sfs-visualizer

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1.1 Class Hierarchy

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Chapter 3

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3.1 File List

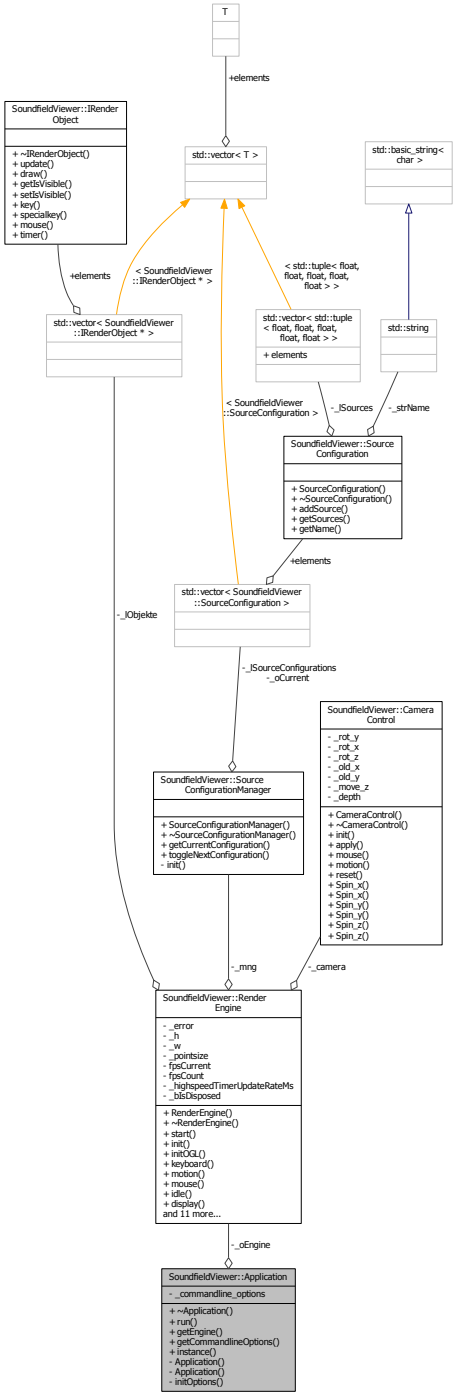
Here is a list of all documented files with brief descriptions:

Chapter 4

Class Documentation

4.1 SoundfieldViewer::Application Class Reference

Collaboration diagram for SoundfieldViewer::Application:



Public Member Functions

- int **run** (int ac, char ∗av[])
- **RenderEngine** & **getEngine** ()
- boost::program_options::variables_map **getCommandlineOptions** () const

Static Public Member Functions

- static **Application** & **instance** ()

Private Member Functions

- **Application** (const **Application** &)
- void **initOptions** (int ac, char ∗av[])

Private Attributes

- **RenderEngine _oEngine**
- boost::program_options::variables_map **_commandline_options**

4.1.1 Detailed Description

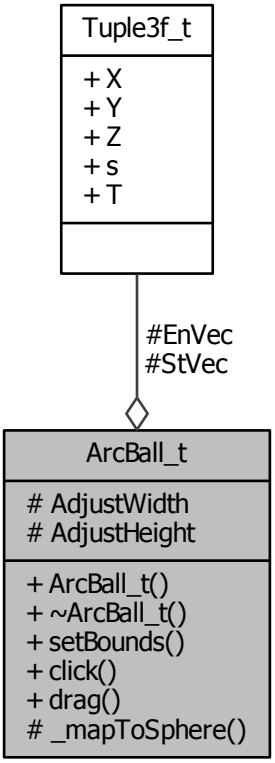
Definition at line 8 of file application.h.

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

- application.h
- application.cpp

4.2 ArcBall_t Class Reference

Collaboration diagram for ArcBall_t:



Public Member Functions

- **ArcBall_t** (GLfloat NewWidth, GLfloat NewHeight)
- void **setBounds** (GLfloat NewWidth, GLfloat NewHeight)
- void **click** (const **Tuple2fT** ∗NewPt)
- void **drag** (const **Tuple2fT** ∗NewPt, **Tuple4fT** ∗NewRot)

Protected Member Functions

- void **_mapToSphere** (const **Tuple2fT** ∗NewPt, **Tuple3fT** ∗NewVec) const

  KempoApi: The Turloc Toolkit.

Protected Attributes

- **Tuple3fT StVec**
- **Tuple3fT EnVec**
- GLfloat **AdjustWidth**
- GLfloat **AdjustHeight**

4.2.1 Detailed Description

Definition at line 437 of file ArcBall.h.

4.2.2 Member Function Documentation

4.2.2.1 void ArcBall_t::_mapToSphere (const Tuple2fT * *NewPt,* Tuple3fT * *NewVec*) const [inline], [protected]

KempoApi: The Turloc Toolkit.

- * ** ** Filename: **ArcBall.cpp** (p. **??**) ** Version: Common ** Arcball class for mouse manipulation. (C) 1999-2003 Tatewake.com History: 08/17/2003 - (TJG) - Creation 09/23/2003 - (TJG) - Bug fix and optimization 09/25/2003 - (TJG) - Version for NeHe Basecode users

Definition at line 35 of file ArcBall.cpp.

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

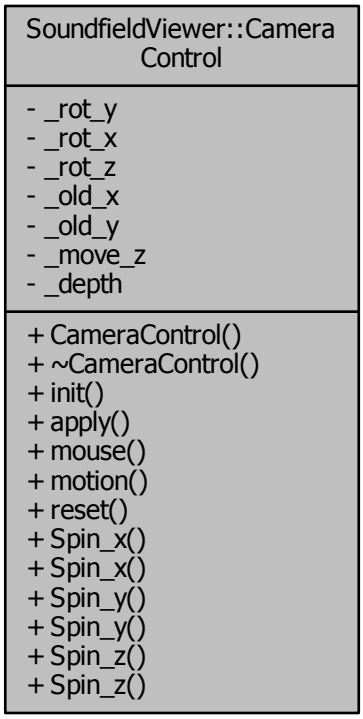
- ArcBall.h
- ArcBall.cpp

4.3 SoundfieldViewer::CameraControl Class Reference

Eine Kamera mit x-y Rotation und Zoom.

`#include <cameracontrol.h>`

Collaboration diagram for SoundfieldViewer::CameraControl:



Public Member Functions

- void **init** (int width, int height)
- void **apply** ()
- void **mouse** (int button, int state, int x, int y)
- void **motion** (int x, int y)
- void **reset** ()
- int **Spin_x** () const
- void **Spin_x** (int val)
- int **Spin_y** () const
- void **Spin_y** (int val)
- int **Spin_z** () const
- void **Spin_z** (int val)

Private Attributes

- int **_rot_y**
- int **_rot_x**
- int **_rot_z**
- int **_old_x**
- int **_old_y**
- int **_move_z**
- int **_depth**

4.3.1 Detailed Description

Eine Kamera mit x-y Rotation und Zoom.

Definition at line 10 of file cameracontrol.h.

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

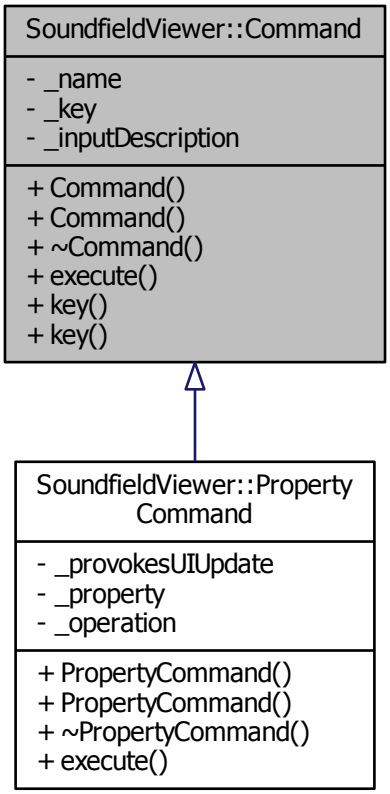
- cameracontrol.h
- cameracontrol.cpp

4.4 SoundfieldViewer::Command Class Reference

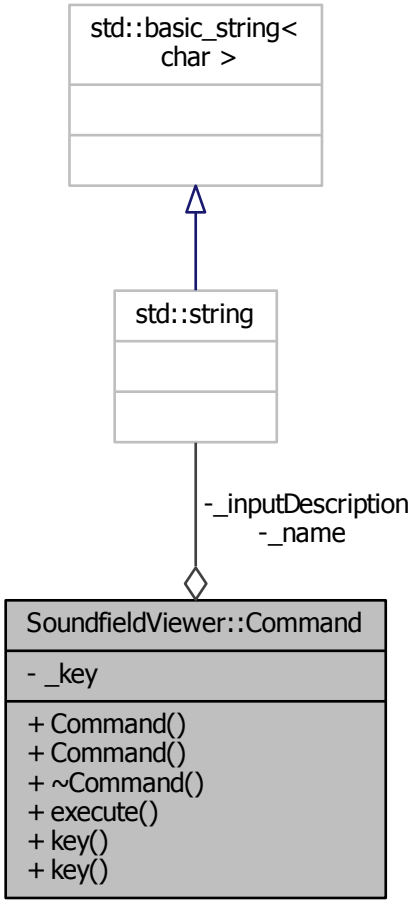
Command class

`#include <command.h>`

Inheritance diagram for SoundfieldViewer::Command:



Collaboration diagram for SoundfieldViewer::Command:



Public Member Functions

- **Command** (unsigned char key, const std::string &inputDescription, const std::string &name)
- virtual bool **execute** ()=0
- char **key** () const
- void **key** (char val)

Private Attributes

- std::string **_name**
- unsigned char **_key**
- std::string **_inputDescription**

4.4.1 Detailed Description

Command class

Definition at line 16 of file command.h.

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

- **command.h**

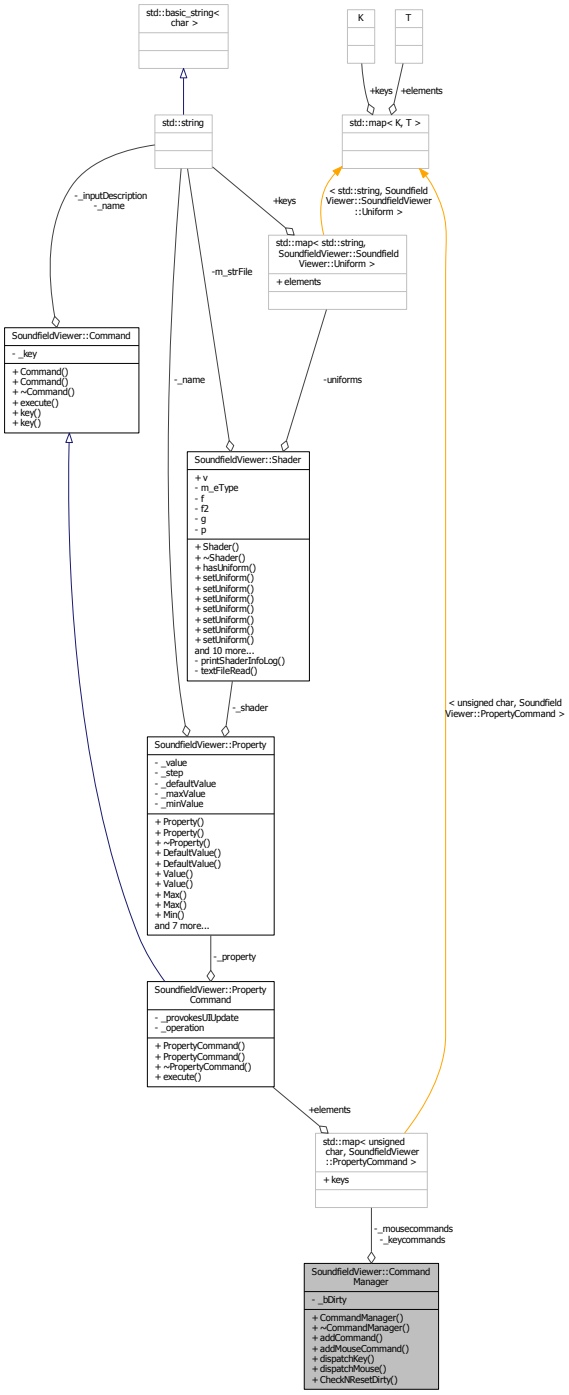
- command.cpp

4.5 SoundfieldViewer::CommandManager Class Reference

CommandManager class capsulates a value, that can be modified and saved

`#include <commandmanager.h>`

Collaboration diagram for SoundfieldViewer::CommandManager:



Public Member Functions

- void **addCommand** (const std::string &name, unsigned char key, const std::string &inputDescription, **Property** &prop, PropertyCommand::Operation operation)
- void **addMouseCommand** (const std::string &name, unsigned char key, const std::string &inputDescription, **Property** &prop, PropertyCommand::Operation operation)
- void **dispatchKey** (unsigned char key)
- void **dispatchMouse** (unsigned char key)

- bool **CheckNResetDirty** ()

Private Attributes

- bool **_bDirty**

- std::map< unsigned char, **PropertyCommand** > **_keycommands**

- std::map< unsigned char, **PropertyCommand** > **_mousecommands**

4.5.1 Detailed Description

CommandManager class capsulates a value, that can be modified and saved

Definition at line 17 of file commandmanager.h.

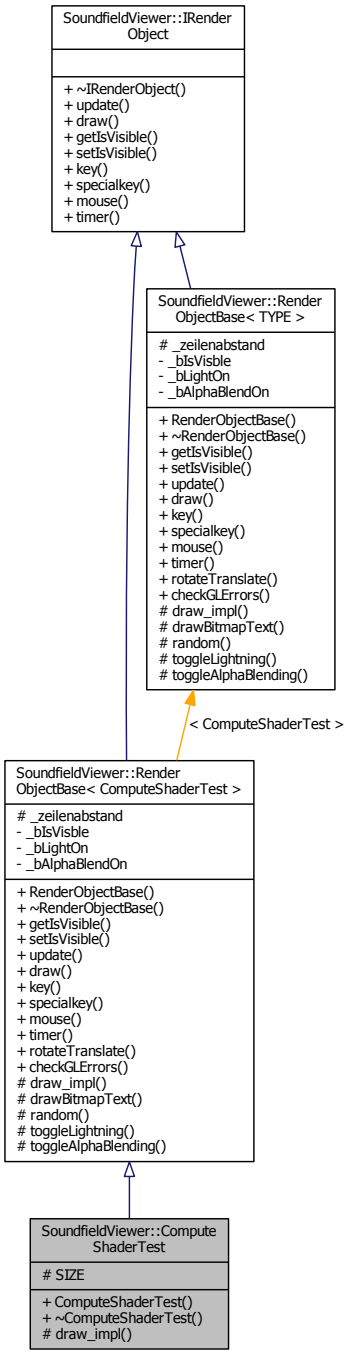
The documentation for this class was generated from the following files:

- **commandmanager.h**

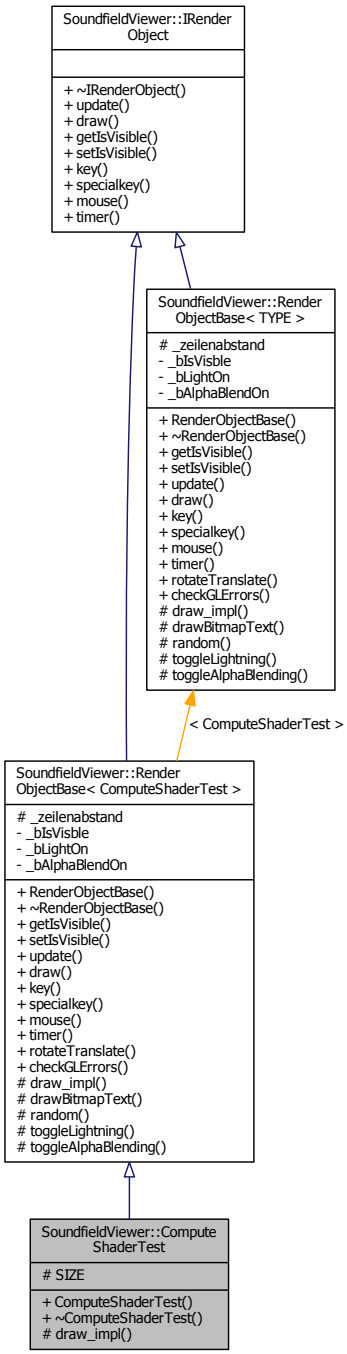
- commandmanager.cpp

4.6 SoundfieldViewer::ComputeShaderTest Class Reference

Inheritance diagram for SoundfieldViewer::ComputeShaderTest:



Collaboration diagram for SoundfieldViewer::ComputeShaderTest:



Protected Member Functions

- virtual void **draw_impl** ()

Static Protected Attributes

- static const int **SIZE** = 128

Additional Inherited Members

4.6.1 Detailed Description

Definition at line 9 of file computeshadertest.h.

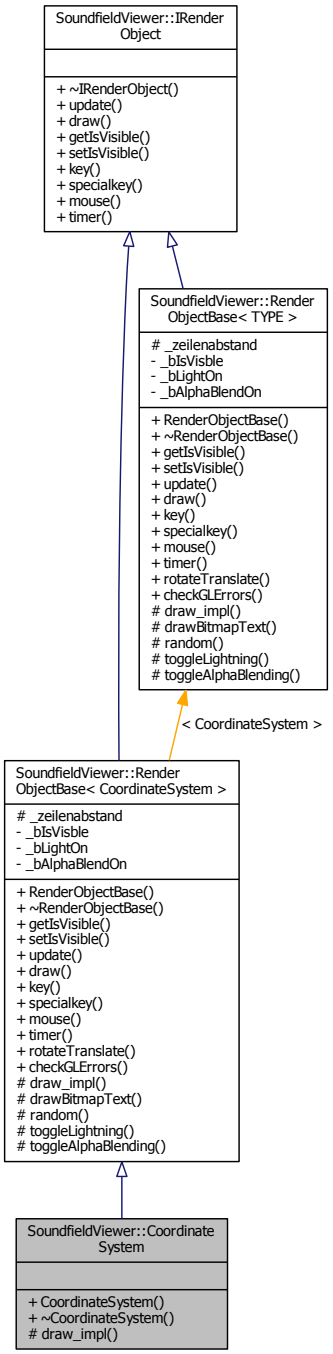
The documentation for this class was generated from the following files:

- computeshadertest.h

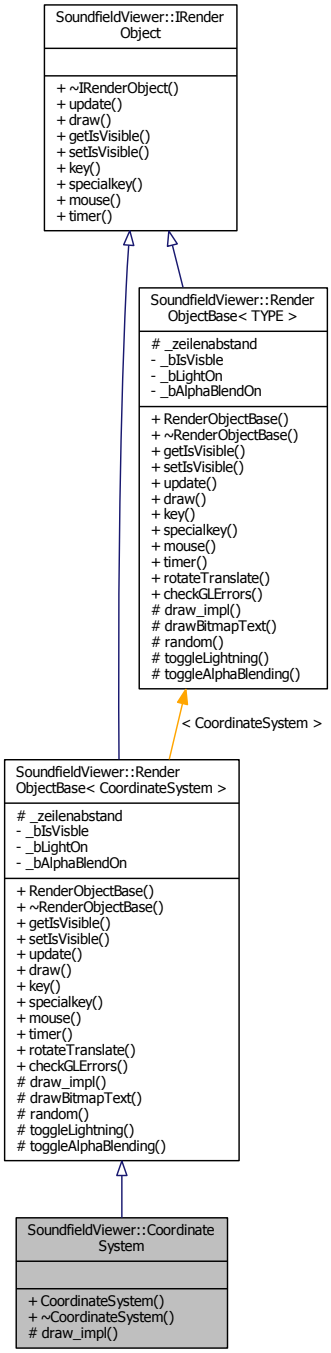
- computeshadertest.cpp

4.7 SoundfieldViewer::CoordinateSystem Class Reference

Inheritance diagram for SoundfieldViewer::CoordinateSystem:



Collaboration diagram for SoundfieldViewer::CoordinateSystem:



Protected Member Functions

- virtual void **draw_impl** ()

Additional Inherited Members

4.7.1 Detailed Description

Definition at line 9 of file coordinatesystem.h.

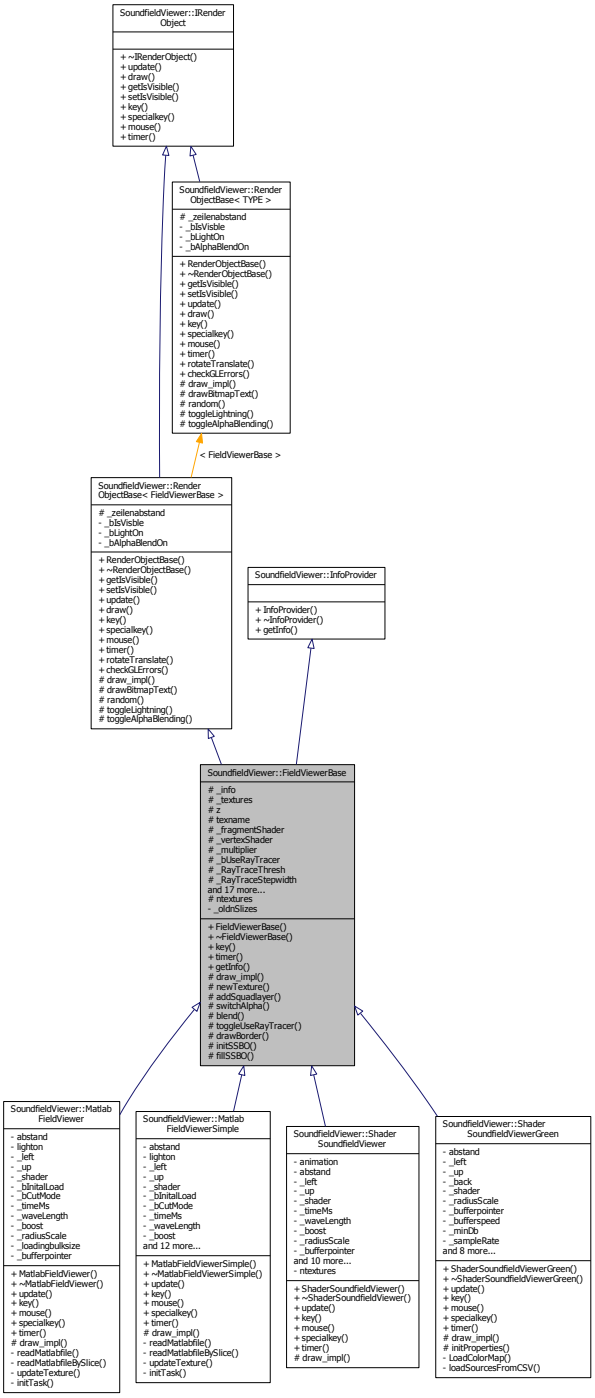
The documentation for this class was generated from the following files:

- coordinatesystem.h

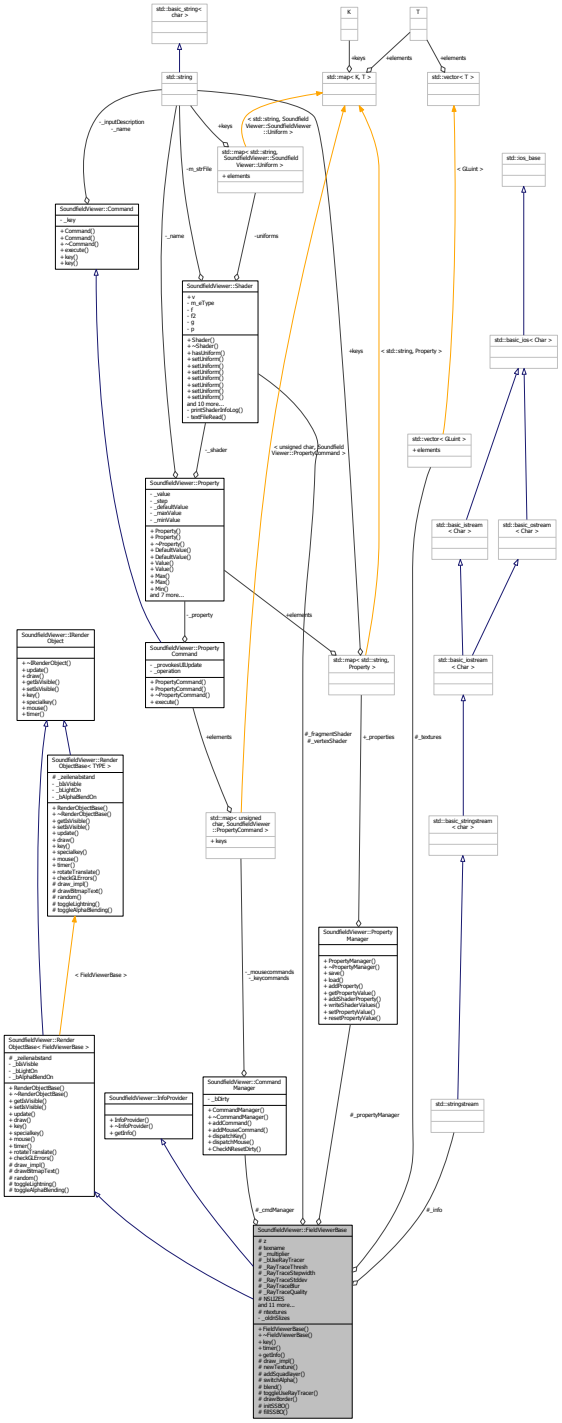
- coordinatesystem.cpp

4.8 SoundfieldViewer::FieldViewerBase Class Reference

Inheritance diagram for SoundfieldViewer::FieldViewerBase:



Collaboration diagram for SoundfieldViewer::FieldViewerBase:



Public Member Functions

- virtual void **key** (unsigned char key, int x, int y)
- virtual void **timer** (int updateRateMs)
- virtual const std::string **getInfo** () const

Protected Member Functions

- virtual void **draw_impl** ()
- virtual void **newTexture** ()
- void **addSquadlayer** (float zOffset)
- void **switchAlpha** ()
- void **blend** (int blend)
- void **toggleUseRayTracer** ()
- void **drawBorder** ()
- void **initSSBO** (GLuint index, bool bRand)
- void **fillSSBO** (const GLvoid ∗buffer, GLsizeiptr size, GLuint index)

Protected Attributes

- std::stringstream **_info**
- std::vector< GLuint > **_textures**
- float **z**
- unsigned int **texname** [ntextures]
- **Shader** ∗ **_fragmentShader**
- **Shader** ∗ **_vertexShader**
- float **_multiplier**
- bool **_bUseRayTracer**
- float **_RayTraceThresh**
- float **_RayTraceStepwidth**
- float **_RayTraceStddev**
- float **_RayTraceBlur**
- float **_RayTraceQuality**
- int **NSLIZES**
- int **currenttexture**
- int **alphablendfunction**
- int **alphablendmode**
- float **alphatest**
- int **WIDTH**
- int **HEIGHT**
- int **DEPTH**
- unsigned int **_sources**
- bool **valueChanged**
- int **animation**
- bool **_bDrawBorder**
- **CommandManager _cmdManager**
- **PropertyManager _propertyManager**

Static Protected Attributes

- static const int **ntextures** = 1

Private Attributes

- int **_oldnSlizes**

Additional Inherited Members

4.8.1 Detailed Description

Definition at line 16 of file fieldviewerbase.h.

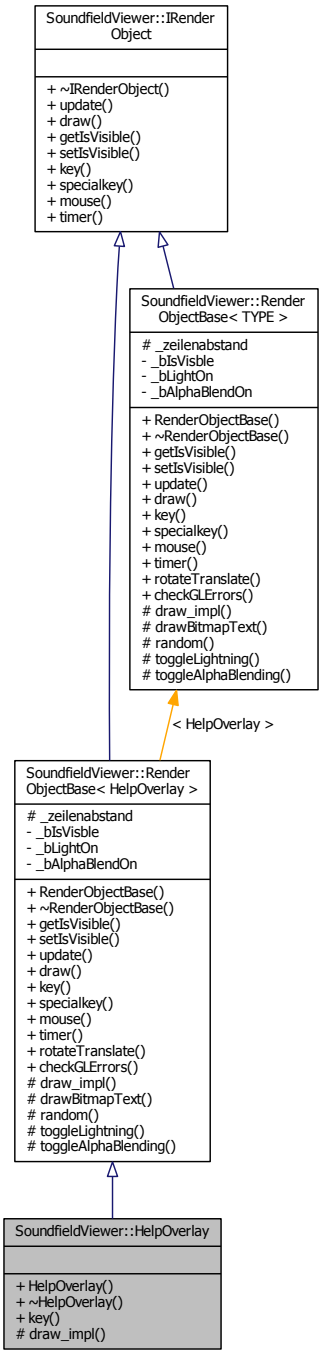
The documentation for this class was generated from the following files:

- fieldviewerbase.h

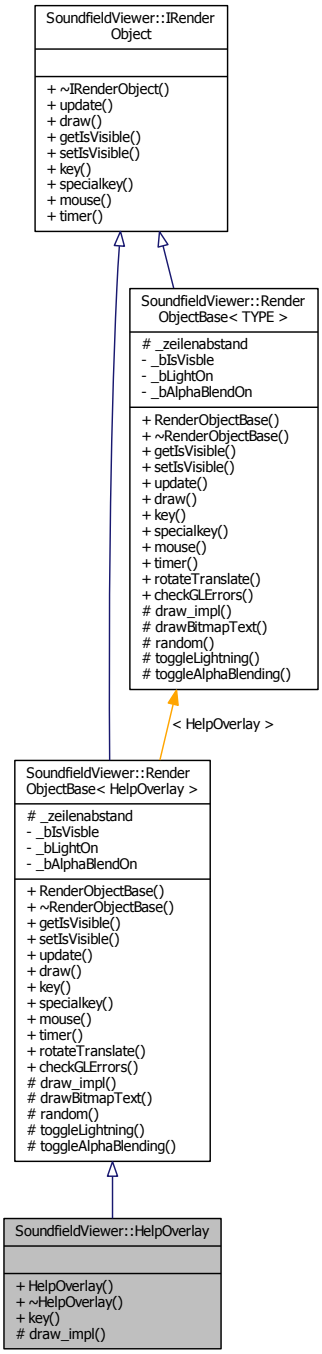
- fieldviewerbase.cpp

4.9 SoundfieldViewer::HelpOverlay Class Reference

Inheritance diagram for SoundfieldViewer::HelpOverlay:



Collaboration diagram for SoundfieldViewer::HelpOverlay:



Public Member Functions

- virtual void **key** (unsigned char key, int x, int y)

Protected Member Functions

- virtual void **draw_impl** ()

Additional Inherited Members

4.9.1 Detailed Description

Definition at line 8 of file helpoverlay.h.

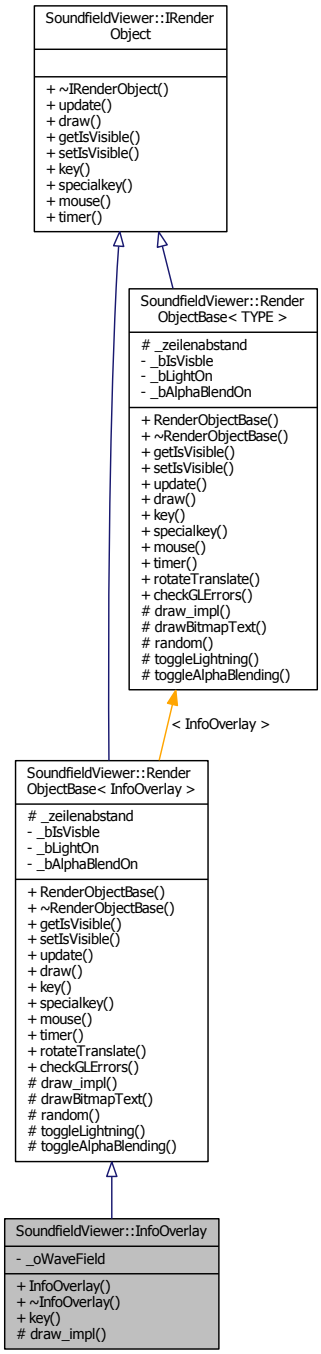
The documentation for this class was generated from the following files:

- helpoverlay.h

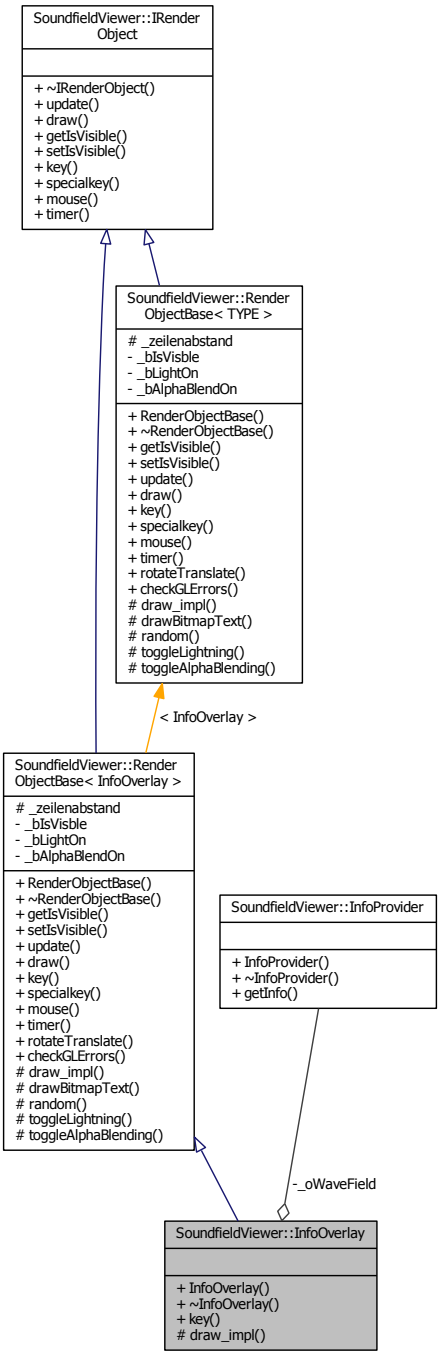
- helpoverlay.cpp

4.10 SoundfieldViewer::InfoOverlay Class Reference

Inheritance diagram for SoundfieldViewer::InfoOverlay:



Collaboration diagram for SoundfieldViewer::InfoOverlay:



Public Member Functions

- **InfoOverlay** (**InfoProvider** &wavefield)
- virtual void **key** (unsigned char key, int x, int y)

Protected Member Functions

- virtual void **draw_impl** ()

Private Attributes

- **InfoProvider** & **_oWaveField**

Additional Inherited Members

4.10.1 Detailed Description

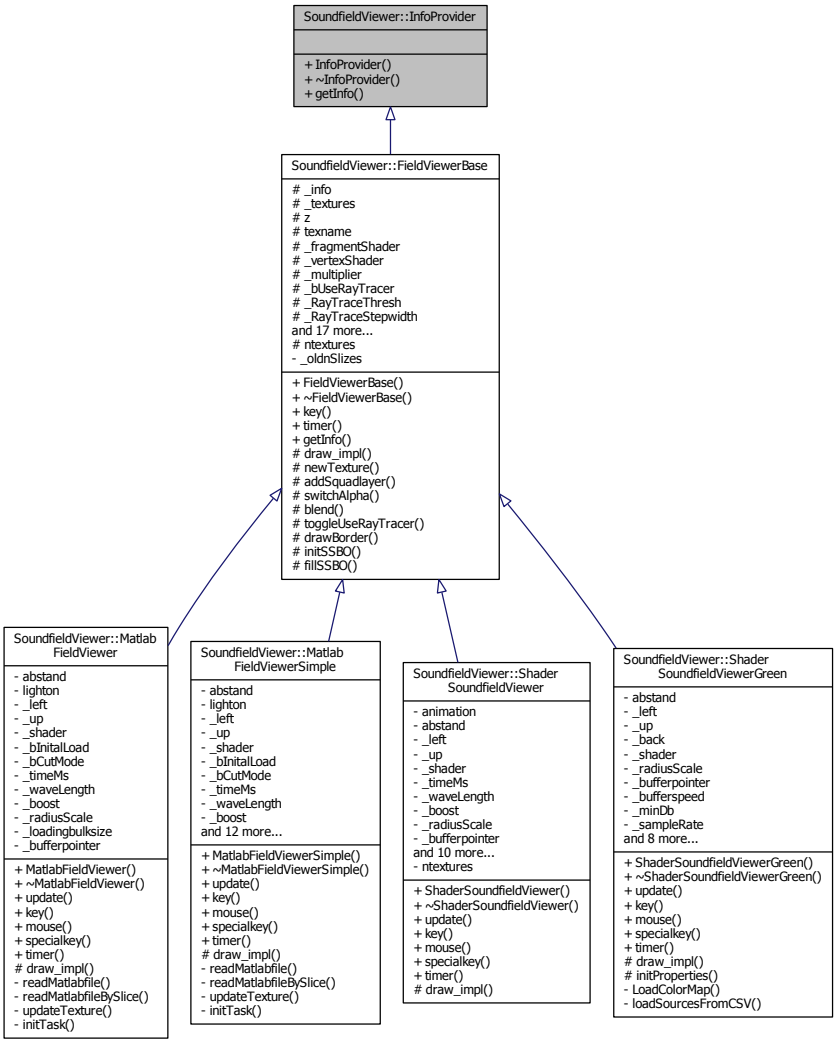
Definition at line 11 of file infooverlay.h.

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

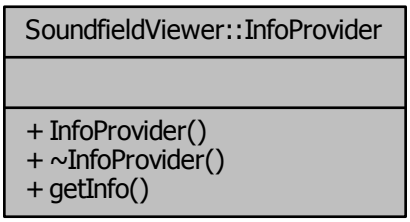
- infooverlay.h
- infooverlay.cpp

4.11 SoundfieldViewer::InfoProvider Class Reference

Inheritance diagram for SoundfieldViewer::InfoProvider:



Collaboration diagram for SoundfieldViewer::InfoProvider:



Public Member Functions

- virtual const std::string **getInfo** () const =0

4.11.1 Detailed Description

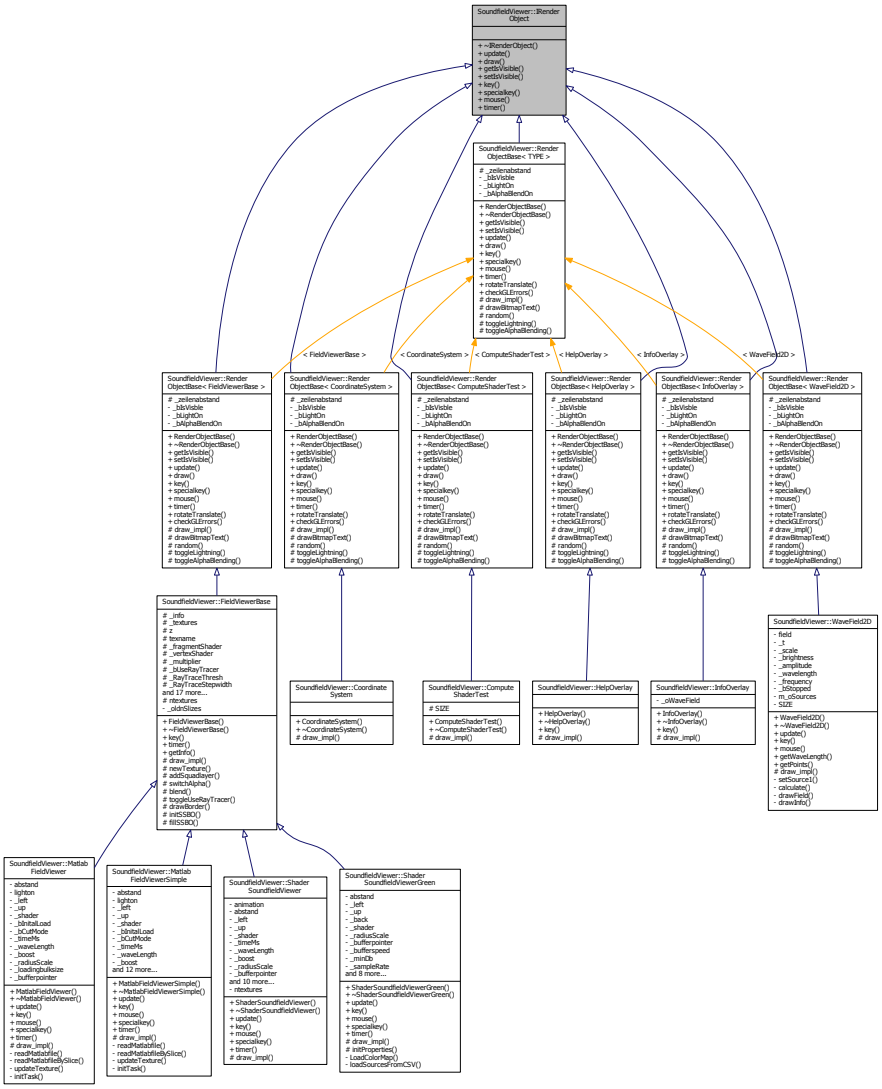
Definition at line 8 of file infoprovider.h.

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

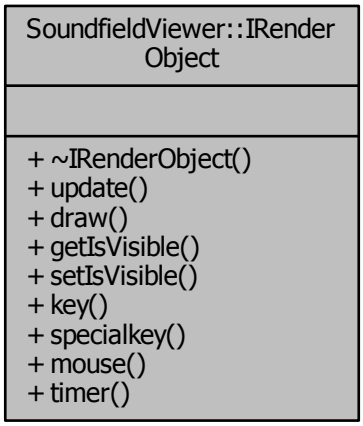
- infoprovider.h
- infoprovider.cpp

4.12 SoundfieldViewer::IRenderObject Class Reference

Inheritance diagram for SoundfieldViewer::IRenderObject:



Collaboration diagram for SoundfieldViewer::IRenderObject:



Public Member Functions

- virtual void **update** ()=0
- virtual void **draw** ()=0
- virtual bool **getIsVisible** ()=0
- virtual void **setIsVisible** (bool)=0
- virtual void **key** (unsigned char key, int x, int y)=0
- virtual void **specialkey** (int key, int x, int y)=0
- virtual void **mouse** (int button, int state, int x, int y)=0
- virtual void **timer** (int updateRateMs)=0

4.12.1 Detailed Description

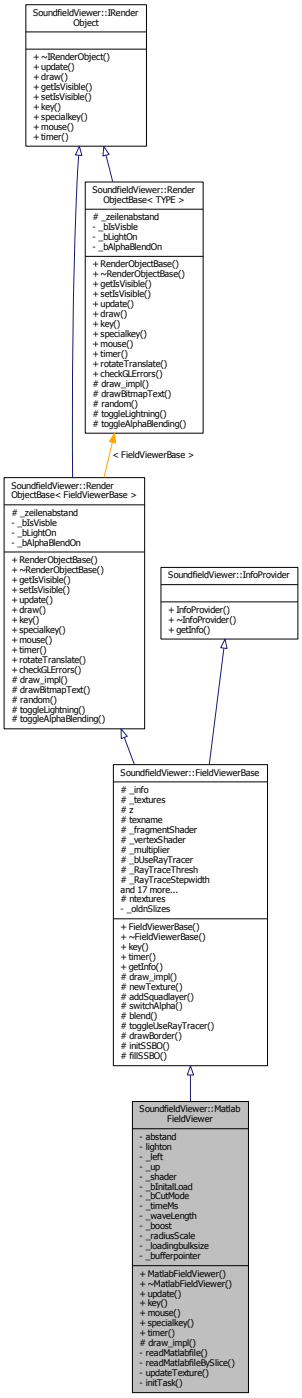
Definition at line 10 of file renderobject.h.

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

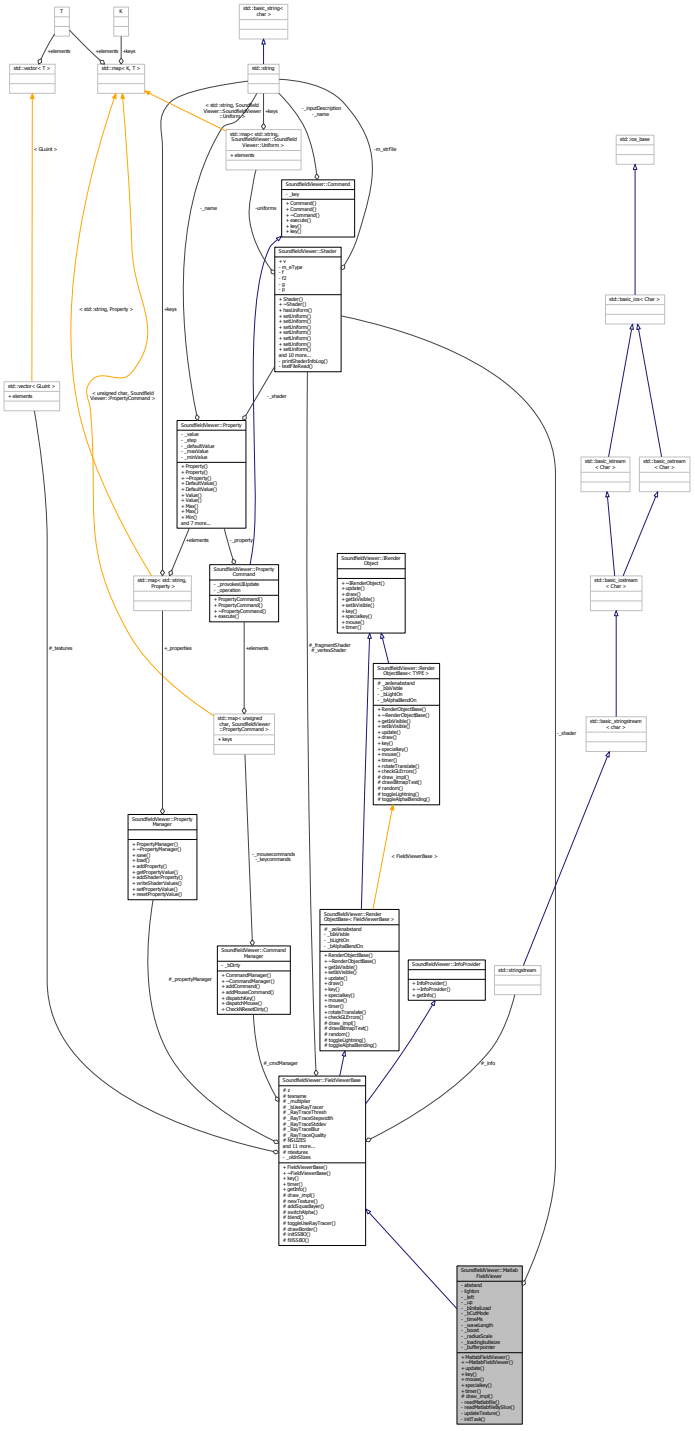
- renderobject.h
- renderobject.cpp

4.13 SoundfieldViewer::MatlabFieldViewer Class Reference

Inheritance diagram for SoundfieldViewer::MatlabFieldViewer:



Collaboration diagram for SoundfieldViewer::MatlabFieldViewer:



Public Member Functions

- virtual void **update** ()
- virtual void **key** (unsigned char key, int x, int y)
- virtual void **mouse** (int button, int state, int x, int y)
- virtual void **specialkey** (int key, int x, int y)
- virtual void **timer** (int updateRateMs)

Protected Member Functions

- virtual void **draw_impl** ()

Private Member Functions

- void **readMatlabfile** (const char *file_name)
- void **readMatlabfileBySlice** (const char *file_name)
- void **updateTexture** ()
- void **initTask** (boost::exception_ptr &error)

Private Attributes

- float **abstand**
- unsigned int **lighton**
- float **_left**
- float **_up**
- **Shader** * **_shader**
- bool **_bInitalLoad**
- bool **_bCutMode**
- unsigned float **_timeMs**
- float **_waveLength**
- float **_boost**
- float **_radiusScale**
- int **_loadingbulksize**
- unsigned int **_bufferpointer**

Additional Inherited Members

4.13.1 Detailed Description

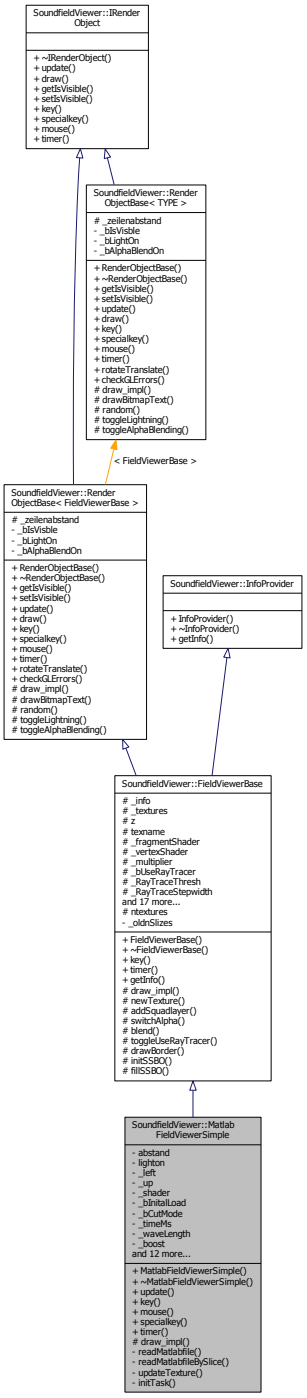
Definition at line 16 of file matlabfieldviewer.h.

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

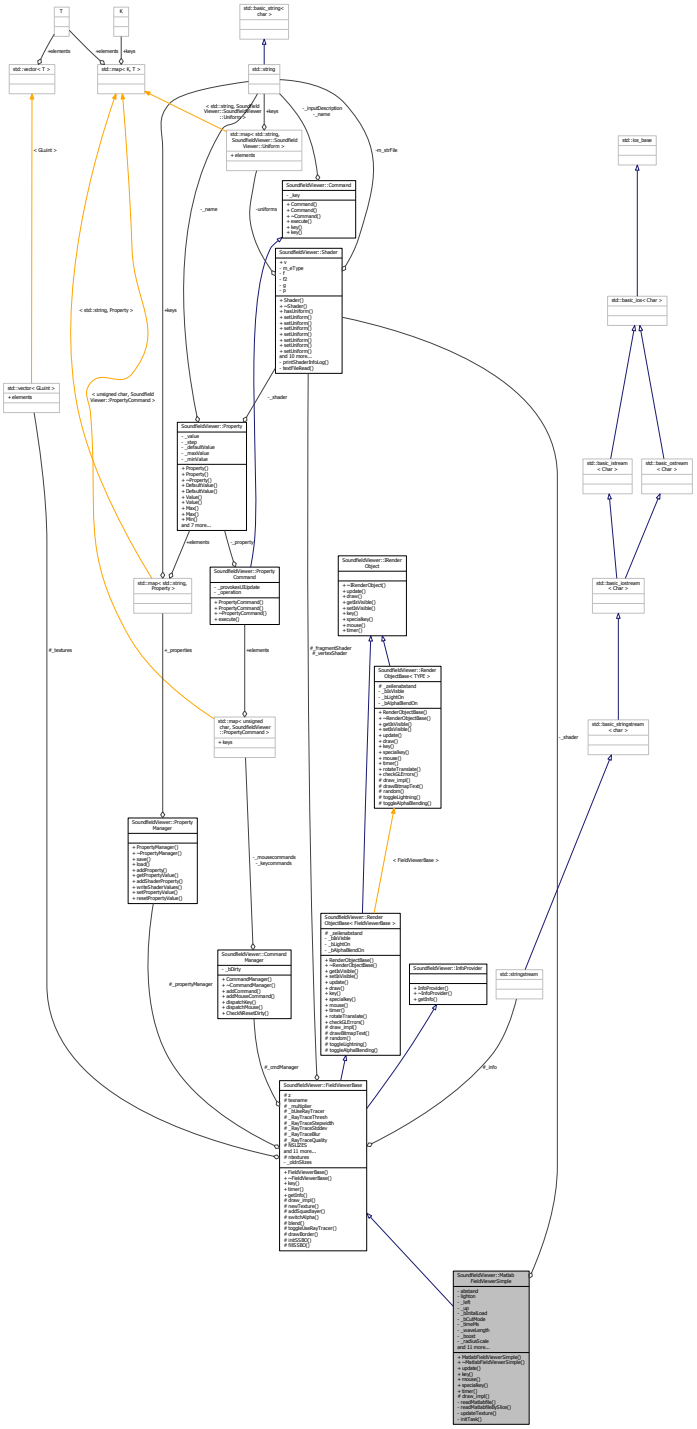
- matlabfieldviewer.h
- matlabfieldviewer.cpp

4.14 SoundfieldViewer::MatlabFieldViewerSimple Class Reference

Inheritance diagram for SoundfieldViewer::MatlabFieldViewerSimple:



Collaboration diagram for SoundfieldViewer::MatlabFieldViewerSimple:



Public Member Functions

- virtual void **update** ()
- virtual void **key** (unsigned char key, int x, int y)
- virtual void **mouse** (int button, int state, int x, int y)
- virtual void **specialkey** (int key, int x, int y)
- virtual void **timer** (int updateRateMs)

Protected Member Functions

- virtual void **draw_impl** ()

Private Member Functions

- void **readMatlabfile** (const char *file_name)
- void **readMatlabfileBySlice** (const char *file_name)
- void **updateTexture** ()
- void **initTask** (boost::exception_ptr &error)

Private Attributes

- float **abstand**
- unsigned int **lighton**
- float **_left**
- float **_up**
- **Shader** * **_shader**
- bool **_bInitalLoad**
- bool **_bCutMode**
- unsigned float **_timeMs**
- float **_waveLength**
- float **_boost**
- float **_radiusScale**
- int **_loadingbulksize**
- unsigned int **_bufferpointer**
- int **currentZ**
- float **_xCut**
- float **_yCut**
- float **_zCut**
- boost::exception_ptr **error**
- int **hackCountTextures**
- float **_fieldmax**
- GLfloat * **image2**
- boost::thread **thread_1**

Additional Inherited Members

4.14.1 Detailed Description

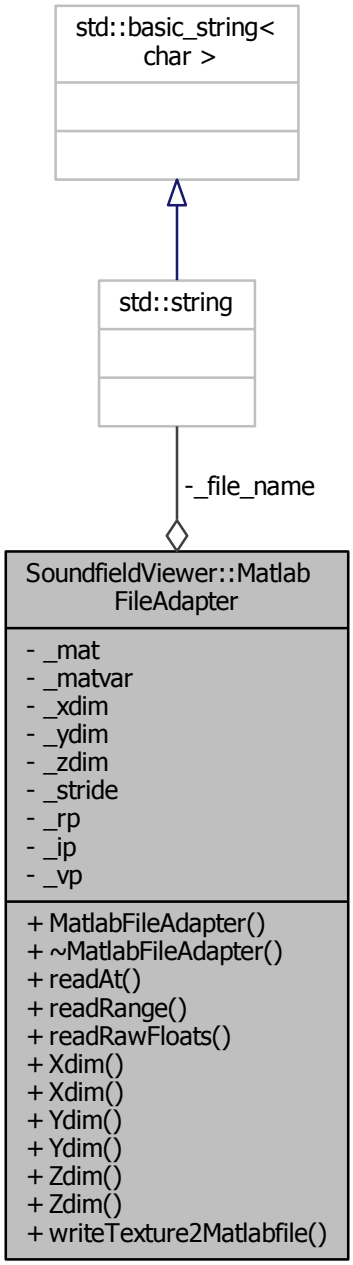
Definition at line 20 of file matlabfieldviewersimple.h.

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

- matlabfieldviewersimple.h
- matlabfieldviewersimple.cpp

4.15 SoundfieldViewer::MatlabFileAdapter Class Reference

Collaboration diagram for SoundfieldViewer::MatlabFileAdapter:



Public Member Functions

- **MatlabFileAdapter** (const std::string &file_name)
- GLfloat **readAt** (int x, int y, int z)
- void **readRange** (int start, int count, GLfloat ∗result)

- void **readRawFloats** (GLfloat **result)
- int **Xdim** () const
- void **Xdim** (int val)
- int **Ydim** () const
- void **Ydim** (int val)
- int **Zdim** () const
- void **Zdim** (int val)

Static Public Member Functions

- static void **writeTexture2Matlabfile** (GLint textureId, int width, int height, int depth, const std::string &file)

Private Attributes

- const std::string & **_file_name**
- mat_t * **_mat**
- matvar_t * **_matvar**
- int **_xdim**
- int **_ydim**
- int **_zdim**
- int **_stride**
- char * **_rp**
- char * **_ip**
- char * **_vp**

4.15.1 Detailed Description

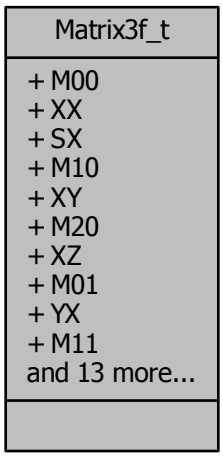
Definition at line 10 of file matlabfileadapter.h.

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

- matlabfileadapter.h
- matlabfileadapter.cpp

4.16 Matrix3f_t Union Reference

Collaboration diagram for Matrix3f_t:



Public Attributes

- struct {
  union {
  GLfloat **M00**
  GLfloat **XX**
  GLfloat **SX**
  }
  union {
  GLfloat **M10**
  GLfloat **XY**
  }
  union {
  GLfloat **M20**
  GLfloat **XZ**
  }
  union {
  GLfloat **M01**
  GLfloat **YX**
  }
  union {
  GLfloat **M11**
  GLfloat **YY**
  GLfloat **SY**
  }
  union {
  GLfloat **M21**
  GLfloat **YZ**
  }
  union {
  GLfloat **M02**

GLfloat **ZX**
}
union {
GLfloat **M12**
GLfloat **ZY**
}
union {
GLfloat **M22**
GLfloat **ZZ**
GLfloat **SZ**
}
} **s**

- GLfloat **M** [9]

4.16.1 Detailed Description

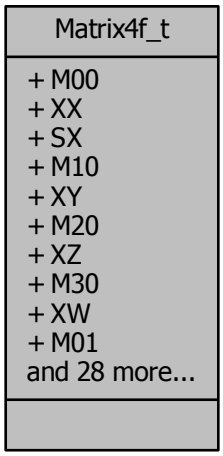
Definition at line 63 of file ArcBall.h.

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

- ArcBall.h

4.17 Matrix4f_t Union Reference

Collaboration diagram for Matrix4f_t:



Public Attributes

- struct {
union {
GLfloat **M00**
GLfloat **XX**

GLfloat **SX**
}
union {
GLfloat **M10**
GLfloat **XY**
}
union {
GLfloat **M20**
GLfloat **XZ**
}
union {
GLfloat **M30**
GLfloat **XW**
}
union {
GLfloat **M01**
GLfloat **YX**
}
union {
GLfloat **M11**
GLfloat **YY**
GLfloat **SY**
}
union {
GLfloat **M21**
GLfloat **YZ**
}
union {
GLfloat **M31**
GLfloat **YW**
}
union {
GLfloat **M02**
GLfloat **ZX**
}
union {
GLfloat **M12**
GLfloat **ZY**
}
union {
GLfloat **M22**
GLfloat **ZZ**
GLfloat **SZ**
}
union {
GLfloat **M32**
GLfloat **ZW**
}
union {
GLfloat **M03**
GLfloat **TX**
}
union {
GLfloat **M13**
GLfloat **TY**
}
union {
GLfloat **M23**

```
        GLfloat TZ
      }
      union {
        GLfloat M33
        GLfloat TW
        GLfloat SW
      }
    } s
```

- GLfloat **M** [16]

4.17.1 Detailed Description

Definition at line 81 of file ArcBall.h.

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

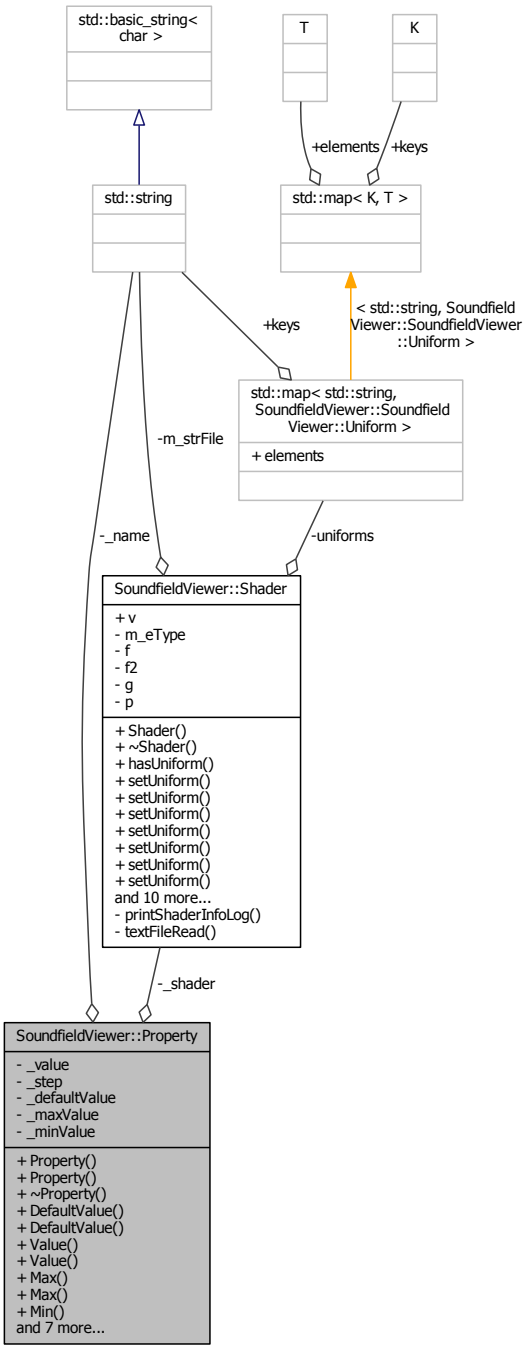
- ArcBall.h

4.18 SoundfieldViewer::Property Class Reference

Property class capsulates a value, that can be modified and saved

`#include <Property.h>`

Collaboration diagram for SoundfieldViewer::Property:



Public Member Functions

- **Property** (float value, std::string name, float step, float defaultValue, **Shader** ∗shader=NULL)
- float **DefaultValue** () const
- void **DefaultValue** (float val)
- float **Value** () const
- void **Value** (float val)

- float **Max** () const
- void **Max** (float val)
- float **Min** () const
- void **Min** (float val)
- std::string **Name** () const
- void **Name** (std::string val)
- float **Step** () const
- void **Step** (float val)
- void **writeShaderValue** ()
- void **resetToDefault** ()

Private Attributes

- float **_value**
- std::string **_name**
- float **_step**
- float **_defaultValue**
- float **_maxValue**
- float **_minValue**
- **Shader** * **_shader**

4.18.1 Detailed Description

Property class capsulates a value, that can be modified and saved

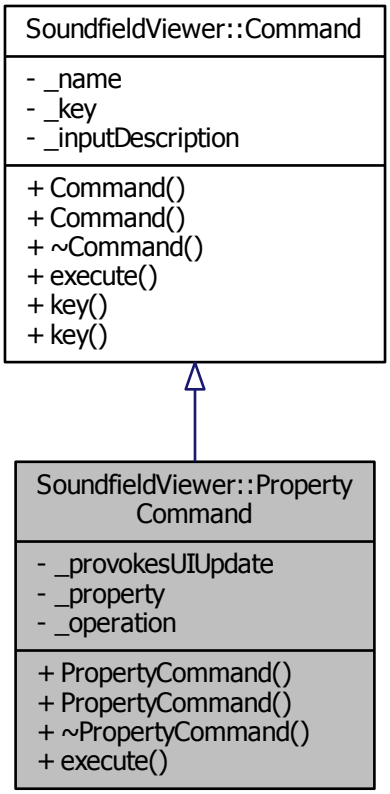
Definition at line 17 of file Property.h.

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

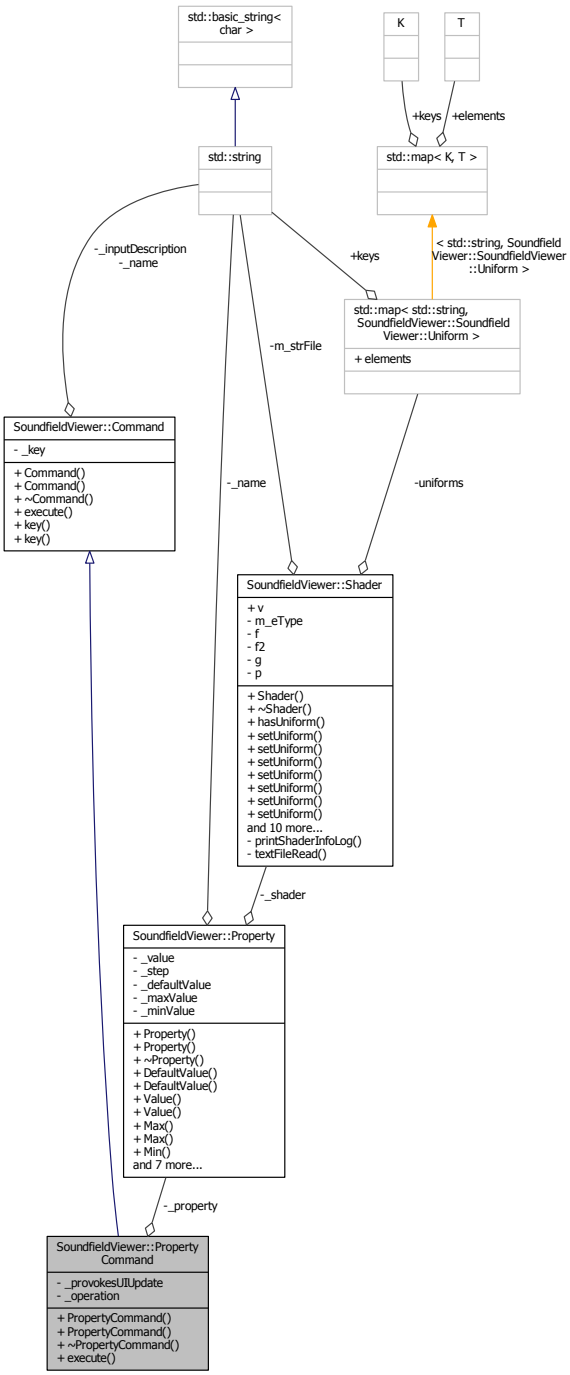
- **Property.h**
- Property.cpp

4.19 SoundfieldViewer::PropertyCommand Class Reference

Inheritance diagram for SoundfieldViewer::PropertyCommand:



Collaboration diagram for SoundfieldViewer::PropertyCommand:



Public Types

- enum **Operation** {
  Add, **Sub**, **Mul**, **Div**,
  Reset, **Toggle** }

Public Member Functions

- **PropertyCommand** (unsigned char key, const std::string &inputDescription, const std::string &name, **Property** &property, PropertyCommand::Operation operation, bool provokesUIUpdate=false)
- bool **execute** ()

Private Attributes

- bool **_provokesUIUpdate**
- **Property** & **_property**
- Operation **_operation**

4.19.1 Detailed Description

Definition at line 36 of file command.h.

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

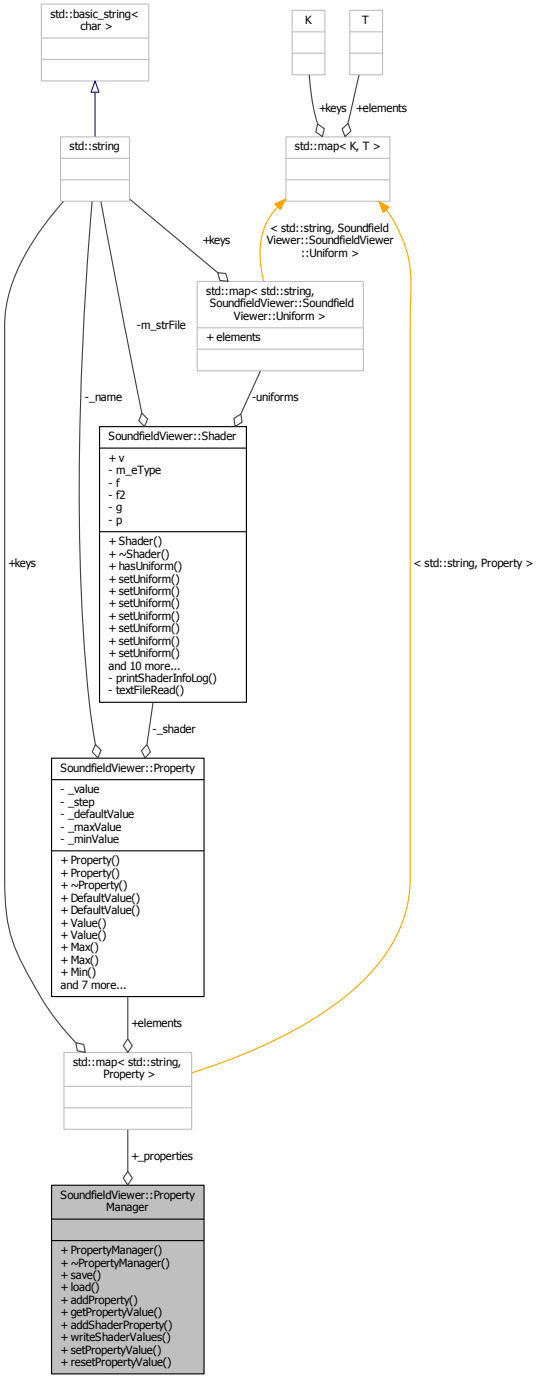
- **command.h**
- command.cpp

4.20 SoundfieldViewer::PropertyManager Class Reference

PropertyManager class

`#include <propertymanager.h>`

Collaboration diagram for SoundfieldViewer::PropertyManager:



Public Member Functions

- void **save** ()
- void **load** ()
- **Property** & **addProperty** (const std::string &name, float defaultValue)
- float **getPropertyValue** (const std::string &name)
- **Property** & **addShaderProperty** (const std::string &name, float defaultValue, **Shader** ∗_shader)

- void **writeShaderValues** ()

- void **setPropertyValue** (const std::string &name, float val)

- void **resetPropertyValue** (const std::string &name)

Public Attributes

- PropertyMap **_properties**

4.20.1 Detailed Description

PropertyManager class

Definition at line 21 of file propertymanager.h.

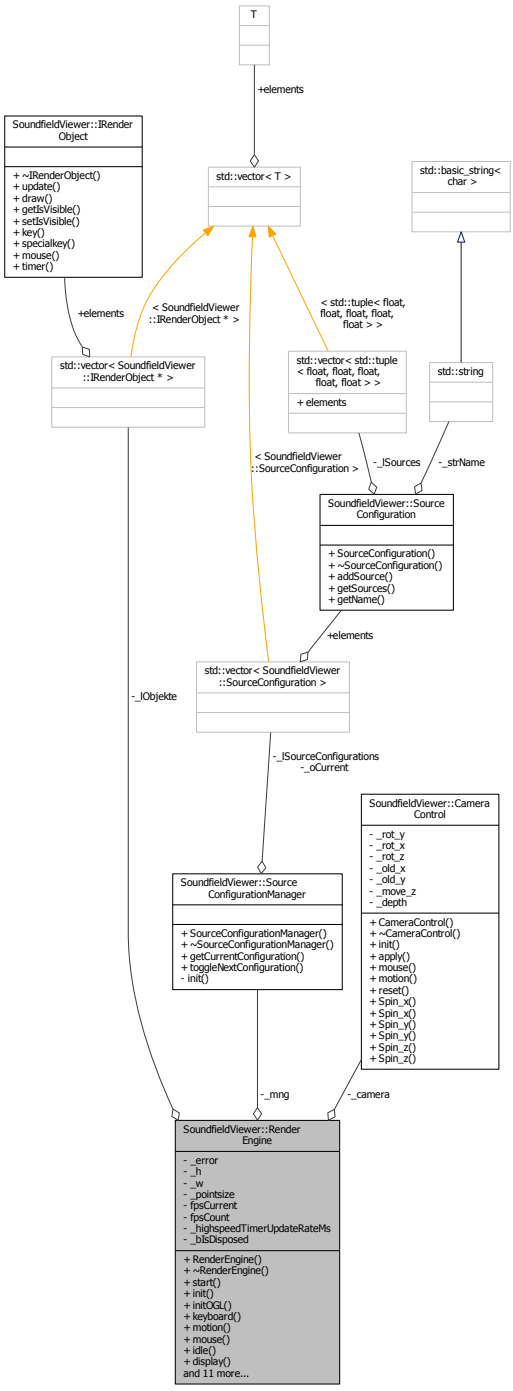
The documentation for this class was generated from the following files:

- **propertymanager.h**

- propertymanager.cpp

4.21 SoundfieldViewer::RenderEngine Class Reference

Collaboration diagram for SoundfieldViewer::RenderEngine:



Public Member Functions

- void **start** ()
- void **init** (void)
- void **initOGL** ()

- void **keyboard** (unsigned char key, int x, int y)
- void **motion** (int x, int y)
- void **mouse** (int button, int state, int x, int y)
- void **idle** (void)
- void **display** (void)
- void **reshape** (int width, int height)
- void **end** (int code)
- void **specialkey** (int key, int x, int y)
- void **timer** (int val)
- void **highspeedtimer** (int val)
- **SoundfieldViewer::CameraControl Camera** () const
- void **Camera** (**SoundfieldViewer::CameraControl** val)
- int **getHeight** () const
- int **getWidth** () const
- void **grabPixels** ()
- void **shutdown** ()

Private Attributes

- boost::exception_ptr **_error**
- int **_h**
- int **_w**
- float **_pointsize**
- std::vector< **IRenderObject** * > **_IObjekte**
- **CameraControl _camera**
- **SourceConfigurationManager _mng**
- unsigned int **fpsCurrent**
- unsigned int **fpsCount**
- unsigned int **_highspeedTimerUpdateRateMs**
- bool **_bIsDisposed**

4.21.1 Detailed Description

Definition at line 14 of file renderengine.h.

4.21.2 Member Function Documentation

4.21.2.1 void SoundfieldViewer::RenderEngine::initOGL ( )

glBlendFunc (GL_SRC_ALPHA,GL_ONE_MINUS_SRC_ALPHA);*/

Definition at line 62 of file renderengine.cpp.

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

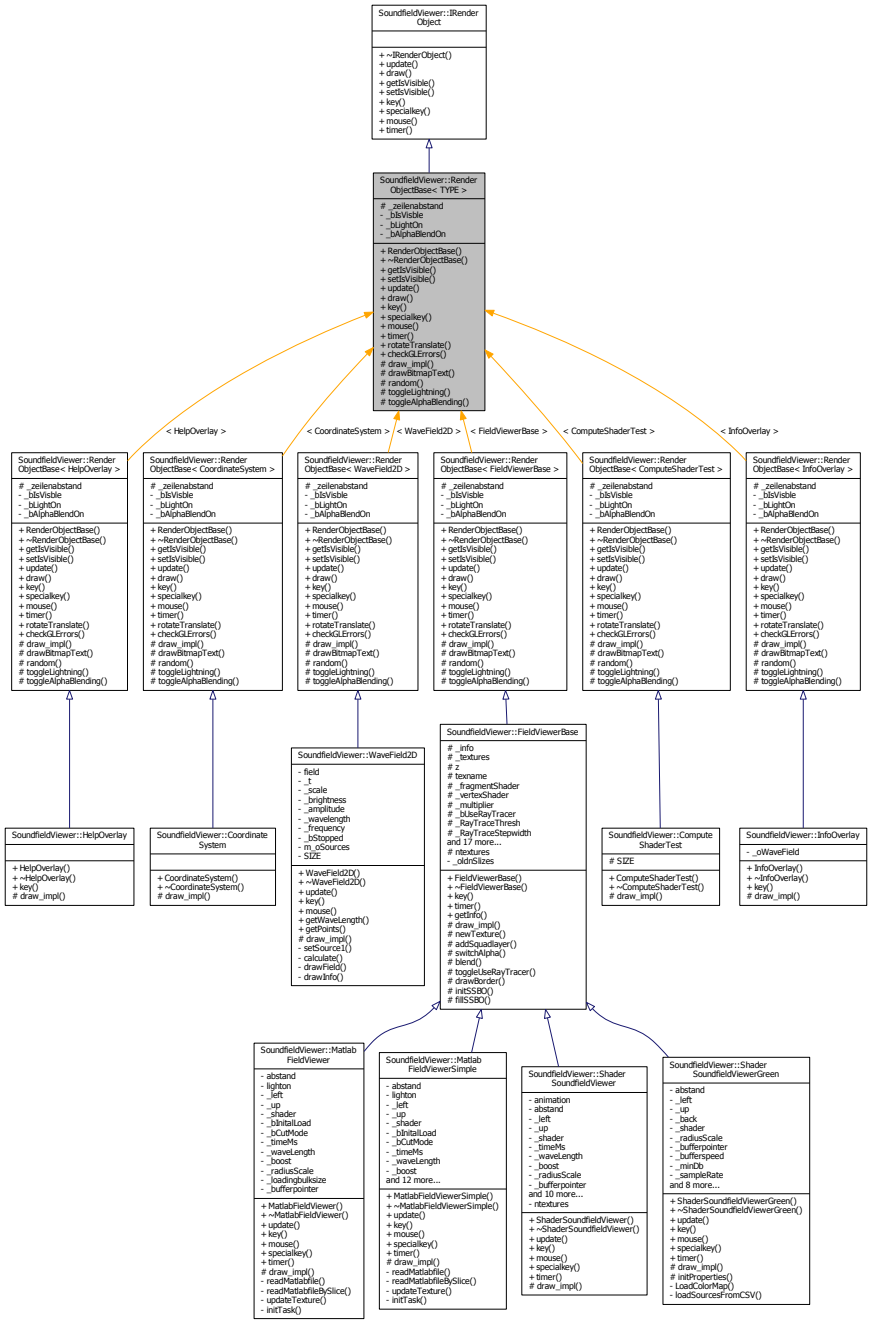
- renderengine.h
- renderengine.cpp

4.22 SoundfieldViewer::RenderObjectBase< TYPE > Class Template Reference

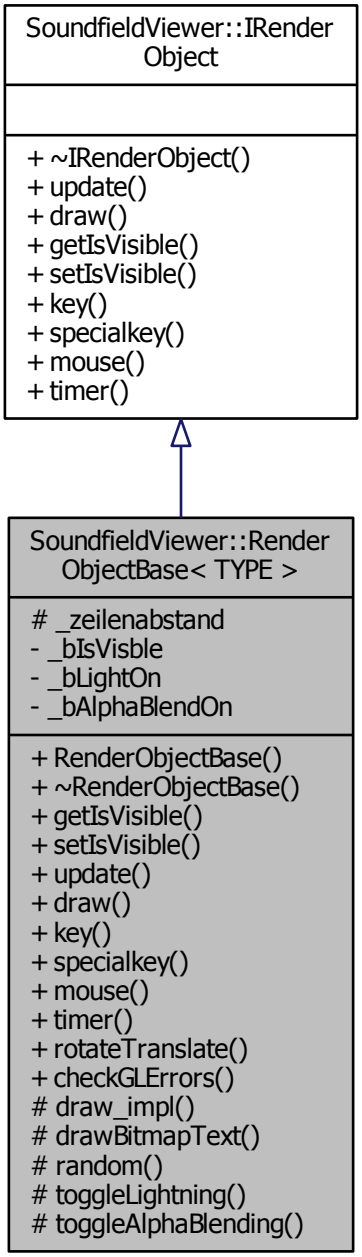
Defaultimplementation of RenderObjects, which are Objects, that can be shown in 3D.

`#include <renderobjectbase.h>`

Inheritance diagram for SoundfieldViewer::RenderObjectBase< TYPE >:



Collaboration diagram for SoundfieldViewer::RenderObjectBase< TYPE >:



Public Member Functions

- virtual bool **getIsVisible** ()
- virtual void **setIsVisible** (bool bVisible)
- virtual void **update** ()
- virtual void **draw** ()
- virtual void **key** (unsigned char key, int x, int y)

- virtual void **specialkey** (int key, int x, int y)
- virtual void **mouse** (int button, int state, int x, int y)
- virtual void **timer** (int updateRateMs)
- virtual void **rotateTranslate** (float xRot, float yRot, float zRot, float xTrans, float yTrans, float zTrans)

Static Public Member Functions

- static bool **checkGLErrors** (const std::string &info)

Protected Member Functions

- virtual void **draw_impl** ()=0
- void **drawBitmapText** (const std::string &strValue, float x, float y, float z)
- float **random** ()

  Random float -0.5-0.5.
- void **toggleLightning** ()
- void **toggleAlphaBlending** ()

Protected Attributes

- float **_zeilenabstand**

Private Attributes

- bool **_bIsVisble**
- bool **_bLightOn**
- bool **_bAlphaBlendOn**

4.22.1 Detailed Description

template<class TYPE>class SoundfieldViewer::RenderObjectBase< TYPE >

Defaultimplementation of RenderObjects, which are Objects, that can be shown in 3D.

Definition at line 13 of file renderobjectbase.h.

4.22.2 Member Function Documentation

4.22.2.1 template<class TYPE > float RenderObjectBase::random ( ) [protected]

Random float -0.5-0.5.

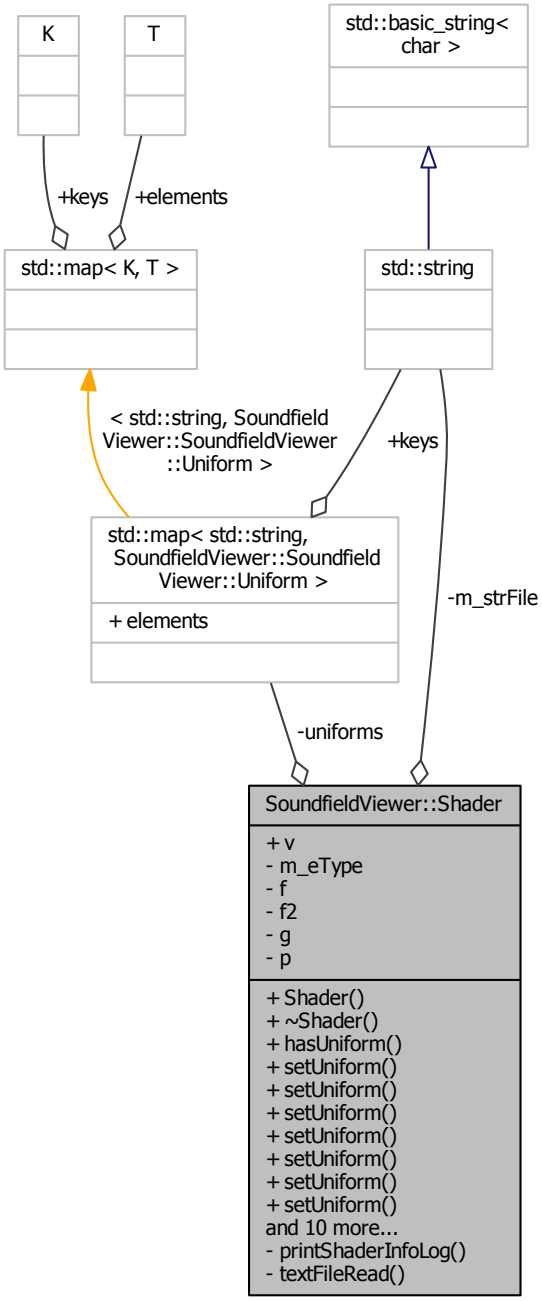
Definition at line 260 of file renderobjectbase.h.

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

- renderobjectbase.h

4.23 SoundfieldViewer::Shader Class Reference

Collaboration diagram for SoundfieldViewer::Shader:



Public Member Functions

- **Shader** (std::string strFile, ShaderType type)
- bool **hasUniform** (const std::string &name)
- void **setUniform** (const std::string &name, int v1)

- void **setUniform** (const std::string &name, unsigned int v1)
- void **setUniform** (const std::string &name, float v1)
- void **setUniform** (const std::string &name, float v1, float v2)
- void **setUniform** (const std::string &name, float v1, float v2, float v3)
- void **setUniform** (const std::string &name, float v1, float v2, float v3, float v4)
- void **setUniform** (const std::string &name, int count, float *v1)
- void **setUniformArray** (const std::string &name, int count, float *v1)
- void **setUniformVec4Array** (const std::string &name, int count, float *v1)
- void **setUniformArray** (const std::string &name, int count, unsigned int *v1)
- void **UpdateUniforms** ()
- void **Load** ()
- void **UnLoad** ()
- void **AttachShader** (GLuint shader_id)
- void **CreateProgram** ()
- void **LinkProgram** ()
- void **Use** ()

Public Attributes

- GLuint **v**

Private Member Functions

- void **printShaderInfoLog** (GLuint obj)
- char * **textFileRead** (const char *fn)

Private Attributes

- std::string **m_strFile**
- ShaderType **m_eType**
- std::map< std::string, **SoundfieldViewer::Uniform** > **uniforms**
- GLuint **f**
- GLuint **f2**
- GLuint **g**
- GLuint **p**

4.23.1 Detailed Description

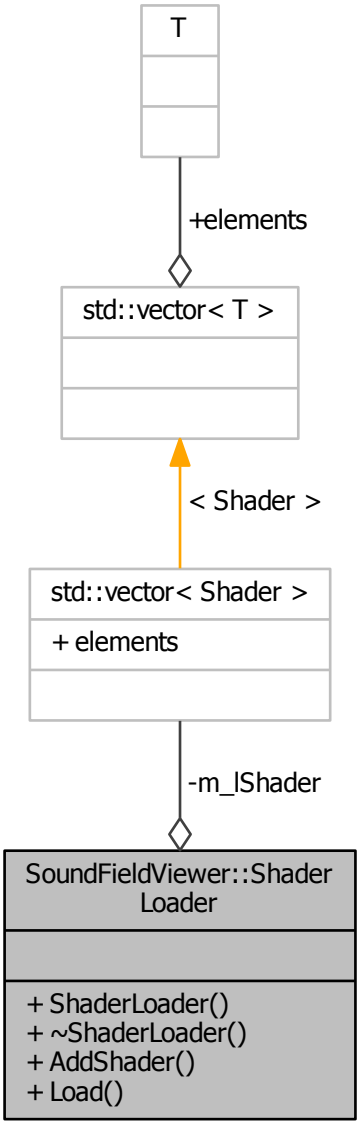
Definition at line 27 of file shader.h.

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

- shader.h
- shader.cpp

4.24 SoundFieldViewer::ShaderLoader Class Reference

Collaboration diagram for SoundFieldViewer::ShaderLoader:



Public Member Functions

- void **AddShader** (std::string strFile, ShaderType type)
- void **Load** ()

Private Attributes

- std::vector< Shader > **m_lShader**

4.24.1 Detailed Description

Definition at line 9 of file shaderloader.h.

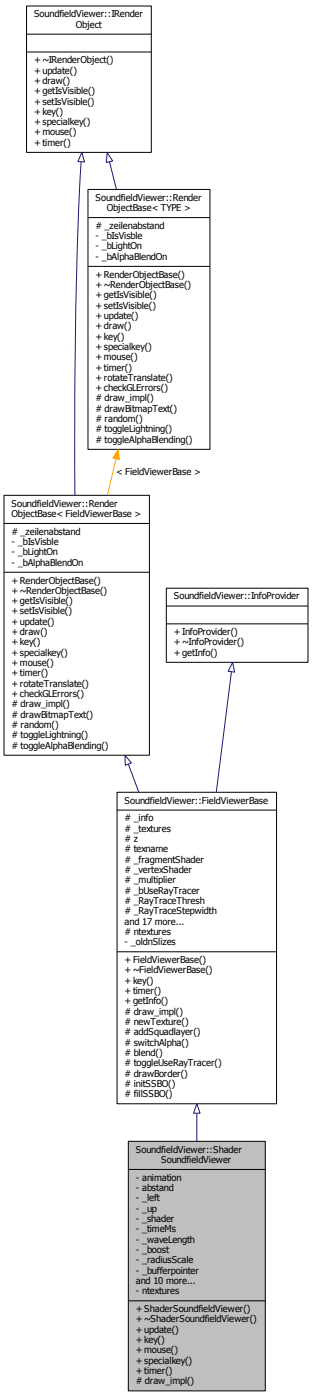
The documentation for this class was generated from the following files:

- shaderloader.h

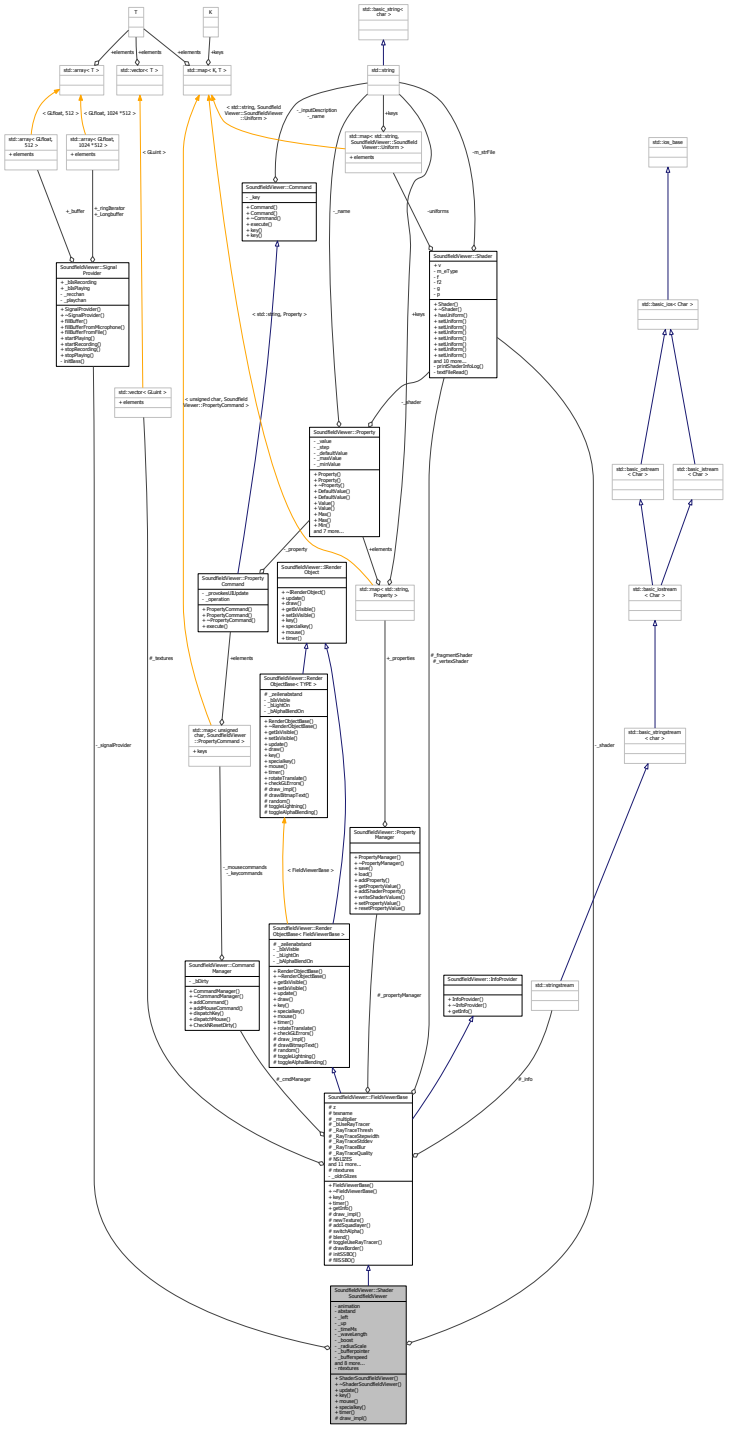
- shaderloader.cpp

4.25 SoundfieldViewer::ShaderSoundfieldViewer Class Reference

Inheritance diagram for SoundfieldViewer::ShaderSoundfieldViewer:



Collaboration diagram for SoundfieldViewer::ShaderSoundfieldViewer:



Public Member Functions

- virtual void **update** ()
- virtual void **key** (unsigned char key, int x, int y)
- virtual void **mouse** (int button, int state, int x, int y)
- virtual void **specialkey** (int key, int x, int y)
- virtual void **timer** (int updateRateMs)

Protected Member Functions

- virtual void **draw_impl** ()

Private Attributes

- int **animation**
- float **abstand**
- float **_left**
- float **_up**
- **Shader** * **_shader**
- float **_timeMs**
- float **_waveLength**
- float **_boost**
- float **_radiusScale**
- float **_bufferpointer**
- float **_bufferspeed**
- float **_minDb**
- float **_sampleRate**
- float **_speedOfSound**
- unsigned int **_doAlphaCut**
- unsigned int **_useJetColor**
- unsigned int **_useDB**
- float **_nonlinearSlicePower**
- **SignalProvider** **_signalProvider**
- float **freq**

Static Private Attributes

- static const int **ntextures** = 1

Additional Inherited Members

4.25.1 Detailed Description

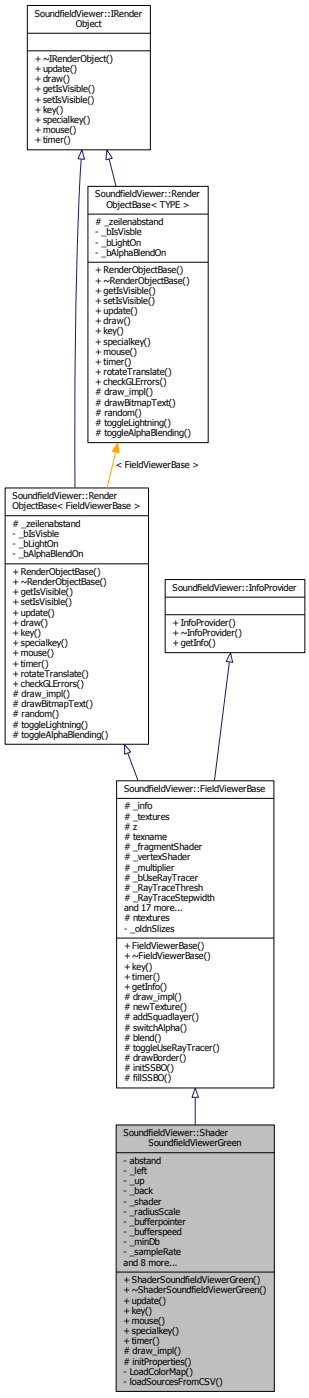
Definition at line 17 of file shadersoundfieldviewer.h.

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

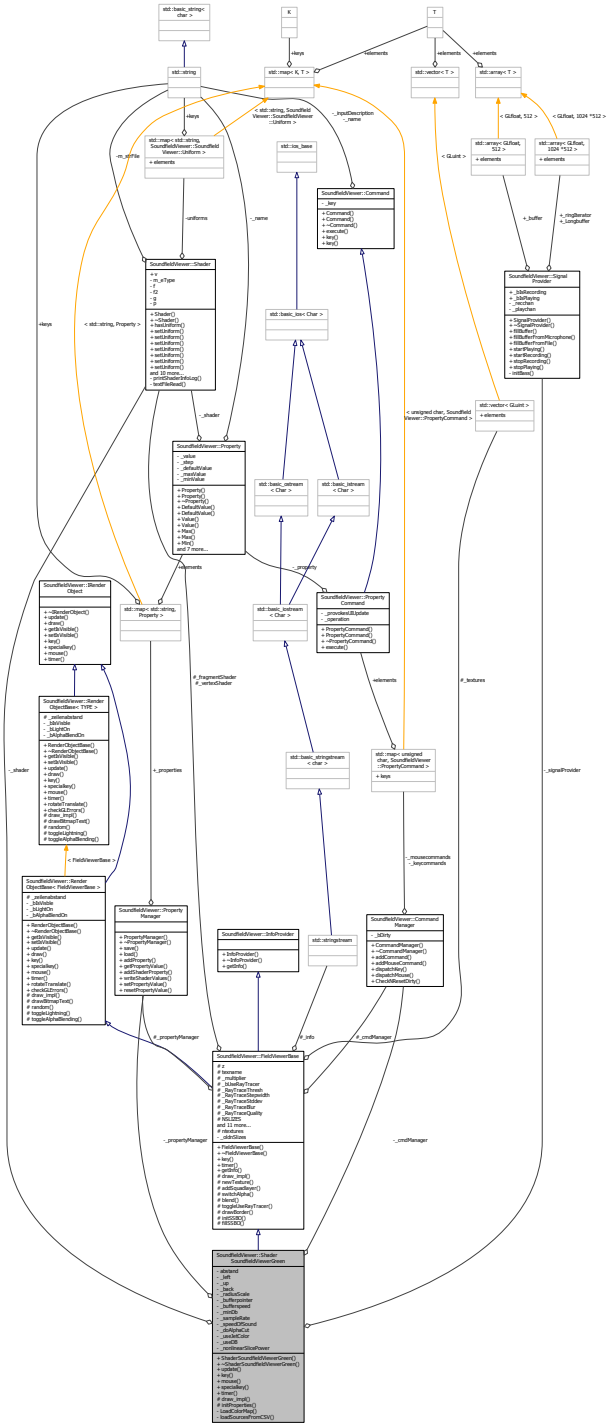
- shadersoundfieldviewer.h

4.26 SoundfieldViewer::ShaderSoundfieldViewerGreen Class Reference

Inheritance diagram for SoundfieldViewer::ShaderSoundfieldViewerGreen:



Collaboration diagram for SoundfieldViewer::ShaderSoundfieldViewerGreen:



Public Member Functions

- virtual void **update** ()
- virtual void **key** (unsigned char key, int x, int y)
- virtual void **mouse** (int button, int state, int x, int y)
- virtual void **specialkey** (int key, int x, int y)
- virtual void **timer** (int updateRateMs)

Protected Member Functions

- virtual void **draw_impl** ()
- void **initProperties** ()

Private Member Functions

- void **LoadColorMap** ()
- void **loadSourcesFromCSV** ()

Private Attributes

- float **abstand**
- float **_left**
- float **_up**
- float **_back**
- **Shader** * **_shader**
- float **_radiusScale**

  float _boost;
- float **_bufferpointer**
- float **_bufferspeed**
- float **_minDb**
- float **_sampleRate**
- float **_speedOfSound**
- unsigned int **_doAlphaCut**
- unsigned int **_useJetColor**
- unsigned int **_useDB**
- float **_nonlinearSlicePower**
- **SignalProvider _signalProvider**
- **CommandManager _cmdManager**
- **PropertyManager _propertyManager**

Additional Inherited Members

4.26.1 Detailed Description

Definition at line 18 of file shadersoundfieldviewergreen.h.

4.26.2 Member Data Documentation

4.26.2.1 float SoundfieldViewer::ShaderSoundfieldViewerGreen::_radiusScale [private]

float _boost;

Definition at line 48 of file shadersoundfieldviewergreen.h.

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

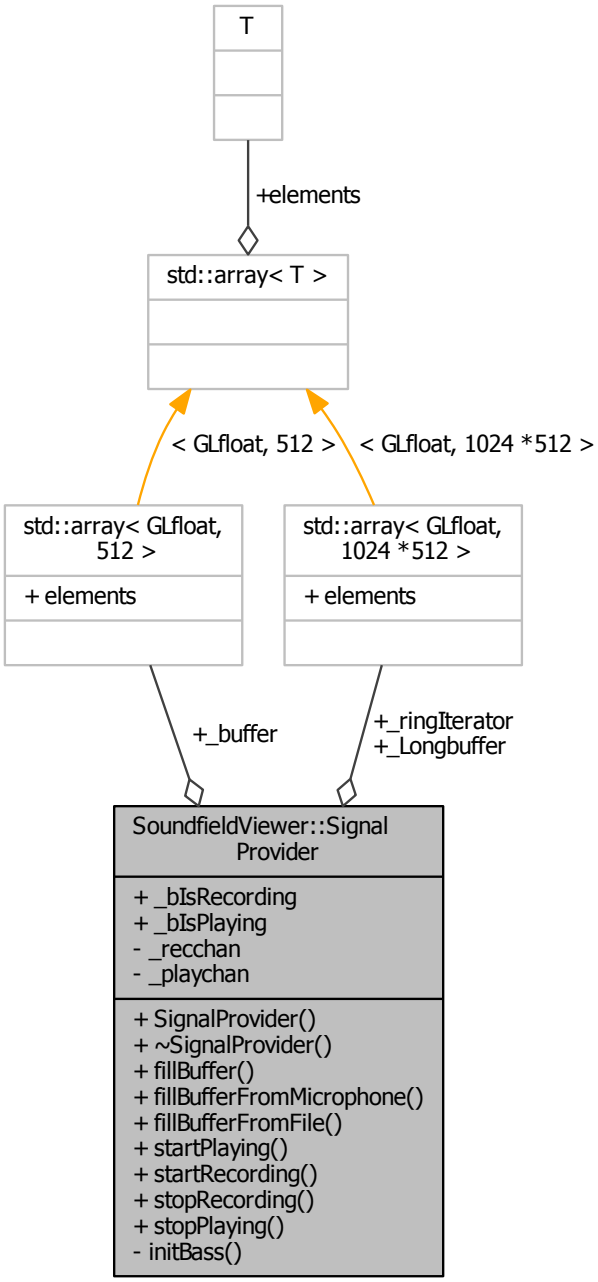
- shadersoundfieldviewergreen.h

4.27 SoundfieldViewer::SignalProvider Class Reference

Class which generates and provides audiosignals.

`#include <signalprovider.h>`

Collaboration diagram for SoundfieldViewer::SignalProvider:



Public Member Functions

- void **fillBuffer** (float f)
- unsigned long **fillBufferFromMicrophone** ()
- unsigned long **fillBufferFromFile** ()
- void **startPlaying** ()
- void **startRecording** ()
- void **stopRecording** ()
- void **stopPlaying** ()

Public Attributes

- std::array< GLfloat, 512 > **_buffer**
- std::array< GLfloat, 1024 *512 > **_Longbuffer**
- std::array< GLfloat, 1024 *512 > ::iterator **_ringIterator**
- bool **_bIsRecording**
- bool **_bIsPlaying**

Private Member Functions

- void **initBass** ()

Private Attributes

- HRECORD **_recchan**
- HRECORD **_playchan**

4.27.1 Detailed Description

Class which generates and provides audiosignals.

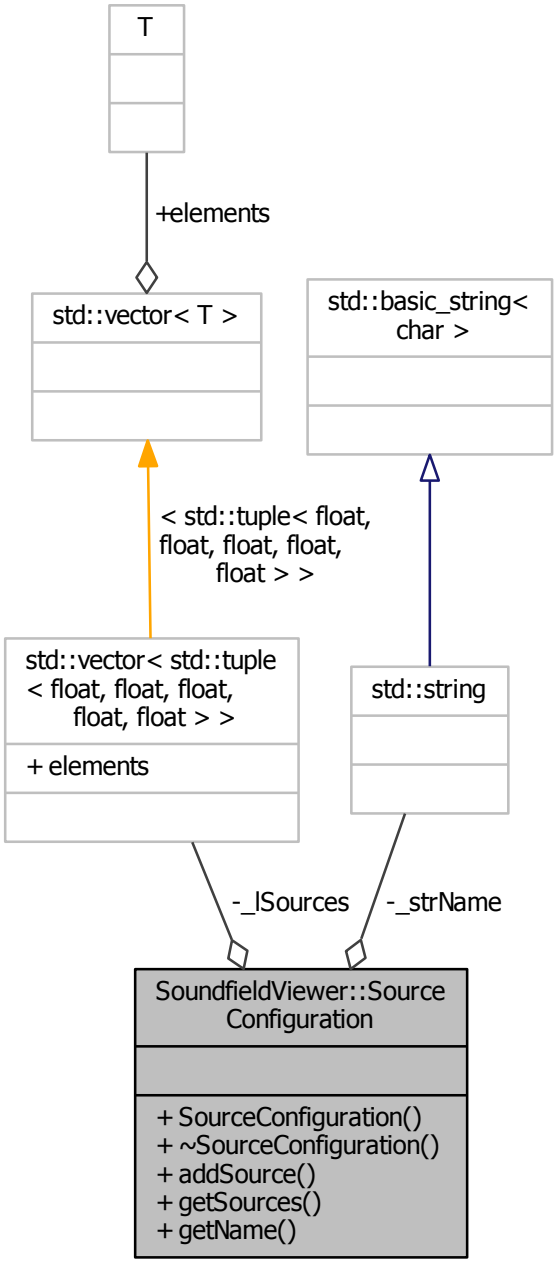
Definition at line 14 of file signalprovider.h.

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

- signalprovider.h
- signalprovider.cpp

4.28 SoundfieldViewer::SourceConfiguration Class Reference

Collaboration diagram for SoundfieldViewer::SourceConfiguration:



Public Member Functions

- **SourceConfiguration** (const std::string &name)
- void **addSource** (float amplitude, float phase, float x, float y, float z)
- SOURCES **getSources** () const

- std::string **getName** () const

Private Attributes

- SOURCES **_lSources**

- std::string **_strName**

4.28.1 Detailed Description

Definition at line 13 of file sourceconfiguration.h.

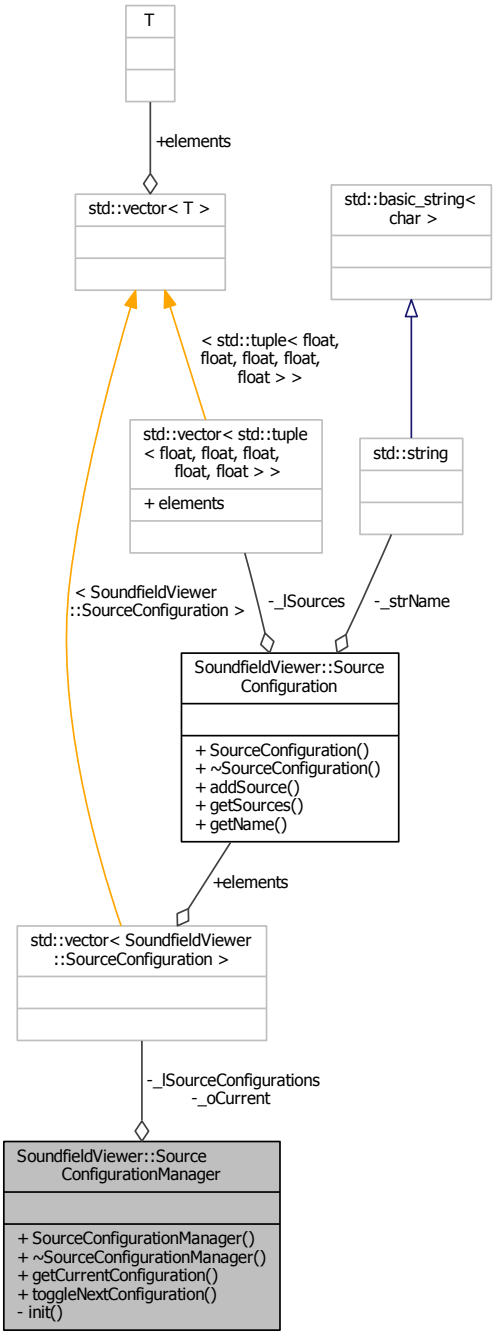
The documentation for this class was generated from the following files:

- sourceconfiguration.h

- sourceconfiguration.cpp

4.29 SoundfieldViewer::SourceConfigurationManager Class Reference

Collaboration diagram for SoundfieldViewer::SourceConfigurationManager:



Public Member Functions

- **SourceConfiguration getCurrentConfiguration** ()
- void **toggleNextConfiguration** ()

Private Member Functions

- void **init** ()

Private Attributes

- std::vector< **SourceConfiguration** > **_lSourceConfigurations**
- std::vector
  < **SourceConfiguration** >
  ::const_iterator **_oCurrent**

4.29.1 Detailed Description

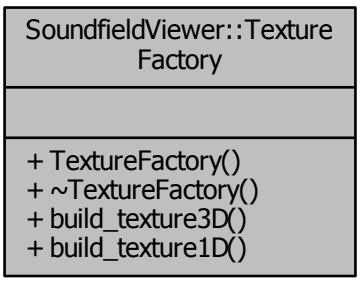
Definition at line 14 of file sourceconfigurationmanager.h.

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

- sourceconfigurationmanager.h
- sourceconfigurationmanager.cpp

4.30 SoundfieldViewer::TextureFactory Class Reference

Collaboration diagram for SoundfieldViewer::TextureFactory:



Public Types

- enum **TYPE** { **FLOAT**, **INT**, **BYTE**, **RED** }

Static Public Member Functions

- static void **build_texture3D** (int texid, TYPE type, GLsizei width, GLsizei height, GLsizei depth)
- static void **build_texture1D** (int texid, TYPE type, GLsizei width)

4.30.1 Detailed Description

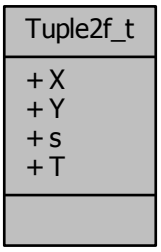
Definition at line 22 of file texturefactory.h.

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

- texturefactory.h
- texturefactory.cpp

4.31 Tuple2f_t Union Reference

Collaboration diagram for Tuple2f_t:



Public Attributes

- struct {
  GLfloat **X**
  GLfloat **Y**
  } **s**

- GLfloat **T** [2]

4.31.1 Detailed Description

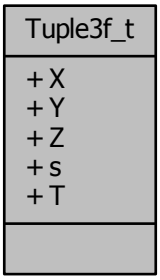
Definition at line 33 of file ArcBall.h.

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

- ArcBall.h

4.32 Tuple3f_t Union Reference

Collaboration diagram for Tuple3f_t:



Public Attributes

- struct {
  GLfloat **X**
  GLfloat **Y**
  GLfloat **Z**
  } **s**

- GLfloat **T** [3]

4.32.1 Detailed Description

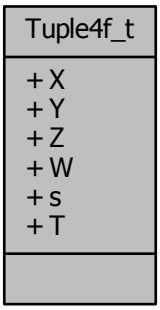
Definition at line 43 of file ArcBall.h.

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

- ArcBall.h

4.33 Tuple4f_t Union Reference

Collaboration diagram for Tuple4f_t:



Public Attributes

- struct {
  GLfloat **X**
  GLfloat **Y**
  GLfloat **Z**
  GLfloat **W**
  } **s**

- GLfloat **T** [4]

4.33.1 Detailed Description

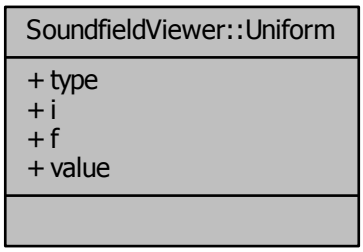
Definition at line 53 of file ArcBall.h.

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

- ArcBall.h

4.34 SoundfieldViewer::Uniform Struct Reference

Collaboration diagram for SoundfieldViewer::Uniform:



Public Attributes

- UniformType **type**

- union {
    int **i**
    float **f** [4]
  } **value**

4.34.1 Detailed Description

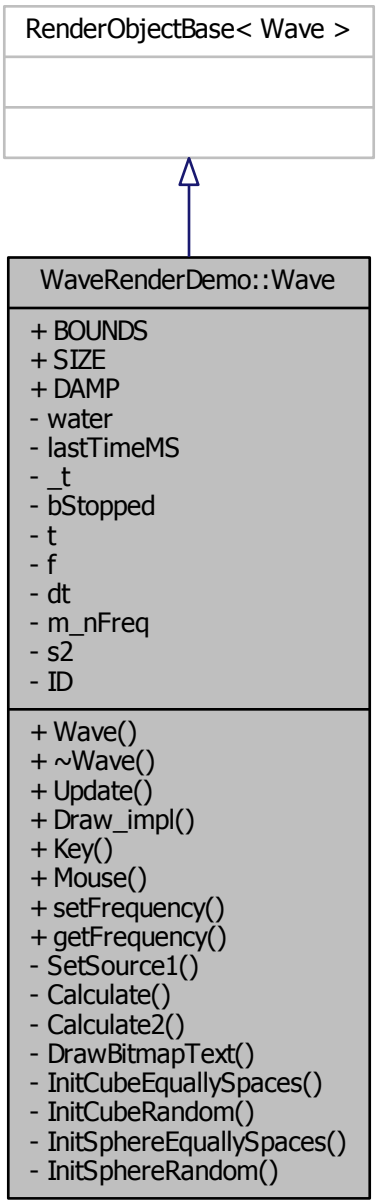
Definition at line 18 of file shader.h.

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

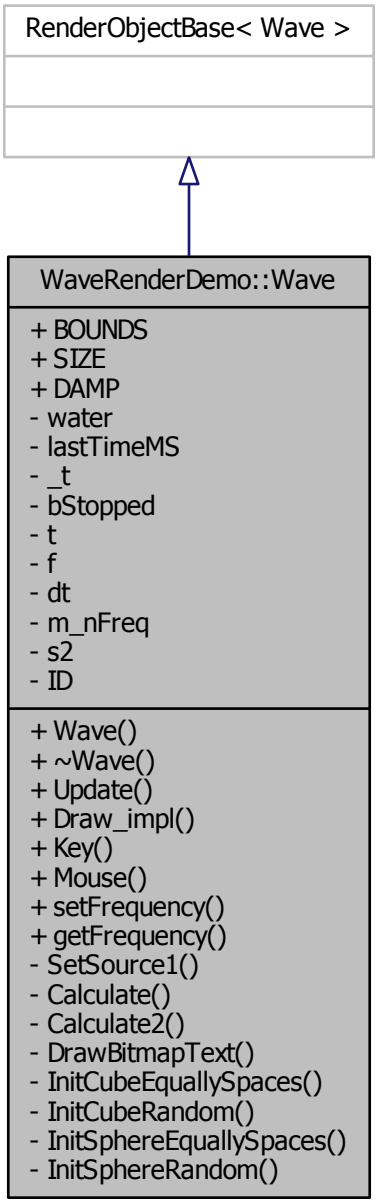
- shader.h

4.35 WaveRenderDemo::Wave Class Reference

Inheritance diagram for WaveRenderDemo::Wave:



Collaboration diagram for WaveRenderDemo::Wave:



Public Member Functions

- virtual void **Update** ()
- virtual void **Draw_impl** ()
- virtual void **Key** (unsigned char key, int x, int y)
- virtual void **Mouse** (int button, int state, int x, int y)
- void **setFrequency** (float hz)
- float **getFrequency** ()

Static Public Attributes

- static const int **BOUNDS** = 10
- static const int **SIZE** = 145
- static const int **DAMP** = 2000

Private Member Functions

- void **SetSource1** (int x, int y)
- void **Calculate** ()
- void **Calculate2** ()
- void **DrawBitmapText** (char ∗string, float x, float y, float z)
- void **InitCubeEquallySpaces** (float scale)
- void **InitCubeRandom** (float scale)
- void **InitSphereEquallySpaces** (float scale)
- void **InitSphereRandom** (float scale)

Private Attributes

- float **water** [2][SIZE][SIZE]
- int **lastTimeMS**
- float **_t**
- bool **bStopped**
- int **t**
- int **f**
- float **dt**
- float **m_nFreq**
- Shader ∗ **s2**
- GLuint **ID**

4.35.1 Detailed Description

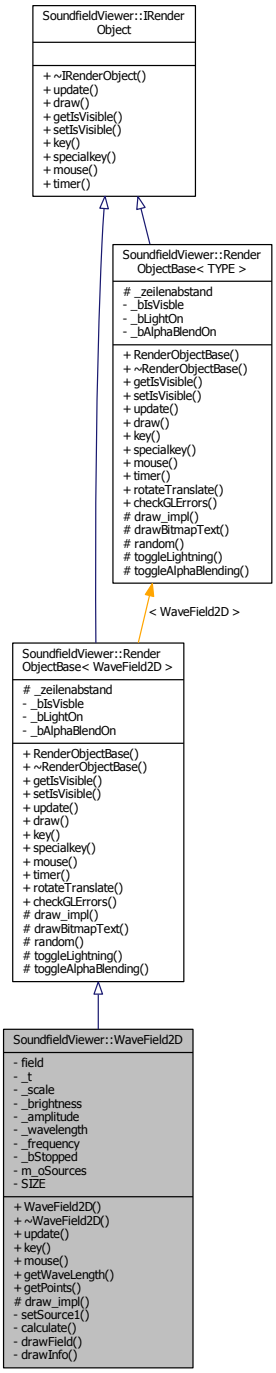
Definition at line 10 of file wave.h.

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

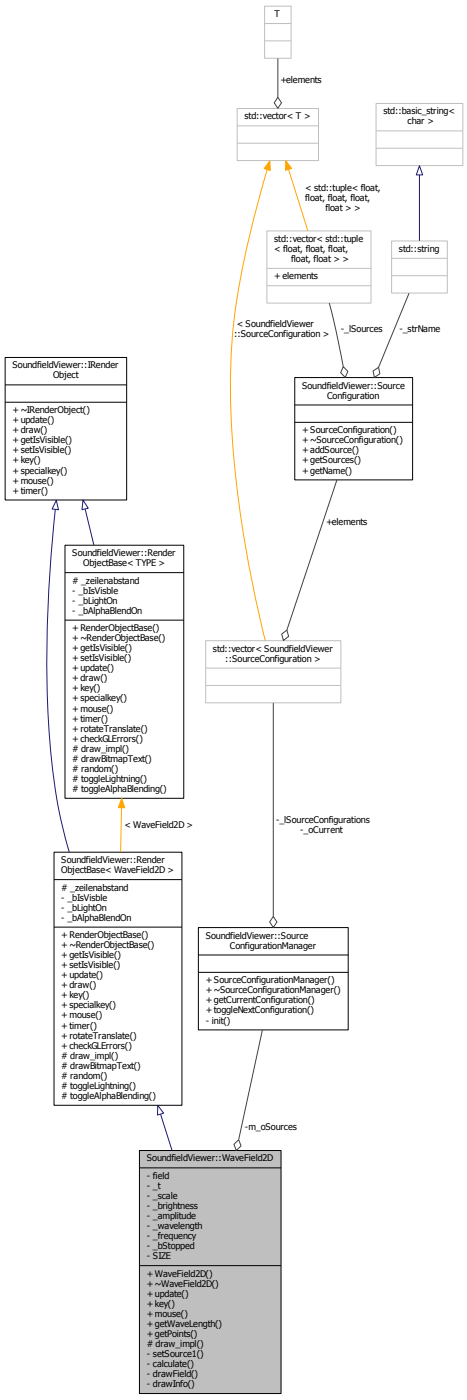
- wave.h
- wave.cpp

4.36 SoundfieldViewer::WaveField2D Class Reference

Inheritance diagram for SoundfieldViewer::WaveField2D:



Collaboration diagram for SoundfieldViewer::WaveField2D:



Public Member Functions

- **WaveField2D** (**SourceConfigurationManager** &sources)
- virtual void **update** ()
- virtual void **key** (unsigned char key, int x, int y)
- virtual void **mouse** (int button, int state, int x, int y)
- float **getWaveLength** () const
- float **getPoints** () const

Protected Member Functions

- virtual void **draw_impl** ()

Private Member Functions

- void **setSource1** (int x, int y)
- void **calculate** ()
- void **drawField** ()
- void **drawInfo** ()

Private Attributes

- float **field** [SIZE][SIZE]
- int **_t**
- float **_scale**
- float **_brightness**
- float **_amplitude**
- float **_wavelength**
- float **_frequency**
- bool **_bStopped**
- **SourceConfigurationManager** & **m_oSources**

Static Private Attributes

- static const int **SIZE** = 128

Additional Inherited Members

4.36.1 Detailed Description

Definition at line 11 of file wavefield2d.h.

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

- wavefield2d.h
- wavefield2d.cpp

Chapter 5

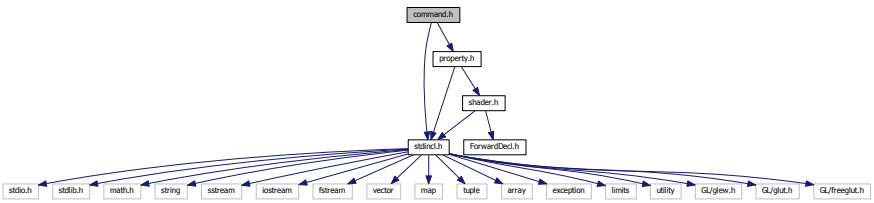
File Documentation

5.1 command.h File Reference

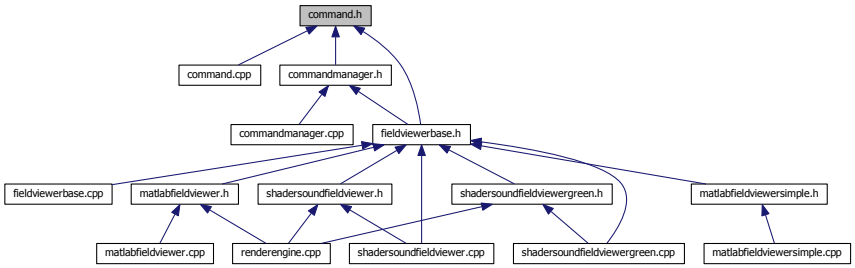
Comands.

```
#include "stdincl.h"
#include "property.h"
```

Include dependency graph for command.h:



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



Classes

- class **SoundfieldViewer::Command**

  Command class
- class **SoundfieldViewer::PropertyCommand**

5.1.1 Detailed Description

Comands.

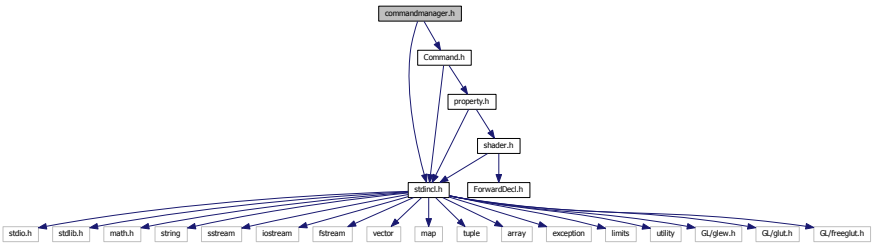
Definition in file **command.h**.

5.2 commandmanager.h File Reference

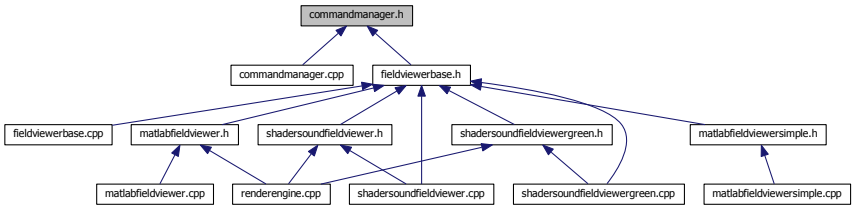
CommandManager.

```
#include "stdincl.h"
#include "Command.h"
```

Include dependency graph for commandmanager.h:



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



Classes

- class **SoundfieldViewer::CommandManager**

  CommandManager class capsulates a value, that can be modified and saved

5.2.1 Detailed Description

CommandManager.

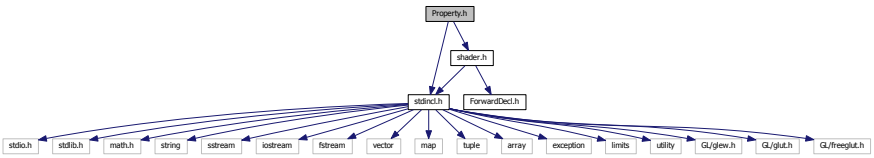
Definition in file **commandmanager.h**.

5.3 Property.h File Reference

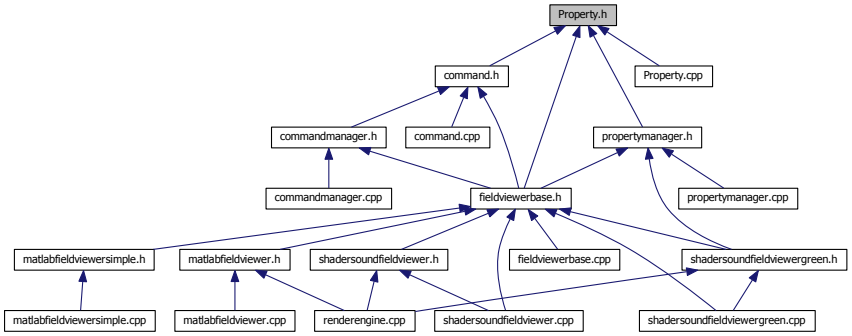
Comands.

```
#include "stdincl.h"
#include "shader.h"
```

Include dependency graph for Property.h:



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



Classes

- class **SoundfieldViewer::Property**

  Property class capsulates a value, that can be modified and saved

5.3.1 Detailed Description

Comands.

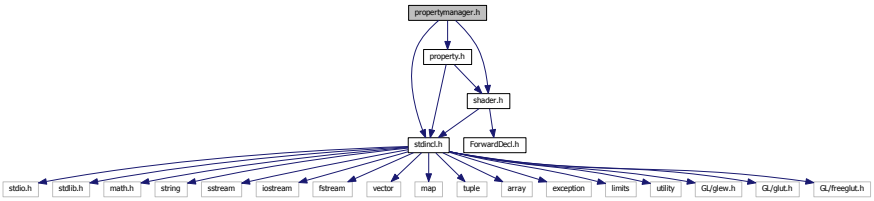
Definition in file **Property.h**.

5.4 propertymanager.h File Reference

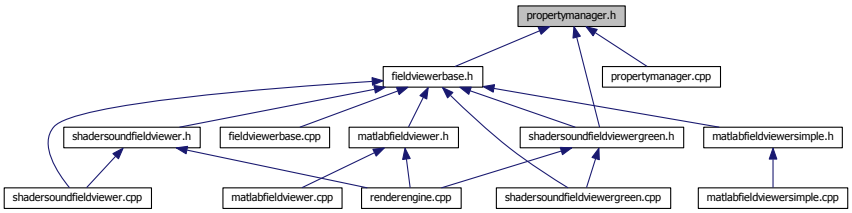
PropertyManager.

```
#include "stdincl.h"
#include "property.h"
#include "shader.h"
```

Include dependency graph for propertymanager.h:



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



Classes

- class **SoundfieldViewer::PropertyManager**

  PropertyManager class

Typedefs

- typedef std::map< std::string, Property > **SoundfieldViewer::PropertyMap**
- typedef std::pair< std::string, Property > **SoundfieldViewer::PropertyPair**

5.4.1 Detailed Description

PropertyManager.

Definition in file **propertymanager.h**.

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