

## R-Type architecture

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# Chapter 1

## Hierarchical Index

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# Chapter 3

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### 3.1 File List

Here is a list of all documented files with brief descriptions:

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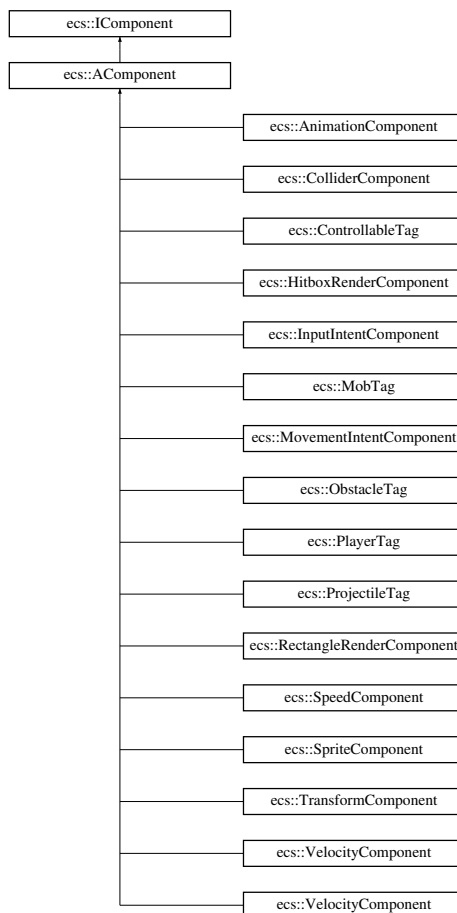


## Chapter 4

# Class Documentation

### 4.1 ecs::AComponent Class Reference

Inheritance diagram for ecs::AComponent:



#### Public Member Functions

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

## Protected Attributes

- `ComponentState _state` = Permanent

## 4.1.1 Member Function Documentation

### 4.1.1.1 `getState()`

```
ComponentState ecs::AComponent::getState () const [override], [virtual]
```

Implements [ecs::IComponent](#).

### 4.1.1.2 `setState()`

```
void ecs::AComponent::setState (
    ComponentState newState) [override], [virtual]
```

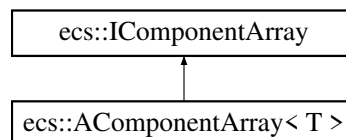
Implements [ecs::IComponent](#).

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/base/AComponent.hpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/base/AComponent.cpp`

## 4.2 `ecs::AComponentArray< T >` Class Template Reference

Inheritance diagram for `ecs::AComponentArray< T >`:



## Public Member Functions

- `void add (size_t entityId, std::shared_ptr< T > component)`
- `std::shared_ptr< T > get (size_t entityId) const`
- `std::vector< std::shared_ptr< T > > getAll (size_t entityId) const`
- `void remove (size_t entityId)`
- `bool has (size_t entityId) const`
- `void removeAllComponentsWithState (ComponentState state) override`
- `size_t getMaxEntityId () const override`

## Private Attributes

- `std::vector< std::vector< std::shared_ptr< T > > > _components`

## 4.2.1 Member Function Documentation

### 4.2.1.1 getMaxEntityId()

```
template<typename T>
size_t ecs::AComponentArray< T >::getMaxEntityId () const [override], [virtual]
```

Implements [ecs::IComponentArray](#).

### 4.2.1.2 removeAllComponentsWithState()

```
template<typename T>
void ecs::AComponentArray< T >::removeAllComponentsWithState (
    ComponentState state) [override], [virtual]
```

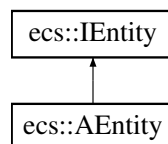
Implements [ecs::IComponentArray](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/componentArray/AComponentArray.hpp

## 4.3 ecs::AEntity Class Reference

Inheritance diagram for ecs::AEntity:



### Public Member Functions

- [operator size\\_t](#) () const override

### Private Member Functions

- [AEntity](#) (size\_t id)

### Private Attributes

- [size\\_t\\_id](#)

### 4.3.1 Member Function Documentation

#### 4.3.1.1 operator size\_t()

```
ecs::AEntity::operator size_t () const [override], [virtual]
```

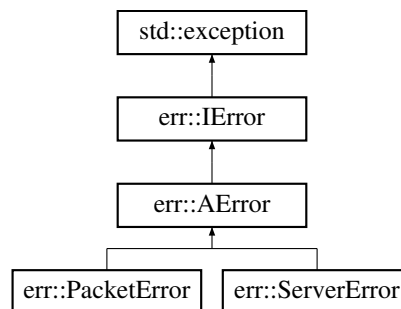
Implements [ecs::IEntity](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/AEntity.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/AEntity.cpp

## 4.4 err::AError Class Reference

Inheritance diagram for err::AError:



### Public Member Functions

- **AError** (const std::string &message, int code=0)
- const char \* [what](#) () const noexcept override
- int [getCode](#) () const noexcept override
- std::string [getDetails](#) () const noexcept override
- virtual std::string [getType](#) () const noexcept override=0

### Protected Attributes

- std::string **m\_message**
- int **m\_code**

### 4.4.1 Member Function Documentation

#### 4.4.1.1 getCode()

```
int err::AError::getCode () const [override], [virtual], [noexcept]
```

Implements [err::IError](#).

#### 4.4.1.2 getDetails()

```
std::string err::AError::getDetails () const [override], [virtual], [noexcept]
```

Implements [err::IError](#).

#### 4.4.1.3 getType()

```
virtual std::string err::AError::getType () const [override], [pure virtual], [noexcept]
```

Implements [err::IError](#).

#### 4.4.1.4 what()

```
const char * err::AError::what () const [override], [virtual], [noexcept]
```

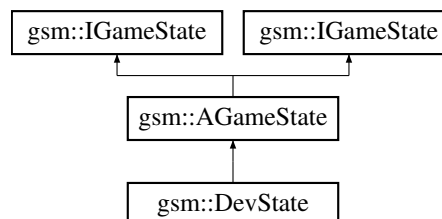
Implements [err::IError](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Error/AError.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/Error/AError.cpp

## 4.5 gsm::AGameState Class Reference

Inheritance diagram for gsm::AGameState:



### Public Member Functions

- **AGameState** (std::shared\_ptr< [IGameStateMachine](#) > gsm)
- void [enter](#) () override
- void [update](#) (float deltaTime) override
- void [render](#) () override
- void [exit](#) () override
- **AGameState** (std::shared\_ptr< [IGameStateMachine](#) > gsm)
- void [enter](#) () override
- void [update](#) (float deltaTime) override
- void [exit](#) () override

## Protected Attributes

- `std::shared_ptr< IGameStateMachine > _gsm`

## 4.5.1 Member Function Documentation

### 4.5.1.1 `enter()` [1/2]

```
void gsm::AGameState::enter () [override], [virtual]
```

Implements [gsm::IGameState](#).

### 4.5.1.2 `enter()` [2/2]

```
void gsm::AGameState::enter () [override], [virtual]
```

Implements [gsm::IGameState](#).

### 4.5.1.3 `exit()` [1/2]

```
void gsm::AGameState::exit () [override], [virtual]
```

Implements [gsm::IGameState](#).

### 4.5.1.4 `exit()` [2/2]

```
void gsm::AGameState::exit () [override], [virtual]
```

Implements [gsm::IGameState](#).

### 4.5.1.5 `render()`

```
void gsm::AGameState::render () [override], [virtual]
```

Implements [gsm::IGameState](#).

### 4.5.1.6 `update()` [1/2]

```
void gsm::AGameState::update (  
    float deltaTime) [override], [virtual]
```

Implements [gsm::IGameState](#).



#### 4.5.1.7 update() [2/2]

```
void gsm::AGameState::update (
    float deltaTime) [override], [virtual]
```

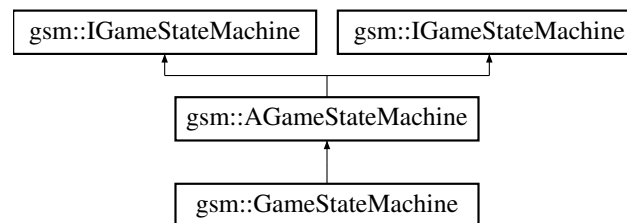
Implements [gsm::IGameState](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/base/AGameState.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/AGameState.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/base/AGameState.cpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/AGameState.cpp

## 4.6 gsm::AGameStateMachine Class Reference

Inheritance diagram for gsm::AGameStateMachine:



### Public Member Functions

- void [changeState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [pushState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [popState](#) () override
- void [update](#) (float deltaTime) override
- void [render](#) () override
- void [changeState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [pushState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [popState](#) () override
- void [update](#) (float deltaTime) override

### Protected Attributes

- std::stack< std::shared\_ptr< [IGameState](#) > > [\\_states](#)

### 4.6.1 Member Function Documentation

#### 4.6.1.1 changeState() [1/2]

```
void gsm::AGameStateMachine::changeState (
    std::shared_ptr< IGameState > newState) [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

#### 4.6.1.2 changeState() [2/2]

```
void gsm::AGameStateMachine::changeState (  
    std::shared_ptr< IGameState > newState) [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

#### 4.6.1.3 popState() [1/2]

```
void gsm::AGameStateMachine::popState () [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

#### 4.6.1.4 popState() [2/2]

```
void gsm::AGameStateMachine::popState () [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

#### 4.6.1.5 pushState() [1/2]

```
void gsm::AGameStateMachine::pushState (  
    std::shared_ptr< IGameState > newState) [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

#### 4.6.1.6 pushState() [2/2]

```
void gsm::AGameStateMachine::pushState (  
    std::shared_ptr< IGameState > newState) [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

#### 4.6.1.7 render()

```
void gsm::AGameStateMachine::render () [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

#### 4.6.1.8 update() [1/2]

```
void gsm::AGameStateMachine::update (  
    float deltaTime) [override], [virtual]
```

Implements [gsm::IGameStateMachine](#).

## 4.6.1.9 update() [2/2]

```
void gsm::AGameStateMachine::update (
    float deltaTime) [override], [virtual]
```

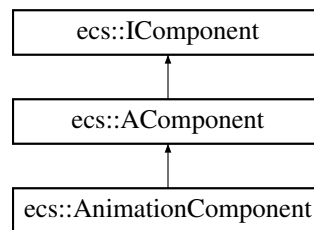
Implements [gsm::IGameStateMachine](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/AGameStateMachine.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/machine/AGameStateMachine.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/AGameStateMachine.cpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/machine/AGameStateMachine.cpp

## 4.7 ecs::AnimationComponent Class Reference

Inheritance diagram for ecs::AnimationComponent:



### Public Member Functions

- **AnimationComponent** (const std::string &texturePath, float frameWidth, float frameHeight, int frameCount, float startWidth, float startHeight, float speed=0.1f)
- const [math::FRect](#) & **getFrameRect** () const
- void **setFrameRect** (const [math::FRect](#) &rect)
- float **getFrameWidth** () const
- float **getFrameHeight** () const
- int **getFrameCount** () const
- int **getCurrentFrame** () const
- void **setCurrentFrame** (int frame)
- float **getAnimationSpeed** () const
- void **setAnimationSpeed** (float speed)
- [math::Chrono](#) & **getChrono** ()
- const [math::Chrono](#) & **getChrono** () const
- bool **isValid** () const
- const std::string & **getTexturePath** () const
- float **getStartWidth** () const
- void **setStartWidth** (float startWidth)
- float **getStartHeight** () const
- void **setStartHeight** (float startHeight)

## Public Member Functions inherited from `ecs::AComponent`

- ComponentState `getState` () const override
- void `setState` (ComponentState newState) override

## Private Attributes

- std::string `_texturePath`
- `math::FRect` `_frameRect`
- int `_frameCount`
- int `_currentFrame`
- float `_animationSpeed`
- `math::Chrono` `_chrono`
- float `_startHeight`
- float `_startWidth`

## Additional Inherited Members

## Protected Attributes inherited from `ecs::AComponent`

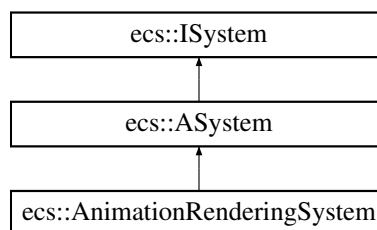
- ComponentState `_state` = Permanent

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/AnimationComponent.h`

## 4.8 `ecs::AnimationRenderingSystem` Class Reference

Inheritance diagram for `ecs::AnimationRenderingSystem`:



## Protected Member Functions

- void `update` (std::shared\_ptr< `ResourceManager` > resourceManager, std::shared\_ptr< `ARegistry` > registry, float deltaTime) override

## Additional Inherited Members

### Public Member Functions inherited from [ecs::ASystem](#)

- void [updateSystem](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

## 4.8.1 Member Function Documentation

### 4.8.1.1 update()

```
void ecs::AnimationRenderingSystem::update (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [protected], [virtual]
```

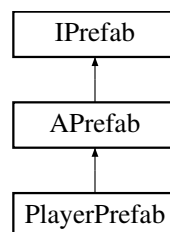
Implements [ecs::ASystem](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/AnimationRendering↵  
System.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/AnimationRendering↵  
System.cpp

## 4.9 APrefab Class Reference

Inheritance diagram for APrefab:



### Public Member Functions

- size\_t [instantiate](#) (const std::shared\_ptr< [ecs::ARegistry](#) > &registry) override

## 4.9.1 Member Function Documentation

### 4.9.1.1 instantiate()

```
size_t APrefab::instantiate (
    const std::shared_ptr< ecs::ARegistry > & registry) [override], [virtual]
```

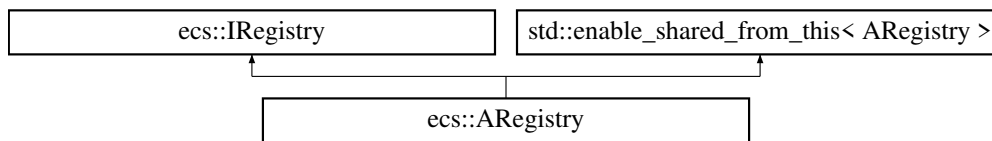
Implements [IPrefab](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/APrefab.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/APrefab.cpp

## 4.10 ecs::ARegistry Class Reference

Inheritance diagram for ecs::ARegistry:



### Public Member Functions

- template<typename T>  
void **registerComponent** ()
- template<typename T>  
void **addComponent** (size\_t entityId, std::shared\_ptr< T > component)
- template<typename T>  
std::shared\_ptr< T > **getComponent** (size\_t entityId) const
- template<typename T>  
std::vector< std::shared\_ptr< T > > **getComponents** (size\_t entityId) const
- template<typename T>  
void **removeComponent** (size\_t entityId)
- template<typename T>  
bool **hasComponent** (size\_t entityId) const
- template<typename... Components>  
[View](#)< Components... > **view** ()
- template<typename... Components>  
[Group](#)< Components... > **group** ()
- size\_t **getMaxEntityId** () const
- void [removeAllComponentsWithState](#) (ComponentState state) override
- size\_t [createEntity](#) () override

### Public Member Functions inherited from [ecs::IRegistry](#)

- template<typename T>  
void **registerComponent** ()
- template<typename T>  
void **addComponent** (size\_t entityId, std::shared\_ptr< T > component)
- template<typename T>  
std::shared\_ptr< T > **getComponent** (size\_t entityId)
- template<typename T>  
void **removeComponent** (size\_t entityId)
- template<typename T>  
bool **hasComponent** (size\_t entityId)
- template<typename... Components>  
[View](#)< Components... > **view** ()
- template<typename... Components>  
[Group](#)< Components... > **group** ()
- size\_t **getMaxEntityId** () const

### Private Attributes

- size\_t **\_nextEntityId**
- std::unordered\_map< std::string, std::shared\_ptr< [IComponentArray](#) > > **\_components**

## 4.10.1 Member Function Documentation

### 4.10.1.1 createEntity()

```
size_t ecs::ARegistry::createEntity () [override], [virtual]
```

Implements [ecs::IRegistry](#).

### 4.10.1.2 removeAllComponentsWithState()

```
void ecs::ARegistry::removeAllComponentsWithState (
    ComponentState state) [override], [virtual]
```

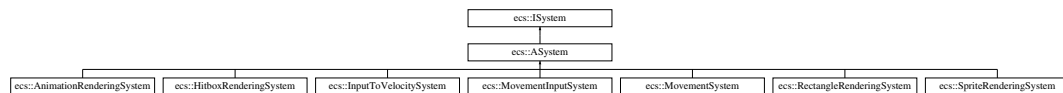
Implements [ecs::IRegistry](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/registry/ARegistry.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/registry/ARegistry.cpp

## 4.11 ecs::ASystem Class Reference

Inheritance diagram for `ecs::ASystem`:



### Public Member Functions

- void **updateSystem** (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### Protected Member Functions

- virtual void **update** (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime)=0

## 4.11.1 Member Function Documentation

### 4.11.1.1 updateSystem()

```
void ecs::ASystem::updateSystem (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [virtual]
```

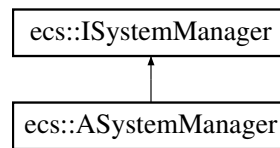
Implements [ecs::ISystem](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/base/ASystem.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/base/ASystem.cpp

## 4.12 ecs::ASystemManager Class Reference

Inheritance diagram for ecs::ASystemManager:



### Public Member Functions

- void [updateAllSystems](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override
- void [addSystem](#) (std::shared\_ptr< [ISystem](#) > system) override
- void [removeSystem](#) (std::shared\_ptr< [ISystem](#) > system) override

### Private Attributes

- std::vector< std::shared\_ptr< [ISystem](#) > > **\_systems**

### 4.12.1 Member Function Documentation

#### 4.12.1.1 addSystem()

```
void ecs::ASystemManager::addSystem (
    std::shared_ptr< ISystem > system) [override], [virtual]
```

Implements [ecs::ISystemManager](#).

#### 4.12.1.2 removeSystem()

```
void ecs::ASystemManager::removeSystem (
    std::shared_ptr< ISystem > system) [override], [virtual]
```

Implements [ecs::ISystemManager](#).

#### 4.12.1.3 updateAllSystems()

```
void ecs::ASystemManager::updateAllSystems (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [virtual]
```

Implements [ecs::ISystemManager](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/systemManager/ASystemManager.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/systemManager/ASystemManager.cpp



## 4.13 math::Chrono Class Reference

### Public Member Functions

- void **start** ()
- void **stop** ()
- void **reset** ()
- float **getElapsedSeconds** () const
- float **getElapsedMilliseconds** () const
- bool **isRunning** () const

### Private Attributes

- std::chrono::high\_resolution\_clock::time\_point **\_startTime**
- std::chrono::high\_resolution\_clock::time\_point **\_stopTime**
- bool **\_isRunning**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/types/Chrono.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/types/Chrono.cpp

## 4.14 ClientNetwork Class Reference

### Public Member Functions

- void **init** ()
- void **start** ()
- void **stop** ()
- int **getPort** () const
- void **setPort** (int port)
- uint32\_t **getIp** () const
- void **setIp** (uint32\_t ip)
- void **sendData** (const IPacketManager &data, size\_t size)
- IPacketManager & **receiveData** (const IBuffer &buffer, size\_t size) const
- void **loadNetworkLibrary** ()
- void **loadBufferLibrary** ()
- void **loadPacketLibrary** ()

### Private Attributes

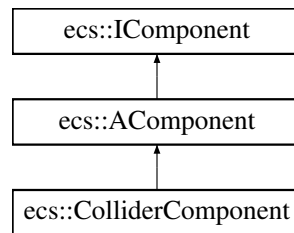
- [DLLoader](#)< createNetworkLib\_t > **\_networloader**
- [DLLoader](#)< createBuffer\_t > **\_bufferloader**
- [DLLoader](#)< createPacket\_t > **\_packetloader**
- std::shared\_ptr< net::INetwork > **\_network**
- std::shared\_ptr< IBuffer > **\_buffer**
- std::shared\_ptr< IPacketManager > **\_packet**
- int **\_port**
- uint32\_t **\_ip**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/ClientNetwork.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/client/ClientNetwork.cpp

## 4.15 ecs::ColliderComponent Class Reference

Inheritance diagram for ecs::ColliderComponent:



### Public Member Functions

- **ColliderComponent** ([math::Vector2f](#) offset=[math::Vector2f](#)(0.0f, 0.0f), [math::Vector2f](#) size=[math::Vector2f](#)(0.↔0f, 0.0f), CollisionType type=CollisionType::Solid)
- [math::Vector2f](#) **getOffset** () const
- void **setOffset** ([math::Vector2f](#) offset)
- [math::Vector2f](#) **getSize** () const
- void **setSize** ([math::Vector2f](#) size)
- CollisionType **getType** () const
- void **setType** (CollisionType type)
- [math::FRect](#) **getHitbox** ([math::Vector2f](#) entityPosition) const

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Private Attributes

- [math::Vector2f](#) **\_offset**
- [math::Vector2f](#) **\_size**
- CollisionType **\_type**

### Additional Inherited Members

### Protected Attributes inherited from [ecs::AComponent](#)

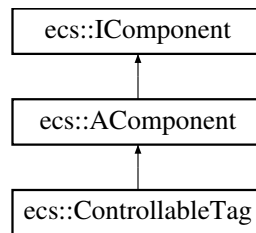
- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/ColliderComponent.↔hpp

## 4.16 ecs::ControllableTag Class Reference

Inheritance diagram for ecs::ControllableTag:



### Additional Inherited Members

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Protected Attributes inherited from [ecs::AComponent](#)

- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ControllableTag.hpp

## 4.17 Core Class Reference

### Public Member Functions

- void **run** ()
- std::shared\_ptr< [ClientNetwork](#) > **getNetwork** ()
- void **init** ()
- void **loop** ()
- std::shared\_ptr< [rserv::ServerConfig](#) > **getConfig** () const
- std::shared\_ptr< [rserv::Server](#) > **getServer** () const
- std::shared\_ptr< [ecs::ResourceManager](#) > **getResourceManager** () const

### Private Member Functions

- void **initNetwork** ()
- void **initLibraries** ()
- void **networkLoop** ()

### Private Attributes

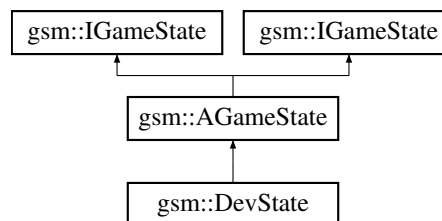
- `std::shared_ptr< DLLoader< gfx::createWindow_t > > _windowLoader`
- `std::shared_ptr< DLLoader< gfx::createEvent_t > > _eventLoader`
- `std::shared_ptr< ecs::ResourceManager > _resourceManager`
- `std::shared_ptr< gsm::GameStateMachine > _gsm`
- `std::shared_ptr< ClientNetwork > _clientNetwork`
- `std::thread _networkThread`
- `std::shared_ptr< Utils > _utils`
- `std::shared_ptr< rserv::ServerConfig > _config`
- `std::shared_ptr< rserv::Server > _server`

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/client/Core.hpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/server/Core.hpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/client/Core.cpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/server/Core.cpp`

## 4.18 `gsm::DevState` Class Reference

Inheritance diagram for `gsm::DevState`:



### Public Member Functions

- **DevState** (`std::shared_ptr< IGameStateMachine > gsm`, `std::shared_ptr< ecs::ResourceManager > resourceManager`)
- `void enter ()` override
- `void update (float deltaTime)` override
- `void render ()` override
- `void exit ()` override

### Public Member Functions inherited from `gsm::AGameState`

- **AGameState** (`std::shared_ptr< IGameStateMachine > gsm`)
- **AGameState** (`std::shared_ptr< IGameStateMachine > gsm`)

### Private Attributes

- `std::shared_ptr< ecs::ResourceManager > _resourceManager`
- `std::shared_ptr< ecs::ARegistry > _registry`
- `std::shared_ptr< ecs::ASystemManager > _systemManager`
- `std::shared_ptr< ecs::MovementSystem > _movementSystem`
- `std::shared_ptr< ecs::InputToVelocitySystem > _inputToVelocitySystem`
- `std::shared_ptr< ecs::MovementInputSystem > _inputSystem`
- `std::shared_ptr< ecs::SpriteRenderingSystem > _spriteRenderingSystem`
- `std::shared_ptr< EntityPrefabManager > _prefabManager`

### Additional Inherited Members

### Protected Attributes inherited from [gsm::AGameState](#)

- `std::shared_ptr< IGameStateMachine > _gsm`

## 4.18.1 Member Function Documentation

### 4.18.1.1 enter()

```
void gsm::DevState::enter () [override], [virtual]
```

Reimplemented from [gsm::AGameState](#).

### 4.18.1.2 exit()

```
void gsm::DevState::exit () [override], [virtual]
```

Reimplemented from [gsm::AGameState](#).

### 4.18.1.3 render()

```
void gsm::DevState::render () [override], [virtual]
```

Reimplemented from [gsm::AGameState](#).

### 4.18.1.4 update()

```
void gsm::DevState::update (
    float deltaTime) [override], [virtual]
```

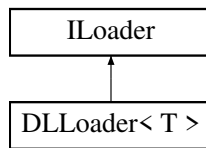
Reimplemented from [gsm::AGameState](#).

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/scenes/DevState.hpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/scenes/DevState.cpp`

## 4.19 DLLoader< T > Class Template Reference

Inheritance diagram for DLLoader< T >:



### Public Member Functions

- void \* [getHandler](#) () const override
- void \* [Open](#) (const char \*path, int flag=RTLD\_LAZY) override
- void \* [Symbol](#) (const char \*symbolName) override
- T [getSymbol](#) (const char \*symbolName)
- int [Close](#) () override
- const char \* [Error](#) () override

### Private Attributes

- void \* [\\_handler](#) = nullptr

## 4.19.1 Member Function Documentation

### 4.19.1.1 Close()

```
template<typename T>
int DLLoader< T >::Close () [inline], [override], [virtual]
```

Implements [ILoader](#).

### 4.19.1.2 Error()

```
template<typename T>
const char * DLLoader< T >::Error () [inline], [override], [virtual]
```

Implements [ILoader](#).

### 4.19.1.3 getHandler()

```
template<typename T>
void * DLLoader< T >::getHandler () const [inline], [override], [virtual]
```

Implements [ILoader](#).

#### 4.19.1.4 Open()

```
template<typename T>
void * DLLoader< T >::Open (
    const char * path,
    int flag = RTLD_LAZY) [inline], [override], [virtual]
```

Implements [ILoader](#).

#### 4.19.1.5 Symbol()

```
template<typename T>
void * DLLoader< T >::Symbol (
    const char * symbolName) [inline], [override], [virtual]
```

Implements [ILoader](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader/DLLoader.hpp

## 4.20 EntityPrefabManager Class Reference

### Public Member Functions

- void **registerPrefab** (const std::string &name, const std::shared\_ptr< [IPrefab](#) > &prefab)
- std::shared\_ptr< [IPrefab](#) > **getPrefab** (const std::string &name) const
- size\_t **createEntityFromPrefab** (const std::string &prefabName, const std::shared\_ptr< [ecs::ARegistry](#) > &registry)
- bool **hasPrefab** (const std::string &name) const
- void **deletePrefab** (const std::string &name)
- void **clearPrefabs** ()

### Private Attributes

- std::map< std::string, std::shared\_ptr< [IPrefab](#) > > **\_prefabs**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/entityPrefabManager/EntityPrefabManager.↵  
hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/entityPrefabManager/EntityPrefabManager.↵  
cpp

## 4.21 math::FRect Class Reference

### Public Member Functions

- **FRect** (float left, float top, float width, float height)
- **FRect** ([FRect](#) const &other)
- float **getLeft** () const
- void **setLeft** (float left)
- float **getTop** () const
- void **setTop** (float top)
- float **getWidth** () const
- void **setWidth** (float width)
- float **getHeight** () const
- void **setHeight** (float height)
- bool **contains** (float x, float y) const
- bool **intersects** ([FRect](#) const &other) const
- bool **intersects** ([FRect](#) const &other, [FRect](#) &intersection) const
- [FRect](#) & **operator=** ([FRect](#) const &other)
- bool **operator==** ([FRect](#) const &other) const
- bool **operator!=** ([FRect](#) const &other) const

### Private Attributes

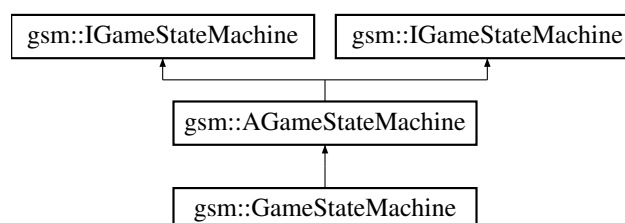
- float **left**
- float **top**
- float **width**
- float **height**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/types/FRect.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/types/FRect.cpp

## 4.22 gsm::GameStateMachine Class Reference

Inheritance diagram for gsm::GameStateMachine:





**Additional Inherited Members****Public Member Functions inherited from [gsm::AGameStateMachine](#)**

- void [changeState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [pushState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [popState](#) () override
- void [update](#) (float deltaTime) override
- void [render](#) () override
- void [changeState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [pushState](#) (std::shared\_ptr< [IGameState](#) > newState) override
- void [popState](#) () override
- void [update](#) (float deltaTime) override

**Protected Attributes inherited from [gsm::AGameStateMachine](#)**

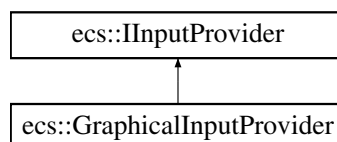
- std::stack< std::shared\_ptr< [IGameState](#) > > **\_states**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/GameStateMachine.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/GameStateMachine.cpp

**4.23 ecs::GraphicalInputProvider Class Reference**

Inheritance diagram for ecs::GraphicalInputProvider:

**Public Member Functions**

- **GraphicalInputProvider** (std::shared\_ptr< gfx::IEvent > eventSystem)
- bool [isKeyPressed](#) (event\_t key) override
- float [getAxisValue](#) (event\_t axis) override
- std::pair< int, int > [getMousePos](#) () override
- bool [isMouseButtonPressed](#) (int button) override

**Private Attributes**

- std::shared\_ptr< gfx::IEvent > **\_eventSystem**

## Additional Inherited Members

## Public Types inherited from [ecs::IInputProvider](#)

- using **event\_t** = gfx::EventType

## 4.23.1 Member Function Documentation

### 4.23.1.1 `getAxisValue()`

```
float ecs::GraphicalInputProvider::getAxisValue (
    event_t axis) [override], [virtual]
```

Implements [ecs::IInputProvider](#).

### 4.23.1.2 `getMousePos()`

```
std::pair< int, int > ecs::GraphicalInputProvider::getMousePos () [override], [virtual]
```

Implements [ecs::IInputProvider](#).

### 4.23.1.3 `isKeyPressed()`

```
bool ecs::GraphicalInputProvider::isKeyPressed (
    event_t key) [override], [virtual]
```

Implements [ecs::IInputProvider](#).

### 4.23.1.4 `isMouseButtonPressed()`

```
bool ecs::GraphicalInputProvider::isMouseButtonPressed (
    int button) [override], [virtual]
```

Implements [ecs::IInputProvider](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/initRessourcesManager/GraphicalInputProvider.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/client/initRessourcesManager/GraphicalInputProvider.cpp

## 4.24 `ecs::Group< Components >` Class Template Reference

### Classes

- class [Iterator](#)

### Public Member Functions

- **Group** (std::shared\_ptr< class [ARegistry](#) > registry)
- **Iterator begin** ()
- **Iterator end** ()

### Private Attributes

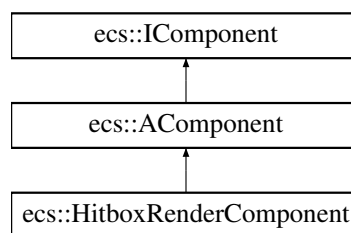
- std::shared\_ptr< class [ARegistry](#) > **\_registry**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.cpp

## 4.25 ecs::HitboxRenderComponent Class Reference

Inheritance diagram for ecs::HitboxRenderComponent:



### Public Member Functions

- **HitboxRenderComponent** (gfx::color\_t color, float outlineThickness=1.0f)
- const gfx::color\_t & **getColor** () const
- void **setColor** (const gfx::color\_t &color)
- float **getOutlineThickness** () const
- void **setOutlineThickness** (float thickness)

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Private Attributes

- gfx::color\_t **\_color**
- float **\_outlineThickness**

### Additional Inherited Members

### Protected Attributes inherited from [ecs::AComponent](#)

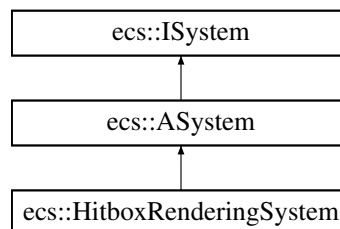
- ComponentState `_state` = Permanent

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/HitboxRenderComponent.↔hpp`

## 4.26 [ecs::HitboxRenderingSystem](#) Class Reference

Inheritance diagram for `ecs::HitboxRenderingSystem`:



### Protected Member Functions

- void `update` (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### Additional Inherited Members

### Public Member Functions inherited from [ecs::ASystem](#)

- void `updateSystem` (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### 4.26.1 Member Function Documentation

#### 4.26.1.1 `update()`

```

void ecs::HitboxRenderingSystem::update (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [protected], [virtual]
  
```

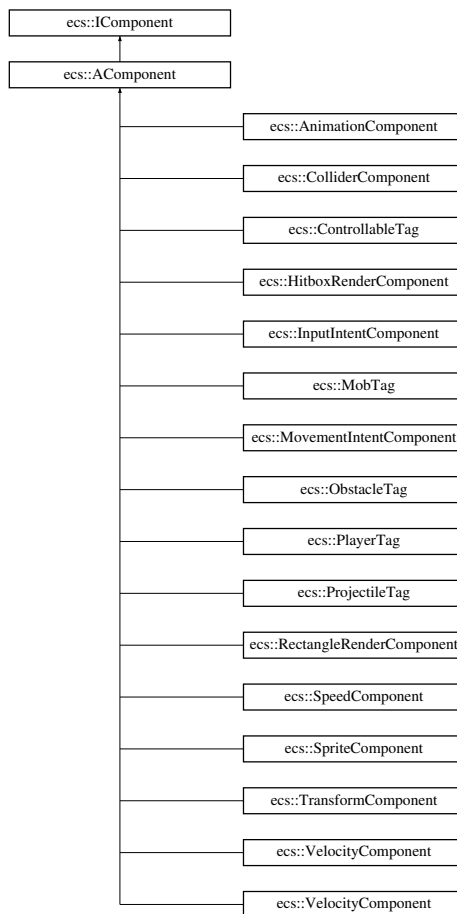
Implements [ecs::ASystem](#).

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/HitboxRenderingSystem.hpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/HitboxRenderingSystem.cpp`

## 4.27 ecs::IComponent Class Reference

Inheritance diagram for ecs::IComponent:



### Public Member Functions

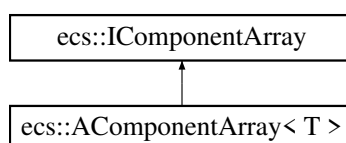
- virtual ComponentState **getState** () const =0
- virtual void **setState** (ComponentState newState)=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/base/IComponent.hpp

## 4.28 ecs::IComponentArray Class Reference

Inheritance diagram for ecs::IComponentArray:



### Public Member Functions

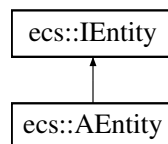
- virtual void **removeAllComponentsWithState** (ComponentState state)=0
- virtual size\_t **getMaxEntityId** () const =0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/componentArray/IComponentArray.hpp

## 4.29 ecs::IEntity Class Reference

Inheritance diagram for ecs::IEntity:



### Public Member Functions

- virtual **operator size\_t** () const =0

### Private Member Functions

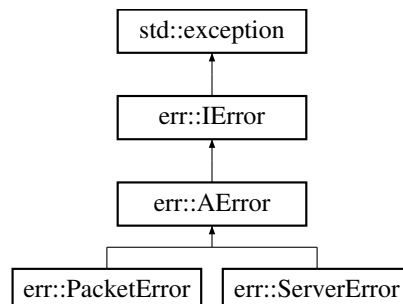
- **IEntity** (size\_t id)

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/IEntity.hpp

## 4.30 err::IError Class Reference

Inheritance diagram for err::IError:



**Public Member Functions**

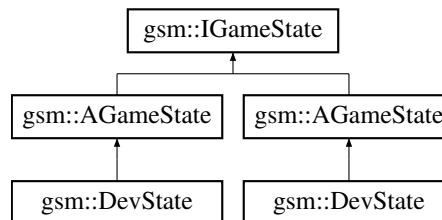
- virtual const char \* **what** () const noexcept override=0
- virtual int **getCode** () const noexcept=0
- virtual std::string **getType** () const noexcept=0
- virtual std::string **getDetails** () const noexcept=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Error/LError.hpp

**4.31 gsm::IGameState Class Reference**

Inheritance diagram for gsm::IGameState:

**Public Member Functions**

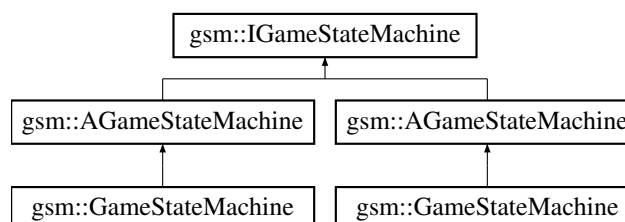
- virtual void **enter** ()=0
- virtual void **update** (float deltaTime)=0
- virtual void **render** ()=0
- virtual void **exit** ()=0
- virtual void **enter** ()=0
- virtual void **update** (float deltaTime)=0
- virtual void **exit** ()=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/base/IGameState.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/IGameState.hpp

**4.32 gsm::IGameStateMachine Class Reference**

Inheritance diagram for gsm::IGameStateMachine:



### Public Member Functions

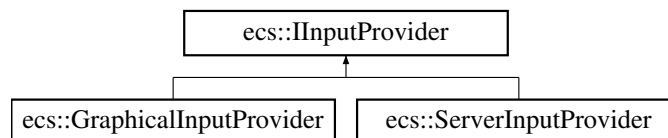
- virtual void **changeState** (std::shared\_ptr< [IGameState](#) > newState)=0
- virtual void **pushState** (std::shared\_ptr< [IGameState](#) > newState)=0
- virtual void **popState** ()=0
- virtual void **update** (float deltaTime)=0
- virtual void **render** ()=0
- virtual void **changeState** (std::shared\_ptr< [IGameState](#) > newState)=0
- virtual void **pushState** (std::shared\_ptr< [IGameState](#) > newState)=0
- virtual void **popState** ()=0
- virtual void **update** (float deltaTime)=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/IGameStateMachine.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/machine/IGameStateMachine.hpp

## 4.33 ecs::IInputProvider Class Reference

Inheritance diagram for ecs::IInputProvider:



### Public Types

- using **event\_t** = gfx::EventType

### Public Member Functions

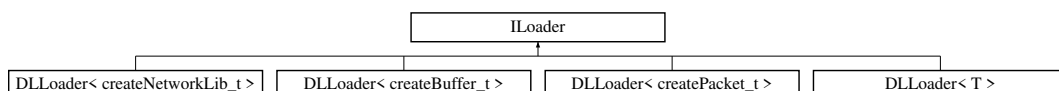
- virtual bool **isKeyPressed** (event\_t key)=0
- virtual float **getAxisValue** (event\_t axis)=0
- virtual std::pair< int, int > **getMousePos** ()=0
- virtual bool **isMouseButtonPressed** (int button)=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/resourceManager/IInputProvider.hpp

## 4.34 ILoader Class Reference

Inheritance diagram for ILoader:





**Public Member Functions**

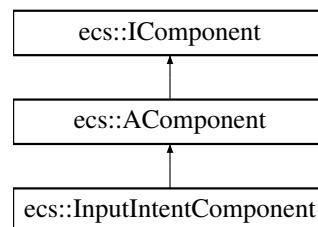
- virtual void \* **Open** (const char \*path, int flag)=0
- virtual void \* **Symbol** (const char \*symbolName)=0
- virtual int **Close** ()=0
- virtual const char \* **Error** ()=0
- virtual void \* **getHandler** () const =0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader/ILoader.hpp

**4.35 ecs::InputIntentComponent Class Reference**

Inheritance diagram for ecs::InputIntentComponent:

**Public Member Functions**

- **InputIntentComponent** (const [math::Vector2f](#) &direction=[math::Vector2f](#)(0.0f, 0.0f))
- [math::Vector2f](#) **getDirection** () const
- void **setDirection** (const [math::Vector2f](#) &direction)

**Public Member Functions inherited from [ecs::AComponent](#)**

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

**Private Attributes**

- [math::Vector2f](#) **\_direction**

**Additional Inherited Members****Protected Attributes inherited from [ecs::AComponent](#)**

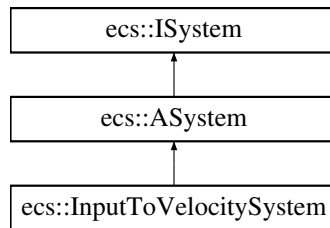
- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/temporary/InputIntentComponent.↔.hpp

## 4.36 ecs::InputToVelocitySystem Class Reference

Inheritance diagram for ecs::InputToVelocitySystem:



### Public Member Functions

- void [update](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### Public Member Functions inherited from [ecs::ASystem](#)

- void [updateSystem](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### 4.36.1 Member Function Documentation

#### 4.36.1.1 update()

```

void ecs::InputToVelocitySystem::update (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [virtual]
  
```

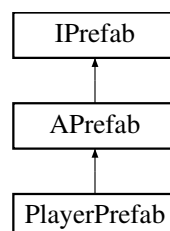
Implements [ecs::ASystem](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/movement/InputToVelocitySystem.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/movement/InputToVelocitySystem.cpp

## 4.37 IPrefab Class Reference

Inheritance diagram for IPrefab:



**Public Member Functions**

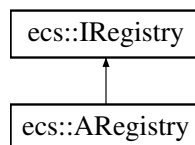
- virtual size\_t **instantiate** (const std::shared\_ptr< [ecs::ARegistry](#) > &registry)=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/IPrefab.hpp

**4.38 ecs::IRegistry Class Reference**

Inheritance diagram for ecs::IRegistry:

**Public Member Functions**

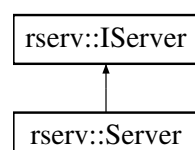
- template<typename T>  
void **registerComponent** ()
- template<typename T>  
void **addComponent** (size\_t entityId, std::shared\_ptr< T > component)
- template<typename T>  
std::shared\_ptr< T > **getComponent** (size\_t entityId)
- template<typename T>  
void **removeComponent** (size\_t entityId)
- template<typename T>  
bool **hasComponent** (size\_t entityId)
- template<typename... Components>  
[View](#)< Components... > **view** ()
- template<typename... Components>  
[Group](#)< Components... > **group** ()
- size\_t **getMaxEntityId** () const
- virtual void **removeAllComponentsWithState** (ComponentState state)=0
- virtual size\_t **createEntity** ()=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/registry/IRegistry.hpp

**4.39 rserv::IServer Class Reference**

Inheritance diagram for rserv::IServer:



## Public Member Functions

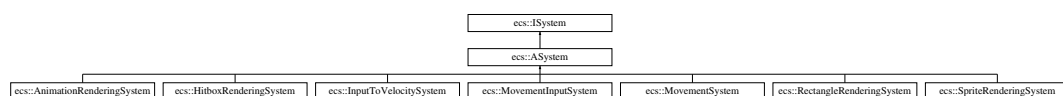
- virtual void **init** ()=0
- virtual void **start** ()=0
- virtual void **stop** ()=0
- virtual void **setConfig** (std::shared\_ptr< [ServerConfig](#) > config)=0
- virtual std::shared\_ptr< [ServerConfig](#) > **getConfig** () const =0
- virtual unsigned int **getPort** () const =0
- virtual void **setPort** (unsigned int port)=0
- virtual int **getState** () const =0
- virtual void **setState** (int state)=0
- virtual int **getFd** () const =0
- virtual void **setFd** (int fd)=0
- virtual **operator int** () const noexcept=0
- virtual std::shared\_ptr< net::INetwork > **getNetwork** () const =0
- virtual void **setNetwork** (std::shared\_ptr< net::INetwork > network)=0
- virtual void **onClientConnected** (int idClient)=0
- virtual void **onClientDisconnected** (int idClient)=0
- virtual void **onPacketReceived** (int idClient, const IPacketManager &packet)=0
- virtual void **processConnections** ()=0
- virtual void **processIncomingPackets** ()=0
- virtual void **broadcastPacket** ()=0
- virtual void **sendToClient** (int idClient)=0
- virtual std::vector< int > **getConnectedClients** () const =0
- virtual size\_t **getClientCount** () const =0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/server/IServer.hpp

## 4.40 ecs::ISystem Class Reference

Inheritance diagram for ecs::ISystem:



## Public Member Functions

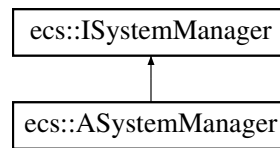
- virtual void **updateSystem** (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime)=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/base/ISystem.hpp

## 4.41 ecs::ISystemManager Class Reference

Inheritance diagram for ecs::ISystemManager:



### Public Member Functions

- virtual void **updateAllSystems** (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime)=0
- virtual void **addSystem** (std::shared\_ptr< [ISystem](#) > system)=0
- virtual void **removeSystem** (std::shared\_ptr< [ISystem](#) > system)=0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/systemManager/ISystemManager.hpp

## 4.42 ecs::Group< Components >::Iterator Class Reference

### Public Member Functions

- **Iterator** (std::shared\_ptr< class [ARegistry](#) > registry, size\_t entityId, size\_t maxEntityId)
- bool **operator!=** (const [Iterator](#) &other) const
- [Iterator](#) & **operator++** ()
- size\_t **operator\*** () const

### Private Member Functions

- bool **hasAllComponents** () const

### Private Attributes

- std::shared\_ptr< class [ARegistry](#) > **\_registry**
- size\_t **\_entityId**
- size\_t **\_maxEntityId**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.cpp

## 4.43 ecs::View< Components >::Iterator Class Reference

### Public Member Functions

- **Iterator** (std::shared\_ptr< class [ARegistry](#) > registry, size\_t entityId, size\_t maxEntityId)
- bool **operator!=** (const [Iterator](#) &other) const
- [Iterator](#) & **operator++** ()
- size\_t **operator\*** () const

### Private Member Functions

- bool **hasAllComponents** () const

### Private Attributes

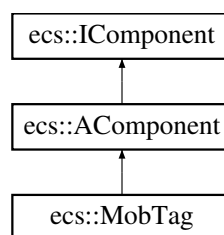
- std::shared\_ptr< class [ARegistry](#) > **\_registry**
- size\_t **\_entityId**
- size\_t **\_maxEntityId**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.cpp

## 4.44 ecs::MobTag Class Reference

Inheritance diagram for ecs::MobTag:



### Additional Inherited Members

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

**Protected Attributes inherited from [ecs::AComponent](#)**

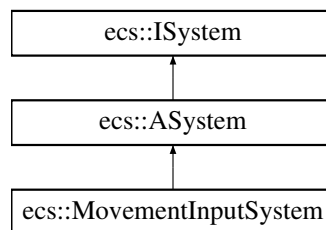
- ComponentState `_state` = Permanent

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/MobTag.hpp`

**4.45 ecs::MovementInputSystem Class Reference**

Inheritance diagram for `ecs::MovementInputSystem`:

**Public Member Functions**

- void `update` (`std::shared_ptr< ResourceManager > resourceManager`, `std::shared_ptr< ARegistry > registry`, `float deltaTime`) override

**Public Member Functions inherited from [ecs::ASystem](#)**

- void `updateSystem` (`std::shared_ptr< ResourceManager > resourceManager`, `std::shared_ptr< ARegistry > registry`, `float deltaTime`) override

**Private Member Functions**

- `math::Vector2f getMovementDirection` (`std::shared_ptr< ResourceManager > resourceManager`) const
- void `updateInputIntent` (`std::shared_ptr< ARegistry > registry`, `size_t entityId`, const `math::Vector2f &direction`)
- `math::Vector2f getAnalogStickInput` (`std::shared_ptr< IInputProvider > inputProvider`) const

**4.45.1 Member Function Documentation****4.45.1.1 update()**

```

void ecs::MovementInputSystem::update (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [virtual]
  
```

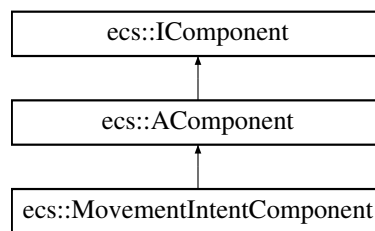
Implements [ecs::ASystem](#).

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/input/MovementInputSystem.hpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/input/MovementInputSystem.cpp`

## 4.46 ecs::MovementIntentComponent Class Reference

Inheritance diagram for ecs::MovementIntentComponent:



### Public Member Functions

- **MovementIntentComponent** (const [math::Vector2f](#) &direction=[math::Vector2f](#)(0.0f, 0.0f), bool active=false)
- [math::Vector2f](#) **getDirection** () const
- void **setDirection** (const [math::Vector2f](#) &direction)
- bool **isActive** () const
- void **setActive** (bool active)

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Private Attributes

- [math::Vector2f](#) **\_direction**
- bool **\_active**

### Additional Inherited Members

### Protected Attributes inherited from [ecs::AComponent](#)

- ComponentState **\_state** = Permanent

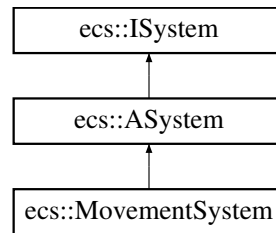
The documentation for this class was generated from the following file:

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/temporary/MovementIntent↔  
Component.hpp



## 4.47 ecs::MovementSystem Class Reference

Inheritance diagram for ecs::MovementSystem:



### Public Member Functions

- void [update](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### Public Member Functions inherited from [ecs::ASystem](#)

- void [updateSystem](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### Private Member Functions

- bool [checkCollision](#) (std::shared\_ptr< [ARegistry](#) > registry, size\_t entityId, [math::Vector2f](#) newPos)
- [math::Vector2f](#) [calculateSmoothMovement](#) (std::shared\_ptr< [ARegistry](#) > registry, size\_t entityId, [math::Vector2f](#) startPos, [math::Vector2f](#) desiredPos)
- [math::Vector2f](#) [calculateSlidingMovement](#) (std::shared\_ptr< [ARegistry](#) > registry, size\_t entityId, [math::Vector2f](#) basePos, [math::Vector2f](#) desiredPos)
- [math::Vector2f](#) [calculateSmoothSlidingPosition](#) (std::shared\_ptr< [ARegistry](#) > registry, size\_t entityId, [math::Vector2f](#) startPos, [math::Vector2f](#) desiredPos)
- [math::Vector2f](#) [handleBounceCollision](#) (std::shared\_ptr< [ARegistry](#) > registry, size\_t entityId, [math::Vector2f](#) startPos, [math::Vector2f](#) desiredPos, std::shared\_ptr< [ecs::VelocityComponent](#) > velocityComp)

## 4.47.1 Member Function Documentation

### 4.47.1.1 update()

```

void ecs::MovementSystem::update (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [virtual]
  
```

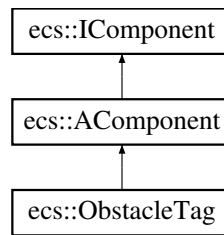
Implements [ecs::ASystem](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/movement/MovementSystem.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/movement/MovementSystem.cpp

## 4.48 ecs::ObstacleTag Class Reference

Inheritance diagram for ecs::ObstacleTag:



### Additional Inherited Members

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Protected Attributes inherited from [ecs::AComponent](#)

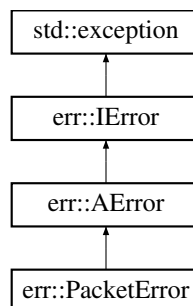
- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ObstacleTag.hpp

## 4.49 err::PacketError Class Reference

Inheritance diagram for err::PacketError:



### Public Types

- enum **ErrorCode** { **UNKNOWN** = 1000 , **SERIALIZER\_ATTRIBUTION\_FAILED** = 1001 }

### Public Member Functions

- **PacketError** (const std::string &message, ErrorCode code=UNKNOWN)
- std::string [getType](#) () const noexcept override

### Public Member Functions inherited from [err::AError](#)

- **AError** (const std::string &message, int code=0)
- const char \* [what](#) () const noexcept override
- int [getCode](#) () const noexcept override
- std::string [getDetails](#) () const noexcept override

### Additional Inherited Members

### Protected Attributes inherited from [err::AError](#)

- std::string **m\_message**
- int **m\_code**

## 4.49.1 Member Function Documentation

### 4.49.1.1 [getType\(\)](#)

```
std::string err::PacketError::getType () const [override], [virtual], [noexcept]
```

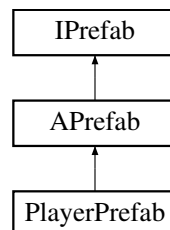
Implements [err::AError](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Error/PacketError.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/Error/PacketError.cpp

## 4.50 PlayerPrefab Class Reference

Inheritance diagram for PlayerPrefab:



## Public Member Functions

- **PlayerPrefab** (float x, float y, float scale, const std::string &animationPath, float frameWidth, float frameHeight, float startWidth, float startHeight, int frameCount)
- size\_t [instantiate](#) (const std::shared\_ptr< [ecs::ARegistry](#) > &registry) override

## Private Attributes

- float **\_x**
- float **\_y**
- float **\_scale**
- std::string **\_animationPath**
- float **\_frameWidth**
- float **\_frameHeight**
- float **\_startWidth**
- float **\_startHeight**
- int **\_frameCount**

## 4.50.1 Member Function Documentation

### 4.50.1.1 instantiate()

```
size_t PlayerPrefab::instantiate (
    const std::shared_ptr< ecs::ARegistry > & registry) [inline], [override], [virtual]
```

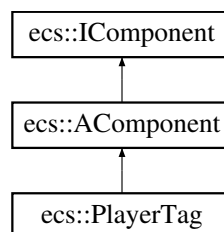
Reimplemented from [APrefab](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/PlayerPrefab/PlayerPrefab.hpp

## 4.51 ecs::PlayerTag Class Reference

Inheritance diagram for `ecs::PlayerTag`:



## Additional Inherited Members

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Protected Attributes inherited from [ecs::AComponent](#)

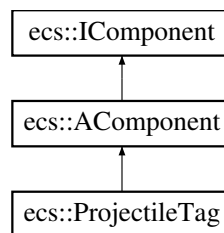
- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/PlayerTag.hpp

## 4.52 ecs::ProjectileTag Class Reference

Inheritance diagram for ecs::ProjectileTag:



### Additional Inherited Members

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Protected Attributes inherited from [ecs::AComponent](#)

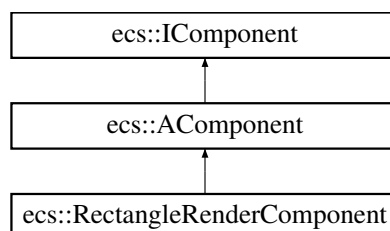
- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ProjectileTag.hpp

## 4.53 ecs::RectangleRenderComponent Class Reference

Inheritance diagram for ecs::RectangleRenderComponent:



### Public Member Functions

- **RectangleRenderComponent** (gfx::color\_t color, float width, float height)
- const gfx::color\_t & **getColor** () const
- void **setColor** (const gfx::color\_t &color)
- float **getWidth** () const
- float **getHeight** () const
- void **setSize** (float width, float height)

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Private Attributes

- gfx::color\_t **\_color**
- std::pair< float, float > **\_size**

### Additional Inherited Members

### Protected Attributes inherited from [ecs::AComponent](#)

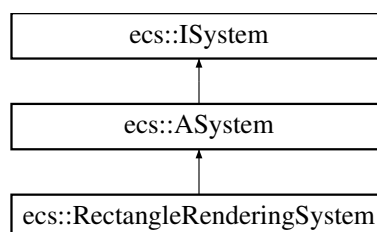
- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/RectangleRenderComponent.hpp

## 4.54 [ecs::RectangleRenderingSystem](#) Class Reference

Inheritance diagram for [ecs::RectangleRenderingSystem](#):



### Protected Member Functions

- void [update](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

## Additional Inherited Members

## Public Member Functions inherited from ecs::ASystem

- void [updateSystem](#) (std::shared\_ptr< [ResourceManager](#) > resourceManager, std::shared\_ptr< [ARegistry](#) > registry, float deltaTime) override

### 4.54.1 Member Function Documentation

#### 4.54.1.1 update()

```
void ecs::RectangleRenderingSystem::update (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [protected], [virtual]
```

Implements [ecs::ASystem](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/RectangleRendering↵  
System.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/RectangleRendering↵  
System.cpp

## 4.55 ecs::ResourceManager Class Reference

### Public Member Functions

- template<typename T>  
void **add** (std::shared\_ptr< T > resource)
- template<typename T>  
std::shared\_ptr< T > **get** ()
- template<typename T>  
bool **has** ()

### Private Attributes

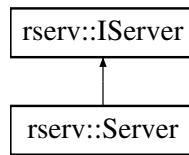
- std::unordered\_map< size\_t, std::shared\_ptr< void > > **resources**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/resourceManager/ResourceManager.hpp

## 4.56 rserv::Server Class Reference

Inheritance diagram for rserv::Server:



### Public Member Functions

- void [init](#) () override
- void [start](#) () override
- void [stop](#) () override
- void [setConfig](#) (std::shared\_ptr< [ServerConfig](#) > config) override
- std::shared\_ptr< [ServerConfig](#) > [getConfig](#) () const override
- unsigned int [getPort](#) () const override
- void [setPort](#) (unsigned int port) override
- int [getState](#) () const override
- void [setState](#) (int state) override
- int [getFd](#) () const override
- void [setFd](#) (int fd) override
- [operator int](#) () const noexcept override
- std::shared\_ptr< net::INetwork > [getNetwork](#) () const override
- void [setNetwork](#) (std::shared\_ptr< net::INetwork > network) override
- void [onClientConnected](#) (int idClient) override
- void [onClientDisconnected](#) (int idClient) override
- void [onPacketReceived](#) (int idClient, const IPacketManager &packet) override
- void [processConnections](#) () override
- void [processIncomingPackets](#) () override
- void [broadcastPacket](#) () override
- void [sendToClient](#) (int idClient) override
- std::vector< int > [getConnectedClients](#) () const override
- size\_t [getClientCount](#) () const override

### Private Member Functions

- void [loadNetworkLibrary](#) ()
- void [loadBufferLibrary](#) ()
- void [loadPacketLibrary](#) ()

### Private Attributes

- [DLLoader](#)< createNetworkLib\_t > [\\_networloader](#)
- [DLLoader](#)< createBuffer\_t > [\\_bufferloader](#)
- [DLLoader](#)< createPacket\_t > [\\_packetloader](#)
- std::shared\_ptr< [ServerConfig](#) > [\\_config](#)
- std::shared\_ptr< net::INetwork > [\\_network](#)
- std::shared\_ptr< IBuffer > [\\_buffer](#)
- std::shared\_ptr< IPacketManager > [\\_packet](#)



## 4.56.1 Member Function Documentation

### 4.56.1.1 broadcastPacket()

```
void rserv::Server::broadcastPacket () [override], [virtual]
```

Implements [rserv::IServer](#).

### 4.56.1.2 getClientCount()

```
size_t rserv::Server::getClientCount () const [override], [virtual]
```

Implements [rserv::IServer](#).

### 4.56.1.3 getConfig()

```
std::shared_ptr< rserv::ServerConfig > rserv::Server::getConfig () const [override], [virtual]
```

Implements [rserv::IServer](#).

### 4.56.1.4 getConnectedClients()

```
std::vector< int > rserv::Server::getConnectedClients () const [override], [virtual]
```

Implements [rserv::IServer](#).

### 4.56.1.5 getFd()

```
int rserv::Server::getFd () const [override], [virtual]
```

Implements [rserv::IServer](#).

### 4.56.1.6 getNetwork()

```
std::shared_ptr< net::INetwork > rserv::Server::getNetwork () const [override], [virtual]
```

Implements [rserv::IServer](#).

### 4.56.1.7 getPort()

```
unsigned int rserv::Server::getPort () const [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.8 getState()

```
int rserv::Server::getState () const [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.9 init()

```
void rserv::Server::init () [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.10 onClientConnected()

```
void rserv::Server::onClientConnected (  
    int idClient) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.11 onClientDisconnected()

```
void rserv::Server::onClientDisconnected (  
    int idClient) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.12 onPacketReceived()

```
void rserv::Server::onPacketReceived (  
    int idClient,  
    const IPacketManager & packet) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.13 operator int()

```
rserv::Server::operator int () const [override], [virtual], [noexcept]
```

Implements [rserv::IServer](#).

#### 4.56.1.14 processConnections()

```
void rserv::Server::processConnections () [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.15 processIncomingPackets()

```
void rserv::Server::processIncomingPackets () [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.16 sendToClient()

```
void rserv::Server::sendToClient (
    int idClient) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.17 setConfig()

```
void rserv::Server::setConfig (
    std::shared_ptr< ServerConfig > config) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.18 setFd()

```
void rserv::Server::setFd (
    int fd) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.19 setNetwork()

```
void rserv::Server::setNetwork (
    std::shared_ptr< net::INetwork > network) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.20 setPort()

```
void rserv::Server::setPort (
    unsigned int port) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.21 setState()

```
void rserv::Server::setState (
    int state) [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.22 start()

```
void rserv::Server::start () [override], [virtual]
```

Implements [rserv::IServer](#).

#### 4.56.1.23 stop()

```
void rserv::Server::stop () [override], [virtual]
```

Implements [rserv::IServer](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/server/Server.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/Server.cpp

## 4.57 rserv::ServerConfig Class Reference

### Public Member Functions

- int **getState** () const
- int **getFd** () const
- void **setPort** (unsigned int port)
- unsigned int **getPort** () const
- void **setState** (int state)
- void **setFd** (int fd)
- void **setNbClients** (int nbClients)
- int **getNbClients** () const
- uint32\_t **getIp** () const
- void **setIp** (uint32\_t ip)

### Private Attributes

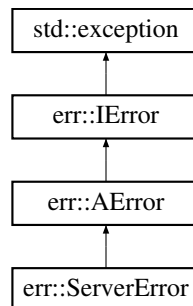
- int **\_state**
- int **\_fd**
- unsigned int **\_port**
- int **\_nbClients**
- uint32\_t **\_ip**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/server/ServerConfig.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/ServerConfig.cpp

## 4.58 `err::ServerError` Class Reference

Inheritance diagram for `err::ServerError`:



### Public Types

- enum **ErrorCode** {  
**UNKNOWN** = 1000 , **CONNECTION\_FAILED** = 1001 , **TIMEOUT** = 1002 , **INVALID\_REQUEST** = 1003 ,  
**INTERNAL\_ERROR** = 1004 , **LIBRARY\_LOAD\_FAILED** = 1005 , **CONFIG\_ERROR** = 1006 }

### Public Member Functions

- **ServerError** (const std::string &message, ErrorCode code=UNKNOWN)
- std::string [getType](#) () const noexcept override

### Public Member Functions inherited from [err::AError](#)

- **AError** (const std::string &message, int code=0)
- const char \* [what](#) () const noexcept override
- int [getCode](#) () const noexcept override
- std::string [getDetails](#) () const noexcept override

### Additional Inherited Members

### Protected Attributes inherited from [err::AError](#)

- std::string **m\_message**
- int **m\_code**

## 4.58.1 Member Function Documentation

### 4.58.1.1 `getType()`

```
std::string err::ServerError::getType () const [override], [virtual], [noexcept]
```

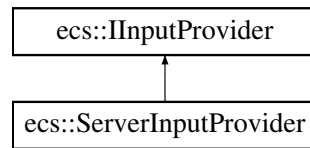
Implements [err::AError](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Error/ServerError.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/Error/ServerError.cpp

## 4.59 ecs::ServerInputProvider Class Reference

Inheritance diagram for ecs::ServerInputProvider:



### Public Member Functions

- bool [isKeyPressed](#) (event\_t key) override
- float [getAxisValue](#) (event\_t axis) override
- std::pair< int, int > [getMousePos](#) () override
- bool [isMouseButtonPressed](#) (int button) override

### Additional Inherited Members

### Public Types inherited from [ecs::InputProvider](#)

- using **event\_t** = gfx::EventType

## 4.59.1 Member Function Documentation

### 4.59.1.1 getAxisValue()

```
float ecs::ServerInputProvider::getAxisValue (
    event_t axis) [override], [virtual]
```

Implements [ecs::InputProvider](#).

### 4.59.1.2 getMousePos()

```
std::pair< int, int > ecs::ServerInputProvider::getMousePos () [override], [virtual]
```

Implements [ecs::InputProvider](#).

### 4.59.1.3 isKeyPressed()

```
bool ecs::ServerInputProvider::isKeyPressed (
    event_t key) [override], [virtual]
```

Implements [ecs::InputProvider](#).

#### 4.59.1.4 isMouseButtonPressed()

```
bool ecs::ServerInputProvider::isMouseButtonPressed (
    int button) [override], [virtual]
```

Implements [ecs::IInputProvider](#).

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

- /home/albane/epitech/tech3/r-type/ryanR-type/server/initRessourcesManager/ServerInputProvider.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/initRessourcesManager/ServerInputProvider.cpp

## 4.60 Signal Class Reference

### Static Public Member Functions

- static void **signalHandler** (int signum)
- static void **setupSignalHandlers** ()

### Static Public Attributes

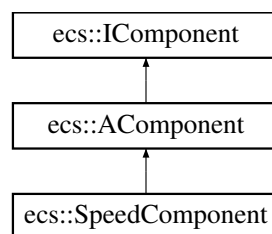
- static volatile sig\_atomic\_t **stopFlag** = 0

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/Signal/Signal.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/Signal/Signal.cpp

## 4.61 ecs::SpeedComponent Class Reference

Inheritance diagram for `ecs::SpeedComponent`:



### Public Member Functions

- **SpeedComponent** (float speed=constants::BASE\_SPEED)
- float **getSpeed** () const
- void **setSpeed** (float speed)

### Public Member Functions inherited from `ecs::AComponent`

- ComponentState `getState` () const override
- void `setState` (ComponentState newState) override

### Private Attributes

- float `_speed`

### Additional Inherited Members

### Protected Attributes inherited from `ecs::AComponent`

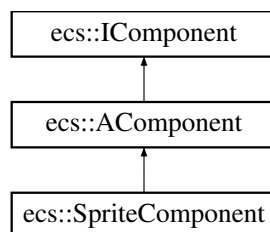
- ComponentState `_state` = Permanent

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/SpeedComponent.hpp`

## 4.62 `ecs::SpriteComponent` Class Reference

Inheritance diagram for `ecs::SpriteComponent`:



### Public Member Functions

- **SpriteComponent** (const std::string &texturePath)
- const std::string & **getTexturePath** () const
- void **setTexturePath** (const std::string &path)
- bool **isValid** () const

### Public Member Functions inherited from `ecs::AComponent`

- ComponentState `getState` () const override
- void `setState` (ComponentState newState) override

### Private Attributes

- std::string `_texturePath`



**Additional Inherited Members****Protected Attributes inherited from [ecs::AComponent](#)**

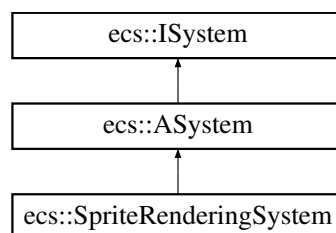
- ComponentState `_state` = Permanent

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/SpriteComponent.hpp`

**4.63 ecs::SpriteRenderingSystem Class Reference**

Inheritance diagram for `ecs::SpriteRenderingSystem`:

**Protected Member Functions**

- void `update` (`std::shared_ptr< ResourceManager > resourceManager`, `std::shared_ptr< ARegistry > registry`, `float deltaTime`) override

**Additional Inherited Members****Public Member Functions inherited from [ecs::ASystem](#)**

- void `updateSystem` (`std::shared_ptr< ResourceManager > resourceManager`, `std::shared_ptr< ARegistry > registry`, `float deltaTime`) override

**4.63.1 Member Function Documentation****4.63.1.1 update()**

```

void ecs::SpriteRenderingSystem::update (
    std::shared_ptr< ResourceManager > resourceManager,
    std::shared_ptr< ARegistry > registry,
    float deltaTime) [override], [protected], [virtual]
  
```

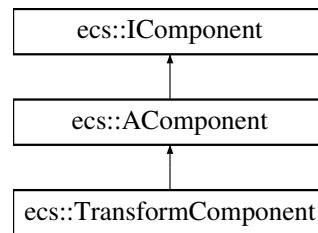
Implements [ecs::ASystem](#).

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

- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/SpriteRenderingSystem.hpp`
- `/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/SpriteRenderingSystem.cpp`

## 4.64 ecs::TransformComponent Class Reference

Inheritance diagram for ecs::TransformComponent:



### Public Member Functions

- **TransformComponent** ([math::Vector2f](#) position=[math::Vector2f](#)(0.0f, 0.0f), float rotation=0.0f, [math::Vector2f](#) scale=[math::Vector2f](#)(1.0f, 1.0f))
- [math::Vector2f](#) **getPosition** () const
- void **setPosition** ([math::Vector2f](#) position)
- float **getRotation** () const
- void **setRotation** (float rotation)
- [math::Vector2f](#) **getScale** () const
- void **setScale** ([math::Vector2f](#) scale)

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Private Attributes

- [math::Vector2f](#) **\_position**
- float **\_rotation**
- [math::Vector2f](#) **\_scale**

### Additional Inherited Members

### Protected Attributes inherited from [ecs::AComponent](#)

- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/TransformComponent.↔  
hpp

## 4.65 Utils Class Reference

### Public Member Functions

- void **helper** ()
- void **parseCli** (int ac, char \*\*av, std::shared\_ptr< [ClientNetwork](#) > clientNetwork)
- void **helper** ()
- void **parsCli** (int ac, char \*\*av, std::shared\_ptr< [rserv::ServerConfig](#) > config)

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

- /home/albane/epitech/tech3/r-type/ryanR-type/client/Utils.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/Utils.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/client/Utils.cpp
- /home/albane/epitech/tech3/r-type/ryanR-type/server/Utils.cpp

## 4.66 math::Vector2f Class Reference

### Public Member Functions

- **Vector2f** (float x=0.0f, float y=0.0f)
- **Vector2f** ([Vector2f](#) const &other)
- float **getX** () const
- void **setX** (float x)
- float **getY** () const
- void **setY** (float y)
- [Vector2f](#) **getVector** () const
- [Vector2f](#) **operator\*** (float scalar) const
- [Vector2f](#) **operator-** ([Vector2f](#) const &other) const
- [Vector2f](#) **operator+** ([Vector2f](#) const &other) const
- void **operator=** ([Vector2f](#) const &other)
- void **operator+=** ([Vector2f](#) const &other)
- void **operator-=** ([Vector2f](#) const &other)
- void **operator\*=** (float scalar)
- void **operator/=** (float scalar)

### Private Attributes

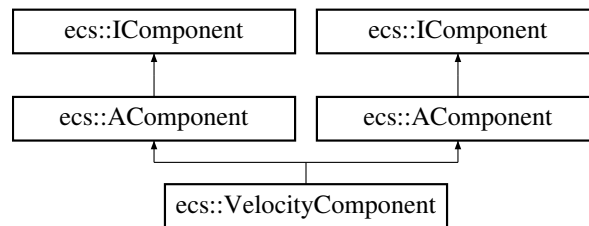
- float **\_x**
- float **\_y**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/types/Vector2f.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/types/Vector2f.cpp

## 4.67 ecs::VelocityComponent Class Reference

Inheritance diagram for ecs::VelocityComponent:



### Public Member Functions

- **VelocityComponent** (const [math::Vector2f](#) &velocity=[math::Vector2f](#)(0.0f, 0.0f))
- [math::Vector2f](#) **getVelocity** () const
- void **setVelocity** (const [math::Vector2f](#) &velocity)
- **VelocityComponent** ([math::Vector2f](#) velocity=[math::Vector2f](#)(0.0f, 0.0f))
- [math::Vector2f](#) **getVelocity** () const
- void **setVelocity** ([math::Vector2f](#) velocity)

### Public Member Functions inherited from [ecs::AComponent](#)

- ComponentState [getState](#) () const override
- void [setState](#) (ComponentState newState) override

### Private Attributes

- [math::Vector2f](#) **\_velocity**

### Additional Inherited Members

### Protected Attributes inherited from [ecs::AComponent](#)

- ComponentState **\_state** = Permanent

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/DirectionComponent.↔  
hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/VelocityComponent.↔  
hpp

## 4.68 ecs::View< Components > Class Template Reference

### Classes

- class [Iterator](#)

### Public Member Functions

- **View** (std::shared\_ptr< class [ARegistry](#) > registry)
- [Iterator](#) **begin** ()
- [Iterator](#) **end** ()

### Private Attributes

- std::shared\_ptr< class [ARegistry](#) > **\_registry**

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.cpp



# Chapter 5

## File Documentation

### 5.1 ClientNetwork.hpp

```
00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ClientNetwork
00006 */
00007
00008 #include <memory>
00009
00010 #include "../common/DLLoader/DLLoader.hpp"
00011 #include "../common/DLLoader/LoaderType.hpp"
00012 #include "../libs/Network/INetwork.hpp"
00013
00014 #ifndef CLIENTNETWORK_HPP_
00015 #define CLIENTNETWORK_HPP_
00016
00017 class ClientNetwork {
00018     public:
00019         ClientNetwork();
00020         ~ClientNetwork();
00021
00022         void init();
00023         void start();
00024         void stop();
00025
00026         int getPort() const;
00027         void setPort(int port);
00028
00029         uint32_t getIp() const;
00030         void setIp(uint32_t ip);
00031
00032         void sendData(const IPacketManager &data, size_t size);
00033         IPacketManager &receiveData(const IBuffer &buffer, size_t size) const;
00034
00035         void loadNetworkLibrary();
00036         void loadBufferLibrary();
00037         void loadPacketLibrary();
00038     protected:
00039     private:
00040         DLLoader<createNetworkLib_t> _networloader;
00041         DLLoader<createBuffer_t> _bufferloader;
00042         DLLoader<createPacket_t> _packetloader;
00043
00044         std::shared_ptr<net::INetwork> _network;
00045         std::shared_ptr<IBuffer> _buffer;
00046         std::shared_ptr<IPacketManager> _packet;
00047
00048         int _port;
00049         uint32_t _ip;
00050 };
00051
00052 #endif /* !CLIENTNETWORK_HPP_ */
```

## 5.2 Core.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** Core.hpp
00006 */
00007
00008 #ifndef CORE_HPP_
00009 #define CORE_HPP_
00010
00011 #include <memory>
00012 #include <thread>
00013 #include "../common/ECS/resourceManager/ResourceManager.hpp"
00014 #include "ClientNetwork.hpp"
00015 #include "../libs/Multimedia/IWindow.hpp"
00016 #include "../libs/Multimedia/IEvent.hpp"
00017 #include "gsm/machine/GameStateMachine.hpp"
00018 #include "../common/DLLoader/DLLoader.hpp"
00019
00020 class Core
00021 {
00022     public:
00023         Core();
00024         ~Core();
00025
00026         void run();
00027
00028         std::shared_ptr<ClientNetwork> getNetwork();
00029
00030     private:
00031         std::shared_ptr<DLLoader<gfx::createWindow_t> _windowLoader;
00032         std::shared_ptr<DLLoader<gfx::createEvent_t> _eventLoader;
00033
00034         std::shared_ptr<ecs::ResourceManager> _resourceManager;
00035         std::shared_ptr<gsm::GameStateMachine> _gsm;
00036         std::shared_ptr<ClientNetwork> _clientNetwork;
00037         std::thread _networkThread;
00038
00039         void initNetwork();
00040         void initLibraries();
00041         void networkLoop();
00042 };
00043
00044 #endif /* !CORE_HPP_ */

```

## 5.3 Core.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** Core
00006 */
00007
00008 #include "Server.hpp"
00009 #include "Utils.hpp"
00010 #include "ServerConfig.hpp"
00011 #include "../common/ECS/resourceManager/ResourceManager.hpp"
00012
00013 #ifndef CORE_HPP_
00014 #define CORE_HPP_
00015
00016 class Core {
00017     public:
00018         Core();
00019         ~Core();
00020
00021         void init();
00022         void loop();
00023
00024         std::shared_ptr<rserv::ServerConfig> getConfig() const;
00025         std::shared_ptr<rserv::Server> getServer() const;
00026         std::shared_ptr<ecs::ResourceManager> getResourceManager() const;
00027
00028     protected:
00029     private:
00030         std::shared_ptr<Utils> _utils;
00031         std::shared_ptr<rserv::ServerConfig> _config;
00032         std::shared_ptr<rserv::Server> _server;
00033

```



```

00034      /* Add esc related elem here */
00035      std::shared_ptr<ecs::ResourceManager> _resourceManager;
00036  };
00037
00038  #endif /* !CORE_HPP_ */

```

## 5.4 AGameStateMachine.hpp

```

00001 #pragma once
00002
00003 #include "IGameStateMachine.hpp"
00004 #include "../states/base/IGameState.hpp"
00005
00006 namespace gsm {
00007
00008 class AGameStateMachine : public IGameStateMachine {
00009 public:
00010     AGameStateMachine();
00011     ~AGameStateMachine() override = default;
00012
00013     void changeState(std::shared_ptr<IGameState> newState) override;
00014     void pushState(std::shared_ptr<IGameState> newState) override;
00015     void popState() override;
00016
00017     void update(float deltaTime) override;
00018     void render() override;
00019
00020 protected:
00021     std::stack<std::shared_ptr<IGameState>> _states;
00022 };
00023
00024 } // namespace gsm

```

## 5.5 AGameStateMachine.hpp

```

00001 #pragma once
00002
00003 #include "IGameStateMachine.hpp"
00004 #include "../states/IGameState.hpp"
00005
00006 namespace gsm {
00007
00008 class AGameStateMachine : public IGameStateMachine {
00009 public:
00010     AGameStateMachine();
00011     ~AGameStateMachine() override = default;
00012
00013     void changeState(std::shared_ptr<IGameState> newState) override;
00014     void pushState(std::shared_ptr<IGameState> newState) override;
00015     void popState() override;
00016
00017     void update(float deltaTime) override;
00018
00019 protected:
00020     std::stack<std::shared_ptr<IGameState>> _states;
00021 };
00022
00023 } // namespace gsm

```

## 5.6 GameStateMachine.hpp

```

00001 #pragma once
00002
00003 #include "AGameStateMachine.hpp"
00004
00005 namespace gsm {
00006
00007 class GameStateMachine : public AGameStateMachine {
00008 public:
00009     GameStateMachine();
00010     ~GameStateMachine() override = default;
00011 };
00012
00013 } // namespace gsm

```

## 5.7 IGameStateMachine.hpp

```

00001 #pragma once
00002
00003 #include <memory>
00004 #include <stack>
00005
00006 namespace gsm {
00007
00008     class IGameState;
00009
00010     class IGameStateMachine {
00011     public:
00012         virtual ~IGameStateMachine() = default;
00013
00014         virtual void changeState(std::shared_ptr<IGameState> newState) = 0;
00015         virtual void pushState(std::shared_ptr<IGameState> newState) = 0;
00016         virtual void popState() = 0;
00017
00018         virtual void update(float deltaTime) = 0;
00019         virtual void render() = 0;
00020     };
00021
00022 } // namespace gsm

```

## 5.8 IGameStateMachine.hpp

```

00001 #pragma once
00002
00003 #include <memory>
00004 #include <stack>
00005
00006 namespace gsm {
00007
00008     class IGameState;
00009
00010     class IGameStateMachine {
00011     public:
00012         virtual ~IGameStateMachine() = default;
00013
00014         virtual void changeState(std::shared_ptr<IGameState> newState) = 0;
00015         virtual void pushState(std::shared_ptr<IGameState> newState) = 0;
00016         virtual void popState() = 0;
00017
00018         virtual void update(float deltaTime) = 0;
00019     };
00020
00021 } // namespace gsm

```

## 5.9 AGameState.hpp

```

00001 #pragma once
00002
00003 #include "IGameState.hpp"
00004
00005 namespace gsm {
00006
00007     class AGameState : public IGameState {
00008     public:
00009         AGameState(std::shared_ptr<IGameStateMachine> gsm);
00010         ~AGameState() override = default;
00011
00012         void enter() override;
00013         void update(float deltaTime) override;
00014         void render() override;
00015         void exit() override;
00016
00017     protected:
00018         std::shared_ptr<IGameStateMachine> _gsm;
00019     };
00020
00021 } // namespace gsm

```

## 5.10 AGameState.hpp

```

00001 #pragma once
00002
00003 #include "IGameState.hpp"
00004
00005 namespace gsm {
00006
00007 class AGameState : public IGameState {
00008 public:
00009     AGameState(std::shared_ptr<IGameStateMachine> gsm);
00010     ~AGameState() override = default;
00011
00012     void enter() override;
00013     void update(float deltaTime) override;
00014     void exit() override;
00015
00016 protected:
00017     std::shared_ptr<IGameStateMachine> _gsm;
00018 };
00019
00020 } // namespace gsm

```

## 5.11 IGameState.hpp

```

00001 #pragma once
00002
00003 #include <memory>
00004 #include "../machine/IGameStateMachine.hpp"
00005
00006 namespace gsm {
00007
00008 class IGameState {
00009 public:
00010     virtual ~IGameState() = default;
00011
00012     virtual void enter() = 0;
00013     virtual void update(float deltaTime) = 0;
00014     virtual void render() = 0;
00015     virtual void exit() = 0;
00016 };
00017
00018 } // namespace gsm

```

## 5.12 IGameState.hpp

```

00001 #pragma once
00002
00003 #include <memory>
00004 #include "../machine/IGameStateMachine.hpp"
00005
00006 namespace gsm {
00007
00008 class IGameState {
00009 public:
00010     virtual ~IGameState() = default;
00011
00012     virtual void enter() = 0;
00013     virtual void update(float deltaTime) = 0;
00014     virtual void exit() = 0;
00015 };
00016
00017 } // namespace gsm

```

## 5.13 DevState.hpp

```

00001 #pragma once
00002
00003 #include "../base/AGameState.hpp"
00004 #include "../common/ECS/resourceManager/ResourceManager.hpp"
00005 #include "../common/ECS/entity/registry/ARegistry.hpp"
00006 #include "../common/ECS/system/systemManager/ASystemManager.hpp"
00007 #include "../common/ECS/system/movement/MovementSystem.hpp"

```

```

00008 #include "../common/ECS/system/movement/InputToVelocitySystem.hpp"
00009 #include "../common/ECS/system/input/MovementInputSystem.hpp"
00010 #include "../common/ECS/system/rendering/SpriteRenderingSystem.hpp"
00011 #include "../common/Prefab/entityPrefabManager/EntityPrefabManager.hpp"
00012 namespace gsm {
00013
00014 class DevState : public AGameState {
00015 public:
00016     DevState(std::shared_ptr<IGameStateMachine> gsm, std::shared_ptr<ecs::ResourceManager>
resourceManager);
00017     ~DevState() override = default;
00018
00019     void enter() override;
00020     void update(float deltaTime) override;
00021     void render() override;
00022     void exit() override;
00023
00024 private:
00025     std::shared_ptr<ecs::ResourceManager> _resourceManager;
00026     std::shared_ptr<ecs::ARegistry> _registry;
00027     std::shared_ptr<ecs::ASystemManager> _systemManager;
00028     std::shared_ptr<ecs::MovementSystem> _movementSystem;
00029     std::shared_ptr<ecs::InputToVelocitySystem> _inputToVelocitySystem;
00030     std::shared_ptr<ecs::MovementInputSystem> _inputSystem;
00031     std::shared_ptr<ecs::SpriteRenderingSystem> _spriteRenderingSystem;
00032     std::shared_ptr<EntityPrefabManager> _prefabManager;
00033 };
00034
00035 } // namespace gsm

```

## 5.14 GraphicalInputProvider.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** GraphicalInputProvider
00006 */
00007
00008 #include "../common/ECS/resourceManager/IInputProvider.hpp"
00009 #include "../libs/Multimedia/IEvent.hpp"
00010 #include <memory>
00011
00012 namespace ecs {
00013
00014 class GraphicalInputProvider : public IInputProvider {
00015 public:
00016     GraphicalInputProvider(std::shared_ptr<gfx::IEvent> eventSystem);
00017     ~GraphicalInputProvider() override = default;
00018
00019     bool isKeyPressed(event_t key) override;
00020     float getAxisValue(event_t axis) override;
00021     std::pair<int, int> getMousePos() override;
00022     bool isMouseButtonPressed(int button) override;
00023
00024 private:
00025     std::shared_ptr<gfx::IEvent> _eventSystem;
00026 };
00027
00028 } // namespace ecs

```

## 5.15 initRessourcesManager.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** initRessourcesManager
00006 */
00007
00008 #ifndef INITRESSOURCESMANAGER_HPP_
00009 #define INITRESSOURCESMANAGER_HPP_
00010
00011 #include "../common/ECS/resourceManager/ResourceManager.hpp"
00012 #include <memory>
00013 #include "../common/DLLoader/DLLoader.hpp"
00014 #include "../libs/Multimedia/IWindow.hpp"
00015 #include "../libs/Multimedia/IEvent.hpp"

```

```

00016
00017 std::shared_ptr<ecs::ResourceManager> initRessourcesManager(
00018     std::shared_ptr<DLLoader<gfx::createWindow_t>>,
00019     std::shared_ptr<DLLoader<gfx::createEvent_t>>
00020 );
00021
00022 #endif /* !INITRESSOURCESMANAGER_HPP_ */

```

## 5.16 initRessourcesManager.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** initRessourcesManager
00006 */
00007
00008 #ifndef INITRESSOURCESMANAGER_HPP_
00009 #define INITRESSOURCESMANAGER_HPP_
00010
00011 #include "../common/ECS/resourceManager/ResourceManager.hpp"
00012 #include <memory>
00013
00014 std::shared_ptr<ecs::ResourceManager> initRessourcesManager();
00015
00016 #endif /* !INITRESSOURCESMANAGER_HPP_ */

```

## 5.17 Utils.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** Utils
00006 */
00007 #include "ClientNetwork.hpp"
00008
00009 #ifndef UTILS_HPP_
00010 #define UTILS_HPP_
00011
00012 class Utils {
00013     public:
00014         Utils();
00015         ~Utils();
00016
00017         void helper();
00018         void parseCli(int ac, char **av, std::shared_ptr<ClientNetwork> clientNetwork);
00019     protected:
00020     private:
00021 };
00022
00023 #endif /* !UTILS_HPP_ */

```

## 5.18 Utils.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** Utils
00006 */
00007
00008 #include <vector>
00009 #include <memory>
00010
00011 #include "ServerConfig.hpp"
00012
00013 #ifndef UTILS_HPP_
00014 #define UTILS_HPP_
00015
00016 class Utils {
00017     public:
00018         Utils();

```

```

00019         ~Utils();
00020
00021         void helper();
00022         void parsCli(int ac, char **av, std::shared_ptr<rserv::ServerConfig> config);
00023     protected:
00024     private:
00025 };
00026
00027 #endif /* !UTILS_HPP_ */

```

## 5.19 constants.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** Constants
00006 */
00007
00008 #ifndef CONSTANTS_HPP_
00009 #define CONSTANTS_HPP_
00010
00011 #include <cstdint>
00012
00013 namespace constants {
00014     /* Network Defaults */
00015     constexpr int DEFAULT_SERVER_PORT = 4242;
00016     constexpr uint32_t DEFAULT_SERVER_IP = 0x7F000001; // 127.0.0.1
00017
00018     /* Game Defaults */
00019     constexpr float BASE_SPEED = 100.0f;
00020     constexpr float EPS = 1e-6f;
00021     constexpr float PLAYER_BASE_SPEED = 300.0f;
00022     constexpr float GAMEPAD_DEADZONE = 0.15f;
00023     constexpr int SMOOTH_MOVEMENT_ITERATIONS = 4;
00024 }
00025
00026 #endif /* !CONSTANTS_HPP_ */

```

## 5.20 DLLoader.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** r-type
00004 ** File description:
00005 ** DLLoader
00006 */
00007
00008 #ifndef DLLoader_HPP_
00009 #define DLLoader_HPP_
00010
00011 #ifdef _WIN32
00012     #include <windows.h>
00013     #define RTLD_LAZY 0
00014 #else
00015     #include <dlfcn.h>
00016 #endif
00017
00018 #include <iostream>
00019 #include <ostream>
00020 #include <memory>
00021 #include "ILoader.hpp"
00022
00023 template <typename T>
00024
00025 class DLLoader : public ILoader {
00026     private:
00027     #ifdef _WIN32
00028         HMODULE _handler = nullptr;
00029         mutable std::string _lastError;
00030     #else
00031         void *_handler = nullptr;
00032     #endif
00033
00034     public:
00035         ~DLLoader() = default;
00036
00037         void *getHandler() const override {

```

```

00038         return _handler;
00039     };
00040
00041     void *Open(const char *path, int flag = RTLD_LAZY) override {
00042 #ifdef _WIN32
00043         (void)flag;
00044         _handler = LoadLibraryA(path);
00045         if (!_handler) {
00046             _lastError = "Failed to load library: " + std::string(path);
00047         }
00048 #else
00049         _handler = dlopen(path, flag);
00050 #endif
00051         return _handler;
00052     };
00053
00054     void *Symbol(const char *symbolName) override {
00055 #ifdef _WIN32
00056         void *symbol = (void*)GetProcAddress(_handler, symbolName);
00057         if (!symbol) {
00058             _lastError = "Failed to get symbol: " + std::string(symbolName);
00059             std::cerr << "GetProcAddress error: " << _lastError << std::endl;
00060             return nullptr;
00061         }
00062         return symbol;
00063 #else
00064         void *symbol = dlsym(_handler, symbolName);
00065         const char *error = dlerror();
00066         if (error) {
00067             std::cerr << "dlerror: " << error << std::endl;
00068             return nullptr;
00069         }
00070         return symbol;
00071 #endif
00072     };
00073
00074     T getSymbol(const char *symbolName) {
00075 #ifdef _WIN32
00076         return reinterpret_cast<T>(GetProcAddress(_handler, symbolName));
00077 #else
00078         return reinterpret_cast<T>(dlsym(_handler, symbolName));
00079 #endif
00080     };
00081
00082     int Close() override{
00083         if (_handler == nullptr)
00084             return -1;
00085 #ifdef _WIN32
00086         return FreeLibrary(_handler) ? 0 : -1;
00087 #else
00088         return dlclose(_handler);
00089 #endif
00090     };
00091
00092     const char *Error() override {
00093 #ifdef _WIN32
00094         return _lastError.c_str();
00095 #else
00096         return dlerror();
00097 #endif
00098     };
00099 };
00100
00101 #endif /* !DLLOADER_HPP_ */

```

## 5.21 ILoader.hpp

```

00001 /*
00002  ** EPITECH PROJECT, 2025
00003  ** r-type
00004  ** File description:
00005  ** ILoader
00006  */
00007
00008 #ifndef ILoader_HPP_
00009 #define ILoader_HPP_
00010
00011
00012 class ILoader {
00013 public:
00014     ~ILoader() = default;
00015
00016     virtual void *Open(const char *path, int flag) = 0;

```

```

00017         virtual void *Symbol(const char *symbolName) = 0;
00018         virtual int Close() = 0;
00019         virtual const char *Error() = 0;
00020         virtual void *getHandler() const = 0;
00021
00022     protected:
00023     private:
00024 };
00025
00026 #endif /* !ILoader_HPP_ */

```

## 5.22 LoaderType.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** r-type
00004 ** File description:
00005 ** LoaderType
00006 */
00007
00008 #ifndef LOADERTYPE_HPP_
00009 #define LOADERTYPE_HPP_
00010
00011 enum ModuleType_t{
00012     MULTIMEDIA_MODULE = 0,
00013     NETWORK_MODULE = 1,
00014     PACKET_MODULE = 2,
00015     BUFFER_MODULE = 3,
00016     UNKNOWN_MODULE
00017 };
00018
00019 typedef ModuleType_t (*getTypeFunc_t)();
00020
00021 typedef void *(*createNetworkLib_t)();
00022 typedef void *(*createBuffer_t)();
00023 typedef void *(*createPacket_t)();
00024
00025 #define pathLoad "./libraries"
00026
00027 #ifdef _WIN32
00028     #define multimediaLib "libMultimedia.dll"
00029     #define networkLib "libNetwork.dll"
00030     #define bufferLib "libBuffer.dll"
00031     #define packetLib "libPacket.dll"
00032 #else
00033     #define multimediaLib "libMultimedia.so"
00034     #define networkLib "libNetwork.so"
00035     #define bufferLib "libBuffer.so"
00036     #define packetLib "libPacket.so"
00037 #endif
00038
00039 #endif /* !LOADERTYPE_HPP_ */

```

## 5.23 AComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** AComponent
00006 */
00007
00008 #ifndef ACOMPONENT_HPP_
00009 #define ACOMPONENT_HPP_
00010
00011 #include "IComponent.hpp"
00012
00013 namespace ecs {
00014
00015     class AComponent : public IComponent {
00016     public:
00017         AComponent();
00018         ~AComponent();
00019
00020         ComponentState getState() const override;
00021         void setState(ComponentState newState) override;
00022
00023     protected:

```



```

00024         ComponentState _state = Permanent;
00025
00026     private:
00027 };
00028
00029 } // namespace ecs
00030
00031 #endif /* !ACOMPONENT_HPP_ */

```

## 5.24 IComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IComponent
00006 */
00007
00008 #ifndef ICOMPONENT_HPP_
00009 #define ICOMPONENT_HPP_
00010
00011 namespace ecs {
00012
00013     enum ComponentState {
00014         Permanent = 0,
00015         Temporary = 1,
00016         Processed = 2,
00017     };
00018
00019     class IComponent {
00020     public:
00021         IComponent() = default;
00022         virtual ~IComponent() = default;
00023
00024         virtual ComponentState getState() const = 0;
00025         virtual void setState(ComponentState newState) = 0;
00026
00027     protected:
00028     private:
00029     };
00030
00031 } // namespace ecs
00032
00033 #endif /* !ICOMPONENT_HPP_ */

```

## 5.25 ColliderComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ColliderComponent
00006 */
00007
00008 #ifndef COLLIDERCOMPONENT_HPP_
00009 #define COLLIDERCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../types/FRect.hpp"
00013 #include "../types/Vector2f.hpp"
00014
00015 namespace ecs {
00016
00017     enum class CollisionType {
00018         None,
00019         Solid,
00020         Bounce,
00021         Trigger
00022     };
00023
00024     class ColliderComponent : public AComponent {
00025     public:
00026         ColliderComponent(math::Vector2f offset = math::Vector2f(0.0f, 0.0f), math::Vector2f size =
00027             math::Vector2f(0.0f, 0.0f), CollisionType type = CollisionType::Solid)
00028             : _offset(offset), _size(size), _type(type) {}
00029         ~ColliderComponent() = default;
00030
00031         math::Vector2f getOffset() const { return _offset; }
00032     };
00033
00034 } // namespace ecs
00035
00036 #endif /* !COLLIDERCOMPONENT_HPP_ */

```

```

00031         void setOffset(math::Vector2f offset) { _offset = offset; };
00032
00033         math::Vector2f getSize() const { return _size; };
00034         void setSize(math::Vector2f size) { _size = size; };
00035
00036         CollisionType getType() const { return _type; };
00037         void setType(CollisionType type) { _type = type; };
00038
00039         math::FRect getHitbox(math::Vector2f entityPosition) const {
00040             return math::FRect(entityPosition.getX() + _offset.getX(), entityPosition.getY() +
_offset.getY(), _size.getX(), _size.getY());
00041         };
00042
00043     private:
00044         math::Vector2f _offset;
00045         math::Vector2f _size;
00046         CollisionType _type;
00047     };
00048
00049 } // namespace ecs
00050
00051 #endif /* !COLLIDERCOMPONENT_HPP_ */

```

## 5.26 DirectionComponent.hpp

```

00001 /*
00002  ** EPITECH PROJECT, 2025
00003  ** ryanR-type
00004  ** File description:
00005  ** VelocityComponent
00006  */
00007
00008 #ifndef VELOCITYCOMPONENT_HPP_
00009 #define VELOCITYCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../types/Vector2f.hpp"
00013
00014 namespace ecs {
00015
00016     class VelocityComponent : public AComponent {
00017     public:
00018         VelocityComponent(const math::Vector2f &velocity = math::Vector2f(0.0f, 0.0f))
00019             : _velocity(velocity) {};
00020         ~VelocityComponent() = default;
00021
00022         math::Vector2f getVelocity() const { return _velocity; };
00023         void setVelocity(const math::Vector2f &velocity) { _velocity = velocity; };
00024     private:
00025         math::Vector2f _velocity;
00026     };
00027
00028 } // namespace ecs
00029
00030 #endif /* !VELOCITYCOMPONENT_HPP_ */

```

## 5.27 SpeedComponent.hpp

```

00001 /*
00002  ** EPITECH PROJECT, 2025
00003  ** ryanR-type
00004  ** File description:
00005  ** SpeedComponent
00006  */
00007
00008 #ifndef SPEEDCOMPONENT_HPP_
00009 #define SPEEDCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "constants.hpp"
00013
00014 namespace ecs {
00015
00016     class SpeedComponent : public AComponent {
00017     public:
00018         SpeedComponent(float speed = constants::BASE_SPEED) : _speed(speed) {};
00019         ~SpeedComponent() = default;
00020

```

```

00021         float getSpeed() const { return _speed; };
00022         void setSpeed(float speed) { _speed = speed; };
00023     private:
00024         float _speed;
00025 };
00026
00027 } // namespace ecs
00028
00029 #endif /* !SPEEDCOMPONENT_HPP_ */

```

## 5.28 TransformComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** TransformComponent
00006 */
00007
00008 #ifndef TRANSFORMCOMPONENT_HPP_
00009 #define TRANSFORMCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../types/Vector2f.hpp"
00013
00014 namespace ecs {
00015
00016     class TransformComponent : public AComponent {
00017     public:
00018         TransformComponent(math::Vector2f position = math::Vector2f(0.0f, 0.0f), float rotation =
00019             0.0f, math::Vector2f scale = math::Vector2f(1.0f, 1.0f))
00020             : _position(position), _rotation(rotation), _scale(scale) {};
00021         ~TransformComponent() = default;
00022
00023         math::Vector2f getPosition() const { return _position; };
00024         void setPosition(math::Vector2f position) { _position = position; };
00025
00026         float getRotation() const { return _rotation; };
00027         void setRotation(float rotation) { _rotation = rotation; };
00028
00029         math::Vector2f getScale() const { return _scale; };
00030         void setScale(math::Vector2f scale) { _scale = scale; };
00031
00032     private:
00033         math::Vector2f _position;
00034         float _rotation;
00035         math::Vector2f _scale;
00036     };
00037 } // namespace ecs
00038
00039 #endif /* !TRANSFORMCOMPONENT_HPP_ */

```

## 5.29 VelocityComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** VelocityComponent
00006 */
00007
00008 #ifndef VELOCITYCOMPONENT_HPP_
00009 #define VELOCITYCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../types/Vector2f.hpp"
00013
00014 namespace ecs {
00015
00016     class VelocityComponent : public AComponent {
00017     public:
00018         VelocityComponent(math::Vector2f velocity = math::Vector2f(0.0f, 0.0f)) : _velocity(velocity)
00019             {};
00020         ~VelocityComponent() = default;
00021
00022         math::Vector2f getVelocity() const { return _velocity; };
00023         void setVelocity(math::Vector2f velocity) { _velocity = velocity; };
00024
00025     private:
00026         math::Vector2f _velocity;
00027     };
00028 } // namespace ecs
00029
00030 #endif /* !VELOCITYCOMPONENT_HPP_ */

```

```

00023     private:
00024         math::Vector2f _velocity;
00025 };
00026
00027 } // namespace ecs
00028
00029 #endif /* !VELOCITYCOMPONENT_HPP_ */

```

## 5.30 AnimationComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** AnimationComponent
00006 */
00007
00008 #ifndef ANIMATIONCOMPONENT_HPP_
00009 #define ANIMATIONCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../types/FRect.hpp"
00013 #include "../types/Chrono.hpp"
00014
00015 namespace ecs {
00016
00017 class AnimationComponent : public AComponent {
00018     public:
00019         AnimationComponent(const std::string& texturePath, float frameWidth, float frameHeight, int
frameCount,
00020             float startWidth, float startHeight, float speed = 0.1f)
00021             : _texturePath(texturePath),
00022               _frameRect(0.0f, 0.0f, frameWidth, frameHeight),
00023               _frameCount(frameCount), _currentFrame(0), _animationSpeed(speed),
00024               _chrono(), _startHeight(startHeight), _startWidth(startWidth) {
00025             _chrono.start();
00026         }
00027
00028         const math::FRect& getFrameRect() const { return _frameRect; }
00029         void setFrameRect(const math::FRect& rect) { _frameRect = rect; }
00030
00031         float getFrameWidth() const { return _frameRect.getWidth(); }
00032         float getFrameHeight() const { return _frameRect.getHeight(); }
00033         int getFrameCount() const { return _frameCount; }
00034         int getCurrentFrame() const { return _currentFrame; }
00035         void setCurrentFrame(int frame) { _currentFrame = frame; }
00036         float getAnimationSpeed() const { return _animationSpeed; }
00037         void setAnimationSpeed(float speed) { _animationSpeed = speed; }
00038         math::Chrono& getChrono() { return _chrono; } // to change
00039         const math::Chrono& getChrono() const { return _chrono; }
00040         bool isValid() const { return _frameCount > 0 && _frameRect.getWidth() > 0 &&
_frameRect.getHeight() > 0; }
00041         const std::string& getTexturePath() const { return _texturePath; }
00042         float getStartWidth() const { return _startWidth; }
00043         void setStartWidth(float startWidth) { _startWidth = startWidth; }
00044         float getStartHeight() const { return _startHeight; }
00045         void setStartHeight(float startHeight) { _startHeight = startHeight; }
00046
00047     private:
00048         std::string _texturePath;
00049         math::FRect _frameRect;
00050         int _frameCount;
00051         int _currentFrame;
00052         float _animationSpeed;
00053         math::Chrono _chrono;
00054         float _startHeight;
00055         float _startWidth;
00056 };
00057
00058 } // namespace ecs
00059 #endif /* !ANIMATIONCOMPONENT_HPP_ */

```

## 5.31 HitboxRenderComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:

```

```

00005 ** HitboxRenderComponent
00006 */
00007
00008 #ifndef HITBOXRENDERCOMPONENT_HPP_
00009 #define HITBOXRENDERCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../libs/Multimedia/IWindow.hpp"
00013
00014 namespace ecs {
00015
00016 class HitboxRenderComponent : public AComponent {
00017 public:
00018     HitboxRenderComponent() : _color{255, 255, 255}, _outlineThickness(1.0f) {}
00019     HitboxRenderComponent(gfx::color_t color, float outlineThickness = 1.0f)
00020         : _color(color), _outlineThickness(outlineThickness) {}
00021
00022     ~HitboxRenderComponent() = default;
00023
00024     const gfx::color_t& getColor() const { return _color; }
00025     void setColor(const gfx::color_t& color) { _color = color; }
00026
00027     float getOutlineThickness() const { return _outlineThickness; }
00028     void setOutlineThickness(float thickness) { _outlineThickness = thickness; }
00029
00030 private:
00031     gfx::color_t _color;
00032     float _outlineThickness;
00033 };
00034
00035 } // namespace ecs
00036
00037 #endif /* !HITBOXRENDERCOMPONENT_HPP_ */

```

## 5.32 RectangleRenderComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** RectangleRenderComponent
00006 */
00007
00008 #ifndef RECTANGLERENDERCOMPONENT_HPP_
00009 #define RECTANGLERENDERCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../libs/Multimedia/IWindow.hpp"
00013
00014 namespace ecs {
00015
00016 class RectangleRenderComponent : public AComponent {
00017 public:
00018     RectangleRenderComponent() : _color{255, 255, 255}, _size{10.0f, 10.0f} {}
00019     RectangleRenderComponent(gfx::color_t color, float width, float height)
00020         : _color(color), _size{width, height} {}
00021
00022     ~RectangleRenderComponent() = default;
00023
00024     const gfx::color_t& getColor() const { return _color; }
00025     void setColor(const gfx::color_t& color) { _color = color; }
00026
00027     float getWidth() const { return _size.first; }
00028     float getHeight() const { return _size.second; }
00029     void setSize(float width, float height) { _size = {width, height}; }
00030
00031 private:
00032     gfx::color_t _color;
00033     std::pair<float, float> _size;
00034 };
00035
00036 } // namespace ecs
00037
00038 #endif /* !RECTANGLERENDERCOMPONENT_HPP_ */

```

## 5.33 SpriteComponent.hpp

```

00001 /*

```

```

00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** SpriteComponent
00006 */
00007
00008 #ifndef SPRITECOMPONENT_HPP_
00009 #define SPRITECOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../../../types/FRect.hpp"
00013 #include <string>
00014
00015 namespace ecs {
00016
00017 class SpriteComponent : public AComponent {
00018     public:
00019         SpriteComponent() : _texturePath("") {}
00020         SpriteComponent(const std::string& texturePath)
00021             : _texturePath(texturePath) {}
00022
00023         ~SpriteComponent() = default;
00024         const std::string& getTexturePath() const { return _texturePath; }
00025         void setTexturePath(const std::string& path) { _texturePath = path; }
00026         bool isValid() const { return !_texturePath.empty(); }
00027
00028     private:
00029         std::string _texturePath;
00030 };
00031
00032 } // namespace ecs
00033
00034 #endif /* !SPRITECOMPONENT_HPP_ */

```

## 5.34 ControllableTag.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ControllableTag
00006 */
00007
00008 #ifndef CONTROLLABLETAG_HPP_
00009 #define CONTROLLABLETAG_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012
00013 namespace ecs {
00014
00015 class ControllableTag : public AComponent {
00016     public:
00017         ControllableTag() = default;
00018         ~ControllableTag() = default;
00019 };
00020
00021 } // namespace ecs
00022
00023 #endif /* !CONTROLLABLETAG_HPP_ */

```

## 5.35 MobTag.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** MobTag
00006 */
00007
00008 #ifndef MOBTAG_HPP_
00009 #define MOBTAG_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012
00013 namespace ecs {
00014
00015 class MobTag : public AComponent {
00016     public:

```

```

00017         MobTag() = default;
00018         ~MobTag() = default;
00019     };
00020
00021 } // namespace ecs
00022
00023 #endif /* !MOBTAG_HPP_ */

```

## 5.36 ObstacleTag.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ObstacleTag
00006 */
00007
00008 #ifndef OBSTACLETAG_HPP_
00009 #define OBSTACLETAG_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012
00013 namespace ecs {
00014
00015     class ObstacleTag : public AComponent {
00016     public:
00017         ObstacleTag() = default;
00018         ~ObstacleTag() = default;
00019     };
00020
00021 } // namespace ecs
00022
00023 #endif /* !OBSTACLETAG_HPP_ */

```

## 5.37 PlayerTag.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** PlayerTag
00006 */
00007
00008 #ifndef PLAYERTAG_HPP_
00009 #define PLAYERTAG_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012
00013 namespace ecs {
00014
00015     class PlayerTag : public AComponent {
00016     public:
00017         PlayerTag() = default;
00018         ~PlayerTag() = default;
00019     };
00020
00021 } // namespace ecs
00022
00023 #endif /* !PLAYERTAG_HPP_ */

```

## 5.38 ProjectileTag.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ProjectileTag
00006 */
00007
00008 #ifndef PROJECTILETAG_HPP_
00009 #define PROJECTILETAG_HPP_
00010
00011 #include "../base/AComponent.hpp"

```

```

00012
00013 namespace ecs {
00014
00015 class ProjectileTag : public AComponent {
00016     public:
00017         ProjectileTag() = default;
00018         ~ProjectileTag() = default;
00019 };
00020
00021 } // namespace ecs
00022
00023 #endif /* !PROJECTILETAG_HPP_ */

```

## 5.39 InputIntentComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** InputIntentComponent
00006 */
00007
00008 #ifndef INPUTINTENTCOMPONENT_HPP_
00009 #define INPUTINTENTCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../../types/Vector2f.hpp"
00013
00014 namespace ecs {
00015
00016 class InputIntentComponent : public AComponent {
00017     public:
00018         InputIntentComponent(const math::Vector2f &direction = math::Vector2f(0.0f, 0.0f))
00019             : _direction(direction) {
00020             _state = Temporary;
00021         };
00022         ~InputIntentComponent() = default;
00023
00024         math::Vector2f getDirection() const { return _direction; };
00025         void setDirection(const math::Vector2f &direction) { _direction = direction; };
00026
00027     private:
00028         math::Vector2f _direction;
00029 };
00030
00031 } // namespace ecs
00032
00033 #endif /* !INPUTINTENTCOMPONENT_HPP_ */

```

## 5.40 MovementIntentComponent.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** MovementIntentComponent
00006 */
00007
00008 #ifndef MOVEMENTINTENTCOMPONENT_HPP_
00009 #define MOVEMENTINTENTCOMPONENT_HPP_
00010
00011 #include "../base/AComponent.hpp"
00012 #include "../../types/Vector2f.hpp"
00013
00014 namespace ecs {
00015
00016 class MovementIntentComponent : public AComponent {
00017     public:
00018         MovementIntentComponent(const math::Vector2f &direction = math::Vector2f(0.0f, 0.0f), bool
00019             active = false)
00019             : _direction(direction), _active(active) {
00020             _state = Temporary;
00021         };
00022         ~MovementIntentComponent() = default;
00023
00024         math::Vector2f getDirection() const { return _direction; };
00025         void setDirection(const math::Vector2f &direction) { _direction = direction; };
00026

```



```

00027         bool isActive() const { return _active; };
00028         void setActive(bool active) { _active = active; };
00029
00030     private:
00031         math::Vector2f _direction;
00032         bool _active;
00033 };
00034
00035 } // namespace ecs
00036
00037 #endif /* !MOVEMENTINTENTCOMPONENT_HPP_ */

```

## 5.41 AEntity.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IEntity
00006 */
00007
00008 #ifndef AENTITY_HPP_
00009 #define AENTITY_HPP_
00010
00011 #include "IEntity.hpp"
00012
00013 namespace ecs {
00014
00015     class AEntity : public IEntity {
00016     public:
00017         AEntity();
00018         ~AEntity();
00019         operator size_t() const override;
00020
00021     private:
00022         explicit AEntity(size_t id);
00023         size_t _id;
00024 };
00025
00026 } // namespace ecs
00027
00028 #endif /* !AENTITY_HPP_ */

```

## 5.42 AComponentArray.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** AComposantType
00006 */
00007
00008 #ifndef ACOMPOSANTTYPE_HPP_
00009 #define ACOMPOSANTTYPE_HPP_
00010
00011 #include "IComponentArray.hpp"
00012 #include "../component/base/IComponent.hpp"
00013 #include <vector>
00014 #include <memory>
00015
00016 namespace ecs {
00017
00018     template <typename T>
00019     class AComponentArray : public IComponentArray {
00020     public:
00021         AComponentArray();
00022         ~AComponentArray() override;
00023
00024         void add(size_t entityId, std::shared_ptr<T> component);
00025         std::shared_ptr<T> get(size_t entityId) const;
00026         std::vector<std::shared_ptr<T>> getAll(size_t entityId) const;
00027         void remove(size_t entityId);
00028         bool has(size_t entityId) const;
00029
00030         void removeAllComponentsWithState(ComponentState state) override;
00031         size_t getMaxEntityId() const override;
00032
00033     private:

```

```

00034         std::vector<std::vector<std::shared_ptr<T>> _components;
00035     };
00036
00037 } // namespace ecs
00038
00039 #include "AComponentArray.tpp"
00040
00041 #endif /* !AComposantType_HPP_ */

```

## 5.43 IComponentArray.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IComponentArray
00006 */
00007
00008 #ifndef ICOMPONENTARRAY_HPP_
00009 #define ICOMPONENTARRAY_HPP_
00010
00011 #include "../component/base/IComponent.hpp"
00012
00013 namespace ecs {
00014
00015     class IComponentArray {
00016     public:
00017         virtual ~IComponentArray() = default;
00018         virtual void removeAllComponentsWithState(ComponentState state) = 0;
00019         virtual size_t getMaxEntityId() const = 0;
00020     };
00021
00022 } // namespace ecs
00023
00024 #endif /* !ICOMPONENTARRAY_HPP_ */

```

## 5.44 IEntity.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IEntity
00006 */
00007
00008 #ifndef IENTITY_HPP_
00009 #define IENTITY_HPP_
00010
00011 #include <cstdint>
00012
00013 namespace ecs {
00014
00015     class IEntity {
00016     public:
00017         IEntity() = default;
00018         virtual ~IEntity() = default;
00019         virtual operator size_t() const = 0;
00020
00021     private:
00022         explicit IEntity(size_t id);
00023     };
00024
00025 } // namespace ecs
00026
00027 #endif /* !ENTITY_HPP_ */

```

## 5.45 ARegistry.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ARegistry

```

```

00006 */
00007
00008 #ifndef AREGISTRY_HPP_
00009 #define AREGISTRY_HPP_
00010
00011 #include "IRegistry.hpp"
00012 #include "../component/base/IComponent.hpp"
00013 #include "../componentArray/IComponentArray.hpp"
00014 #include "../componentArray/AComponentArray.hpp"
00015 #include "../view/View.hpp"
00016 #include <memory>
00017 #include <unordered_map>
00018 #include <string>
00019
00020 namespace ecs {
00021
00022 class ARegistry : public IRegistry, public std::enable_shared_from_this<ARegistry> {
00023     public:
00024         ARegistry();
00025         virtual ~ARegistry();
00026
00027         template <typename T>
00028         void registerComponent();
00029
00030         template <typename T>
00031         void addComponent(size_t entityId, std::shared_ptr<T> component);
00032         template <typename T>
00033         std::shared_ptr<T> getComponent(size_t entityId) const;
00034         template <typename T>
00035         std::vector<std::shared_ptr<T>> getComponents(size_t entityId) const;
00036         template <typename T>
00037         void removeComponent(size_t entityId);
00038         template <typename T>
00039         bool hasComponent(size_t entityId) const;
00040
00041         template <typename... Components>
00042         View<Components...> view();
00043
00044         template <typename... Components>
00045         Group<Components...> group();
00046
00047         size_t getMaxEntityId() const;
00048
00049         void removeAllComponentsWithState(ComponentState state) override;
00050         size_t createEntity() override;
00051     protected:
00052     private:
00053         size_t _nextEntityId;
00054         std::unordered_map<std::string, std::shared_ptr<IComponentArray>> _components;
00055 };
00056
00057 } // namespace ecs
00058
00059 #include "ARegistry.hpp"
00060
00061 #endif /* !AREGISTRY_HPP_ */

```

## 5.46 IRegistry.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IRegistry
00006 */
00007
00008 #ifndef IREGISTRY_HPP_
00009 #define IREGISTRY_HPP_
00010
00011 #include <memory>
00012 #include "../component/base/IComponent.hpp"
00013 #include "../view/View.hpp"
00014
00015 namespace ecs {
00016
00017 class IRegistry {
00018     public:
00019         virtual ~IRegistry() = default;
00020
00021         template <typename T>
00022         void registerComponent();
00023
00024         template <typename T>

```

```

00025         void addComponent(size_t entityId, std::shared_ptr<T> component);
00026
00027         template <typename T>
00028         std::shared_ptr<T> getComponent(size_t entityId);
00029
00030         template <typename T>
00031         void removeComponent(size_t entityId);
00032
00033         template <typename T>
00034         bool hasComponent(size_t entityId);
00035
00036         template <typename... Components>
00037         View<Components...> view();
00038
00039         template <typename... Components>
00040         Group<Components...> group();
00041
00042         size_t getMaxEntityId() const;
00043
00044         virtual void removeAllComponentsWithState(ComponentState state) = 0;
00045
00046         virtual size_t createEntity() = 0;
00047     };
00048
00049 } // namespace ecs
00050
00051 #endif /* !IREGISTRY_HPP_ */

```

## 5.47 IInputProvider.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IInputProvider
00006 */
00007
00008 #ifndef IINPUTPROVIDER_HPP_
00009 #define IINPUTPROVIDER_HPP_
00010
00011 #include <utility>
00012 #include "../libs/Multimedia/EventTypes.hpp"
00013
00014 namespace ecs {
00015
00016     class IInputProvider {
00017     public:
00018         using event_t = gfx::EventType;
00019         virtual ~IInputProvider() = default;
00020         virtual bool isKeyPressed(event_t key) = 0;
00021         virtual float getAxisValue(event_t axis) = 0;
00022         virtual std::pair<int, int> getMousePos() = 0;
00023         virtual bool isMouseButtonPressed(int button) = 0;
00024     };
00025
00026 } // namespace ecs
00027
00028 #endif /* !IINPUTPROVIDER_HPP_ */

```

## 5.48 ResourceManager.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ResourceManager
00006 */
00007
00008 #ifndef RESOURCEMANAGER_HPP_
00009 #define RESOURCEMANAGER_HPP_
00010
00011 #include <unordered_map>
00012 #include <memory>
00013
00014 namespace ecs {
00015
00016     class ResourceManager {
00017     public:

```

```

00018         template<typename T>
00019         void add(std::shared_ptr<T> resource);
00020
00021         template<typename T>
00022         std::shared_ptr<T> get();
00023
00024         template<typename T>
00025         bool has();
00026
00027     private:
00028         std::unordered_map<size_t, std::shared_ptr<void> > resources;
00029 };
00030
00031 } // namespace ecs
00032
00033 #include "ResourceManager.hpp"
00034
00035 #endif /* !RESOURCEMANAGER_HPP_ */

```

## 5.49 ASystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ASystem
00006 */
00007
00008 #ifndef ASYSTEM_HPP_
00009 #define ASYSTEM_HPP_
00010
00011 #include <memory>
00012
00013 #include "ISystem.hpp"
00014 #include "../resourceManager/ResourceManager.hpp"
00015 #include "../entity/registry/ARegistry.hpp"
00016
00017 namespace ecs {
00018
00019     class ASystem : public ISystem {
00020     public:
00021         ASystem();
00022         ~ASystem() = default;
00023         void updateSystem(std::shared_ptr<ResourceManager> resourceManager, std::shared_ptr<ARegistry>
00024             registry, float deltaTime) override;
00025
00026     protected:
00027         virtual void update(std::shared_ptr<ResourceManager> resourceManager,
00028             std::shared_ptr<ARegistry> registry, float deltaTime) = 0;
00029
00030     private:
00031 };
00032
00033 } // namespace ecs
00034
00035 #endif /* !ASYSTEM_HPP_ */

```

## 5.50 ISystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ISystem
00006 */
00007
00008 #ifndef ISYSTEM_HPP_
00009 #define ISYSTEM_HPP_
00010
00011 #include "../resourceManager/ResourceManager.hpp"
00012 #include "../entity/registry/ARegistry.hpp"
00013 #include <memory>
00014
00015 namespace ecs {
00016
00017     class ISystem {
00018     public:
00019         virtual ~ISystem() = default;

```

```

00020         virtual void updateSystem(std::shared_ptr<ResourceManager> resourceManager,
std::shared_ptr<ARegistry> registry, float deltaTime) = 0;
00021     };
00022
00023 } // namespace ecs
00024
00025 #endif /* !ISystem_HPP_ */

```

## 5.51 MovementInputSystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** MovementInputSystem
00006 */
00007
00008 #ifndef MOVEMENTINPUTSYSTEM_HPP_
00009 #define MOVEMENTINPUTSYSTEM_HPP_
00010
00011 #include "../base/ASystem.hpp"
00012 #include "../component/temporary/InputIntentComponent.hpp"
00013 #include "../resourceManager/IInputProvider.hpp"
00014 #include <memory>
00015
00016 namespace gfx {
00017     class IEvent;
00018 }
00019
00020 namespace ecs {
00021
00022 class MovementInputSystem : public ASystem {
00023     public:
00024         MovementInputSystem();
00025         ~MovementInputSystem() = default;
00026
00027         void update(std::shared_ptr<ResourceManager> resourceManager, std::shared_ptr<ARegistry>
registry, float deltaTime) override;
00028
00029     private:
00030         math::Vector2f getMovementDirection(std::shared_ptr<ResourceManager> resourceManager) const;
00031         void updateInputIntent(std::shared_ptr<ARegistry> registry, size_t entityId, const
math::Vector2f &direction);
00032         math::Vector2f getAnalogStickInput(std::shared_ptr<IInputProvider> inputProvider) const;
00033 };
00034
00035 } // namespace ecs
00036
00037 #endif /* !MOVEMENTINPUTSYSTEM_HPP_ */

```

## 5.52 InputToVelocitySystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** VelocitySystem
00006 */
00007
00008 #ifndef VELOCITYSYSTEM_HPP_
00009 #define VELOCITYSYSTEM_HPP_
00010
00011 #include "../base/ASystem.hpp"
00012
00013 namespace ecs {
00014
00015 class InputToVelocitySystem : public ASystem {
00016     public:
00017         InputToVelocitySystem();
00018         ~InputToVelocitySystem() = default;
00019
00020         void update(std::shared_ptr<ResourceManager> resourceManager, std::shared_ptr<ARegistry>
registry, float deltaTime) override;
00021 };
00022
00023 } // namespace ecs
00024
00025 #endif /* !VELOCITYSYSTEM_HPP_ */

```

## 5.53 MovementSystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** MovementSystem
00006 */
00007
00008 #ifndef MOVEMENTSYSTEM_HPP_
00009 #define MOVEMENTSYSTEM_HPP_
00010
00011 #include "../base/ASystem.hpp"
00012 #include "../component/base/IComponent.hpp"
00013 #include "../component/temporary/MovementIntentComponent.hpp"
00014 #include "../component/permanent/TransformComponent.hpp"
00015 #include "../component/permanent/SpeedComponent.hpp"
00016 #include "../component/permanent/VelocityComponent.hpp"
00017 #include "../component/permanent/ColliderComponent.hpp"
00018 #include "../component/tags/ObstacleTag.hpp"
00019 #include "../constants.hpp"
00020
00021 namespace ecs {
00022
00023 class MovementSystem : public ASystem {
00024     public:
00025         MovementSystem();
00026         ~MovementSystem() = default;
00027
00028         void update(
00029             std::shared_ptr<ResourceManager> resourceManager,
00030             std::shared_ptr<ARegistry> registry,
00031             float deltaTime
00032         ) override;
00033
00034     private:
00035         bool checkCollision(
00036             std::shared_ptr<ARegistry> registry,
00037             size_t entityId,
00038             math::Vector2f newPos
00039         );
00040         math::Vector2f calculateSmoothMovement(
00041             std::shared_ptr<ARegistry> registry,
00042             size_t entityId,
00043             math::Vector2f startPos,
00044             math::Vector2f desiredPos
00045         );
00046         math::Vector2f calculateSlidingMovement(
00047             std::shared_ptr<ARegistry> registry,
00048             size_t entityId,
00049             math::Vector2f basePos,
00050             math::Vector2f desiredPos
00051         );
00052         math::Vector2f calculateSmoothSlidingPosition(
00053             std::shared_ptr<ARegistry> registry,
00054             size_t entityId,
00055             math::Vector2f startPos,
00056             math::Vector2f desiredPos
00057         );
00058         math::Vector2f handleBounceCollision(
00059             std::shared_ptr<ARegistry> registry,
00060             size_t entityId,
00061             math::Vector2f startPos,
00062             math::Vector2f desiredPos,
00063             std::shared_ptr<ecs::VelocityComponent> velocityComp
00064         );
00065 };
00066
00067 } // namespace ecs
00068
00069 #endif /* !MOVEMENTSYSTEM_HPP_ */

```

## 5.54 AnimationRenderingSystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** AnimationRenderingSystem
00006 */
00007
00008 #ifndef ANIMATIONRENDERINGSYSTEM_HPP_

```

```

00009 #define ANIMATIONRENDERINGSYSTEM_HPP_
00010
00011
00012 #include "../base/ASystem.hpp"
00013 #include <memory>
00014 namespace ecs {
00015
00016 class AnimationRenderingSystem : public ASystem {
00017     public:
00018         AnimationRenderingSystem();
00019         ~AnimationRenderingSystem() override = default;
00020
00021     protected:
00022         void update(std::shared_ptr<ResourceManager> resourceManager,
00023             std::shared_ptr<ARegistry> registry, float deltaTime) override;
00024 };
00025
00026 } // namespace ecs
00027
00028 #endif /* !ANIMATIONRENDERINGSYSTEM_HPP_ */

```

## 5.55 HitboxRenderingSystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** HitboxRenderingSystem
00006 */
00007
00008 #ifndef HITBOXRENDERINGSYSTEM_HPP_
00009 #define HITBOXRENDERINGSYSTEM_HPP_
00010
00011 #include "../base/ASystem.hpp"
00012 #include <memory>
00013
00014 namespace ecs {
00015
00016 class HitboxRenderingSystem : public ASystem {
00017     public:
00018         HitboxRenderingSystem();
00019         ~HitboxRenderingSystem() override = default;
00020
00021     protected:
00022         void update(std::shared_ptr<ResourceManager> resourceManager,
00023             std::shared_ptr<ARegistry> registry, float deltaTime) override;
00024 };
00025
00026 } // namespace ecs
00027
00028 #endif /* !HITBOXRENDERINGSYSTEM_HPP_ */

```

## 5.56 RectangleRenderingSystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** RectangleRenderingSystem
00006 */
00007
00008 #ifndef RECTANGLERENDERINGSYSTEM_HPP_
00009 #define RECTANGLERENDERINGSYSTEM_HPP_
00010
00011 #include "../base/ASystem.hpp"
00012 #include <memory>
00013
00014 namespace ecs {
00015
00016 class RectangleRenderingSystem : public ASystem {
00017     public:
00018         RectangleRenderingSystem();
00019         ~RectangleRenderingSystem() override = default;
00020
00021     protected:
00022         void update(std::shared_ptr<ResourceManager> resourceManager,
00023             std::shared_ptr<ARegistry> registry, float deltaTime) override;
00024 };

```



```

00025
00026 } // namespace ecs
00027
00028 #endif /* !RECTANGLERENDERINGSYSTEM_HPP_ */

```

## 5.57 SpriteRenderingSystem.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** SpriteRenderingSystem
00006 */
00007
00008 #ifndef SPRITERENDERINGSYSTEM_HPP_
00009 #define SPRITERENDERINGSYSTEM_HPP_
00010
00011 #include "../base/ASystem.hpp"
00012 #include <memory>
00013
00014 namespace ecs {
00015
00016 class SpriteRenderingSystem : public ASystem {
00017     public:
00018         SpriteRenderingSystem();
00019         ~SpriteRenderingSystem() override = default;
00020
00021     protected:
00022         void update(std::shared_ptr<ResourceManager> resourceManager,
00023                     std::shared_ptr<ARegistry> registry, float deltaTime) override;
00024 };
00025
00026 } // namespace ecs
00027
00028 #endif /* !SPRITERENDERINGSYSTEM_HPP_ */

```

## 5.58 ASystemManager.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ASystemManager
00006 */
00007
00008 #ifndef ASYSTEMMANAGER_HPP_
00009 #define ASYSTEMMANAGER_HPP_
00010
00011 #include <vector>
00012 #include <memory>
00013
00014 #include "ISystemManager.hpp"
00015 #include "../resourceManager/ResourceManager.hpp"
00016 #include "../entity/registry/ARegistry.hpp"
00017 #include "../base/ISystem.hpp"
00018
00019 namespace ecs {
00020
00021 class ASystemManager : public ISystemManager {
00022     public:
00023         ASystemManager();
00024         ~ASystemManager();
00025         void updateAllSystems(std::shared_ptr<ResourceManager> resourceManager,
00026                               std::shared_ptr<ARegistry> registry, float deltaTime) override;
00027         void addSystem(std::shared_ptr<ISystem> system) override;
00028         void removeSystem(std::shared_ptr<ISystem> system) override;
00029     private:
00030         std::vector<std::shared_ptr<ISystem>> _systems;
00031 };
00032
00033 } // namespace ecs
00034
00035 #endif /* !ASYSTEMMANAGER_HPP_ */

```

## 5.59 ISystemManager.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ISystemManager
00006 */
00007
00008 #ifndef ISYSTEMMANAGER_HPP_
00009 #define ISYSTEMMANAGER_HPP_
00010
00011 #include <memory>
00012
00013 #include "../base/ISystem.hpp"
00014 #include "../resourceManager/ResourceManager.hpp"
00015 #include "../entity/registry/ARegistry.hpp"
00016
00017 namespace ecs {
00018
00019 class ISystemManager {
00020     public:
00021         virtual ~ISystemManager() = default;
00022         virtual void updateAllSystems(std::shared_ptr<ResourceManager> resourceManager,
std::shared_ptr<ARegistry> registry, float deltaTime) = 0;
00023         virtual void addSystem(std::shared_ptr<ISystem> system) = 0;
00024         virtual void removeSystem(std::shared_ptr<ISystem> system) = 0;
00025 };
00026
00027 } // namespace ecs
00028
00029 #endif /* !ISYSTEMMANAGER_HPP_ */

```

## 5.60 View.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** View
00006 */
00007
00008 #ifndef VIEW_HPP_
00009 #define VIEW_HPP_
00010
00011 #include <vector>
00012 #include <memory>
00013 #include <type_traits>
00014
00015 namespace ecs {
00016
00017 template <typename... Components>
00018 class View {
00019     public:
00020         View(std::shared_ptr<class ARegistry> registry);
00021
00022         class Iterator;
00023
00024         Iterator begin();
00025         Iterator end();
00026
00027         class Iterator {
00028             public:
00029                 Iterator(std::shared_ptr<class ARegistry> registry, size_t entityId, size_t
maxEntityId);
00030
00031                 bool operator!=(const Iterator& other) const;
00032                 Iterator& operator++();
00033                 size_t operator*() const;
00034
00035             private:
00036                 bool hasAllComponents() const;
00037                 std::shared_ptr<class ARegistry> _registry;
00038                 size_t _entityId;
00039                 size_t _maxEntityId;
00040
00041         };
00042
00043     private:
00044         std::shared_ptr<class ARegistry> _registry;
00045 };
00046
00047 template <typename... Components>
00048 class Group {

```

```

00047     public:
00048         Group(std::shared_ptr<class ARegistry> registry);
00049
00050         class Iterator;
00051
00052         Iterator begin();
00053         Iterator end();
00054
00055         class Iterator {
00056         public:
00057             Iterator(std::shared_ptr<class ARegistry> registry, size_t entityId, size_t
maxEntityId);
00058             bool operator!=(const Iterator& other) const;
00059             Iterator& operator++();
00060             size_t operator*() const;
00061
00062         private:
00063             bool hasAllComponents() const;
00064             std::shared_ptr<class ARegistry> _registry;
00065             size_t _entityId;
00066             size_t _maxEntityId;
00067         };
00068
00069     private:
00070         std::shared_ptr<class ARegistry> _registry;
00071 };
00072
00073 } // namespace ecs
00074
00075 #endif /* !VIEW_HPP_ */

```

## 5.61 AError.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** AError
00006 */
00007
00008 #ifndef AERROR_HPP_
00009 #define AERROR_HPP_
00010
00011 #include <string>
00012 #include "IError.hpp"
00013
00014 namespace err {
00015
00016     class AError : public IError {
00017     public:
00018         AError(const std::string &message, int code = 0);
00019
00020         virtual ~AError() noexcept override = default;
00021         const char *what() const noexcept override;
00022         int getCode() const noexcept override;
00023         std::string getDetails() const noexcept override;
00024
00025         virtual std::string getType() const noexcept override = 0;
00026
00027     protected:
00028         std::string m_message;
00029         int m_code;
00030     };
00031
00032 }
00033
00034 #endif /* !AERROR_HPP_ */

```

## 5.62 IError.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IError
00006 */
00007
00008 #ifndef IERROR_HPP_

```

```

00009 #define IERROR_HPP_
00010
00011 #include <string>
00012 #include <exception>
00013
00014 namespace err {
00015
00016 class IError : public std::exception {
00017     public:
00018
00019         virtual ~IError() noexcept = default;
00020         virtual const char *what() const noexcept override = 0;
00021         virtual int getCode() const noexcept = 0;
00022         virtual std::string getType() const noexcept = 0;
00023         virtual std::string getDetails() const noexcept = 0;
00024
00025     protected:
00026     private:
00027 };
00028
00029 }
00030
00031 #endif /* !IERROR_HPP_ */
00032

```

## 5.63 PacketError.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** R-Type
00004 ** File description:
00005 ** Header
00006 */
00007
00008 #ifndef PACKET_ERROR_HPP
00009     #define PACKET_ERROR_HPP
00010
00011     #include "AError.hpp"
00012
00013     namespace err {
00014
00015     class PacketError : public AError {
00016     public:
00017         enum ErrorCode {
00018             UNKNOWN = 1000,
00019             SERIALIZER_ATTRIBUTION_FAILED = 1001
00020         };
00021
00022         PacketError(const std::string &message, ErrorCode code = UNKNOWN);
00023         ~PacketError() override;
00024         std::string getType() const noexcept override;
00025
00026     protected:
00027     private:
00028 };
00029
00030 }
00031
00032 #endif /* !PACKET_ERROR_HPP */

```

## 5.64 ServerError.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** ServerError
00006 */
00007
00008 #ifndef SERVER_ERROR_HPP
00009     #define SERVER_ERROR_HPP
00010
00011     #include "AError.hpp"
00012
00013     namespace err {
00014
00015     class ServerError : public AError {
00016     public:

```

```

00017         enum ErrorCode {
00018             UNKNOWN = 1000,
00019             CONNECTION_FAILED = 1001,
00020             TIMEOUT = 1002,
00021             INVALID_REQUEST = 1003,
00022             INTERNAL_ERROR = 1004,
00023             LIBRARY_LOAD_FAILED = 1005,
00024             CONFIG_ERROR = 1006
00025         };
00026
00027         ServerError(const std::string &message, ErrorCode code = UNKNOWN);
00028         virtual ~ServerError() noexcept = default;
00029         std::string getType() const noexcept override;
00030
00031     private:
00032 };
00033
00034 }
00035
00036 #endif /* !SERVER_ERROR_HPP */

```

## 5.65 APrefab.hpp

```

00001 /*
00002  ** EPITECH PROJECT, 2025
00003  ** ryanR-type
00004  ** File description:
00005  ** APrefab
00006  */
00007
00008 #ifndef APREFAB_HPP_
00009 #define APREFAB_HPP_
00010
00011 #include "IPrefab.hpp"
00012 #include "../ECS/entity/registry/Registry.hpp"
00013
00014 class APrefab : public IPrefab {
00015     public:
00016         APrefab() = default;
00017         virtual ~APrefab() = default;
00018         size_t instantiate(const std::shared_ptr<ecs::Registry> &registry) override;
00019 };
00020
00021 #endif /* !APREFAB_HPP_ */

```

## 5.66 EntityPrefabManager.hpp

```

00001 /*
00002  ** EPITECH PROJECT, 2025
00003  ** ryanR-type
00004  ** File description:
00005  ** EntityPrefabManager
00006  */
00007
00008 #ifndef ENTITYPREFABMANAGER_HPP_
00009 #define ENTITYPREFABMANAGER_HPP_
00010
00011 #include <vector>
00012 #include <string>
00013 #include <map>
00014 #include <memory>
00015 #include "../ECS/entity/IEntity.hpp"
00016 #include "../IPrefab.hpp"
00017
00018 class EntityPrefabManager
00019 {
00020     public:
00021         EntityPrefabManager();
00022         ~EntityPrefabManager();
00023
00024         void registerPrefab(const std::string &name, const std::shared_ptr<IPrefab> &prefab);
00025         std::shared_ptr<IPrefab> getPrefab(const std::string &name) const;
00026         size_t createEntityFromPrefab(const std::string &prefabName, const
std::shared_ptr<ecs::Registry> &registry);
00027         bool hasPrefab(const std::string &name) const;
00028         void deletePrefab(const std::string &name);
00029         void clearPrefabs();
00030     private:

```

```

00031         std::map<std::string, std::shared_ptr<IPrefab>> _prefabs;
00032     };
00033
00034 #endif /* !ENTITYPREFABMANAGER_HPP_ */

```

## 5.67 IPrefab.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** IPrefab
00006 */
00007
00008 #ifndef IPREFAB_HPP_
00009 #define IPREFAB_HPP_
00010 #include <memory>
00011 #include "../ECS/entity/registry/Registry.hpp"
00012
00013 class IPrefab {
00014     public:
00015         virtual ~IPrefab() = default;
00016         virtual size_t instantiate(const std::shared_ptr<ecs::Registry> &registry) = 0;
00017 };
00018
00019 #endif /* !IPREFAB_HPP_ */

```

## 5.68 PlayerPrefab.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** PlayerPrefab
00006 */
00007
00008 #ifndef PLAYERPREFAB_HPP_
00009 #define PLAYERPREFAB_HPP_
00010
00011 #include "../APrefab.hpp"
00012 #include "../ECS/component/permanent/TransformComponent.hpp"
00013 #include "../ECS/component/permanent/VelocityEngine.hpp"
00014 #include "../ECS/component/permanent/SpeedComponent.hpp"
00015 #include "../ECS/component/rendering/SpriteComponent.hpp"
00016 #include "../ECS/component/rendering/AnimationComponent.hpp"
00017 #include "../ECS/component/tags/ControllableTag.hpp"
00018 #include "../ECS/component/tags/PlayerTag.hpp"
00019 #include "../ECS/component/permanent/ColliderComponent.hpp"
00020 #include "../types/Vector2f.hpp"
00021 #include <memory>
00022 #include <string>
00023 #include <iostream>
00024
00025
00026 class PlayerPrefab : public APrefab {
00027     public:
00028         PlayerPrefab(float x, float y, float scale,
00029                     const std::string &animationPath,
00030                     float frameWidth, float frameHeight,
00031                     float startWidth, float startHeight,
00032                     int frameCount)
00033             : _x(x), _y(y), _scale(scale),
00034               _animationPath(animationPath),
00035               _frameWidth(frameWidth),
00036               _frameHeight(frameHeight),
00037               _startWidth(startWidth),
00038               _startHeight(startHeight),
00039               _frameCount(frameCount) {}
00040
00041         ~PlayerPrefab() = default;
00042
00043         size_t instantiate(const std::shared_ptr<ecs::Registry> &registry) override {
00044             size_t entity = registry->createEntity();
00045             auto transform = std::make_shared<ecs::TransformComponent>(math::Vector2f(_x, _y));
00046             transform->setScale(math::Vector2f(_scale, _scale));
00047             registry->addComponent(entity, transform);
00048             registry->addComponent(entity, std::make_shared<ecs::VelocityComponent>());
00049             registry->addComponent(entity, std::make_shared<ecs::SpeedComponent>());

```

```

00050         registry->addComponent(entity,
00051             std::make_shared<ecs::AnimationComponent>(_animationPath, _frameWidth, _frameHeight,
00052                 _frameCount, _startWidth, _startHeight));
00053         registry->addComponent(entity, std::make_shared<ecs::PlayerTag>());
00054         registry->addComponent(entity, std::make_shared<ecs::ControllableTag>());
00055         auto collider = std::make_shared<ecs::ColliderComponent>({
00056             math::Vector2f(0.0f, 0.0f),
00057             math::Vector2f(100.0f, 100.0f),
00058             ecs::CollisionType::Solid
00059         });
00060         registry->addComponent(entity, collider);
00061         return entity;
00062     }
00063     private:
00064         float _x;
00065         float _y;
00066         float _scale;
00067         std::string _animationPath;
00068         float _frameWidth, _frameHeight;
00069         float _startWidth;
00070         float _startHeight;
00071         int _frameCount;
00072 };
00073
00074 #endif /* !PLAYERPREFAB_HPP_ */

```

## 5.69 Signal.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** Signal
00006 */
00007
00008 #ifndef SIGNAL_HPP_
00009 #define SIGNAL_HPP_
00010
00011 #ifdef _WIN32
00012     #ifndef _WIN32_WINNT
00013         #define _WIN32_WINNT 0x0A00
00014     #endif
00015
00016     #ifndef WIN32_LEAN_AND_MEAN
00017         #define WIN32_LEAN_AND_MEAN
00018     #endif
00019 #endif
00020
00021 #include <csignal>
00022
00023 class Signal {
00024     public:
00025         Signal();
00026         ~Signal();
00027
00028         static volatile sig_atomic_t stopFlag;
00029         static void signalHandler(int signum);
00030         static void setupSignalHandlers();
00031
00032     protected:
00033     private:
00034 };
00035
00036 #endif /* !SIGNAL_HPP_ */

```

## 5.70 Chrono.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** ryanR-type
00004 ** File description:
00005 ** Chrono wrapper for std::chrono
00006 */
00007
00008 #ifndef CHRONO_HPP_
00009 #define CHRONO_HPP_
00010

```

```

00011 #include <chrono>
00012
00013 namespace math {
00014
00015 class Chrono {
00016     public:
00017         Chrono();
00018         ~Chrono() = default;
00019
00020         void start();
00021         void stop();
00022         void reset();
00023         float getElapsedSeconds() const;
00024         float getElapsedMilliseconds() const;
00025         bool isRunning() const;
00026
00027     private:
00028         std::chrono::high_resolution_clock::time_point _startTime;
00029         std::chrono::high_resolution_clock::time_point _stopTime;
00030         bool _isRunning;
00031 };
00032
00033 } // namespace math
00034
00035 #endif /* !CHRONO_HPP_ */

```

## 5.71 FRect.hpp

```

00001 /*
00002  ** EPITECH PROJECT, 2025
00003  ** ryanR-type
00004  ** File description:
00005  ** FRect
00006  */
00007
00008 #ifndef FRECT_HPP_
00009 #define FRECT_HPP_
00010
00011 namespace math {
00012
00013 class FRect {
00014     public:
00015         FRect();
00016         FRect(float left, float top, float width, float height);
00017         FRect(FRect const &other);
00018         ~FRect() = default;
00019
00020         float getLeft() const;
00021         void setLeft(float left);
00022         float getTop() const;
00023         void setTop(float top);
00024         float getWidth() const;
00025         void setWidth(float width);
00026         float getHeight() const;
00027         void setHeight(float height);
00028
00029         bool contains(float x, float y) const;
00030         bool intersects(FRect const &other) const;
00031         bool intersects(FRect const &other, FRect &intersection) const;
00032
00033         FRect &operator=(FRect const &other);
00034         bool operator==(FRect const &other) const;
00035         bool operator!=(FRect const &other) const;
00036
00037     private:
00038         float left;
00039         float top;
00040         float width;
00041         float height;
00042 };
00043
00044 } // namespace math
00045
00046 #endif /* !FRECT_HPP_ */

```

## 5.72 Vector2f.hpp

```

00001 /*

```



```

00002  ** EPITECH PROJECT, 2025
00003  ** ryanR-type
00004  ** File description:
00005  ** Vector2f
00006  */
00007
00008 #ifndef VECTOR2F_HPP_
00009 #define VECTOR2F_HPP_
00010
00011 namespace math {
00012
00013 class Vector2f {
00014     public:
00015         Vector2f(float x = 0.0f, float y = 0.0f);
00016         Vector2f(Vector2f const &other);
00017         ~Vector2f() = default;
00018
00019         float getX() const;
00020         void setX(float x);
00021         float getY() const;
00022         void setY(float y);
00023
00024         Vector2f getVector() const;
00025         Vector2f operator*(float scalar) const;
00026         Vector2f operator-(Vector2f const &other) const;
00027         Vector2f operator+(Vector2f const &other) const;
00028         void operator=(Vector2f const &other);
00029         void operator+=(Vector2f const &other);
00030         void operator-=(Vector2f const &other);
00031         void operator*=(float scalar);
00032         void operator/=(float scalar);
00033     private:
00034         float _x;
00035         float _y;
00036 };
00037
00038 } // namespace math
00039
00040 #endif /* !VECTOR2F_HPP_ */

```

## 5.73 ServerInputProvider.hpp

```

00001  /*
00002  ** EPITECH PROJECT, 2025
00003  ** ryanR-type
00004  ** File description:
00005  ** ServerInputProvider
00006  */
00007
00008 #include "../common/ECS/resourceManager/IInputProvider.hpp"
00009
00010 namespace ecs {
00011
00012 class ServerInputProvider : public IInputProvider {
00013     public:
00014         ServerInputProvider();
00015         ~ServerInputProvider() override = default;
00016
00017         bool isKeyPressed(event_t key) override;
00018         float getAxisValue(event_t axis) override;
00019         std::pair<int, int> getMousePos() override;
00020         bool isMouseButtonPressed(int button) override;
00021 };
00022
00023 } // namespace ecs

```

## 5.74 IServer.hpp

```

00001  /*
00002  ** EPITECH PROJECT, 2025
00003  ** R-Type
00004  ** File description:
00005  ** Header
00006  */
00007
00008 #ifndef ISERVER_HPP_
00009 #define ISERVER_HPP_
00010

```

```

00011 #include <memory>
00012 #include <vector>
00013
00014 #include "ServerConfig.hpp"
00015 #include "../libs/Package/IPacketManager.hpp"
00016 #include "../libs/Network/INetwork.hpp"
00017
00018 namespace rserv {
00019 class IServer {
00020 public:
00021     virtual ~IServer() = default;
00022
00023     virtual void init() = 0;
00024     virtual void start() = 0;
00025     virtual void stop() = 0;
00026
00027     virtual void setConfig(std::shared_ptr<ServerConfig> config) = 0;
00028     virtual std::shared_ptr<ServerConfig> getConfig() const = 0;
00029     virtual unsigned int getPort() const = 0;
00030     virtual void setPort(unsigned int port) = 0;
00031
00032     virtual int getState() const = 0;
00033     virtual void setState(int state) = 0;
00034
00035     virtual int getFd() const = 0;
00036     virtual void setFd(int fd) = 0;
00037     virtual operator int() const noexcept = 0;
00038
00039     virtual std::shared_ptr<net::INetwork> getNetwork() const = 0;
00040     virtual void setNetwork(std::shared_ptr<net::INetwork> network) = 0;
00041
00042     virtual void onClientConnected(int idClient) = 0;
00043     virtual void onClientDisconnected(int idClient) = 0;
00044     virtual void onPacketReceived(int idClient, const IPacketManager &packet) = 0;
00045
00046     virtual void processConnections() = 0;
00047     virtual void processIncomingPackets() = 0;
00048
00049     virtual void broadcastPacket() = 0;
00050     virtual void sendToClient(int idClient) = 0;
00051     virtual std::vector<int> getConnectedClients() const = 0;
00052     virtual size_t getClientCount() const = 0;
00053 };
00054 } // namespace rserv = r-type server
00055 #endif /* !ISERVER_HPP_ */

```

## 5.75 Server.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** R-Type
00004 ** File description:
00005 ** Header
00006 */
00007
00008 #ifndef SERVER_HPP_
00009     #define SERVER_HPP_
00010
00011 #ifdef _WIN32
00012     #ifndef _WIN32_WINNT
00013         #define _WIN32_WINNT 0x0A00
00014     #endif
00015
00016     #ifndef WIN32_LEAN_AND_MEAN
00017         #define WIN32_LEAN_AND_MEAN
00018     #endif
00019 #endif
00020
00021 #include <memory>
00022 #include "IServer.hpp"
00023 #include "ServerConfig.hpp"
00024 #include "../libs/Network/INetwork.hpp"
00025 #include "../libs/Buffer/IBuffer.hpp"
00026 #include "../common/DLLoader/DLLoader.hpp"
00027 #include "../common/DLLoader/LoaderType.hpp"
00028 #include "Signal.hpp"
00029
00030
00031
00032 namespace rserv {
00033     class Server : public IServer {
00034     public:
00035         Server();

```

```

00036         ~Server();
00037
00038         void init() override;
00039         void start() override;
00040         void stop() override;
00041
00042         void setConfig(std::shared_ptr<ServerConfig> config) override;
00043         std::shared_ptr<ServerConfig> getConfig() const override;
00044         unsigned int getPort() const override;
00045         void setPort(unsigned int port) override;
00046
00047         int getState() const override;
00048         void setState(int state) override;
00049
00050         int getFd() const override;
00051         void setFd(int fd) override;
00052         operator int() const noexcept override;
00053
00054         std::shared_ptr<net::INetwork> getNetwork() const override;
00055         void setNetwork(std::shared_ptr<net::INetwork> network) override;
00056
00057         void onClientConnected(int idClient) override;
00058         void onClientDisconnected(int idClient) override;
00059         void onPacketReceived(int idClient, const IPacketManager &packet) override;
00060
00061         void processConnections() override;
00062         void processIncomingPackets() override;
00063
00064         void broadcastPacket() override;
00065         void sendToClient(int idClient) override;
00066         std::vector<int> getConnectedClients() const override;
00067         size_t getClientCount() const override;
00068
00069     private:
00070         void loadNetworkLibrary();
00071         void loadBufferLibrary();
00072         void loadPacketLibrary();
00073         DLoader<createNetworkLib_t> _networkloader;
00074         DLoader<createBuffer_t> _bufferloader;
00075         DLoader<createPacket_t> _packetloader;
00076
00077         std::shared_ptr<ServerConfig> _config;
00078         std::shared_ptr<net::INetwork> _network;
00079         std::shared_ptr<IBuffer> _buffer;
00080         std::shared_ptr<IPacketManager> _packet;
00081
00082     };
00083 } // namespace rserv = r-type server
00084
00085 #endif /* !SERVER_HPP_ */

```

## 5.76 ServerConfig.hpp

```

00001 /*
00002 ** EPITECH PROJECT, 2025
00003 ** Header
00004 ** File description:
00005 ** Header
00006 */
00007
00008 #include <stdint>
00009
00010 #ifndef SERVER_CONFIG_HPP_
00011     #define SERVER_CONFIG_HPP_
00012
00013     namespace rserv {
00014         class ServerConfig {
00015         public:
00016             ServerConfig();
00017             ~ServerConfig();
00018
00019             int getState() const;
00020             int getFd() const;
00021
00022             void setPort(unsigned int port);
00023             unsigned int getPort() const;
00024
00025             void setState(int state);
00026             void setFd(int fd);
00027
00028             void setNbClients(int nbClients);
00029             int getNbClients() const;
00030

```

```
00031         uint32_t getIp() const;
00032         void setIp(uint32_t ip);
00033
00034     private:
00035         int _state;
00036         int _fd;
00037         unsigned int _port;
00038         int _nbClients;
00039         uint32_t _ip;
00040     };
00041 } // namespace rserv = r-type server
00042
00043 #endif /* !SERVER_CONFIG_HPP_ */
```

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