Fast OpenGL Library

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Chapter 1

WIP: FastOGLib - Fast OpenGL Library

Fast and scalable library, able to create OpenGL progams on osx/linux/windows machines.

1.1 Instalation of Library

Actually does not provide plug in solution. Saying that so it's needed to download all source codes of Lib and dependent libs.

```
git stash
git pull
git submodule sync && git submodule update --init
```

1.1.1 Linux/OSX

After checking out the desired version of library building is straight forward:

```
mkdir build
cd build
cmake ..
make
```

1.1.2 Windows

Unfortunetly on Windows the GNU compiler with make is required (MVC option is no tested - Feel free to test i will try to help my best). In order to build the app it's needed to select correct compiler:

```
mkdir build
git stash
git pull
git submodule sync && git submodule update --init
cd build
cmake .. -G "MinGW Makefiles"
mingw32-make.exe -j 10 -l 10
```

1.1.3 Developing the application

Actually in order of developement on this library the `main.cpp` file has to be modified. In future months I'll be adding more functionality, which can me monitored in issues, and after some time, I'll provide CMake style libraries.

1.2 Further information

Further information can be found in the .readme.md/README.md file. Futher information

1.3 Contributors

@mwawrzkow - Marcin Wawrzków - owner

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

AEG 11
Global 11
GPU 11
INPUT 11
Lights 13
OpenGLInstance 13
OSDL 14
Primitives 14

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

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

GPU::ArrayHandler . . . 28
Primitives::Color< T > . . . 32
Primitives::ColorRGBA< T > . . . 34
Lights::DirectLight . . . 37
Lights::GlobalLight . . . 46
GPU::GPU_Ref . . . 51
Lights::LightManager . . . 54
OSDL::Observer . . . 65
  INPUT::Adapter . . . 21
  OSDL::DualLink . . . 43
    Controller . . . 35
    Model . . . 63
  View . . . 108
Primitives::Point2D< T > . . . 67
Primitives::PrimitivesManager . . . 72
Lights::SphericalLight . . . 87
OSDL::Subject . . . 95
  INPUT::AdapterHandler . . . 24
  OSDL::DualLink . . . 43
AEG::Texture . . . 97
AEG::Textures . . . 100
VertexHandler . . . 103
  Primitive . . . 68
    Primitives::Line . . . 58
    Primitives::Rectanagle . . . 75
      Primitives::Square . . . 92
Global::WindowProperties . . . 110

Chapter 4

Class Index

4.1 Class List

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

INPUT::Adapter 21
INPUT::AdapterHandler 24
GPU::ArrayHandler 28
Primitives::Color< T > 32
Primitives::ColorRGBA< T > 34
Controller 35
Lights::DirectLight 37
OSDL::DualLink 43
Lights::GlobalLight 46
GPU::GPU_Ref 51
Lights::LightManager 54
Primitives::Line 58
Model 63
OSDL::Observer 65
Primitives::Point2D< T > 67
Primitive 68
Primitives::PrimitivesManager 72
Primitives::Rectanagle 75
Lights::SphericalLight 87
Primitives::Square 92
OSDL::Subject 95
AEG::Texture 97
AEG::Textures 100
VertexHandler 103
View 108
Global::WindowProperties 110

Chapter 5

File Index

5.1 File List

Here is a list of all files with brief descriptions:

Engine/Core/main.cpp . . . 139
Engine/Core/core/InputAdapter.cpp . . . 123
Engine/Core/core/InputAdapter.hpp . . . 124
Engine/Core/core/WindowProperties.cpp . . . 138
Engine/Core/core/WindowProperties.hpp . . . 138
Engine/Core/core/base/OpenGLStart.cpp . . . 115
Engine/Core/core/base/OpenGLStart.hpp . . . 116
Engine/Core/core/base/Point.hpp . . . 117
Engine/Core/core/base/Primitive.cpp . . . 118
Engine/Core/core/base/Primitive.hpp . . . 119
Engine/Core/core/base/Texture.cpp . . . 120
Engine/Core/core/base/Texture.hpp . . . 121
Engine/Core/core/base/vertexHandler.cpp . . . 122
Engine/Core/core/base/vertexHandler.hpp . . . 122
Engine/Core/core/OpenGLArrays/ArrayHandler.cpp . . . 125
Engine/Core/core/OpenGLArrays/ArrayHandler.hpp . . . 126
Engine/Core/core/primitives/Lights.cpp . . . 130
Engine/Core/core/primitives/Lights.hpp . . . 131
Engine/Core/core/primitives/Line.cpp . . . 132
Engine/Core/core/primitives/Line.hpp . . . 132
Engine/Core/core/primitives/PrimitivesManager.cpp . . . 133
Engine/Core/core/primitives/PrimitivesManager.hpp . . . 134
Engine/Core/core/primitives/Rectanagle.cpp . . . 135
Engine/Core/core/primitives/Rectanagle.hpp . . . 135
Engine/Core/core/primitives/Square.cpp . . . 136
Engine/Core/core/primitives/Square.hpp . . . 137
Engine/Core/core/primitives/Light/DirectLight.cpp . . . 127
Engine/Core/core/primitives/Light/DirectLight.hpp . . . 127
Engine/Core/core/primitives/Light/GlobalLight.cpp . . . 128
Engine/Core/core/primitives/Light/GlobalLight.hpp . . . 128
Engine/Core/core/primitives/Light/SphericalLight.cpp . . . 129
Engine/Core/core/primitives/Light/SphericalLight.hpp . . . 130
Engine/Core/patterns/MVC/Controller.hpp . . . 141
Engine/Core/patterns/MVC/Model.hpp . . . 142
Engine/Core/patterns/MVC/View.hpp . . . 142

Engine/Core/patterns/ObserverSubject/DualLink.hpp 143
Engine/Core/patterns/ObserverSubject/Observer.hpp 145
Engine/Core/patterns/ObserverSubject/Subject.cpp 146
Engine/Core/patterns/ObserverSubject/Subject.hpp 146

Chapter 6

Namespace Documentation

6.1 AEG Namespace Reference

Classes

- class Texture
- class Textures

6.2 Global Namespace Reference

Classes

- class WindowProperties

6.3 GPU Namespace Reference

Classes

- class ArrayHandler
- class GPU_Ref

6.4 INPUT Namespace Reference

Classes

- class Adapter
- class AdapterHandler

Enumerations

- enum KeyBoardKey {
  ERROR = -1, Key_1 = 0, Key_2, Key_3,
  Key_4, Key_5, Key_6, Key_7,
  Key_8, Key_9, Key_0, Q,
  W, E, R, T,
  Y, U, I, O,
  P, A, S, D,
  F, G, H, J,
  K, L, Z, X,
  C, V, B, N,
  M, Arrow_Up, Arrow_Down, Arrow_Left,
  Arrow_Right }

6.4.1 Enumeration Type Documentation

6.4.1.1 KeyBoardKey

`enum INPUT::KeyBoardKey`

Enumerator

ERROR	
Key_1	
Key_2	
Key_3	
Key_4	
Key_5	
Key_6	
Key_7	
Key_8	
Key_9	
Key_0	
Q	
W	
E	
R	
T	
Y	
U	
I	
O	
P	
A	
S	
D	
F	
G	

Enumerator

H	
J	
K	
L	
Z	
X	
C	
V	
B	
N	
M	
Arrow_Up	
Arrow_Down	
Arrow_Left	
Arrow_Right	

6.5 Lights Namespace Reference

Classes

- class DirectLight
- class GlobalLight
- class LightManager
- class SphericalLight

6.6 OpenGLInstance Namespace Reference

Functions

- GLFWwindow * InitWindow (int width, int height, std::string name)
- void setClearColor (float R, float G, float B, float A)
- std::vector< GLuint > CreateAndCompileShaders (const char *vertShaderCode, const char *fragShader↩ Code)
- GLuint CreateProgramAndLinkShaders (const std::vector< GLuint > shaders)

6.6.1 Function Documentation

6.6.1.1 CreateAndCompileShaders()

```
std::vector< GLuint > OpenGLInstance::CreateAndCompileShaders (
            const char * vertShaderCode,
            const char * fragShaderCode )
```

6.6.1.2 CreateProgramAndLinkShaders()

```
GLuint OpenGLInstance::CreateProgramAndLinkShaders (
            const std::vector< GLuint > shaders )
```

6.6.1.3 InitWindow()

```
GLFWwindow * OpenGLInstance::InitWindow (
            int width,
            int height,
            std::string name )
```

6.6.1.4 setClearColor()

```
void OpenGLInstance::setClearColor (
            float R,
            float G,
            float B,
            float A )
```

6.7 OSDL Namespace Reference

Classes

- class DualLink
- class Observer
- class Subject

6.8 Primitives Namespace Reference

Classes

- struct Color
- struct ColorRGBA
- class Line
- struct Point2D
- class PrimitivesManager
- class Rectanagle
- class Square

Typedefs

- typedef struct Point2D< float > PointF
- typedef Point2D< int > PointI
- typedef Point2D< double > PointD
- typedef Point2D< unsigned int > PointU
- typedef Point2D< unsigned long > PointUL
- typedef Point2D< unsigned long long > PointULL
- typedef Point2D< long > PointL
- typedef Point2D< long long > PointLL
- typedef Point2D< char > PointC
- typedef Point2D< short > PointS
- typedef struct Color< float > ColorF
- typedef Color< int > ColorI
- typedef Color< double > ColorD
- typedef Color< unsigned int > ColorU
- typedef Color< unsigned long > ColorUL
- typedef Color< unsigned long long > ColorULL
- typedef Color< long > ColorL
- typedef Color< long long > ColorLL
- typedef Color< char > ColorC
- typedef Color< short > ColorS
- typedef struct ColorRGBA< float > ColorRGBAF
- typedef ColorRGBA< int > ColorRGBAI
- typedef ColorRGBA< double > ColorRGBAD
- typedef ColorRGBA< unsigned int > ColorRGBAU
- typedef ColorRGBA< unsigned long > ColorRGBAUL
- typedef ColorRGBA< unsigned long long > ColorRGBAULL
- typedef ColorRGBA< long > ColorRGBAL
- typedef ColorRGBA< long long > ColorRGBALL
- typedef ColorRGBA< char > ColorRGBAC
- typedef ColorRGBA< short > ColorRGBAS
- typedef Primitive * PrimitivePtr
- typedef std::vector< PrimitivePtr > Primitives
- typedef Primitives & PrimitivesRef

Enumerations

- enum ColorType {
  RED, GREEN, BLUE, ALPHA,
  ERROR }

6.8.1 Typedef Documentation

6.8.1.1 ColorC

```
typedef Color<char> Primitives::ColorC
```

6.8.1.2 ColorD

```
typedef Color<double> Primitives::ColorD
```

6.8.1.3 ColorF

```
typedef struct Color< float > Primitives::ColorF
```

6.8.1.4 ColorI

```
typedef Color<int> Primitives::ColorI
```

6.8.1.5 ColorL

```
typedef Color<long> Primitives::ColorL
```

6.8.1.6 ColorLL

```
typedef Color<long long> Primitives::ColorLL
```

6.8.1.7 ColorRGBAC

```
typedef ColorRGBA<char> Primitives::ColorRGBAC
```

6.8.1.8 ColorRGBAD

```
typedef ColorRGBA<double> Primitives::ColorRGBAD
```

6.8.1.9 ColorRGBAF

```
typedef struct ColorRGBA< float > Primitives::ColorRGBAF
```

6.8.1.10 ColorRGBAI

```
typedef ColorRGBA<int> Primitives::ColorRGBAI
```

6.8.1.11 ColorRGBAL

```
typedef ColorRGBA<long> Primitives::ColorRGBAL
```

6.8.1.12 ColorRGBALL

```
typedef ColorRGBA<long long> Primitives::ColorRGBALL
```

6.8.1.13 ColorRGBAS

```
typedef ColorRGBA<short> Primitives::ColorRGBAS
```

6.8.1.14 ColorRGBAU

```
typedef ColorRGBA<unsigned int> Primitives::ColorRGBAU
```

6.8.1.15 ColorRGBAUL

```
typedef ColorRGBA<unsigned long> Primitives::ColorRGBAUL
```

6.8.1.16 ColorRGBAULL

```
typedef ColorRGBA<unsigned long long> Primitives::ColorRGBAULL
```

6.8.1.17 ColorS

```
typedef Color<short> Primitives::ColorS
```

6.8.1.18 ColorU

```
typedef Color<unsigned int> Primitives::ColorU
```

6.8.1.19 ColorUL

```
typedef Color<unsigned long> Primitives::ColorUL
```

6.8.1.20 ColorULL

```
typedef Color<unsigned long long> Primitives::ColorULL
```

6.8.1.21 PointC

```
typedef Point2D<char> Primitives::PointC
```

6.8.1.22 PointD

```
typedef Point2D<double> Primitives::PointD
```

6.8.1.23 PointF

```
typedef struct Point2D< float > Primitives::PointF
```

6.8.1.24 PointI

```
typedef Point2D<int> Primitives::PointI
```

6.8.1.25 PointL

```
typedef Point2D<long> Primitives::PointL
```

6.8.1.26 PointLL

```
typedef Point2D<long long> Primitives::PointLL
```

6.8.1.27 PointS

```
typedef Point2D<short> Primitives::PointS
```

6.8.1.28 PointU

```
typedef Point2D<unsigned int> Primitives::PointU
```

6.8.1.29 PointUL

```
typedef Point2D<unsigned long> Primitives::PointUL
```

6.8.1.30 PointULL

```
typedef Point2D<unsigned long long> Primitives::PointULL
```

6.8.1.31 PrimitivePtr

```
typedef Primitive* Primitives::PrimitivePtr
```

6.8.1.32 Primitives

```
typedef std::vector<PrimitivePtr> Primitives::Primitives
```

6.8.1.33 PrimitivesRef

```
typedef Primitives& Primitives::PrimitivesRef
```

6.8.2 Enumeration Type Documentation

6.8.2.1 ColorType

```
enum Primitives::ColorType
```

Enumerator

RED	
GREEN	
BLUE	
ALPHA	
ERROR	

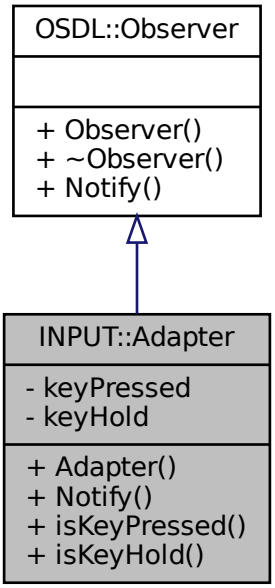
Chapter 7

Class Documentation

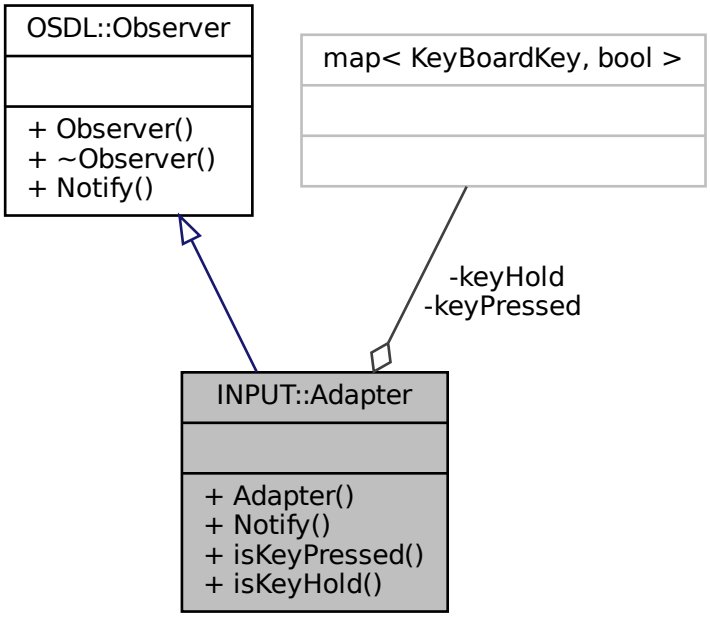
7.1 INPUT::Adapter Class Reference

`#include <InputAdapter.hpp>`

Inheritance diagram for INPUT::Adapter:



Collaboration diagram for INPUT::Adapter:



Public Member Functions

- Adapter ()
- void Notify (OSDL::Subject ∗)
- bool isKeyPressed (KeyBoardKey)
- bool isKeyHold (KeyBoardKey)

Private Attributes

- std::map< KeyBoardKey, bool > keyPressed
- std::map< KeyBoardKey, bool > keyHold

7.1.1 Constructor & Destructor Documentation

7.1.1.1 Adapter()

```
INPUT::Adapter::Adapter ( )
```

7.1.2 Member Function Documentation

7.1.2.1 isKeyHold()

```
bool INPUT::Adapter::isKeyHold (
            KeyBoardKey k )
```

7.1.2.2 isKeyPressed()

```
bool INPUT::Adapter::isKeyPressed (
            KeyBoardKey k )
```

7.1.2.3 Notify()

```
void INPUT::Adapter::Notify (
            OSDL::Subject * ) [virtual]
```

Reimplemented from OSDL::Observer.

7.1.3 Member Data Documentation

7.1.3.1 keyHold

```
std::map<KeyBoardKey, bool> INPUT::Adapter::keyHold [private]
```

7.1.3.2 keyPressed

```
std::map<KeyBoardKey, bool> INPUT::Adapter::keyPressed [private]
```

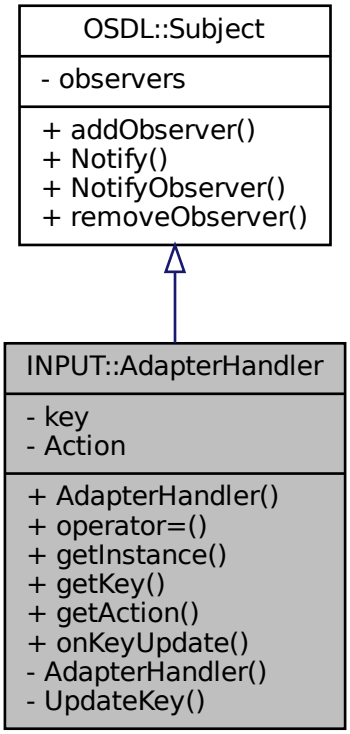
The documentation for this class was generated from the following files:

- Engine/Core/core/InputAdapter.hpp
- Engine/Core/core/InputAdapter.cpp

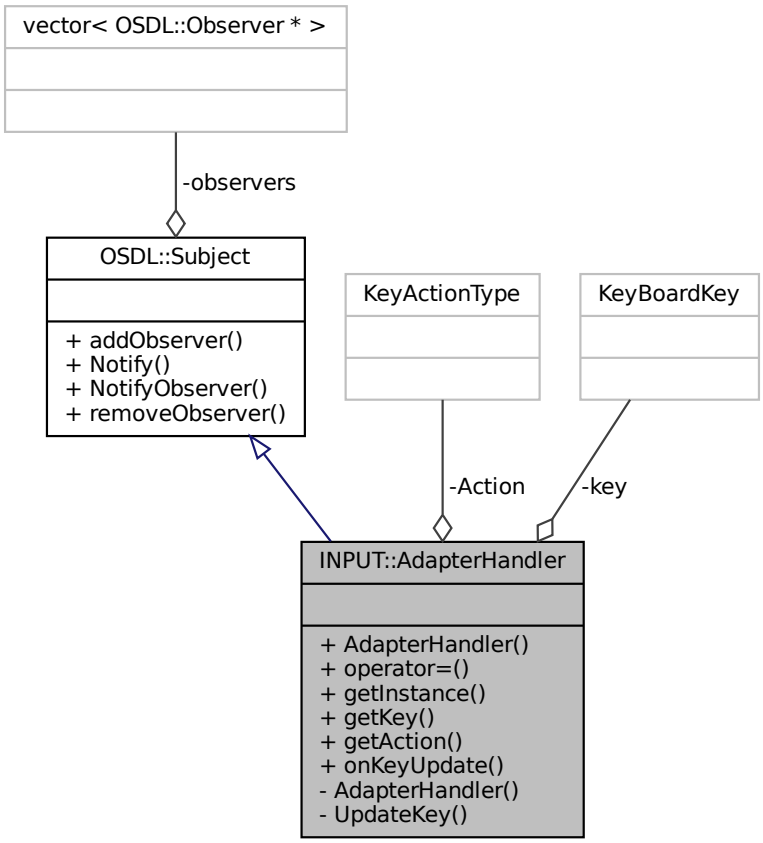
7.2 INPUT::AdapterHandler Class Reference

`#include <InputAdapter.hpp>`

Inheritance diagram for INPUT::AdapterHandler:



Collaboration diagram for INPUT::AdapterHandler:



Public Types

- enum KeyActionType { Hold, Press_down, Press_Up }

Public Member Functions

- AdapterHandler (AdapterHandler &other)=delete
- void operator= (const AdapterHandler &)=delete
- AdapterHandler * getInstance ()
- KeyBoardKey getKey ()
- KeyActionType getAction ()

Static Public Member Functions

- static void onKeyUpdate (GLFWwindow *window, int key, int status, int action, int mods)

Private Member Functions

- AdapterHandler ()
- void UpdateKey (int)

Private Attributes

- KeyBoardKey key
- KeyActionType Action

7.2.1 Member Enumeration Documentation

7.2.1.1 KeyActionType

```
enum INPUT::AdapterHandler::KeyActionType
```

Enumerator

Hold	
Press_down	
Press_Up	

7.2.2 Constructor & Destructor Documentation

7.2.2.1 AdapterHandler() [1/2]

```
INPUT::AdapterHandler::AdapterHandler ( )  [private]
```

7.2.2.2 AdapterHandler() [2/2]

```
INPUT::AdapterHandler::AdapterHandler (
            AdapterHandler & other )  [delete]
```

7.2.3 Member Function Documentation

7.2.3.1 getAction()

```
AdapterHandler::KeyActionType INPUT::AdapterHandler::getAction ( )
```

7.2.3.2 getInstance()

```
AdapterHandler * INPUT::AdapterHandler::getInstance ( )
```

7.2.3.3 getKey()

```
KeyBoardKey INPUT::AdapterHandler::getKey ( )
```

7.2.3.4 onKeyUpdate()

```
void INPUT::AdapterHandler::onKeyUpdate (
            GLFWwindow * window,
            int key,
            int status,
            int action,
            int mods )  [static]
```

7.2.3.5 operator=()

```
void INPUT::AdapterHandler::operator= (
            const AdapterHandler &  )  [delete]
```

7.2.3.6 UpdateKey()

```
void INPUT::AdapterHandler::UpdateKey (
            int Key )  [private]
```

7.2.4 Member Data Documentation

7.2.4.1 Action

```
KeyActionType INPUT::AdapterHandler::Action  [private]
```

7.2.4.2 key

```
KeyBoardKey INPUT::AdapterHandler::key  [private]
```

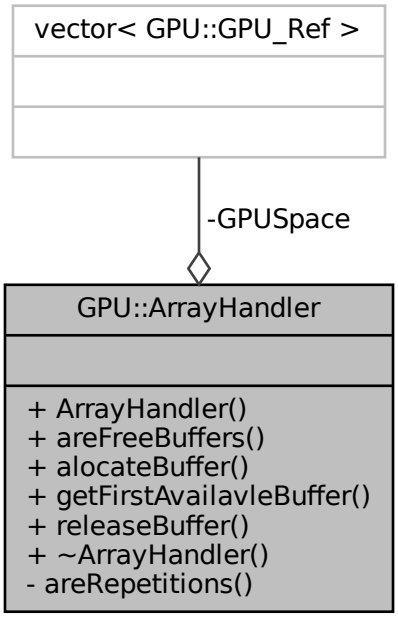
The documentation for this class was generated from the following files:

- Engine/Core/core/InputAdapter.hpp
- Engine/Core/core/InputAdapter.cpp

7.3 GPU::ArrayHandler Class Reference

```
#include <ArrayHandler.hpp>
```

Collaboration diagram for GPU::ArrayHandler:



Public Member Functions

- ArrayHandler ()
- bool areFreeBuffers ()

  Check if any buffers are avaliable.
- bool alocateBuffer (int)

  Alocates GPU space for x buffers.
- GPU_Ref ∗ getFirstAvailavleBuffer ()

  Returns pointer to first Available Buffer.
- void releaseBuffer (int)

  Releases the buffer, if buffer is not taken does nothing.
- ∼ArrayHandler ()

Private Member Functions

- bool areRepetitions (unsigned int[ ], int)

  check if are repetitions in Array

Private Attributes

- std::vector< GPU_Ref > GPUSpace

7.3.1 Constructor & Destructor Documentation

7.3.1.1 ArrayHandler()

```
GPU::ArrayHandler::ArrayHandler ( )
```

7.3.1.2 ∼ArrayHandler()

```
GPU::ArrayHandler::~ArrayHandler ( )
```

7.3.2 Member Function Documentation

7.3.2.1 alocateBuffer()

```
bool GPU::ArrayHandler::alocateBuffer (
            int size )
```

Alocates GPU space for x buffers.

Parameters

int	size amount of buffers

Note

Return values

bool	if buffers were created

7.3.2.2 areFreeBuffers()

```
bool GPU::ArrayHandler::areFreeBuffers ( )
```

Check if any buffers are avaliable.

Note

Return values

bool	are any buffers free

7.3.2.3 areRepetitions()

```
bool GPU::ArrayHandler::areRepetitions (
            unsigned int array[],
            int size )  [private]
```

check if are repetitions in Array

Note

Parameters

int[ ]	array
int	size of array

Return values

true	If they're repetiotion
false	if there are no repetitions

7.3.2.4 getFirstAvailavleBuffer()

```
GPU_Ref * GPU::ArrayHandler::getFirstAvailavleBuffer ( )
```

Returns pointer to first Available Buffer.

Note

Return values

GPU_Ref	Pointer to buffer, in not buffers available return nullptr

7.3.2.5 releaseBuffer()

```
void GPU::ArrayHandler::releaseBuffer (
            int idx )
```

Releases the buffer, if buffer is not taken does nothing.

Note

Exceptions

* *	

Return values

None	

7.3.3 Member Data Documentation

7.3.3.1 GPUSpace

```
std::vector<GPU_Ref> GPU::ArrayHandler::GPUSpace  [private]
```

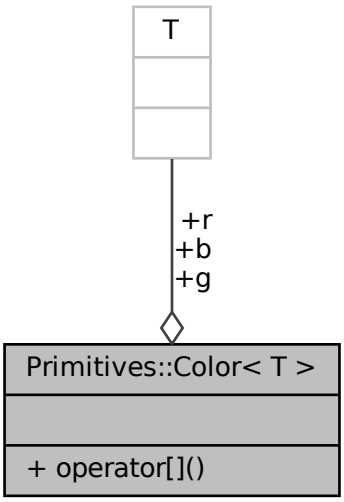
The documentation for this class was generated from the following files:

- Engine/Core/core/OpenGLArrays/ArrayHandler.hpp
- Engine/Core/core/OpenGLArrays/ArrayHandler.cpp

7.4 Primitives::Color< T > Struct Template Reference

```
#include <Point.hpp>
```

Collaboration diagram for Primitives::Color< T >:



Public Member Functions

- T & operator[ ] (ColorType type)

Public Attributes

- T r = 0
- T g = 0
- T b = 0

7.4.1 Member Function Documentation

7.4.1.1 operator[]()

```
template<typename T >
T& Primitives::Color< T >::operator[] (
            ColorType type )  [inline]
```

7.4.2 Member Data Documentation

7.4.2.1 b

```
template<typename T >
T Primitives::Color< T >::b = 0
```

7.4.2.2 g

```
template<typename T >
T Primitives::Color< T >::g = 0
```

7.4.2.3 r

```
template<typename T >
T Primitives::Color< T >::r = 0
```

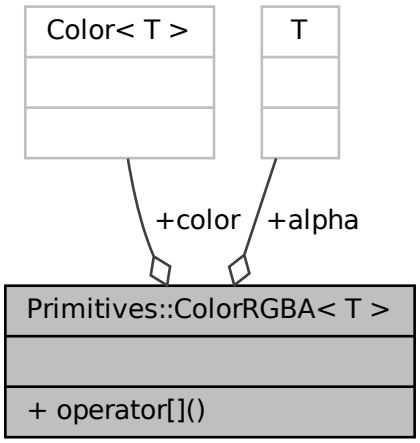
The documentation for this struct was generated from the following file:

- Engine/Core/core/base/Point.hpp

7.5 Primitives::ColorRGBA< T > Struct Template Reference

`#include <Point.hpp>`

Collaboration diagram for Primitives::ColorRGBA< T >:



Public Member Functions

- T & operator[ ] (ColorType type)

Public Attributes

- Color< T > color
- T alpha = 0

7.5.1 Member Function Documentation

7.5.1.1 operator[]()

```
template<typename T >
T& Primitives::ColorRGBA< T >::operator[ ] (
            ColorType type )  [inline]
```

7.5.2 Member Data Documentation

7.5.2.1 alpha

```
template<typename T >
T Primitives::ColorRGBA< T >::alpha = 0
```

7.5.2.2 color

```
template<typename T >
Color<T> Primitives::ColorRGBA< T >::color
```

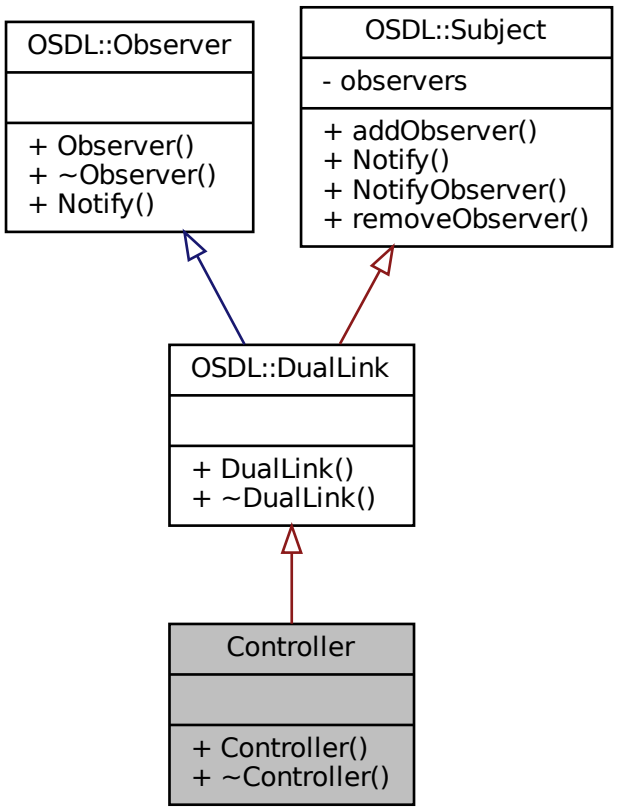
The documentation for this struct was generated from the following file:

- Engine/Core/core/base/Point.hpp

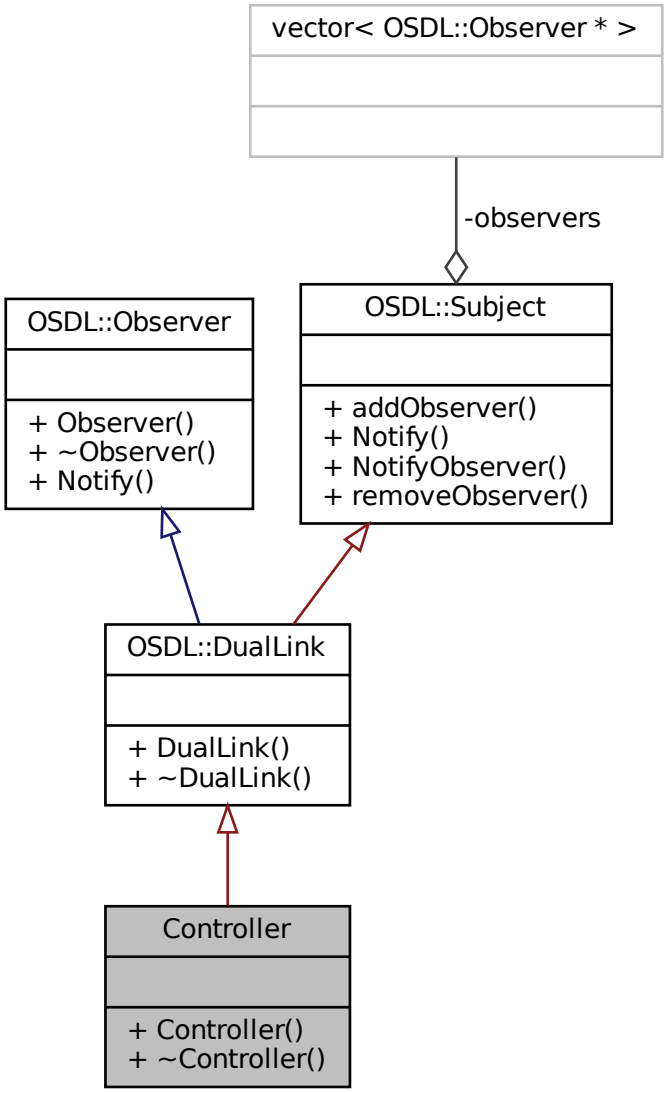
7.6 Controller Class Reference

```
#include <Controller.hpp>
```

Inheritance diagram for Controller:



Collaboration diagram for Controller:



Public Member Functions

- Controller ()
- ~Controller ()

Additional Inherited Members

7.6.1 Constructor & Destructor Documentation

7.6.1.1 Controller()

```
Controller::Controller ( )
```

7.6.1.2 ~Controller()

```
Controller::~Controller ( )
```

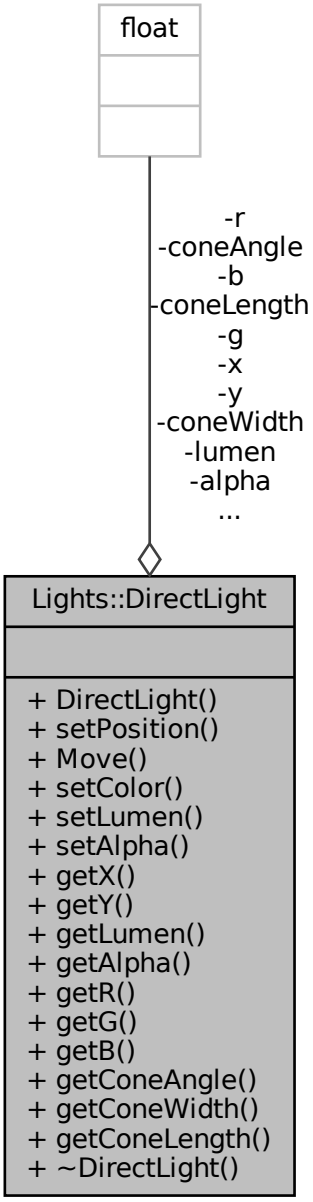
The documentation for this class was generated from the following file:

- Engine/Core/patterns/MVC/Controller.hpp

7.7 Lights::DirectLight Class Reference

```
#include <DirectLight.hpp>
```

Collaboration diagram for Lights::DirectLight:



Public Member Functions

- DirectLight (float, float, float, float, float, float, float, float, float)
- void setPosition (float, float)
- void Move (float, float)
- void setColor (float, float, float)
- void setLumen (float)
- void setAlpha (float)
- float getX ()

- float getY ()
- float getLumen ()
- float getAlpha ()
- float getR ()
- float getG ()
- float getB ()
- float getConeAngle ()
- float getConeWidth ()
- float getConeLength ()
- ~DirectLight ()

Private Attributes

- float x
- float y
- float lumen
- float alpha = 1.0f
- float r
- float g
- float b
- float coneAngle
- float coneWidth
- float coneLength

7.7.1 Constructor & Destructor Documentation

7.7.1.1 DirectLight()

```
Lights::DirectLight::DirectLight (
            float x,
            float y,
            float lumen,
            float r,
            float g,
            float b,
            float coneAngle,
            float coneWidth,
            float coneLength )
```

7.7.1.2 ~DirectLight()

```
Lights::DirectLight::~DirectLight ( )
```

7.7.2 Member Function Documentation

7.7.2.1 getAlpha()

```
float Lights::DirectLight::getAlpha ( )
```

7.7.2.2 getB()

```
float Lights::DirectLight::getB ( )
```

7.7.2.3 getConeAngle()

```
float Lights::DirectLight::getConeAngle ( )
```

7.7.2.4 getConeLength()

```
float Lights::DirectLight::getConeLength ( )
```

7.7.2.5 getConeWidth()

```
float Lights::DirectLight::getConeWidth ( )
```

7.7.2.6 getG()

```
float Lights::DirectLight::getG ( )
```

7.7.2.7 getLumen()

```
float Lights::DirectLight::getLumen ( )
```

7.7.2.8 getR()

```
float Lights::DirectLight::getR ( )
```

7.7.2.9 getX()

```
float Lights::DirectLight::getX ( )
```

7.7.2.10 getY()

```
float Lights::DirectLight::getY ( )
```

7.7.2.11 Move()

```
void Lights::DirectLight::Move (
            float x,
            float y )
```

7.7.2.12 setAlpha()

```
void Lights::DirectLight::setAlpha (
            float alpha )
```

7.7.2.13 setColor()

```
void Lights::DirectLight::setColor (
            float r,
            float g,
            float b )
```

7.7.2.14 setLumen()

```
void Lights::DirectLight::setLumen (
            float lumen )
```

7.7.2.15 setPosition()

```
void Lights::DirectLight::setPosition (
            float x,
            float y )
```

7.7.3 Member Data Documentation

7.7.3.1 alpha

```
float Lights::DirectLight::alpha = 1.0f  [private]
```

7.7.3.2 b

```
float Lights::DirectLight::b  [private]
```

7.7.3.3 coneAngle

```
float Lights::DirectLight::coneAngle  [private]
```

7.7.3.4 coneLength

```
float Lights::DirectLight::coneLength  [private]
```

7.7.3.5 coneWidth

```
float Lights::DirectLight::coneWidth  [private]
```

7.7.3.6 g

```
float Lights::DirectLight::g  [private]
```

7.7.3.7 lumen

```
float Lights::DirectLight::lumen  [private]
```

7.7.3.8 r

```
float Lights::DirectLight::r  [private]
```

7.7.3.9 x

```
float Lights::DirectLight::x  [private]
```

7.7.3.10 y

```
float Lights::DirectLight::y  [private]
```

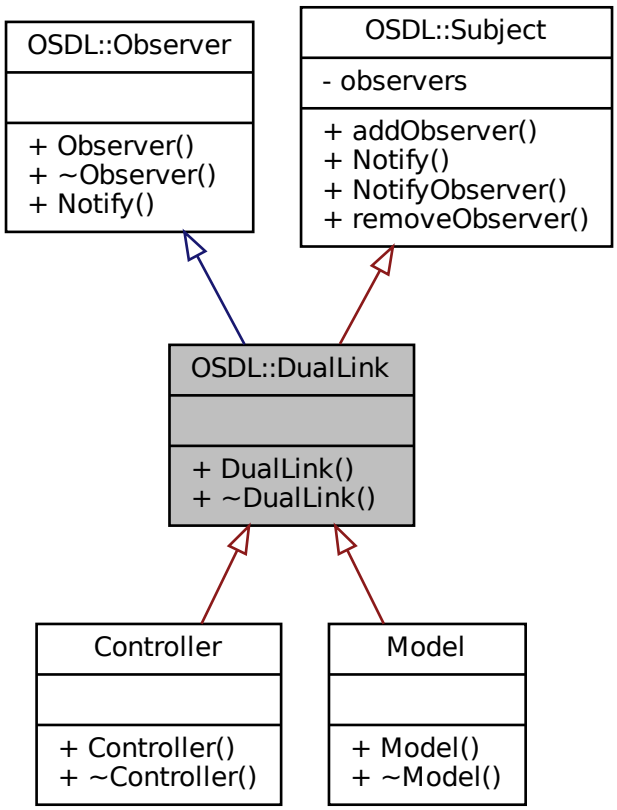
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/Light/DirectLight.hpp
- Engine/Core/core/primitives/Light/DirectLight.cpp

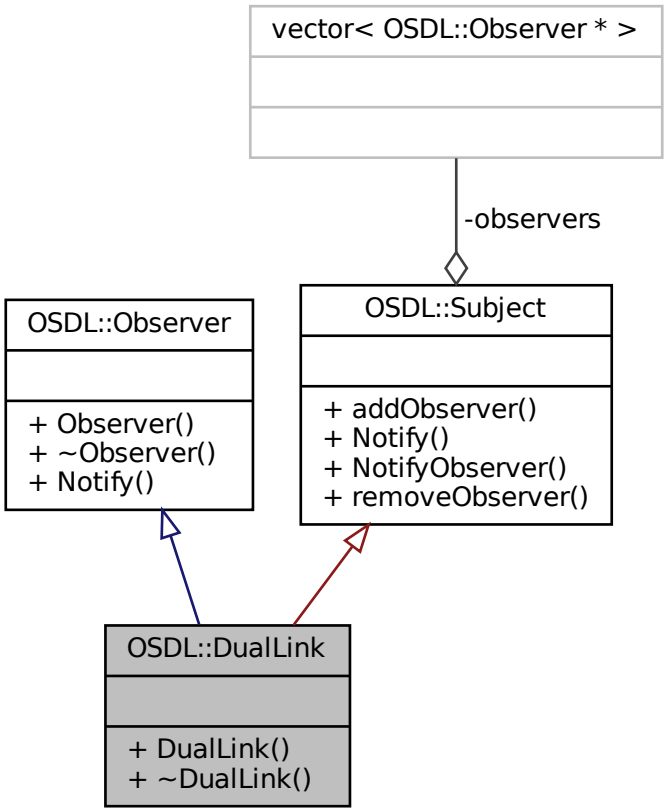
7.8 OSDL::DualLink Class Reference

```
#include <DualLink.hpp>
```

Inheritance diagram for OSDL::DualLink:



Collaboration diagram for OSDL::DualLink:



Public Member Functions

- DualLink ()
- ~DualLink ()

Additional Inherited Members

7.8.1 Constructor & Destructor Documentation

7.8.1.1 DualLink()

```
OSDL::DualLink::DualLink ( )
```

7.8.1.2 ~DualLink()

```
OSDL::DualLink::~DualLink ( )
```

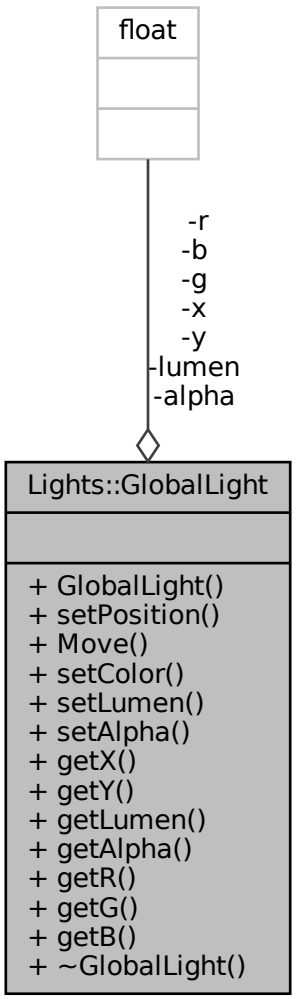
The documentation for this class was generated from the following file:

- Engine/Core/patterns/ObserverSubject/DualLink.hpp

7.9 Lights::GlobalLight Class Reference

```
#include <GlobalLight.hpp>
```

Collaboration diagram for Lights::GlobalLight:



Public Member Functions

- GlobalLight (float, float, float, float, float, float)
- void setPosition (float, float)
- void Move (float, float)
- void setColor (float, float, float)
- void setLumen (float)
- void setAlpha (float)
- float getX ()
- float getY ()
- float getLumen ()
- float getAlpha ()
- float getR ()
- float getG ()
- float getB ()
- ~GlobalLight ()

Private Attributes

- float x
- float y
- float lumen
- float alpha = 1.0f
- float r
- float g
- float b

7.9.1 Constructor & Destructor Documentation

7.9.1.1 GlobalLight()

```
Lights::GlobalLight::GlobalLight (
            float x,
            float y,
            float lumen,
            float r,
            float g,
            float b )
```

7.9.1.2 ~GlobalLight()

```
Lights::GlobalLight::~GlobalLight ( )
```

7.9.2 Member Function Documentation

7.9.2.1 getAlpha()

```
float Lights::GlobalLight::getAlpha ( )
```

7.9.2.2 getB()

```
float Lights::GlobalLight::getB ( )
```

7.9.2.3 getG()

```
float Lights::GlobalLight::getG ( )
```

7.9.2.4 getLumen()

```
float Lights::GlobalLight::getLumen ( )
```

7.9.2.5 getR()

```
float Lights::GlobalLight::getR ( )
```

7.9.2.6 getX()

```
float Lights::GlobalLight::getX ( )
```

7.9.2.7 getY()

```
float Lights::GlobalLight::getY ( )
```

7.9.2.8 Move()

```
void Lights::GlobalLight::Move (
            float x,
            float y )
```

7.9.2.9 setAlpha()

```
void Lights::GlobalLight::setAlpha (
            float alpha )
```

7.9.2.10 setColor()

```
void Lights::GlobalLight::setColor (
            float r,
            float g,
            float b )
```

7.9.2.11 setLumen()

```
void Lights::GlobalLight::setLumen (
            float lumen )
```

7.9.2.12 setPosition()

```
void Lights::GlobalLight::setPosition (
            float x,
            float y )
```

7.9.3 Member Data Documentation

7.9.3.1 alpha

```
float Lights::GlobalLight::alpha = 1.0f  [private]
```

7.9.3.2 b

```
float Lights::GlobalLight::b  [private]
```

7.9.3.3 g

```
float Lights::GlobalLight::g  [private]
```

7.9.3.4 lumen

```
float Lights::GlobalLight::lumen  [private]
```

7.9.3.5 r

```
float Lights::GlobalLight::r  [private]
```

7.9.3.6 x

```
float Lights::GlobalLight::x  [private]
```

7.9.3.7 y

```
float Lights::GlobalLight::y  [private]
```

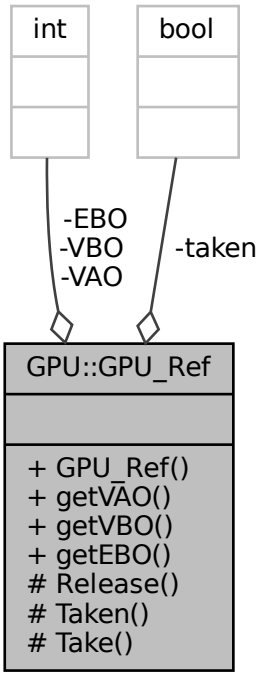
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/Light/GlobalLight.hpp
- Engine/Core/core/primitives/Light/GlobalLight.cpp

7.10 GPU::GPU_Ref Class Reference

`#include <ArrayHandler.hpp>`

Collaboration diagram for GPU::GPU_Ref:



Public Member Functions

- GPU_Ref (int, int, int)
- const unsigned int & getVAO ()
- const unsigned int & getVBO ()
- const unsigned int & getEBO ()

Protected Member Functions

- void Release ()
- bool & Taken ()
- GPU_Ref * Take ()

Private Attributes

- unsigned int VAO
- unsigned int VBO
- unsigned int EBO
- bool taken

Friends

- class ArrayHandler

7.10.1 Constructor & Destructor Documentation

7.10.1.1 GPU_Ref()

```
GPU::GPU_Ref::GPU_Ref (
            int VAO,
            int VBO,
            int EBO )
```

7.10.2 Member Function Documentation

7.10.2.1 getEBO()

```
const unsigned int & GPU::GPU_Ref::getEBO ( )
```

7.10.2.2 getVAO()

```
const unsigned int & GPU::GPU_Ref::getVAO ( )
```

7.10.2.3 getVBO()

```
const unsigned int & GPU::GPU_Ref::getVBO ( )
```

7.10.2.4 Release()

```
void GPU::GPU_Ref::Release ( )  [protected]
```

7.10.2.5 Take()

```
GPU_Ref * GPU::GPU_Ref::Take ( )  [protected]
```

7.10.2.6 Taken()

```
bool & GPU::GPU_Ref::Taken ( )  [protected]
```

7.10.3 Friends And Related Function Documentation

7.10.3.1 ArrayHandler

```
friend class ArrayHandler  [friend]
```

7.10.4 Member Data Documentation

7.10.4.1 EBO

```
unsigned int GPU::GPU_Ref::EBO  [private]
```

7.10.4.2 taken

```
bool GPU::GPU_Ref::taken  [private]
```

7.10.4.3 VAO

```
unsigned int GPU::GPU_Ref::VAO  [private]
```

7.10.4.4 VBO

```
unsigned int GPU::GPU_Ref::VBO  [private]
```

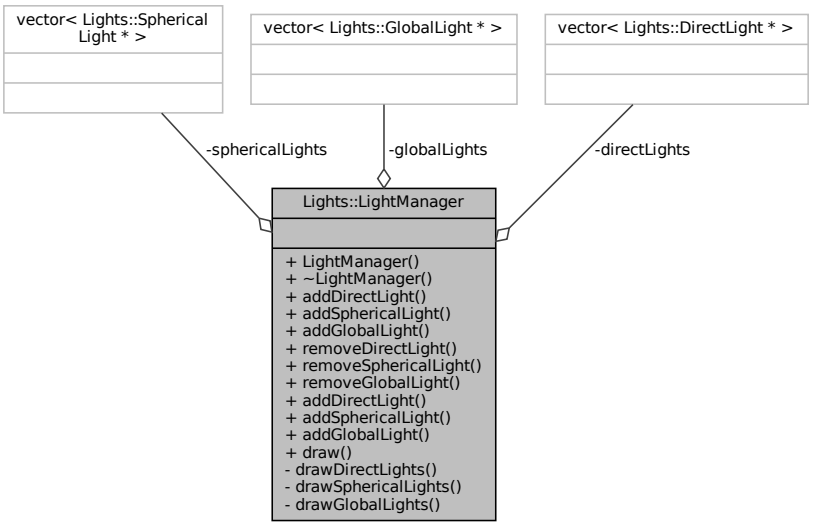
The documentation for this class was generated from the following files:

- Engine/Core/core/OpenGLArrays/ArrayHandler.hpp
- Engine/Core/core/OpenGLArrays/ArrayHandler.cpp

7.11 Lights::LightManager Class Reference

```
#include <Lights.hpp>
```

Collaboration diagram for Lights::LightManager:



Public Member Functions

- LightManager ()
- ~LightManager ()
- void addDirectLight (DirectLight *)
- void addSphericalLight (SphericalLight *)
- void addGlobalLight (GlobalLight *)
- void removeDirectLight (DirectLight *)
- void removeSphericalLight (SphericalLight *)
- void removeGlobalLight (GlobalLight *)
- void addDirectLight (float, float, float, float, float, float, float, float, float)
- void addSphericalLight (float, float, float, float, float, float, float)
- void addGlobalLight (float, float, float, float, float, float, float)
- void draw (Primitives::PrimitivesManager primitives)

Private Member Functions

- void drawDirectLights (Primitives::PrimitivesManager primitives)
- void drawSphericalLights (Primitives::PrimitivesManager primitives)
- void drawGlobalLights (Primitives::PrimitivesManager primitives)

Private Attributes

- std::vector< DirectLight * > directLights
- std::vector< SphericalLight * > sphericalLights
- std::vector< GlobalLight * > globalLights

7.11.1 Constructor & Destructor Documentation

7.11.1.1 LightManager()

```
Lights::LightManager::LightManager ( )
```

7.11.1.2 ~LightManager()

```
Lights::LightManager::~LightManager ( )
```

7.11.2 Member Function Documentation

7.11.2.1 addDirectLight() [1/2]

```
void Lights::LightManager::addDirectLight (
            DirectLight * directLight )
```

7.11.2.2 addDirectLight() [2/2]

```
void Lights::LightManager::addDirectLight (
            float x,
            float y,
            float z,
            float r,
            float g,
            float b,
            float a,
            float intensity,
            float angle )
```

7.11.2.3 addGlobalLight() [1/2]

```
void Lights::LightManager::addGlobalLight (
            float ,
            float ,
            float ,
            float ,
            float ,
            float ,
            float  )
```

7.11.2.4 addGlobalLight() [2/2]

```
void Lights::LightManager::addGlobalLight (
            GlobalLight * globalLight )
```

7.11.2.5 addSphericalLight() [1/2]

```
void Lights::LightManager::addSphericalLight (
            float x,
            float y,
            float z,
            float r,
            float g,
            float b,
            float a )
```

7.11.2.6 addSphericalLight() [2/2]

```
void Lights::LightManager::addSphericalLight (
            SphericalLight * sphericalLight )
```

7.11.2.7 draw()

```
void Lights::LightManager::draw (
            Primitives::PrimitivesManager primitives )
```

7.11.2.8 drawDirectLights()

```
void Lights::LightManager::drawDirectLights (
            Primitives::PrimitivesManager primitives )  [private]
```

7.11.2.9 drawGlobalLights()

```
void Lights::LightManager::drawGlobalLights (
            Primitives::PrimitivesManager primitives )  [private]
```

7.11.2.10 drawSphericalLights()

```
void Lights::LightManager::drawSphericalLights (
            Primitives::PrimitivesManager primitives )  [private]
```

7.11.2.11 removeDirectLight()

```
void Lights::LightManager::removeDirectLight (
            DirectLight * directLight )
```

7.11.2.12 removeGlobalLight()

```
void Lights::LightManager::removeGlobalLight (
            GlobalLight * globalLight )
```

7.11.2.13 removeSphericalLight()

```
void Lights::LightManager::removeSphericalLight (
            SphericalLight * sphericalLight )
```

7.11.3 Member Data Documentation

7.11.3.1 directLights

```
std::vector<DirectLight*> Lights::LightManager::directLights  [private]
```

7.11.3.2 globalLights

```
std::vector<GlobalLight*> Lights::LightManager::globalLights  [private]
```

7.11.3.3 sphericalLights

```
std::vector<SphericalLight*> Lights::LightManager::sphericalLights  [private]
```

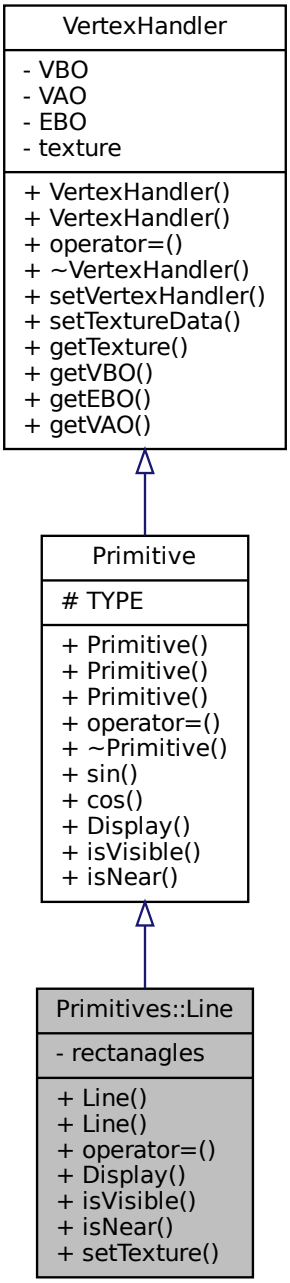
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/Lights.hpp
- Engine/Core/core/primitives/Lights.cpp

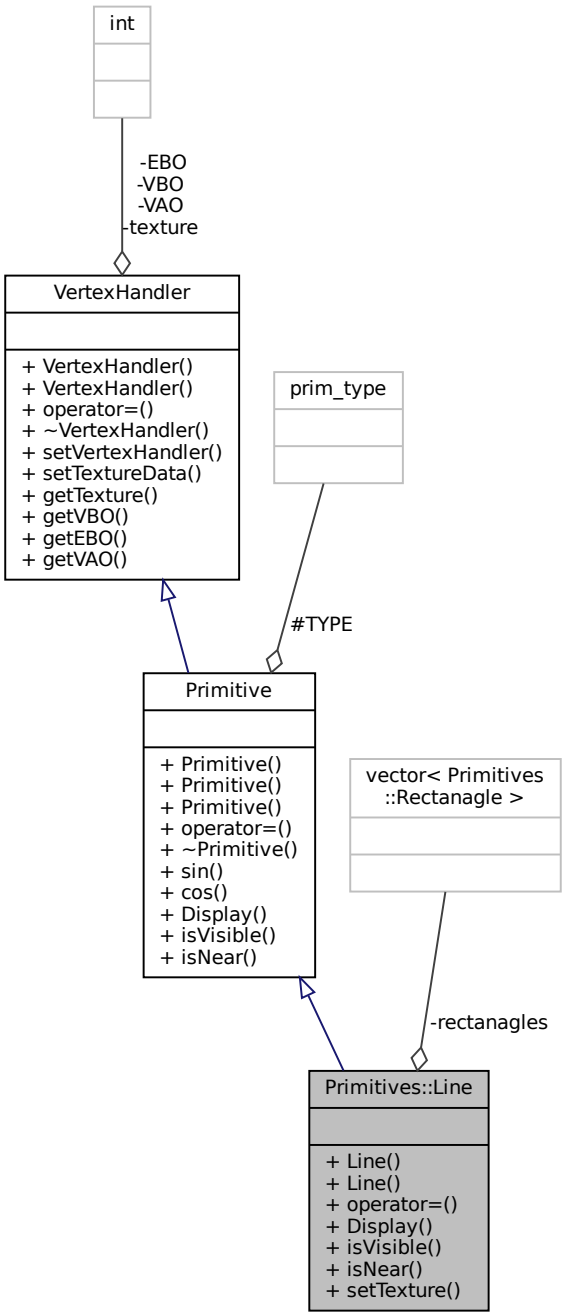
7.12 Primitives::Line Class Reference

```
#include <Line.hpp>
```

Inheritance diagram for Primitives::Line:



Collaboration diagram for Primitives::Line:



Public Member Functions

- Line (int x0, int y0, int x1, int y1, int r, int g, int b, float alpha)

  Construct a new Line object.
- Line (const Line &)
- Line operator= (const Line &)
- void Display () override

Display the Line.

- bool isVisible () override

  is the Line visible
- bool isNear (float x, float y, float radius) override
- void setTexture (std::string)

Private Attributes

- std::vector< Rectanagle > rectanagles

Additional Inherited Members

7.12.1 Constructor & Destructor Documentation

7.12.1.1 Line() [1/2]

```
Primitives::Line::Line (
            int x0,
            int y0,
            int x1,
            int y1,
            int r,
            int g,
            int b,
            float alpha )
```

Construct a new Line object.

Parameters

x0	- x coordinate of first point
y0	- y coordinate of first point
x1	- x coordinate of second point
y1	- y coordinate of second point
w	- width of line
r	- red color component
g	- green color component
b	- blue color component
alpha	- alpha value of line

7.12.1.2 Line() [2/2]

```
Primitives::Line::Line (
            const Line & l )
```

7.12.2 Member Function Documentation

7.12.2.1 Display()

```
void Primitives::Line::Display ( )  [override], [virtual]
```

Display the Line.

Implements Primitive.

7.12.2.2 isNear()

```
bool Primitives::Line::isNear (
            float x,
            float y,
            float radius )  [override], [virtual]
```

Implements Primitive.

7.12.2.3 isVisible()

```
bool Primitives::Line::isVisible ( )  [override], [virtual]
```

is the Line visible

Returns

true

false

Implements Primitive.

7.12.2.4 operator=()

```
Line Primitives::Line::operator= (
            const Line & l )
```

7.12.2.5 setTexture()

```
void Primitives::Line::setTexture (
            std::string texture )
```

7.12.3 Member Data Documentation

7.12.3.1 rectanagles

```
std::vector<Rectanagle> Primitives::Line::rectanagles  [private]
```

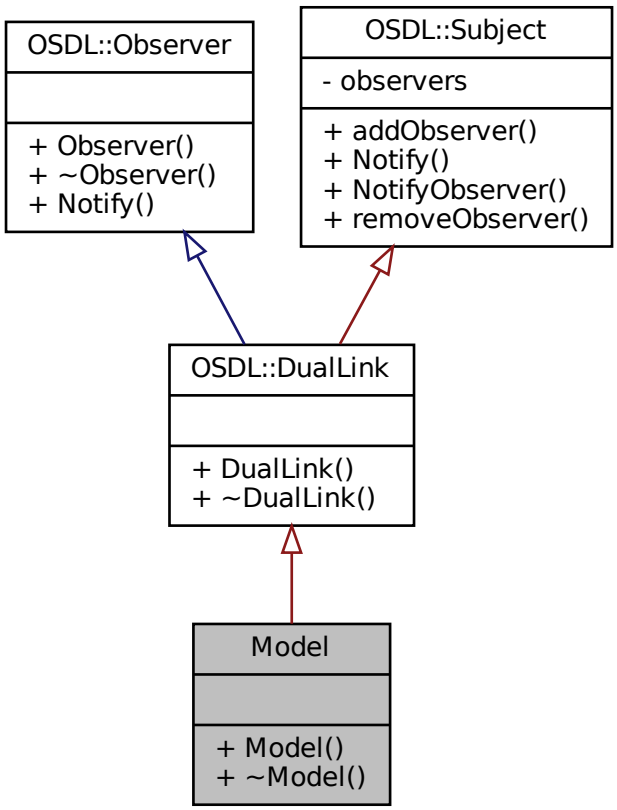
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/Line.hpp
- Engine/Core/core/primitives/Line.cpp

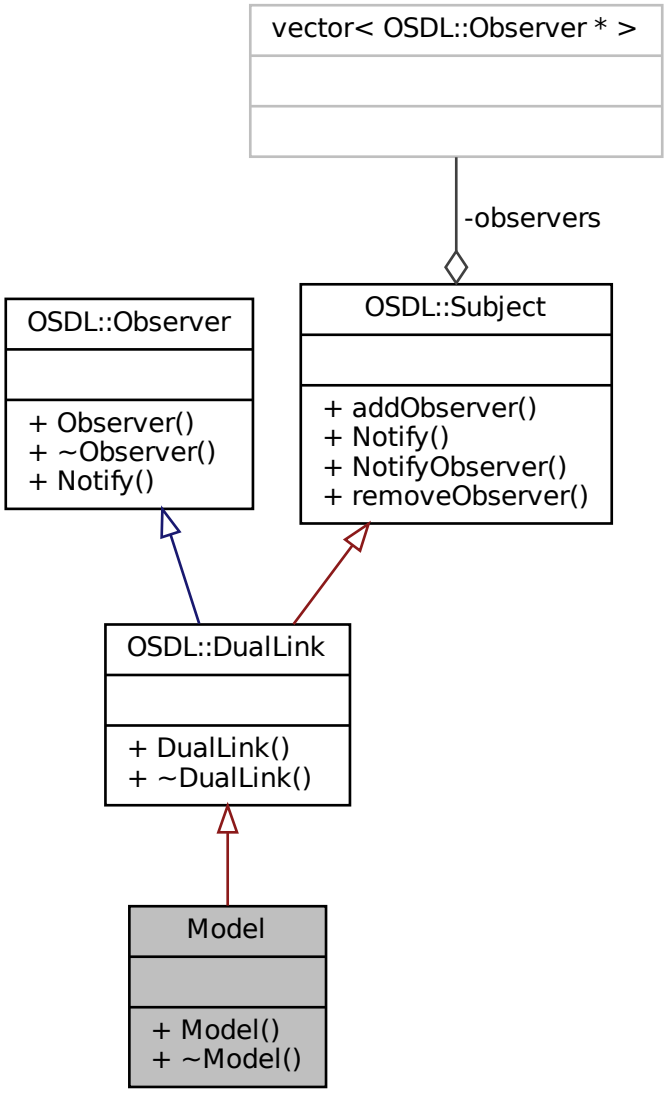
7.13 Model Class Reference

```
#include <Model.hpp>
```

Inheritance diagram for Model:



Collaboration diagram for Model:



Public Member Functions

- Model ()
- ~Model ()

Additional Inherited Members

7.13.1 Constructor & Destructor Documentation

7.13.1.1 Model()

```
Model::Model ( )
```

7.13.1.2 ~Model()

```
Model::~Model ( )
```

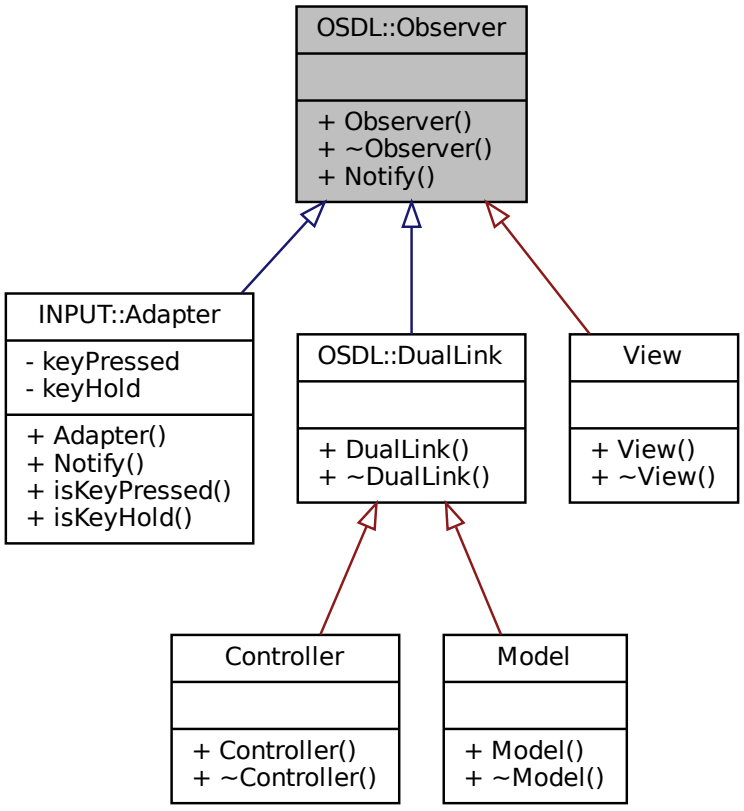
The documentation for this class was generated from the following file:

- Engine/Core/patterns/MVC/Model.hpp

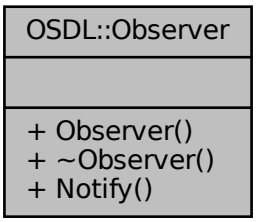
7.14 OSDL::Observer Class Reference

```
#include <Observer.hpp>
```

Inheritance diagram for OSDL::Observer:



Collaboration diagram for OSDL::Observer:



Public Member Functions

- Observer ()
- ~Observer ()
- virtual void Notify (Subject *)

7.14.1 Constructor & Destructor Documentation

7.14.1.1 Observer()

```
OSDL::Observer::Observer ( )
```

7.14.1.2 ~Observer()

```
OSDL::Observer::~Observer ( )
```

7.14.2 Member Function Documentation

7.14.2.1 Notify()

```
virtual void OSDL::Observer::Notify (
            Subject *  )  [virtual]
```

Reimplemented in INPUT::Adapter.

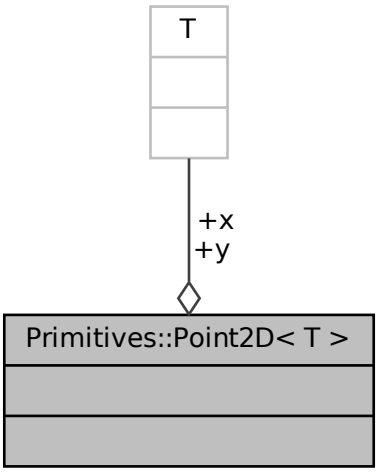
The documentation for this class was generated from the following file:

- Engine/Core/patterns/ObserverSubject/Observer.hpp

7.15 Primitives::Point2D< T > Struct Template Reference

`#include <Point.hpp>`

Collaboration diagram for Primitives::Point2D< T >:



Public Attributes

- T x = 0
- T y = 0

7.15.1 Member Data Documentation

7.15.1.1 x

```
template<typename T >
T Primitives::Point2D< T >::x = 0
```

7.15.1.2 y

```
template<typename T >
T Primitives::Point2D< T >::y = 0
```

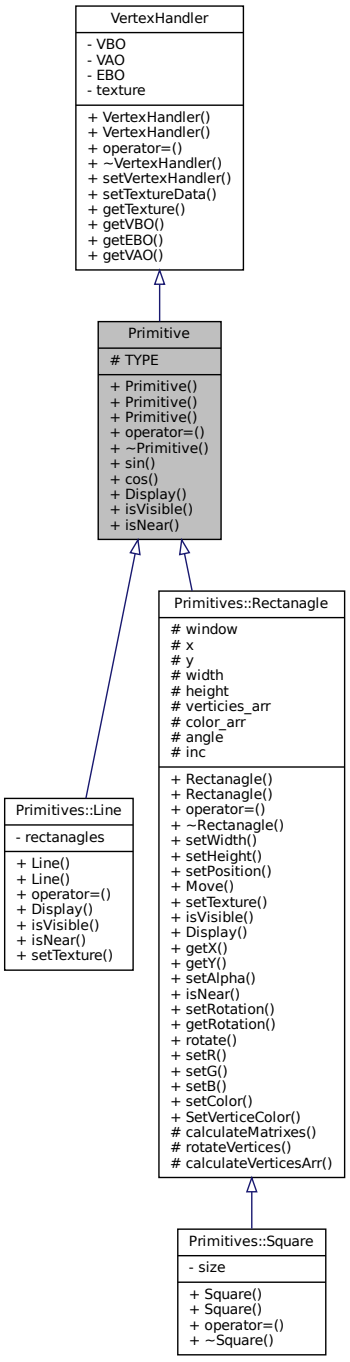
The documentation for this struct was generated from the following file:

- Engine/Core/core/base/Point.hpp

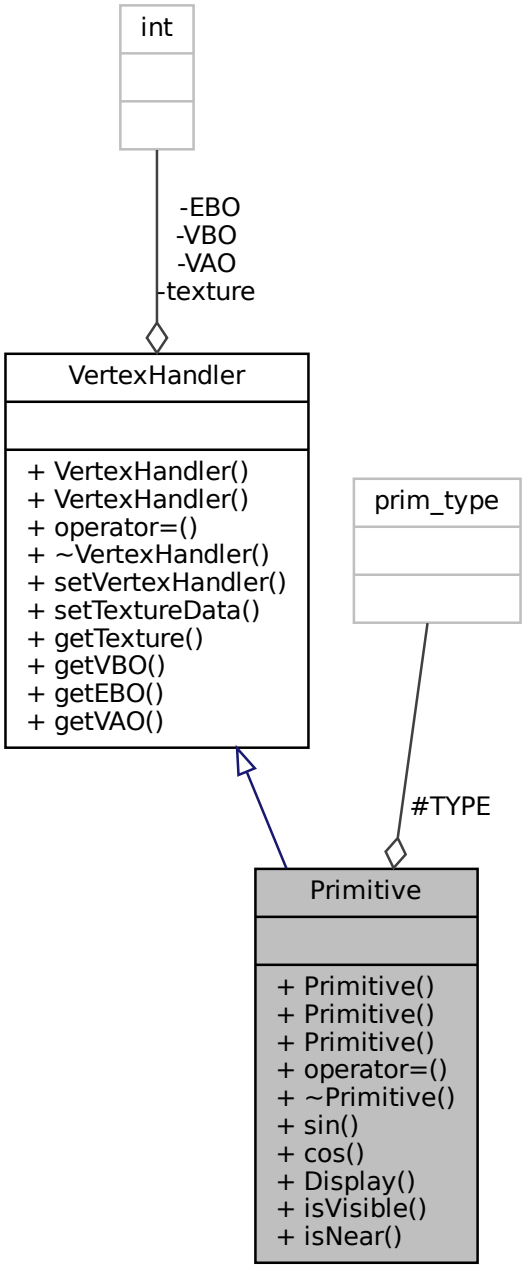
7.16 Primitive Class Reference

`#include <Primitive.hpp>`

Inheritance diagram for Primitive:



Collaboration diagram for Primitive:



Public Member Functions

- Primitive (prim_type)
- Primitive (prim_type type, bool isDefaultPrimitive)
- Primitive (const Primitive &p)
- Primitive & operator= (const Primitive &p)
- virtual ~Primitive ()

- float sin (float r)
- float cos (float r)
- virtual void Display ()=0
- virtual bool isVisible ()=0
- virtual bool isNear (float, float, float)=0

Protected Types

- enum prim_type { RECTANAGLE, TRIANGLE, SQUARE, LINE }

Protected Attributes

- enum Primitive::prim_type TYPE

7.16.1 Member Enumeration Documentation

7.16.1.1 prim_type

```
enum Primitive::prim_type  [protected]
```

Enumerator

RECTANAGLE	
TRIANGLE	
SQUARE	
LINE	

7.16.2 Constructor & Destructor Documentation

7.16.2.1 Primitive() [1/3]

```
Primitive::Primitive (
            prim_type type )
```

7.16.2.2 Primitive() [2/3]

```
Primitive::Primitive (
            prim_type type,
            bool isDefaultPrimitive )
```

7.16.2.3 Primitive() [3/3]

```
Primitive::Primitive (
            const Primitive & p )
```

7.16.2.4 ~Primitive()

```
Primitive::~Primitive ( )  [virtual]
```

7.16.3 Member Function Documentation

7.16.3.1 cos()

```
float Primitive::cos (
            float r )
```

7.16.3.2 Display()

```
virtual void Primitive::Display ( )  [pure virtual]
```

Implemented in Primitives::Rectanagle, and Primitives::Line.

7.16.3.3 isNear()

```
virtual bool Primitive::isNear (
            float ,
            float ,
            float  )  [pure virtual]
```

Implemented in Primitives::Rectanagle, and Primitives::Line.

7.16.3.4 isVisible()

```
virtual bool Primitive::isVisible ( )  [pure virtual]
```

Implemented in Primitives::Rectanagle, and Primitives::Line.

7.16.3.5 operator=()

```
Primitive & Primitive::operator= (
            const Primitive & p )
```

7.16.3.6 sin()

```
float Primitive::sin (
            float r )
```

7.16.4 Member Data Documentation

7.16.4.1 TYPE

```
enum Primitive::prim_type Primitive::TYPE  [protected]
```

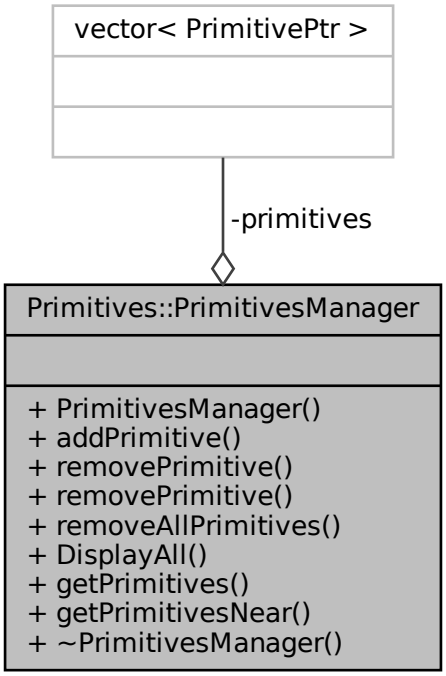
The documentation for this class was generated from the following files:

- Engine/Core/core/base/Primitive.hpp
- Engine/Core/core/base/Primitive.cpp

7.17 Primitives::PrimitivesManager Class Reference

```
#include <PrimitivesManager.hpp>
```

Collaboration diagram for Primitives::PrimitivesManager:



Public Member Functions

- PrimitivesManager ()
- void addPrimitive (Primitive ∗)
- void removePrimitive (Primitive ∗)
- void removePrimitive (int)
- void removeAllPrimitives ()
- void DisplayAll ()
- PrimitivesRef getPrimitives ()
- Primitives getPrimitivesNear (float, float, float)
- ∼PrimitivesManager ()

Private Attributes

- Primitives primitives

7.17.1 Constructor & Destructor Documentation

7.17.1.1 PrimitivesManager()

```
Primitives::PrimitivesManager::PrimitivesManager ( )
```

7.17.1.2 ~PrimitivesManager()

```
Primitives::PrimitivesManager::~PrimitivesManager ( )
```

7.17.2 Member Function Documentation

7.17.2.1 addPrimitive()

```
void Primitives::PrimitivesManager::addPrimitive (
            Primitive * primitive )
```

7.17.2.2 DisplayAll()

```
void Primitives::PrimitivesManager::DisplayAll ( )
```

7.17.2.3 getPrimitives()

```
PrimitivesRef Primitives::PrimitivesManager::getPrimitives ( )
```

7.17.2.4 getPrimitivesNear()

```
Primitives Primitives::PrimitivesManager::getPrimitivesNear (
            float x,
            float y,
            float radius )
```

7.17.2.5 removeAllPrimitives()

```
void Primitives::PrimitivesManager::removeAllPrimitives ( )
```

7.17.2.6 removePrimitive() [1/2]

```
void Primitives::PrimitivesManager::removePrimitive (
            int index )
```

7.17.2.7 removePrimitive() [2/2]

```
void Primitives::PrimitivesManager::removePrimitive (
            Primitive * primitive )
```

7.17.3 Member Data Documentation

7.17.3.1 primitives

```
Primitives Primitives::PrimitivesManager::primitives  [private]
```

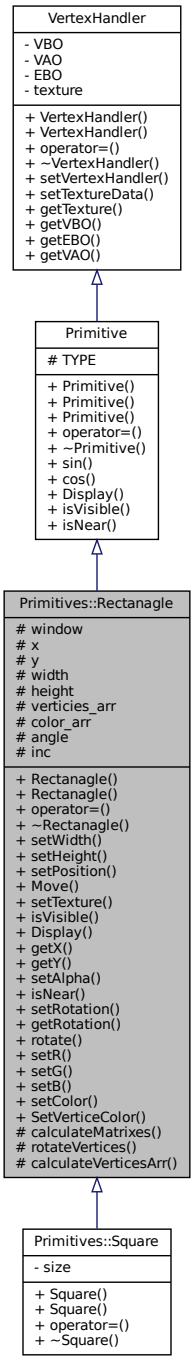
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/PrimitivesManager.hpp
- Engine/Core/core/primitives/PrimitivesManager.cpp

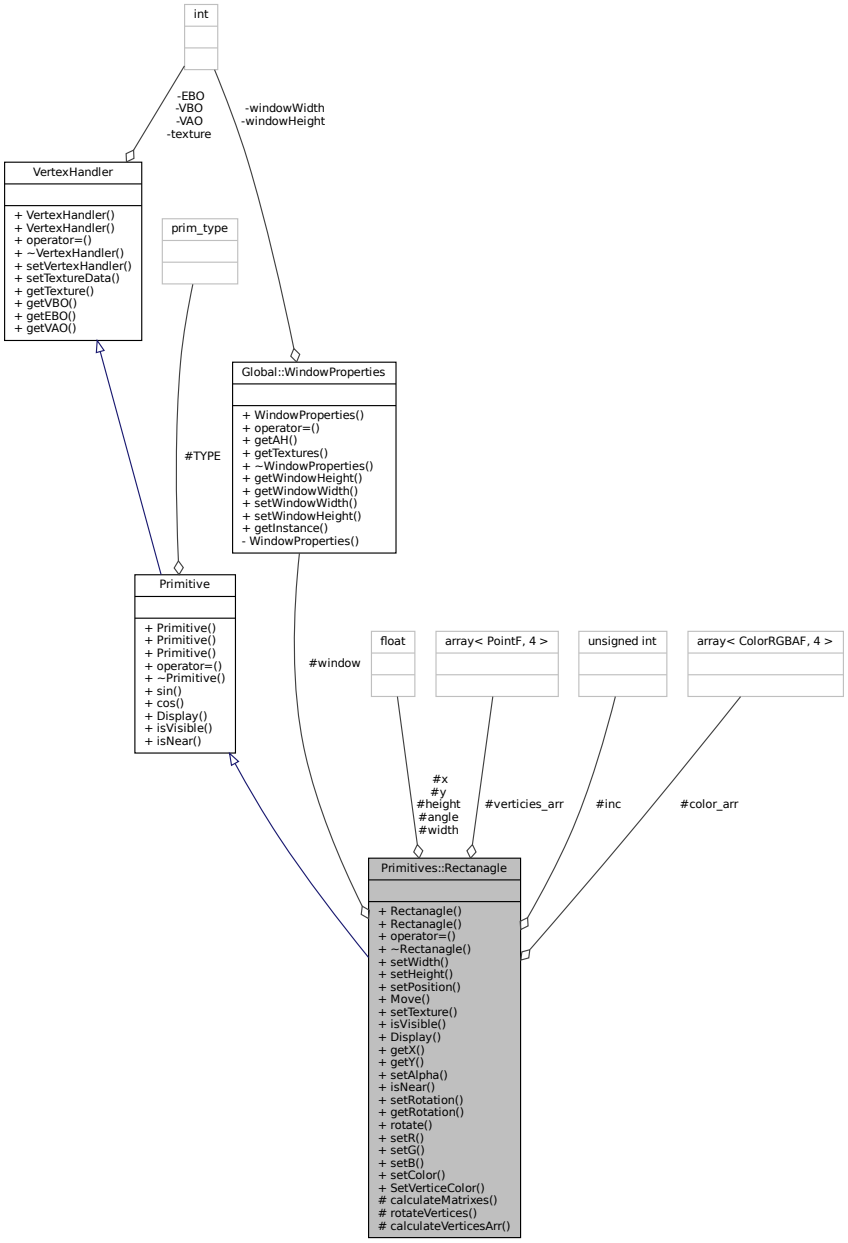
7.18 Primitives::Rectanagle Class Reference

```
#include <Rectanagle.hpp>
```

Inheritance diagram for Primitives::Rectanagle:



Collaboration diagram for Primitives::Rectanagle:



Public Member Functions

- Rectanagle (float, float, float, float, float=1.0f)
- Rectanagle (const Rectanagle &s)
- Rectanagle & operator= (const Rectanagle &s)
- virtual ~Rectanagle ()
- void setWidth (float)

  Set the Width value.
- void setHeight (float)

  Set the Height value.

- void setPosition (float, float)

  Set the Position object.
- void Move (float, float)

  move the square relative to the current position
- void setTexture (std::string)

  Set the Texture object.
- bool isVisible () override

  is Object on the screen
- void Display () override

  Draw the square.
- float getX ()
- float getY ()
- void setAlpha (float)

  Set the Alpha value.
- bool isNear (float, float, float) override

  is the Object int the radius
- void setRotation (float)

  Set the rotation of the square.
- float getRotation ()
- void rotate (float)

  rotate the square relative to the current rotation
- void setR (float)

  Set R color value.
- void setG (float)

  Set G color value.
- void setB (float)
- void setColor (float, float, float, float=1.0f)

  Set the Color value.
- void SetVerticeColor (int, float, ColorType=ERROR)

Protected Types

- typedef std::array< PointF, 4 > verticies_array
- typedef std::array< ColorRGBAF, 4 > colors_array

Protected Member Functions

- void calculateMatrixes ()
- verticies_array rotateVertices ()

  Rotate the vertices of the square.
- void calculateVerticesArr ()

Protected Attributes

- Global::WindowProperties * window
- float x
- float y
- float width
- float height
- verticies_array verticies_arr = {}
- colors_array color_arr = {}
- float angle = 0.0f
- unsigned int inc [6] = {0, 1, 2, 0, 2, 3}

7.18.1 Member Typedef Documentation

7.18.1.1 colors_array

```
typedef std::array<ColorRGBAF, 4> Primitives::Rectanagle::colors_array  [protected]
```

7.18.1.2 verticies_array

```
typedef std::array<PointF, 4> Primitives::Rectanagle::verticies_array  [protected]
```

7.18.2 Constructor & Destructor Documentation

7.18.2.1 Rectanagle() [1/2]

```
Primitives::Rectanagle::Rectanagle (
            float x,
            float y,
            float width,
            float height,
            float alpha = 1.0f )
```

7.18.2.2 Rectanagle() [2/2]

```
Primitives::Rectanagle::Rectanagle (
            const Rectanagle & s )
```

7.18.2.3 ~Rectanagle()

```
Primitives::Rectanagle::~Rectanagle ( )  [virtual]
```

7.18.3 Member Function Documentation

7.18.3.1 calculateMatrixes()

```
void Primitives::Rectanagle::calculateMatrixes ( )  [protected]
```

7.18.3.2 calculateVerticesArr()

```
void Primitives::Rectanagle::calculateVerticesArr ( )  [protected]
```

7.18.3.3 Display()

```
void Primitives::Rectanagle::Display ( )  [override], [virtual]
```

Draw the square.

Implements Primitive.

7.18.3.4 getRotation()

```
float Primitives::Rectanagle::getRotation ( )
```

7.18.3.5 getX()

```
float Primitives::Rectanagle::getX ( )
```

7.18.3.6 getY()

```
float Primitives::Rectanagle::getY ( )
```

7.18.3.7 isNear()

```
bool Primitives::Rectanagle::isNear (
            float x,
            float y,
            float radius )  [override], [virtual]
```

is the Object int the radius

Parameters

float	x - x coordinate of the center of the circle
float	y - y coordinate of the center of the circle
float	radius - radius of the circle

Returns

true - if object is in the radius

false - if object is not in the radius

Implements Primitive.

7.18.3.8 isVisible()

```
bool Primitives::Rectanagle::isVisible ( )  [override], [virtual]
```

is Object on the screen

Returns

true - if object is on the screen

false - if object is not on the screen

Implements Primitive.

7.18.3.9 Move()

```
void Primitives::Rectanagle::Move (
            float x,
            float y )
```

move the square relative to the current position

Parameters

float	x - offset in x direction
float	y - offset in y direction

7.18.3.10 operator=()

```
Rectanagle & Primitives::Rectanagle::operator= (
            const Rectanagle & s )
```

7.18.3.11 rotate()

```
void Primitives::Rectanagle::rotate (
            float angle )
```

rotate the square relative to the current rotation

Parameters

float	angle - angle in radians

7.18.3.12 rotateVertices()

```
Rectanagle::verticies_array Primitives::Rectanagle::rotateVertices ( )  [protected]
```

Rotate the vertices of the square.

Parameters

vertices	- vertices of the square
rot	- rotation matrix

7.18.3.13 setAlpha()

```
void Primitives::Rectanagle::setAlpha (
            float alpha )
```

Set the Alpha value.

Parameters

float	alpha - alpha value

7.18.3.14 setB()

```
void Primitives::Rectanagle::setB (
            float b )
```

7.18.3.15 setColor()

```
void Primitives::Rectanagle::setColor (
            float r,
            float g,
            float b,
            float alpha = 1.0f )
```

Set the Color value.

Parameters

float	r - red value
float	g - green value
float	b - blue value
float	alpha - alpha value

7.18.3.16 setG()

```
void Primitives::Rectanagle::setG (
            float g )
```

Set G color value.

Parameters

g	- green value

7.18.3.17 setHeight()

```
void Primitives::Rectanagle::setHeight (
            float height )
```

Set the Height value.

7.18.3.18 setPosition()

```
void Primitives::Rectanagle::setPosition (
            float x,
            float y )
```

Set the Position object.

Parameters

float	x - x coordinate of the center of the square
float	y - y coordinate of the center of the square

7.18.3.19 setR()

```
void Primitives::Rectanagle::setR (
            float r )
```

Set R color value.

Parameters

r	- red value

7.18.3.20 setRotation()

```
void Primitives::Rectanagle::setRotation (
            float angle )
```

Set the rotation of the square.

Parameters

float	angle - angle in radians of the square

7.18.3.21 setTexture()

```
void Primitives::Rectanagle::setTexture (
            std::string data )
```

Set the Texture object.

Parameters

std::string	data - path to the texture

7.18.3.22 SetVerticeColor()

```
void Primitives::Rectanagle::SetVerticeColor (
            int index,
            float value,
            ColorType colorType = ERROR )
```

7.18.3.23 setWidth()

```
void Primitives::Rectanagle::setWidth (
            float width )
```

Set the Width value.

7.18.4 Member Data Documentation

7.18.4.1 angle

```
float Primitives::Rectanagle::angle = 0.0f  [protected]
```

7.18.4.2 color_arr

```
colors_array Primitives::Rectanagle::color_arr = {}  [protected]
```

7.18.4.3 height

```
float Primitives::Rectanagle::height  [protected]
```

7.18.4.4 inc

```
unsigned int Primitives::Rectanagle::inc[6] = {0, 1, 2, 0, 2, 3}  [protected]
```

7.18.4.5 verticies_arr

```
verticies_array Primitives::Rectanagle::verticies_arr = {}  [protected]
```

7.18.4.6 width

```
float Primitives::Rectanagle::width  [protected]
```

7.18.4.7 window

```
Global::WindowProperties* Primitives::Rectanagle::window  [protected]
```

7.18.4.8 x

```
float Primitives::Rectanagle::x  [protected]
```

7.18.4.9 y

```
float Primitives::Rectanagle::y  [protected]
```

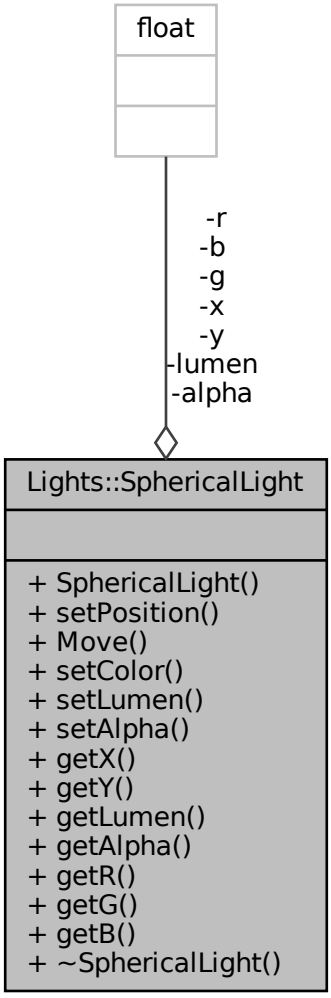
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/Rectanagle.hpp
- Engine/Core/core/primitives/Rectanagle.cpp

7.19 Lights::SphericalLight Class Reference

`#include <SphericalLight.hpp>`

Collaboration diagram for Lights::SphericalLight:



Public Member Functions

- SphericalLight (float x, float y, float lumen, float r, float g, float b)
- void setPosition (float, float)
- void Move (float, float)
- void setColor (float, float, float)
- void setLumen (float)
- void setAlpha (float)
- float getX ()
- float getY ()

- float getLumen ()
- float getAlpha ()
- float getR ()
- float getG ()
- float getB ()
- ~SphericalLight ()

Private Attributes

- float x
- float y
- float lumen
- float alpha = 1.0f
- float r
- float g
- float b

7.19.1 Constructor & Destructor Documentation

7.19.1.1 SphericalLight()

```
Lights::SphericalLight::SphericalLight (
            float x,
            float y,
            float lumen,
            float r,
            float g,
            float b )
```

7.19.1.2 ~SphericalLight()

```
Lights::SphericalLight::~SphericalLight ( )
```

7.19.2 Member Function Documentation

7.19.2.1 getAlpha()

```
float Lights::SphericalLight::getAlpha ( )
```

7.19.2.2 getB()

```
float Lights::SphericalLight::getB ( )
```

7.19.2.3 getG()

```
float Lights::SphericalLight::getG ( )
```

7.19.2.4 getLumen()

```
float Lights::SphericalLight::getLumen ( )
```

7.19.2.5 getR()

```
float Lights::SphericalLight::getR ( )
```

7.19.2.6 getX()

```
float Lights::SphericalLight::getX ( )
```

7.19.2.7 getY()

```
float Lights::SphericalLight::getY ( )
```

7.19.2.8 Move()

```
void Lights::SphericalLight::Move (
            float x,
            float y )
```

7.19.2.9 setAlpha()

```
void Lights::SphericalLight::setAlpha (
            float alpha )
```

7.19.2.10 setColor()

```
void Lights::SphericalLight::setColor (
            float r,
            float g,
            float b )
```

7.19.2.11 setLumen()

```
void Lights::SphericalLight::setLumen (
            float lumen )
```

7.19.2.12 setPosition()

```
void Lights::SphericalLight::setPosition (
            float x,
            float y )
```

7.19.3 Member Data Documentation

7.19.3.1 alpha

```
float Lights::SphericalLight::alpha = 1.0f  [private]
```

7.19.3.2 b

```
float Lights::SphericalLight::b  [private]
```

7.19.3.3 g

```
float Lights::SphericalLight::g  [private]
```

7.19.3.4 lumen

```
float Lights::SphericalLight::lumen  [private]
```

7.19.3.5 r

```
float Lights::SphericalLight::r  [private]
```

7.19.3.6 x

```
float Lights::SphericalLight::x  [private]
```

7.19.3.7 y

```
float Lights::SphericalLight::y  [private]
```

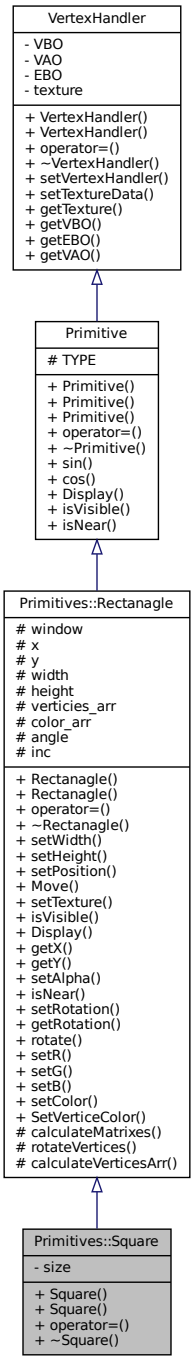
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/Light/SphericalLight.hpp
- Engine/Core/core/primitives/Light/SphericalLight.cpp

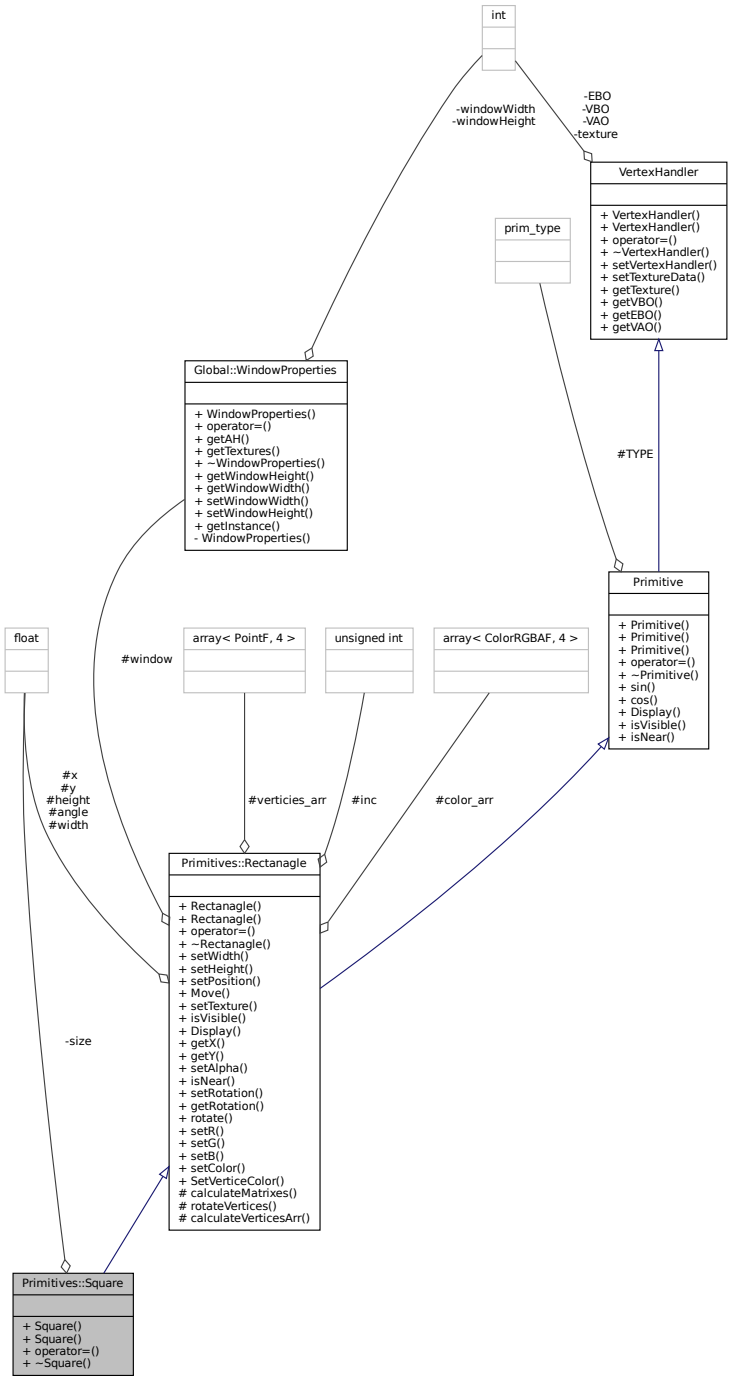
7.20 Primitives::Square Class Reference

`#include <Square.hpp>`

Inheritance diagram for Primitives::Square:



Collaboration diagram for Primitives::Square:



Public Member Functions

- Square (float, float, float, float=1.0f)
- Square (const Square &s)
- Square & operator= (const Square &s)
- virtual ~Square ()

Private Attributes

- float size = 0

Additional Inherited Members

7.20.1 Constructor & Destructor Documentation

7.20.1.1 Square() [1/2]

```
Primitives::Square::Square (
            float x,
            float y,
            float a,
            float alpha = 1.0f )
```

7.20.1.2 Square() [2/2]

```
Primitives::Square::Square (
            const Square & s )
```

7.20.1.3 ~Square()

```
Primitives::Square::~Square ( )  [virtual]
```

7.20.2 Member Function Documentation

7.20.2.1 operator=()

```
Square & Primitives::Square::operator= (
            const Square & s )
```

7.20.3 Member Data Documentation

7.20.3.1 size

```
float Primitives::Square::size = 0  [private]
```

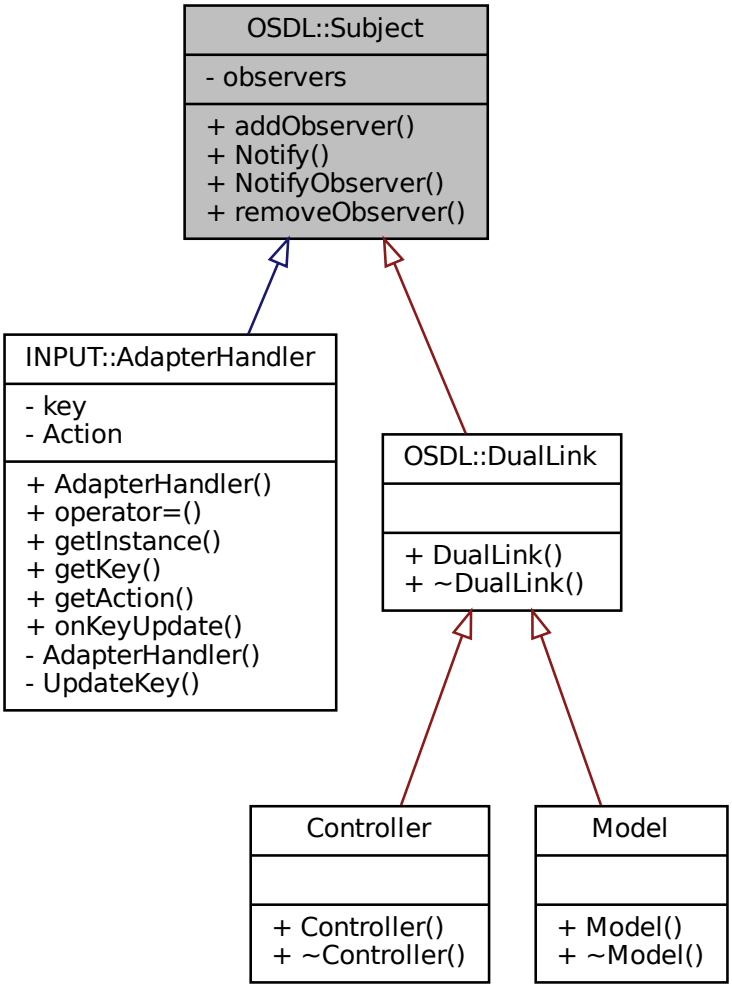
The documentation for this class was generated from the following files:

- Engine/Core/core/primitives/Square.hpp
- Engine/Core/core/primitives/Square.cpp

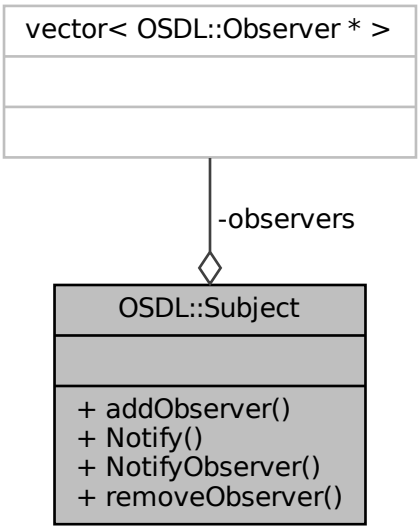
7.21 OSDL::Subject Class Reference

```
#include <Subject.hpp>
```

Inheritance diagram for OSDL::Subject:



Collaboration diagram for OSDL::Subject:



Public Member Functions

- void addObserver (Observer &)
- void Notify ()
- void NotifyObserver (Observer &)
- void removeObserver (Observer &)

Private Attributes

- std::vector< Observer * > observers

7.21.1 Member Function Documentation

7.21.1.1 addObserver()

```
void OSDL::Subject::addObserver (
            Observer & observer )
```

7.21.1.2 Notify()

```
void OSDL::Subject::Notify ( )
```

7.21.1.3 NotifyObserver()

```
void OSDL::Subject::NotifyObserver (
            Observer & o )
```

7.21.1.4 removeObserver()

```
void OSDL::Subject::removeObserver (
            Observer & o )
```

7.21.2 Member Data Documentation

7.21.2.1 observers

```
std::vector<Observer*> OSDL::Subject::observers  [private]
```

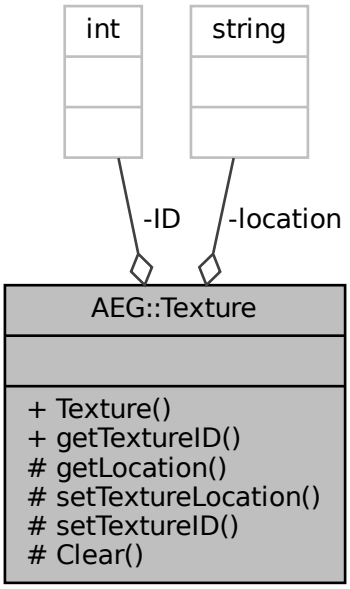
The documentation for this class was generated from the following files:

- Engine/Core/patterns/ObserverSubject/Subject.hpp
- Engine/Core/patterns/ObserverSubject/Subject.cpp

7.22 AEG::Texture Class Reference

```
#include <Texture.hpp>
```

Collaboration diagram for AEG::Texture:



Public Member Functions

- Texture (std::string, unsigned int)
- const unsigned int & getTextureID ()

Protected Member Functions

- const std::string & getLocation ()
- void setTextureLocation (std::string)
- void setTextureID (unsigned int)
- void Clear ()

Private Attributes

- unsigned int ID
- std::string location

Friends

- class Textures

7.22.1 Constructor & Destructor Documentation

7.22.1.1 Texture()

```
AEG::Texture::Texture (
            std::string location,
            unsigned int ID )
```

7.22.2 Member Function Documentation

7.22.2.1 Clear()

```
void AEG::Texture::Clear ( )  [protected]
```

7.22.2.2 getLocation()

```
const std::string & AEG::Texture::getLocation ( )  [protected]
```

7.22.2.3 getTextureID()

```
const unsigned int & AEG::Texture::getTextureID ( )
```

7.22.2.4 setTextureID()

```
void AEG::Texture::setTextureID (
            unsigned int ID )  [protected]
```

7.22.2.5 setTextureLocation()

```
void AEG::Texture::setTextureLocation (
            std::string location )  [protected]
```

7.22.3 Friends And Related Function Documentation

7.22.3.1 Textures

```
friend class Textures  [friend]
```

7.22.4 Member Data Documentation

7.22.4.1 ID

```
unsigned int AEG::Texture::ID  [private]
```

7.22.4.2 location

```
std::string AEG::Texture::location  [private]
```

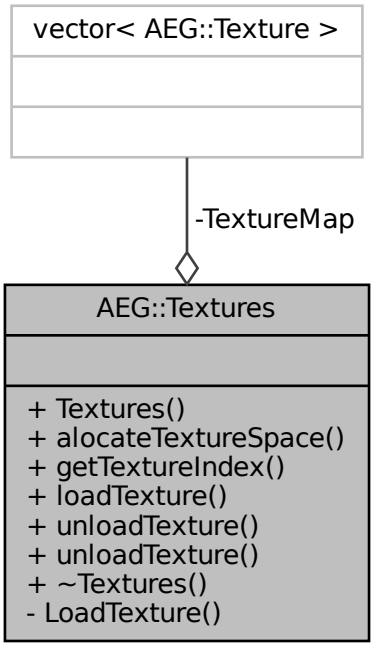
The documentation for this class was generated from the following files:

- Engine/Core/core/base/Texture.hpp
- Engine/Core/core/base/Texture.cpp

7.23 AEG::Textures Class Reference

```
#include <Texture.hpp>
```

Collaboration diagram for AEG::Textures:



Public Member Functions

- Textures ()
- void alocateTextureSpace (unsigned int)
- const unsigned int & getTextureIndex (const std::string &)
- void loadTexture (const std::string &)
- void unloadTexture (const std::string &)
- void unloadTexture (unsigned int)
- ~Textures ()

Private Member Functions

- void LoadTexture (int, const std::string &)

Private Attributes

- std::vector< Texture > TextureMap

7.23.1 Constructor & Destructor Documentation

7.23.1.1 Textures()

```
AEG::Textures::Textures ( )
```

7.23.1.2 ~Textures()

```
AEG::Textures::~Textures ( )
```

7.23.2 Member Function Documentation

7.23.2.1 alocateTextureSpace()

```
void AEG::Textures::alocateTextureSpace (
            unsigned int size )
```

7.23.2.2 getTextureIndex()

```
const unsigned int & AEG::Textures::getTextureIndex (
            const std::string & link )
```

7.23.2.3 loadTexture()

```
void AEG::Textures::loadTexture (
            const std::string & link )
```

7.23.2.4 LoadTexture()

```
void AEG::Textures::LoadTexture (
            int ID,
            const std::string & link )  [private]
```

7.23.2.5 unloadTexture() [1/2]

```
void AEG::Textures::unloadTexture (
            const std::string & link )
```

7.23.2.6 unloadTexture() [2/2]

```
void AEG::Textures::unloadTexture (
            unsigned int ID )
```

7.23.3 Member Data Documentation

7.23.3.1 TextureMap

```
std::vector<Texture> AEG::Textures::TextureMap  [private]
```

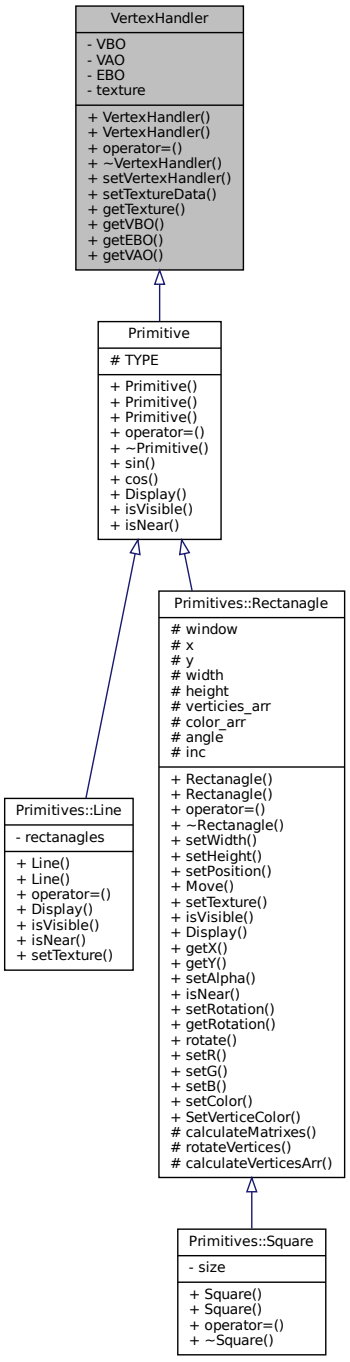
The documentation for this class was generated from the following files:

- Engine/Core/core/base/Texture.hpp
- Engine/Core/core/base/Texture.cpp

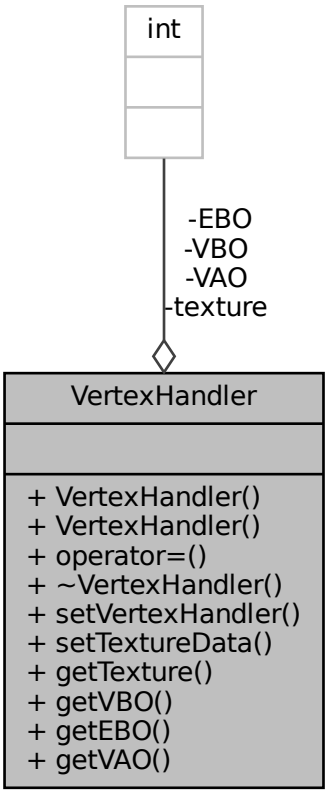
7.24 VertexHandler Class Reference

```
#include <vertexHandler.hpp>
```

Inheritance diagram for VertexHandler:



Collaboration diagram for VertexHandler:



Public Member Functions

- VertexHandler (bool isDefaultPrimitive)
- VertexHandler (const VertexHandler &other)
- VertexHandler & operator= (const VertexHandler &other)
- ~VertexHandler ()
- void setVertexHandler (float vertices[ ], int VerticesSize, unsigned int indices[ ], int indicesSize)
- void setTextureData (const std::string)
- int getTexture ()
- int getVBO ()
- int getEBO ()
- int getVAO ()

Private Attributes

- unsigned int VBO
- unsigned int VAO
- unsigned int EBO
- unsigned int texture

7.24.1 Constructor & Destructor Documentation

7.24.1.1 VertexHandler() [1/2]

```
VertexHandler::VertexHandler (
            bool isDefaultPrimitive )
```

7.24.1.2 VertexHandler() [2/2]

```
VertexHandler::VertexHandler (
            const VertexHandler & other )
```

7.24.1.3 ~VertexHandler()

```
VertexHandler::~VertexHandler ( )
```

7.24.2 Member Function Documentation

7.24.2.1 getEBO()

```
int VertexHandler::getEBO ( )
```

7.24.2.2 getTexture()

```
int VertexHandler::getTexture ( )
```

7.24.2.3 getVAO()

```
int VertexHandler::getVAO ( )
```

7.24.2.4 getVBO()

```
int VertexHandler::getVBO ( )
```

7.24.2.5 operator=()

```
VertexHandler & VertexHandler::operator= (
            const VertexHandler & other )
```

7.24.2.6 setTextureData()

```
void VertexHandler::setTextureData (
            const std::string data )
```

7.24.2.7 setVertexHandler()

```
void VertexHandler::setVertexHandler (
            float vertices[],
            int VerticesSize,
            unsigned int indices[],
            int indicesSize )
```

7.24.3 Member Data Documentation

7.24.3.1 EBO

```
unsigned int VertexHandler::EBO  [private]
```

7.24.3.2 texture

```
unsigned int VertexHandler::texture  [private]
```

7.24.3.3 VAO

```
unsigned int VertexHandler::VAO  [private]
```

7.24.3.4 VBO

```
unsigned int VertexHandler::VBO  [private]
```

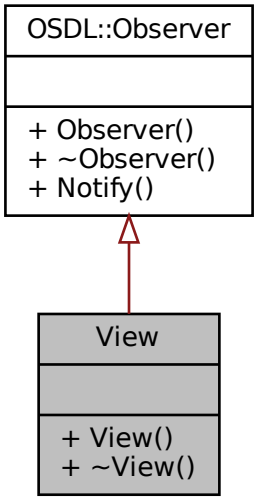
The documentation for this class was generated from the following files:

- Engine/Core/core/base/vertexHandler.hpp
- Engine/Core/core/base/vertexHandler.cpp

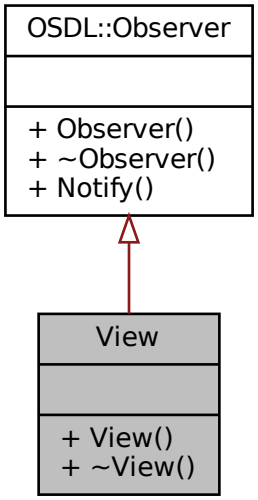
7.25 View Class Reference

```
#include <View.hpp>
```

Inheritance diagram for View:



Collaboration diagram for View:



Public Member Functions

- View ()
- ~View ()

Additional Inherited Members

7.25.1 Constructor & Destructor Documentation

7.25.1.1 View()

```
View::View ( )
```

7.25.1.2 ~View()

```
View::~View ( )
```

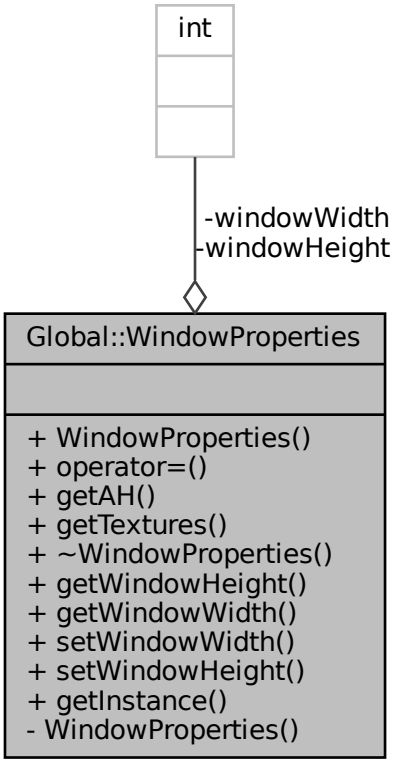
The documentation for this class was generated from the following file:

- Engine/Core/patterns/MVC/View.hpp

7.26 Global::WindowProperties Class Reference

`#include <WindowProperties.hpp>`

Collaboration diagram for Global::WindowProperties:



Public Member Functions

- WindowProperties (WindowProperties &other)=delete

  ArrayHandler for All GPU bindings.
- void operator= (const WindowProperties &)=delete
- GPU::ArrayHandler * getAH ()
- AEG::Textures * getTextures ()
- ~WindowProperties ()
- const int & getWindowHeight ()
- const int & getWindowWidth ()
- void setWindowWidth (int)
- void setWindowHeight (int)

Static Public Member Functions

- static WindowProperties & getInstance ()

Private Member Functions

- WindowProperties ()

Private Attributes

- int windowHeight
- int windowWidth

7.26.1 Constructor & Destructor Documentation

7.26.1.1 WindowProperties() [1/2]

```
Global::WindowProperties::WindowProperties ( )  [private]
```

7.26.1.2 WindowProperties() [2/2]

```
Global::WindowProperties::WindowProperties (
            WindowProperties & other )  [delete]
```

ArrayHandler for All GPU bindings.

Note

Return values

None	

7.26.1.3 ~WindowProperties()

```
Global::WindowProperties::~WindowProperties ( )
```

7.26.2 Member Function Documentation

7.26.2.1 getAH()

```
GPU::ArrayHandler * Global::WindowProperties::getAH ( )
```

7.26.2.2 getInstance()

```
WindowProperties & Global::WindowProperties::getInstance ( )  [static]
```

7.26.2.3 getTextures()

```
AEG::Textures * Global::WindowProperties::getTextures ( )
```

7.26.2.4 getWindowHeight()

```
const int & Global::WindowProperties::getWindowHeight ( )
```

7.26.2.5 getWindowWidth()

```
const int & Global::WindowProperties::getWindowWidth ( )
```

7.26.2.6 operator=()

```
void Global::WindowProperties::operator= (
            const WindowProperties &  )  [delete]
```

7.26.2.7 setWindowHeight()

```
void Global::WindowProperties::setWindowHeight (
            int height )
```

7.26.2.8 setWindowWidth()

```
void Global::WindowProperties::setWindowWidth (
            int width )
```

7.26.3 Member Data Documentation

7.26.3.1 windowHeight

```
int Global::WindowProperties::windowHeight  [private]
```

7.26.3.2 windowWidth

```
int Global::WindowProperties::windowWidth  [private]
```

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

- Engine/Core/core/WindowProperties.hpp
- Engine/Core/core/WindowProperties.cpp

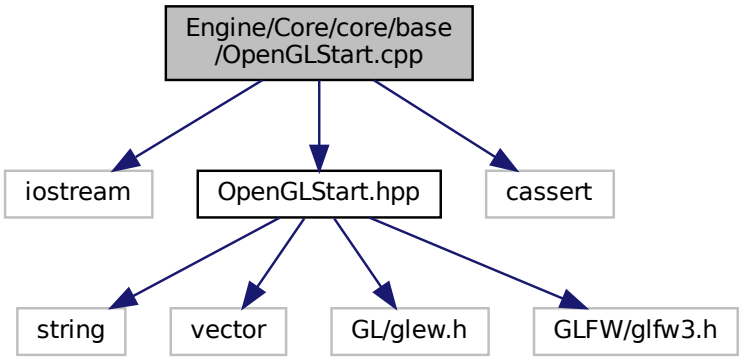
Chapter 8

File Documentation

8.1 Engine/Core/core/base/OpenGLStart.cpp File Reference

```
#include <iostream>
#include "OpenGLStart.hpp"
#include <cassert>
```

Include dependency graph for OpenGLStart.cpp:



Namespaces

- OpenGLInstance

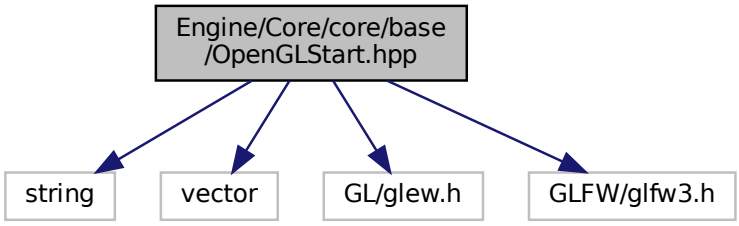
Functions

- GLFWwindow * OpenGLInstance::InitWindow (int width, int height, std::string name)
- void OpenGLInstance::setClearColor (float R, float G, float B, float A)
- std::vector< GLuint > OpenGLInstance::CreateAndCompileShaders (const char *vertShaderCode, const char *fragShaderCode)
- GLuint OpenGLInstance::CreateProgramAndLinkShaders (const std::vector< GLuint > shaders)

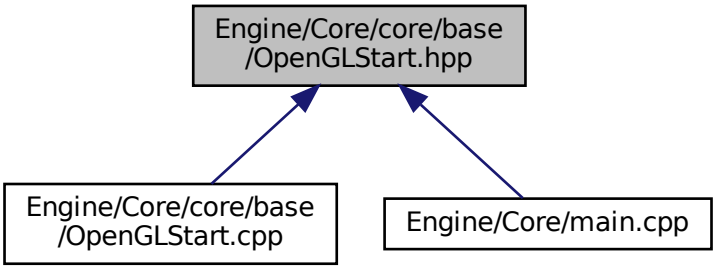
8.2 Engine/Core/core/base/OpenGLStart.hpp File Reference

```
#include <string>
#include <vector>
#include <GL/glew.h>
#include <GLFW/glfw3.h>
```

Include dependency graph for OpenGLStart.hpp:



This graph shows which files directly or indirectly include this file:



Namespaces

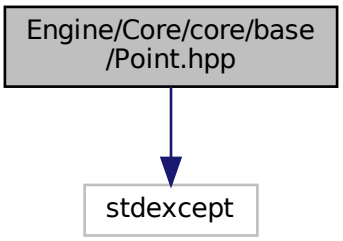
- OpenGLInstance

Functions

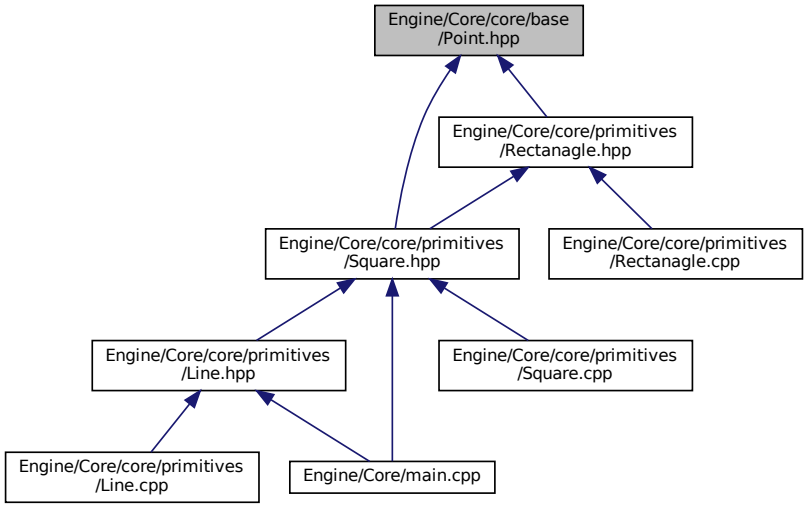
- GLFWwindow ∗ OpenGLInstance::InitWindow (int width, int height, std::string name)
- void OpenGLInstance::setClearColor (float R, float G, float B, float A)
- std::vector< GLuint > OpenGLInstance::CreateAndCompileShaders (const char ∗vertShaderCode, const char ∗fragShaderCode)
- GLuint OpenGLInstance::CreateProgramAndLinkShaders (const std::vector< GLuint > shaders)

8.3 Engine/Core/core/base/Point.hpp File Reference

`#include <stdexcept>`
Include dependency graph for Point.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- struct Primitives::Point2D< T >
- struct Primitives::Color< T >
- struct Primitives::ColorRGBA< T >

Namespaces

- Primitives

Typedefs

- typedef struct Point2D< float > Primitives::PointF
- typedef Point2D< int > Primitives::PointI
- typedef Point2D< double > Primitives::PointD
- typedef Point2D< unsigned int > Primitives::PointU
- typedef Point2D< unsigned long > Primitives::PointUL
- typedef Point2D< unsigned long long > Primitives::PointULL
- typedef Point2D< long > Primitives::PointL
- typedef Point2D< long long > Primitives::PointLL
- typedef Point2D< char > Primitives::PointC
- typedef Point2D< short > Primitives::PointS
- typedef struct Color< float > Primitives::ColorF
- typedef Color< int > Primitives::ColorI
- typedef Color< double > Primitives::ColorD
- typedef Color< unsigned int > Primitives::ColorU
- typedef Color< unsigned long > Primitives::ColorUL
- typedef Color< unsigned long long > Primitives::ColorULL
- typedef Color< long > Primitives::ColorL
- typedef Color< long long > Primitives::ColorLL
- typedef Color< char > Primitives::ColorC
- typedef Color< short > Primitives::ColorS
- typedef struct ColorRGBA< float > Primitives::ColorRGBAF
- typedef ColorRGBA< int > Primitives::ColorRGBAI
- typedef ColorRGBA< double > Primitives::ColorRGBAD
- typedef ColorRGBA< unsigned int > Primitives::ColorRGBAU
- typedef ColorRGBA< unsigned long > Primitives::ColorRGBAUL
- typedef ColorRGBA< unsigned long long > Primitives::ColorRGBAULL
- typedef ColorRGBA< long > Primitives::ColorRGBAL
- typedef ColorRGBA< long long > Primitives::ColorRGBALL
- typedef ColorRGBA< char > Primitives::ColorRGBAC
- typedef ColorRGBA< short > Primitives::ColorRGBAS

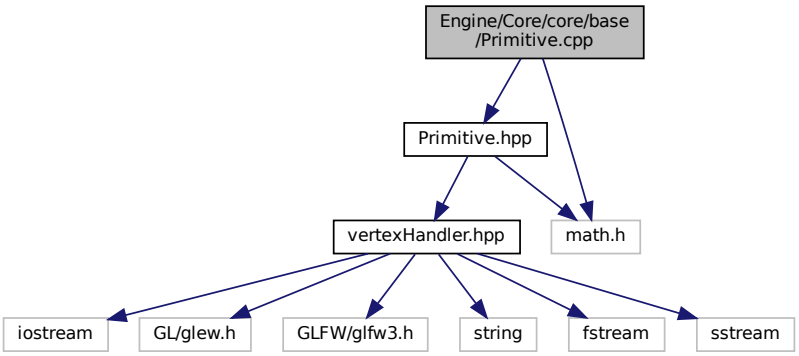
Enumerations

- enum Primitives::ColorType {
  Primitives::RED, Primitives::GREEN, Primitives::BLUE, Primitives::ALPHA,
  Primitives::ERROR }

8.4 Engine/Core/core/base/Primitive.cpp File Reference

```
#include "Primitive.hpp"
#include <math.h>
```

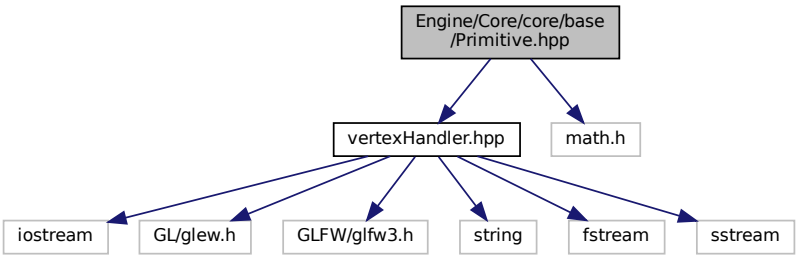
Include dependency graph for Primitive.cpp:



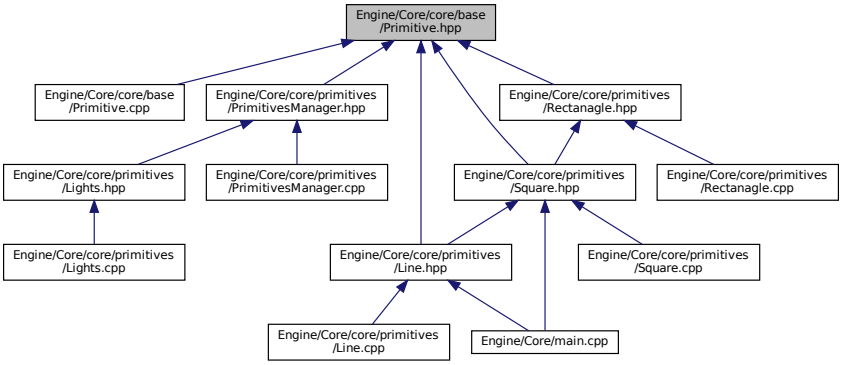
8.5 Engine/Core/core/base/Primitive.hpp File Reference

```
#include "vertexHandler.hpp"
#include <math.h>
```

Include dependency graph for Primitive.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Primitive

Macros

- #define M_PI 3.14159265358979323846

8.5.1 Macro Definition Documentation

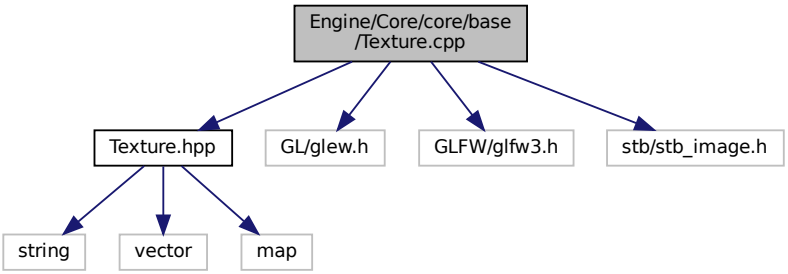
8.5.1.1 M_PI

```
#define M_PI 3.14159265358979323846
```

8.6 Engine/Core/core/base/Texture.cpp File Reference

```
#include "Texture.hpp"
#include <GL/glew.h>
#include <GLFW/glfw3.h>
#include "stb/stb_image.h"
```

Include dependency graph for Texture.cpp:



Namespaces

- AEG

Macros

- #define STB_IMAGE_IMPLEMENTATION

8.6.1 Macro Definition Documentation

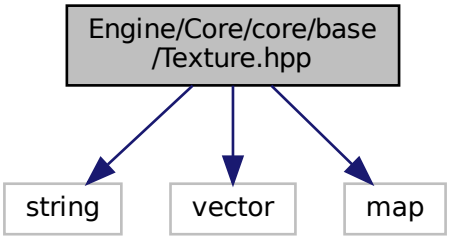
8.6.1.1 STB_IMAGE_IMPLEMENTATION

```
#define STB_IMAGE_IMPLEMENTATION
```

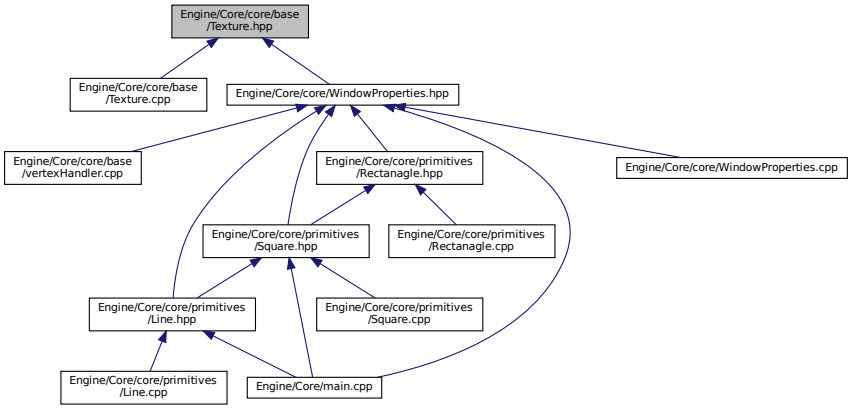
8.7 Engine/Core/core/base/Texture.hpp File Reference

```
#include <string>
#include <vector>
#include <map>
```

Include dependency graph for Texture.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class AEG::Texture
- class AEG::Textures

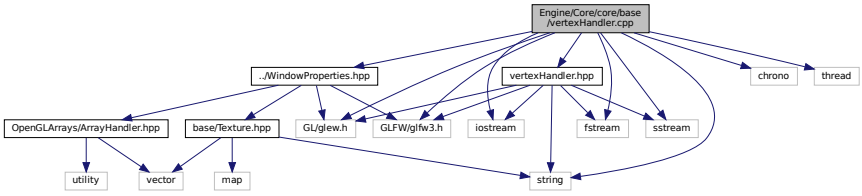
Namespaces

- AEG

8.8 Engine/Core/core/base/vertexHandler.cpp File Reference

```
#include <iostream>
#include <GL/glew.h>
#include <GLFW/glfw3.h>
#include <string>
#include <fstream>
#include <sstream>
#include "vertexHandler.hpp"
#include <chrono>
#include <thread>
#include "../WindowProperties.hpp"
```

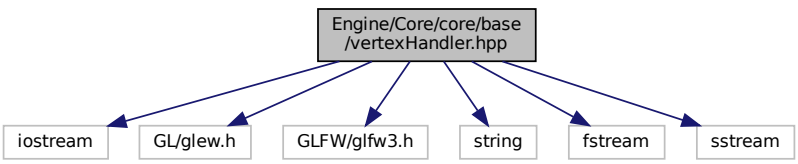
Include dependency graph for vertexHandler.cpp:



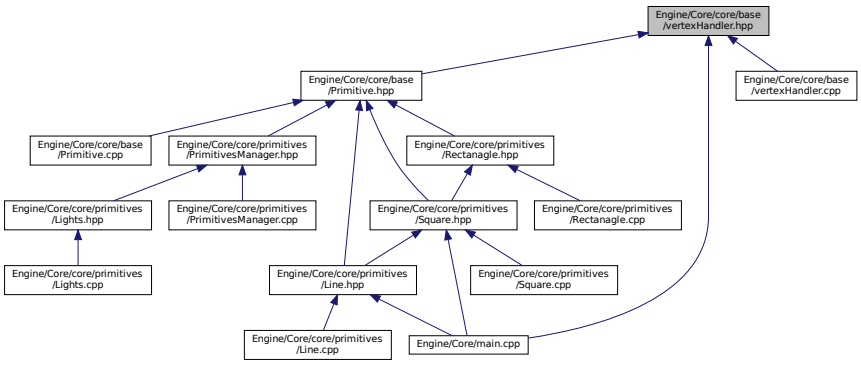
8.9 Engine/Core/core/base/vertexHandler.hpp File Reference

```
#include <iostream>
#include <GL/glew.h>
#include <GLFW/glfw3.h>
#include <string>
#include <fstream>
#include <sstream>
```

Include dependency graph for vertexHandler.hpp:



This graph shows which files directly or indirectly include this file:



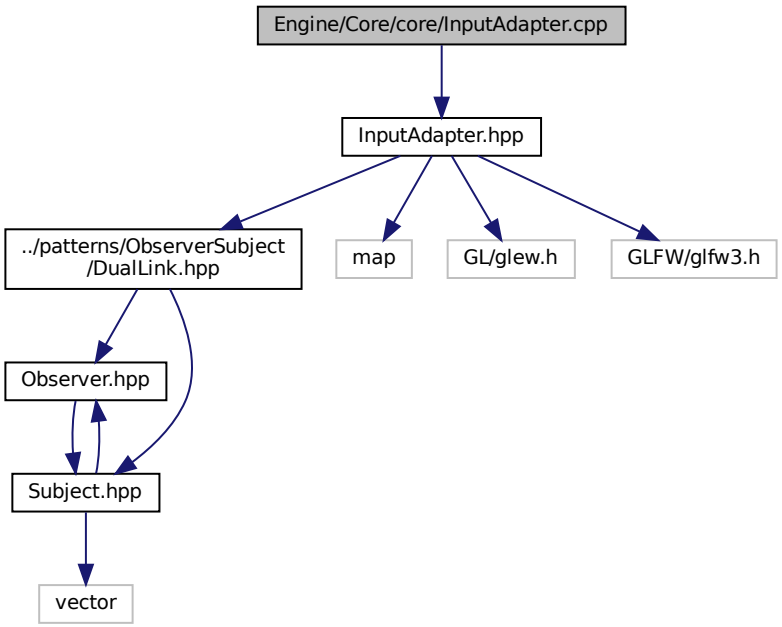
Classes

- class VertexHandler

8.10 Engine/Core/core/InputAdapter.cpp File Reference

```
#include "InputAdapter.hpp"
```

Include dependency graph for InputAdapter.cpp:



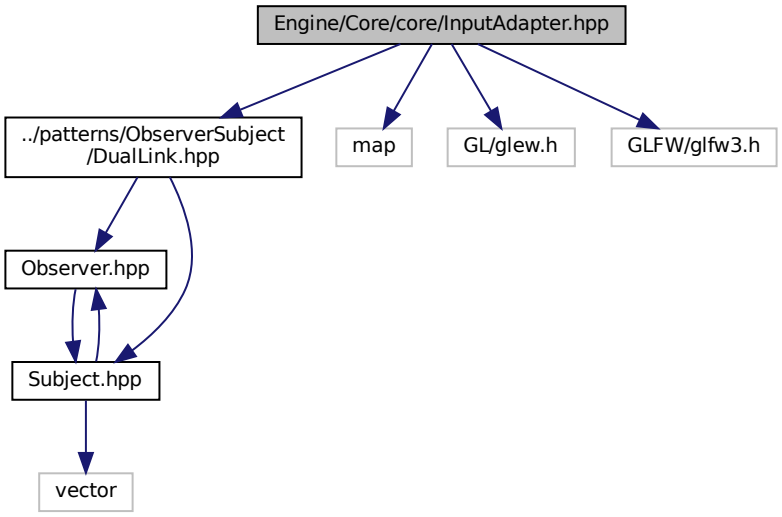
Namespaces

- INPUT

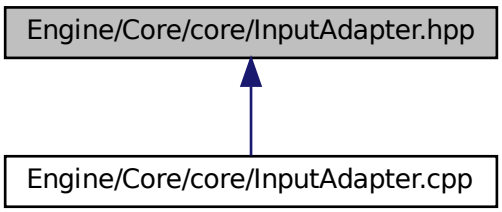
8.11 Engine/Core/core/InputAdapter.hpp File Reference

```
#include "../patterns/ObserverSubject/DualLink.hpp"
#include <map>
#include <GL/glew.h>
#include <GLFW/glfw3.h>
```

Include dependency graph for InputAdapter.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class INPUT::Adapter
- class INPUT::AdapterHandler

Namespaces

- INPUT

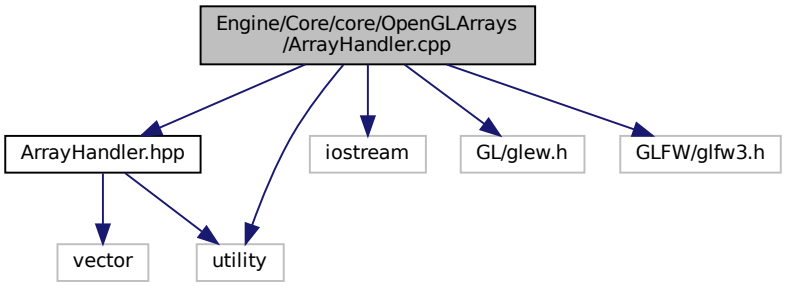
Enumerations

- enum INPUT::KeyBoardKey {
  INPUT::ERROR = -1, INPUT::Key_1 = 0, INPUT::Key_2, INPUT::Key_3,
  INPUT::Key_4, INPUT::Key_5, INPUT::Key_6, INPUT::Key_7,
  INPUT::Key_8, INPUT::Key_9, INPUT::Key_0, INPUT::Q,
  INPUT::W, INPUT::E, INPUT::R, INPUT::T,
  INPUT::Y, INPUT::U, INPUT::I, INPUT::O,
  INPUT::P, INPUT::A, INPUT::S, INPUT::D,
  INPUT::F, INPUT::G, INPUT::H, INPUT::J,
  INPUT::K, INPUT::L, INPUT::Z, INPUT::X,
  INPUT::C, INPUT::V, INPUT::B, INPUT::N,
  INPUT::M, INPUT::Arrow_Up, INPUT::Arrow_Down, INPUT::Arrow_Left,
  INPUT::Arrow_Right }

8.12 Engine/Core/core/OpenGLArrays/ArrayHandler.cpp File Reference

```
#include "ArrayHandler.hpp"
#include <iostream>
#include <GL/glew.h>
#include <GLFW/glfw3.h>
#include <utility>
```

Include dependency graph for ArrayHandler.cpp:



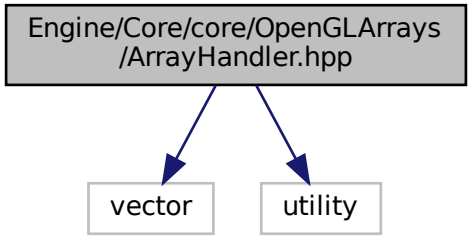
Namespaces

- GPU

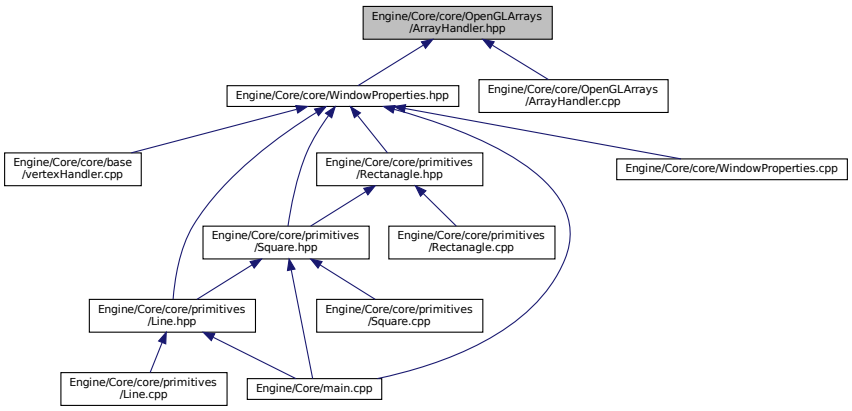
8.13 Engine/Core/core/OpenGLArrays/ArrayHandler.hpp File Reference

```
#include <vector>
#include <utility>
```

Include dependency graph for ArrayHandler.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class GPU::GPU_Ref
- class GPU::ArrayHandler

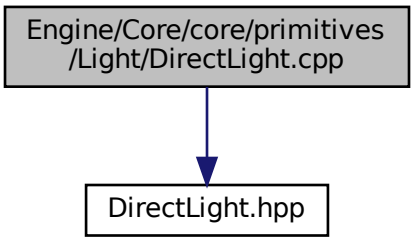
Namespaces

- GPU

8.14 Engine/Core/core/primitives/Light/DirectLight.cpp File Reference

```
#include "DirectLight.hpp"
```

Include dependency graph for DirectLight.cpp:

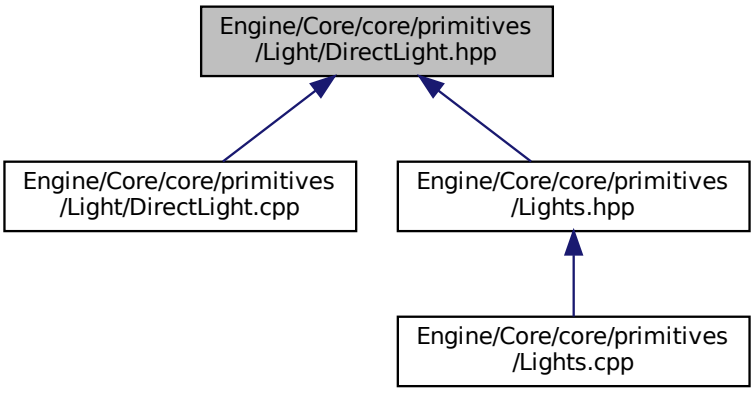


Namespaces

- Lights

8.15 Engine/Core/core/primitives/Light/DirectLight.hpp File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class Lights::DirectLight

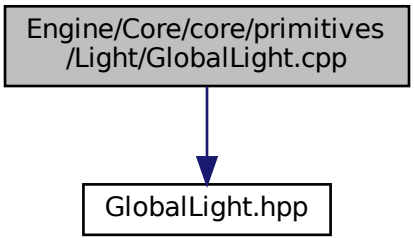
Namespaces

- Lights

8.16 Engine/Core/core/primitives/Light/GlobalLight.cpp File Reference

```
#include "GlobalLight.hpp"
```

Include dependency graph for GlobalLight.cpp:

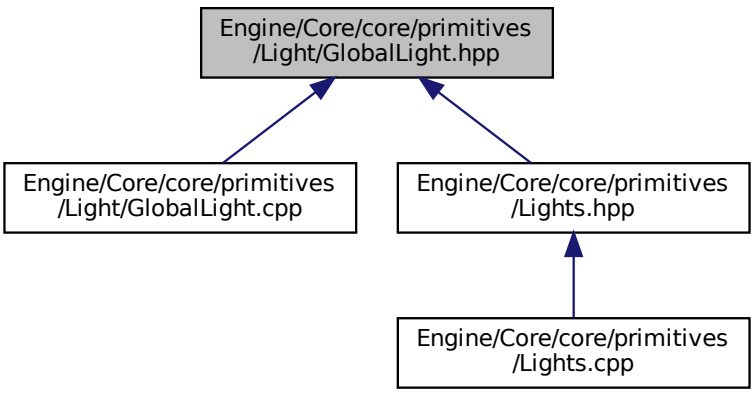


Namespaces

- Lights

8.17 Engine/Core/core/primitives/Light/GlobalLight.hpp File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class Lights::GlobalLight

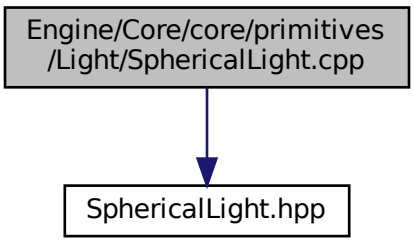
Namespaces

- Lights

8.18 Engine/Core/core/primitives/Light/SphericalLight.cpp File Reference

```
#include "SphericalLight.hpp"
```

Include dependency graph for SphericalLight.cpp:

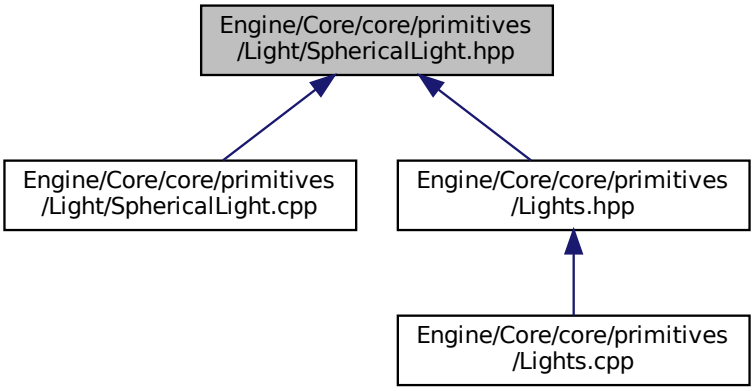


Namespaces

- Lights

8.19 Engine/Core/core/primitives/Light/SphericalLight.hpp File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class Lights::SphericalLight

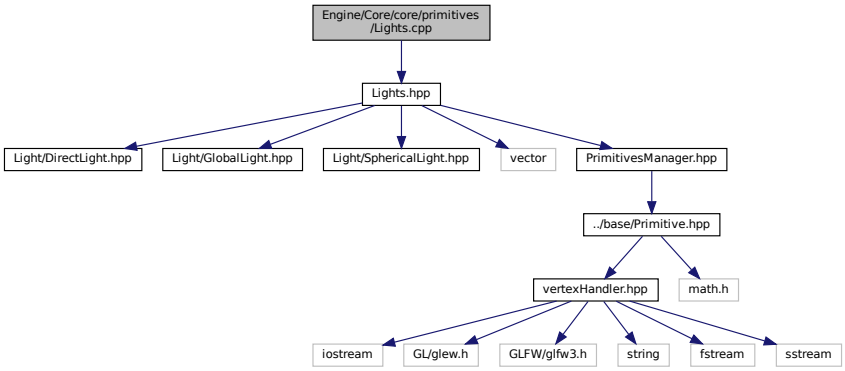
Namespaces

- Lights

8.20 Engine/Core/core/primitives/Lights.cpp File Reference

```
#include "Lights.hpp"
```

Include dependency graph for Lights.cpp:



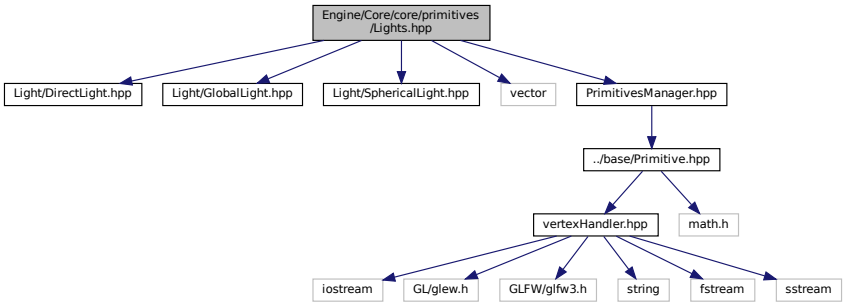
Namespaces

- Lights

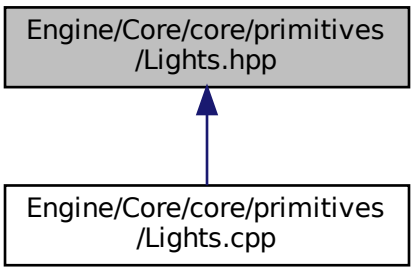
8.21 Engine/Core/core/primitives/Lights.hpp File Reference

```
#include "Light/DirectLight.hpp"
#include "Light/GlobalLight.hpp"
#include "Light/SphericalLight.hpp"
#include <vector>
#include "PrimitivesManager.hpp"
```

Include dependency graph for Lights.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Lights::LightManager

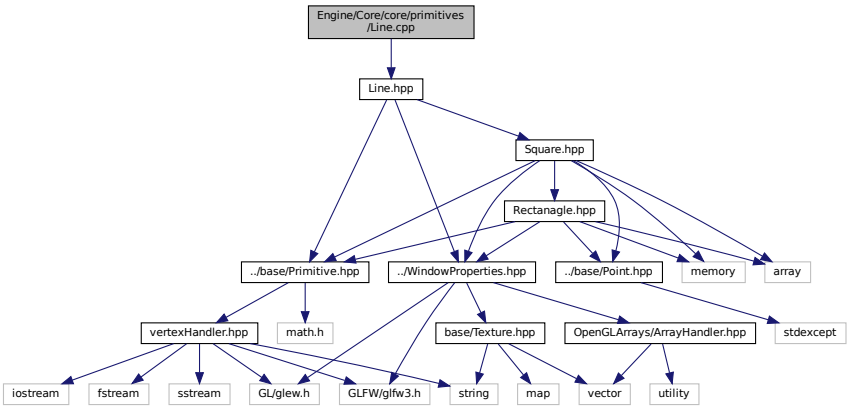
Namespaces

- Lights

8.22 Engine/Core/core/primitives/Line.cpp File Reference

```
#include "Line.hpp"
```

Include dependency graph for Line.cpp:



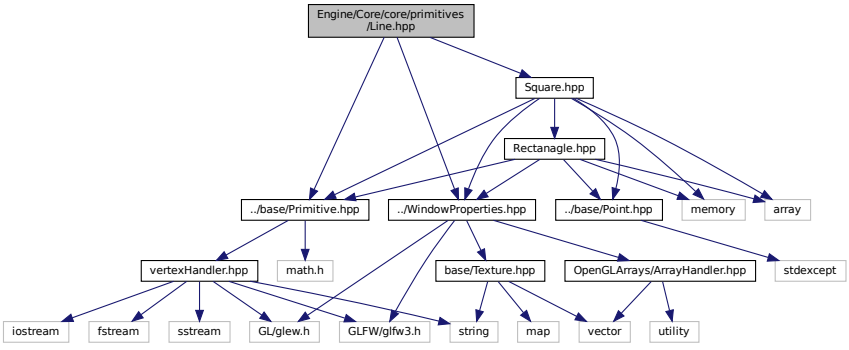
Namespaces

- Primitives

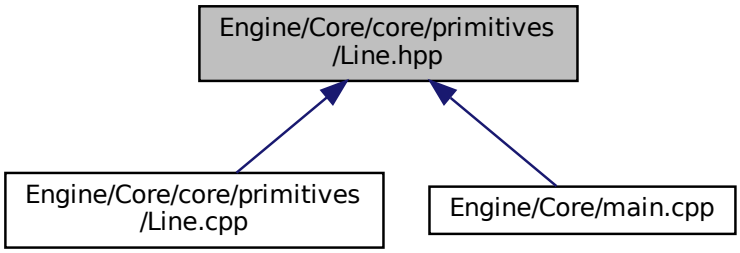
8.23 Engine/Core/core/primitives/Line.hpp File Reference

```
#include "../base/Primitive.hpp"
#include "../WindowProperties.hpp"
#include "Square.hpp"
```

Include dependency graph for Line.hpp:



This graph shows which files directly or indirectly include this file:



Classes

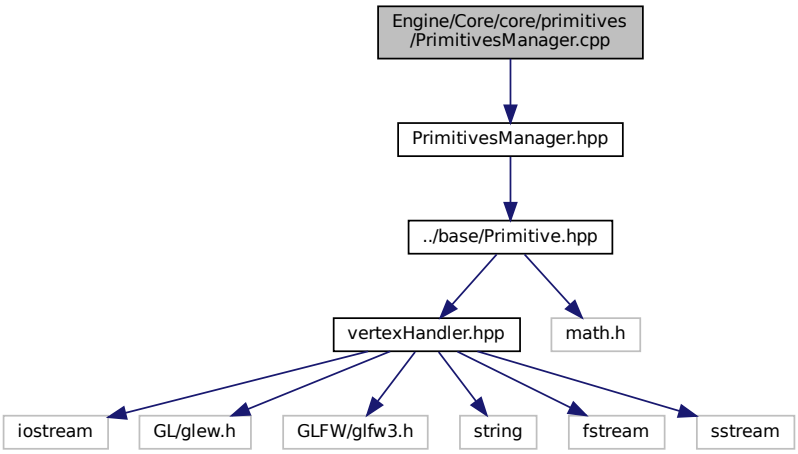
- class Primitives::Line

Namespaces

- Primitives

8.24 Engine/Core/core/primitives/PrimitivesManager.cpp File Reference

`#include "PrimitivesManager.hpp"`
Include dependency graph for PrimitivesManager.cpp:



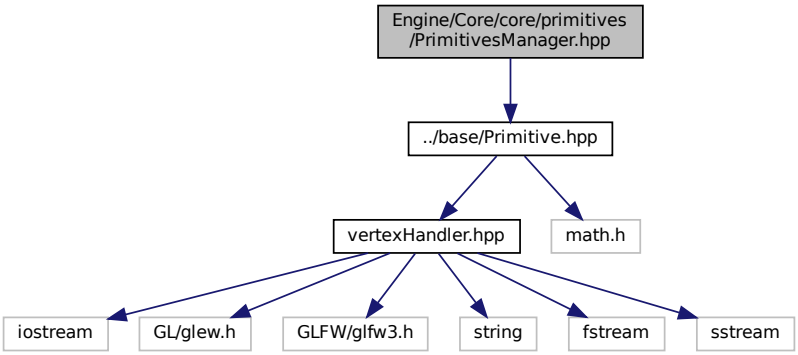
Namespaces

- Primitives

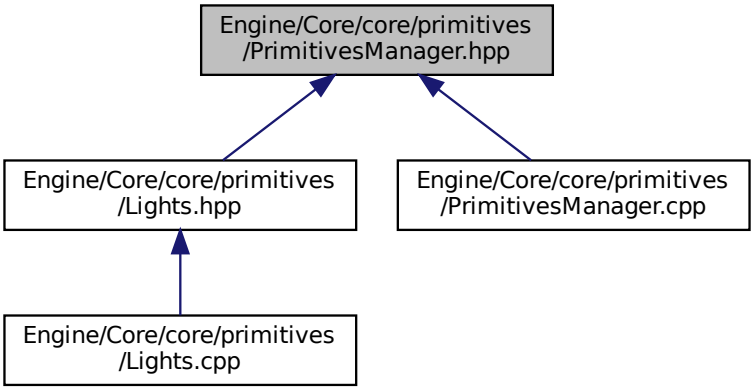
8.25 Engine/Core/core/primitives/PrimitivesManager.hpp File Reference

```
#include "../base/Primitive.hpp"
```

Include dependency graph for PrimitivesManager.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Primitives::PrimitivesManager

Namespaces

- Primitives

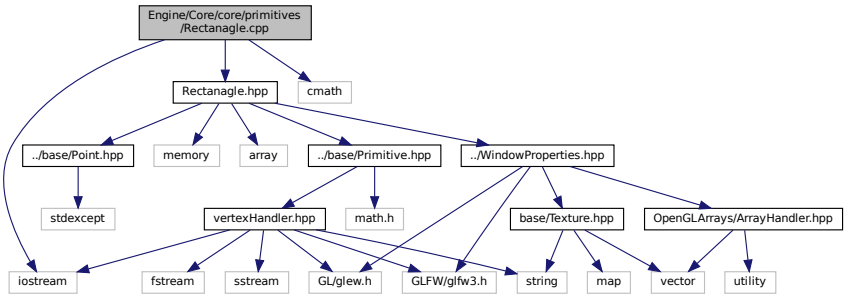
Typedefs

- typedef Primitive * Primitives::PrimitivePtr
- typedef std::vector< PrimitivePtr > Primitives::Primitives
- typedef Primitives & Primitives::PrimitivesRef

8.26 Engine/Core/core/primitives/Rectanagle.cpp File Reference

```
#include "Rectanagle.hpp"
#include <iostream>
#include <cmath>
```

Include dependency graph for Rectanagle.cpp:



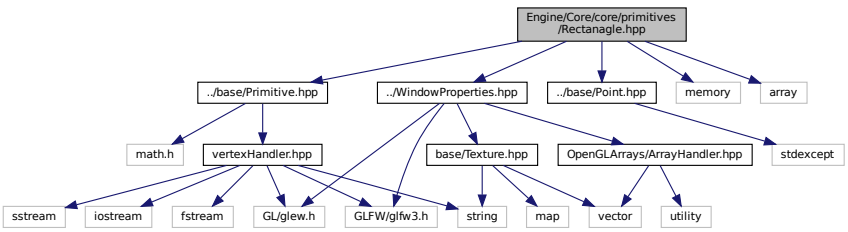
Namespaces

- Primitives

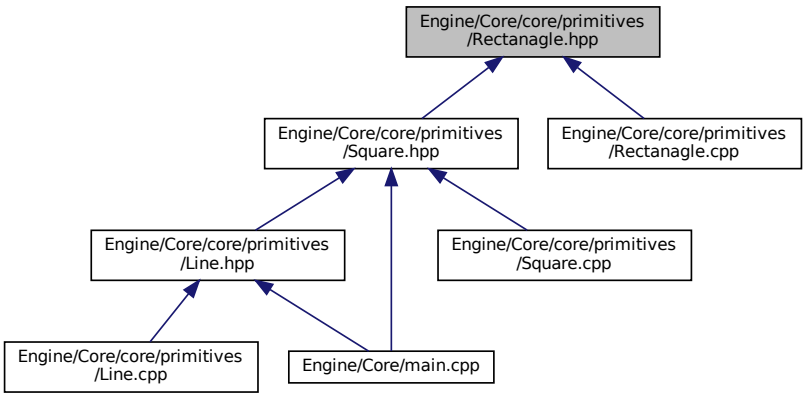
8.27 Engine/Core/core/primitives/Rectanagle.hpp File Reference

```
#include "../base/Primitive.hpp"
#include "../WindowProperties.hpp"
#include "../base/Point.hpp"
#include <memory>
#include <array>
```

Include dependency graph for Rectanagle.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Primitives::Rectanagle

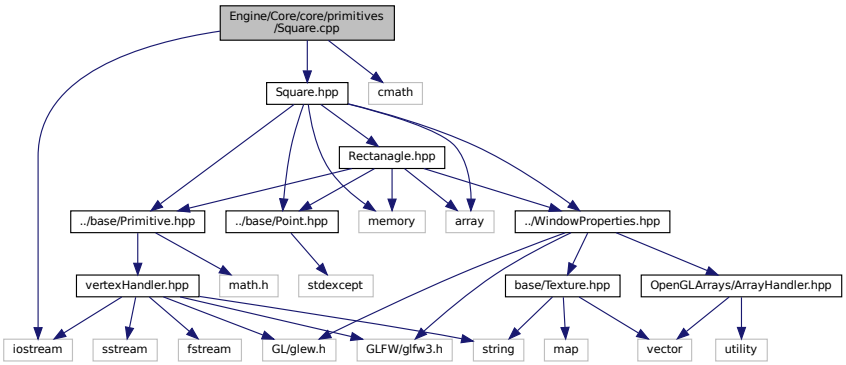
Namespaces

- Primitives

8.28 Engine/Core/core/primitives/Square.cpp File Reference

```
#include "Square.hpp"
#include <iostream>
#include <cmath>
```

Include dependency graph for Square.cpp:



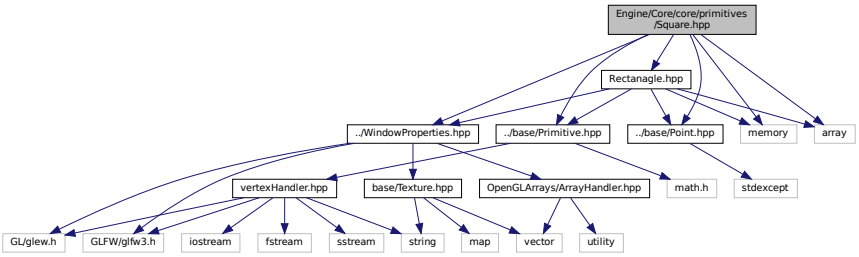
Namespaces

- Primitives

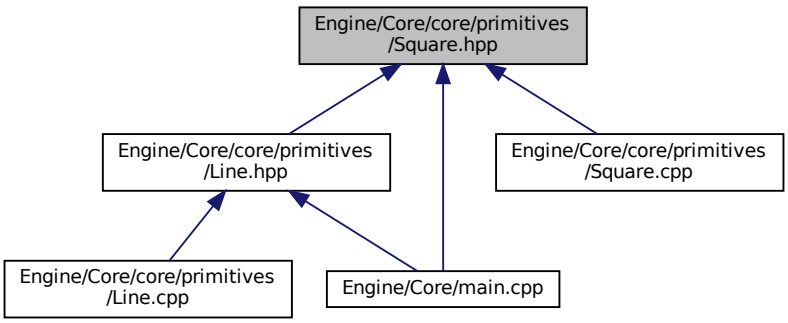
8.29 Engine/Core/core/primitives/Square.hpp File Reference

```
#include "../base/Primitive.hpp"
#include "../WindowProperties.hpp"
#include "../base/Point.hpp"
#include "Rectanagle.hpp"
#include <memory>
#include <array>
```

Include dependency graph for Square.hpp:



This graph shows which files directly or indirectly include this file:



Classes

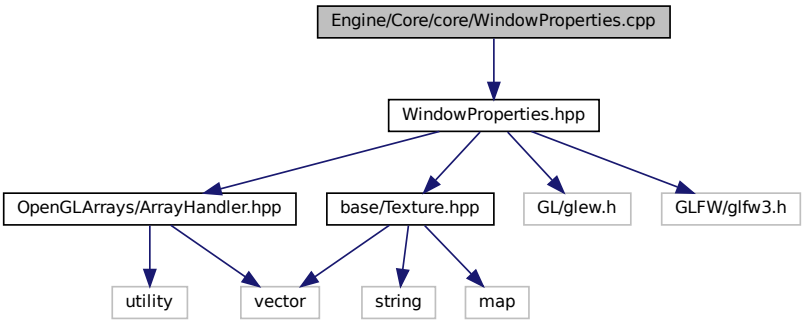
- class Primitives::Square

Namespaces

- Primitives

8.30 Engine/Core/core/WindowProperties.cpp File Reference

```
#include "WindowProperties.hpp"
```
Include dependency graph for WindowProperties.cpp:

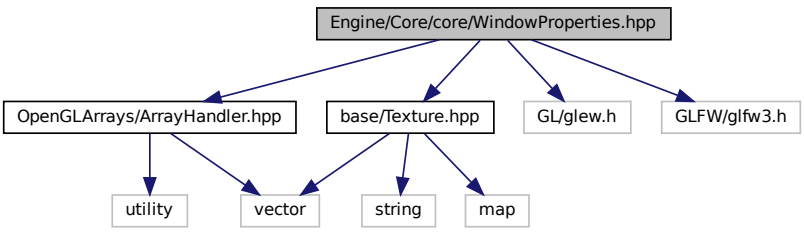


Namespaces

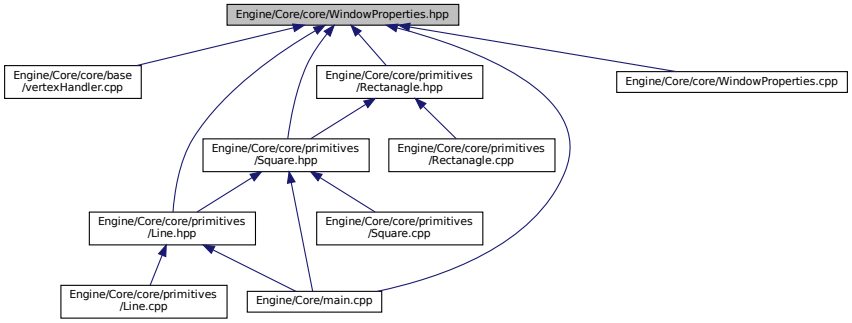
- Global

8.31 Engine/Core/core/WindowProperties.hpp File Reference

```
#include "OpenGLArrays/ArrayHandler.hpp"
#include "base/Texture.hpp"
#include <GL/glew.h>
#include <GLFW/glfw3.h>
```
Include dependency graph for WindowProperties.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class Global::WindowProperties

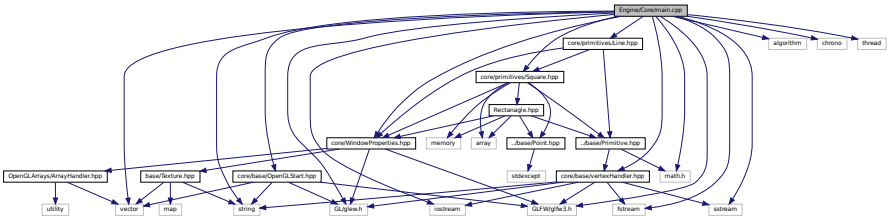
Namespaces

- Global

8.32 Engine/Core/main.cpp File Reference

```
#include <iostream>
#include <GL/glew.h>
#include <GLFW/glfw3.h>
#include <string>
#include <fstream>
#include <sstream>
#include "core/base/vertexHandler.hpp"
#include "core/WindowProperties.hpp"
#include "core/primitives/Square.hpp"
#include "core/primitives/Line.hpp"
#include <vector>
#include <math.h>
#include "core/base/OpenGLStart.hpp"
#include <algorithm>
#include <chrono>
#include <thread>
```

Include dependency graph for main.cpp:



Macros

- #define STB_IMAGE_IMPLEMENTATION

Functions

- void onKeyPress (int key)
- void onKeyCallback (GLFWwindow ∗window, int key, int status, int action, int mods)
- std::string readFile (const std::string &fileLoc)
- int main (int argc, char ∗∗argv)

Variables

- Primitives::Square ∗ player

8.32.1 Macro Definition Documentation

8.32.1.1 STB_IMAGE_IMPLEMENTATION

```
#define STB_IMAGE_IMPLEMENTATION
```

8.32.2 Function Documentation

8.32.2.1 main()

```
int main (
            int argc,
            char ** argv )
```

8.32.2.2 onKeyCallback()

```
void onKeyCallback (
            GLFWwindow * window,
            int key,
            int status,
            int action,
            int mods )
```

8.32.2.3 onKeyPress()

```
void onKeyPress (
            int key )
```

8.32.2.4 readFile()

```
std::string readFile (
            const std::string & fileLoc )
```

8.32.3 Variable Documentation

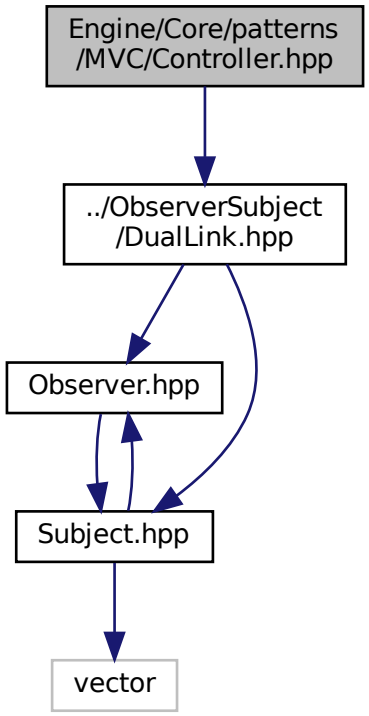
8.32.3.1 player

```
Primitives::Square* player
```

8.33 Engine/Core/patterns/MVC/Controller.hpp File Reference

```
#include "../ObserverSubject/DualLink.hpp"
```

Include dependency graph for Controller.hpp:

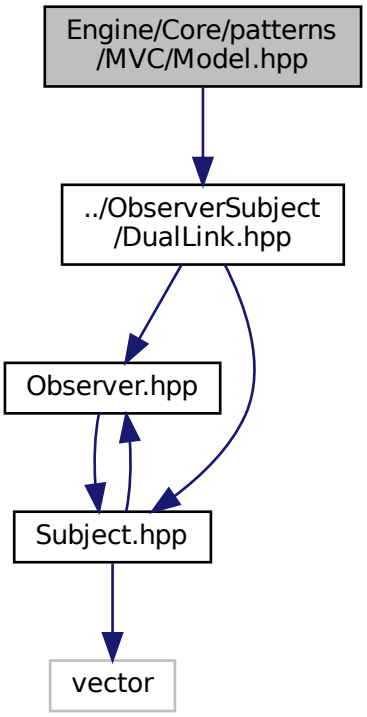


Classes

- class Controller

8.34 Engine/Core/patterns/MVC/Model.hpp File Reference

```
#include "../ObserverSubject/DualLink.hpp"
```
Include dependency graph for Model.hpp:



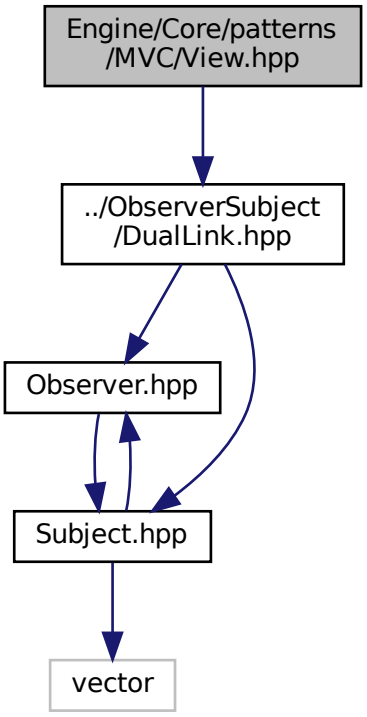
Classes

- class Model

8.35 Engine/Core/patterns/MVC/View.hpp File Reference

```
#include "../ObserverSubject/DualLink.hpp"
```

Include dependency graph for View.hpp:



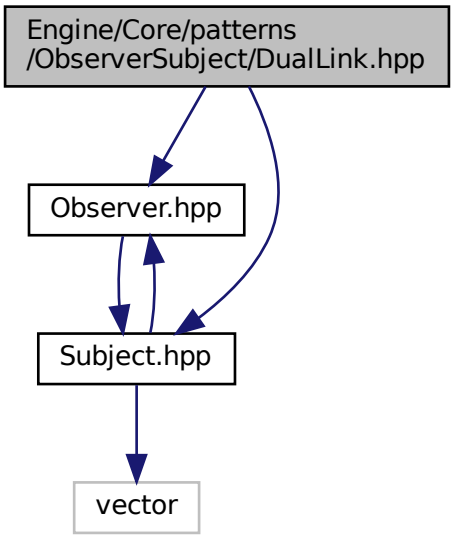
Classes

- class View

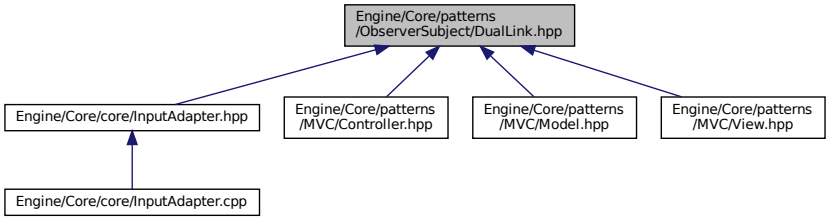
8.36 Engine/Core/patterns/ObserverSubject/DualLink.hpp File Reference

```
#include "Observer.hpp"
#include "Subject.hpp"
```

Include dependency graph for DualLink.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class OSDL::DualLink

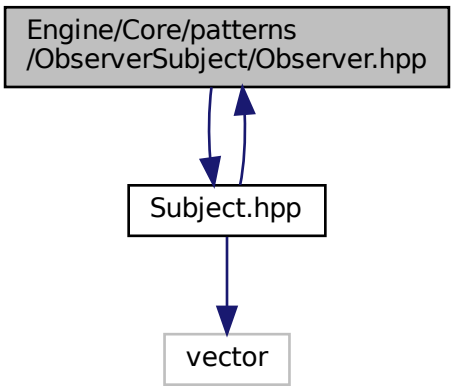
Namespaces

- OSDL

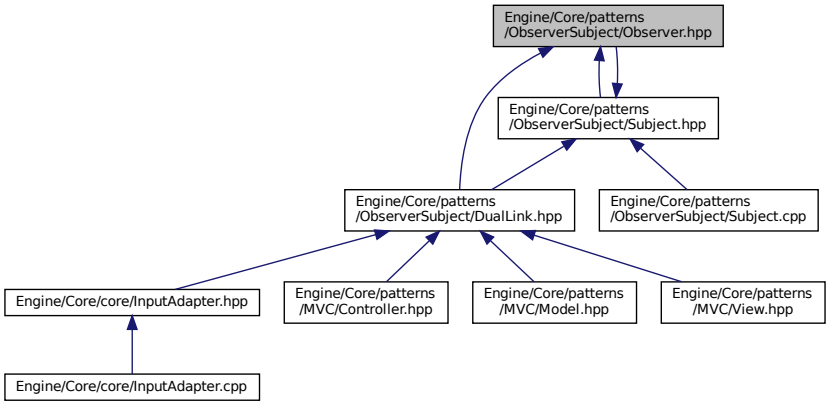
8.37 Engine/Core/patterns/ObserverSubject/Observer.hpp File Reference

```
#include "Subject.hpp"
```

Include dependency graph for Observer.hpp:



This graph shows which files directly or indirectly include this file:



Classes

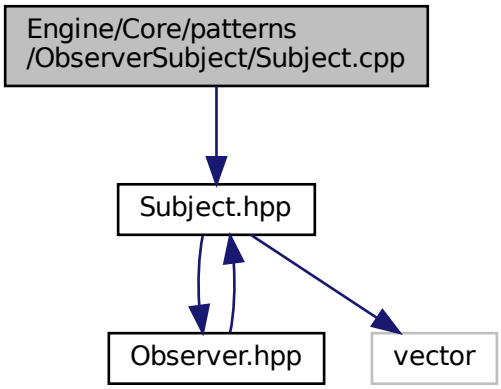
- class OSDL::Observer

Namespaces

- OSDL

8.38 Engine/Core/patterns/ObserverSubject/Subject.cpp File Reference

```
#include "Subject.hpp"
```
Include dependency graph for Subject.cpp:

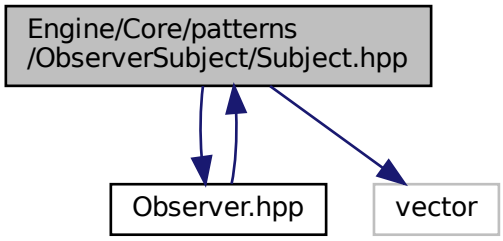


Namespaces

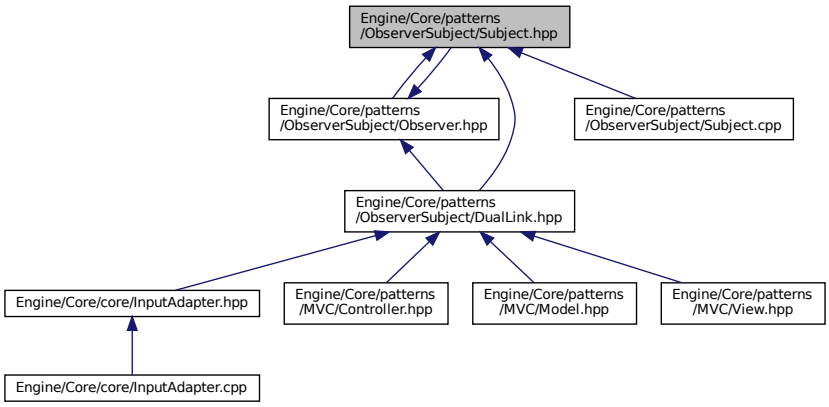
- OSDL

8.39 Engine/Core/patterns/ObserverSubject/Subject.hpp File Reference

```
#include "Observer.hpp"
#include <vector>
```
Include dependency graph for Subject.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class OSDL::Subject

Namespaces

- OSDL

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