

R-Type architecture

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1 Hierarchical Index	1
1.1 Class Hierarchy	1
2 Class Index	3
2.1 Class List	3
3 File Index	5
3.1 File List	5
4 Class Documentation	9
4.1 ecs::AComponent Class Reference	9
4.1.1 Member Function Documentation	10
4.1.1.1 getState()	10
4.1.1.2 setState()	10
4.2 ecs::AComponentArray< T > Class Template Reference	10
4.2.1 Member Function Documentation	11
4.2.1.1 getMaxEntityId()	11
4.2.1.2 removeAllComponentsWithState()	11
4.3 ecs::AEntity Class Reference	11
4.3.1 Member Function Documentation	12
4.3.1.1 operator size_t()	12
4.4 err::AError Class Reference	12
4.4.1 Member Function Documentation	12
4.4.1.1 getCode()	12
4.4.1.2 getDetails()	13
4.4.1.3 getType()	13
4.4.1.4 what()	13
4.5 gsm::AGameState Class Reference	13
4.5.1 Member Function Documentation	14
4.5.1.1 enter() [1/2]	14
4.5.1.2 enter() [2/2]	14
4.5.1.3 exit() [1/2]	14
4.5.1.4 exit() [2/2]	14
4.5.1.5 render()	14
4.5.1.6 update() [1/2]	14
4.5.1.7 update() [2/2]	15
4.6 gsm::AGameStateMachine Class Reference	15
4.6.1 Member Function Documentation	15
4.6.1.1 changeState() [1/2]	15
4.6.1.2 changeState() [2/2]	16
4.6.1.3 popState() [1/2]	16
4.6.1.4 popState() [2/2]	16
4.6.1.5 pushState() [1/2]	16

4.6.1.6 pushState() [2/2]	16
4.6.1.7 render()	16
4.6.1.8 update() [1/2]	16
4.6.1.9 update() [2/2]	17
4.7 ecs::AnimationComponent Class Reference	17
4.8 ecs::AnimationRenderingSystem Class Reference	18
4.8.1 Member Function Documentation	19
4.8.1.1 update()	19
4.9 APrefab Class Reference	19
4.9.1 Member Function Documentation	19
4.9.1.1 instantiate()	19
4.10 ecs::ARegistry Class Reference	20
4.10.1 Member Function Documentation	21
4.10.1.1 createEntity()	21
4.10.1.2 removeAllComponentsWithState()	21
4.11 ecs::ASystem Class Reference	21
4.11.1 Member Function Documentation	21
4.11.1.1 updateSystem()	21
4.12 ecs::ASystemManager Class Reference	22
4.12.1 Member Function Documentation	22
4.12.1.1 addSystem()	22
4.12.1.2 removeSystem()	22
4.12.1.3 updateAllSystems()	22
4.13 math::Chrono Class Reference	23
4.14 ClientNetwork Class Reference	23
4.15 ecs::ColliderComponent Class Reference	24
4.16 ecs::ControllableTag Class Reference	25
4.17 Core Class Reference	25
4.18 gsm::DevState Class Reference	26
4.18.1 Member Function Documentation	27
4.18.1.1 enter()	27
4.18.1.2 exit()	27
4.18.1.3 render()	27
4.18.1.4 update()	27
4.19 DLLoader< T > Class Template Reference	28
4.19.1 Member Function Documentation	28
4.19.1.1 Close()	28
4.19.1.2 Error()	28
4.19.1.3 getHandler()	28
4.19.1.4 Open()	29
4.19.1.5 Symbol()	29
4.20 EntityPrefabManager Class Reference	29

4.21 math::FRect Class Reference	30
4.22 gsm::GameStateMachine Class Reference	30
4.23 ecs::GraphicallInputProvider Class Reference	31
4.23.1 Member Function Documentation	32
4.23.1.1 getAxisValue()	32
4.23.1.2 getMousePos()	32
4.23.1.3 isKeyPressed()	32
4.23.1.4 isMouseButtonPressed()	32
4.24 ecs::Group< Components > Class Template Reference	32
4.25 ecs::HitboxRenderComponent Class Reference	33
4.26 ecs::HitboxRenderingSystem Class Reference	34
4.26.1 Member Function Documentation	34
4.26.1.1 update()	34
4.27 ecs::IComponent Class Reference	35
4.28 ecs::IComponentArray Class Reference	35
4.29 ecs::IEntity Class Reference	36
4.30 err::IError Class Reference	36
4.31 gsm::IGameState Class Reference	37
4.32 gsm::IGameStateMachine Class Reference	37
4.33 ecs::IInputProvider Class Reference	38
4.34 ILoader Class Reference	38
4.35 ecs::InputIntentComponent Class Reference	39
4.36 ecs::InputToVelocitySystem Class Reference	40
4.36.1 Member Function Documentation	40
4.36.1.1 update()	40
4.37 IPrefab Class Reference	40
4.38 ecs::IRegistry Class Reference	41
4.39 rserv::IServer Class Reference	41
4.40 ecs::ISystem Class Reference	42
4.41 ecs::ISystemManager Class Reference	43
4.42 ecs::Group< Components >::Iterator Class Reference	43
4.43 ecs::View< Components >::Iterator Class Reference	44
4.44 ecs::MobTag Class Reference	44
4.45 ecs::MovementInputSystem Class Reference	45
4.45.1 Member Function Documentation	45
4.45.1.1 update()	45
4.46 ecs::MovementIntentComponent Class Reference	46
4.47 ecs::MovementSystem Class Reference	47
4.47.1 Member Function Documentation	47
4.47.1.1 update()	47
4.48 ecs::ObstacleTag Class Reference	48
4.49 err::PacketError Class Reference	48

4.49.1 Member Function Documentation	49
4.49.1.1 getType()	49
4.50 PlayerPrefab Class Reference	49
4.50.1 Member Function Documentation	50
4.50.1.1 instantiate()	50
4.51 ecs::PlayerTag Class Reference	50
4.52 ecs::ProjectileTag Class Reference	51
4.53 ecs::RectangleRenderComponent Class Reference	51
4.54 ecs::RectangleRenderingSystem Class Reference	52
4.54.1 Member Function Documentation	53
4.54.1.1 update()	53
4.55 ecs::ResourceManager Class Reference	53
4.56 rserv::Server Class Reference	54
4.56.1 Member Function Documentation	55
4.56.1.1 broadcastPacket()	55
4.56.1.2 getClientCount()	55
4.56.1.3 getConfig()	55
4.56.1.4 getConnectedClients()	55
4.56.1.5 getFd()	55
4.56.1.6 getNetwork()	55
4.56.1.7 getPort()	55
4.56.1.8 getState()	56
4.56.1.9 init()	56
4.56.1.10 onClientConnected()	56
4.56.1.11 onClientDisconnected()	56
4.56.1.12 onPacketReceived()	56
4.56.1.13 operator int()	56
4.56.1.14 processConnections()	56
4.56.1.15 processIncomingPackets()	57
4.56.1.16 sendToClient()	57
4.56.1.17 setConfig()	57
4.56.1.18 setFd()	57
4.56.1.19 setNetwork()	57
4.56.1.20 setPort()	57
4.56.1.21 setState()	57
4.56.1.22 start()	58
4.56.1.23 stop()	58
4.57 rserv::ServerConfig Class Reference	58
4.58 err::ServerError Class Reference	59
4.58.1 Member Function Documentation	59
4.58.1.1 getType()	59
4.59 ecs::ServerInputProvider Class Reference	60

4.59.1 Member Function Documentation	60
4.59.1.1 getAxisValue()	60
4.59.1.2 getMousePos()	60
4.59.1.3 isKeyPressed()	60
4.59.1.4 isMouseButtonPressed()	61
4.60 Signal Class Reference	61
4.61 ecs::SpeedComponent Class Reference	61
4.62 ecs::SpriteComponent Class Reference	62
4.63 ecs::SpriteRenderingSystem Class Reference	63
4.63.1 Member Function Documentation	63
4.63.1.1 update()	63
4.64 ecs::TransformComponent Class Reference	64
4.65 Utils Class Reference	65
4.66 math::Vector2f Class Reference	65
4.67 ecs::VelocityComponent Class Reference	66
4.68 ecs::View< Components > Class Template Reference	66
5 File Documentation	69
5.1 ClientNetwork.hpp	69
5.2 Core.hpp	70
5.3 Core.hpp	70
5.4 AGameStateMachine.hpp	71
5.5 AGameStateMachine.hpp	71
5.6 GameStateMachine.hpp	71
5.7 IGameStateMachine.hpp	72
5.8 IGameStateMachine.hpp	72
5.9 AGameState.hpp	72
5.10 AGameState.hpp	73
5.11 IGameState.hpp	73
5.12 IGameState.hpp	73
5.13 DevState.hpp	73
5.14 GraphicalInputProvider.hpp	74
5.15 initRessourcesManager.hpp	74
5.16 initRessourcesManager.hpp	75
5.17 Utils.hpp	75
5.18 Utils.hpp	75
5.19 constants.hpp	76
5.20 DLLoader.hpp	76
5.21 ILoader.hpp	77
5.22 LoaderType.hpp	78
5.23 AComponent.hpp	78
5.24 IComponent.hpp	79

5.25 ColliderComponent.hpp	79
5.26 DirectionComponent.hpp	80
5.27 SpeedComponent.hpp	80
5.28 TransformComponent.hpp	81
5.29 VelocityComponent.hpp	81
5.30 AnimationComponent.hpp	82
5.31 HitboxRenderComponent.hpp	82
5.32 RectangleRenderComponent.hpp	83
5.33 SpriteComponent.hpp	83
5.34 ControllableTag.hpp	84
5.35 MobTag.hpp	84
5.36 ObstacleTag.hpp	85
5.37 PlayerTag.hpp	85
5.38 ProjectileTag.hpp	85
5.39 InputIntentComponent.hpp	86
5.40 MovementIntentComponent.hpp	86
5.41 AEntity.hpp	87
5.42 AComponentArray.hpp	87
5.43 IComponentArray.hpp	88
5.44 IEntity.hpp	88
5.45 ARegistry.hpp	88
5.46 IRegistry.hpp	89
5.47 IInputProvider.hpp	90
5.48 ResourceManager.hpp	90
5.49 ASystem.hpp	91
5.50 ISystem.hpp	91
5.51 MovementInputSystem.hpp	92
5.52 InputToVelocitySystem.hpp	92
5.53 MovementSystem.hpp	93
5.54 AnimationRenderingSystem.hpp	93
5.55 HitboxRenderingSystem.hpp	94
5.56 RectangleRenderingSystem.hpp	94
5.57 SpriteRenderingSystem.hpp	95
5.58 ASystemManager.hpp	95
5.59 ISystemManager.hpp	96
5.60 View.hpp	96
5.61 AError.hpp	97
5.62 IError.hpp	97
5.63 PacketError.hpp	98
5.64 ServerError.hpp	98
5.65 APrefab.hpp	99
5.66 EntityPrefabManager.hpp	99

5.67 IPrefab.hpp	100
5.68 PlayerPrefab.hpp	100
5.69 Signal.hpp	101
5.70 Chrono.hpp	101
5.71 FRect.hpp	102
5.72 Vector2f.hpp	102
5.73 ServerInputProvider.hpp	103
5.74 IServer.hpp	103
5.75 Server.hpp	104
5.76 ServerConfig.hpp	105
Index	107

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

math::Chrono	23
ClientNetwork	23
Core	25
std::enable_shared_from_this	
ecs::AIRegistry	20
EntityPrefabManager	29
std::exception	
err::IError	36
err::AError	12
err::PacketError	48
err::ServerError	59
math::FRect	30
ecs::Group< Components >	32
ecs::IComponent	35
ecs::AComponent	9
ecs::AnimationComponent	17
ecs::ColliderComponent	24
ecs::ControllableTag	25
ecs::HitboxRenderComponent	33
ecs::InputIntentComponent	39
ecs::MobTag	44
ecs::MovementIntentComponent	46
ecs::ObstacleTag	48
ecs::PlayerTag	50
ecs::ProjectileTag	51
ecs::RectangleRenderComponent	51
ecs::SpeedComponent	61
ecs::SpriteComponent	62
ecs::TransformComponent	64
ecs::VelocityComponent	66
ecs::VelocityComponent	66
ecs::IComponentArray	35
ecs::AComponentArray< T >	10
ecs::IEntity	36

ecs::AEntity	11
gsm::IGameState	37
gsm::AGameState	13
gsm::DevState	26
gsm::AGameState	13
gsm::IGameStateMachine	37
gsm::AGameStateMachine	15
gsm::GameStateMachine	30
gsm::AGameStateMachine	15
ecs::IInputProvider	38
ecs::GraphicalInputProvider	31
ecs::ServerInputProvider	60
ILoader	38
DLLoader< createNetworkLib_t >	28
DLLoader< createBuffer_t >	28
DLLoader< createPacket_t >	28
DLLoader< T >	28
IPrefab	40
APrefab	19
PlayerPrefab	49
ecs::IRegistry	41
ecs::ARegistry	20
rserv::IServer	41
rserv::Server	54
ecs::ISystem	42
ecs::ASystem	21
ecs::AnimationRenderingSystem	18
ecs::HitboxRenderingSystem	34
ecs::InputToVelocitySystem	40
ecs::MovementInputSystem	45
ecs::MovementSystem	47
ecs::RectangleRenderingSystem	52
ecs::SpriteRenderingSystem	63
ecs::ISystemManager	43
ecs::ASystemManager	22
ecs::Group< Components >::Iterator	43
ecs::View< Components >::Iterator	44
ecs::ResourceManager	53
rserv::ServerConfig	58
Signal	61
Utils	65
math::Vector2f	65
ecs::View< Components >	66

Chapter 2

Class Index

2.1 Class List

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

ecs::AComponent	9
ecs::AComponentArray< T >	10
ecs::AEntity	11
err::AError	12
gsm::AGameState	13
gsm::AGameStateMachine	15
ecs::AnimationComponent	17
ecs::AnimationRenderingSystem	18
APrefab	19
ecs::ARegistry	20
ecs::ASystem	21
ecs::ASystemManager	22
math::Chrono	23
ClientNetwork	23
ecs::ColliderComponent	24
ecs::ControllableTag	25
Core	25
gsm::DevState	26
DLLoader< T >	28
EntityPrefabManager	29
math::FRect	30
gsm::GameStateMachine	30
ecs::GraphicallInputProvider	31
ecs::Group< Components >	32
ecs::HitboxRenderComponent	33
ecs::HitboxRenderingSystem	34
ecs::IComponent	35
ecs::IComponentArray	35
ecs::IEntity	36
err::IError	36
gsm::IGameState	37
gsm::IGameStateMachine	37
ecs::IInputProvider	38
ILoader	38
ecs::IInputIntentComponent	39

ecs::InputToVelocitySystem	40
IPrefab	40
ecs::IRegistry	41
rserv::IServer	41
ecs::ISystem	42
ecs::ISystemManager	43
ecs::Group< Components >::Iterator	43
ecs::View< Components >::Iterator	44
ecs::MobTag	44
ecs::MovementInputSystem	45
ecs::MovementIntentComponent	46
ecs::MovementSystem	47
ecs::ObstacleTag	48
err::PacketError	48
PlayerPrefab	49
ecs::PlayerTag	50
ecs::ProjectileTag	51
ecs::RectangleRenderComponent	51
ecs::RectangleRenderingSystem	52
ecs::ResourceManager	53
rserv::Server	54
rserv::ServerConfig	58
err::ServerError	59
ecs::ServerInputProvider	60
Signal	61
ecs::SpeedComponent	61
ecs::SpriteComponent	62
ecs::SpriteRenderingSystem	63
ecs::TransformComponent	64
Utils	65
math::Vector2f	65
ecs::VelocityComponent	66
ecs::View< Components >	66

Chapter 3

File Index

3.1 File List

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

/home/albane/epitech/tech3/r-type/ryanR-type/client/ClientNetwork.hpp	69
/home/albane/epitech/tech3/r-type/ryanR-type/client/Core.hpp	70
/home/albane/epitech/tech3/r-type/ryanR-type/client/Utils.hpp	75
/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/AGameStateMachine.hpp	71
/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/GameStateMachine.hpp	71
/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/IGameStateMachine.hpp	72
/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/base/AGameState.hpp	72
/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/base/IGameState.hpp	73
/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/scenes/DevState.hpp	73
/home/albane/epitech/tech3/r-type/ryanR-type/client/initRessourcesManager/GraphicalInputProvider.hpp	74
/home/albane/epitech/tech3/r-type/ryanR-type/client/initRessourcesManager/initRessourcesManager.hpp	74
/home/albane/epitech/tech3/r-type/ryanR-type/common/constants.hpp	76
/home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader.hpp	76
/home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader/ILoader.hpp	77
/home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader/LoaderType.hpp	78
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/base/AComponent.hpp	78
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/base/IComponent.hpp	79
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/ColliderComponent.hpp 79	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/DirectionComponent.hpp 80	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/SpeedComponent.hpp 80	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/TransformComponent.hpp 81	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/VelocityComponent.hpp 81	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/AnimationComponent.hpp 82	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/HitboxRenderComponent.hpp 82	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/RectangleRenderComponent.hpp 83	
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/SpriteComponent.hpp 83	

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ ControllableTag.hpp	84
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ MobTag.hpp	84
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ ObstacleTag.hpp	85
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ PlayerTag.hpp	85
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/tags/ ProjectileTag.hpp	85
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/temporary/ InputIntentComponent.hpp	86
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/temporary/ MovementIntentComponent.hpp	86
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/ AEntity.hpp	87
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/ IEntity.hpp	88
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/componentArray/ AComponentArray.hpp	87
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/componentArray/ IComponentArray.hpp	88
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/registry/ ARegistry.hpp	88
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/registry/ IRegistry.hpp	89
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/resourceManager/ IInputProvider.hpp	90
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/resourceManager/ ResourceManager.hpp	90
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/base/ ASystem.hpp	91
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/base/ ISystem.hpp	91
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/input/ MovementInputSystem.hpp	92
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/movement/ InputToVelocitySystem.hpp	92
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/movement/ MovementSystem.hpp	93
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/ AnimationRenderingSystem.hpp	93
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/ HitboxRenderingSystem.hpp	94
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/ RectangleRenderingSystem.hpp	94
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/ SpriteRenderingSystem.hpp	95
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/systemManager/ ASystemManager.hpp	95
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/systemManager/ ISystemManager.hpp	96
/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/ View.hpp	96
/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/ AError.hpp	97
/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/ IError.hpp	97
/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/ PacketError.hpp	98
/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/ ServerError.hpp	98
/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/ APrefab.hpp	99
/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/ IPrefab.hpp	100
/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/entityPrefabManager/ EntityPrefabManager.hpp	99
/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/PlayerPrefab/ PlayerPrefab.hpp	100
/home/albane/epitech/tech3/r-type/ryanR-type/common/Signal/ Signal.hpp	101
/home/albane/epitech/tech3/r-type/ryanR-type/common/types/ Chrono.hpp	101
/home/albane/epitech/tech3/r-type/ryanR-type/common/types/ FRect.hpp	102
/home/albane/epitech/tech3/r-type/ryanR-type/common/types/ Vector2f.hpp	102
/home/albane/epitech/tech3/r-type/ryanR-type/server/ Core.hpp	70
/home/albane/epitech/tech3/r-type/ryanR-type/server/ IServer.hpp	103
/home/albane/epitech/tech3/r-type/ryanR-type/server/ Server.hpp	104
/home/albane/epitech/tech3/r-type/ryanR-type/server/ ServerConfig.hpp	105
/home/albane/epitech/tech3/r-type/ryanR-type/server/ Utils.hpp	75
/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/machine/ AGameStateMachine.hpp	71
/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/machine/ IGameStateMachine.hpp	72

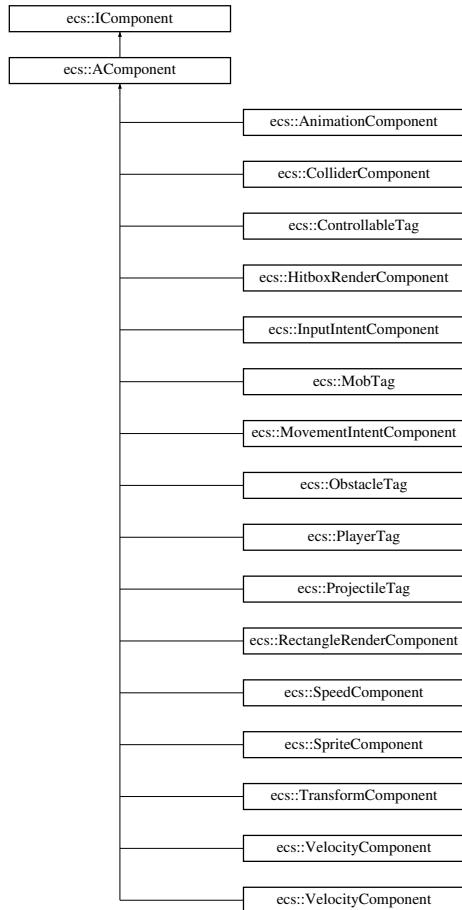
/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/ AGameState.hpp	73
/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/ IGameState.hpp	73
/home/albane/epitech/tech3/r-type/ryanR-type/server/initRessourcesManager/ initRessourcesManager.hpp	
	75
/home/albane/epitech/tech3/r-type/ryanR-type/server/initRessourcesManager/ ServerInputProvider.hpp	103

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]
```

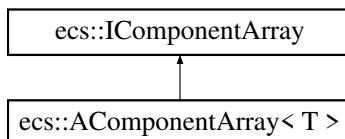
Implements [ecs::IComponent](#).

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]
```

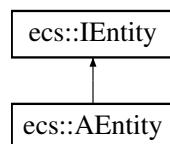
Implements [ecs::IComponentArray](#).

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]
```

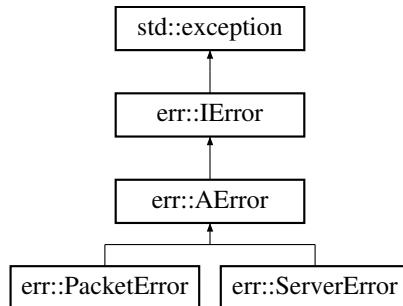
Implements [ecs::IEntity](#).

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]
```

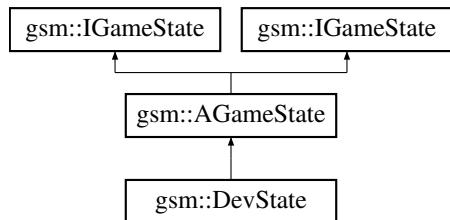
Implements [err::IError](#).

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]
```

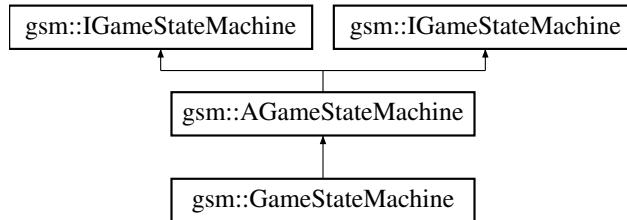
Implements [gsm::IGameState](#).

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]
```

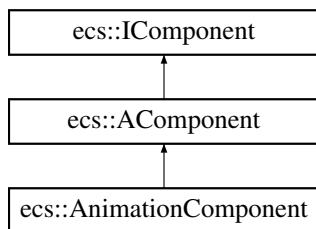
Implements [gsm::IGameStateMachine](#).

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`

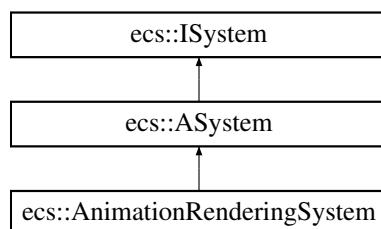
- ComponentState `_state = Permanent`

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

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

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]
```

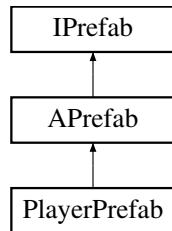
Implements [ecs::ASystem](#).

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

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

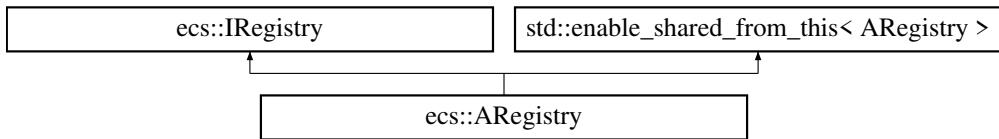
Implements [IPrefab](#).

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]
```

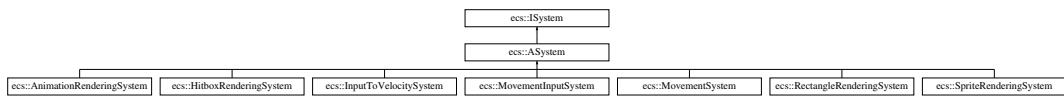
Implements [ecs::IRegistry](#).

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]
```

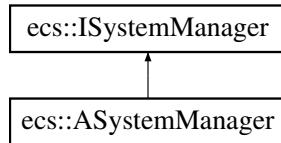
Implements [ecs::ISystem](#).

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

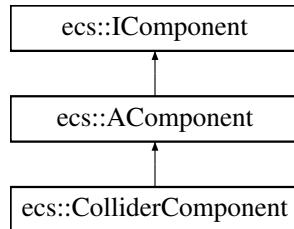
- **DLLoader< createNetworkLib_t > _networloader**
- **DLLoader< createBuffer_t > _bufferloader**
- **DLLoader< createPacket_t > _packetloader**
- std::shared_ptr< net::INetwork > **_network**
- std::shared_ptr< IBuffer > **_buffer**
- std::shared_ptr< IPacketManager > **_packet**
- int **_port**
- uint32_t **_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](#)

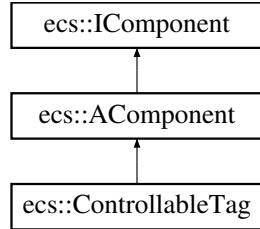
- `ComponentState _state = Permanent`

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< [rserver::ServerConfig](#) > [getConfig \(\) const](#)
- std::shared_ptr< [rserver::Server](#) > [getServer \(\) const](#)
- std::shared_ptr< [ecs::ResourceManager](#) > [getResourceManager \(\) const](#)

Private Member Functions

- void [initNetwork \(\)](#)
- void [initLibraries \(\)](#)
- void [networkLoop \(\)](#)

Private Attributes

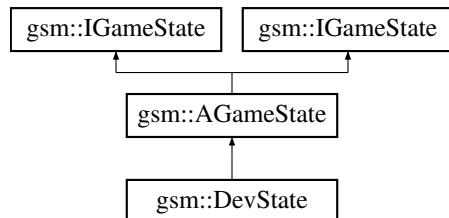
- std::shared_ptr< [DLLoader< gfx::createWindow_t >](#) > **_windowLoader**
- std::shared_ptr< [DLLoader< gfx::createEvent_t >](#) > **_eventLoader**
- std::shared_ptr< [ecs::ResourceManager](#) > **_resourceManager**
- std::shared_ptr< [gsm::GameStateMachine](#) > **_gsm**
- std::shared_ptr< [ClientNetwork](#) > **_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]
```

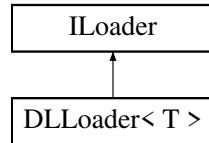
Reimplemented from [gsm::AGameState](#).

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](#) > ®istry)
- 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](#) > > **_prefs**

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

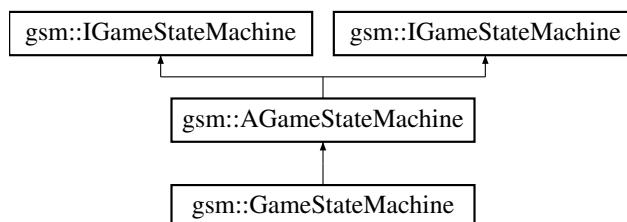
- float **left**
- float **top**
- float **width**
- float **height**

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](#)

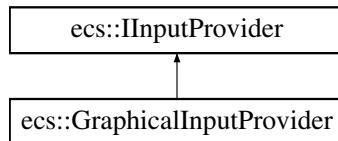
- std::stack< std::shared_ptr< [IGameState](#) > > [_states](#)

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

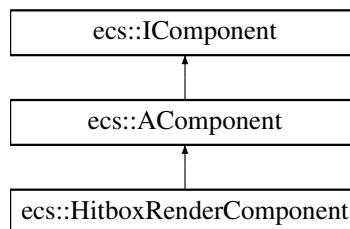
- std::shared_ptr< class [ARegistry](#) > **_registry**

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`

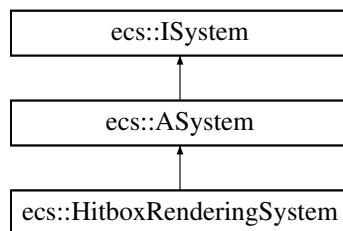
- `ComponentState _state = Permanent`

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]
```

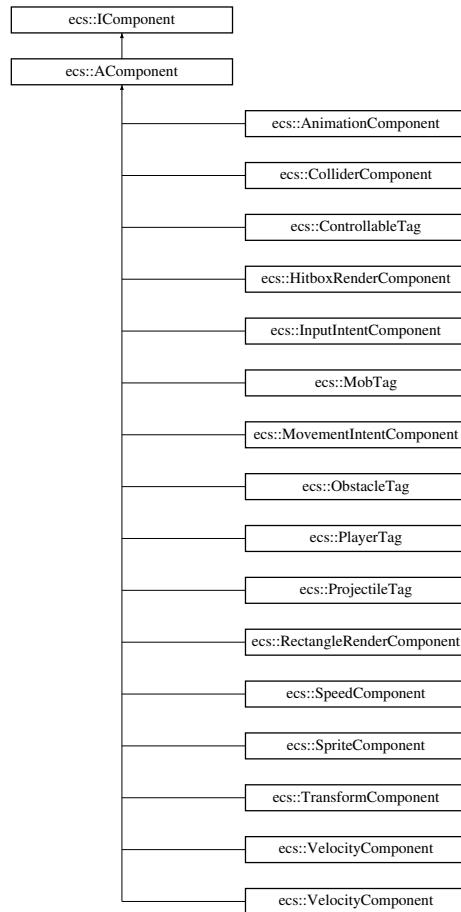
Implements `ecs::ASystem`.

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

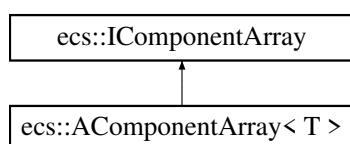
- virtual ComponentState **getState** () const =0
- virtual void **setState** (ComponentState newState)=0

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

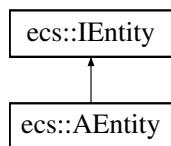
- virtual void **removeAllComponentsWithState** (ComponentState state)=0
- virtual size_t **getMaxEntityId** () const =0

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

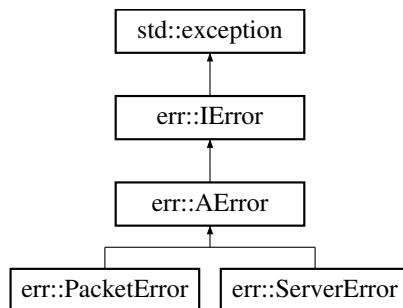
- **IEntity** (size_t id)

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

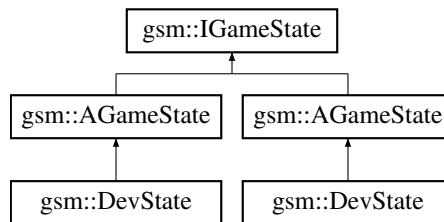
- virtual const char * **what** () const noexcept override=0
- virtual int **getCode** () const noexcept=0
- virtual std::string **getType** () const noexcept=0
- virtual std::string **getDetails** () const noexcept=0

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

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

4.31 gsm::IGameState Class Reference

Inheritance diagram for gsm::IGameState:



Public Member Functions

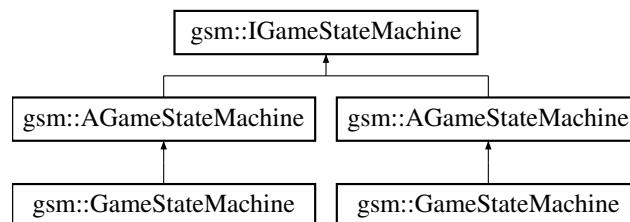
- virtual void **enter** ()=0
- virtual void **update** (float deltaTime)=0
- virtual void **render** ()=0
- virtual void **exit** ()=0
- virtual void **enter** ()=0
- virtual void **update** (float deltaTime)=0
- virtual void **exit** ()=0

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

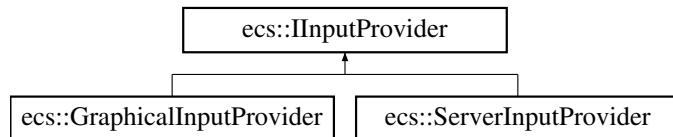
- virtual void **changeState** (std::shared_ptr< IGameState > newState)=0
- virtual void **pushState** (std::shared_ptr< IGameState > newState)=0
- virtual void **popState** ()=0
- virtual void **update** (float deltaTime)=0
- virtual void **render** ()=0
- virtual void **changeState** (std::shared_ptr< 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

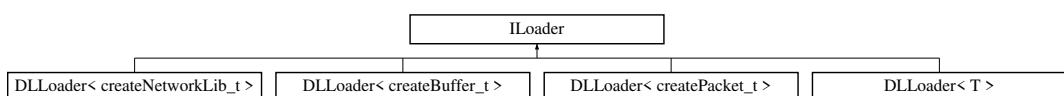
- virtual bool **isKeyPressed** (event_t key)=0
- virtual float **getAxisValue** (event_t axis)=0
- virtual std::pair< int, int > **getMousePos** ()=0
- virtual bool **isMouseButtonPressed** (int button)=0

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

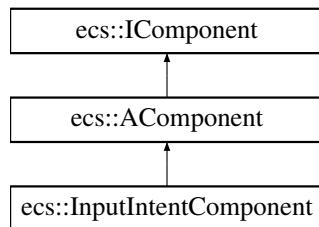
- virtual void * **Open** (const char *path, int flag)=0
- virtual void * **Symbol** (const char *symbolName)=0
- virtual int **Close** ()=0
- virtual const char * **Error** ()=0
- virtual void * **getHandler** () const =0

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](#)

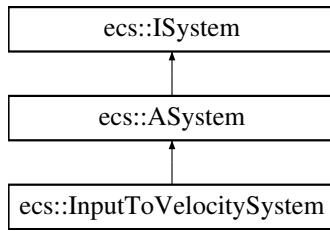
- ComponentState [_state](#) = Permanent

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]
```

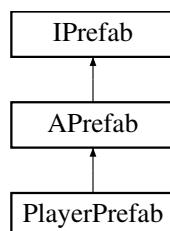
Implements [ecs::ASystem](#).

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

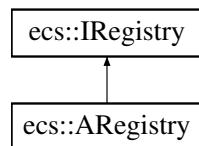
- virtual size_t **instantiate** (const std::shared_ptr< [ecs::ARegistry](#) > ®istry)=0

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

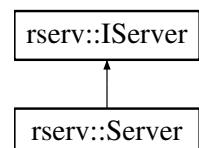
- template<typename T>
void **registerComponent** ()
- template<typename T>
void **addComponent** (size_t entityId, std::shared_ptr< T > component)
- template<typename T>
std::shared_ptr< T > **getComponent** (size_t entityId)
- template<typename T>
void **removeComponent** (size_t entityId)
- template<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

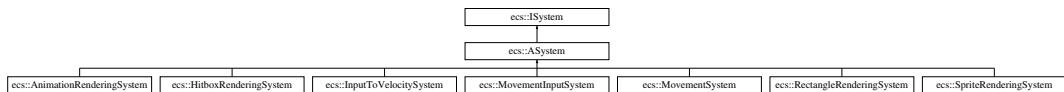
- virtual void **init** ()=0
- virtual void **start** ()=0
- virtual void **stop** ()=0
- virtual void **setConfig** (std::shared_ptr< [ServerConfig](#) > config)=0
- virtual std::shared_ptr< [ServerConfig](#) > **getConfig** () const =0
- virtual unsigned int **getPort** () const =0
- virtual void **setPort** (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

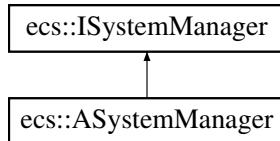
- virtual void **updateSystem** (std::shared_ptr< [ResourceManager](#) > resourceManager, std::shared_ptr< [ARegistry](#) > registry, float deltaTime)=0

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

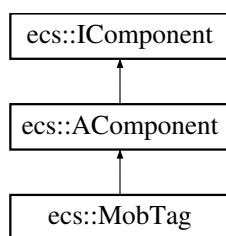
- std::shared_ptr< class [ARegistry](#) > **_registry**
- size_t **_entityId**
- size_t **_maxEntityId**

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](#)

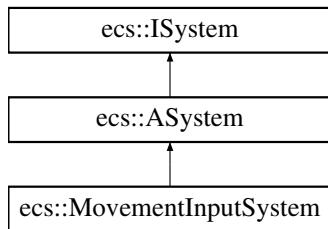
- ComponentState **_state** = Permanent

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]
```

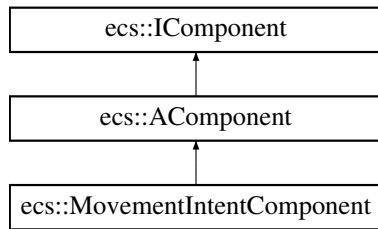
Implements [ecs::ASystem](#).

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](#)

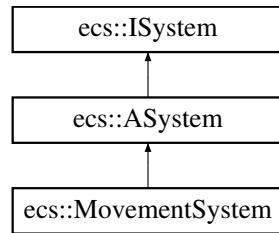
- ComponentState `_state = Permanent`

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

- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/temporary/MovementIntentComponent.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]
```

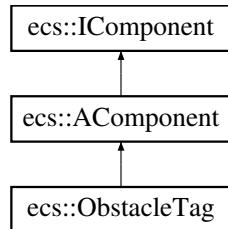
Implements [ecs::ASystem](#).

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](#)

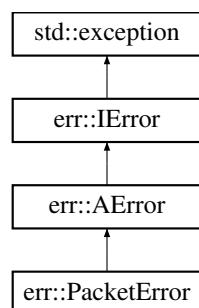
- ComponentState [_state = Permanent](#)

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]
```

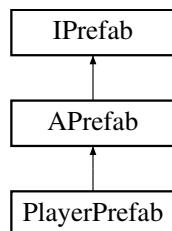
Implements [err::AError](#).

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> ®istry) 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]
```

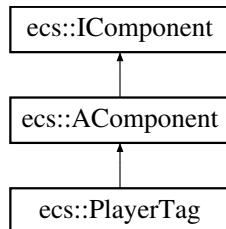
Reimplemented from [APrefab](#).

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](#)

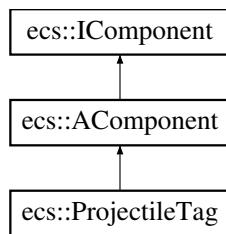
- ComponentState **_state** = Permanent

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](#)

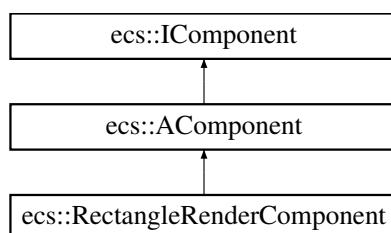
- ComponentState **_state** = Permanent

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](#)

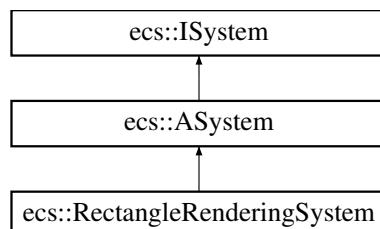
- ComponentState **_state** = Permanent

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/RectangleRenderingSystem.hpp
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/rendering/RectangleRenderingSystem.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

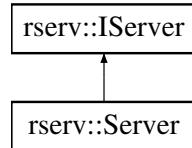
- std::unordered_map< size_t, std::shared_ptr< void > > **resources**

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::I Server](#).

4.56.1.2 getClientCount()

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

Implements [rserv::I Server](#).

4.56.1.3 getConfig()

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

Implements [rserv::I Server](#).

4.56.1.4 getConnectedClients()

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

Implements [rserv::I Server](#).

4.56.1.5 getFd()

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

Implements [rserv::I Server](#).

4.56.1.6 getNetwork()

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

Implements [rserv::I Server](#).

4.56.1.7 getPort()

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

Implements [rserv::I Server](#).

4.56.1.8 getState()

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

Implements [rserv::I Server](#).

4.56.1.9 init()

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

Implements [rserv::I Server](#).

4.56.1.10 onClientConnected()

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

Implements [rserv::I Server](#).

4.56.1.11 onClientDisconnected()

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

Implements [rserv::I Server](#).

4.56.1.12 onPacketReceived()

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

Implements [rserv::I Server](#).

4.56.1.13 operator int()

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

Implements [rserv::I Server](#).

4.56.1.14 processConnections()

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

Implements [rserv::I Server](#).

4.56.1.15 processIncomingPackets()

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

Implements [rserv::I Server](#).

4.56.1.16 sendToClient()

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

Implements [rserv::I Server](#).

4.56.1.17 setConfig()

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

Implements [rserv::I Server](#).

4.56.1.18 setFd()

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

Implements [rserv::I Server](#).

4.56.1.19 setNetwork()

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

Implements [rserv::I Server](#).

4.56.1.20 setPort()

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

Implements [rserv::I Server](#).

4.56.1.21 setState()

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

Implements [rserv::I Server](#).

4.56.1.22 `start()`

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

Implements [rserv::I Server](#).

4.56.1.23 `stop()`

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

Implements [rserv::I Server](#).

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

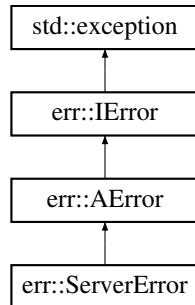
- int **_state**
- int **_fd**
- unsigned int **_port**
- int **_nbClients**
- uint32_t **_ip**

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]
```

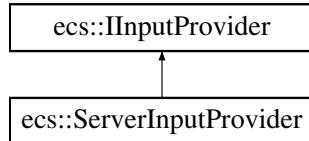
Implements [err::AError](#).

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::IInputProvider](#)

- 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::IInputProvider](#).

4.59.1.2 [getMousePos\(\)](#)

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

Implements [ecs::IInputProvider](#).

4.59.1.3 [isKeyPressed\(\)](#)

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

Implements [ecs::IInputProvider](#).

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

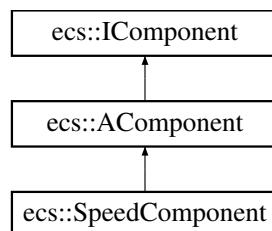
- static volatile sig_atomic_t **stopFlag** = 0

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`

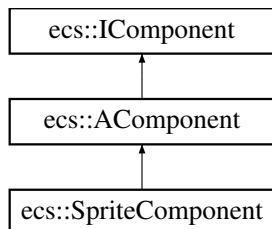
- ComponentState `_state = Permanent`

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**

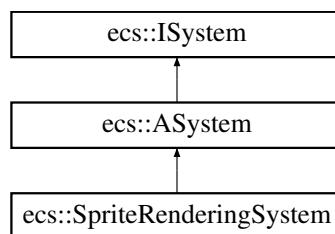
- ComponentState **_state** = Permanent

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]
```

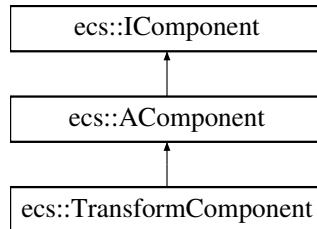
Implements [ecs::ASystem](#).

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.`hh`

4.65 Utils Class Reference

Public Member Functions

- void **helper** ()
- void **parseCli** (int ac, char **av, std::shared_ptr< ClientNetwork > clientNetwork)
- void **helper** ()
- void **parseCli** (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

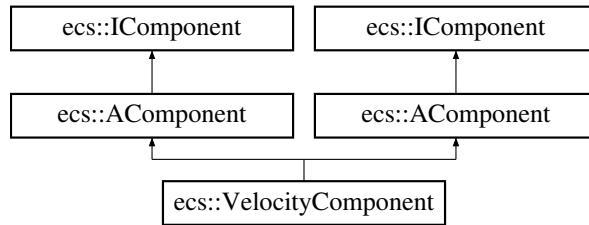
- float **_x**
- float **_y**

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.`hh`
- /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/VelocityComponent.`hh`

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:
0010     AGameStateMachine();
0011     ~AGameStateMachine() override = default;
0012
0013     void changeState(std::shared_ptr<IGameState> newState) override;
0014     void pushState(std::shared_ptr<IGameState> newState) override;
0015     void popState() override;
0016
0017     void update(float deltaTime) override;
0018     void render() override;
0019
0020 protected:
0021     std::stack<std::shared_ptr<IGameState>> _states;
0022 };
0023
0024 } // 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:
0010     AGameStateMachine();
0011     ~AGameStateMachine() override = default;
0012
0013     void changeState(std::shared_ptr<IGameState> newState) override;
0014     void pushState(std::shared_ptr<IGameState> newState) override;
0015     void popState() override;
0016
0017     void update(float deltaTime) override;
0018
0019 protected:
0020     std::stack<std::shared_ptr<IGameState>> _states;
0021 };
0022
0023 } // 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();
0010     ~GameStateMachine() override = default;
0011 };
0012
0013 } // 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 } // 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 } // 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 } // 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/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>
00017             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         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     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         math::Vector2f getOffset() const { return _offset; }

```

```

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() +
00041             _offset.getY(), _size.getX(), _size.getY());
00042     };
00043
00044     private:
00045         math::Vector2f _offset;
00046         math::Vector2f _size;
00047         CollisionType _type;
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; }
```

```

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 &&
00041             _frameRect.getHeight() > 0; }
00042     const std::string& getTexturePath() const { return _texturePath; }
00043     float getStartWidth() const { return _startWidth; }
00044     void setStartWidth(float startWidth) { _startWidth = startWidth; }
00045     float getStartHeight() const { return _startHeight; }
00046     void setStartHeight(float startHeight) { _startHeight = startHeight; }
00047
00048     private:
00049         std::string _texturePath;
00050         math::FRect _frameRect;
00051         int _frameCount;
00052         int _currentFrame;
00053         float _animationSpeed;
00054         math::Chrono _chrono;
00055         float _startHeight;
00056         float _startWidth;
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 RECTANGERENDERCOMPONENT_HPP_
00009 #define RECTANGERENDERCOMPONENT_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 /* !RECTANGERENDERCOMPONENT_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         ~SpriteComponent() = default;
00023         const std::string& getTexturePath() const { return _texturePath; }
00024         void setTexturePath(const std::string& path) { _texturePath = path; }
00025         bool isValid() const { return !_texturePath.empty(); }
00026
00027     private:
00028         std::string _texturePath;
00029     };
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)
00020             : _direction(direction), _active(active) {
00021                 _state = Temporary;
00022         };
00023         ~MovementIntentComponent() = default;
00024
00025         math::Vector2f getDirection() const { return _direction; };
00026         void setDirection(const math::Vector2f &direction) { _direction = direction; };
00027

```

```

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.hpp"
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 <cstddef>
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_
0010
0011 #include "IRegistry.hpp"
0012 #include "../../component/base/IComponent.hpp"
0013 #include "../../componentArray/IComponentArray.hpp"
0014 #include "../../componentArray/AComponentArray.hpp"
0015 #include "../../view/View.hpp"
0016 #include <memory>
0017 #include <unordered_map>
0018 #include <string>
0019
0020 namespace ecs {
0021
0022 class ARegistry : public IRegistry, public std::enable_shared_from_this<ARegistry> {
0023     public:
0024         ARegistry();
0025         virtual ~ARegistry();
0026
0027         template <typename T>
0028         void registerComponent();
0029
0030         template <typename T>
0031         void addComponent(size_t entityId, std::shared_ptr<T> component);
0032         template <typename T>
0033         std::shared_ptr<T> getComponent(size_t entityId) const;
0034         template <typename T>
0035         std::vector<std::shared_ptr<T>> getComponents(size_t entityId) const;
0036         template <typename T>
0037         void removeComponent(size_t entityId);
0038         template <typename T>
0039         bool hasComponent(size_t entityId) const;
0040
0041         template <typename... Components>
0042         View<Components...> view();
0043
0044         template <typename... Components>
0045         Group<Components...> group();
0046
0047         size_t getMaxEntityId() const;
0048
0049         void removeAllComponentsWithState(ComponentState state) override;
0050         size_t createEntity() override;
0051     protected:
0052         private:
0053             size_t _nextEntityId;
0054             std::unordered_map<std::string, std::shared_ptr<IComponentArray>> _components;
0055     };
0056
0057 } // namespace ecs
0058
0059 #include "ARegistry.tpp"
0060
0061 #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_
0010
0011 #include <memory>
0012 #include "../../component/base/IComponent.hpp"
0013 #include "../../view/View.hpp"
0014
0015 namespace ecs {
0016
0017 class IRegistry {
0018     public:
0019         virtual ~IRegistry() = default;
0020
0021         template <typename T>
0022         void registerComponent();
0023
0024         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
00014 namespace ecs {
00015
00016 class ISystem {
00017     public:
00018         virtual ~ISystem() = default;

```

```

00020     virtual void updateSystem(std::shared_ptr<ResourceManager> resourceManager,
00021         std::shared_ptr<ARegistry> registry, float deltaTime) = 0;
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>
00028             registry, float deltaTime) override;
00029     private:
00030         math::Vector2f getMovementDirection(std::shared_ptr<ResourceManager> resourceManager) const;
00031         void updateInputIntent(std::shared_ptr<ARegistry> registry, size_t entityId, const
00032             math::Vector2f &direction);
00033         math::Vector2f getAnalogStickInput(std::shared_ptr<IInputProvider> inputProvider) const;
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 VELOCITIESYSTEM_HPP_
00009 #define VELOCITIESYSTEM_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>
00021             registry, float deltaTime) override;
00022     };
00023 } // namespace ecs
00024
00025 #endif /* !VELOCITIESYSTEM_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
00030     private:
00031         std::vector<std::shared_ptr<ISystem>> _systems;
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,
00023             std::shared_ptr<ARegistry> registry, float deltaTime) = 0;
00024         virtual void addSystem(std::shared_ptr<ISystem> system) = 0;
00025         virtual void removeSystem(std::shared_ptr<ISystem> system) = 0;
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
00030 maxEntityId);
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     private:
00043         std::shared_ptr<class ARegistry> _registry;
00044     };
00045 template <typename... Components>
00046 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
00058 maxEntityId);
00059                 bool operator!=(const Iterator& other) const;
00060                 Iterator& operator++();
00061                 size_t operator*() const;
00062
00063             private:
00064                 bool hasAllComponents() const;
00065                 std::shared_ptr<class ARegistry> _registry;
00066                 size_t _entityId;
00067                 size_t _maxEntityId;
00068             };
00069
00070         private:
00071             std::shared_ptr<class ARegistry> _registry;
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
00018         virtual ~ServerError() noexcept = default;
00019         virtual const char *what() const noexcept override = 0;
00020         virtual int getCode() const noexcept = 0;
00021         virtual std::string getType() const noexcept = 0;
00022         virtual std::string getDetails() const noexcept = 0;
00023
00024     protected:
00025     private:
00026 };
00027
00028 }
00029
00030
00031
00032

```

```

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/ARegistry.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::ARegistry> &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
00027             std::shared_ptr<ecs::ARegistry> &registry);
00028         bool hasPrefab(const std::string &name) const;
00029         void deletePrefab(const std::string &name);
00030         void clearPrefabs();
00031     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/ARegistry.hpp"
00012
00013 class IPrefab {
00014     public:
00015         virtual ~IPrefab() = default;
00016         virtual size_t instantiate(const std::shared_ptr<ecs::ARegistry> &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/VelocityComponent.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::ARegistry> &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 
00064     private:
00065         float _x;
00066         float _y;
00067         float _scale;
00068         std::string _animationPath;
00069         float _frameWidth, _frameHeight;
00070         float _startWidth;
00071         float _startHeight;
00072         int _frameCount;
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/Packet/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     DLLoader<createNetworkLib_t> _networloader;
00074     DLLoader<createBuffer_t> _bufferloader;
00075     DLLoader<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 <cstdint>
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_ */
```

Index

/home/albane/epitech/tech3/r-type/ryanR-type/client/ClientNetwork.hpp
69 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/t...

/home/albane/epitech/tech3/r-type/ryanR-type/client/Core.hpp, 84
70 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/t...

/home/albane/epitech/tech3/r-type/ryanR-type/client/Utils.hpp, 84
75 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/t...

/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/AStateMachine.hpp,
71 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/t...

/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/GameStateMachine.hpp,
71 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/t...

/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/machine/IGameStateMachine.hpp,
72 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/t...

/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/baseGameState.hpp,
72 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/t...

/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/baseGameState.hpp,
73 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/AEntity...

/home/albane/epitech/tech3/r-type/ryanR-type/client/gsm/states/scenes/DevState.hpp,
73 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/IEntity...

/home/albane/epitech/tech3/r-type/ryanR-type/client/initRessourcesManager/GraphicallInputProvider.hpp,
74 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/compo...

/home/albane/epitech/tech3/r-type/ryanR-type/client/initRessourcesManager/initRessourcesManager.hpp,
74 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/compo...

/home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader/DLLoader.hpp,
76 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/registry...

/home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader/ILoader.hpp,
77 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/entity/registry...

/home/albane/epitech/tech3/r-type/ryanR-type/common/DLLoader/LoaderType.hpp,
78 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/resourceMan...

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/base/AComponent.hpp,
78 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/resourceMan...

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

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/ColliderComponent.hpp,
79 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/base...

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/DirectionComponent.hpp,
80 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/input...

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/SpeedComponent.hpp,
80 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/move...

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/TransformComponent.hpp,
81 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/move...

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/permanent/VelocityComponent.hpp,
81 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/render...

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/AnimationComponent.hpp,
82 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/render...

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/component/rendering/HitboxRenderComponent.hpp,
82 /home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/render...

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

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

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/SystemManager/ASystemManager.hpp,
 95
 rserve::Server, 55

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/system/systemManager/ISystemManager.hpp,
 96
 changeState

/home/albane/epitech/tech3/r-type/ryanR-type/common/ECS/view/View.hpp, 15
 96
 ClientNetwork, 23

/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/Error.hpp,
 97
 CloseError.hpp, 28
 DLLoader< T >, 28

/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/Error.hpp,
 97
 createEntity

/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/PacketError.hpp, 21
 98

/home/albane/epitech/tech3/r-type/ryanR-type/common/Error/ServerError.hpp,
 98
 Close, 28

/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/APrefab.hpp,
 99
 getHandler, 28

/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/IPrefab.hpp,
 100
 Open, 28
 Symbol, 29

/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/PlayerPrefab/PlayerPrefab.hpp,
 100
 ecs::AComponent, 9
 getState, 10
 setState, 10

/home/albane/epitech/tech3/r-type/ryanR-type/common/Prefab/entity/PrefabManager/EntityPrefabManager.hpp,
 99
 ecs::AComponentArray< T >, 10

/home/albane/epitech/tech3/r-type/ryanR-type/common/Signal/Signal.hpp,
 101
 getMaxEntityId, 11
 removeAllComponentsWithState, 11

/home/albane/epitech/tech3/r-type/ryanR-type/common/constants.hpp,
 76
 ecs::AEntity, 11
 operator size_t, 12

/home/albane/epitech/tech3/r-type/ryanR-type/common/types/Chrono.hpp,
 101
 ecs::AnimationComponent, 17

/home/albane/epitech/tech3/r-type/ryanR-type/common/types/FRect.hpp,
 102
 ecs::AnimationRenderingSystem, 18
 update, 19

/home/albane/epitech/tech3/r-type/ryanR-type/common/types/Vector2f.hpp,
 102
 ecs::ARegistry, 20
 createEntity, 21

/home/albane/epitech/tech3/r-type/ryanR-type/server/Core.hpp,
 70
 ecs::ASystem, 21
 updateSystem, 21

/home/albane/epitech/tech3/r-type/ryanR-type/server/IServer.hpp,
 103
 ecs::ASystemManager, 22
 addSystem, 22

/home/albane/epitech/tech3/r-type/ryanR-type/server/Server.hpp,
 104
 removeSystem, 22

/home/albane/epitech/tech3/r-type/ryanR-type/server/ServerConfig.hpp,
 105
 ecs::ColliderComponent, 24

/home/albane/epitech/tech3/r-type/ryanR-type/server/Utils.hpp,
 75
 ecs::ControllableTag, 25

/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/machine/AGameStateMachine.hpp,
 71
 ecs::GraphicalInputProvider, 31
 getAxisValue, 32
 getMousePos, 32

/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/machine/IGameStateMachine.hpp,
 72
 isKeyPressed, 32
 isMouseButtonPressed, 32

/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/AGameState.hpp,
 73
 ecs::Group< Components >, 32
 ecs::Group< Components >::Iterator, 43

/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/IGameState.hpp,
 73
 ecs::HitboxRenderComponent, 33

/home/albane/epitech/tech3/r-type/ryanR-type/server/gsm/states/IGameState.hpp,
 73
 ecs::HitboxRenderingSystem, 34
 update, 34

/home/albane/epitech/tech3/r-type/ryanR-type/server/initRessourcesManager/ServerInputProvider.hpp,
 103
 ecs::IComponent, 35

/home/albane/epitech/tech3/r-type/ryanR-type/server/initRessourcesManager/initRessourcesManager.hpp,
 75
 ecs::IComponentArray, 35
 ecs::IEntity, 36

addSystem
 ecs::ASystemManager, 22

APrefab, 19
 instantiate, 19

ecs::IInputProvider, 38

ecs::InputIntentComponent, 39

ecs::InputToVelocitySystem, 40
 update, 40

ecs::IRRegistry, 41

ecs::ISystem, 42
ecs::ISystemManager, 43
ecs::MobTag, 44
ecs::MovementInputSystem, 45
 update, 45
ecs::MovementIntentComponent, 46
ecs::MovementSystem, 47
 update, 47
ecs::ObstacleTag, 48
ecs::PlayerTag, 50
ecs::ProjectileTag, 51
ecs::RectangleRenderComponent, 51
ecs::RectangleRenderingSystem, 52
 update, 53
ecs::ResourceManager, 53
ecs::ServerInputProvider, 60
 getAxisValue, 60
 getMousePos, 60
 isKeyPressed, 60
 isMouseButtonPressed, 60
ecs::SpeedComponent, 61
ecs::SpriteComponent, 62
ecs::SpriteRenderingSystem, 63
 update, 63
ecs::TransformComponent, 64
ecs::VelocityComponent, 66
ecs::View< Components >, 66
ecs::View< Components >::Iterator, 44
enter
 gsm::AGameState, 14
 gsm::DevState, 27
EntityPrefabManager, 29
err::AError, 12
 getCode, 12
 getDetails, 12
 getType, 13
 what, 13
err::IError, 36
err::PacketError, 48
 getType, 49
err::ServerError, 59
 getType, 59
Error
 DLLoader< T >, 28
exit
 gsm::AGameState, 14
 gsm::DevState, 27
getAxisValue
 ecs::GraphicallInputProvider, 32
 ecs::ServerInputProvider, 60
getClientCount
 rserv::Server, 55
getCode
 err::AError, 12
getConfig
 rserv::Server, 55
getConnectedClients
 rserv::Server, 55
getDetails
 err::AError, 12
getFd
 rserv::Server, 55
getHandler
 DLLoader< T >, 28
getMaxEntityId
 ecs::AComponentArray< T >, 11
getMousePos
 ecs::GraphicallInputProvider, 32
 ecs::ServerInputProvider, 60
getNetwork
 rserv::Server, 55
getPort
 rserv::Server, 55
getState
 ecs::AComponent, 10
 rserv::Server, 55
getType
 err::AError, 13
 err::PacketError, 49
 err::ServerError, 59
gsm::AGameState, 13
 enter, 14
 exit, 14
 render, 14
 update, 14
gsm::AGameStateMachine, 15
 changeState, 15
 popState, 16
 pushState, 16
 render, 16
 update, 16
gsm::DevState, 26
 enter, 27
 exit, 27
 render, 27
 update, 27
gsm::GameStateMachine, 30
gsm::IGameState, 37
gsm::IGameStateMachine, 37
ILoader, 38
init
 rserv::Server, 56
instantiate
 APrefab, 19
 PlayerPrefab, 50
IPrefab, 40
isKeyPressed
 ecs::GraphicallInputProvider, 32
 ecs::ServerInputProvider, 60
isMouseButtonPressed
 ecs::GraphicallInputProvider, 32
 ecs::ServerInputProvider, 60
math::Chrono, 23
math::FRect, 30
math::Vector2f, 65

onClientConnected
 rserv::Server, 56
onClientDisconnected
 rserv::Server, 56
onPacketReceived
 rserv::Server, 56
Open
 DLLoader< T >, 28
operator int
 rserv::Server, 56
operator size_t
 ecs::AEntity, 12

PlayerPrefab, 49
 instantiate, 50
popState
 gsm::AGameStateMachine, 16
processConnections
 rserv::Server, 56
processIncomingPackets
 rserv::Server, 56
pushState
 gsm::AGameStateMachine, 16

removeAllComponentsWithState
 ecs::AComponentArray< T >, 11
 ecs::ARegistry, 21
removeSystem
 ecs::ASystemManager, 22
render
 gsm::AGameState, 14
 gsm::AGameStateMachine, 16
 gsm::DevState, 27
rserv::IServer, 41
rserv::Server, 54
 broadcastPacket, 55
 getClientCount, 55
 getConfig, 55
 getConnectedClients, 55
 getFd, 55
 getNetwork, 55
 getPort, 55
 getState, 55
 init, 56
 onClientConnected, 56
 onClientDisconnected, 56
 onPacketReceived, 56
 operator int, 56
 processConnections, 56
 processIncomingPackets, 56
 sendToClient, 57
 setConfig, 57
 setFd, 57
 setNetwork, 57
 setPort, 57
 setState, 57
 start, 57
 stop, 58
rserv::ServerConfig, 58

sendToClient
 rserv::Server, 57
setConfig
 rserv::Server, 57
setFd
 rserv::Server, 57
setNetwork
 rserv::Server, 57
setPort
 rserv::Server, 57
setState
 ecs::AComponent, 10
 rserv::Server, 57
Signal, 61
start
 rserv::Server, 57
stop
 rserv::Server, 58
Symbol
 DLLoader< T >, 29

update
 ecs::AnimationRenderingSystem, 19
 ecs::HitboxRenderingSystem, 34
 ecs::InputToVelocitySystem, 40
 ecs::MovementInputSystem, 45
 ecs::MovementSystem, 47
 ecs::RectangleRenderingSystem, 53
 ecs::SpriteRenderingSystem, 63
 gsm::AGameState, 14
 gsm::AGameStateMachine, 16
 gsm::DevState, 27
updateAllSystems
 ecs::ASystemManager, 22
updateSystem
 ecs::ASystem, 21
Utils, 65

what
 err::AError, 13