# R-Type - Engine

Generated by Doxygen 1.9.1

# 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:

# Chapter 3

# Class Index

## 3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

# Class Documentation

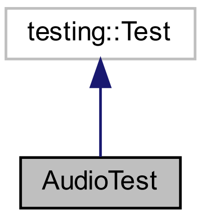
## 4.1 Archetypes Class Reference

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

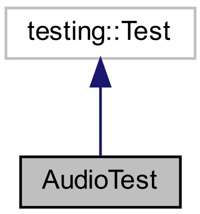
- src/Archetype/include/Archetypes.h

## 4.2 AudioTest Class Reference

Inheritance diagram for AudioTest:



Collaboration diagram for AudioTest:



### Protected Member Functions

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

### Protected Attributes

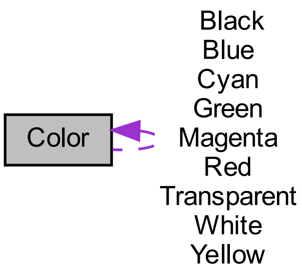
- Audio **audio**

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

- tests/Components/all_components/TestAudio.cpp

## 4.3 Color Class Reference

Collaboration diagram for Color:



### Public Member Functions

- int **getRed** () const
- int **getGreen** () const
- int **getBlue** () const
- int **getAlpha** () const
- void **setRed** (int newRed)
- void **setGreen** (int newGreen)
- void **setBlue** (int newBlue)
- void **setAlpha** (int newAlpha)
- **operator sf::Color** () const

### Static Public Member Functions

- static Color **fromSFMLColor** (const sf::Color &sfColor)

### 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)

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

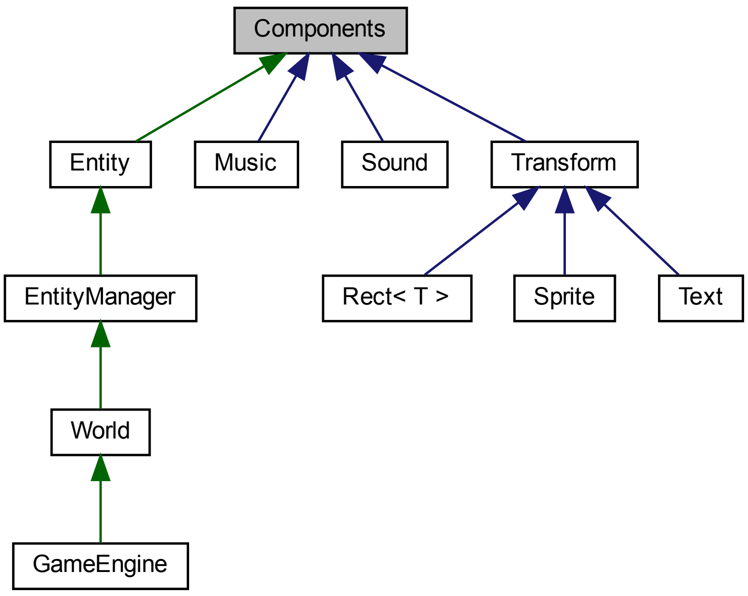
- src/Other/include/Color.h
- src/Other/Color.cpp

## 4.4 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 ()

  *init(): Initialize the component*
- virtual void **update** (sf::Time timeDelta)=0

### 4.4.1 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.

### 4.4.2 Constructor & Destructor Documentation

#### 4.4.2.1 Components()

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

Default Components constructor.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

void

#### 4.4.2.2 ∼Components()

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

Components destructor.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

void

### 4.4.3 Member Function Documentation

#### 4.4.3.1 init()

```
virtual bool Components::init ( ) [inline], [virtual]
```

init(): Initialize the component

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

bool: true if the component is initialized, false otherwise

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

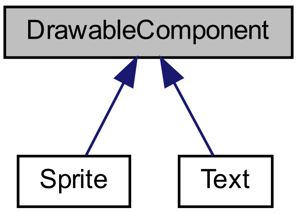
- src/Components/include/Components.h

## 4.5 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*

### 4.5.1 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.

### 4.5.2 Constructor & Destructor Documentation

#### 4.5.2.1 ~DrawableComponent()

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

Default DrawableComponent constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.5.3 Member Function Documentation

#### 4.5.3.1 draw()

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

draw(): Draw the component

**Parameters**

| | |
|---|---|
| *window* | Window to draw the component on |

**Returns**

void

Implemented in Text, and Sprite.

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

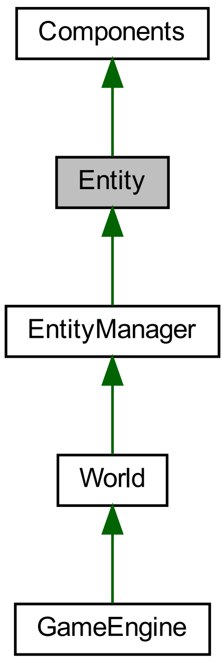
- src/Components/include/DrawableComponent.h

## 4.6 Entity Class Reference

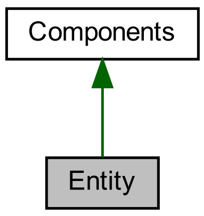
Entity class: Entity is a class that represents an entity in the game.

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

Inheritance diagram for Entity:



Collaboration diagram for Entity:



## Public Member Functions

- Entity ()=default

    *Default Entity constructor.*
- Entity (std::string nameEntity, Archetypes newArchetype=Archetypes())

    *Entity constructor.*
- ∼Entity () override=default

    *Entity destructor.*
- bool initEntity ()

    *init(): Initialize the entity*
- std::string getName () const

    *genName(): Get the name of the entity*
- void **update** (sf::Time deltaTime) override
- void setName (std::string newName)

    *setName(): Set the name of the entity*
- void addDrawable (Components ∗component)

    *addDrawable(): Add 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 >
  T & getComponent ()

    *getComponent(): Get a component from the entity*
- template<typename T >
  std::size_t getComponentTypeID () noexcept

    *getComponentTypeID(): Get the ID of a component*
- std::bitset< 6 > getComponentBitset () const

    *getComponentBitset(): Get the bitset of the components*
- std::vector< DrawableComponent ∗ > getDrawableComponents () const

    *getDrawableComponents(): Get the drawable components of the entity*
- std::array< Components ∗, 6 > getComponentArrays () const

    *getComponentArrays(): Get the array of components*

## Additional Inherited Members

## 4.6.1 Detailed Description

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

The Entity class manages components associated with the entity.

## 4.6.2 Constructor & Destructor Documentation

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

```
Entity::Entity ( )  [default]
```

Default Entity constructor.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

void

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

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

Entity constructor.

**Parameters**

|  |  |
|---|---|
| *nameEntity* | name of the entity |
| *newArchetype* | archetype of the entity (optional, default = new archetype) |

**Returns**

void

#### 4.6.2.3 ∼Entity()

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

Entity destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.6.3 Member Function Documentation

#### 4.6.3.1 addComponent()

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

addComponent(): Add a component to the entity

**Template Parameters**

| | |
|---|---|
| *T* | Type of the component |
| *TArgs* | Variadic template for component constructor arguments. |

**Parameters**

| | |
|---|---|
| *args* | arguments of the component |

**Returns**

T&: reference of the component

#### 4.6.3.2 addDrawable()

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

addDrawable(): Add a drawable component to the entity

**Parameters**

| | |
|---|---|
| *component* | component to add |

**Returns**

void

#### 4.6.3.3 drawEntity()

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

drawEntity(): Draw the entities

**Parameters**

| | |
|---|---|
| *window* | window where the entities are drawn |

**Returns**

void

#### 4.6.3.4 getComponent()

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

getComponent(): Get a component from the entity

**Template Parameters**

| | |
|---|---|
| *T* | Type of the component |

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

T&: reference of the component

#### 4.6.3.5 getComponentArrays()

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

getComponentArrays(): Get the array of components

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::array<Components∗, 6>: array of components

#### 4.6.3.6 getComponentBitset()

```
std::bitset<6> Entity::getComponentBitset ( ) const  [inline]
```

getComponentBitset(): Get the bitset of the components

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

#### 4.6.3.7 getComponentTypeID()

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

getComponentTypeID(): Get the ID of a component

**Template Parameters**

| | |
|---|---|
| *T* | Type of the component |

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::size_t: ID of the component

### 4.6.3.8 getDrawableComponents()

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

getDrawableComponents(): Get the drawable components of the entity

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

### 4.6.3.9 getName()

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

genName(): Get the name of the entity

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::string: name of the entity

### 4.6.3.10 initEntity()

```
bool Entity::initEntity ( )
```

init(): Initialize the entity

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

bool: true if the entity is initialized, false otherwise

### 4.6.3.11 setName()

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

setName(): Set the name of the entity

**Parameters**

|  |  |
|---|---|
| *newName* | new name of the entity |

**Returns**

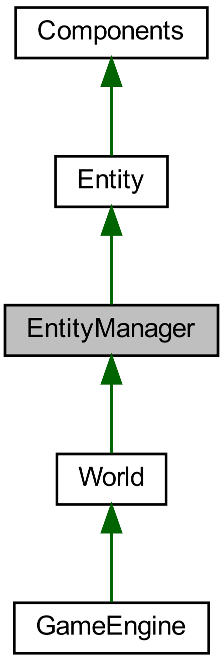
void

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

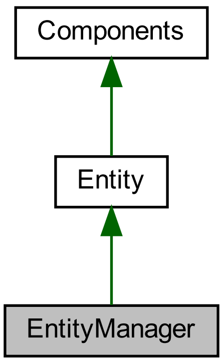
- src/Entity/include/entity.h
- src/Entity/entity.cpp

## 4.7 EntityManager Class Reference

Inheritance diagram for EntityManager:



Collaboration diagram for EntityManager:



## Public Member Functions

- EntityManager ()=default

  *Default EntityManager constructor.*
- ∼EntityManager ()=default

  *EntityManager destructor.*
- Entity & addEntity (std::string nameEntity, Archetypes newArchetype=Archetypes())

  *addEntity(): Create and add a new entity to the entity manager.*
- Entity & getEntity (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.*
- bool initEntityManager ()

  *initEntityManager(): Initialize the EntityManager.*

## Additional Inherited Members

## 4.7.1 Constructor & Destructor Documentation

### 4.7.1.1 EntityManager()

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

Default EntityManager constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.7.1.2 ∼EntityManager()

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

EntityManager destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.7.2 Member Function Documentation

#### 4.7.2.1 addEntity()

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

addEntity(): Create and add a new entity to the entity manager.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the entity. |
| *TArgs* | Type of the arguments. |

**Parameters**

| | |
|---|---|
| *args* | Arguments of the entity. |

#### 4.7.2.2 getEntities()

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

getEntities(): Get the EntityManager's entities.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

#### 4.7.2.3 getEntity()

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

getEntity(): Get an entity from the entity manager by its name.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the entity. |

**Parameters**

| | |
|---|---|
| *nameEntity* | Name of the entity. |

**Returns**

T&: Reference of the entity.

### 4.7.2.4 getEntityMap()

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

getEntityMap(): Get the EntityManager's entity map.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

Entity::EntityMap: Entity map.

### 4.7.2.5 initEntityManager()

```
bool EntityManager::initEntityManager ( )  [inline]
```

initEntityManager(): Initialize the EntityManager.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

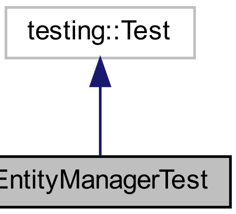
bool: true if the EntityManager is initialized, false otherwise.

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

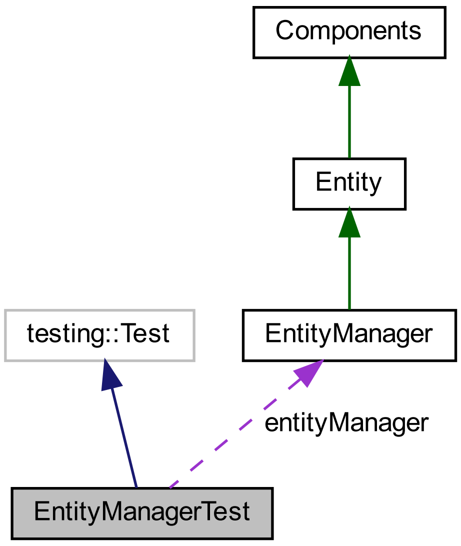
- src/Entity/include/entityManager.h
- src/Entity/entityManager.cpp

## 4.8 EntityManagerTest Class Reference

Inheritance diagram for EntityManagerTest:



Collaboration diagram for EntityManagerTest:



### Protected Member Functions

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

### Protected Attributes

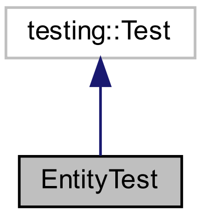
- EntityManager **entityManager** {}

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

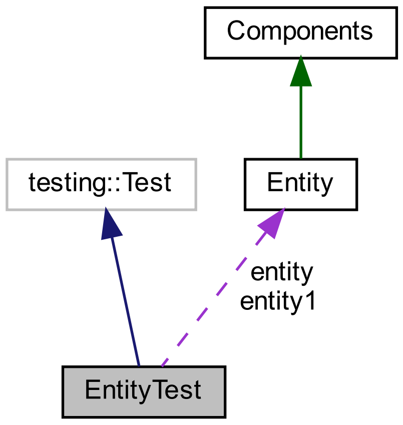
- tests/Entity/TestEntityManager.cpp

## 4.9 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:

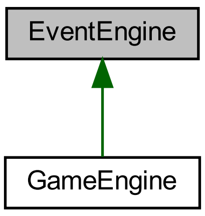
- tests/Entity/TestEntity.cpp

## 4.10 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.*
- bool init () const

  *init(): Initialize the EventEngine.*
- sf::Event & getEvent ()

  *getEvent(): Get the SFML Event.*
- void addKeyPressed (sf::Keyboard::Key keyboard, std::function< void()> function)

  *addKeyPressed(): Add a key pressed to the map.*
- void addMouseButtonPressed (sf::Mouse::Button mouse, std::function< void()> function)

  *addMouseButtonPressed(): Add a mouse button pressed to the map.*
- void addMouseMoved (std::string nameEntity, 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.*

### 4.10.1 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.

## 4.10.2 Constructor & Destructor Documentation

### 4.10.2.1 EventEngine()

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

Default EventEngine constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.10.2.2 ∼EventEngine()

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

EventEngine destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

## 4.10.3 Member Function Documentation

### 4.10.3.1 addKeyPressed()

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

addKeyPressed(): Add a key pressed to the map.

**Parameters**

| | |
|---|---|
| *keyboard* | SFML Keyboard::Key of the key pressed. |
| *function* | Function to execute when the key is pressed. |

**Returns**

void

### 4.10.3.2 addMouseButtonPressed()

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

addMouseButtonPressed(): Add a mouse button pressed to the map.

**Parameters**

| | |
|---|---|
| *mouse* | SFML Mouse::Button of the mouse button pressed. |
| *function* | Function to execute when the mouse button is pressed. |

**Returns**

void

### 4.10.3.3 addMouseMoved()

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

addMouseMoved(): Add a mouse moved to the map.

**Parameters**

| | |
|---|---|
| *nameEntity* | : Name of the Entity you want. |
| *function* | Function to execute when the mouse moved on entity. |

**Returns**

void

#### 4.10.3.4 getEvent()

```
sf::Event& EventEngine::getEvent ( )  [inline]
```

getEvent(): Get the SFML Event.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

sf::Event: The SFML Event.

#### 4.10.3.5 getKeyPressedMap()

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

getKeyPressedMap(): Get the map of the key pressed.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

#### 4.10.3.6 getMouseButtonPressedMap()

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

getMouseButtonPressedMap(): Get the map of the mouse button pressed.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

#### 4.10.3.7 getMouseMovedMap()

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

getMouseMovedPressedMap(): Get the map of the key pressed.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

#### 4.10.3.8 init()

```
bool EventEngine::init ( ) const [inline]
```

init(): Initialize the EventEngine.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

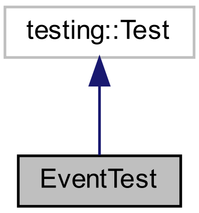
bool: True if the EventEngine is initialized, false otherwise.

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

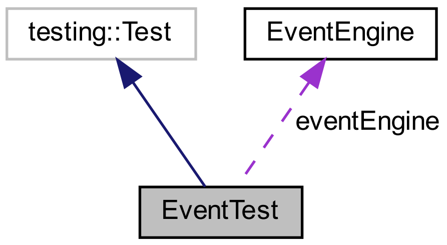
- src/Event/include/eventEngine.h
- src/Event/eventEngine.cpp

## 4.11 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:

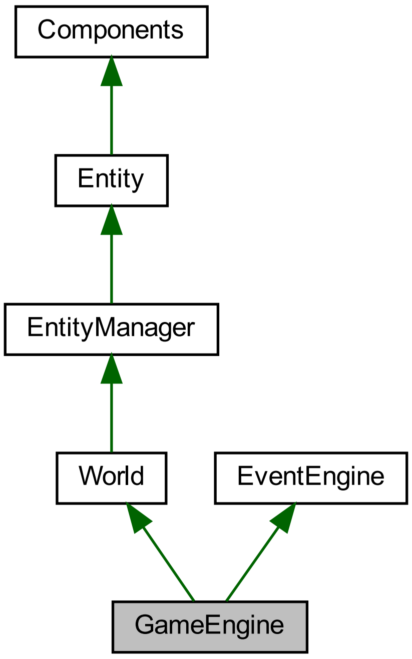
- tests/Event/TestEvent.cpp

## 4.12 GameEngine Class Reference

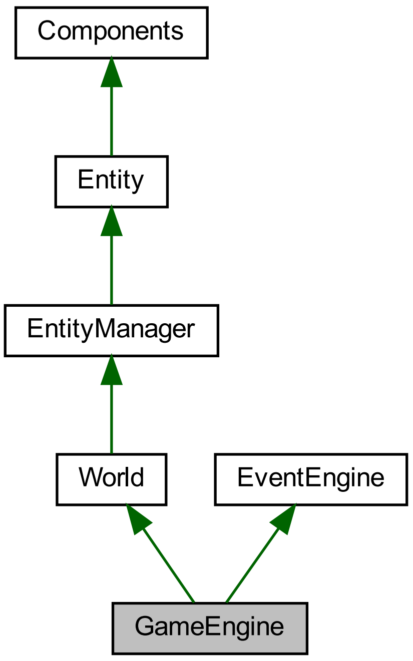
GameEngine class: GameEngine is a class that represents the game engine.

```
#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, std::string type, sf::String title, sf::Uint32 style=sf::Style::Default, const sf::ContextSettings &settings=sf::ContextSettings())

  *GameEngine constructor with parameters.*
- ∼GameEngine ()=default

  *GameEngine destructor.*
- void run (std::map< std::string, std::unique_ptr< World >> mapWorld, std::map< std::string, std::string > pathRessources, std::string firstScene)

  *run(): Run the game engine (with parameters).*
- void run ()

  *run(): Run the game engine (without parameters).*
- void renderGameEngine ()

  *renderGameEngine(): Render the game engine.*
- void eventGameEngine ()

  *eventGameEngine(): Manage the events of the game engine.*
- bool isWindowOpen ()

  *isWindowOpen(): Check if the window is open.*
- void updateGameEngine ()

  *updateGameEngine(): Update the game engine.*
- std::vector< std::string > getFilesRessources (std::string pathDirectory)

*getFilesRessources(): Get all the ressources type files in the given directory.*

- void initialize (std::map< std::string, std::unique_ptr< World >> mapWorld, std::map< std::string, std::string > pathRessources, std::string firstScene)

  *initialize(): Initialize the game engine.*
- void initializeSpriteFunction ()

  *initializeSpriteFunction(): Initialize the sprites function.*
- void initializeSoundFunction ()

  *initializeSoundFunction(): Initialize the sound function.*
- void initializeMusicFunction ()

  *initializeMusicFunction(): Initialize the music function.*
- void **initializeTextFunction** ()
- void initializeAllFiles (std::map< std::string, std::string > pathRessources)

  *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)
- void initializeWorldMap (std::map< std::string, std::unique_ptr< World >> mapWorld)

  *initializeWorldMap(): Initialize the world map.*
- const auto & getWindow ()

  *getWindow(): Get the window.*
- void setWindow ()

  *setWindow(): Set the window.*
- EventEngine & getEventEngine ()

  *getEventEngine(): Get the event engine.*
- void setCurrentWorld (World ∗world)

  *setCurrentWorld(): Set GameEngine's current world.*
- World ∗ getCurrentWorld ()

  *getCurrentWorld(): Get GameEngine's current world.*
- World & addWorld (std::string nameWorld, std::unique_ptr< World > world)

  *addWorld(): Add a world to the world map.*
- World & getWorld (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
- std::map< std::string, std::shared_ptr< sf::Font > > **getMapFont** () const

## Additional Inherited Members

### 4.12.1 Detailed Description

GameEngine class: GameEngine is a class that represents the game engine.

The GameEngine class manages the game engine.

## 4.12.2 Constructor & Destructor Documentation

### 4.12.2.1 GameEngine() [1/2]

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

< Time of the game. Using with the Clock.

Default GameEngine constructor.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

void

### 4.12.2.2 GameEngine() [2/2]

```
GameEngine::GameEngine (
             sf::VideoMode mode,
             std::string type,
             sf::String title,
             sf::Uint32 style = sf::Style::Default,
             const sf::ContextSettings & settings = sf::ContextSettings() )  [explicit]
```

GameEngine constructor with parameters.

**Parameters**

|  |  |
|---|---|
| *mode* | Video mode. |
| *type* | Type of the graphics ("2D" or "3D"). |
| *title* | Title of the window. |
| *style* | Style of the window (sf::Style::Default by default). |
| *settings* | Settings of the window. |

**Returns**

void

#### 4.12.2.3 ∼GameEngine()

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

GameEngine destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.12.3 Member Function Documentation

#### 4.12.3.1 addWorld()

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

addWorld(): Add a world to the world map.

**Parameters**

| | |
|---|---|
| *nameWorld* | Name of the world. |
| *world* | World to add. |

**Returns**

World&: The world.

#### 4.12.3.2 eventGameEngine()

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

eventGameEngine(): Manage the events of the game engine.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.12.3.3 getCurrentWorld()

```
World* GameEngine::getCurrentWorld ( ) [inline]
```

getCurrentWorld(): Get GameEngine's current world.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

World∗: GameEngine's current world.

#### 4.12.3.4 getEventEngine()

```
EventEngine& GameEngine::getEventEngine ( ) [inline]
```

getEventEngine(): Get the event engine.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

EventEngine&: GameEngine's EventEngine.

#### 4.12.3.5 getFilesRessources()

```
std::vector< std::string > GameEngine::getFilesRessources (
            std::string pathDirectory )
```

getFilesRessources(): Get all the ressources type files in the given directory.

**Parameters**

| | |
|---|---|
| *pathDirectory* | Path of the directory. |

**Returns**

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

#### 4.12.3.6 getMapMusic()

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

getMapMusic(): Get GameEngine's map of the music.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::map<std::string, std::shared_ptr<sf::Music>>: GameEngine's map of the musics.

#### 4.12.3.7 getMapTexture()

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

getMapTexture(): Get GameEngine's map of the textures.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::map<std::string, std::shared_ptr<sf::Texture>>: GameEngine's map of the textures.

#### 4.12.3.8 getWindow()

```
const auto& GameEngine::getWindow ( )  [inline]
```

getWindow(): Get the window.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::variant<std::unique_ptr<sf::Window>, std::unique_ptr<sf::RenderWindow>>: The GameEngine's window

### 4.12.3.9 getWorld()

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

getWorld(): Get a world from the world map with its name.

**Parameters**

| | |
|---|---|
| *nameWorld* | Name of the world. |

**Returns**

World&: GameEngine's world.

### 4.12.3.10 getWorldMap()

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

getWorldMap(): Get GameEngine's map of the worlds.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::map<std::string, World∗>: GameEngine's map of the worlds.

### 4.12.3.11 initialize()

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

initialize(): Initialize the game engine.

**Parameters**

| | |
|---|---|
| *mapWorld* | Map of World classes' unique pointers. |
| *pathRessources* | Map of the path of the ressources (assets). |
| *firstScene* | Name of the first scene. |

**Returns**

void

### 4.12.3.12 initializeAllFiles()

```
void GameEngine::initializeAllFiles (
             std::map< std::string, std::string > pathRessources )
```

initializeAllFiles(): Initialize all the ressources files the engine need.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.12.3.13 initializeMusic()

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

initializeMusic(): Initialize the music with their path.

**Parameters**

| | |
|---|---|
| *path* | Path of the texture. |

**Returns**

void

#### 4.12.3.14 initializeMusicFunction()

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

initializeMusicFunction(): Initialize the music function.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.12.3.15 initializeSound()

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

initializeSound(): Initialize the sound with their path.

**Parameters**

| | |
|---|---|
| *path* | Path of the texture. |

**Returns**

void

#### 4.12.3.16 initializeSoundFunction()

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

initializeSoundFunction(): Initialize the sound function.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.12.3.17 initializeSpriteFunction()

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

initializeSpriteFunction(): Initialize the sprites function.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.12.3.18 initializeTexture()

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

initializeTexture(): Initialize the textures with their path.

**Parameters**

| | |
|---|---|
| *path* | Path of the texture. |

**Returns**

void

#### 4.12.3.19 initializeWorldMap()

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

initializeWorldMap(): Initialize the world map.

**Parameters**

| | |
|---|---|
| *mapWorld* | Map of World classes' unique pointers. |

**Returns**

void

### 4.12.3.20 isWindowOpen()

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

isWindowOpen(): Check if the window is open.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

### 4.12.3.21 renderGameEngine()

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

renderGameEngine(): Render the game engine.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.12.3.22 run() [1/2]

```
void GameEngine::run ( )
```

run(): Run the game engine (without parameters).

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.12.3.23 run() [2/2]

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

run(): Run the game engine (with parameters).

**Parameters**

| | |
|---|---|
| *mapWorld* | Map of World classes' unique pointers. |
| *pathRessources* | Map of the path of the ressources (assets). |
| *firstScene* | Name of the first scene. |

**Returns**

void

### 4.12.3.24 setCurrentWorld()

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

setCurrentWorld(): Set GameEngine's current world.

**Parameters**

| | |
|---|---|
| *world* | World to set. |

**Returns**

void

### 4.12.3.25 setWindow()

```
void GameEngine::setWindow ( )
```

setWindow(): Set the window.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.12.3.26 updateGameEngine()

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

updateGameEngine(): Update the game engine.

**Parameters**

| *void* |  |
|---|---|

**Returns**

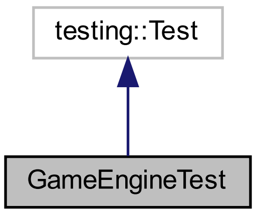
void

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

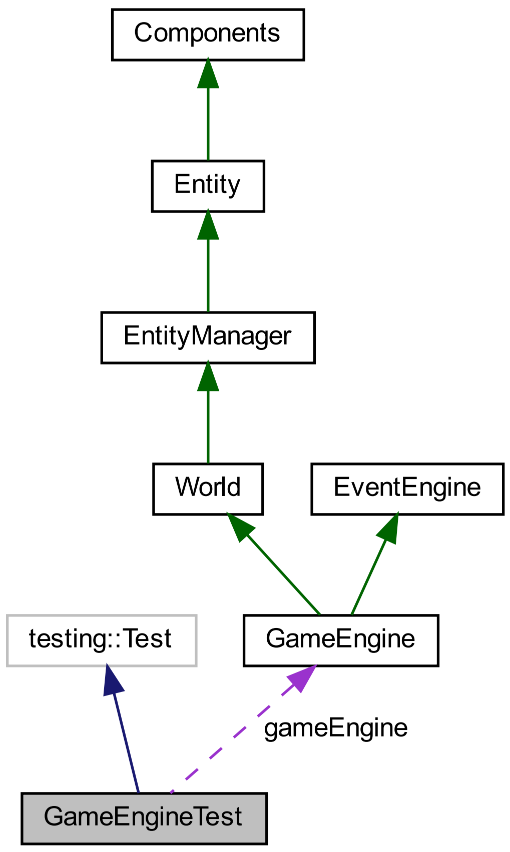
- src/GameEngine/include/gameEngine.h
- src/GameEngine/gameEngine.cpp

## 4.13 GameEngineTest Class Reference

Inheritance diagram for GameEngineTest:



Collaboration diagram for GameEngineTest:



## Protected Member Functions

- void **TearDown** () override

## Protected Attributes

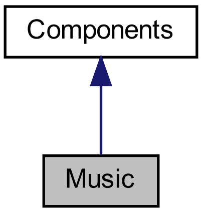
- GameEngine ∗ **gameEngine**

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

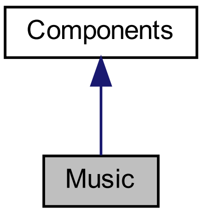
- tests/GameEngine/TestGameEngine.cpp

## 4.14 Music Class Reference

Inheritance diagram for Music:



Collaboration diagram for Music:



### Public Member Functions

- void **setMusic** (std::map< std::string, std::shared_ptr< sf::Music >> mapMusic, std::string nameMusic)
- void **setDeferredMusic** (std::function< void()> setter)
- void **applyDeferredMusic** ()
- std::shared_ptr< sf::Music > **getMusic** () const
- void **play** ()
- void **play** (int seconds)
- void **stop** ()
- int **getBit** () const

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

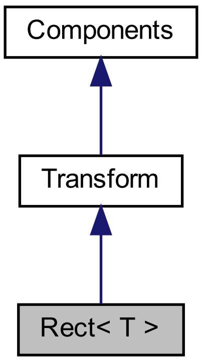
- src/Components/all_components/include/Music.h
- src/Components/all_components/Music.cpp

## 4.15 Rect< T > Class Template Reference

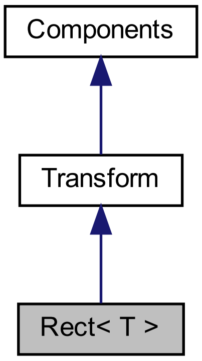
Rect class: Rect is a class that represents a rectangle.

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

Inheritance diagram for Rect< T >:



Collaboration diagram for Rect< T >:



### 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**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *left* | Position x. |
| *top* | Position y. |

**Parameters**

| | |
|---|---|
| *width* | Width of your rectangle. |
| *height* | Height of your rectangle. |

**Returns**

void

#### 4.15.2.2 ∼Rect()

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

Rect destructor.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *void* | |

**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**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *x* | : Position x of the point. |
| *y* | : Position y of the point. |

**Returns**

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

### 4.15.3.2 getHeight()

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

getHeight(): Get the using RectStruct height.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

### 4.15.3.3 getLeft()

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

getLeft(): Get the using RectStruct left.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *void* | |

**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**

| | |
|---|---|
| *void* | |

**Returns**

Rect

### 4.15.3.5 getTop()

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

getTop(): Get the using RectStruct top.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

### 4.15.3.6 getWidth()

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

getWidth(): Get the using RectStruct width.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *void* | |

**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:

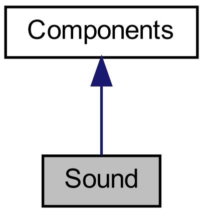
- src/Script/include/Script.h

## 4.17 Sound Class Reference

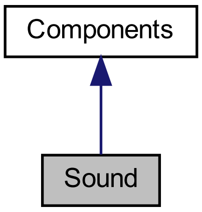
Sound class: Sound is a class that represents the audio properties of a Component.

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

Inheritance diagram for Sound:



Collaboration diagram for Sound:



## Public Member Functions

- Sound ()=default

  *Default Sound constructor.*
- Sound (const sf::SoundBuffer &buffer)

  *Sound constructor with an existing sound buffer. Automatically set the sound.*
- ∼Sound () override=default

  *Sound destructor.*
- bool loadSoundBuffer (const std::string &filePath)

  *loadSoundBuffer(): Load the sound buffer from a file. Automatically set the component sound. /!\ Only supports .wav, .ogg and FLAC files.*
- bool setSoundBuffer (const sf::SoundBuffer &buffer)

  *setSoundBuffer(): Set the sound buffer with an existing one. Automatically set the component sound.*
- const sf::SoundBuffer & getSoundBuffer () const

  *getSoundBuffer(): Get the current sound buffer.*
- bool setSound (const sf::Sound &sound)

  *setSound(): 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, std::string name←Sound)
- void **setDeferredSound** (std::function< void()> setter)
- void **applyDeferredSound** ()
- const sf::Sound & getSound () const

  *getSound(): Get the current sound.*
- void play ()

  *play(): Play the audio.*
- void pause ()

  *pause(): Pause the audio.*
- void stop ()

  *stop(): Stop the audio.*
- void setLoop (bool loop)

  *setLoop(): Set whether the audio should loop or not.*
- void setVolume (float volume)

  *setVolume(): Set the volume of the audio.*
- float getVolume () const

  *getVolume(): Get the current volume level.*
- bool isPlaying () const

  *isPlaying(): Check if the audio is currently playing.*
- int **getBit** () const

### 4.17.1 Detailed Description

Sound class: Sound is a class that represents the audio properties of a Component.

The Sound class manages the audio representation of a Component using SFML.

### 4.17.2 Constructor & Destructor Documentation

#### 4.17.2.1 Sound() [1/2]

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

Default Sound constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.17.2.2 Sound() [2/2]

```
Sound::Sound (
             const sf::SoundBuffer & buffer )  [explicit]
```

Sound constructor with an existing sound buffer. Automatically set the sound.

**Parameters**

| | |
|---|---|
| *buffer* | SFML SoundBuffer for audio. |

**Returns**

void

#### 4.17.2.3 ∼Sound()

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

Sound destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

## 4.17.3 Member Function Documentation

### 4.17.3.1 getSound()

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

getSound(): Get the current sound.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

sf::Sound: SFML Sound for audio.

### 4.17.3.2 getSoundBuffer()

```
const sf::SoundBuffer & Sound::getSoundBuffer ( ) const
```

getSoundBuffer(): Get the current sound buffer.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

sf::SoundBuffer: SFML SoundBuffer for audio.

### 4.17.3.3 getVolume()

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

getVolume(): Get the current volume level.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

float: Volume level (0 to 100).

#### 4.17.3.4 isPlaying()

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

isPlaying(): Check if the audio is currently playing.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

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

#### 4.17.3.5 loadSoundBuffer()

```
bool Sound::loadSoundBuffer (
             const std::string & filePath )
```

loadSoundBuffer(): Load the sound buffer from a file. Automatically set the component sound. /!\ Only supports .wav, .ogg and FLAC files.

**Parameters**

| | |
|---|---|
| *filePath* | Path to the audio file. |

**Returns**

bool: True if the sound buffer has been loaded, false otherwise.

#### 4.17.3.6 pause()

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

pause(): Pause the audio.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.17.3.7 play()

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

play(): Play the audio.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.17.3.8 setLoop()

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

setLoop(): Set whether the audio should loop or not.

**Parameters**

| | |
|---|---|
| *loop* | True to enable looping, false to disable. |

**Returns**

void

#### 4.17.3.9 setSound()

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

setSound(): Set the sound with an existing one. Automatically set the component sound buffer.

**Parameters**

| | |
|---|---|
| *sound* | SFML Sound for audio. |

**Returns**

bool: True if the sound has been set, false otherwise.

#### 4.17.3.10 setSoundBuffer()

```
bool Sound::setSoundBuffer (
            const sf::SoundBuffer & buffer )
```

setSoundBuffer(): Set the sound buffer with an existing one. Automatically set the component sound.

**Parameters**

| | |
|---|---|
| *buffer* | SFML SoundBuffer for audio. |

**Returns**

bool: True if the sound buffer has been set, false otherwise.

#### 4.17.3.11 setVolume()

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

setVolume(): Set the volume of the audio.

**Parameters**

| | |
|---|---|
| *volume* | Volume level (0 to 100). |

**Returns**

void

#### 4.17.3.12 stop()

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

stop(): Stop the audio.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

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

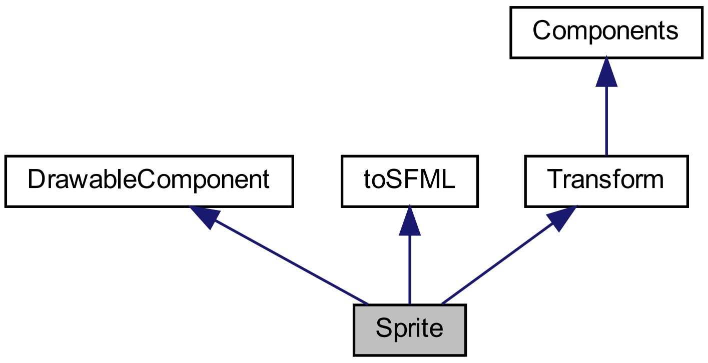
- src/Components/all_components/include/Sound.h
- src/Components/all_components/Sound.cpp

## 4.18 Sprite Class Reference

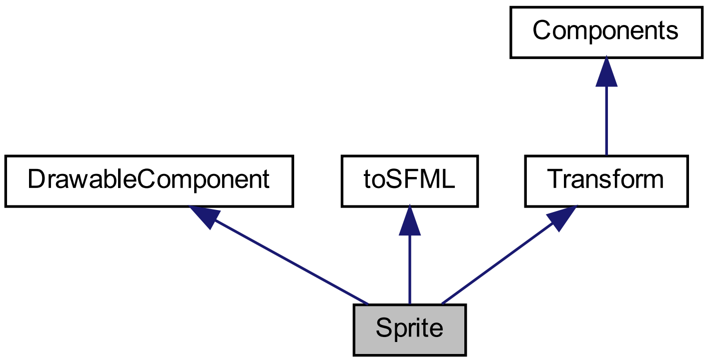
Sprite class: Sprite is a class that represents the rendering properties of a Component.

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

Inheritance diagram for Sprite:



Collaboration diagram for Sprite:



## Public Member Functions

- Sprite ()

  *< Doing the animation.*
- Sprite (const std::string &texturePath)

  *Sprite constructor with an existing texture path.*
- ∼Sprite () override=default

  *Sprite destructor.*
- Transform ∗ **getTransform** () const
- void **setTransform** (Transform &newTransform)
- bool initSprite () const

  *init(): Initialize the Sprite.*
- int getBit () const

  *getBit(): Get the bit of the Sprite.*
- void draw (sf::RenderWindow &window) const override

  *draw(): Draw the Sprite.*
- void **update** (sf::Time deltaTime) override
- void createSprite (const std::string &texturePath)

  *createSprite(): Create the SFML Sprite with a texture path for rendering.*
- void createSprite (const sf::Texture &existingTexture)

  *createSprite(): Create the SFML Sprite with an existing texture for rendering.*
- void createSprite ()

  *createSprite(): Create the SFML Sprite with the component's texture for rendering.*
- sf::Sprite getSprite () const

  *getSprite(): Get the SFML Sprite for rendering.*
- sf::Texture getTexture () const

  *getTexture(): Get the SFML Texture for the sprite.*
- bool isTextureLoaded () const

  *isTextureLoaded(): Check if the texture is loaded.*
- void setSprite (const sf::Sprite &sprite)

  *setSprite(): Set the SFML Sprite with an existing one for rendering.*

- void setSprite (std::map< std::string, std::shared_ptr< sf::Texture >> mapTexture, std::string nameTexture, bool animate=false, std::vector< Rect< int >> newFrames=std::vector< Rect< int >>(), int durationOf↩ Frame=100)

  *setSprite(): Set the SFML Sprite with a map of string and textures, a texture name and a map of string and vector of floats.*
- void setTransformSprite (Vector2< float > newPosition, float newRotation, Vector2< float > newScale)

  *setTransformSprite(): Set the sprite transform with new value and set the value on the Transform component.*
- void setTransformSprite ()

  *setTransformSprite(): Set the transform of the sprite based on the Transform component value.*
- void setPosition (Vector2< float > newPosition)

  *setPosition(): Set the position of the sprite with new value.*
- void setPosition ()

  *setPosition(): Set the position of the sprite based on the Transform component value.*
- void setRotation (float newRotation)

  *setRotation(): Set the rotation of the sprite with new value.*
- void setRotation ()

  *setRotation(): Set the rotation of the sprite based on the Transform component value.*
- void setScale (Vector2< float > newScale)

  *setScale(): Set the the scale of the sprite with new value.*
- void setScale ()

  *setScale(): Set the scale of the sprite based on the Transform component value.*
- void setDeferredSprite (std::function< void()> setter)

  *setDeferredSprite(): Set the deferred sprite.*
- void applyDeferredSprite ()

  *applyDeferredSprite(): Apply the deferred sprite.*
- void setTexture (const sf::Texture &existingTexture)

  *setTexture(): Set the texture with an existing one for the sprite.*
- Rect< float > **getBounds** () const

### 4.18.1 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.

### 4.18.2 Constructor & Destructor Documentation

#### 4.18.2.1 Sprite() [1/2]

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

< Doing the animation.

Default Sprite constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.18.2.2 Sprite() [2/2]

```
Sprite::Sprite (
          const std::string & texturePath )  [inline]
```

Sprite constructor with an existing texture path.

**Parameters**

| | |
|---|---|
| *texturePath* | Path to the texture file for the sprite. |

**Returns**

void

#### 4.18.2.3 ∼Sprite()

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

Sprite destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.18.3 Member Function Documentation

#### 4.18.3.1 applyDeferredSprite()

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

applyDeferredSprite(): Apply the deferred sprite.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.18.3.2 createSprite() `[1/3]`

```
void Sprite::createSprite ( )
```

createSprite(): Create the SFML Sprite with the component's texture for rendering.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.18.3.3 createSprite() `[2/3]`

```
void Sprite::createSprite (
             const sf::Texture & existingTexture )
```

createSprite(): Create the SFML Sprite with an existing texture for rendering.

**Parameters**

| | |
|---|---|
| *existingTexture* | SFML Texture for the sprite |

**Returns**

void

#### 4.18.3.4 createSprite() [3/3]

```
void Sprite::createSprite (
             const std::string & texturePath )
```

createSprite(): Create the SFML Sprite with a texture path for rendering.

**Parameters**

| | |
|---|---|
| *texturePath* | Path to the texture file for the sprite. |

**Returns**

void

#### 4.18.3.5 draw()

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

draw(): Draw the Sprite.

**Parameters**

| | |
|---|---|
| *window* | SFML RenderWindow where the Sprite will be drawn. |

**Returns**

void

Implements DrawableComponent.

#### 4.18.3.6 getBit()

```
int Sprite::getBit ( ) const  [inline]
```

getBit(): Get the bit of the Sprite.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

int: The bit of the Sprite.

### 4.18.3.7 getSprite()

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

getSprite(): Get the SFML Sprite for rendering.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

sf::Sprite: SFML Sprite for rendering

### 4.18.3.8 getTexture()

```
sf::Texture Sprite::getTexture ( ) const
```

getTexture(): Get the SFML Texture for the sprite.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

sf::Texture: SFML Texture for the sprite

### 4.18.3.9 initSprite()

```
bool Sprite::initSprite ( ) const  [inline]
```

init(): Initialize the Sprite.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

bool: True if the Sprite is initialized, false otherwise.

#### 4.18.3.10 isTextureLoaded()

```
bool Sprite::isTextureLoaded ( ) const  [inline]
```

isTextureLoaded(): Check if the texture is loaded.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

bool: True if the texture is loaded, false otherwise.

#### 4.18.3.11 setDeferredSprite()

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

setDeferredSprite(): Set the deferred sprite.

**Parameters**

|  |  |
|---|---|
| *setter* | Function that will set the sprite. |

**Returns**

void

#### 4.18.3.12 setPosition() [1/2]

```
void Sprite::setPosition ( )
```

setPosition(): Set the position of the sprite based on the Transform component value.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

void

#### 4.18.3.13 setPosition() [2/2]

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

setPosition(): Set the position of the sprite with new value.

**Parameters**

| | |
|---|---|
| *newPosition* | The new Vector2<float> position. |

**Returns**

void

#### 4.18.3.14 setRotation() [1/2]

```
void Sprite::setRotation ( )
```

setRotation(): Set the rotation of the sprite based on the Transform component value.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.18.3.15 setRotation() [2/2]

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

setRotation(): Set the rotation of the sprite with new value.

**Parameters**

| | |
|---|---|
| *newRotation* | The new float rotation. |

**Returns**

void

### 4.18.3.16 setScale() `[1/2]`

```
void Sprite::setScale ( )
```

setScale(): Set the scale of the sprite based on the Transform component value.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.18.3.17 setScale() `[2/2]`

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

setScale(): Set the the scale of the sprite with new value.

**Parameters**

| | |
|---|---|
| *newScale* | The new Vector2<float> scale. |

**Returns**

void

### 4.18.3.18 setSprite() `[1/2]`

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

setSprite(): Set the SFML Sprite with an existing one for rendering.

**Parameters**

| | |
|---|---|
| *sprite* | SFML Sprite for rendering |

**Returns**

void

### 4.18.3.19 setSprite() [2/2]

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

setSprite(): Set the SFML Sprite with a map of string and textures, a texture name and a map of string and vector of floats.

**Parameters**

| | |
|---|---|
| *mapTexture* | Map of string and textures. |
| *nameTexture* | Name of the texture. |
| *mapTransform* | Map of string and vector of floats. |

**Returns**

void

### 4.18.3.20 setTexture()

```
void Sprite::setTexture (
            const sf::Texture & existingTexture )
```

setTexture(): Set the texture with an existing one for the sprite.

**Parameters**

| | |
|---|---|
| *existingTexture* | SFML Texture for the sprite |

**Returns**

void

### 4.18.3.21 setTransformSprite() [1/2]

```
void Sprite::setTransformSprite ( )
```

setTransformSprite(): Set the transform of the sprite based on the Transform component value.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.18.3.22 setTransformSprite() [2/2]

```
void Sprite::setTransformSprite (
            Vector2< float > newPosition,
            float newRotation,
            Vector2< float > newScale )
```

setTransformSprite(): Set the sprite transform with new value and set the value on the Transform component.

**Parameters**

| | |
|---|---|
| *newPosition* | The new Vector2<float> position. |
| *newRotation* | The new float rotation. |
| *newScale* | The new Vector2<float> scale. |

**Returns**

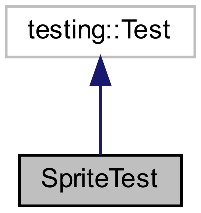
void

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

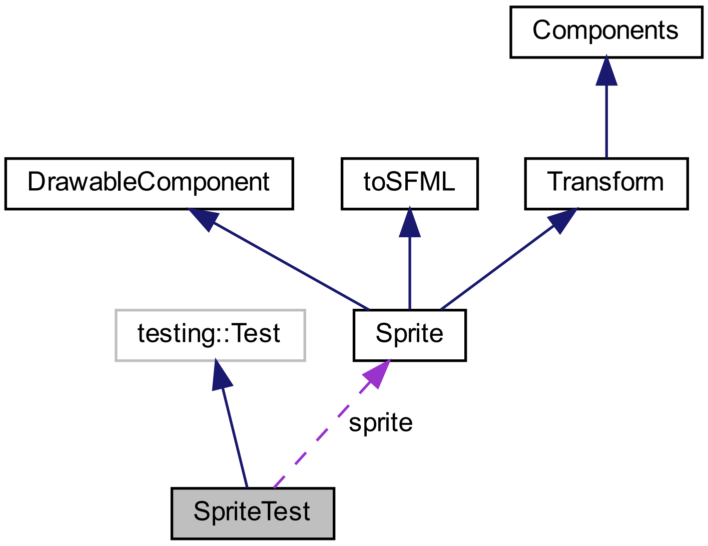
- src/Components/all_components/include/Sprite.h
- src/Components/all_components/Sprite.cpp

## 4.19 SpriteTest Class Reference

Inheritance diagram for SpriteTest:



Collaboration diagram for SpriteTest:



### Protected Attributes

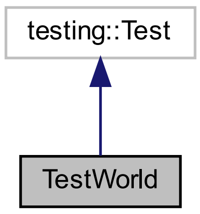
- Sprite **sprite**

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

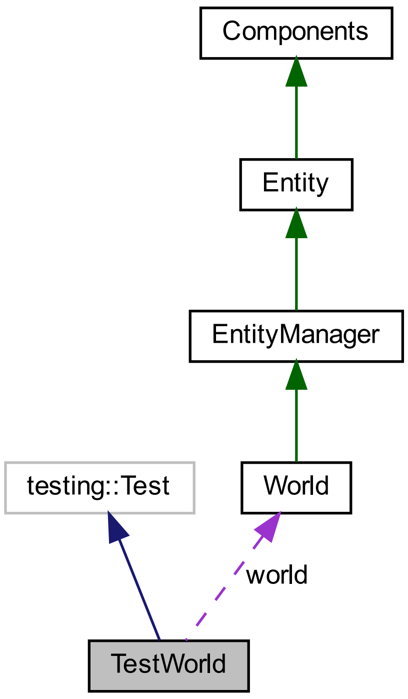
- tests/Components/all_components/TestSprite.cpp

## 4.20 TestWorld Class Reference

Inheritance diagram for TestWorld:



Collaboration diagram for TestWorld:



### Protected Attributes

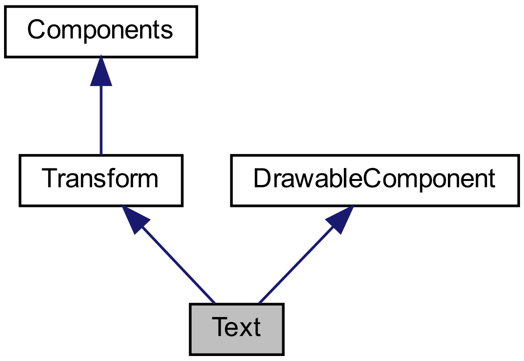
- World **world**

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

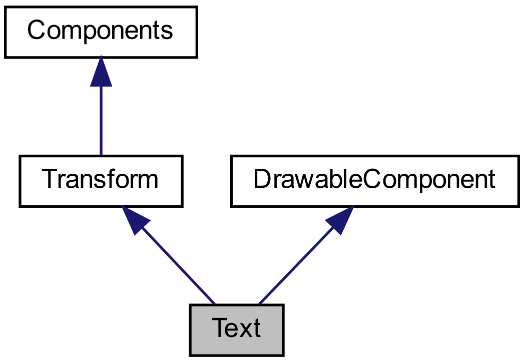
- tests/World/TestWorld.cpp

## 4.21 Text Class Reference

Inheritance diagram for Text:



Collaboration diagram for Text:



### Public Member Functions

- int **getBit** () const
- void draw (sf::RenderWindow &window) const override

  *draw(): Draw the component*
- void **update** (sf::Time deltaTime) override
- void **setText** (std::map< std::string, std::shared_ptr< sf::Font >> mapFont, std::string nameFont, std::string newStringText, int sizeText, Color color)

- void **setText** (std::map< std::string, std::shared_ptr< sf::Font >> mapFont, std::string nameFont, std::string newStringText, int sizeText, Color newColorFill, Color newColorOutline)
- void **setFont** (std::map< std::string, std::shared_ptr< sf::Font >> mapFont, std::string nameFont)
- void **setString** (std::string nameText)
- void **setSize** (int sizeText)
- void **setOutlineColor** (Color color)
- void **setFillColor** (Color color)
- void **setPosition** (Vector2< float > position)
- void **setRotation** (float rotation)
- void **setScale** (Vector2< float > scale)
- sf::Text **getText** () const
- sf::Font **getFont** () const
- std::string **getStringText** () const
- int **getSize** () const
- Color **getColorFill** () const
- Color **getColorOutline** () const
- Transform ∗ **getTransform** () const
- void **setTransform** (Transform &newTransform)
- void **setDeferredText** (std::function< void()> setter)
- void **applyDeferredText** ()

## 4.21.1 Member Function Documentation

### 4.21.1.1 draw()

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

draw(): Draw the component

**Parameters**

| | |
|---|---|
| *window* | Window to draw the component on |

**Returns**

void

Implements DrawableComponent.

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

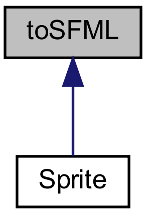
- src/Components/all_components/include/Text.h
- src/Components/all_components/Text.cpp

## 4.22 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>.*

### 4.22.1 Detailed Description

toSFML class: toSFML is a class that convert some class into SFML class.

Convert some class in SFML class.

### 4.22.2 Constructor & Destructor Documentation

#### 4.22.2.1 toSFML()

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

Default toSFML constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.22.2.2 ∼toSFML()

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

toSFML destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.22.3 Member Function Documentation

#### 4.22.3.1 toSFMLRect()

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

toSFMLRect(): Convert your Rect<T> into sf::Rect<T>.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the rect. |

**Parameters**

| | |
|---|---|
| *rect* | The rect you want to convert. |

**Returns**

sf:Rect<T>: SFML rect.

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

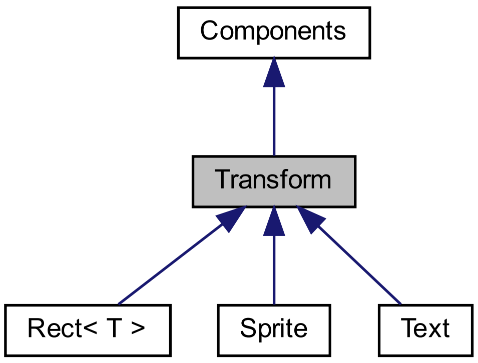
- src/toSFML/include/toSFML.h
- src/toSFML/toSFML.cpp

## 4.23 Transform Class Reference

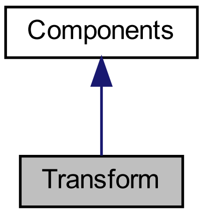
Transform class: Transform is a class that represents the transform of a Component.

`#include <Transform.h>`

Inheritance diagram for Transform:



Collaboration diagram for Transform:



## Public Member Functions

- Transform ()

  *Default Transform constructor.*
- bool init () const

  *init(): Initialize the component*
- ∼Transform () override=default

  *Transform destructor.*
- void **update** (sf::Time deltaTime) override
- int getBit () const

  *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 getTransformStruct () const

  *getTransformStruct(): Get the the transform of the component;*
- void setTransform (Vector2< float > newPosition, float newRotation, Vector2< float > newScale)

  *setTransformStruct(): Set the transform of the component;*
- void setTransformPosition (Vector2< float > newPosition)

  *setTransformPosition(): Set the transform position of the component;*
- void setTransformRotation (float newRotation)

  *setTransformRotation(): Set the transform rotation of the component;*
- void setTransformScale (Vector2< float > newScale)

  *setTransformScale(): Set the transform scale of the component;*

## 4.23.1 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.

## 4.23.2 Constructor & Destructor Documentation

### 4.23.2.1 Transform()

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

Default Transform constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.23.2.2 ∼Transform()

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

Transform destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.23.3 Member Function Documentation

#### 4.23.3.1 getBit()

```
int Transform::getBit ( ) const
```

getBit(): Get the bitmask of the component

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

int: bitmask of the component

#### 4.23.3.2 getPosition()

```
Vector2<float> Transform::getPosition ( ) const  [inline]
```

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

**Parameters**

|   |   |
|---|---|
| *void* |  |

**Returns**

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

#### 4.23.3.3 getRotation()

```
float Transform::getRotation ( ) const  [inline]
```

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

**Parameters**

|   |   |
|---|---|
| *void* |  |

**Returns**

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

#### 4.23.3.4 getScale()

```
Vector2<float> Transform::getScale ( ) const  [inline]
```

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

**Parameters**

|   |   |
|---|---|
| *void* |  |

**Returns**

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

#### 4.23.3.5 getTransformStruct()

```
TransformStruct Transform::getTransformStruct ( ) const  [inline]
```

getTransformStruct(): Get the the transform of the component;

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

TransformStruct: struct of the Transform.

### 4.23.3.6 init()

```
bool Transform::init ( ) const  [inline]
```

init(): Initialize the component

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

bool: true if the component is initialized, false otherwise

### 4.23.3.7 setTransform()

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

setTransformStruct(): Set the transform of the component;

**Parameters**

| | |
|---|---|
| *newPosition* | : the new Vector2<float> position. |
| *newRotation* | : the new float rotation. |
| *newScale* | : the new Vector2<float> scale. |

**Returns**

void

#### 4.23.3.8 setTransformPosition()

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

setTransformPosition(): Set the transform position of the component;

**Parameters**

| | |
|---|---|
| *newPosition* | : the new Vector2<float> position. |

**Returns**

void

#### 4.23.3.9 setTransformRotation()

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

setTransformRotation(): Set the transform rotation of the component;

**Parameters**

| | |
|---|---|
| *newRotation* | : the new float rotation. |

**Returns**

void

#### 4.23.3.10 setTransformScale()

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

setTransformScale(): Set the transform scale of the component;

**Parameters**

| | |
|---|---|
| *newScale* | : the new Vector2<float> scale. |

**Returns**

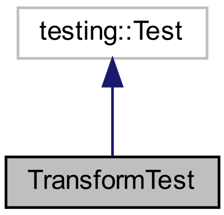
void

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

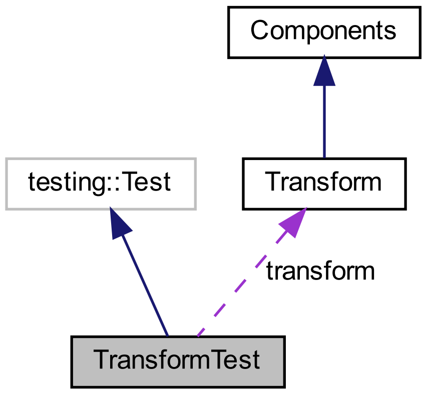
- src/Components/all_components/include/Transform.h
- src/Components/all_components/Transform.cpp

## 4.24 TransformTest Class Reference

Inheritance diagram for TransformTest:



Collaboration diagram for TransformTest:



### Protected Attributes

- Transform **transform**

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

- tests/Components/all_components/TestTransform.cpp

## 4.25 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 (T x, T y)

  *< Variable for using the value of the Vector2Struct.*
- ∼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.*

### 4.25.1 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.

### 4.25.2 Constructor & Destructor Documentation

#### 4.25.2.1 Vector2()

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

< Variable for using the value of the Vector2Struct.

Vector2 constructor with parameters.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the vector. |

**Parameters**

| | |
|---|---|
| *x* | Position x. |
| *y* | Position y. |

**Returns**

void

#### 4.25.2.2 ∼Vector2()

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

Vector2 destructor.

**Template Parameters**

| | |
|---|---|
| *T* | Type of the vector. |

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.25.3 Member Function Documentation

#### 4.25.3.1 getVector2Struct()

```
template<typename T >
Vector2Struct Vector2< T >::getVector2Struct ( ) const  [inline]
```

getVector2Struct(): Get the using Vector2Struct.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

Vector2Struct

#### 4.25.3.2 getX()

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

getX(): Get x of Vector2Struct.

**Template Parameters**

| | |
|---|---|
| | |

#### 4.25.3.3 getY()

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

getY(): Get y of Vector2Struct.

**Template Parameters**

| | |
|---|---|
| | |

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

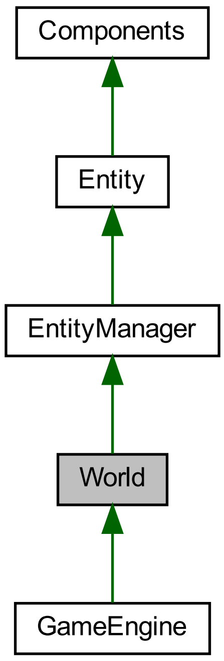
- src/Other/include/Vector2.h

## 4.26 World Class Reference

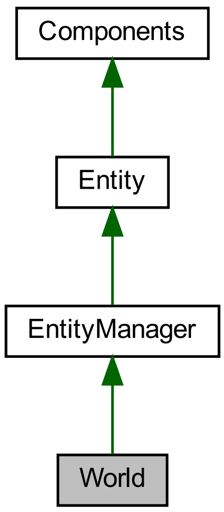
World class: World is a class that represents the world of the game.

```
#include <world.h>
```

Inheritance diagram for World:



Collaboration diagram for World:



## Public Member Functions

- World ()=default

    *Default World constructor.*
- ∼World () override=default

    *World destructor.*
- void createEntities (std::map< std::string, std::pair< std::unique_ptr< EntityManager >, std::vector< std↩ ::string >>> &mapEntityManager)

    *createEntities(): Create the entities.*
- EntityManager & addEntityManager (std::string NameEntityManager)

    *addEntityManager(): Add an entity manager to the map.*
- EntityManager & getEntityManager (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.*
- bool initWorld ()

    *init(): Initialize the World.*

## Additional Inherited Members

## 4.26.1 Detailed Description

World class: World is a class that represents the world of the game.

The World class manages the world of the game.

## 4.26.2 Constructor & Destructor Documentation

### 4.26.2.1 World()

```
World::World ( )  [default]
```

Default World constructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

#### 4.26.2.2 ∼World()

```
World::∼World ( )  [override], [default]
```

World destructor.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

void

### 4.26.3 Member Function Documentation

#### 4.26.3.1 addEntityManager()

```
EntityManager & World::addEntityManager (
              std::string NameEntityManager )
```

addEntityManager(): Add an entity manager to the map.

**Parameters**

| | |
|---|---|
| *NameEntityManager* | Name of the entity manager. |

**Returns**

EntityManager&: The entity manager.

#### 4.26.3.2 createEntities()

```
void World::createEntities (
              std::map< std::string, std::pair< std::unique_ptr< EntityManager >, std::vector<
std::string >>> & mapEntityManager )
```

createEntities(): Create the entities.

**Parameters**

| | |
|---|---|
| *mapEntityManager* | Map of the entities manager's unique pointers. |
| *keyEntityManager* | Key of the entities manager. |

**Returns**

void

#### 4.26.3.3 getEntityManager()

```
EntityManager & World::getEntityManager (
             std::string NameEntityManager )
```

getEntityManager(): Get the entity manager.

**Parameters**

| | |
|---|---|
| *NameEntityManager* | Name of the entity manager. |

**Returns**

EntityManager&: The entity manager.

#### 4.26.3.4 getEntityManagerMap()

```
std::map<std::string, EntityManager*> World::getEntityManagerMap ( ) const  [inline]
```

getEntityManagerMap(): Get the map of the entity manager.

**Parameters**

| | |
|---|---|
| *void* | |

**Returns**

std::map<std::string, EntityManager*>: The map of the entity manager.

#### 4.26.3.5 getNameWorld()

```
std::string World::getNameWorld ( ) const  [inline]
```

getNameWorld(): Get the name of the world.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

std::string: The name of the world.

### 4.26.3.6 initWorld()

```
bool World::initWorld ( )  [inline]
```

init(): Initialize the World.

**Parameters**

|  |  |
|---|---|
| *void* |  |

**Returns**

bool: True if the world is initialized, false otherwise.

### 4.26.3.7 setNameWorld()

```
void World::setNameWorld (
             std::string newName )
```

setNameWorld(): Set the name of the world.

**Parameters**

|  |  |
|---|---|
| *newName* | 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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