

## R-Type - Engine

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# Chapter 1

## Engine

### 1.1 Compilation

#### 1.1.1 Linux

Use the following command to compile the engine:

```
cmake -Bbuild  
make -Cbuild
```

Use the following command to compile the engine and its tests:

```
cmake -Bbuild -DBUILD_TESTS=ON  
make -Cbuild
```

Use the following command for create the package (.tgz or .zip) after compile:

```
cd build  
cpack
```



## Chapter 2

# Hierarchical Index

### 2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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## Chapter 3

# Class Index

### 3.1 Class List

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## Chapter 4

# Class Documentation

### 4.1 Archetypes Class Reference

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

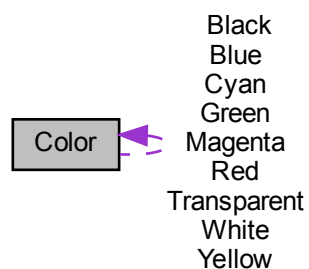
- `src/Archetype/include/Archetypes.h`

### 4.2 Color Class Reference

`Color` class: `Color` is a class that use for the color in game.

```
#include <Color.h>
```

Collaboration diagram for `Color`:



## Public Member Functions

- [Color](#) ()  
*< Represent the Alpha of a color between 0 and 255.*
- [Color](#) (const sf::Color &sfmlColor)  
*[Color](#) constructor with sf::Color& as parameter.*
- [~Color](#) ()=default  
*Default override [Color](#) destructor.*
- sf::Uint8 [getRed](#) () const  
*[getRed\(\)](#): Get the sf::Uint8 red.*
- sf::Uint8 [getGreen](#) () const  
*[getGreen\(\)](#): Get the sf::Uint8 green.*
- sf::Uint8 [getBlue](#) () const  
*[getBlue\(\)](#): Get the sf::Uint8 blue.*
- sf::Uint8 [getAlpha](#) () const  
*[getAlpha\(\)](#): Get the sf::Uint8 alpha.*
- void [setRed](#) (int newRed)  
*[setRed\(int\)](#): Set the sf::Uint8 red with an int and convert into sf::Unit8 in the function.*
- void [setGreen](#) (int newGreen)  
*[setGreen\(int\)](#): Set the sf::Uint8 green with an int and convert into sf::Unit8 in the function.*
- void [setBlue](#) (int newBlue)  
*[setBlue\(int\)](#): Set the sf::Uint8 blue with an int and convert into sf::Unit8 in the function.*
- void [setAlpha](#) (int newAlpha)  
*[setAlpha\(int\)](#): Set the sf::Uint8 alpha with an int and convert into sf::Unit8 in the function.*
- [operator sf::Color](#) () const  
*operator sf::Color() const: Convert [Color](#) classes into sf::Color*

## Static Public Member Functions

- static [Color](#) [fromSFMLColor](#) (const sf::Color &sfColor)  
*[fromSFMLColor\(const sf::Color&\)](#): Convert SFML color into [Color](#) class.*

## Static Public Attributes

- static const [Color](#) **Black** = [Color::fromSFMLColor](#)(sf::Color::Black)
- static const [Color](#) **White** = [Color::fromSFMLColor](#)(sf::Color::White)
- static const [Color](#) **Red** = [Color::fromSFMLColor](#)(sf::Color::Red)
- static const [Color](#) **Green** = [Color::fromSFMLColor](#)(sf::Color::Green)
- static const [Color](#) **Blue** = [Color::fromSFMLColor](#)(sf::Color::Blue)
- static const [Color](#) **Yellow** = [Color::fromSFMLColor](#)(sf::Color::Yellow)
- static const [Color](#) **Magenta** = [Color::fromSFMLColor](#)(sf::Color::Magenta)
- static const [Color](#) **Cyan** = [Color::fromSFMLColor](#)(sf::Color::Cyan)
- static const [Color](#) **Transparent** = [Color::fromSFMLColor](#)(sf::Color::Transparent)

### 4.2.1 Detailed Description

[Color](#) class: [Color](#) is a class that use for the color in game.

The [Color](#) class manages the color.

## 4.2.2 Constructor & Destructor Documentation

### 4.2.2.1 Color() [1/2]

```
Color::Color ( ) [inline]
```

< Represent the Alpha of a color between 0 and 255.

Default [Color](#) constructor.

Set the default value to "Default" and initialize red, green, blue and alpha to 255 for initialize the color white.

#### Parameters

<i>void</i>	
-------------	--

#### Returns

void

### 4.2.2.2 Color() [2/2]

```
Color::Color (
    const sf::Color & sfmlColor ) [inline], [explicit]
```

[Color](#) constructor with sf::Color& as parameter.

#### Parameters

<i>sfmlColor</i>	Represent a color preset or no from SFML.
------------------	---

#### Returns

void

### 4.2.2.3 ~Color()

```
Color::~~Color ( ) [default]
```

Default override [Color](#) destructor.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

*void*

## 4.2.3 Member Function Documentation

### 4.2.3.1 fromSFMLColor()

```
Color Color::fromSFMLColor (
    const sf::Color & sfColor ) [static]
```

**fromSFMLColor(const sf::Color&):** Convert SFML color into [Color](#) class.

**Parameters**

<i>sfColor</i>	The color from SFML
----------------	---------------------

**Returns**

[Color](#): [Color](#) class.

### 4.2.3.2 getAlpha()

```
sf::Uint8 Color::getAlpha ( ) const
```

**getAlpha():** Get the sf::Uint8 alpha.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

sf::Uint8: The value of alpha.

#### 4.2.3.3 getBlue()

```
sf::Uint8 Color::getBlue ( ) const
```

[getBlue\(\)](#): Get the sf::Uint8 blue.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

sf::Uint8: The value of blue.

#### 4.2.3.4 getGreen()

```
sf::Uint8 Color::getGreen ( ) const
```

[getGreen\(\)](#): Get the sf::Uint8 green.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

sf::Uint8: The value of green.

#### 4.2.3.5 getRed()

```
sf::Uint8 Color::getRed ( ) const
```

[getRed\(\)](#): Get the sf::Uint8 red.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

sf::Uint8: The value of red.

#### 4.2.3.6 operator sf::Color()

```
Color::operator sf::Color ( ) const [explicit]
```

operator sf::Color() const: Convert [Color](#) classes into sf::Color

##### Parameters

<i>void</i>	
-------------	--

##### Returns

sf::Color: Get the [Color](#) in sf::Color

#### 4.2.3.7 setAlpha()

```
void Color::setAlpha (
    int newAlpha )
```

[setAlpha\(int\)](#): Set the sf::Unit8 alpha with an int and convert into sf::Unit8 in the function.

##### Parameters

<i>newAlpha</i>	
-----------------	--

##### Returns

void

#### 4.2.3.8 setBlue()

```
void Color::setBlue (
    int newBlue )
```

[setBlue\(int\)](#): Set the sf::Unit8 blue with an int and convert into sf::Unit8 in the function.

##### Parameters

<i>newBlue</i>	
----------------	--

##### Returns

void

#### 4.2.3.9 setGreen()

```
void Color::setGreen (
    int newGreen )
```

[setGreen\(int\)](#): Set the sf::Uint8 green with an int and convert into sf::Unit8 in the function.

##### Parameters

<i>newGreen</i>	
-----------------	--

##### Returns

void

#### 4.2.3.10 setRed()

```
void Color::setRed (
    int newRed )
```

[setRed\(int\)](#): Set the sf::Uint8 red with an int and convert into sf::Unit8 in the function.

##### Parameters

<i>newRed</i>	Number between 0 and 255.
---------------	---------------------------

##### Returns

void

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

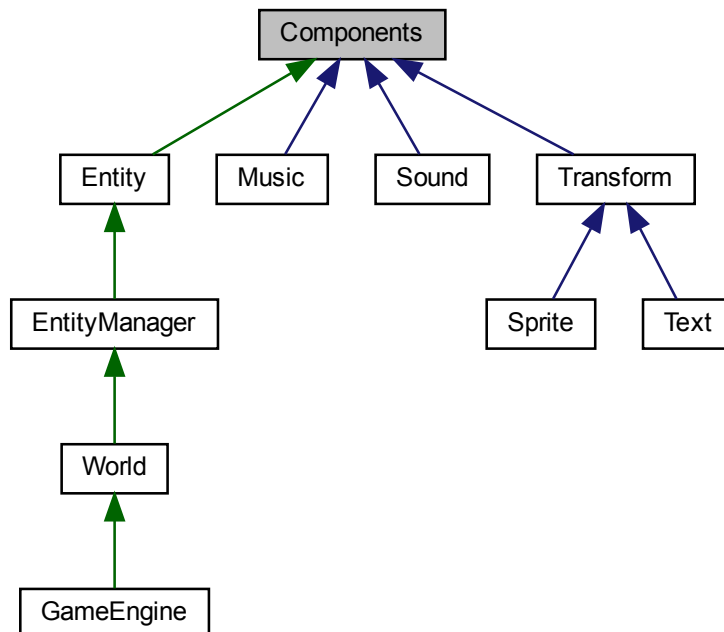
- src/Other/include/Color.h
- src/Other/Color.cpp

## 4.3 Components Class Reference

[Components](#) class: [Components](#) is a class that represents a component in the game.

```
#include <Components.h>
```

Inheritance diagram for Components:



## Public Member Functions

- [Components](#) ()=default  
*Default [Components](#) constructor.*
- virtual [~Components](#) ()=default  
*[Components](#) destructor.*
- virtual bool [init](#) ()=0  
*[init\(\)](#): Initialize the component*
- virtual int [getBit](#) ()=0  
*[getBit\(\)](#): Get the bitmask of the component*
- virtual void [update](#) (sf::Time timeDelta)=0  
*[update\(\)](#): Update the component*

### 4.3.1 Detailed Description

[Components](#) class: [Components](#) is a class that represents a component in the game.

[Components](#) are the building blocks of the game. They are attached to entities and define their behavior.

### 4.3.2 Constructor & Destructor Documentation



#### 4.3.2.1 Components()

```
Components::Components ( ) [default]
```

Default [Components](#) constructor.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

#### 4.3.2.2 ~Components()

```
virtual Components::~~Components ( ) [virtual], [default]
```

[Components](#) destructor.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

### 4.3.3 Member Function Documentation

#### 4.3.3.1 getBit()

```
virtual int Components::getBit ( ) [pure virtual]
```

[getBit\(\)](#): Get the bitmask of the component

##### Parameters

<i>void</i>	
-------------	--

##### Returns

int: bitmask of the component

Implemented in [Entity](#), [Transform](#), [Text](#), [Sprite](#), [Sound](#), and [Music](#).

#### 4.3.3.2 init()

```
virtual bool Components::init ( ) [pure virtual]
```

[init\(\)](#): Initialize the component

##### Parameters

<i>void</i>	
-------------	--

##### Returns

bool: true if the component is initialized, false otherwise

Implemented in [World](#), [EntityManager](#), [Entity](#), [Transform](#), [Text](#), [Sprite](#), [Sound](#), and [Music](#).

#### 4.3.3.3 update()

```
virtual void Components::update (
    sf::Time timeDelta ) [pure virtual]
```

[update\(\)](#): Update the component

##### Parameters

<i>timeDelta</i>	time elapsed since the last update
------------------	------------------------------------

##### Returns

void

Implemented in [Sound](#), [Music](#), [Entity](#), [Transform](#), [Text](#), and [Sprite](#).

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

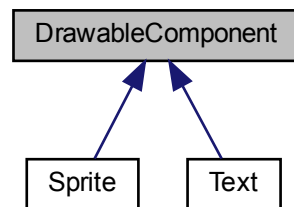
- `src/Components/include/Components.h`

## 4.4 DrawableComponent Class Reference

[DrawableComponent](#) class: [DrawableComponent](#) is a class that represents a drawable component in the game.

```
#include <DrawableComponent.h>
```

Inheritance diagram for DrawableComponent:



## Public Member Functions

- virtual [~DrawableComponent](#) ()=default  
*Default [DrawableComponent](#) constructor.*
- virtual void [draw](#) (sf::RenderWindow &window) const =0  
*[draw\(\)](#): Draw the component*

### 4.4.1 Detailed Description

[DrawableComponent](#) class: [DrawableComponent](#) is a class that represents a drawable component in the game.

DrawableComponents are components that can be drawn on the screen.

### 4.4.2 Constructor & Destructor Documentation

#### 4.4.2.1 ~DrawableComponent()

```
virtual DrawableComponent::~~DrawableComponent ( ) [virtual], [default]
```

Default [DrawableComponent](#) constructor.

Parameters

<i>void</i>	
-------------	--

**Returns**

void

### 4.4.3 Member Function Documentation

#### 4.4.3.1 draw()

```
virtual void DrawableComponent::draw (
    sf::RenderWindow & window ) const [pure virtual]
```

[draw\(\)](#): Draw the component

**Parameters**

<i>window</i>	Window to draw the component on
---------------	---------------------------------

**Returns**

void

Implemented in [Text](#), and [Sprite](#).

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

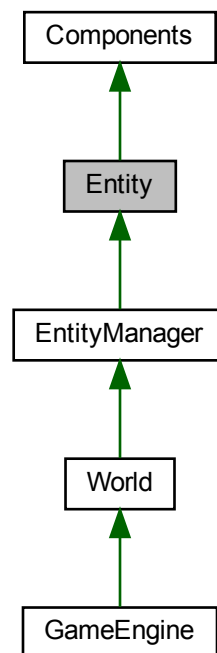
- src/Components/include/DrawableComponent.h

## 4.5 Entity Class Reference

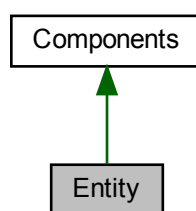
[Entity](#) class: [Entity](#) is a class that represents an entity in the game.

```
#include <entity.h>
```

Inheritance diagram for Entity:



Collaboration diagram for Entity:



## Public Member Functions

- [Entity](#) ()  
*Default [Entity](#) constructor.*
- [Entity](#) (const std::string &nameEntity, [Archetypes](#) newArchetype=[Archetypes](#)())  
*[Entity](#) constructor.*
- [~Entity](#) () override=default

- *Entity* destructor.
- int `getBit` () override  
*getBit(): Get the bit of the Sprite.*
- bool `init` () override  
*init(): Initialize the entity*
- std::string `getName` () const  
*getName(): Get the name of the entity*
- void `setName` (std::string newName)  
*setName(): Set the name of the entity*
- void `update` (sf::Time deltaTime) override  
*update(sf::Time): Update the component Music*
- void `addDrawable` (Components \*component)  
*addDrawable(): Add a drawable component to the entity*
- void `removeDrawable` (Components \*component)  
*removeDrawable(): Remove a drawable component to the entity*
- void `drawEntity` (sf::RenderWindow &window)  
*drawEntity(): Draw the entities*
- template<typename T , typename... TArgs>  
T & `addComponent` (TArgs &&... args)  
*addComponent(): Add a component to the entity*
- template<typename T >  
bool `removeComponent` ()  
*removeComponent(): Remove a component to the entity*
- template<typename T >  
T & `getComponent` ()  
*getComponent(): Get a component from the entity*
- template<typename T >  
std::size\_t `getComponentTypeID` () noexcept  
*getComponentTypeID(): Get a component ID from the entity*
- std::bitset< 6 > `getComponentBitset` () const  
*getComponentBitset(): Get all components bitset from the entity*
- std::vector< DrawableComponent \* > `getDrawableComponents` () const  
*getDrawableComponents(): Get all the drawable components from the entity*
- std::array< Components \*, 6 > `getComponentArrays` () const  
*getComponentArrays(): Get all the components from the entity*
- void `setActive` (bool isActive)  
*setActive(bool): Set the value active for using entity or not*
- bool `getActive` () const  
*getActive(): Get the value active for knowing if entity is using or not.*
- void `setDeferredEntity` (std::function< void()> setter)  
*setDeferredEntity(std::function<void()>): Set the deferred entity.*
- void `applyDeferredEntity` ()  
*setDeferredEntity(std::function<void()>): Set the deferred entity.*

## Additional Inherited Members

### 4.5.1 Detailed Description

`Entity` class: `Entity` is a class that represents an entity in the game.

The `Entity` class manages components associated with the entity.

## 4.5.2 Constructor & Destructor Documentation

### 4.5.2.1 Entity() [1/2]

```
Entity::Entity ( ) [inline]
```

Default [Entity](#) constructor.

#### Parameters

<i>void</i>	
-------------	--

#### Returns

*void*

### 4.5.2.2 Entity() [2/2]

```
Entity::Entity (
    const std::string & nameEntity,
    Archetypes newArchetype = Archetypes() ) [explicit]
```

[Entity](#) constructor.

#### Parameters

<i>nameEntity</i>	name of the entity
<i>newArchetype</i>	archetype of the entity (optional, default = new archetype)

#### Returns

*void*

### 4.5.2.3 ~Entity()

```
Entity::~~Entity ( ) [override], [default]
```

[Entity](#) destructor.

#### Parameters

<i>void</i>	
-------------	--

**Returns**

void

### 4.5.3 Member Function Documentation

#### 4.5.3.1 addComponent()

```
template<typename T , typename... TArgs>
template Text & Entity::addComponent< Text > (
    TArgs &&... args )
```

[addComponent\(\)](#): Add a component to the entity

**Template Parameters**

<i>T</i>	Type of the component
<i>TArgs</i>	Variadic template for component constructor arguments.

**Parameters**

<i>args</i>	arguments of the component
-------------	----------------------------

**Returns**

T&amp;: reference of the component

#### 4.5.3.2 addDrawable()

```
void Entity::addDrawable (
    Components * component )
```

[addDrawable\(\)](#): Add a drawable component to the entity

**Parameters**

<i>component</i>	component to add
------------------	------------------

**Returns**

void



#### 4.5.3.3 applyDeferredEntity()

```
void Entity::applyDeferredEntity ( )
```

[setDeferredEntity\(std::function<void\(\)>\)](#): Set the deferred entity.

##### Parameters

<i>setter</i>	Function that will set the entity.
---------------	------------------------------------

##### Returns

void

#### 4.5.3.4 drawEntity()

```
void Entity::drawEntity (
    sf::RenderWindow & window )
```

[drawEntity\(\)](#): Draw the entities

##### Parameters

<i>window</i>	window where the entities are drawn
---------------	-------------------------------------

##### Returns

void

#### 4.5.3.5 getActive()

```
bool Entity::getActive ( ) const
```

[getActive\(\)](#): Get the value active for knowing if entity is using or not.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

bool: True if the engine use this entity, false otherwise.

#### 4.5.3.6 getBit()

```
int Entity::getBit ( ) [override], [virtual]
```

[getBit\(\)](#): Get the bit of the [Sprite](#).

##### Parameters

<i>void</i>	
-------------	--

##### Returns

int: The bit of the [Sprite](#).

Implements [Components](#).

#### 4.5.3.7 getComponent()

```
template<typename T >
template <Text & Entity::getComponent< Text > ( )
```

[getComponent\(\)](#): Get a component from the entity

##### Template Parameters

<i>T</i>	Type of the component
----------	-----------------------

##### Parameters

<i>void</i>	
-------------	--

##### Returns

T&: reference of the component

#### 4.5.3.8 getComponentArrays()

```
std::array< Components *, 6 > Entity::getComponentArrays ( ) const
```

[getComponentArrays\(\)](#): Get all the components from the entity

##### Parameters

<i>void</i>	
-------------	--

**Returns**

`std::array<Components*, 6>`: array of components

**4.5.3.9 GetComponentBitset()**

```
std::bitset< 6 > Entity::GetComponentBitset ( ) const
```

[GetComponentBitset\(\)](#): Get all components bitset from the entity

**Parameters**

<i>void</i>	
-------------	--

**Returns**

`std::bitset<6>`: bitset of the components

**4.5.3.10 GetComponentTypeID()**

```
template<typename T >
template std::size_t Entity::GetComponentTypeID< Text > ( ) [noexcept]
```

[GetComponentTypeID\(\)](#): Get a component ID from the entity

**Template Parameters**

<i>T</i>	Type of the component
----------	-----------------------

**Parameters**

<i>void</i>	
-------------	--

**Returns**

`std::size_t`: id of the component

**4.5.3.11 getDrawableComponents()**

```
std::vector< DrawableComponent * > Entity::getDrawableComponents ( ) const
```

[getDrawableComponents\(\)](#): Get all the drawable components from the entity

**Parameters**

<i>void</i>	
-------------	--

**Returns**

std::vector<DrawableComponent\*>: drawable components of the entity

**4.5.3.12 getName()**

```
std::string Entity::getName ( ) const
```

getName(): Get the name of the entity

**Parameters**

<i>void</i>	
-------------	--

**Returns**

std::string: name of the entity

**4.5.3.13 init()**

```
bool Entity::init ( ) [override], [virtual]
```

init(): Initialize the entity

**Parameters**

<i>void</i>	
-------------	--

**Returns**

bool: true if the entity is initialized, false otherwise

Implements [Components](#).

Reimplemented in [World](#), and [EntityManager](#).

#### 4.5.3.14 removeComponent()

```
template<typename T >
template bool Entity::removeComponent< Text > ( )
```

[removeComponent\(\)](#): Remove a component to the entity

##### Template Parameters

<i>T</i>	Type of the component
----------	-----------------------

##### Returns

T&: reference of the component

#### 4.5.3.15 removeDrawable()

```
void Entity::removeDrawable (
    Components * component )
```

[removeDrawable\(\)](#): Remove a drawable component to the entity

##### Parameters

<i>component</i>	component to remove
------------------	---------------------

##### Returns

void

#### 4.5.3.16 setActive()

```
void Entity::setActive (
    bool isActive )
```

[setActive\(bool\)](#): Set the value active for using entity or not

##### Parameters

<i>isActive</i>	True or false;
-----------------	----------------

##### Returns

void

#### 4.5.3.17 setDeferredEntity()

```
void Entity::setDeferredEntity (
    std::function< void()> setter )
```

[setDeferredEntity\(std::function<void\(\)>\)](#): Set the deferred entity.

##### Parameters

<i>setter</i>	Function that will set the entity.
---------------	------------------------------------

##### Returns

void

#### 4.5.3.18 setName()

```
void Entity::setName (
    std::string newName )
```

[setName\(\)](#): Set the name of the entity

##### Parameters

<i>newName</i>	new name of the entity
----------------	------------------------

##### Returns

void

#### 4.5.3.19 update()

```
void Entity::update (
    sf::Time deltaTime ) [override], [virtual]
```

[update\(sf::Time\)](#): Update the component [Music](#)

##### Parameters

<i>timeDelta</i>	sf::Time of the game.
------------------	-----------------------

**Returns**

void

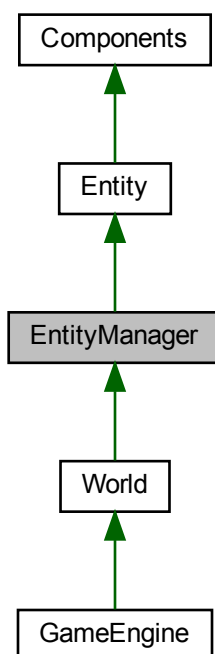
Implements [Components](#).

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

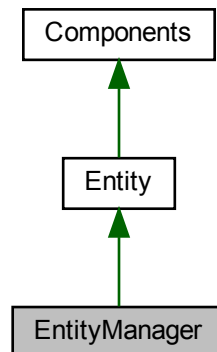
- src/Entity/include/entity.h
- src/Entity/entity.cpp

## 4.6 EntityManager Class Reference

Inheritance diagram for EntityManager:



Collaboration diagram for EntityManager:



## Public Member Functions

- [EntityManager](#) ()=default  
*Default [EntityManager](#) constructor.*
- [~EntityManager](#) () override=default  
*[EntityManager](#) destructor.*
- bool [init](#) () override  
*[initEntityManager\(\)](#): Initialize the [EntityManager](#).*
- [Entity](#) & [addEntity](#) (const std::string &nameEntity, [Archetypes](#) newArchetype=[Archetypes](#)())  
*[addEntity\(\)](#): Create and add a new entity to the entity manager.*
- [Entity](#) & [getEntity](#) (const std::string &nameEntity)  
*[getEntity\(\)](#): Get an entity from the entity manager by its name.*
- std::map< std::string, [Entity](#) \* > [getEntities](#) () const  
*[getEntities\(\)](#): Get the [EntityManager](#)'s entities.*
- std::map< std::string, [Entity](#) \* > [getEntityMap](#) () const  
*[getEntityMap\(\)](#): Get the [EntityManager](#)'s entity map.*

## Additional Inherited Members

### 4.6.1 Constructor & Destructor Documentation

#### 4.6.1.1 EntityManager()

```
EntityManager::EntityManager ( ) [default]
```

Default [EntityManager](#) constructor.



## Parameters

<i>void</i>	
-------------	--

## Returns

void

## 4.6.1.2 ~EntityManager()

EntityManager::~~EntityManager ( ) [override], [default]

[EntityManager](#) destructor.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

## 4.6.2 Member Function Documentation

## 4.6.2.1 addEntity()

```
Entity & EntityManager::addEntity (
    const std::string & nameEntity,
    Archetypes newArchetype = Archetypes() )
```

[addEntity\(\)](#): Create and add a new entity to the entity manager.

## Template Parameters

<i>T</i>	Type of the entity.
<i>TArgs</i>	Type of the arguments.

## Parameters

<i>args</i>	Arguments of the entity.
-------------	--------------------------

#### 4.6.2.2 getEntities()

```
std::map< std::string, Entity * > EntityManager::getEntities ( ) const
```

[getEntities\(\)](#): Get the [EntityManager](#)'s entities.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

std::map<std::string, Entity \*>: Entities.

#### 4.6.2.3 getEntity()

```
Entity & EntityManager::getEntity (
    const std::string & nameEntity )
```

[getEntity\(\)](#): Get an entity from the entity manager by its name.

##### Template Parameters

<i>T</i>	Type of the entity.
----------	---------------------

##### Parameters

<i>nameEntity</i>	Name of the entity.
-------------------	---------------------

##### Returns

T&: Reference of the entity.

#### 4.6.2.4 getEntityMap()

```
std::map< std::string, Entity * > EntityManager::getEntityMap ( ) const
```

[getEntityMap\(\)](#): Get the [EntityManager](#)'s entity map.

##### Parameters

<i>void</i>	
-------------	--

## Returns

Entity::EntityMap: [Entity](#) map.

## 4.6.2.5 init()

```
bool EntityManager::init ( ) [override], [virtual]
```

initEntityManager(): Initialize the [EntityManager](#).

## Parameters

<i>void</i>	
-------------	--

## Returns

bool: true if the [EntityManager](#) is initialized, false otherwise.

Reimplemented from [Entity](#).

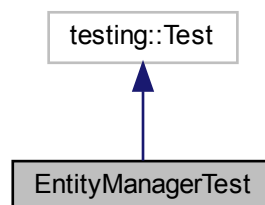
Reimplemented in [World](#).

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

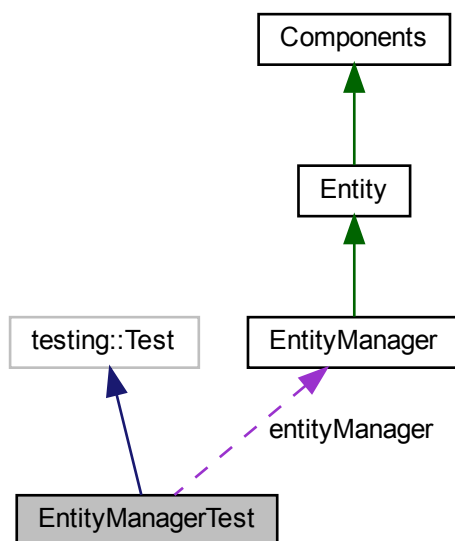
- src/Entity/include/entityManager.h
- src/Entity/entityManager.cpp

## 4.7 EntityManagerTest Class Reference

Inheritance diagram for EntityManagerTest:



Collaboration diagram for EntityManagerTest:



### Protected Member Functions

- void **SetUp** () override
- void **TearDown** () override

### Protected Attributes

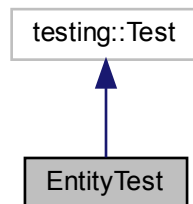
- [EntityManager](#) **entityManager** {}

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

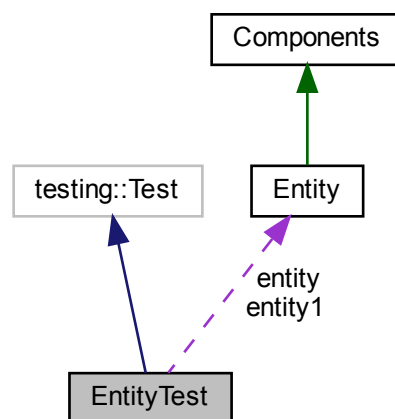
- tests/Entity/TestEntityManager.cpp

## 4.8 EntityTest Class Reference

Inheritance diagram for EntityTest:



Collaboration diagram for EntityTest:



### Protected Attributes

- [Entity](#) entity
- [Entity](#) entity1

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

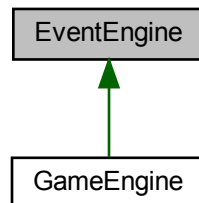
- tests/Entity/TestEntity.cpp

## 4.9 EventEngine Class Reference

[EventEngine](#) class: [EventEngine](#) is a class that represents the event engine of the game.

```
#include <eventEngine.h>
```

Inheritance diagram for EventEngine:



### Public Member Functions

- [EventEngine](#) ()=default  
*Default [EventEngine](#) constructor.*
- virtual [~EventEngine](#) ()=default  
*[EventEngine](#) destructor.*
- sf::Event & [getEvent](#) ()  
*[getEvent\(\)](#): Get the SFML Event.*
- void [addKeyPressed](#) (sf::Keyboard::Key keyboard, const std::function< void()> &function)  
*[addKeyPressed\(\)](#): Add a key pressed to the map.*
- void [addMouseButtonPressed](#) (sf::Mouse::Button mouse, const std::function< void()> &function)  
*[addMouseButtonPressed\(\)](#): Add a mouse button pressed to the map.*
- void [addMouseMoved](#) (const std::string &nameEntity, const std::function< void()> &function)  
*[addMouseMoved\(\)](#): Add a mouse moved to the map.*
- std::map< sf::Keyboard::Key, std::function< void()> > & [getKeyPressedMap](#) ()  
*[getKeyPressedMap\(\)](#): Get the map of the key pressed.*
- std::map< sf::Mouse::Button, std::function< void()> > & [getMouseButtonPressedMap](#) ()  
*[getMouseButtonPressedMap\(\)](#): Get the map of the mouse button pressed.*
- std::map< std::string, std::function< void()> > & [getMouseMovedMap](#) ()  
*[getMouseMovedPressedMap\(\)](#): Get the map of the key pressed.*
- std::map< sf::Keyboard::Key, bool > & [getKeyStatesMap](#) ()  
*[getKeyStatesMap\(\)](#): Get the map of the key states.*
- void [setKeyStatesMap](#) (sf::Keyboard::Key key)  
*[setKeyStatesMap\(sf::Keyboard::Key\)](#): Initialize the map of the key states for the parameter value to false*

### 4.9.1 Detailed Description

[EventEngine](#) class: [EventEngine](#) is a class that represents the event engine of the game.

The [EventEngine](#) class manages the events of the game.

## 4.9.2 Constructor & Destructor Documentation

### 4.9.2.1 EventEngine()

```
EventEngine::EventEngine ( ) [default]
```

Default [EventEngine](#) constructor.

#### Parameters

<i>void</i>	
-------------	--

#### Returns

*void*

### 4.9.2.2 ~EventEngine()

```
virtual EventEngine::~~EventEngine ( ) [virtual], [default]
```

[EventEngine](#) destructor.

#### Parameters

<i>void</i>	
-------------	--

#### Returns

*void*

## 4.9.3 Member Function Documentation

### 4.9.3.1 addKeyPressed()

```
void EventEngine::addKeyPressed (
    sf::Keyboard::Key keyboard,
    const std::function< void()> & function )
```

[addKeyPressed\(\)](#): Add a key pressed to the map.

**Parameters**

<i>keyboard</i>	SFML Keyboard::Key of the key pressed.
<i>function</i>	Function to execute when the key is pressed.

**Returns**

void

**4.9.3.2 addMouseButtonPressed()**

```
void EventEngine::addMouseButtonPressed (
    sf::Mouse::Button mouse,
    const std::function< void()> & function )
```

[addMouseButtonPressed\(\)](#): Add a mouse button pressed to the map.

**Parameters**

<i>mouse</i>	SFML Mouse::Button of the mouse button pressed.
<i>function</i>	Function to execute when the mouse button is pressed.

**Returns**

void

**4.9.3.3 addMouseMoved()**

```
void EventEngine::addMouseMoved (
    const std::string & nameEntity,
    const std::function< void()> & function )
```

[addMouseMoved\(\)](#): Add a mouse moved to the map.

**Parameters**

<i>nameEntity</i>	: Name of the <a href="#">Entity</a> you want.
<i>function</i>	Function to execute when the mouse moved on entity.

**Returns**

void



#### 4.9.3.4 `getEvent()`

```
sf::Event & EventEngine::getEvent ( )
```

[`getEvent\(\)`](#): Get the SFML Event.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

sf::Event: The SFML Event.

#### 4.9.3.5 `getKeyPressedMap()`

```
std::map< sf::Keyboard::Key, std::function< void()> > & EventEngine::getKeyPressedMap ( )
```

[`getKeyPressedMap\(\)`](#): Get the map of the key pressed.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

std::map<sf::Keyboard::Key, std::function<void()>>: The map of the key pressed.

#### 4.9.3.6 `getKeyStatesMap()`

```
std::map< sf::Keyboard::Key, bool > & EventEngine::getKeyStatesMap ( )
```

[`getKeyStatesMap\(\)`](#): Get the map of the key states.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

std::map<sf::Keyboard::Key, bool>&: The map of the key states.

#### 4.9.3.7 getMouseButtonPressedMap()

```
std::map< sf::Mouse::Button, std::function< void()> > & EventEngine::getMouseButtonPressedMap
( )
```

[getMouseButtonPressedMap\(\)](#): Get the map of the mouse button pressed.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

`std::map<sf::Mouse::Button, std::function<void()>>`: The map of the mouse button pressed.

#### 4.9.3.8 getMouseMovedMap()

```
std::map< std::string, std::function< void()> > & EventEngine::getMouseMovedMap ( )
```

[getMouseMovedPressedMap\(\)](#): Get the map of the key pressed.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

`std::map<std::string, std::function<void()>>`: The map of the mouse moved.

#### 4.9.3.9 setKeyStatesMap()

```
void EventEngine::setKeyStatesMap (
    sf::Keyboard::Key key )
```

[setKeyStatesMap\(sf::Keyboard::Key\)](#): Initialize the map of the key states for the parameter value to false

##### Parameters

<i>key</i>	The touch of the keyboard with using SFML.
------------	--

##### Returns

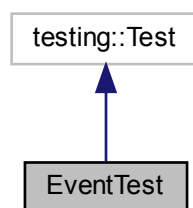
`void`

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

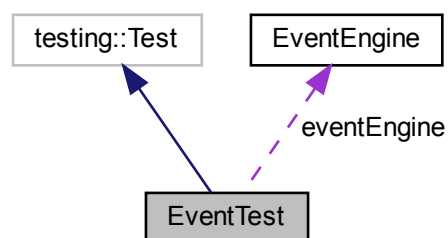
- `src/Event/include/eventEngine.h`
- `src/Event/eventEngine.cpp`

## 4.10 EventTest Class Reference

Inheritance diagram for EventTest:



Collaboration diagram for EventTest:



### Protected Attributes

- [EventEngine](#) `eventEngine`

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

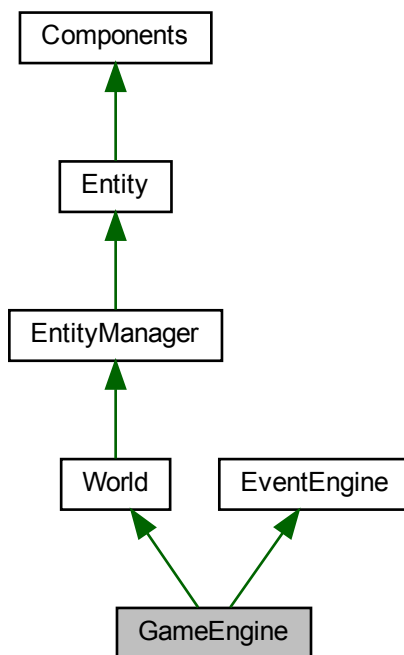
- `tests/Event/TestEvent.cpp`

## 4.11 GameEngine Class Reference

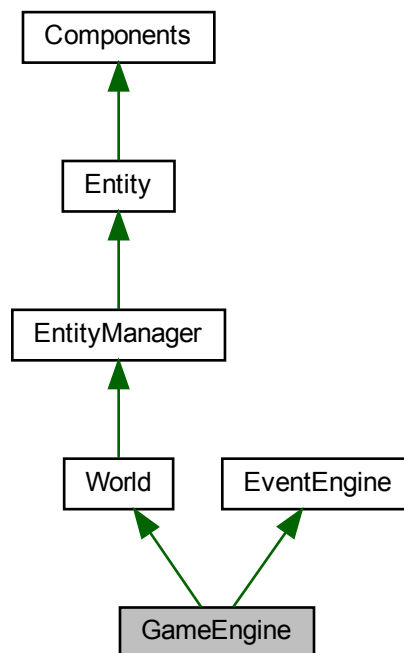
[GameEngine](#) class: [GameEngine](#) is a class that represents the game engine.

```
#include <gameEngine.h>
```

Inheritance diagram for GameEngine:



Collaboration diagram for GameEngine:



## Public Member Functions

- `GameEngine()` = default  
*< Time of the game. Using with the Clock.*
- `GameEngine(sf::VideoMode mode, const sf::String &title, sf::Uint32 style=sf::Style::Default, const sf::ContextSettings &settings=sf::ContextSettings())`  
*GameEngine constructor with parameters.*
- `~GameEngine()` override = default  
*GameEngine destructor.*
- `void run(std::map< std::string, std::unique_ptr< World >> mapWorld, const std::map< std::string, std::string > &pathRessources, const std::string &firstScene)`  
*run(): Run the game engine (with parameters).*
- `void renderGameEngine()`  
*renderGameEngine(): Render the game engine.*
- `void eventGameEngine()`  
*eventGameEngine(): Manage the events of the game engine.*
- `void updateGameEngine()`  
*updateGameEngine(): Update the game engine.*
- `bool isWindowOpen()`  
*isWindowOpen(): Check if the window is open.*
- `void initialize(std::map< std::string, std::unique_ptr< World >> mapWorld, const std::map< std::string, std::string > &pathRessources, const std::string &firstScene)`  
*initialize(): Initialize the game engine.*

- void [initializeSpriteFunction](#) () const  
*initializeSpriteFunction(): Initialize the sprites function.*
- void [initializeSoundFunction](#) () const  
*initializeSoundFunction(): Initialize the sound function.*
- void [initializeMusicFunction](#) () const  
*initializeMusicFunction(): Initialize the music function.*
- void [initializeTextFunction](#) () const  
*initializeFontFunction(): Initialize the font function.*
- void [initializeAllFiles](#) (const std::map< std::string, std::string > &pathResources)  
*initializeAllFiles(): Initialize all the ressources files the engine need.*
- void [initializeTexture](#) (std::string path)  
*initializeTexture(): Initialize the textures with their path.*
- void [initializeSound](#) (std::string path)  
*initializeSound(): Initialize the sound with their path.*
- void [initializeMusic](#) (std::string path)  
*initializeMusic(): Initialize the music with their path.*
- void [initializeFont](#) (std::string path)  
*initializeFont(): Initialize the font with their path.*
- void [initializeWorldMap](#) (std::map< std::string, std::unique\_ptr< [World](#) >> mapWorld)  
*initializeWorldMap(): Initialize the world map.*
- sf::RenderWindow & [getWindow](#) ()  
*getWindow(): Get the window.*
- [EventEngine](#) & [getEventEngine](#) ()  
*getEventEngine(): Get the event engine.*
- void [setCurrentWorld](#) ([World](#) \*world)  
*setCurrentWorld(): Set [GameEngine](#)'s current world.*
- [World](#) \* [getCurrentWorld](#) () const  
*getCurrentWorld(): Get [GameEngine](#)'s current world.*
- [World](#) & [addWorld](#) (const std::string &nameWorld, std::unique\_ptr< [World](#) > world)  
*addWorld(): Add a world to the world map.*
- [World](#) & [getWorld](#) (const std::string &nameWorld)  
*getWorld(): Get a world from the world map with its name.*
- std::map< std::string, std::shared\_ptr< sf::Texture > > [getMapTexture](#) () const  
*getMapTexture(): Get [GameEngine](#)'s map of the textures.*
- std::map< std::string, [World](#) \* > [getWorldMap](#) () const  
*getWorldMap(): Get [GameEngine](#)'s map of the worlds.*
- std::map< std::string, std::shared\_ptr< sf::Music > > [getMapMusic](#) () const  
*getMapMusic(): Get [GameEngine](#)'s map of the music.*
- std::map< std::string, std::shared\_ptr< sf::SoundBuffer > > [getMapSound](#) () const  
*getMapSound(): Get [GameEngine](#)'s map of the sound.*
- std::map< std::string, std::shared\_ptr< sf::Font > > [getMapFont](#) () const  
*getMapFont(): Get [GameEngine](#)'s map of the font.*
- sf::Clock [getClock](#) () const  
*getClock(): Get [GameEngine](#)'s clock.*
- sf::Time [getDeltaTime](#) () const  
*getDeltaTime(): Get [GameEngine](#)'s deltaTime.*
- void [setDeltaTime](#) (sf::Time newTimeDelta)  
*setDeltaTime(): Set [GameEngine](#)'s deltaTime.*

## Static Public Member Functions

- static `std::vector< std::string > getFilesRessources` (const `std::string &pathDirectory`)  
*[getFilesRessources\(\)](#): Get all the ressources type files in the given directory.*

## Additional Inherited Members

### 4.11.1 Detailed Description

[GameEngine](#) class: [GameEngine](#) is a class that represents the game engine.

The [GameEngine](#) class manages the game engine.

### 4.11.2 Constructor & Destructor Documentation

#### 4.11.2.1 [GameEngine\(\)](#) [1/2]

```
GameEngine::GameEngine ( ) [default]
```

< Time of the game. Using with the Clock.

Default [GameEngine](#) constructor.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

`void`

#### 4.11.2.2 [GameEngine\(\)](#) [2/2]

```
GameEngine::GameEngine (
    sf::VideoMode mode,
    const sf::String & title,
    sf::Uint32 style = sf::Style::Default,
    const sf::ContextSettings & settings = sf::ContextSettings() )
```

[GameEngine](#) constructor with parameters.

## Parameters

<i>mode</i>	Video mode.
<i>type</i>	Type of the graphics ("2D" or "3D").
<i>title</i>	Title of the window.
<i>style</i>	Style of the window (sf::Style::Default by default).
<i>settings</i>	Settings of the window.

## Returns

void

#### 4.11.2.3 ~GameEngine()

```
GameEngine::~GameEngine ( ) [override], [default]
```

[GameEngine](#) destructor.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

### 4.11.3 Member Function Documentation

#### 4.11.3.1 addWorld()

```
World & GameEngine::addWorld (
    const std::string & nameWorld,
    std::unique_ptr< World > world )
```

[addWorld\(\)](#): Add a world to the world map.

## Parameters

<i>nameWorld</i>	Name of the world.
<i>world</i>	<a href="#">World</a> to add.



## Returns

[World&](#): The world.

### 4.11.3.2 eventGameEngine()

```
void GameEngine::eventGameEngine ( )
```

[eventGameEngine\(\)](#): Manage the events of the game engine.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

### 4.11.3.3 getClock()

```
sf::Clock GameEngine::getClock ( ) const
```

[getClock\(\)](#): Get [GameEngine](#)'s clock.

## Parameters

<i>void</i>	
-------------	--

## Returns

sf::Clock: [GameEngine](#)'s clock.

### 4.11.3.4 getCurrentWorld()

```
World * GameEngine::getCurrentWorld ( ) const
```

[getCurrentWorld\(\)](#): Get [GameEngine](#)'s current world.

## Parameters

<i>void</i>	
-------------	--

**Returns**

World\*: [GameEngine](#)'s current world.

**4.11.3.5 getDeltaTime()**

```
sf::Time GameEngine::getDeltaTime ( ) const
```

[getDeltaTime\(\)](#): Get [GameEngine](#)'s deltaTime.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

sf::Time: [GameEngine](#)'s deltaTimes.

**4.11.3.6 getEventEngine()**

```
EventEngine & GameEngine::getEventEngine ( )
```

[getEventEngine\(\)](#): Get the event engine.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

[EventEngine](#)&: [GameEngine](#)'s [EventEngine](#).

**4.11.3.7 getFilesRessources()**

```
std::vector< std::string > GameEngine::getFilesRessources (
    const std::string & pathDirectory ) [static]
```

[getFilesRessources\(\)](#): Get all the ressources type files in the given directory.

**Parameters**

<i>pathDirectory</i>	Path of the directory.
----------------------	------------------------

**Returns**

`std::vector<std::string>`: Vector of the ressources type files' names.

**4.11.3.8 getMapFont()**

```
std::map< std::string, std::shared_ptr< sf::Font > > GameEngine::getMapFont ( ) const
```

[getMapFont\(\)](#): Get [GameEngine](#)'s map of the font.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

`std::map<std::string, std::shared_ptr<sf::Font>>`: [GameEngine](#)'s map of the musics.

**4.11.3.9 getMapMusic()**

```
std::map< std::string, std::shared_ptr< sf::Music > > GameEngine::getMapMusic ( ) const
```

[getMapMusic\(\)](#): Get [GameEngine](#)'s map of the music.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

`std::map<std::string, std::shared_ptr<sf::Music>>`: [GameEngine](#)'s map of the musics.

**4.11.3.10 getMapSound()**

```
std::map< std::string, std::shared_ptr< sf::SoundBuffer > > GameEngine::getMapSound ( ) const
```

[getMapSound\(\)](#): Get [GameEngine](#)'s map of the sound.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

`std::map<std::string, std::shared_ptr<sf::SoundBuffer>>`: [GameEngine](#)'s map of the musics.

**4.11.3.11 getMapTexture()**

```
std::map< std::string, std::shared_ptr< sf::Texture > > GameEngine::getMapTexture ( ) const
```

[getMapTexture\(\)](#): Get [GameEngine](#)'s map of the textures.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

`std::map<std::string, std::shared_ptr<sf::Texture>>`: [GameEngine](#)'s map of the textures.

**4.11.3.12 getWindow()**

```
sf::RenderWindow & GameEngine::getWindow ( )
```

[getWindow\(\)](#): Get the window.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

`sf::RenderWindow&`: [GameEngine](#)'s window.

**4.11.3.13 getWorld()**

```
World & GameEngine::getWorld (
    const std::string & nameWorld )
```

[getWorld\(\)](#): Get a world from the world map with its name.

**Parameters**

<i>nameWorld</i>	Name of the world.
------------------	--------------------

## Returns

[World](#)&: [GameEngine](#)'s world.

**4.11.3.14 getWorldMap()**

```
std::map< std::string, World * > GameEngine::getWorldMap ( ) const
```

[getWorldMap\(\)](#): Get [GameEngine](#)'s map of the worlds.

## Parameters

<i>void</i>	
-------------	--

## Returns

std::map<std::string, [World](#)\*>: [GameEngine](#)'s map of the worlds.

**4.11.3.15 initialize()**

```
void GameEngine::initialize (
    std::map< std::string, std::unique_ptr< World >> mapWorld,
    const std::map< std::string, std::string > & pathResources,
    const std::string & firstScene )
```

[initialize\(\)](#): Initialize the game engine.

## Parameters

<i>mapWorld</i>	Map of <a href="#">World</a> classes' unique pointers.
<i>pathResources</i>	Map of the path of the ressources (assets).
<i>firstScene</i>	Name of the first scene.

## Returns

void

**4.11.3.16 initializeAllFiles()**

```
void GameEngine::initializeAllFiles (
    const std::map< std::string, std::string > & pathResources )
```

[initializeAllFiles\(\)](#): Initialize all the ressources files the engine need.

## Parameters

<i>pathResources</i>	Map of the path of the ressources (assets).
----------------------	---

## Returns

void

**4.11.3.17 initializeFont()**

```
void GameEngine::initializeFont (
    std::string path )
```

[initializeFont\(\)](#): Initialize the font with their path.

## Parameters

<i>path</i>	Path of the font file.
-------------	------------------------

## Returns

void

**4.11.3.18 initializeMusic()**

```
void GameEngine::initializeMusic (
    std::string path )
```

[initializeMusic\(\)](#): Initialize the music with their path.

## Parameters

<i>path</i>	Path of the music file.
-------------	-------------------------

## Returns

void

**4.11.3.19 initializeMusicFunction()**

```
void GameEngine::initializeMusicFunction ( ) const
```

[initializeMusicFunction\(\)](#): Initialize the music function.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

**4.11.3.20 initializeSound()**

```
void GameEngine::initializeSound (
    std::string path )
```

[initializeSound\(\)](#): Initialize the sound with their path.

## Parameters

<i>path</i>	Path of the sound file.
-------------	-------------------------

## Returns

void

**4.11.3.21 initializeSoundFunction()**

```
void GameEngine::initializeSoundFunction ( ) const
```

[initializeSoundFunction\(\)](#): Initialize the sound function.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

**4.11.3.22 initializeSpriteFunction()**

```
void GameEngine::initializeSpriteFunction ( ) const
```

[initializeSpriteFunction\(\)](#): Initialize the sprites function.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

void

**4.11.3.23 initializeTextFunction()**

```
void GameEngine::initializeTextFunction ( ) const
```

initializeFontFunction(): Initialize the font function.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

void

**4.11.3.24 initializeTexture()**

```
void GameEngine::initializeTexture (
    std::string path )
```

[initializeTexture\(\)](#): Initialize the textures with their path.

**Parameters**

<i>path</i>	Path of the texture.
-------------	----------------------

**Returns**

void

**4.11.3.25 initializeWorldMap()**

```
void GameEngine::initializeWorldMap (
    std::map< std::string, std::unique_ptr< World >> mapWorld )
```

[initializeWorldMap\(\)](#): Initialize the world map.



## Parameters

<i>mapWorld</i>	Map of <a href="#">World</a> classes' unique pointers.
-----------------	--

## Returns

void

**4.11.3.26 isWindowOpen()**

```
bool GameEngine::isWindowOpen ( )
```

[isWindowOpen\(\)](#): Check if the window is open.

## Parameters

<i>void</i>	
-------------	--

## Returns

bool: True if the window is open, false otherwise.

**4.11.3.27 renderGameEngine()**

```
void GameEngine::renderGameEngine ( )
```

[renderGameEngine\(\)](#): Render the game engine.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

**4.11.3.28 run()**

```
void GameEngine::run (
    std::map< std::string, std::unique_ptr< World >> mapWorld,
```

```
const std::map< std::string, std::string > & pathResources,  
const std::string & firstScene )
```

[run\(\)](#): Run the game engine (with parameters).

## Parameters

<i>mapWorld</i>	Map of <a href="#">World</a> classes' unique pointers.
<i>pathResources</i>	Map of the path of the ressources (assets).
<i>firstScene</i>	Name of the first scene.

## Returns

void

**4.11.3.29 setCurrentWorld()**

```
void GameEngine::setCurrentWorld (
    World * world )
```

[setCurrentWorld\(\)](#): Set [GameEngine](#)'s current world.

## Parameters

<i>world</i>	<a href="#">World</a> to set.
--------------	-------------------------------

## Returns

void

**4.11.3.30 setDeltaTime()**

```
void GameEngine::setDeltaTime (
    sf::Time newTimeDelta )
```

[setDeltaTime\(\)](#): Set [GameEngine](#)'s deltaTime.

## Parameters

<i>newTimeDelta</i>	New deltaTime for <a href="#">GameEngine</a> 's deltaTime.
---------------------	--

## Returns

void

#### 4.11.3.31 updateGameEngine()

```
void GameEngine::updateGameEngine ( )
```

[updateGameEngine\(\)](#): Update the game engine.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

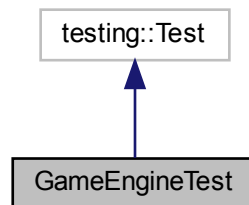
void

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

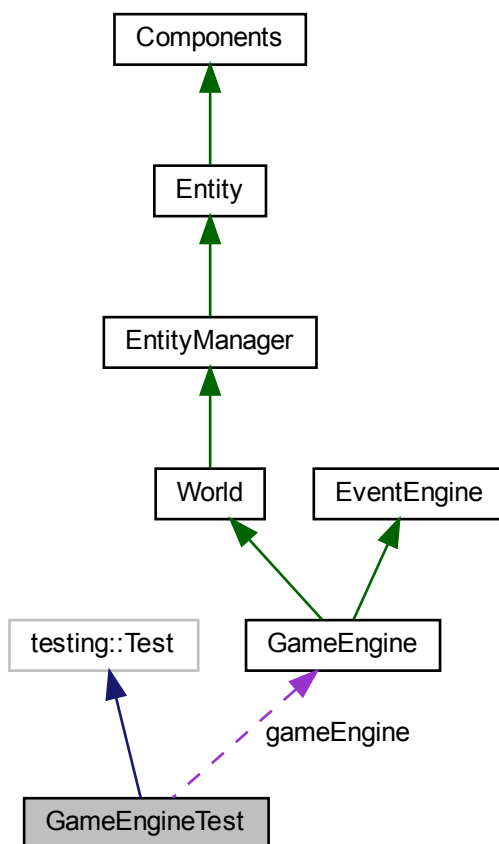
- src/GameEngine/include/gameEngine.h
- src/GameEngine/gameEngine.cpp

## 4.12 GameEngineTest Class Reference

Inheritance diagram for GameEngineTest:



Collaboration diagram for GameEngineTest:



### Protected Member Functions

- void **TearDown** () override

### Protected Attributes

- [GameEngine](#) \* **gameEngine**

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

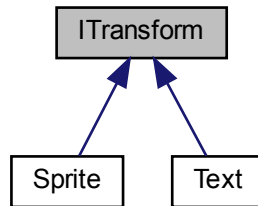
- tests/GameEngine/TestGameEngine.cpp

## 4.13 ITransform Class Reference

**ITransform** class: **ITransform** is a class that represents an interface of the Component **Transform**.

```
#include <ITransform.h>
```

Inheritance diagram for ITransform:



### Public Member Functions

- virtual `~ITransform()`=default  
Default Virtual **ITransform** destructor.
- virtual `Transform * getTransform()`=0  
*getTransform(): Get the reference of the component **Transform** of the same **Entity***

#### 4.13.1 Detailed Description

**ITransform** class: **ITransform** is a class that represents an interface of the Component **Transform**.

The **ITransform** interface give to components which need to have a reference to **Transform**

#### 4.13.2 Constructor & Destructor Documentation

##### 4.13.2.1 ~ITransform()

```
virtual ITransform::~~ITransform ( ) [virtual], [default]
```

Default Virtual **ITransform** destructor.

Parameters

<code>void</code>	
-------------------	--

**Returns**

void

### 4.13.3 Member Function Documentation

#### 4.13.3.1 getTransform()

```
virtual Transform* ITransform::getTransform ( ) [pure virtual]
```

**getTransform():** Get the reference of the component [Transform](#) of the same [Entity](#)

Virtual function which get the reference of the [Transform](#) component from the same [Entity](#) when a component need to use [Transform](#). If [Transform](#) don't exist **getTransform()** return nullptr.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

Transform\*: The reference of [Transform](#) or nullptr.

Implemented in [Text](#), and [Sprite](#).

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

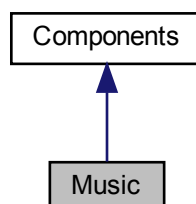
- src/Components/all\_components/include/ITransform.h

## 4.14 Music Class Reference

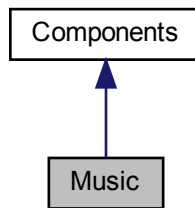
**Music** class: [Music](#) is a class that represents the music in the world.

```
#include <Music.h>
```

Inheritance diagram for Music:



Collaboration diagram for Music:



## Public Member Functions

- **Music** ()=default  
*< Bit of the **Music***
- **~Music** () override=default  
*Default override **Music** destructor.*
- int **getBit** () override  
***getBit()**: Get the bit of the **Music**.*
- void **update** (sf::Time timeDelta) override  
***update(sf::Time)**: Update the component **Music***
- bool **init** () override  
***init()**: Initialize the component.*
- void **setMusic** (std::map< std::string, std::shared\_ptr< sf::Music >> mapMusic, const std::string &name↵  
Music)  
***setMusic(std::map<std::string, std::shared\_ptr<sf::Music>>, const std::string&)**: Initialize the sf::Music of the class.*
- void **setDeferredMusic** (std::function< void()> setter)  
***setDeferredMusic(std::function<void()>)**: Set the deferred function for **Music**.*
- void **applyDeferredMusic** ()  
***applyDeferredMusic()**: Apply the deferred function for **Music***
- std::shared\_ptr< sf::Music > **getMusic** () const  
***getMusic()**: Get the music.*
- void **play** ()  
***play()**: Play the music.*
- void **pause** ()  
***pause()**: Pause the music.*
- void **stop** ()  
***stop()**: Stop the music.*
- void **setLoop** (bool loop)  
***setLoop(bool)**: Set the loop of the music.*
- bool **getLoop** () const  
***getLoop()**: Get if the loop is set to True or False.*
- void **setVolume** (float volume)  
***setVolume(float)**: Set the volume of the music.*
- float **getVolume** () const  
***getVolume()**: Get the volume of the music.*
- sf::SoundSource::Status **getStatus** () const  
***getStatus()**: Get the status of the music. Playing, pause or stop.*



### 4.14.1 Detailed Description

**Music** class: **Music** is a class that represents the music in the world.

The music class manages the music from an **Entity** using SFML.

### 4.14.2 Constructor & Destructor Documentation

#### 4.14.2.1 Music()

```
Music::Music ( ) [default]
```

< Bit of the **Music**

Default **Music** constructor.

Parameters

<i>void</i>	
-------------	--

Returns

*void*

#### 4.14.2.2 ~Music()

```
Music::~Music ( ) [override], [default]
```

Default override **Music** destructor.

Parameters

<i>void</i>	
-------------	--

Returns

*void*

### 4.14.3 Member Function Documentation

#### 4.14.3.1 applyDeferredMusic()

```
void Music::applyDeferredMusic ( )
```

[applyDeferredMusic\(\)](#): Apply the deferred function for [Music](#)

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

#### 4.14.3.2 getBit()

```
int Music::getBit ( ) [override], [virtual]
```

[getBit\(\)](#): Get the bit of the [Music](#).

##### Parameters

<i>void</i>	
-------------	--

##### Returns

int: The bit of the [Music](#).

Implements [Components](#).

#### 4.14.3.3 getLoop()

```
bool Music::getLoop ( ) const
```

[getLoop\(\)](#): Get if the loop is set to True or False.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

bool: True or False. If no music set, return false.

#### 4.14.3.4 `getMusic()`

```
std::shared_ptr< sf::Music > Music::getMusic ( ) const
```

`getMusic()`: Get the music.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

`std::shared_ptr<sf::Music>`: The shared ptr of the music.

#### 4.14.3.5 `getStatus()`

```
sf::SoundSource::Status Music::getStatus ( ) const
```

`getStatus()`: Get the status of the music. Playing, pause or stop.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

`sf::SoundSource::Status`: Enumerator of `sf::SoundSource::Status` which is (Stopped, Paused, Playing). If no music set, return Stopped.

#### 4.14.3.6 `getVolume()`

```
float Music::getVolume ( ) const
```

`getVolume()`: Get the volume of the music.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

`float`: Float number that represents the volume between 0 and 100 of the music. If no music set, return -100.

#### 4.14.3.7 init()

```
bool Music::init ( ) [override], [virtual]
```

[init\(\)](#): Initialize the component.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

bool: true if the component is initialized, false otherwise

Implements [Components](#).

#### 4.14.3.8 pause()

```
void Music::pause ( )
```

[pause\(\)](#): Pause the music.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

#### 4.14.3.9 play()

```
void Music::play ( )
```

[play\(\)](#): Play the music.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

#### 4.14.3.10 setDeferredMusic()

```
void Music::setDeferredMusic (
    std::function< void()> setter )
```

[setDeferredMusic\(std::function<void\(\)>\)](#): Set the deferred function for [Music](#).

##### Parameters

<i>setter</i>	Function that will use <a href="#">Music</a> .
---------------	--

##### Returns

void

#### 4.14.3.11 setLoop()

```
void Music::setLoop (
    bool loop )
```

[setLoop\(bool\)](#): Set the loop of the music.

##### Parameters

<i>loop</i>	True or False.
-------------	----------------

##### Returns

void

#### 4.14.3.12 setMusic()

```
void Music::setMusic (
    std::map< std::string, std::shared_ptr< sf::Music >> mapMusic,
    const std::string & nameMusic )
```

[setMusic\(std::map<std::string, std::shared\\_ptr<sf::Music>>, const std::string&\)](#): Initialize the sf::Music of the class.

##### Parameters

<i>mapMusic</i>	Map of all the music loaded.
<i>nameMusic</i>	Name of the music loaded.

**Returns**

void

**4.14.3.13 setVolume()**

```
void Music::setVolume (
    float volume )
```

[setVolume\(float\)](#): Set the volume of the music.

**Parameters**

<i>volume</i>	Float number that represents the volume between 0 and 100 of the music.
---------------	---

**Returns**

void

**4.14.3.14 stop()**

```
void Music::stop ( )
```

[stop\(\)](#): Stop the music.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

void

**4.14.3.15 update()**

```
void Music::update (
    sf::Time timeDelta ) [override], [virtual]
```

[update\(sf::Time\)](#): Update the component [Music](#)

## Parameters

<i>timeDelta</i>	sf::Time of the game.
------------------	-----------------------

## Returns

void

Implements [Components](#).

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

- src/Components/all\_components/include/Music.h
- src/Components/all\_components/Music.cpp

## 4.15 Rect< T > Class Template Reference

[Rect](#) class: [Rect](#) is a class that represents a rectangle.

```
#include <Rect.h>
```

### Public Member Functions

- [Rect](#) (T left, T top, T width, T height)  
*< Rect is the variable you can use for change the data in RectStruct.*
- [~Rect](#) ()=default  
*Rect destructor.*
- RectStruct [getRect](#) () const  
*getRect(): Get the using RectStruct.*
- T [getLeft](#) () const  
*getLeft(): Get the using RectStruct left.*
- T [getTop](#) () const  
*getTop(): Get the using RectStruct top.*
- T [getWidth](#) () const  
*getWidth(): Get the using RectStruct width.*
- T [getHeight](#) () const  
*getHeight(): Get the using RectStruct height.*
- bool [contains](#) (T x, T y) const  
*contains(): Check if a point is in the rectangle.*

### 4.15.1 Detailed Description

```
template<typename T>
class Rect< T >
```

[Rect](#) class: [Rect](#) is a class that represents a rectangle.

This create a rectangle and using for what you want.

## 4.15.2 Constructor & Destructor Documentation

### 4.15.2.1 Rect()

```
template<typename T >
Rect< T >::Rect (
    T left,
    T top,
    T width,
    T height ) [inline]
```

< [Rect](#) is the variable you can use for change the data in RectStruct.

[Rect](#) constructor with parameters.

#### Template Parameters

<i>T</i>	Type of the rect.
----------	-------------------

#### Parameters

<i>left</i>	Position x.
<i>top</i>	Position y.
<i>width</i>	Width of your rectangle.
<i>height</i>	Height of your rectangle.

#### Returns

void

### 4.15.2.2 ~Rect()

```
template<typename T >
Rect< T >::~~Rect ( ) [default]
```

[Rect](#) destructor.

#### Template Parameters

<i>T</i>	Type of the rect.
----------	-------------------

#### Parameters

<i>void</i>	
-------------	--



**Returns**

void

### 4.15.3 Member Function Documentation

#### 4.15.3.1 contains()

```
template<typename T >
template bool Rect< T >::contains (
    T x,
    T y ) const
```

**contains()**: Check if a point is in the rectangle.

**Template Parameters**

<i>T</i>	Type of the rect.
----------	-------------------

**Parameters**

<i>x</i>	: Position x of the point.
<i>y</i>	: Position y of the point.

**Returns**

*T* : *T* is the type you want (float, int,...).

#### 4.15.3.2 getHeight()

```
template<typename T >
template int Rect< T >::getHeight ( ) const
```

**getHeight()**: Get the using RectStruct height.

**Template Parameters**

<i>T</i>	Type of the rect.
----------	-------------------

**Parameters**

<i>void</i>	
-------------	--

**Returns**

T : T is the type you want (float, int,...).

**4.15.3.3 getLeft()**

```
template<typename T >
template int Rect< T >::getLeft ( ) const
```

[getLeft\(\)](#): Get the using RectStruct left.

**Template Parameters**

<i>T</i>	Type of the rect.
----------	-------------------

**Parameters**

<i>void</i>	
-------------	--

**Returns**

T : T is the type you want (float, int,...).

**4.15.3.4 getRect()**

```
template<typename T >
RectStruct Rect< T >::getRect ( ) const [inline]
```

[getRect\(\)](#): Get the using RectStruct.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

[Rect](#)

**4.15.3.5 getTop()**

```
template<typename T >
template int Rect< T >::getTop ( ) const
```

[getTop\(\)](#): Get the using RectStruct top.

## Template Parameters

<i>T</i>	Type of the rect.
----------	-------------------

## Parameters

<i>void</i>	
-------------	--

## Returns

*T* : *T* is the type you want (float, int,...).

## 4.15.3.6 getWidth()

```
template<typename T >
template int Rect< T >::getWidth ( ) const
```

[getWidth\(\)](#): Get the using RectStruct width.

## Template Parameters

<i>T</i>	Type of the rect.
----------	-------------------

## Parameters

<i>void</i>	
-------------	--

## Returns

*T* : *T* is the type you want (float, int,...).

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

- src/Other/include/Rect.h
- src/Other/Rect.cpp

## 4.16 Script Class Reference

## Public Member Functions

- virtual void **execute** ()=0

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

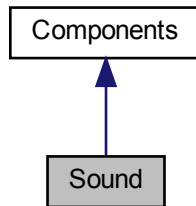
- src/Script/include/Script.h

## 4.17 Sound Class Reference

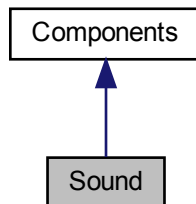
[Sound](#) class: [Sound](#) is a class that represents the sound properties of a Component.

```
#include <Sound.h>
```

Inheritance diagram for Sound:



Collaboration diagram for Sound:



### Public Member Functions

- [Sound](#) ()=default  
    < Bit of the [Sound](#).
- [~Sound](#) () override=default  
    Default override [Sound](#) destructor.
- int [getBit](#) () override  
    [getBit\(\)](#): Get the bit of the [Sound](#).
- void [update](#) (sf::Time timeDelta) override  
    [update\(sf::Time\)](#): Update the component [Sound](#)
- bool [init](#) () override  
    [init\(\)](#): Initialize the component.
- void [setSound](#) (const sf::Sound &sound)

- [setSound\(const sf::Sound&\)](#): Set the sound with an existing one. Automatically set the component sound buffer.*
- void [setSound](#) (std::map< std::string, std::shared\_ptr< sf::SoundBuffer >> mapSound, const std::string &nameSound)

*[setSound\(std::map<std::string, std::shared\\_ptr<sf::SoundBuffer>>, const std::string&\)](#): Initialize the sf::Sound of the class.*
- void [setDeferredSound](#) (std::function< void()> setter)

*[setDeferredSound\(std::function<void\(\)>\)](#): Set the deferred function for [Sound](#).*
- void [applyDeferredSound](#) ()

*[applyDeferredSound\(\)](#): Apply the deferred function for [Sound](#)*
- const sf::Sound & [getSound](#) () const

*[getSound\(\)](#): Get the sound.*
- void [play](#) ()

*[play\(\)](#): Play the sound.*
- void [pause](#) ()

*[pause\(\)](#): Pause the sound.*
- void [stop](#) ()

*[stop\(\)](#): Stop the sound.*
- void [setLoop](#) (bool loop)

*[setLoop\(bool\)](#): Set the loop of the sound.*
- bool [getLoop](#) () const

*[getLoop\(\)](#): Get if the loop is set to True or False.*
- void [setVolume](#) (float volume)

*[setVolume\(float\)](#): Set the volume of the sound.*
- float [getVolume](#) () const

*[getVolume\(\)](#): Get the volume of the sound.*
- bool [isPlaying](#) () const

*[isPlaying\(\)](#): Check if the sound is currently playing.*

### 4.17.1 Detailed Description

[Sound](#) class: [Sound](#) is a class that represents the sound properties of a Component.

The [Sound](#) class manages the sound representation of a Component using SFML.

### 4.17.2 Constructor & Destructor Documentation

#### 4.17.2.1 Sound()

```
Sound::Sound ( ) [default]
```

< Bit of the [Sound](#).

Default [Sound](#) constructor.

#### Parameters

<i>void</i>	
-------------	--

**Returns**

void

**4.17.2.2 ~Sound()**

```
Sound::~~Sound ( ) [override], [default]
```

Default override [Sound](#) destructor.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

void

**4.17.3 Member Function Documentation****4.17.3.1 applyDeferredSound()**

```
void Sound::applyDeferredSound ( )
```

[applyDeferredSound\(\)](#): Apply the deferred function for [Sound](#)

**Parameters**

<i>void</i>	
-------------	--

**Returns**

void

**4.17.3.2 getBit()**

```
int Sound::getBit ( ) [override], [virtual]
```

[getBit\(\)](#): Get the bit of the [Sound](#).

## Parameters

<i>void</i>	
-------------	--

## Returns

int: The bit of the [Sound](#).

Implements [Components](#).

### 4.17.3.3 getLoop()

```
bool Sound::getLoop ( ) const
```

[getLoop\(\)](#): Get if the loop is set to True or False.

## Parameters

<i>void</i>	
-------------	--

## Returns

bool: True or False.

### 4.17.3.4 getSound()

```
const sf::Sound & Sound::getSound ( ) const
```

[getSound\(\)](#): Get the sound.

## Parameters

<i>void</i>	
-------------	--

## Returns

const sf::Sound&: The shared ptr of the sound.

### 4.17.3.5 getVolume()

```
float Sound::getVolume ( ) const
```

[getVolume\(\)](#): Get the volume of the sound.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

float: Float number that represents the volume between 0 and 100 of the sound.

**4.17.3.6 init()**

```
bool Sound::init ( ) [override], [virtual]
```

[init\(\)](#): Initialize the component.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

bool: true if the component is initialized, false otherwise

Implements [Components](#).

**4.17.3.7 isPlaying()**

```
bool Sound::isPlaying ( ) const
```

[isPlaying\(\)](#): Check if the sound is currently playing.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

bool: True if the sound is playing, false otherwise.

**4.17.3.8 pause()**

```
void Sound::pause ( )
```

[pause\(\)](#): Pause the sound.



## Parameters

<i>void</i>	
-------------	--

## Returns

void

**4.17.3.9 play()**

```
void Sound::play ( )
```

[play\(\)](#): Play the sound.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

**4.17.3.10 setDeferredSound()**

```
void Sound::setDeferredSound (
    std::function< void()> setter )
```

[setDeferredSound\(std::function<void\(\)>\)](#): Set the deferred function for [Sound](#).

## Parameters

<i>setter</i>	Function that will use <a href="#">Sound</a> .
---------------	--

## Returns

void

**4.17.3.11 setLoop()**

```
void Sound::setLoop (
    bool loop )
```

[setLoop\(bool\)](#): Set the loop of the sound.

## Parameters

<i>loop</i>	True or False.
-------------	----------------

## Returns

void

**4.17.3.12 setSound()** [1/2]

```
void Sound::setSound (
    const sf::Sound & sound )
```

[setSound\(const sf::Sound&\)](#): Set the sound with an existing one. Automatically set the component sound buffer.

## Parameters

<i>sound</i>	SFML <a href="#">Sound</a> for sound.
--------------	---------------------------------------

## Returns

void

**4.17.3.13 setSound()** [2/2]

```
void Sound::setSound (
    std::map< std::string, std::shared_ptr< sf::SoundBuffer >> mapSound,
    const std::string & nameSound )
```

[setSound\(std::map<std::string, std::shared\\_ptr<sf::SoundBuffer>>, const std::string&\)](#): Initialize the sf::Sound of the class.

## Parameters

<i>mapSound</i>	Map of all the sound loaded.
<i>nameSound</i>	Name of the sound loaded.

## Returns

void

#### 4.17.3.14 `setVolume()`

```
void Sound::setVolume (
    float volume )
```

[setVolume\(float\)](#): Set the volume of the sound.

##### Parameters

<i>volume</i>	Float number that represents the volume between 0 and 100 of the sound.
---------------	---

##### Returns

void

#### 4.17.3.15 `stop()`

```
void Sound::stop ( )
```

[stop\(\)](#): Stop the sound.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

#### 4.17.3.16 `update()`

```
void Sound::update (
    sf::Time timeDelta ) [override], [virtual]
```

[update\(sf::Time\)](#): Update the component [Sound](#)

##### Parameters

<i>timeDelta</i>	sf::Time of the game.
------------------	-----------------------

##### Returns

void

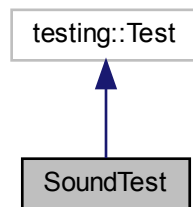
Implements [Components](#).

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

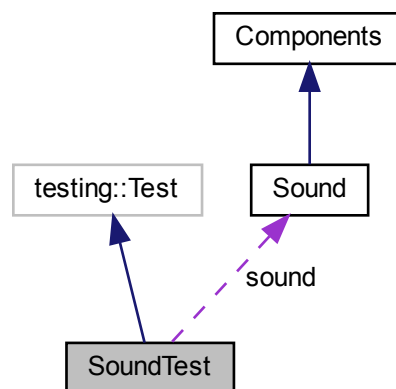
- src/Components/all\_components/include/Sound.h
- src/Components/all\_components/Sound.cpp

## 4.18 SoundTest Class Reference

Inheritance diagram for SoundTest:



Collaboration diagram for SoundTest:



### Protected Member Functions

- void **SetUp** () override
- void **TearDown** () override

## Protected Attributes

- [Sound](#) sound

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

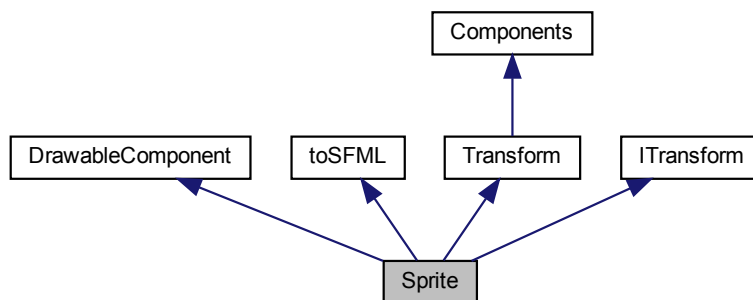
- tests/Components/all\_components/TestSound.cpp

## 4.19 Sprite Class Reference

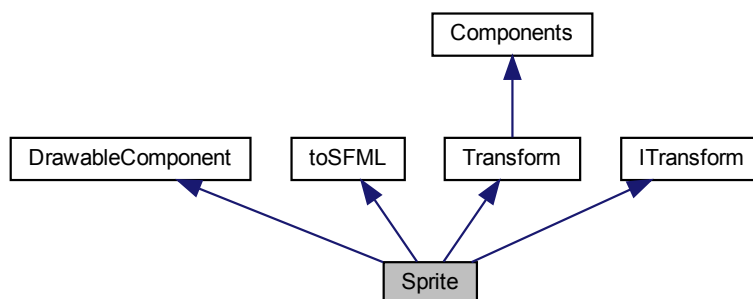
[Sprite](#) class: [Sprite](#) is a class that represents the rendering properties of a Component.

```
#include <Sprite.h>
```

Inheritance diagram for Sprite:



Collaboration diagram for Sprite:



## Public Member Functions

- [Sprite](#) ()  
*< Doing the animation.*
- [~Sprite](#) () override=default  
*Default override [Sprite](#) destructor.*
- [Transform](#) \* [getTransform](#) () override  
*[getTransform\(\)](#): Get the reference to the component [Transform](#).*
- bool [init](#) () override  
*[init\(\)](#): Initialize the component.*
- int [getBit](#) () override  
*[getBit\(\)](#): Get the bit of the [Music](#).*
- void [draw](#) (sf::RenderWindow &>window) const override  
*[draw\(\)](#): Draw the [Sprite](#).*
- void [update](#) (sf::Time deltaTime) override  
*[update\(sf::Time\)](#): Update the component [Music](#)*
- sf::Sprite [getSprite](#) () const  
*[getSprite\(\)](#): Get the SFML [Sprite](#) for rendering.*
- void [setSprite](#) (const sf::Sprite &sprite)  
*[setSprite\(sf::Sprite&\)](#): Set the SFML [Sprite](#) with an existing one for rendering.*
- void [setSprite](#) (std::map< std::string, std::shared\_ptr< sf::Texture >> mapTexture, const std::string &name← Texture, bool animate=false, const std::vector< [Rect](#)< int >> &newFrames=std::vector< [Rect](#)< int >>(), int durationOfFrame=100)  
*Sets the sprite of the component.*
- void [setDeferredSprite](#) (std::function< void()> setter)  
*[setDeferredSprite\(std::function< void\(\)>\)](#): Set the deferred sprite.*
- void [applyDeferredSprite](#) ()  
*[applyDeferredSprite\(\)](#): Apply the deferred sprite.*
- void [setTransform](#) ([Transform](#) &newTransform)  
*[setTransform\(Transform&\)](#): Set the reference of the [Transform](#) component.*

### 4.19.1 Detailed Description

[Sprite](#) class: [Sprite](#) is a class that represents the rendering properties of a Component.

The [Sprite](#) class manages the graphical representation of a Component using SFML.

### 4.19.2 Constructor & Destructor Documentation

#### 4.19.2.1 [Sprite](#)()

```
Sprite::Sprite ( ) [inline]
```

*< Doing the animation.*

Default [Sprite](#) constructor.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

### 4.19.2.2 ~Sprite()

```
Sprite::~Sprite ( ) [override], [default]
```

Default override [Sprite](#) destructor.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

## 4.19.3 Member Function Documentation

### 4.19.3.1 applyDeferredSprite()

```
void Sprite::applyDeferredSprite ( )
```

[applyDeferredSprite\(\)](#): Apply the deferred sprite.

## Parameters

<i>void</i>	
-------------	--

## Returns

void

### 4.19.3.2 draw()

```
void Sprite::draw (
    sf::RenderWindow & window ) const [override], [virtual]
```

[draw\(\)](#): Draw the [Sprite](#).

#### Parameters

<i>window</i>	SFML RenderWindow where the <a href="#">Sprite</a> will be drawn.
---------------	---

#### Returns

void

Implements [DrawableComponent](#).

### 4.19.3.3 [getBit\(\)](#)

```
int Sprite::getBit ( ) [override], [virtual]
```

[getBit\(\)](#): Get the bit of the [Music](#).

#### Parameters

<i>void</i>	
-------------	--

#### Returns

int: The bit of the [Music](#).

Implements [Components](#).

### 4.19.3.4 [getSprite\(\)](#)

```
sf::Sprite Sprite::getSprite ( ) const
```

[getSprite\(\)](#): Get the SFML [Sprite](#) for rendering.

#### Parameters

<i>void</i>	
-------------	--

#### Returns

sf::Sprite: SFML [Sprite](#) for rendering



#### 4.19.3.5 getTransform()

```
Transform * Sprite::getTransform ( ) [override], [virtual]
```

[getTransform\(\)](#): Get the reference to the component [Transform](#).

##### Parameters

<i>void</i>	
-------------	--

##### Returns

Transform\*: Reference of [Transform](#)

Implements [ITransform](#).

#### 4.19.3.6 init()

```
bool Sprite::init ( ) [override], [virtual]
```

[init\(\)](#): Initialize the component.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

bool: true if the component is initialized, false otherwise

Implements [Components](#).

#### 4.19.3.7 setDeferredSprite()

```
void Sprite::setDeferredSprite (
    std::function< void()> setter )
```

[setDeferredSprite\(std::function<void\(\)>\)](#): Set the deferred sprite.

##### Parameters

<i>setter</i>	Function that will set the sprite.
---------------	------------------------------------

**Returns**

void

**4.19.3.8 setSprite() [1/2]**

```
void Sprite::setSprite (
    const sf::Sprite & sprite )
```

setSprite(sf::Sprite&): Set the SFML [Sprite](#) with an existing one for rendering.

**Parameters**

<i>sprite</i>	SFML <a href="#">Sprite</a> for rendering
---------------	---

**Returns**

void

**4.19.3.9 setSprite() [2/2]**

```
void Sprite::setSprite (
    std::map< std::string, std::shared_ptr< sf::Texture >> mapTexture,
    const std::string & nameTexture,
    bool animate = false,
    const std::vector< Rect< int >> & newFrames = std::vector<Rect<int>>(),
    int durationOfFrame = 100 )
```

Sets the sprite of the component.

This function sets the sprite of the component using the provided texture map and texture name. Optionally, it can enable animation by providing a vector of frames and the duration of each frame.

**Parameters**

<i>mapTexture</i>	A map of texture names and their corresponding shared pointers to sf::Texture objects.
<i>nameTexture</i>	The name of the texture to set as the sprite.
<i>animate</i>	Flag indicating whether to enable animation or not. Default is false.
<i>newFrames</i>	A vector of frames to use for animation. Default is an empty vector.
<i>durationOfFrame</i>	The duration of each frame in milliseconds. Default is 100 milliseconds.

**Returns**

void

#### 4.19.3.10 setTransform()

```
void Sprite::setTransform (
    Transform & newTransform )
```

[setTransform\(Transform&\)](#): Set the reference of the [Transform](#) component.

##### Parameters

<i>newTransform</i>	Reference of <a href="#">Transform</a> .
---------------------	--

##### Returns

void

#### 4.19.3.11 update()

```
void Sprite::update (
    sf::Time deltaTime ) [override], [virtual]
```

[update\(sf::Time\)](#): Update the component [Music](#)

##### Parameters

<i>timeDelta</i>	sf::Time of the game.
------------------	-----------------------

##### Returns

void

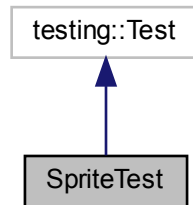
Implements [Components](#).

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

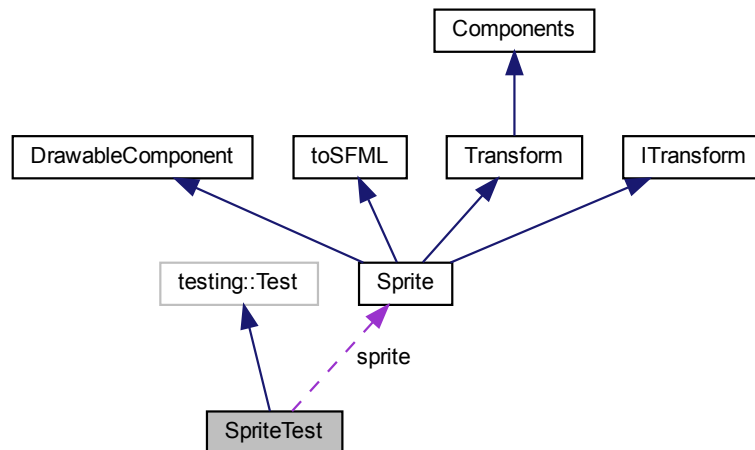
- src/Components/all\_components/include/Sprite.h
- src/Components/all\_components/Sprite.cpp

## 4.20 SpriteTest Class Reference

Inheritance diagram for SpriteTest:



Collaboration diagram for SpriteTest:



### Protected Attributes

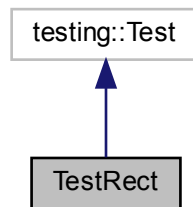
- [Sprite](#) `sprite`

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

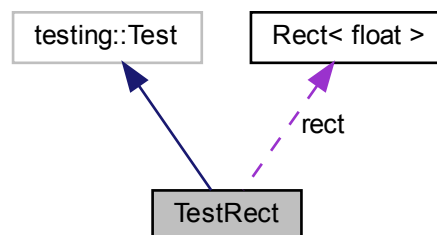
- `tests/Components/all_components/TestSprite.cpp`

## 4.21 TestRect Class Reference

Inheritance diagram for TestRect:



Collaboration diagram for TestRect:



### Protected Attributes

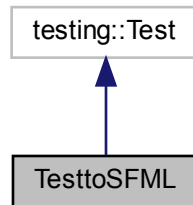
- `Rect< float > rect = Rect<float>(0, 0, 0, 0)`

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

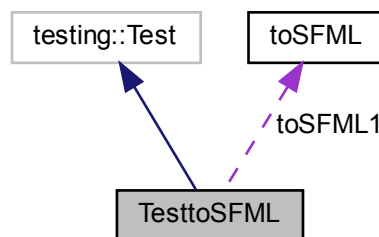
- tests/Other/TestRect.cpp

## 4.22 TesttoSFML Class Reference

Inheritance diagram for TesttoSFML:



Collaboration diagram for TesttoSFML:



### Protected Attributes

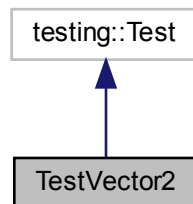
- `toSFML toSFML1 = toSFML()`

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

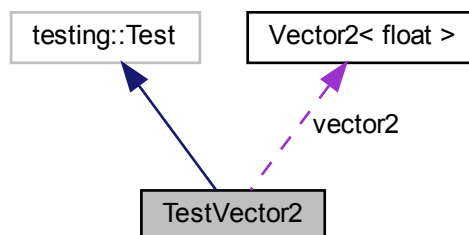
- `tests/toSFML/TesttoSFML.cpp`

## 4.23 TestVector2 Class Reference

Inheritance diagram for TestVector2:



Collaboration diagram for TestVector2:



### Protected Attributes

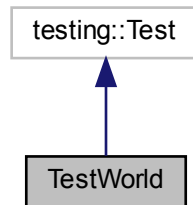
- `Vector2< float > vector2 = Vector2<float>(0, 0)`

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

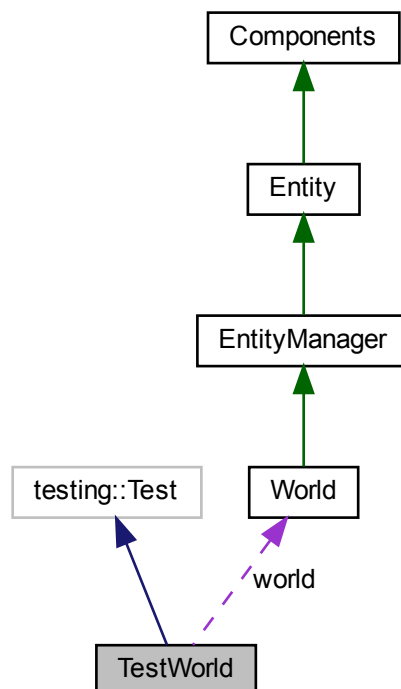
- tests/Other/TestVector2.cpp

## 4.24 TestWorld Class Reference

Inheritance diagram for TestWorld:



Collaboration diagram for TestWorld:



### Protected Attributes

- [World](#) world

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

- tests/World/TestWorld.cpp

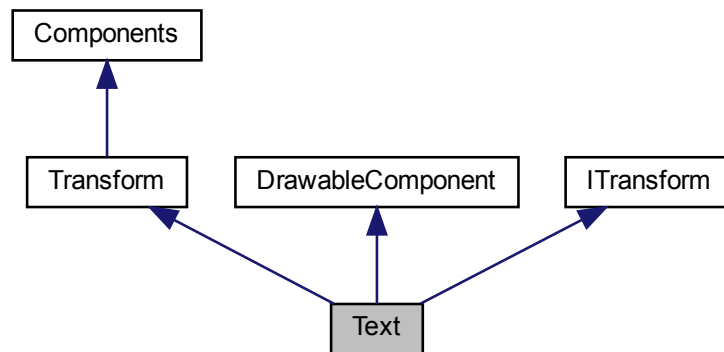


## 4.25 Text Class Reference

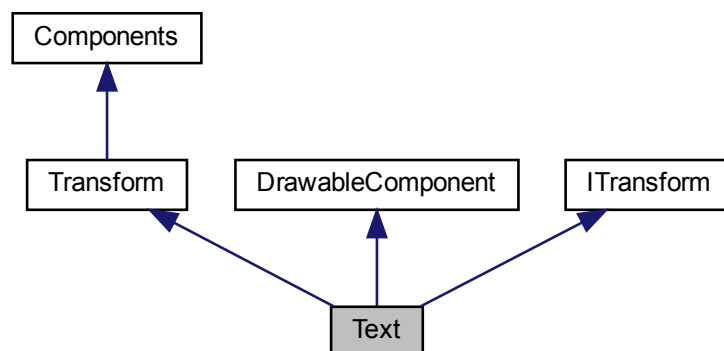
**Text** class: **Text** is a class that represents the text in the world.

```
#include <Text.h>
```

Inheritance diagram for Text:



Collaboration diagram for Text:



### Public Member Functions

- **Text** ()  
    *< Bit of the **Text**.*
- **~Text** () override=default  
    *Default override **Text** destructor.*

- int `getBit ()` override  
*`getBit()`: Get the bit of the `Text`.*
- void `draw (sf::RenderWindow &window)` const override  
*`draw()`: Draw the `Text`.*
- void `update (sf::Time deltaTime)` override  
*`update(sf::Time)`: Update the component `Text`*
- bool `init ()` override  
*`init()`: Initialize the component.*
- void `setText (std::map< std::string, std::shared_ptr< sf::Font >> mapFont, const std::string &nameFont, const std::string &newStringText, int sizeText, Color fillColor)`  
*Sets the text of the component.*
- void `setText (std::map< std::string, std::shared_ptr< sf::Font >> mapFont, const std::string &nameFont, const std::string &newStringText, int sizeText, Color fillColor, Color outlineColor)`  
*Sets the text of the component.*
- void `setFont (std::map< std::string, std::shared_ptr< sf::Font >> mapFont, const std::string &nameFont)`  
*`setFont(std::map<std::string, std::shared_ptr<sf::Font>>, const std::string&)`: Set the font of `Text`.*
- void `setString (const std::string &newStringText)`  
*`setString(const std::string&)`: Set the string of `Text`.*
- void `setSize (int sizeText)`  
*`setSize(int)`: Set the size of `Text`.*
- void `setOutlineColor (Color outlineColor)`  
*`setOutlineColor(Color)`: Set the outline color of `Text`.*
- void `setFillColor (Color fillColor)`  
*`setFillColor(Color)`: Set the fill color of `Text`.*
- sf::Text `getText ()` const  
*`getText()`: Get the `Text`.*
- sf::Font `getFont ()` const  
*`getFont()`: Get the `Font`.*
- std::string `getStringText ()` const  
*`getStringText()`: Get the string.*
- int `getSize ()` const  
*`getSize()`: Get the size.*
- Color `getColorFill ()` const  
*`getColorFill()`: Get the fill color.*
- Color `getColorOutline ()` const  
*`getColorOutline()`: Get the outline color.*
- Transform \* `getTransform ()` override  
*`getTransform()`: Get the reference to the component `Transform`.*
- void `setTransform (Transform &newTransform)`  
*`setTransform(Transform&)`: Set the reference of the `Transform` component.*
- void `setDeferredText (std::function< void()> setter)`  
*`setDeferredText(std::function<void()>)`: Set the deferred text.*
- void `applyDeferredText ()`  
*`applyDeferredText()`: Apply the deferred text.*

### 4.25.1 Detailed Description

`Text` class: `Text` is a class that represents the text in the world.

The text class manages the text from an `Entity` using SFML.

## 4.25.2 Constructor & Destructor Documentation

### 4.25.2.1 Text()

```
Text::Text ( ) [inline]
```

< Bit of the [Text](#).

Default [Text](#) constructor.

#### Parameters

<i>void</i>	
-------------	--

#### Returns

void

### 4.25.2.2 ~Text()

```
Text::~Text ( ) [override], [default]
```

Default override [Text](#) destructor.

#### Parameters

<i>void</i>	
-------------	--

#### Returns

void

## 4.25.3 Member Function Documentation

### 4.25.3.1 applyDeferredText()

```
void Text::applyDeferredText ( )
```

[applyDeferredText\(\)](#): Apply the deferred text.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

void

**4.25.3.2 draw()**

```
void Text::draw (
    sf::RenderWindow & window ) const [override], [virtual]
```

[draw\(\)](#): Draw the [Text](#).

**Parameters**

<i>window</i>	SFML <a href="#">RenderWindow</a> where the <a href="#">Text</a> will be drawn.
---------------	---

**Returns**

void

Implements [DrawableComponent](#).

**4.25.3.3 getBit()**

```
int Text::getBit ( ) [override], [virtual]
```

[getBit\(\)](#): Get the bit of the [Text](#).

**Parameters**

<i>void</i>	
-------------	--

**Returns**

int: The bit of the [Text](#).

Implements [Components](#).

#### 4.25.3.4 getColorFill()

```
Color Text::getColorFill ( ) const
```

[getColorFill\(\)](#): Get the fill color.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

[Color](#): Fill color of the text.

#### 4.25.3.5 getColorOutline()

```
Color Text::getColorOutline ( ) const
```

[getColorOutline\(\)](#): Get the outline color.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

[Color](#): Outline color of the text.

#### 4.25.3.6 getFont()

```
sf::Font Text::getFont ( ) const
```

[getFont\(\)](#): Get the Font.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

[sf::Font](#): Font of the [Text](#).

#### 4.25.3.7 getSize()

```
int Text::getSize ( ) const
```

[getSize\(\)](#): Get the size.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

int: int number that represents size of the text.

#### 4.25.3.8 getStringText()

```
std::string Text::getStringText ( ) const
```

[getStringText\(\)](#): Get the string.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

std::string: String of the text.

#### 4.25.3.9 getText()

```
sf::Text Text::getText ( ) const
```

[getText\(\)](#): Get the [Text](#).

##### Parameters

<i>void</i>	
-------------	--

##### Returns

sf::Text: [Text](#) for draw.

#### 4.25.3.10 getTransform()

```
Transform * Text::getTransform ( ) [override], [virtual]
```

[getTransform\(\)](#): Get the reference to the component [Transform](#).

##### Parameters

<i>void</i>	
-------------	--

##### Returns

Transform\*: Reference of [Transform](#)

Implements [ITransform](#).

#### 4.25.3.11 init()

```
bool Text::init ( ) [override], [virtual]
```

[init\(\)](#): Initialize the component.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

bool: true if the component is initialized, false otherwise

Implements [Components](#).

#### 4.25.3.12 setDeferredText()

```
void Text::setDeferredText (
    std::function< void()> setter )
```

[setDeferredText\(std::function<void\(\)>\)](#): Set the deferred text.

##### Parameters

<i>setter</i>	Function that will set the text.
---------------	----------------------------------

**Returns**

void

**4.25.3.13 setFillColor()**

```
void Text::setFillColor (
    Color fillColor )
```

[setFillColor\(Color\)](#): Set the fill color of [Text](#).

**Parameters**

<i>fillColor</i>	<a href="#">Color</a> for the text.
------------------	-------------------------------------

**Returns**

void

**4.25.3.14 setFont()**

```
void Text::setFont (
    std::map< std::string, std::shared_ptr< sf::Font >> mapFont,
    const std::string & nameFont )
```

[setFont\(std::map<std::string, std::shared\\_ptr<sf::Font>>, const std::string&\)](#): Set the font of [Text](#).

**Parameters**

<i>mapFont</i>	Map of all the font loaded.
<i>nameFont</i>	Name of the font loaded.

**Returns**

void

**4.25.3.15 setOutlineColor()**

```
void Text::setOutlineColor (
    Color outlineColor )
```

[setOutlineColor\(Color\)](#): Set the outline color of [Text](#).



## Parameters

<i>outlineColor</i>	Color for the border of the text.
---------------------	-----------------------------------

## Returns

void

**4.25.3.16 setSize()**

```
void Text::setSize (
    int sizeText )
```

**setSize(int)**: Set the size of [Text](#).

## Parameters

<i>sizeText</i>	Size of the text.
-----------------	-------------------

## Returns

void

**4.25.3.17 setString()**

```
void Text::setString (
    const std::string & newStringText )
```

**setString(const std::string&)**: Set the string of [Text](#).

## Parameters

<i>newStringText</i>	String text for draw.
----------------------	-----------------------

## Returns

void

**4.25.3.18 setText()** [1/2]

```
void Text::setText (
    std::map< std::string, std::shared_ptr< sf::Font >> mapFont,
```

```

const std::string & nameFont,
const std::string & newStringText,
int sizeText,
Color fillColor )

```

Sets the text of the component.

This function sets the [Text](#) of the component using the provided font map, the font name, a string for set the [Text](#), the size for the size of character and fill color for color the text.

#### Parameters

<i>mapFont</i>	Map of all the font loaded.
<i>nameFont</i>	Name of the font loaded.
<i>newStringText</i>	String text for draw.
<i>sizeText</i>	Size of the text.
<i>fillColor</i>	<a href="#">Color</a> for the text.

#### Returns

void

#### 4.25.3.19 setText() [2/2]

```

void Text::setText (
    std::map< std::string, std::shared_ptr< sf::Font >> mapFont,
    const std::string & nameFont,
    const std::string & newStringText,
    int sizeText,
    Color fillColor,
    Color outlineColor )

```

Sets the text of the component.

This function sets the [Text](#) of the component using the provided font map, the font name, a string for set the [Text](#), the size for the size of character, fill color for color the text and outline color for the border of the text.

#### Parameters

<i>mapFont</i>	Map of all the font loaded.
<i>nameFont</i>	Name of the font loaded.
<i>newStringText</i>	String text for draw.
<i>sizeText</i>	Size of the text.
<i>fillColor</i>	<a href="#">Color</a> for the text.
<i>outlineColor</i>	<a href="#">Color</a> for the border of the text.

#### Returns

void

#### 4.25.3.20 setTransform()

```
void Text::setTransform (
    Transform & newTransform )
```

[setTransform\(Transform&\)](#): Set the reference of the [Transform](#) component.

##### Parameters

<i>newTransform</i>	Reference of <a href="#">Transform</a> .
---------------------	--

##### Returns

void

#### 4.25.3.21 update()

```
void Text::update (
    sf::Time deltaTime ) [override], [virtual]
```

[update\(sf::Time\)](#): Update the component [Text](#)

##### Parameters

<i>timeDelta</i>	sf::Time of the game.
------------------	-----------------------

##### Returns

void

Implements [Components](#).

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

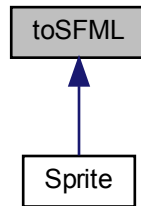
- src/Components/all\_components/include/Text.h
- src/Components/all\_components/Text.cpp

## 4.26 toSFML Class Reference

[toSFML](#) class: [toSFML](#) is a class that convert some class into SFML class.

```
#include <toSFML.h>
```

Inheritance diagram for toSFML:



## Public Member Functions

- [toSFML](#) ()=default  
*Default [toSFML](#) constructor.*
- [~toSFML](#) ()=default  
*[toSFML](#) destructor.*
- template<typename T >  
sf::Rect< T > [toSFMLRect](#) (Rect< T > rect)  
*[toSFMLRect\(\)](#): Convert your Rect<T> into sf::Rect<T>.*

### 4.26.1 Detailed Description

[toSFML](#) class: [toSFML](#) is a class that convert some class into SFML class.

Convert some class in SFML class.

### 4.26.2 Constructor & Destructor Documentation

#### 4.26.2.1 toSFML()

```
toSFML::toSFML ( ) [default]
```

Default [toSFML](#) constructor.

Parameters

void	
------	--

**Returns**

void

**4.26.2.2 ~toSFML()**

```
toSFML::~~toSFML ( ) [default]
```

[toSFML](#) destructor.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

void

**4.26.3 Member Function Documentation****4.26.3.1 toSFMLRect()**

```
template<typename T >
template sf::Rect< float > toSFML::toSFMLRect (
    Rect< T > rect )
```

[toSFMLRect\(\)](#): Convert your Rect<T> into sf::Rect<T>.

**Template Parameters**

<i>T</i>	Type of the rect.
----------	-------------------

**Parameters**

<i>rect</i>	The rect you want to convert.
-------------	-------------------------------

**Returns**

sf::Rect<T>: SFML rect.

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

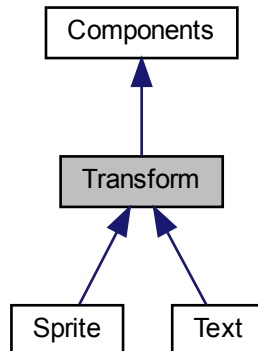
- src/toSFML/include/toSFML.h
- src/toSFML/toSFML.cpp

## 4.27 Transform Class Reference

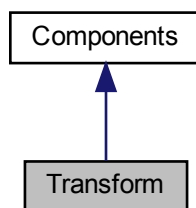
**Transform** class: **Transform** is a class that represents the transform of a Component.

```
#include <Transform.h>
```

Inheritance diagram for Transform:



Collaboration diagram for Transform:



### Public Member Functions

- **Transform** ()  
*Default Transform constructor.*
- bool **init** () override  
*init(): Initialize the component*
- **~Transform** () override=default  
*Transform destructor.*
- void **update** (sf::Time deltaTime) override

- *update(sf::Time): Update the component [Music](#)*
- int [getBit](#) () override
  - [getBit\(\)](#): Get the bitmask of the component*
- [Vector2](#)< float > [getPosition](#) () const
  - [getPositionVector\(\)](#): Get the position vector of the component;*
- float [getRotation](#) () const
  - [getRotationVector\(\)](#): Get the rotation vector of the component;*
- [Vector2](#)< float > [getScale](#) () const
  - [getScaleVector\(\)](#): Get the scale vector of the component;*
- TransformStruct [getTransform](#) () const
  - [getTransform\(\)](#): Get the the transform of the component;*
- void [setTransform](#) ([Vector2](#)< float > newPosition, float newRotation, [Vector2](#)< float > newScale)
  - [setTransform\(\)](#): Set the transform of the component;*
- void [setPosition](#) ([Vector2](#)< float > newPosition)
  - [setPosition\(\)](#): Set the transform position of the component;*
- void [setRotation](#) (float newRotation)
  - [setRotation\(\)](#): Set the transform rotation of the component;*
- void [setScale](#) ([Vector2](#)< float > newScale)
  - [setScale\(\)](#): Set the transform scale of the component;*
- void [setDeferredTransform](#) (const std::function< void()> &setter)
  - [setDeferredTransform\(\)](#): Set the deferred transform.*
- void [applyDeferredTransform](#) ()
  - [applyDeferredTransform\(\)](#): Apply the deferred transform.*

### 4.27.1 Detailed Description

[Transform](#) class: [Transform](#) is a class that represents the transform of a Component.

The [Transform](#) class manages the position, rotation and scale of a Component.

### 4.27.2 Constructor & Destructor Documentation

#### 4.27.2.1 Transform()

```
Transform::Transform ( ) [inline]
```

Default [Transform](#) constructor.

Parameters

<i>void</i>	
-------------	--

Returns

void

#### 4.27.2.2 ~Transform()

```
Transform::~Transform ( ) [override], [default]
```

[Transform](#) destructor.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

### 4.27.3 Member Function Documentation

#### 4.27.3.1 applyDeferredTransform()

```
void Transform::applyDeferredTransform ( )
```

[applyDeferredTransform\(\)](#): Apply the deferred transform.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

#### 4.27.3.2 getBit()

```
int Transform::getBit ( ) [override], [virtual]
```

[getBit\(\)](#): Get the bitmask of the component

##### Parameters

<i>void</i>	
-------------	--

##### Returns

int: bitmask of the component



Implements [Components](#).

#### 4.27.3.3 getPosition()

```
Vector2< float > Transform::getPosition ( ) const
```

getPositionVector(): Get the position vector of the component;

##### Parameters

<i>void</i>	
-------------	--

##### Returns

std::vector<float>: position vector of the component

#### 4.27.3.4 getRotation()

```
float Transform::getRotation ( ) const
```

getRotationVector(): Get the rotation vector of the component;

##### Parameters

<i>void</i>	
-------------	--

##### Returns

std::vector<float>: rotation vector of the component

#### 4.27.3.5 getScale()

```
Vector2< float > Transform::getScale ( ) const
```

getScaleVector(): Get the scale vector of the component;

##### Parameters

<i>void</i>	
-------------	--

**Returns**

std::vector<float>: scale vector of the component

**4.27.3.6 getTransform()**

```
Transform::TransformStruct Transform::getTransform ( ) const
```

[getTransform\(\)](#): Get the the transform of the component;

**Parameters**

<i>void</i>	
-------------	--

**Returns**

TransformStruct: struct of the [Transform](#).

**4.27.3.7 init()**

```
bool Transform::init ( ) [override], [virtual]
```

[init\(\)](#): Initialize the component

**Parameters**

<i>void</i>	
-------------	--

**Returns**

bool: true if the component is initialized, false otherwise

Implements [Components](#).

**4.27.3.8 setDeferredTransform()**

```
void Transform::setDeferredTransform (
    const std::function< void()> & setter )
```

[setDeferredTransform\(\)](#): Set the deferred transform.

## Parameters

<i>setter</i>	Function that will set the transform.
---------------	---------------------------------------

## Returns

void

**4.27.3.9 setPosition()**

```
void Transform::setPosition (
    Vector2< float > newPosition )
```

[setPosition\(\)](#): Set the transform position of the component;

## Parameters

<i>newPosition</i>	: the new <a href="#">Vector2&lt;float&gt;</a> position.
--------------------	--

## Returns

void

**4.27.3.10 setRotation()**

```
void Transform::setRotation (
    float newRotation )
```

[setRotation\(\)](#): Set the transform rotation of the component;

## Parameters

<i>newRotation</i>	: the new float rotation.
--------------------	---------------------------

## Returns

void

**4.27.3.11 setScale()**

```
void Transform::setScale (
    Vector2< float > newScale )
```

[setScale\(\)](#): Set the transform scale of the component;

## Parameters

<i>newScale</i>	: the new <a href="#">Vector2&lt;float&gt;</a> scale.
-----------------	---

## Returns

void

**4.27.3.12 setTransform()**

```
void Transform::setTransform (
    Vector2< float > newPosition,
    float newRotation,
    Vector2< float > newScale )
```

[setTransform\(\)](#): Set the transform of the component;

## Parameters

<i>newPosition</i>	: the new <a href="#">Vector2&lt;float&gt;</a> position.
<i>newRotation</i>	: the new float rotation.
<i>newScale</i>	: the new <a href="#">Vector2&lt;float&gt;</a> scale.

## Returns

void

**4.27.3.13 update()**

```
void Transform::update (
    sf::Time deltaTime ) [override], [virtual]
```

[update\(sf::Time\)](#): Update the component [Music](#)

## Parameters

<i>timeDelta</i>	sf::Time of the game.
------------------	-----------------------

## Returns

void

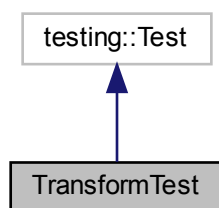
Implements [Components](#).

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

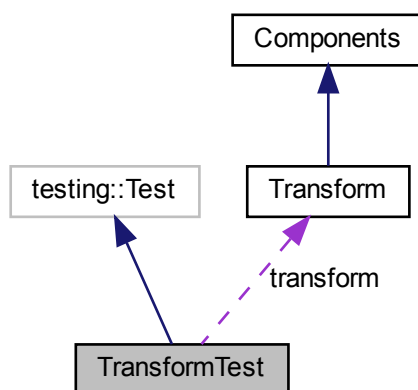
- src/Components/all\_components/include/Transform.h
- src/Components/all\_components/Transform.cpp

## 4.28 TransformTest Class Reference

Inheritance diagram for TransformTest:



Collaboration diagram for TransformTest:



### Protected Member Functions

- void **SetUp** () override
- void **TearDown** () override

## Protected Attributes

- [Transform](#) transform

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

- tests/Components/all\_components/TestTransform.cpp

## 4.29 Vector2< T > Class Template Reference

Vector class: Vector is a class that represents a vector in 2 dimensions.

```
#include <Vector2.h>
```

### Public Member Functions

- [Vector2](#) ()  
*< Variable for using the value of the Vector2Struct.*
- [Vector2](#) (T x, T y)  
*Vector2 constructor with parameters.*
- [~Vector2](#) ()=default  
*Vector2 destructor.*
- Vector2Struct [getVector2Struct](#) () const  
*getVector2Struct(): Get the using Vector2Struct.*
- T [getX](#) () const  
*getX(): Get x of Vector2Struct.*
- T [getY](#) () const  
*getY(): Get y of Vector2Struct.*
- void [setX](#) (T newX)  
*setX(): Set x of Vector2Struct.*
- void [setY](#) (T newY)  
*setY(): Set y of Vector2Struct.*

### 4.29.1 Detailed Description

```
template<typename T>
class Vector2< T >
```

Vector class: Vector is a class that represents a vector in 2 dimensions.

This create a vector with 2 value.

### 4.29.2 Constructor & Destructor Documentation

#### 4.29.2.1 Vector2() [1/2]

```
template<typename T >
Vector2< T >::Vector2 ( ) [inline]
```

< Variable for using the value of the Vector2Struct.

[Vector2](#) constructor with parameters.

**Template Parameters**

<i>T</i>	Type of the vector.
----------	---------------------

**Parameters**

<i>x</i>	Position x.
<i>y</i>	Position y.

**Returns**

void

**4.29.2.2 Vector2() [2/2]**

```
template<typename T >
Vector2< T >::Vector2 (
    T x,
    T y ) [inline]
```

[Vector2](#) constructor with parameters.

**Template Parameters**

<i>T</i>	Type of the vector.
----------	---------------------

**Parameters**

<i>x</i>	Position x.
<i>y</i>	Position y.

**Returns**

void

**4.29.2.3 ~Vector2()**

```
template<typename T >
Vector2< T >::~~Vector2 ( ) [default]
```

[Vector2](#) destructor.



## Template Parameters

<i>T</i>	Type of the vector.
----------	---------------------

## Parameters

<i>void</i>	
-------------	--

## Returns

*void*

### 4.29.3 Member Function Documentation

#### 4.29.3.1 `getVector2Struct()`

```
template<typename T >
template Vector2< int >::Vector2Struct Vector2< T >::getVector2Struct ( ) const
```

`getVector2Struct()`: Get the using Vector2Struct.

## Parameters

<i>void</i>	
-------------	--

## Returns

Vector2Struct

#### 4.29.3.2 `getX()`

```
template<typename T >
template int Vector2< T >::getX ( ) const
```

`getX()`: Get x of Vector2Struct.

## Template Parameters

--	--

#### 4.29.3.3 getY()

```
template<typename T >
template int Vector2< T >::getY ( ) const
```

[getY\(\)](#): Get y of Vector2Struct.

##### Template Parameters

--	--

#### 4.29.3.4 setX()

```
template<typename T >
template void Vector2< T >::setX (
    T newX )
```

[setX\(\)](#): Set x of Vector2Struct.

##### Template Parameters

<i>T</i>	Type of the <a href="#">Vector2</a>
----------	-------------------------------------

##### Parameters

<i>newX</i>	The new value of x.
-------------	---------------------

##### Returns

void

#### 4.29.3.5 setY()

```
template<typename T >
template void Vector2< T >::setY (
    T newY )
```

[setY\(\)](#): Set y of Vector2Struct.

##### Template Parameters

<i>T</i>	Type of the <a href="#">Vector2</a>
----------	-------------------------------------

## Parameters

<i>newY</i>	The new value of y.
-------------	---------------------

## Returns

void

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

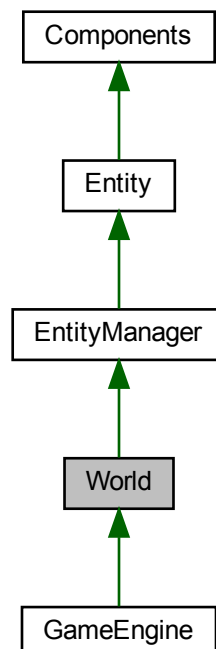
- src/Other/include/Vector2.h
- src/Other/Vector2.cpp

## 4.30 World Class Reference

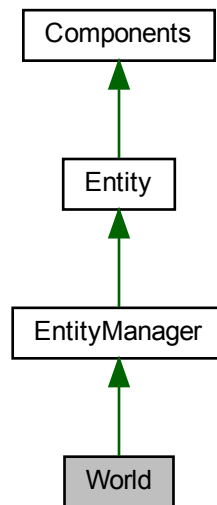
[World](#) class: [World](#) is a class that represents the world of the game.

```
#include <world.h>
```

Inheritance diagram for World:



Collaboration diagram for World:



## Public Member Functions

- `World ()`=default  
*Default `World` constructor.*
- `~World ()` override=default  
*`World` destructor.*
- `bool init ()` override  
*`init()`: Initialize the world.*
- `void createEntities (std::map< std::string, std::pair< std::unique_ptr< EntityManager >, std::vector< std::string >>> &mapEntityManager)`  
*`createEntities()`: Create the entities.*
- `EntityManager & addEntityManager (const std::string &NameEntityManager)`  
*`addEntityManager()`: Add an entity manager to the map.*
- `EntityManager & getEntityManager (const std::string &NameEntityManager)`  
*`getEntityManager()`: Get the entity manager.*
- `void setNameWorld (std::string newName)`  
*`setNameWorld()`: Set the name of the world.*
- `std::string getNameWorld ()` const  
*`getNameWorld()`: Get the name of the world.*
- `std::map< std::string, EntityManager * > getEntityManagerMap ()` const  
*`getEntityManagerMap()`: Get the map of the entity manager.*
- `std::map< std::string, EntityManager * > getEntitiesManager ()` const  
*`getEntitiesManager()`: Get the entities*

## Additional Inherited Members

### 4.30.1 Detailed Description

[World](#) class: [World](#) is a class that represents the world of the game.

The [World](#) class manages the world of the game.

### 4.30.2 Constructor & Destructor Documentation

#### 4.30.2.1 World()

```
World::World ( ) [default]
```

Default [World](#) constructor.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

#### 4.30.2.2 ~World()

```
World::~World ( ) [override], [default]
```

[World](#) destructor.

##### Parameters

<i>void</i>	
-------------	--

##### Returns

void

### 4.30.3 Member Function Documentation

#### 4.30.3.1 addEntityManager()

```
EntityManager & World::addEntityManager (
    const std::string & NameEntityManager )
```

[addEntityManager\(\)](#): Add an entity manager to the map.

##### Parameters

<i>NameEntityManager</i>	Name of the entity manager.
--------------------------	-----------------------------

##### Returns

[EntityManager&](#): The entity manager.

#### 4.30.3.2 createEntities()

```
void World::createEntities (
    std::map< std::string, std::pair< std::unique_ptr< EntityManager >, std::vector<
std::string >>> & mapEntityManager )
```

[createEntities\(\)](#): Create the entities.

##### Parameters

<i>mapEntityManager</i>	Map of the entities manager's unique pointers.
<i>keyEntityManager</i>	Key of the entities manager.

##### Returns

void

#### 4.30.3.3 getEntitiesManager()

```
std::map< std::string, EntityManager * > World::getEntitiesManager ( ) const
```

[getEntitiesManager\(\)](#): Get the entities

##### Parameters

<i>void</i>	
-------------	--

**Returns**

`std::map<std::string, EntityManager*>`: Get the entities.

**4.30.3.4 getEntityManager()**

```
EntityManager & World::getEntityManager (
    const std::string & NameEntityManager )
```

`getEntityManager()`: Get the entity manager.

**Parameters**

<code>NameEntityManager</code>	Name of the entity manager.
--------------------------------	-----------------------------

**Returns**

`EntityManager&`: The entity manager.

**4.30.3.5 getEntityManagerMap()**

```
std::map< std::string, EntityManager * > World::getEntityManagerMap ( ) const
```

`getEntityManagerMap()`: Get the map of the entity manager.

**Parameters**

<code>void</code>	
-------------------	--

**Returns**

`std::map<std::string, EntityManager*>`: The map of the entity manager.

**4.30.3.6 getNameWorld()**

```
std::string World::getNameWorld ( ) const
```

`getNameWorld()`: Get the name of the world.

**Parameters**

<code>void</code>	
-------------------	--

**Returns**

std::string: The name of the world.

**4.30.3.7 init()**

```
bool World::init ( ) [override], [virtual]
```

[init\(\)](#): Initialize the world.

**Parameters**

<i>void</i>	
-------------	--

**Returns**

bool: True if the world is initialized, false otherwise.

Reimplemented from [EntityManager](#).

**4.30.3.8 setNameWorld()**

```
void World::setNameWorld (
    std::string newName )
```

[setNameWorld\(\)](#): Set the name of the world.

**Parameters**

<i>newName</i>	New name of the world.
----------------	------------------------

**Returns**

void

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

- src/World/include/world.h
- src/World/world.cpp



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