PySI

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Namespace Documentation

5.1 SIEffect Namespace Reference

Documentation for this module / class.

Classes

- class SIEffect

  Super Class from which all subsequent plugins are derived.

5.1.1 Detailed Description

Documentation for this module / class.

Used as central entry point for all SIGRun plugins

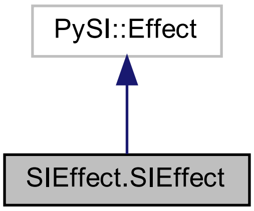
Chapter 6

Class Documentation

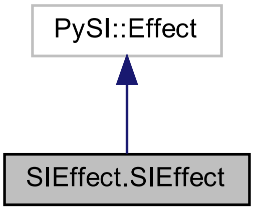
6.1 SIEffect.SIEffect Class Reference

Super Class from which all subsequent plugins are derived.

Inheritance diagram for SIEffect.SIEffect:



Collaboration diagram for SIEffect.SIEffect:



Public Member Functions

- None __init__ (self, PySI.PointVector shape, str uuid, str texture_path, int regiontype, str regionname, dict kwargs, str __source__="custom")

  constructor
- list current_regions (self)

  member function for retrieving all effects currently represented as regions
- int get_region_width (self)

  member function for retrieving the maximum width of a region
- int get_region_height (self)

  member function for retrieving the maximum height of a region
- int relative_x_pos (self)

  member function for getting the relative x coordinate of the parent region's top left corner
- int relative_y_pos (self)

  member function for getting the relative y coordinate of the parent region's top left corner
- int absolute_x_pos (self)

  member function for getting the absolute x coordinate of the parent region's top left corner
- int absolute_y_pos (self)

  member function for getting the absolute y coordinate of the parent region's top left corner
- None enable_effect (self, str capability, bool is_emit, object on_enter, object on_continuous, object on_leave)

  member function for enabling the emission or reception of an effect
- bool is_effect_enabled (self, str capability, bool is_emit)

  member function for determining whether a collision event exists
- None override_effect (self, str capability, bool is_emit, object on_enter, object on_continuous, object on_leave)

  member function for overriding the emission or reception of an effect
- None disable_effect (self, str capability, bool is_emit)

  member function for disabling the emission or reception of an effect
- None enable_link_emission (self, str emission_capability, object emission_function)

  member function for enabling the emission of data in the context of a link event
- None enable_link_reception (self, str emission_capability, str reception_capability, object reception_function)

  member function for enabling the emission of data in the context of a link event
- None disable_link_emission (self, str emission_capability)

  member function for disabling the emission of data in the context of a link event
- None disable_link_reception (self, str emission_capability, str reception_capability="")

  member function for disabling the reception of data in the context of a link event
- None create_link (self, str sender_uuid, str sender_attribute, str receiver_uuid, str receiver_attribute)

  member function for establishing a specified link between two regions according to given attributes
- None remove_link (self, str sender_uuid, str sender_attribute, str receiver_uuid, str receiver_attribute)

  member function for removing a specified link between two regions according to given attributes
- None emit_linking_action (self, object sender, str capability, tuple args)

  member function for emitting a linking action
- None set_QML_data (self, str key, object value, int datatype, data_kwargs={})

  member function for setting data in the associated qml file of a region effect
- object get_QML_data (self, str key, int datatype)

  member function for getting data set from an associated qml file of a region effect
- str set_QML_path (self, str filename)

  member function for setting the path to an plugin's associated qml file
- None add_point_to_region_drawing (self, float x, float y, str cursor_id)

  member function for adding a point to a region drawing based on a cursor id.
- None register_region_from_drawing (self, str cursor_id)

member function for registering a region drawing according to a cursor id

- None start_standard_application (self, str file_uuid, str file_path)

  member function for starting the standard application of a file given its uuid as a region and its path in the filesystem
- None close_standard_application (self, str file_uuid)

  member function for closing the standard application of a file given its uuid as a region and its path in the filesystem
- None display_folder_contents_page (self, int page, str source_uuid, with_buttons=True)

  member function for displaying the contents of a folder in the filesystem as pages of other filesystem entries
- None delete (self, str uuid=None)

  member function for deleting a region
- None create_region_via_name (self, PySI.PointVector shape, str effect_name, as_selector=False, kwargs={})

  member function for creating a new region
- None create_region_via_id (self, PySI.PointVector shape, str effect_type, kwargs={})

  member function for creating a new region
- list available_plugins (self)

  member function for retrieving the plugins which are available for sketching as a dict of names.
- list excluded_plugins (self)

  member function for retrieving the plugins which are exluded from use This list of names contains regionname attributes
- None snap_to_mouse (self)

  member function for snapping a region's center to the mouse cursor
- tuple context_dimensions (self)

  member function for retrieving the dimensions of the active SI-Context (width in px, and height in px)
- None assign_effect (self, str effect_name_to_assign, str effect_display_name, dict kwargs)

  member function for assigning a new effect to a region if the region is a cursor, the effect that cursor can draw is changed instead!
- None move (self, x, y)

  member function for moving the effect's associated region to the point (x, y)
- None run_in_thread (self, object function, tuple args)

  member function for offloading a function call to a thread
- None __handle_exception__ (self, Exception ex, str file)

  member function for generally handling exceptions which may occur in constructors of plugins

Static Public Member Functions

- def on_enter (capability, transmission_type)

  Decorator for registering on_enter collision events.
- def on_continuous (capability, transmission_type)

  Decorator for registering on_continuous collision events.
- def on_leave (capability, transmission_type)

  Decorator for registering on_leave collision events.
- def on_link (transmission_type, emission_capability, reception_capability=None)

  Decorator for registering linking actions.

Public Attributes

- with_border

  member attribute variable serving as a rendering hint for showing a regions border
- shape

  member attribute variable containing the shape (contour) of a drawn region as a PySI.PointVector
- width

  member attribute variable containing the axis-aligned bounding-box (aabb) of a drawn region as a PySI.PointVector
- height

  member variable containing the maximum height of the region
- name

  member attribute variable containing the name of a drawn region as a str
- region_type

  member attribute variable containing the type of effect of a drawn region as a PySI.EffectType
- source

  member attribute variable containing the source of effect of a drawn region as a str
- qml_path

  member attribute variable containing the path to a QML file for styling of a drawn region as a str
- delta_x

  member attribute variable containing the last relative movement of the region according to the x axis as a float
- delta_y

  member attribute variable containing the last relative movement of the region according to the y axis as a float
- last_x

  member attribute variable containing the last absolute x coordinate as a float
- last_y

  member attribute variable containing the last absolute y coordinate as a float
- color

  member attribute variable containing the fill color of a region in RGBA as a PySI.Color
- is_under_user_control

  member attribute variable which is true when an user directly controls the region (e.g.
- texture_path

  member attribute variable storing the path to the image file used as texture for a region
- texture_width

  member attribute variable storing the width of a texture of a region drawing as a float
- texture_height

  member attribute variable storing the height of a texture of a region drawing as a float
- cap_emit

  member attribute variable storing keys to functions which are called when collision events occur for emitting data to receiving regions
- cap_recv

  member attribute variable storing keys to functions which are called when collision events occur for receiving data from emitting regions
- cap_link_emit

  member attribute variable storing keys to functions which are called when linking events occur for emitting data to receiving regions
- cap_link_recv

  member attribute variable storing keys to functions which are called when linking events occur for emitting data to receiving regions
- mouse_x

  member attribute variable storing the x position of the mouse cursor
- mouse_y

  member attribute variable storing the y position of the mouse cursor
- x
- y

Static Public Attributes

- bool EMISSION = True

  member constant to mark an effect or link emittable
- bool RECEPTION = False

  static member attribute to mark an effect or link receivable
- string TEXTURE_PATH_NONE = ""

  static member attribute to signal that it's associated effect does not display an icon (texture) when drawn as a region
- bool RESAMPLING = True

  static member attribute to notify SIGRun to resample a region's shape when changed from PySI
- bool NO_RESAMPLING = False

  static member attribute to notify SIGRun to not resample a region's shape when changed from PySI Use with caution! May lead to unexpected / barely debuggable behaviour!

6.1.1 Detailed Description

Super Class from which all subsequent plugins are derived.

This Class itself is derived from PySI written in C++ which is documented separately within SIGRun

Definition at line 16 of file SIEffect.py.

6.1.2 Constructor & Destructor Documentation

6.1.2.1 __init__()

```
None SIEffect.SIEffect.__init__ (
              self,
             PySI.PointVector shape,
             str uuid,
             str texture_path,
             int regiontype,
             str regionname,
             dict kwargs,
             str __source__ = "custom" )
```

constructor

Constructs a new SIEffect object based on the given arguments.

Parameters

self	the object pointer
shape	the contour of the drawn region (PySI.PointVector)
aabb	the axis-aligned bounding-box of the drawn region (PySI.PointVector)
uuid	the universally unique identifier of the drawn region (str)
texture_path	the path to an image intended to be used as an icon for the drawn region (str)
kwargs	keyworded arguments which may necessary for more specific implementations of region effects (dict)
<strong>source</strong>	the source of the plugin e.g. standard environment library (str)

Returns

None

Definition at line 134 of file SIEffect.py.

6.1.3 Member Function Documentation

6.1.3.1 __handle_exception__()

```
None SIEffect.SIEffect.__handle_exception__ (
              self,
             Exception ex,
             str file )
```

member function for generally handling exceptions which may occur in constructors of plugins

Author

Robert Fent (as part of his Bachelor's Thesis)

Parameters

ex	the thrown exception as an Exception object
file	the absolute path to the plugin file in which the exception occurred

Returns

None

Definition at line 720 of file SIEffect.py.

6.1.3.2 absolute_x_pos()

```
int SIEffect.SIEffect.absolute_x_pos (
              self )
```

member function for getting the absolute x coordinate of the parent region's top left corner

Parameters

self	the object pointer

Returns

the absolute x coordinate of the associated region's top left corner

Definition at line 342 of file SIEffect.py.

6.1.3.3 absolute_y_pos()

```
int SIEffect.SIEffect.absolute_y_pos (
              self )
```

member function for getting the absolute y coordinate of the parent region's top left corner

Parameters

self	the object pointer

Returns

the absolute y coordinate of the associated region's top left corner

Definition at line 350 of file SIEffect.py.

6.1.3.4 add_point_to_region_drawing()

```
None SIEffect.SIEffect.add_point_to_region_drawing (
              self,
             float x,
             float y,
             str cursor_id )
```

member function for adding a point to a region drawing based on a cursor id.

Parameters

self	the object pointer
x	the x coordinate of the cursor (float)
y	the y coordinate of the cursor (float)
cursor↩_id	the id of cursor currently drawing (str)

This function is specific to effects of PySI.EffectType.SI_CANVAS. Therefore, this function does nothing when called with other effect types.

Returns

None

Definition at line 564 of file SIEffect.py.

6.1.3.5 assign_effect()

```
None SIEffect.SIEffect.assign_effect (
              self,
             str effect_name_to_assign,
             str effect_display_name,
             dict kwargs )
```

member function for assigning a new effect to a region if the region is a cursor, the effect that cursor can draw is changed instead!

Parameters

self	the object pointer
effect_name_to_assign	the name of the effect which is intended to be written to a region
effect_display_name	the name of the effect which is intended to be visible to a user
kwargs	key-worded arguments containing specifics of certain regions

Returns

None

Definition at line 687 of file SIEffect.py.

6.1.3.6 available_plugins()

```
list SIEffect.SIEffect.available_plugins (
              self )
```

member function for retrieving the plugins which are available for sketching as a dict of names.

This list of names contains regionname attributes

Parameters

self	the object pointer

Returns

a list containing all names of available plugins as str values

Definition at line 651 of file SIEffect.py.

6.1.3.7 close_standard_application()

```
None SIEffect.SIEffect.close_standard_application (
              self,
             str file_uuid )
```

member function for closing the standard application of a file given its uuid as a region and its path in the filesystem

Parameters

self	the object pointer
file_uuid	the uuid of the region associated to a file icon representing a file of the filesystem (str)

Returns

None

Definition at line 600 of file SIEffect.py.

6.1.3.8 context_dimensions()

```
tuple SIEffect.SIEffect.context_dimensions (
              self )
```

member function for retrieving the dimensions of the active SI-Context (width in px, and height in px)

Parameters

self	the object pointer

Returns

the dimensions of the active SI context as a tuple

Definition at line 675 of file SIEffect.py.

6.1.3.9 create_link()

```
None SIEffect.SIEffect.create_link (
              self,
            str sender_uuid,
            str sender_attribute,
            str receiver_uuid,
            str receiver_attribute )
```

member function for establishing a specified link between two regions according to given attributes

Parameters

self	the object pointer
sender_uuid	the uuid of the emitting region (str)
sender_attribute	the attribute to be linked by the emitting region (str)
receiver_uuid	the uuid of the receiving region (str)
receiver_attribute	the attribute to be linked by the receiving region (str)

Returns

None

Definition at line 493 of file SIEffect.py.

6.1.3.10 create_region_via_id()

```
None SIEffect.SIEffect.create_region_via_id (
             self,
            PySI.PointVector shape,
            str effect_type,
             kwargs = {} )
```

member function for creating a new region

Parameters

self	the object pointer
shape	the shape / contour of the region as a PySI.PointVector or list [[x1, x1], [x2, y2], ... [xn, yn]]
effect_name	the name (region_name) of the effect which shall be assigned to the region (region_display_name does not work)

Returns

None

Definition at line 642 of file SIEffect.py.

6.1.3.11 create_region_via_name()

```
None SIEffect.SIEffect.create_region_via_name (
              self,
             PySI.PointVector shape,
             str effect_name,
              as_selector = False,
              kwargs = {} )
```

member function for creating a new region

Parameters

self	the object pointer
shape	the shape / contour of the region as a PySI.PointVector or list [[x1, x1], [x2, y2], ... [xn, yn]]
effect_name	the name (region_name) of the effect which shall be assigned to the region (region_display_name does not work)

Returns

None

Definition at line 632 of file SIEffect.py.

6.1.3.12 current_regions()

```
list SIEffect.SIEffect.current_regions (
              self )
```

member function for retrieving all effects currently represented as regions

Returns

the list of effects as a list

Definition at line 296 of file SIEffect.py.

6.1.3.13 delete()

```
None SIEffect.SIEffect.delete (
              self,
             str uuid = None )
```

member function for deleting a region

Parameters

self	the object pointer

Returns

None

Definition at line 619 of file SIEffect.py.

6.1.3.14 disable_effect()

```
None SIEffect.SIEffect.disable_effect (
              self,
             str capability,
             bool is_emit )
```

member function for disabling the emission or reception of an effect

Parameters

self	the object pointer
capability	the capability of the collision event (str)
is_emit	the variable depicting if a region emits (True) or receives (False) an effect (bool)

Returns

None

Definition at line 412 of file SIEffect.py.

6.1.3.15 disable_link_emission()

```
None SIEffect.SIEffect.disable_link_emission (
              self,
             str emission_capability )
```

member function for disabling the emission of data in the context of a link event

Parameters

self	the object pointer
emission_capability	the capability of the linking event used by the emitting region (str)

Returns

None

Definition at line 460 of file SIEffect.py.

6.1.3.16 disable_link_reception()

```
None SIEffect.SIEffect.disable_link_reception (
               self,
              str emission_capability,
              str reception_capability = "" )
```

member function for disabling the reception of data in the context of a link event

Parameters

self	the object pointer
emission_capability	the capability of the linking event used by the emitting region (str)
reception_capability	the capability of the linking event of a receiving region with default value "" (str)

If no reception_capability is specified, the emission_capability is deleted from self.cap_link_recv. If reception_capability is specified and present in self.cap_link_recv, the specified relation is deleted from emission_capability.

See also

self.cap_link_recv

Returns

None

Definition at line 475 of file SIEffect.py.

6.1.3.17 display_folder_contents_page()

```
None SIEffect.SIEffect.display_folder_contents_page (
               self,
              int page,
              str source_uuid,
               with_buttons = True )
```

member function for displaying the contents of a folder in the filesystem as pages of other filesystem entries

Parameters

self	the object pointer
page	the number of the current page which browsed in a folder region
source_uuid	the uuid of the region associated to a folder icon representing a folder of the filesystem (str)
with_buttons	a flag depicting whether buttons for browsing pages is wanted (True) or not (False) (bool)

Returns

None

Definition at line 611 of file SIEffect.py.

6.1.3.18 emit_linking_action()

```
None SIEffect.SIEffect.emit_linking_action (
              self,
             object sender,
             str capability,
             tuple args )
```

member function for emitting a linking action

Parameters

sender	the source of the the linking action
capability	the capability with which the linking action shall be emitted
args	the data which is to be received by receivers

Returns

None

Definition at line 520 of file SIEffect.py.

6.1.3.19 enable_effect()

```
None SIEffect.SIEffect.enable_effect (
              self,
             str capability,
             bool is_emit,
             object on_enter,
             object on_continuous,
             object on_leave )
```

member function for enabling the emission or reception of an effect

This function is used in order to register collision events. During loading of plugins, the SIGRun plugin transpiler adds this function to the constructor of transpiled plugins based on the information provided in the associated Decorator

Parameters

self	the object pointer
capability	the capability of the collision event (str)
is_emit	the variable depicting if a region emits (True) or receives (False) an effect (bool)
on_enter	the function to be called for the collision event PySI.ON_ENTER
on_continuous	the function to be called for the collision event PySI.ON_CONTINUOUS
on_leave	the function to be called for the collision event PySI.ON_LEAVE

See also

> on_enter(capability, transmission_type):
> on_continuous(capability, transmission_type):
> on_leave(capability, transmission_type):

Returns

> None

Definition at line 370 of file SIEffect.py.

6.1.3.20 enable_link_emission()

```
None SIEffect.SIEffect.enable_link_emission (
              self,
             str emission_capability,
             object emission_function )
```

member function for enabling the emission of data in the context of a link event

This function is used in order to register linking actions for emission. During loading of plugins, the SIGRun plugin transpiler adds this function to the constructor of transpiled plugins based on the information provided in the associated decorator.

Parameters

self	the object pointer
emission_capability	the capability of the linking event (str)
emission_function	the function to be called for emitting data

See also

> on_link(transmission_type, emission_capability, reception_capability=None)

Returns

> None

Definition at line 432 of file SIEffect.py.

6.1.3.21 enable_link_reception()

```
None SIEffect.SIEffect.enable_link_reception (
              self,
             str emission_capability,
             str reception_capability,
             object reception_function )
```

member function for enabling the emission of data in the context of a link event

This function is used in order to register linking actions for reception. During loading of plugins, the SIGRun plugin transpiler adds this function to the constructor of transpiled plugins based on the information provided in the associated decorator.

Parameters

self	the object pointer
emission_capability	the capability of the linking event used by the emitting region (str)
reception_capability	the capability of the linking event of a receiving region (str)
reception_function	the function to be called for receiving data

See also

on_link(transmission_type, emission_capability, reception_capability=None)

Returns

None

Definition at line 448 of file SIEffect.py.

6.1.3.22 excluded_plugins()

```
list SIEffect.SIEffect.excluded_plugins (
              self )
```

member function for retrieving the plugins which are exluded from use This list of names contains regionname attributes

Returns

a list containing all names of excluded plugins as str values

Definition at line 658 of file SIEffect.py.

6.1.3.23 get_QML_data()

```
object SIEffect.SIEffect.get_QML_data (
              self,
             str key,
             int datatype )
```

member function for getting data set from an associated qml file of a region effect

Parameters

self	the object pointer
key	the key specified in QML to address the required data
datatype	the data type of the requested value (PySI.DataType.INT, PySI.DataType.FLOAT, ...) (int)

Returns

the value queried by the key as the given datatype

Definition at line 541 of file SIEffect.py.

6.1.3.24 get_region_height()

```
int SIEffect.SIEffect.get_region_height (
              self )
```

member function for retrieving the maximum height of a region

Parameters

self	the pointer to the object

Returns

the width of the associated region as int

Definition at line 315 of file SIEffect.py.

6.1.3.25 get_region_width()

```
int SIEffect.SIEffect.get_region_width (
              self )
```

member function for retrieving the maximum width of a region

Parameters

self	the pointer to the object

Returns

the width of the associated region as int

Definition at line 304 of file SIEffect.py.

6.1.3.26 is_effect_enabled()

```
bool SIEffect.SIEffect.is_effect_enabled (
              self,
             str capability,
             bool is_emit )
```

member function for determining whether a collision event exists

Parameters

self	the object pointer
capability	the capability of the collision event (str)
is_emit	the transmission type (bool)

Returns

True if a collision event exists with the given capability and transmission type, False else

Definition at line 383 of file SIEffect.py.

6.1.3.27 move()

```
None SIEffect.SIEffect.move (
              self,
              x,
              y )
```

member function for moving the effect's associated region to the point (x, y)

Parameters

self	the object pointer
x	the absolute x coordinate of the point
y	the absolute y coordinate of the point

Returns

None

Definition at line 697 of file SIEffect.py.

6.1.3.28 on_continuous()

```
def SIEffect.SIEffect.on_continuous (
              capability,
              transmission_type )  [static]
```

Decorator for registering on_continuous collision events.

Decorates a specific function in other plugin files to be used as an on_continuous collision event. Recommended use: @SIEffect.on_continuous(<capability>, <transmission_type>)

This decorator adds no functionality and only provides easier syntax for defining on_continuous collision events. The decorator is detected by the SIGRun plugin transpiler during the plugin loading step. In this step, the transpiler removes the decorator and appends an equivalent function call to the plugin's constructor, in order to register the on_continuous collision event.

Parameters

capability	the str value serving as the identifier for the on_continuous collision event
transmission_type	the bool value serving to determine whether the event shall be emitted (SIEffect.EMISSION) or received (SIEffect.RECEPTION)

Returns

the decorated function

Definition at line 69 of file SIEffect.py.

6.1.3.29 on_enter()

```
def SIEffect.SIEffect.on_enter (
              capability,
              transmission_type )  [static]
```

Decorator for registering on_enter collision events.

Decorates a specific function in other plugin files to be used as an on_enter collision event. Recommended use: @SIEffect.on_enter(<capability>, <transmission_type>)

This decorator adds no functionality and only provides easier syntax for defining on_enter collision events. The decorator is detected by the SIGRun plugin transpiler during the plugin loading step. In this step, the transpiler removes the decorator and appends an equivalent function call to the plugin's constructor, in order to register the on_enter collision event.

Parameters

capability	the str value serving as the identifier for the on_enter collision event
transmission_type	the bool value serving to determine whether the event shall be emitted (SIEffect.EMISSION) or received (SIEffect.RECEPTION)

Returns

the decorated function

Definition at line 48 of file SIEffect.py.

6.1.3.30 on_leave()

```
def SIEffect.SIEffect.on_leave (
              capability,
              transmission_type )  [static]
```

Decorator for registering on_leave collision events.

Decorates a specific function in other plugin files to be used as an on_leave collision event. Recommended use: @SIEffect.on_leave(<capability>, <transmission_type>)

This decorator adds no functionality and only provides easier syntax for defining on_leave collision events. The decorator is detected by the SIGRun plugin transpiler during the plugin loading step. In this step, the transpiler removes the decorator and appends an equivalent function call to the plugin's constructor, in order to register the on_leave collision event.

Parameters

capability	the str value serving as the identifier for the on_leave collision event
transmission_type	the bool value serving to determine whether the event shall be emitted (SIEffect.EMISSION) or received (SIEffect.RECEPTION)

Returns

the decorated function

Definition at line 90 of file SIEffect.py.

6.1.3.31 on_link()

```
def SIEffect.SIEffect.on_link (
              transmission_type,
              emission_capability,
              reception_capability = None )  [static]
```

Decorator for registering linking actions.

Decorates a specific function in other plugin files to be used as an linking action. Recommended use: @SI↩ Effect.on_link(<transmission_type>, <emission_capability>, <reception_capability>)

This decorator adds no functionality and only provides easier syntax for defining linking actions. The decorator is detected by the SIGRun plugin transpiler during the plugin loading step. In this step, the transpiler removes the decorator and appends an equivalent function call to the plugin's constructor, in order to register the linking action. Here, the transpiler differentiates the emission of a linking action: @SIEffect.on_link(SIEffect.EMISSION, <capability>) and the reception of a linking action: @SIEffect.on_link(SIEffect.Reception, <emission_capability>, <reception_capability>)

Parameters

transmission_type	the bool value serving to determine whether the event shall be emitted (SIEffect.EMISSION) or received (SIEffect.RECEPTION)
emission_capability	the str value serving as the identifier of with which the linking action was emitted from its source
reception_capability	the str value serving as the identifier of with which the linking action shall be received

Returns

the decorated function

Definition at line 114 of file SIEffect.py.

6.1.3.32 override_effect()

```
None SIEffect.SIEffect.override_effect (
              self,
             str capability,
             bool is_emit,
             object on_enter,
             object on_continuous,
             object on_leave )
```

member function for overriding the emission or reception of an effect

Parameters

self	the object pointer
capability	the capability of the collision event (str)
is_emit	the variable depicting if a region emits (True) or receives (False) an effect (bool)
on_enter	the function to be called for the collision event PySI.ON_ENTER
on_continuous	the function to be called for the collision event PySI.ON_CONTINUOUS
on_leave	the function to be called for the collision event PySI.ON_LEAVE

This function then calls self.enable_effect(capability, is_emit, on_enter, on_continuous, on_leave)

See also

self.enable_effect(capability, is_emit, on_enter, on_continuous, on_leave)

Returns

None

Definition at line 402 of file SIEffect.py.

6.1.3.33 register_region_from_drawing()

```
None SIEffect.SIEffect.register_region_from_drawing (
              self,
             str cursor_id )
```

member function for registering a region drawing according to a cursor id

Parameters

self	the object pointer
cursor← _id	the id of the cursor which is currently drawing (str)

This function is specific to effects of PySI.EffectType.SI_CANVAS. Therefore, this function does nothing when called with other effect types.

Returns

None

Definition at line 580 of file SIEffect.py.

6.1.3.34 relative_x_pos()

```
int SIEffect.SIEffect.relative_x_pos (
              self )
```

member function for getting the relative x coordinate of the parent region's top left corner

Parameters

self	the object pointer

Returns

the relative x coordinate of the associated region's top left corner

Definition at line 326 of file SIEffect.py.

6.1.3.35 relative_y_pos()

```
int SIEffect.SIEffect.relative_y_pos (
              self )
```

member function for getting the relative y coordinate of the parent region's top left corner

Parameters

self	the object pointer

Returns

the relative y coordinate of the associated region's top left corner

Definition at line 334 of file SIEffect.py.

6.1.3.36 remove_link()

```
None SIEffect.SIEffect.remove_link (
              self,
             str sender_uuid,
             str sender_attribute,
             str receiver_uuid,
             str receiver_attribute )
```

member function for removing a specified link between two regions according to given attributes

Parameters

self	the object pointer
sender_uuid	the uuid of the emitting region (str)
sender_attribute	the attribute to be linked by the emitting region (str)
receiver_uuid	the uuid of the receiving region (str)
receiver_attribute	the attribute to be linked by the receiving region (str)

Returns

None

Definition at line 506 of file SIEffect.py.

6.1.3.37 run_in_thread()

```
None SIEffect.SIEffect.run_in_thread (
              self,
             object function,
             tuple args )
```

member function for offloading a function call to a thread

This function launches a given function in another thread. The threaded function's return value cannot be retrieved. This function should be used when a long operation (procedure) has to be computed which at the start of its computation is completely independent of any other function or variables.

Parameters

function	the function to be offloaded
args	the arguments with which the function is intended to be called

Returns

None

Definition at line 711 of file SIEffect.py.

6.1.3.38 set_QML_data()

```
None SIEffect.SIEffect.set_QML_data (
              self,
             str key,
             object value,
             int datatype,
              data_kwargs = {} )
```

member function for setting data in the associated qml file of a region effect

Parameters

self	the object pointer
key	the variable specified in the qml file (str)
value	the value to set in the variable in the qml file (variant)
datatype	the data type of the value (PySI.INT, PySI.FLOAT, ...) (int)

Returns

None

Definition at line 531 of file SIEffect.py.

6.1.3.39 set_QML_path()

```
str SIEffect.SIEffect.set_QML_path (
              self,
             str filename )
```

member function for setting the path to an plugin's associated qml file

Parameters

self	the object pointer
filename	the file name of the target qml file

Returns

the absolute path to the qml file (str)

Definition at line 550 of file SIEffect.py.

6.1.3.40 snap_to_mouse()

```
None SIEffect.SIEffect.snap_to_mouse (
              self )
```

member function for snapping a region's center to the mouse cursor

Parameters

self	the object pointer

Returns

None

Definition at line 666 of file SIEffect.py.

6.1.3.41 start_standard_application()

```
None SIEffect.SIEffect.start_standard_application (
              self,
             str file_uuid,
             str file_path )
```

member function for starting the standard application of a file given its uuid as a region and its path in the filesystem

Parameters

self	the object pointer
file_uuid	the uuid of the region associated to a file icon representing a file of the filesystem (str)
file_path	the path of the file in the filesystem (str)

Returns

None

Definition at line 591 of file SIEffect.py.

6.1.4 Member Data Documentation

6.1.4.1 cap_emit

```
SIEffect.SIEffect.cap_emit
```

member attribute variable storing keys to functions which are called when collision events occur for emitting data to receiving regions

This variable is a PySI.String2_String2FunctionMap_Map (c++-bindings) and uses capabilities (str) as keys to the inner String2FunctionMap. The inner String2FunctionMap uses collision event names (PySI.ON_ENTER ("on_↩ enter"), PySI:ON_CONTINUOUS ("on_continuous"), PySI.ON_LEAVE ("on_leave")) as keys to their corresponding functions as values

Example:

self.cap_emit["CAPABILITY"] = {PySI.ON_ENTER: self.<function_enter>, PySI:ON_CONTINUOUS: self.<function↩ _continuous>, PySI.ON_LEAVE: self.<function_leave>

Therefore, this example allows a region to emit an effect of CAPABILITY once a collision event occurred

Definition at line 239 of file SIEffect.py.

6.1.4.2 cap_link_emit

```
SIEffect.SIEffect.cap_link_emit
```

member attribute variable storing keys to functions which are called when linking events occur for emitting data to receiving regions

This variable is a String2FunctionMap (c++-bindings) containing capabilities (str) as keys and functions as values

Example with SI-integrated linking of positions for emission case: self.cap_link_emit[PySI.POSITION] = self.<function_position_emit> Therefore, this example emits the positional data of the region to a linked region.

Definition at line 264 of file SIEffect.py.

6.1.4.3 cap_link_recv

```
SIEffect.SIEffect.cap_link_recv
```

member attribute variable storing keys to functions which are called when linking events occur for emitting data to receiving regions

This variable is a PySI.String2_String2FunctionMap_Map (c++-bindings) and uses linking event capability names (str) as keys to the inner String2FunctionMap. The inner String2FunctionMap uses linking event capability names (PySI.POSITION, <own name="" as="" str>="">) as keys to their corresponding functions as values. The outer key corresponds to the emission capability. The inner key corresponds to the reception capability of the targeted region and points towards the function which is to be called during the linking event Therefore, it is possible to map e.g. incomimg positional data to the color of the receiving region.

Example with SI-integrated linking of positions for reception case: self.cap_link_recv[PySI.POSITION][PySI.POSI↩ TION] = self.<function_position_emit> self.cap_link_recv[PySI.POSITION][PySI.COLOR] = self.<function_color↩ _emit> Therefore, this example receives the positional data of a linked region and can apply this data to other categories of data according to the linking relationship.

Definition at line 282 of file SIEffect.py.

6.1.4.4 cap_recv

```
SIEffect.SIEffect.cap_recv
```

member attribute variable storing keys to functions which are called when collision events occur for receiving data from emitting regions

This variable is a PySI.String2_String2FunctionMap_Map (c++-bindings) and uses capabilities (str) as keys to the inner String2FunctionMap. The inner String2FunctionMap uses collision event names (PySI.ON_ENTER ("on_↩ enter"), PySI:ON_CONTINUOUS ("on_continuous"), PySI.ON_LEAVE ("on_leave")) as keys to their corresponding functions as values

Example:

self.cap_recv["CAPABILITY"] = {PySI.ON_ENTER: self.<function_enter>, PySI:ON_CONTINUOUS: self.<function↩ _continuous>, PySI.ON_LEAVE: self.<function_leave>

Therefore, this example allows a region to receive an effect of CAPABILITY once a collision event occurred

Definition at line 251 of file SIEffect.py.

6.1.4.5 color

```
SIEffect.SIEffect.color
```

member attribute variable containing the fill color of a region in RGBA as a PySI.Color

Definition at line 199 of file SIEffect.py.

6.1.4.6 delta_x

```
SIEffect.SIEffect.delta_x
```

member attribute variable containing the last relative movement of the region according to the x axis as a float

Definition at line 187 of file SIEffect.py.

6.1.4.7 delta_y

```
SIEffect.SIEffect.delta_y
```

member attribute variable containing the last relative movement of the region according to the y axis as a float

Definition at line 190 of file SIEffect.py.

6.1.4.8 EMISSION

```
bool SIEffect.SIEffect.EMISSION = True  [static]
```

member constant to mark an effect or link emittable

Definition at line 18 of file SIEffect.py.

6.1.4.9 height

```
SIEffect.SIEffect.height
```

member variable containing the maximum height of the region

computed via aabb

Definition at line 161 of file SIEffect.py.

6.1.4.10 is_under_user_control

```
SIEffect.SIEffect.is_under_user_control
```

member attribute variable which is true when an user directly controls the region (e.g.

moving it around) as a bool

Definition at line 202 of file SIEffect.py.

6.1.4.11 last_x

`SIEffect.SIEffect.last_x`

member attribute variable containing the last absolute x coordinate as a float

Definition at line 193 of file SIEffect.py.

6.1.4.12 last_y

`SIEffect.SIEffect.last_y`

member attribute variable containing the last absolute y coordinate as a float

Definition at line 196 of file SIEffect.py.

6.1.4.13 mouse_x

`SIEffect.SIEffect.mouse_x`

member attribute variable storing the x position of the mouse cursor

Definition at line 285 of file SIEffect.py.

6.1.4.14 mouse_y

`SIEffect.SIEffect.mouse_y`

member attribute variable storing the y position of the mouse cursor

Definition at line 288 of file SIEffect.py.

6.1.4.15 name

`SIEffect.SIEffect.name`

member attribute variable containing the name of a drawn region as a str

Definition at line 167 of file SIEffect.py.

6.1.4.16 NO_RESAMPLING

```
bool SIEffect.SIEffect.NO_RESAMPLING = False  [static]
```

static member attribute to notify SIGRun to not resample a region's shape when changed from PySI Use with caution! May lead to unexpected / barely debuggable behaviour!

Definition at line 32 of file SIEffect.py.

6.1.4.17 qml_path

```
SIEffect.SIEffect.qml_path
```

member attribute variable containing the path to a QML file for styling of a drawn region as a str

This value can be left empty if no visualization of the region is intended (e.g. Container-Regions for External Applications or MouseCursor)

See also

Container
MouseCursor

Definition at line 184 of file SIEffect.py.

6.1.4.18 RECEPTION

```
bool SIEffect.SIEffect.RECEPTION = False  [static]
```

static member attribute to mark an effect or link receivable

Definition at line 21 of file SIEffect.py.

6.1.4.19 region_type

```
SIEffect.SIEffect.region_type
```

member attribute variable containing the type of effect of a drawn region as a PySI.EffectType

Effect implementation which are currently not part of the Standard Environment Library of SIGRun are required to be of type SI_CUSTOM

Definition at line 172 of file SIEffect.py.

6.1.4.20 RESAMPLING

```
bool SIEffect.SIEffect.RESAMPLING = True  [static]
```

static member attribute to notify SIGRun to resample a region's shape when changed from PySI

Definition at line 27 of file SIEffect.py.

6.1.4.21 shape

```
SIEffect.SIEffect.shape
```

member attribute variable containing the shape (contour) of a drawn region as a PySI.PointVector

Definition at line 144 of file SIEffect.py.

6.1.4.22 source

```
SIEffect.SIEffect.source
```

member attribute variable containing the source of effect of a drawn region as a str

Effect implementation which are currently not part of the Standard Environment Library of SIGRun are encouraged to not start with "libStdSI"

Definition at line 177 of file SIEffect.py.

6.1.4.23 texture_height

```
SIEffect.SIEffect.texture_height
```

member attribute variable storing the height of a texture of a region drawing as a float

This value is only set if texture_path is a valid path

Definition at line 219 of file SIEffect.py.

6.1.4.24 texture_path

```
SIEffect.SIEffect.texture_path
```

member attribute variable storing the path to the image file used as texture for a region

Definition at line 208 of file SIEffect.py.

6.1.4.25 TEXTURE_PATH_NONE

```
string SIEffect.SIEffect.TEXTURE_PATH_NONE = ""  [static]
```

static member attribute to signal that it's associated effect does not display an icon (texture) when drawn as a region

Definition at line 24 of file SIEffect.py.

6.1.4.26 texture_width

```
SIEffect.SIEffect.texture_width
```

member attribute variable storing the width of a texture of a region drawing as a float

This value is only set if texture_path is a valid path

Definition at line 214 of file SIEffect.py.

6.1.4.27 width

```
SIEffect.SIEffect.width
```

member attribute variable containing the axis-aligned bounding-box (aabb) of a drawn region as a PySI.PointVector

This variable is automatically computed when shape is changed. It is recommended to use this variable read-only. member variable containing the maximum width of the region

computed via aabb

Definition at line 156 of file SIEffect.py.

6.1.4.28 with_border

```
SIEffect.SIEffect.with_border
```

member attribute variable serving as a rendering hint for showing a regions border

Definition at line 138 of file SIEffect.py.

6.1.4.29 x

```
SIEffect.SIEffect.x
```

Definition at line 667 of file SIEffect.py.

6.1.4.30 y

```
SIEffect.SIEffect.y
```

Definition at line 668 of file SIEffect.py.

The documentation for this class was generated from the following file:

- SIEffect.py

Chapter 7

File Documentation

7.1 SIEffect.py File Reference

Classes

- class SIEffect.SIEffect

  Super Class from which all subsequent plugins are derived.

Namespaces

- SIEffect

  Documentation for this module / class.

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