

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 Audio Class Reference	7
4.3 Components Class Reference	7
4.4 DrawableComponent Class Reference	7
4.5 Entity Class Reference	8
4.5.1 Detailed Description	9
4.5.2 Constructor & Destructor Documentation	9
4.5.2.1 Entity() [1/2]	9
4.5.2.2 Entity() [2/2]	9
4.5.2.3 ~Entity()	10
4.5.3 Member Function Documentation	10
4.5.3.1 addComponent()	10
4.5.3.2 addDrawable()	10
4.5.3.3 drawEntity()	11
4.5.3.4 getComponent()	11
4.5.3.5 getComponentArrays()	12
4.5.3.6 getComponentBitset()	12
4.5.3.7 getComponentTypeID()	12
4.5.3.8 getDrawableComponents()	13
4.5.3.9 getName()	13
4.5.3.10 initEntity()	13
4.5.3.11 setName()	14
4.6 EntityManager Class Reference	14
4.6.1 Constructor & Destructor Documentation	15
4.6.1.1 EntityManager()	15
4.6.1.2 ~EntityManager()	15
4.6.2 Member Function Documentation	15
4.6.2.1 addEntity()	15
4.6.2.2 getEntities()	16
4.6.2.3 getEntity()	16
4.6.2.4 getEntityMap()	17
4.6.2.5 initEntityManager()	17

4.7 EntityManagerTest Class Reference	17
4.8 EntityTest Class Reference	18
4.9 EventEngine Class Reference	18
4.9.1 Detailed Description	19
4.9.2 Constructor & Destructor Documentation	19
4.9.2.1 EventEngine()	19
4.9.2.2 ~EventEngine()	19
4.9.3 Member Function Documentation	19
4.9.3.1 addKeyPressed()	20
4.9.3.2 getEvent()	20
4.9.3.3 getKeyPressedMap()	20
4.9.3.4 init()	21
4.10 EventTest Class Reference	21
4.11 GameEngine Class Reference	21
4.11.1 Detailed Description	23
4.11.2 Constructor & Destructor Documentation	23
4.11.2.1 GameEngine() [1/2]	23
4.11.2.2 GameEngine() [2/2]	23
4.11.2.3 ~GameEngine()	24
4.11.3 Member Function Documentation	24
4.11.3.1 addWorld()	24
4.11.3.2 eventGameEngine()	24
4.11.3.3 getCurrentWorld()	25
4.11.3.4 getEventEngine()	25
4.11.3.5 getFilesTexture()	25
4.11.3.6 getMapTexture()	26
4.11.3.7 getWindow()	26
4.11.3.8 getWorld()	26
4.11.3.9 getWorldMap()	28
4.11.3.10 initialize()	28
4.11.3.11 initializeSprite()	29
4.11.3.12 initializeTexture()	29
4.11.3.13 initializeWorldMap()	29
4.11.3.14 isWindowOpen()	30
4.11.3.15 renderGameEngine()	30
4.11.3.16 run() [1/2]	30
4.11.3.17 run() [2/2]	31
4.11.3.18 setCurrentWorld()	31
4.11.3.19 setWindow()	31
4.11.3.20 updateGameEngine()	32
4.12 GameEngineTest Class Reference	32
4.13 Sprite Class Reference	33

4.13.1 Detailed Description	34
4.13.2 Constructor & Destructor Documentation	34
4.13.2.1 Sprite() [1/2]	34
4.13.2.2 Sprite() [2/2]	34
4.13.2.3 ~Sprite()	34
4.13.3 Member Function Documentation	35
4.13.3.1 applyDeferredSprite()	35
4.13.3.2 createSprite() [1/3]	35
4.13.3.3 createSprite() [2/3]	35
4.13.3.4 createSprite() [3/3]	36
4.13.3.5 draw()	36
4.13.3.6 getBit()	37
4.13.3.7 getSprite()	37
4.13.3.8 getTexture()	37
4.13.3.9 initSprite()	38
4.13.3.10 isTextureLoaded()	38
4.13.3.11 setDeferredSprite()	38
4.13.3.12 setSprite() [1/2]	39
4.13.3.13 setSprite() [2/2]	39
4.13.3.14 setTexture()	39
4.14 SpriteTest Class Reference	40
4.15 TestWorld Class Reference	40
4.16 Transform Class Reference	40
4.16.1 Detailed Description	41
4.16.2 Constructor & Destructor Documentation	41
4.16.2.1 Transform() [1/2]	41
4.16.2.2 Transform() [2/2]	42
4.16.2.3 ~Transform()	42
4.16.3 Member Function Documentation	42
4.16.3.1 getBit()	42
4.16.3.2 getPositionVector()	43
4.16.3.3 getRotationVector()	43
4.16.3.4 getScaleVector()	43
4.16.3.5 setTransform()	44
4.17 TransformTest Class Reference	44
4.18 World Class Reference	44
4.18.1 Detailed Description	45
4.18.2 Constructor & Destructor Documentation	45
4.18.2.1 World()	45
4.18.2.2 ~World()	46
4.18.3 Member Function Documentation	46
4.18.3.1 addEntityManager()	46

4.18.3.2 createEntities()	46
4.18.3.3 getEntityManager()	47
4.18.3.4 getEntityManagerMap()	47
4.18.3.5 getNameWorld()	47
4.18.3.6 initWorld()	48
4.18.3.7 setNameWorld()	48

Index	49
--------------	-----------

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
```


Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

Archetypes	7
Audio	7
Components	7
Entity	8
EntityManager	14
World	44
GameEngine	21
Sprite	33
Transform	40
DrawableComponent	7
Sprite	33
EventEngine	18
GameEngine	21
testing::Test	
EntityManagerTest	17
EntityTest	18
EventTest	21
GameEngineTest	32
SpriteTest	40
TestWorld	40
TransformTest	44

Chapter 3

Class Index

3.1 Class List

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

Archetypes	7
Audio	7
Components	7
DrawableComponent	7
Entity	
Entity class: Entity is a class that represents an entity in the game	8
EntityManager	14
EntityManagerTest	17
EntityTest	18
EventEngine	
EventEngine class: EventEngine is a class that represents the event engine of the game	18
EventTest	21
GameEngine	
GameEngine class: GameEngine is a class that represents the game engine	21
GameEngineTest	32
Sprite	
Sprite class: Sprite is a class that represents the rendering properties of a Component	33
SpriteTest	40
TestWorld	40
Transform	
Transform class: Transform is a class that represents the transform of a Component	40
TransformTest	44
World	
World class: World is a class that represents the world of the game	44

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 Audio Class Reference

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

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

4.3 Components Class Reference

Inheritance diagram for Components:

Public Member Functions

- virtual bool **init** ()
- virtual void **update** ()

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

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

4.4 DrawableComponent Class Reference

Inheritance diagram for DrawableComponent:

Public Member Functions

- virtual void **draw** (sf::RenderWindow &window) const =0

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

- src/Components/include/DrawableComponent.h

4.5 Entity Class Reference

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

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

Inheritance diagram for Entity:

Collaboration diagram for Entity:

Public Member Functions

- [Entity](#) ()=default
Default [Entity](#) constructor.
- [Entity](#) (std::string nameEntity, [Archetypes](#) newArchetype=[Archetypes](#)())
[Entity](#) constructor.
- [~Entity](#) () override=default
[Entity](#) destructor.
- bool [initEntity](#) ()
init(): Initialize the entity
- std::string [getName](#) () const
genName(): Get the name of the entity
- void [setName](#) (std::string newName)
setName(): Set the name of the entity
- void [addDrawable](#) ([Components](#) *component)
addDrawable(): Add a drawable component to the entity
- void [drawEntity](#) (sf::RenderWindow &window)
drawEntity(): Draw the entities
- template<typename T , typename... TArgs>
T & [addComponent](#) (TArgs &&... args)
addComponent(): Add a component to the entity
- template<typename T >
T & [getComponent](#) ()
getComponent(): Get a component from the entity
- template<typename T >
std::size_t [getComponentTypeID](#) () noexcept
getComponentTypeID(): Get the ID of a component
- std::bitset< 3 > [getComponentBitset](#) () const
getComponentBitset(): Get the bitset of the components
- std::vector< [DrawableComponent](#) * > [getDrawableComponents](#) () const
getDrawableComponents(): Get the drawable components of the entity
- std::array< [Components](#) *, 3 > [getComponentArrays](#) () const
getComponentArrays(): Get the array of components

Additional Inherited Members

4.5.1 Detailed Description

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

The [Entity](#) class manages components associated with the entity.

4.5.2 Constructor & Destructor Documentation

4.5.2.1 Entity() [1/2]

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

Default [Entity](#) constructor.

Parameters

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

Returns

void

4.5.2.2 Entity() [2/2]

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

[Entity](#) constructor.

Parameters

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

Returns

void

4.5.2.3 ~Entity()

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

[Entity](#) destructor.

Parameters

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

Returns

void

4.5.3 Member Function Documentation

4.5.3.1 addComponent()

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

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

Template Parameters

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

Parameters

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

Returns

T&: reference of the component

4.5.3.2 addDrawable()

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

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

Parameters

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

Returns

void

4.5.3.3 drawEntity()

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

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

Parameters

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

Returns

void

4.5.3.4 getComponent()

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

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

Template Parameters

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

Parameters

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

Returns

T&: reference of the component

4.5.3.5 GetComponentArrays()

```
std::array<Components*, 3> Entity::GetComponentArrays ( ) const [inline]
```

[GetComponentArrays\(\)](#): Get the array of components

Parameters

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

Returns

std::array<Components*, 3>: array of components

4.5.3.6 GetComponentBitset()

```
std::bitset<3> Entity::GetComponentBitset ( ) const [inline]
```

[GetComponentBitset\(\)](#): Get the bitset of the components

Parameters

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

Returns

std::bitset<3>: bitset of the components

4.5.3.7 GetComponentTypeID()

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

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

Template Parameters

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

Parameters

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

Returns

std::size_t: ID of the component

4.5.3.8 getDrawableComponents()

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

getDrawableComponents(): Get the drawable components of the entity

Parameters

void	
------	--

Returns

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

4.5.3.9 getName()

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

getName(): Get the name of the entity

Parameters

void	
------	--

Returns

std::string: name of the entity

4.5.3.10 initEntity()

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

init(): Initialize the entity

Parameters

void	
------	--

Returns

bool: true if the entity is initialized, false otherwise

4.5.3.11 setName()

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

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

Parameters

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

Returns

void

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

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

4.6 EntityManager Class Reference

Inheritance diagram for EntityManager:

Collaboration diagram for EntityManager:

Public Member Functions

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

Additional Inherited Members

4.6.1 Constructor & Destructor Documentation

4.6.1.1 EntityManager()

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

< Map of the present entities in the game.

Default [EntityManager](#) constructor.

Parameters

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

Returns

void

4.6.1.2 ~EntityManager()

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

[EntityManager](#) destructor.

Parameters

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

Returns

void

4.6.2 Member Function Documentation

4.6.2.1 addEntity()

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

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

Template Parameters

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

Parameters

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

4.6.2.2 getEntities()

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

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

Parameters

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

Returns

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

4.6.2.3 getEntity()

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

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

Template Parameters

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

Parameters

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

Returns

T&: Reference of the entity.

4.6.2.4 getEntityMap()

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

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

Parameters

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

Returns

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

4.6.2.5 initEntityManager()

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

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

Parameters

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

Returns

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

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

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

4.7 EntityManagerTest Class Reference

Inheritance diagram for EntityManagerTest:

Collaboration diagram for EntityManagerTest:

Protected Member Functions

- `void SetUp ()` override
- `void TearDown ()` override

Protected Attributes

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

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

- tests/Entity/TestEntityManager.cpp

4.8 EntityTest Class Reference

Inheritance diagram for EntityTest:

Collaboration diagram for EntityTest:

Protected Attributes

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

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

- tests/Entity/TestEntity.cpp

4.9 EventEngine Class Reference

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

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

Inheritance diagram for EventEngine:

Public Member Functions

- [EventEngine](#) ()=default
Default [EventEngine](#) constructor.
- virtual [~EventEngine](#) ()=default
[EventEngine](#) destructor.
- bool [init](#) () const
[init\(\)](#): Initialize the [EventEngine](#).
- sf::Event & [getEvent](#) ()
[getEvent\(\)](#): Get the SFML Event.
- void [addKeyPressed](#) (sf::Keyboard::Key keyboard, std::function< void()> function)
[addKeyPressed\(\)](#): Add a key pressed to the map.
- std::map< sf::Keyboard::Key, std::function< void()> > & [getKeyPressedMap](#) ()
[getKeyPressedMap\(\)](#): Get the map of the key pressed.

4.9.1 Detailed Description

`EventEngine` class: `EventEngine` is a class that represents the event engine of the game.

The `EventEngine` class manages the events of the game.

4.9.2 Constructor & Destructor Documentation

4.9.2.1 EventEngine()

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

Default `EventEngine` constructor.

Parameters

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

Returns

void

4.9.2.2 ~EventEngine()

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

`EventEngine` destructor.

Parameters

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

Returns

void

4.9.3 Member Function Documentation

4.9.3.1 addKeyPressed()

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

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

Parameters

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

Returns

void

4.9.3.2 getEvent()

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

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

Parameters

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

Returns

sf::Event: The SFML Event.

4.9.3.3 getKeyPressedMap()

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

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

Parameters

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

Returns

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

4.9.3.4 init()

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

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

Parameters

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

Returns

bool: True if the [EventEngine](#) is initialized, false otherwise.

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

- [src/Event/include/eventEngine.h](#)
- [src/Event/eventEngine.cpp](#)

4.10 EventTest Class Reference

Inheritance diagram for EventTest:

Collaboration diagram for EventTest:

Protected Attributes

- [EventEngine](#) **eventEngine**

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

- [tests/Event/TestEvent.cpp](#)

4.11 GameEngine Class Reference

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

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

Inheritance diagram for GameEngine:

Collaboration diagram for GameEngine:

Public Member Functions

- [GameEngine](#) ()=default
< EventEngine class which manages the events.
- [GameEngine](#) (sf::VideoMode mode, std::string type, sf::String title, sf::Uint32 style=sf::Style::Default, const sf::ContextSettings &settings=sf::ContextSettings())
GameEngine constructor with parameters.
- [~GameEngine](#) ()=default
GameEngine destructor.
- void [run](#) (std::map< std::string, std::unique_ptr< [World](#) >> mapWorld, std::map< std::string, std::string > pathResources, std::string firstScene)
run(): Run the game engine (with parameters).
- void [run](#) ()
run(): Run the game engine (without parameters).
- void [renderGameEngine](#) ()
renderGameEngine(): Render the game engine.
- void [eventGameEngine](#) ()
eventGameEngine(): Manage the events of the game engine.
- bool [isWindowOpen](#) ()
isWindowOpen(): Check if the window is open.
- void [updateGameEngine](#) ()
updateGameEngine(): Update the game engine.
- std::vector< std::string > [getFilesTexture](#) (std::string pathDirectory)
getFilesTexture(): Get all the textures files in the given directory.
- void [initialize](#) (std::map< std::string, std::unique_ptr< [World](#) >> mapWorld, std::map< std::string, std::string > pathResources, std::string firstScene)
initialize(): Initialize the game engine.
- void [initializeSprite](#) ()
initializeSprite(): Initialize the sprites.
- void [initializeTexture](#) (std::string path)
initializeTexture(): Initialize the textures with their path.
- void [initializeWorldMap](#) (std::map< std::string, std::unique_ptr< [World](#) >> mapWorld)
initializeWorldMap(): Initialize the world map.
- const auto & [getWindow](#) ()
getWindow(): Get the window.
- void [setWindow](#) ()
setWindow(): Set the window.
- [EventEngine](#) & [getEventEngine](#) ()
getEventEngine(): Get the event engine.
- void [setCurrentWorld](#) ([World](#) *world)
setCurrentWorld(): Set GameEngine's current world.
- [World](#) * [getCurrentWorld](#) ()
getCurrentWorld(): Get GameEngine's current world.
- [World](#) & [addWorld](#) (std::string nameWorld, std::unique_ptr< [World](#) > world)
addWorld(): Add a world to the world map.
- [World](#) & [getWorld](#) (std::string nameWorld)
getWorld(): Get a world from the world map with its name.
- std::map< std::string, std::shared_ptr< sf::Texture > > [getMapTexture](#) () const
getMapTexture(): Get GameEngine's map of the textures.
- std::map< std::string, [World](#) * > [getWorldMap](#) () const
getWorldMap(): Get GameEngine's map of the worlds.

Additional Inherited Members

4.11.1 Detailed Description

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

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

4.11.2 Constructor & Destructor Documentation

4.11.2.1 GameEngine() [1/2]

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

< [EventEngine](#) class which manages the events.

Default [GameEngine](#) constructor.

Parameters

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

Returns

void

4.11.2.2 GameEngine() [2/2]

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

[GameEngine](#) constructor with parameters.

Parameters

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

Returns

void

4.11.2.3 ~GameEngine()

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

[GameEngine](#) destructor.

Parameters

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

Returns

void

4.11.3 Member Function Documentation**4.11.3.1 addWorld()**

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

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

Parameters

<i>nameWorld</i>	Name of the world.
<i>world</i>	World to add.

Returns

[World&](#): The world.

4.11.3.2 eventGameEngine()

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

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

Parameters

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

Returns

void

4.11.3.3 `getCurrentWorld()`

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

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

Parameters

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

Returns

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

4.11.3.4 `getEventEngine()`

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

`getEventEngine()`: Get the event engine.

Parameters

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

Returns

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

4.11.3.5 `getFilesTexture()`

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

`getFilesTexture()`: Get all the textures files in the given directory.

Parameters

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

Returns

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

4.11.3.6 getMapTexture()

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

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

Parameters

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

Returns

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

4.11.3.7 getWindow()

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

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

Parameters

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

Returns

`std::variant<std::unique_ptr<sf::Window>, std::unique_ptr<sf::RenderWindow>>`: The [GameEngine](#)'s window

4.11.3.8 getWorld()

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


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

Parameters

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

Returns

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

4.11.3.9 `getWorldMap()`

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

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

Parameters

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

Returns

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

4.11.3.10 `initialize()`

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

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

Parameters

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

Returns

`void`

4.11.3.11 initializeSprite()

```
void GameEngine::initializeSprite ( )
```

[initializeSprite\(\)](#): Initialize the sprites.

Parameters

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

Returns

void

4.11.3.12 initializeTexture()

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

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

Parameters

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

Returns

void

4.11.3.13 initializeWorldMap()

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

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

Parameters

<i>mapWorld</i>	Map of World classes' unique pointers.
-----------------	--

Returns

void

4.11.3.14 isWindowOpen()

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

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

Parameters

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

Returns

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

4.11.3.15 renderGameEngine()

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

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

Parameters

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

Returns

void

4.11.3.16 run() [1/2]

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

[run\(\)](#): Run the game engine (without parameters).

Parameters

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

Returns

void

4.11.3.17 run() [2/2]

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

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

Parameters

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

Returns

void

4.11.3.18 setCurrentWorld()

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

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

Parameters

<i>world</i>	World to set.
--------------	-------------------------------

Returns

void

4.11.3.19 setWindow()

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

[setWindow\(\)](#): Set the window.

Parameters

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

Returns

void

4.11.3.20 updateGameEngine()

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

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

Parameters

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

Returns

void

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

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

4.12 GameEngineTest Class Reference

Inheritance diagram for GameEngineTest:

Collaboration diagram for GameEngineTest:

Protected Member Functions

- void **TearDown** () override

Protected Attributes

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

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

- `tests/GameEngine/TestGameEngine.cpp`

4.13 Sprite Class Reference

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

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

Inheritance diagram for **Sprite**:

Collaboration diagram for **Sprite**:

Public Member Functions

- **Sprite** ()=default
*Default **Sprite** constructor.*
- **Sprite** (const std::string &texturePath)
***Sprite** constructor with an existing texture path.*
- **~Sprite** () override=default
***Sprite** destructor.*
- bool **initSprite** () const
*init(): Initialize the **Sprite**.*
- int **getBit** () const
*getBit(): Get the bit of the **Sprite**.*
- void **draw** (sf::RenderWindow &window) const override
*draw(): Draw the **Sprite**.*
- void **createSprite** (const std::string &texturePath)
*createSprite(): Create the SFML **Sprite** with a texture path for rendering.*
- void **createSprite** (const sf::Texture &existingTexture)
*createSprite(): Create the SFML **Sprite** with an existing texture for rendering.*
- void **createSprite** ()
*createSprite(): Create the SFML **Sprite** with the component's texture for rendering.*
- sf::Sprite **getSprite** () const
*getSprite(): Get the SFML **Sprite** for rendering.*
- sf::Texture **getTexture** () const
getTexture(): Get the SFML Texture for the sprite.
- bool **isTextureLoaded** () const
isTextureLoaded(): Check if the texture is loaded.
- void **setSprite** (const sf::Sprite &sprite)
*setSprite(): Set the SFML **Sprite** with an existing one for rendering.*
- void **setSprite** (std::map< std::string, std::shared_ptr< sf::Texture >> mapTexture, std::string nameTexture, std::map< std::string, std::vector< float >> &mapTransform)
*setSprite(): Set the SFML **Sprite** with a map of string and textures, a texture name and a map of string and vector of floats.*
- void **setDeferredSprite** (std::function< void()> setter)
setDeferredSprite(): Set the deferred sprite.
- void **applyDeferredSprite** ()
applyDeferredSprite(): Apply the deferred sprite.
- void **setTexture** (const sf::Texture &existingTexture)
setTexture(): Set the texture with an existing one for the sprite.

4.13.1 Detailed Description

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

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

4.13.2 Constructor & Destructor Documentation

4.13.2.1 [Sprite\(\)](#) [1/2]

```
Sprite::Sprite ( ) [default]
```

Default [Sprite](#) constructor.

Parameters

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

Returns

void

4.13.2.2 [Sprite\(\)](#) [2/2]

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

[Sprite](#) constructor with an existing texture path.

Parameters

<i>texturePath</i>	Path to the texture file for the sprite.
--------------------	--

Returns

void

4.13.2.3 [~Sprite\(\)](#)

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

[Sprite](#) destructor.

Parameters

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

Returns

void

4.13.3 Member Function Documentation

4.13.3.1 `applyDeferredSprite()`

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

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

Parameters

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

Returns

void

4.13.3.2 `createSprite()` [1/3]

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

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

Parameters

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

Returns

void

4.13.3.3 `createSprite()` [2/3]

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

[createSprite\(\)](#): Create the SFML [Sprite](#) with an existing texture for rendering.

Parameters

<i>existingTexture</i>	SFML Texture for the sprite
------------------------	-----------------------------

Returns

void

4.13.3.4 createSprite() [3/3]

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

[createSprite\(\)](#): Create the SFML [Sprite](#) with a texture path for rendering.

Parameters

<i>texturePath</i>	Path to the texture file for the sprite.
--------------------	--

Returns

void

4.13.3.5 draw()

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

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

Parameters

<i>window</i>	SFML RenderWindow where the Sprite will be drawn.
---------------	---

Returns

void

Implements [DrawableComponent](#).

4.13.3.6 getBit()

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

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

Parameters

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

Returns

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

4.13.3.7 getSprite()

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

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

Parameters

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

Returns

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

4.13.3.8 getTexture()

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

[getTexture\(\)](#): Get the SFML Texture for the sprite.

Parameters

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

Returns

sf::Texture: SFML Texture for the sprite

4.13.3.9 initSprite()

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

init(): Initialize the [Sprite](#).

Parameters

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

Returns

bool: True if the [Sprite](#) is initialized, false otherwise.

4.13.3.10 isTextureLoaded()

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

[isTextureLoaded\(\)](#): Check if the texture is loaded.

Parameters

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

Returns

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

4.13.3.11 setDeferredSprite()

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

[setDeferredSprite\(\)](#): Set the deferred sprite.

Parameters

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

Returns

void

4.13.3.12 `setSprite()` [1/2]

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

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

Parameters

<i>sprite</i>	SFML Sprite for rendering
---------------	---

Returns

void

4.13.3.13 `setSprite()` [2/2]

```
void Sprite::setSprite (
    std::map< std::string, std::shared_ptr< sf::Texture >> mapTexture,
    std::string nameTexture,
    std::map< std::string, std::vector< float >> & mapTransform )
```

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

Parameters

<i>mapTexture</i>	Map of string and textures.
<i>nameTexture</i>	Name of the texture.
<i>mapTransform</i>	Map of string and vector of floats.

Returns

void

4.13.3.14 `setTexture()`

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

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

Parameters

<i>existingTexture</i>	SFML Texture for the sprite
------------------------	-----------------------------

Returns

void

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

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

4.14 SpriteTest Class Reference

Inheritance diagram for SpriteTest:

4.15 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

4.16 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
Default [Transform](#) constructor.
- bool [init](#) () const
- [Transform](#) (std::map< std::string, std::vector< float >> &mapTransform)
[Transform](#) constructor.
- [~Transform](#) () override=default
[Transform](#) destructor.
- int [getBit](#) () const
[getBit\(\)](#): Get the bitmask of the component
- std::vector< float > [getPositionVector](#) () const
[getPositionVector\(\)](#): Get the position vector of the component;
- std::vector< float > [getRotationVector](#) () const
[getRotationVector\(\)](#): Get the rotation vector of the component;
- std::vector< float > [getScaleVector](#) () const
[getScaleVector\(\)](#): Get the scale vector of the component;
- void [setTransform](#) (const std::map< std::string, std::vector< float >> &mapTransform)
[setTransform\(\)](#): Set the transformation properties of the component

4.16.1 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.

4.16.2 Constructor & Destructor Documentation

4.16.2.1 Transform() [1/2]

```
Transform::Transform ( ) [default]
```

Default [Transform](#) constructor.

Parameters

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

Returns

void

4.16.2.2 Transform() [2/2]

```
Transform::Transform (
    std::map< std::string, std::vector< float >> & mapTransform ) [inline]
```

[Transform](#) constructor.

Parameters

<i>mapTransform</i>	Map containing transformation properties (std::string, std::vector<float>).
---------------------	---

Returns

void

4.16.2.3 ~Transform()

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

[Transform](#) destructor.

Parameters

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

Returns

void

4.16.3 Member Function Documentation

4.16.3.1 getBit()

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

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

Parameters

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

Returns

int: bitmask of the component

4.16.3.2 getPositionVector()

```
std::vector< float > Transform::getPositionVector ( ) const
```

[getPositionVector\(\)](#): Get the position vector of the component;

Parameters

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

Returns

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

4.16.3.3 getRotationVector()

```
std::vector< float > Transform::getRotationVector ( ) const
```

[getRotationVector\(\)](#): Get the rotation vector of the component;

Parameters

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

Returns

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

4.16.3.4 getScaleVector()

```
std::vector< float > Transform::getScaleVector ( ) const
```

[getScaleVector\(\)](#): Get the scale vector of the component;

Parameters

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

Returns

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

4.16.3.5 setTransform()

```
void Transform::setTransform (
    const std::map< std::string, std::vector< float >> & mapTransform )
```

[setTransform\(\)](#): Set the transformation properties of the component

Parameters

<i>mapTransform</i>	Map containing transformation properties (std::string, std::vector<float>).
---------------------	---

Returns

`void`

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

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

4.17 TransformTest Class Reference

Inheritance diagram for TransformTest:

Collaboration diagram for TransformTest:

Protected Attributes

- [Transform](#) `transform`

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

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

4.18 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
< Name of the world.
- `~World ()` override=default
World destructor.
- void `createEntities` (std::map< std::string, std::pair< std::unique_ptr< `EntityManager` >, std::vector< std::string >>> &mapEntityManager, std::string keyEntityManager)
createEntities(): Create the entities.
- `EntityManager` & `addEntityManager` (std::string NameEntityManager)
addEntityManager(): Add an entity manager to the map.
- `EntityManager` & `getEntityManager` (std::string NameEntityManager)
getEntityManager(): Get the entity manager.
- void `setNameWorld` (std::string newName)
setNameWorld(): Set the name of the world.
- std::string `getNameWorld` () const
getNameWorld(): Get the name of the world.
- std::map< std::string, `EntityManager` * > `getEntityManagerMap` () const
getEntityManagerMap(): Get the map of the entity manager.
- bool `initWorld` ()
init(): Initialize the World.

Additional Inherited Members

4.18.1 Detailed Description

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

The `World` class manages the world of the game.

4.18.2 Constructor & Destructor Documentation

4.18.2.1 World()

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

< Name of the world.

Default `World` constructor.

Parameters

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

Returns

void

4.18.2.2 ~World()

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

[World](#) destructor.

Parameters

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

Returns

void

4.18.3 Member Function Documentation**4.18.3.1 addEntityManager()**

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

[addEntityManager\(\)](#): Add an entity manager to the map.

Parameters

<i>NameEntityManager</i>	Name of the entity manager.
--------------------------	-----------------------------

Returns

[EntityManager&](#): The entity manager.

4.18.3.2 createEntities()

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

[createEntities\(\)](#): Create the entities.

Parameters

<i>mapEntityManager</i>	Map of the entities manager's unique pointers.
<i>keyEntityManager</i>	Key of the entities manager.

Returns

void

4.18.3.3 getEntityManager()

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

[getEntityManager\(\)](#): Get the entity manager.

Parameters

<i>NameEntityManager</i>	Name of the entity manager.
--------------------------	-----------------------------

Returns

[EntityManager&](#): The entity manager.

4.18.3.4 getEntityManagerMap()

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

[getEntityManagerMap\(\)](#): Get the map of the entity manager.

Parameters

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

Returns

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

4.18.3.5 getNameWorld()

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

[getNameWorld\(\)](#): Get the name of the world.

Parameters

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

Returns

std::string: The name of the world.

4.18.3.6 initWorld()

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

init(): Initialize the [World](#).

Parameters

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

Returns

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

4.18.3.7 setNameWorld()

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

[setNameWorld\(\)](#): Set the name of the world.

Parameters

<i>newName</i>	New name of the world.
----------------	------------------------

Returns

void

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

- src/World/include/world.h
- src/World/world.cpp

Index

- ~Entity
 - Entity, [9](#)
- ~EntityManager
 - EntityManager, [15](#)
- ~EventEngine
 - EventEngine, [19](#)
- ~GameEngine
 - GameEngine, [24](#)
- ~Sprite
 - Sprite, [34](#)
- ~Transform
 - Transform, [42](#)
- ~World
 - World, [46](#)
- addComponent
 - Entity, [10](#)
- addDrawable
 - Entity, [10](#)
- addEntity
 - EntityManager, [15](#)
- addEntityManager
 - World, [46](#)
- addKeyPressed
 - EventEngine, [19](#)
- addWorld
 - GameEngine, [24](#)
- applyDeferredSprite
 - Sprite, [35](#)
- Archetypes, [7](#)
- Audio, [7](#)
- Components, [7](#)
- createEntities
 - World, [46](#)
- createSprite
 - Sprite, [35](#), [36](#)
- draw
 - Sprite, [36](#)
- DrawableComponent, [7](#)
- drawEntity
 - Entity, [11](#)
- Entity, [8](#)
 - ~Entity, [9](#)
 - addComponent, [10](#)
 - addDrawable, [10](#)
 - drawEntity, [11](#)
 - Entity, [9](#)
 - getComponent, [11](#)
 - getComponentArrays, [11](#)
 - getComponentBitset, [12](#)
 - getComponentTypeID, [12](#)
 - getDrawableComponents, [13](#)
 - getName, [13](#)
 - initEntity, [13](#)
 - setName, [14](#)
- EntityManager, [14](#)
 - ~EntityManager, [15](#)
 - addEntity, [15](#)
 - EntityManager, [15](#)
 - getEntities, [16](#)
 - getEntity, [16](#)
 - getEntityMap, [16](#)
 - initEntityManager, [17](#)
- EntityManagerTest, [17](#)
- EntityTest, [18](#)
- EventEngine, [18](#)
 - ~EventEngine, [19](#)
 - addKeyPressed, [19](#)
 - EventEngine, [19](#)
 - getEvent, [20](#)
 - getKeyPressedMap, [20](#)
 - init, [21](#)
- eventGameEngine
 - GameEngine, [24](#)
- EventTest, [21](#)
- GameEngine, [21](#)
 - ~GameEngine, [24](#)
 - addWorld, [24](#)
 - eventGameEngine, [24](#)
 - GameEngine, [23](#)
 - getCurrentWorld, [25](#)
 - getEventEngine, [25](#)
 - getFilesTexture, [25](#)
 - getMapTexture, [26](#)
 - getWindow, [26](#)
 - getWorld, [26](#)
 - getWorldMap, [28](#)
 - initialize, [28](#)
 - initializeSprite, [28](#)
 - initializeTexture, [29](#)
 - initializeWorldMap, [29](#)
 - isWindowOpen, [29](#)
 - renderGameEngine, [30](#)
 - run, [30](#)
 - setCurrentWorld, [31](#)
 - setWindow, [31](#)

- updateGameEngine, 32
- GameEngineTest, 32
- getBit
 - Sprite, 36
 - Transform, 42
- getComponent
 - Entity, 11
- getComponentArrays
 - Entity, 11
- getComponentBitset
 - Entity, 12
- getComponentTypeID
 - Entity, 12
- getCurrentWorld
 - GameEngine, 25
- getDrawableComponents
 - Entity, 13
- getEntities
 - EntityManager, 16
- getEntity
 - EntityManager, 16
- getEntityManager
 - World, 47
- getEntityManagerMap
 - World, 47
- getEntityMap
 - EntityManager, 16
- getEvent
 - EventEngine, 20
- getEventEngine
 - GameEngine, 25
- getFilesTexture
 - GameEngine, 25
- getKeyPressedMap
 - EventEngine, 20
- getMapTexture
 - GameEngine, 26
- getName
 - Entity, 13
- getNameWorld
 - World, 47
- getPositionVector
 - Transform, 43
- getRotationVector
 - Transform, 43
- getScaleVector
 - Transform, 43
- getSprite
 - Sprite, 37
- getTexture
 - Sprite, 37
- getWindow
 - GameEngine, 26
- getWorld
 - GameEngine, 26
- getWorldMap
 - GameEngine, 28
- init
 - EventEngine, 21
 - initEntity
 - Entity, 13
 - initEntityManager
 - EntityManager, 17
 - initialize
 - GameEngine, 28
 - initializeSprite
 - GameEngine, 28
 - initializeTexture
 - GameEngine, 29
 - initializeWorldMap
 - GameEngine, 29
 - initSprite
 - Sprite, 37
 - initWorld
 - World, 48
 - isTextureLoaded
 - Sprite, 38
 - isWindowOpen
 - GameEngine, 29
- renderGameEngine
 - GameEngine, 30
- run
 - GameEngine, 30
- setCurrentWorld
 - GameEngine, 31
- setDeferredSprite
 - Sprite, 38
- setName
 - Entity, 14
- setNameWorld
 - World, 48
- setSprite
 - Sprite, 38, 39
- setTexture
 - Sprite, 39
- setTransform
 - Transform, 44
- setWindow
 - GameEngine, 31
- Sprite, 33
 - ~Sprite, 34
 - applyDeferredSprite, 35
 - createSprite, 35, 36
 - draw, 36
 - getBit, 36
 - getSprite, 37
 - getTexture, 37
 - initSprite, 37
 - isTextureLoaded, 38
 - setDeferredSprite, 38
 - setSprite, 38, 39
 - setTexture, 39
 - Sprite, 34
- SpriteTest, 40

TestWorld, [40](#)
Transform, [40](#)
 ~Transform, [42](#)
 getBit, [42](#)
 getPositionVector, [43](#)
 getRotationVector, [43](#)
 getScaleVector, [43](#)
 setTransform, [44](#)
 Transform, [41](#)
TransformTest, [44](#)

updateGameEngine
 GameEngine, [32](#)

World, [44](#)
 ~World, [46](#)
 addEntityManager, [46](#)
 createEntities, [46](#)
 getEntityManager, [47](#)
 getEntityManagerMap, [47](#)
 getNameWorld, [47](#)
 initWorld, [48](#)
 setNameWorld, [48](#)
 World, [45](#)