Skip to content

Scene(ID)

base classes — bpy_struct , ID

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

Scene data-block, consisting in objects and defining time and render related settings

active_clip

Active Movie Clip that can be used by motion tracking constraints or as a camera's background image

TYPE:

MovieClip

animation_data

Animation data for this data-block

TYPE:

AnimData , (readonly)

audio_distance_model

Distance model for distance attenuation calculation

- NONE None – No distance attenuation.
- INVERSE Inverse – Inverse distance model.
- INVERSE_CLAMPED Inverse Clamped – Inverse distance model with clamping.
- LINEAR Linear – Linear distance model.
- LINEAR_CLAMPED Linear Clamped – Linear distance model with clamping.
- EXPONENT Exponential – Exponential distance model.
- EXPONENT_CLAMPED Exponential Clamped – Exponential distance model with clamping.

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 1.0

audio_doppler_speed

Speed of sound for Doppler effect calculation

TYPE:

float in [0.01, inf], default 343.3

audio_volume

Audio volume

TYPE:

float in [0, 100], default 1.0

background_set

Background set scene

TYPE:

TYPE:

Scene

camera

Active camera, used for rendering the scene

TYPE:

Object

collection

Scene root collection that owns all the objects and other collections instantiated in the scene

TYPE:

Collection, (readonly, never None)

cursor

TYPE:

View3DCursor, (readonly, never None)

cycles

Cycles render settings

TYPE:

CyclesRenderSettings, (readonly)

cycles_curves

Cycles curves rendering settings

TYPE:

CyclesCurveRenderSettings, (readonly)

display

Scene display settings for 3D viewport

TYPE:

SceneDisplay, (readonly)

display_settings

Settings of device saved image would be displayed on

TYPE:

ColorManagedDisplaySettings, (readonly)

eevee

EEVEE settings for the scene

TYPE:

SceneEEVEE, (readonly)

frame_current

Current frame, to update animation data from Python frame_set() instead

TYPE:

int in [-1048574, 1048574], default 1

frame_current_final

Current frame with subframe and time remapping applied

TYPE:

float in [-1.04857e+06, 1.04857e+06], default 0.0, (readonly)

frame_end

Final frame of the playback/rendering range

TYPE:

int in [0, 1048574], default 250

frame_float

TYPE:

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

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, 1048574], default 1

frame_step

Number of frames to skip forward while rendering/playing back each frame

TYPE:

int in [0, 1048574], default 1

frame_subframe

TYPE:

float in [0, 1], default 0.0

gravity

Constant acceleration in a given direction

TYPE:

`mathutils.Vector` of 3 items in [-inf, inf], default (0.0, 0.0, -9.81)

grease_pencil

Grease Pencil data-block used for annotations in the 3D view

TYPE:

`GreasePencil`

grease_pencil_settings

Grease Pencil settings for the scene

TYPE:

SceneGpencil, (readonly)

hydra

Hydra settings for the scene

TYPE:

SceneHydra, (readonly)

is_nla_tweakmode

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 bpy_prop_collection of KeyingSet, (readonly)

keying_sets_all

All Keying Sets available for use (Builtins and Absolute Keying Sets for this Scene)

TYPE:

KeyingSetsAll bpy_prop_collection of KeyingSet, (readonly)

lock_frame_selection_to_range

Don't allow frame to be selected with mouse outside of frame range

TYPE:

boolean, default False

node_tree

Compositing node tree

TYPE:

NodeTree, (readonly)

objects

TYPE:

SceneObjects bpy_prop_collection of Object, (readonly)

render

TYPE:

RenderSettings, (readonly, never None)

rigidbody_world

TYPE:

RigidBodyWorld, (readonly)

safe_areas

TYPE:

DisplaySafeAreas, (readonly, never None)

sequence_editor

TYPE:

SequenceEditor, (readonly)

SequenceEditor , (readonly)

sequencer_colorspace_settings

Settings of color space sequencer is working in

TYPE:

ColorManagedSequencerColorspaceSettings , (readonly)

show_keys_from_selected_only

Only include channels relating to selected objects and data

TYPE:

boolean, default True

show_subframe

Display and allow setting fractional frame values for the current frame

TYPE:

boolean, default False

simulation_frame_end

Frame at which simulations end

TYPE:

int in [-inf, inf], default 250

simulation_frame_start

Frame at which simulations start

TYPE:

int in [-inf, inf], default 1

sync_mode

How to sync playback

- NONE Play Every Frame – Do not sync, play every frame.
- FRAME_DROP Frame Dropping – Drop frames if playback is too slow.
- AUDIO_SYNC Sync to Audio – Sync to audio playback, dropping frames.

TYPE:

enum in ['NONE', 'FRAME_DROP', 'AUDIO_SYNC'], default 'AUDIO_SYNC'

timeline_markers

Markers used in all timelines for the current scene

TYPE:

TimelineMarkers bpy_prop_collection of TimelineMarker , (readonly)

tool_settings

TYPE:

ToolSettings , (readonly, never None)

transform_orientation_slots

TYPE:

bpy_prop_collection of TransformOrientationSlot , (readonly)

unit_settings

Unit editing settings

Unit editing settings

TYPE:

UnitSettings, (readonly, never None)

use_audio

Play back of audio from Sequence Editor, otherwise mute audio

TYPE:

boolean, default False

use_audio_scrub

Play audio from Sequence Editor while scrubbing

TYPE:

boolean, default False

use_custom_simulation_range

Use a simulation range that is different from the scene range for simulation nodes that don't override the frame range themselves

TYPE:

boolean, default False

use_gravity

Use global gravity for all dynamics

TYPE:

boolean, default True

use_nodes

Enable the compositing node tree

TYPE:

boolean, default False

use_preview_range

Use an alternative start/end frame range for animation playback and view renders

TYPE:

boolean, default False

use_stamp_note

User defined note for the render stamping

TYPE:

string, default "", (never None)

view_layers

TYPE:

ViewLayers bpy_prop_collection of ViewLayer, (readonly)

view_settings

Color management settings applied on image before saving

TYPE:

ColorManagedViewSettings, (readonly)

world

World used for rendering the

World used for rendering the scene

TYPE:

`World`

classmethod update_render_engine()

Trigger a render engine update

statistics(view_layer)

statistics

PARAMETERS:

view_layer (`ViewLayer`, (never None)) – View Layer

RETURNS:

Statistics

RETURN TYPE:

string, (never None)

frame_set(frame, *, subframe=0.0)

Set scene frame updating all objects and view layers immediately

PARAMETERS:

- **frame** (*int in [-1048574, 1048574]*) – Frame number to set
- **subframe** (*float in [0, 1], (optional)*) – Subframe time, between 0.0 and 1.0

uvedit_aspect(object)

Get uv aspect for current object

PARAMETERS:

object (`Object`, (never None)) – Object

RETURNS:

aspect

RETURN TYPE:

`mathutils.Vector` of 2 items in [0, inf]

ray_cast(depsgraph, origin, direction, *, distance=1.70141e+38)

Cast a ray onto evaluated geometry in world-space

PARAMETERS:

- **depsgraph** (`Depsgraph`, (never None)) – The current dependency graph
- **distance** (*float in [0, inf], (optional)*) – Maximum distance

RETURNS:

result, boolean

location, The hit location of this ray cast, `mathutils.Vector` of 3 items in [-inf, inf]

normal, The face normal at the ray cast hit location, `mathutils.Vector` of 3 items in [-inf, inf]

index, The face index, -1 when original data isn't available, int in [-inf, inf]

object, Ray cast object, `Object`

matrix, Matrix, `mathutils.Matrix` of 4 * 4 items in [-inf, inf]

RETURN TYPE:

(boolean, `mathutils.Vector` of 3 items in [-inf, inf], `mathutils.Vector` of 3 items in [-inf, inf], int in [-inf, inf], `Object`, `mathutils.Matrix` of 4 * 4 items in [-inf, inf])

sequence_editor_create()

Ensure sequence editor is valid in this scene

RETURNS:

New sequence editor data or nullptr

RETURN TYPE:

SequenceEditor

sequence_editor_clear()

Clear sequence editor in this scene

alembic_export(filepath, *, frame_start=1, frame_end=1, xform_samples=1, geom_samples=1, shutter_open=0.0, shutter_close=1.0, selected_only=False, uvs=True, normals=True, vcolors=False, apply_subdiv=True, flatten=False, visible_objects_only=False, face_sets=False, subdiv_schema=False, export_hair=True, export_particles=True, packuv=False, scale=1.0, triangulate=False, quad_method='BEAUTY', ngon_method='BEAUTY')

Export to Alembic file (deprecated, use the Alembic export operator)

PARAMETERS:

- **filepath** (*string, (never None)*) – File Path, File path to write Alembic file
- **frame_start** (*int in [-inf, inf], (optional)*) – Start, Start Frame
- **frame_end** (*int in [-inf, inf], (optional)*) – End, End Frame
- **xform_samples** (*int in [1, 128], (optional)*) – Xform samples, Transform samples per frame
- **geom_samples** (*int in [1, 128], (optional)*) – Geom samples, Geometry samples per frame
- **shutter_open** (*float in [-1, 1], (optional)*) – Shutter open
- **shutter_close** (*float in [-1, 1], (optional)*) – Shutter close
- **selected_only** (*boolean, (optional)*) – Selected only, Export only selected objects
- **uvs** (*boolean, (optional)*) – UVs, Export UVs
- **normals** (*boolean, (optional)*) – Normals, Export normals
- **vcolors** (*boolean, (optional)*) – Color Attributes, Export color attributes
- **apply_subdiv** (*boolean, (optional)*) – Subsurfs as meshes, Export subdivision surfaces as meshes
- **flatten** (*boolean, (optional)*) – Flatten hierarchy, Flatten hierarchy
- **visible_objects_only** (*boolean, (optional)*) – Visible layers only, Export only objects in visible layers
- **face_sets** (*boolean, (optional)*) – Facesets, Export face sets
- **subdiv_schema** (*boolean, (optional)*) – Use Alembic subdivision Schema, Use Alembic subdivision Schema
- **export_hair** (*boolean, (optional)*) – Export Hair, Exports hair particle systems as animated curves
- **export_particles** (*boolean, (optional)*) – Export Particles, Exports non-hair particle systems
- **packuv** (*boolean, (optional)*) – Export with packed UV islands, Export with packed UV islands
- **scale** (*float in [0.0001, 1000], (optional)*) – Scale, Value by which to enlarge or shrink the objects with respect to the world's origin
- **triangulate** (*boolean, (optional)*) – Triangulate, Export polygons (quads and n-gons) as triangles
- **quad_method** (enum in Modifier Triangulate Quad Method Items, (optional)) – Quad Method, Method for splitting the quads into triangles
- **ngon_method** (enum in Modifier Triangulate Ngon Method Items, (optional)) – N-gon Method, Method for splitting the n-gons into triangles

classmethod bl_rna_get_subclass(id, default=None)

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The RNA type or default when not found.

RETURN TYPE:

bpy.types.Struct subclass

classmethod bl_rna_get_subclass_py(id, default=None)

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The class or default when not found.

RETURN TYPE:

type

Inherited Properties

- bpy_struct.id_data
- ID.name
- ID.name_full
- ID.id_type
- ID.session_uid
- ID.is_evaluated
- ID.original
- ID.users
- ID.use_fake_user
- ID.use_extra_user
- ID.is_embedded_data
- ID.is_missing
- ID.is_runtime_data
- ID.is_editable
- ID.tag
- ID.is_library_indirect
- ID.library
- ID.library_weak_reference
- ID.asset_data
- ID.override_library
- ID.preview

Inherited Functions

- bpy_struct.as_pointer
- bpy_struct.driver_add
- bpy_struct.driver_remove
- bpy_struct.get
- bpy_struct.id_properties_clear
- bpy_struct.id_properties_ensure
- bpy_struct.id_properties_ui
- bpy_struct.is_property_hidden
- bpy_struct.is_property_overridable_library
- bpy_struct.is_property_readonly
- bpy_struct.is_property_set
- bpy_struct.items
- bpy_struct.keyframe_delete
- bpy_struct.keyframe_insert
- bpy_struct.keys
- bpy_struct.path_from_id
- bpy_struct.path_resolve
- bpy_struct.pop
- bpy_struct.property_overridable_library_set
- bpy_struct.property_unset
- bpy_struct.type_recast
- bpy_struct.values
- ID.rename
- ID.evaluated_get
- ID.copy
- ID.asset_mark
- ID.asset_clear
- ID.asset_generate_preview
- ID.override_create
- ID.override_hierarchy_create
- ID.user_clear
- ID.user_remap
- ID.make_local
- ID.user_of_id
- ID.animation_data_create
- ID.animation_data_clear
- ID.update_tag
- ID.preview_ensure
- ID.bl_rna_get_subclass
- ID.bl_rna_get_subclass_py

References

- bpy.context.scene
- BlendData.scenes
- BlendDataScenes.new
- BlendDataScenes.remove
- Camera.view_frame
- CompositorNodeCryptomatteV2.scene
- CompositorNodeDefocus.scene
- CompositorNodeRLayers.scene
- Context.scene
- Depsgraph.scene
- Depsgraph.scene_eval
- ID.override_hierarchy_create
- IDOverrideLibrary.resync
- Image.save_render
- Object.crazyspace_eval
- Object.is_deform_modified
- Object.is_modified
- RenderEngine.bind_display_space_shader
- RenderEngine.get_preview_pixel_size
- RenderEngine.register_pass
- RenderEngine.support_display_space_shader
- RenderEngine.update_render_passes
- Scene.background_set
- SceneStrip.scene
- StripsMeta.new_scene
- StripsTopLevel.new_scene
- Window.scene