resolution
- Curve.use_deform_bounds
- Curve.dimensions
- Curve.show_handles
- Curve.show_normal_face
- Curve.eval_time
- Curve.extrude
- Curve.use_fill_deform
- Curve.use_path_follow
- Curve.use_fill_front
- Curve.use_map_on_length
- Curve.materials
- Curve.offset
- Curve.use_time_offset
- Curve.use_path
- Curve.path_duration
- Curve.use_radius
- Curve.render_resolution_u
- Curve.render_resolution_v
- Curve.resolution_u
- Curve.resolution_v
- Curve.shape_keys
- Curve.splines
- Curve.use_stretch
- Curve.taper_object
- Curve.texspace_location
- Curve.texspace_size
- Curve.twist_mode
- Curve.twist_smooth

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.506 SurfaceModifier(Modifier)

base classes — bpy_struct, Modifier

class bpy.types.**SurfaceModifier**(*Modifier*)
Surface modifier defining modifier stack position used for surface fields

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.507 TexMapping(bpy_struct)

base class — bpy_struct

class bpy.types.**TexMapping**(*bpy_struct*)
Mapping settings

location

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

max
Maximum value for clipping

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

min
Minimum value for clipping

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

rotation

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scale

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

use_max
Whether to use maximum clipping value

Type boolean, default False

use_min
Whether to use minimum clipping value

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.508 Text(ID)

base classes — bpy_struct, ID

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

Text datablock referencing an external or packed text file

current_character

Index of current character in current line, and also start index of character in selection if one exists

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

current_line

Current line, and start line of selection if one exists

Type TextLine, (readonly, never None)

filepath

Filename of the text file

Type string, default ""

is_dirty

Text file has been edited since last save

Type boolean, default False, (readonly)

is_in_memory

Text file is in memory, without a corresponding file on disk

Type boolean, default False, (readonly)

is_modified

Text file on disk is different than the one in memory

Type boolean, default False, (readonly)

lines

Lines of text

Type Collection of TextLine, (readonly)

markers

Text markers highlighting part of the text

Type Collection of TextMarker, (readonly)

select_end_character

Index of character after end of selection in the selection end line

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

select_end_line

End line of selection

Type TextLine, (readonly, never None)

use_module

Register this text as a module on loading, Text name must end with ".py"

Type boolean, default False

use_tabs_as_spaces

Automatically converts all new tabs into spaces

Type boolean, default False

users_logic
Logic bricks that use this text (readonly)

clear()
clear the text block.

write(*text*)
write text at the cursor location and advance to the end of the text block.

Parameters

- **text** (*string*) – New text for this datablock.

static as_string(*self*)
Return the text as a string.

from_string(*string*)
Replace text with this string.

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.texts

- Filter2DActuator.glsl_shader
- MainTexts.load
- MainTexts.new
- MainTexts.remove
- PythonConstraint.text
- PythonController.text
- SceneGameData.dome_text
- SpaceTextEditor.text

1.3.509 TextBox(bpy_struct)

base class — bpy_struct

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

Text bounding box for layout

height

Type float in [0, 50], default 0.0

width

Type float in [0, 50], default 0.0

x

Type float in [-50, 50], default 0.0

y

Type float in [-50, 50], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- TextCurve.text_boxes

1.3.510 TextCharacterFormat(bpy_struct)

base class — bpy_struct

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

Text character formatting settings

use_bold

Type boolean, default False

use_italic

Type boolean, default False

use_small_caps

Type boolean, default False

use_underline

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- TextCurve.body_format
- TextCurve.edit_format

1.3.511 TextCurve(Curve)

base classes — bpy_struct, ID, Curve

class bpy.types.**TextCurve**(*Curve*)

Curve datablock used for storing text

active_textbox

Type int in [-inf, inf], default 0

align

Text align from the object center

Type enum in ['LEFT', 'CENTRAL', 'RIGHT', 'JUSTIFY', 'FLUSH'], default 'LEFT'

body

contents of this text object

Type string, default ""

body_format

Stores the style of each character

Type Collection of TextCharacterFormat, (readonly)

edit_format

Editing settings character formatting

Type TextCharacterFormat, (readonly)

family

Use Blender Objects as font characters. Give font objects a common name followed by the character it represents, eg. familya, familyb etc, and turn on Verts Duplication

Type string, default ""

follow_curve

Curve deforming text object

Type Object

font

Type VectorFont

offset_x

Horizontal offset from the object origin

Type float in [-50, 50], default 0.0

offset_y

Vertical offset from the object origin

Type float in [-50, 50], default 0.0

shear

Italic angle of the characters

Type float in [-1, 1], default 0.0

size

Type float in [0.0001, 10000], default 0.0

small_caps_scale

Scale of small capitals

Type float in [-inf, inf], default 0.0

space_character

Type float in [0, 10], default 0.0

space_line

Type float in [0, 10], default 0.0

space_word

Type float in [0, 10], default 0.0

text_boxes

Type Collection of TextBox, (readonly)

underline_height

Type float in [-0.2, 0.8], default 0.0

underline_position
Vertical position of underline

Type float in [-0.2, 0.8], default 0.0

use_fast_edit
Don't fill polygons while editing

Type boolean, default False

use_map_on_length
Generate texture mapping coordinates following the curve direction, rather than the local bounding box

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Curve.animation_data
- Curve.use_auto_texspace
- Curve.use_fill_back
- Curve.bevel_depth
- Curve.bevel_object
- Curve.bevel_resolution
- Curve.use_deform_bounds
- Curve.dimensions
- Curve.show_handles
- Curve.show_normal_face
- Curve.eval_time
- Curve.extrude
- Curve.use_fill_deform
- Curve.use_path_follow
- Curve.use_fill_front
- Curve.use_map_on_length

- Curve.materials
- Curve.offset
- Curve.use_time_offset
- Curve.use_path
- Curve.path_duration
- Curve.use_radius
- Curve.render_resolution_u
- Curve.render_resolution_v
- Curve.resolution_u
- Curve.resolution_v
- Curve.shape_keys
- Curve.splines
- Curve.use_stretch
- Curve.taper_object
- Curve.texspace_location
- Curve.texspace_size
- Curve.twist_mode
- Curve.twist_smooth

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.512 TextLine(bpy_struct)

base class — bpy_struct

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

Line of text in a Text datablock

body

Text in the line

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Text.current_line
- Text.lines
- Text.select_end_line

1.3.513 TextMarker(bpy_struct)

base class — bpy_struct

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

Marker highlighting a portion of text in a Text datablock

character_index_end

Start position of the marker in the line

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

character_index_start

Start position of the marker in the line

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

color

Color to display the marker with

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

group

Type int in [0, 65535], default 0, (readonly)

is_temporary
Marker is temporary

Type boolean, default False, (readonly)

line
Line in which the marker is located

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

use_edit_all
Edit all markers of the same group as one

Type boolean, default False, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Text.markers

1.3.514 Texture(ID)

base classes — bpy_struct, ID

subclasses — ImageTexture, MarbleTexture, EnvironmentMapTexture, PointDensityTexture, VoxelDataTexture, BlendTexture, MusgraveTexture, StucciTexture, VoronoiTexture, MagicTexture, NoiseTexture, PluginTexture, WoodTexture, CloudsTexture, DistortedNoiseTexture

class bpy.types.**Texture**(*ID*)
Texture datablock used by materials, lamps, worlds and brushes

animation_data
Animation data for this datablock

Type AnimData, (readonly)

color_ramp

Type ColorRamp, (readonly)

contrast

Type float in [0.01, 5], default 0.0

factor_blue

Type float in [0, 2], default 0.0

factor_green

Type float in [0, 2], default 0.0

factor_red

Type float in [0, 2], default 0.0

intensity

Type float in [0, 2], default 0.0

node_tree
Node tree for node-based textures

Type NodeTree, (readonly)

saturation

Type float in [0, 2], default 0.0

type

Type enum in ['NONE', 'BLEND', 'CLOUDS', 'DISTORTED_NOISE', 'ENVIRONMENT_MAP', 'IMAGE', 'MAGIC', 'MARBLE', 'MUSGRAVE', 'NOISE', 'POINT_DENSITY', 'STUCCI', 'VORONOI', 'VOXEL_DATA', 'WOOD'], default 'NONE'

use_color_ramp
Toggle color ramp operations

Type boolean, default False

use_nodes
Make this a node-based texture

Type boolean, default False

use_preview_alpha
Show Alpha in Preview Render

Type boolean, default False

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.textures
- Brush.texture
- CompositorNodeTexture.texture
- DisplaceModifier.texture
- FieldSettings.texture
- Lamp.active_texture
- MainTextures.new
- MainTextures.remove
- Material.active_texture
- Material.add_texture
- ShaderNodeTexture.texture
- TextureNodeTexture.texture
- TextureSlot.texture
- WaveModifier.texture
- World.active_texture

1.3.515 TextureNode(Node)

base classes — bpy_struct, Node

subclasses — TextureNodeScale, TextureNodeRGBToBW, TextureNodeTranslate, TextureNodeTexture, TextureNodeCompose, TextureNodeValToNor, TextureNodeHueSaturation, TextureNodeImage, TextureNodeBricks, TextureNodeCurveTime, TextureNodeInvert, TextureNodeCurveRGB, TextureNodeDistance, TextureNodeDecompose, TextureNodeRotate, TextureNodeMixRGB, TextureNodeChecker, TextureNodeOutput, TextureNodeCoordinates, TextureNodeValToRGB, TextureNodeMath, TextureNodeViewer

class bpy.types.**TextureNode**(*Node*)

type

Type enum in ['OUTPUT', 'CHECKER', 'TEXTURE', 'BRICKS', 'MATH', 'MIX_RGB', 'RGBTOBW', 'VALTORGB', 'IMAGE', 'CURVE_RGB', 'INVERT', 'HUE_SAT', 'CURVE_TIME', 'ROTATE', 'VIEWER', 'TRANSLATE', 'COORD', 'DISTANCE', 'COMPOSE', 'DECOMPOSE', 'VALTONOR', 'SCALE', 'SCRIPT', 'GROUP'], default 'OUTPUT', (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.516 TextureNodeBricks(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeBricks**(*TextureNode*)

offset

Type float in [0, 1], default 0.0

offset_frequency
Offset every N rows

Type int in [2, 99], default 0

squash

Type float in [0, 99], default 0.0

squash_frequency
Squash every N rows

Type int in [2, 99], default 0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.517 TextureNodeChecker(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeChecker**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.518 TextureNodeCompose(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeCompose**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.519 TextureNodeCoordinates(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeCoordinates**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.520 TextureNodeCurveRGB(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeCurveRGB**(*TextureNode*)

mapping

Type CurveMapping, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.521 TextureNodeCurveTime(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeCurveTime**(*TextureNode*)

curve

Type CurveMapping, (readonly)

frame_end

Type int in [-32768, 32767], default 0

frame_start

Type int in [-32768, 32767], default 0

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.522 TextureNodeDecompose(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeDecompose**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove

- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.523 TextureNodeDistance(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeDistance**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.524 TextureNodeHueSaturation(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeHueSaturation**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.525 TextureNodeImage(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeImage**(*TextureNode*)

image

Type Image

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.526 TextureNodeInvert(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeInvert**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.527 TextureNodeMath(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeMath**(*TextureNode*)

operation

Type enum in ['ADD', 'SUBTRACT', 'MULTIPLY', 'DIVIDE', 'SINE', 'COSINE', 'TANGENT', 'ARCSINE', 'ARCCOSINE', 'ARCTANGENT', 'POWER', 'LOGARITHM', 'MINIMUM', 'MAXIMUM', 'ROUND', 'LESS_THAN', 'GREATER_THAN'], default 'ADD'

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.528 TextureNodeMixRGB(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeMixRGB**(*TextureNode*)

blend_type

Type enum in ['MIX', 'ADD', 'SUBTRACT', 'MULTIPLY', 'SCREEN', 'OVERLAY', 'DIVIDE', 'DIFFERENCE', 'DARKEN', 'LIGHTEN', 'DODGE', 'BURN', 'COLOR', 'VALUE', 'SATURATION', 'HUE', 'SOFT_LIGHT', 'LINEAR_LIGHT'], default 'MIX'

use_alpha
Include alpha of second input in this operation

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.529 TextureNodeOutput(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeOutput**(*TextureNode*)

filepath

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.530 TextureNodeRGBToBW(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeRGBToBW**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

1.3.531 TextureNodeRotate(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeRotate**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.532 TextureNodeScale(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeScale**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.533 TextureNodeTexture(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeTexture**(*TextureNode*)

node_output
For node-based textures, which output node to use

Type int in [-32768, 32767], default 0

texture

Type Texture

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden

- 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.type_recast
- bpy_struct.values

1.3.534 TextureNodeTranslate(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeTranslate**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.535 TextureNodeValToNor(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeValToNor**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.536 TextureNodeValToRGB(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeValToRGB**(*TextureNode*)

color_ramp

Type ColorRamp, (readonly)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer

- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.537 TextureNodeViewer(TextureNode)

base classes — bpy_struct, Node, TextureNode

class bpy.types.**TextureNodeViewer**(*TextureNode*)

Inherited Properties

- bpy_struct.id_data
- Node.name
- Node.inputs
- Node.location
- Node.outputs
- TextureNode.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.538 TextureSlot(bpy_struct)

base class — bpy_struct

subclasses — MaterialTextureSlot, LampTextureSlot, BrushTextureSlot, WorldTextureSlot

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

Texture slot defining the mapping and influence of a texture

blend_type

Type enum in ['MIX', 'ADD', 'SUBTRACT', 'MULTIPLY', 'SCREEN', 'OVERLAY', 'DIFFERENCE', 'DIVIDE', 'DARKEN', 'LIGHTEN', 'HUE', 'SATURATION', 'VALUE', 'COLOR', 'SOFT LIGHT', 'LINEAR LIGHT'], default 'MIX'

color

The default color for textures that don't return RGB

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

default_value

Value to use for Ref, Spec, Amb, Emit, Alpha, RayMir, TransLu and Hard

Type float in [-inf, inf], default 0.0

invert

Inverts the values of the texture to reverse its effect

Type boolean, default False

name

Texture slot name

Type string, default "", (readonly)

offset

Fine tunes texture mapping X, Y and Z locations

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

output_node

Which output node to use, for node-based textures

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

scale

Sets scaling for the texture's X, Y and Z sizes

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

texture

Texture datablock used by this texture slot

Type Texture

use_rgb_to_intensity

Converts texture RGB values to intensity (gray) values

Type boolean, default False

use_stencil

Use this texture as a blending value on the next texture

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UILayout.template_preview

1.3.539 Theme(bpy_struct)

base class — bpy_struct

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

Theme settings defining draw style and colors in the user interface

bone_color_sets

Type Collection of ThemeBoneColorSet, (readonly, never None)

console

Type ThemeConsole, (readonly, never None)

dopesheet_editor

Type ThemeDopeSheet, (readonly, never None)

file_browser

Type ThemeFileBrowser, (readonly, never None)

graph_editor

Type ThemeGraphEditor, (readonly, never None)

image_editor

Type ThemeImageEditor, (readonly, never None)

info

Type ThemeInfo, (readonly, never None)

logic_editor

Type ThemeLogicEditor, (readonly, never None)

name
Name of the theme

Type string, default “”

nla_editor

Type ThemeNLAEditor, (readonly, never None)

node_editor

Type ThemeNodeEditor, (readonly, never None)

outliner

Type ThemeOutliner, (readonly, never None)

properties

Type ThemeProperties, (readonly, never None)

sequence_editor

Type ThemeSequenceEditor, (readonly, never None)

text_editor

Type ThemeTextEditor, (readonly, never None)

theme_area

Type enum in [’USER_INTERFACE’, ‘VIEW_3D’, ‘TIMELINE’, ‘GRAPH_EDITOR’, ‘DOPESHEET_EDITOR’, ‘NLA_EDITOR’, ‘IMAGE_EDITOR’, ‘SEQUENCE_EDITOR’, ‘TEXT_EDITOR’, ‘NODE_EDITOR’, ‘LOGIC_EDITOR’, ‘PROPERTIES’, ‘OUTLINER’, ‘USER_PREFERENCES’, ‘INFO’, ‘FILE_BROWSER’, ‘CONSOLE’], default ‘USER_INTERFACE’

timeline

Type ThemeTimeline, (readonly, never None)

user_interface

Type ThemeUserInterface, (readonly, never None)

user_preferences

Type ThemeUserPreferences, (readonly, never None)

view_3d

Type ThemeView3D, (readonly, never None)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.themes

1.3.540 ThemeAudioWindow(bpy_struct)

base class — bpy_struct

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

Theme settings for the Audio Window

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_current

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

window_sliders

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.541 ThemeBoneColorSet(bpy_struct)

base class — bpy_struct

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

Theme settings for bone color sets

active

Color used for active bones

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

normal
Color used for the surface of bones

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

select
Color used for selected bones

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

show_colored_constraints
Allow the use of colors indicating constraints/keyed status

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- BoneGroup.colors
- Theme.bone_color_sets

1.3.542 ThemeConsole(bpy_struct)

base class — bpy_struct

class bpy.types.**ThemeConsole**(*bpy_struct*)
Theme settings for the Console

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

cursor

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

line_error

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

line_info

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

line_input

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

line_output

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.console

1.3.543 ThemeDopeSheet(bpy_struct)

base class — bpy_struct

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

Theme settings for the DopeSheet

active_channels_group

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

channel_group

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

channels

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

channels_selected

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

dopesheet_channel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

dopesheet_subchannel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_current

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

long_key

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

long_key_selected

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

value_sliders

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

view_sliders

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.dopesheet_editor

1.3.544 ThemeFileBrowser(bpy_struct)

base class — bpy_struct

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

Theme settings for the File Browser

active_file

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

active_file_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scroll_handle

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scrollbar

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

selected_file

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

tiles

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.file_browser

1.3.545 ThemeFontStyle(bpy_struct)

base class — bpy_struct

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

Theme settings for Font

font_kerning_style

Which style to use for font kerning

Type enum in ['UNFITTED', 'DEFAULT'], default 'UNFITTED'

points

Type int in [6, 48], default 0

shadow

Shadow size in pixels (0, 3 and 5 supported)

Type int in [0, 5], default 0

shadow_offset_x

Shadow offset in pixels

Type int in [-10, 10], default 0

shadow_offset_y

Shadow offset in pixels

Type int in [-10, 10], default 0

shadowalpha

Type float in [0, 1], default 0.0

shadowcolor
Shadow color in grey value

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ThemeStyle.group_label
- ThemeStyle.panel_title
- ThemeStyle.widget
- ThemeStyle.widget_label

1.3.546 ThemeGraphEditor(bpy_struct)

base class — bpy_struct

class bpy.types.**ThemeGraphEditor**(*bpy_struct*)
Theme settings for the graph editor

active_channels_group

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

channel_group

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

channels_region

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

dopesheet_channel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

dopesheet_subchannel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_current

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_align

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_auto

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_free

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_align

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_auto

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_free

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_vect

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_vect

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_vertex

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_vertex_select

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_vertex_size

Type int in [0, 255], default 0

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

lastsel_point

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

panel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex_select

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex_size

Type int in [1, 10], default 0

window_sliders

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.graph_editor

1.3.547 ThemeImageEditor(bpy_struct)

base class — bpy_struct

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

Theme settings for the Image Editor

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

editmesh_active

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

face

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

face_dot

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

face_select

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

facedot_size

Type int in [1, 10], default 0

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scope_back

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex_select

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex_size

Type int in [1, 10], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.image_editor

1.3.548 ThemeInfo(bpy_struct)

base class — bpy_struct

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

Theme settings for Info

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.info

1.3.549 ThemeLogicEditor(bpy_struct)

base class — bpy_struct

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

Theme settings for the Logic Editor

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

panel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast

- bpy_struct.values

References

- Theme.logic_editor

1.3.550 ThemeNLAEditor(bpy_struct)

base class — bpy_struct

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

Theme settings for the NLA Editor

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

bars

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

bars_selected

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_current

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

strips

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

strips_selected

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

view_sliders

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.nla_editor

1.3.551 ThemeNodeEditor(bpy_struct)

base class — bpy_struct

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

Theme settings for the Node Editor

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

converter_node

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

group_node

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

in_out_node

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

list_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

node_backdrop

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

operator_node

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

selected_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

wire

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

wire_select

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.node_editor

1.3.552 ThemeOutliner(bpy_struct)

base class — bpy_struct

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

Theme settings for the Outliner

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.outliner

1.3.553 ThemeProperties(bpy_struct)

base class — bpy_struct

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

Theme settings for the Properties

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

panel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.properties

1.3.554 ThemeSequenceEditor(bpy_struct)

base class — bpy_struct

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

Theme settings for the Sequence Editor

audio_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

draw_action

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

effect_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_current

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

image_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

keyframe

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

meta_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

movie_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

plugin_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scene_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

transition_strip

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

window_sliders

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.sequence_editor

1.3.555 ThemeStyle(bpy_struct)

base class — bpy_struct

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

Theme settings for style sets

group_label

Type ThemeFontStyle, (readonly, never None)

panel_title

Type ThemeFontStyle, (readonly, never None)

panelzoom
Default zoom level for panel areas

Type float in [0.5, 2], default 0.0

widget

Type ThemeFontStyle, (readonly, never None)

widget_label

Type ThemeFontStyle, (readonly, never None)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.ui_styles

1.3.556 ThemeTextEditor(bpy_struct)

base class — bpy_struct

class bpy.types.**ThemeTextEditor**(*bpy_struct*)
Theme settings for the Text Editor

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

cursor

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

line_numbers_background

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

scroll_bar

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

selected_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

syntax_builtin

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

syntax_comment

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

syntax_numbers

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

syntax_special

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

syntax_string

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.text_editor

1.3.557 ThemeTimeline(bpy_struct)

base class — bpy_struct

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

Theme settings for the Timeline

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

frame_current

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.timeline

1.3.558 ThemeUserInterface(bpy_struct)

base class — bpy_struct

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

Theme settings for user interface elements

icon_file

Type string, default “”

wcol_box

Type ThemeWidgetColors, (readonly, never None)

wcol_list_item

Type ThemeWidgetColors, (readonly, never None)

wcol_menu

Type ThemeWidgetColors, (readonly, never None)

wcol_menu_back

Type ThemeWidgetColors, (readonly, never None)

wcol_menu_item

Type ThemeWidgetColors, (readonly, never None)

wcol_num

Type ThemeWidgetColors, (readonly, never None)

wcol_numslider

Type ThemeWidgetColors, (readonly, never None)

wcol_option

Type ThemeWidgetColors, (readonly, never None)

wcol_progress

Type ThemeWidgetColors, (readonly, never None)

wcol_pulldown

Type ThemeWidgetColors, (readonly, never None)

wcol_radio

Type ThemeWidgetColors, (readonly, never None)

wcol_regular

Type ThemeWidgetColors, (readonly, never None)

wcol_scroll

Type ThemeWidgetColors, (readonly, never None)

wcol_state

Type ThemeWidgetStateColors, (readonly, never None)

wcol_text

Type ThemeWidgetColors, (readonly, never None)

wcol_toggle

Type ThemeWidgetColors, (readonly, never None)

wcol_tool

Type ThemeWidgetColors, (readonly, never None)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.user_interface

1.3.559 ThemeUserPreferences(bpy_struct)

base class — bpy_struct

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

Theme settings for the User Preferences

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.user_preferences

1.3.560 ThemeView3D(bpy_struct)

base class — bpy_struct

class bpy.types.**ThemeView3D**(*bpy_struct*)

Theme settings for the 3D View

act_spline

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

back

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

bone_pose

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

bone_solid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

button_title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

edge_crease

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

edge_facesel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

edge_seam

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

edge_select

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

edge_sharp

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

editmesh_active

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

face

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

face_dot

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

face_select

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

facedot_size

Type int in [1, 10], default 0

frame_current

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

grid

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_align

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_auto

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_free

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_align

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_auto

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_free

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_sel_vect

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

handle_vect

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

header_text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

lamp

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

lastsel_point

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

normal

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

nurb_sel_uline

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

nurb_sel_vline

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

nurb_uline

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

nurb_vline

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

object_active

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

object_grouped

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

object_grouped_active

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

object_selected

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

panel

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_hi

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

title

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

transform

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex_normal

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex_select

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

vertex_size

Type int in [1, 10], default 0

wire

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Theme.view_3d

1.3.561 ThemeWidgetColors(bpy_struct)

base class — bpy_struct

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

Theme settings for widget color sets

inner

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

inner_sel

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

item

Type float array of 4 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0)

outline

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

shadedown

Type int in [-100, 100], default 0

shadetop

Type int in [-100, 100], default 0

show_shaded

Type boolean, default False

text

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

text_sel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ThemeUserInterface.wcol_box
- ThemeUserInterface.wcol_list_item
- ThemeUserInterface.wcol_menu
- ThemeUserInterface.wcol_menu_back
- ThemeUserInterface.wcol_menu_item
- ThemeUserInterface.wcol_num
- ThemeUserInterface.wcol_numslider
- ThemeUserInterface.wcol_option
- ThemeUserInterface.wcol_progress
- ThemeUserInterface.wcol_pulldown

- ThemeUserInterface.wcol_radio
- ThemeUserInterface.wcol_regular
- ThemeUserInterface.wcol_scroll
- ThemeUserInterface.wcol_text
- ThemeUserInterface.wcol_toggle
- ThemeUserInterface.wcol_tool

1.3.562 ThemeWidgetStateColors(bpy_struct)

base class — bpy_struct

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

Theme settings for widget state colors

blend

Type float in [0, 1], default 0.0

inner_anim

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

inner_anim_sel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

inner_driven

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

inner_driven_sel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

inner_key

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

inner_key_sel

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ThemeUserInterface.wcol_state

1.3.563 TimelineMarker(bpy_struct)

base class — bpy_struct

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

Marker for noting points in the timeline

camera

Camera this timeline sets to active

Type Object

frame

The frame on which the timeline marker appears

Type int in [-inf, inf], default 0

name

Type string, default “”

select

Marker selection state

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Action.pose_markers
- ActionPoseMarkers.new
- ActionPoseMarkers.remove
- Scene.timeline_markers
- TimelineMarkers.new
- TimelineMarkers.remove

1.3.564 TimelineMarkers(bpy_struct)

base class — bpy_struct

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

Collection of timeline markers

new(*name*)

Add a keyframe to the curve.

Parameters

- **name** (*string*) – New name for the marker (not unique).

Returns Newly created timeline marker

Return type TimelineMarker

remove(*marker*)

Remove a timeline marker.

Parameters

- **marker** (TimelineMarker, (never None)) – Timeline marker to remove.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.timeline_markers

1.3.565 ToolSettings(bpy_struct)

base class — bpy_struct

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

auto_keying_mode
Mode of automatic keyframe insertion for Objects and Bones

Type enum in ['ADD_REPLACE_KEYS', 'REPLACE_KEYS'], default 'ADD_REPLACE_KEYS'

edge_path_mode
The edge flag to tag when selecting the shortest path

Type enum in ['SELECT', 'SEAM', 'SHARP', 'CREASE', 'BEVEL'], default 'SELECT'

etch_adaptive_limit
Number of bones in the subdivided stroke

Type float in [1e-05, 1], default 0.0

etch_convert_mode
Method used to convert stroke to bones

Type enum in ['FIXED', 'LENGTH', 'ADAPTIVE', 'RETARGET'], default 'FIXED'

etch_length_limit
Number of bones in the subdivided stroke

Type float in [1e-05, 100000], default 0.0

etch_number
DOC BROKEN

Type string, default ""

etch_roll_mode
Method used to adjust the roll of bones when retargeting

Type enum in ['NONE', 'VIEW', 'JOINT'], default 'NONE'

etch_side
DOC BROKEN

Type string, default ""

etch_subdivision_number
Number of bones in the subdivided stroke

Type int in [1, 10000], default 0

etch_template
Template armature that will be retargeted to the stroke

Type Object

image_paint

Type ImagePaint, (readonly)

mesh_select_mode
Which mesh elements selection works on

Type boolean array of 3 items, default (False, False, False)

normal_size
Display size for normals in the 3D view

Type float in [1e-05, 1000], default 0.0

particle_edit

Type ParticleEdit, (readonly)

proportional_edit
Proportional editing mode

Type enum in ['DISABLED', 'ENABLED', 'CONNECTED'], default 'DISABLED'

proportional_edit_falloff
Falloff type for proportional editing mode

Type enum in ['SMOOTH', 'SPHERE', 'ROOT', 'SHARP', 'LINEAR', 'CONSTANT', 'RANDOM'], default 'SMOOTH'

sculpt

Type Sculpt, (readonly)

sculpt_paint_use_unified_size
Instead of per brush radius, the radius is shared across brushes

Type boolean, default False

sculpt_paint_use_unified_strength
Instead of per brush strength, the strength is shared across brushes

Type boolean, default False

show_uv_local_view
Draw only faces with the currently displayed image assigned

Type boolean, default False

snap_element
Type of element to snap to

Type enum in ['INCREMENT', 'VERTEX', 'EDGE', 'FACE', 'VOLUME'], default 'INCREMENT'

snap_target
Which part to snap onto the target

Type enum in ['CLOSEST', 'CENTER', 'MEDIAN', 'ACTIVE'], default 'CLOSEST'

use_auto_normalize
Ensure all bone-deforming vertex groups add up to 1.0 while weight painting

Type boolean, default False

use_bone_sketching
DOC BROKEN

Type boolean, default False

use_etch_autoname
DOC BROKEN

Type boolean, default False

use_etch_overdraw
DOC BROKEN

Type boolean, default False

use_etch_quick
DOC BROKEN

Type boolean, default False

use_keyframe_insert_auto
Automatic keyframe insertion for Objects and Bones

Type boolean, default False

use_mesh_automerge
Automatically merge vertices moved to the same location

Type boolean, default False

use_proportional_edit_objects
Proportional editing object mode

Type boolean, default False

use_record_with_nla
Add a new NLA Track + Strip for every loop/pass made over the animation to allow non-destructive tweaking

Type boolean, default False

use_snap
Snap during transform

Type boolean, default False

use_snap_align_rotation
Align rotation with the snapping target

Type boolean, default False

use_snap_peel_object
Consider objects as whole when finding volume center

Type boolean, default False

use_snap_project
Project vertices on the surface of other objects

Type boolean, default False

use_uv_select_sync
Keep UV and edit mode mesh selection in sync

Type boolean, default False

uv_select_mode
UV selection and display mode

Type enum in ['VERTEX', 'EDGE', 'FACE', 'ISLAND'], default 'VERTEX'

vertex_group_weight
Weight to assign in vertex groups

Type float in [0, 1], default 0.0

vertex_paint

Type VertexPaint, (readonly)

weight_paint

Type VertexPaint, (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Context.tool_settings
- Scene.tool_settings

1.3.566 TouchSensor(Sensor)

base classes — bpy_struct, Sensor

class bpy.types.**TouchSensor**(*Sensor*)
Sensor to detect objects colliding with the current object

material
Only look for objects with this material

Type Material

Inherited Properties

- bpy_struct.id_data
- Sensor.name
- Sensor.show_expanded
- Sensor.frequency
- Sensor.invert
- Sensor.use_level
- Sensor.pin
- Sensor.use_pulse_false_level
- Sensor.use_pulse_true_level
- Sensor.use_tap
- Sensor.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sensor.link
- Sensor.unlink

1.3.567 TrackToConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**TrackToConstraint**(*Constraint*)
Aims the constrained object toward the target

head_tail
Target along length of bone: Head=0, Tail=1

Type float in [0, 1], default 0.0

subtarget

Type string, default “”

target
Target Object

Type Object

track_axis
Axis that points to the target object

Type enum in [’TRACK_X’, ‘TRACK_Y’, ‘TRACK_Z’, ‘TRACK_NEGATIVE_X’, ‘TRACK_NEGATIVE_Y’, ‘TRACK_NEGATIVE_Z’], default ‘TRACK_X’

up_axis
Axis that points upward

Type enum in [’UP_X’, ‘UP_Y’, ‘UP_Z’], default ‘UP_X’

use_target_z
Target’s Z axis, not World Z axis, will constraint the Up direction

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.568 TransformConstraint(Constraint)

base classes — bpy_struct, Constraint

class bpy.types.**TransformConstraint**(*Constraint*)

Maps transformations of the target to the object

from_max_x

Top range of X axis source motion

Type float in [-inf, inf], default 0.0

from_max_y

Top range of Y axis source motion

Type float in [-inf, inf], default 0.0

from_max_z

Top range of Z axis source motion

Type float in [-inf, inf], default 0.0

from_min_x

Bottom range of X axis source motion

Type float in [-inf, inf], default 0.0

from_min_y

Bottom range of Y axis source motion

Type float in [-inf, inf], default 0.0

from_min_z

Bottom range of Z axis source motion

Type float in [-inf, inf], default 0.0

map_from

The transformation type to use from the target

Type enum in ['LOCATION', 'ROTATION', 'SCALE'], default 'LOCATION'

map_to

The transformation type to affect of the constrained object

Type enum in ['LOCATION', 'ROTATION', 'SCALE'], default 'LOCATION'

map_to_x_from

The source axis constrained object's X axis uses

Type enum in ['X', 'Y', 'Z'], default 'X'

map_to_y_from

The source axis constrained object's Y axis uses

Type enum in ['X', 'Y', 'Z'], default 'X'

map_to_z_from

The source axis constrained object's Z axis uses

Type enum in ['X', 'Y', 'Z'], default 'X'

subtarget

Type string, default ""

target
Target Object

Type Object

to_max_x
Top range of X axis destination motion

Type float in [-inf, inf], default 0.0

to_max_y
Top range of Y axis destination motion

Type float in [-inf, inf], default 0.0

to_max_z
Top range of Z axis destination motion

Type float in [-inf, inf], default 0.0

to_min_x
Bottom range of X axis destination motion

Type float in [-inf, inf], default 0.0

to_min_y
Bottom range of Y axis destination motion

Type float in [-inf, inf], default 0.0

to_min_z
Bottom range of Z axis destination motion

Type float in [-inf, inf], default 0.0

use_motion_extrapolate
Extrapolate ranges

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Constraint.name
- Constraint.active
- Constraint.is_valid
- Constraint.mute
- Constraint.show_expanded
- Constraint.influence
- Constraint.error_location
- Constraint.owner_space
- Constraint.is_proxy_local
- Constraint.error_rotation
- Constraint.target_space
- Constraint.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.569 TransformOrientation(bpy_struct)

base class — bpy_struct

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

matrix

Type float array of 9 items in [-inf, inf], default (0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)

name

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.orientations
- SpaceView3D.current_orientation

1.3.570 TransformSequence(EffectSequence)

base classes — bpy_struct, Sequence, EffectSequence

class bpy.types.**TransformSequence**(*EffectSequence*)

Sequence strip applying affine transformations to other strips

interpolation

Type enum in ['NONE', 'BILINEAR', 'BICUBIC'], default 'NONE'

rotation_start

Type float in [-360, 360], default 0.0

scale_start_x

Type float in [0, inf], default 0.0

scale_start_y

Type float in [0, inf], default 0.0

translate_start_x

Type float in [-inf, inf], default 0.0

translate_start_y

Type float in [-inf, inf], default 0.0

translation_unit

Type enum in ['PIXELS', 'PERCENT'], default 'PIXELS'

use_uniform_scale

Scale uniformly, preserving aspect ratio

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end

- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade
- EffectSequence.color_balance
- EffectSequence.use_float
- EffectSequence.crop
- EffectSequence.use_deinterlace
- EffectSequence.use_reverse_frames
- EffectSequence.use_flip_x
- EffectSequence.use_flip_y
- EffectSequence.color_multiply
- EffectSequence.use_premultiply
- EffectSequence.proxy
- EffectSequence.use_proxy_custom_directory
- EffectSequence.use_proxy_custom_file
- EffectSequence.color_saturation
- EffectSequence.strobe
- EffectSequence.transform
- EffectSequence.use_color_balance
- EffectSequence.use_crop
- EffectSequence.use_proxy
- EffectSequence.use_translation

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

- Sequence.getStripElem
- Sequence.swap

1.3.571 UILayout(bpy_struct)

base class — bpy_struct

class bpy.types.**UILayout**(*bpy_struct*)
User interface layout in a panel or header

active

Type boolean, default False

alignment

Type enum in ['EXPAND', 'LEFT', 'CENTER', 'RIGHT'], default 'EXPAND'

enabled
When false, this (sub)layout is greyed out.

Type boolean, default False

operator_context

Type enum in ['INVOKE_DEFAULT', 'INVOKE_REGION_WIN', 'INVOKE_REGION_CHANNELS', 'INVOKE_REGION_PREVIEW', 'INVOKE_AREA', 'INVOKE_SCREEN', 'EXEC_DEFAULT', 'EXEC_REGION_WIN', 'EXEC_REGION_CHANNELS', 'EXEC_REGION_PREVIEW', 'EXEC_AREA', 'EXEC_SCREEN'], default 'INVOKE_DEFAULT'

scale_x
Scale factor along the X for items in this (sub)layout.

Type float in [0, inf], default 0.0

scale_y
Scale factor along the Y for items in this (sub)layout.

Type float in [0, inf], default 0.0

row(*align=False*)
Sub-layout. Items placed in this sublayout are placed next to each other in a row.

Parameters

- **align** (*boolean, (optional)*) – Align buttons to each other.

Returns Sub-layout to put items in.

Return type UILayout

column(*align=False*)
Sub-layout. Items placed in this sublayout are placed under each other in a column.

Parameters

- **align** (*boolean, (optional)*) – Align buttons to each other.

Returns Sub-layout to put items in.

Return type UILayout

column_flow(*columns=0*, *align=False*)
column_flow

Parameters

- **columns** (*int in [0, inf], (optional)*) – Number of columns, 0 is automatic.
- **align** (*boolean, (optional)*) – Align buttons to each other.

Returns Sub-layout to put items in.

Return type UILayout

box()
Sublayout. Items placed in this sublayout are placed under each other in a column and are surrounded by a box.

Returns Sub-layout to put items in.

Return type UILayout

split(*percentage=0.0*, *align=False*)
split

Parameters

- **percentage** (*float in [0, 1], (optional)*) – Percentage, Percentage of width to split at.
- **align** (*boolean, (optional)*) – Align buttons to each other.

Returns Sub-layout to put items in.

Return type UILayout

prop(*data*, *property*, *text=""*, *icon='BLENDER'*, *expand=False*, *slider=False*, *toggle=False*, *icon_only=False*, *event=False*, *full_event=False*, *emboss=True*, *index=-1*)
Item. Exposes an RNA item and places it into the layout.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DISCLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'RENDER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STYLUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA',*

'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060', 'BLANK061', 'BLANK061b', 'OBJECT_DATAMODE', 'EDITMODE_HLT', 'FACESEL_HLT', 'VPAINT_HLT', 'TPAINT_HLT', 'WPAINT_HLT', 'SCULPTMODE_HLT', 'POSE_HLT', 'PARTICLEMODE', 'LIGHTPAINT', 'BLANK063', 'BLANK064', 'BLANK065', 'BLANK066', 'BLANK067', 'BLANK068', 'BLANK069', 'BLANK070', 'BLANK071', 'BLANK072', 'BLANK073', 'BLANK074', 'BLANK075', 'BLANK076', 'BLANK077', 'BLANK077b', 'SCENE_DATA', 'RENDERLAYERS', 'WORLD_DATA', 'OBJECT_DATA', 'MESH_DATA', 'CURVE_DATA', 'META_DATA', 'LATTICE_DATA', 'LAMP_DATA', 'MATERIAL_DATA', 'TEXTURE_DATA', 'ANIM_DATA', 'CAMERA_DATA', 'PARTICLE_DATA', 'LIBRARY_DATA_DIRECT', 'GROUP', 'ARMATURE_DATA', 'POSE_DATA', 'BONE_DATA', 'CONSTRAINT', 'SHAPEKEY_DATA', 'CONSTRAINT_BONE', 'BLANK079', 'PACKAGE', 'UGLYPACKAGE', 'BLANK079b', 'BRUSH_DATA', 'IMAGE_DATA', 'FILE', 'FCURVE', 'FONT_DATA', 'RENDER_RESULT', 'SURFACE_DATA', 'EMPTY_DATA', 'SETTINGS', 'RENDER_ANIMATION', 'RENDER_STILL', 'BLANK080F', 'BOIDS', 'STRANDS', 'LIBRARY_DATA_INDIRECT', 'GREASEPENCIL', 'BLANK083', 'BLANK084', 'GROUP_BONE', 'GROUP_VERTEX', 'GROUP_VCOL', 'GROUP_UVS', 'BLANK089', 'BLANK090', 'RNA', 'RNA_ADD', 'BLANK092', 'BLANK093', 'BLANK094', 'BLANK095', 'BLANK096', 'BLANK097', 'BLANK098', 'BLANK099', 'BLANK100', 'BLANK101', 'BLANK102', 'BLANK103', 'BLANK104', 'BLANK105', 'BLANK106', 'BLANK107', 'BLANK108', 'BLANK109', 'BLANK110', 'BLANK111', 'BLANK112', 'BLANK113', 'BLANK114', 'BLANK115', 'BLANK116', 'BLANK116b', 'OUTLINER_OB_EMPTY', 'OUTLINER_OB_MESH', 'OUTLINER_OB_CURVE', 'OUTLINER_OB_LATTICE', 'OUTLINER_OB_META', 'OUTLINER_OB_LAMP', 'OUTLINER_OB_CAMERA', 'OUTLINER_OB_ARMATURE', 'OUTLINER_OB_FONT', 'OUTLINER_OB_SURFACE', 'BLANK119', 'BLANK120', 'BLANK121', 'BLANK122', 'BLANK123', 'BLANK124', 'BLANK125', 'BLANK126', 'BLANK127', 'RESTRICT_VIEW_OFF', 'RESTRICT_VIEW_ON', 'RESTRICT_SELECT_OFF', 'RESTRICT_SELECT_ON', 'RESTRICT_RENDER_OFF', 'RESTRICT_RENDER_ON', 'BLANK127b', 'OUTLINER_DATA_EMPTY', 'OUTLINER_DATA_MESH', 'OUTLINER_DATA_CURVE', 'OUTLINER_DATA_LATTICE', 'OUTLINER_DATA_META', 'OUTLINER_DATA_LAMP', 'OUTLINER_DATA_CAMERA', 'OUTLINER_DATA_ARMATURE', 'OUTLINER_DATA_FONT', 'OUTLINER_DATA_SURFACE', 'OUTLINER_DATA_POSE', 'BLANK129', 'BLANK130', 'BLANK131', 'BLANK132', 'BLANK133', 'BLANK134', 'BLANK135', 'BLANK136', 'BLANK137', 'BLANK138', 'BLANK139', 'BLANK140', 'BLANK141', 'BLANK142', 'BLANK142b', 'MESH_PLANE', 'MESH_CUBE', 'MESH_CIRCLE', 'MESH_UVSPHERE', 'MESH_ICOSPHERE', 'MESH_GRID', 'MESH_MONKEY', 'MESH_CYLINDER', 'MESH_TORUS', 'MESH_CONE', 'BLANK610', 'BLANK611', 'LAMP_POINT', 'LAMP_SUN', 'LAMP_SPOT', 'LAMP_HEMI', 'LAMP_AREA', 'BLANK617', 'BLANK618', 'BLANK619', 'META_PLANE', 'META_CUBE', 'META_BALL', 'META_ELLIPSOID', 'META_CAPSULE', 'BLANK625', 'SURFACE_NCURVE', 'SURFACE_NCIRCLE', 'SURFACE_NSURFACE', 'SURFACE_NCYLINDER', 'SURFACE_NSPHERE', 'SURFACE_NTORUS', 'BLANK636', 'BLANK637', 'BLANK638', 'CURVE_BEZCURVE', 'CURVE_BEZCIRCLE', 'CURVE_NCURVE', 'CURVE_NCIRCLE', 'CURVE_PATH', 'BLANK644', 'BLANK645', 'BLANK646', 'BLANK647', 'BLANK648', 'BLANK649', 'BLANK650', 'BLANK651', 'BLANK652', 'BLANK653', 'BLANK654', 'BLANK655', 'FORCE_FORCE', 'FORCE_WIND', 'FORCE_VORTEX', 'FORCE_MAGNETIC', 'FORCE_HARMONIC', 'FORCE_CHARGE', 'FORCE_LENNARDJONES', 'FORCE_TEXTURE', 'FORCE_CURVE', 'FORCE_BOID', 'FORCE_TURBULENCE', 'FORCE_DRAG', 'BLANK672', 'BLANK673', 'BLANK674', 'BLANK675', 'BLANK676', 'BLANK677', 'BLANK678', 'BLANK679', 'BLANK680',

'BLANK681', 'BLANK682', 'BLANK683', 'BLANK684', 'BLANK685', 'BLANK690', 'BLANK691', 'BLANK692', 'BLANK693', 'BLANK694', 'BLANK695', 'BLANK696', 'BLANK697', 'BLANK698', 'BLANK699', 'BLANK700', 'BLANK701', 'BLANK702', 'BLANK703', 'BLANK704', 'BLANK705', 'BLANK706', 'BLANK707', 'BLANK708', 'BLANK709', 'BLANK710', 'BLANK711', 'BLANK712', 'BLANK713', 'BLANK714', 'BLANK715', 'BLANK720', 'BLANK721', 'BLANK722', 'BLANK733', 'BLANK734', 'BLANK735', 'BLANK736', 'BLANK737', 'BLANK738', 'BLANK739', 'BLANK740', 'BLANK741', 'BLANK742', 'BLANK743', 'BLANK744', 'BLANK745', 'BLANK746', 'BLANK747', 'BLANK748', 'BLANK749', 'BLANK750', 'BLANK751', 'BLANK752', 'BLANK753', 'BLANK754', 'BLANK755', 'BLANK760', 'BLANK761', 'BLANK762', 'BLANK763', 'BLANK764', 'BLANK765', 'BLANK766', 'BLANK767', 'BLANK768', 'BLANK769', 'BLANK770', 'BLANK771', 'BLANK772', 'BLANK773', 'BLANK774', 'BLANK775', 'BLANK776', 'BLANK777', 'BLANK778', 'BLANK779', 'BLANK780', 'BLANK781', 'BLANK782', 'BLANK783', 'BLANK784', 'BLANK785', 'MODIFIER', 'MOD_WAVE', 'MOD_BUILD', 'MOD_DECIM', 'MOD_MIRROR', 'MOD_SOFT', 'MOD_SUBSURF', 'HOOK', 'MOD_PHYSICS', 'MOD_PARTICLES', 'MOD_BOOLEAN', 'MOD_EDGESPLIT', 'MOD_ARRAY', 'MOD_UVPROJECT', 'MOD_DISPLACE', 'MOD_CURVE', 'MOD_LATTICE', 'CONSTRAINT_DATA', 'MOD_ARMATURE', 'MOD_SHRINKWRAP', 'MOD_CAST', 'MOD_MESHDEFORM', 'MOD_BEVEL', 'MOD_SMOOTH', 'MOD_SIMPLEDEFORM', 'MOD_MASK', 'MOD_CLOTH', 'MOD_EXPLODE', 'MOD_FLUIDSIM', 'MOD_MULTIRES', 'MOD_SMOKE', 'MOD_SOLIDIFY', 'MOD_SCREW', 'BLANK160', 'BLANK161', 'BLANK162', 'BLANK163', 'BLANK164', 'BLANK165', 'BLANK166', 'BLANK167', 'BLANK168', 'BLANK169', 'BLANK170', 'BLANK171', 'BLANK172', 'BLANK173', 'BLANK174', 'BLANK175', 'BLANK176', 'BLANK177', 'BLANK177b', 'REC', 'PLAY', 'FF', 'REW', 'PAUSE', 'PREV_KEYFRAME', 'NEXT_KEYFRAME', 'PLAY_AUDIO', 'PLAY_REVERSE', 'PREVIEW_RANGE', 'BLANK180', 'PMARKER_ACT', 'PMARKER_SEL', 'PMARKER', 'MARKER_HLT', 'MARKER', 'SPACE2', 'SPACE3', 'BLANK181', 'KEY_DEHLT', 'KEY_HLT', 'MUTE_IPO_OFF', 'MUTE_IPO_ON', 'BLANK182', 'BLANK183', 'BLANK183b', 'BLANK184', 'BLANK185', 'BLANK186', 'BLANK187', 'BLANK188', 'BLANK189', 'BLANK190', 'BLANK191', 'BLANK192', 'BLANK193', 'BLANK194', 'BLANK195', 'BLANK196', 'BLANK197', 'BLANK198', 'BLANK199', 'BLANK200', 'BLANK201', 'BLANK202', 'BLANK203', 'BLANK204', 'BLANK205', 'BLANK206', 'BLANK207', 'BLANK208', 'BLANK208b', 'VERTEXSEL', 'EDGESEL', 'FACESEL', 'LINKEDSEL', 'BLANK210', 'ROTATE', 'CURSOR', 'ROTATECOLLECTION', 'ROTATECENTER', 'ROTACTIVE', 'ALIGN', 'BLANK211', 'SMOOTHCURVE', 'SPHERECURVE', 'ROOTCURVE', 'SHARPCURVE', 'LINCURVE', 'NOCURVE', 'RNDCURVE', 'PROP_OFF', 'PROP_ON', 'PROP_CON', 'BLANK212', 'PARTICLE_POINT', 'PARTICLE_TIP', 'PARTICLE_PATH', 'MAN_TRANS', 'MAN_ROT', 'MAN_SCALE', 'MANIPUL', 'SNAP_OFF', 'SNAP_ON', 'SNAP_NORMAL', 'SNAP_INCREMENT', 'SNAP_VERTEX', 'SNAP_EDGE', 'SNAP_FACE', 'SNAP_VOLUME', 'UVS_FACE', 'STICKY_UVS_LOC', 'STICKY_UVS_DISABLE', 'STICKY_UVS_VERT', 'CLIPUV_DEHLT', 'CLIPUV_HLT', 'SNAP_PEEL_OBJECT', 'GRID', 'GEARS', 'BLANK221', 'BLANK224', 'BLANK225', 'BLANK226', 'BLANK226b', 'PASTEDOWN', 'COPYDOWN', 'PASTEFLIPUP', 'PASTEFLIPDOWN', 'BLANK227', 'BLANK228', 'BLANK229', 'BLANK230', 'SNAP_SURFACE', 'BLANK232', 'BLANK233', 'RETOPO', 'UV_VERTEXSEL', 'UV_EDGESEL', 'UV_FACESEL', 'UV_ISLANDSEL', 'UV_SYNC_SELECT', 'BLANK240', 'BLANK241', 'BLANK242', 'BLANK243', 'BLANK244', 'BLANK245', 'BLANK246', 'BLANK247', 'BLANK247b', 'BBOX', 'WIRE', 'SOLID', 'SMOOTH', 'POTATO', 'BLANK248', 'ORTHO', 'ORTHO_OFF', 'CAMERA', 'LOCKVIEW_OFF', 'LOCKVIEW_ON', 'BLANK250', 'AXIS_SIDE', 'AXIS_FRONT', 'AXIS_TOP', 'NDOF_DOM', 'NDOF_TURN', 'NDOF_FLY', 'NDOF_TRANS', 'LAYER_USED', 'LAYER_ACTIVE', 'BLANK254', 'BLANK255', 'BLANK256',

'BLANK257', 'BLANK257b', 'BLANK258', 'BLANK259', 'BLANK260', 'BLANK261', 'BLANK262', 'BLANK263', 'BLANK264', 'BLANK265', 'BLANK266', 'BLANK267', 'BLANK268', 'BLANK269', 'BLANK270', 'BLANK271', 'BLANK272', 'BLANK273', 'BLANK274', 'BLANK275', 'BLANK276', 'BLANK277', 'BLANK278', 'BLANK279', 'BLANK280', 'BLANK281', 'BLANK282', 'BLANK282b', 'SORTALPHA', 'SORTBYEXT', 'SORTTIME', 'SORTSIZE', 'LONGDISPLAY', 'SHORTDISPLAY', 'GHOST', 'IMGDISPLAY', 'BLANK284', 'BLANK285', 'BOOKMARKS', 'FONTPREVIEW', 'FILTER', 'NEWFOLDER', 'BLANK285F', 'FILE_PARENT', 'FILE_REFRESH', 'FILE_FOLDER', 'FILE_BLANK', 'FILE_BLEND', 'FILE_IMAGE', 'FILE_MOVIE', 'FILE_SCRIPT', 'FILE_SOUND', 'FILE_FONT', 'BLANK291b', 'BLANK292', 'BLANK293', 'BLANK294', 'BLANK295', 'BLANK296', 'BLANK297', 'BLANK298', 'BLANK299', 'BLANK300', 'BLANK301', 'BLANK302', 'BLANK303', 'BLANK304', 'BLANK305', 'BLANK306', 'BACK', 'FORWARD', 'BLANK309', 'BLANK310', 'BLANK311', 'BLANK312', 'BLANK313', 'BLANK314', 'BLANK315', 'BLANK316', 'DISK_DRIVE', 'MATPLANE', 'MATSPHERE', 'MATCUBE', 'MONKEY', 'HAIR', 'ALIASED', 'ANTIALIASED', 'MAT_SPHERE_SKY', 'BLANK319', 'BLANK320', 'BLANK321', 'BLANK322', 'WORDWRAP_OFF', 'WORDWRAP_ON', 'SYNTAX_OFF', 'SYNTAX_ON', 'LINENUMBERS_OFF', 'LINENUMBERS_ON', 'SCRIPTPLUGINS', 'BLANK323', 'BLANK324', 'BLANK325', 'BLANK326', 'BLANK327', 'BLANK328', 'BLANK328b', 'SEQ_SEQUENCER', 'SEQ_PREVIEW', 'SEQ_LUMA_WAVEFORM', 'SEQ_CHROMA_SCOPE', 'SEQ_HISTOGRAM', 'SEQ_SPLITVIEW', 'BLANK331', 'BLANK332', 'BLANK333', 'IMAGE_RGB', 'IMAGE_RGB_ALPHA', 'IMAGE_ALPHA', 'IMAGE_ZDEPTH', 'IMAGEFILE', 'BLANK336', 'BLANK337', 'BLANK338', 'BLANK339', 'BLANK340', 'BLANK341', 'BLANK342', 'BLANK343', 'BLANK344', 'BLANK345', 'BLANK346', 'BLANK346b', 'BRUSH_ADD', 'BRUSH_BLOB', 'BRUSH_BLUR', 'BRUSH_CLAY', 'BRUSH_CLONE', 'BRUSH_CREASE', 'BRUSH_DARKEN', 'BRUSH_FILL', 'BRUSH_FLATTEN', 'BRUSH_GRAB', 'BRUSH_INFLATE', 'BRUSH_LAYER', 'BRUSH_LIGHTEN', 'BRUSH_MIX', 'BRUSH_MULTIPLY', 'BRUSH_NUDGE', 'BRUSH_PINCH', 'BRUSH_SCRAPE', 'BRUSH_SCULPT_DRAW', 'BRUSH_SMEAR', 'BRUSH_SMOOTH', 'BRUSH_SNAKE_HOOK', 'BRUSH_SOFTEN', 'BRUSH_SUBTRACT', 'BRUSH_TEXDRAW', 'BRUSH_THUMB', 'BRUSH_ROTATE', 'BRUSH_VERTEXDRAW', 'VIEW3D_VEC', 'EDIT_VEC', 'EDITMODE_DEHLT', 'EDITMODE_HLT', 'DISCLOSURE_TRI_RIGHT_VEC', 'DISCLOSURE_TRI_DOWN_VEC', 'MOVE_UP_VEC', 'MOVE_DOWN_VEC', 'X_VEC', 'SMALL_TRI_RIGHT_VEC'], (optional)) – Icon, Override automatic icon of the item

- **expand** (*boolean, (optional)*) – Expand button to show more detail.
- **slider** (*boolean, (optional)*) – Use slider widget for numeric values.
- **toggle** (*boolean, (optional)*) – Use toggle widget for boolean values.
- **icon_only** (*boolean, (optional)*) – Draw only icons in buttons, no text.
- **event** (*boolean, (optional)*) – Use button to input key events.
- **full_event** (*boolean, (optional)*) – Use button to input full events including modifiers.
- **emboss** (*boolean, (optional)*) – Draw the button itself, just the icon/text.
- **index** (*int in [-2, inf], (optional)*) – The index of this button, when set a single member of an array can be accessed, when set to -1 all array members are used.

props_enum(*data*, *property*)

props_enum

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.

prop_menu_enum(*data*, *property*, *text=""*, *icon='BLENDER'*)

prop_menu_enum

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DISCLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'RENDER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STYLUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA', 'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060', 'BLANK061', 'BLANK061b', 'OBJECT_DATAMODE', 'EDITMODE_HLT', 'FACESEL_HLT', 'VPAINT_HLT', 'TPAINT_HLT', 'WPAINT_HLT', 'SCULPTMODE_HLT', 'POSE_HLT', 'PARTICLEMODE', 'LIGHTPAINT', 'BLANK063', 'BLANK064', 'BLANK065', 'BLANK066', 'BLANK067', 'BLANK068', 'BLANK069', 'BLANK070', 'BLANK071', 'BLANK072', 'BLANK073', 'BLANK074', 'BLANK075', 'BLANK076', 'BLANK077', 'BLANK077b', 'SCENE_DATA', 'RENDERLAYERS', 'WORLD_DATA', 'OBJECT_DATA', 'MESH_DATA', 'CURVE_DATA', 'META_DATA', 'LATTICE_DATA', 'LAMP_DATA', 'MATERIAL_DATA', 'TEXTURE_DATA', 'ANIM_DATA', 'CAMERA_DATA', 'PARTICLE_DATA', 'LIBRARY_DATA_DIRECT', 'GROUP', 'ARMATURE_DATA', 'POSE_DATA', 'BONE_DATA', 'CONSTRAINT', 'SHAPEKEY_DATA', 'CONSTRAINT_BONE', 'BLANK079', 'PACKAGE', 'UGLYPACKAGE', 'BLANK079b', 'BRUSH_DATA', 'IMAGE_DATA', 'FILE', 'FCURVE', 'FONT_DATA', 'RENDER_RESULT', 'SURFACE_DATA', 'EMPTY_DATA', 'SETTINGS', 'RENDER_ANIMATION', 'RENDER_STILL', 'BLANK080F', 'BOIDS', 'STRANDS', 'LIBRARY_DATA_INDIRECT', 'GREASEPENCIL', 'BLANK083', 'BLANK084', 'GROUP_BONE', 'GROUP_VERTEX', 'GROUP_VCOL', 'GROUP_UVS', 'BLANK089', 'BLANK090', 'RNA', 'RNA_ADD', 'BLANK092', 'BLANK093', 'BLANK094', 'BLANK095', 'BLANK096', 'BLANK097', 'BLANK098', 'BLANK099', 'BLANK100', 'BLANK101', 'BLANK102', 'BLANK103', 'BLANK104',*

'BLANK105', 'BLANK106', 'BLANK107', 'BLANK108', 'BLANK109', 'BLANK110', 'BLANK111', 'BLANK112', 'BLANK113', 'BLANK114', 'BLANK115', 'BLANK116', 'BLANK116b', 'OUTLINER_OB_EMPTY', 'OUTLINER_OB_MESH', 'OUTLINER_OB_CURVE', 'OUTLINER_OB_LATTICE', 'OUTLINER_OB_META', 'OUTLINER_OB_LAMP', 'OUTLINER_OB_CAMERA', 'OUTLINER_OB_ARMATURE', 'OUTLINER_OB_FONT', 'OUTLINER_OB_SURFACE', 'BLANK119', 'BLANK120', 'BLANK121', 'BLANK122', 'BLANK123', 'BLANK124', 'BLANK125', 'BLANK126', 'BLANK127', 'RESTRICT_VIEW_OFF', 'RESTRICT_VIEW_ON', 'RESTRICT_SELECT_OFF', 'RESTRICT_SELECT_ON', 'RESTRICT_RENDER_OFF', 'RESTRICT_RENDER_ON', 'BLANK127b', 'OUTLINER_DATA_EMPTY', 'OUTLINER_DATA_MESH', 'OUTLINER_DATA_CURVE', 'OUTLINER_DATA_LATTICE', 'OUTLINER_DATA_META', 'OUTLINER_DATA_LAMP', 'OUTLINER_DATA_CAMERA', 'OUTLINER_DATA_ARMATURE', 'OUTLINER_DATA_FONT', 'OUTLINER_DATA_SURFACE', 'OUTLINER_DATA_POSE', 'BLANK129', 'BLANK130', 'BLANK131', 'BLANK132', 'BLANK133', 'BLANK134', 'BLANK135', 'BLANK136', 'BLANK137', 'BLANK138', 'BLANK139', 'BLANK140', 'BLANK141', 'BLANK142', 'BLANK142b', 'MESH_PLANE', 'MESH_CUBE', 'MESH_CIRCLE', 'MESH_UVSPHERE', 'MESH_ICOSPHERE', 'MESH_GRID', 'MESH_MONKEY', 'MESH_CYLINDER', 'MESH_TORUS', 'MESH_CONE', 'BLANK610', 'BLANK611', 'LAMP_POINT', 'LAMP_SUN', 'LAMP_SPOT', 'LAMP_HEMI', 'LAMP_AREA', 'BLANK617', 'BLANK618', 'BLANK619', 'META_PLANE', 'META_CUBE', 'META_BALL', 'META_ELLIPSOID', 'META_CAPSULE', 'BLANK625', 'SURFACE_NCURVE', 'SURFACE_NCIRCLE', 'SURFACE_NSURFACE', 'SURFACE_NCYLINDER', 'SURFACE_NSPHERE', 'SURFACE_NTORUS', 'BLANK636', 'BLANK637', 'BLANK638', 'CURVE_BEZCURVE', 'CURVE_BEZCIRCLE', 'CURVE_NCURVE', 'CURVE_NCIRCLE', 'CURVE_PATH', 'BLANK644', 'BLANK645', 'BLANK646', 'BLANK647', 'BLANK648', 'BLANK649', 'BLANK650', 'BLANK651', 'BLANK652', 'BLANK653', 'BLANK654', 'BLANK655', 'FORCE_FORCE', 'FORCE_WIND', 'FORCE_VORTEX', 'FORCE_MAGNETIC', 'FORCE_HARMONIC', 'FORCE_CHARGE', 'FORCE_LENNARDJONES', 'FORCE_TEXTURE', 'FORCE_CURVE', 'FORCE_BOID', 'FORCE_TURBULENCE', 'FORCE_DRAG', 'BLANK672', 'BLANK673', 'BLANK674', 'BLANK675', 'BLANK676', 'BLANK677', 'BLANK678', 'BLANK679', 'BLANK680', 'BLANK681', 'BLANK682', 'BLANK683', 'BLANK684', 'BLANK685', 'BLANK690', 'BLANK691', 'BLANK692', 'BLANK693', 'BLANK694', 'BLANK695', 'BLANK696', 'BLANK697', 'BLANK698', 'BLANK699', 'BLANK700', 'BLANK701', 'BLANK702', 'BLANK703', 'BLANK704', 'BLANK705', 'BLANK706', 'BLANK707', 'BLANK708', 'BLANK709', 'BLANK710', 'BLANK711', 'BLANK712', 'BLANK713', 'BLANK714', 'BLANK715', 'BLANK720', 'BLANK721', 'BLANK722', 'BLANK733', 'BLANK734', 'BLANK735', 'BLANK736', 'BLANK737', 'BLANK738', 'BLANK739', 'BLANK740', 'BLANK741', 'BLANK742', 'BLANK743', 'BLANK744', 'BLANK745', 'BLANK746', 'BLANK747', 'BLANK748', 'BLANK749', 'BLANK750', 'BLANK751', 'BLANK752', 'BLANK753', 'BLANK754', 'BLANK755', 'BLANK760', 'BLANK761', 'BLANK762', 'BLANK763', 'BLANK764', 'BLANK765', 'BLANK766', 'BLANK767', 'BLANK768', 'BLANK769', 'BLANK770', 'BLANK771', 'BLANK772', 'BLANK773', 'BLANK774', 'BLANK775', 'BLANK776', 'BLANK777', 'BLANK778', 'BLANK779', 'BLANK780', 'BLANK781', 'BLANK782', 'BLANK783', 'BLANK784', 'BLANK785', 'MODIFIER', 'MOD_WAVE', 'MOD_BUILD', 'MOD_DECIM', 'MOD_MIRROR', 'MOD_SOFT', 'MOD_SUBSURF', 'HOOK', 'MOD_PHYSICS', 'MOD_PARTICLES', 'MOD_BOOLEAN', 'MOD_EDGESPLIT', 'MOD_ARRAY', 'MOD_UVPROJECT', 'MOD_DISPLACE', 'MOD_CURVE', 'MOD_LATTICE', 'CONSTRAINT_DATA', 'MOD_ARMATURE', 'MOD_SHRINKWRAP', 'MOD_CAST', 'MOD_MESHDEFORM', 'MOD_BEVEL', 'MOD_SMOOTH', 'MOD_SIMPLEDEFORM', 'MOD_MASK', 'MOD_CLOTH', 'MOD_EXPLODE', 'MOD_FLUIDSIM', 'MOD_MULTIRES',

'MOD_SMOKE', 'MOD_SOLIDIFY', 'MOD_SCREW', 'BLANK160', 'BLANK161', 'BLANK162', 'BLANK163', 'BLANK164', 'BLANK165', 'BLANK166', 'BLANK167', 'BLANK168', 'BLANK169', 'BLANK170', 'BLANK171', 'BLANK172', 'BLANK173', 'BLANK174', 'BLANK175', 'BLANK176', 'BLANK177', 'BLANK177b', 'REC', 'PLAY', 'FF', 'REW', 'PAUSE', 'PREV_KEYFRAME', 'NEXT_KEYFRAME', 'PLAY_AUDIO', 'PLAY_REVERSE', 'PREVIEW_RANGE', 'BLANK180', 'PMARKER_ACT', 'PMARKER_SEL', 'PMARKER', 'MARKER_HLT', 'MARKER', 'SPACE2', 'SPACE3', 'BLANK181', 'KEY_DEHLT', 'KEY_HLT', 'MUTE_IPO_OFF', 'MUTE_IPO_ON', 'BLANK182', 'BLANK183', 'BLANK183b', 'BLANK184', 'BLANK185', 'BLANK186', 'BLANK187', 'BLANK188', 'BLANK189', 'BLANK190', 'BLANK191', 'BLANK192', 'BLANK193', 'BLANK194', 'BLANK195', 'BLANK196', 'BLANK197', 'BLANK198', 'BLANK199', 'BLANK200', 'BLANK201', 'BLANK202', 'BLANK203', 'BLANK204', 'BLANK205', 'BLANK206', 'BLANK207', 'BLANK208', 'BLANK208b', 'VERTEXSEL', 'EDGESEL', 'FACESEL', 'LINKEDSEL', 'BLANK210', 'ROTATE', 'CURSOR', 'ROTATECOLLECTION', 'ROTATECENTER', 'ROTACTIVE', 'ALIGN', 'BLANK211', 'SMOOTHCURVE', 'SPHERECURVE', 'ROOTCURVE', 'SHARPCURVE', 'LINCURVE', 'NOCURVE', 'RNDCURVE', 'PROP_OFF', 'PROP_ON', 'PROP_CON', 'BLANK212', 'PARTICLE_POINT', 'PARTICLE_TIP', 'PARTICLE_PATH', 'MAN_TRANS', 'MAN_ROT', 'MAN_SCALE', 'MANIPUL', 'SNAP_OFF', 'SNAP_ON', 'SNAP_NORMAL', 'SNAP_INCREMENT', 'SNAP_VERTEX', 'SNAP_EDGE', 'SNAP_FACE', 'SNAP_VOLUME', 'UVS_FACE', 'STICKY_UVS_LOC', 'STICKY_UVS_DISABLE', 'STICKY_UVS_VERT', 'CLIPUV_DEHLT', 'CLIPUV_HLT', 'SNAP_PEEL_OBJECT', 'GRID', 'GEARS', 'BLANK221', 'BLANK224', 'BLANK225', 'BLANK226', 'BLANK226b', 'PASTEDOWN', 'COPYDOWN', 'PASTEFLIPUP', 'PASTEFLIPDOWN', 'BLANK227', 'BLANK228', 'BLANK229', 'BLANK230', 'SNAP_SURFACE', 'BLANK232', 'BLANK233', 'RETOPO', 'UV_VERTEXSEL', 'UV_EDGESEL', 'UV_FACESEL', 'UV_ISLANDSEL', 'UV_SYNC_SELECT', 'BLANK240', 'BLANK241', 'BLANK242', 'BLANK243', 'BLANK244', 'BLANK245', 'BLANK246', 'BLANK247', 'BLANK247b', 'BBOX', 'WIRE', 'SOLID', 'SMOOTH', 'POTATO', 'BLANK248', 'ORTHO', 'ORTHO_OFF', 'CAMERA', 'LOCKVIEW_OFF', 'LOCKVIEW_ON', 'BLANK250', 'AXIS_SIDE', 'AXIS_FRONT', 'AXIS_TOP', 'NDOF_DOM', 'NDOF_TURN', 'NDOF_FLY', 'NDOF_TRANS', 'LAYER_USED', 'LAYER_ACTIVE', 'BLANK254', 'BLANK255', 'BLANK256', 'BLANK257', 'BLANK257b', 'BLANK258', 'BLANK259', 'BLANK260', 'BLANK261', 'BLANK262', 'BLANK263', 'BLANK264', 'BLANK265', 'BLANK266', 'BLANK267', 'BLANK268', 'BLANK269', 'BLANK270', 'BLANK271', 'BLANK272', 'BLANK273', 'BLANK274', 'BLANK275', 'BLANK276', 'BLANK277', 'BLANK278', 'BLANK279', 'BLANK280', 'BLANK281', 'BLANK282', 'BLANK282b', 'SORTALPHA', 'SORTBYEXT', 'SORTTIME', 'SORTSIZE', 'LONGDISPLAY', 'SHORTDISPLAY', 'GHOST', 'IMGDISPLAY', 'BLANK284', 'BLANK285', 'BOOKMARKS', 'FONTPREVIEW', 'FILTER', 'NEWFOLDER', 'BLANK285F', 'FILE_PARENT', 'FILE_REFRESH', 'FILE_FOLDER', 'FILE_BLANK', 'FILE_BLEND', 'FILE_IMAGE', 'FILE_MOVIE', 'FILE_SCRIPT', 'FILE_SOUND', 'FILE_FONT', 'BLANK291b', 'BLANK292', 'BLANK293', 'BLANK294', 'BLANK295', 'BLANK296', 'BLANK297', 'BLANK298', 'BLANK299', 'BLANK300', 'BLANK301', 'BLANK302', 'BLANK303', 'BLANK304', 'BLANK305', 'BLANK306', 'BACK', 'FORWARD', 'BLANK309', 'BLANK310', 'BLANK311', 'BLANK312', 'BLANK313', 'BLANK314', 'BLANK315', 'BLANK316', 'DISK_DRIVE', 'MATPLANE', 'MATSPHERE', 'MATCUBE', 'MONKEY', 'HAIR', 'ALIASED', 'ANTIALIASED', 'MAT_SPHERE_SKY', 'BLANK319', 'BLANK320', 'BLANK321', 'BLANK322', 'WORDWRAP_OFF', 'WORDWRAP_ON', 'SYNTAX_OFF', 'SYNTAX_ON', 'LINENUMBERS_OFF', 'LINENUMBERS_ON', 'SCRIPTPLUGINS', 'BLANK323', 'BLANK324', 'BLANK325', 'BLANK326', 'BLANK327', 'BLANK328', 'BLANK328b', 'SEQ_SEQUENCER', 'SEQ_PREVIEW', 'SEQ_LUMA_WAVEFORM', 'SEQ_CHROMA_SCOPE', 'SEQ_HISTOGRAM',

'SEQ_SPLITVIEW', 'BLANK331', 'BLANK332', 'BLANK333', 'IMAGE_RGB', 'IMAGE_RGB_ALPHA', 'IMAGE_ALPHA', 'IMAGE_ZDEPTH', 'IMAGEFILE', 'BLANK336', 'BLANK337', 'BLANK338', 'BLANK339', 'BLANK340', 'BLANK341', 'BLANK342', 'BLANK343', 'BLANK344', 'BLANK345', 'BLANK346', 'BLANK346b', 'BRUSH_ADD', 'BRUSH_BLOB', 'BRUSH_BLUR', 'BRUSH_CLAY', 'BRUSH_CLONE', 'BRUSH_CREASE', 'BRUSH_DARKEN', 'BRUSH_FILL', 'BRUSH_FLATTEN', 'BRUSH_GRAB', 'BRUSH_INFLATE', 'BRUSH_LAYER', 'BRUSH_LIGHTEN', 'BRUSH_MIX', 'BRUSH_MULTIPLY', 'BRUSH_NUDGE', 'BRUSH_PINCH', 'BRUSH_SCRAPE', 'BRUSH_SCULPT_DRAW', 'BRUSH_SMEAR', 'BRUSH_SMOOTH', 'BRUSH_SNAKE_HOOK', 'BRUSH_SOFTEN', 'BRUSH_SUBTRACT', 'BRUSH_TEXDRAW', 'BRUSH_THUMB', 'BRUSH_ROTATE', 'BRUSH_VERTEXDRAW', 'VIEW3D_VEC', 'EDIT_VEC', 'EDITMODE_DEHLT', 'EDITMODE_HLT', 'DISCLOSURE_TRI_RIGHT_VEC', 'DISCLOSURE_TRI_DOWN_VEC', 'MOVE_UP_VEC', 'MOVE_DOWN_VEC', 'X_VEC', 'SMALL_TRI_RIGHT_VEC'], (optional)) – Icon, Override automatic icon of the item

prop_enum(*data*, *property*, *value*, *text=""*, *icon='BLENDER'*)

prop_enum

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **value** (*string*) – Enum property value.
- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DISCLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'RENDER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STYLUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA', 'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060', 'BLANK061', 'BLANK061b', 'OBJECT_DATAMODE', 'EDITMODE_HLT', 'FACESEL_HLT', 'VPAINT_HLT', 'TPAINT_HLT', 'WPAINT_HLT', 'SCULPTMODE_HLT', 'POSE_HLT', 'PARTICLEMODE', 'LIGHTPAINT', 'BLANK063', 'BLANK064', 'BLANK065', 'BLANK066', 'BLANK067', 'BLANK068', 'BLANK069', 'BLANK070', 'BLANK071', 'BLANK072', 'BLANK073', 'BLANK074', 'BLANK075',*

'BLANK076', 'BLANK077', 'BLANK077b', 'SCENE_DATA', 'RENDERLAYERS', 'WORLD_DATA', 'OBJECT_DATA', 'MESH_DATA', 'CURVE_DATA', 'META_DATA', 'LATTICE_DATA', 'LAMP_DATA', 'MATERIAL_DATA', 'TEXTURE_DATA', 'ANIM_DATA', 'CAMERA_DATA', 'PARTICLE_DATA', 'LIBRARY_DATA_DIRECT', 'GROUP', 'ARMATURE_DATA', 'POSE_DATA', 'BONE_DATA', 'CONSTRAINT', 'SHAPEKEY_DATA', 'CONSTRAINT_BONE', 'BLANK079', 'PACKAGE', 'UGLYPACKAGE', 'BLANK079b', 'BRUSH_DATA', 'IMAGE_DATA', 'FILE', 'FCURVE', 'FONT_DATA', 'RENDER_RESULT', 'SURFACE_DATA', 'EMPTY_DATA', 'SETTINGS', 'RENDER_ANIMATION', 'RENDER_STILL', 'BLANK080F', 'BOIDS', 'STRANDS', 'LIBRARY_DATA_INDIRECT', 'GREASEPENCIL', 'BLANK083', 'BLANK084', 'GROUP_BONE', 'GROUP_VERTEX', 'GROUP_VCOL', 'GROUP_UVS', 'BLANK089', 'BLANK090', 'RNA', 'RNA_ADD', 'BLANK092', 'BLANK093', 'BLANK094', 'BLANK095', 'BLANK096', 'BLANK097', 'BLANK098', 'BLANK099', 'BLANK100', 'BLANK101', 'BLANK102', 'BLANK103', 'BLANK104', 'BLANK105', 'BLANK106', 'BLANK107', 'BLANK108', 'BLANK109', 'BLANK110', 'BLANK111', 'BLANK112', 'BLANK113', 'BLANK114', 'BLANK115', 'BLANK116', 'BLANK116b', 'OUTLINER_OB_EMPTY', 'OUTLINER_OB_MESH', 'OUTLINER_OB_CURVE', 'OUTLINER_OB_LATTICE', 'OUTLINER_OB_META', 'OUTLINER_OB_LAMP', 'OUTLINER_OB_CAMERA', 'OUTLINER_OB_ARMATURE', 'OUTLINER_OB_FONT', 'OUTLINER_OB_SURFACE', 'BLANK119', 'BLANK120', 'BLANK121', 'BLANK122', 'BLANK123', 'BLANK124', 'BLANK125', 'BLANK126', 'BLANK127', 'RESTRICT_VIEW_OFF', 'RESTRICT_VIEW_ON', 'RESTRICT_SELECT_OFF', 'RESTRICT_SELECT_ON', 'RESTRICT_RENDER_OFF', 'RESTRICT_RENDER_ON', 'BLANK127b', 'OUTLINER_DATA_EMPTY', 'OUTLINER_DATA_MESH', 'OUTLINER_DATA_CURVE', 'OUTLINER_DATA_LATTICE', 'OUTLINER_DATA_META', 'OUTLINER_DATA_LAMP', 'OUTLINER_DATA_CAMERA', 'OUTLINER_DATA_ARMATURE', 'OUTLINER_DATA_FONT', 'OUTLINER_DATA_SURFACE', 'OUTLINER_DATA_POSE', 'BLANK129', 'BLANK130', 'BLANK131', 'BLANK132', 'BLANK133', 'BLANK134', 'BLANK135', 'BLANK136', 'BLANK137', 'BLANK138', 'BLANK139', 'BLANK140', 'BLANK141', 'BLANK142', 'BLANK142b', 'MESH_PLANE', 'MESH_CUBE', 'MESH_CIRCLE', 'MESH_UVSPHERE', 'MESH_ICOSPHERE', 'MESH_GRID', 'MESH_MONKEY', 'MESH_CYLINDER', 'MESH_TORUS', 'MESH_CONE', 'BLANK610', 'BLANK611', 'LAMP_POINT', 'LAMP_SUN', 'LAMP_SPOT', 'LAMP_HEMI', 'LAMP_AREA', 'BLANK617', 'BLANK618', 'BLANK619', 'META_PLANE', 'META_CUBE', 'META_BALL', 'META_ELLIPSOID', 'META_CAPSULE', 'BLANK625', 'SURFACE_NCURVE', 'SURFACE_NCIRCLE', 'SURFACE_NSURFACE', 'SURFACE_NCYLINDER', 'SURFACE_NSPHERE', 'SURFACE_NTORUS', 'BLANK636', 'BLANK637', 'BLANK638', 'CURVE_BEZCURVE', 'CURVE_BEZCIRCLE', 'CURVE_NCURVE', 'CURVE_NCIRCLE', 'CURVE_PATH', 'BLANK644', 'BLANK645', 'BLANK646', 'BLANK647', 'BLANK648', 'BLANK649', 'BLANK650', 'BLANK651', 'BLANK652', 'BLANK653', 'BLANK654', 'BLANK655', 'FORCE_FORCE', 'FORCE_WIND', 'FORCE_VORTEX', 'FORCE_MAGNETIC', 'FORCE_HARMONIC', 'FORCE_CHARGE', 'FORCE_LENNARDJONES', 'FORCE_TEXTURE', 'FORCE_CURVE', 'FORCE_BOID', 'FORCE_TURBULENCE', 'FORCE_DRAG', 'BLANK672', 'BLANK673', 'BLANK674', 'BLANK675', 'BLANK676', 'BLANK677', 'BLANK678', 'BLANK679', 'BLANK680', 'BLANK681', 'BLANK682', 'BLANK683', 'BLANK684', 'BLANK685', 'BLANK690', 'BLANK691', 'BLANK692', 'BLANK693', 'BLANK694', 'BLANK695', 'BLANK696', 'BLANK697', 'BLANK698', 'BLANK699', 'BLANK700', 'BLANK701', 'BLANK702', 'BLANK703', 'BLANK704', 'BLANK705', 'BLANK706', 'BLANK707', 'BLANK708', 'BLANK709', 'BLANK710', 'BLANK711', 'BLANK712', 'BLANK713', 'BLANK714', 'BLANK715', 'BLANK720', 'BLANK721', 'BLANK722', 'BLANK733', 'BLANK734', 'BLANK735', 'BLANK736', 'BLANK737', 'BLANK738', 'BLANK739', 'BLANK740',

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'FILTER', 'NEWFOLDER', 'BLANK285F', 'FILE_PARENT', 'FILE_REFRESH', 'FILE_FOLDER', 'FILE_BLANK', 'FILE_BLEND', 'FILE_IMAGE', 'FILE_MOVIE', 'FILE_SCRIPT', 'FILE_SOUND', 'FILE_FONT', 'BLANK291b', 'BLANK292', 'BLANK293', 'BLANK294', 'BLANK295', 'BLANK296', 'BLANK297', 'BLANK298', 'BLANK299', 'BLANK300', 'BLANK301', 'BLANK302', 'BLANK303', 'BLANK304', 'BLANK305', 'BLANK306', 'BACK', 'FORWARD', 'BLANK309', 'BLANK310', 'BLANK311', 'BLANK312', 'BLANK313', 'BLANK314', 'BLANK315', 'BLANK316', 'DISK_DRIVE', 'MATPLANE', 'MATSPHERE', 'MATCUBE', 'MONKEY', 'HAIR', 'ALIASED', 'ANTIALIASED', 'MAT_SPHERE_SKY', 'BLANK319', 'BLANK320', 'BLANK321', 'BLANK322', 'WORDWRAP_OFF', 'WORDWRAP_ON', 'SYNTAX_OFF', 'SYNTAX_ON', 'LINENUMBERS_OFF', 'LINENUMBERS_ON', 'SCRIPTPLUGINS', 'BLANK323', 'BLANK324', 'BLANK325', 'BLANK326', 'BLANK327', 'BLANK328', 'BLANK328b', 'SEQ_SEQUENCER', 'SEQ_PREVIEW', 'SEQ_LUMA_WAVEFORM', 'SEQ_CHROMA_SCOPE', 'SEQ_HISTOGRAM', 'SEQ_SPLITVIEW', 'BLANK331', 'BLANK332', 'BLANK333', 'IMAGE_RGB', 'IMAGE_RGB_ALPHA', 'IMAGE_ALPHA', 'IMAGE_ZDEPTH', 'IMAGEFILE', 'BLANK336', 'BLANK337', 'BLANK338', 'BLANK339', 'BLANK340', 'BLANK341', 'BLANK342', 'BLANK343', 'BLANK344', 'BLANK345', 'BLANK346', 'BLANK346b', 'BRUSH_ADD', 'BRUSH_BLOB', 'BRUSH_BLUR', 'BRUSH_CLAY', 'BRUSH_CLONE', 'BRUSH_CREASE', 'BRUSH_DARKEN', 'BRUSH_FILL', 'BRUSH_FLATTEN', 'BRUSH_GRAB', 'BRUSH_INFLATE', 'BRUSH_LAYER', 'BRUSH_LIGHTEN', 'BRUSH_MIX', 'BRUSH_MULTIPLY', 'BRUSH_NUDGE', 'BRUSH_PINCH', 'BRUSH_SCRAPE', 'BRUSH_SCULPT_DRAW', 'BRUSH_SMEAR', 'BRUSH_SMOOTH', 'BRUSH_SNAKE_HOOK', 'BRUSH_SOFTEN', 'BRUSH_SUBTRACT', 'BRUSH_TEXDRAW', 'BRUSH_THUMB', 'BRUSH_ROTATE', 'BRUSH_VERTEXDRAW', 'VIEW3D_VEC', 'EDIT_VEC', 'EDITMODE_DEHLT', 'EDITMODE_HLT', 'DISCLOSURE_TRI_RIGHT_VEC', 'DISCLOSURE_TRI_DOWN_VEC', 'MOVE_UP_VEC', 'MOVE_DOWN_VEC', 'X_VEC', 'SMALL_TRI_RIGHT_VEC'], (optional)) – Icon, Override automatic icon of the item

prop_search(*data*, *property*, *search_data*, *search_property*, *text=""*, *icon='BLENDER'*)
prop_search

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **search_data** (AnyType, (never None)) – Data from which to take collection to search in.
- **search_property** (*string*) – Identifier of search collection property.
- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DISCLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'RENDER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STY-*

LUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA', 'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060', 'BLANK061', 'BLANK061b', 'OBJECT_DATAMODE', 'EDITMODE_HLT', 'FACESEL_HLT', 'VPAINT_HLT', 'TPAINT_HLT', 'WPAINT_HLT', 'SCULPTMODE_HLT', 'POSE_HLT', 'PARTICLEMODE', 'LIGHTPAINT', 'BLANK063', 'BLANK064', 'BLANK065', 'BLANK066', 'BLANK067', 'BLANK068', 'BLANK069', 'BLANK070', 'BLANK071', 'BLANK072', 'BLANK073', 'BLANK074', 'BLANK075', 'BLANK076', 'BLANK077', 'BLANK077b', 'SCENE_DATA', 'RENDERLAYERS', 'WORLD_DATA', 'OBJECT_DATA', 'MESH_DATA', 'CURVE_DATA', 'META_DATA', 'LATTICE_DATA', 'LAMP_DATA', 'MATERIAL_DATA', 'TEXTURE_DATA', 'ANIM_DATA', 'CAMERA_DATA', 'PARTICLE_DATA', 'LIBRARY_DATA_DIRECT', 'GROUP', 'ARMATURE_DATA', 'POSE_DATA', 'BONE_DATA', 'CONSTRAINT', 'SHAPEKEY_DATA', 'CONSTRAINT_BONE', 'BLANK079', 'PACKAGE', 'UGLYPACKAGE', 'BLANK079b', 'BRUSH_DATA', 'IMAGE_DATA', 'FILE', 'FCURVE', 'FONT_DATA', 'RENDER_RESULT', 'SURFACE_DATA', 'EMPTY_DATA', 'SETTINGS', 'RENDER_ANIMATION', 'RENDER_STILL', 'BLANK080F', 'BOIDS', 'STRANDS', 'LIBRARY_DATA_INDIRECT', 'GREASEPENCIL', 'BLANK083', 'BLANK084', 'GROUP_BONE', 'GROUP_VERTEX', 'GROUP_VCOL', 'GROUP_UVS', 'BLANK089', 'BLANK090', 'RNA', 'RNA_ADD', 'BLANK092', 'BLANK093', 'BLANK094', 'BLANK095', 'BLANK096', 'BLANK097', 'BLANK098', 'BLANK099', 'BLANK100', 'BLANK101', 'BLANK102', 'BLANK103', 'BLANK104', 'BLANK105', 'BLANK106', 'BLANK107', 'BLANK108', 'BLANK109', 'BLANK110', 'BLANK111', 'BLANK112', 'BLANK113', 'BLANK114', 'BLANK115', 'BLANK116', 'BLANK116b', 'OUTLINER_OB_EMPTY', 'OUTLINER_OB_MESH', 'OUTLINER_OB_CURVE', 'OUTLINER_OB_LATTICE', 'OUTLINER_OB_META', 'OUTLINER_OB_LAMP', 'OUTLINER_OB_CAMERA', 'OUTLINER_OB_ARMATURE', 'OUTLINER_OB_FONT', 'OUTLINER_OB_SURFACE', 'BLANK119', 'BLANK120', 'BLANK121', 'BLANK122', 'BLANK123', 'BLANK124', 'BLANK125', 'BLANK126', 'BLANK127', 'RESTRICT_VIEW_OFF', 'RESTRICT_VIEW_ON', 'RESTRICT_SELECT_OFF', 'RESTRICT_SELECT_ON', 'RESTRICT_RENDER_OFF', 'RESTRICT_RENDER_ON', 'BLANK127b', 'OUTLINER_DATA_EMPTY', 'OUTLINER_DATA_MESH', 'OUTLINER_DATA_CURVE', 'OUTLINER_DATA_LATTICE', 'OUTLINER_DATA_META', 'OUTLINER_DATA_LAMP', 'OUTLINER_DATA_CAMERA', 'OUTLINER_DATA_ARMATURE', 'OUTLINER_DATA_FONT', 'OUTLINER_DATA_SURFACE', 'OUTLINER_DATA_POSE', 'BLANK129', 'BLANK130', 'BLANK131', 'BLANK132', 'BLANK133', 'BLANK134', 'BLANK135', 'BLANK136', 'BLANK137', 'BLANK138', 'BLANK139', 'BLANK140', 'BLANK141', 'BLANK142', 'BLANK142b', 'MESH_PLANE', 'MESH_CUBE', 'MESH_CIRCLE', 'MESH_UVSPHERE', 'MESH_ICOSPHERE', 'MESH_GRID', 'MESH_MONKEY', 'MESH_CYLINDER', 'MESH_TORUS', 'MESH_CONE', 'BLANK610', 'BLANK611', 'LAMP_POINT', 'LAMP_SUN', 'LAMP_SPOT', 'LAMP_HEMI', 'LAMP_AREA', 'BLANK617', 'BLANK618', 'BLANK619', 'META_PLANE', 'META_CUBE', 'META_BALL', 'META_ELLIPSOID', 'META_CAPSULE', 'BLANK625', 'SURFACE_NCURVE', 'SURFACE_NCIRCLE', 'SURFACE_NSURFACE', 'SURFACE_NCYLINDER', 'SURFACE_NSPHERE', 'SURFACE_NTORUS', 'BLANK636', 'BLANK637', 'BLANK638', 'CURVE_BEZCURVE',

'CURVE_BEZCIRCLE', 'CURVE_NCURVE', 'CURVE_NCIRCLE', 'CURVE_PATH', 'BLANK644', 'BLANK645', 'BLANK646', 'BLANK647', 'BLANK648', 'BLANK649', 'BLANK650', 'BLANK651', 'BLANK652', 'BLANK653', 'BLANK654', 'BLANK655', 'FORCE_FORCE', 'FORCE_WIND', 'FORCE_VORTEX', 'FORCE_MAGNETIC', 'FORCE_HARMONIC', 'FORCE_CHARGE', 'FORCE_LENNARDJONES', 'FORCE_TEXTURE', 'FORCE_CURVE', 'FORCE_BOID', 'FORCE_TURBULENCE', 'FORCE_DRAG', 'BLANK672', 'BLANK673', 'BLANK674', 'BLANK675', 'BLANK676', 'BLANK677', 'BLANK678', 'BLANK679', 'BLANK680', 'BLANK681', 'BLANK682', 'BLANK683', 'BLANK684', 'BLANK685', 'BLANK690', 'BLANK691', 'BLANK692', 'BLANK693', 'BLANK694', 'BLANK695', 'BLANK696', 'BLANK697', 'BLANK698', 'BLANK699', 'BLANK700', 'BLANK701', 'BLANK702', 'BLANK703', 'BLANK704', 'BLANK705', 'BLANK706', 'BLANK707', 'BLANK708', 'BLANK709', 'BLANK710', 'BLANK711', 'BLANK712', 'BLANK713', 'BLANK714', 'BLANK715', 'BLANK720', 'BLANK721', 'BLANK722', 'BLANK733', 'BLANK734', 'BLANK735', 'BLANK736', 'BLANK737', 'BLANK738', 'BLANK739', 'BLANK740', 'BLANK741', 'BLANK742', 'BLANK743', 'BLANK744', 'BLANK745', 'BLANK746', 'BLANK747', 'BLANK748', 'BLANK749', 'BLANK750', 'BLANK751', 'BLANK752', 'BLANK753', 'BLANK754', 'BLANK755', 'BLANK760', 'BLANK761', 'BLANK762', 'BLANK763', 'BLANK764', 'BLANK765', 'BLANK766', 'BLANK767', 'BLANK768', 'BLANK769', 'BLANK770', 'BLANK771', 'BLANK772', 'BLANK773', 'BLANK774', 'BLANK775', 'BLANK776', 'BLANK777', 'BLANK778', 'BLANK779', 'BLANK780', 'BLANK781', 'BLANK782', 'BLANK783', 'BLANK784', 'BLANK785', 'MODIFIER', 'MOD_WAVE', 'MOD_BUILD', 'MOD_DECIM', 'MOD_MIRROR', 'MOD_SOFT', 'MOD_SUBSURF', 'HOOK', 'MOD_PHYSICS', 'MOD_PARTICLES', 'MOD_BOOLEAN', 'MOD_EDGESPLIT', 'MOD_ARRAY', 'MOD_UVPROJECT', 'MOD_DISPLACE', 'MOD_CURVE', 'MOD_LATTICE', 'CONSTRAINT_DATA', 'MOD_ARMATURE', 'MOD_SHRINKWRAP', 'MOD_CAST', 'MOD_MESHDEFORM', 'MOD_BEVEL', 'MOD_SMOOTH', 'MOD_SIMPLEDEFORM', 'MOD_MASK', 'MOD_CLOTH', 'MOD_EXPLODE', 'MOD_FLUIDSIM', 'MOD_MULTIRES', 'MOD_SMOKE', 'MOD_SOLIDIFY', 'MOD_SCREW', 'BLANK160', 'BLANK161', 'BLANK162', 'BLANK163', 'BLANK164', 'BLANK165', 'BLANK166', 'BLANK167', 'BLANK168', 'BLANK169', 'BLANK170', 'BLANK171', 'BLANK172', 'BLANK173', 'BLANK174', 'BLANK175', 'BLANK176', 'BLANK177', 'BLANK177b', 'REC', 'PLAY', 'FF', 'REW', 'PAUSE', 'PREV_KEYFRAME', 'NEXT_KEYFRAME', 'PLAY_AUDIO', 'PLAY_REVERSE', 'PREVIEW_RANGE', 'BLANK180', 'PMARKER_ACT', 'PMARKER_SEL', 'PMARKER', 'MARKER_HLT', 'MARKER', 'SPACE2', 'SPACE3', 'BLANK181', 'KEY_DEHLT', 'KEY_HLT', 'MUTE_IPO_OFF', 'MUTE_IPO_ON', 'BLANK182', 'BLANK183', 'BLANK183b', 'BLANK184', 'BLANK185', 'BLANK186', 'BLANK187', 'BLANK188', 'BLANK189', 'BLANK190', 'BLANK191', 'BLANK192', 'BLANK193', 'BLANK194', 'BLANK195', 'BLANK196', 'BLANK197', 'BLANK198', 'BLANK199', 'BLANK200', 'BLANK201', 'BLANK202', 'BLANK203', 'BLANK204', 'BLANK205', 'BLANK206', 'BLANK207', 'BLANK208', 'BLANK208b', 'VERTEXSEL', 'EDGESEL', 'FACESEL', 'LINKEDSEL', 'BLANK210', 'ROTATE', 'CURSOR', 'ROTATECOLLECTION', 'ROTATECENTER', 'ROTACTIVE', 'ALIGN', 'BLANK211', 'SMOOTHCURVE', 'SPHERECURVE', 'ROOTCURVE', 'SHARPCURVE', 'LINCURVE', 'NOCURVE', 'RNDCURVE', 'PROP_OFF', 'PROP_ON', 'PROP_CON', 'BLANK212', 'PARTICLE_POINT', 'PARTICLE_TIP', 'PARTICLE_PATH', 'MAN_TRANS', 'MAN_ROT', 'MAN_SCALE', 'MANIPUL', 'SNAP_OFF', 'SNAP_ON', 'SNAP_NORMAL', 'SNAP_INCREMENT', 'SNAP_VERTEX', 'SNAP_EDGE', 'SNAP_FACE', 'SNAP_VOLUME', 'UVS_FACE', 'STICKY_UVS_LOC', 'STICKY_UVS_DISABLE', 'STICKY_UVS_VERT', 'CLIPUV_DEHLT', 'CLIPUV_HLT', 'SNAP_PEEL_OBJECT', 'GRID', 'GEARS', 'BLANK221', 'BLANK224', 'BLANK225', 'BLANK226', 'BLANK226b', 'PASTEDOWN', 'COPYDOWN', 'PASTEFLIPUP', 'PASTEFLIPDOWN', 'BLANK227', 'BLANK228', 'BLANK229', 'BLANK230',

'SNAP_SURFACE', 'BLANK232', 'BLANK233', 'RETOPO', 'UV_VERTEXSEL', 'UV_EDGESEL', 'UV_FACESEL', 'UV_ISLANDSEL', 'UV_SYNC_SELECT', 'BLANK240', 'BLANK241', 'BLANK242', 'BLANK243', 'BLANK244', 'BLANK245', 'BLANK246', 'BLANK247', 'BLANK247b', 'BBOX', 'WIRE', 'SOLID', 'SMOOTH', 'POTATO', 'BLANK248', 'ORTHO', 'ORTHO_OFF', 'CAMERA', 'LOCKVIEW_OFF', 'LOCKVIEW_ON', 'BLANK250', 'AXIS_SIDE', 'AXIS_FRONT', 'AXIS_TOP', 'NDOF_DOM', 'NDOF_TURN', 'NDOF_FLY', 'NDOF_TRANS', 'LAYER_USED', 'LAYER_ACTIVE', 'BLANK254', 'BLANK255', 'BLANK256', 'BLANK257', 'BLANK257b', 'BLANK258', 'BLANK259', 'BLANK260', 'BLANK261', 'BLANK262', 'BLANK263', 'BLANK264', 'BLANK265', 'BLANK266', 'BLANK267', 'BLANK268', 'BLANK269', 'BLANK270', 'BLANK271', 'BLANK272', 'BLANK273', 'BLANK274', 'BLANK275', 'BLANK276', 'BLANK277', 'BLANK278', 'BLANK279', 'BLANK280', 'BLANK281', 'BLANK282', 'BLANK282b', 'SORTALPHA', 'SORTBYEXT', 'SORTTIME', 'SORTSIZE', 'LONGDISPLAY', 'SHORTDISPLAY', 'GHOST', 'IMGDISPLAY', 'BLANK284', 'BLANK285', 'BOOKMARKS', 'FONTPREVIEW', 'FILTER', 'NEWFOLDER', 'BLANK285F', 'FILE_PARENT', 'FILE_REFRESH', 'FILE_FOLDER', 'FILE_BLANK', 'FILE_BLEND', 'FILE_IMAGE', 'FILE_MOVIE', 'FILE_SCRIPT', 'FILE_SOUND', 'FILE_FONT', 'BLANK291b', 'BLANK292', 'BLANK293', 'BLANK294', 'BLANK295', 'BLANK296', 'BLANK297', 'BLANK298', 'BLANK299', 'BLANK300', 'BLANK301', 'BLANK302', 'BLANK303', 'BLANK304', 'BLANK305', 'BLANK306', 'BACK', 'FORWARD', 'BLANK309', 'BLANK310', 'BLANK311', 'BLANK312', 'BLANK313', 'BLANK314', 'BLANK315', 'BLANK316', 'DISK_DRIVE', 'MATPLANE', 'MATSPHERE', 'MATCUBE', 'MONKEY', 'HAIR', 'ALIASED', 'ANTIALIASED', 'MAT_SPHERE_SKY', 'BLANK319', 'BLANK320', 'BLANK321', 'BLANK322', 'WORDWRAP_OFF', 'WORDWRAP_ON', 'SYNTAX_OFF', 'SYNTAX_ON', 'LINENUMBERS_OFF', 'LINENUMBERS_ON', 'SCRIPTPLUGINS', 'BLANK323', 'BLANK324', 'BLANK325', 'BLANK326', 'BLANK327', 'BLANK328', 'BLANK328b', 'SEQ_SEQUENCER', 'SEQ_PREVIEW', 'SEQ_LUMA_WAVEFORM', 'SEQ_CHROMA_SCOPE', 'SEQ_HISTOGRAM', 'SEQ_SPLITVIEW', 'BLANK331', 'BLANK332', 'BLANK333', 'IMAGE_RGB', 'IMAGE_RGB_ALPHA', 'IMAGE_ALPHA', 'IMAGE_ZDEPTH', 'IMAGEFILE', 'BLANK336', 'BLANK337', 'BLANK338', 'BLANK339', 'BLANK340', 'BLANK341', 'BLANK342', 'BLANK343', 'BLANK344', 'BLANK345', 'BLANK346', 'BLANK346b', 'BRUSH_ADD', 'BRUSH_BLOB', 'BRUSH_BLUR', 'BRUSH_CLAY', 'BRUSH_CLONE', 'BRUSH_CREASE', 'BRUSH_DARKEN', 'BRUSH_FILL', 'BRUSH_FLATTEN', 'BRUSH_GRAB', 'BRUSH_INFLATE', 'BRUSH_LAYER', 'BRUSH_LIGHTEN', 'BRUSH_MIX', 'BRUSH_MULTIPLY', 'BRUSH_NUDGE', 'BRUSH_PINCH', 'BRUSH_SCRAPE', 'BRUSH_SCULPT_DRAW', 'BRUSH_SMEAR', 'BRUSH_SMOOTH', 'BRUSH_SNAKE_HOOK', 'BRUSH_SOFTEN', 'BRUSH_SUBTRACT', 'BRUSH_TEXDRAW', 'BRUSH_THUMB', 'BRUSH_ROTATE', 'BRUSH_VERTEXDRAW', 'VIEW3D_VEC', 'EDIT_VEC', 'EDITMODE_DEHLT', 'EDITMODE_HLT', 'DISCLOSURE_TRI_RIGHT_VEC', 'DISCLOSURE_TRI_DOWN_VEC', 'MOVE_UP_VEC', 'MOVE_DOWN_VEC', 'X_VEC', 'SMALL_TRI_RIGHT_VEC'], (optional)) – Icon, Override automatic icon of the item

operator(*operator*, *text=""*, *icon='BLENDER'*, *emboss=True*)

Item. Places a button into the layout to call an Operator.

Parameters

- **operator** (*string*) – Identifier of the operator.
- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DIS-*

CLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'RENDER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STYLUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA', 'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060', 'BLANK061', 'BLANK061b', 'OBJECT_DATAMODE', 'EDITMODE_HLT', 'FACESEL_HLT', 'VPAINT_HLT', 'TPAINT_HLT', 'WPAINT_HLT', 'SCULPTMODE_HLT', 'POSE_HLT', 'PARTICLEMODE', 'LIGHTPAINT', 'BLANK063', 'BLANK064', 'BLANK065', 'BLANK066', 'BLANK067', 'BLANK068', 'BLANK069', 'BLANK070', 'BLANK071', 'BLANK072', 'BLANK073', 'BLANK074', 'BLANK075', 'BLANK076', 'BLANK077', 'BLANK077b', 'SCENE_DATA', 'RENDERLAYERS', 'WORLD_DATA', 'OBJECT_DATA', 'MESH_DATA', 'CURVE_DATA', 'META_DATA', 'LATTICE_DATA', 'LAMP_DATA', 'MATERIAL_DATA', 'TEXTURE_DATA', 'ANIM_DATA', 'CAMERA_DATA', 'PARTICLE_DATA', 'LIBRARY_DATA_DIRECT', 'GROUP', 'ARMATURE_DATA', 'POSE_DATA', 'BONE_DATA', 'CONSTRAINT', 'SHAPEKEY_DATA', 'CONSTRAINT_BONE', 'BLANK079', 'PACKAGE', 'UGLYPACKAGE', 'BLANK079b', 'BRUSH_DATA', 'IMAGE_DATA', 'FILE', 'FCURVE', 'FONT_DATA', 'RENDER_RESULT', 'SURFACE_DATA', 'EMPTY_DATA', 'SETTINGS', 'RENDER_ANIMATION', 'RENDER_STILL', 'BLANK080F', 'BOIDS', 'STRANDS', 'LIBRARY_DATA_INDIRECT', 'GREASEPENCIL', 'BLANK083', 'BLANK084', 'GROUP_BONE', 'GROUP_VERTEX', 'GROUP_VCOL', 'GROUP_UVS', 'BLANK089', 'BLANK090', 'RNA', 'RNA_ADD', 'BLANK092', 'BLANK093', 'BLANK094', 'BLANK095', 'BLANK096', 'BLANK097', 'BLANK098', 'BLANK099', 'BLANK100', 'BLANK101', 'BLANK102', 'BLANK103', 'BLANK104', 'BLANK105', 'BLANK106', 'BLANK107', 'BLANK108', 'BLANK109', 'BLANK110', 'BLANK111', 'BLANK112', 'BLANK113', 'BLANK114', 'BLANK115', 'BLANK116', 'BLANK116b', 'OUTLINER_OB_EMPTY', 'OUTLINER_OB_MESH', 'OUTLINER_OB_CURVE', 'OUTLINER_OB_LATTICE', 'OUTLINER_OB_META', 'OUTLINER_OB_LAMP', 'OUTLINER_OB_CAMERA', 'OUTLINER_OB_ARMATURE', 'OUTLINER_OB_FONT', 'OUTLINER_OB_SURFACE', 'BLANK119', 'BLANK120', 'BLANK121', 'BLANK122', 'BLANK123', 'BLANK124', 'BLANK125', 'BLANK126', 'BLANK127', 'RESTRICT_VIEW_OFF', 'RESTRICT_VIEW_ON', 'RESTRICT_SELECT_OFF', 'RESTRICT_SELECT_ON', 'RESTRICT_RENDER_OFF', 'RESTRICT_RENDER_ON', 'BLANK127b', 'OUTLINER_DATA_EMPTY', 'OUTLINER_DATA_MESH', 'OUTLINER_DATA_CURVE', 'OUTLINER_DATA_LATTICE', 'OUTLINER_DATA_META', 'OUTLINER_DATA_LAMP', 'OUTLINER_DATA_CAMERA', 'OUTLINER_DATA_ARMATURE', 'OUTLINER_DATA_FONT', 'OUTLINER_DATA_SURFACE', 'OUTLINER_DATA_POSE',

'BLANK129', 'BLANK130', 'BLANK131', 'BLANK132', 'BLANK133', 'BLANK134', 'BLANK135', 'BLANK136', 'BLANK137', 'BLANK138', 'BLANK139', 'BLANK140', 'BLANK141', 'BLANK142', 'BLANK142b', 'MESH_PLANE', 'MESH_CUBE', 'MESH_CIRCLE', 'MESH_UVSPHERE', 'MESH_ICOSPHERE', 'MESH_GRID', 'MESH_MONKEY', 'MESH_CYLINDER', 'MESH_TORUS', 'MESH_CONE', 'BLANK610', 'BLANK611', 'LAMP_POINT', 'LAMP_SUN', 'LAMP_SPOT', 'LAMP_HEMI', 'LAMP_AREA', 'BLANK617', 'BLANK618', 'BLANK619', 'META_PLANE', 'META_CUBE', 'META_BALL', 'META_ELLIPSOID', 'META_CAPSULE', 'BLANK625', 'SURFACE_NCURVE', 'SURFACE_NCIRCLE', 'SURFACE_NSURFACE', 'SURFACE_NCYLINDER', 'SURFACE_NSPHERE', 'SURFACE_NTORUS', 'BLANK636', 'BLANK637', 'BLANK638', 'CURVE_BEZCURVE', 'CURVE_BEZCIRCLE', 'CURVE_NCURVE', 'CURVE_NCIRCLE', 'CURVE_PATH', 'BLANK644', 'BLANK645', 'BLANK646', 'BLANK647', 'BLANK648', 'BLANK649', 'BLANK650', 'BLANK651', 'BLANK652', 'BLANK653', 'BLANK654', 'BLANK655', 'FORCE_FORCE', 'FORCE_WIND', 'FORCE_VORTEX', 'FORCE_MAGNETIC', 'FORCE_HARMONIC', 'FORCE_CHARGE', 'FORCE_LENNARDJONES', 'FORCE_TEXTURE', 'FORCE_CURVE', 'FORCE_BOID', 'FORCE_TURBULENCE', 'FORCE_DRAG', 'BLANK672', 'BLANK673', 'BLANK674', 'BLANK675', 'BLANK676', 'BLANK677', 'BLANK678', 'BLANK679', 'BLANK680', 'BLANK681', 'BLANK682', 'BLANK683', 'BLANK684', 'BLANK685', 'BLANK690', 'BLANK691', 'BLANK692', 'BLANK693', 'BLANK694', 'BLANK695', 'BLANK696', 'BLANK697', 'BLANK698', 'BLANK699', 'BLANK700', 'BLANK701', 'BLANK702', 'BLANK703', 'BLANK704', 'BLANK705', 'BLANK706', 'BLANK707', 'BLANK708', 'BLANK709', 'BLANK710', 'BLANK711', 'BLANK712', 'BLANK713', 'BLANK714', 'BLANK715', 'BLANK720', 'BLANK721', 'BLANK722', 'BLANK733', 'BLANK734', 'BLANK735', 'BLANK736', 'BLANK737', 'BLANK738', 'BLANK739', 'BLANK740', 'BLANK741', 'BLANK742', 'BLANK743', 'BLANK744', 'BLANK745', 'BLANK746', 'BLANK747', 'BLANK748', 'BLANK749', 'BLANK750', 'BLANK751', 'BLANK752', 'BLANK753', 'BLANK754', 'BLANK755', 'BLANK760', 'BLANK761', 'BLANK762', 'BLANK763', 'BLANK764', 'BLANK765', 'BLANK766', 'BLANK767', 'BLANK768', 'BLANK769', 'BLANK770', 'BLANK771', 'BLANK772', 'BLANK773', 'BLANK774', 'BLANK775', 'BLANK776', 'BLANK777', 'BLANK778', 'BLANK779', 'BLANK780', 'BLANK781', 'BLANK782', 'BLANK783', 'BLANK784', 'BLANK785', 'MODIFIER', 'MOD_WAVE', 'MOD_BUILD', 'MOD_DECIM', 'MOD_MIRROR', 'MOD_SOFT', 'MOD_SUBSURF', 'HOOK', 'MOD_PHYSICS', 'MOD_PARTICLES', 'MOD_BOOLEAN', 'MOD_EDGESPLIT', 'MOD_ARRAY', 'MOD_UVPROJECT', 'MOD_DISPLACE', 'MOD_CURVE', 'MOD_LATTICE', 'CONSTRAINT_DATA', 'MOD_ARMATURE', 'MOD_SHRINKWRAP', 'MOD_CAST', 'MOD_MESHDEFORM', 'MOD_BEVEL', 'MOD_SMOOTH', 'MOD_SIMPLEDEFORM', 'MOD_MASK', 'MOD_CLOTH', 'MOD_EXPLODE', 'MOD_FLUIDSIM', 'MOD_MULTIRES', 'MOD_SMOKE', 'MOD_SOLIDIFY', 'MOD_SCREW', 'BLANK160', 'BLANK161', 'BLANK162', 'BLANK163', 'BLANK164', 'BLANK165', 'BLANK166', 'BLANK167', 'BLANK168', 'BLANK169', 'BLANK170', 'BLANK171', 'BLANK172', 'BLANK173', 'BLANK174', 'BLANK175', 'BLANK176', 'BLANK177', 'BLANK177b', 'REC', 'PLAY', 'FF', 'REW', 'PAUSE', 'PREV_KEYFRAME', 'NEXT_KEYFRAME', 'PLAY_AUDIO', 'PLAY_REVERSE', 'PREVIEW_RANGE', 'BLANK180', 'PMARKER_ACT', 'PMARKER_SEL', 'PMARKER', 'MARKER_HLT', 'MARKER', 'SPACE2', 'SPACE3', 'BLANK181', 'KEY_DEHLT', 'KEY_HLT', 'MUTE_IPO_OFF', 'MUTE_IPO_ON', 'BLANK182', 'BLANK183', 'BLANK183b', 'BLANK184', 'BLANK185', 'BLANK186', 'BLANK187', 'BLANK188', 'BLANK189', 'BLANK190', 'BLANK191', 'BLANK192', 'BLANK193', 'BLANK194', 'BLANK195', 'BLANK196', 'BLANK197', 'BLANK198', 'BLANK199', 'BLANK200', 'BLANK201', 'BLANK202', 'BLANK203', 'BLANK204', 'BLANK205', 'BLANK206', 'BLANK207', 'BLANK208', 'BLANK208b', 'VERTEXSEL', 'EDGESEL', 'FACESEL', 'LINKEDSEL', 'BLANK210', 'ROTATE', 'CURSOR', 'RO-

TATECOLLECTION', 'ROTATECENTER', 'ROTACTIVE', 'ALIGN', 'BLANK211', 'SMOOTHCURVE', 'SPHERECURVE', 'ROOTCURVE', 'SHARPCURVE', 'LINCURVE', 'NOCURVE', 'RNDCURVE', 'PROP_OFF', 'PROP_ON', 'PROP_CON', 'BLANK212', 'PARTICLE_POINT', 'PARTICLE_TIP', 'PARTICLE_PATH', 'MAN_TRANS', 'MAN_ROT', 'MAN_SCALE', 'MANIPUL', 'SNAP_OFF', 'SNAP_ON', 'SNAP_NORMAL', 'SNAP_INCREMENT', 'SNAP_VERTEX', 'SNAP_EDGE', 'SNAP_FACE', 'SNAP_VOLUME', 'UVS_FACE', 'STICKY_UVS_LOC', 'STICKY_UVS_DISABLE', 'STICKY_UVS_VERT', 'CLIPUV_DEHLT', 'CLIPUV_HLT', 'SNAP_PEEL_OBJECT', 'GRID', 'GEARS', 'BLANK221', 'BLANK224', 'BLANK225', 'BLANK226', 'BLANK226b', 'PASTEDOWN', 'COPYDOWN', 'PASTEFLIPUP', 'PASTEFLIPDOWN', 'BLANK227', 'BLANK228', 'BLANK229', 'BLANK230', 'SNAP_SURFACE', 'BLANK232', 'BLANK233', 'RETOPO', 'UV_VERTEXSEL', 'UV_EDGESEL', 'UV_FACESEL', 'UV_ISLANDSEL', 'UV_SYNC_SELECT', 'BLANK240', 'BLANK241', 'BLANK242', 'BLANK243', 'BLANK244', 'BLANK245', 'BLANK246', 'BLANK247', 'BLANK247b', 'BBOX', 'WIRE', 'SOLID', 'SMOOTH', 'POTATO', 'BLANK248', 'ORTHO', 'ORTHO_OFF', 'CAMERA', 'LOCKVIEW_OFF', 'LOCKVIEW_ON', 'BLANK250', 'AXIS_SIDE', 'AXIS_FRONT', 'AXIS_TOP', 'NDOF_DOM', 'NDOF_TURN', 'NDOF_FLY', 'NDOF_TRANS', 'LAYER_USED', 'LAYER_ACTIVE', 'BLANK254', 'BLANK255', 'BLANK256', 'BLANK257', 'BLANK257b', 'BLANK258', 'BLANK259', 'BLANK260', 'BLANK261', 'BLANK262', 'BLANK263', 'BLANK264', 'BLANK265', 'BLANK266', 'BLANK267', 'BLANK268', 'BLANK269', 'BLANK270', 'BLANK271', 'BLANK272', 'BLANK273', 'BLANK274', 'BLANK275', 'BLANK276', 'BLANK277', 'BLANK278', 'BLANK279', 'BLANK280', 'BLANK281', 'BLANK282', 'BLANK282b', 'SORTALPHA', 'SORTBYEXT', 'SORTTIME', 'SORTSIZE', 'LONGDISPLAY', 'SHORTDISPLAY', 'GHOST', 'IMGDISPLAY', 'BLANK284', 'BLANK285', 'BOOKMARKS', 'FONTPREVIEW', 'FILTER', 'NEWFOLDER', 'BLANK285F', 'FILE_PARENT', 'FILE_REFRESH', 'FILE_FOLDER', 'FILE_BLANK', 'FILE_BLEND', 'FILE_IMAGE', 'FILE_MOVIE', 'FILE_SCRIPT', 'FILE_SOUND', 'FILE_FONT', 'BLANK291b', 'BLANK292', 'BLANK293', 'BLANK294', 'BLANK295', 'BLANK296', 'BLANK297', 'BLANK298', 'BLANK299', 'BLANK300', 'BLANK301', 'BLANK302', 'BLANK303', 'BLANK304', 'BLANK305', 'BLANK306', 'BACK', 'FORWARD', 'BLANK309', 'BLANK310', 'BLANK311', 'BLANK312', 'BLANK313', 'BLANK314', 'BLANK315', 'BLANK316', 'DISK_DRIVE', 'MATPLANE', 'MATSPHERE', 'MATCUBE', 'MONKEY', 'HAIR', 'ALIASED', 'ANTIALIASED', 'MAT_SPHERE_SKY', 'BLANK319', 'BLANK320', 'BLANK321', 'BLANK322', 'WORDWRAP_OFF', 'WORDWRAP_ON', 'SYNTAX_OFF', 'SYNTAX_ON', 'LINENUMBERS_OFF', 'LINENUMBERS_ON', 'SCRIPTPLUGINS', 'BLANK323', 'BLANK324', 'BLANK325', 'BLANK326', 'BLANK327', 'BLANK328', 'BLANK328b', 'SEQ_SEQUENCER', 'SEQ_PREVIEW', 'SEQ_LUMA_WAVEFORM', 'SEQ_CHROMA_SCOPE', 'SEQ_HISTOGRAM', 'SEQ_SPLITVIEW', 'BLANK331', 'BLANK332', 'BLANK333', 'IMAGE_RGB', 'IMAGE_RGB_ALPHA', 'IMAGE_ALPHA', 'IMAGE_ZDEPTH', 'IMAGEFILE', 'BLANK336', 'BLANK337', 'BLANK338', 'BLANK339', 'BLANK340', 'BLANK341', 'BLANK342', 'BLANK343', 'BLANK344', 'BLANK345', 'BLANK346', 'BLANK346b', 'BRUSH_ADD', 'BRUSH_BLOB', 'BRUSH_BLUR', 'BRUSH_CLAY', 'BRUSH_CLONE', 'BRUSH_CREASE', 'BRUSH_DARKEN', 'BRUSH_FILL', 'BRUSH_FLATTEN', 'BRUSH_GRAB', 'BRUSH_INFLATE', 'BRUSH_LAYER', 'BRUSH_LIGHTEN', 'BRUSH_MIX', 'BRUSH_MULTIPLY', 'BRUSH_NUDGE', 'BRUSH_PINCH', 'BRUSH_SCRAPE', 'BRUSH_SCULPT_DRAW', 'BRUSH_SMEAR', 'BRUSH_SMOOTH', 'BRUSH_SNAKE_HOOK', 'BRUSH_SOFTEN', 'BRUSH_SUBTRACT', 'BRUSH_TEXDRAW', 'BRUSH_THUMB', 'BRUSH_ROTATE', 'BRUSH_VERTEXDRAW', 'VIEW3D_VEC', 'EDIT_VEC', 'EDITMODE_DEHLT', 'EDITMODE_HLT', 'DISCLOSURE_TRI_RIGHT_VEC', 'DISCLOSURE_TRI_DOWN_VEC', 'MOVE_UP_VEC', 'MOVE_DOWN_VEC', 'X_VEC',

'SMALL_TRI_RIGHT_VEC'], (optional)) – Icon, Override automatic icon of the item

- **emboss** (*boolean, (optional)*) – Draw the button itself, just the icon/text.

Returns Operator properties to fill in, return when 'properties' is set to true.

Return type OperatorProperties

operator_enums(*operator*, *property*)
operator_enums

Parameters

- **operator** (*string*) – Identifier of the operator.
- **property** (*string*) – Identifier of property in operator.

operator_menu_enum(*operator*, *property*, *text=""*, *icon='BLENDER'*)
operator_menu_enum

Parameters

- **operator** (*string*) – Identifier of the operator.
- **property** (*string*) – Identifier of property in operator.
- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DISCLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'RENDER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STYLUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA', 'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060', 'BLANK061', 'BLANK061b', 'OBJECT_DATAMODE', 'EDITMODE_HLT', 'FACESEL_HLT', 'VPAINT_HLT', 'TPAINT_HLT', 'WPAINT_HLT', 'SCULPTMODE_HLT', 'POSE_HLT', 'PARTICLEMODE', 'LIGHTPAINT', 'BLANK063', 'BLANK064', 'BLANK065', 'BLANK066', 'BLANK067', 'BLANK068', 'BLANK069', 'BLANK070', 'BLANK071', 'BLANK072', 'BLANK073', 'BLANK074', 'BLANK075', 'BLANK076', 'BLANK077', 'BLANK077b', 'SCENE_DATA', 'RENDERLAYERS', 'WORLD_DATA', 'OBJECT_DATA', 'MESH_DATA', 'CURVE_DATA', 'META_DATA', 'LATTICE_DATA', 'LAMP_DATA', 'MATERIAL_DATA', 'TEXTURE_DATA', 'ANIM_DATA', 'CAMERA_DATA', 'PARTICLE_DATA', 'LIBRARY_DATA_DIRECT',*

'GROUP', 'ARMATURE_DATA', 'POSE_DATA', 'BONE_DATA', 'CONSTRAINT', 'SHAPEKEY_DATA', 'CONSTRAINT_BONE', 'BLANK079', 'PACKAGE', 'UGLYPACKAGE', 'BLANK079b', 'BRUSH_DATA', 'IMAGE_DATA', 'FILE', 'FCURVE', 'FONT_DATA', 'RENDER_RESULT', 'SURFACE_DATA', 'EMPTY_DATA', 'SETTINGS', 'RENDER_ANIMATION', 'RENDER_STILL', 'BLANK080F', 'BOIDS', 'STRANDS', 'LIBRARY_DATA_INDIRECT', 'GREASEPENCIL', 'BLANK083', 'BLANK084', 'GROUP_BONE', 'GROUP_VERTEX', 'GROUP_VCOL', 'GROUP_UVS', 'BLANK089', 'BLANK090', 'RNA', 'RNA_ADD', 'BLANK092', 'BLANK093', 'BLANK094', 'BLANK095', 'BLANK096', 'BLANK097', 'BLANK098', 'BLANK099', 'BLANK100', 'BLANK101', 'BLANK102', 'BLANK103', 'BLANK104', 'BLANK105', 'BLANK106', 'BLANK107', 'BLANK108', 'BLANK109', 'BLANK110', 'BLANK111', 'BLANK112', 'BLANK113', 'BLANK114', 'BLANK115', 'BLANK116', 'BLANK116b', 'OUTLINER_OB_EMPTY', 'OUTLINER_OB_MESH', 'OUTLINER_OB_CURVE', 'OUTLINER_OB_LATTICE', 'OUTLINER_OB_META', 'OUTLINER_OB_LAMP', 'OUTLINER_OB_CAMERA', 'OUTLINER_OB_ARMATURE', 'OUTLINER_OB_FONT', 'OUTLINER_OB_SURFACE', 'BLANK119', 'BLANK120', 'BLANK121', 'BLANK122', 'BLANK123', 'BLANK124', 'BLANK125', 'BLANK126', 'BLANK127', 'RESTRICT_VIEW_OFF', 'RESTRICT_VIEW_ON', 'RESTRICT_SELECT_OFF', 'RESTRICT_SELECT_ON', 'RESTRICT_RENDER_OFF', 'RESTRICT_RENDER_ON', 'BLANK127b', 'OUTLINER_DATA_EMPTY', 'OUTLINER_DATA_MESH', 'OUTLINER_DATA_CURVE', 'OUTLINER_DATA_LATTICE', 'OUTLINER_DATA_META', 'OUTLINER_DATA_LAMP', 'OUTLINER_DATA_CAMERA', 'OUTLINER_DATA_ARMATURE', 'OUTLINER_DATA_FONT', 'OUTLINER_DATA_SURFACE', 'OUTLINER_DATA_POSE', 'BLANK129', 'BLANK130', 'BLANK131', 'BLANK132', 'BLANK133', 'BLANK134', 'BLANK135', 'BLANK136', 'BLANK137', 'BLANK138', 'BLANK139', 'BLANK140', 'BLANK141', 'BLANK142', 'BLANK142b', 'MESH_PLANE', 'MESH_CUBE', 'MESH_CIRCLE', 'MESH_UVSPHERE', 'MESH_ICOSPHERE', 'MESH_GRID', 'MESH_MONKEY', 'MESH_CYLINDER', 'MESH_TORUS', 'MESH_CONE', 'BLANK610', 'BLANK611', 'LAMP_POINT', 'LAMP_SUN', 'LAMP_SPOT', 'LAMP_HEMI', 'LAMP_AREA', 'BLANK617', 'BLANK618', 'BLANK619', 'META_PLANE', 'META_CUBE', 'META_BALL', 'META_ELLIPSOID', 'META_CAPSULE', 'BLANK625', 'SURFACE_NCURVE', 'SURFACE_NCIRCLE', 'SURFACE_NSURFACE', 'SURFACE_NCYLINDER', 'SURFACE_NSPHERE', 'SURFACE_NTORUS', 'BLANK636', 'BLANK637', 'BLANK638', 'CURVE_BEZCURVE', 'CURVE_BEZCIRCLE', 'CURVE_NCURVE', 'CURVE_NCIRCLE', 'CURVE_PATH', 'BLANK644', 'BLANK645', 'BLANK646', 'BLANK647', 'BLANK648', 'BLANK649', 'BLANK650', 'BLANK651', 'BLANK652', 'BLANK653', 'BLANK654', 'BLANK655', 'FORCE_FORCE', 'FORCE_WIND', 'FORCE_VORTEX', 'FORCE_MAGNETIC', 'FORCE_HARMONIC', 'FORCE_CHARGE', 'FORCE_LENNARDJONES', 'FORCE_TEXTURE', 'FORCE_CURVE', 'FORCE_BOID', 'FORCE_TURBULENCE', 'FORCE_DRAG', 'BLANK672', 'BLANK673', 'BLANK674', 'BLANK675', 'BLANK676', 'BLANK677', 'BLANK678', 'BLANK679', 'BLANK680', 'BLANK681', 'BLANK682', 'BLANK683', 'BLANK684', 'BLANK685', 'BLANK690', 'BLANK691', 'BLANK692', 'BLANK693', 'BLANK694', 'BLANK695', 'BLANK696', 'BLANK697', 'BLANK698', 'BLANK699', 'BLANK700', 'BLANK701', 'BLANK702', 'BLANK703', 'BLANK704', 'BLANK705', 'BLANK706', 'BLANK707', 'BLANK708', 'BLANK709', 'BLANK710', 'BLANK711', 'BLANK712', 'BLANK713', 'BLANK714', 'BLANK715', 'BLANK720', 'BLANK721', 'BLANK722', 'BLANK733', 'BLANK734', 'BLANK735', 'BLANK736', 'BLANK737', 'BLANK738', 'BLANK739', 'BLANK740', 'BLANK741', 'BLANK742', 'BLANK743', 'BLANK744', 'BLANK745', 'BLANK746', 'BLANK747', 'BLANK748', 'BLANK749', 'BLANK750', 'BLANK751', 'BLANK752', 'BLANK753', 'BLANK754', 'BLANK755', 'BLANK760', 'BLANK761', 'BLANK762', 'BLANK763', 'BLANK764', 'BLANK765', 'BLANK766', 'BLANK767', 'BLANK768',

'BLANK769', 'BLANK770', 'BLANK771', 'BLANK772', 'BLANK773', 'BLANK774', 'BLANK775', 'BLANK776', 'BLANK777', 'BLANK778', 'BLANK779', 'BLANK780', 'BLANK781', 'BLANK782', 'BLANK783', 'BLANK784', 'BLANK785', 'MODIFIER', 'MOD_WAVE', 'MOD_BUILD', 'MOD_DECIM', 'MOD_MIRROR', 'MOD_SOFT', 'MOD_SUBSURF', 'HOOK', 'MOD_PHYSICS', 'MOD_PARTICLES', 'MOD_BOOLEAN', 'MOD_EDGESPLIT', 'MOD_ARRAY', 'MOD_UVPROJECT', 'MOD_DISPLACE', 'MOD_CURVE', 'MOD_LATTICE', 'CONSTRAINT_DATA', 'MOD_ARMATURE', 'MOD_SHRINKWRAP', 'MOD_CAST', 'MOD_MESHDEFORM', 'MOD_BEVEL', 'MOD_SMOOTH', 'MOD_SIMPLEDEFORM', 'MOD_MASK', 'MOD_CLOTH', 'MOD_EXPLODE', 'MOD_FLUIDSIM', 'MOD_MULTIRES', 'MOD_SMOKE', 'MOD_SOLIDIFY', 'MOD_SCREW', 'BLANK160', 'BLANK161', 'BLANK162', 'BLANK163', 'BLANK164', 'BLANK165', 'BLANK166', 'BLANK167', 'BLANK168', 'BLANK169', 'BLANK170', 'BLANK171', 'BLANK172', 'BLANK173', 'BLANK174', 'BLANK175', 'BLANK176', 'BLANK177', 'BLANK177b', 'REC', 'PLAY', 'FF', 'REW', 'PAUSE', 'PREV_KEYFRAME', 'NEXT_KEYFRAME', 'PLAY_AUDIO', 'PLAY_REVERSE', 'PREVIEW_RANGE', 'BLANK180', 'PMARKER_ACT', 'PMARKER_SEL', 'PMARKER', 'MARKER_HLT', 'MARKER', 'SPACE2', 'SPACE3', 'BLANK181', 'KEY_DEHLT', 'KEY_HLT', 'MUTE_IPO_OFF', 'MUTE_IPO_ON', 'BLANK182', 'BLANK183', 'BLANK183b', 'BLANK184', 'BLANK185', 'BLANK186', 'BLANK187', 'BLANK188', 'BLANK189', 'BLANK190', 'BLANK191', 'BLANK192', 'BLANK193', 'BLANK194', 'BLANK195', 'BLANK196', 'BLANK197', 'BLANK198', 'BLANK199', 'BLANK200', 'BLANK201', 'BLANK202', 'BLANK203', 'BLANK204', 'BLANK205', 'BLANK206', 'BLANK207', 'BLANK208', 'BLANK208b', 'VERTEXSEL', 'EDGESEL', 'FACESEL', 'LINKEDSEL', 'BLANK210', 'ROTATE', 'CURSOR', 'ROTATECOLLECTION', 'ROTATECENTER', 'ROTACTIVE', 'ALIGN', 'BLANK211', 'SMOOTHCURVE', 'SPHERECURVE', 'ROOTCURVE', 'SHARPCURVE', 'LINCURVE', 'NOCURVE', 'RNDCURVE', 'PROP_OFF', 'PROP_ON', 'PROP_CON', 'BLANK212', 'PARTICLE_POINT', 'PARTICLE_TIP', 'PARTICLE_PATH', 'MAN_TRANS', 'MAN_ROT', 'MAN_SCALE', 'MANIPUL', 'SNAP_OFF', 'SNAP_ON', 'SNAP_NORMAL', 'SNAP_INCREMENT', 'SNAP_VERTEX', 'SNAP_EDGE', 'SNAP_FACE', 'SNAP_VOLUME', 'UVS_FACE', 'STICKY_UVS_LOC', 'STICKY_UVS_DISABLE', 'STICKY_UVS_VERT', 'CLIPUV_DEHLT', 'CLIPUV_HLT', 'SNAP_PEEL_OBJECT', 'GRID', 'GEARS', 'BLANK221', 'BLANK224', 'BLANK225', 'BLANK226', 'BLANK226b', 'PASTEDOWN', 'COPYDOWN', 'PASTEFLIPUP', 'PASTEFLIPDOWN', 'BLANK227', 'BLANK228', 'BLANK229', 'BLANK230', 'SNAP_SURFACE', 'BLANK232', 'BLANK233', 'RETOPO', 'UV_VERTEXSEL', 'UV_EDGESEL', 'UV_FACESEL', 'UV_ISLANDSEL', 'UV_SYNC_SELECT', 'BLANK240', 'BLANK241', 'BLANK242', 'BLANK243', 'BLANK244', 'BLANK245', 'BLANK246', 'BLANK247', 'BLANK247b', 'BBOX', 'WIRE', 'SOLID', 'SMOOTH', 'POTATO', 'BLANK248', 'ORTHO', 'ORTHO_OFF', 'CAMERA', 'LOCKVIEW_OFF', 'LOCKVIEW_ON', 'BLANK250', 'AXIS_SIDE', 'AXIS_FRONT', 'AXIS_TOP', 'NDOF_DOM', 'NDOF_TURN', 'NDOF_FLY', 'NDOF_TRANS', 'LAYER_USED', 'LAYER_ACTIVE', 'BLANK254', 'BLANK255', 'BLANK256', 'BLANK257', 'BLANK257b', 'BLANK258', 'BLANK259', 'BLANK260', 'BLANK261', 'BLANK262', 'BLANK263', 'BLANK264', 'BLANK265', 'BLANK266', 'BLANK267', 'BLANK268', 'BLANK269', 'BLANK270', 'BLANK271', 'BLANK272', 'BLANK273', 'BLANK274', 'BLANK275', 'BLANK276', 'BLANK277', 'BLANK278', 'BLANK279', 'BLANK280', 'BLANK281', 'BLANK282', 'BLANK282b', 'SORTALPHA', 'SORTBYEXT', 'SORTTIME', 'SORTSIZE', 'LONGDISPLAY', 'SHORTDISPLAY', 'GHOST', 'IMGDISPLAY', 'BLANK284', 'BLANK285', 'BOOKMARKS', 'FONTPREVIEW', 'FILTER', 'NEWFOLDER', 'BLANK285F', 'FILE_PARENT', 'FILE_REFRESH', 'FILE_FOLDER', 'FILE_BLANK', 'FILE_BLEND', 'FILE_IMAGE', 'FILE_MOVIE', 'FILE_SCRIPT', 'FILE_SOUND', 'FILE_FONT', 'BLANK291b', 'BLANK292', 'BLANK293', 'BLANK294', 'BLANK295', 'BLANK296', 'BLANK297', 'BLANK298',

'BLANK299', 'BLANK300', 'BLANK301', 'BLANK302', 'BLANK303', 'BLANK304', 'BLANK305', 'BLANK306', 'BACK', 'FORWARD', 'BLANK309', 'BLANK310', 'BLANK311', 'BLANK312', 'BLANK313', 'BLANK314', 'BLANK315', 'BLANK316', 'DISK_DRIVE', 'MATPLANE', 'MATSPHERE', 'MATCUBE', 'MONKEY', 'HAIR', 'ALIASED', 'ANTIALIASED', 'MAT_SPHERE_SKY', 'BLANK319', 'BLANK320', 'BLANK321', 'BLANK322', 'WORDWRAP_OFF', 'WORDWRAP_ON', 'SYNTAX_OFF', 'SYNTAX_ON', 'LINENUMBERS_OFF', 'LINENUMBERS_ON', 'SCRIPTPLUGINS', 'BLANK323', 'BLANK324', 'BLANK325', 'BLANK326', 'BLANK327', 'BLANK328', 'BLANK328b', 'SEQ_SEQUENCER', 'SEQ_PREVIEW', 'SEQ_LUMA_WAVEFORM', 'SEQ_CHROMA_SCOPE', 'SEQ_HISTOGRAM', 'SEQ_SPLITVIEW', 'BLANK331', 'BLANK332', 'BLANK333', 'IMAGE_RGB', 'IMAGE_RGB_ALPHA', 'IMAGE_ALPHA', 'IMAGE_ZDEPTH', 'IMAGEFILE', 'BLANK336', 'BLANK337', 'BLANK338', 'BLANK339', 'BLANK340', 'BLANK341', 'BLANK342', 'BLANK343', 'BLANK344', 'BLANK345', 'BLANK346', 'BLANK346b', 'BRUSH_ADD', 'BRUSH_BLOB', 'BRUSH_BLUR', 'BRUSH_CLAY', 'BRUSH_CLONE', 'BRUSH_CREASE', 'BRUSH_DARKEN', 'BRUSH_FILL', 'BRUSH_FLATTEN', 'BRUSH_GRAB', 'BRUSH_INFLATE', 'BRUSH_LAYER', 'BRUSH_LIGHTEN', 'BRUSH_MIX', 'BRUSH_MULTIPLY', 'BRUSH_NUDGE', 'BRUSH_PINCH', 'BRUSH_SCRAPE', 'BRUSH_SCULPT_DRAW', 'BRUSH_SMEAR', 'BRUSH_SMOOTH', 'BRUSH_SNAKE_HOOK', 'BRUSH_SOFTEN', 'BRUSH_SUBTRACT', 'BRUSH_TEXDRAW', 'BRUSH_THUMB', 'BRUSH_ROTATE', 'BRUSH_VERTEXDRAW', 'VIEW3D_VEC', 'EDIT_VEC', 'EDITMODE_DEHLT', 'EDITMODE_HLT', 'DISCLOSURE_TRI_RIGHT_VEC', 'DISCLOSURE_TRI_DOWN_VEC', 'MOVE_UP_VEC', 'MOVE_DOWN_VEC', 'X_VEC', 'SMALL_TRI_RIGHT_VEC'], (optional)) – Icon, Override automatic icon of the item

label (*text=""*, *icon='BLENDER'*)

Item. Display text in the layout.

Parameters

- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DISCLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'RENDER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STYLUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA', 'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060',*

'BLANK061', *'BLANK061b'*, *'OBJECT_DATAMODE'*, *'EDITMODE_HLT'*, *'FACESEL_HLT'*, *'VPAINT_HLT'*, *'TPAINT_HLT'*, *'WPAINT_HLT'*, *'SCULPTMODE_HLT'*, *'POSE_HLT'*, *'PARTICLEMODE'*, *'LIGHTPAINT'*, *'BLANK063'*, *'BLANK064'*, *'BLANK065'*, *'BLANK066'*, *'BLANK067'*, *'BLANK068'*, *'BLANK069'*, *'BLANK070'*, *'BLANK071'*, *'BLANK072'*, *'BLANK073'*, *'BLANK074'*, *'BLANK075'*, *'BLANK076'*, *'BLANK077'*, *'BLANK077b'*, *'SCENE_DATA'*, *'RENDERLAYERS'*, *'WORLD_DATA'*, *'OBJECT_DATA'*, *'MESH_DATA'*, *'CURVE_DATA'*, *'META_DATA'*, *'LATTICE_DATA'*, *'LAMP_DATA'*, *'MATERIAL_DATA'*, *'TEXTURE_DATA'*, *'ANIM_DATA'*, *'CAMERA_DATA'*, *'PARTICLE_DATA'*, *'LIBRARY_DATA_DIRECT'*, *'GROUP'*, *'ARMATURE_DATA'*, *'POSE_DATA'*, *'BONE_DATA'*, *'CONSTRAINT'*, *'SHAPEKEY_DATA'*, *'CONSTRAINT_BONE'*, *'BLANK079'*, *'PACKAGE'*, *'UGLYPACKAGE'*, *'BLANK079b'*, *'BRUSH_DATA'*, *'IMAGE_DATA'*, *'FILE'*, *'FCURVE'*, *'FONT_DATA'*, *'RENDER_RESULT'*, *'SURFACE_DATA'*, *'EMPTY_DATA'*, *'SETTINGS'*, *'RENDER_ANIMATION'*, *'RENDER_STILL'*, *'BLANK080F'*, *'BOIDS'*, *'STRANDS'*, *'LIBRARY_DATA_INDIRECT'*, *'GREASEPENCIL'*, *'BLANK083'*, *'BLANK084'*, *'GROUP_BONE'*, *'GROUP_VERTEX'*, *'GROUP_VCOL'*, *'GROUP_UVS'*, *'BLANK089'*, *'BLANK090'*, *'RNA'*, *'RNA_ADD'*, *'BLANK092'*, *'BLANK093'*, *'BLANK094'*, *'BLANK095'*, *'BLANK096'*, *'BLANK097'*, *'BLANK098'*, *'BLANK099'*, *'BLANK100'*, *'BLANK101'*, *'BLANK102'*, *'BLANK103'*, *'BLANK104'*, *'BLANK105'*, *'BLANK106'*, *'BLANK107'*, *'BLANK108'*, *'BLANK109'*, *'BLANK110'*, *'BLANK111'*, *'BLANK112'*, *'BLANK113'*, *'BLANK114'*, *'BLANK115'*, *'BLANK116'*, *'BLANK116b'*, *'OUTLINER_OB_EMPTY'*, *'OUTLINER_OB_MESH'*, *'OUTLINER_OB_CURVE'*, *'OUTLINER_OB_LATTICE'*, *'OUTLINER_OB_META'*, *'OUTLINER_OB_LAMP'*, *'OUTLINER_OB_CAMERA'*, *'OUTLINER_OB_ARMATURE'*, *'OUTLINER_OB_FONT'*, *'OUTLINER_OB_SURFACE'*, *'BLANK119'*, *'BLANK120'*, *'BLANK121'*, *'BLANK122'*, *'BLANK123'*, *'BLANK124'*, *'BLANK125'*, *'BLANK126'*, *'BLANK127'*, *'RESTRICT_VIEW_OFF'*, *'RESTRICT_VIEW_ON'*, *'RESTRICT_SELECT_OFF'*, *'RESTRICT_SELECT_ON'*, *'RESTRICT_RENDER_OFF'*, *'RESTRICT_RENDER_ON'*, *'BLANK127b'*, *'OUTLINER_DATA_EMPTY'*, *'OUTLINER_DATA_MESH'*, *'OUTLINER_DATA_CURVE'*, *'OUTLINER_DATA_LATTICE'*, *'OUTLINER_DATA_META'*, *'OUTLINER_DATA_LAMP'*, *'OUTLINER_DATA_CAMERA'*, *'OUTLINER_DATA_ARMATURE'*, *'OUTLINER_DATA_FONT'*, *'OUTLINER_DATA_SURFACE'*, *'OUTLINER_DATA_POSE'*, *'BLANK129'*, *'BLANK130'*, *'BLANK131'*, *'BLANK132'*, *'BLANK133'*, *'BLANK134'*, *'BLANK135'*, *'BLANK136'*, *'BLANK137'*, *'BLANK138'*, *'BLANK139'*, *'BLANK140'*, *'BLANK141'*, *'BLANK142'*, *'BLANK142b'*, *'MESH_PLANE'*, *'MESH_CUBE'*, *'MESH_CIRCLE'*, *'MESH_UVSPHERE'*, *'MESH_ICOSPHERE'*, *'MESH_GRID'*, *'MESH_MONKEY'*, *'MESH_CYLINDER'*, *'MESH_TORUS'*, *'MESH_CONE'*, *'BLANK610'*, *'BLANK611'*, *'LAMP_POINT'*, *'LAMP_SUN'*, *'LAMP_SPOT'*, *'LAMP_HEMI'*, *'LAMP_AREA'*, *'BLANK617'*, *'BLANK618'*, *'BLANK619'*, *'META_PLANE'*, *'META_CUBE'*, *'META_BALL'*, *'META_ELLIPSOID'*, *'META_CAPSULE'*, *'BLANK625'*, *'SURFACE_NCURVE'*, *'SURFACE_NCIRCLE'*, *'SURFACE_NSURFACE'*, *'SURFACE_NCYLINDER'*, *'SURFACE_NSPHERE'*, *'SURFACE_NTORUS'*, *'BLANK636'*, *'BLANK637'*, *'BLANK638'*, *'CURVE_BEZCURVE'*, *'CURVE_BEZCIRCLE'*, *'CURVE_NCURVE'*, *'CURVE_NCIRCLE'*, *'CURVE_PATH'*, *'BLANK644'*, *'BLANK645'*, *'BLANK646'*, *'BLANK647'*, *'BLANK648'*, *'BLANK649'*, *'BLANK650'*, *'BLANK651'*, *'BLANK652'*, *'BLANK653'*, *'BLANK654'*, *'BLANK655'*, *'FORCE_FORCE'*, *'FORCE_WIND'*, *'FORCE_VORTEX'*, *'FORCE_MAGNETIC'*, *'FORCE_HARMONIC'*, *'FORCE_CHARGE'*, *'FORCE_LENNARDJONES'*, *'FORCE_TEXTURE'*, *'FORCE_CURVE'*, *'FORCE_BOID'*, *'FORCE_TURBULENCE'*, *'FORCE_DRAG'*, *'BLANK672'*, *'BLANK673'*, *'BLANK674'*, *'BLANK675'*, *'BLANK676'*, *'BLANK677'*, *'BLANK678'*, *'BLANK679'*, *'BLANK680'*, *'BLANK681'*, *'BLANK682'*, *'BLANK683'*, *'BLANK684'*, *'BLANK685'*, *'BLANK690'*, *'BLANK691'*, *'BLANK692'*, *'BLANK693'*, *'BLANK694'*, *'BLANK695'*, *'BLANK696'*,

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menu (*menu*, *text=""*, *icon='BLENDER'*)

menu

Parameters

- **menu** (*string*) – Identifier of the menu.
- **text** (*string, (optional)*) – Override automatic text of the item.
- **icon** (*enum in ['BLENDER', 'QUESTION', 'ERROR', 'CANCEL', 'TRIA_RIGHT', 'TRIA_DOWN', 'TRIA_LEFT', 'TRIA_UP', 'ARROW_LEFTRIGHT', 'PLUS', 'DISCLOSURE_TRI_DOWN', 'DISCLOSURE_TRI_RIGHT', 'RADIOBUT_OFF', 'RADIOBUT_ON', 'MENU_PANEL', 'PYTHON', 'BLANK003', 'DOT', 'BLANK004', 'X', 'BLANK005', 'GO_LEFT', 'PLUG', 'UI', 'NODE', 'NODE_SEL', 'FULLSCREEN', 'SPLITSCREEN', 'RIGHTARROW_THIN', 'BORDERMOVE', 'VIEWZOOM', 'ZOOMIN', 'ZOOMOUT', 'PANEL_CLOSE', 'COPY_ID', 'EYEDROPPER', 'LINK_AREA', 'AUTO', 'CHECKBOX_DEHLT', 'CHECKBOX_HLT', 'UNLOCKED', 'LOCKED', 'UNPINNED', 'PINNED', 'SCREEN_BACK', 'RIGHTARROW', 'DOWNARROW_HLT', 'DOTSUP', 'DOTSDOWN', 'LINK', 'INLINK', 'PLUGIN', 'HELP', 'GHOST_ENABLED', 'COLOR', 'LINKED', 'UNLINKED', 'HAND', 'ZOOM_ALL', 'ZOOM_SELECTED', 'ZOOM_PREVIOUS', 'ZOOM_IN', 'ZOOM_OUT', 'REN-*

DER_REGION', 'BORDER_RECT', 'BORDER_LASSO', 'FREEZE', 'STYLUS_PRESSURE', 'GHOST_DISABLED', 'NEW', 'FILE_TICK', 'QUIT', 'URL', 'RECOVER_LAST', 'BLANK038', 'FULLSCREEN_ENTER', 'FULLSCREEN_EXIT', 'BLANK1', 'LAMP', 'MATERIAL', 'TEXTURE', 'ANIM', 'WORLD', 'SCENE', 'EDIT', 'GAME', 'RADIO', 'SCRIPT', 'PARTICLES', 'PHYSICS', 'SPEAKER', 'TEXTURE_SHADED', 'BLANK042', 'BLANK043', 'BLANK044', 'BLANK045', 'BLANK046', 'BLANK047', 'BLANK048', 'BLANK049', 'BLANK050', 'BLANK051', 'BLANK052', 'BLANK052b', 'VIEW3D', 'IPO', 'OOPS', 'BUTS', 'FILESEL', 'IMAGE_COL', 'INFO', 'SEQUENCE', 'TEXT', 'IMASEL', 'SOUND', 'ACTION', 'NLA', 'SCRIPTWIN', 'TIME', 'NODETREE', 'LOGIC', 'CONSOLE', 'PREFERENCES', 'ASSET_MANAGER', 'BLANK057', 'BLANK058', 'BLANK059', 'BLANK060', 'BLANK061', 'BLANK061b', 'OBJECT_DATAMODE', 'EDITMODE_HLT', 'FACESEL_HLT', 'VPAINT_HLT', 'TPAINT_HLT', 'WPAINT_HLT', 'SCULPTMODE_HLT', 'POSE_HLT', 'PARTICLEMODE', 'LIGHTPAINT', 'BLANK063', 'BLANK064', 'BLANK065', 'BLANK066', 'BLANK067', 'BLANK068', 'BLANK069', 'BLANK070', 'BLANK071', 'BLANK072', 'BLANK073', 'BLANK074', 'BLANK075', 'BLANK076', 'BLANK077', 'BLANK077b', 'SCENE_DATA', 'RENDERLAYERS', 'WORLD_DATA', 'OBJECT_DATA', 'MESH_DATA', 'CURVE_DATA', 'META_DATA', 'LATTICE_DATA', 'LAMP_DATA', 'MATERIAL_DATA', 'TEXTURE_DATA', 'ANIM_DATA', 'CAMERA_DATA', 'PARTICLE_DATA', 'LIBRARY_DATA_DIRECT', 'GROUP', 'ARMATURE_DATA', 'POSE_DATA', 'BONE_DATA', 'CONSTRAINT', 'SHAPEKEY_DATA', 'CONSTRAINT_BONE', 'BLANK079', 'PACKAGE', 'UGLYPACKAGE', 'BLANK079b', 'BRUSH_DATA', 'IMAGE_DATA', 'FILE', 'FCURVE', 'FONT_DATA', 'RENDER_RESULT', 'SURFACE_DATA', 'EMPTY_DATA', 'SETTINGS', 'RENDER_ANIMATION', 'RENDER_STILL', 'BLANK080F', 'BOIDS', 'STRANDS', 'LIBRARY_DATA_INDIRECT', 'GREASEPENCIL', 'BLANK083', 'BLANK084', 'GROUP_BONE', 'GROUP_VERTEX', 'GROUP_VCOL', 'GROUP_UVS', 'BLANK089', 'BLANK090', 'RNA', 'RNA_ADD', 'BLANK092', 'BLANK093', 'BLANK094', 'BLANK095', 'BLANK096', 'BLANK097', 'BLANK098', 'BLANK099', 'BLANK100', 'BLANK101', 'BLANK102', 'BLANK103', 'BLANK104', 'BLANK105', 'BLANK106', 'BLANK107', 'BLANK108', 'BLANK109', 'BLANK110', 'BLANK111', 'BLANK112', 'BLANK113', 'BLANK114', 'BLANK115', 'BLANK116', 'BLANK116b', 'OUTLINER_OB_EMPTY', 'OUTLINER_OB_MESH', 'OUTLINER_OB_CURVE', 'OUTLINER_OB_LATTICE', 'OUTLINER_OB_META', 'OUTLINER_OB_LAMP', 'OUTLINER_OB_CAMERA', 'OUTLINER_OB_ARMATURE', 'OUTLINER_OB_FONT', 'OUTLINER_OB_SURFACE', 'BLANK119', 'BLANK120', 'BLANK121', 'BLANK122', 'BLANK123', 'BLANK124', 'BLANK125', 'BLANK126', 'BLANK127', 'RESTRICT_VIEW_OFF', 'RESTRICT_VIEW_ON', 'RESTRICT_SELECT_OFF', 'RESTRICT_SELECT_ON', 'RESTRICT_RENDER_OFF', 'RESTRICT_RENDER_ON', 'BLANK127b', 'OUTLINER_DATA_EMPTY', 'OUTLINER_DATA_MESH', 'OUTLINER_DATA_CURVE', 'OUTLINER_DATA_LATTICE', 'OUTLINER_DATA_META', 'OUTLINER_DATA_LAMP', 'OUTLINER_DATA_CAMERA', 'OUTLINER_DATA_ARMATURE', 'OUTLINER_DATA_FONT', 'OUTLINER_DATA_SURFACE', 'OUTLINER_DATA_POSE', 'BLANK129', 'BLANK130', 'BLANK131', 'BLANK132', 'BLANK133', 'BLANK134', 'BLANK135', 'BLANK136', 'BLANK137', 'BLANK138', 'BLANK139', 'BLANK140', 'BLANK141', 'BLANK142', 'BLANK142b', 'MESH_PLANE', 'MESH_CUBE', 'MESH_CIRCLE', 'MESH_UVSPHERE', 'MESH_ICOSPHERE', 'MESH_GRID', 'MESH_MONKEY', 'MESH_CYLINDER', 'MESH_TORUS', 'MESH_CONE', 'BLANK610', 'BLANK611', 'LAMP_POINT', 'LAMP_SUN', 'LAMP_SPOT', 'LAMP_HEMI', 'LAMP_AREA', 'BLANK617', 'BLANK618', 'BLANK619', 'META_PLANE', 'META_CUBE', 'META_BALL', 'META_ELLIPSOID', 'META_CAPSULE', 'BLANK625', 'SURFACE_NCURVE', 'SURFACE_NCIRCLE', 'SURFACE_NSURFACE', 'SURFACE_NCYLINDER', 'SURFACE_NSPHERE', 'SUR-

FACE_NTORUS', 'BLANK636', 'BLANK637', 'BLANK638', 'CURVE_BEZCURVE', 'CURVE_BEZCIRCLE', 'CURVE_NCURVE', 'CURVE_NCIRCLE', 'CURVE_PATH', 'BLANK644', 'BLANK645', 'BLANK646', 'BLANK647', 'BLANK648', 'BLANK649', 'BLANK650', 'BLANK651', 'BLANK652', 'BLANK653', 'BLANK654', 'BLANK655', 'FORCE_FORCE', 'FORCE_WIND', 'FORCE_VORTEX', 'FORCE_MAGNETIC', 'FORCE_HARMONIC', 'FORCE_CHARGE', 'FORCE_LENNARDJONES', 'FORCE_TEXTURE', 'FORCE_CURVE', 'FORCE_BOID', 'FORCE_TURBULENCE', 'FORCE_DRAG', 'BLANK672', 'BLANK673', 'BLANK674', 'BLANK675', 'BLANK676', 'BLANK677', 'BLANK678', 'BLANK679', 'BLANK680', 'BLANK681', 'BLANK682', 'BLANK683', 'BLANK684', 'BLANK685', 'BLANK690', 'BLANK691', 'BLANK692', 'BLANK693', 'BLANK694', 'BLANK695', 'BLANK696', 'BLANK697', 'BLANK698', 'BLANK699', 'BLANK700', 'BLANK701', 'BLANK702', 'BLANK703', 'BLANK704', 'BLANK705', 'BLANK706', 'BLANK707', 'BLANK708', 'BLANK709', 'BLANK710', 'BLANK711', 'BLANK712', 'BLANK713', 'BLANK714', 'BLANK715', 'BLANK720', 'BLANK721', 'BLANK722', 'BLANK733', 'BLANK734', 'BLANK735', 'BLANK736', 'BLANK737', 'BLANK738', 'BLANK739', 'BLANK740', 'BLANK741', 'BLANK742', 'BLANK743', 'BLANK744', 'BLANK745', 'BLANK746', 'BLANK747', 'BLANK748', 'BLANK749', 'BLANK750', 'BLANK751', 'BLANK752', 'BLANK753', 'BLANK754', 'BLANK755', 'BLANK760', 'BLANK761', 'BLANK762', 'BLANK763', 'BLANK764', 'BLANK765', 'BLANK766', 'BLANK767', 'BLANK768', 'BLANK769', 'BLANK770', 'BLANK771', 'BLANK772', 'BLANK773', 'BLANK774', 'BLANK775', 'BLANK776', 'BLANK777', 'BLANK778', 'BLANK779', 'BLANK780', 'BLANK781', 'BLANK782', 'BLANK783', 'BLANK784', 'BLANK785', 'MODIFIER', 'MOD_WAVE', 'MOD_BUILD', 'MOD_DECIM', 'MOD_MIRROR', 'MOD_SOFT', 'MOD_SUBSURF', 'HOOK', 'MOD_PHYSICS', 'MOD_PARTICLES', 'MOD_BOOLEAN', 'MOD_EDGESPLIT', 'MOD_ARRAY', 'MOD_UVPROJECT', 'MOD_DISPLACE', 'MOD_CURVE', 'MOD_LATTICE', 'CONSTRAINT_DATA', 'MOD_ARMATURE', 'MOD_SHRINKWRAP', 'MOD_CAST', 'MOD_MESHDEFORM', 'MOD_BEVEL', 'MOD_SMOOTH', 'MOD_SIMPLEDEFORM', 'MOD_MASK', 'MOD_CLOTH', 'MOD_EXPLODE', 'MOD_FLUIDSIM', 'MOD_MULTIRES', 'MOD_SMOKE', 'MOD_SOLIDIFY', 'MOD_SCREW', 'BLANK160', 'BLANK161', 'BLANK162', 'BLANK163', 'BLANK164', 'BLANK165', 'BLANK166', 'BLANK167', 'BLANK168', 'BLANK169', 'BLANK170', 'BLANK171', 'BLANK172', 'BLANK173', 'BLANK174', 'BLANK175', 'BLANK176', 'BLANK177', 'BLANK177b', 'REC', 'PLAY', 'FF', 'REW', 'PAUSE', 'PREV_KEYFRAME', 'NEXT_KEYFRAME', 'PLAY_AUDIO', 'PLAY_REVERSE', 'PREVIEW_RANGE', 'BLANK180', 'PMARKER_ACT', 'PMARKER_SEL', 'PMARKER', 'MARKER_HLT', 'MARKER', 'SPACE2', 'SPACE3', 'BLANK181', 'KEY_DEHLT', 'KEY_HLT', 'MUTE_IPO_OFF', 'MUTE_IPO_ON', 'BLANK182', 'BLANK183', 'BLANK183b', 'BLANK184', 'BLANK185', 'BLANK186', 'BLANK187', 'BLANK188', 'BLANK189', 'BLANK190', 'BLANK191', 'BLANK192', 'BLANK193', 'BLANK194', 'BLANK195', 'BLANK196', 'BLANK197', 'BLANK198', 'BLANK199', 'BLANK200', 'BLANK201', 'BLANK202', 'BLANK203', 'BLANK204', 'BLANK205', 'BLANK206', 'BLANK207', 'BLANK208', 'BLANK208b', 'VERTEXSEL', 'EDGESEL', 'FACESEL', 'LINKEDSEL', 'BLANK210', 'ROTATE', 'CURSOR', 'ROTATECOLLECTION', 'ROTATECENTER', 'ROTACTIVE', 'ALIGN', 'BLANK211', 'SMOOTHCURVE', 'SPHERECURVE', 'ROOTCURVE', 'SHARPCURVE', 'LINCURVE', 'NOCURVE', 'RNDCURVE', 'PROP_OFF', 'PROP_ON', 'PROP_CON', 'BLANK212', 'PARTICLE_POINT', 'PARTICLE_TIP', 'PARTICLE_PATH', 'MAN_TRANS', 'MAN_ROT', 'MAN_SCALE', 'MANIPUL', 'SNAP_OFF', 'SNAP_ON', 'SNAP_NORMAL', 'SNAP_INCREMENT', 'SNAP_VERTEX', 'SNAP_EDGE', 'SNAP_FACE', 'SNAP_VOLUME', 'UVS_FACE', 'STICKY_UVS_LOC', 'STICKY_UVS_DISABLE', 'STICKY_UVS_VERT', 'CLIPUV_DEHLT', 'CLIPUV_HLT', 'SNAP_PEEL_OBJECT', 'GRID', 'GEARS', 'BLANK221', 'BLANK224', 'BLANK225', 'BLANK226', 'BLANK226b', 'PASTEDOWN', 'COPYDOWN', 'PASTEFLIPUP',

'PASTEFLIPDOWN', 'BLANK227', 'BLANK228', 'BLANK229', 'BLANK230', 'SNAP_SURFACE', 'BLANK232', 'BLANK233', 'RETOPO', 'UV_VERTEXSEL', 'UV_EDGESEL', 'UV_FACESEL', 'UV_ISLANDSEL', 'UV_SYNC_SELECT', 'BLANK240', 'BLANK241', 'BLANK242', 'BLANK243', 'BLANK244', 'BLANK245', 'BLANK246', 'BLANK247', 'BLANK247b', 'BBOX', 'WIRE', 'SOLID', 'SMOOTH', 'POTATO', 'BLANK248', 'ORTHO', 'ORTHO_OFF', 'CAMERA', 'LOCKVIEW_OFF', 'LOCKVIEW_ON', 'BLANK250', 'AXIS_SIDE', 'AXIS_FRONT', 'AXIS_TOP', 'NDOF_DOM', 'NDOF_TURN', 'NDOF_FLY', 'NDOF_TRANS', 'LAYER_USED', 'LAYER_ACTIVE', 'BLANK254', 'BLANK255', 'BLANK256', 'BLANK257', 'BLANK257b', 'BLANK258', 'BLANK259', 'BLANK260', 'BLANK261', 'BLANK262', 'BLANK263', 'BLANK264', 'BLANK265', 'BLANK266', 'BLANK267', 'BLANK268', 'BLANK269', 'BLANK270', 'BLANK271', 'BLANK272', 'BLANK273', 'BLANK274', 'BLANK275', 'BLANK276', 'BLANK277', 'BLANK278', 'BLANK279', 'BLANK280', 'BLANK281', 'BLANK282', 'BLANK282b', 'SORTALPHA', 'SORTBYEXT', 'SORTTIME', 'SORTSIZE', 'LONGDISPLAY', 'SHORTDISPLAY', 'GHOST', 'IMGDISPLAY', 'BLANK284', 'BLANK285', 'BOOKMARKS', 'FONTPREVIEW', 'FILTER', 'NEWFOLDER', 'BLANK285F', 'FILE_PARENT', 'FILE_REFRESH', 'FILE_FOLDER', 'FILE_BLANK', 'FILE_BLEND', 'FILE_IMAGE', 'FILE_MOVIE', 'FILE_SCRIPT', 'FILE_SOUND', 'FILE_FONT', 'BLANK291b', 'BLANK292', 'BLANK293', 'BLANK294', 'BLANK295', 'BLANK296', 'BLANK297', 'BLANK298', 'BLANK299', 'BLANK300', 'BLANK301', 'BLANK302', 'BLANK303', 'BLANK304', 'BLANK305', 'BLANK306', 'BACK', 'FORWARD', 'BLANK309', 'BLANK310', 'BLANK311', 'BLANK312', 'BLANK313', 'BLANK314', 'BLANK315', 'BLANK316', 'DISK_DRIVE', 'MATPLANE', 'MATSPHERE', 'MATCUBE', 'MONKEY', 'HAIR', 'ALIASED', 'ANTIALIASED', 'MAT_SPHERE_SKY', 'BLANK319', 'BLANK320', 'BLANK321', 'BLANK322', 'WORDWRAP_OFF', 'WORDWRAP_ON', 'SYNTAX_OFF', 'SYNTAX_ON', 'LINENUMBERS_OFF', 'LINENUMBERS_ON', 'SCRIPTPLUGINS', 'BLANK323', 'BLANK324', 'BLANK325', 'BLANK326', 'BLANK327', 'BLANK328', 'BLANK328b', 'SEQ_SEQUENCER', 'SEQ_PREVIEW', 'SEQ_LUMA_WAVEFORM', 'SEQ_CHROMA_SCOPE', 'SEQ_HISTOGRAM', 'SEQ_SPLITVIEW', 'BLANK331', 'BLANK332', 'BLANK333', 'IMAGE_RGB', 'IMAGE_RGB_ALPHA', 'IMAGE_ALPHA', 'IMAGE_ZDEPTH', 'IMAGEFILE', 'BLANK336', 'BLANK337', 'BLANK338', 'BLANK339', 'BLANK340', 'BLANK341', 'BLANK342', 'BLANK343', 'BLANK344', 'BLANK345', 'BLANK346', 'BLANK346b', 'BRUSH_ADD', 'BRUSH_BLOB', 'BRUSH_BLUR', 'BRUSH_CLAY', 'BRUSH_CLONE', 'BRUSH_CREASE', 'BRUSH_DARKEN', 'BRUSH_FILL', 'BRUSH_FLATTEN', 'BRUSH_GRAB', 'BRUSH_INFLATE', 'BRUSH_LAYER', 'BRUSH_LIGHTEN', 'BRUSH_MIX', 'BRUSH_MULTIPLY', 'BRUSH_NUDGE', 'BRUSH_PINCH', 'BRUSH_SCRAPE', 'BRUSH_SCULPT_DRAW', 'BRUSH_SMEAR', 'BRUSH_SMOOTH', 'BRUSH_SNAKE_HOOK', 'BRUSH_SOFTEN', 'BRUSH_SUBTRACT', 'BRUSH_TEXDRAW', 'BRUSH_THUMB', 'BRUSH_ROTATE', 'BRUSH_VERTEXDRAW', 'VIEW3D_VEC', 'EDIT_VEC', 'EDITMODE_DEHLT', 'EDITMODE_HLT', 'DISCLOSURE_TRI_RIGHT_VEC', 'DISCLOSURE_TRI_DOWN_VEC', 'MOVE_UP_VEC', 'MOVE_DOWN_VEC', 'X_VEC', 'SMALL_TRI_RIGHT_VEC'], (optional)) – Icon, Override automatic icon of the item

separator()
Item. Inserts empty space into the layout between items.

context_pointer_set(*name*, *data*)
context_pointer_set

Parameters

- **name** (*string*) – Name, Name of entry in the context.

- **data** (AnyType) – Pointer to put in context.

template_header(*menus=True*)
template_header

Parameters

- **menus** (*boolean, (optional)*) – The header has menus, and should show menu expander.

template_ID(*data*, *property*, *new=""*, *open=""*, *unlink=""*)
template_ID

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **new** (*string, (optional)*) – Operator identifier to create a new ID block.
- **open** (*string, (optional)*) – Operator identifier to open a file for creating a new ID block.
- **unlink** (*string, (optional)*) – Operator identifier to unlink the ID block.

template_ID_preview(*data*, *property*, *new=""*, *open=""*, *unlink=""*, *rows=0*, *cols=0*)
template_ID_preview

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **new** (*string, (optional)*) – Operator identifier to create a new ID block.
- **open** (*string, (optional)*) – Operator identifier to open a file for creating a new ID block.
- **unlink** (*string, (optional)*) – Operator identifier to unlink the ID block.
- **rows** (*int in [0, inf], (optional)*) – Number of thumbnail preview rows to display
- **cols** (*int in [0, inf], (optional)*) – Number of thumbnail preview columns to display

template_any_ID(*data*, *property*, *type_property*, *text=""*)
template_any_ID

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **type_property** (*string*) – Identifier of property in data giving the type of the ID-blocks to use.
- **text** (*string, (optional)*) – Custom label to display in UI.

template_path_builder(*data*, *property*, *root*, *text=""*)
template_path_builder

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **root** (ID) – ID-block from which path is evaluated from.
- **text** (*string, (optional)*) – Custom label to display in UI.

template_modifier(*data*)
Layout . Generates the UI layout for modifiers.

Parameters

- **data** (Modifier, (never None)) – Modifier data.

Returns Sub-layout to put items in.

Return type UILayout

template_constraint(*data*)
Layout . Generates the UI layout for constraints.

Parameters

- **data** (Constraint, (never None)) – Constraint data.

Returns Sub-layout to put items in.

Return type UILayout

template_preview(*id*, *parent=None*, *slot=None*)
Item. A preview window for materials, textures, lamps, etc.

Parameters

- **id** (ID) – ID datablock.
- **parent** (ID, (optional)) – ID datablock.
- **slot** (TextureSlot, (optional)) – Texture slot.

template_curve_mapping(*data*, *property*, *type='NONE'*, *levels=False*, *brush=False*)
Item. A curve mapping widget used for e.g falloff curves for lamps.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **type** (*enum in ['NONE', 'VECTOR', 'COLOR'], (optional)*) – Type, Type of curves to display.
- **levels** (*boolean, (optional)*) – Show black/white levels.
- **brush** (*boolean, (optional)*) – Show brush options.

template_color_ramp(*data*, *property*, *expand=False*)
Item. A color ramp widget.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **expand** (*boolean, (optional)*) – Expand button to show more detail.

template_histogram(*data*, *property*, *expand=False*)
Item. A histogramm widget to analyze imaga data.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.

- **expand** (*boolean, (optional)*) – Expand button to show more detail.

template_waveform(*data*, *property*, *expand=False*)
Item. A waveform widget to analyze imaga data.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **expand** (*boolean, (optional)*) – Expand button to show more detail.

template_vectorscope(*data*, *property*, *expand=False*)
Item. A vectorscope widget to analyze imaga data.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **expand** (*boolean, (optional)*) – Expand button to show more detail.

template_layers(*data*, *property*, *used_layers_data*, *used_layers_property*, *active_layer*)
template_layers

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **used_layers_data** (AnyType) – Data from which to take property.
- **used_layers_property** (*string*) – Identifier of property in data.
- **active_layer** (*int in [0, inf]*) – Active Layer

template_color_wheel(*data*, *property*, *value_slider=False*, *lock=False*, *lock_luminosity=False*, *cubic=True*)
Item. A color wheel widget to pick colors.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **value_slider** (*boolean, (optional)*) – Display the value slider to the right of the color wheel
- **lock** (*boolean, (optional)*) – Lock the color wheel display to value 1.0 regardless of actual color
- **lock_luminosity** (*boolean, (optional)*) – Keep the color at its original vector length
- **cubic** (*boolean, (optional)*) – Cubic saturation for picking values close to white

template_image_layers(*image*, *image_user*)
template_image_layers

template_image(*data*, *property*, *image_user*, *compact=False*)
Item(s). User interface for selecting images and their source paths.

Parameters

- **data** (AnyType, (never None)) – Data from which to take property.

- **property** (*string*) – Identifier of property in data.
- **compact** (*boolean, (optional)*) – Use more compact layout.

template_list(*data*, *property*, *active_data*, *active_property*, *rows=5*, *maxrows=5*, *type='DEFAULT'*)
Item. A list widget to display data. e.g. vertexgroups.

Parameters

- **data** (AnyType) – Data from which to take property.
- **property** (*string*) – Identifier of property in data.
- **active_data** (AnyType, (never None)) – Data from which to take property for the active element.
- **active_property** (*string*) – Identifier of property in data, for the active element.
- **rows** (*int in [0, inf], (optional)*) – Number of rows to display.
- **maxrows** (*int in [0, inf], (optional)*) – Maximum number of rows to display.
- **type** (*enum in ['DEFAULT', 'COMPACT', 'ICONS'], (optional)*) – Type, Type of list to use.

template_running_jobs()
template_running_jobs

template_operator_search()
template_operator_search

template_header_3D()
template_header_3D

template_reports_banner()
template_reports_banner

introspect()
introspect

Returns Descr, DESCR

Return type string

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Header.layout
- Menu.layout
- Operator.layout
- Panel.layout
- UILayout.box
- UILayout.column
- UILayout.column_flow
- UILayout.row
- UILayout.split
- UILayout.template_constraint
- UILayout.template_modifier

1.3.572 UVProjectModifier(Modifier)

base classes — bpy_struct, Modifier

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

UV projection modifier to sets UVs from a projector

aspect_x

Type float in [1, inf], default 0.0

aspect_y

Type float in [1, inf], default 0.0

image

Type Image

projector_count

Number of projectors to use

Type int in [1, 10], default 0

projectors

Type Collection of UVProjector, (readonly)

scale_x

Type float in [0, inf], default 0.0

scale_y

Type float in [0, inf], default 0.0

use_image_override

Override faces' current images with the given image

Type boolean, default False

uv_layer
UV layer name

Type string, default “”

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.573 UVProjector(bpy_struct)

base class — bpy_struct

class bpy.types.**UVProjector**(*bpy_struct*)
UV projector used by the UV project modifier

object
Object to use as projector transform

Type Object

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UVProjectModifier.projectors

1.3.574 UVTextures(bpy_struct)

base class — bpy_struct

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

Collection of uv textures

active

Active UV texture

Type MeshTextureFaceLayer

active_index

Active UV texture index

Type int in [0, inf], default 0

new(*name="UVTex"*)

Add a UV texture layer to Mesh.

Parameters

- **name** (*string, (optional)*) – UV Texture name.

Returns The newly created layer.

Return type MeshTextureFaceLayer

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.uv_textures

1.3.575 UnitSettings(bpy_struct)

base class — bpy_struct

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

rotation_units
Unit to use for displaying/editing rotation values

Type enum in ['DEGREES', 'RADIANS'], default 'DEGREES'

scale_length
Scale to use when converting between blender units and dimensions

Type float in [1e-05, 100000], default 0.0

system
The unit system to use for button display

Type enum in ['NONE', 'METRIC', 'IMPERIAL'], default 'NONE'

use_separate
Display units in pairs

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Scene.unit_settings

1.3.576 UnknownType(bpy_struct)

base class — bpy_struct

class bpy.types.**UnknownType**(*bpy_struct*)
Stub RNA type used for pointers to unknown or internal data

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ShapeKey.data
- SpaceSequenceEditor.grease_pencil

1.3.577 UserPreferences(bpy_struct)

base class — bpy_struct

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

Global user preferences

active_section

Active section of the user preferences shown in the user interface

Type enum in ['INTERFACE', 'EDITING', 'INPUT', 'ADDONS', 'THEMES', 'FILES', 'SYSTEM'], default 'INTERFACE'

addons

Type Addons collection of Addon, (readonly)

edit

Settings for interacting with Blender data

Type UserPreferencesEdit, (readonly, never None)

filepaths

Default paths for external files

Type UserPreferencesFilePaths, (readonly, never None)

inputs

Settings for input devices

Type UserPreferencesInput, (readonly, never None)

system

Graphics driver and operating system settings

Type UserPreferencesSystem, (readonly, never None)

themes

Type Collection of Theme, (readonly)

ui_styles

Type Collection of ThemeStyle, (readonly)

view

Preferences related to viewing data

Type UserPreferencesView, (readonly, never None)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Context.user_preferences

1.3.578 UserPreferencesEdit(bpy_struct)

base class — bpy_struct

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

Settings for interacting with Blender data

auto_keying_mode

Mode of automatic keyframe insertion for Objects and Bones

Type enum in ['ADD_REPLACE_KEYS', 'REPLACE_KEYS'], default 'ADD_REPLACE_KEYS'

grease_pencil_eraser_radius

Radius of eraser 'brush'

Type int in [0, 100], default 0

grease_pencil_euclidean_distance

Distance moved by mouse when drawing stroke (in pixels) to include

Type int in [0, 100], default 0

grease_pencil_manhattan_distance

Pixels moved by mouse per axis when drawing stroke

Type int in [0, 100], default 0

keyframe_new_handle_type

Type enum in ['FREE', 'AUTO', 'VECTOR', 'ALIGNED'], default 'FREE'

keyframe_new_interpolation_type

Type enum in ['CONSTANT', 'LINEAR', 'BEZIER'], default 'CONSTANT'

material_link
Toggle whether the material is linked to object data or the object block

Type enum in ['OBDATA', 'OBJECT'], default 'OBDATA'

object_align
When adding objects from a 3D View menu, either align them to that view's direction or the world coordinates

Type enum in ['WORLD', 'VIEW'], default 'WORLD'

sculpt_paint_overlay_color
Color of texture overlay

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

undo_memory_limit
Maximum memory usage in megabytes (0 means unlimited)

Type int in [0, 32767], default 0

undo_steps
Number of undo steps available (smaller values conserve memory)

Type int in [0, 64], default 0

use_auto_keying
Automatic keyframe insertion for Objects and Bones

Type boolean, default False

use_drag_immediately
Moving things with a mouse drag confirms when releasing the button

Type boolean, default False

use_duplicate_action
Causes actions to be duplicated with the object

Type boolean, default False

use_duplicate_armature
Causes armature data to be duplicated with the object

Type boolean, default False

use_duplicate_curve
Causes curve data to be duplicated with the object

Type boolean, default False

use_duplicate_fcurve
Causes F-curve data to be duplicated with the object

Type boolean, default False

use_duplicate_lamp
Causes lamp data to be duplicated with the object

Type boolean, default False

use_duplicate_material
Causes material data to be duplicated with the object

Type boolean, default False

use_duplicate_mesh
Causes mesh data to be duplicated with the object

Type boolean, default False

use_duplicate_metaball
Causes metaball data to be duplicated with the object

Type boolean, default False

use_duplicate_particle
Causes particle systems to be duplicated with the object

Type boolean, default False

use_duplicate_surface
Causes surface data to be duplicated with the object

Type boolean, default False

use_duplicate_text
Causes text data to be duplicated with the object

Type boolean, default False

use_duplicate_texture
Causes texture data to be duplicated with the object

Type boolean, default False

use_enter_edit_mode
Enter Edit Mode automatically after adding a new object

Type boolean, default False

use_global_undo
Global undo works by keeping a full copy of the file itself in memory, so takes extra memory

Type boolean, default False

use_grease_pencil_simplify_stroke
Simplify the final stroke

Type boolean, default False

use_grease_pencil_smooth_stroke
Smooth the final stroke

Type boolean, default False

use_insertkey_xyz_to_rgb
Color for newly added transformation F-Curves (Location, Rotation, Scale) and also Color is based on the transform axis

Type boolean, default False

use_keyframe_insert_available
Automatic keyframe insertion in available curves

Type boolean, default False

use_keyframe_insert_keyingset
Automatic keyframe insertion using active Keying Set

Type boolean, default False

use_keyframe_insert_needed
Keyframe insertion only when keyframe needed

Type boolean, default False

use_negative_frames
Current frame number can be manually set to a negative value

Type boolean, default False

use_visual_keying
Use Visual keying automatically for constrained objects

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.edit

1.3.579 UserPreferencesFilePaths(bpy_struct)

base class — bpy_struct

class bpy.types.**UserPreferencesFilePaths**(*bpy_struct*)
Default paths for external files

animation_player
Path to a custom animation/frame sequence player

Type string, default “”

animation_player_preset
Preset configs for external animation players

Type enum in [’BLENDER24’, ‘DJV’, ‘FRAMECYCLER’, ‘RV’, ‘MPLAYER’, ‘CUSTOM’], default ‘BLENDER24’

auto_save_time
The time (in minutes) to wait between automatic temporary saves

Type int in [1, 60], default 0

font_directory
The default directory to search for loading fonts

Type string, default “”

image_editor
Path to an image editor

Type string, default “”

recent_files
Maximum number of recently opened files to remember

Type int in [0, 30], default 0

render_output_directory
The default directory for rendering output

Type string, default “”

save_version
The number of old versions to maintain in the current directory, when manually saving

Type int in [0, 32], default 0

script_directory
The default directory to search for Python scripts (resets python module search path: sys.path)

Type string, default “”

sequence_plugin_directory
The default directory to search for sequence plugins

Type string, default “”

show_hidden_files_datablocks
Hide files/datablocks that start with a dot(.*)

Type boolean, default False

sound_directory
The default directory to search for sounds

Type string, default “”

temporary_directory
The directory for storing temporary save files

Type string, default “”

texture_directory
The default directory to search for textures

Type string, default “”

texture_plugin_directory
The default directory to search for texture plugins

Type string, default “”

use_auto_save_temporary_files
Automatic saving of temporary files

Type boolean, default False

use_file_compression
Enable file compression when saving .blend files

Type boolean, default False

use_filter_files
Display only files with extensions in the image select window

Type boolean, default False

use_load_ui
Load user interface setup when loading .blend files

Type boolean, default False

use_relative_paths
Default relative path option for the file selector

Type boolean, default False

use_save_preview_images
Enables automatic saving of preview images in the .blend file

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.filepaths

1.3.580 UserPreferencesInput(bpy_struct)

base class — bpy_struct

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

Settings for input devices

edited_keymaps

Type Collection of KeyMap, (readonly)

invert_mouse_wheel_zoom

Invert the axis of mouse movement for zooming

Type boolean, default False

invert_zoom_wheel

Swap the Mouse Wheel zoom direction

Type boolean, default False

mouse_double_click_time

The time (in ms) for a double click

Type int in [1, 1000], default 0

ndof_pan_speed

The overall panning speed of an NDOF device, as percent of standard

Type int in [0, 200], default 0

ndof_rotate_speed

The overall rotation speed of an NDOF device, as percent of standard

Type int in [0, 200], default 0

select_mouse

The mouse button used for selection

Type enum in ['LEFT', 'RIGHT'], default 'RIGHT'

use_emulate_numpad

Causes the 1 to 0 keys to act as the numpad (useful for laptops)

Type boolean, default False

use_mouse_continuous

Allow moving the mouse outside the view on some manipulations (transform, ui control drag)

Type boolean, default False

use_mouse_emulate_3_button

Emulates Middle Mouse with Alt+LeftMouse (doesn't work with Left Mouse Select option)

Type boolean, default False

use_mouse_mmb_paste
In text window, paste with middle mouse button instead of panning

Type boolean, default False

view_rotate_method
Rotation style in the viewport

Type enum in ['TURNTABLE', 'TRACKBALL'], default 'TURNTABLE'

view_zoom_axis
Axis of mouse movement to zoom in or out on

Type enum in ['VERTICAL', 'HORIZONTAL'], default 'VERTICAL'

view_zoom_method
Which style to use for viewport scaling

Type enum in ['CONTINUE', 'DOLLY', 'SCALE'], default 'CONTINUE'

wheel_scroll_lines
The number of lines scrolled at a time with the mouse wheel

Type int in [0, 32], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.inputs

1.3.581 UserPreferencesSystem(bpy_struct)

base class — bpy_struct

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

Graphics driver and operating system settings

audio_channels

Sets the audio channel count

Type enum in ['MONO', 'STEREO', 'SURROUND4', 'SURROUND51', 'SURROUND71'], default 'MONO'

audio_device

Sets the audio output device

Type enum in ['NONE'], default 'NONE'

audio_mixing_buffer

Sets the number of samples used by the audio mixing buffer

Type enum in ['SAMPLES_256', 'SAMPLES_512', 'SAMPLES_1024', 'SAMPLES_2048', 'SAMPLES_4096', 'SAMPLES_8192', 'SAMPLES_16384', 'SAMPLES_32768'], default 'SAMPLES_256'

audio_sample_format

Sets the audio sample format

Type enum in ['U8', 'S16', 'S24', 'S32', 'FLOAT', 'DOUBLE'], default 'U8'

audio_sample_rate

Sets the audio sample rate

Type enum in ['RATE_44100', 'RATE_48000', 'RATE_96000', 'RATE_192000'], default 'RATE_44100'

author

Name that will be used in exported files when format supports such feature

Type string, default ""

color_picker_type

Different styles of displaying the color picker widget

Type enum in ['CIRCLE', 'SQUARE_SV', 'SQUARE_HS', 'SQUARE_HV'], default 'CIRCLE'

dpi

Font size and resolution for display

Type int in [48, 128], default 0

frame_server_port

Frameserver Port for Frameserver Rendering

Type int in [0, 32727], default 0

gl_clip_alpha

Clip alpha below this threshold in the 3D textured view

Type float in [0, 1], default 0.0

gl_texture_limit

Limit the texture size to save graphics memory

Type enum in ['CLAMP_OFF', 'CLAMP_8192', 'CLAMP_4096', 'CLAMP_2048', 'CLAMP_1024', 'CLAMP_512', 'CLAMP_256', 'CLAMP_128'], default 'CLAMP_OFF'

language
Language use for translation

Type enum in ['ENGLISH', 'JAPANESE', 'DUTCH', 'ITALIAN', 'GERMAN', 'FINNISH', 'SWEDISH', 'FRENCH', 'SPANISH', 'CATALAN', 'CZECH', 'BRAZILIAN_PORTUGUESE', 'SIMPLIFIED_CHINESE', 'RUSSIAN', 'CROATIAN', 'SERBIAN', 'UKRAINIAN', 'POLISH', 'ROMANIAN', 'ARABIC', 'BULGARIAN', 'GREEK', 'KOREAN'], default 'ENGLISH'

memory_cache_limit
Memory cache limit in sequencer (megabytes)

Type int in [0, 16384], default 0

prefetch_frames
Number of frames to render ahead during playback

Type int in [0, 500], default 0

screencast_fps
Frame rate for the screencast to be played back

Type int in [10, 50], default 0

screencast_wait_time
Time in milliseconds between each frame recorded for screencast

Type int in [50, 1000], default 0

scrollback
Maximum number of lines to store for the console buffer

Type int in [32, 32768], default 0

solid_lights
Lights user to display objects in solid draw mode

Type Collection of UserSolidLight, (readonly)

texture_collection_rate
Number of seconds between each run of the GL texture garbage collector

Type int in [1, 3600], default 0

texture_time_out
Time since last access of a GL texture in seconds after which it is freed. (Set to 0 to keep textures allocated.)

Type int in [0, 3600], default 0

use_antialiasing
Use anti-aliasing for the 3D view (may impact redraw performance)

Type boolean, default False

use_international_fonts
Use international fonts

Type boolean, default False

use_mipmaps
Scale textures for the 3D View (looks nicer but uses more memory and slows image reloading)

Type boolean, default False

use_preview_images
Enables automatic saving of preview images in the .blend file (Windows only)

Type boolean, default False

use_scripts_auto_execute
Allow any .blend file to run scripts automatically (unsafe with blend files from an untrusted source)

Type boolean, default False

use_tabs_as_spaces
Automatically converts all new tabs into spaces for new and loaded text files

Type boolean, default False

use_textured_fonts
Use textures for drawing international fonts

Type boolean, default False

use_translate_buttons
Translate button labels

Type boolean, default False

use_translate_toolbox
Translate toolbox menu

Type boolean, default False

use_translate_tooltips
Translate Tooltips

Type boolean, default False

use_vertex_buffer_objects
Use Vertex Buffer Objects (or Vertex Arrays, if unsupported) for viewport rendering

Type boolean, default False

use_weight_color_range
Enable color range used for weight visualization in weight painting mode

Type boolean, default False

weight_color_range
Color range used for weight visualization in weight painting mode

Type ColorRamp, (readonly, never None)

window_draw_method
Drawing method used by the window manager

Type enum in ['AUTOMATIC', 'TRIPLE_BUFFER', 'OVERLAP', 'OVERLAP_FLIP', 'FULL'], default 'TRIPLE_BUFFER'

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.system

1.3.582 UserPreferencesView(bpy_struct)

base class — bpy_struct

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

Preferences related to viewing data

manipulator_handle_size

Size of widget handles as percentage of widget radius

Type int in [2, 40], default 0

manipulator_hotspot

Hotspot in pixels for clicking widget handles

Type int in [4, 40], default 0

manipulator_size

Diameter of widget, in 10 pixel units

Type int in [2, 40], default 0

mini_axis_brightness

The brightness of the icon

Type int in [0, 10], default 0

mini_axis_size

The axis icon's size

Type int in [10, 64], default 0

object_origin_size

Diameter in Pixels for Object/Lamp origin display

Type int in [4, 10], default 0

open_left_mouse_delay
Time in 1/10 seconds to hold the Left Mouse Button before opening the toolbox

Type int in [1, 40], default 0

open_right_mouse_delay
Time in 1/10 seconds to hold the Right Mouse Button before opening the toolbox

Type int in [1, 40], default 0

open_sublevel_delay
Time delay in 1/10 seconds before automatically opening sub level menus

Type int in [1, 40], default 0

open_toplevel_delay
Time delay in 1/10 seconds before automatically opening top level menus

Type int in [1, 40], default 0

rotation_angle
The rotation step for numerical pad keys (2 4 6 8)

Type int in [0, 90], default 0

show_column_layout
Use a column layout for toolbox

Type boolean, default False

show_large_cursors
Use large mouse cursors when available

Type boolean, default False

show_manipulator
Use 3D transform manipulator

Type boolean, default False

show_mini_axis
Show a small rotating 3D axis in the bottom left corner of the 3D View

Type boolean, default False

show_object_info
Display objects name and frame number in 3D view

Type boolean, default False

show_playback_fps
Show the frames per second screen refresh rate, while animation is played back

Type boolean, default False

show_splash
Display splash screen on startup

Type boolean, default False

show_tooltips
Display tooltips

Type boolean, default False

show_view_name
Show the name of the view's direction in each 3D View

Type boolean, default False

smooth_view
The time to animate the view in milliseconds, zero to disable

Type int in [0, 1000], default 0

timecode_style
Format of Time Codes displayed when not displaying timing in terms of frames

Type enum in ['MINIMAL', 'SMPTE', 'SMPTE_COMPACT', 'MILLISECONDS', 'SECONDS_ONLY'], default 'MINIMAL'

use_auto_perspective
Automatically switch between orthographic and perspective when changing from top/front/side views

Type boolean, default False

use_directional_menus
Otherwise menus, etc will always be top to bottom, left to right, no matter opening direction

Type boolean, default False

use_global_pivot
Lock the same rotation/scaling pivot in all 3D Views

Type boolean, default False

use_global_scene
Forces the current Scene to be displayed in all Screens

Type boolean, default False

use_mouse_auto_depth
Use the depth under the mouse to improve view pan/rotate/zoom functionality

Type boolean, default False

use_mouse_over_open
Open menu buttons and pulldowns automatically when the mouse is hovering

Type boolean, default False

use_rotate_around_active
Use selection as the pivot point

Type boolean, default False

use_zoom_to_mouse
Zoom in towards the mouse pointer's position in the 3D view, rather than the 2D window center

Type boolean, default False

view2d_grid_spacing_min
Minimum number of pixels between each gridline in 2D Viewports

Type int in [1, 500], default 0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferences.view

1.3.583 UserSolidLight(bpy_struct)

base class — bpy_struct

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

Light used for OpenGL lighting in solid draw mode

diffuse_color

The diffuse color of the OpenGL light

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

direction

The direction that the OpenGL light is shining

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

specular_color

The color of the lights specular highlight

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

use

Enable this OpenGL light in solid draw mode

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- UserPreferencesSystem.solid_lights

1.3.584 ValueNodeSocket(bpy_struct)

base class — bpy_struct

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

Input or output socket of a node

default_value

Default value of the socket when no link is attached

Type float array of 1 items in [-inf, inf], default (0.0)

name

Socket name

Type string, default "", (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get

- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.585 VectorFont(ID)

base classes — bpy_struct, ID

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

Vector font for Text objects

filepath

Type string, default "", (readonly)

packed_file

Type PackedFile, (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.fonts
- MainFonts.load
- MainFonts.remove
- TextCurve.font

1.3.586 VectorNodeSocket(bpy_struct)

base class — bpy_struct

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

Input or output socket of a node

default_value

Default value of the socket when no link is attached

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

name

Socket name

Type string, default "", (readonly)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.587 VertexColors(bpy_struct)

base class — bpy_struct

class bpy.types.**VertexColors**(*bpy_struct*)
Collection of vertex colors

active
Active vertex color layer

Type MeshColorLayer

active_index
Active vertex color index

Type int in [0, inf], default 0

new(*name="UVTex"*)
Add a vertex color layer to Mesh.

Parameters

- **name** (*string, (optional)*) – UV Texture name.

Returns The newly created layer.

Return type MeshColorLayer

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Mesh.vertex_colors

1.3.588 VertexGroup(bpy_struct)

base class — bpy_struct

class bpy.types.**VertexGroup**(*bpy_struct*)
Group of vertices, used for armature deform and other purposes

index
Index number of the vertex group

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

name
Vertex group name

Type string, default “”

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.vertex_groups
- VertexGroups.active
- VertexGroups.assign
- VertexGroups.new

1.3.589 VertexGroupElement(bpy_struct)

base class — bpy_struct

class bpy.types.**VertexGroupElement**(*bpy_struct*)
Weight value of a vertex in a vertex group

group

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

weight
Vertex Weight

Type float in [0, 1], default 0.0

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- LatticePoint.groups
- MeshVertex.groups

1.3.590 VertexGroups(bpy_struct)

base class — bpy_struct

class bpy.types.**VertexGroups**(*bpy_struct*)
Collection of vertex groups

active
Vertex groups of the object

Type VertexGroup, (readonly)

active_index
Active index in vertex group array

Type int in [-32768, 32767], default 0

new(*name="Group"*)
Add vertex group to object.

Parameters

- **name** (*string, (optional)*) – Vertex group name.

Returns New vertex group.

Return type VertexGroup

assign(*index*, *group*, *weight*, *type*)
Add vertex to a vertex group.

Parameters

- **index** (*int array of 1 items in [-inf, inf]*) – Index List.
- **group** (VertexGroup) – Vertex group to add vertex to.
- **weight** (*float in [0, 1]*) – Vertex weight.
- **type** (*enum in ['REPLACE', 'ADD', 'SUBTRACT']*) – Vertex assign mode.

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Object.vertex_groups

1.3.591 VertexPaint(Paint)

base classes — bpy_struct, Paint

class bpy.types.**VertexPaint**(*Paint*)
Properties of vertex and weight paint mode

use_all_faces
Paint on all faces inside brush

Type boolean, default False

use_normal
Applies the vertex normal before painting

Type boolean, default False

use_spray
Keep applying paint effect while holding mouse

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Paint.brush
- Paint.show_low_resolution
- Paint.show_brush
- Paint.show_brush_on_surface

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- ToolSettings.vertex_paint
- ToolSettings.weight_paint

1.3.592 VisibilityActuator(Actuator)

base classes — bpy_struct, Actuator

class bpy.types.**VisibilityActuator** (*Actuator*)
Actuator to set visibility and occlusion of the object

apply_to_children
Set all the children of this object to the same visibility/occlusion recursively

Type boolean, default False

use_occlusion
Set the object to occlude objects behind it. Initialized from the object type in physics button

Type boolean, default False

use_visible
Set the objects visible. Initialized from the objects render restriction toggle (access in the outliner)

Type boolean, default False

Inherited Properties

- bpy_struct.id_data
- Actuator.name
- Actuator.show_expanded
- Actuator.pin
- Actuator.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Actuator.link
- Actuator.unlink

1.3.593 VoronoiTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**VoronoiTexture** (*Texture*)
Procedural voronoi texture

color_mode

Type enum in ['INTENSITY', 'POSITION', 'POSITION_OUTLINE', 'POSITION_OUTLINE_INTENSITY'], default 'INTENSITY'

distance_metric

Type enum in ['DISTANCE', 'DISTANCE_SQUARED', 'MANHATTAN', 'CHEBYCHEV', 'MINKOVSKY_HALF', 'MINKOVSKY_FOUR', 'MINKOVSKY'], default 'DISTANCE'

minkovsky_exponent
Minkovsky exponent

Type float in [0.01, 10], default 0.0

nabla
Size of derivative offset used for calculating normal

Type float in [0.001, 0.1], default 0.0

noise_intensity

Type float in [0.01, 10], default 0.0

noise_scale
Sets scaling for noise input

Type float in [0.0001, inf], default 0.0

weight_1
Voronoi feature weight 1

Type float in [-2, 2], default 0.0

weight_2
Voronoi feature weight 2

Type float in [-2, 2], default 0.0

weight_3
Voronoi feature weight 3

Type float in [-2, 2], default 0.0

weight_4
Voronoi feature weight 4

Type float in [-2, 2], default 0.0

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity

- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.594 VoxelData(bpy_struct)

base class — bpy_struct

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

Voxel data settings

domain_object

Object used as the smoke simulation domain

Type Object

extension

Sets how the texture is extrapolated past its original bounds

Type enum in ['EXTEND', 'CLIP', 'REPEAT'], default 'EXTEND'

file_format
Format of the source data set to render

Type enum in ['BLENDER_VOXEL', 'RAW_8BIT', 'IMAGE_SEQUENCE', 'SMOKE'], default 'BLENDER_VOXEL'

filepath
The external source data file to use

Type string, default ""

intensity
Multiplier for intensity values

Type float in [0.01, inf], default 0.0

interpolation
Method to interpolate/smooth values between voxel cells

Type enum in ['NEREASTNEIGHBOR', 'TRILINEAR', 'QUADRATIC', 'TRICUBIC_CATROM', 'TRICUBIC_BSPLINE'], default 'NEREASTNEIGHBOR'

resolution
Resolution of the voxel grid

Type int array of 3 items in [-inf, inf], default (0, 0, 0)

smoke_data_type
Simulation value to be used as a texture

Type enum in ['SMOKEDENSITY', 'SMOKEHEAT', 'SMOKEVEL'], default 'SMOKEDENSITY'

still_frame
The frame number to always use

Type int in [-300000, 300000], default 0

use_still_frame
Always render a still frame from the voxel data sequence

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- VoxelDataTexture.voxel_data

1.3.595 VoxelDataTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**VoxelDataTexture**(*Texture*)

Settings for the Voxel Data texture

image

Type Image

image_user

Parameters defining which layer, pass and frame of the image is displayed

Type ImageUser, (readonly)

voxel_data

The voxel data associated with this texture

Type VoxelData, (readonly)

users_material

Materials that use this texture (readonly)

users_object_modifier

Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree

- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.596 WaveModifier(Modifier)

base classes — bpy_struct, Modifier

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

Wave effect modifier

damping_time

Type float in [-300000, 300000], default 0.0

falloff_radius

Type float in [0, inf], default 0.0

height

Type float in [-inf, inf], default 0.0

lifetime

Type float in [-300000, 300000], default 0.0

narrowness

Type float in [0, inf], default 0.0

speed

Type float in [-inf, inf], default 0.0

start_position_object

Type Object

start_position_x

Type float in [-inf, inf], default 0.0

start_position_y

Type float in [-inf, inf], default 0.0

texture
Texture for modulating the wave

Type Texture

texture_coords
Texture coordinates used for modulating input

Type enum in ['LOCAL', 'GLOBAL', 'OBJECT', 'MAP_UV'], default 'LOCAL'

texture_coords_object

Type Object

time_offset
Either the starting frame (for positive speed) or ending frame (for negative speed.)

Type float in [-300000, 300000], default 0.0

use_cyclic
Cyclic wave effect

Type boolean, default False

use_normal
Displace along normals

Type boolean, default False

use_normal_x
Enable displacement along the X normal

Type boolean, default False

use_normal_y
Enable displacement along the Y normal

Type boolean, default False

use_normal_z
Enable displacement along the Z normal

Type boolean, default False

use_x
X axis motion

Type boolean, default False

use_y
Y axis motion

Type boolean, default False

uv_layer
UV layer name

Type string, default ""

vertex_group
Vertex group name for modulating the wave

Type string, default ""

width

Type float in [0, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- Modifier.name
- Modifier.show_in_editmode
- Modifier.show_expanded
- Modifier.show_on_cage
- Modifier.show_viewport
- Modifier.show_render
- Modifier.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

1.3.597 Window(bpy_struct)

base class — bpy_struct

class bpy.types.**Window**(*bpy_struct*)
Open window

screen
Active screen showing in the window

Type Screen, (never None)

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- Context.window
- WindowManager.windows

1.3.598 WindowManager(ID)

base classes — bpy_struct, ID

class bpy.types.**WindowManager**(*ID*)
Window manager datablock defining open windows and other user interface data

clipboard

Type string, default “”

keyconfigs
Registered key configurations

Type KeyConfigurations collection of KeyConfig, (readonly)

operators
Operator registry

Type Collection of Operator, (readonly)

windows
Open windows

Type Collection of Window, (readonly)

classmethod add_fileselect(*operator*)
Show up the file selector.

Parameters

- **operator** (Operator) – Operator to call.

classmethod add_modal_handler(*operator*)
add_modal_handler

Parameters

- **operator** (Operator) – Operator to call.

Return type boolean

classmethod invoke_props_popup(*operator*, *event*)
Operator popup invoke.

Parameters

- **operator** (Operator) – Operator to call.
- **event** (Event) – Event.

Returns result

Return type enum in ['RUNNING_MODAL', 'CANCELLED', 'FINISHED', 'PASS_THROUGH']

classmethod invoke_props_dialog(*operator*, *width=300*, *height=20*)
Operator dialog (non-autoexec popup) invoke.

Parameters

- **operator** (Operator) – Operator to call.
- **width** (*int in [0, inf], (optional)*) – Width of the popup.
- **height** (*int in [0, inf], (optional)*) – Height of the popup.

Returns result

Return type enum in ['RUNNING_MODAL', 'CANCELLED', 'FINISHED', 'PASS_THROUGH']

classmethod invoke_search_popup(*operator*)
invoke_search_popup

Parameters

- **operator** (Operator) – Operator to call.

classmethod invoke_popup(*operator*, *width=300*, *height=20*)
Operator popup invoke.

Parameters

- **operator** (Operator) – Operator to call.
- **width** (*int in [0, inf], (optional)*) – Width of the popup.
- **height** (*int in [0, inf], (optional)*) – Height of the popup.

Returns result

Return type enum in ['RUNNING_MODAL', 'CANCELLED', 'FINISHED', 'PASS_THROUGH']

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.window_managers
- Context.window_manager

1.3.599 WipeSequence(EffectSequence)

base classes — bpy_struct, Sequence, EffectSequence

class bpy.types.**WipeSequence**(*EffectSequence*)

Sequence strip creating a wipe transition

angle

Edge angle

Type float in [-90, 90], default 0.0

blur_width
Width of the blur edge, in percentage relative to the image size

Type float in [0, 1], default 0.0

direction
Wipe direction

Type enum in ['OUT', 'IN'], default 'OUT'

transition_type

Type enum in ['SINGLE', 'DOUBLE', 'IRIS', 'CLOCK'], default 'SINGLE'

Inherited Properties

- bpy_struct.id_data
- Sequence.name
- Sequence.blend_type
- Sequence.blend_alpha
- Sequence.channel
- Sequence.effect_fader
- Sequence.frame_final_end
- Sequence.frame_offset_end
- Sequence.frame_still_end
- Sequence.select_left_handle
- Sequence.frame_final_duration
- Sequence.frame_duration
- Sequence.lock
- Sequence.mute
- Sequence.select_right_handle
- Sequence.select
- Sequence.speed_fader
- Sequence.frame_start
- Sequence.frame_final_start
- Sequence.frame_offset_start
- Sequence.frame_still_start
- Sequence.type
- Sequence.use_default_fade
- EffectSequence.color_balance
- EffectSequence.use_float
- EffectSequence.crop
- EffectSequence.use_deinterlace
- EffectSequence.use_reverse_frames
- EffectSequence.use_flip_x
- EffectSequence.use_flip_y
- EffectSequence.color_multiply
- EffectSequence.use_premultiply
- EffectSequence.proxy
- EffectSequence.use_proxy_custom_directory
- EffectSequence.use_proxy_custom_file
- EffectSequence.color_saturation
- EffectSequence.strobe
- EffectSequence.transform

- EffectSequence.use_color_balance
- EffectSequence.use_crop
- EffectSequence.use_proxy
- EffectSequence.use_translation

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Sequence.getStripElem
- Sequence.swap

1.3.600 WoodTexture(Texture)

base classes — bpy_struct, ID, Texture

class bpy.types.**WoodTexture**(*Texture*)

Procedural noise texture

nabla

Size of derivative offset used for calculating normal

Type float in [0.001, 0.1], default 0.0

noise_basis

Sets the noise basis used for turbulence

Type enum in ['BLENDER_ORIGINAL', 'ORIGINAL_PERLIN', 'IMPROVED_PERLIN', 'VORONOI_F1', 'VORONOI_F2', 'VORONOI_F3', 'VORONOI_F4', 'VORONOI_F2_F1', 'VORONOI_CRACKLE', 'CELL_NOISE'], default 'BLENDER_ORIGINAL'

noise_scale

Sets scaling for noise input

Type float in [0.0001, inf], default 0.0

noise_type

Type enum in ['SOFT_NOISE', 'HARD_NOISE'], default 'SOFT_NOISE'

noisebasis_2

Type enum in ['SIN', 'SAW', 'TRI'], default 'SIN'

turbulence
Sets the turbulence of the bandnoise and ringnoise types

Type float in [0.0001, inf], default 0.0

wood_type

Type enum in ['BANDS', 'RINGS', 'BANDNOISE', 'RINGNOISE'], default 'BANDS'

users_material
Materials that use this texture (readonly)

users_object_modifier
Object modifiers that use this texture (readonly)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users
- Texture.animation_data
- Texture.intensity
- Texture.color_ramp
- Texture.contrast
- Texture.factor_blue
- Texture.factor_green
- Texture.factor_red
- Texture.node_tree
- Texture.saturation
- Texture.use_preview_alpha
- Texture.type
- Texture.use_color_ramp
- Texture.use_nodes
- Texture.users_material
- Texture.users_object_modifier
- Texture.users_material
- Texture.users_object_modifier

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

1.3.601 World(ID)

base classes — bpy_struct, ID

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

World datablock describing the environment and ambient lighting of a scene

active_texture

Active texture slot being displayed

Type Texture

active_texture_index

Index of active texture slot

Type int in [0, 17], default 0

ambient_color

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

animation_data

Animation data for this datablock

Type AnimData, (readonly)

color_range

The color range that will be mapped to 0-1

Type float in [0.2, 5], default 0.0

exposure

Amount of exponential color correction for light

Type float in [0, 1], default 0.0

horizon_color

Color at the horizon

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

light_settings

World lighting settings

Type WorldLighting, (readonly, never None)

mist_settings

World mist settings

Type WorldMistSettings, (readonly, never None)

star_settings
World stars settings

Type WorldStarsSettings, (readonly, never None)

texture_slots
Texture slots defining the mapping and influence of textures

Type Collection of WorldTextureSlot, (readonly)

use_sky_blend
Render background with natural progression from horizon to zenith

Type boolean, default False

use_sky_paper
Flatten blend or texture coordinates

Type boolean, default False

use_sky_real
Render background with a real horizon, relative to the camera angle

Type boolean, default False

zenith_color
Color at the zenith

Type float array of 3 items in [-inf, inf], default (0.0, 0.0, 0.0)

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.use_fake_user
- ID.library
- ID.tag
- ID.users

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

- ID.copy
- ID.user_clear
- ID.animation_data_create
- ID.animation_data_clear

References

- BlendData.worlds
- MainWorlds.new
- MainWorlds.remove
- Scene.world

1.3.602 WorldLighting(bpy_struct)

base class — bpy_struct

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

Lighting for a World datablock

adapt_to_speed

Use the speed vector pass to reduce AO samples in fast moving pixels. Higher values result in more aggressive sample reduction. Requires Vec pass enabled (for Raytrace Adaptive QMC)

Type float in [0, 1], default 0.0

ao_blend_type

Defines how AO mixes with material shading

Type enum in ['MULTIPLY', 'ADD'], default 'ADD'

ao_factor

Factor for ambient occlusion blending

Type float in [0, inf], default 0.0

bias

Bias (in radians) to prevent smoothed faces from showing banding (for Raytrace Constant Jittered)

Type float in [0, 0.5], default 0.0

correction

Ad-hoc correction for over-occlusion due to the approximation (for Approximate)

Type float in [0, 1], default 0.0

distance

Length of rays, defines how far away other faces give occlusion effect

Type float in [-inf, inf], default 0.0

environment_color

Defines where the color of the environment light comes from

Type enum in ['PLAIN', 'SKY_COLOR', 'SKY_TEXTURE'], default 'PLAIN'

environment_energy

Defines the strength of environment light

Type float in [-inf, inf], default 0.0

error_threshold
Low values are slower and higher quality (for Approximate)

Type float in [0.0001, 10], default 0.0

falloff_strength
Distance attenuation factor, the higher, the 'shorter' the shadows

Type float in [-inf, inf], default 0.0

gather_method

Type enum in ['RAYTRACE', 'APPROXIMATE'], default 'RAYTRACE'

indirect_bounces
Number of indirect diffuse light bounces to use for approximate ambient occlusion

Type int in [1, inf], default 0

indirect_factor
Factor for how much surrounding objects contribute to light

Type float in [0, inf], default 0.0

passes
Number of preprocessing passes to reduce overocclusion (for approximate ambient occlusion)

Type int in [0, 10], default 0

sample_method
Method for generating shadow samples (for Raytrace)

Type enum in ['CONSTANT_JITTERED', 'ADAPTIVE_QMC', 'CONSTANT_QMC'], default 'CONSTANT_JITTERED'

samples
Amount of ray samples. Higher values give smoother results and longer rendering times

Type int in [1, 32], default 0

threshold
Samples below this threshold will be considered fully shadowed/unshadowed and skipped (for Raytrace Adaptive QMC)

Type float in [0, 1], default 0.0

use_ambient_occlusion
Use Ambient Occlusion to add shadowing based on distance between objects

Type boolean, default False

use_cache
Cache AO results in pixels and interpolate over neighbouring pixels for speedup (for Approximate)

Type boolean, default False

use_environment_light
Add light coming from the environment

Type boolean, default False

use_falloff

Type boolean, default False

use_indirect_light
Add indirect light bouncing of surrounding objects

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- World.light_settings

1.3.603 WorldMistSettings(bpy_struct)

base class — bpy_struct

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

Mist settings for a World data-block

depth

The distance over which the mist effect fades in

Type float in [0, inf], default 0.0

falloff

Type of transition used to fade mist

Type enum in ['QUADRATIC', 'LINEAR', 'INVERSE_QUADRATIC'], default 'QUADRATIC'

height

Control how much mist density decreases with height

Type float in [0, 100], default 0.0

intensity

Intensity of the mist effect

Type float in [0, 1], default 0.0

start
Starting distance of the mist, measured from the camera

Type float in [0, inf], default 0.0

use_mist
Occlude objects with the environment color as they are further away

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- World.mist_settings

1.3.604 WorldStarsSettings(bpy_struct)

base class — bpy_struct

class bpy.types.**WorldStarsSettings**(*bpy_struct*)
Stars setting for a World data-block

average_separation
Average distance between any two stars

Type float in [2, 1000], default 0.0

color_random
Randomize star colors

Type float in [0, 1], default 0.0

distance_min
Minimum distance to the camera for stars

Type float in [0, 1000], default 0.0

size
Average screen dimension of stars

Type float in [0, 10], default 0.0

use_stars
Enable starfield generation

Type boolean, default False

Inherited Properties

- bpy_struct.id_data

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- World.star_settings

1.3.605 WorldTextureSlot(TextureSlot)

base classes — bpy_struct, TextureSlot

class bpy.types.**WorldTextureSlot**(*TextureSlot*)
Texture slot for textures in a World datablock

blend_factor
Amount texture affects color progression of the background

Type float in [-inf, inf], default 0.0

horizon_factor
Amount texture affects color of the horizon

Type float in [-inf, inf], default 0.0

object
Object to use for mapping with Object texture coordinates

Type Object

texture_coords
Texture coordinates used to map the texture onto the background

Type enum in ['VIEW', 'GLOBAL', 'ANGMAP', 'SPHERE', 'TUBE', 'OBJECT'], default 'VIEW'

use_map_blend
Affect the color progression of the background

Type boolean, default False

use_map_horizon
Affect the color of the horizon

Type boolean, default False

use_map_zenith_down
Affect the color of the zenith below

Type boolean, default False

use_map_zenith_up
Affect the color of the zenith above

Type boolean, default False

zenith_down_factor
Amount texture affects color of the zenith below

Type float in [-inf, inf], default 0.0

zenith_up_factor
Amount texture affects color of the zenith above

Type float in [-inf, inf], default 0.0

Inherited Properties

- bpy_struct.id_data
- TextureSlot.name
- TextureSlot.blend_type
- TextureSlot.color
- TextureSlot.default_value
- TextureSlot.invert
- TextureSlot.offset
- TextureSlot.output_node
- TextureSlot.use_rgb_to_intensity
- TextureSlot.scale
- TextureSlot.use_stencil
- TextureSlot.texture

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values

References

- World.texture_slots

1.3.606 XnorController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**XnorController**(*Controller*)
Controller passing on events based on a logical XNOR operation

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.607 XorController(Controller)

base classes — bpy_struct, Controller

class bpy.types.**XorController**(*Controller*)
Controller passing on events based on a logical XOR operation

Inherited Properties

- bpy_struct.id_data
- Controller.name
- Controller.states
- Controller.show_expanded
- Controller.use_priority
- Controller.type

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.callback_add
- bpy_struct.callback_remove
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.is_property_hidden
- 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.type_recast
- bpy_struct.values
- Controller.link
- Controller.unlink

1.3.608 bpy_struct

subclasses — ActionFCurves, ActionGroup, ActionGroups, ActionPoseMarkers, Actuator, Addon, Addons, AnimData, AnimViz, AnimVizMotionPaths, AnimVizOnionSkinning, AnyType,

Area, ArmatureBones, ArmatureEditBones, BackgroundImage, BezierSplinePoint, BlendData, BlenderRNA, BoidRule, BoidSettings, BoidState, Bone, BoneGroup, BoneGroups, ChannelDriverVariables, ChildParticle, ClothCollisionSettings, ClothSettings, CollisionSettings, ColorRamp, ColorRampElement, ColorRampElements, ConsoleLine, Constraint, ConstraintTarget, Context, Controller, CurveMap, CurveMapPoint, CurveMapping, CurveSplines, DopeSheet, Driver, DriverTarget, DriverVariable, DupliObject, EditBone, EffectorWeights, EnumPropertyItem, EnvironmentMap, Event, FCurve, FCurveKeyframePoints, FCurveModifiers, FCurveSample, FModifier, FModifierEnvelopeControlPoint, FieldSettings, FileSelectParams, FluidSettings, Function, GPencilFrame, GPencilLayer, GPencilStroke, GPencilStrokePoint, GameObjectSettings, GameProperty, GameSoftBodySettings, GroupObjects, Header, Histogram, ID, IDMaterials, IDProperty, IDPropertyGroup, IKParam, ImageUser, KeyConfig, KeyConfigurations, KeyMap, KeyMapItem, KeyMapItems, KeyMaps, Keyframe, KeyingSet, KeyingSetInfo, KeyingSetPath, KeyingSetPaths, KeyingSets, KeyingSetsAll, LampSkySettings, LatticePoint, Macro, MainActions, MainArmatures, MainBrushes, MainCameras, MainCurves, MainFonts, MainGroups, MainImages, MainLamps, MainLattices, MainMaterials, MainMeshes, MainMetaBalls, MainNodeTrees, MainObjects, MainParticles, MainScenes, MainTexts, MainTextures, MainWorlds, MaterialHalo, MaterialPhysics, MaterialRaytraceMirror, MaterialRaytraceTransparency, MaterialSlot, MaterialStrand, MaterialSubsurfaceScattering, MaterialVolume, Menu, MeshColor, MeshColorLayer, MeshEdge, MeshEdges, MeshFace, MeshFaces, MeshFloatProperty, MeshFloatPropertyLayer, MeshIntProperty, MeshIntPropertyLayer, MeshSticky, MeshStringProperty, MeshStringPropertyLayer, MeshTextureFace, MeshTextureFaceLayer, MeshVertex, MeshVertices, MetaBallElements, MetaElement, Modifier, MotionPath, MotionPathVert, NlaStrip, NlaTrack, Node, NodeSocket, ObjectBase, ObjectConstraints, ObjectModifiers, Operator, OperatorProperties, OperatorTypeMacro, PackedFile, Paint, Panel, Particle, ParticleBrush, ParticleDupliWeight, ParticleEdit, ParticleHairKey, ParticleKey, ParticleSystem, ParticleSystems, ParticleTarget, PointCache, PointCaches, PointDensity, Pose, PoseBone, PoseBoneConstraints, Property, RGBANodeSocket, Region, RegionView3D, RenderEngine, RenderLayer, RenderLayers, RenderPass, RenderResult, RenderSettings, SPHFluidSettings, SceneBases, SceneGameData, SceneObjects, SceneRenderLayer, Scopes, Sensor, Sequence, SequenceColorBalance, SequenceCrop, SequenceEditor, SequenceElement, SequenceProxy, SequenceTransform, ShapeKey, ShapeKeyBezierPoint, ShapeKeyCurvePoint, ShapeKeyPoint, SmokeCollSettings, SmokeDomainSettings, SmokeFlowSettings, SoftBodySettings, Space, SpaceUVEditor, Spline, SplineBezierPoints, SplinePoint, SplinePoints, Struct, TexMapping, TextBox, TextCharacterFormat, TextLine, TextMarker, TextureSlot, Theme, ThemeAudioWindow, ThemeBoneColorSet, ThemeConsole, ThemeDopeSheet, ThemeFileBrowser, ThemeFontStyle, ThemeGraphEditor, ThemeImageEditor, ThemeInfo, ThemeLogicEditor, ThemeNLAEditor, ThemeNodeEditor, ThemeOutliner, ThemeProperties, ThemeSequenceEditor, ThemeStyle, ThemeTextEditor, ThemeTimeline, ThemeUserInterface, ThemeUserPreferences, ThemeView3D, ThemeWidgetColors, ThemeWidgetStateColors, TimelineMarker, TimelineMarkers, ToolSettings, TransformOrientation, UILayout, UVProjector, UVTextures, UnitSettings, UnknownType, UserPreferences, UserPreferencesEdit, UserPreferencesFilePaths, UserPreferencesInput, UserPreferencesSystem, UserPreferencesView, UserSolidLight, ValueNodeSocket, VectorNodeSocket, VertexColors, VertexGroup, VertexGroupElement, VertexGroups, VoxelData, Window, WorldLighting, WorldMistSettings, WorldStarsSettings

class bpy.types.**bpy_struct**

built-in base class for all classes in bpy.types.

Note: Note that bpy.types.bpy_struct is not actually available from within blender, it only exists for the purpose of documentation.

as_pointer()
Returns the memory address which holds a pointer to blenders internal data

Returns capsule with a name set from the struct type.

Return type int

Note: This is intended only for advanced script writers who need to pass blender data to their own C/Python modules.

Undocumented (contribute)

Undocumented (contribute)

driver_add(*path*, *index=-1*)
Adds driver(s) to the given property

Parameters

- **path** (*string*) – path to the property to drive, analogous to the fcurve's data path.
- **index** (*int*) – array index of the property drive. Defaults to -1 for all indicies or a single channel if the property is not an array.

Returns The driver(s) added.

Return type FCurve or list if index is -1 with an array property.

driver_remove(*path*, *index=-1*)
Remove driver(s) from the given property

Parameters

- **path** (*string*) – path to the property to drive, analogous to the fcurve's data path.
- **index** (*int*) – array index of the property drive. Defaults to -1 for all indicies or a single channel if the property is not an array.

Returns Success of driver removal.

Return type boolean

get(*key*, *default=None*)
Returns the value of the custom property assigned to key or default when not found (matches pythons dictionary function of the same name).

Parameters

- **key** (*string*) – The key assosiated with the custom property.
- **default** – Optional argument for the value to return if *key* is not found.

Note: Only ID, Bone and PoseBone classes support custom properties.

is_property_hidden(*property*)
Check if a property is hidden.

Returns True when the property is hidden.

Return type boolean

is_property_set(*property*)
Check if a property is set, use for testing operator properties.

Returns True when the property has been set.

Return type boolean

items()
Returns the items of this objects custom properties (matches pythons dictionary function of the same name).

Returns custom property key, value pairs.

Return type list of key, value tuples

Note: Only ID, Bone and PoseBone classes support custom properties.

keyframe_delete(*data_path*, *index=-1*, *frame=bpy.context.scene.frame_current*, *group=""*)
Remove a keyframe from this properties fcurve.

Parameters

- **data_path** (*string*) – path to the property to remove a key, analogous to the fcurve's data path.
- **index** (*int*) – array index of the property to remove a key. Defaults to -1 removing all indicies or a single channel if the property is not an array.
- **frame** (*float*) – The frame on which the keyframe is deleted, defaulting to the current frame.
- **group** (*str*) – The name of the group the F-Curve should be added to if it doesn't exist yet.

Returns Success of keyframe deleation.

Return type boolean

keyframe_insert(*data_path*, *index=-1*, *frame=bpy.context.scene.frame_current*, *group=""*)
Insert a keyframe on the property given, adding fcurves and animation data when necessary.

Parameters

- **data_path** (*string*) – path to the property to key, analogous to the fcurve's data path.
- **index** (*int*) – array index of the property to key. Defaults to -1 which will key all indicies or a single channel if the property is not an array.
- **frame** (*float*) – The frame on which the keyframe is inserted, defaulting to the current frame.
- **group** (*str*) – The name of the group the F-Curve should be added to if it doesn't exist yet.

Returns Success of keyframe insertion.

Return type boolean

keys()
Returns the keys of this objects custom properties (matches pythons dictionary function of the same name).

Returns custom property keys.

Return type list of strings

Note: Only ID, Bone and PoseBone classes support custom properties.

path_from_id(*property=""*)
Returns the data path from the ID to this object (string).

Parameters

- **property** (*string*) – Optional property name which can be used if the path is to a property of this object.

Returns The path from bpy_struct.id_data to this struct and property (when given).

Return type str

path_resolve (*path*, *coerce=True*)
Returns the property from the path, raise an exception when not found.

Parameters

- **path** (*string*) – path which this property resolves.
- **coerce** (*boolean*) – optional argument, when True, the property will be converted into its python representation.

type_recast ()
Return a new instance, this is needed because types such as textures can be changed at runtime.

Returns a new instance of this object with the type initialized again.

Return type subclass of bpy_struct

values ()
Returns the values of this objects custom properties (matches pythons dictionary function of the same name).

Returns custom property values.

Return type list

Note: Only ID, Bone and PoseBone classes support custom properties.

id_data
The ID object this datablock is from or None, (not available for all data types)

1.4 Utilities (bpy.utils)

This module contains utility functions specific to blender but not assosiated with blenders internal data.

bpy.utils.**blend_paths** (*absolute=False*)
Returns a list of paths to external files referenced by the loaded .blend file.

Parameters

- **absolute** (*boolean*) – When true the paths returned are made absolute.

Returns path list.

Return type list of strigs

bpy.utils.**load_scripts** (*reload_scripts=False*, *refresh_scripts=False*)
Load scripts and run each modules register function.

Parameters

- **reload_scripts** (*bool*) – Causes all scripts to have their unregister method called before loading.
- **refresh_scripts** (*bool*) – only load scripts which are not already loaded as modules.

bpy.utils.**modules_from_path** (*path*, *loaded_modules*)
Load all modules in a path and return them as a list.

Parameters

- **path** (*string*) – this path is scanned for scripts and packages.

- **loaded_modules** (*set*) – already loaded module names, files matching these names will be ignored.

Returns all loaded modules.

Return type list

bpy.utils.**preset_paths**(*subdir*)
Returns a list of paths for a specific preset.

bpy.utils.**script_paths**(*subdir=None*, *user=True*)
Returns a list of valid script paths from the home directory and user preferences.

Accepts any number of string arguments which are joined to make a path.

bpy.utils.**smpte_from_frame**(*frame*, *fps=None*, *fps_base=None*)
Returns an SMPTE formatted string from the frame: "HH:MM:SS:FF".

If the fps and fps_base are not given the current scene is used.

bpy.utils.**smpte_from_seconds**(*time*, *fps=None*)
Returns an SMPTE formatted string from the time in seconds: "HH:MM:SS:FF".

If the fps is not given the current scene is used.

bpy.utils.**user_script_path**()

1.5 Path Utilities (bpy.path)

This module has a similar scope to os.path, containing utility functions for dealing with paths in Blender.

bpy.path.**abspath**(*path*)
Returns the absolute path relative to the current blend file using the "//" prefix.

bpy.path.**clean_name**(*name*, *replace='_'*)
Returns a name with characters replaced that may cause problems under various circumstances, such as writing to a file. All characters besides A-Z/a-z, 0-9 are replaced with "_" or the replace argument if defined.

bpy.path.**display_name**(*name*)
Creates a display string from name to be used menus and the user interface. Capitalize the first letter in all lowercase names, mixed case names are kept as is. Intended for use with filenames and module names.

bpy.path.**ensure_ext**(*filepath*, *ext*, *case_sensitive=False*)
Return the path with the extension added its its not alredy set.

Parameters

- **ext** (*string*) – The extension to check for.
- **case_sensitive** (*bool*) – Check for matching case when comparing extensions.

bpy.path.**relpath**(*path*, *start=None*)
Returns the path relative to the current blend file using the "//" prefix.

Parameters

- **start** (*string*) – Relative to this path, when not set the current filename is used.

bpy.path.**resolve_ncase**(*path*)
Resolve a case insensitive path on a case sensitive system, returning a string with the path if found else return the original path.

1.6 Application Data (bpy.app)

This module contains application values that remain unchanged during runtime.

bpy.app.**background**
Boolean, True when blender is running without a user interface (started with -b)

bpy.app.**binary_path**
The location of blenders executable, useful for utilities that spawn new instances

bpy.app.**build_date**
The date this blender instance was built

bpy.app.**build_platform**
The platform this blender instance was built for

bpy.app.**build_revision**
The subversion revision this blender instance was built with

bpy.app.**build_time**
The time this blender instance was built

bpy.app.**build_type**
The type of build (Release, Debug)

bpy.app.**debug**
Boolean, set when blender is running in debug mode (started with -d)

bpy.app.**version**
The Blender version as a tuple of 3 numbers. eg. (2, 50, 11)

bpy.app.**version_string**
The Blender version formatted as a string

1.7 Property Definitions (bpy.props)

This module defines properties to extend blenders internal data, the result of these functions is used to assign properties to classes registered with blender and can't be used directly.

bpy.props.**BoolProperty**(*name=""*, *description=""*, *default=False*, *options={'ANIMATABLE'}*, *subtype='NONE'*)
Returns a new boolean property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **subtype** (*string*) – Enumerator in ['UNSIGNED', 'PERCENTAGE', 'FACTOR', 'ANGLE', 'TIME', 'DISTANCE', 'NONE'].

bpy.props.**BoolVectorProperty**(*name=""*, *description=""*, *default=(False, False, False)*, *options={'ANIMATABLE'}*, *subtype='NONE'*, *size=3*)
Returns a new vector boolean property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **subtype** (*string*) – Enumerator in ['COLOR', 'TRANSLATION', 'DIRECTION', 'VELOCITY', 'ACCELERATION', 'MATRIX', 'EULER', 'QUATERNION', 'AXISANGLE', 'XYZ', 'COLOR_GAMMA', 'LAYER', 'NONE'].

bpy.props.**CollectionProperty**(*items*, *type=""*, *description=""*, *default=""*, *options={'ANIMATABLE'}*)

Returns a new collection property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **type** (*class*) – Dynamic type from bpy.types.

bpy.props.**EnumProperty**(*items*, *name=""*, *description=""*, *default=""*, *options={'ANIMATABLE'}*)

Returns a new enumerator property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **items** (*sequence of string triplets*) – The items that make up this enumerator.

bpy.props.**FloatProperty**(*name=""*, *description=""*, *default=0.0*, *min=sys.float_info.min*, *max=sys.float_info.max*, *soft_min=sys.float_info.min*, *soft_max=sys.float_info.max*, *step=3*, *precision=2*, *options={'ANIMATABLE'}*, *subtype='NONE'*, *unit='NONE'*)

Returns a new float property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **subtype** (*string*) – Enumerator in ['UNSIGNED', 'PERCENTAGE', 'FACTOR', 'ANGLE', 'TIME', 'DISTANCE', 'NONE'].
- **unit** (*string*) – Enumerator in ['NONE', 'LENGTH', 'AREA', 'VOLUME', 'ROTATION', 'TIME', 'VELOCITY', 'ACCELERATION'].

bpy.props.**FloatVectorProperty**(*name=""*, *description=""*, *default=(0.0, 0.0, 0.0)*, *min=sys.float_info.min*, *max=sys.float_info.max*, *soft_min=sys.float_info.min*, *soft_max=sys.float_info.max*, *step=3*, *precision=2*, *options={'ANIMATABLE'}*, *subtype='NONE'*, *size=3*)

Returns a new vector float property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **subtype** (*string*) – Enumerator in ['COLOR', 'TRANSLATION', 'DIRECTION', 'VELOCITY', 'ACCELERATION', 'MATRIX', 'EULER', 'QUATERNION', 'AXISANGLE', 'XYZ', 'COLOR_GAMMA', 'LAYER', 'NONE'].

bpy.props.**IntProperty**(*name=""*, *description=""*, *default=0*, *min=-sys.maxint*, *max=sys.maxint*, *soft_min=-sys.maxint*, *soft_max=sys.maxint*, *step=1*, *options={'ANIMATABLE'}*, *subtype='NONE'*)

Returns a new int property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **subtype** (*string*) – Enumerator in ['UNSIGNED', 'PERCENTAGE', 'FACTOR', 'ANGLE', 'TIME', 'DISTANCE', 'NONE'].

bpy.props.**IntVectorProperty**(*name=""*, *description=""*, *default=(0, 0, 0)*, *min=-sys.maxint*, *max=sys.maxint*, *soft_min=-sys.maxint*, *soft_max=sys.maxint*, *options={'ANIMATABLE'}*, *subtype='NONE'*, *size=3*)

Returns a new vector int property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **subtype** (*string*) – Enumerator in ['COLOR', 'TRANSLATION', 'DIRECTION', 'VELOCITY', 'ACCELERATION', 'MATRIX', 'EULER', 'QUATERNION', 'AXISANGLE', 'XYZ', 'COLOR_GAMMA', 'LAYER', 'NONE'].

bpy.props.**PointerProperty**(*items*, *type=""*, *description=""*, *default=""*, *options={'ANIMATABLE'}*)

Returns a new pointer property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **type** (*class*) – Dynamic type from bpy.types.

bpy.props.**StringProperty**(*name=""*, *description=""*, *default=""*, *maxlen=0*, *options={'ANIMATABLE'}*, *subtype='NONE'*)

Returns a new string property definition.

Parameters

- **options** (*set*) – Enumerator in ['HIDDEN', 'ANIMATABLE'].
- **subtype** (*string*) – Enumerator in ['FILE_PATH', 'DIR_PATH', 'FILENAME', 'NONE'].

CHAPTER

TWO

STANDALONE MODULES

2.1 Math Types & Utilities (mathutils)

This module provides access to matrices, eulers, quaternions and vectors.

```
import mathutils
from math import radians

vec = mathutils.Vector((1.0, 2.0, 3.0))

mat_rot = mathutils.Matrix.Rotation(radians(90), 4, 'X')
mat_trans = mathutils.Matrix.Translation(vec)

mat = mat_trans * mat_rot
mat.invert()

mat3 = mat.rotation_part()
quat1 = mat.to_quat()
quat2 = mat3.to_quat()

angle = quat1.difference(quat2)

print(angle)
```

class mathutils.**Color**

This object gives access to Colors in Blender.

copy()

Returns a copy of this color.

Returns A copy of the color.

Return type Color

Note: use this to get a copy of a wrapped color with no reference to the original data.

b

Blue color channel.

Type float

g

Green color channel.

Type float

h
HSV Hue component in [0, 1].

Type float

hsv
HSV Values in [0, 1].

Type float triplet

is_wrapped
True when this object wraps external data (readonly).

Type boolean

owner
The item this is wrapping or None (readonly).

r
Red color channel.

Type float

s
HSV Saturation component in [0, 1].

Type float

v
HSV Value component in [0, 1].

Type float

class mathutils.**Euler**
This object gives access to Eulers in Blender.

```
import mathutils

# todo
```

copy()
Returns a copy of this euler.

Returns A copy of the euler.

Return type Euler

Note: use this to get a copy of a wrapped euler with no reference to the original data.

make_compatible(*other*)
Make this euler compatible with another, so interpolating between them works as intended.

Parameters

- **other** (Euler) – make compatible with this rotation.

Returns an instance of itself.

Return type Euler

Note: the order of eulers must match or an exception is raised.

rotate(*angle*, *axis*)
Rotates the euler a certain amount and returning a unique euler rotation (no 720 degree pitches).

Parameters

- **angle** (*float*) – angle in radians.
- **axis** (*string*) – single character in ['X, 'Y', 'Z'].

Returns an instance of itself

Return type Euler

to_matrix()
Return a matrix representation of the euler.

Returns A 3x3 roation matrix representation of the euler.

Return type Matrix

to_quat()
Return a quaternion representation of the euler.

Returns Quaternion representation of the euler.

Return type Quaternion

unique()
Calculate a unique rotation for this euler. Avoids gimble lock.

Returns an instance of itself

Return type Euler

zero()
Set all values to zero.

Returns an instance of itself

Return type Euler

is_wrapped
True when this object wraps external data (readonly).

Type boolean

order
Euler rotation order.

Type string in ['XYZ', 'XZY', 'YXZ', 'YZX', 'ZXY', 'ZYX']

owner
The item this is wrapping or None (readonly).

x
Euler X axis in radians.

Type float

y
Euler Y axis in radians.

Type float

z
Euler Z axis in radians.

Type float

class mathutils.**Matrix**
This object gives access to Matrices in Blender.

```
import mathutils

# todo
```

classmethod **OrthoProjection** (*plane*, *size*, *axis*)
Create a matrix to represent an orthographic projection.

Parameters

- **plane** (*string*) – Can be any of the following: ['X', 'Y', 'XY', 'XZ', 'YZ', 'R'], where a single axis is for a 2D matrix and 'R' requires axis is given.
- **size** (*int*) – The size of the projection matrix to construct [2, 4].
- **axis** (Vector) – Arbitrary perpendicular plane vector (optional).

Returns A new projection matrix.

Return type Matrix

classmethod **Rotation** (*angle*, *size*, *axis*)
Create a matrix representing a rotation.

Parameters

- **angle** (*float*) – The angle of rotation desired, in radians.
- **size** (*int*) – The size of the rotation matrix to construct [2, 4].
- **axis** (string or Vector) – a string in ['X', 'Y', 'Z'] or a 3D Vector Object (optional when size is 2).

Returns A new rotation matrix.

Return type Matrix

classmethod **Scale** (*factor*, *size*, *axis*)
Create a matrix representing a scaling.

Parameters

- **factor** (*float*) – The factor of scaling to apply.
- **size** (*int*) – The size of the scale matrix to construct [2, 4].
- **axis** (Vector) – Direction to influence scale. (optional).

Returns A new scale matrix.

Return type Matrix

classmethod **Shear** (*plane*, *factor*, *size*)
Create a matrix to represent an shear transformation.

Parameters

- **plane** (*string*) – Can be any of the following: ['X', 'Y', 'XY', 'XZ', 'YZ'], where a single axis is for a 2D matrix.
- **factor** (*float*) – The factor of shear to apply.
- **size** (*int*) – The size of the shear matrix to construct [2, 4].

Returns A new shear matrix.

Return type Matrix

classmethod **Translation**(*vector*)
Create a matrix representing a translation.

Parameters

- **vector** (Vector) – The translation vector.

Returns An identity matrix with a translation.

Return type Matrix

copy()
Returns a copy of this matrix.

Returns an instance of itself

Return type Matrix

determinant()
Return the determinant of a matrix.

Returns Return a the determinant of a matrix.

Return type float

See Also:

<http://en.wikipedia.org/wiki/Determinant>

identity()
Set the matrix to the identity matrix.

Returns an instance of itself

Return type Matrix

Note: An object with zero location and rotation, a scale of one, will have an identity matrix.

See Also:

<http://en.wikipedia.org/wiki/Identity_matrix>

invert()
Set the matrix to its inverse.

Returns an instance of itself.

Return type Matrix

Note: ValueError exception is raised.

See Also:

<http://en.wikipedia.org/wiki/Inverse_matrix>

resize4x4()
Resize the matrix to 4x4.

Returns an instance of itself.

Return type Matrix

rotation_part()
Return the 3d submatrix corresponding to the linear term of the embedded affine transformation in 3d. This matrix represents rotation and scale.

Returns Return the 3d matrix for rotation and scale.

Return type Matrix

Note: Note that the (4,4) element of a matrix can be used for uniform scaling too.

scale_part()
Return a the scale part of a 3x3 or 4x4 matrix.

Returns Return a the scale of a matrix.

Return type Vector

Note: This method does not return negative a scale on any axis because it is not possible to obtain this data from the matrix alone.

to_3x3()
Return a 3x3 copy of this matrix.

Returns a new matrix.

Return type Matrix

to_4x4()
Return a 4x4 copy of this matrix.

Returns a new matrix.

Return type Matrix

to_euler(*order*, *euler_compat*)
Return an Euler representation of the rotation matrix (3x3 or 4x4 matrix only).

Parameters

- **order** (*string*) – Optional rotation order argument in ['XYZ', 'XZY', 'YXZ', 'YZX', 'ZXY', 'ZYX'].
- **euler_compat** (Euler) – Optional euler argument the new euler will be made compatible with (no axis flipping between them). Useful for converting a series of matrices to animation curves.

Returns Euler representation of the matrix.

Return type Euler

to_quat()
Return a quaternion representation of the rotation matrix.

Returns Quaternion representation of the rotation matrix.

Return type Quaternion

translation_part()
Return a the translation part of a 4 row matrix.

Returns Return a the translation of a matrix.

Return type Matrix

Note: Note that the (4,4) element of a matrix can be used for uniform scaling too.

transpose()
Set the matrix to its transpose.

Returns an instance of itself

Return type Matrix

See Also:

<http://en.wikipedia.org/wiki/Transpose>

zero()
Set all the matrix values to zero.

Returns an instance of itself

Return type Matrix

col_size
The column size of the matrix (readonly).

Type int

is_negative
True if this matrix results in a negative scale, 3x3 and 4x4 only, (readonly).

Type bool

is_wrapped
True when this object wraps external data (readonly).

Type boolean

median_scale
The average scale applied to each axis (readonly).

Type float

owner
The item this is wrapping or None (readonly).

row_size
The row size of the matrix (readonly).

Type int

class mathutils.**Quaternion**
This object gives access to Quaternions in Blender.

```
import mathutils

# todo
```

conjugate()
Set the quaternion to its conjugate (negate x, y, z).

Returns an instance of itself.

Return type Quaternion

copy()
Returns a copy of this quaternion.

Returns A copy of the quaternion.

Return type Quaternion

Note: use this to get a copy of a wrapped quaternion with no reference to the original data.

cross(*other*)
Return the cross product of this quaternion and another.

Parameters

- **other** (Quaternion) – The other quaternion to perform the cross product with.

Returns The cross product.

Return type Quaternion

difference(*other*)
Returns a quaternion representing the rotational difference.

Parameters

- **other** (Quaternion) – second quaternion.

Returns the rotational difference between the two quat rotations.

Return type Quaternion

dot(*other*)
Return the dot product of this quaternion and another.

Parameters

- **other** (Quaternion) – The other quaternion to perform the dot product with.

Returns The dot product.

Return type Quaternion

identity()
Set the quaternion to an identity quaternion.

Returns an instance of itself.

Return type Quaternion

inverse()
Set the quaternion to its inverse.

Returns an instance of itself.

Return type Quaternion

negate()
Set the quaternion to its negative.

Returns an instance of itself.

Return type Quaternion

normalize()
Normalize the quaternion.

Returns an instance of itself.

Return type Quaternion

slerp(*other*, *factor*)
Returns the interpolation of two quaternions.

Parameters

- **other** (Quaternion) – value to interpolate with.
- **factor** (*float*) – The interpolation value in [0.0, 1.0].

Returns The interpolated rotation.

Return type Quaternion

to_euler(*order*, *euler_compat*)
Return Euler representation of the quaternion.

Parameters

- **order** (*string*) – Optional rotation order argument in ['XYZ', 'XZY', 'YXZ', 'YZX', 'ZXY', 'ZYX'].
- **euler_compat** (Euler) – Optional euler argument the new euler will be made compatible with (no axis flipping between them). Useful for converting a series of matrices to animation curves.

Returns Euler representation of the quaternion.

Return type Euler

to_matrix()
Return a matrix representation of the quaternion.

Returns A 3x3 rotation matrix representation of the quaternion.

Return type Matrix

angle
angle of the quaternion.

Type float

axis
quaternion axis as a vector.

Type Vector

is_wrapped
True when this object wraps external data (readonly).

Type boolean

magnitude
Size of the quaternion (readonly).

Type float

owner
The item this is wrapping or None (readonly).

w
Quaternion W value.

Type float

x
Quaternion X axis.

Type float

y
Quaternion Y axis.

Type float

z
Quaternion Z axis.

Type float

class mathutils.**Vector**
This object gives access to Vectors in Blender.

```
import mathutils

# zero length vector
vec = mathutils.Vector((0, 0, 1))

# unit length vector
vec_a = vec.copy().normalize()

vec_b = mathutils.Vector((0, 1, 2))

vec2d = mathutils.Vector((1, 2))
vec3d = mathutils.Vector((1, 0, 0))
vec4d = vec_a.copy().resize4D()

# other mathutuls types
quat = mathutils.Quaternion()
matrix = mathutils.Matrix()

# Comparison operators can be done on Vector classes:

# greater and less then test vector length.
vec_a > vec_b
vec_a >= vec_b
vec_a < vec_b
vec_a <= vec_b

# ==, != test vector values e.g. 1,2,3 != 3,2,1 even if they are the same length
vec_a == vec_b
vec_a != vec_b


# Math can be performed on Vector classes
vec_a + vec_b
vec_a - vec_b
vec_a * vec_b
vec_a * 10.0
vec_a * matrix
vec_a * vec_b
vec_a * quat
-vec_a


# You can access a vector object like a sequence
x = vec_a[0]
len(vec)
vec_a[:] = vec_b
vec2d[:] = vec3d[:2]


# Vectors support 'swizzle' operations
# See http://en.wikipedia.org/wiki/Swizzling_(computer_graphics)
vec.xyz = vec.zyx
vec.xy = vec4d.zw
vec.xyz = vec4d.wzz
vec4d.wxyz = vec.yxyx
```

angle(*other*, *fallback*)

Return the angle between two vectors.

Parameters

- **other** (Vector) – another vector to compare the angle with
- **fallback** (*any*) – return this value when the angle cant be calculated (zero length vector)

Returns angle in radians or fallback when given

Return type float

Note: Zero length vectors raise an AttributeError.

copy()

Returns a copy of this vector.

Returns A copy of the vector.

Return type Vector

Note: use this to get a copy of a wrapped vector with no reference to the original data.

cross(*other*)

Return the cross product of this vector and another.

Parameters

- **other** (Vector) – The other vector to perform the cross product with.

Returns The cross product.

Return type Vector

Note: both vectors must be 3D

difference(*other*)

Returns a quaternion representing the rotational difference between this vector and another.

Parameters

- **other** (Vector) – second vector.

Returns the rotational difference between the two vectors.

Return type Quaternion

Note: 2D vectors raise an AttributeError.

dot(*other*)

Return the dot product of this vector and another.

Parameters

- **other** (Vector) – The other vector to perform the dot product with.

Returns The dot product.

Return type Vector

lerp(*other*, *factor*)

Returns the interpolation of two vectors.

Parameters

- **other** (Vector) – value to interpolate with.
- **factor** (*float*) – The interpolation value in [0.0, 1.0].

Returns The interpolated rotation.

Return type Vector

negate()
Set all values to their negative.

Returns an instance of itself

Return type Vector

normalize()
Normalize the vector, making the length of the vector always 1.0.

Returns an instance of itself

Return type Vector

Warning: Normalizing a vector where all values are zero results in all axis having a nan value (not a number).

Note: Normalize works for vectors of all sizes, however 4D Vectors w axis is left untouched.

project(*other*)
Return the projection of this vector onto the *other*.

Parameters

- **other** (Vector) – second vector.

Returns the parallel projection vector

Return type Vector

reflect(*mirror*)
Return the reflection vector from the *mirror* argument.

Parameters

- **mirror** (Vector) – This vector could be a normal from the reflecting surface.

Returns The reflected vector matching the size of this vector.

Return type Vector

resize2D()
Resize the vector to 2D (x, y).

Returns an instance of itself

Return type Vector

resize3D()
Resize the vector to 3D (x, y, z).

Returns an instance of itself

Return type Vector

resize4D()
Resize the vector to 4D (x, y, z, w).

Returns an instance of itself

Return type Vector

to_track_quat(*track*, *up*)
Return a quaternion rotation from the vector and the track and up axis.

Parameters

- **track** (*string*) – Track axis in ['X', 'Y', 'Z', '-X', '-Y', '-Z'].
- **up** (*string*) – Up axis in ['X', 'Y', 'Z'].

Returns rotation from the vector and the track and up axis.

Return type Quaternion

to_tuple(*precision=-1*)
Return this vector as a tuple with.

Parameters

- **precision** (*int*) – The number to round the value to in [-1, 21].

Returns the values of the vector rounded by *precision*

Return type tuple

zero()
Set all values to zero.

Returns an instance of itself

Return type Vector

is_wrapped
True when this object wraps external data (readonly).

Type boolean

length
Vector Length.

Type float

magnitude
Vector Length.

Type float

owner
The item this is wrapping or None (readonly).

w
Vector W axis (4D Vectors only).

Type float

ww
Undocumented (contribute)

www
Undocumented (contribute)

wwww
Undocumented (contribute)

wwwx
Undocumented (contribute)

wwwy
Undocumented (contribute)

wwwz
Undocumented (contribute)

wwx
Undocumented (contribute)

wwxw
Undocumented (contribute)

wwxx
Undocumented (contribute)

wwxy
Undocumented (contribute)

wwxz
Undocumented (contribute)

wwy
Undocumented (contribute)

wwyw
Undocumented (contribute)

wwyx
Undocumented (contribute)

wwyy
Undocumented (contribute)

wwyz
Undocumented (contribute)

wwz
Undocumented (contribute)

wwzw
Undocumented (contribute)

wwzx
Undocumented (contribute)

wwzy
Undocumented (contribute)

wwzz
Undocumented (contribute)

wx
Undocumented (contribute)

wxw
Undocumented (contribute)

wxww
Undocumented (contribute)

wxwx
Undocumented (contribute)

wxwy
Undocumented (contribute)

wxwz
Undocumented (contribute)

wxx
Undocumented (contribute)

wxxw
Undocumented (contribute)

wxxx
Undocumented (contribute)

wxxy
Undocumented (contribute)

wxxz
Undocumented (contribute)

wxy
Undocumented (contribute)

wxyw
Undocumented (contribute)

wxyx
Undocumented (contribute)

wxyy
Undocumented (contribute)

wxyz
Undocumented (contribute)

wxz
Undocumented (contribute)

wxzw
Undocumented (contribute)

wxzx
Undocumented (contribute)

wxzy
Undocumented (contribute)

wxzz
Undocumented (contribute)

wy
Undocumented (contribute)

wyw
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wyww
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wywx
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wywy
Undocumented (contribute)

wywz
Undocumented (contribute)

wyx
Undocumented (contribute)

wyxw
Undocumented (contribute)

wyxx
Undocumented (contribute)

wyxy
Undocumented (contribute)

wyxz
Undocumented (contribute)

wyy
Undocumented (contribute)

wyyw
Undocumented (contribute)

wyyx
Undocumented (contribute)

wyyy
Undocumented (contribute)

wyyz
Undocumented (contribute)

wyz
Undocumented (contribute)

wyzw
Undocumented (contribute)

wyzx
Undocumented (contribute)

wyzy
Undocumented (contribute)

wyzz
Undocumented (contribute)

wz
Undocumented (contribute)

wzw
Undocumented (contribute)

wzww
Undocumented (contribute)

wzwx
Undocumented (contribute)

wzwy
Undocumented (contribute)

wzwz
Undocumented (contribute)

wzx
Undocumented (contribute)

wzxw
Undocumented (contribute)

wzxx
Undocumented (contribute)

wzxy
Undocumented (contribute)

wzxz
Undocumented (contribute)

wzy
Undocumented (contribute)

wzyw
Undocumented (contribute)

wzyx
Undocumented (contribute)

wzyy
Undocumented (contribute)

wzyz
Undocumented (contribute)

wzz
Undocumented (contribute)

wzzw
Undocumented (contribute)

wzzx
Undocumented (contribute)

wzzy
Undocumented (contribute)

wzzz
Undocumented (contribute)

x
Vector X axis.

Type float

xw
Undocumented (contribute)

xww
Undocumented (contribute)

xwww
Undocumented (contribute)

xwwx
Undocumented (contribute)

xwwy
Undocumented (contribute)

xwwz
Undocumented (contribute)

xwx
Undocumented (contribute)

xwxw
Undocumented (contribute)

xwxx
Undocumented (contribute)

xwxy
Undocumented (contribute)

xwxz
Undocumented (contribute)

xwy
Undocumented (contribute)

xwyw
Undocumented (contribute)

xwyx
Undocumented (contribute)

xwyy
Undocumented (contribute)

xwyz
Undocumented (contribute)

xwz
Undocumented (contribute)

xwzw
Undocumented (contribute)

xwzx
Undocumented (contribute)

xwzy
Undocumented (contribute)

xwzz
Undocumented (contribute)

xx
Undocumented (contribute)

xxw
Undocumented (contribute)

xxww
Undocumented (contribute)

xxwx
Undocumented (contribute)

xxwy
Undocumented (contribute)

xxwz
Undocumented (contribute)

xxx
Undocumented (contribute)

xxxw
Undocumented (contribute)

xxxx
Undocumented (contribute)

xxxy
Undocumented (contribute)

xxxz
Undocumented (contribute)

xxy
Undocumented (contribute)

xxyw
Undocumented (contribute)

xxyx
Undocumented (contribute)

xxyy
Undocumented (contribute)

xxyz
Undocumented (contribute)

xxz
Undocumented (contribute)

xxzw
Undocumented (contribute)

xxzx
Undocumented (contribute)

xxzy
Undocumented (contribute)

xxzz
Undocumented (contribute)

xy
Undocumented (contribute)

xyw
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xyww
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xywx
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xywy
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xywz
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Undocumented (contribute)

xyxw
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xzxw
Undocumented (contribute)

xzxx
Undocumented (contribute)

xzxy
Undocumented (contribute)

xzxz
Undocumented (contribute)

xzy
Undocumented (contribute)

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xzzx
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xzzy
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xzzz
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y
Vector Y axis.

Type float

yw
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yww
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ywww
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ywwx
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z
Vector Z axis (3D Vectors only).

Type float

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2.2 Font Drawing (blf)

This module provides access to blenders text drawing functions.

blf.**CLIPPING**
constant value 2

blf.**KERNING_DEFAULT**
constant value 8

blf.**ROTATION**
constant value 1

blf.**SHADOW**
constant value 4

blf.**aspect**(*fontid*, *aspect*)
Set the aspect for drawing text.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **aspect** (*float*) – The aspect ratio for text drawing to use.

blf.**blur**(*fontid*, *radius*)
Set the blur radius for drawing text.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **radius** (*int*) – The radius for blurring text (in pixels).

blf.**clipping**(*fontid*, *xmin*, *ymin*, *xmax*, *ymax*)
Set the clipping, enable/disable using CLIPPING.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **xmin** (*float*) – Clip the drawing area by these bounds.
- **ymin** (*float*) – Clip the drawing area by these bounds.
- **xmax** (*float*) – Clip the drawing area by these bounds.
- **ymax** (*float*) – Clip the drawing area by these bounds.

blf.**dimensions**(*fontid*, *text*)
Return the width and height of the text.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **text** (*string*) – the text to draw.

Returns the width and height of the text.

Return type tuple of 2 floats

blf.**disable**(*fontid*, *option*)
Disable option.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **option** (*int*) – One of ROTATION, CLIPPING, SHADOW or KERNING_DEFAULT.

blf.**draw**(*fontid*, *text*)
Draw text in the current context.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **text** (*string*) – the text to draw.

`blf.`**`enable`**(*fontid*, *option*)
Enable option.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **option** (*int*) – One of ROTATION, CLIPPING, SHADOW or KERNING_DEFAULT.

`blf.`**`load`**(*filename*)
Load a new font.

Parameters

- **filename** (*string*) – the filename of the font.

Returns the new font's fontid or -1 if there was an error.

Return type integer

`blf.`**`position`**(*fontid*, *x*, *y*, *z*)
Set the position for drawing text.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **x** (*float*) – X axis position to draw the text.
- **y** (*float*) – Y axis position to draw the text.
- **z** (*float*) – Z axis position to draw the text.

`blf.`**`rotation`**(*fontid*, *angle*)
Set the text rotation angle, enable/disable using ROTATION.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **angle** (*float*) – The angle for text drawing to use.

`blf.`**`shadow`**(*fontid*, *level*, *r*, *g*, *b*, *a*)
Shadow options, enable/disable using SHADOW .

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **level** (*int*) – The blur level, can be 3, 5 or 0.
- **r** (*float*) – Shadow color (red channel 0.0 - 1.0).
- **g** (*float*) – Shadow color (green channel 0.0 - 1.0).
- **b** (*float*) – Shadow color (blue channel 0.0 - 1.0).
- **a** (*float*) – Shadow color (alpha channel 0.0 - 1.0).

`blf.`**`shadow_offset`**(*fontid*, *x*, *y*)
Set the offset for shadow text.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.

- **x** (*float*) – Vertical shadow offset value in pixels.
- **y** (*float*) – Horizontal shadow offset value in pixels.

blf.**size**(*fontid*, *size*, *dpi*)
Set the size and dpi for drawing text.

Parameters

- **fontid** (*int*) – The id of the typeface as returned by `blf.load()`, for default font use 0.
- **size** (*int*) – Point size of the font.
- **dpi** (*int*) – dots per inch value to use for drawing.

2.3 Audio System (aud)

This module provides access to the audaspace audio library.

aud.**AUD_DEVICE_JACK**
constant value 3

aud.**AUD_DEVICE_NULL**
constant value 0

aud.**AUD_DEVICE_OPENAL**
constant value 1

aud.**AUD_DEVICE_SDL**
constant value 2

aud.**AUD_DISTANCE_MODEL_EXPONENT**
constant value 5

aud.**AUD_DISTANCE_MODEL_EXPONENT_CLAMPED**
constant value 6

aud.**AUD_DISTANCE_MODEL_INVALID**
constant value 0

aud.**AUD_DISTANCE_MODEL_INVERSE**
constant value 1

aud.**AUD_DISTANCE_MODEL_INVERSE_CLAMPED**
constant value 2

aud.**AUD_DISTANCE_MODEL_LINEAR**
constant value 3

aud.**AUD_DISTANCE_MODEL_LINEAR_CLAMPED**
constant value 4

aud.**AUD_FORMAT_FLOAT32**
constant value 36

aud.**AUD_FORMAT_FLOAT64**
constant value 40

aud.**AUD_FORMAT_INVALID**
constant value 0

aud.**AUD_FORMAT_S16**
constant value 18

aud.**AUD_FORMAT_S24**
constant value 19

aud.**AUD_FORMAT_S32**
constant value 20

aud.**AUD_FORMAT_U8**
constant value 1

aud.**AUD_STATUS_INVALID**
constant value 0

aud.**AUD_STATUS_PAUSED**
constant value 2

aud.**AUD_STATUS_PLAYING**
constant value 1

device()

Returns the application's Device.

return The application's Device.

rtype Device

class aud.**Device**
Device objects represent an audio output backend like OpenAL or SDL, but might also represent a file output or RAM buffer output.

lock()

Locks the device so that it's guaranteed, that no samples are read from the streams until unlock() is called. This is useful if you want to do start/stop/pause/resume some sounds at the same time.

Note: The device has to be unlocked as often as locked to be able to continue playback.

Warning: Make sure the time between locking and unlocking is as short as possible to avoid clicks.

play(factory, keep=False)

Plays a factory.

Parameters

- **factory** (Factory) – The factory to play.
- **keep** (*bool*) – See Handle.keep.

Returns The playback handle with which playback can be controlled with.

Return type Handle

unlock()

Unlocks the device after a lock call, see lock() for details.

channels
The channel count of the device.

distance_model
The distance model of the device.

See Also:

http://connect.creativelabs.com/openal/Documentation/OpenAL%201.1%20Specification.htm#_Toc199835864

doppler_factor
The doppler factor of the device. This factor is a scaling factor for the velocity vectors in doppler calculation. So a value bigger than 1 will exaggerate the effect as it raises the velocity.

format
The native sample format of the device.

listener_location
The listeners's location in 3D space, a 3D tuple of floats.

listener_orientation
The listener's orientation in 3D space as quaternion, a 4 float tuple.

listener_velocity
The listener's velocity in 3D space, a 3D tuple of floats.

rate
The sampling rate of the device in Hz.

speed_of_sound
The speed of sound of the device. The speed of sound in air is typically 343 m/s.

volume
The overall volume of the device.

class aud.**Factory**
Factory objects are immutable and represent a sound that can be played simultaneously multiple times. They are called factories because they create reader objects internally that are used for playback.

file(filename)

Creates a factory object of a sound file.

Parameters

- **filename** (*string*) – Path of the file.

Returns The created Factory object.

Return type Factory

Warning: If the file doesn't exist or can't be read you will not get an exception immediately, but when you try to start playback of that factory.

sine(frequency, rate=44100)

Creates a sine factory which plays a sine wave.

Parameters

- **frequency** (*float*) – The frequency of the sine wave in Hz.
- **rate** (*int*) – The sampling rate in Hz. It's recommended to set this value to the playback device's samling rate to avoid resamping.

Returns The created Factory object.

Return type Factory

buffer()

Buffers a factory into RAM. This saves CPU usage needed for decoding and file access if the underlying factory reads from a file on the harddisk, but it consumes a lot of memory.

Returns The created Factory object.

Return type Factory

Note: Only known-length factories can be buffered.

Warning: Raw PCM data needs a lot of space, only buffer short factories.

delay(time)

Delays by playing adding silence in front of the other factory's data.

Parameters

- **time** (*float*) – How many seconds of silence should be added before the factory.

Returns The created Factory object.

Return type Factory

fadein(start, length)

Fades a factory in by raising the volume linearly in the given time interval.

Parameters

- **start** (*float*) – Time in seconds when the fading should start.
- **length** (*float*) – Time in seconds how long the fading should last.

Returns The created Factory object.

Return type Factory

Note: Before the fade starts it plays silence.

fadeout(start, length)

Fades a factory in by lowering the volume linearly in the given time interval.

Parameters

- **start** (*float*) – Time in seconds when the fading should start.
- **length** (*float*) – Time in seconds how long the fading should last.

Returns The created Factory object.

Return type Factory

Note: After the fade this factory plays silence, so that the length of the factory is not altered.

filter(b, a = (1))

Filters a factory with the supplied IIR filter coefficients. Without the second parameter you'll get a FIR filter. If the first value of the a sequence is 0 it will be set to 1 automatically. If the first value of the a sequence is neither 0 nor 1, all filter coefficients will be scaled by this value so that it is 1 in the end, you don't have to scale yourself.

Parameters

- **b** (*sequence of float*) – The nominator filter coefficients.
- **a** (*sequence of float*) – The denominator filter coefficients.

Returns The created Factory object.

Return type Factory

highpass(frequency, Q=0.5)

Creates a second order highpass filter based on the transfer function H(s) = s^2 / (s^2 + s/Q + 1)

Parameters

- **frequency** (*float*) – The cut off trequency of the highpass.
- **Q** (*float*) – Q factor of the lowpass.

Returns The created `Factory` object.

Return type `Factory`

join(factory)

Plays two factories in sequence.

Parameters

- **factory** (`Factory`) – The factory to play second.

Returns The created `Factory` object.

Return type `Factory`

Note: The two factories have to have the same specifications (channels and samplerate).

limit(start, end)

Limits a factory within a specific start and end time.

Parameters

- **start** (*float*) – Start time in seconds.
- **end** (*float*) – End time in seconds.

Returns The created `Factory` object.

Return type `Factory`

loop(count)

Loops a factory.

Parameters

- **count** (*integer*) – How often the factory should be looped. Negative values mean endlessly.

Returns The created `Factory` object.

Return type `Factory`

Note: This is a filter function, you might consider using `Handle.loop_count` instead.

lowpass(frequency, Q=0.5)

Creates a second order lowpass filter based on the transfer function H(s) = 1 / (s^2 + s/Q + 1)

Parameters

- **frequency** (*float*) – The cut off trequency of the lowpass.
- **Q** (*float*) – Q factor of the lowpass.

Returns The created `Factory` object.

Return type `Factory`

mix(factory)

Mixes two factories.

Parameters

- **factory** (`Factory`) – The factory to mix over the other.

Returns The created `Factory` object.

Return type `Factory`

Note: The two factories have to have the same specifications (channels and samplerate).

pingpong()

Plays a factory forward and then backward. This is like joining a factory with its reverse.

Returns The created `Factory` object.

Return type `Factory`

pitch(factor)

Changes the pitch of a factory with a specific factor.

Parameters

- **factor** (*float*) – The factor to change the pitch with.

Returns The created `Factory` object.

Return type `Factory`

Note: This is done by changing the sample rate of the underlying factory, which has to be an integer, so the factor value rounded and the factor may not be 100 % accurate.

Note: This is a filter function, you might consider using `Handle.pitch` instead.

reverse()

Plays a factory reversed.

Returns The created `Factory` object.

Return type `Factory`

Note: The factory has to have a finite length and has to be seekable. It's recommended to use this only with factories with fast and accurate seeking, which is not true for encoded audio files, such ones should be buffered using `buffer()` before being played reversed.

Warning: If seeking is not accurate in the underlying factory you'll likely hear skips/jumps/cracks.

square(threshold = 0)

Makes a square wave out of an audio wave by setting all samples with a amplitude >= threshold to 1, all <= -threshold to -1 and all between to 0.

Parameters

- **threshold** (*float*) – Threshold value over which an amplitude counts non-zero.

Returns The created `Factory` object.

Return type `Factory`

volume(volume)

Changes the volume of a factory.

Parameters

- **volume** (*float*) – The new volume..

Returns The created `Factory` object.

Return type `Factory`

Note: Should be in the range [0, 1] to avoid clipping.

Note: This is a filter function, you might consider using `Handle.volume` instead.

class `aud.`**Handle**

Handle objects are playback handles that can be used to control playback of a sound. If a sound is played back multiple times then there are as many handles.

pause()

Pauses playback.

Returns Whether the action succeeded.

Return type bool

resume()

Resumes playback.

Returns Whether the action succeeded.

Return type bool

stop()

Stops playback.

Returns Whether the action succeeded.

Return type bool

Note: This makes the handle invalid.

attenuation

This factor is used for distance based attenuation of the source.

See Also:

`Device.distance_model`

cone_angle_inner

The opening angle of the inner cone of the source. If the cone values of a source are set there are two (audible) cones with the apex at the `location` of the source and with infinite height, heading in the direction of the source's `orientation`. In the inner cone the volume is normal. Outside the outer cone the volume will be `cone_volume_outer` and in the area between the volume will be interpolated linearly.

cone_angle_outer

The opening angle of the outer cone of the source.

See Also:

`cone_angle_inner`

cone_volume_outer
The volume outside the outer cone of the source.

See Also:

cone_angle_inner

distance_maximum
The maximum distance of the source. If the listener is further away the source volume will be 0.

See Also:

Device.distance_model

distance_reference
The reference distance of the source. At this distance the volume will be exactly volume.

See Also:

Device.distance_model

keep
Whether the sound should be kept paused in the device when its end is reached. This can be used to seek the sound to some position and start playback again.

> **Warning:** If this is set to true and you forget stopping this equals a memory leak as the handle exists until the device is destroyed.

location
The source's location in 3D space, a 3D tuple of floats.

loop_count
The (remaining) loop count of the sound. A negative value indicates infinity.

orientation
The source's orientation in 3D space as quaternion, a 4 float tuple.

pitch
The pitch of the sound.

position
The playback position of the sound in seconds.

relative
Whether the source's location, velocity and orientation is relative or absolute to the listener.

status
Whether the sound is playing, paused or stopped (=invalid).

velocity
The source's velocity in 3D space, a 3D tuple of floats.

volume
The volume of the sound.

volume_maximum
The maximum volume of the source.

See Also:

Device.distance_model

volume_minimum
The minimum volume of the source.

See Also:

Device.distance_model

class aud.**error**

CHAPTER

THREE

GAME ENGINE MODULES

3.1 Game Engine bge.types Module

class bge.types.**PyObjectPlus**
PyObjectPlus base class of most other types in the Game Engine.

invalid
Test if the object has been freed by the game engine and is no longer valid.

Normally this is not a problem but when storing game engine data in the GameLogic module, KX_Scenes or other KX_GameObjects its possible to hold a reference to invalid data. Calling an attribute or method on an invalid object will raise a SystemError.

The invalid attribute allows testing for this case without exception handling.

Type boolean

isA(*game_type*)
Check if this is a type or a subtype game_type.

Parameters

- **game_type** (*string or type*) – the name of the type or the type its self from the bge.types module.

Returns True if this object is a type or a subtype of game_type.

Return type boolean

class bge.types.**CValue**(*PyObjectPlus*)
This class is a basis for other classes.

name
The name of this CValue derived object (read-only).

Type string

class bge.types.**CPropValue**(*CValue*)
This class has no python functions

class bge.types.**SCA_ILogicBrick**(*CValue*)
Base class for all logic bricks.

executePriority
This determines the order controllers are evaluated, and actuators are activated (lower priority is executed first).

Type executePriority: int

owner
The game object this logic brick is attached to (read-only).

Type KX_GameObject or None in exceptional cases.

name
The name of this logic brick (read-only).

Type string

class bge.types.**SCA_PythonKeyboard**(*PyObjectPlus*)
The current keyboard.

events
A dictionary containing the status of each keyboard event or key. (read-only).

Type dictionary {*keycode*:*status*, ...}

class bge.types.**SCA_PythonMouse**(*PyObjectPlus*)
The current mouse.

events
a dictionary containing the status of each mouse event. (read-only).

Type dictionary {*keycode*:*status*, ...}

position
The normalized x and y position of the mouse cursor.

Type list [x, y]

visible
The visibility of the mouse cursor.

Type boolean

class bge.types.**SCA_IObject**(*CValue*)
This class has no python functions

class bge.types.**SCA_ISensor**(*SCA_ILogicBrick*)
Base class for all sensor logic bricks.

usePosPulseMode
Flag to turn positive pulse mode on and off.

Type boolean

useNegPulseMode
Flag to turn negative pulse mode on and off.

Type boolean

frequency
The frequency for pulse mode sensors.

Type integer

level
level Option whether to detect level or edge transition when entering a state. It makes a difference only in case of logic state transition (state actuator). A level detector will immediately generate a pulse, negative or positive depending on the sensor condition, as soon as the state is activated. A edge detector will wait for a state change before generating a pulse. note: mutually exclusive with tap, enabling will disable tap.

Type boolean

tap
When enabled only sensors that are just activated will send a positive event, after this they will be detected as negative by the controllers. This will make a key thats held act as if its only tapped for an instant. note: mutually exclusive with `level`, enabling will disable `level`.

Type boolean

invert
Flag to set if this sensor activates on positive or negative events.

Type boolean

triggered
True if this sensor brick is in a positive state. (read-only).

Type boolean

positive
True if this sensor brick is in a positive state. (read-only).

Type boolean

status
The status of the sensor (read-only): can be one of *these constants*.

Type int

Note: This convenient attribute combines the values of triggered and positive attributes.

reset()
Reset sensor internal state, effect depends on the type of sensor and settings.

The sensor is put in its initial state as if it was just activated.

class bge.types.**SCA_IController**(*SCA_ILogicBrick*)
Base class for all controller logic bricks.

state
The controllers state bitmask. This can be used with the GameObject's state to test if the controller is active.

Type int bitmask

sensors
A list of sensors linked to this controller.

Type sequence supporting index/string lookups and iteration.

Note: The sensors are not necessarily owned by the same object.

Note: When objects are instanced in dupligroups links may be lost from objects outside the dupligroup.

actuators
A list of actuators linked to this controller.

Type sequence supporting index/string lookups and iteration.

Note: The sensors are not necessarily owned by the same object.

Note: When objects are instanced in dupligroups links may be lost from objects outside the dupligroup.

useHighPriority
When set the controller executes always before all other controllers that dont have this set.

Type boolen

Note: Order of execution between high priority controllers is not guaranteed.

class bge.types.**SCA_IActuator**(*SCA_ILogicBrick*)
Base class for all actuator logic bricks.

class bge.types.**BL_ActionActuator**(*SCA_IActuator*)
Action Actuators apply an action to an actor.

action
The name of the action to set as the current action.

Type string

channelNames
A list of channel names that may be used with setChannel and getChannel.

Type list of strings

frameStart
Specifies the starting frame of the animation.

Type float

frameEnd
Specifies the ending frame of the animation.

Type float

blendIn
Specifies the number of frames of animation to generate when making transitions between actions.

Type float

priority
Sets the priority of this actuator. Actuators will lower priority numbers will override actuators with higher numbers.

Type integer

frame
Sets the current frame for the animation.

Type float

propName
Sets the property to be used in FromProp playback mode.

Type string

blendTime
Sets the internal frame timer. This property must be in the range from 0.0 to blendIn.

Type float

mode
The operation mode of the actuator. Can be one of *these constants*.

Type integer

useContinue
The actions continue option, True or False. When True, the action will always play from where last left off, otherwise negative events to this actuator will reset it to its start frame.

Type boolean

framePropName
The name of the property that is set to the current frame number.

Type string

setChannel(*channel*, *matrix*)
Alternative to the 2 arguments, 4 arguments (channel, matrix, loc, size, quat) are also supported.

Parameters

- **channel** (*string*) – A string specifying the name of the bone channel, error raised if not in channelNames.
- **matrix** – A 4x4 matrix specifying the overriding transformation as an offset from the bone's rest position.
- **matrix** – list [[float]]

Note: These values are relative to the bones rest position, currently the api has no way to get this info (which is annoying), but can be worked around by using bones with a rest pose that has no translation.

getChannel(*channel*)

Parameters

- **channel** (*string*) – A string specifying the name of the bone channel. error raised if not in channelNames.

Returns (loc, size, quat)

Return type tuple

class bge.types.**BL_Shader**(*PyObjectPlus*)
BL_Shader GLSL shaders.

TODO - Description

setUniformfv(*name*, *fList*)
Set a uniform with a list of float values

Parameters

- **name** (*string*) – the uniform name
- **fList** (*list[float]*) – a list (2, 3 or 4 elements) of float values

delSource()
Clear the shader. Use this method before the source is changed with setSource.

getFragmentProg()
Returns the fragment program.

Returns The fragment program.

Return type string

getVertexProg()
Get the vertex program.

Returns The vertex program.

Return type string

isValid()
Check if the shader is valid.

Returns True if the shader is valid

Return type boolean

setAttrib(*enum*)
Set attribute location. (The parameter is ignored a.t.m. and the value of "tangent" is always used.)

Parameters

- **enum** (*integer*) – attribute location value

setNumberOfPasses(*max_pass*)
Set the maximum number of passes. Not used a.t.m.

Parameters

- **max_pass** (*integer*) – the maximum number of passes

setSampler(*name*, *index*)
Set uniform texture sample index.

Parameters

- **name** (*string*) – Uniform name
- **index** (*integer*) – Texture sample index.

setSource(*vertexProgram*, *fragmentProgram*)
Set the vertex and fragment programs

Parameters

- **vertexProgram** (*string*) – Vertex program
- **fragmentProgram** (*string*) – Fragment program

setUniform1f(*name*, *fx*)
Set a uniform with 1 float value.

Parameters

- **name** (*string*) – the uniform name
- **fx** (*float*) – Uniform value

setUniform1i(*name*, *ix*)
Set a uniform with an integer value.

Parameters

- **name** (*string*) – the uniform name
- **ix** (*integer*) – the uniform value

setUniform2f(*name*, *fx*, *fy*)
Set a uniform with 2 float values

Parameters

- **name** (*string*) – the uniform name
- **fx** (*float*) – first float value
- **fy** (*float*) – second float value

setUniform2i(*name*, *ix*, *iy*)
Set a uniform with 2 integer values

Parameters

- **name** (*string*) – the uniform name
- **ix** (*integer*) – first integer value

- **iy** (*integer*) – second integer value

setUniform3f(*name*, *fx*, *fy*, *fz*)
Set a uniform with 3 float values.

Parameters

- **name** (*string*) – the uniform name
- **fx** (*float*) – first float value
- **fy** (*float*) – second float value
- **fz** (*float*) – third float value

setUniform3i(*name*, *ix*, *iy*, *iz*)
Set a uniform with 3 integer values

Parameters

- **name** (*string*) – the uniform name
- **ix** (*integer*) – first integer value
- **iy** (*integer*) – second integer value
- **iz** (*integer*) – third integer value

setUniform4f(*name*, *fx*, *fy*, *fz*, *fw*)
Set a uniform with 4 float values.

Parameters

- **name** (*string*) – the uniform name
- **fx** (*float*) – first float value
- **fy** (*float*) – second float value
- **fz** (*float*) – third float value
- **fw** (*float*) – fourth float value

setUniform4i(*name*, *ix*, *iy*, *iz*, *iw*)
Set a uniform with 4 integer values

Parameters

- **name** (*string*) – the uniform name
- **ix** (*integer*) – first integer value
- **iy** (*integer*) – second integer value
- **iz** (*integer*) – third integer value
- **iw** (*integer*) – fourth integer value

setUniformDef(*name*, *type*)
Define a new uniform

Parameters

- **name** (*string*) – the uniform name
- **type** (*UNI_NONE, UNI_INT, UNI_FLOAT, UNI_INT2, UNI_FLOAT2, UNI_INT3, UNI_FLOAT3, UNI_INT4, UNI_FLOAT4, UNI_MAT3, UNI_MAT4, UNI_MAX*) – uniform type

setUniformMatrix3(*name*, *mat*, *transpose*)
Set a uniform with a 3x3 matrix value

Parameters

- **name** (*string*) – the uniform name
- **mat** (*3x3 matrix*) – A 3x3 matrix [[f, f, f], [f, f, f], [f, f, f]]
- **transpose** (*boolean*) – set to True to transpose the matrix

setUniformMatrix4(*name*, *mat*, *transpose*)
Set a uniform with a 4x4 matrix value

Parameters

- **name** (*string*) – the uniform name
- **mat** (*4x4 matrix*) – A 4x4 matrix [[f, f, f, f], [f, f, f, f], [f, f, f, f], [f, f, f, f]]
- **transpose** (*boolean*) – set to True to transpose the matrix

setUniformiv(*name*, *iList*)
Set a uniform with a list of integer values

Parameters

- **name** (*string*) – the uniform name
- **iList** (*list[integer]*) – a list (2, 3 or 4 elements) of integer values

validate()
Validate the shader object.

class bge.types.**BL_ShapeActionActuator**(*SCA_IActuator*)
ShapeAction Actuators apply an shape action to an mesh object.

action
The name of the action to set as the current shape action.

Type string

frameStart
Specifies the starting frame of the shape animation.

Type float

frameEnd
Specifies the ending frame of the shape animation.

Type float

blendIn
Specifies the number of frames of animation to generate when making transitions between actions.

Type float

priority
Sets the priority of this actuator. Actuators will lower priority numbers will override actuators with higher numbers.

Type integer

frame
Sets the current frame for the animation.

Type float

propName
Sets the property to be used in FromProp playback mode.

Type string

blendTime
Sets the internal frame timer. This property must be in the range from 0.0 to blendin.

Type float

mode
The operation mode of the actuator. Can be one of *these constants*.

Type integer

framePropName
The name of the property that is set to the current frame number.

Type string

class bge.types.**CListValue**(*CPropValue*)
This is a list like object used in the game engine internally that behaves similar to a python list in most ways.

As well as the normal index lookup (`val= clist[i]`), CListValue supports string lookups (`val= scene.objects["Cube"]`)

Other operations such as `len(clist)`, `list(clist)`, `clist[0:10]` are also supported.

append(*val*)
Add an item to the list (like pythons append)

> **Warning:** Appending values to the list can cause crashes when the list is used internally by the game engine.

count(*val*)
Count the number of instances of a value in the list.

Returns number of instances

Return type integer

index(*val*)
Return the index of a value in the list.

Returns The index of the value in the list.

Return type integer

reverse()
Reverse the order of the list.

get(*key*, *default=None*)
Return the value matching key, or the default value if its not found.

Returns The key value or a default.

from_id(*id*)
This is a funtion especially for the game engine to return a value with a spesific id.

Since object names are not always unique, the id of an object can be used to get an object from the CValueList.

Example:

```
myObID=id(gameObject)
ob= scene.objects.from_id(myObID)
```

Where `myObID` is an int or long from the id function.

This has the advantage that you can store the id in places you could not store a gameObject.

> **Warning:** The id is derived from a memory location and will be different each time the game engine starts.

class `bge.types.`**KX_BlenderMaterial**(*PyObjectPlus*)

KX_BlenderMaterial

getShader()

Returns the material's shader.

Returns the material's shader

Return type `BL_Shader`

setBlending(*src*, *dest*)

Set the pixel color arithmetic functions.

Parameters

- **src** – Specifies how the red, green, blue, and alpha source blending factors are computed.
- **dest** – Specifies how the red, green, blue, and alpha destination blending factors are computed.

getMaterialIndex()

Returns the material's index.

Returns the material's index

Return type integer

class `bge.types.`**KX_CameraActuator**(*SCA_IActuator*)

Applies changes to a camera.

min

minimum distance to the target object maintained by the actuator.

Type float

max

maximum distance to stay from the target object.

Type float

height

height to stay above the target object.

Type float

useXY

axis this actuator is tracking, True=X, False=Y.

Type boolean

object

the object this actuator tracks.

Type `KX_GameObject` or None

class bge.types.**KX_ConstraintActuator**(*SCA_IActuator*)

A constraint actuator limits the position, rotation, distance or orientation of an object.

damp

Time constant of the constraint expressed in frame (not use by Force field constraint).

Type integer

rotDamp

Time constant for the rotation expressed in frame (only for the distance constraint), 0 = use damp for rotation as well.

Type integer

direction

The reference direction in world coordinate for the orientation constraint.

Type 3-tuple of float: (x, y, z)

option

Binary combination of *these constants*

Type integer

time

activation time of the actuator. The actuator disables itself after this many frame. If set to 0, the actuator is not limited in time.

Type integer

propName

the name of the property or material for the ray detection of the distance constraint.

Type string

min

The lower bound of the constraint. For the rotation and orientation constraint, it represents radiant.

Type float

distance

the target distance of the distance constraint.

Type float

max

the upper bound of the constraint. For rotation and orientation constraints, it represents radiant.

Type float

rayLength

the length of the ray of the distance constraint.

Type float

limit

type of constraint. Use one of the *these constants*

Type integer.

class bge.types.**KX_ConstraintWrapper**(*PyObjectPlus*)

KX_ConstraintWrapper

getConstraintId(*val*)

Returns the contraint's ID

Returns the constraint's ID

Return type integer

class bge.types.**KX_GameActuator**(*SCA_IActuator*)

The game actuator loads a new .blend file, restarts the current .blend file or quits the game.

fileName

the new .blend file to load.

Type string

mode

The mode of this actuator. Can be on of *these constants*

Type Int

class bge.types.**KX_GameObject**(*SCA_IObject*)

All game objects are derived from this class.

Properties assigned to game objects are accessible as attributes of this class.

Note: Calling ANY method or attribute on an object that has been removed from a scene will raise a SystemError, if an object may have been removed since last accessing it use the `invalid` attribute to check.

name

The object's name. (read-only).

Type string

mass

The object's mass

Type float

Note: The object must have a physics controller for the mass to be applied, otherwise the mass value will be returned as 0.0.

linVelocityMin

Enforces the object keeps moving at a minimum velocity.

Type float

Note: Applies to dynamic and rigid body objects only.

Note: A value of 0.0 disables this option.

Note: While objects are stationary the minimum velocity will not be applied.

linVelocityMax

Clamp the maximum linear velocity to prevent objects moving beyond a set speed.

Type float

Note: Applies to dynamic and rigid body objects only.

Note: A value of 0.0 disables this option (rather then setting it stationary).

localInertia

the object's inertia vector in local coordinates. Read only.

Type list [ix, iy, iz]

parent

The object's parent object. (read-only).

Type `KX_GameObject` or None

visible
visibility flag.

Type boolean

Note: Game logic will still run for invisible objects.

color
The object color of the object.

Type list [r, g, b, a]

occlusion
occlusion capability flag.

Type boolean

position
The object's position. Deprecated since version use: `localPosition` and `worldPosition`.

Type list [x, y, z] On write: local position, on read: world position

orientation
The object's orientation. 3x3 Matrix. You can also write a Quaternion or Euler vector. Deprecated since version use: `localOrientation` and `worldOrientation`.

Type 3x3 Matrix [[float]] On write: local orientation, on read: world orientation

scaling
The object's scaling factor. list [sx, sy, sz] Deprecated since version use: `localScale` and `worldScale`.

Type list [sx, sy, sz] On write: local scaling, on read: world scaling

localOrientation
The object's local orientation. 3x3 Matrix. You can also write a Quaternion or Euler vector.

Type 3x3 Matrix [[float]]

worldOrientation
The object's world orientation.

Type 3x3 Matrix [[float]]

localScale
The object's local scaling factor.

Type list [sx, sy, sz]

worldScale
The object's world scaling factor. Read-only.

Type list [sx, sy, sz]

localPosition
The object's local position.

Type list [x, y, z]

worldPosition
The object's world position.

Type list [x, y, z]

timeOffset
adjust the slowparent delay at runtime.

Type float

state
the game object's state bitmask, using the first 30 bits, one bit must always be set.

Type int

meshes
a list meshes for this object.

Type list of KX_MeshProxy

Note: Most objects use only 1 mesh.

Note: Changes to this list will not update the KX_GameObject.

sensors
a sequence of SCA_ISensor objects with string/index lookups and iterator support.

Type list

Note: This attribute is experemental and may be removed (but probably wont be).

Note: Changes to this list will not update the KX_GameObject.

controllers
a sequence of SCA_IController objects with string/index lookups and iterator support.

Type list of SCA_ISensor

Note: This attribute is experemental and may be removed (but probably wont be).

Note: Changes to this list will not update the KX_GameObject.

actuators
a list of SCA_IActuator with string/index lookups and iterator support.

Type list

Note: This attribute is experemental and may be removed (but probably wont be).

Note: Changes to this list will not update the KX_GameObject.

attrDict
get the objects internal python attribute dictionary for direct (faster) access.

Type dict

children
direct children of this object, (read-only).

Type CListValue of KX_GameObject's

childrenRecursive
all children of this object including childrens children, (read-only).

Type CListValue of KX_GameObject's

endObject()
Delete this object, can be used in place of the EndObject Actuator.

The actual removal of the object from the scene is delayed.

replaceMesh(*mesh*, *useDisplayMesh=True*, *usePhysicsMesh=False*)
Replace the mesh of this object with a new mesh. This works the same was as the actuator.

Parameters

- **mesh** (`MeshProxy` or string) – mesh to replace or the meshes name.
- **useDisplayMesh** (*boolean*) – when enabled the display mesh will be replaced (optional argument).
- **usePhysicsMesh** (*boolean*) – when enabled the physics mesh will be replaced (optional argument).

setVisible(*visible*, *recursive*)
Sets the game object's visible flag.

Parameters

- **visible** (*boolean*) – the visible state to set.
- **recursive** (*boolean*) – optional argument to set all childrens visibility flag too.

setOcclusion(*occlusion*, *recursive*)
Sets the game object's occlusion capability.

Parameters

- **occlusion** (*boolean*) – the state to set the occlusion to.
- **recursive** (*boolean*) – optional argument to set all childrens occlusion flag too.

alignAxisToVect(*vect*, *axis=2*, *factor=1.0*)
Aligns any of the game object's axis along the given vector.

Parameters

- **vect** (*3D vector*) – a vector to align the axis.
- **axis** (*integer*) – The axis you want to align
  - 0: X axis
  - 1: Y axis
  - 2: Z axis
- **factor** (*float*) – Only rotate a feaction of the distance to the target vector (0.0 - 1.0)

getAxisVect(*vect*)
Returns the axis vector rotates by the objects worldspace orientation. This is the equivalent of multiplying the vector by the orientation matrix.

Parameters

- **vect** (*3D Vector*) – a vector to align the axis.

Returns The vector in relation to the objects rotation.

Return type 3d vector.

applyMovement(*movement*, *local=False*)
Sets the game object's movement.

Parameters

- **movement** (*3D Vector*) – movement vector.
- **local** –
  - False: you get the "global" movement ie: relative to world orientation.
  - True: you get the "local" movement ie: relative to object orientation.
- **local** – boolean

applyRotation(*rotation*, *local=False*)
Sets the game object's rotation.

Parameters

- **rotation** (*3D Vector*) – rotation vector.
- **local** –
  - False: you get the "global" rotation ie: relative to world orientation.
  - True: you get the "local" rotation ie: relative to object orientation.
- **local** – boolean

applyForce(*force*, *local=False*)
Sets the game object's force.

This requires a dynamic object.

Parameters

- **force** (*3D Vector*) – force vector.
- **local** (*boolean*) –
  - False: you get the "global" force ie: relative to world orientation.
  - True: you get the "local" force ie: relative to object orientation.

applyTorque(*torque*, *local=False*)
Sets the game object's torque.

This requires a dynamic object.

Parameters

- **torque** (*3D Vector*) – torque vector.
- **local** (*boolean*) –
  - False: you get the "global" torque ie: relative to world orientation.
  - True: you get the "local" torque ie: relative to object orientation.

getLinearVelocity(*local=False*)
Gets the game object's linear velocity.

This method returns the game object's velocity through it's centre of mass, ie no angular velocity component.

Parameters

- **local** (*boolean*) –
  - False: you get the "global" velocity ie: relative to world orientation.
  - True: you get the "local" velocity ie: relative to object orientation.

Returns the object's linear velocity.

Return type list [vx, vy, vz]

setLinearVelocity(*velocity*, *local=False*)
Sets the game object's linear velocity.

This method sets game object's velocity through it's centre of mass, ie no angular velocity component.

This requires a dynamic object.

Parameters

- **velocity** (*3D Vector*) – linear velocity vector.
- **local** (*boolean*) –
  - False: you get the "global" velocity ie: relative to world orientation.
  - True: you get the "local" velocity ie: relative to object orientation.

getAngularVelocity (*local=False*)
Gets the game object's angular velocity.

Parameters

- **local** (*boolean*) –
  - False: you get the "global" velocity ie: relative to world orientation.
  - True: you get the "local" velocity ie: relative to object orientation.

Returns the object's angular velocity.

Return type list [vx, vy, vz]

setAngularVelocity (*velocity*, *local=False*)
Sets the game object's angular velocity.

This requires a dynamic object.

Parameters

- **velocity** (*boolean*) – angular velocity vector.
- **local** –
  - False: you get the "global" velocity ie: relative to world orientation.
  - True: you get the "local" velocity ie: relative to object orientation.

getVelocity (*point=(0, 0, 0)*)
Gets the game object's velocity at the specified point.

Gets the game object's velocity at the specified point, including angular components.

Parameters

- **point** (*3D Vector*) – optional point to return the velocity for, in local coordinates.

Returns the velocity at the specified point.

Return type list [vx, vy, vz]

getReactionForce ()
Gets the game object's reaction force.

The reaction force is the force applied to this object over the last simulation timestep. This also includes impulses, eg from collisions.

Returns the reaction force of this object.

Return type list [fx, fy, fz]

Note: This is not implimented at the moment.

applyImpulse (*point*, *impulse*)
Applies an impulse to the game object.

This will apply the specified impulse to the game object at the specified point. If point != position, applyImpulse will also change the object's angular momentum. Otherwise, only linear momentum will change.

Parameters

- **point** (*the point to apply the impulse to (in world coordinates)*) – the point to apply the impulse to (in world coordinates)

suspendDynamics()
Suspends physics for this object.

restoreDynamics()
Resumes physics for this object.

Note: The objects linear velocity will be applied from when the dynamics were suspended.

enableRigidBody()
Enables rigid body physics for this object.

Rigid body physics allows the object to roll on collisions.

Note: This is not working with bullet physics yet.

disableRigidBody()
Disables rigid body physics for this object.

Note: This is not working with bullet physics yet. The angular is removed but rigid body physics can still rotate it later.

setParent(*parent*, *compound=True*, *ghost=True*)
Sets this object's parent. Control the shape status with the optional compound and ghost parameters:

In that case you can control if it should be ghost or not:

Parameters

- **parent** (KX_GameObject) – new parent object.
- **compound** (*boolean*) – whether the shape should be added to the parent compound shape.
  - True: the object shape should be added to the parent compound shape.
  - False: the object should keep its individual shape.
- **ghost** (*boolean*) – whether the object should be ghost while parented.
  - True: if the object should be made ghost while parented.
  - False: if the object should be solid while parented.

Note: If the object type is sensor, it stays ghost regardless of ghost parameter

removeParent()
Removes this objects parent.

getPhysicsId()
Returns the user data object associated with this game object's physics controller.

getPropertyNames()
Gets a list of all property names.

Returns All property names for this object.

Return type list

getDistanceTo(*other*)

Parameters

- **other** (KX_GameObject or list [x, y, z]) – a point or another KX_GameObject to measure the distance to.

Returns distance to another object or point.

Return type float

getVectTo(*other*)

Returns the vector and the distance to another object or point. The vector is normalized unless the distance is 0, in which a zero length vector is returned.

Parameters

- **other** (KX_GameObject or list [x, y, z]) – a point or another KX_GameObject to get the vector and distance to.

Returns (distance, globalVector(3), localVector(3))

Return type 3-tuple (float, 3-tuple (x, y, z), 3-tuple (x, y, z))

rayCastTo(*other*, *dist*, *prop*)

Look towards another point/object and find first object hit within dist that matches prop.

The ray is always casted from the center of the object, ignoring the object itself. The ray is casted towards the center of another object or an explicit [x, y, z] point. Use rayCast() if you need to retrieve the hit point

Parameters

- **other** (KX_GameObject or 3-tuple) – [x, y, z] or object towards which the ray is casted
- **dist** (*float*) – max distance to look (can be negative => look behind); 0 or omitted => detect up to other
- **prop** (*string*) – property name that object must have; can be omitted => detect any object

Returns the first object hit or None if no object or object does not match prop

Return type KX_GameObject

rayCast(*objto*, *objfrom*, *dist*, *prop*, *face*, *xray*, *poly*)

Look from a point/object to another point/object and find first object hit within dist that matches prop. if poly is 0, returns a 3-tuple with object reference, hit point and hit normal or (None, None, None) if no hit. if poly is 1, returns a 4-tuple with in addition a KX_PolyProxy as 4th element. if poly is 2, returns a 5-tuple with in addition a 2D vector with the UV mapping of the hit point as 5th element.

```
# shoot along the axis gun-gunAim (gunAim should be collision-free)
obj, point, normal = gun.rayCast(gunAim, None, 50)
if obj:
   # do something
   pass
```

The face paremeter determines the orientation of the normal.

•0 => hit normal is always oriented towards the ray origin (as if you casted the ray from outside)

•1 => hit normal is the real face normal (only for mesh object, otherwise face has no effect)

The ray has X-Ray capability if xray parameter is 1, otherwise the first object hit (other than self object) stops the ray. The prop and xray parameters interact as follow.

•prop off, xray off: return closest hit or no hit if there is no object on the full extend of the ray.

•prop off, xray on : idem.

•prop on, xray off: return closest hit if it matches prop, no hit otherwise.

•prop on, xray on : return closest hit matching prop or no hit if there is no object matching prop on the full extend of the ray.

The KX_PolyProxy 4th element of the return tuple when poly=1 allows to retrieve information on the polygon hit by the ray. If there is no hit or the hit object is not a static mesh, None is returned as 4th element.

The ray ignores collision-free objects and faces that dont have the collision flag enabled, you can however use ghost objects.

Parameters

- **objto** (KX_GameObject or 3-tuple) – [x, y, z] or object to which the ray is casted
- **objfrom** (KX_GameObject or 3-tuple or None) – [x, y, z] or object from which the ray is casted; None or omitted => use self object center
- **dist** (*float*) – max distance to look (can be negative => look behind); 0 or omitted => detect up to to
- **prop** (*string*) – property name that object must have; can be omitted or "" => detect any object
- **face** (*integer*) – normal option: 1=>return face normal; 0 or omitted => normal is oriented towards origin
- **xray** (*integer*) – X-ray option: 1=>skip objects that don't match prop; 0 or omitted => stop on first object
- **poly** (*integer*) – polygon option: 0, 1 or 2 to return a 3-, 4- or 5-tuple with information on the face hit.
  - 0 or omitted: return value is a 3-tuple (object, hitpoint, hitnormal) or (None, None, None) if no hit
  - 1: return value is a 4-tuple and the 4th element is a KX_PolyProxy or None if no hit or the object doesn't use a mesh collision shape.
  - 2: return value is a 5-tuple and the 5th element is a 2-tuple (u, v) with the UV mapping of the hit point or None if no hit, or the object doesn't use a mesh collision shape, or doesn't have a UV mapping.

Returns

(object, hitpoint, hitnormal) or (object, hitpoint, hitnormal, polygon) or (object, hitpoint, hitnormal, polygon, hituv).

- object, hitpoint and hitnormal are None if no hit.
- polygon is valid only if the object is valid and is a static object, a dynamic object using mesh collision shape or a soft body object, otherwise it is None
- hituv is valid only if polygon is valid and the object has a UV mapping, otherwise it is None

Return type

- 3-tuple (KX_GameObject, 3-tuple (x, y, z), 3-tuple (nx, ny, nz))
- or 4-tuple (KX_GameObject, 3-tuple (x, y, z), 3-tuple (nx, ny, nz), PolyProxy)
- or 5-tuple (KX_GameObject, 3-tuple (x, y, z), 3-tuple (nx, ny, nz), PolyProxy, 2-tuple (u, v))

Note: The ray ignores the object on which the method is called. It is casted from/to object center or explicit [x, y, z] points.

setCollisionMargin(*margin*)
Set the objects collision margin.

Parameters

- **margin** (*float*) – the collision margin distance in blender units.

Note: If this object has no physics controller (a physics ID of zero), this function will raise RuntimeError.

sendMessage(*subject*, *body=""*, *to=""*)
Sends a message.

Parameters

- **subject** (*string*) – The subject of the message
- **body** (*string*) – The body of the message (optional)
- **to** (*string*) – The name of the object to send the message to (optional)

reinstancePhysicsMesh(*gameObject*, *meshObject*)
Updates the physics system with the changed mesh.

If no arguments are given the physics mesh will be re-created from the first mesh assigned to the game object.

Parameters

- **gameObject** (string, `KX_GameObject` or None) – optional argument, set the physics shape from this gameObjets mesh.
- **meshObject** (string, `MeshProxy` or None) – optional argument, set the physics shape from this mesh.

Returns True if reinstance succeeded, False if it failed.

Return type boolean

Note: If this object has instances the other instances will be updated too.

Note: The gameObject argument has an advantage that it can convert from a mesh with modifiers applied (such as subsurf).

Warning: Only triangle mesh type objects are supported currently (not convex hull)

Warning: If the object is a part of a combound object it will fail (parent or child)

Warning: Rebuilding the physics mesh can be slow, running many times per second will give a performance hit.

get(*key*, *default=None*)
Return the value matching key, or the default value if its not found. :return: The key value or a default.

class `bge.types`.**KX_IpoActuator**(*SCA_IActuator*)
IPO actuator activates an animation.

frameStart
Start frame.

Type float

frameEnd
End frame.

Type float

propName
Use this property to define the Ipo position.

Type string

framePropName
Assign this property this action current frame number.

Type string

mode
Play mode for the ipo. Can be on of *these constants*

Type integer

useIpoAsForce
Apply Ipo as a global or local force depending on the local option (dynamic objects only).

Type boolean

useIpoAdd
Ipo is added to the current loc/rot/scale in global or local coordinate according to Local flag.

Type boolean

useIpoLocal
Let the ipo acts in local coordinates, used in Force and Add mode.

Type boolean

useChildren
Update IPO on all children Objects as well.

Type boolean

class bge.types.**KX_LightObject**(*KX_GameObject*)
A Light object.

```
# Turn on a red alert light.
import bge

co = bge.logic.getCurrentController()
light = co.owner

light.energy = 1.0
light.colour = [1.0, 0.0, 0.0]
```

SPOT
A spot light source. See attribute type

SUN
A point light source with no attenuation. See attribute type

NORMAL
A point light source. See attribute type

type
The type of light - must be SPOT, SUN or NORMAL

layer
The layer mask that this light affects object on.

Type bitfield

energy
The brightness of this light.

Type float

distance
The maximum distance this light can illuminate. (SPOT and NORMAL lights only).

Type float

colour
The colour of this light. Black = [0.0, 0.0, 0.0], White = [1.0, 1.0, 1.0].

Type list [r, g, b]

color
Synonym for colour.

lin_attenuation
The linear component of this light's attenuation. (SPOT and NORMAL lights only).

Type float

quad_attenuation
The quadratic component of this light's attenuation (SPOT and NORMAL lights only).

Type float

spotsize
The cone angle of the spot light, in degrees (SPOT lights only).

Type float in [0 - 180].

spotblend
Specifies the intensity distribution of the spot light (SPOT lights only).

Type float in [0 - 1]

Note: Higher values result in a more focused light source.

class bge.types.**KX_MeshProxy**(*SCA_IObject*)
A mesh object.

You can only change the vertex properties of a mesh object, not the mesh topology.

To use mesh objects effectively, you should know a bit about how the game engine handles them.

1.Mesh Objects are converted from Blender at scene load.

2.The Converter groups polygons by Material. This means they can be sent to the renderer efficiently. A material holds:

(a)The texture.

(b)The Blender material.

(c)The Tile properties

(d)The face properties - (From the "Texture Face" panel)

(e)Transparency & z sorting

(f)Light layer

(g)Polygon shape (triangle/quad)

(h)Game Object

3.Verticies will be split by face if necessary. Verticies can only be shared between faces if:

(a)They are at the same position

(b)UV coordinates are the same

(c)Their normals are the same (both polygons are "Set Smooth")

(d)They are the same colour, for example: a cube has 24 verticies: 6 faces with 4 verticies per face.

The correct method of iterating over every KX_VertexProxy in a game object

```
import GameLogic

co = GameLogic.getCurrentController()
obj = co.owner

m_i = 0
mesh = obj.getMesh(m_i) # There can be more than one mesh...
while mesh != None:
   for mat in range(mesh.getNumMaterials()):
      for v_index in range(mesh.getVertexArrayLength(mat)):
         vertex = mesh.getVertex(mat, v_index)
         # Do something with vertex here...
         # ... eg: colour the vertex red.
         vertex.colour = [1.0, 0.0, 0.0, 1.0]
   m_i += 1
   mesh = obj.getMesh(m_i)
```

materials

Type list of KX_BlenderMaterial or KX_PolygonMaterial types

numPolygons

Type integer

numMaterials

Type integer

getNumMaterials()

Returns number of materials associated with this object

Return type integer

getMaterialName(*matid*)

Gets the name of the specified material.

Parameters

- **matid** (*integer*) – the specified material.

Returns the attached material name.

Return type string

getTextureName(*matid*)

Gets the name of the specified material's texture.

Parameters

- **matid** (*integer*) – the specified material

Returns the attached material's texture name.

Return type string

getVertexArrayLength(*matid*)
Gets the length of the vertex array associated with the specified material.

There is one vertex array for each material.

Parameters

- **matid** (*integer*) – the specified material

Returns the number of verticies in the vertex array.

Return type integer

getVertex(*matid*, *index*)
Gets the specified vertex from the mesh object.

Parameters

- **matid** (*integer*) – the specified material
- **index** (*integer*) – the index into the vertex array.

Returns a vertex object.

Return type KX_VertexProxy

getNumPolygons()

Returns The number of polygon in the mesh.

Return type integer

getPolygon(*index*)
Gets the specified polygon from the mesh.

Parameters

- **index** (*integer*) – polygon number

Returns a polygon object.

Return type PolyProxy

class bge.types.**SCA_MouseSensor**(*SCA_ISensor*)
Mouse Sensor logic brick.

position
current [x, y] coordinates of the mouse, in frame coordinates (pixels).

Type [integer, interger]

mode
sensor mode.

Type integer

- KX_MOUSESENSORMODE_LEFTBUTTON(1)
- KX_MOUSESENSORMODE_MIDDLEBUTTON(2)
- KX_MOUSESENSORMODE_RIGHTBUTTON(3)
- KX_MOUSESENSORMODE_WHEELUP(4)

- KX_MOUSESENSORMODE_WHEELDOWN(5)
- KX_MOUSESENSORMODE_MOVEMENT(6)

getButtonStatus(*button*)
Get the mouse button status.

Parameters

- **button** (*int*) – The code that represents the key you want to get the state of, use one of *these constants*

Returns The state of the given key, can be one of *these constants*

Return type int

class bge.types.**KX_MouseFocusSensor**(*SCA_MouseSensor*)
The mouse focus sensor detects when the mouse is over the current game object.

The mouse focus sensor works by transforming the mouse coordinates from 2d device space to 3d space then raycasting away from the camera.

raySource
The worldspace source of the ray (the view position).

Type list (vector of 3 floats)

rayTarget
The worldspace target of the ray.

Type list (vector of 3 floats)

rayDirection
The rayTarget - raySource normalized.

Type list (normalized vector of 3 floats)

hitObject
the last object the mouse was over.

Type KX_GameObject or None

hitPosition
The worldspace position of the ray intersecton.

Type list (vector of 3 floats)

hitNormal
the worldspace normal from the face at point of intersection.

Type list (normalized vector of 3 floats)

hitUV
the UV coordinates at the point of intersection.

Type list (vector of 2 floats)

If the object has no UV mapping, it returns [0, 0].

The UV coordinates are not normalized, they can be < 0 or > 1 depending on the UV mapping.

usePulseFocus
When enabled, moving the mouse over a different object generates a pulse. (only used when the 'Mouse Over Any' sensor option is set).

Type boolean

class bge.types.**KX_TouchSensor**(*SCA_ISensor*)
Touch sensor detects collisions between objects.

propName
The property or material to collide with.

Type string

useMaterial
Determines if the sensor is looking for a property or material. KX_True = Find material; KX_False = Find property.

Type boolean

usePulseCollision
When enabled, changes to the set of colliding objects generate a pulse.

Type boolean

hitObject
The last collided object. (read-only).

Type KX_GameObject or None

hitObjectList
A list of colliding objects. (read-only).

Type CListValue of KX_GameObject

class bge.types.**KX_NearSensor**(*KX_TouchSensor*)
A near sensor is a specialised form of touch sensor.

distance
The near sensor activates when an object is within this distance.

Type float

resetDistance
The near sensor deactivates when the object exceeds this distance.

Type float

class bge.types.**KX_NetworkMessageActuator**(*SCA_IActuator*)
Message Actuator

propName
Messages will only be sent to objects with the given property name.

Type string

subject
The subject field of the message.

Type string

body
The body of the message.

Type string

usePropBody
Send a property instead of a regular body message.

Type boolean

class bge.types.**KX_NetworkMessageSensor**(*SCA_ISensor*)

The Message Sensor logic brick.

Currently only loopback (local) networks are supported.

subject

The subject the sensor is looking for.

Type string

frameMessageCount

The number of messages received since the last frame. (read-only).

Type integer

subjects

The list of message subjects received. (read-only).

Type list of strings

bodies

The list of message bodies received. (read-only).

Type list of strings

class bge.types.**KX_ObjectActuator**(*SCA_IActuator*)

The object actuator ("Motion Actuator") applies force, torque, displacement, angular displacement, velocity, or angular velocity to an object. Servo control allows to regulate force to achieve a certain speed target.

force

The force applied by the actuator.

Type list [x, y, z]

useLocalForce

A flag specifying if the force is local.

Type boolean

torque

The torque applied by the actuator.

Type list [x, y, z]

useLocalTorque

A flag specifying if the torque is local.

Type boolean

dLoc

The displacement vector applied by the actuator.

Type list [x, y, z]

useLocalDLoc

A flag specifying if the dLoc is local.

Type boolean

dRot

The angular displacement vector applied by the actuator

Type list [x, y, z]

Note: Since the displacement is applied every frame, you must adjust the displacement based on the frame rate, or you game experience will depend on the player's computer speed.

useLocalDRot
A flag specifying if the dRot is local.

Type boolean

linV
The linear velocity applied by the actuator.

Type list [x, y, z]

useLocalLinV
A flag specifying if the linear velocity is local.

Type boolean

Note: This is the target speed for servo controllers.

angV
The angular velocity applied by the actuator.

Type list [x, y, z]

useLocalAngV
A flag specifying if the angular velocity is local.

Type boolean

damping
The damping parameter of the servo controller.

Type short

forceLimitX
The min/max force limit along the X axis and activates or deactivates the limits in the servo controller.

Type list [min(float), max(float), bool]

forceLimitY
The min/max force limit along the Y axis and activates or deactivates the limits in the servo controller.

Type list [min(float), max(float), bool]

forceLimitZ
The min/max force limit along the Z axis and activates or deactivates the limits in the servo controller.

Type list [min(float), max(float), bool]

pid
The PID coefficients of the servo controller.

Type list of floats [proportional, integral, derivate]

reference
The object that is used as reference to compute the velocity for the servo controller.

Type KX_GameObject or None

class bge.types.**KX_ParentActuator**(*SCA_IActuator*)
The parent actuator can set or remove an objects parent object.

object
the object this actuator sets the parent too.

Type KX_GameObject or None

mode
The mode of this actuator.

Type integer from 0 to 1.

compound
Whether the object shape should be added to the parent compound shape when parenting.

Effective only if the parent is already a compound shape.

Type boolean

ghost
Whether the object should be made ghost when parenting Effective only if the shape is not added to the parent compound shape.

Type boolean

class bge.types.**KX_PhysicsObjectWrapper**(*PyObjectPlus*)
KX_PhysicsObjectWrapper

setActive(*active*)
Set the object to be active.

Parameters

- **active** (*boolean*) – set to True to be active

setAngularVelocity(*x*, *y*, *z*, *local*)
Set the angular velocity of the object.

Parameters

- **x** (*float*) – angular velocity for the x-axis
- **y** (*float*) – angular velocity for the y-axis
- **z** (*float*) – angular velocity for the z-axis
- **local** (*boolean*) – set to True for local axis

setLinearVelocity(*x*, *y*, *z*, *local*)
Set the linear velocity of the object.

Parameters

- **x** (*float*) – linear velocity for the x-axis
- **y** (*float*) – linear velocity for the y-axis
- **z** (*float*) – linear velocity for the z-axis
- **local** (*boolean*) – set to True for local axis

class bge.types.**KX_PolyProxy**(*SCA_IObject*)
A polygon holds the index of the vertex forming the poylgon.

Note: The polygon attributes are read-only, you need to retrieve the vertex proxy if you want to change the vertex settings.

matname
The name of polygon material, empty if no material.

Type string

material
The material of the polygon.

Type KX_PolygonMaterial or KX_BlenderMaterial

texture
The texture name of the polygon.

Type string

matid
The material index of the polygon, use this to retrieve vertex proxy from mesh proxy.

Type integer

v1
vertex index of the first vertex of the polygon, use this to retrieve vertex proxy from mesh proxy.

Type integer

v2
vertex index of the second vertex of the polygon, use this to retrieve vertex proxy from mesh proxy.

Type integer

v3
vertex index of the third vertex of the polygon, use this to retrieve vertex proxy from mesh proxy.

Type integer

v4
Vertex index of the fourth vertex of the polygon, 0 if polygon has only 3 vertex Use this to retrieve vertex proxy from mesh proxy.

Type integer

visible
visible state of the polygon: 1=visible, 0=invisible.

Type integer

collide
collide state of the polygon: 1=receives collision, 0=collision free.

Type integer

getMaterialName()
Returns the polygon material name with MA prefix

Returns material name

Return type string

getMaterial()

Returns The polygon material

Return type KX_PolygonMaterial or KX_BlenderMaterial

getTextureName()

Returns The texture name

Return type string

getMaterialIndex()
Returns the material bucket index of the polygon. This index and the ones returned by getVertexIndex() are needed to retrieve the vertex proxy from MeshProxy.

Returns the material index in the mesh

Return type integer

getNumVertex()
Returns the number of vertex of the polygon.

Returns number of vertex, 3 or 4.

Return type integer

isVisible()
Returns whether the polygon is visible or not

Returns 0=invisible, 1=visible

Return type boolean

isCollider()
Returns whether the polygon is receives collision or not

Returns 0=collision free, 1=receives collision

Return type integer

getVertexIndex(*vertex*)
Returns the mesh vertex index of a polygon vertex This index and the one returned by getMaterialIndex() are needed to retrieve the vertex proxy from `MeshProxy`.

Parameters

- **vertex** – index of the vertex in the polygon: 0->3
- **vertex** – integer

Returns mesh vertex index

Return type integer

getMesh()
Returns a mesh proxy

Returns mesh proxy

Return type `MeshProxy`

class `bge.types.`**KX_PolygonMaterial**(*PyObjectPlus*)
This is the interface to materials in the game engine.

Materials define the render state to be applied to mesh objects.

> **Warning:** Some of the methods/variables are CObjects. If you mix these up, you will crash blender.

This example requires PyOpenGL and GLEWPy

```
import GameLogic
import OpenGL
from OpenGL.GL import *
from OpenGL.GLU import *
import glew
from glew import *

glewInit()

vertex_shader = """

void main(void)
{
```

```
   gl_Position = ftransform();
}
"""

fragment_shader ="""

void main(void)
{
   gl_FragColor = vec4(1.0, 0.0, 0.0, 1.0);
}
"""

class MyMaterial:
   def __init__(self):
      self.pass_no = 0
      # Create a shader
      self.m_program = glCreateProgramObjectARB()
      # Compile the vertex shader
      self.shader(GL_VERTEX_SHADER_ARB, (vertex_shader))
      # Compile the fragment shader
      self.shader(GL_FRAGMENT_SHADER_ARB, (fragment_shader))
      # Link the shaders together
      self.link()

   def PrintInfoLog(self, tag, object):
      """
      PrintInfoLog prints the GLSL compiler log
      """
      print "Tag:    def PrintGLError(self, tag = ""):

   def PrintGLError(self, tag = ""):
      """
      Prints the current GL error status
      """
      if len(tag):
         print tag
      err = glGetError()
      if err != GL_NO_ERROR:
         print "GL Error: %s\\n"%(gluErrorString(err))

   def shader(self, type, shaders):
      """
      shader compiles a GLSL shader and attaches it to the current
      program.

      type should be either GL_VERTEX_SHADER_ARB or GL_FRAGMENT_SHADER_ARB
      shaders should be a sequence of shader source to compile.
      """
      # Create a shader object
      shader_object = glCreateShaderObjectARB(type)

      # Add the source code
      glShaderSourceARB(shader_object, len(shaders), shaders)

      # Compile the shader
      glCompileShaderARB(shader_object)

      # Print the compiler log
```

```
            self.PrintInfoLog("vertex shader", shader_object)

            # Check if compiled, and attach if it did
            compiled = glGetObjectParameterivARB(shader_object, GL_OBJECT_COMPILE_STATUS_ARB)
            if compiled:
               glAttachObjectARB(self.m_program, shader_object)

            # Delete the object (glAttachObjectARB makes a copy)
            glDeleteObjectARB(shader_object)

            # print the gl error log
            self.PrintGLError()

         def link(self):
            """
            Links the shaders together.
            """
            # clear error indicator
            glGetError()

            glLinkProgramARB(self.m_program)

            self.PrintInfoLog("link", self.m_program)

            linked = glGetObjectParameterivARB(self.m_program, GL_OBJECT_LINK_STATUS_ARB)
            if not linked:
               print "Shader failed to link"
               return

            glValidateProgramARB(self.m_program)
            valid = glGetObjectParameterivARB(self.m_program, GL_OBJECT_VALIDATE_STATUS_ARB)
            if not valid:
               print "Shader failed to validate"
               return

         def activate(self, rasty, cachingInfo, mat):
            self.pass_no+=1
            if (self.pass_no == 1):
               glDisable(GL_COLOR_MATERIAL)
               glUseProgramObjectARB(self.m_program)
               return True

            glEnable(GL_COLOR_MATERIAL)
            glUseProgramObjectARB(0)
            self.pass_no = 0
            return False

      obj = GameLogic.getCurrentController().owner

      mesh = obj.meshes[0]

      for mat in mesh.materials:
         mat.setCustomMaterial(MyMaterial())
         print mat.texture
```

texture

Texture name.

Type string (read-only)

gl_texture
OpenGL texture handle (eg for glBindTexture(GL_TEXTURE_2D, gl_texture).

Type integer (read-only)

material
Material name.

Type string (read-only)

tface
Texture face properties.

Type CObject (read-only)

tile
Texture is tiling.

Type boolean

tilexrep
Number of tile repetitions in x direction.

Type integer

tileyrep
Number of tile repetitions in y direction.

Type integer

drawingmode
Drawing mode for the material. - 2 (drawingmode & 4) Textured - 4 (drawingmode & 16) Light - 14 (drawingmode & 16384) 3d Polygon Text.

Type bitfield

transparent
This material is transparent. All meshes with this material will be rendered after non transparent meshes from back to front.

Type boolean

zsort
Transparent polygons in meshes with this material will be sorted back to front before rendering. Non-Transparent polygons will be sorted front to back before rendering.

Type boolean

lightlayer
Light layers this material affects.

Type bitfield.

triangle
Mesh data with this material is triangles. It's probably not safe to change this.

Type boolean

diffuse
The diffuse colour of the material. black = [0.0, 0.0, 0.0] white = [1.0, 1.0, 1.0].

Type list [r, g, b]

specular
The specular colour of the material. black = [0.0, 0.0, 0.0] white = [1.0, 1.0, 1.0].

Type list [r, g, b]

shininess
The shininess (specular exponent) of the material. 0.0 <= shininess <= 128.0.

Type float

specularity
The amount of specular of the material. 0.0 <= specularity <= 1.0.

Type float

updateTexture(*tface*, *rasty*)
Updates a realtime animation.

Parameters

- **tface** (*CObject*) – Texture face (eg mat.tface)
- **rasty** (*CObject*) – Rasterizer

setTexture(*tface*)
Sets texture render state.

Parameters

- **tface** (*CObject*) – Texture face

```
mat.setTexture(mat.tface)
```

activate(*rasty*, *cachingInfo*)
Sets material parameters for this object for rendering.

Material Parameters set:

1.Texture

2.Backface culling

3.Line drawing

4.Specular Colour

5.Shininess

6.Diffuse Colour

7.Polygon Offset.

Parameters

- **rasty** (*CObject*) – Rasterizer instance.
- **cachingInfo** (*CObject*) – Material cache instance.

setCustomMaterial(*material*)
Sets the material state setup object.

Using this method, you can extend or completely replace the gameengine material to do your own advanced multipass effects.

Use this method to register your material class. Instead of the normal material, your class's activate method will be called just before rendering the mesh. This should setup the texture, material, and any other state you would like. It should return True to render the mesh, or False if you are finished. You should clean up any state Blender does not set before returning False.

Activate Method Definition:

```
def activate(self, rasty, cachingInfo, material):
```

Parameters

- **material** (*instance*) – The material object.

```
class PyMaterial:
  def __init__(self):
    self.pass_no = -1

  def activate(self, rasty, cachingInfo, material):
    # Activate the material here.
    #
    # The activate method will be called until it returns False.
    # Every time the activate method returns True the mesh will
    # be rendered.
    #
    # rasty is a CObject for passing to material.updateTexture()
    #       and material.activate()
    # cachingInfo is a CObject for passing to material.activate()
    # material is the KX_PolygonMaterial instance this material
    #          was added to

    # default material properties:
    self.pass_no += 1
    if self.pass_no == 0:
      material.activate(rasty, cachingInfo)
      # Return True to do this pass
      return True

    # clean up and return False to finish.
    self.pass_no = -1
    return False

# Create a new Python Material and pass it to the renderer.
mat.setCustomMaterial(PyMaterial())
```

class bge.types.**KX_RadarSensor**(*KX_NearSensor*)

Radar sensor is a near sensor with a conical sensor object.

coneOrigin

The origin of the cone with which to test. The origin is in the middle of the cone. (read-only).

Type list of floats [x, y, z]

coneTarget

The center of the bottom face of the cone with which to test. (read-only).

Type list of floats [x, y, z]

distance

The height of the cone with which to test.

Type float

angle

The angle of the cone (in degrees) with which to test.

Type float from 0 to 360

axis
The axis on which the radar cone is cast.

Type integer from 0 to 5

KX_RADAR_AXIS_POS_X, KX_RADAR_AXIS_POS_Y, KX_RADAR_AXIS_POS_Z, KX_RADAR_AXIS_NEG_X, KX_RADAR_AXIS_NEG_Y, KX_RADAR_AXIS_NEG_Z

getConeHeight()

Returns The height of the cone with which to test.

Return type float

class bge.types.**KX_RaySensor**(*SCA_ISensor*)
A ray sensor detects the first object in a given direction.

propName
The property the ray is looking for.

Type string

range
The distance of the ray.

Type float

useMaterial
Whether or not to look for a material (false = property).

Type boolean

useXRay
Whether or not to use XRay.

Type boolean

hitObject
The game object that was hit by the ray. (read-only).

Type KX_GameObject

hitPosition
The position (in worldcoordinates) where the object was hit by the ray. (read-only).

Type list [x, y, z]

hitNormal
The normal (in worldcoordinates) of the object at the location where the object was hit by the ray. (read-only).

Type list [x, y, z]

rayDirection
The direction from the ray (in worldcoordinates). (read-only).

Type list [x, y, z]

axis
The axis the ray is pointing on.

Type integer from 0 to 5

- KX_RAY_AXIS_POS_X
- KX_RAY_AXIS_POS_Y

- KX_RAY_AXIS_POS_Z
- KX_RAY_AXIS_NEG_X
- KX_RAY_AXIS_NEG_Y
- KX_RAY_AXIS_NEG_Z

class bge.types.**KX_SCA_AddObjectActuator**(*SCA_IActuator*)

Edit Object Actuator (in Add Object Mode)

> **Warning:** An Add Object actuator will be ignored if at game start, the linked object doesn't exist (or is empty) or the linked object is in an active layer.
>
> ```
> Error: GameObject 'Name' has a AddObjectActuator 'ActuatorName' without object (in 'nonactive'
> ```

object

the object this actuator adds.

Type KX_GameObject or None

objectLastCreated

the last added object from this actuator (read-only).

Type KX_GameObject or None

time

the lifetime of added objects, in frames. Set to 0 to disable automatic deletion.

Type integer

linearVelocity

the initial linear velocity of added objects.

Type list [vx, vy, vz]

angularVelocity

the initial angular velocity of added objects.

Type list [vx, vy, vz]

instantAddObject()

Returns The last object created by this actuator. The object can then be accessed from objectLastCreated.

Return type None

class bge.types.**KX_SCA_DynamicActuator**(*SCA_IActuator*)

Dynamic Actuator.

mode

Type integer

the type of operation of the actuator, 0-4

- KX_DYN_RESTORE_DYNAMICS(0)
- KX_DYN_DISABLE_DYNAMICS(1)
- KX_DYN_ENABLE_RIGID_BODY(2)
- KX_DYN_DISABLE_RIGID_BODY(3)

•KX_DYN_SET_MASS(4)

mass
the mass value for the KX_DYN_SET_MASS operation.

Type float

class bge.types.**KX_SCA_EndObjectActuator**(*SCA_IActuator*)
Edit Object Actuator (in End Object mode)

This actuator has no python methods.

class bge.types.**KX_SCA_ReplaceMeshActuator**(*SCA_IActuator*)
Edit Object actuator, in Replace Mesh mode.

Warning: Replace mesh actuators will be ignored if at game start, the named mesh doesn't exist. This will generate a warning in the console

```
Error: GameObject 'Name' ReplaceMeshActuator 'ActuatorName' without object
```

```
# Level-of-detail
# Switch a game object's mesh based on its depth in the camera view.
# +----------+     +-----------+     +-------------------------------------+
# | Always   +-----+ Python    +-----+ Edit Object (Replace Mesh) LOD.Mesh |
# +----------+     +-----------+     +-------------------------------------+
import GameLogic

# List detail meshes here
# Mesh (name, near, far)
# Meshes overlap so that they don't 'pop' when on the edge of the distance.
meshes = ((".Hi", 0.0, -20.0),
      (".Med", -15.0, -50.0),
      (".Lo", -40.0, -100.0)
    )

co = GameLogic.getCurrentController()
obj = co.owner
act = co.actuators["LOD." + obj.name]
cam = GameLogic.getCurrentScene().active_camera

def Depth(pos, plane):
  return pos[0]*plane[0] + pos[1]*plane[1] + pos[2]*plane[2] + plane[3]

# Depth is negative and decreasing further from the camera
depth = Depth(obj.position, cam.world_to_camera[2])

newmesh = None
curmesh = None
# Find the lowest detail mesh for depth
for mesh in meshes:
  if depth < mesh[1] and depth > mesh[2]:
    newmesh = mesh
  if "ME" + obj.name + mesh[0] == act.getMesh():
      curmesh = mesh

if newmesh != None and "ME" + obj.name + newmesh[0] != act.getMesh():
  # The mesh is a different mesh - switch it.
  # Check the current mesh is not a better fit.
```

```
    if curmesh == None or curmesh[1] < depth or curmesh[2] > depth:
      act.mesh = obj.getName() + newmesh[0]
      GameLogic.addActiveActuator(act, True)
```

mesh
MeshProxy or the name of the mesh that will replace the current one.

Set to None to disable actuator.

Type MeshProxy or None if no mesh is set

useDisplayMesh
when true the displayed mesh is replaced.

Type boolean

usePhysicsMesh
when true the physics mesh is replaced.

Type boolean

instantReplaceMesh()
Immediately replace mesh without delay.

class bge.types.**KX_Scene**(*PyObjectPlus*)
An active scene that gives access to objects, cameras, lights and scene attributes.

The activity culling stuff is supposed to disable logic bricks when their owner gets too far from the active camera. It was taken from some code lurking at the back of KX_Scene - who knows what it does!

```
import GameLogic

# get the scene
scene = GameLogic.getCurrentScene()

# print all the objects in the scene
for obj in scene.objects:
   print obj.name

# get an object named 'Cube'
obj = scene.objects["Cube"]

# get the first object in the scene.
obj = scene.objects[0]

# Get the depth of an object in the camera view.
import GameLogic

obj = GameLogic.getCurrentController().owner
cam = GameLogic.getCurrentScene().active_camera

# Depth is negative and decreasing further from the camera
depth = obj.position[0]*cam.world_to_camera[2][0] + obj.position[1]*cam.world_to_camera[2][1]
```

@bug: All attributes are read only at the moment.

name
The scene's name, (read-only).

Type string

objects
A list of objects in the scene, (read-only).

Type CListValue of KX_GameObject

objectsInactive
A list of objects on background layers (used for the addObject actuator), (read-only).

Type CListValue of KX_GameObject

lights
A list of lights in the scene, (read-only).

Type CListValue of KX_LightObject

cameras
A list of cameras in the scene, (read-only).

Type CListValue of KX_Camera

active_camera
The current active camera.

Type KX_Camera

Note: This can be set directly from python to avoid using the KX_SceneActuator.

suspended
True if the scene is suspended, (read-only).

Type boolean

activity_culling
True if the scene is activity culling.

Type boolean

activity_culling_radius
The distance outside which to do activity culling. Measured in manhattan distance.

Type float

dbvt_culling
True when Dynamic Bounding box Volume Tree is set (read-only).

Type boolean

pre_draw
A list of callables to be run before the render step.

Type list

post_draw
A list of callables to be run after the render step.

Type list

addObject(*object*, *other*, *time=0*)
Adds an object to the scene like the Add Object Actuator would.

Parameters

- **object** (KX_GameObject or string) – The object to add
- **other** (KX_GameObject or string) – The object's center to use when adding the object

- **time** (*integer*) – The lifetime of the added object, in frames. A time of 0 means the object will last forever.

Returns The newly added object.

Return type KX_GameObject

end()
Removes the scene from the game.

restart()
Restarts the scene.

replace(*scene*)
Replaces this scene with another one.

Parameters

- **scene** (*string*) – The name of the scene to replace this scene with.

suspend()
Suspends this scene.

resume()
Resume this scene.

get(*key*, *default=None*)
Return the value matching key, or the default value if its not found. :return: The key value or a default.

class bge.types.**KX_SceneActuator**(*SCA_IActuator*)
Scene Actuator logic brick.

> **Warning:** Scene actuators that use a scene name will be ignored if at game start, the named scene doesn't exist or is empty
> This will generate a warning in the console:
>
> ```
> Error: GameObject 'Name' has a SceneActuator 'ActuatorName' (SetScene) without scene
> ```

scene
the name of the scene to change to/overlay/underlay/remove/suspend/resume.

Type string

camera
the camera to change to.

Type KX_Camera on read, string or KX_Camera on write

Note: When setting the attribute, you can use either a KX_Camera or the name of the camera.

useRestart
Set flag to True to restart the sene.

Type boolean

mode
The mode of the actuator.

Type integer from 0 to 5.

class bge.types.**KX_SoundActuator**(*SCA_IActuator*)
Sound Actuator.

The `startSound`, `pauseSound` and `stopSound` do not requirethe actuator to be activated - they act instantly provided that the actuator has been activated once at least.

fileName
The filename of the sound this actuator plays.

Type string

volume
The volume (gain) of the sound.

Type float

pitch
The pitch of the sound.

Type float

rollOffFactor
The roll off factor. Rolloff defines the rate of attenuation as the sound gets further away.

Type float

looping
The loop mode of the actuator.

Type integer

position
The position of the sound as a list: [x, y, z].

Type float array

velocity
The velocity of the emitter as a list: [x, y, z]. The relative velocity to the observer determines the pitch. List of 3 floats: [x, y, z].

Type float array

orientation
The orientation of the sound. When setting the orientation you can also use quaternion [float, float, float, float] or euler angles [float, float, float].

Type 3x3 matrix [[float]]

mode
The operation mode of the actuator. Can be one of *these constants*

Type integer

class `bge.types.`**KX_StateActuator**(*SCA_IActuator*)
State actuator changes the state mask of parent object.

operation
Type of bit operation to be applied on object state mask.

You can use one of *these constants*

Type integer

mask
Value that defines the bits that will be modified by the operation.

The bits that are 1 in the mask will be updated in the object state.

The bits that are 0 are will be left unmodified expect for the Copy operation which copies the mask to the object state.

Type integer

class bge.types.**KX_TrackToActuator**(*SCA_IActuator*)

Edit Object actuator in Track To mode.

> **Warning:** Track To Actuators will be ignored if at game start, the object to track to is invalid.
> This will generate a warning in the console:
>
> ```
> GameObject 'Name' no object in EditObjectActuator 'ActuatorName'
> ```

object

the object this actuator tracks.

Type KX_GameObject or None

time

the time in frames with which to delay the tracking motion.

Type integer

use3D

the tracking motion to use 3D.

Type boolean

class bge.types.**KX_VehicleWrapper**(*PyObjectPlus*)

KX_VehicleWrapper

TODO - description

addWheel(*wheel*, *attachPos*, *attachDir*, *axleDir*, *suspensionRestLength*, *wheelRadius*, *hasSteering*)

Add a wheel to the vehicle

Parameters

- **wheel** (KX_GameObject or a KX_GameObject name) – The object to use as a wheel.
- **attachPos** (*vector of 3 floats*) – The position that this wheel will attach to.
- **attachDir** (*vector of 3 floats*) – The direction this wheel points.
- **axleDir** (*vector of 3 floats*) – The direction of this wheels axle.
- **suspensionRestLength** (*float*) – TODO - Description
- **wheelRadius** (*float*) – The size of the wheel.

applyBraking(*force*, *wheelIndex*)

Apply a braking force to the specified wheel

Parameters

- **force** (*float*) – the brake force
- **wheelIndex** (*integer*) – index of the wheel where the force needs to be applied

applyEngineForce(*force*, *wheelIndex*)

Apply an engine force to the specified wheel

Parameters

- **force** (*float*) – the engine force

- **wheelIndex** (*integer*) – index of the wheel where the force needs to be applied

getConstraintId()
Get the constraint ID

Returns the constraint id

Return type integer

getConstraintType()
Returns the constraint type.

Returns constraint type

Return type integer

getNumWheels()
Returns the number of wheels.

Returns the number of wheels for this vehicle

Return type integer

getWheelOrientationQuaternion(*wheelIndex*)
Returns the wheel orientation as a quaternion.

Parameters

- **wheelIndex** (*integer*) – the wheel index

Returns TODO Description

Return type TODO - type should be quat as per method name but from the code it looks like a matrix

getWheelPosition(*wheelIndex*)
Returns the position of the specified wheel

Parameters

- **wheelIndex** (*integer*) – the wheel index

Returns position vector

Return type list[x, y, z]

getWheelRotation(*wheelIndex*)
Returns the rotation of the specified wheel

Parameters

- **wheelIndex** (*integer*) – the wheel index

Returns the wheel rotation

Return type float

setRollInfluence(*rollInfluece*, *wheelIndex*)
Set the specified wheel's roll influence. The higher the roll influence the more the vehicle will tend to roll over in corners.

Parameters

- **rollInfluece** (*float*) – the wheel roll influence
- **wheelIndex** (*integer*) – the wheel index

setSteeringValue(*steering*, *wheelIndex*)
Set the specified wheel's steering

Parameters

- **steering** (*float*) – the wheel steering
- **wheelIndex** (*integer*) – the wheel index

setSuspensionCompression(*compression*, *wheelIndex*)
Set the specified wheel's compression

Parameters

- **compression** (*float*) – the wheel compression
- **wheelIndex** (*integer*) – the wheel index

setSuspensionDamping(*damping*, *wheelIndex*)
Set the specified wheel's damping

Parameters

- **damping** (*float*) – the wheel damping
- **wheelIndex** (*integer*) – the wheel index

setSuspensionStiffness(*stiffness*, *wheelIndex*)
Set the specified wheel's stiffness

Parameters

- **stiffness** (*float*) – the wheel stiffness
- **wheelIndex** (*integer*) – the wheel index

setTyreFriction(*friction*, *wheelIndex*)
Set the specified wheel's tyre friction

Parameters

- **friction** (*float*) – the tyre friction
- **wheelIndex** (*integer*) – the wheel index

class bge.types.**KX_VertexProxy**(*SCA_IObject*)
A vertex holds position, UV, colour and normal information.

Note: The physics simulation is NOT currently updated - physics will not respond to changes in the vertex position.

XYZ
The position of the vertex.

Type list [x, y, z]

UV
The texture coordinates of the vertex.

Type list [u, v]

normal
The normal of the vertex.

Type list [nx, ny, nz]

colour
The colour of the vertex.

Type list [r, g, b, a]

Black = [0.0, 0.0, 0.0, 1.0], White = [1.0, 1.0, 1.0, 1.0]

color

Synonym for colour.

x

The x coordinate of the vertex.

Type float

y

The y coordinate of the vertex.

Type float

z

The z coordinate of the vertex.

Type float

u

The u texture coordinate of the vertex.

Type float

v

The v texture coordinate of the vertex.

Type float

u2

The second u texture coordinate of the vertex.

Type float

v2

The second v texture coordinate of the vertex.

Type float

r

The red component of the vertex colour. 0.0 <= r <= 1.0.

Type float

g

The green component of the vertex colour. 0.0 <= g <= 1.0.

Type float

b

The blue component of the vertex colour. 0.0 <= b <= 1.0.

Type float

a

The alpha component of the vertex colour. 0.0 <= a <= 1.0.

Type float

getXYZ()

Gets the position of this vertex.

Returns this vertexes position in local coordinates.

Return type list [x, y, z]

setXYZ(*pos*)
Sets the position of this vertex.

Type list [x, y, z]

Parameters

- **pos** – the new position for this vertex in local coordinates.

getUV()
Gets the UV (texture) coordinates of this vertex.

Returns this vertexes UV (texture) coordinates.

Return type list [u, v]

setUV(*uv*)
Sets the UV (texture) coordinates of this vertex.

Type list [u, v]

getUV2()
Gets the 2nd UV (texture) coordinates of this vertex.

Returns this vertexes UV (texture) coordinates.

Return type list [u, v]

setUV2(*uv*, *unit*)
Sets the 2nd UV (texture) coordinates of this vertex.

Type list [u, v]

Parameters

- **unit** – optional argument, FLAT==1, SECOND_UV==2, defaults to SECOND_UV
- **unit** – integer

getRGBA()
Gets the colour of this vertex.

The colour is represented as four bytes packed into an integer value. The colour is packed as RGBA.

Since Python offers no way to get each byte without shifting, you must use the struct module to access colour in an machine independent way.

Because of this, it is suggested you use the r, g, b and a attributes or the colour attribute instead.

```
import struct;
col = struct.unpack('4B', struct.pack('I', v.getRGBA()))
# col = (r, g, b, a)
# black = (  0,  0,  0, 255)
# white = (255, 255, 255, 255)
```

Returns packed colour. 4 byte integer with one byte per colour channel in RGBA format.

Return type integer

setRGBA(*col*)
Sets the colour of this vertex.

See getRGBA() for the format of col, and its relevant problems. Use the r, g, b and a attributes or the colour attribute instead.

setRGBA() also accepts a four component list as argument col. The list represents the colour as [r, g, b, a] with black = [0.0, 0.0, 0.0, 1.0] and white = [1.0, 1.0, 1.0, 1.0]

```
v.setRGBA(0xff0000ff) # Red
v.setRGBA(0xff00ff00) # Green on little endian, transparent purple on big endian
v.setRGBA([1.0, 0.0, 0.0, 1.0]) # Red
v.setRGBA([0.0, 1.0, 0.0, 1.0]) # Green on all platforms.
```

Parameters

- **col** (*integer or list [r, g, b, a]*) – the new colour of this vertex in packed RGBA format.

getNormal()
Gets the normal vector of this vertex.

Returns normalised normal vector.

Return type list [nx, ny, nz]

setNormal(*normal*)
Sets the normal vector of this vertex.

Type sequence of floats [r, g, b]

Parameters

- **normal** – the new normal of this vertex.

class bge.types.**KX_VisibilityActuator**(*SCA_IActuator*)
Visibility Actuator.

visibility
whether the actuator makes its parent object visible or invisible.

Type boolean

useOcclusion
whether the actuator makes its parent object an occluder or not.

Type boolean

useRecursion
whether the visibility/occlusion should be propagated to all children of the object.

Type boolean

class bge.types.**SCA_2DFilterActuator**(*SCA_IActuator*)
Create, enable and disable 2D filters

The following properties don't have an immediate effect. You must active the actuator to get the result. The actuator is not persistent: it automatically stops itself after setting up the filter but the filter remains active. To stop a filter you must activate the actuator with 'type' set to RAS_2DFILTER_DISABLED or RAS_2DFILTER_NOFILTER.

shaderText
shader source code for custom shader.

Type string

disableMotionBlur
action on motion blur: 0=enable, 1=disable.

Type integer

mode
Type of 2D filter, use one of *these constants*

Type integer

passNumber
order number of filter in the stack of 2D filters. Filters are executed in increasing order of passNb.

Only be one filter can be defined per passNb.

Type integer (0-100)

value
argument for motion blur filter.

Type float (0.0-100.0)

class bge.types.**SCA_ANDController**(*SCA_IController*)
An AND controller activates only when all linked sensors are activated.

There are no special python methods for this controller.

class bge.types.**SCA_ActuatorSensor**(*SCA_ISensor*)
Actuator sensor detect change in actuator state of the parent object. It generates a positive pulse if the corresponding actuator is activated and a negative pulse if the actuator is deactivated.

actuator
the name of the actuator that the sensor is monitoring.

Type string

class bge.types.**SCA_AlwaysSensor**(*SCA_ISensor*)
This sensor is always activated.

class bge.types.**SCA_DelaySensor**(*SCA_ISensor*)
The Delay sensor generates positive and negative triggers at precise time, expressed in number of frames. The delay parameter defines the length of the initial OFF period. A positive trigger is generated at the end of this period.

The duration parameter defines the length of the ON period following the OFF period. There is a negative trigger at the end of the ON period. If duration is 0, the sensor stays ON and there is no negative trigger.

The sensor runs the OFF-ON cycle once unless the repeat option is set: the OFF-ON cycle repeats indefinately (or the OFF cycle if duration is 0).

Use SCA_ISensor.reset at any time to restart sensor.

delay
length of the initial OFF period as number of frame, 0 for immediate trigger.

Type integer.

duration
length of the ON period in number of frame after the initial OFF period.

If duration is greater than 0, a negative trigger is sent at the end of the ON pulse.

Type integer

repeat
1 if the OFF-ON cycle should be repeated indefinately, 0 if it should run once.

Type integer

class bge.types.**SCA_JoystickSensor**(*SCA_ISensor*)
This sensor detects player joystick events.

axisValues
The state of the joysticks axis as a list of values numAxis long. (read-only).

Type list of ints.

Each spesifying the value of an axis between -32767 and 32767 depending on how far the axis is pushed, 0 for nothing. The first 2 values are used by most joysticks and gamepads for directional control. 3rd and 4th values are only on some joysticks and can be used for arbitary controls.

- left:[-32767, 0, ...]
- right:[32767, 0, ...]
- up:[0, -32767, ...]
- down:[0, 32767, ...]

axisSingle
like axisValues but returns a single axis value that is set by the sensor. (read-only).

Type integer

Note: Only use this for "Single Axis" type sensors otherwise it will raise an error.

hatValues
The state of the joysticks hats as a list of values numHats long. (read-only).

Type list of ints

Each spesifying the direction of the hat from 1 to 12, 0 when inactive.

Hat directions are as follows...

- 0:None
- 1:Up
- 2:Right
- 4:Down
- 8:Left
- 3:Up - Right
- 6:Down - Right
- 12:Down - Left
- 9:Up - Left

hatSingle
Like hatValues but returns a single hat direction value that is set by the sensor. (read-only).

Type integer

numAxis
The number of axes for the joystick at this index. (read-only).

Type integer

numButtons
The number of buttons for the joystick at this index. (read-only).

Type integer

numHats
The number of hats for the joystick at this index. (read-only).

Type integer

connected
True if a joystick is connected at this joysticks index. (read-only).

Type boolean

index
The joystick index to use (from 0 to 7). The first joystick is always 0.

Type integer

threshold
Axis threshold. Joystick axis motion below this threshold wont trigger an event. Use values between (0 and 32767), lower values are more sensitive.

Type integer

button
The button index the sensor reacts to (first button = 0). When the "All Events" toggle is set, this option has no effect.

Type integer

axis
The axis this sensor reacts to, as a list of two values [axisIndex, axisDirection]

- axisIndex: the axis index to use when detecting axis movement, 1=primary directional control, 2=secondary directional control.
- axisDirection: 0=right, 1=up, 2=left, 3=down.

Type [integer, integer]

hat
The hat the sensor reacts to, as a list of two values: [hatIndex, hatDirection]

- hatIndex: the hat index to use when detecting hat movement, 1=primary hat, 2=secondary hat (4 max).
- hatDirection: 1-12.

Type [integer, integer]

getButtonActiveList()

Returns A list containing the indicies of the currently pressed buttons.

Return type list

getButtonStatus(*buttonIndex*)

Parameters

- **buttonIndex** (*integer*) – the button index, 0=first button

Returns The current pressed state of the specified button.

Return type boolean

class bge.types.**SCA_KeyboardSensor**(*SCA_ISensor*)
A keyboard sensor detects player key presses.

See module bge.keys for keycode values.

key
The key code this sensor is looking for.

Type keycode from `bge.keys` module

hold1
The key code for the first modifier this sensor is looking for.

Type keycode from `bge.keys` module

hold2
The key code for the second modifier this sensor is looking for.

Type keycode from `bge.keys` module

toggleProperty
The name of the property that indicates whether or not to log keystrokes as a string.

Type string

targetProperty
The name of the property that receives keystrokes in case in case a string is logged.

Type string

useAllKeys
Flag to determine whether or not to accept all keys.

Type boolean

events
a list of pressed keys that have either been pressed, or just released, or are active this frame. (read-only).

Type list [[*keycode*, *status*], ...]

getKeyStatus(*keycode*)
Get the status of a key.

Parameters

- **keycode** (*integer*) – The code that represents the key you want to get the state of, use one of *these constants*

Returns The state of the given key, can be one of *these constants*

Return type int

class `bge.types.`**SCA_NANDController**(*SCA_IController*)
An NAND controller activates when all linked sensors are not active.

There are no special python methods for this controller.

class `bge.types.`**SCA_NORController**(*SCA_IController*)
An NOR controller activates only when all linked sensors are de-activated.

There are no special python methods for this controller.

class `bge.types.`**SCA_ORController**(*SCA_IController*)
An OR controller activates when any connected sensor activates.

There are no special python methods for this controller.

class `bge.types.`**SCA_PropertyActuator**(*SCA_IActuator*)
Property Actuator

propName
the property on which to operate.

Type string

value
the value with which the actuator operates.

Type string

mode
TODO - add constants to game logic dict!.

Type integer

class bge.types.**SCA_PropertySensor**(*SCA_ISensor*)
Activates when the game object property matches.

mode
Type of check on the property. Can be one of *these constants*

Type integer.

propName
the property the sensor operates.

Type string

value
the value with which the sensor compares to the value of the property.

Type string

min
the minimum value of the range used to evaluate the property when in interval mode.

Type string

max
the maximum value of the range used to evaluate the property when in interval mode.

Type string

class bge.types.**SCA_PythonController**(*SCA_IController*)
A Python controller uses a Python script to activate it's actuators, based on it's sensors.

script
The value of this variable depends on the execution methid.

- When 'Script' execution mode is set this value contains the entire python script as a single string (not the script name as you might expect) which can be modified to run different scripts.
- When 'Module' execution mode is set this value will contain a single line string - module name and function "module.func" or "package.modile.func" where the module names are python textblocks or external scripts.

Type string

Note: Once this is set the script name given for warnings will remain unchanged.

mode
the execution mode for this controller (read-only).

- Script: 0, Execite the `script` as a python code.
- Module: 1, Execite the `script` as a module and function.

Type integer

activate(*actuator*)
Activates an actuator attached to this controller.

Parameters

- **actuator** (*actuator or the actuator name as a string*) – The actuator to operate on.

deactivate(*actuator*)
Deactivates an actuator attached to this controller.

Parameters

- **actuator** (*actuator or the actuator name as a string*) – The actuator to operate on.

class bge.types.**SCA_RandomActuator**(*SCA_IActuator*)
Random Actuator

seed
Seed of the random number generator.

Type integer.

Equal seeds produce equal series. If the seed is 0, the generator will produce the same value on every call.

para1
the first parameter of the active distribution.

Type float, read-only.

Refer to the documentation of the generator types for the meaning of this value.

para2
the second parameter of the active distribution.

Type float, read-only

Refer to the documentation of the generator types for the meaning of this value.

distribution
Distribution type. (read-only). Can be one of *these constants*

Type integer

propName
the name of the property to set with the random value.

Type string

If the generator and property types do not match, the assignment is ignored.

setBoolConst(*value*)
Sets this generator to produce a constant boolean value.

Parameters

- **value** (*boolean*) – The value to return.

setBoolUniform()
Sets this generator to produce a uniform boolean distribution.

The generator will generate True or False with 50% chance.

setBoolBernouilli(*value*)
Sets this generator to produce a Bernouilli distribution.

Parameters

- **value** (*float*) – Specifies the proportion of False values to produce.

- 0.0: Always generate True
- 1.0: Always generate False

setIntConst(*value*)
Sets this generator to always produce the given value.

Parameters

- **value** (*integer*) – the value this generator produces.

setIntUniform(*lower_bound*, *upper_bound*)
Sets this generator to produce a random value between the given lower and upper bounds (inclusive).

setIntPoisson(*value*)
Generate a Poisson-distributed number.

This performs a series of Bernouilli tests with parameter value. It returns the number of tries needed to achieve succes.

setFloatConst(*value*)
Always generate the given value.

setFloatUniform(*lower_bound*, *upper_bound*)
Generates a random float between lower_bound and upper_bound with a uniform distribution.

setFloatNormal(*mean*, *standard_deviation*)
Generates a random float from the given normal distribution.

Parameters

- **mean** (*float*) – The mean (average) value of the generated numbers
- **standard_deviation** (*float*) – The standard deviation of the generated numbers.

setFloatNegativeExponential(*half_life*)
Generate negative-exponentially distributed numbers.

The half-life 'time' is characterized by half_life.

class bge.types.**SCA_RandomSensor**(*SCA_ISensor*)
This sensor activates randomly.

lastDraw
The seed of the random number generator.

Type integer

seed
The seed of the random number generator.

Type integer

setSeed(*seed*)
Sets the seed of the random number generator.

If the seed is 0, the generator will produce the same value on every call.

getSeed()

Returns The initial seed of the generator. Equal seeds produce equal random series.

Return type integer

getLastDraw()

Returns The last random number generated.

Return type integer

class bge.types.**SCA_XNORController**(*SCA_IController*)
An XNOR controller activates when all linked sensors are the same (activated or inative).

There are no special python methods for this controller.

class bge.types.**SCA_XORController**(*SCA_IController*)
An XOR controller activates when there is the input is mixed, but not when all are on or off.

There are no special python methods for this controller.

class bge.types.**KX_Camera**(*KX_GameObject*)
A Camera object.

INSIDE
See sphereInsideFrustum and boxInsideFrustum

INTERSECT
See sphereInsideFrustum and boxInsideFrustum

OUTSIDE
See sphereInsideFrustum and boxInsideFrustum

lens
The camera's lens value.

Type float

ortho_scale
The camera's view scale when in orthographic mode.

Type float

near
The camera's near clip distance.

Type float

far
The camera's far clip distance.

Type float

perspective
True if this camera has a perspective transform, False for an orthographic projection.

Type boolean

frustum_culling
True if this camera is frustum culling.

Type boolean

projection_matrix
This camera's 4x4 projection matrix.

Type 4x4 Matrix [[float]]

modelview_matrix
This camera's 4x4 model view matrix. (read-only).

Type 4x4 Matrix [[float]]

Note: This matrix is regenerated every frame from the camera's position and orientation.

camera_to_world
This camera's camera to world transform. (read-only).

Type 4x4 Matrix [[float]]

Note: This matrix is regenerated every frame from the camera's position and orientation.

world_to_camera
This camera's world to camera transform. (read-only).

Type 4x4 Matrix [[float]]

Note: Regenerated every frame from the camera's position and orientation.

Note: This is camera_to_world inverted.

useViewport
True when the camera is used as a viewport, set True to enable a viewport for this camera.

Type boolean

sphereInsideFrustum(*centre*, *radius*)
Tests the given sphere against the view frustum.

Parameters

- **centre** (*list [x, y, z]*) – The centre of the sphere (in world coordinates.)
- **radius** (*float*) – the radius of the sphere

Returns INSIDE, OUTSIDE or INTERSECT

Return type integer

Note: When the camera is first initialized the result will be invalid because the projection matrix has not been set.

```
import GameLogic
co = GameLogic.getCurrentController()
cam = co.owner

# A sphere of radius 4.0 located at [x, y, z] = [1.0, 1.0, 1.0]
if (cam.sphereInsideFrustum([1.0, 1.0, 1.0], 4) != cam.OUTSIDE):
    # Sphere is inside frustum !
    # Do something useful !
else:
    # Sphere is outside frustum
```

boxInsideFrustum(*box*)
Tests the given box against the view frustum.

Parameters

- **box** (*list of lists*) – Eight (8) corner points of the box (in world coordinates.)

Returns INSIDE, OUTSIDE or INTERSECT

Note: When the camera is first initialized the result will be invalid because the projection matrix has not been set.

```
import GameLogic
co = GameLogic.getCurrentController()
cam = co.owner

# Box to test...
box = []
box.append([-1.0, -1.0, -1.0])
box.append([-1.0, -1.0,  1.0])
box.append([-1.0,  1.0, -1.0])
box.append([-1.0,  1.0,  1.0])
box.append([ 1.0, -1.0, -1.0])
box.append([ 1.0, -1.0,  1.0])
box.append([ 1.0,  1.0, -1.0])
box.append([ 1.0,  1.0,  1.0])

if (cam.boxInsideFrustum(box) != cam.OUTSIDE):
  # Box is inside/intersects frustum !
  # Do something useful !
else:
  # Box is outside the frustum !
```

pointInsideFrustum(*point*)

Tests the given point against the view frustum.

Parameters

- **point** (*3D Vector*) – The point to test (in world coordinates.)

Returns True if the given point is inside this camera's viewing frustum.

Return type boolean

Note: When the camera is first initialized the result will be invalid because the projection matrix has not been set.

```
import GameLogic
co = GameLogic.getCurrentController()
cam = co.owner

# Test point [0.0, 0.0, 0.0]
if (cam.pointInsideFrustum([0.0, 0.0, 0.0])):
  # Point is inside frustum !
  # Do something useful !
else:
  # Box is outside the frustum !
```

getCameraToWorld()

Returns the camera-to-world transform.

Returns the camera-to-world transform matrix.

Return type matrix (4x4 list)

getWorldToCamera()

Returns the world-to-camera transform.

This returns the inverse matrix of getCameraToWorld().

Returns the world-to-camera transform matrix.

Return type matrix (4x4 list)

setOnTop()
Set this cameras viewport ontop of all other viewport.

setViewport(*left*, *bottom*, *right*, *top*)
Sets the region of this viewport on the screen in pixels.

Use bge.render.getWindowHeight and bge.render.getWindowWidth to calculate values relative to the entire display.

Parameters

- **left** (*integer*) – left pixel coordinate of this viewport
- **bottom** (*integer*) – bottom pixel coordinate of this viewport
- **right** (*integer*) – right pixel coordinate of this viewport
- **top** (*integer*) – top pixel coordinate of this viewport

getScreenPosition(*object*)
Gets the position of an object projected on screen space.

```
# For an object in the middle of the screen, coord = [0.5, 0.5]
coord = camera.getScreenPosition(object)
```

Parameters

- **object** (KX_GameObject or 3D Vector) – object name or list [x, y, z]

Returns the object's position in screen coordinates.

Return type list [x, y]

getScreenVect(*x*, *y*)
Gets the vector from the camera position in the screen coordinate direction.

Parameters

- **x** (*float*) – X Axis
- **y** (*float*) – Y Axis

Return type 3D Vector

Returns The vector from screen coordinate.

```
# Gets the vector of the camera front direction:
m_vect = camera.getScreenVect(0.5, 0.5)
```

getScreenRay(*x*, *y*, *dist=inf*, *property=None*)
Look towards a screen coordinate (x, y) and find first object hit within dist that matches prop. The ray is similar to KX_GameObject->rayCastTo.

Parameters

- **x** (*float*) – X Axis
- **y** (*float*) – Y Axis
- **dist** (*float*) – max distance to look (can be negative => look behind); 0 or omitted => detect up to other

- **property** (*string*) – property name that object must have; can be omitted => detect any object

Return type KX_GameObject

Returns the first object hit or None if no object or object does not match prop

```
# Gets an object with a property "wall" in front of the camera within a distance of 100
target = camera.getScreenRay(0.5, 0.5, 100, "wall")
```

class bge.types.**BL_ArmatureObject**(*KX_GameObject*)

An armature object.

constraints

The list of armature constraint defined on this armature. Elements of the list can be accessed by index or string. The key format for string access is '<bone_name>:<constraint_name>'.

Type list of BL_ArmatureConstraint

channels

The list of armature channels. Elements of the list can be accessed by index or name the bone.

Type list of BL_ArmatureChannel

update()

Ensures that the armature will be updated on next graphic frame.

This action is unecessary if a KX_ArmatureActuator with mode run is active or if an action is playing. Use this function in other cases. It must be called on each frame to ensure that the armature is updated continously.

class bge.types.**BL_ArmatureActuator**(*SCA_IActuator*)

Armature Actuators change constraint condition on armatures. Constants related to type

KX_ACT_ARMATURE_RUN

Just make sure the armature will be updated on the next graphic frame. This is the only persistent mode of the actuator: it executes automatically once per frame until stopped by a controller

Value 0

KX_ACT_ARMATURE_ENABLE

Enable the constraint.

Value 1

KX_ACT_ARMATURE_DISABLE

Disable the constraint (runtime constraint values are not updated).

Value 2

KX_ACT_ARMATURE_SETTARGET

Change target and subtarget of constraint.

Value 3

KX_ACT_ARMATURE_SETWEIGHT

Change weight of (only for IK constraint).

Value 4

type

The type of action that the actuator executes when it is active.

Can be one of *these constants*

Type integer

constraint
The constraint object this actuator is controlling.

Type BL_ArmatureConstraint

target
The object that this actuator will set as primary target to the constraint it controls.

Type KX_GameObject

subtarget
The object that this actuator will set as secondary target to the constraint it controls.

Type KX_GameObject.

Note: Currently, the only secondary target is the pole target for IK constraint.

weight
The weight this actuator will set on the constraint it controls.

Type float.

Note: Currently only the IK constraint has a weight. It must be a value between 0 and 1.

Note: A weight of 0 disables a constraint while still updating constraint runtime values (see BL_ArmatureConstraint)

class bge.types.**KX_ArmatureSensor**(*SCA_ISensor*)
Armature sensor detect conditions on armatures. Constants related to type

KX_ARMSENSOR_STATE_CHANGED
Detect that the constraint is changing state (active/inactive)

Value 0

KX_ARMSENSOR_LIN_ERROR_BELOW
Detect that the constraint linear error is above a threshold

Value 1

KX_ARMSENSOR_LIN_ERROR_ABOVE
Detect that the constraint linear error is below a threshold

Value 2

KX_ARMSENSOR_ROT_ERROR_BELOW
Detect that the constraint rotation error is above a threshold

Value 3

KX_ARMSENSOR_ROT_ERROR_ABOVE
Detect that the constraint rotation error is below a threshold

Value 4

type
The type of measurement that the sensor make when it is active.

Can be one of *these constants*

Type integer.

constraint
The constraint object this sensor is watching.

Type BL_ArmatureConstraint

value
The threshold used in the comparison with the constraint error The linear error is only updated on CopyPose/Distance IK constraint with iTaSC solver The rotation error is only updated on CopyPose+rotation IK constraint with iTaSC solver The linear error on CopyPose is always >= 0: it is the norm of the distance between the target and the bone The rotation error on CopyPose is always >= 0: it is the norm of the equivalent rotation vector between the bone and the target orientations The linear error on Distance can be positive if the distance between the bone and the target is greater than the desired distance, and negative if the distance is smaller.

Type float

class bge.types.**BL_ArmatureConstraint**(*PyObjectPlus*)
Proxy to Armature Constraint. Allows to change constraint on the fly. Obtained through BL_ArmatureObject.constraints.

Note: Not all armature constraints are supported in the GE. Constants related to type

CONSTRAINT_TYPE_TRACKTO

CONSTRAINT_TYPE_KINEMATIC

CONSTRAINT_TYPE_ROTLIKE

CONSTRAINT_TYPE_LOCLIKE

CONSTRAINT_TYPE_MINMAX

CONSTRAINT_TYPE_SIZELIKE

CONSTRAINT_TYPE_LOCKTRACK

CONSTRAINT_TYPE_STRETCHTO

CONSTRAINT_TYPE_CLAMPTO

CONSTRAINT_TYPE_TRANSFORM

CONSTRAINT_TYPE_DISTLIMIT

Constants related to ik_type

CONSTRAINT_IK_COPYPOSE
constraint is trying to match the position and eventually the rotation of the target.

Value 0

CONSTRAINT_IK_DISTANCE
Constraint is maintaining a certain distance to target subject to ik_mode

Value 1

Constants related to ik_flag

CONSTRAINT_IK_FLAG_TIP
Set when the constraint operates on the head of the bone and not the tail

Value 1

CONSTRAINT_IK_FLAG_ROT
Set when the constraint tries to match the orientation of the target

Value 2

CONSTRAINT_IK_FLAG_STRETCH
Set when the armature is allowed to stretch (only the bones with stretch factor > 0.0)

Value 16

CONSTRAINT_IK_FLAG_POS
Set when the constraint tries to match the position of the target.

Value 32

Constants related to ik_mode

CONSTRAINT_IK_MODE_INSIDE
The constraint tries to keep the bone within ik_dist of target

Value 0

CONSTRAINT_IK_MODE_OUTSIDE
The constraint tries to keep the bone outside ik_dist of the target

Value 1

CONSTRAINT_IK_MODE_ONSURFACE
The constraint tries to keep the bone exactly at ik_dist of the target.

Value 2

type
Type of constraint, (read-only).

Use one of *these constants*.

Type integer, one of CONSTRAINT_TYPE_* constants

name
Name of constraint constructed as <bone_name>:<constraint_name>. constraints list.

Type string

This name is also the key subscript on BL_ArmatureObject.

enforce
fraction of constraint effect that is enforced. Between 0 and 1.

Type float

headtail
Position of target between head and tail of the target bone: 0=head, 1=tail.

Type float.

Note: Only used if the target is a bone (i.e target object is an armature.

lin_error
runtime linear error (in Blender units) on constraint at the current frame.

This is a runtime value updated on each frame by the IK solver. Only available on IK constraint and iTaSC solver.

Type float

rot_error
Runtime rotation error (in radiant) on constraint at the current frame.

Type float.

This is a runtime value updated on each frame by the IK solver. Only available on IK constraint and iTaSC solver.

It is only set if the constraint has a rotation part, for example, a CopyPose+Rotation IK constraint.

target
Primary target object for the constraint. The position of this object in the GE will be used as target for the constraint.

Type KX_GameObject.

subtarget
Secondary target object for the constraint. The position of this object in the GE will be used as secondary target for the constraint.

Type KX_GameObject.

Currently this is only used for pole target on IK constraint.

active
True if the constraint is active.

Type boolean

Note: An inactive constraint does not update lin_error and rot_error.

ik_weight
Weight of the IK constraint between 0 and 1.

Only defined for IK constraint.

Type float

ik_type
Type of IK constraint, (read-only).

Use one of *these constants*.

Type integer.

ik_flag
Combination of IK constraint option flags, read-only.

Use one of *these constants*.

Type integer

ik_dist
Distance the constraint is trying to maintain with target, only used when ik_type=CONSTRAINT_IK_DISTANCE.

Type float

ik_mode
Use one of *these constants*.

Additional mode for IK constraint. Currently only used for Distance constraint:

Type integer

class bge.types.**BL_ArmatureChannel**(*PyObjectPlus*)
Proxy to armature pose channel. Allows to read and set armature pose. The attributes are identical to RNA attributes, but mostly in read-only mode.

See rotation_mode

PCHAN_ROT_QUAT

PCHAN_ROT_XYZ

PCHAN_ROT_XZY

PCHAN_ROT_YXZ

PCHAN_ROT_YZX

PCHAN_ROT_ZXY

PCHAN_ROT_ZYX

name
channel name (=bone name), read-only.

Type string

bone
return the bone object corresponding to this pose channel, read-only.

Type BL_ArmatureBone

parent
return the parent channel object, None if root channel, read-only.

Type BL_ArmatureChannel

has_ik
true if the bone is part of an active IK chain, read-only. This flag is not set when an IK constraint is defined but not enabled (miss target information for example).

Type boolean

ik_dof_x
true if the bone is free to rotation in the X axis, read-only.

Type boolean

ik_dof_y
true if the bone is free to rotation in the Y axis, read-only.

Type boolean

ik_dof_z
true if the bone is free to rotation in the Z axis, read-only.

Type boolean

ik_limit_x
true if a limit is imposed on X rotation, read-only.

Type boolean

ik_limit_y
true if a limit is imposed on Y rotation, read-only.

Type boolean

ik_limit_z
true if a limit is imposed on Z rotation, read-only.

Type boolean

ik_rot_control
true if channel rotation should applied as IK constraint, read-only.

Type boolean

ik_lin_control
true if channel size should applied as IK constraint, read-only.

Type boolean

location
displacement of the bone head in armature local space, read-write.

Type vector [X, Y, Z].

Note: You can only move a bone if it is unconnected to its parent. An action playing on the armature may change the value. An IK chain does not update this value, see joint_rotation.

Note: Changing this field has no immediate effect, the pose is updated when the armature is updated during the graphic render (see BL_ArmatureObject.update).

scale
scale of the bone relative to its parent, read-write.

Type vector [sizeX, sizeY, sizeZ].

Note: An action playing on the armature may change the value. An IK chain does not update this value, see joint_rotation.

Note: Changing this field has no immediate effect, the pose is updated when the armature is updated during the graphic render (see BL_ArmatureObject.update)

rotation_quaternion
rotation of the bone relative to its parent expressed as a quaternion, read-write.

Type vector [qr, qi, qj, qk].

Note: This field is only used if rotation_mode is 0. An action playing on the armature may change the value. An IK chain does not update this value, see joint_rotation.

Note: Changing this field has no immediate effect, the pose is updated when the armature is updated during the graphic render (see BL_ArmatureObject.update)

rotation_euler
rotation of the bone relative to its parent expressed as a set of euler angles, read-write.

Type vector [X, Y, Z].

Note: This field is only used if rotation_mode is > 0. You must always pass the angles in [X, Y, Z] order; the order of applying the angles to the bone depends on rotation_mode. An action playing on the armature may change this field. An IK chain does not update this value, see joint_rotation.

Note: Changing this field has no immediate effect, the pose is updated when the armature is updated during the graphic render (see BL_ArmatureObject.update)

rotation_mode
Method of updating the bone rotation, read-write.

Type integer

Use the following constants (euler mode are named as in Blender UI but the actual axis order is reversed).

•PCHAN_ROT_QUAT(0) : use quaternioin in rotation attribute to update bone rotation

•PCHAN_ROT_XYZ(1) : use euler_rotation and apply angles on bone's Z, Y, X axis successively

•PCHAN_ROT_XZY(2) : use euler_rotation and apply angles on bone's Y, Z, X axis successively

•PCHAN_ROT_YXZ(3) : use euler_rotation and apply angles on bone's Z, X, Y axis successively

•PCHAN_ROT_YZX(4) : use euler_rotation and apply angles on bone's X, Z, Y axis successively

•PCHAN_ROT_ZXY(5) : use euler_rotation and apply angles on bone's Y, X, Z axis successively

•PCHAN_ROT_ZYX(6) : use euler_rotation and apply angles on bone's X, Y, Z axis successively

channel_matrix
pose matrix in bone space (deformation of the bone due to action, constraint, etc), Read-only. This field is updated after the graphic render, it represents the current pose.

Type matrix [4][4]

pose_matrix
pose matrix in armature space, read-only, This field is updated after the graphic render, it represents the current pose.

Type matrix [4][4]

pose_head
position of bone head in armature space, read-only.

Type vector [x, y, z]

pose_tail
position of bone tail in armature space, read-only.

Type vector [x, y, z]

ik_min_x
minimum value of X rotation in degree (<= 0) when X rotation is limited (see ik_limit_x), read-only.

Type float

ik_max_x
maximum value of X rotation in degree (>= 0) when X rotation is limited (see ik_limit_x), read-only.

Type float

ik_min_y
minimum value of Y rotation in degree (<= 0) when Y rotation is limited (see ik_limit_y), read-only.

Type float

ik_max_y
maximum value of Y rotation in degree (>= 0) when Y rotation is limited (see ik_limit_y), read-only.

Type float

ik_min_z
minimum value of Z rotation in degree (<= 0) when Z rotation is limited (see ik_limit_z), read-only.

Type float

ik_max_z
maximum value of Z rotation in degree (>= 0) when Z rotation is limited (see ik_limit_z), read-only.

Type float

ik_stiffness_x
bone rotation stiffness in X axis, read-only.

Type float between 0 and 1

ik_stiffness_y
bone rotation stiffness in Y axis, read-only.

Type float between 0 and 1

ik_stiffness_z
bone rotation stiffness in Z axis, read-only.

Type float between 0 and 1

ik_stretch
ratio of scale change that is allowed, 0=bone can't change size, read-only.

Type float

ik_rot_weight
weight of rotation constraint when ik_rot_control is set, read-write.

Type float between 0 and 1

ik_lin_weight
weight of size constraint when ik_lin_control is set, read-write.

Type float between 0 and 1

joint_rotation
Control bone rotation in term of joint angle (for robotic applications), read-write.

When writing to this attribute, you pass a [x, y, z] vector and an appropriate set of euler angles or quaternion is calculated according to the rotation_mode.

When you read this attribute, the current pose matrix is converted into a [x, y, z] vector representing the joint angles.

The value and the meaning of the x, y, z depends on the ik_dof_x/ik_dof_y/ik_dof_z attributes:

- 1DoF joint X, Y or Z: the corresponding x, y, or z value is used an a joint angle in radiant
- 2DoF joint X+Y or Z+Y: treated as 2 successive 1DoF joints: first X or Z, then Y. The x or z value is used as a joint angle in radiant along the X or Z axis, followed by a rotation along the new Y axis of y radiants.
- 2DoF joint X+Z: treated as a 2DoF joint with rotation axis on the X/Z plane. The x and z values are used as the coordinates of the rotation vector in the X/Z plane.
- 3DoF joint X+Y+Z: treated as a revolute joint. The [x, y, z] vector represents the equivalent rotation vector to bring the joint from the rest pose to the new pose.

Type vector [x, y, z]

Note: The bone must be part of an IK chain if you want to set the ik_dof_x/ik_dof_y/ik_dof_z attributes via the UI, but this will interfere with this attribute since the IK solver will overwrite the pose. You can stay in control of the armature if you create an IK constraint but do not finalize it (e.g. don't set a target) the IK solver will not run but the IK panel will show up on the UI for each bone in the chain.

Note: [0, 0, 0] always corresponds to the rest pose.

Note: You must request the armature pose to update and wait for the next graphic frame to see the effect of setting this attribute (see `BL_ArmatureObject.update`).

Note: You can read the result of the calculation in rotation or euler_rotation attributes after setting this attribute.

class `bge.types.`**BL_ArmatureBone**(*PyObjectPlus*)
Proxy to Blender bone structure. All fields are read-only and comply to RNA names. All space attribute correspond to the rest pose.

name
bone name.

Type string

connected
true when the bone head is struck to the parent's tail.

Type boolean

hinge
true when bone doesn't inherit rotation or scale from parent bone.

Type boolean

inherit_scale
true when bone inherits scaling from parent bone.

Type boolean

bbone_segments
number of B-bone segments.

Type integer

roll
bone rotation around head-tail axis.

Type float

head
location of head end of the bone in parent bone space.

Type vector [x, y, z]

tail
location of head end of the bone in parent bone space.

Type vector [x, y, z]

length
bone length.

Type float

arm_head
location of head end of the bone in armature space.

Type vector [x, y, z]

arm_tail
location of tail end of the bone in armature space.

Type vector [x, y, z]

arm_mat
matrix of the bone head in armature space.

Type matrix [4][4]

Note: This matrix has no scale part.

bone_mat
rotation matrix of the bone in parent bone space.

Type matrix [3][3]

parent
parent bone, or None for root bone.

Type BL_ArmatureBone

children
list of bone's children.

Type list of BL_ArmatureBone

3.2 Game Engine bge.logic Module

3.2.1 Intro

Module to access logic functions, imported automatically into the python controllers namespace.

```
# To get the controller thats running this python script:
cont = bge.logic.getCurrentController() # bge.logic is automatically imported

# To get the game object this controller is on:
obj = cont.owner
```

KX_GameObject and KX_Camera or bge.types.~KX_LightObject methods are available depending on the type of object

```
# To get a sensor linked to this controller.
# "sensorname" is the name of the sensor as defined in the Blender interface.
# +---------------------+  +--------+
# | Sensor "sensorname" +--+ Python +
# +---------------------+  +--------+
sens = cont.sensors["sensorname"]

# To get a sequence of all sensors:
sensors = co.sensors
```

See the sensor's reference for available methods:

- KX_MouseFocusSensor
- KX_NearSensor
- KX_NetworkMessageSensor
- KX_RadarSensor
- KX_RaySensor
- KX_TouchSensor
- SCA_DelaySensor
- SCA_JoystickSensor
- SCA_KeyboardSensor
- SCA_MouseSensor
- SCA_PropertySensor
- SCA_RandomSensor

You can also access actuators linked to the controller

```
# To get an actuator attached to the controller:
#                           +--------+  +-------------------------+
#                           + Python +--+ Actuator "actuatorname" |
#                           +--------+  +-------------------------+
actuator = co.actuators["actuatorname"]

# Activate an actuator
controller.activate(actuator)
```

See the actuator's reference for available methods

- BL_ActionActuator
- BL_ShapeActionActuator

- KX_CameraActuator
- KX_ConstraintActuator
- KX_GameActuator
- KX_IpoActuator
- KX_NetworkMessageActuator
- KX_ObjectActuator
- KX_ParentActuator
- KX_SCA_AddObjectActuator
- KX_SCA_DynamicActuator
- KX_SCA_EndObjectActuator
- KX_SCA_ReplaceMeshActuator
- KX_SceneActuator
- KX_SoundActuator
- KX_StateActuator
- KX_TrackToActuator
- KX_VisibilityActuator
- SCA_2DFilterActuator
- SCA_PropertyActuator
- SCA_RandomActuator

Most logic brick's methods are accessors for the properties available in the logic buttons. Consult the logic bricks documentation for more information on how each logic brick works.

There are also methods to access the current bge.types.KX_Scene

```
# Get the current scene
scene = bge.logic.getCurrentScene()

# Get the current camera
cam = scene.active_camera
```

Matricies as used by the game engine are **row major** `matrix[row][col] = float`

bge.types.KX_Camera has some examples using matricies.

3.2.2 Variables

bge.logic.**globalDict**
A dictionary that is saved between loading blend files so you can use it to store inventory and other variables you want to store between scenes and blend files. It can also be written to a file and loaded later on with the game load/save actuators.

Note: only python built in types such as int/string/bool/float/tuples/lists can be saved, GameObjects, Actuators etc will not work as expected.

bge.logic.**keyboard**
The current keyboard wrapped in an SCA_PythonKeyboard object.

bge.logic.**mouse**
The current mouse wrapped in an SCA_PythonMouse object.

3.2.3 General functions

bge.logic.**getCurrentController**()
Gets the Python controller associated with this Python script.

Return type bge.types.SCA_PythonController

bge.logic.**getCurrentScene**()
Gets the current Scene.

Return type bge.types.KX_Scene

bge.logic.**getSceneList**()
Gets a list of the current scenes loaded in the game engine.

Return type list of bge.types.KX_Scene

Note: Scenes in your blend file that have not been converted wont be in this list. This list will only contain scenes such as overlays scenes.

bge.logic.**loadGlobalDict**()
Loads bge.logic.globalDict from a file.

bge.logic.**saveGlobalDict**()
Saves bge.logic.globalDict to a file.

bge.logic.**startGame**(*blend*)
Loads the blend file.

Parameters

- **blend** (*string*) – The name of the blend file

bge.logic.**endGame**()
Ends the current game.

bge.logic.**restartGame**()
Restarts the current game by reloading the .blend file (the last saved version, not what is currently running).

bge.logic.**LibLoad**(*blend*, *type*, *data*)
Converts the all of the datablocks of the given type from the given blend.

Parameters

- **blend** (*string*) – The path to the blend file (or the name to use for the library if data is supplied)
- **type** (*string*) – The datablock type (currently only "Scene" and "Mesh" are supported)
- **data** (*bytes*) – Binary data from a blend file (optional)

bge.logic.**LibNew**(*name*, *type*, *data*)
Uses existing datablock data and loads in as a new library.

Parameters

- **name** (*string*) – A unique library name used for removal later
- **type** (*string*) – The datablock type (currently only "Mesh" is supported)
- **data** (*list of strings*) – A list of names of the datablocks to load

bge.logic.**LibFree**(*name*)
Frees a library, removing all objects and meshes from the currently active scenes.

Parameters

- **name** (*string*) – The name of the library to free (the name used in LibNew)

bge.logic.**addScene**(*name*, *overlay=1*)
Loads a scene into the game engine.

Parameters

- **name** (*string*) – The name of the scene
- **overlay** (*integer*) – Overlay or underlay (optional)

bge.logic.**sendMessage**(*subject*, *body=""*, *to=""*, *message_from=""*)
Sends a message to sensors in any active scene.

Parameters

- **subject** (*string*) – The subject of the message
- **body** (*string*) – The body of the message (optional)
- **to** (*string*) – The name of the object to send the message to (optional)
- **message_from** (*string*) – The name of the object that the message is coming from (optional)

bge.logic.**setGravity**(*gravity*)
Sets the world gravity.

bge.logic.**getSpectrum**()
Returns a 512 point list from the sound card. This only works if the fmod sound driver is being used.

Return type list [float], len(getSpectrum()) == 512

bge.logic.**stopDSP**()
Stops the sound driver using DSP effects.

Only the fmod sound driver supports this. DSP can be computationally expensive.

bge.logic.**getMaxLogicFrame**()
Gets the maximum number of logic frames per render frame.

Returns The maximum number of logic frames per render frame

Return type integer

bge.logic.**setMaxLogicFrame**(*maxlogic*)
Sets the maximum number of logic frames that are executed per render frame. This does not affect the physic system that still runs at full frame rate.

Parameters

- **maxlogic** (*integer*) – The new maximum number of logic frames per render frame. Valid values: 1..5

bge.logic.**getMaxPhysicsFrame**()
Gets the maximum number of physics frames per render frame.

Returns The maximum number of physics frames per render frame

Return type integer

bge.logic.**setMaxPhysicsFrame**(*maxphysics*)
Sets the maximum number of physics timestep that are executed per render frame. Higher value allows physics to keep up with realtime even if graphics slows down the game. Physics timestep is fixed and equal to 1/tickrate (see setLogicTicRate) maxphysics/ticrate is the maximum delay of the renderer that physics can compensate.

Parameters

- **maxphysics** (*integer*) – The new maximum number of physics timestep per render frame. Valid values: 1..5.

bge.logic.**getLogicTicRate**()
Gets the logic update frequency.

Returns The logic frequency in Hz

Return type float

bge.logic.**setLogicTicRate**(*ticrate*)
Sets the logic update frequency.

The logic update frequency is the number of times logic bricks are executed every second. The default is 60 Hz.

Parameters

- **ticrate** (*float*) – The new logic update frequency (in Hz).

bge.logic.**getPhysicsTicRate**()
Gets the physics update frequency

Returns The physics update frequency in Hz

Return type float

bge.logic.**setPhysicsTicRate**(*ticrate*)
Sets the physics update frequency

The physics update frequency is the number of times the physics system is executed every second. The default is 60 Hz.

Parameters

- **ticrate** (*float*) – The new update frequency (in Hz).

3.2.4 Utility functions

bge.logic.**expandPath**(*path*)
Converts a blender internal path into a proper file system path.

Use / as directory separator in path You can use '//' at the start of the string to define a relative path; Blender replaces that string by the directory of the startup .blend or runtime file to make a full path name (doesn't change during the game, even if you load other .blend). The function also converts the directory separator to the local file system format.

Parameters

- **path** (*string*) – The path string to be converted/expanded.

Returns The converted string

Return type string

bge.logic.**getAverageFrameRate**()
Gets the estimated average framerate

Returns The estimed average framerate in frames per second

Return type float

bge.logic.**getBlendFileList**(*path = "//"*)
Returns a list of blend files in the same directory as the open blend file, or from using the option argument.

Parameters

- **path** (*string*) – Optional directory argument, will be expanded (like expandPath) into the full path.

Returns A list of filenames, with no directory prefix

Return type list

bge.logic.**getRandomFloat**()
Returns a random floating point value in the range [0 - 1)

bge.logic.**PrintGLInfo**()
Prints GL Extension Info into the console

3.2.5 Constants

bge.logic.**KX_TRUE**
True value used by some modules.

bge.logic.**KX_FALSE**
False value used by some modules.

Sensors

Sensor Status

bge.logic.**KX_SENSOR_INACTIVE**

bge.logic.**KX_SENSOR_JUST_ACTIVATED**

bge.logic.**KX_SENSOR_ACTIVE**

bge.logic.**KX_SENSOR_JUST_DEACTIVATED**

Property Sensor

bge.logic.**KX_PROPSENSOR_EQUAL**
Activate when the property is equal to the sensor value.

Value 1

bge.logic.**KX_PROPSENSOR_NOTEQUAL**
Activate when the property is not equal to the sensor value.

Value 2

bge.logic.**KX_PROPSENSOR_INTERVAL**
Activate when the property is between the specified limits.

Value 3

bge.logic.**KX_PROPSENSOR_CHANGED**
Activate when the property changes

Value 4

bge.logic.**KX_PROPSENSOR_EXPRESSION**
Activate when the expression matches

Value 5

Radar Sensor

See bge.types.KX_RadarSensor

bge.logic.**KX_RADAR_AXIS_POS_X**

bge.logic.**KX_RADAR_AXIS_POS_Y**

bge.logic.**KX_RADAR_AXIS_POS_Z**

bge.logic.**KX_RADAR_AXIS_NEG_X**

bge.logic.**KX_RADAR_AXIS_NEG_Y**

bge.logic.**KX_RADAR_AXIS_NEG_Z**

Ray Sensor

See bge.types.KX_RaySensor

bge.logic.**KX_RAY_AXIS_POS_X**

bge.logic.**KX_RAY_AXIS_POS_Y**

bge.logic.**KX_RAY_AXIS_POS_Z**

bge.logic.**KX_RAY_AXIS_NEG_X**

bge.logic.**KX_RAY_AXIS_NEG_Y**

bge.logic.**KX_RAY_AXIS_NEG_Z**

Actuators

Action Actuator

See bge.types.BL_ActionActuator

bge.logic.**KX_ACTIONACT_PLAY**

bge.logic.**KX_ACTIONACT_FLIPPER**

bge.logic.**KX_ACTIONACT_LOOPSTOP**

bge.logic.**KX_ACTIONACT_LOOPEND**

bge.logic.**KX_ACTIONACT_PROPERTY**

Constraint Actuator

See bge.types.KX_ConstraintActuator.option

- Applicable to Distance constraint:

  bge.logic.**KX_ACT_CONSTRAINT_NORMAL**
  Activate alignment to surface

  bge.logic.**KX_ACT_CONSTRAINT_DISTANCE**
  Activate distance control

bge.logic.**KX_ACT_CONSTRAINT_LOCAL**
Direction of the ray is along the local axis

- Applicable to Force field constraint:

bge.logic.**KX_ACT_CONSTRAINT_DOROTFH**
Force field act on rotation as well

- Applicable to both:

bge.logic.**KX_ACT_CONSTRAINT_MATERIAL**
Detect material rather than property

bge.logic.**KX_ACT_CONSTRAINT_PERMANENT**
No deactivation if ray does not hit target

See bge.types.KX_ConstraintActuator.limit

bge.logic.**KX_CONSTRAINTACT_LOCX**
Limit X coord.

bge.logic.**KX_CONSTRAINTACT_LOCY**
Limit Y coord

bge.logic.**KX_CONSTRAINTACT_LOCZ**
Limit Z coord

bge.logic.**KX_CONSTRAINTACT_ROTX**
Limit X rotation

bge.logic.**KX_CONSTRAINTACT_ROTY**
Limit Y rotation

bge.logic.**KX_CONSTRAINTACT_ROTZ**
Limit Z rotation

bge.logic.**KX_CONSTRAINTACT_DIRNX**
Set distance along negative X axis

bge.logic.**KX_CONSTRAINTACT_DIRNY**
Set distance along negative Y axis

bge.logic.**KX_CONSTRAINTACT_DIRNZ**
Set distance along negative Z axis

bge.logic.**KX_CONSTRAINTACT_DIRPX**
Set distance along positive X axis

bge.logic.**KX_CONSTRAINTACT_DIRPY**
Set distance along positive Y axis

bge.logic.**KX_CONSTRAINTACT_DIRPZ**
Set distance along positive Z axis

bge.logic.**KX_CONSTRAINTACT_ORIX**
Set orientation of X axis

bge.logic.**KX_CONSTRAINTACT_ORIY**
Set orientation of Y axis

bge.logic.**KX_CONSTRAINTACT_ORIZ**
Set orientation of Z axis

bge.logic.**KX_ACT_CONSTRAINT_FHNX**
Set force field along negative X axis

bge.logic.**KX_ACT_CONSTRAINT_FHNY**
Set force field along negative Y axis

bge.logic.**KX_ACT_CONSTRAINT_FHNZ**
Set force field along negative Z axis

bge.logic.**KX_ACT_CONSTRAINT_FHPX**
Set force field along positive X axis

bge.logic.**KX_ACT_CONSTRAINT_FHPY**
Set force field along positive Y axis

bge.logic.**KX_ACT_CONSTRAINT_FHPZ**
Set force field along positive Z axis

Dynamic Actuator

See bge.types.KX_SCA_DynamicActuator

bge.logic.**KX_DYN_RESTORE_DYNAMICS**

bge.logic.**KX_DYN_DISABLE_DYNAMICS**

bge.logic.**KX_DYN_ENABLE_RIGID_BODY**

bge.logic.**KX_DYN_DISABLE_RIGID_BODY**

bge.logic.**KX_DYN_SET_MASS**

Game Actuator

See bge.types.KX_GameActuator

bge.logic.**KX_GAME_LOAD**

bge.logic.**KX_GAME_START**

bge.logic.**KX_GAME_RESTART**

bge.logic.**KX_GAME_QUIT**

bge.logic.**KX_GAME_SAVECFG**

bge.logic.**KX_GAME_LOADCFG**

IPO Actuator

See bge.types.KX_IpoActuator

bge.logic.**KX_IPOACT_PLAY**

bge.logic.**KX_IPOACT_PINGPONG**

bge.logic.**KX_IPOACT_FLIPPER**

bge.logic.**KX_IPOACT_LOOPSTOP**

bge.logic.**KX_IPOACT_LOOPEND**

bge.logic.**KX_IPOACT_FROM_PROP**

Parent Actuator

bge.logic.**KX_PARENT_REMOVE**

bge.logic.**KX_PARENT_SET**

Random Distributions

See bge.types.SCA_RandomActuator

bge.logic.**KX_RANDOMACT_BOOL_CONST**

bge.logic.**KX_RANDOMACT_BOOL_UNIFORM**

bge.logic.**KX_RANDOMACT_BOOL_BERNOUILLI**

bge.logic.**KX_RANDOMACT_INT_CONST**

bge.logic.**KX_RANDOMACT_INT_UNIFORM**

bge.logic.**KX_RANDOMACT_INT_POISSON**

bge.logic.**KX_RANDOMACT_FLOAT_CONST**

bge.logic.**KX_RANDOMACT_FLOAT_UNIFORM**

bge.logic.**KX_RANDOMACT_FLOAT_NORMAL**

bge.logic.**KX_RANDOMACT_FLOAT_NEGATIVE_EXPONENTIAL**

Scene Actuator

See bge.types.KX_SceneActuator

bge.logic.**KX_SCENE_RESTART**

bge.logic.**KX_SCENE_SET_SCENE**

bge.logic.**KX_SCENE_SET_CAMERA**

bge.logic.**KX_SCENE_ADD_FRONT_SCENE**

bge.logic.**KX_SCENE_ADD_BACK_SCENE**

bge.logic.**KX_SCENE_REMOVE_SCENE**

bge.logic.**KX_SCENE_SUSPEND**

bge.logic.**KX_SCENE_RESUME**

Shape Action Actuator

See bge.types.BL_ActionActuator

bge.logic.**KX_ACTIONACT_PLAY**

bge.logic.**KX_ACTIONACT_FLIPPER**

bge.logic.**KX_ACTIONACT_LOOPSTOP**

bge.logic.**KX_ACTIONACT_LOOPEND**

bge.logic.**KX_ACTIONACT_PROPERTY**

Sound Actuator

See bge.types.KX_SoundActuator

bge.logic.**KX_SOUNDACT_PLAYSTOP**

Value 1

bge.logic.**KX_SOUNDACT_PLAYEND**

Value 2

bge.logic.**KX_SOUNDACT_LOOPSTOP**

Value 3

bge.logic.**KX_SOUNDACT_LOOPEND**

Value 4

bge.logic.**KX_SOUNDACT_LOOPBIDIRECTIONAL**

Value 5

bge.logic.**KX_SOUNDACT_LOOPBIDIRECTIONAL_STOP**

Value 6

Various

Input Status

See bge.types.SCA_PythonKeyboard, bge.types.SCA_PythonMouse, bge.types.SCA_MouseSensor, bge.types.SCA_KeyboardSensor

bge.logic.**KX_INPUT_NONE**

bge.logic.**KX_INPUT_JUST_ACTIVATED**

bge.logic.**KX_INPUT_ACTIVE**

bge.logic.**KX_INPUT_JUST_RELEASED**

Mouse Buttons

See bge.types.SCA_MouseSensor

bge.logic.**KX_MOUSE_BUT_LEFT**

bge.logic.**KX_MOUSE_BUT_MIDDLE**

bge.logic.**KX_MOUSE_BUT_RIGHT**

States

See bge.types.KX_StateActuator

bge.logic.**KX_STATE1**

bge.logic.**KX_STATE2**

bge.logic.**KX_STATE3**

bge.logic.**KX_STATE4**

bge.logic.**KX_STATE5**

bge.logic.**KX_STATE6**

bge.logic.**KX_STATE7**

bge.logic.**KX_STATE8**

bge.logic.**KX_STATE9**

bge.logic.**KX_STATE10**

bge.logic.**KX_STATE11**

bge.logic.**KX_STATE12**

bge.logic.**KX_STATE13**

bge.logic.**KX_STATE14**

bge.logic.**KX_STATE15**

bge.logic.**KX_STATE16**

bge.logic.**KX_STATE17**

bge.logic.**KX_STATE18**

bge.logic.**KX_STATE19**

bge.logic.**KX_STATE20**

bge.logic.**KX_STATE21**

bge.logic.**KX_STATE22**

bge.logic.**KX_STATE23**

bge.logic.**KX_STATE24**

bge.logic.**KX_STATE25**

bge.logic.**KX_STATE26**

bge.logic.**KX_STATE27**

bge.logic.**KX_STATE28**

bge.logic.**KX_STATE29**

bge.logic.**KX_STATE30**

See bge.types.KX_StateActuator.operation

bge.logic.**KX_STATE_OP_CLR**
Substract bits to state mask

Value 0

bge.logic.**KX_STATE_OP_CPY**
Copy state mask

Value 1

bge.logic.**KX_STATE_OP_NEG**
Invert bits to state mask

Value 2

bge.logic.**KX_STATE_OP_SET**
Add bits to state mask

Value 3

2D Filter

bge.logic.**RAS_2DFILTER_BLUR**

Value 2

bge.logic.**RAS_2DFILTER_CUSTOMFILTER**
Customer filter, the code code is set via shaderText property.

Value 12

bge.logic.**RAS_2DFILTER_DILATION**

Value 4

bge.logic.**RAS_2DFILTER_DISABLED**
Disable the filter that is currently active

Value -1

bge.logic.**RAS_2DFILTER_ENABLED**
Enable the filter that was previously disabled

Value -2

bge.logic.**RAS_2DFILTER_EROSION**

Value 5

bge.logic.**RAS_2DFILTER_GRAYSCALE**

Value 9

bge.logic.**RAS_2DFILTER_INVERT**

Value 11

bge.logic.**RAS_2DFILTER_LAPLACIAN**

Value 6

bge.logic.**RAS_2DFILTER_MOTIONBLUR**
Create and enable preset filters

Value 1

bge.logic.**RAS_2DFILTER_NOFILTER**
Disable and destroy the filter that is currently active

Value 0

bge.logic.**RAS_2DFILTER_PREWITT**

Value 8

bge.logic.**RAS_2DFILTER_SEPIA**

Value 10

bge.logic.**RAS_2DFILTER_SHARPEN**

Value 3

bge.logic.**RAS_2DFILTER_SOBEL**

Value 7

Shader

bge.logic.**VIEWMATRIX**

bge.logic.**VIEWMATRIX_INVERSE**

bge.logic.**VIEWMATRIX_INVERSETRANSPOSE**

bge.logic.**VIEWMATRIX_TRANSPOSE**

bge.logic.**MODELMATRIX**

bge.logic.**MODELMATRIX_INVERSE**

bge.logic.**MODELMATRIX_INVERSETRANSPOSE**

bge.logic.**MODELMATRIX_TRANSPOSE**

bge.logic.**MODELVIEWMATRIX**

bge.logic.**MODELVIEWMATRIX_INVERSE**

bge.logic.**MODELVIEWMATRIX_INVERSETRANSPOSE**

bge.logic.**MODELVIEWMATRIX_TRANSPOSE**

bge.logic.**CAM_POS**
Current camera position

bge.logic.**CONSTANT_TIMER**
User a timer for the uniform value.

bge.logic.**SHD_TANGENT**

Blender Material

bge.logic.**BL_DST_ALPHA**

bge.logic.**BL_DST_COLOR**

bge.logic.**BL_ONE**

bge.logic.**BL_ONE_MINUS_DST_ALPHA**

bge.logic.**BL_ONE_MINUS_DST_COLOR**

bge.logic.**BL_ONE_MINUS_SRC_ALPHA**

bge.logic.**BL_ONE_MINUS_SRC_COLOR**

bge.logic.**BL_SRC_ALPHA**

bge.logic.**BL_SRC_ALPHA_SATURATE**

bge.logic.**BL_SRC_COLOR**

bge.logic.**BL_ZERO**

3.3 Game Engine bge.render Module

3.3.1 Intro

```
# Example Uses an L{SCA_MouseSensor}, and two L{KX_ObjectActuator}s to implement MouseLook::
# To use a mouse movement sensor "Mouse" and a
# motion actuator to mouse look:
import bge.render
import bge.logic

# SCALE sets the speed of motion
SCALE=[1, 0.5]

co = bge.logic.getCurrentController()
obj = co.getOwner()
mouse = co.getSensor("Mouse")
lmotion = co.getActuator("LMove")
wmotion = co.getActuator("WMove")

# Transform the mouse coordinates to see how far the mouse has moved.
def mousePos():
   x = (bge.render.getWindowWidth()/2 - mouse.getXPosition())*SCALE[0]
   y = (bge.render.getWindowHeight()/2 - mouse.getYPosition())*SCALE[1]
   return (x, y)

pos = mousePos()

# Set the amount of motion: X is applied in world coordinates...
lmotion.setTorque(0.0, 0.0, pos[0], False)
# ...Y is applied in local coordinates
wmotion.setTorque(-pos[1], 0.0, 0.0, True)

# Activate both actuators
bge.logic.addActiveActuator(lmotion, True)
bge.logic.addActiveActuator(wmotion, True)

# Centre the mouse
bge.render.setMousePosition(bge.render.getWindowWidth()/2, bge.render.getWindowHeight()/2)
```

3.3.2 Constants

bge.render.**KX_TEXFACE_MATERIAL**
: Materials as defined by the texture face settings.

bge.render.**KX_BLENDER_MULTITEX_MATERIAL**
: Materials approximating blender materials with multitexturing.

bge.render.**KX_BLENDER_GLSL_MATERIAL**
Materials approximating blender materials with GLSL.

3.3.3 Functions

bge.render.**getWindowWidth**()
Gets the width of the window (in pixels)

Return type integer

bge.render.**getWindowHeight**()
Gets the height of the window (in pixels)

Return type integer

bge.render.**makeScreenshot**(*filename*)
Writes a screenshot to the given filename.

If filename starts with // the image will be saved relative to the current directory. If the filename contains # it will be replaced with the frame number.

The standalone player saves .png files. It does not support colour space conversion or gamma correction.

When run from Blender, makeScreenshot supports Iris, IrisZ, TGA, Raw TGA, PNG, HamX, and Jpeg. Gamma, Colourspace conversion and Jpeg compression are taken from the Render settings panels.

bge.render.**enableVisibility**(*visible*)
Doesn't really do anything...

bge.render.**showMouse**(*visible*)
Enables or disables the operating system mouse cursor.

bge.render.**setMousePosition**(*x*, *y*)
Sets the mouse cursor position.

bge.render.**setBackgroundColor**(*rgba*)
Sets the window background colour.

bge.render.**setMistColor**(*rgb*)
Sets the mist colour.

bge.render.**setAmbientColor**(*rgb*)
Sets the color of ambient light.

bge.render.**setMistStart**(*start*)
Sets the mist start value. Objects further away than start will have mist applied to them.

bge.render.**setMistEnd**(*end*)
Sets the mist end value. Objects further away from this will be coloured solid with the colour set by setMistColor().

bge.render.**disableMist**()
Disables mist.

Note: Set any of the mist properties to enable mist.

bge.render.**setEyeSeparation**(*eyesep*)
Sets the eye separation for stereo mode. Usually Focal Length/30 provides a confortable value.

Parameters

- **eyesep** (*float*) – The distance between the left and right eye.

bge.render.**getEyeSeparation**()
Gets the current eye separation for stereo mode.

Return type float

bge.render.**setFocalLength**(*focallength*)
Sets the focal length for stereo mode. It uses the current camera focal length as initial value.

Parameters

- **focallength** (*float*) – The focal length.

bge.render.**getFocalLength**()
Gets the current focal length for stereo mode.

Return type float

bge.render.**setMaterialMode**(*mode*)
Set the material mode to use for OpenGL rendering.

Note: Changes will only affect newly created scenes.

bge.render.**getMaterialMode**(*mode*)
Get the material mode to use for OpenGL rendering.

Return type KX_TEXFACE_MATERIAL, KX_BLENDER_MULTITEX_MATERIAL, KX_BLENDER_GLSL_MATERIAL

bge.render.**setGLSLMaterialSetting**(*setting*, *enable*)
Enables or disables a GLSL material setting.

bge.render.**getGLSLMaterialSetting**(*setting*, *enable*)
Get the state of a GLSL material setting.

Return type boolean

bge.render.**drawLine**(*fromVec*, *toVec*, *color*)
Draw a line in the 3D scene.

Parameters

- **fromVec** (*list [x, y, z]*) – the origin of the line
- **toVec** (*list [x, y, z]*) – the end of the line
- **color** (*list [r, g, b]*) – the color of the line

bge.render.**enableMotionBlur**(*factor*)
Enable the motion blur effect.

Parameters

- **factor** (*float [0.0 - 1.0]*) – the ammount of motion blur to display.

bge.render.**disableMotionBlur**()
Disable the motion blur effect.

3.4 Game Engine bge.events module

3.4.1 Intro

This module holds key constants for the SCA_KeyboardSensor.

```
# Set a connected keyboard sensor to accept F1
import bge

co = bge.logic.getCurrentController()
# 'Keyboard' is a keyboard sensor
sensor = co.sensors["Keyboard"]
sensor.key = bge.keys.F1KEY

# Do the all keys thing
import bge

co = bge.logic.getCurrentController()
# 'Keyboard' is a keyboard sensor
sensor = co.sensors["Keyboard"]

for key,status in sensor.events:
        # key[0] == bge.keys.keycode, key[1] = status
        if status == bge.logic.KX_INPUT_JUST_ACTIVATED:
                if key == bge.keys.WKEY:
                        # Activate Forward!
                if key == bge.keys.SKEY:
                        # Activate Backward!
                if key == bge.keys.AKEY:
                        # Activate Left!
                if key == bge.keys.DKEY:
                        # Activate Right!
```

3.4.2 Functions

bge.events.**EventToString**(*event*)
Return the string name of a key event. Will raise a ValueError error if its invalid.

Parameters

- **event** (*int*) – key event from bge.keys or the keyboard sensor.

Return type string

bge.events.**EventToCharacter**(*event*, *shift*)
Return the string name of a key event. Returns an empty string if the event cant be represented as a character.

Parameters

- **event** (*int*) – key event from `bge.keys` or the keyboard sensor.

- **shift** (*bool*) – set to true if shift is held.

Return type string

3.4.3 Keys (Constants)

Mouse Keys

bge.events.**LEFTMOUSE**

bge.events.**MIDDLEMOUSE**

bge.events.**RIGHTMOUSE**

bge.events.**WHEELUPMOUSE**

bge.events.**WHEELDOWNMOUSE**

bge.events.**MOUSEX**

bge.events.**MOUSEY**

Keyboard Keys

Alphabet keys

bge.events.**AKEY**

bge.events.**BKEY**

bge.events.**CKEY**

bge.events.**DKEY**

bge.events.**EKEY**

bge.events.**FKEY**

bge.events.**GKEY**

bge.events.**HKEY**

bge.events.**IKEY**

bge.events.**JKEY**

bge.events.**KKEY**

bge.events.**LKEY**

bge.events.**MKEY**

bge.events.**NKEY**

bge.events.**OKEY**

bge.events.**PKEY**

bge.events.**QKEY**

bge.events.**RKEY**

bge.events.**SKEY**

bge.events.**TKEY**

bge.events.**UKEY**

bge.events.**VKEY**

bge.events.**WKEY**

bge.events.**XKEY**

bge.events.**YKEY**

bge.events.**ZKEY**

Number keys

bge.events.**ZEROKEY**

bge.events.**ONEKEY**

bge.events.**TWOKEY**

bge.events.**THREEKEY**

bge.events.**FOURKEY**

bge.events.**FIVEKEY**

bge.events.**SIXKEY**

bge.events.**SEVENKEY**

bge.events.**EIGHTKEY**

bge.events.**NINEKEY**

Modifiers Keys

bge.events.**CAPSLOCKKEY**

bge.events.**LEFTCTRLKEY**

bge.events.**LEFTALTKEY**

bge.events.**RIGHTALTKEY**

bge.events.**RIGHTCTRLKEY**

bge.events.**RIGHTSHIFTKEY**

bge.events.**LEFTSHIFTKEY**

Arrow Keys

bge.events.**LEFTARROWKEY**

bge.events.**DOWNARROWKEY**

bge.events.**RIGHTARROWKEY**

bge.events.**UPARROWKEY**

Numberpad Keys

bge.events.**PAD0**

bge.events.**PAD1**

bge.events.**PAD2**

bge.events.**PAD3**

bge.events.**PAD4**

bge.events.**PAD5**

bge.events.**PAD6**

bge.events.**PAD7**

bge.events.**PAD8**

bge.events.**PAD9**

bge.events.**PADPERIOD**

bge.events.**PADSLASHKEY**

bge.events.**PADASTERKEY**

bge.events.**PADMINUS**

bge.events.**PADENTER**

bge.events.**PADPLUSKEY**

Function Keys

bge.events.**F1KEY**

bge.events.**F2KEY**

bge.events.**F3KEY**

bge.events.**F4KEY**

bge.events.**F5KEY**

bge.events.**F6KEY**

bge.events.**F7KEY**

bge.events.**F8KEY**

bge.events.**F9KEY**

bge.events.**F10KEY**

bge.events.**F11KEY**

bge.events.**F12KEY**

bge.events.**F13KEY**

bge.events.**F14KEY**

bge.events.**F15KEY**

bge.events.**F16KEY**

bge.events.**F17KEY**

bge.events.**F18KEY**

bge.events.**F19KEY**

Other Keys

bge.events.**ACCENTGRAVEKEY**

bge.events.**BACKSLASHKEY**

bge.events.**BACKSPACEKEY**

bge.events.**COMMAKEY**

bge.events.**DELKEY**

bge.events.**ENDKEY**

bge.events.**EQUALKEY**

bge.events.**ESCKEY**

bge.events.**HOMEKEY**

bge.events.**INSERTKEY**

bge.events.**LEFTBRACKETKEY**

bge.events.**LINEFEEDKEY**

bge.events.**MINUSKEY**

bge.events.**PAGEDOWNKEY**

bge.events.**PAGEUPKEY**

bge.events.**PAUSEKEY**

bge.events.**PERIODKEY**

bge.events.**QUOTEKEY**

bge.events.**RIGHTBRACKETKEY**

bge.events.**RETKEY**

bge.events.**SEMICOLONKEY**

bge.events.**SLASHKEY**

bge.events.**SPACEKEY**

bge.events.**TABKEY**

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