R-Type - Engine

Generated by Doxygen 1.9.1

1 Engine 1

1.1 Compilation . . . 1

1.1.1 Linux . . . 1

2 Hierarchical Index 3

2.1 Class Hierarchy . . . 3

3 Class Index 5

3.1 Class List . . . 5

4 Class Documentation 7

4.1 Archetypes Class Reference . . . 7

4.2 AudioTest Class Reference . . . 7

4.3 Color Class Reference . . . 8

4.3.1 Detailed Description . . . 9

4.3.2 Constructor & Destructor Documentation . . . 9

4.3.2.1 Color() [1/2] . . . 9

4.3.2.2 Color() [2/2] . . . 10

4.3.2.3 ~Color() . . . 11

4.3.3 Member Function Documentation . . . 11

4.3.3.1 fromSFMLColor() . . . 11

4.3.3.2 getAlpha() . . . 11

4.3.3.3 getBlue() . . . 12

4.3.3.4 getGreen() . . . 12

4.3.3.5 getRed() . . . 12

4.3.3.6 operator sf::Color() . . . 12

4.3.3.7 setAlpha() . . . 12

4.3.3.8 setBlue() . . . 13

4.3.3.9 setGreen() . . . 13

4.3.3.10 setRed() . . . 13

4.4 Components Class Reference . . . 14

4.4.1 Detailed Description . . . 14

4.4.2 Constructor & Destructor Documentation . . . 15

4.4.2.1 Components() . . . 15

4.4.2.2 ~Components() . . . 15

4.4.3 Member Function Documentation . . . 15

4.4.3.1 getBit() . . . 15

4.4.3.2 init() . . . 16

4.4.3.3 update() . . . 16

4.5 DrawableComponent Class Reference . . . 17

4.5.1 Detailed Description . . . 17

4.5.2 Constructor & Destructor Documentation . . . 17

4.5.2.1 ~DrawableComponent() . . . 17

4.5.3 Member Function Documentation . . . 18
4.5.3.1 draw() . . . 18
4.6 Entity Class Reference . . . 18
4.6.1 Detailed Description . . . 20
4.6.2 Constructor & Destructor Documentation . . . 20
4.6.2.1 Entity() [1/2] . . . 20
4.6.2.2 Entity() [2/2] . . . 21
4.6.2.3 ~Entity() . . . 21
4.6.3 Member Function Documentation . . . 21
4.6.3.1 addComponent() . . . 21
4.6.3.2 addDrawable() . . . 22
4.6.3.3 drawEntity() . . . 22
4.6.3.4 getBit() . . . 23
4.6.3.5 getComponent() . . . 23
4.6.3.6 getComponentBitset() . . . 23
4.6.3.7 getComponentTypeID() . . . 24
4.6.3.8 getName() . . . 24
4.6.3.9 init() . . . 24
4.6.3.10 setName() . . . 25
4.6.3.11 update() . . . 25
4.7 EntityManager Class Reference . . . 26
4.7.1 Constructor & Destructor Documentation . . . 27
4.7.1.1 EntityManager() . . . 27
4.7.1.2 ~EntityManager() . . . 27
4.7.2 Member Function Documentation . . . 28
4.7.2.1 addEntity() . . . 28
4.7.2.2 getEntities() . . . 28
4.7.2.3 getEntity() . . . 28
4.7.2.4 getEntityMap() . . . 29
4.7.2.5 init() . . . 29
4.8 EntityManagerTest Class Reference . . . 30
4.9 EntityTest Class Reference . . . 31
4.10 EventEngine Class Reference . . . 32
4.10.1 Detailed Description . . . 33
4.10.2 Constructor & Destructor Documentation . . . 33
4.10.2.1 EventEngine() . . . 33
4.10.2.2 ~EventEngine() . . . 33
4.10.3 Member Function Documentation . . . 33
4.10.3.1 addKeyPressed() . . . 34
4.10.3.2 addMouseButtonPressed() . . . 34
4.10.3.3 addMouseMoved() . . . 34
4.10.3.4 getEvent() . . . 35

4.10.3.5 getKeyPressedMap() . . . 35
4.10.3.6 getKeyStatesMap() . . . 35
4.10.3.7 getMouseButtonPressedMap() . . . 36
4.10.3.8 getMouseMovedMap() . . . 36
4.10.3.9 setKeyStatesMap() . . . 36
4.11 EventTest Class Reference . . . 37
4.12 GameEngine Class Reference . . . 37
4.12.1 Detailed Description . . . 41
4.12.2 Constructor & Destructor Documentation . . . 41
4.12.2.1 GameEngine() [1/2] . . . 41
4.12.2.2 GameEngine() [2/2] . . . 41
4.12.2.3 ~GameEngine() . . . 42
4.12.3 Member Function Documentation . . . 42
4.12.3.1 addWorld() . . . 42
4.12.3.2 eventGameEngine() . . . 43
4.12.3.3 getClock() . . . 43
4.12.3.4 getCurrentWorld() . . . 43
4.12.3.5 getDeltaTime() . . . 44
4.12.3.6 getEventEngine() . . . 44
4.12.3.7 getFilesRessources() . . . 44
4.12.3.8 getMapFont() . . . 45
4.12.3.9 getMapMusic() . . . 45
4.12.3.10 getMapSound() . . . 45
4.12.3.11 getMapTexture() . . . 46
4.12.3.12 getWindow() . . . 46
4.12.3.13 getWorld() . . . 46
4.12.3.14 getWorldMap() . . . 47
4.12.3.15 initialize() . . . 47
4.12.3.16 initializeAllFiles() . . . 47
4.12.3.17 initializeFont() . . . 48
4.12.3.18 initializeMusic() . . . 48
4.12.3.19 initializeMusicFunction() . . . 48
4.12.3.20 initializeSound() . . . 49
4.12.3.21 initializeSoundFunction() . . . 49
4.12.3.22 initializeSpriteFunction() . . . 49
4.12.3.23 initializeTextFunction() . . . 50
4.12.3.24 initializeTexture() . . . 50
4.12.3.25 initializeWorldMap() . . . 50
4.12.3.26 isWindowOpen() . . . 51
4.12.3.27 renderGameEngine() . . . 51
4.12.3.28 run() . . . 51
4.12.3.29 setCurrentWorld() . . . 53

4.12.3.30 setDeltaTime() . . . 53
4.12.3.31 updateGameEngine() . . . 54
4.13 GameEngineTest Class Reference . . . 54
4.14 ITransform Class Reference . . . 56
4.14.1 Detailed Description . . . 56
4.14.2 Constructor & Destructor Documentation . . . 56
4.14.2.1 ∼ITransform() . . . 56
4.14.3 Member Function Documentation . . . 57
4.14.3.1 getTransform() . . . 57
4.15 Music Class Reference . . . 57
4.15.1 Detailed Description . . . 58
4.15.2 Constructor & Destructor Documentation . . . 59
4.15.2.1 Music() . . . 59
4.15.2.2 ∼Music() . . . 59
4.15.3 Member Function Documentation . . . 59
4.15.3.1 getLoop() . . . 59
4.15.3.2 getMusic() . . . 59
4.15.3.3 getStatus() . . . 60
4.15.3.4 getVolume() . . . 60
4.15.3.5 setDeferredMusic() . . . 60
4.15.3.6 setLoop() . . . 61
4.15.3.7 setVolume() . . . 61
4.16 Rect< T > Class Template Reference . . . 61
4.16.1 Detailed Description . . . 62
4.16.2 Constructor & Destructor Documentation . . . 62
4.16.2.1 Rect() . . . 62
4.16.2.2 ∼Rect() . . . 63
4.16.3 Member Function Documentation . . . 63
4.16.3.1 contains() . . . 63
4.16.3.2 getHeight() . . . 64
4.16.3.3 getLeft() . . . 64
4.16.3.4 getRect() . . . 64
4.16.3.5 getTop() . . . 65
4.16.3.6 getWidth() . . . 65
4.17 Script Class Reference . . . 66
4.18 Sound Class Reference . . . 66
4.18.1 Detailed Description . . . 67
4.18.2 Constructor & Destructor Documentation . . . 67
4.18.2.1 Sound() . . . 67
4.18.2.2 ∼Sound() . . . 68
4.18.3 Member Function Documentation . . . 68
4.18.3.1 getLoop() . . . 68

4.18.3.2 getSound() . . . 68
4.18.3.3 getVolume() . . . 68
4.18.3.4 isPlaying() . . . 69
4.18.3.5 setDeferredSound() . . . 69
4.18.3.6 setLoop() . . . 69
4.18.3.7 setSound() . . . 69
4.18.3.8 setVolume() . . . 70
4.19 SpriteTest Class Reference . . . 70
4.20 TestRect Class Reference . . . 71
4.21 TesttoSFML Class Reference . . . 72
4.22 TestVector2 Class Reference . . . 73
4.23 TestWorld Class Reference . . . 74
4.24 Text Class Reference . . . 75
4.24.1 Detailed Description . . . 77
4.24.2 Constructor & Destructor Documentation . . . 77
4.24.2.1 Text() . . . 78
4.24.2.2 ∼Text() . . . 78
4.24.3 Member Function Documentation . . . 78
4.24.3.1 draw() . . . 78
4.24.3.2 getBit() . . . 78
4.24.3.3 getColorFill() . . . 79
4.24.3.4 getColorOutline() . . . 79
4.24.3.5 getFont() . . . 79
4.24.3.6 getSize() . . . 79
4.24.3.7 getStringText() . . . 80
4.24.3.8 getText() . . . 80
4.24.3.9 getTransform() . . . 80
4.24.3.10 init() . . . 80
4.24.3.11 setDeferredText() . . . 80
4.24.3.12 setFillColor() . . . 81
4.24.3.13 setFont() . . . 81
4.24.3.14 setOutlineColor() . . . 81
4.24.3.15 setSize() . . . 82
4.24.3.16 setString() . . . 82
4.24.3.17 setText() [1/2] . . . 82
4.24.3.18 setText() [2/2] . . . 83
4.24.3.19 setTransform() . . . 83
4.24.3.20 update() . . . 83
4.25 toSFML Class Reference . . . 84
4.25.1 Detailed Description . . . 84
4.25.2 Constructor & Destructor Documentation . . . 84
4.25.2.1 toSFML() . . . 84

4.25.2.2 ~toSFML() . . . 85
4.25.3 Member Function Documentation . . . 85
4.25.3.1 toSFMLRect() . . . 85
4.26 Transform Class Reference . . . 86
4.26.1 Detailed Description . . . 87
4.26.2 Constructor & Destructor Documentation . . . 87
4.26.2.1 Transform() . . . 87
4.26.2.2 ~Transform() . . . 88
4.26.3 Member Function Documentation . . . 88
4.26.3.1 applyDeferredTransform() . . . 88
4.26.3.2 getBit() . . . 88
4.26.3.3 getPosition() . . . 89
4.26.3.4 getRotation() . . . 89
4.26.3.5 getScale() . . . 89
4.26.3.6 getTransform() . . . 90
4.26.3.7 init() . . . 90
4.26.3.8 setDeferredTransform() . . . 90
4.26.3.9 setPosition() . . . 91
4.26.3.10 setRotation() . . . 91
4.26.3.11 setScale() . . . 91
4.26.3.12 setTransform() . . . 93
4.26.3.13 update() . . . 93
4.27 TransformTest Class Reference . . . 94
4.28 Vector2< T > Class Template Reference . . . 95
4.28.1 Detailed Description . . . 95
4.28.2 Constructor & Destructor Documentation . . . 95
4.28.2.1 Vector2() [1/2] . . . 95
4.28.2.2 Vector2() [2/2] . . . 96
4.28.2.3 ~Vector2() . . . 96
4.28.3 Member Function Documentation . . . 97
4.28.3.1 getVector2Struct() . . . 97
4.28.3.2 getX() . . . 97
4.28.3.3 getY() . . . 98
4.28.3.4 setX() . . . 98
4.28.3.5 setY() . . . 98
4.29 World Class Reference . . . 99
4.29.1 Detailed Description . . . 101
4.29.2 Constructor & Destructor Documentation . . . 101
4.29.2.1 World() . . . 101
4.29.2.2 ~World() . . . 101
4.29.3 Member Function Documentation . . . 101
4.29.3.1 addEntityManager() . . . 102

4.29.3.2 createEntities() 102
4.29.3.3 getEntitiesManager() 102
4.29.3.4 getEntityManager() 102
4.29.3.5 getEntityManagerMap() 103
4.29.3.6 getNameWorld() 103
4.29.3.7 init() 103
4.29.3.8 setNameWorld() 104

Index **105**

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:

- Archetypes . . . 7
- Color . . . 8
- Components . . . 14
  - Entity . . . 18
    - EntityManager . . . 26
      - World . . . 99
        - GameEngine . . . 37
  - Music . . . 57
  - Sound . . . 66
  - Transform . . . 86
    - Text . . . 75
- DrawableComponent . . . 17
  - Text . . . 75
- EventEngine . . . 32
  - GameEngine . . . 37
- ITransform . . . 56
  - Text . . . 75
- Rect< T > . . . 61
- Rect< float > . . . 61
- Script . . . 66
- testing::Test
  - AudioTest . . . 7
  - EntityManagerTest . . . 30
  - EntityTest . . . 31
  - EventTest . . . 37
  - GameEngineTest . . . 54
  - SpriteTest . . . 70
  - TestRect . . . 71
  - TestVector2 . . . 73
  - TestWorld . . . 74
  - TesttoSFML . . . 72
  - TransformTest . . . 94
- toSFML . . . 84
- Vector2< T > . . . 95
- Vector2< float > . . . 95

Chapter 3

Class Index

3.1 Class List

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

Archetypes . . . 7
AudioTest . . . 7
Color
    Color class: Color is a class that use for the color in game . . . 8
Components
    Components class: Components is a class that represents a component in the game . . . 14
DrawableComponent
    DrawableComponent class: DrawableComponent is a class that represents a drawable component in the game . . . 17
Entity
    Entity class: Entity is a class that represents an entity in the game . . . 18
EntityManager . . . 26
EntityManagerTest . . . 30
EntityTest . . . 31
EventEngine
    EventEngine class: EventEngine is a class that represents the event engine of the game . . . 32
EventTest . . . 37
GameEngine
    GameEngine class: GameEngine is a class that represents the game engine . . . 37
GameEngineTest . . . 54
ITransform
    ITransform class: ITransform is a class that represents an interface of the Component Transform 56
Music
    Music class: Music is a class that represents the music in the world . . . 57
Rect< T >
    Rect class: Rect is a class that represents a rectangle . . . 61
Script . . . 66
Sound
    Sound class: Sound is a class that represents the sound properties of a Component . . . 66
SpriteTest . . . 70
TestRect . . . 71
TesttoSFML . . . 72
TestVector2 . . . 73
TestWorld . . . 74
Text
    Text class: Text is a class that represents the text in the world . . . 75

toSFML
ToSFML class: toSFML is a class that convert some class into SFML class 84
Transform
Transform class: Transform is a class that represents the transform of a Component 86
TransformTest 94
Vector2< T >
Vector class: Vector is a class that represents a vector in 2 dimensions 95
World
World class: World is a class that represents the world of the game 99

Chapter 4

Class Documentation

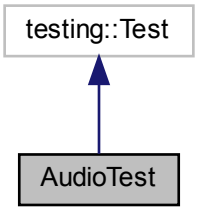
4.1 Archetypes Class Reference

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

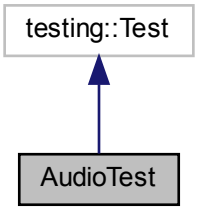
- src/Archetype/include/Archetypes.h

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:

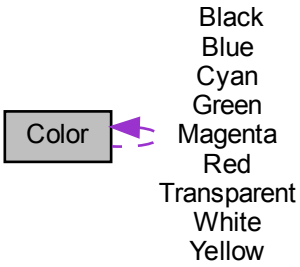
- tests/Components/all_components/TestAudio.cpp

4.3 Color Class Reference

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)

4.3.1 Detailed Description

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

The Color class manages the color.

4.3.2 Constructor & Destructor Documentation

4.3.2.1 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.

4.3.2.2 Color() [2/2]

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

Color constructor with sf::Color& as parameter.

Parameters

sfmlColor	Represent a color preset or no from SFML.

4.3.2.3 ~Color()

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

Default override Color destructor.

Set the default value to "Default".

4.3.3 Member Function Documentation

4.3.3.1 fromSFMLColor()

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

fromSFMLColor(const sf::Color&): Convert SFML color into Color class.

Parameters

sfColor	The color from SFML

Returns

Color: Color class.

4.3.3.2 getAlpha()

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

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

Returns

sf::Uint8: The value of alpha.

4.3.3.3 getBlue()

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

getBlue(): Get the sf::Uint8 blue.

Returns

sf::Uint8: The value of blue.

4.3.3.4 getGreen()

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

getGreen(): Get the sf::Uint8 green.

Returns

sf::Uint8: The value of green.

4.3.3.5 getRed()

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

getRed(): Get the sf::Uint8 red.

Returns

sf::Uint8: The value of red.

4.3.3.6 operator sf::Color()

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

operator sf::Color() const: Convert Color classes into sf::Color

Returns

sf::Color: Get the Color in sf::Color

4.3.3.7 setAlpha()

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

setAlpha(int): Set the sf::Uint8 alpha with an int and convert into sf::Unit8 in the function.

Parameters

newAlpha	

4.3.3.8 setBlue()

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

setBlue(int): Set the sf::Uint8 blue with an int and convert into sf::Unit8 in the function.

Parameters

newBlue	

4.3.3.9 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

newGreen	

4.3.3.10 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

newRed	Number between 0 and 255.

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

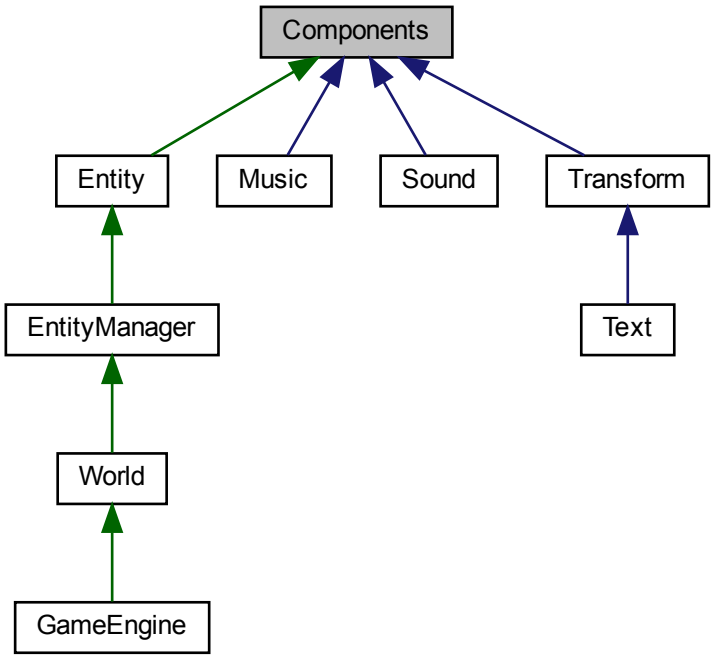
- src/Other/include/Color.h
- src/Other/Color.cpp

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 ()=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

4.4.1 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 getBit()

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

getBit(): Get the bitmask of the component

Parameters

void	

Returns

int: bitmask of the component

Implemented in Entity, and Transform.

4.4.3.2 init()

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

init(): Initialize the component

Parameters

void	

Returns

bool: true if the component is initialized, false otherwise

Implemented in World, EntityManager, Entity, Transform, and Text.

4.4.3.3 update()

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

update(): Update the component

Parameters

timeDelta	time elapsed since the last update

Returns

void

Implemented in Entity, Transform, and Text.

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

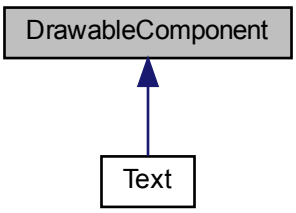
- src/Components/include/Components.h

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.

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

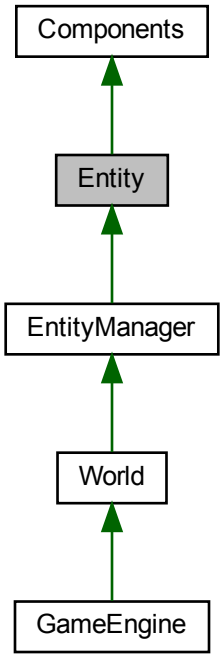
- src/Components/include/DrawableComponent.h

4.6 Entity Class Reference

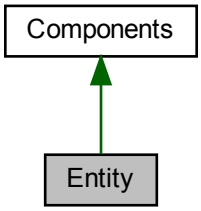
Entity class: Entity is a class that represents an entity in the game.

```
#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.

- int getBit () override

  getBit(): Get the bit of the Sprite.
- bool init () override

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

  genName(): Get the name of the entity
- void update (sf::Time deltaTime) override

  update(sf::Time): Update the component Music
- 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 a component ID from the entity
- std::bitset< 6 > getComponentBitset () const

  getComponentBitset(): Get all components bitset from the entity

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() )  [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 getBit()

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

getBit(): Get the bit of the Sprite.

Parameters

void	

Returns

int: The bit of the Sprite.

Implements Components.

4.6.3.5 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

4.6.3.6 getComponentBitset()

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

getComponentBitset(): Get all components bitset from the entity

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 a component ID from the entity

Template Parameters

T	Type of the component

Parameters

void	

Returns

std::size_t: id of the component

4.6.3.8 getName()

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

genName(): Get the name of the entity

Parameters

void	

Returns

std::string: name of the entity

4.6.3.9 init()

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

init(): Initialize the entity

Parameters

void	

Returns

bool: true if the entity is initialized, false otherwise

Implements Components.

Reimplemented in World, and EntityManager.

4.6.3.10 setName()

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

setName(): Set the name of the entity

Parameters

newName	new name of the entity

Returns

void

4.6.3.11 update()

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

update(sf::Time): Update the component Music

Parameters

timeDelta	sf::Time of the game.

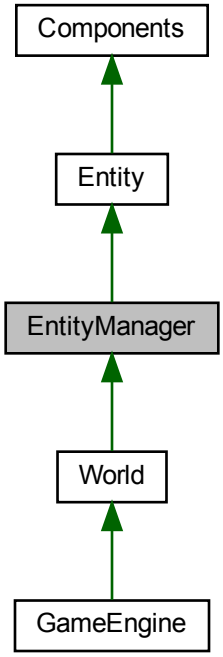
Implements Components.

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

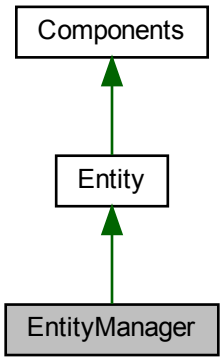
- src/Entity/include/entity.h
- src/Entity/entity.cpp

4.7 EntityManager Class Reference

Inheritance diagram for EntityManager:



Collaboration diagram for EntityManager:



Public Member Functions

- EntityManager ()=default

  Default EntityManager constructor.
- ~EntityManager () 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

4.7.1 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 ( )  [override], [default]
```

EntityManager destructor.

Parameters

void	

Returns

void

4.7.2 Member Function Documentation

4.7.2.1 addEntity()

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

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

Template Parameters

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 (
            const 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
```

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

Parameters

void	

Returns

Entity::EntityMap: Entity map.

4.7.2.5 init()

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

initEntityManager(): Initialize the EntityManager.

Parameters

void	

Returns

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

Reimplemented from Entity.

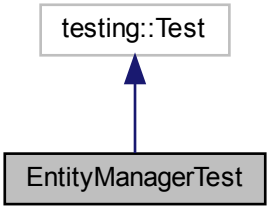
Reimplemented in World.

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

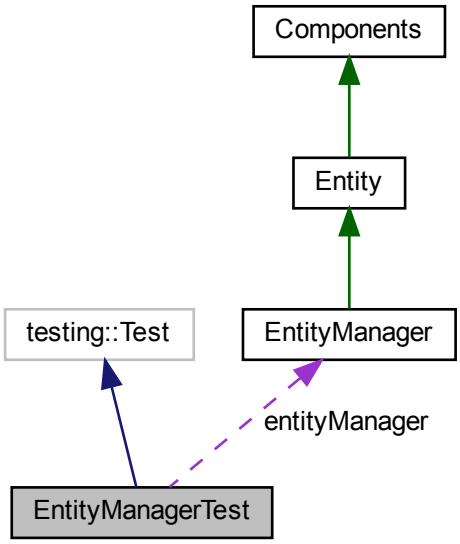
- src/Entity/include/entityManager.h
- src/Entity/entityManager.cpp

4.8 EntityManagerTest Class Reference

Inheritance diagram for EntityManagerTest:



Collaboration diagram for EntityManagerTest:



Protected Member Functions

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

Protected Attributes

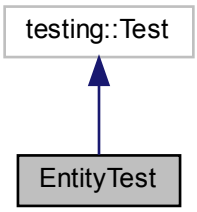
- EntityManager **entityManager** {}

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

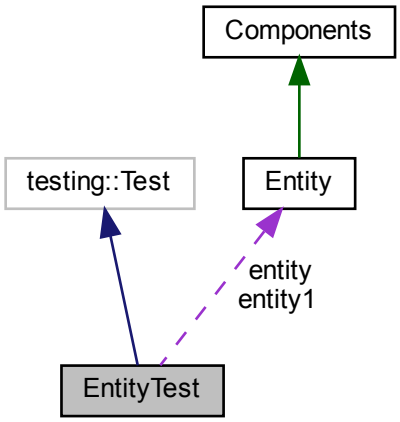
- tests/Entity/TestEntityManager.cpp

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:

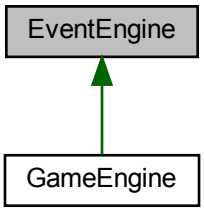
- tests/Entity/TestEntity.cpp

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.
- 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

4.10.1 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,
            const 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,
            const 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 (
            const std::string & nameEntity,
            const 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 ( )
```

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 ( )
```

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 getKeyStatesMap()

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

getKeyStatesMap(): Get the map of the key states.

Returns

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

4.10.3.7 getMouseButtonPressedMap()

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

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.

4.10.3.8 getMouseMovedMap()

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

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

Parameters

void	

Returns

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

4.10.3.9 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

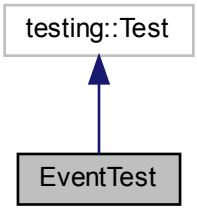
key	The touch of the keyboard with using SFML.

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

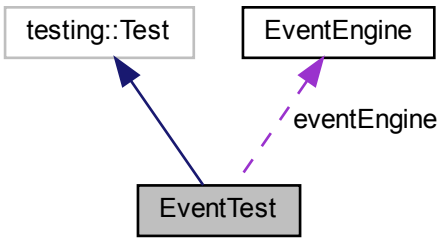
- src/Event/include/eventEngine.h
- src/Event/eventEngine.cpp

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:

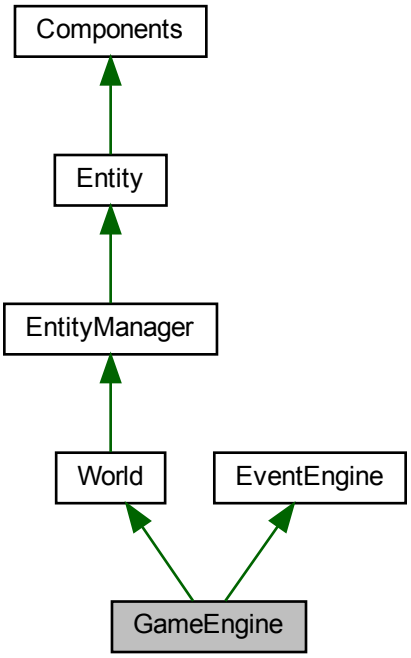
- tests/Event/TestEvent.cpp

4.12 GameEngine Class Reference

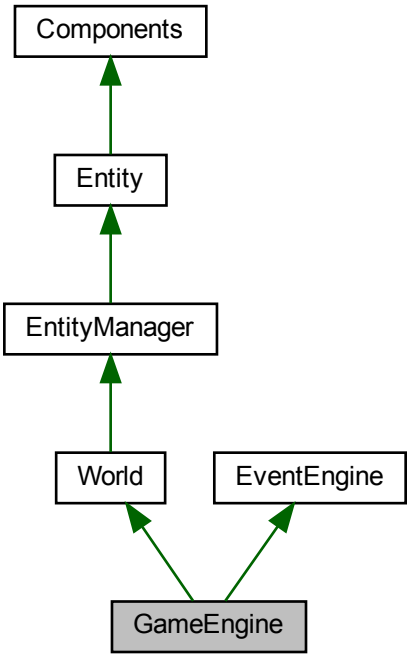
GameEngine class: GameEngine is a class that represents the game engine.

```
#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, 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 > &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)

  initializeMusic(): 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

4.12.1 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,
            const sf::String & title,
            sf::Uint32 style = sf::Style::Default,
            const sf::ContextSettings & settings = sf::ContextSettings() )
```

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 ( )  [override], [default]
```

GameEngine destructor.

Parameters

void	

Returns

void

4.12.3 Member Function Documentation

4.12.3.1 addWorld()

```
World& GameEngine::addWorld (
            const 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 getClock()

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

getClock(): Get GameEngine's clock.

Parameters

void	

Returns

sf::Clock: GameEngine's clock.

4.12.3.4 getCurrentWorld()

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

getCurrentWorld(): Get GameEngine's current world.

Parameters

void	

Returns

World∗: GameEngine's current world.

4.12.3.5 getDeltaTime()

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

getDeltaTime(): Get GameEngine's deltaTime.

Parameters

void	

Returns

sf::Time: GameEngine's deltaTimes.

4.12.3.6 getEventEngine()

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

getEventEngine(): Get the event engine.

Parameters

void	

Returns

EventEngine&: GameEngine's EventEngine.

4.12.3.7 getFilesRessources()

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

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.

4.12.3.8 getMapFont()

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

getMapFont(): Get GameEngine's map of the font.

Parameters

void	

Returns

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

4.12.3.9 getMapMusic()

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

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.

4.12.3.10 getMapSound()

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

getMapSound(): Get GameEngine's map of the sound.

Parameters

void	

Returns

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

4.12.3.11 getMapTexture()

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

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.

4.12.3.12 getWindow()

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

getWindow(): Get the window.

Parameters

void	

Returns

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

4.12.3.13 getWorld()

```
World& GameEngine::getWorld (
            const 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.

4.12.3.14 getWorldMap()

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

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

Parameters

void	

Returns

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

4.12.3.15 initialize()

```
void GameEngine::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.

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

4.12.3.16 initializeAllFiles()

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

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

Parameters

void	

Returns

void

4.12.3.17 initializeFont()

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

initializeMusic(): Initialize the font with their path.

Parameters

path	Path of the texture.

Returns

void

4.12.3.18 initializeMusic()

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

initializeMusic(): Initialize the music with their path.

Parameters

path	Path of the texture.

Returns

void

4.12.3.19 initializeMusicFunction()

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

initializeMusicFunction(): Initialize the music function.

Parameters

void	

Returns

void

4.12.3.20 initializeSound()

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

initializeSound(): Initialize the sound with their path.

Parameters

path	Path of the texture.

Returns

void

4.12.3.21 initializeSoundFunction()

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

initializeSoundFunction(): Initialize the sound function.

Parameters

void	

Returns

void

4.12.3.22 initializeSpriteFunction()

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

initializeSpriteFunction(): Initialize the sprites function.

Parameters

void	

Returns

void

4.12.3.23 initializeTextFunction()

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

initializeFontFunction(): Initialize the font function.

Parameters

void	

Returns

void

4.12.3.24 initializeTexture()

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

initializeTexture(): Initialize the textures with their path.

Parameters

path	Path of the texture.

Returns

void

4.12.3.25 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

4.12.3.26 isWindowOpen()

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

isWindowOpen(): Check if the window is open.

Parameters

void	

Returns

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

4.12.3.27 renderGameEngine()

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

renderGameEngine(): Render the game engine.

Parameters

void	

Returns

void

4.12.3.28 run()

```
void GameEngine::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).

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

4.12.3.29 setCurrentWorld()

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

setCurrentWorld(): Set GameEngine's current world.

Parameters

world	World to set.

Returns

void

4.12.3.30 setDeltaTime()

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

setDeltaTime(): Set GameEngine's deltaTime.

Parameters

newTimeDelta	New deltaTime for GameEngine's deltaTime.

Returns

void

4.12.3.31 updateGameEngine()

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

updateGameEngine(): Update the game engine.

Parameters

void	

Returns

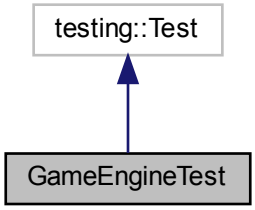
void

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

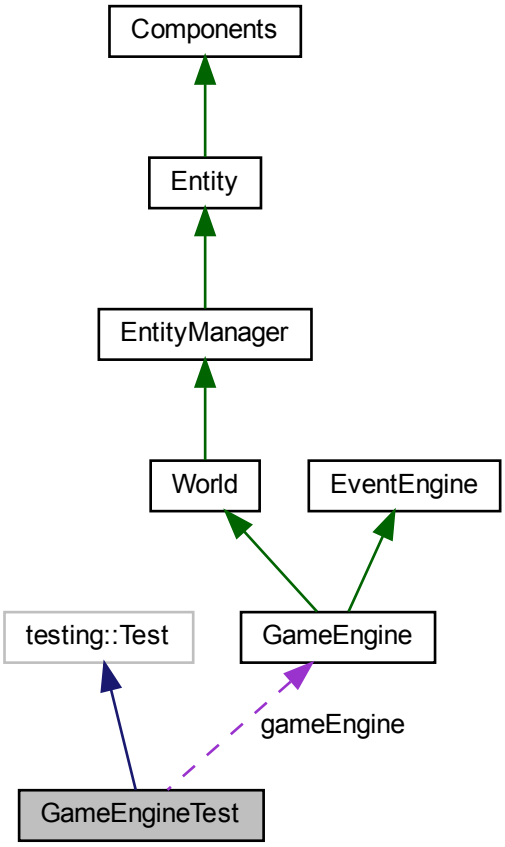
- src/GameEngine/include/gameEngine.h
- src/GameEngine/gameEngine.cpp

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:

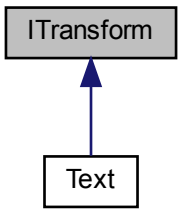
- tests/GameEngine/TestGameEngine.cpp

4.14 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

4.14.1 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

4.14.2 Constructor & Destructor Documentation

4.14.2.1 ~ITransform()

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

Default Virtual ITransform destructor.

Set the default value to "Default".

4.14.3 Member Function Documentation

4.14.3.1 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.

Returns

Transform*: The reference of Transform or nullptr.

Implemented in Text.

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

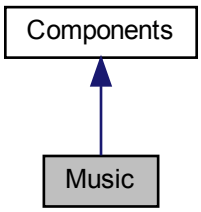
- src/Components/all_components/include/ITransform.h

4.15 Music Class Reference

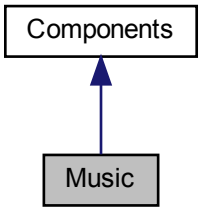
Music class: Music is a class that represents the music in the world.

```
#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.
- <<<<<<< HEAD void setMusic(std::map< std::string, std::shared_ptr< sf::Music >> mapMusic, std::string nameMusic);=======int getBit() override;void update(sf::Time timeDelta) override;bool init() override;>>>>>>> a81756f4([m] Engine:) void setMusic(std void setDeferredMusic (std::function< void()> setter)

  setMusic(std::map<std::string, std::shared_ptr<sf::Music>>, const std::string&): Initialize the sf::Music of the class.
- 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.

4.15.1 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.

4.15.2 Constructor & Destructor Documentation

4.15.2.1 Music()

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

< Bit of the Music

Default Music constructor.

Set the default value to "Default".

4.15.2.2 ~Music()

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

Default override Music destructor.

Set the default value to "Default".

4.15.3 Member Function Documentation

4.15.3.1 getLoop()

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

getLoop(): Get if the loop is set to True or False.

Returns

bool: True or False.

4.15.3.2 getMusic()

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

getMusic(): Get the music.

Returns

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

4.15.3.3 getStatus()

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

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

Returns

sf::SoundSource::Status: Enumerator of sf::SoundSource::Status which is (Stopped, Paused, Playing).

4.15.3.4 getVolume()

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

getVolume(): Get the volume of the music.

Returns

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

4.15.3.5 setDeferredMusic()

```
<<<<<<< HEAD void setMusic(std::map<std::string, std::shared_ptr<sf::Music>> mapMusic,
std::string nameMusic); ======= int getBit() override; void update(sf::Time timeDelta) override;
bool init() override; >>>>>> a81756f4 ([m] Engine:)  void setMusic(std void Music::set↩
DeferredMusic (
            std::function< void()> setter )
```

setMusic(std::map<std::string, std::shared_ptr<sf::Music>>, const std::string&): Initialize the sf::Music of the class.

Parameters

mapMusic	Map of all the music loaded.
nameMusic	Name of the music loaded.

setDeferredMusic(std::function<void()>): Set the deferred function for Music.

Parameters

setter	Function that will use Music.

4.15.3.6 setLoop()

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

setLoop(bool): Set the loop of the music.

Parameters

loop	True or False.

4.15.3.7 setVolume()

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

setVolume(float): Set the volume of the music.

Parameters

volume	Float number that represents the volume between 0 and 100 of the music.

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

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

4.16 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.

4.16.1 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.

4.16.2 Constructor & Destructor Documentation

4.16.2.1 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.
width	Width of your rectangle.
height	Height of your rectangle.

Returns

void

4.16.2.2 ~Rect()

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

Rect destructor.

Template Parameters

T	Type of the rect.

Parameters

void	

Returns

void

4.16.3 Member Function Documentation

4.16.3.1 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,...).

4.16.3.2 getHeight()

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

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,...).

4.16.3.3 getLeft()

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

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,...).

4.16.3.4 getRect()

```
template<typename T >
Rect< T >::RectStruct Rect< T >::getRect
```

getRect(): Get the using RectStruct.

Parameters

void	

Returns

Rect

4.16.3.5 getTop()

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

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,...).

4.16.3.6 getWidth()

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

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

4.17 Script Class Reference

Public Member Functions

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

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

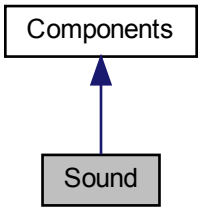
- src/Script/include/Script.h

4.18 Sound Class Reference

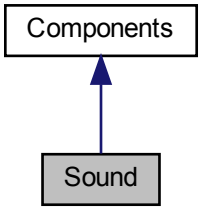
Sound class: Sound is a class that represents the sound properties of a Component.

`#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.
- <<<<<<< HEAD bool loadSoundBuffer(const std::string &filePath);=======int getBit() override;void update(sf::Time timeDelta) override;bool init() override;>>>>>>> a81756f4([m] Engine:) void set↩ Sound(const sf void setSound (std::map< std::string, std::shared_ptr< sf::SoundBuffer >> mapSound, const std::string &nameSound)

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

4.18.1 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.

4.18.2 Constructor & Destructor Documentation

4.18.2.1 Sound()

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

< Bit of the Sound.

Default Sound constructor.

Set the default value to "Default".

4.18.2.2 ~Sound()

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

Default override Sound destructor.

Set the default value to "Default".

4.18.3 Member Function Documentation

4.18.3.1 getLoop()

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

getLoop(): Get if the loop is set to True or False.

Returns

bool: True or False.

4.18.3.2 getSound()

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

getSound(): Get the sound.

Returns

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

4.18.3.3 getVolume()

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

getVolume(): Get the volume of the sound.

Returns

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

4.18.3.4 isPlaying()

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

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

Returns

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

4.18.3.5 setDeferredSound()

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

setDeferredSound(std::function<void()>): Set the deferred function for Sound.

Parameters

setter	Function that will use Sound.

4.18.3.6 setLoop()

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

setLoop(bool): Set the loop of the sound.

Parameters

loop	True or False.

4.18.3.7 setSound()

```
<<<<<<< HEAD bool loadSoundBuffer(const std::string& filePath); ======= int getBit() override;
void update(sf::Time timeDelta) override; bool init() override; >>>>>>> a81756f4 ([m] Engine↩
:)  void setSound( const sf void Sound::setSound (
            std::map< std::string, std::shared_ptr< sf::SoundBuffer >> mapSound,
            const std::string & nameSound )
```

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

Parameters

sound	SFML Sound for sound.

setSound(std::map<std::string, std::shared_ptr<sf::SoundBuffer>>, const std::string&): Initialize the sf::Sound of the class.

Parameters

mapSound	Map of all the sound loaded.
nameSound	Name of the sound loaded.

4.18.3.8 setVolume()

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

setVolume(float): Set the volume of the sound.

Parameters

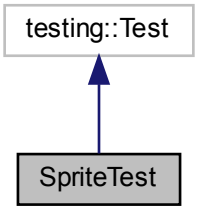
volume	Float number that represents the volume between 0 and 100 of the sound.

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

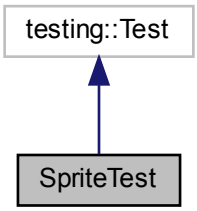
- src/Components/all_components/include/Sound.h

4.19 SpriteTest Class Reference

Inheritance diagram for SpriteTest:



Collaboration diagram for SpriteTest:



Protected Attributes

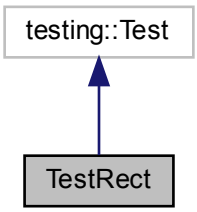
- Sprite **sprite**

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

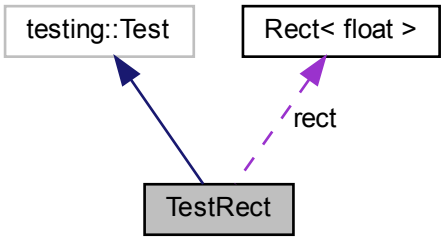
- tests/Components/all_components/TestSprite.cpp

4.20 TestRect Class Reference

Inheritance diagram for TestRect:



Collaboration diagram for TestRect:



Protected Attributes

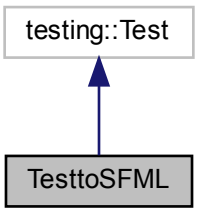
- Rect< float > **rect** = Rect<float>(0, 0, 0, 0)

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

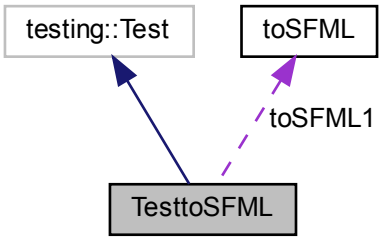
- tests/Other/TestRect.cpp

4.21 TesttoSFML Class Reference

Inheritance diagram for TesttoSFML:



Collaboration diagram for TesttoSFML:



Protected Attributes

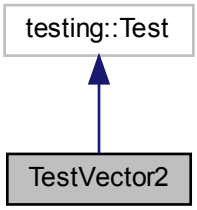
- toSFML **toSFML1** = toSFML()

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

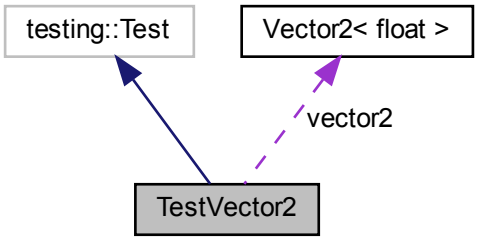
- tests/toSFML/TesttoSFML.cpp

4.22 TestVector2 Class Reference

Inheritance diagram for TestVector2:



Collaboration diagram for TestVector2:



Protected Attributes

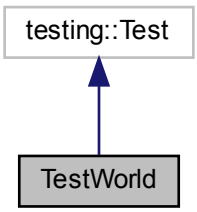
- Vector2< float > **vector2** = Vector2<float>(0, 0)

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

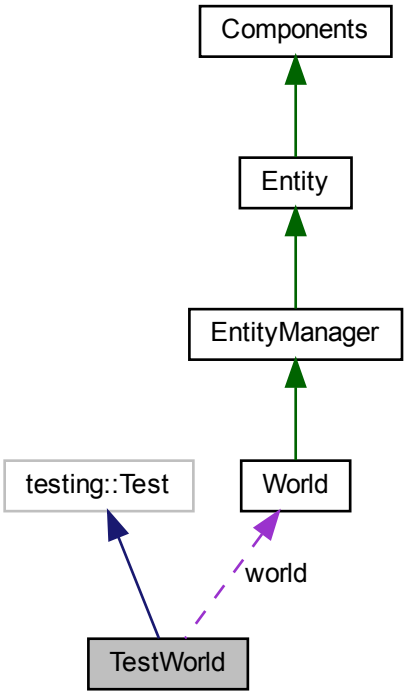
- tests/Other/TestVector2.cpp

4.23 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:

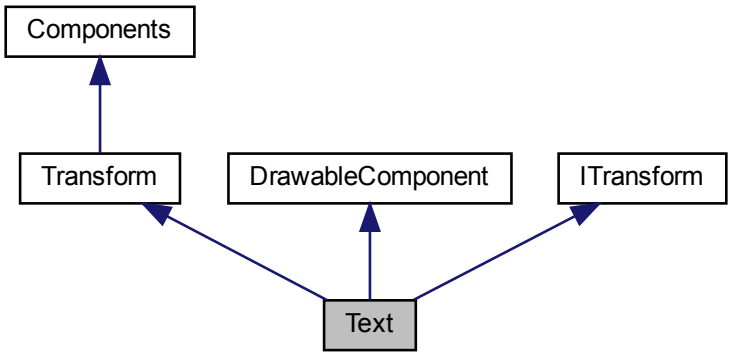
- tests/World/TestWorld.cpp

4.24 Text Class Reference

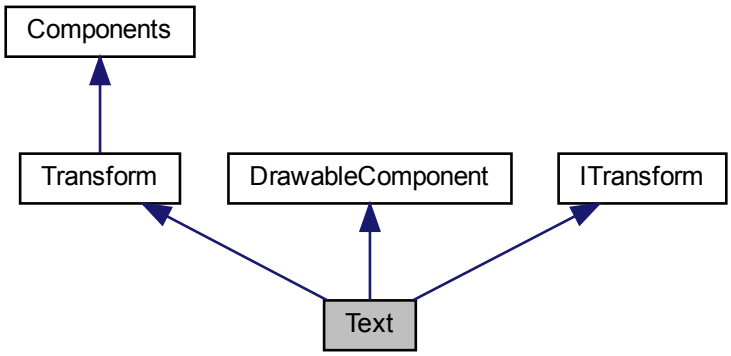
Text class: Text is a class that represents the text in the world.

`#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 () const

  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.

4.24.1 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.

4.24.2 Constructor & Destructor Documentation

4.24.2.1 Text()

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

< Bit of the Text.

Default Text constructor.

Set the default value to "Default" and initialize the transform reference to null.

4.24.2.2 ~Text()

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

Default override Text destructor.

Set the default value to "Default".

4.24.3 Member Function Documentation

4.24.3.1 draw()

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

draw(): Draw the Text.

Parameters

window	SFML RenderWindow where the Text will be drawn.

Implements DrawableComponent.

4.24.3.2 getBit()

```
int Text::getBit ( ) const
```

getBit(): Get the bit of the Text.

Returns

int: The bit of the Text.

4.24.3.3 getColorFill()

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

getColorFill(): Get the fill color.

Returns

Color: Fill color of the text.

4.24.3.4 getColorOutline()

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

getColorOutline(): Get the outline color.

Returns

Color: Outline color of the text.

4.24.3.5 getFont()

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

getFont(): Get the Font.

Returns

sf::Font: Font of the Text.

4.24.3.6 getSize()

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

getSize(): Get the size.

Returns

int: int number that represents size of the text.

4.24.3.7 getStringText()

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

getStringText(): Get the string.

Returns

std::string: String of the text.

4.24.3.8 getText()

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

getText(): Get the Text.

Returns

sf::Text: Text for draw.

4.24.3.9 getTransform()

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

getTransform(): Get the reference to the component Transform.

Returns

Transform*: Reference of Transform

Implements ITransform.

4.24.3.10 init()

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

init(): Initialize the component.

Returns

bool: true if the component is initialized, false otherwise

Implements Components.

4.24.3.11 setDeferredText()

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

setDeferredText(std::function<void()>): Set the deferred text.

Parameters

setter	Function that will set the text.

4.24.3.12 setFillColor()

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

setFillColor(Color): Set the fill color of Text.

Parameters

fillColor	Color for the text.

4.24.3.13 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

mapFont	Map of all the font loaded.
nameFont	Name of the font loaded.

4.24.3.14 setOutlineColor()

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

setOutlineColor(Color): Set the outline color of Text.

Parameters

outlineColor	Color for the border of the text.

4.24.3.15 setSize()

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

setSize(int): Set the size of Text.

Parameters

sizeText	Size of the text.

4.24.3.16 setString()

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

setString(const std::string&): Set the string of Text.

Parameters

newStringText	String text for draw.

4.24.3.17 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

mapFont	Map of all the font loaded.
nameFont	Name of the font loaded.
newStringText	String text for draw.
sizeText	Size of the text.
fillColor	Color for the text.

4.24.3.18 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

mapFont	Map of all the font loaded.
nameFont	Name of the font loaded.
newStringText	String text for draw.
sizeText	Size of the text.
fillColor	Color for the text.
outlineColor	Color for the border of the text.

4.24.3.19 setTransform()

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

setTransform(Transform&): Set the reference of the Transform component.

Parameters

newTransform	Reference of Transform.

4.24.3.20 update()

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

update(sf::Time): Update the component Text

Parameters

timeDelta	sf::Time of the game.

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

4.25 toSFML Class Reference

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

`#include <toSFML.h>`

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>.

4.25.1 Detailed Description

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

Convert some class in SFML class.

4.25.2 Constructor & Destructor Documentation

4.25.2.1 toSFML()

`toSFML::toSFML ( )  [default]`

Default toSFML constructor.

Parameters

void	

Returns

void

4.25.2.2 ~toSFML()

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

toSFML destructor.

Parameters

void	

Returns

void

4.25.3 Member Function Documentation

4.25.3.1 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:

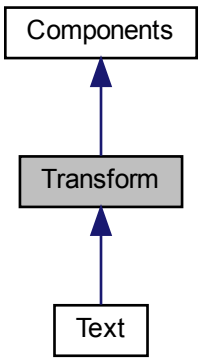
- src/toSFML/include/toSFML.h
- src/toSFML/toSFML.cpp

4.26 Transform Class Reference

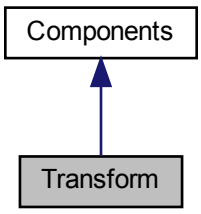
Transform class: Transform is a class that represents the transform of a Component.

`#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)

  setDeferredSprite(): Set the deferred sprite.
- void applyDeferredTransform ()

  applyDeferredSprite(): Apply the deferred sprite.

4.26.1 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.

4.26.2 Constructor & Destructor Documentation

4.26.2.1 Transform()

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

Default Transform constructor.

Parameters

void	

Returns

void

4.26.2.2 ~Transform()

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

Transform destructor.

Parameters

void	

Returns

void

4.26.3 Member Function Documentation

4.26.3.1 applyDeferredTransform()

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

applyDeferredSprite(): Apply the deferred sprite.

Parameters

void	

Returns

void

4.26.3.2 getBit()

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

getBit(): Get the bitmask of the component

Parameters

void	

Returns

int: bitmask of the component

Implements Components.

4.26.3.3 getPosition()

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

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

Parameters

void	

Returns

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

4.26.3.4 getRotation()

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

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

Parameters

void	

Returns

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

4.26.3.5 getScale()

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

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

Parameters

void	

Returns

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

4.26.3.6 getTransform()

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

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

Parameters

void	

Returns

TransformStruct: struct of the Transform.

4.26.3.7 init()

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

init(): Initialize the component

Parameters

void	

Returns

bool: true if the component is initialized, false otherwise

Implements Components.

4.26.3.8 setDeferredTransform()

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

setDeferredSprite(): Set the deferred sprite.

Parameters

setter	Function that will set the sprite.

Returns

void

4.26.3.9 setPosition()

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

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

Parameters

newPosition	: the new Vector2<float> position.

Returns

void

4.26.3.10 setRotation()

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

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

Parameters

newRotation	: the new float rotation.

Returns

void

4.26.3.11 setScale()

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

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

Parameters

newScale	: the new Vector2<float> scale.

Returns

void

4.26.3.12 setTransform()

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

setTransform(): 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

4.26.3.13 update()

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

update(sf::Time): Update the component Music

Parameters

timeDelta	sf::Time of the game.

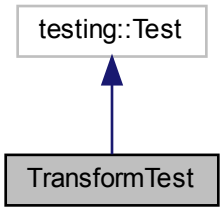
Implements Components.

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

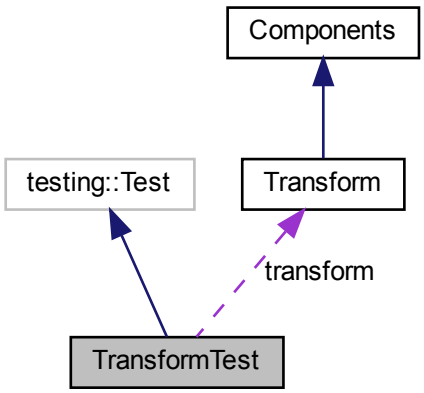
- src/Components/all_components/include/Transform.h
- src/Components/all_components/Transform.cpp

4.27 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

4.28 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.

4.28.1 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.

4.28.2 Constructor & Destructor Documentation

4.28.2.1 Vector2() [1/2]

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

< Variable for using the value of the Vector2Struct.

Vector2 constructor with parameters.

Template Parameters

T	Type of the vector.

Parameters

x	Position x.
y	Position y.

Returns

void

4.28.2.2 Vector2() [2/2]

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

Vector2 constructor with parameters.

Template Parameters

T	Type of the vector.

Parameters

x	Position x.
y	Position y.

Returns

void

4.28.2.3 ~Vector2()

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

Vector2 destructor.

Template Parameters

T	Type of the vector.

Parameters

void	

Returns

void

4.28.3 Member Function Documentation

4.28.3.1 getVector2Struct()

```
template<typename T >
template Vector2< int >::Vector2Struct Vector2< T >::getVector2Struct ( ) const
```

getVector2Struct(): Get the using Vector2Struct.

Parameters

void	

Returns

Vector2Struct

4.28.3.2 getX()

```
template<typename T >
template int Vector2< T >::getX ( ) const
```

getX(): Get x of Vector2Struct.

Template Parameters

4.28.3.3 getY()

```
template<typename T >
template int Vector2< T >::getY ( ) const
```

getY(): Get y of Vector2Struct.

Template Parameters

4.28.3.4 setX()

```
template<typename T >
template void Vector2< T >::setX (
            T newX )
```

setX(): Set x of Vector2Struct.

Template Parameters

T	Type of the Vector2

Parameters

newX	The new value of x.

4.28.3.5 setY()

```
template<typename T >
template void Vector2< T >::setY (
            T newY )
```

setY(): Set y of Vector2Struct.

Template Parameters

T	Type of the Vector2

Parameters

newY	The new value of y.

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

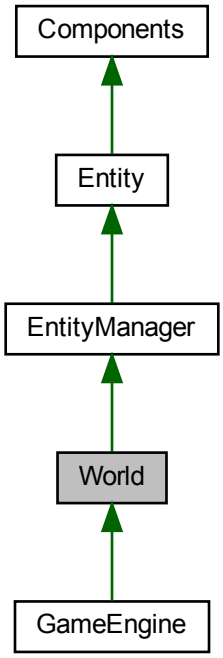
- src/Other/include/Vector2.h
- src/Other/Vector2.cpp

4.29 World Class Reference

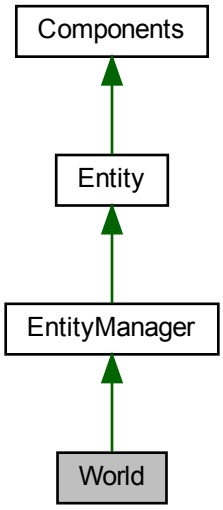
World class: World is a class that represents the world of the game.

`#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

  initEntityManager(): Initialize the EntityManager.
- 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

4.29.1 Detailed Description

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

The World class manages the world of the game.

4.29.2 Constructor & Destructor Documentation

4.29.2.1 World()

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

Default World constructor.

Parameters

void	

Returns

void

4.29.2.2 ~World()

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

World destructor.

Parameters

void	

Returns

void

4.29.3 Member Function Documentation

4.29.3.1 addEntityManager()

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

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

Parameters

NameEntityManager	Name of the entity manager.

Returns

EntityManager&: The entity manager.

4.29.3.2 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

4.29.3.3 getEntitiesManager()

```
std::map< std::string, EntityManager * > World::getEntitiesManager ( ) const
```

getEntitiesManager(): Get the entities

Returns

std::map<std::string, EntityManager*>: Get the entities.

4.29.3.4 getEntityManager()

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

getEntityManager(): Get the entity manager.

Parameters

NameEntityManager	Name of the entity manager.

Returns

EntityManager&: The entity manager.

4.29.3.5 getEntityManagerMap()

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

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

Parameters

void	

Returns

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

4.29.3.6 getNameWorld()

```
std::string World::getNameWorld ( ) const
```

getNameWorld(): Get the name of the world.

Parameters

void	

Returns

std::string: The name of the world.

4.29.3.7 init()

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

initEntityManager(): Initialize the EntityManager.

Parameters

void	

Returns

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

Reimplemented from EntityManager.

4.29.3.8 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

Index

~Color
  Color, 11
~Components
  Components, 15
~DrawableComponent
  DrawableComponent, 17
~Entity
  Entity, 21
~EntityManager
  EntityManager, 27
~EventEngine
  EventEngine, 33
~GameEngine
  GameEngine, 42
~ITransform
  ITransform, 56
~Music
  Music, 59
~Rect
  Rect< T >, 63
~Sound
  Sound, 67
~Text
  Text, 78
~Transform
  Transform, 87
~Vector2
  Vector2< T >, 96
~World
  World, 101
~toSFML
  toSFML, 85

addComponent
  Entity, 21
addDrawable
  Entity, 22
addEntity
  EntityManager, 28
addEntityManager
  World, 101
addKeyPressed
  EventEngine, 33
addMouseButtonPressed
  EventEngine, 34
addMouseMoved
  EventEngine, 34
addWorld
  GameEngine, 42
applyDeferredTransform
  Transform, 88
Archetypes, 7
AudioTest, 7

Color, 8
  ~Color, 11
  Color, 9
  fromSFMLColor, 11
  getAlpha, 11
  getBlue, 11
  getGreen, 12
  getRed, 12
  operator sf::Color, 12
  setAlpha, 12
  setBlue, 13
  setGreen, 13
  setRed, 13
Components, 14
  ~Components, 15
  Components, 15
  getBit, 15
  init, 16
  update, 16
contains
  Rect< T >, 63
createEntities
  World, 102

draw
  DrawableComponent, 18
  Text, 78
DrawableComponent, 17
  ~DrawableComponent, 17
  draw, 18
drawEntity
  Entity, 22

Entity, 18
  ~Entity, 21
  addComponent, 21
  addDrawable, 22
  drawEntity, 22
  Entity, 20, 21
  getBit, 22
  getComponent, 23
  getComponentBitset, 23
  getComponentTypeID, 24
  getName, 24
  init, 24
  setName, 25

update, 25
EntityManager, 26
~EntityManager, 27
addEntity, 28
EntityManager, 27
getEntities, 28
getEntity, 28
getEntityMap, 29
init, 29
EntityManagerTest, 30
EntityTest, 31
EventEngine, 32
~EventEngine, 33
addKeyPressed, 33
addMouseButtonPressed, 34
addMouseMoved, 34
EventEngine, 33
getEvent, 35
getKeyPressedMap, 35
getKeyStatesMap, 35
getMouseButtonPressedMap, 35
getMouseMovedMap, 36
setKeyStatesMap, 36
eventGameEngine
GameEngine, 43
EventTest, 37

fromSFMLColor
Color, 11

GameEngine, 37
~GameEngine, 42
addWorld, 42
eventGameEngine, 43
GameEngine, 41
getClock, 43
getCurrentWorld, 43
getDeltaTime, 44
getEventEngine, 44
getFilesRessources, 44
getMapFont, 45
getMapMusic, 45
getMapSound, 45
getMapTexture, 46
getWindow, 46
getWorld, 46
getWorldMap, 47
initialize, 47
initializeAllFiles, 47
initializeFont, 48
initializeMusic, 48
initializeMusicFunction, 48
initializeSound, 49
initializeSoundFunction, 49
initializeSpriteFunction, 49
initializeTextFunction, 50
initializeTexture, 50
initializeWorldMap, 50
isWindowOpen, 51
renderGameEngine, 51
run, 51
setCurrentWorld, 53
setDeltaTime, 53
updateGameEngine, 53
GameEngineTest, 54
getAlpha
Color, 11
getBit
Components, 15
Entity, 22
Text, 78
Transform, 88
getBlue
Color, 11
getClock
GameEngine, 43
getColorFill
Text, 78
getColorOutline
Text, 79
getComponent
Entity, 23
getComponentBitset
Entity, 23
getComponentTypeID
Entity, 24
getCurrentWorld
GameEngine, 43
getDeltaTime
GameEngine, 44
getEntities
EntityManager, 28
getEntitiesManager
World, 102
getEntity
EntityManager, 28
getEntityManager
World, 102
getEntityManagerMap
World, 103
getEntityMap
EntityManager, 29
getEvent
EventEngine, 35
getEventEngine
GameEngine, 44
getFilesRessources
GameEngine, 44
getFont
Text, 79
getGreen
Color, 12
getHeight
Rect< T >, 63
getKeyPressedMap
EventEngine, 35
getKeyStatesMap

EventEngine, 35
getLeft
Rect< T >, 64
getLoop
Music, 59
Sound, 68
getMapFont
GameEngine, 45
getMapMusic
GameEngine, 45
getMapSound
GameEngine, 45
getMapTexture
GameEngine, 46
getMouseButtonPressedMap
EventEngine, 35
getMouseMovedMap
EventEngine, 36
getMusic
Music, 59
getName
Entity, 24
getNameWorld
World, 103
getPosition
Transform, 89
getRect
Rect< T >, 64
getRed
Color, 12
getRotation
Transform, 89
getScale
Transform, 89
getSize
Text, 79
getSound
Sound, 68
getStatus
Music, 59
getStringText
Text, 79
getText
Text, 80
getTop
Rect< T >, 65
getTransform
ITransform, 57
Text, 80
Transform, 90
getVector2Struct
Vector2< T >, 97
getVolume
Music, 60
Sound, 68
getWidth
Rect< T >, 65
getWindow
GameEngine, 46
getWorld
GameEngine, 46
getWorldMap
GameEngine, 47
getX
Vector2< T >, 97
getY
Vector2< T >, 97

init
Components, 16
Entity, 24
EntityManager, 29
Text, 80
Transform, 90
World, 103
initialize
GameEngine, 47
initializeAllFiles
GameEngine, 47
initializeFont
GameEngine, 48
initializeMusic
GameEngine, 48
initializeMusicFunction
GameEngine, 48
initializeSound
GameEngine, 49
initializeSoundFunction
GameEngine, 49
initializeSpriteFunction
GameEngine, 49
initializeTextFunction
GameEngine, 50
initializeTexture
GameEngine, 50
initializeWorldMap
GameEngine, 50
isPlaying
Sound, 68
isWindowOpen
GameEngine, 51
ITransform, 56
∼ITransform, 56
getTransform, 57

Music, 57
∼Music, 59
getLoop, 59
getMusic, 59
getStatus, 59
getVolume, 60
Music, 59
setDeferredMusic, 60
setLoop, 60
setVolume, 61

operator sf::Color

Color, 12

Rect
Rect< T >, 62
Rect< T >, 61
~Rect, 63
contains, 63
getHeight, 63
getLeft, 64
getRect, 64
getTop, 65
getWidth, 65
Rect, 62
renderGameEngine
GameEngine, 51
run
GameEngine, 51

Script, 66
setAlpha
Color, 12
setBlue
Color, 13
setCurrentWorld
GameEngine, 53
setDeferredMusic
Music, 60
setDeferredSound
Sound, 69
setDeferredText
Text, 80
setDeferredTransform
Transform, 90
setDeltaTime
GameEngine, 53
setFillColor
Text, 81
setFont
Text, 81
setGreen
Color, 13
setKeyStatesMap
EventEngine, 36
setLoop
Music, 60
Sound, 69
setName
Entity, 25
setNameWorld
World, 104
setOutlineColor
Text, 81
setPosition
Transform, 91
setRed
Color, 13
setRotation
Transform, 91
setScale
Transform, 91
setSize
Text, 81
setSound
Sound, 69
setString
Text, 82
setText
Text, 82
setTransform
Text, 83
Transform, 93
setVolume
Music, 61
Sound, 70
setX
Vector2< T >, 98
setY
Vector2< T >, 98
Sound, 66
~Sound, 67
getLoop, 68
getSound, 68
getVolume, 68
isPlaying, 68
setDeferredSound, 69
setLoop, 69
setSound, 69
setVolume, 70
Sound, 67
SpriteTest, 70

TestRect, 71
TesttoSFML, 72
TestVector2, 73
TestWorld, 74
Text, 75
~Text, 78
draw, 78
getBit, 78
getColorFill, 78
getColorOutline, 79
getFont, 79
getSize, 79
getStringText, 79
getText, 80
getTransform, 80
init, 80
setDeferredText, 80
setFillColor, 81
setFont, 81
setOutlineColor, 81
setSize, 81
setString, 82
setText, 82
setTransform, 83
Text, 77
update, 83
toSFML, 84

~toSFML, 85
toSFML, 84
toSFMLRect, 85
toSFMLRect
toSFML, 85
Transform, 86
~Transform, 87
applyDeferredTransform, 88
getBit, 88
getPosition, 89
getRotation, 89
getScale, 89
getTransform, 90
init, 90
setDeferredTransform, 90
setPosition, 91
setRotation, 91
setScale, 91
setTransform, 93
Transform, 87
update, 93
TransformTest, 94

update
Components, 16
Entity, 25
Text, 83
Transform, 93
updateGameEngine
GameEngine, 53

Vector2
Vector2< T >, 95, 96
Vector2< T >, 95
~Vector2, 96
getVector2Struct, 97
getX, 97
getY, 97
setX, 98
setY, 98
Vector2, 95, 96

World, 99
~World, 101
addEntityManager, 101
createEntities, 102
getEntitiesManager, 102
getEntityManager, 102
getEntityManagerMap, 103
getNameWorld, 103
init, 103
setNameWorld, 104
World, 101