

# Graphics

0.0.0

Generated by Doxygen 1.8.11



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# Chapter 1

## Data Structure Index

### 1.1 Data Structures

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## Chapter 2

# File Index

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## Chapter 3

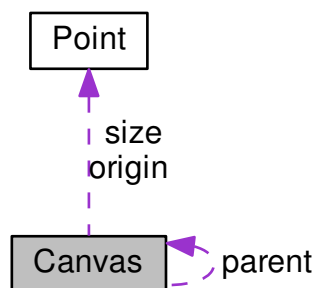
# Data Structure Documentation

### 3.1 Canvas Struct Reference

A [Canvas](#) is part of a [Window](#) or of another [Canvas](#), on which it's possible to draw.

```
#include <canvas.h>
```

Collaboration diagram for Canvas:



#### Data Fields

- `SDL_Surface *` [surface](#)
- [Point](#) `size`
- [Point](#) `origin`
- `struct Canvas *` [parent](#)

#### 3.1.1 Detailed Description

A [Canvas](#) is part of a [Window](#) or of another [Canvas](#), on which it's possible to draw.

### 3.1.2 Field Documentation

#### 3.1.2.1 `Point Canvas::origin`

`Point` representing the origin of the `Canvas`, user can set and get it safely.

#### 3.1.2.2 `struct Canvas* Canvas::parent`

Pointer to the `Canvas` representing the parent of the `Canvas`, i.e. the one on which it will be blitted. If the `Canvas` is the root `Canvas` representing the whole `Window`, then it points to `NULL`.

#### 3.1.2.3 `Point Canvas::size`

`Point` representing the size of the `Canvas`, usefull to get the value quickly, but user shouldn't change it.

#### 3.1.2.4 `SDL_Surface* Canvas::surface`

Pointer to the `SDL_Surface` used to store the content of the `Canvas`, user shouldn't have to touch this.

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

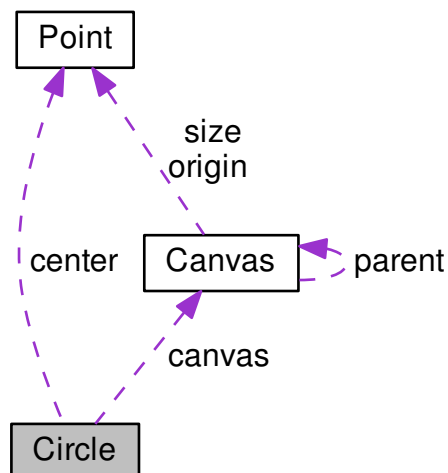
- [canvas.h](#)

## 3.2 Circle Struct Reference

A struct used to represent a circle.

```
#include <circle.h>
```

Collaboration diagram for Circle:





## Data Fields

- [Point](#) `center`
- `int` `radius`
- `Canvas` \* `canvas`

### 3.2.1 Detailed Description

A struct used to represent a circle.

### 3.2.2 Field Documentation

#### 3.2.2.1 `Canvas`\* `Circle::canvas`

Pointer to the [Canvas](#) the [Circle](#) belongs to.

#### 3.2.2.2 `Point` `Circle::center`

[Point](#) representing the center of the circle, must be relative to its [Canvas](#).

#### 3.2.2.3 `int` `Circle::radius`

`int` representing the radius of the circle.

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

- [circle.h](#)

## 3.3 Color Struct Reference

A struct used to represent a RGBA color.

```
#include <color.h>
```

## Data Fields

- `UInt32` `rgb`
- `UInt8` `alpha`

### 3.3.1 Detailed Description

A struct used to represent a RGBA color.

### 3.3.2 Field Documentation

#### 3.3.2.1 Uint8 Color::alpha

Uint32 representing the alpha component of the color.

#### 3.3.2.2 Uint32 Color::rgb

Uint32 representing the RGB component of the color.

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

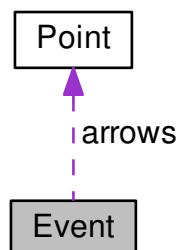
- [color.h](#)

## 3.4 Event Struct Reference

A struct used to represent events, i.e. user input.

```
#include <event.h>
```

Collaboration diagram for Event:



### Data Fields

- bool [quit](#)
- bool [space](#)
- [Point](#) [arrows](#)

#### 3.4.1 Detailed Description

A struct used to represent events, i.e. user input.

### 3.4.2 Field Documentation

#### 3.4.2.1 Point Event::arrows

[Point](#) representing the arrow keys.

#### 3.4.2.2 bool Event::quit

bool containing true if user press one of the exit key or close the current [Window](#), else contain false.

#### 3.4.2.3 bool Event::space

bool containing true if user press the space key, else contain false.

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

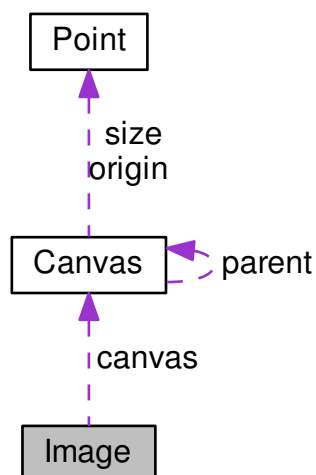
- [event.h](#)

## 3.5 Image Struct Reference

A struct representing an image.

```
#include <image.h>
```

Collaboration diagram for Image:



## Data Fields

- `SDL_Surface *` [surface](#)
- [Canvas](#) \* [canvas](#)

### 3.5.1 Detailed Description

A struct representing an image.

### 3.5.2 Field Documentation

#### 3.5.2.1 `Canvas*` `Image::canvas`

Pointer to the [Canvas](#) the [Image](#) belongs to.

#### 3.5.2.2 `SDL_Surface*` `Image::surface`

Pointer to the `SDL_Surface` used to store the content of the image, user shouldn't have to touch this.

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

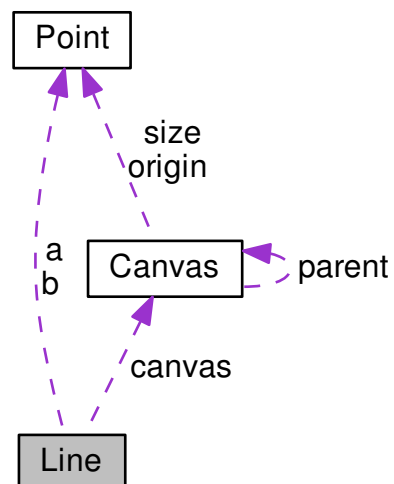
- [image.h](#)

## 3.6 Line Struct Reference

A struct used to represent a line segment.

```
#include <line.h>
```

Collaboration diagram for Line:



## Data Fields

- [Point a](#)
- [Point b](#)
- [Canvas](#) \* [canvas](#)

### 3.6.1 Detailed Description

A struct used to represent a line segment.

### 3.6.2 Field Documentation

#### 3.6.2.1 Point Line::a

The first point of the line segment.

#### 3.6.2.2 Point Line::b

The last point of the line segment.

#### 3.6.2.3 Canvas\* Line::canvas

The [Canvas](#) the [Line](#) belongs to.

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

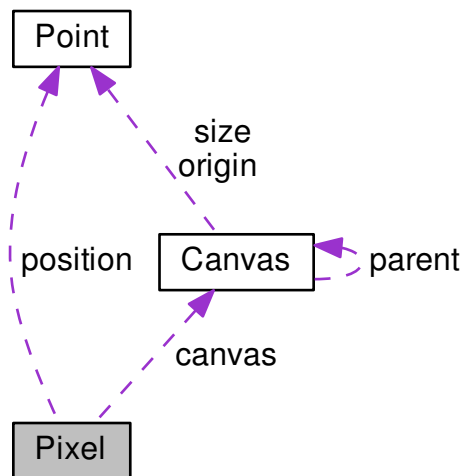
- [line.h](#)

## 3.7 Pixel Struct Reference

A struct used to represent a pixel.

```
#include <pixel.h>
```

Collaboration diagram for Pixel:



## Data Fields

- [Point position](#)
- [Canvas \\* canvas](#)

### 3.7.1 Detailed Description

A struct used to represent a pixel.

### 3.7.2 Field Documentation

#### 3.7.2.1 Canvas\* Pixel::canvas

Pointer to the [Canvas](#) the [Pixel](#) belongs to.

#### 3.7.2.2 Point Pixel::position

[Point](#) representing the position of the [Pixel](#).

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

- [pixel.h](#)

## 3.8 Point Struct Reference

A struct used to represent a point.

```
#include <point.h>
```

### Data Fields

- `int x`
- `int y`

### 3.8.1 Detailed Description

A struct used to represent a point.

### 3.8.2 Field Documentation

#### 3.8.2.1 `int Point::x`

The value of the point on the x-coordinate.

#### 3.8.2.2 `int Point::y`

The value of the point on the y-coordinate.

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

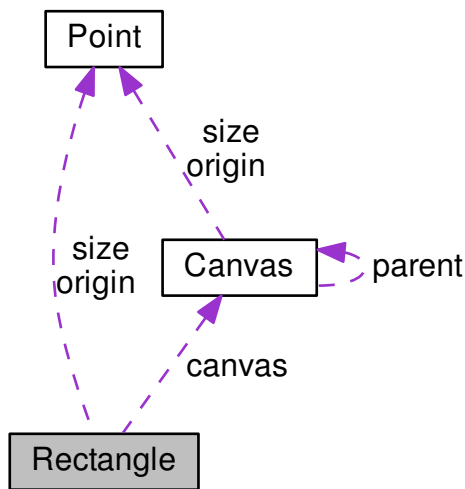
- `point.h`

## 3.9 Rectangle Struct Reference

A struct used to represent a rectangle.

```
#include <rectangle.h>
```

Collaboration diagram for Rectangle:



## Data Fields

- [Point origin](#)
- [Point size](#)
- [Canvas \\* canvas](#)

### 3.9.1 Detailed Description

A struct used to represent a rectangle.

### 3.9.2 Field Documentation

#### 3.9.2.1 Canvas\* Rectangle::canvas

Pointer to the [Canvas](#) the [Rectangle](#) belongs to.

#### 3.9.2.2 Point Rectangle::origin

[Point](#) representing the origin of the [Rectangle](#) on its [Canvas](#).

#### 3.9.2.3 Point Rectangle::size

[Point](#) representing the size of the [Canvas](#).

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

- [rectangle.h](#)



## 3.10 Sound Struct Reference

A struct used to store a sound.

```
#include <sound.h>
```

### Data Fields

- `Mix_Music *` [content](#)

### 3.10.1 Detailed Description

A struct used to store a sound.

### 3.10.2 Field Documentation

#### 3.10.2.1 `Mix_Music*` `Sound::content`

Pointer to the `Mix_Music` used to store the sound's content.

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

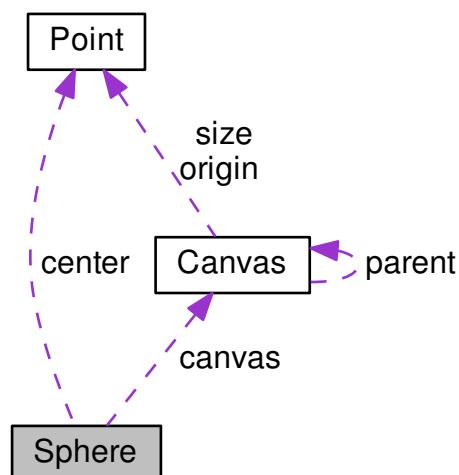
- [sound.h](#)

## 3.11 Sphere Struct Reference

A struct used to represent a sphere.

```
#include <sphere.h>
```

Collaboration diagram for Sphere:



## Data Fields

- [Point](#) center
- int [radius](#)
- [Canvas](#) \* [canvas](#)

### 3.11.1 Detailed Description

A struct used to represent a sphere.

### 3.11.2 Field Documentation

#### 3.11.2.1 [Canvas](#)\* [Sphere::canvas](#)

Pointer to the [Canvas](#) the [Sphere](#) belongs to.

#### 3.11.2.2 [Point](#) [Sphere::center](#)

[Point](#) representing the center of the sphere, must be relative to its [Canvas](#).

#### 3.11.2.3 int [Sphere::radius](#)

int representing the radius of the sphere.

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

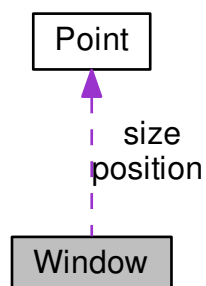
- [sphere.h](#)

## 3.12 Window Struct Reference

A struct representing a window.

```
#include <window.h>
```

Collaboration diagram for Window:



## Data Fields

- `SDL_Window *` [window](#)
- `char *` [title](#)
- [Point](#) [position](#)
- [Point](#) [size](#)

### 3.12.1 Detailed Description

A struct representing a window.

### 3.12.2 Field Documentation

#### 3.12.2.1 `Point Window::position`

[Point](#) representing the window's position.

#### 3.12.2.2 `Point Window::size`

[Point](#) representing the window's size.

#### 3.12.2.3 `char* Window::title`

The window's title.

#### 3.12.2.4 `SDL_Window* Window::window`

Pointer to the `SDL_Window` used to store the window.

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

- [window.h](#)



## Chapter 4

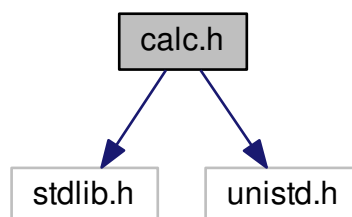
# File Documentation

### 4.1 calc.h File Reference

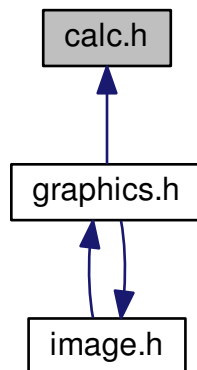
Some maths functions.

```
#include <stdlib.h>
#include <unistd.h>
```

Include dependency graph for calc.h:



This graph shows which files directly or indirectly include this file:



## Functions

- float `calc_alea_float` (void)  
*Function to get a random float x in [0 ; 1[.*
- int `calc_alea_int` (const int min, const int max)  
*Function to get a random int.*

### 4.1.1 Detailed Description

Some maths functions.

### 4.1.2 Function Documentation

#### 4.1.2.1 float `calc_alea_float` ( void )

Function to get a random float x in [0 ; 1[.

##### Returns

The random float.

#### 4.1.2.2 int `calc_alea_int` ( const int *min*, const int *max* )

Function to get a random int.

## Parameters

<i>min</i>	The minimum value for the random int.
<i>max</i>	The maximum value for the random int.

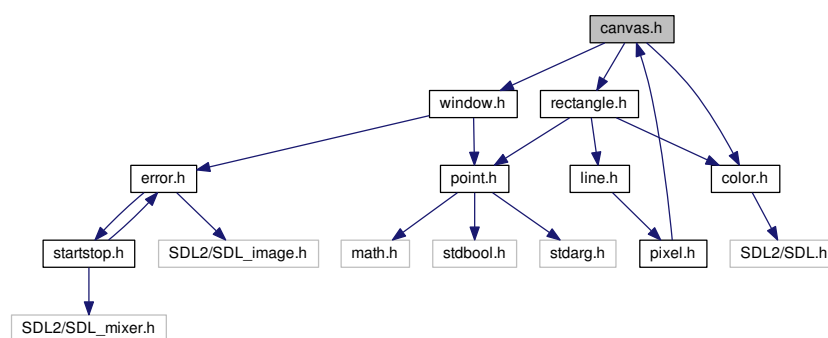
## Returns

The random int.

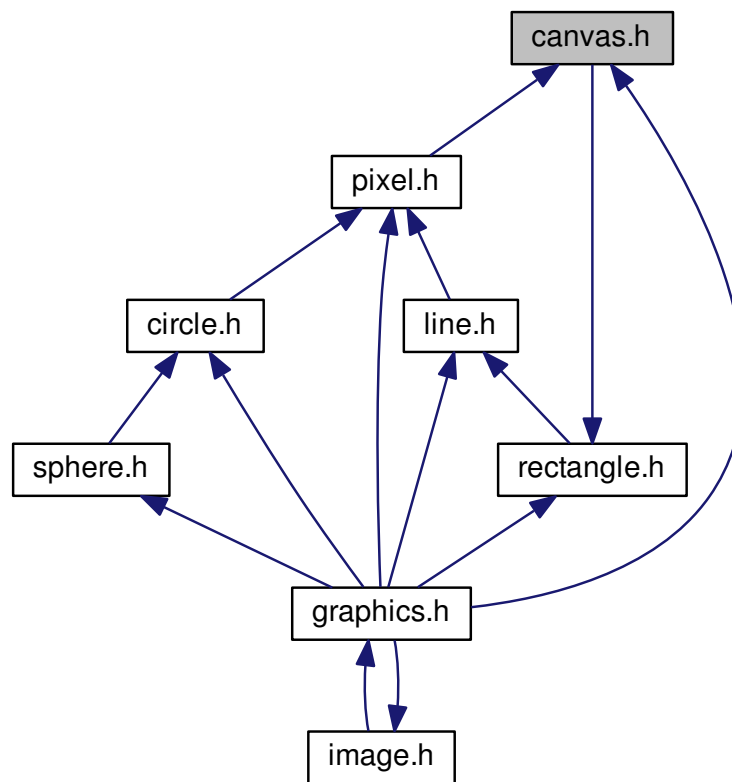
## 4.2 canvas.h File Reference

Everything related to [Canvas](#).

```
#include "window.h"
#include "color.h"
#include "rectangle.h"
Include dependency graph for canvas.h:
```



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Canvas](#)

A [Canvas](#) is part of a [Window](#) or of another [Canvas](#), on which it's possible to draw.

## Typedefs

- typedef struct [Canvas](#) [Canvas](#)

## Functions

- bool [canvas\\_collision\\_canvas](#) (const [Canvas](#) \*canvas1, const [Canvas](#) \*canvas2) \_\_attribute\_\_((pure))  
Function to detect collision between two [Canvas](#).
- bool [canvas\\_is\\_out\\_of\\_parent\\_bottom](#) (const [Canvas](#) \*canvas) \_\_attribute\_\_((pure))  
Function to know if a [Canvas](#) is under its parent.
- bool [canvas\\_is\\_out\\_of\\_parent\\_left](#) (const [Canvas](#) \*canvas) \_\_attribute\_\_((pure))  
Function to know if a [Canvas](#) is out of its parent's left side.
- bool [canvas\\_is\\_out\\_of\\_parent\\_right](#) (const [Canvas](#) \*canvas) \_\_attribute\_\_((pure))



- Function to know if a [Canvas](#) is out of its parent's right side.*
- bool [canvas\\_is\\_out\\_of\\_parent\\_top](#) (const [Canvas](#) \*canvas) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) is upper its parent's.*
- bool [canvas\\_is\\_out\\_of\\_parent\\_x](#) (const [Canvas](#) \*canvas) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) is outside of its parent's on the X axis.*
- bool [canvas\\_is\\_out\\_of\\_parent\\_y](#) (const [Canvas](#) \*canvas) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) is outside of its parent's on the Y axis.*
- bool [canvas\\_will\\_be\\_out\\_of\\_parent\\_bottom](#) (const [Canvas](#) \*canvas, const [Point](#) \*move) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) will be under its parent after moving its origin.*
- bool [canvas\\_will\\_be\\_out\\_of\\_parent\\_left](#) (const [Canvas](#) \*canvas, const [Point](#) \*move) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) will be out of its parent's left side after moving its origin.*
- bool [canvas\\_will\\_be\\_out\\_of\\_parent\\_right](#) (const [Canvas](#) \*canvas, const [Point](#) \*move) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) will be out of its parent's right side after moving its origin.*
- bool [canvas\\_will\\_be\\_out\\_of\\_parent\\_top](#) (const [Canvas](#) \*canvas, const [Point](#) \*move) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) will be upper its parent after moving its origin.*
- bool [canvas\\_will\\_be\\_out\\_of\\_parent\\_x](#) (const [Canvas](#) \*canvas, const [Point](#) \*move) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) will be outside of its parent on the X axis after moving its origin.*
- bool [canvas\\_will\\_be\\_out\\_of\\_parent\\_y](#) (const [Canvas](#) \*canvas, const [Point](#) \*move) \_\_attribute\_\_((pure))
- Function to know if a [Canvas](#) will be outside of its parent on the Y axis after moving its origin.*
- void [canvas\\_blit](#) ([Canvas](#) \*canvas)
- Function to blit a [Canvas](#) on its parent.*
- void [canvas\\_create](#) ([Canvas](#) \*canvas, const [Point](#) \*size, const [Point](#) \*origin, [Canvas](#) \*parent)
- Function to create a [Canvas](#).*
- void [canvas\\_clear](#) ([Canvas](#) \*canvas)
- Function to clear a [Canvas](#), i.e. filling it with black.*
- void [canvas\\_create\\_from\\_window](#) ([Canvas](#) \*canvas, const [Window](#) \*window)
- Function to create a [Canvas](#) from a [Window](#), it will fill the whole window.*
- void [canvas\\_draw\\_borders\\_in](#) ([Canvas](#) \*canvas, const [Color](#) \*color)
- Function to draw a 1 pixel border inside of a [Canvas](#).*
- void [canvas\\_draw\\_borders\\_out](#) ([Canvas](#) \*canvas, const [Color](#) \*color)
- Function to draw a 1 pixel border outside of a [Canvas](#).*
- void [canvas\\_fill](#) ([Canvas](#) \*canvas, const [Color](#) \*color)
- Function to fill a [Canvas](#) with a [Color](#).*
- void [canvas\\_get\\_absolute\\_origin](#) (const [Canvas](#) \*canvas, [Point](#) \*absoluteOrigin)
- Function to get the origin of a [Canvas](#) on the [Window](#), instead of on its parent.*

## 4.2.1 Detailed Description

Everything related to [Canvas](#).

## 4.2.2 Typedef Documentation

### 4.2.2.1 typedef struct Canvas Canvas

## 4.2.3 Function Documentation

### 4.2.3.1 void canvas\_blit ( Canvas \* canvas )

Function to blit a [Canvas](#) on its parent.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> to blit.
---------------	--

4.2.3.2 void canvas\_clear ( [Canvas](#) \* *canvas* )

Function to clear a [Canvas](#), i.e. filling it with black.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> to clear.
---------------	---

4.2.3.3 bool canvas\_collision\_canvas ( const [Canvas](#) \* *canvas1*, const [Canvas](#) \* *canvas2* )

Function to detect collision between two [Canvas](#).

## Parameters

<i>canvas1</i>	A pointer to the first <a href="#">Canvas</a> .
<i>canvas2</i>	A pointer to the second <a href="#">Canvas</a> .

## Returns

If the two [Canvas](#) collide returns true, else, returns false.

4.2.3.4 void canvas\_create ( [Canvas](#) \* *canvas*, const [Point](#) \* *size*, const [Point](#) \* *origin*, [Canvas](#) \* *parent* )

Function to create a [Canvas](#).

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> to create.
<i>size</i>	A pointer to a <a href="#">Point</a> representing the wanted size for the <a href="#">Canvas</a> .
<i>origin</i>	A pointer to a <a href="#">Point</a> representing the wanted origin for the <a href="#">Canvas</a> .
<i>parent</i>	A pointer to the <a href="#">Canvas</a> wanted as the parent of the <a href="#">Canvas</a> to create.

4.2.3.5 void canvas\_create\_from\_window ( [Canvas](#) \* *canvas*, const [Window](#) \* *window* )

Function to create a [Canvas](#) from a [Window](#), it will fill the whole window.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> to create.
<i>window</i>	A pointer to the <a href="#">Window</a> from which the <a href="#">Canvas</a> should be created.

**4.2.3.6 void canvas\_draw\_borders\_in ( Canvas \* canvas, const Color \* color )**

Function to draw a 1 pixel border inside of a [Canvas](#).

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>color</i>	A pointer to the <a href="#">Color</a> wanted for the border.

**4.2.3.7 void canvas\_draw\_borders\_out ( Canvas \* canvas, const Color \* color )**

Function to draw a 1 pixel border outside of a [Canvas](#).

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>color</i>	A pointer to the <a href="#">Color</a> wanted for the border.

**4.2.3.8 void canvas\_fill ( Canvas \* canvas, const Color \* color )**

Function to fill a [Canvas](#) with a [Color](#).

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> to fill.
<i>color</i>	A pointer to the <a href="#">Color</a> wanted to fill the <a href="#">Canvas</a> .

**4.2.3.9 void canvas\_get\_absolute\_origin ( const Canvas \* canvas, Point \* absoluteOrigin )**

Function to get the origin of a [Canvas](#) on the [Window](#), instead of on its parent.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>absoluteOrigin</i>	A pointer to the <a href="#">Point</a> in which the origin will be stored.

**4.2.3.10 bool canvas\_is\_out\_of\_parent\_bottom ( const Canvas \* canvas )**

Function to know if a [Canvas](#) is under its parent.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
---------------	---

**Returns**

If the [Canvas](#) is under its parent, returns true, else, returns false.

**4.2.3.11 bool canvas\_is\_out\_of\_parent\_left ( const Canvas \* canvas )**

Function to know if a [Canvas](#) is out of its parent's left side.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
---------------	---

**Returns**

If the [Canvas](#) is out of its parent's left side, returns true, else, returns false.

**4.2.3.12 bool canvas\_is\_out\_of\_parent\_right ( const Canvas \* canvas )**

Function to know if a [Canvas](#) is out of its parent's right side.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
---------------	---

**Returns**

If the [Canvas](#) is out of its parent's right side, returns true, else, returns false.

**4.2.3.13 bool canvas\_is\_out\_of\_parent\_top ( const Canvas \* canvas )**

Function to know if a [Canvas](#) is upper its parent's.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
---------------	---

**Returns**

If the canvas is upper, returns true, else, returns false.

**4.2.3.14 bool canvas\_is\_out\_of\_parent\_x ( const Canvas \* canvas )**

Function to know if a [Canvas](#) is outside of its parent's on the X axis.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
---------------	---

## Returns

If the [Canvas](#) is outside, returns true, else, returns false.

4.2.3.15 `bool canvas_is_out_of_parent_y ( const Canvas * canvas )`

Function to know if a [Canvas](#) is outside of its parent's on the Y axis.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
---------------	---

## Returns

If the [Canvas](#) is outside, returns true, else, returns false.

4.2.3.16 `bool canvas_will_be_out_of_parent_bottom ( const Canvas * canvas, const Point * move )`

Function to know if a [Canvas](#) will be under its parent after moving its origin.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>move</i>	A pointer to the <a href="#">Point</a> representing the origin's move.

## Returns

If the [Canvas](#) will be under its parent, returns true, else, returns false.

4.2.3.17 `bool canvas_will_be_out_of_parent_left ( const Canvas * canvas, const Point * move )`

Function to know if a [Canvas](#) will be out of its parent's left side after moving its origin.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>move</i>	A pointer to the <a href="#">Point</a> representing the origin's move.

**Returns**

If the [Canvas](#) will be out of its parent's left side, returns true, else, returns false.

**4.2.3.18** `bool canvas_will_be_out_of_parent_right ( const Canvas * canvas, const Point * move )`

Function to know if a [Canvas](#) will be out of its parent's right side after moving its origin.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>move</i>	A pointer to the <a href="#">Point</a> representing the origin's move.

**Returns**

If the [Canvas](#) will be out of its parent's right side, returns true, else, returns false.

**4.2.3.19** `bool canvas_will_be_out_of_parent_top ( const Canvas * canvas, const Point * move )`

Function to know if a [Canvas](#) will be upper its parent after moving its origin.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>move</i>	A pointer to the point representing the origin's move.

**Returns**

If the [Canvas](#) will be upper its parent, returns true, else, returns false.

**4.2.3.20** `bool canvas_will_be_out_of_parent_x ( const Canvas * canvas, const Point * move )`

Function to know if a [Canvas](#) will be outside of its parent on the X axis after moving its origin.

**Parameters**

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>move</i>	A pointer to the point representing the origin's move.

**Returns**

If the [Canvas](#) will be outside of its parent on the X axis, returns true, else, returns false.

**4.2.3.21** `bool canvas_will_be_out_of_parent_y ( const Canvas * canvas, const Point * move )`

Function to know if a [Canvas](#) will be outside of its parent on the Y axis after moving its origin.

## Parameters

<i>canvas</i>	A pointer to the <a href="#">Canvas</a> .
<i>move</i>	A pointer to the point representing the origin's move.

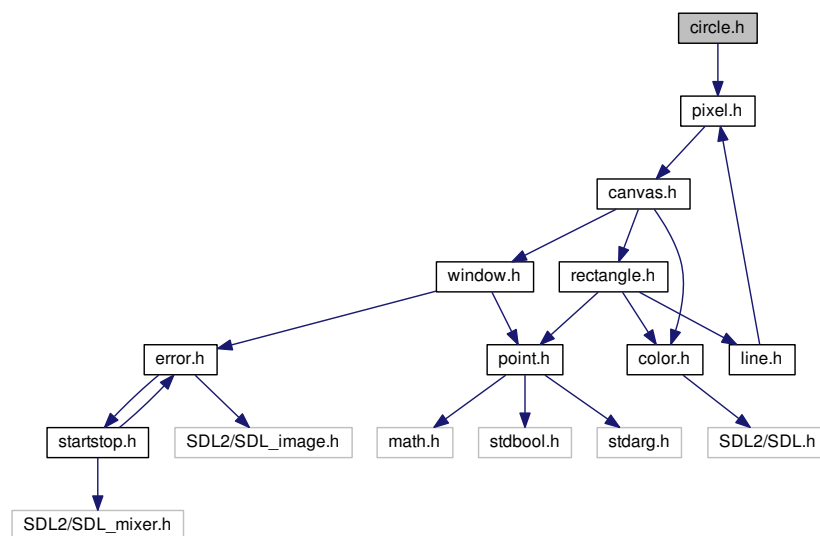
## Returns

If the [Canvas](#) will be outside of its parent on the Y axis, returns true, else, returns false.

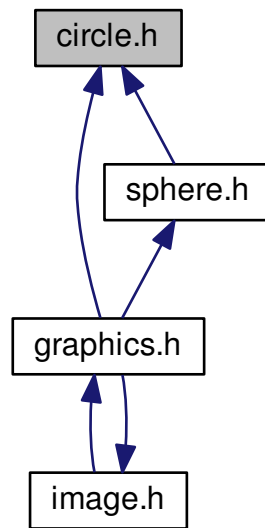
## 4.3 circle.h File Reference

Everything related to [Circle](#).

```
#include "pixel.h"
Include dependency graph for circle.h:
```



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Circle](#)  
*A struct used to represent a circle.*

## Functions

- void [circle\\_draw](#) (const [Circle](#) \*circle, const [Color](#) \*color)  
*Function to draw a [Circle](#).*
- void [circle\\_draw\\_fill](#) (const [Circle](#) \*circle, const [Color](#) \*color)  
*Function to draw a filled [Circle](#).*

### 4.3.1 Detailed Description

Everything related to [Circle](#).

### 4.3.2 Function Documentation

#### 4.3.2.1 void circle\_draw ( const Circle \* circle, const Color \* color )

Function to draw a [Circle](#).



## Parameters

<i>circle</i>	A pointer to the <a href="#">Circle</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Circle</a> .

4.3.2.2 void circle\_draw\_fill ( const [Circle](#) \* *circle*, const [Color](#) \* *color* )

Function to draw a filled [Circle](#).

## Parameters

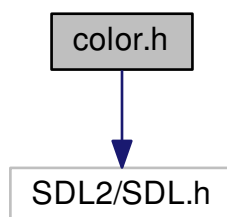
<i>circle</i>	A pointer to the <a href="#">Circle</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Circle</a> .

## 4.4 color.h File Reference

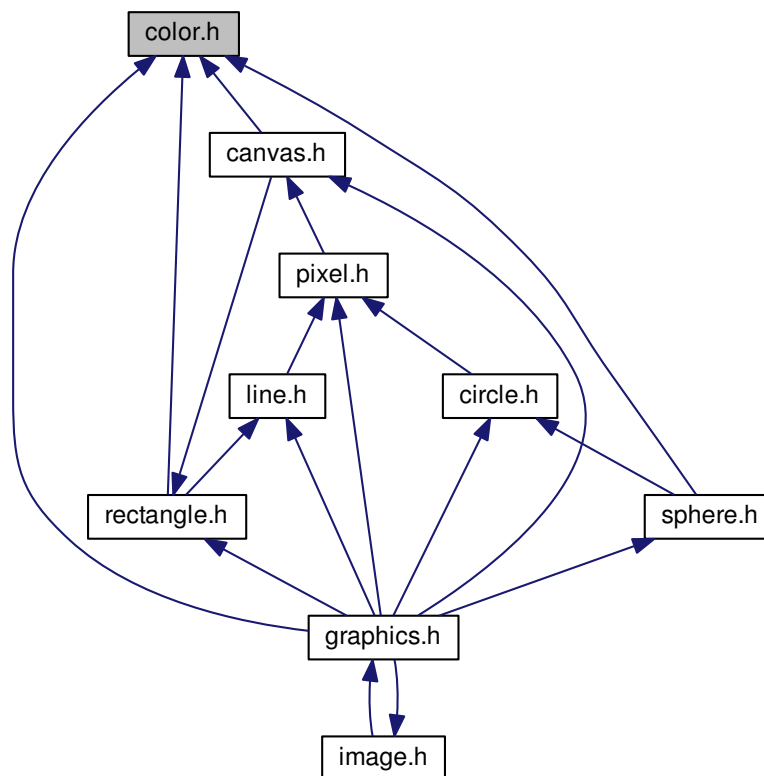
Everything related to [Color](#).

```
#include <SDL2/SDL.h>
```

Include dependency graph for color.h:



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Color](#)  
A struct used to represent a RGBA color.

## Functions

- `UInt8 color_get_red (const Color *color) __attribute__((const))`  
Function to get the red component of a [Color](#).
- `UInt8 color_get_green (const Color *color) __attribute__((const))`  
Function to get the green component of a [Color](#).
- `UInt8 color_get_blue (const Color *color) __attribute__((pure))`  
Function to get the blue component of a [Color](#).

### 4.4.1 Detailed Description

Everything related to [Color](#).

## 4.4.2 Function Documentation

### 4.4.2.1 `UInt8 color_get_blue ( const Color * color )`

Function to get the blue component of a [Color](#).

**Parameters**

<i>color</i>	A pointer to the <a href="#">Color</a> .
--------------	--

**Returns**

The blue component in a Uint8.

**4.4.2.2 Uint8 color\_get\_green ( const Color \* color ) const**

Function to get the green component of a [Color](#).

**Parameters**

<i>color</i>	A pointer to the <a href="#">Color</a> .
--------------	--

**Returns**

The green component in a Uint8.

**4.4.2.3 Uint8 color\_get\_red ( const Color \* color ) const**

Function to get the red component of a [Color](#).

**Parameters**

<i>color</i>	A pointer to the <a href="#">Color</a> .
--------------	--

**Returns**

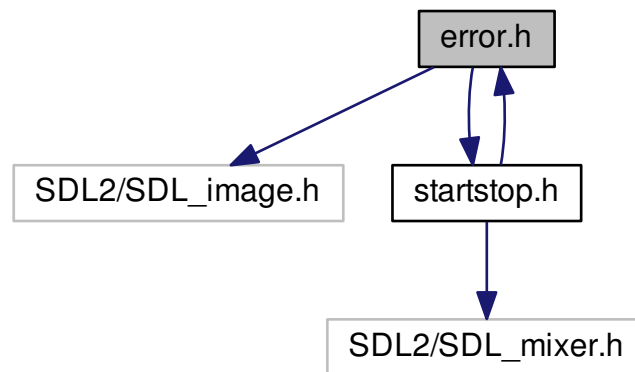
The red component in a Uint8.

## 4.5 error.h File Reference

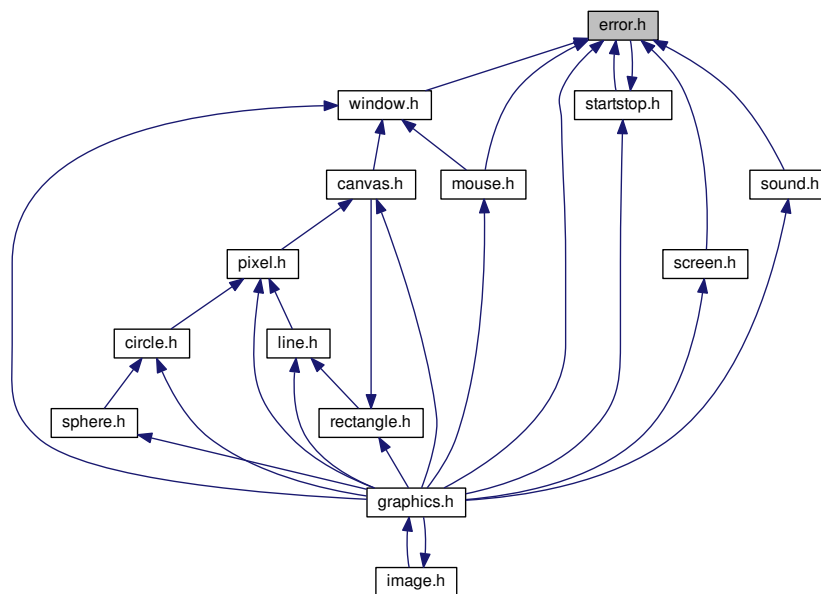
Everything related to errors and warnings handling.

```
#include <SDL2/SDL_image.h>
#include "startstop.h"
```

Include dependency graph for error.h:



This graph shows which files directly or indirectly include this file:



## Functions

- void [error\\_quit](#) (void) `__attribute__((noreturn))`  
*Function to quit after an error, will stop graphics and SDL components and stop the program.*

### 4.5.1 Detailed Description

Everything related to errors and warnings handling.

## 4.5.2 Function Documentation

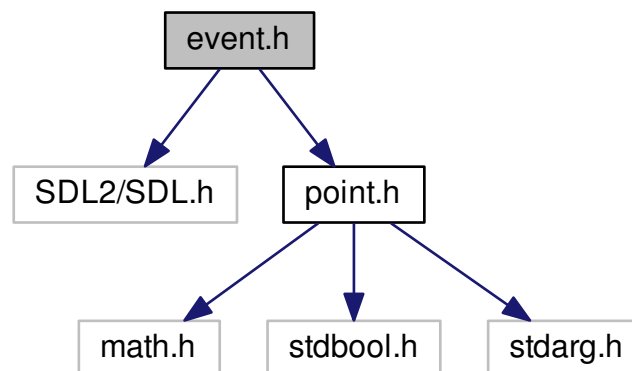
### 4.5.2.1 void error\_quit ( void )

Function to quit after an error, will stop graphics and SDL components and stop the program.

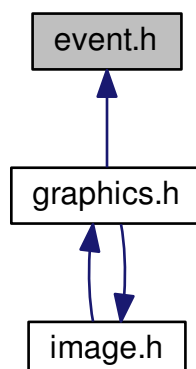
## 4.6 event.h File Reference

Everything related to events, i.e. user input.

```
#include <SDL2/SDL.h>
#include "point.h"
Include dependency graph for event.h:
```



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Event](#)

*A struct used to represent events, i.e. user input.*

## Functions

- void [event\\_create](#) ([Event](#) \*newEvent)  
*Function to create an [Event](#).*
- void [event\\_update](#) ([Event](#) \*event)  
*Function to update an [Event](#).*

### 4.6.1 Detailed Description

Everything related to events, i.e. user input.

### 4.6.2 Function Documentation

#### 4.6.2.1 void [event\\_create](#) ( [Event](#) \* *newEvent* )

Function to create an [Event](#).

##### Parameters

<i>newEvent</i>	A pointer to the <a href="#">Event</a> to create.
-----------------	---

#### 4.6.2.2 void [event\\_update](#) ( [Event](#) \* *event* )

Function to update an [Event](#).

##### Parameters

<i>newEvent</i>	A pointer to the <a href="#">Event</a> to update.
-----------------	---

## 4.7 graphics.h File Reference

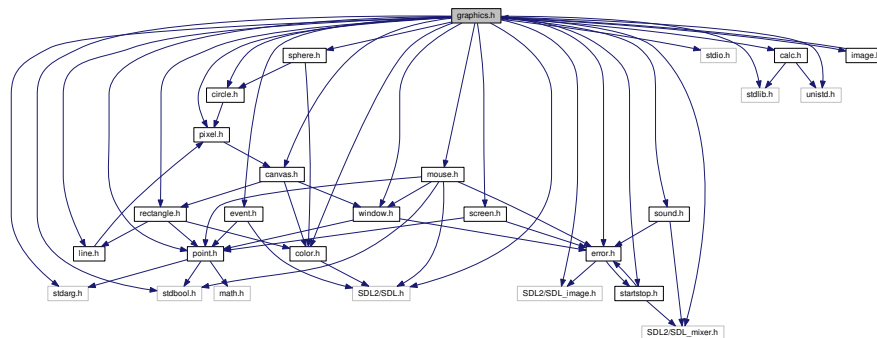
The main lib file.

```

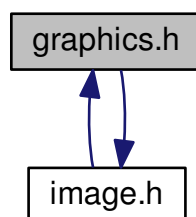
#include <stdarg.h>
#include <stdbool.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <SDL2/SDL.h>
#include <SDL2/SDL_image.h>
#include <SDL2/SDL_mixer.h>
#include "point.h"
#include "pixel.h"
#include "canvas.h"
#include "line.h"
#include "window.h"
#include "screen.h"
#include "color.h"
#include "circle.h"
#include "sound.h"
#include "calc.h"
#include "rectangle.h"
#include "event.h"
#include "sphere.h"
#include "image.h"
#include "error.h"
#include "startstop.h"
#include "mouse.h"

```

Include dependency graph for graphics.h:



This graph shows which files directly or indirectly include this file:







## Functions

- void `image_blit_naive` (const `Image` \*image)  
Function to blit an `Image` on its `Canvas`, it will be blitted "as is", even if the `Image` is bigger than its `Canvas`.
- void `image_blit_scaled` (const `Image` \*image)  
Function to blit an `Image` on its `Canvas`, it will be scaled, i.e. will fill the `Canvas` perfectly.
- void `image_load` (`Image` \*image, const char \*pathToImg)  
Function to load an image into an `Image` struct.
- void `image_unload` (`Image` \*image)  
Function to unload an `Image`, i.e. to free it.

### 4.8.1 Detailed Description

Everything related to `Image`.

### 4.8.2 Function Documentation

#### 4.8.2.1 void image\_blit\_naive ( const Image \* image )

Function to blit an `Image` on its `Canvas`, it will be blitted "as is", even if the `Image` is bigger than its `Canvas`.

##### Parameters

<code>image</code>	A pointer to the <code>Image</code> to blit.
--------------------	--

#### 4.8.2.2 void image\_blit\_scaled ( const Image \* image )

Function to blit an `Image` on its `Canvas`, it will be scaled, i.e. will fill the `Canvas` perfectly.

##### Parameters

<code>image</code>	A pointer to the <code>Image</code> to blit.
--------------------	--

#### 4.8.2.3 void image\_load ( Image \* image, const char \* pathToImg )

Function to load an image into an `Image` struct.

##### Parameters

<code>image</code>	A pointer to the <code>Image</code> used to store the loaded image.
<code>pathToImg</code>	The path to the image to load.

#### 4.8.2.4 void image\_unload ( Image \* image )

Function to unload an [Image](#), i.e. to free it.

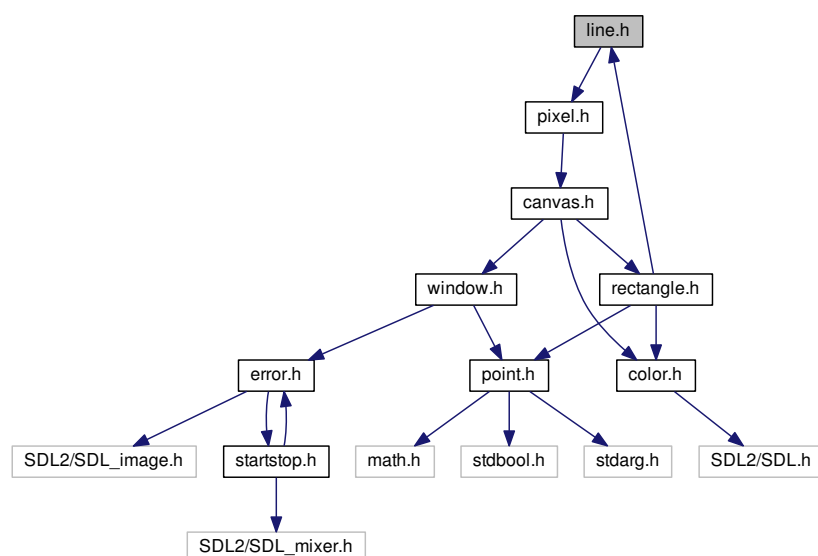
##### Parameters

<i>image</i>	A pointer to the <a href="#">Image</a> to unload.
--------------	---

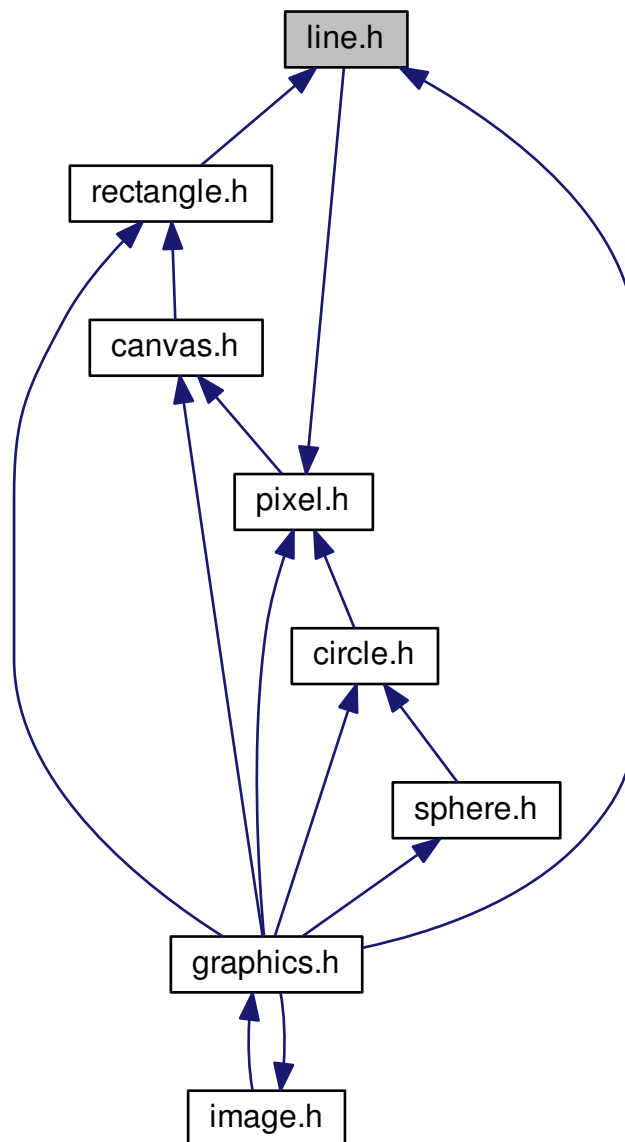
## 4.9 line.h File Reference

Everything related to [Line](#).

```
#include "pixel.h"
Include dependency graph for line.h:
```



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Line](#)  
*A struct used to represent a line segment.*

## Functions

- void [line\\_draw](#) (const [Line](#) \*line, const [Color](#) \*color)  
*Function to draw a line. The best one.*

- void `line_draw_bis` (const [Line](#) \*line, const [Color](#) \*color)  
*Function to draw a line. Use floats and thus, is slower than `line_draw`.*
- void `line_draw_ter` (const [Line](#) \*line, const [Color](#) \*color)  
*Function to draw a line. Is very fast, but, draws lines with blanks.*

### 4.9.1 Detailed Description

Everything related to [Line](#).

### 4.9.2 Function Documentation

#### 4.9.2.1 void `line_draw` ( const [Line](#) \* *line*, const [Color](#) \* *color* )

Function to draw a line. The best one.

##### Parameters

<i>line</i>	A pointer to the <a href="#">Line</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Line</a> .

#### 4.9.2.2 void `line_draw_bis` ( const [Line](#) \* *line*, const [Color](#) \* *color* )

Function to draw a line. Use floats and thus, is slower than `line_draw`.

##### Parameters

<i>line</i>	A pointer to the <a href="#">Line</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Line</a> .

#### 4.9.2.3 void `line_draw_ter` ( const [Line](#) \* *line*, const [Color](#) \* *color* )

Function to draw a line. Is very fast, but, draws lines with blanks.

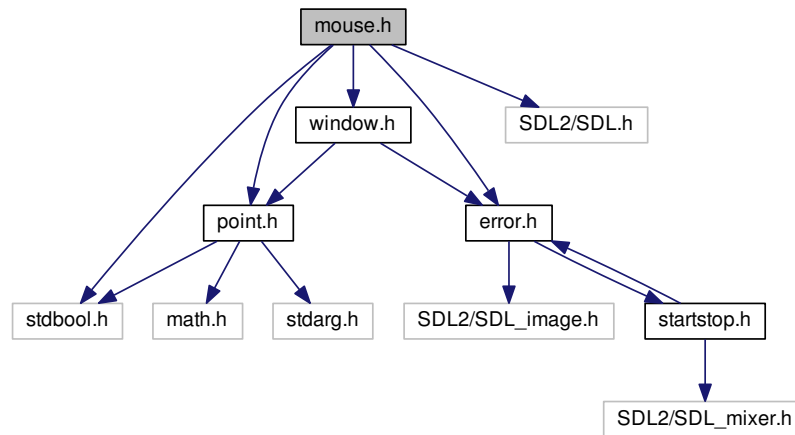
##### Parameters

<i>line</i>	A pointer to the <a href="#">Line</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Line</a> .

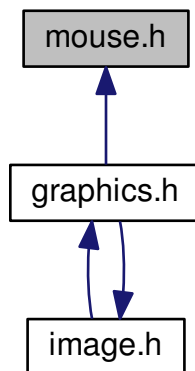
## 4.10 mouse.h File Reference

Everything related to the mouse.

```
#include <stdbool.h>
#include <SDL2/SDL.h>
#include "error.h"
#include "point.h"
#include "window.h"
Include dependency graph for mouse.h:
```



This graph shows which files directly or indirectly include this file:



## Functions

- void `mouse_hide` (void)  
Function to hide the mouse cursor.
- void `mouse_show` (void)  
Function to show the mouse cursor.

- void `mouse_wait_click` (const `Window` \*window, `Point` \*click)  
*Function to wait a click and store it into a `Point`.*
- bool `mouse_is_hidden` (void)  
*Function to know if the cursor is hidden.*
- bool `mouse_is_shown` (void)  
*Function to know if the cursor is shown.*

### 4.10.1 Detailed Description

Everything related to the mouse.

### 4.10.2 Function Documentation

#### 4.10.2.1 void `mouse_hide` ( void )

Function to hide the mouse cursor.

#### 4.10.2.2 bool `mouse_is_hidden` ( void )

Function to know if the cursor is hidden.

##### Returns

Returns true if the cursor is hidden, false otherwise.

#### 4.10.2.3 bool `mouse_is_shown` ( void )

Function to know if the cursor is shown.

##### Returns

Returns true if the cursor is shown, false otherwise.

#### 4.10.2.4 void `mouse_show` ( void )

Function to show the mouse cursor.

#### 4.10.2.5 void `mouse_wait_click` ( const `Window` \* window, `Point` \* click )

Function to wait a click and store it into a `Point`.

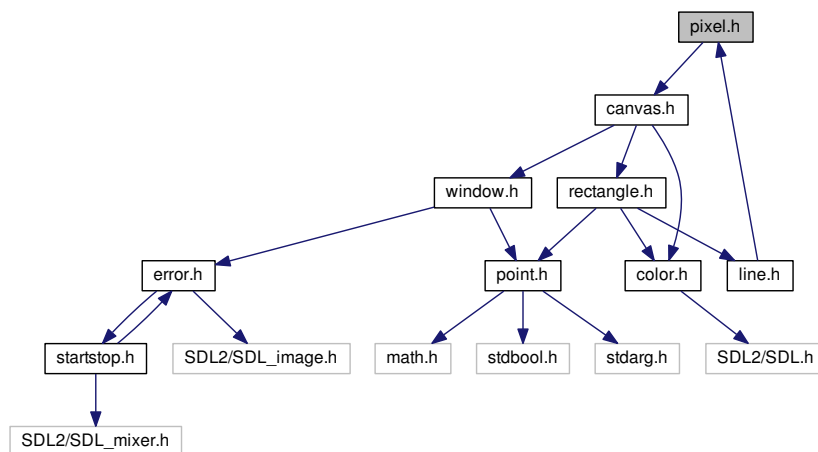
## Parameters

<i>window</i>	A pointer to the <a href="#">Window</a> on which the click is waited.
<i>click</i>	A pointer to the <a href="#">Point</a> on which the click position must be stored.

## 4.11 pixel.h File Reference

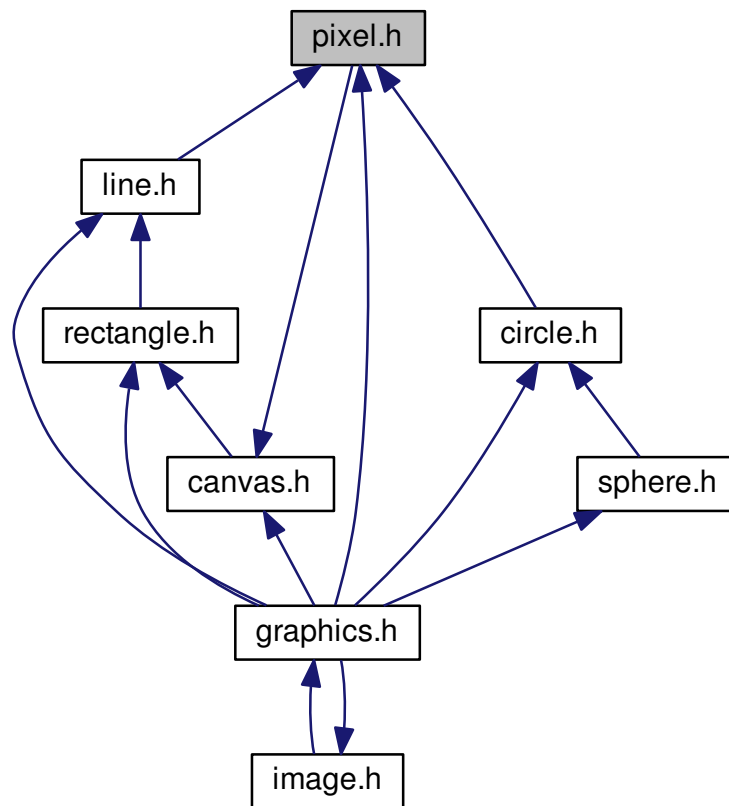
Everything related to [Pixel](#).

```
#include "canvas.h"
Include dependency graph for pixel.h:
```





This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Pixel](#)  
*A struct used to represent a pixel.*

## Functions

- void [pixel\\_draw](#) (const [Pixel](#) \*pixel, const [Color](#) \*color)  
*Function to draw a pixel.*

### 4.11.1 Detailed Description

Everything related to [Pixel](#).

### 4.11.2 Function Documentation

#### 4.11.2.1 void pixel\_draw ( const [Pixel](#) \* pixel, const [Color](#) \* color )

Function to draw a pixel.

## Parameters

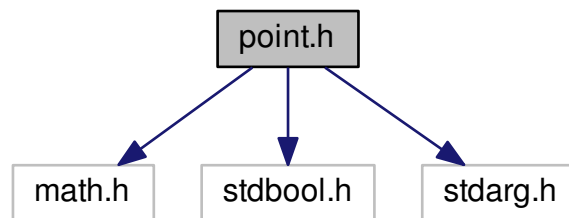
<i>pixel</i>	A pointer to the <a href="#">Pixel</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Pixel</a> .

## 4.12 point.h File Reference

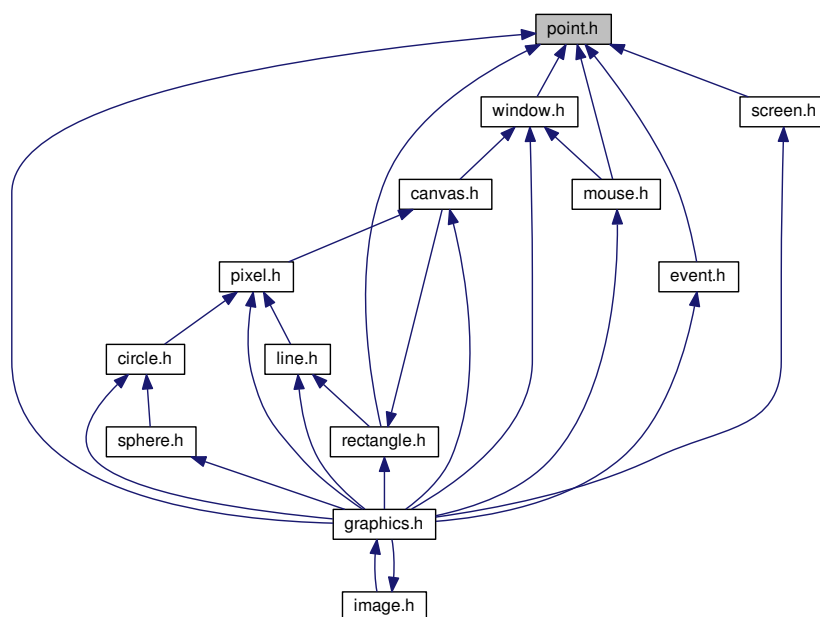
Everything related to [Point](#).

```
#include <math.h>
#include <stdbool.h>
#include <stdarg.h>
```

Include dependency graph for point.h:



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Point](#)

*A struct used to represent a point.*

## Functions

- bool [point\\_are\\_equals](#) (const [Point](#) p1, const [Point](#) p2) `__attribute__((const))`  
*Function to know if two [Point](#) are equals.*
- int [point\\_distance](#) (const [Point](#) a, const [Point](#) b)  
*Function to get the distance between two [Point](#).*
- [Point](#) [point\\_max\\_x](#) (const [Point](#) a, const [Point](#) b)  
*Function to compare two [Point](#) and getting the one with the biggest x.*
- [Point](#) [point\\_max\\_y](#) (const [Point](#) a, const [Point](#) b)  
*Function to compare two [Point](#) and getting the one with the biggest y.*
- [Point](#) [point\\_min\\_x](#) (const [Point](#) a, const [Point](#) b)  
*Function to compare two [Point](#) and getting the one with the smallest x.*
- [Point](#) [point\\_min\\_y](#) (const [Point](#) a, const [Point](#) b)  
*Function to compare two [Point](#) and getting the one with the smallest y.*

### 4.12.1 Detailed Description

Everything related to [Point](#).

### 4.12.2 Function Documentation

#### 4.12.2.1 bool [point\\_are\\_equals](#) ( const [Point](#) p1, const [Point](#) p2 ) const

Function to know if two [Point](#) are equals.

##### Parameters

<i>p1</i>	The first <a href="#">Point</a> .
<i>p2</i>	The second <a href="#">Point</a> .

##### Returns

Return true if they're equals, false otherwise.

#### 4.12.2.2 int [point\\_distance](#) ( const [Point](#) a, const [Point](#) b )

Function to get the distance between two [Point](#).

##### Parameters

<i>a</i>	The first <a href="#">Point</a> .
<i>b</i>	The second <a href="#">Point</a> .

**Returns**

The distance between the two [Point](#), in an int.

**4.12.2.3 Point point\_max\_x ( const Point a, const Point b )**

Function to compare two [Point](#) and getting the one with the biggest x.

**Parameters**

<i>a</i>	The first <a href="#">Point</a> .
<i>b</i>	The second <a href="#">Point</a> .

**Returns**

The [Point](#) with the biggest x.

**4.12.2.4 Point point\_max\_y ( const Point a, const Point b )**

Function to compare two [Point](#) and getting the one with the biggest y.

**Parameters**

<i>a</i>	The first <a href="#">Point</a> .
<i>b</i>	The second <a href="#">Point</a> .

**Returns**

The [Point](#) with the biggest y.

**4.12.2.5 Point point\_min\_x ( const Point a, const Point b )**

Function to compare two [Point](#) and getting the one with the smallest x.

**Parameters**

<i>a</i>	The first <a href="#">Point</a> .
<i>b</i>	The second <a href="#">Point</a> .

**Returns**

The [Point](#) with the smallest x.

**4.12.2.6 Point point\_min\_y ( const Point a, const Point b )**

Function to compare two [Point](#) and getting the one with the smallest y.

## Parameters

<i>a</i>	The first <a href="#">Point</a> .
<i>b</i>	The second <a href="#">Point</a> .

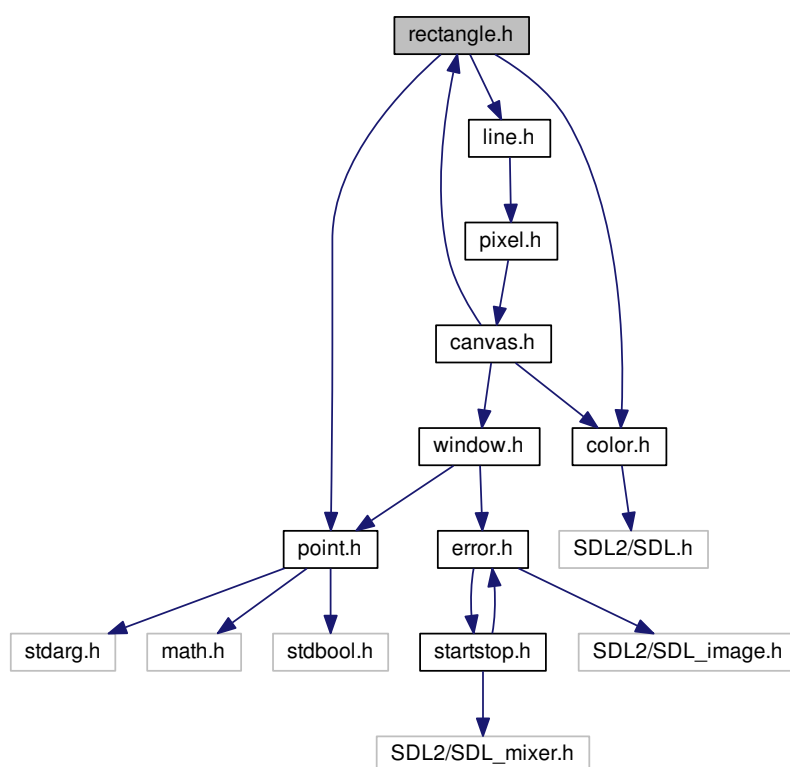
## Returns

The [Point](#) with the smallest y.

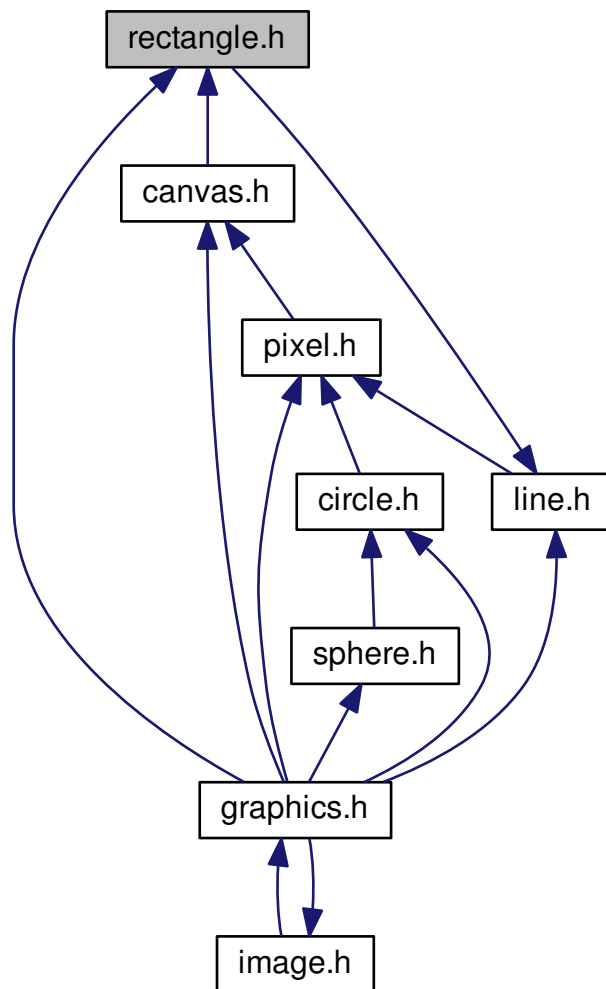
## 4.13 rectangle.h File Reference

Everything related to [Rectangle](#).

```
#include "point.h"
#include "line.h"
#include "color.h"
Include dependency graph for rectangle.h:
```



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Rectangle](#)  
A struct used to represent a rectangle.

## Functions

- void [rectangle\\_draw](#) (const [Rectangle](#) \*rectangle, const [Color](#) \*color)  
Function to draw a [Rectangle](#).
- void [rectangle\\_draw\\_fill](#) (const [Rectangle](#) \*rectangle, const [Color](#) \*color)  
Function to draw a filled [Rectangle](#).
- bool [rectangle\\_contains\\_point](#) (const [Rectangle](#) \*rect, const [Point](#) \*p) \_\_attribute\_\_((pure))  
Function to know if a rectangle contains a [Point](#).
- bool [rectangle\\_contains\\_absolute\\_point](#) (const [Rectangle](#) \*rect, const [Point](#) \*p)  
Function to know if a rectangle contains a [Point](#), when the point have absolute coordinates, i.e. relative to the current [Window](#).

### 4.13.1 Detailed Description

Everything related to [Rectangle](#).

### 4.13.2 Function Documentation

#### 4.13.2.1 `bool rectangle_contains_absolute_point ( const Rectangle * rect, const Point * p )`

Function to know if a rectangle contains a [Point](#), when the point have absolute coordinates, i.e. relative to the current [Window](#).

##### Parameters

<i>rect</i>	A pointer to the <a href="#">Rectangle</a> .
<i>p</i>	A pointer to the <a href="#">Point</a> .

##### Returns

Returns true if the [Rectangle](#) contains the [Point](#), false otherwise.

#### 4.13.2.2 `bool rectangle_contains_point ( const Rectangle * rect, const Point * p )`

Function to know if a rectangle contains a [Point](#).

##### Parameters

<i>rect</i>	A pointer to the <a href="#">Rectangle</a> .
<i>p</i>	A pointer to the <a href="#">Point</a> .

##### Returns

Returns true if the [Rectangle](#) contains the [Point](#), false otherwise.

#### 4.13.2.3 `void rectangle_draw ( const Rectangle * rectangle, const Color * color )`

Function to draw a [Rectangle](#).

##### Parameters

<i>rectangle</i>	A pointer to the <a href="#">Rectangle</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Rectangle</a> .

#### 4.13.2.4 void rectangle\_draw\_fill ( const Rectangle \* rectangle, const Color \* color )

Function to draw a filled [Rectangle](#).

##### Parameters

<i>rectangle</i>	A pointer to the <a href="#">Rectangle</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Rectangle</a> .

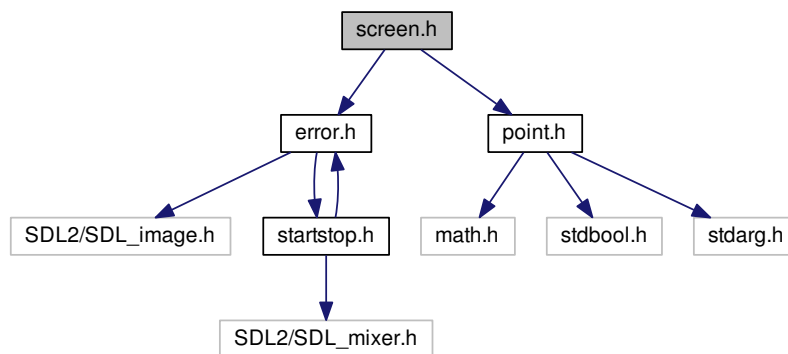
## 4.14 screen.h File Reference

Everything related to the screen.

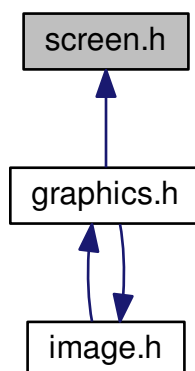
```
#include "error.h"
```

```
#include "point.h"
```

Include dependency graph for screen.h:



This graph shows which files directly or indirectly include this file:





## Functions

- void [screen\\_get\\_size](#) ([Point](#) \*screenSize)  
*Function to get the screen's size.*

### 4.14.1 Detailed Description

Everything related to the screen.

### 4.14.2 Function Documentation

#### 4.14.2.1 void screen\_get\_size ( [Point](#) \* screenSize )

Function to get the screen's size.

##### Parameters

<i>screenSize</i>	A pointer to the <a href="#">Point</a> in which the screen's size must be stored.
-------------------	---

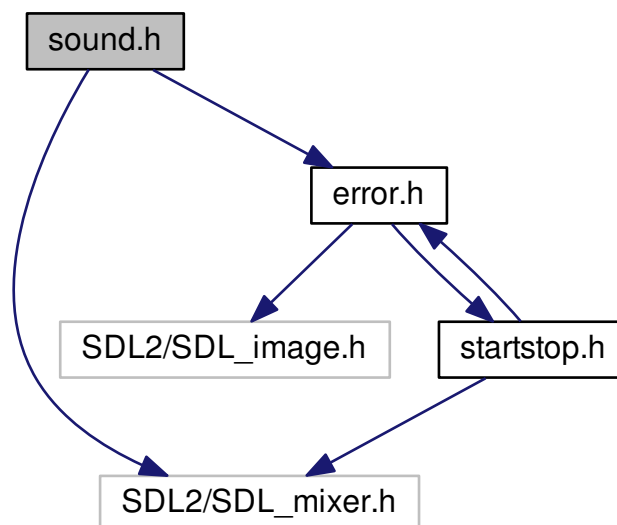
## 4.15 sound.h File Reference

Everything related to [Sound](#).

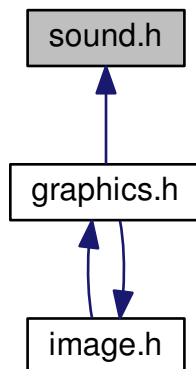
```
#include <SDL2/SDL_mixer.h>
```

```
#include "error.h"
```

Include dependency graph for sound.h:



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Sound](#)  
*A struct used to store a sound.*

## Functions

- void [sound\\_load](#) (const char \*pathToFile, [Sound](#) \*sound)  
*Function to load a sound into a [Sound](#) struct.*
- void [sound\\_play](#) (const [Sound](#) \*music)  
*Function to play a sound indefinitely.*
- void [sound\\_play\\_once](#) (const [Sound](#) \*music)  
*Function to play a sound once.*
- void [sound\\_free](#) ([Sound](#) \*sound)  
*Function to free a [Sound](#), i.e. to unload it.*
- void [sound\\_stop](#) (void)  
*Function to stop the current played [Sound](#).*
- void [sound\\_pause](#) (void)  
*Function to pause the current played [Sound](#).*
- void [sound\\_resume](#) (void)  
*Function to resume the current paused [Sound](#).*

### 4.15.1 Detailed Description

Everything related to [Sound](#).

### 4.15.2 Function Documentation

#### 4.15.2.1 void sound\_free ( [Sound](#) \* sound )

Function to free a [Sound](#), i.e. to unload it.

## Parameters

<i>sound</i>	A pointer to the <a href="#">Sound</a> to free.
--------------	---

4.15.2.2 void sound\_load ( const char \* *fileName*, **Sound** \* *sound* )

Function to load a sound into a [Sound](#) struct.

## Parameters

<i>pathToFile</i>	The path to the file to load.
<i>sound</i>	Pointer to the <a href="#">Sound</a> in which the file must be stored.

## 4.15.2.3 void sound\_pause ( void )

Function to pause the current played [Sound](#).

4.15.2.4 void sound\_play ( const **Sound** \* *music* )

Function to play a sound indefinitely.

## Parameters

<i>music</i>	A pointer to the <a href="#">Sound</a> to play.
--------------	---

4.15.2.5 void sound\_play\_once ( const **Sound** \* *music* )

Function to play a sound once.

## Parameters

<i>music</i>	A pointer to the <a href="#">Sound</a> to play.
--------------	---

## 4.15.2.6 void sound\_resume ( void )

Function to resume the current paused [Sound](#).

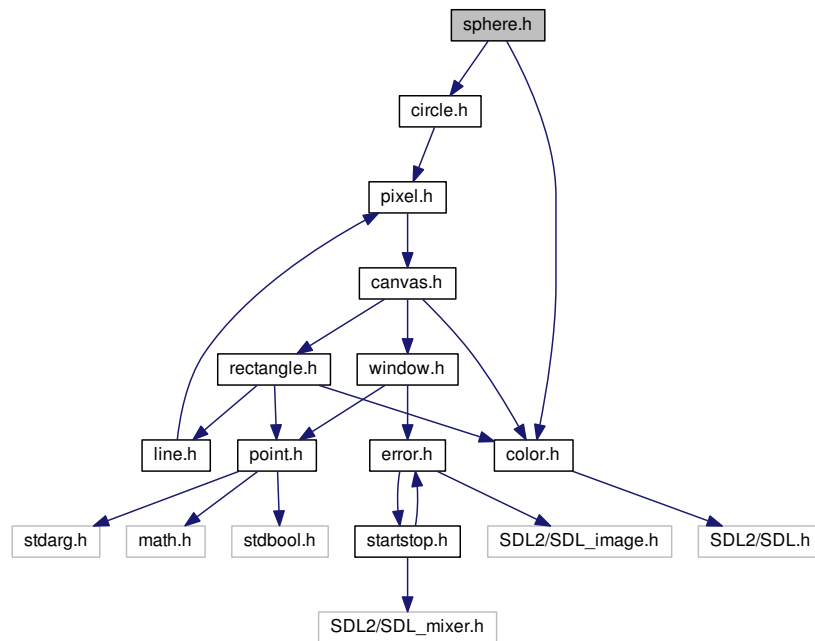
## 4.15.2.7 void sound\_stop ( void )

Function to stop the current played [Sound](#).

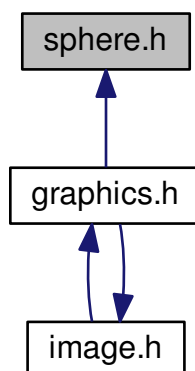
## 4.16 sphere.h File Reference

Everything related to [Sphere](#).

```
#include "circle.h"
#include "color.h"
Include dependency graph for sphere.h:
```



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Sphere](#)

*A struct used to represent a sphere.*

## Functions

- void [sphere\\_draw\\_fill](#) (const [Sphere](#) \*sphere, const [Color](#) \*color)

*Function to draw a filled [Sphere](#).*

### 4.16.1 Detailed Description

Everything related to [Sphere](#).

### 4.16.2 Function Documentation

#### 4.16.2.1 void sphere\_draw\_fill ( const [Sphere](#) \* *sphere*, const [Color](#) \* *color* )

Function to draw a filled [Sphere](#).

#### Parameters

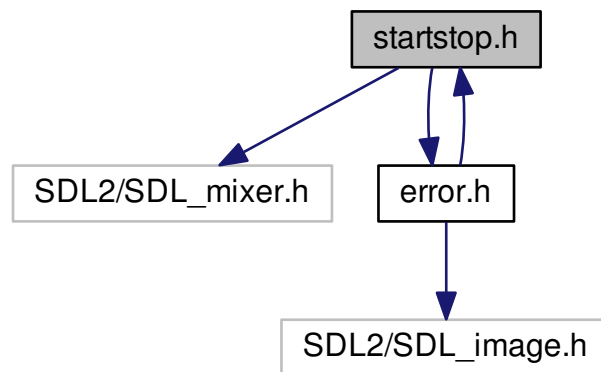
<i>sphere</i>	A pointer to the <a href="#">Sphere</a> to draw.
<i>color</i>	A pointer to the <a href="#">Color</a> to use to draw the <a href="#">Sphere</a> .

## 4.17 startstop.h File Reference

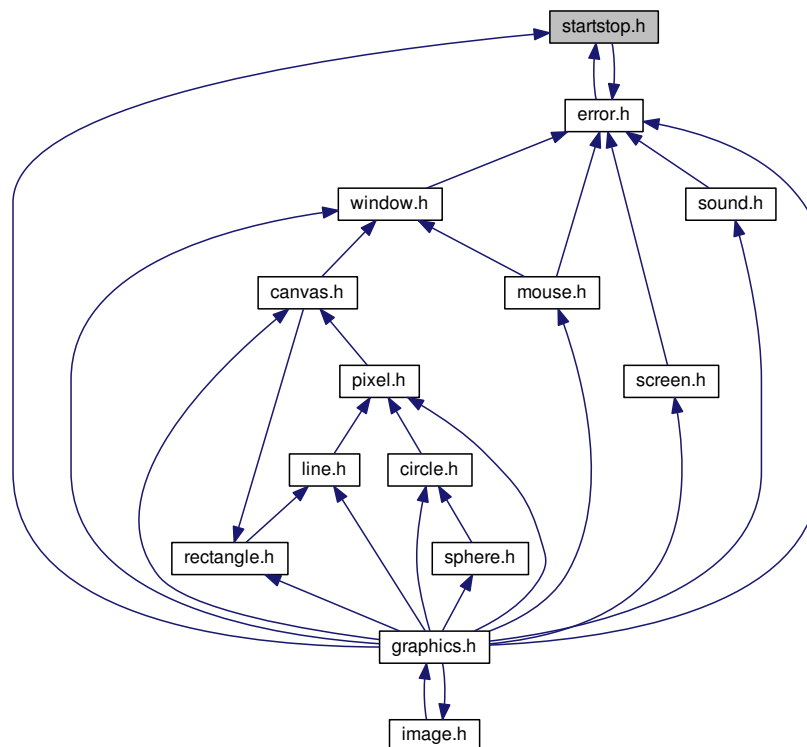
Everything related to graphics' start and stop functions.

```
#include <SDL2/SDL_mixer.h>
#include "error.h"
```

Include dependency graph for startstop.h:



This graph shows which files directly or indirectly include this file:



## Functions

- void [graphics\\_start](#) (const Uint32 flags)

*Function to start graphics.*

- void [graphics\\_stop](#) (void)

*Function to stop graphics.*

### 4.17.1 Detailed Description

Everything related to graphics' start and stop functions.

### 4.17.2 Function Documentation

#### 4.17.2.1 void [graphics\\_start](#) ( const Uint32 *flags* )

Function to start graphics.

Parameters

<i>flags</i>	A list of SDL flags, if you don't know, use <code>SDL_INIT_EVERYTHING</code> , or see <code>SDL_Init</code> doc.
--------------	--

#### 4.17.2.2 void [graphics\\_stop](#) ( void )

Function to stop graphics.

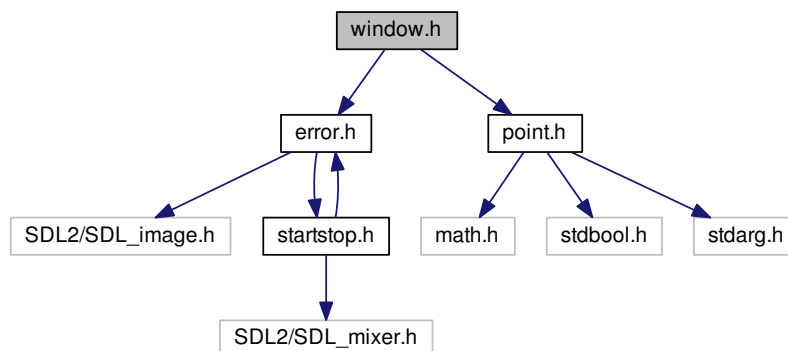
## 4.18 window.h File Reference

Everything related to [Window](#).

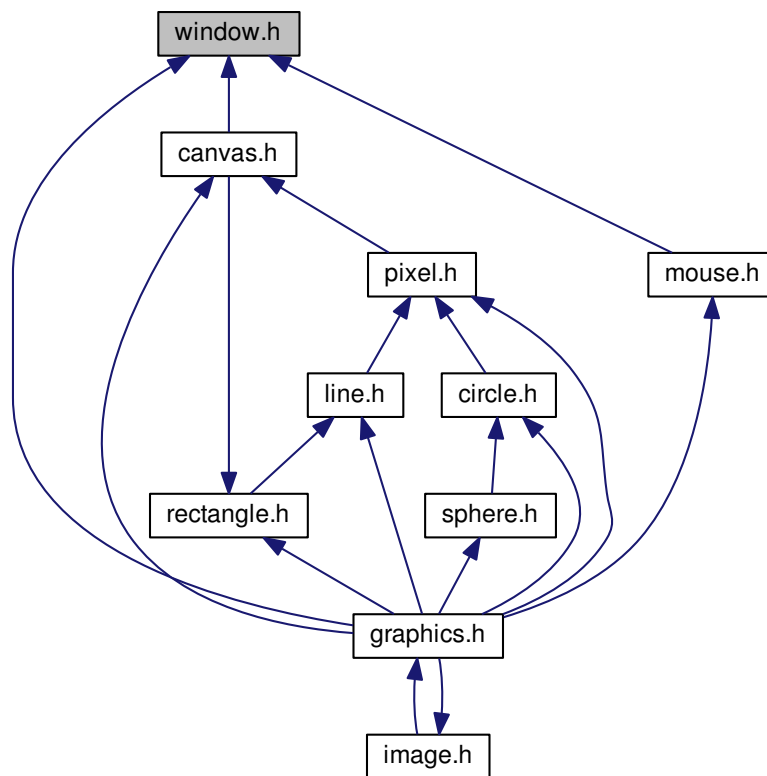
```
#include "error.h"
```

```
#include "point.h"
```

Include dependency graph for window.h:



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [Window](#)  
*A struct representing a window.*

## Functions

- void [window\\_create](#) ([Window](#) \*window, char \*title, const [Point](#) \*position, const [Point](#) \*size, const Uint32 flags)  
*Function to create a [Window](#).*
- void [window\\_destroy](#) ([Window](#) \*window)  
*Function to destroy a [Window](#).*
- void [window\\_update](#) ([Window](#) \*window)  
*Function to update a [Window](#).*

### 4.18.1 Detailed Description

Everything related to [Window](#).



## 4.18.2 Function Documentation

4.18.2.1 void window\_create ( Window \* *window*, char \* *title*, const Point \* *position*, const Point \* *size*, const Uint32 *flags* )

Function to create a [Window](#).

### Parameters

<i>window</i>	A pointer to the <a href="#">Window</a> in which the new <a href="#">Window</a> will be stored.
<i>title</i>	The title wanted for the <a href="#">Window</a> .
<i>position</i>	A pointer to a <a href="#">Point</a> representing the position wanted for the <a href="#">Window</a> .
<i>size</i>	A pointer to a <a href="#">Point</a> representing the size wanted for the <a href="#">Window</a> .
<i>flags</i>	A list of SDL flags, if you don't know, use SDL_WINDOW_SHOWN, or see SDL_CreateWindow doc.

4.18.2.2 void window\_destroy ( Window \* *window* )

Function to destroy a [Window](#).

### Parameters

<i>window</i>	A pointer to the <a href="#">Window</a> to destroy.
---------------	---

4.18.2.3 void window\_update ( Window \* *window* )

Function to update a [Window](#).

### Parameters

<i>window</i>	A pointer to the <a href="#">Window</a> to update.
---------------	--



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