ObjectAL

Generated by Doxygen 1.7.5.1

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Contents

Chapter 1

ObjectAL for iPhone

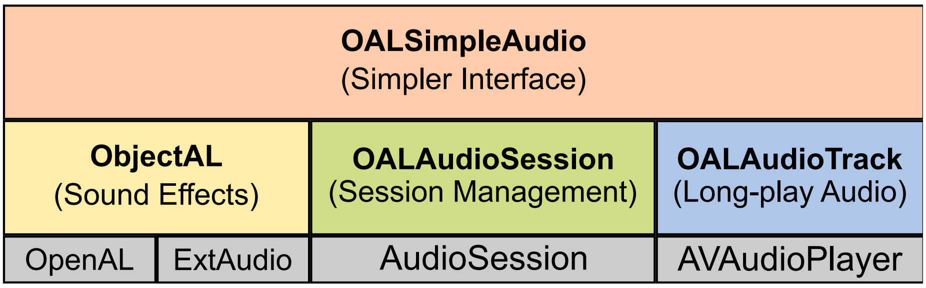
iOS Audio development, minus the headache.

Version 2.1

1.1 Contents

1.2 Introduction

ObjectAL for iPhone is designed to be a simpler, more intuitive interface to OpenAL and AVAudioPlayer. There are four main parts to **ObjectAL for iPhone**:



- ObjectAL gives you full access to the OpenAL system without the hassle of the C API. All OpenAL operations can be performed using first class objects and properties, without needing to muddle around with arrays of data, maintain IDs, or pass around pointers to basic types. ObjectALManager also provides sound loading routines.

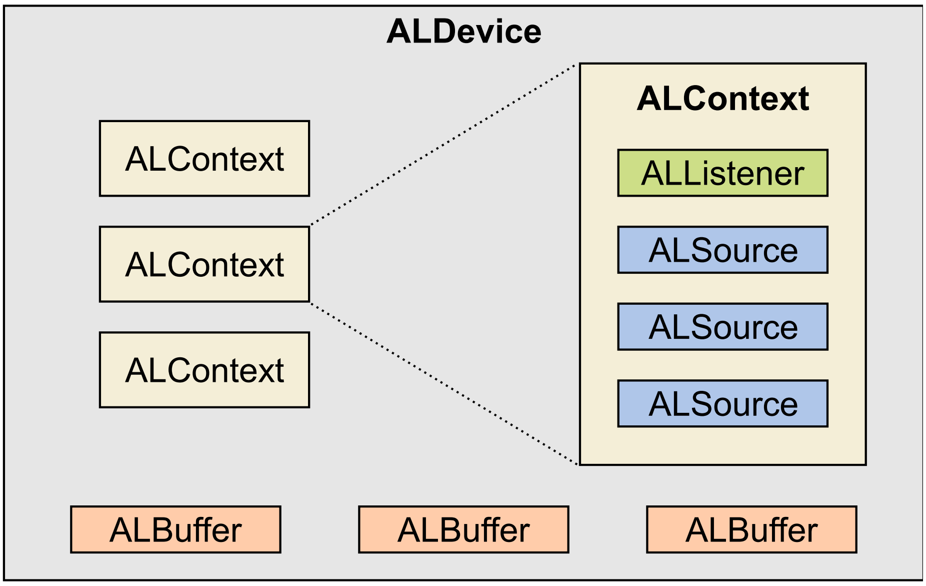
- OALAudioTrack provides a simpler interface to AVAudioPlayer, allowing you to play, stop, pause, fade, and mute background music tracks.

- OALAudioSession handles audio session management in iOS devices, and provides an easy way to configure session behavior such as how to handle iPod-style music and the silent switch.

- OALSimpleAudio layers on top of the other three, providing an even simpler interface for playing background music and sound effects.

1.3 ObjectAL and OpenAL

ObjectAL follows the same basic principles as the OpenAL API by Creative Labs.



- OpenALManager provides some overall controls that affect everything, manages the current context, and provides audio loading routines.

- ALDevice represents a physical audio device.

  Each device can have one or more contexts (ALContext) created on it, and can have multiple buffers (ALBuffer) associated with it.

- ALContext controls the overall sound environment, such as distance model, doppler effect, and speed of sound.

  Each context has one listener (ALListener), and can have multiple sources (ALSource) opened on it (up to a maximum of 32 overall on iPhone).

- ALListener represents the listener of sounds originating on its context (one listener per context). It has position, orientation, and velocity.

- ALSource is a sound emitting source that plays sound data from an ALBuffer. It has position, direction, velocity, as well as other properties which determine how the sound is emitted.

- ALChannelSource allows you to reserve a certain number of sources for special purposes.

- ALBuffer is simply a container for sound data. Only linear PCM is supported directly, but OpenALManager load methods, and OALSimpleAudio effect preload and play methods, will automatically convert any formats that don't require hardware decoding (though conversion results in a longer loading time).

Note: While OpenAL allows for multiple devices and contexts, in practice you'll only use one device and one context when using OpenAL under iOS.

Further information regarding the more advanced features of OpenAL (such as distance models) are available via the OpenAL Documentation at Creative Labs.

In particular, read up on the various property values for sources and listeners (such as Doppler Shift) in the OpenAL Programmer's Guide, and distance models in section 3 of the OpenAL Specification.

1.4 Adding ObjectAL to your project

To add ObjectAL to your project, do the following:

1. Copy ObjectAL/ObjectAL from this project into your project. You can simply drag it into the "Groups & Files" section in xcode if you like (be sure to select "Copy items into destination group's folder").

   Alternatively, you can build ObjectAL as a static library (as it's configured to do in the ObjectAL demo project).

2. Add the following frameworks to your project:

   - OpenAL.framework
   - AudioToolbox.framework
   - AVFoundation.framework

3. Start using ObjectAL!

Note: The demos in this project use Cocos2d, a very nice 2d game engine. However, ObjectAL doesn't require it. You can just as easily use ObjectAL in your Cocoa app or anything you wish.

Note #2: You do NOT have to provide a link to the Apache license from within your application. Simply including a copy of the license in your project is sufficient.

1.4.1 Installing the ObjectAL Documentation into XCode

By installing the ObjectAL documentation into XCode's Developer Documentation system, you gain the ability to look up ObjectAL classes and methods just like you'd look up Apple classes and methods. You can install the ObjectAL documentation into XCode's Developer Documentation system by doing the following:

1. Install Doxygen. You can either use the OSX installer or MacPorts.

2. Build the "Documentation" target in this project.

3. Open the developer documentation and type "ObjectAL" into the search box.

1.5 Compile-Time Configuration

ObjectALConfig.h contains configuration defines that will affect at a high level how - ObjectAL behaves. Look inside **ObjectALConfig.h** to see what can be configured, and what each configuration value does.

The recommended values are fine for most users, but Cocos2D users may want to set OBJECTAL_CFG_USE_COCOS2D_ACTIONS so that the audio actions (such as fade) use the Cocos2D action manager.

1.6 Audio Formats

The audio formats officially supported by Apple are defined here.

1.6.1 OALAudioTrack Supported Formats

OALAudioTrack supports all hardware and software decoded formats.

1.6.2 OpenAL Supported Formats

OpenAL officially supports 8 or 16 bit PCM data only. However, Apple's implementation only seems to work with 16 bit data.

The effects preloading/playing methods in OALSimpleAudio and the buffer loading methods in OpenALManager can load any audio file that can be software decoded. However, there is a cost incurred at load time converting to a native OpenAL format. To avoid this, convert all of your samples to a CAFF container with 16-bit little endian integer PCM format and the same sample rate as "mixerOutputFrequency" in OpenALManager (by default, 44100Hz). Note, however, that uncompressed files can get quite large.

Convert to iOS native uncompressed format using Apple's "afconvert" command line tool:

```
afconvert -f caff -d LEI16@44100 sourcefile.wav destfile.caf
```

Alternatively, if sound file load time is not an issue for you, you can lower your app footprint size (for over-the-air app download) by using a compressed format.

Convert to AAC compressed format with CAFF container using Apple's "afconvert" command line tool:

```
afconvert -f caff -d aac sourcefile.wav destfile.caf
```

1.7 Choosing Playback Types

OpenAL (ALSource, or effects in OALSimpleAudio) and **AVAudioPlayer** (OALAudioTrack, or background audio in OALSimpleAudio) are playback technologies built for different purposes. OpenAL is designed for game-style short sound effects that have no playback delay. AVAudioPlayer is designed for music playback. You can of course mix and match as you please.

	OpenAL	**AVAudioPlayer**
Playback Delay	None	Small delay if not preloaded
Format on Disk	`Any software decodable format`	`Any software decodable format, or any hardware format if using hardware`
Decoding	During load	During playback
Memory Use	Entire file loaded and decompressed into memory	File streamed realtime (very low memory use)
Max Simult. Sources	32	As many as the CPU can handle
Playback Performance	Good	Excellent with 1 track (if using hardware). Good with 2 tracks. Not so good with more (each non-hardware track taxes the CPU significantly, especially if the files are compressed).
Looped Playback	Yes (on or off)	Yes (specify number of loops or -1 = forever)
Panning	Yes (mono files only)	Yes (iOS 4.0+ only)
Positional Audio	Yes (mono files only)	No
Modify Pitch	Yes	No
Audio Power Metering	No	Yes

1.8 Using OALSimpleAudio

By far, the easiest component to use is OALSimpleAudio. You sacrifice some power for ease-of-use, but for many projects it is more than sufficient. You can also use your own instances of OALAudioTrack, ALSource, ALBuffer and such alongside of OALSimpleAudio if you want (just be sure to set OALSimpleAudio's reservedSources to less than 32 if you want to make your own instances of ALSource).

Here is a code example using purely OALSimpleAudio:

```
// OALSimpleAudioSample.h
```

```
@interface OALSimpleAudioSample : NSObject
{
    // No objects to keep track of...
}

@end


// OALSimpleAudioSample.m

#import "OALSimpleAudioSample.h"
#import "ObjectAL.h"


#define SHOOT_SOUND @"shoot.caf"
#define EXPLODE_SOUND @"explode.caf"

#define INGAME_MUSIC_FILE @"bg_music.mp3"
#define GAMEOVER_MUSIC_FILE @"gameover_music.mp3"


@implementation OALSimpleAudioSample

- (id) init
{
    if(nil != (self = [super init]))
    {
        // We don’t want ipod music to keep playing since
        // we have our own bg music.
        [OALSimpleAudio sharedInstance].allowIpod = NO;

        // Mute all audio if the silent switch is turned on.
        [OALSimpleAudio sharedInstance].honorSilentSwitch = YES;

        // This loads the sound effects into memory so that
        // there’s no delay when we tell it to play them.
        [[OALSimpleAudio sharedInstance] preloadEffect:SHOOT_SOUND];
        [[OALSimpleAudio sharedInstance] preloadEffect:EXPLODE_SOUND];
    }
    return self;
}

- (void) onGameStart
{
    // Play the BG music and loop it.
    [[OALSimpleAudio sharedInstance] playBg:INGAME_MUSIC_FILE loop:YES];
}

- (void) onGamePause
{
    [OALSimpleAudio sharedInstance].paused = YES;
}

- (void) onGameResume
{
    [OALSimpleAudio sharedInstance].paused = NO;
}

- (void) onGameOver
{
    // Could use stopEverything here if you want
    [[OALSimpleAudio sharedInstance] stopAllEffects];
    // We only play the game over music through once.
    [[OALSimpleAudio sharedInstance] playBg:GAMEOVER_MUSIC_FILE];
}

- (void) onShipShotABullet
{
    [[OALSimpleAudio sharedInstance] playEffect:SHOOT_SOUND];
}

- (void) onShipGotHit
{
    [[OALSimpleAudio sharedInstance] playEffect:EXPLODE_SOUND];
}

- (void) onQuitToMainMenu
{
    // Stop all music and sound effects.
    [[OALSimpleAudio sharedInstance] stopEverything];

    // Unload all sound effects and bg music so that it doesn't fill
    // memory unnecessarily.
    [[OALSimpleAudio sharedInstance] unloadAllEffects];
}

@end
```

1.9 Using the OpenAL Objects and OALAudioTrack

The OpenAL objects and OALAudioTrack offer you much more power at the cost of complexity. Here's the same thing as above, done using OpenAL components and OALAudioTrack:

```
// OpenALAudioTrackSample.h

#import <Foundation/Foundation.h>
#import "ObjectAL.h"


@interface OpenALAudioTrackSample : NSObject
{
    // Sound Effects
    ALDevice* device;
    ALContext* context;
    ALChannelSource* channel;
    ALBuffer* shootBuffer;
    ALBuffer* explosionBuffer;

    // Background Music
    OALAudioTrack* musicTrack;
}

@end


// OpenALAudioTrackSample.m

#import "OpenALAudioTrackSample.h"
```

```
#define SHOOT_SOUND @"shoot.caf"
#define EXPLODE_SOUND @"explode.caf"

#define INGAME_MUSIC_FILE @"bg_music.mp3"
#define GAMEOVER_MUSIC_FILE @"gameover_music.mp3"


@implementation OpenALAudioTrackSample

- (id) init
{
    if(nil != (self = [super init]))
    {
        // Create the device and context.
        // Note that it’s easier to just let OALSimpleAudio handle
        // these rather than make and manage them yourself.
        device = [[ALDevice deviceWithDeviceSpecifier:nil] retain];
        context = [[ALContext contextOnDevice:device attributes:nil] retain];
        [OpenALManager sharedInstance].currentContext = context;

        // Deal with interruptions for me!
        [OALAudioSession sharedInstance].handleInterruptions = YES;

        // We don’t want ipod music to keep playing since
        // we have our own bg music.
        [OALAudioSession sharedInstance].allowIpod = NO;

        // Mute all audio if the silent switch is turned on.
        [OALAudioSession sharedInstance].honorSilentSwitch = YES;

        // Take all 32 sources for this channel.
        // (we probably won’t use that many but what the heck!)
        channel = [[ALChannelSource channelWithSources:32] retain];

        // Preload the buffers so we don’t have to load and play them later.
        shootBuffer = [[[OpenALManager sharedInstance]
                        bufferFromFile:SHOOT_SOUND] retain];
        explosionBuffer = [[[OpenALManager sharedInstance]
                            bufferFromFile:EXPLODE_SOUND] retain];

        // Background music track.
        musicTrack = [[OALAudioTrack track] retain];
    }
    return self;
}

- (void) dealloc
{
    [musicTrack release];

    [channel release];
    [shootBuffer release];
    [explosionBuffer release];

    // Note: You’ll likely only have one device and context open throughout
    // your program, so in a real program you’d be better off making a
    // singleton object that manages the device and context, rather than
    // allocating/deallocating it here.
    // Most of the demos just let OALSimpleAudio manage the device and context
    // for them.
    [context release];
    [device release];

    [super dealloc];
}

- (void) onGameStart
{
    // Play the BG music and loop it forever.
    [musicTrack playFile:INGAME_MUSIC_FILE loops:-1];
}

- (void) onGamePause
{
    musicTrack.paused = YES;
    channel.paused = YES;
}

- (void) onGameResume
{
    channel.paused = NO;
    musicTrack.paused = NO;
}

- (void) onGameOver
{
    [channel stop];
    [musicTrack stop];

    // We only play the game over music through once.
    [musicTrack playFile:GAMEOVER_MUSIC_FILE];
}

- (void) onShipShotABullet
{
    [channel play:shootBuffer];
}

- (void) onShipGotHit
{
    [channel play:explosionBuffer];
}

- (void) onQuitToMainMenu
{
    // Stop all music and sound effects.
    [channel stop];
    [musicTrack stop];
}

@end
```

1.10 Other Examples

The demo scenes in this distribution have been crafted to demonstrate common uses of this library. Try them out and go through the code to see how it's done. I've done my best to keep the code readable. Really!

The current demos are:

- **SingleSourceDemo**: Demonstrates using a location based source and a listener.
- **TwoSourceDemo**: Demonstrates using two location based sources and a listener.
- **VolumePitchPanDemo**: Demonstrates using gain, pitch, and pan controls.
- **CrossFadeDemo**: Demonstrates crossfading between two sources.
- **ChannelsDemo**: Demonstrates using audio channels.
- **FadeDemo**: Demonstrates realtime fading with OALAudioTrack and ALSource.
- **AudioTrackDemo**: Demonstrates using multiple OALAudioTrack objects.
- **HardwareDemo**: Demonstrates hardware monitoring features.
- **AudioSessionDemo**: Allows you to play with various audio session settings.
- **PlanetKillerDemo**: Demonstrates using OALSimpleAudio in a game setting.

1.11 iOS Issues that can impede playback

Certain versions of iOS have bugs or quirks, requiring workarounds. ObjectAL tries to handle most of these automatically, but there are cases that require specific handling by the developer. These are:

1.11.1 MPMoviePlayerController on iOS 3.x

In iOS 3.x, MPMoviePlayerController doesn't play nice, and takes over the audio session when you play a video. In order to mitigate this, you must manually suspend OpenAL, play the video, and then manually unsuspend once video playback finishes:

```
- (void) playVideo
{
    if([myMoviePlayer respondsToSelector:@selector(view)])
    {
        [myMoviePlayer setFullscreen:YES animated:YES];
    }
    else
    {
        // No "view" method means we are < 4.0
        // Manually suspend so iOS 3.x doesn't clobber our session!
        [OpenALManager sharedInstance].manuallySuspended = YES;
    }

    [myMoviePlayer play];

    [[NSNotificationCenter defaultCenter]
     addObserver:self
     selector:@selector(movieFinishedCallback:)
     name:MPMoviePlayerPlaybackDidFinishNotification
     object:myMoviePlayer];
}
```

```
-(void)movieFinishedCallback:(NSNotification *)notification
{
    if([myMoviePlayer respondsToSelector:@selector(view)])
    {
        if (myMoviePlayer.fullscreen)
        {
            [myMoviePlayer setFullscreen:NO animated:YES];
        }
    }
    else
    {
        // No "view" method means we are < 4.0
        // Manually unsuspend
        [OpenALManager sharedInstance].manuallySuspended = NO;
    }
}
```

1.11.2 MPMusicPlayerController on iOS 4.0

On iOS 4.0, MPMusicPlayerController sends an interrupt when it begins playback, but doesn't send a corresponding "end interrupt" when it ends. To work around this, force an "end interrupt" after starting playback:

```
    [[OALAudioSession sharedInstance] forceEndInterruption];
```

1.12 Simulator Issues

As you've likely heard time and time again, the simulator is no substitute for the real thing. The simulator is buggy. It can run faster or slower than a real device. It fails system calls that a real device doesn't. It shows graphics glitches that a real device doesn't. Sounds stop working, clicks and static, dogs and cats living together, etc, etc. When things look wrong, try it on a real device before bugging people.

1.12.1 Simulator Limitations

The simulator does not support setting audio modes, so setting allowIpod or honorSilentSwitch in OALAudioSession will have no effect in the simulator.

1.12.2 Error Codes on the Simulator

From time to time, the simulator can get confused, and start spitting out spurious errors. When this happens, check on a real device to make sure it's not just a simulator issue. Usually quitting and restarting the simulator will fix it, but sometimes you may have to reboot your machine as well.

1.12.3 Playback Issues

The simulator is notoriously finicky when it comes to audio playback. Any number of programs you've installed on your mac can cause the simulator to stop playing bg music, or effects, or both!

Some things to check when sound stops working:

- Try resetting and restarting the simulator.
- Try restarting XCode, cleaning, and recompiling your project.
- Try rebooting your computer.
- Open "Audio MIDI Setup" (type "midi" into spotlight to find it) and make sure "-Built-in Output" is set to 44100.0 Hz.
- Go to System Preferences -> Sound -> Output, and ensure that "Play sound effects through" is set to "Internal Speakers"
- Go to System Preferences -> Sound -> Input, and ensure that it is using internal sound devices.
- Go to System Preferences -> Sound -> Sound Effects, and ensure "Play user interface sound effects" is checked.
- Some codecs may cause problems with sound playback. Try removing them.
- Programs that redirect audio can wreak havoc on the simulator. Try removing them.

Chapter 2

Class Index

2.1 Class Hierarchy

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

Chapter 3

Class Index

3.1 Class List

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

Chapter 4

Class Documentation

4.1 ALBuffer Class Reference

A buffer for audio data that will be played via a SoundSource.

```
#import <ALBuffer.h>
```

Public Member Functions

- (id) - initWithName:data:size:format:frequency:

  Initialize the buffer.
- (ALBuffer ∗) - sliceWithName:offset:size:

  Returns a part of the buffer as a new buffer.

Static Public Member Functions

- (id) + bufferWithName:data:size:format:frequency:

  Make a new buffer.

Protected Attributes

- void ∗ bufferData

  The uncompressed sound data to play.
- ALBuffer ∗ parentBuffer

  The parent buffer (which owns the uncompressed data)

Properties

- ALint bits

The size of a sample in bits.

- ALuint bufferId

  The ID assigned to this buffer by OpenAL.
- ALint channels

  The number of channels the buffer data plays in.
- ALDevice ∗ device

  The device this buffer was created for.
- ALenum format

  The format of the audio data (see al.h, AL_FORMAT_XXX).
- ALint frequency

  The frequency this buffer runs at.
- NSString ∗ name

  The name given to this buffer upon creation.
- ALint size

  The size, in bytes, of the currently loaded buffer data.
- float duration

  The duration of the sample in this buffer, in seconds.
- bool freeDataOnDestroy

  If true, calls free() on the audio data when this object gets destroyed.

4.1.1 Detailed Description

A buffer for audio data that will be played via a SoundSource.

See also

SoundSource

4.1.2 Member Function Documentation

4.1.2.1 + (id) bufferWithName: dummy(NSString∗) *name* data:(void∗) *data* size:(ALsizei) *size* format:(ALenum) *format* frequency:(ALsizei) *frequency*

Make a new buffer.

Parameters

name	Optional name that you can use to identify this buffer in your code.
data	The sound data. Note: ALBuffer will call free() on this data when it is destroyed!
size	The size of the data in bytes.
format	The format of the data (see the Core Audio documentation).
frequency	The sampling frequency in Hz.

Returns

A new buffer.

4.1.2.2 - (id) initWithName: dummy(NSString∗) *name* data:(void∗) *data* size:(ALsizei) *size* format:(ALenum) *format* frequency:(ALsizei) *frequency*

Initialize the buffer.

Parameters

name	Optional name that you can use to identify this buffer in your code.
data	The sound data. Note: ALBuffer will call free() on this data when it is destroyed!
size	The size of the data in bytes.
format	The format of the data (see the Core Audio documentation).
frequency	The sampling frequency in Hz.

Returns

The initialized buffer.

4.1.2.3 - (ALBuffer ∗) sliceWithName: dummy(NSString ∗) *sliceName* offset:(ALsizei) *offset* size:(ALsizei) *size*

Returns a part of the buffer as a new buffer.

You can use this method to split a buffer into a sub-buffers. The sub-buffers retain a reference to their parent buffer, and share the same memory. Therefore, modifying the parent buffer contents will affect its slices and vice-versa.

Parameters

sliceName	Optional name that you can use to identify the created buffer in your code.
offset	The offset in sound frames where the slice starts.
size	The size of the slice in frames.

Returns

The requested buffer.

4.1.3 Member Data Documentation

4.1.3.1 - (void∗) bufferData [protected]

The uncompressed sound data to play.

4.1.3.2 - (ALBuffer*) parentBuffer [protected]

The parent buffer (which owns the uncompressed data)

4.1.4 Property Documentation

4.1.4.1 - (ALint) bits [read, assign]

The size of a sample in bits.

4.1.4.2 - (ALuint) bufferId [read, assign]

The ID assigned to this buffer by OpenAL.

4.1.4.3 - (ALint) channels [read, assign]

The number of channels the buffer data plays in.

4.1.4.4 - (ALDevice *) device [read, retain]

The device this buffer was created for.

4.1.4.5 - (float) duration [read, assign]

The duration of the sample in this buffer, in seconds.

4.1.4.6 - (ALenum) format [read, assign]

The format of the audio data (see al.h, AL_FORMAT_XXX).

4.1.4.7 - (bool) freeDataOnDestroy [read, write, assign]

If true, calls free() on the audio data when this object gets destroyed.

Default: YES

4.1.4.8 - (ALint) frequency [read, assign]

The frequency this buffer runs at.

4.1.4.9 - (NSString ∗) name [read, write, retain]

The name given to this buffer upon creation.

You may change it at runtime if you wish.

4.1.4.10 - (ALint) size [read, assign]

The size, in bytes, of the currently loaded buffer data.

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

- ALBuffer.h
- ALBuffer.m

4.2 ALCaptureDevice Class Reference

∗UNIMPLEMENTED FOR IOS∗ An OpenAL device for capturing sound data.

```
#import <ALCaptureDevice.h>
```

Public Member Functions

- (id) - initWithDeviceSpecifier:frequency:format:bufferSize:

  Open the specified device.
- (bool) - startCapture

  Start capturing samples.
- (bool) - stopCapture

  Stop capturing samples.
- (bool) - moveSamples:toBuffer:

  Move captured samples to the specified buffer.
- (bool) - isExtensionPresent:

  Check if the specified extension is present.
- (void ∗) - getProcAddress:

  Get the address of the specified procedure (C function address).

Static Public Member Functions

- (id) + deviceWithDeviceSpecifier:frequency:format:bufferSize:

  Open the specified device.

Properties

- int captureSamples

  The number of capture samples available.
- ALCdevice ∗ device

  The OpenAL device pointer.
- NSArray ∗ extensions

  List of strings describing all extensions available on this device (NSString∗).
- int majorVersion

  The specification revision for this implementation (major version).
- int minorVersion

  The specification revision for this implementation (minor version).

4.2.1 Detailed Description

∗UNIMPLEMENTED FOR IOS∗ An OpenAL device for capturing sound data.

Note: This functionality is NOT implemented in iOS OpenAL!

This class is a placeholder in case such functionality is added in a future iOS SDK.

4.2.2 Member Function Documentation

4.2.2.1 + (id) deviceWithDeviceSpecifier: dummy(NSString∗) *deviceSpecifier* frequency:(ALCuint) *frequency* format:(ALCenum) *format* bufferSize:(ALCsizei) *bufferSize*

Open the specified device.

Parameters

deviceSpecifier	The name of the device to open (nil = default device).
frequency	The frequency to capture at.
format	The audio format to capture as.
bufferSize	The size of buffer that the device must allocate for audio capture.

Returns

A new capture device.

4.2.2.2 - (void ∗) getProcAddress: dummy(NSString∗) *functionName*

Get the address of the specified procedure (C function address).

Parameters

functionName	The name of the procedure to get.

Returns

the procedure's address, or NULL if it wasn't found.

4.2.2.3 - (id) initWithDeviceSpecifier: dummy(NSString∗) *deviceSpecifier* frequency:(ALCuint) *frequency* format:(ALCenum) *format* bufferSize:(ALCsizei) *bufferSize*

Open the specified device.

Parameters

deviceSpecifier	The name of the device to open (nil = default device).
frequency	The frequency to capture at.
format	The audio format to capture as.
bufferSize	The size of buffer that the device must allocate for audio capture.

Returns

The initialized capture device.

4.2.2.4 - (bool) isExtensionPresent: dummy(NSString∗) *name*

Check if the specified extension is present.

Parameters

name	The name of the extension to check.

Returns

TRUE if the extension is present.

4.2.2.5 - (bool) moveSamples: dummy(ALCsizei) *numSamples* toBuffer:(ALCvoid∗) *buffer*

Move captured samples to the specified buffer.

This method will fail if less than the specified number of samples have been captured.

Parameters

numSamples	The number of samples to move.
buffer	the buffer to move the samples into.

Returns

TRUE if the operation was successful.

4.2.2.6 - (bool) startCapture

Start capturing samples.

Returns

TRUE if the operation was successful.

4.2.2.7 - (bool) stopCapture

Stop capturing samples.

Returns

TRUE if the operation was successful.

4.2.3 Property Documentation

4.2.3.1 - (int) captureSamples `[read, assign]`

The number of capture samples available.

4.2.3.2 - (ALCdevice ∗) device `[read, assign]`

The OpenAL device pointer.

4.2.3.3 - (NSArray ∗) extensions `[read, retain]`

List of strings describing all extensions available on this device (NSString∗).

4.2.3.4 - (int) majorVersion `[read, assign]`

The specification revision for this implementation (major version).

4.2.3.5 - (int) minorVersion `[read, assign]`

The specification revision for this implementation (minor version).

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

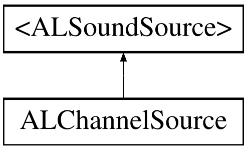
- ALCaptureDevice.h
- ALCaptureDevice.m

4.3 ALChannelSource Class Reference

A Sound source composed of other sources.

`#import <ALChannelSource.h>`

Inheritance diagram for ALChannelSource:



Public Member Functions

- (id) - initWithSources:

    Initialize a channel with a number of sources.
- (void) - setDefaultsFromSource:

    Set this channel's default values from those in the specified source.
- (void) - resetToDefault

    Reset all sources in this channel to their default state.
- (void) - addSource:

    Add a source to this channel.
- (id< ALSoundSource >) - removeSource:

    Remove a source from the channel.
- (ALChannelSource *) - splitChannelWithSources:

    Split the specified number of sources from this channel, creating a new channel.
- (void) - addChannel:

    Absorb another channel's sources into this one.

Static Public Member Functions

- (id) + channelWithSources:

    Create a channel with a number of sources.

Protected Attributes

- bool defaultsInitialized

  If YES, the defaults of this channel have been initialized.
- float pitch

  Pitch (OpenAL property).
- float gain

  Gain (volume) (OpenAL property).
- float maxDistance

  Max distance (OpenAL property).
- float rolloffFactor

  Rolloff factor (OpenAL property).
- float referenceDistance

  Reference distance (OpenAL property).
- float minGain

  Min gain (OpenAL property).
- float maxGain

  Max gain (OpenAL property).
- float coneOuterGain

  Cone outer gain (OpenAL property).
- float coneInnerAngle

  Cone inner angle (OpenAL property).
- float coneOuterAngle

  Cone outer angle (OpenAL property).
- float reverbSendLevel

  Reverb send level (how much reverb affects this source).
- float reverbOcclusion

  Reverb occlusion (wall/door between listener and source).
- float reverbObstruction

  Reverb obstruction (object between listener and source).
- ALPoint position

  Position (OpenAL property).
- ALVector velocity

  Velocity (OpenAL property).
- ALVector direction

  Direction (OpenAL property).
- int sourceRelative

  Source relative (OpenAL property).
- int sourceType

  Source type (OpenAL property).
- bool looping

  Looping (OpenAL property).
- float defaultPitch

Default pitch.

- float defaultGain

  Default gain.
- float defaultMaxDistance

  Default max distance.
- float defaultRolloffFactor

  Default rolloff factor.
- float defaultReferenceDistance

  Default reference distance.
- float defaultMinGain

  Default min gain.
- float defaultMaxGain

  Default max gain.
- float defaultConeOuterGain

  Default cone outer gain.
- float defaultConeInnerAngle

  Default cone inner angle.
- float defaultConeOuterAngle

  Default cone outer angle.
- ALPoint defaultPosition

  Default position.
- ALVector defaultVelocity

  Default veloxity.
- ALVector defaultDirection

  Default direction.
- int defaultSourceRelative

  Default source relative.
- int defaultSourceType

  Default source type.
- bool defaultLooping

  Default looping.
- float defaultReverbSendLevel

  Default reverb send level.
- float defaultReverbOcclusion

  Default occlusion.
- float defaultReverbObstruction

  Default obstruction.
- bool interruptible

  If true, this source may be interrupted when resources are low.
- bool muted

  If true, this source is muted.
- bool paused

  If true, this source is currently paused.

- id fadeCompleteTarget

  Target to inform when the current fade operation completes.
- SEL fadeCompleteSelector

  Selector to call when the current fade operation completes.
- int expectedFadeCallbackCount

  The expected number of sources that will callback when fading completes.
- int currentFadeCallbackCount

  The actual number of sources that have called back.
- id panCompleteTarget

  Target to inform when the current pan operation completes.
- SEL panCompleteSelector

  Selector to call when the current pan operation completes.
- int expectedPanCallbackCount

  The expected number of sources that will callback when panning completes.
- int currentPanCallbackCount

  The actual number of sources that have called back.
- id pitchCompleteTarget

  Target to inform when the current pitch operation completes.
- SEL pitchCompleteSelector

  Selector to call when the current pitch operation completes.
- int expectedPitchCallbackCount

  The expected number of sources that will callback when pitch op completes.
- int currentPitchCallbackCount

  The actual number of sources that have called back.

Properties

- ALContext ∗ context

  This source's owning context.
- ALSoundSourcePool ∗ sourcePool

  Pool holding the actual sources.
- int reservedSources

  The number of sources reserved by this channel.

4.3.1 Detailed Description

A Sound source composed of other sources.

Property values are applied to all sources within the channel.

Sounds will get played by any free sources within this channel.

If all sources are busy when playback is requested, it will attempt to interrupt a source to free it for playback.

4.3.2 Member Function Documentation

4.3.2.1 - (void) addChannel: dummy(ALChannelSource∗) *channel*

Absorb another channel's sources into this one.

All of the channel's sources will be moved into this channel.

Parameters

channel	The channel to absorb sources from.

4.3.2.2 - (void) addSource: dummy(id<ALSoundSource>) *source*

Add a source to this channel.

Parameters

source	The source to add.

4.3.2.3 + (id) channelWithSources: dummy(int) *reservedSources*

Create a channel with a number of sources.

Parameters

reservedSources	the number of sources to reserve for this channel.

Returns

A new channel.

4.3.2.4 - (id) initWithSources: dummy(int) *reservedSources*

Initialize a channel with a number of sources.

Parameters

reservedSources	the number of sources to reserve for this channel.

Returns

The initialized channel.

4.3.2.5 - (id< ALSoundSource >) removeSource: dummy(id<ALSoundSource>) *source*

Remove a source from the channel.

Parameters

source	The source to remove. If nil, remove any source.

Returns

The source that was removed.

4.3.2.6 - (void) resetToDefault

Reset all sources in this channel to their default state.

4.3.2.7 - (void) setDefaultsFromSource: dummy(id<ALSoundSource>) *source*

Set this channel's default values from those in the specified source.

Parameters

source	the source to set default values from.

4.3.2.8 - (ALChannelSource ∗) splitChannelWithSources: dummy(int) *numSources*

Split the specified number of sources from this channel, creating a new channel.

Parameters

numSources	The number of sources to split off

Returns

A new channel with the split-off sources.

4.3.3 Member Data Documentation

4.3.3.1 - (float) coneInnerAngle [protected]

Cone inner angle (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.2 - (float) coneOuterAngle [protected]

Cone outer angle (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.3 - (float) coneOuterGain [protected]

Cone outer gain (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.4 - (int) currentFadeCallbackCount [protected]

The actual number of sources that have called back.

4.3.3.5 - (int) currentPanCallbackCount [protected]

The actual number of sources that have called back.

4.3.3.6 - (int) currentPitchCallbackCount [protected]

The actual number of sources that have called back.

4.3.3.7 - (float) defaultConeInnerAngle [protected]

Default cone inner angle.

4.3.3.8 - (float) defaultConeOuterAngle [protected]

Default cone outer angle.

4.3.3.9 - (float) defaultConeOuterGain [protected]

Default cone outer gain.

4.3.3.10 - (ALVector) defaultDirection [protected]

Default direction.

4.3.3.11 - (float) defaultGain [protected]

Default gain.

4.3.3.12 - (bool) defaultLooping [protected]

Default looping.

4.3.3.13 - (float) defaultMaxDistance [protected]

Default max distance.

4.3.3.14 - (float) defaultMaxGain [protected]

Default max gain.

4.3.3.15 - (float) defaultMinGain [protected]

Default min gain.

4.3.3.16 - (float) defaultPitch [protected]

Default pitch.

4.3.3.17 - (ALPoint) defaultPosition [protected]

Default position.

4.3.3.18 - (float) defaultReferenceDistance [protected]

Default reference distance.

4.3.3.19 - (float) defaultReverbObstruction [protected]

Default obstruction.

4.3.3.20 - (float) defaultReverbOcclusion [protected]

Default occlusion.

4.3.3.21 - (float) defaultReverbSendLevel [protected]

Default reverb send level.

4.3.3.22 - (float) defaultRolloffFactor [protected]

Default rolloff factor.

4.3.3.23 - (bool) defaultsInitialized [protected]

If YES, the defaults of this channel have been initialized.

4.3.3.24 - (int) defaultSourceRelative [protected]

Default source relative.

4.3.3.25 - (int) defaultSourceType [protected]

Default source type.

4.3.3.26 - (ALVector) defaultVelocity [protected]

Default veloxity.

4.3.3.27 - (ALVector) direction [protected]

Direction (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.28 - (int) expectedFadeCallbackCount [protected]

The expected number of sources that will callback when fading completes.

4.3.3.29 - (int) expectedPanCallbackCount [protected]

The expected number of sources that will callback when panning completes.

4.3.3.30 - (int) expectedPitchCallbackCount [protected]

The expected number of sources that will callback when pitch op completes.

4.3.3.31 - (SEL) fadeCompleteSelector [protected]

Selector to call when the current fade operation completes.

4.3.3.32 - (id) fadeCompleteTarget [protected]

Target to inform when the current fade operation completes.

4.3.3.33 - (float) gain [protected]

Gain (volume) (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.34 - (bool) interruptible [protected]

If true, this source may be interrupted when resources are low.

Reimplemented from <ALSoundSource>.

4.3.3.35 - (bool) looping [protected]

Looping (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.36 - (float) maxDistance [protected]

Max distance (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.37 - (float) maxGain [protected]

Max gain (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.38 - (float) minGain [protected]

Min gain (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.39 - (bool) muted [protected]

If true, this source is muted.

Reimplemented from <ALSoundSource>.

4.3.3.40 - (SEL) panCompleteSelector [protected]

Selector to call when the current pan operation completes.

4.3.3.41 - (id) panCompleteTarget [protected]

Target to inform when the current pan operation completes.

4.3.3.42 - (bool) paused [protected]

If true, this source is currently paused.

Reimplemented from <ALSoundSource>.

4.3.3.43 - (float) pitch [protected]

Pitch (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.44 - (SEL) pitchCompleteSelector [protected]

Selector to call when the current pitch operation completes.

4.3.3.45 - (id) pitchCompleteTarget [protected]

Target to inform when the current pitch operation completes.

4.3.3.46 - (ALPoint) position [protected]

Position (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.47 - (float) referenceDistance [protected]

Reference distance (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.48 - (float) reverbObstruction [protected]

Reverb obstruction (object between listener and source).

(iOS 5.0+) -100.0db (most obstruction) to 0.0 (no obstruction). Default 0.

Reimplemented from <ALSoundSource>.

4.3.3.49 - (float) reverbOcclusion [protected]

Reverb occlusion (wall/door between listener and source).

(iOS 5.0+) -100.0db (most occlusion) to 0.0 (no occlusion). Default 0.

Reimplemented from <ALSoundSource>.

4.3.3.50 - (float) reverbSendLevel [protected]

Reverb send level (how much reverb affects this source).

(iOS 5.0+) 0.0 = fully dry, 1.0 = fully wet. Default 0.

Reimplemented from <ALSoundSource>.

4.3.3.51 - (float) rolloffFactor [protected]

Rolloff factor (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.52 - (int) sourceRelative [protected]

Source relative (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.53 - (int) sourceType [protected]

Source type (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.3.54 - (ALVector) velocity [protected]

Velocity (OpenAL property).

Reimplemented from <ALSoundSource>.

4.3.4 Property Documentation

4.3.4.1 - (ALContext ∗) context [read, retain]

This source's owning context.

4.3.4.2 - (int) reservedSources `[read, write, assign]`

The number of sources reserved by this channel.

4.3.4.3 - (ALSoundSourcePool *) sourcePool `[read, retain]`

Pool holding the actual sources.

All sources being used by this channel.

Do not modify!

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

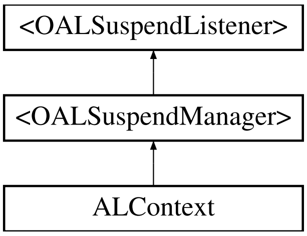
- ALChannelSource.h
- ALChannelSource.m

4.4 ALContext Class Reference

A context encompasses a single listener and a series of sources.

`#import <ALContext.h>`

Inheritance diagram for ALContext:



Public Member Functions

- (id) - initOnDevice:outputFrequency:refreshIntervals:synchronousContext:monoSources:stereoSources:

  Initialize this context on the specified device with attributes.
- (id) - initOnDevice:attributes:

  Initialize this context for the specified device and attributes.
- (void) - process

  Process this context.
- (void) - stopAllSounds

  Stop all sound sources in this context.
- (void) - clearBuffers

  Clear all buffers being used by sources in this context.

- (void) - ensureContextIsCurrent

  Make sure this context is the current context.
- (bool) - isExtensionPresent:

  Check if the specified extension is present in this context.
- (void ∗) - getProcAddress:

  Get the address of the specified procedure (C function address).

Static Public Member Functions

- (id) + contextOnDevice:attributes:

  Create a new context on the specified device.
- (id) + contextOnDevice:outputFrequency:refreshIntervals:synchronousContext-:monoSources:stereoSources:

  Create a new context on the specified device with attributes.

Protected Attributes

- NSMutableArray ∗ sources

  All sound sources associated with this context.
- bool suspended

  If YES, this object is suspended.
- NSMutableArray ∗ attributes

  This context's attributes.
- OALSuspendHandler ∗ suspendHandler

  Handles suspending and interrupting for this object.

Properties

- NSString ∗ alVersion

  OpenAL version string in format "[spec major number].
- NSArray ∗ attributes

  The current context's attribute list.
- ALCcontext ∗ context

  The OpenAL context pointer.
- ALDevice ∗ device

  The device this context was opened on.
- ALenum distanceModel

  The current distance model.
- float dopplerFactor

  Exaggeration factor for Doppler effect.
- NSArray ∗ extensions

  List of available extensions (NSString∗).

- ALListener ∗ listener

  This context's listener.
- NSString ∗ renderer

  Information about the specific renderer.
- NSArray ∗ sources

  All sources associated with this context (ALSource∗).
- float speedOfSound

  Speed of sound in same units as velocities.
- NSString ∗ vendor

  Name of the vendor.

4.4.1 Detailed Description

A context encompasses a single listener and a series of sources.

A context is created from a device, and many contexts may be created (though multiple contexts would be unusual in an iOS app).

Note: Some property values are only valid if this context is the current context.

See also

ObjectAL.currentContext

4.4.2 Member Function Documentation

4.4.2.1 - (void) clearBuffers

Clear all buffers being used by sources in this context.

4.4.2.2 + (id) contextOnDevice: dummy(ALDevice ∗) *device* attributes:(NSArray∗) *attributes*

Create a new context on the specified device.

Parameters

device	The device to open the context on.
attributes	An array of NSNumber in ordered pairs (attribute id followed by integer value). Posible attributes: ALC_FREQUENCY, ALC_REFRESH, ALC_SYNC, ALC_MONO_SOURCES, ALC_STEREO_SOURCES

Returns

A new context.

4.4.2.3 + (id) contextOnDevice: dummy(ALDevice∗) *device* outputFrequency:(int) *outputFrequency* refreshIntervals:(int) *refreshIntervals* synchronousContext:(bool) *synchronousContext* monoSources:(int) *monoSources* stereoSources:(int) *stereoSources*

Create a new context on the specified device with attributes.

Parameters

device	The device to open the context on.
outputFrequency	The frequency to mix all sources to before outputting (ignored by iOS).
refreshIntervals	The number of passes per second used to mix the audio sources. For games this can be 5-15. For audio intensive apps, it should be higher (ignored by iOS).
synchronousContext	If true, this context runs on the main thread and depends on you calling alcUpdateContext (ignored by iOS).
monoSources	A hint indicating how many sources should support mono (default 28 on iOS).
stereoSources	A hint indicating how many sources should support stereo (default 4 on iOS).

Returns

A new context.

4.4.2.4 - (void) ensureContextIsCurrent

Make sure this context is the current context.

This method is used to work around iOS 4.0 and 4.2 bugs that could cause the context to be lost.

4.4.2.5 - (void ∗) getProcAddress: dummy(NSString∗) *functionName*

Get the address of the specified procedure (C function address).

Only valid when this is the current context.

Note: The OpenAL implementation is free to return a pointer even if it is not valid for this context. Always call isExtensionPresent first.

Parameters

functionName	the name of the procedure to get.

Returns

the procedure's address, or NULL if it wasn't found.

4.4.2.6 - (id) initOnDevice: dummy(ALDevice ∗) *device* attributes:(NSArray∗) *attributes*

Initialize this context for the specified device and attributes.

Parameters

device	The device to open the context on.
attributes	An array of NSNumber in ordered pairs (attribute id followed by integer value). Posible attributes: ALC_FREQUENCY, ALC_REFRESH, ALC-_SYNC, ALC_MONO_SOURCES, ALC_STEREO_SOURCES

Returns

The initialized context.

4.4.2.7 - (id) initOnDevice: dummy(ALDevice∗) *device* outputFrequency:(int) *outputFrequency* refreshIntervals:(int) *refreshIntervals* synchronousContext:(bool) *synchronousContext* monoSources:(int) *monoSources* stereoSources:(int) *stereoSources*

Initialize this context on the specified device with attributes.

Parameters

device	The device to open the context on.
outputFrequency	The frequency to mix all sources to before outputting (ignored by iOS).
refreshIntervals	The number of passes per second used to mix the audio sources. For games this can be 5-15. For audio intensive apps, it should be higher (ignored by iOS).
synchronousContext	If true, this context runs on the main thread and depends on you calling alcUpdateContext (ignored by iOS).
monoSources	A hint indicating how many sources should support mono (default 28 on iOS).
stereoSources	A hint indicating how many sources should support stereo (default 4 on iOS).

Returns

The initialized context.

4.4.2.8 - (bool) isExtensionPresent: dummy(NSString∗) *name*

Check if the specified extension is present in this context.

Only valid when this is the current context.

Parameters

name	The name of the extension to check.

Returns

TRUE if the extension is present in this context.

4.4.2.9 - (void) process

Process this context.

4.4.2.10 - (void) stopAllSounds

Stop all sound sources in this context.

4.4.3 Member Data Documentation

4.4.3.1 - (NSMutableArray∗) attributes [protected]

This context's attributes.

4.4.3.2 - (NSMutableArray∗) sources [protected]

All sound sources associated with this context.

4.4.3.3 - (bool) suspended [protected]

If YES, this object is suspended.

Reimplemented from <OALSuspendManager>.

4.4.3.4 - (OALSuspendHandler∗) suspendHandler [protected]

Handles suspending and interrupting for this object.

4.4.4 Property Documentation

4.4.4.1 - (NSString ∗) alVersion [read, retain]

OpenAL version string in format “[spec major number].

[spec minor number] [optional vendor version information]” Only valid when this is the current context.

4.4.4.2 - (NSArray∗) attributes [read, retain]

The current context’s attribute list.

Only valid when this is the current context.

4.4.4.3 - (ALCcontext ∗) context [read, assign]

The OpenAL context pointer.

4.4.4.4 - (ALDevice∗) device [read, retain]

The device this context was opened on.

4.4.4.5 - (ALenum) distanceModel [read, write, assign]

The current distance model.

Legal values are AL_NONE, AL_INVERSE_DISTANCE, AL_INVERSE_DISTANCE_-CLAMPED, AL_LINEAR_DISTANCE, AL_LINEAR_DISTANCE_CLAMPED, AL_EXPONENT_DISTANCE, and AL_EXPONENT_DISTANCE_CLAMPED. See the OpenAL spec for detailed information.

Only valid when this is the current context.

4.4.4.6 - (float) dopplerFactor [read, write, assign]

Exaggeration factor for Doppler effect.

Only valid when this is the current context.

4.4.4.7 - (NSArray ∗) extensions [read, retain]

List of available extensions (NSString∗).

Only valid when this is the current context.

4.4.4.8 - (ALListener ∗) listener [read, retain]

This context's listener.

4.4.4.9 - (NSString ∗) renderer [read, retain]

Information about the specific renderer.

Only valid when this is the current context.

4.4.4.10 - (NSArray∗) sources [read, retain]

All sources associated with this context (ALSource∗).

4.4.4.11 - (float) speedOfSound [read, write, assign]

Speed of sound in same units as velocities.

Only valid when this is the current context.

4.4.4.12 - (NSString ∗) vendor [read, retain]

Name of the vendor.

Only valid when this is the current context.

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

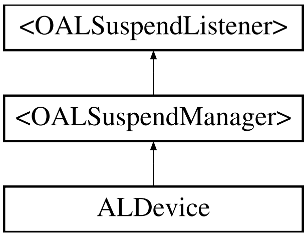
- ALContext.h
- ALContext.m

4.5 ALDevice Class Reference

A device is a logical mapping to an audio device through the OpenAL implementation.

`#import <ALDevice.h>`

Inheritance diagram for ALDevice:



Public Member Functions

- (id) - initWithDeviceSpecifier:

  Initialize with the specified device.
- (bool) - isExtensionPresent:

  Check if the specified extension is present.
- (void ∗) - getProcAddress:

  Get the address of the specified procedure (C function address).
- (void) - clearBuffers

  Clear all buffers being used by sources of contexts opened on this device.

Static Public Member Functions

- (id) + deviceWithDeviceSpecifier:

  Open the specified device.

Protected Attributes

- NSMutableArray ∗ contexts

  All contexts opened from this device.
- OALSuspendHandler ∗ suspendHandler

  Handles suspending and interrupting for this object.

Properties

- NSArray ∗ contexts

  All contexts created on this device (ALContext∗).
- ALCdevice ∗ device

  The OpenAL device pointer.
- NSArray ∗ extensions

  List of strings describing all extensions available on this device (NSString∗).
- int majorVersion

  The specification revision for this implementation (major version).
- int minorVersion

  The specification revision for this implementation (minor version).

4.5.1 Detailed Description

A device is a logical mapping to an audio device through the OpenAL implementation.

4.5.2 Member Function Documentation

4.5.2.1 - (void) clearBuffers

Clear all buffers being used by sources of contexts opened on this device.

4.5.2.2 + (id) deviceWithDeviceSpecifier: dummy(NSString∗) *deviceSpecifier*

Open the specified device.

Parameters

deviceSpecifier	The device to open (nil = default device).

Returns

A new device.

4.5.2.3 - (void ∗) getProcAddress: dummy(NSString∗) *functionName*

Get the address of the specified procedure (C function address).

Parameters

functionName	the name of the procedure to get.

Returns

the procedure's address, or NULL if it wasn't found.

4.5.2.4 - (id) initWithDeviceSpecifier: dummy(NSString∗) *deviceSpecifier*

Initialize with the specified device.

Parameters

deviceSpecifier	The device to open (nil = default device).

Returns

the initialized device.

4.5.2.5 - (bool) isExtensionPresent: dummy(NSString∗) *name*

Check if the specified extension is present.

Parameters

name	The extension to check.

Returns

TRUE if the extension is present.

4.5.3 Member Data Documentation

4.5.3.1 - (NSMutableArray∗) contexts `[protected]`

All contexts opened from this device.

4.5.3.2 - (OALSuspendHandler∗) suspendHandler `[protected]`

Handles suspending and interrupting for this object.

4.5.4 Property Documentation

4.5.4.1 - (NSArray∗) contexts `[read, retain]`

All contexts created on this device (ALContext∗).

4.5.4.2 - (ALCdevice ∗) device `[read, assign]`

The OpenAL device pointer.

4.5.4.3 - (NSArray ∗) extensions `[read, retain]`

List of strings describing all extensions available on this device (NSString∗).

4.5.4.4 - (int) majorVersion `[read, assign]`

The specification revision for this implementation (major version).

4.5.4.5 - (int) minorVersion `[read, assign]`

The specification revision for this implementation (minor version).

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

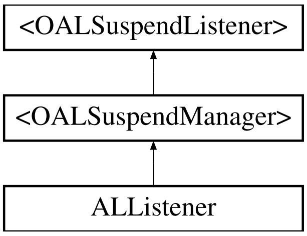
- ALDevice.h
- ALDevice.m

4.6 ALListener Class Reference

The listener represents the user who is listening to sounds in 3D space.

```
#import <ALListener.h>
```

Inheritance diagram for ALListener:



Protected Attributes

- OALSuspendHandler ∗ suspendHandler

  Handles suspending and interrupting for this object.

Properties

- ALContext ∗ context

  The context this listener belongs to (WEAK reference).
- bool muted

  Causes this listener to stop hearing sound.
- float gain

  Gain (volume), affecting every sound this listener hears (0.0 = no sound, 1.0 = max volume).
- ALOrientation orientation

  Orientation (up: x, y, z, at: x, y, z).
- ALPoint position

  Position (x, y, z).
- ALVector velocity

  Velocity (x, y, z).
- bool reverbOn

  Turns on reverb.
- float globalReverbLevel

  The global reverb level (from -40.0db to 40.0db).

- int reverbRoomType

  The room type to simulate for reverb.

- float reverbEQGain

  The equalizer gain for reverb.

- float reverbEQBandwidth

  The equalizer bandwidth for reverb.

- float reverbEQFrequency

  The equalizer frequency for reverb.

4.6.1 Detailed Description

The listener represents the user who is listening to sounds in 3D space.

This object controls his position, orientation, and velocity, as well as providing a master gain.

A context contains one and only one listener.

4.6.2 Member Data Documentation

4.6.2.1 - (OALSuspendHandler*) suspendHandler `[protected]`

Handles suspending and interrupting for this object.

4.6.3 Property Documentation

4.6.3.1 - (ALContext*) context `[read, assign]`

The context this listener belongs to (WEAK reference).

4.6.3.2 - (float) gain `[read, write, assign]`

Gain (volume), affecting every sound this listener hears (0.0 = no sound, 1.0 = max volume).

Only valid if this listener's context is the current context.

4.6.3.3 - (float) globalReverbLevel `[read, write, assign]`

The global reverb level (from -40.0db to 40.0db).

(iOS 5.0+)

4.6.3.4 - (bool) muted `[read, write, assign]`

Causes this listener to stop hearing sound.

It's called "muted" rather than "deaf" to give a consistent name with other mute functions.

4.6.3.5 - (ALOrientation) orientation `[read, write, assign]`

Orientation (up: x, y, z, at: x, y, z).

Only valid if this listener's context is the current context.

4.6.3.6 - (ALPoint) position `[read, write, assign]`

Position (x, y, z).

Only valid if this listener's context is the current context.

4.6.3.7 - (float) reverbEQBandwidth `[read, write, assign]`

The equalizer bandwidth for reverb.

(iOS 5.0+)

4.6.3.8 - (float) reverbEQFrequency `[read, write, assign]`

The equalizer frequency for reverb.

(iOS 5.0+)

4.6.3.9 - (float) reverbEQGain `[read, write, assign]`

The equalizer gain for reverb.

(iOS 5.0+)

4.6.3.10 - (bool) reverbOn `[read, write, assign]`

Turns on reverb.

(iOS 5.0+)

4.6.3.11 - (int) reverbRoomType `[read, write, assign]`

The room type to simulate for reverb.

(iOS 5.0+)

Allowed room types:

ALC_ASA_REVERB_ROOM_TYPE_SmallRoom ALC_ASA_REVERB_ROOM_TYPE_MediumRoom ALC_ASA_REVERB_ROOM_TYPE_LargeRoom ALC_ASA_REVERB_ROOM_TYPE_MediumHall ALC_ASA_REVERB_ROOM_TYPE_LargeHall ALC_ASA_REVERB_ROOM_TYPE_Plate ALC_ASA_REVERB_ROOM_TYPE_MediumChamber ALC_ASA_REVERB_ROOM_TYPE_LargeChamber ALC_ASA_REVERB_ROOM_TYPE_Cathedral ALC_ASA_REVERB_ROOM_TYPE_LargeRoom2 ALC_ASA_REVERB_ROOM_TYPE_MediumHall2 ALC_ASA_REVERB_ROOM_TYPE_MediumHall3 ALC_ASA_REVERB_ROOM_TYPE_LargeHall2

4.6.3.12 - (ALVector) velocity `[read, write, assign]`

Velocity (x, y, z).

Only valid if this listener's context is the current context.

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

- ALListener.h
- ALListener.m

4.7 ALOrientation Struct Reference

Represents an orientation, consisting of an "at" vector (representing the "forward" direction), and the "up" vector (representing "up" for the subject).

`#include <ALTypes.h>`

Public Attributes

- ALVector at

    The "at" vector, representing "forward".
- ALVector up

    The "up" vector, representing "up".

4.7.1 Detailed Description

Represents an orientation, consisting of an "at" vector (representing the "forward" direction), and the "up" vector (representing "up" for the subject).

4.7.2 Member Data Documentation

4.7.2.1 ALVector ALOrientation::at

The "at" vector, representing "forward".

4.7.2.2 ALVector ALOrientation::up

The "up" vector, representing "up".

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

- ALTypes.h

4.8 ALPoint Struct Reference

Represents a 3-dimensional point for certain ObjectAL properties.

```
#include <ALTypes.h>
```

Public Attributes

- float x

  The "X" coordinate.
- float y

  The "Y" coordinate.
- float z

  The "Z" coordinate.

4.8.1 Detailed Description

Represents a 3-dimensional point for certain ObjectAL properties.

4.8.2 Member Data Documentation

4.8.2.1 float ALPoint::x

The "X" coordinate.

4.8.2.2 float ALPoint::y

The "Y" coordinate.

4.8.2.3 float ALPoint::z

The "Z" coordinate.

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

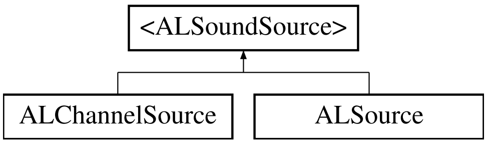
- ALTypes.h

4.9 <ALSoundSource> Protocol Reference

Manages all properties relating to an OpenAL sound source.

```
#import <ALSoundSource.h>
```

Inheritance diagram for <ALSoundSource>:



Public Member Functions

- (id< ALSoundSource >) - play:

  Play a sound.
- (id< ALSoundSource >) - play:loop:

  Play a sound, optionally looping.
- (id< ALSoundSource >) - play:gain:pitch:pan:loop:

  Play a sound, setting gain, pitch, pan, and looping.
- (void) - stop

  Stop playing the current sound.
- (void) - rewind

  Stop playing the current sound and set its state to AL_INITIAL.
- (void) - fadeTo:duration:target:selector:

  Fade to the specified gain value.
- (void) - stopFade

  Stop the currently running fade operation, if any.
- (void) - panTo:duration:target:selector:

  pan to the specified value.
- (void) - stopPan

  Stop the currently running pan operation, if any.
- (void) - pitchTo:duration:target:selector:

  Gradually change pitch to the specified value.
- (void) - stopPitch

  Stop the currently running pitch operation, if any.
- (void) - stopActions

  Stop any currently running fade, pan, or pitch operations.
- (void) - clear

  Clear any buffers this source is currently using.

Properties

- float coneInnerAngle

    Cone inner angle (OpenAL property).
- float coneOuterAngle

    Cone outer angle (OpenAL property).
- float coneOuterGain

    Cone outer gain (OpenAL property).
- ALVector direction

    Direction (OpenAL property).
- float gain

    Gain (volume) (OpenAL property).
- float volume

    Volume (alias to gain).
- bool interruptible

    If true, this source may be interrupted when resources are low.
- bool looping

    Looping (OpenAL property).
- float maxDistance

    Max distance (OpenAL property).
- float maxGain

    Max gain (OpenAL property).
- float minGain

    Min gain (OpenAL property).
- bool muted

    If true, this source is muted.
- bool paused

    If true, this source is currently paused.
- float pitch

    Pitch (OpenAL property).
- bool playing

    If true, this source is currently playing audio.
- ALPoint position

    Position (OpenAL property).
- float referenceDistance

    Reference distance (OpenAL property).
- float rolloffFactor

    Rolloff factor (OpenAL property).
- int sourceRelative

    Source relative (OpenAL property).
- int sourceType

    Source type (OpenAL property).
- ALVector velocity

Velocity (OpenAL property).

- float pan

  Pan value (-1.0 = far left, 1.0 = far right).

- float reverbSendLevel

  Reverb send level (how much reverb affects this source).

- float reverbOcclusion

  Reverb occlusion (wall/door between listener and source).

- float reverbObstruction

  Reverb obstruction (object between listener and source).

4.9.1 Detailed Description

Manages all properties relating to an OpenAL sound source.

There are currently two classes that adhere to this protocol: ALSource and ChannelSource (which collectively manipulates a set of ALSource objects). A full description of the properties themselves is available in the OpenAL 1.1 Specification and Reference: `http://connect.creativelabs.com/openal/Documentation`

4.9.2 Member Function Documentation

4.9.2.1 - (void) clear

Clear any buffers this source is currently using.

4.9.2.2 - (void) fadeTo: dummy(float) *gain* duration:(float) *duration* target:(id) *target* selector:(SEL) *selector*

Fade to the specified gain value.

Parameters

gain	The gain to fade to.
duration	The duration of the fade operation in seconds.
target	The target to notify when the fade completes (can be nil).
selector	The selector to call when the fade completes. The selector must accept a single parameter, which will be the object that performed the fade.

4.9.2.3 - (void) panTo: dummy(float) *pan* duration:(float) *duration* target:(id) *target* selector:(SEL) *selector*

pan to the specified value.

Parameters

pan	The value to pan to.
duration	The duration of the pan operation in seconds.
target	The target to notify when the pan completes (can be nil).
selector	The selector to call when the pan completes. The selector must accept a single parameter, which will be the object that performed the pan.

4.9.2.4 - (void) pitchTo: dummy(float) *pitch* duration:(float) *duration* target:(id) *target* selector:(SEL) *selector*

Gradually change pitch to the specified value.

Parameters

pitch	The value to change pitch to.
duration	The duration of the pitch operation in seconds.
target	The target to notify when the pitch change completes (can be nil).
selector	The selector to call when the pitch change completes. The selector must accept a single parameter, which will be the object that performed the pitch change.

4.9.2.5 - (id<ALSoundSource>) play: dummy(ALBuffer ∗) *buffer*

Play a sound.

Parameters

buffer	the buffer to play.

Returns

the source playing the sound, or nil if the sound could not be played.

4.9.2.6 - (id<ALSoundSource>) play: dummy(ALBuffer ∗) *buffer* gain:(float) *gain* pitch:(float) *pitch* pan:(float) *pan* loop:(bool) *loop*

Play a sound, setting gain, pitch, pan, and looping.

Parameters

buffer	the buffer to play.
gain	The gain (volume) to play at (0.0 - 1.0).
pitch	The pitch to play at (1.0 = normal pitch).
pan	Left-right panning (-1.0 = far left, 1.0 = far right).
loop	If TRUE, the sound will loop until you call "stop" on the returned sound source.

Returns

the source playing the sound, or nil if the sound could not be played.

4.9.2.7 - (id<ALSoundSource>) play: dummy(ALBuffer ∗) *buffer* loop:(bool) *loop*

Play a sound, optionally looping.

Parameters

buffer	the buffer to play.
loop	If TRUE, the sound will loop until you call "stop" on the returned sound source.

Returns

the source playing the sound, or nil if the sound could not be played.

4.9.2.8 - (void) rewind

Stop playing the current sound and set its state to AL_INITIAL.

4.9.2.9 - (void) stop

Stop playing the current sound.

4.9.2.10 - (void) stopActions

Stop any currently running fade, pan, or pitch operations.

4.9.2.11 - (void) stopFade

Stop the currently running fade operation, if any.

4.9.2.12 - (void) stopPan

Stop the currently running pan operation, if any.

4.9.2.13 - (void) stopPitch

Stop the currently running pitch operation, if any.

4.9.3 Property Documentation

4.9.3.1 - (float) coneInnerAngle `[read, write, assign]`

Cone inner angle (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.2 - (float) coneOuterAngle `[read, write, assign]`

Cone outer angle (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.3 - (float) coneOuterGain `[read, write, assign]`

Cone outer gain (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.4 - (ALVector) direction `[read, write, assign]`

Direction (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.5 - (float) gain `[read, write, assign]`

Gain (volume) (OpenAL property).

Reimplemented in ALChannelSource, and ALSource.

4.9.3.6 - (bool) interruptible `[read, write, assign]`

If true, this source may be interrupted when resources are low.

Reimplemented in ALChannelSource, and ALSource.

4.9.3.7 - (bool) looping `[read, write, assign]`

Looping (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.8 - (float) maxDistance `[read, write, assign]`

Max distance (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.9 - (float) maxGain `[read, write, assign]`

Max gain (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.10 - (float) minGain `[read, write, assign]`

Min gain (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.11 - (bool) muted `[read, write, assign]`

If true, this source is muted.

Reimplemented in ALChannelSource, and ALSource.

4.9.3.12 - (float) pan `[read, write, assign]`

Pan value (-1.0 = far left, 1.0 = far right).

Note: This effect is simulated by changing the source's X position. Do not use this property if you are modifying the position property as well.

4.9.3.13 - (bool) paused `[read, write, assign]`

If true, this source is currently paused.

Reimplemented in ALChannelSource.

4.9.3.14 - (float) pitch `[read, write, assign]`

Pitch (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.15 - (bool) playing `[read, assign]`

If true, this source is currently playing audio.

4.9.3.16 - (ALPoint) position `[read, write, assign]`

Position (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.17 - (float) referenceDistance [read, write, assign]

Reference distance (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.18 - (float) reverbObstruction [read, write, assign]

Reverb obstruction (object between listener and source).

(iOS 5.0+) -100.0db (most obstruction) to 0.0 (no obstruction). Default 0.

Reimplemented in ALChannelSource.

4.9.3.19 - (float) reverbOcclusion [read, write, assign]

Reverb occlusion (wall/door between listener and source).

(iOS 5.0+) -100.0db (most occlusion) to 0.0 (no occlusion). Default 0.

Reimplemented in ALChannelSource.

4.9.3.20 - (float) reverbSendLevel [read, write, assign]

Reverb send level (how much reverb affects this source).

(iOS 5.0+) 0.0 = fully dry, 1.0 = fully wet. Default 0.

Reimplemented in ALChannelSource.

4.9.3.21 - (float) rolloffFactor [read, write, assign]

Rolloff factor (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.22 - (int) sourceRelative [read, write, assign]

Source relative (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.23 - (int) sourceType [read, assign]

Source type (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.24 - (ALVector) velocity `[read, write, assign]`

Velocity (OpenAL property).

Reimplemented in ALChannelSource.

4.9.3.25 - (float) volume `[read, write, assign]`

Volume (alias to gain).

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

- ALSoundSource.h

4.10 ALSoundSourcePool Class Reference

A pool of sound sources, which can be fetched based on availability.

`#import <ALSoundSourcePool.h>`

Public Member Functions

- (void) - addSource:

  Add a source to this pool.
- (void) - removeSource:

  Remove a source from this pool.
- (id< ALSoundSource >) - getFreeSource:

  Acquire a free or freeable source from this pool.

Static Public Member Functions

- (id) + pool

  Make a new pool.

Protected Attributes

- NSMutableArray ∗ sources

  All sources managed by this pool (id<ALSoundSource>).

Properties

- NSArray ∗ sources

  All sources managed by this pool (id<ALSoundSource>).

4.10.1 Detailed Description

A pool of sound sources, which can be fetched based on availability.

4.10.2 Member Function Documentation

4.10.2.1 - (void) addSource: dummy(id<ALSoundSource>) *source*

Add a source to this pool.

Parameters

source	The source to add.

4.10.2.2 - (id< ALSoundSource >) getFreeSource: dummy(bool) *attemptToInterrupt*

Acquire a free or freeable source from this pool.

It first attempts to find a completely free source. Failing this, it will attempt to interrupt a source and return that (if attemptToInterrupt is TRUE).

Parameters

attemptTo-Interrupt	If TRUE, attempt to interrupt sources to free them for use.

Returns

The freed sound source, or nil if no sources are freeable.

4.10.2.3 + (id) pool

Make a new pool.

Returns

A new pool.

4.10.2.4 - (void) removeSource: dummy(id<ALSoundSource>) *source*

Remove a source from this pool.

Parameters

source	The source to remove.

4.10.3 Member Data Documentation

4.10.3.1 - (NSMutableArray∗) sources `[protected]`

All sources managed by this pool (id<ALSoundSource>).

4.10.4 Property Documentation

4.10.4.1 - (NSArray∗) sources `[read, retain]`

All sources managed by this pool (id<ALSoundSource>).

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

- ALSoundSourcePool.h
- ALSoundSourcePool.m

4.11 ALSoundSourcePool(Private) Class Reference

Private interface to SoundSourcePool.

Public Member Functions

- (void) - moveToHead:

  Move a source to the head of the list.

4.11.1 Detailed Description

Private interface to SoundSourcePool.

4.11.2 Member Function Documentation

4.11.2.1 - (void) moveToHead: dummy(int) *index*

Move a source to the head of the list.

Parameters

index	the index of the source to move.

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

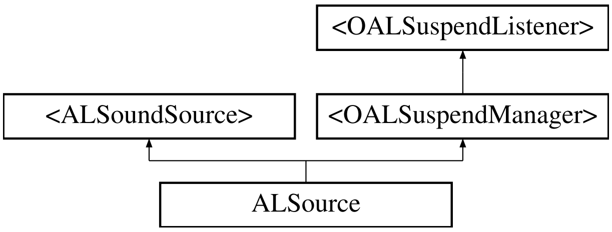
- ALSoundSourcePool.m

4.12 ALSource Class Reference

A source represents an object that emits sound which can be heard by a listener.

`#import <ALSource.h>`

Inheritance diagram for ALSource:



Public Member Functions

- (id) - initOnContext:

  Initialize a new source on the specified context.
- (id< ALSoundSource >) - play

  Play the currently attached buffer.
- (bool) - queueBuffer:

  Add a buffer to the buffer queue.
- (bool) - queueBuffer:repeats:

  Add a buffer to the buffer queue, repeating it multiple times.
- (bool) - queueBuffers:

  Add buffers to the buffer queue.
- (bool) - queueBuffers:repeats:

  Add buffers to the buffer queue, repeating it multiple times.
- (bool) - unqueueBuffer:

  Remove a buffer from the buffer queue.
- (bool) - unqueueBuffers:

  Remove buffers from the buffer queue.

Static Public Member Functions

- (id) + source

  Create a new source.
- (id) + sourceOnContext:

  Create a new source on the specified context.

Protected Attributes

- bool interruptible

    If true, this source may be interrupted when resources are low.
- float gain

    Gain (volume) (OpenAL property).
- bool muted

    If true, this source is muted.
- int shadowState

    Shadow value which keeps the correct state value for AL_PLAYING and AL_PAUSED.
- bool abortPlaybackResume

    Used to abort a pending playback resume if the user calls stop or pause.
- OALAction ∗ gainAction

    Current action operating on the gain control.
- OALAction ∗ panAction

    Current action operating on the pan control.
- OALAction ∗ pitchAction

    Current action operating on the pitch control.
- OALSuspendHandler ∗ suspendHandler

    Handles suspending and interrupting for this object.

Properties

- ALBuffer ∗ buffer

    The sound buffer this source is attached to (set to nil to detach the currently attached buffer).
- int buffersQueued

    How many buffers this source has queued.
- int buffersProcessed

    How many of these buffers have been processed during playback.
- ALContext ∗ context

    The context this source was opened on.
- float offsetInBytes

    The offset into the current buffer (in bytes).
- float offsetInSamples

    The offset into the current buffer (in samples).
- float offsetInSeconds

    The offset into the current buffer (in seconds).
- ALuint sourceId

    OpenAL's ID for this source.
- int state

    The state of this source.

4.12.1 Detailed Description

A source represents an object that emits sound which can be heard by a listener.

This source can have position, velocity, and direction.

4.12.2 Member Function Documentation

4.12.2.1 - (id) initOnContext: dummy(ALContext∗) *context*

Initialize a new source on the specified context.

Parameters

context	the context to create the source on.

Returns

A new source.

4.12.2.2 - (id< ALSoundSource >) play

Play the currently attached buffer.

Returns

the source playing the sound, or nil if the sound could not be played.

4.12.2.3 - (bool) queueBuffer: dummy(ALBuffer∗) *buffer*

Add a buffer to the buffer queue.

Parameters

buffer	the buffer to add to the queue.

Returns

TRUE if the operation was successful.

4.12.2.4 - (bool) queueBuffer: dummy(ALBuffer∗) *buffer* repeats:(NSUInteger) *repeats*

Add a buffer to the buffer queue, repeating it multiple times.

Parameters

buffer	the buffer to add to the queue.
repeats	the number of times to repeat the buffer in the queue.

Returns

TRUE if the operation was successful.

4.12.2.5 - (bool) queueBuffers: dummy(NSArray∗) *buffers*

Add buffers to the buffer queue.

Parameters

buffers	the buffers to add to the queue.

Returns

TRUE if the operation was successful.

4.12.2.6 - (bool) queueBuffers: dummy(NSArray∗) *buffers* repeats:(NSUInteger) *repeats*

Add buffers to the buffer queue, repeating it multiple times.

The buffers will be played in order, repeating the specified number of times.

Parameters

buffers	the buffers to add to the queue.
repeats	the number of times to repeat the buffer in the queue.

Returns

TRUE if the operation was successful.

4.12.2.7 + (id) source

Create a new source.

Returns

A new source.

4.12.2.8 + (id) sourceOnContext: dummy(ALContext∗) *context*

Create a new source on the specified context.

Parameters

context	the context to create the source on.

Returns

A new source.

4.12.2.9 - (bool) unqueueBuffer: dummy(ALBuffer∗) *buffer*

Remove a buffer from the buffer queue.

Parameters

buffer	the buffer to remove from the queue.

Returns

TRUE if the operation was successful.

4.12.2.10 - (bool) unqueueBuffers: dummy(NSArray∗) *buffers*

Remove buffers from the buffer queue.

Parameters

buffers	the buffers to remove from the queue.

Returns

TRUE if the operation was successful.

4.12.3 Member Data Documentation

4.12.3.1 - (bool) abortPlaybackResume `[protected]`

Used to abort a pending playback resume if the user calls stop or pause.

4.12.3.2 - (float) gain `[protected]`

Gain (volume) (OpenAL property).

Reimplemented from <ALSoundSource>.

4.12.3.3 - (OALAction∗) gainAction `[protected]`

Current action operating on the gain control.

4.12.3.4 - (bool) interruptible `[protected]`

If true, this source may be interrupted when resources are low.

Reimplemented from <ALSoundSource>.

4.12.3.5 - (bool) muted `[protected]`

If true, this source is muted.

Reimplemented from <ALSoundSource>.

4.12.3.6 - (OALAction∗) panAction `[protected]`

Current action operating on the pan control.

4.12.3.7 - (OALAction∗) pitchAction `[protected]`

Current action operating on the pitch control.

4.12.3.8 - (int) shadowState `[protected]`

Shadow value which keeps the correct state value for AL_PLAYING and AL_PAUSED.

We need this due to a buggy OpenAL implementation.

4.12.3.9 - (OALSuspendHandler∗) suspendHandler `[protected]`

Handles suspending and interrupting for this object.

4.12.4 Property Documentation

4.12.4.1 - (ALBuffer ∗) buffer `[read, write, retain]`

The sound buffer this source is attached to (set to nil to detach the currently attached buffer).

4.12.4.2 - (int) buffersProcessed `[read, assign]`

How many of these buffers have been processed during playback.

4.12.4.3 - (int) buffersQueued `[read, assign]`

How many buffers this source has queued.

4.12.4.4 - (ALContext *) context `[read, retain]`

The context this source was opened on.

4.12.4.5 - (float) offsetInBytes `[read, write, assign]`

The offset into the current buffer (in bytes).

4.12.4.6 - (float) offsetInSamples `[read, write, assign]`

The offset into the current buffer (in samples).

4.12.4.7 - (float) offsetInSeconds `[read, write, assign]`

The offset into the current buffer (in seconds).

4.12.4.8 - (ALuint) sourceId `[read, assign]`

OpenAL's ID for this source.

4.12.4.9 - (int) state `[read, write, assign]`

The state of this source.

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

- ALSource.h
- ALSource.m

4.13 ALVector Struct Reference

Represents a 3-dimensional vector for certain ObjectAL properties.

```
#include <ALTypes.h>
```

Public Attributes

- float x

  The "X" coordinate.

- float y

  The "Y" coordinate.
- float z

  The "Z" coordinate.

4.13.1 Detailed Description

Represents a 3-dimensional vector for certain ObjectAL properties.

Properties are the same as for ALPoint.

4.13.2 Member Data Documentation

4.13.2.1 float ALVector::x

The "X" coordinate.

4.13.2.2 float ALVector::y

The "Y" coordinate.

4.13.2.3 float ALVector::z

The "Z" coordinate.

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

- ALTypes.h

4.14 ALWrapper Class Reference

A thin wrapper around the C OpenAL API, with a few convenience methods thrown in.

```
#import <ALWrapper.h>
```

Static Public Member Functions

- (bool) + genBuffers:numBuffers:

  Generate buffers.
- (ALuint) + genBuffer

  Generate a buffer.
- (bool) + deleteBuffers:numBuffers:

  Delete buffers.

- (bool) + deleteBuffer:

  Delete a buffer.
- (bool) + isBuffer:

  Check if the speified buffer exists.
- (bool) + bufferData:format:data:size:frequency:

  Load data into a buffer.
- (bool) + bufferf:parameter:value:

  Write a float paramter to a buffer.
- (bool) + buffer3f:parameter:v1:v2:v3:

  Write a 3 float paramter to a buffer.
- (bool) + bufferfv:parameter:values:

  Write a float array paramter to a buffer.
- (bool) + bufferi:parameter:value:

  Write an integer paramter to a buffer.
- (bool) + buffer3i:parameter:v1:v2:v3:

  Write a 3 integer paramter to a buffer.
- (bool) + bufferiv:parameter:values:

  Write an integer array paramter to a buffer.
- (ALfloat) + getBufferf:parameter:

  Read a float paramter from a buffer.
- (bool) + getBuffer3f:parameter:v1:v2:v3:

  Read a 3 float paramter from a buffer.
- (bool) + getBufferfv:parameter:values:

  Read a float array paramter from a buffer.
- (ALint) + getBufferi:parameter:

  Read an integer paramter from a buffer.
- (bool) + getBuffer3i:parameter:v1:v2:v3:

  Read a 3 integer paramter from a buffer.
- (bool) + getBufferiv:parameter:values:

  Read an integer array paramter from a buffer.
- (bool) + genSources:numSources:

  Generate sources.
- (ALuint) + genSource

  Generate a source.
- (bool) + deleteSources:numSources:

  Delete sources.
- (bool) + deleteSource:

  Delete a source.
- (bool) + isSource:

  Check if the speified source exists.
- (bool) + sourcePlay:

  Play a source.
- (bool) + sourcePlayv:numSources:

Play a bunch of sources.

- (bool) + sourcePause:

  Pause a source.
- (bool) + sourcePausev:numSources:

  Pause a bunch of sources.
- (bool) + sourceStop:

  Stop a source.
- (bool) + sourceStopv:numSources:

  Stop a bunch of sources.
- (bool) + sourceRewind:

  Rewind a source.
- (bool) + sourceRewindv:numSources:

  Rewind a bunch of sources.
- (bool) + sourceQueueBuffers:numBuffers:bufferIds:

  Queue buffers into a source for sequential playback.
- (bool) + sourceUnqueueBuffers:numBuffers:bufferIds:

  Unqueue previously queued buffers.
- (bool) + sourcef:parameter:value:

  Write a float paramter to a source.
- (bool) + source3f:parameter:v1:v2:v3:

  Write a 3 float paramter to a source.
- (bool) + sourcefv:parameter:values:

  Write a float array paramter to a source.
- (bool) + sourcei:parameter:value:

  Write an integer paramter to a source.
- (bool) + source3i:parameter:v1:v2:v3:

  Write a 3 integer paramter to a source.
- (bool) + sourceiv:parameter:values:

  Write an integer array paramter to a source.
- (ALfloat) + getSourcef:parameter:

  Read a float paramter from a source.
- (bool) + getSource3f:parameter:v1:v2:v3:

  Read a 3 float paramter from a source.
- (bool) + getSourcefv:parameter:values:

  Read a float array paramter from a source.
- (ALint) + getSourcei:parameter:

  Read an integer paramter from a source.
- (bool) + getSource3i:parameter:v1:v2:v3:

  Read a 3 integer paramter from a source.
- (bool) + getSourceiv:parameter:values:

  Read an integer array paramter from a source.
- (bool) + listenerf:value:

  Write a float paramter to the current listener.

- (bool) + listener3f:v1:v2:v3:

  Write a 3 float paramter to the current listener.
- (bool) + listenerfv:values:

  Write a float array paramter to the current listener.
- (bool) + listeneri:value:

  Write an integer paramter to the current listener.
- (bool) + listener3i:v1:v2:v3:

  Write a 3 integer paramter to the current listener.
- (bool) + listeneriv:values:

  Write an integer array paramter to the current listener.
- (ALfloat) + getListenerf:

  Read a float paramter from the current listener.
- (bool) + getListener3f:v1:v2:v3:

  Read a 3 float paramter from the current listener.
- (bool) + getListenerfv:values:

  Read a float array paramter from the current listener.
- (ALint) + getListeneri:

  Read an integer paramter from the current listener.
- (bool) + getListener3i:v1:v2:v3:

  Read a 3 integer paramter from the current listener.
- (bool) + getListeneriv:values:

  Read an integer array paramter from the current listener.
- (bool) + enable:

  Enable a capability.
- (bool) + disable:

  Disable a capability.
- (bool) + isEnabled:

  Check if a capability is enabled.
- (bool) + getBoolean:

  Get a boolean parameter.
- (ALdouble) + getDouble:

  Get a double parameter.
- (ALfloat) + getFloat:

  Get a float parameter.
- (ALint) + getInteger:

  Get an integer parameter.
- (NSString ∗) + getString:

  Get a string parameter.
- (NSArray ∗) + getNullSeparatedStringList:

  Get a string list parameter.
- (NSArray ∗) + getSpaceSeparatedStringList:

  Get a string list parameter.
- (bool) + getBooleanv:values:

Get a boolean array parameter.

- (bool) + getDoublev:values:

  Get a double array parameter.
- (bool) + getFloatv:values:

  Get a float array parameter.
- (bool) + getIntegerv:values:

  Get an integer array parameter.
- (bool) + distanceModel:

  Set the distance model.
- (bool) + dopplerFactor:

  Set the doppler factor.
- (bool) + speedOfSound:

  Set the speed of sound.
- (bool) + isExtensionPresent:

  Check if an extension is present.
- (void ∗) + getProcAddress:

  Get the address of a procedure.
- (ALenum) + getEnumValue:

  Get the enum value from its name.
- (ALCdevice ∗) + openDevice:

  Open a device.
- (bool) + closeDevice:

  Close a device.
- (ALCcontext ∗) + createContext:attributes:

  Create an OpenAL context.
- (bool) + makeContextCurrent:

  Make the specified context the current context.
- (bool) + makeContextCurrent:deviceReference:

  Make the specified context the current context, passing in a device reference for more informative logging info.
- (void) + processContext:

  Process a context.
- (void) + suspendContext:

  Suspend a context.
- (void) + destroyContext:

  Destroy a context.
- (ALCcontext ∗) + getCurrentContext

  Get the current context.
- (ALCdevice ∗) + getContextsDevice:

  Get the device a context was created from.
- (ALCdevice ∗) + getContextsDevice:deviceReference:

  Get the device a context was created from, passing in a device reference for more informative logging info.
- (bool) + isExtensionPresent:name:

Check if an extension is present on a device.

- (void ∗) + getProcAddress:name:

  Get the address of a procedure for a device.
- (ALenum) + getEnumValue:name:

  Get the enum value from its name.
- (NSString ∗) + getString:attribute:

  Get a string attribute.
- (NSArray ∗) + getNullSeparatedStringList:attribute:

  Get a string list attribute.
- (NSArray ∗) + getSpaceSeparatedStringList:attribute:

  Get a string list attribute.
- (ALint) + getInteger:attribute:

  Get an integer attribute.
- (bool) + getIntegerv:attribute:size:data:

  Get an integer array attribute.
- (ALCdevice ∗) + openCaptureDevice:frequency:format:bufferSize:

  ∗UNSUPPORTED ON IOS∗ Open an audio capture device.
- (bool) + closeCaptureDevice:

  Close a capture device.
- (bool) + startCapture:

  Start capturing audio data.
- (bool) + stopCapture:

  Stop capturing audio data.
- (bool) + captureSamples:buffer:numSamples:

  Get captured samples from a device.
- (ALdouble) + getMixerOutputDataRate

  Get the iOS device's mixer outut data rate.
- (void) + setMixerOutputDataRate:

  Set the iOS device's mixer output data rate.
- (bool) + bufferDataStatic:format:data:size:frequency:

  Load data into a buffer.
- (bool) + asaGetListenerb:

  Read a boolean ASA property from a listener.
- (ALint) + asaGetListeneri:

  Read an integer ASA property from a listener.
- (ALfloat) + asaGetListenerf:

  Read a floating point ASA property from a listener.
- (bool) + asaListenerb:value:

  Write a boolean ASA value to a listener.
- (bool) + asaListeneri:value:

  Write an integer ASA value to a listener.
- (bool) + asaListenerf:value:

  Write a floating point ASA value to a listener.

- (bool) + asaGetSourceb:property:

  Read a boolean ASA property from a source.
- (ALint) + asaGetSourcei:property:

  Read an integer ASA property from a source.
- (ALfloat) + asaGetSourcef:property:

  Read a floating point ASA property from a source.
- (bool) + asaSourceb:property:value:

  Write a boolean ASA value to a source.
- (bool) + asaSourcei:property:value:

  Write an integer ASA value to a source.
- (bool) + asaSourcef:property:value:

  Write a floating point ASA value to a source.

4.14.1 Detailed Description

A thin wrapper around the C OpenAL API, with a few convenience methods thrown in.

Wherever possible, methods return the requested data rather than requiring a pointer to be passed in. Besides collecting the API calls into a single global object, all calls are combined with an error check. Any OpenAL errors that occur will be logged if error logging is enabled.

4.14.2 Member Function Documentation

4.14.2.1 + (bool) asaGetListenerb: dummy(ALuint) *property*

Read a boolean ASA property from a listener.

Parameters

property	The property to read.

Returns

The property's value.

4.14.2.2 + (ALfloat) asaGetListenerf: dummy(ALuint) *property*

Read a floating point ASA property from a listener.

Parameters

property	The property to read.

Returns

The property's value.

4.14.2.3 + (ALint) asaGetListeneri: dummy(ALuint) *property*

Read an integer ASA property from a listener.

Parameters

property	The property to read.

Returns

The property's value.

4.14.2.4 + (bool) asaGetSourceb: dummy(ALuint) *sourceId* property:(ALuint) *property*

Read a boolean ASA property from a source.

Parameters

sourceId	The source's ID.
property	The property to read.

Returns

The property's value.

4.14.2.5 + (ALfloat) asaGetSourcef: dummy(ALuint) *sourceId* property:(ALuint) *property*

Read a floating point ASA property from a source.

Parameters

sourceId	The source's ID.
property	The property to read.

Returns

The property's value.

4.14.2.6 + (ALint) asaGetSourcei: dummy(ALuint) *sourceId* property:(ALuint) *property*

Read an integer ASA property from a source.

Parameters

sourceId	The source's ID.
property	The property to read.

Returns

The property's value.

4.14.2.7 + (bool) asaListenerb: dummy(ALuint) *property* value:(bool) *value*

Write a boolean ASA value to a listener.

Parameters

property	The property to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.8 + (bool) asaListenerf: dummy(ALuint) *property* value:(ALfloat) *value*

Write a floating point ASA value to a listener.

Parameters

property	The property to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.9 + (bool) asaListeneri: dummy(ALuint) *property* value:(ALint) *value*

Write an integer ASA value to a listener.

Parameters

property	The property to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.10 + (bool) asaSourceb: dummy(ALuint) *sourceId* property:(ALuint) *property* value:(bool) *value*

Write a boolean ASA value to a source.

Parameters

sourceId	The source's ID.
property	The property to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.11 + (bool) asaSourcef: dummy(ALuint) *sourceId* property:(ALuint) *property* value:(ALfloat) *value*

Write a floating point ASA value to a source.

Parameters

sourceId	The source's ID.
property	The property to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.12 + (bool) asaSourcei: dummy(ALuint) *sourceId* property:(ALuint) *property* value:(ALint) *value*

Write an integer ASA value to a source.

Parameters

sourceId	The source's ID.
property	The property to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.13 + (bool) buffer3f: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* v1:(ALfloat) *v1* v2:(ALfloat) *v2* v3:(ALfloat) *v3*

Write a 3 float paramter to a buffer.

Parameters

bufferId	The buffer's ID.
parameter	the parameter to write to.
v1	The first value to write.
v2	The second value to write.
v3	The third value to write.

Returns

TRUE if the operation was successful.

4.14.2.14 + (bool) buffer3i: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* v1:(ALint) *v1* v2:(ALint) *v2* v3:(ALint) *v3*

Write a 3 integer paramter to a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to write to.
v1	The first value to write.
v2	The second value to write.
v3	The third value to write.

Returns

TRUE if the operation was successful.

4.14.2.15 + (bool) bufferData: dummy(ALuint) *bufferId* format:(ALenum) *format* data:(const ALvoid∗) *data* size:(ALsizei) *size* frequency:(ALsizei) *frequency*

Load data into a buffer.

Parameters

bufferId	The ID of the buffer to load data into.
format	The format of the data being loaded (typically AL_FORMAT_MONO16 or AL_FORMAT_STEREO16).
data	The audio data.
size	The size of the data in bytes.
frequency	The sample frequency of the data.

4.14.2.16 + (bool) bufferDataStatic: dummy(ALuint) *bufferId* format:(ALenum) *format* data:(const ALvoid∗) *data* size:(ALsizei) *size* frequency:(ALsizei) *frequency*

Load data into a buffer.

Unlike "bufferData", with this method the buffer will use the passed in data buffer direcly rather than allocating its own memory and copying from the data buffer.

Parameters

bufferId	The ID of the buffer to load data into.
format	The format of the data being loaded (typically AL_FORMAT_MONO16 or AL_FORMAT_STEREO16).
data	The audio data.
size	The size of the data in bytes.
frequency	The sample frequency of the data.

4.14.2.17 + (bool) bufferf: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* value:(ALfloat) *value*

Write a float paramter to a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.18 + (bool) bufferfv: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* values:(ALfloat∗) *values*

Write a float array paramter to a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to write to.
values	The values to write.

Returns

TRUE if the operation was successful.

4.14.2.19 + (bool) bufferi: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* value:(ALint) *value*

Write an integer paramter to a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.20 + (bool) bufferiv: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* values:(ALint∗) *values*

Write an integer array paramter to a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to write to.
values	The values to write.

Returns

TRUE if the operation was successful.

4.14.2.21 + (bool) captureSamples: dummy(ALCdevice∗) *device* buffer:(ALCvoid∗) *buffer* numSamples:(ALCsizei) *numSamples*

Get captured samples from a device.

Parameters

device	the device to fetch samples from.
buffer	the buffer to copy the samples into.
numSamples	the number of samples to fetch.

4.14.2.22 + (bool) closeCaptureDevice: dummy(ALCdevice∗) *device*

Close a capture device.

Parameters

device	The device to close.

Returns

TRUE if the operation was successful.

4.14.2.23 + (bool) closeDevice: dummy(ALCdevice∗) *device*

Close a device.

Parameters

device	The device to close.

Returns

TRUE if the operation was successful.

4.14.2.24 + (ALCcontext ∗) createContext: dummy(ALCdevice∗) *device* attributes:(ALCint∗) *attributes*

Create an OpenAL context.

Parameters

device	The device to open the context on.
attributes	The attributes to use when creating the context.

Returns

The new context.

4.14.2.25 + (bool) deleteBuffer: dummy(ALuint) *bufferId*

Delete a buffer.

Parameters

bufferId	The ID of the buffer to delete.

Returns

TRUE if the operation was successful.

4.14.2.26 + (bool) deleteBuffers: dummy(ALuint∗) *bufferIds* numBuffers:(ALsizei) *numBuffers*

Delete buffers.

Parameters

bufferIds	Pointer to an array containing the buffer IDs.
numBuffers	the number of buffers to delete.

Returns

TRUE if the operation was successful.

4.14.2.27 + (bool) deleteSource: dummy(ALuint) *sourceId*

Delete a source.

Parameters

sourceId	The ID of the source to delete.

Returns

TRUE if the operation was successful.

4.14.2.28 + (bool) deleteSources: dummy(ALuint∗) *sourceIds* numSources:(ALsizei) *numSources*

Delete sources.

Parameters

sourceIds	Pointer to an array containing the source IDs.
numSources	the number of sources to delete.

Returns

TRUE if the operation was successful.

4.14.2.29 + (void) destroyContext: dummy(ALCcontext∗) *context*

Destroy a context.

Parameters

context	The contect to destroy.

Returns

TRUE if the operation was successful.

4.14.2.30 + (bool) disable: dummy(ALenum) *capability*

Disable a capability.

Parameters

capability	The capability to disable.

Returns

TRUE if the operation was successful.

4.14.2.31 + (bool) distanceModel: dummy(ALenum) *value*

Set the distance model.

Parameters

value	The value to set.

Returns

TRUE if the operation was successful.

4.14.2.32 + (bool) dopplerFactor: dummy(ALfloat) *value*

Set the doppler factor.

Parameters

value	The value to set.

Returns

TRUE if the operation was successful.

4.14.2.33 + (bool) enable: dummy(ALenum) *capability*

Enable a capability.

Parameters

capability	The capability to enable.

Returns

TRUE if the operation was successful.

4.14.2.34 + (ALuint) genBuffer

Generate a buffer.

Returns

the buffer's ID.

4.14.2.35 + (bool) genBuffers: dummy(ALuint∗) *bufferIds* numBuffers:(ALsizei) *numBuffers*

Generate buffers.

Parameters

bufferIds	Pointer to an array that will receive the buffer IDs.
numBuffers	the number of buffers to generate.

Returns

TRUE if the operation was successful.

4.14.2.36 + (ALuint) genSource

Generate a source.

Returns

the source's ID.

4.14.2.37 + (bool) genSources: dummy(ALuint∗) *sourceIds* numSources:(ALsizei) *numSources*

Generate sources.

Parameters

sourceIds	Pointer to an array that will receive the source IDs.
numSources	the number of sources to generate.

Returns

TRUE if the operation was successful.

4.14.2.38 + (bool) getBoolean: dummy(ALenum) *parameter*

Get a boolean parameter.

Parameters

parameter	The parameter to fetch.

Returns

The parameter's current value.

4.14.2.39 + (bool) getBooleanv: dummy(ALenum) *parameter* values:(ALboolean∗) *values*

Get a boolean array parameter.

Parameters

parameter	The parameter to fetch.
values	An array to hold the result.

Returns

TRUE if the operation was successful.

4.14.2.40 + (bool) getBuffer3f: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* v1:(ALfloat∗) *v1* v2:(ALfloat∗) *v2* v3:(ALfloat∗) *v3*

Read a 3 float paramter from a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to read.
v1	The first value to read.
v2	The second value to read.
v3	The third value to read.

Returns

TRUE if the operation was successful.

4.14.2.41 + (bool) getBuffer3i: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* v1:(ALint∗) *v1* v2:(ALint∗) *v2* v3:(ALint∗) *v3*

Read a 3 integer paramter from a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to read.
v1	The first value to read.
v2	The second value to read.
v3	The third value to read.

Returns

TRUE if the operation was successful.

4.14.2.42 + (ALfloat) getBufferf: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter*

Read a float paramter from a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to read.

Returns

The parameter's value.

4.14.2.43 + (bool) getBufferfv: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* values:(ALfloat∗) *values*

Read a float array paramter from a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to read.
values	An array to store the values.

Returns

TRUE if the operation was successful.

4.14.2.44 + (ALint) getBufferi: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter*

Read an integer paramter from a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to read.

Returns

The parameter's value.

4.14.2.45 + (bool) getBufferiv: dummy(ALuint) *bufferId* parameter:(ALenum) *parameter* values:(ALint∗) *values*

Read an integer array paramter from a buffer.

Parameters

bufferId	The buffer's ID.
parameter	The parameter to read.
values	An array to store the values.

Returns

TRUE if the operation was successful.

4.14.2.46 + (ALCdevice ∗) getContextsDevice: dummy(ALCcontext∗) *context*

Get the device a context was created from.

Parameters

context	The context.

Returns

The context's device.

4.14.2.47 + (ALCdevice ∗) getContextsDevice: dummy(ALCcontext∗) *context* deviceReference:(ALCdevice∗) *deviceReference*

Get the device a context was created from, passing in a device reference for more informative logging info.

Parameters

context	The context.
deviceReference	The device reference to use when logging an error.

Returns

The context's device.

4.14.2.48 + (ALCcontext ∗) getCurrentContext

Get the current context.

Returns

the current context.

4.14.2.49 + (ALdouble) getDouble: dummy(ALenum) *parameter*

Get a double parameter.

Parameters

parameter	The parameter to fetch.

Returns

The parameter's current value.

4.14.2.50 + (bool) getDoublev: dummy(ALenum) *parameter* values:(ALdouble∗) *values*

Get a double array parameter.

Parameters

parameter	The parameter to fetch.
values	An array to hold the result.

Returns

TRUE if the operation was successful.

4.14.2.51 + (ALenum) getEnumValue: dummy(NSString∗) *enumName*

Get the enum value from its name.

Parameters

enumName	the name of the enum value.

Returns

The enum value.

4.14.2.52 + (ALenum) getEnumValue: dummy(ALCdevice∗) *device* name:(NSString∗) *enumName*

Get the enum value from its name.

Parameters

device	The device to check on.
enumName	the name of the enum value.

Returns

The enum value.

4.14.2.53 + (ALfloat) getFloat: dummy(ALenum) *parameter*

Get a float parameter.

Parameters

parameter	The parameter to fetch.

Returns

The parameter's current value.

4.14.2.54 + (bool) getFloatv: dummy(ALenum) *parameter* values:(ALfloat∗) *values*

Get a float array parameter.

Parameters

parameter	The parameter to fetch.
values	An array to hold the result.

Returns

TRUE if the operation was successful.

4.14.2.55 + (ALint) getInteger: dummy(ALenum) *parameter*

Get an integer parameter.

Parameters

parameter	The parameter to fetch.

Returns

The parameter's current value.

4.14.2.56 + (ALint) getInteger: dummy(ALCdevice∗) *device* attribute:(ALenum) *attribute*

Get an integer attribute.

Parameters

device	The device to read the attribute from.
attribute	The attribute to fetch.

Returns

The parameter's current value.

4.14.2.57 + (bool) getIntegerv: dummy(ALCdevice∗) *device* attribute:(ALenum) *attribute* size:(ALsizei) *size* data:(ALCint∗) *data*

Get an integer array attribute.

Parameters

device	The device to read the attribute from.
attribute	The attribute to read.
size	the size of the receiving array.
data	An array to store the values.

Returns

TRUE if the operation was successful.

4.14.2.58 + (bool) getIntegerv: dummy(ALenum) *parameter* values:(ALint*) *values*

Get an integer array parameter.

Parameters

parameter	The parameter to fetch.
values	An array to hold the result.

Returns

TRUE if the operation was successful.

4.14.2.59 + (bool) getListener3f: dummy(ALenum) *parameter* v1:(ALfloat*) *v1* v2:(ALfloat*) *v2* v3:(ALfloat*) *v3*

Read a 3 float paramter from the current listener.

Parameters

parameter	The parameter to read.
v1	The first value to read.
v2	The second value to read.
v3	The third value to read.

Returns

TRUE if the operation was successful.

4.14.2.60 + (bool) getListener3i: dummy(ALenum) *parameter* v1:(ALint*) *v1* v2:(ALint*) *v2* v3:(ALint*) *v3*

Read a 3 integer paramter from the current listener.

Parameters

parameter	The parameter to read.
v1	The first value to read.
v2	The second value to read.
v3	The third value to read.

Returns

TRUE if the operation was successful.

4.14.2.61 + (ALfloat) getListenerf: dummy(ALenum) *parameter*

Read a float paramter from the current listener.

Parameters

parameter	The parameter to read.

Returns

The parameter's value.

4.14.2.62 + (bool) getListenerfv: dummy(ALenum) *parameter* values:(ALfloat∗) *values*

Read a float array paramter from the current listener.

Parameters

parameter	The parameter to read.
values	An array to store the values.

Returns

TRUE if the operation was successful.

4.14.2.63 + (ALint) getListeneri: dummy(ALenum) *parameter*

Read an integer paramter from the current listener.

Parameters

parameter	The parameter to read.

Returns

The parameter's value.

4.14.2.64 + (bool) getListeneriv: dummy(ALenum) *parameter* values:(ALint∗) *values*

Read an integer array paramter from the current listener.

Parameters

parameter	The parameter to read.
values	An array to store the values.

Returns

TRUE if the operation was successful.

4.14.2.65 + (ALdouble) getMixerOutputDataRate

Get the iOS device's mixer outut data rate.

Returns

The mixer output data rate.

4.14.2.66 + (NSArray ∗) getNullSeparatedStringList: dummy(ALenum) *parameter*

Get a string list parameter.

Use this method for OpenAL parameters that return a null separated list.

Parameters

parameter	The parameter to fetch.

Returns

The parameter's current value (as an array of NSString∗).

4.14.2.67 + (NSArray ∗) getNullSeparatedStringList: dummy(ALCdevice∗) *device* attribute:(ALenum) *attribute*

Get a string list attribute.

Use this method for OpenAL attributes that return a null separated list.

Parameters

device	The device to read the attribute from.
attribute	The attribute to fetch.

Returns

The parameter's current value (as an array of NSString∗).

4.14.2.68 + (void ∗) getProcAddress: dummy(NSString∗) *functionName*

Get the address of a procedure.

Parameters

functionName	The name of the procedure to fetch.

Returns

A pointer to the procedure, or NULL if it wasn't found.

4.14.2.69 + (void ∗) getProcAddress: dummy(ALCdevice∗) *device* name:(NSString∗) *functionName*

Get the address of a procedure for a device.

Parameters

device	The device to check on.
functionName	The name of the procedure to check for.

Returns

The procedure's address, or NULL if not found.

4.14.2.70 + (bool) getSource3f: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* v1:(ALfloat∗) *v1* v2:(ALfloat∗) *v2* v3:(ALfloat∗) *v3*

Read a 3 float paramter from a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to read.

v1	The first value to read.
v2	The second value to read.
v3	The third value to read.

Returns

TRUE if the operation was successful.

4.14.2.71 + (bool) getSource3i: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* v1:(ALint∗) *v1* v2:(ALint∗) *v2* v3:(ALint∗) *v3*

Read a 3 integer paramter from a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to read.
v1	The first value to read.
v2	The second value to read.
v3	The third value to read.

Returns

TRUE if the operation was successful.

4.14.2.72 + (ALfloat) getSourcef: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter*

Read a float paramter from a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to read.

Returns

The parameter's value.

4.14.2.73 + (bool) getSourcefv: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* values:(ALfloat∗) *values*

Read a float array paramter from a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to read.
values	An array to store the values.

Returns

TRUE if the operation was successful.

4.14.2.74 + (ALint) getSourcei: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter*

Read an integer paramter from a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to read.

Returns

The parameter's value.

4.14.2.75 + (bool) getSourceiv: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* values:(ALint∗) *values*

Read an integer array paramter from a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to read.
values	An array to store the values.

Returns

TRUE if the operation was successful.

4.14.2.76 + (NSArray ∗) getSpaceSeparatedStringList: dummy(ALenum) *parameter*

Get a string list parameter.

Use this method for OpenAL parameters that return a space separated list.

Parameters

parameter	The parameter to fetch.

Returns

The parameter's current value (as an array of NSString∗).

4.14.2.77 + (NSArray ∗) getSpaceSeparatedStringList: dummy(ALCdevice∗) *device* attribute:(ALenum) *attribute*

Get a string list attribute.

Use this method for OpenAL attributes that return a space separated list.

Parameters

device	The device to read the attribute from.
attribute	The attribute to fetch.

Returns

The parameter's current value (as an array of NSString∗).

4.14.2.78 + (NSString ∗) getString: dummy(ALenum) *parameter*

Get a string parameter.

Parameters

parameter	The parameter to fetch.

Returns

The parameter's current value.

4.14.2.79 + (NSString ∗) getString: dummy(ALCdevice∗) *device* attribute:(ALenum) *attribute*

Get a string attribute.

Parameters

device	The device to read the attribute from.
attribute	The attribute to fetch.

Returns

The parameter's current value.

4.14.2.80 + (bool) isBuffer: dummy(ALuint) *bufferId*

Check if the speified buffer exists.

Parameters

bufferId	The ID of the buffer to query.

Returns

TRUE if the buffer exists.

4.14.2.81 + (bool) isEnabled: dummy(ALenum) *capability*

Check if a capability is enabled.

Parameters

capability	The capability to check.

Returns

TRUE if the capability is enabled.

4.14.2.82 + (bool) isExtensionPresent: dummy(NSString∗) *extensionName*

Check if an extension is present.

Parameters

extensionName	The name of the extension to check.

Returns

TRUE if the extension is present.

4.14.2.83 + (bool) isExtensionPresent: dummy(ALCdevice∗) *device* name:(NSString∗) *extensionName*

Check if an extension is present on a device.

Parameters

device	The device to check for an extension on.
extensionName	The name of the extension to check for.

Returns

TRUE if the extension is present.

4.14.2.84 + (bool) isSource: dummy(ALuint) *sourceId*

Check if the speified source exists.

Parameters

sourceId	The ID of the source to query.

Returns

TRUE if the buffer exists.

4.14.2.85 + (bool) listener3f: dummy(ALenum) *parameter* v1:(ALfloat) *v1* v2:(ALfloat) *v2* v3:(ALfloat) *v3*

Write a 3 float paramter to the current listener.

Parameters

parameter	the parameter to write to.
v1	The first value to write.
v2	The second value to write.
v3	The third value to write.

Returns

TRUE if the operation was successful.

4.14.2.86 + (bool) listener3i: dummy(ALenum) *parameter* v1:(ALint) *v1* v2:(ALint) *v2* v3:(ALint) *v3*

Write a 3 integer paramter to the current listener.

Parameters

parameter	The parameter to write to.
v1	The first value to write.
v2	The second value to write.
v3	The third value to write.

Returns

TRUE if the operation was successful.

4.14.2.87 + (bool) listenerf: dummy(ALenum) *parameter* value:(ALfloat) *value*

Write a float paramter to the current listener.

Parameters

parameter	The parameter to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.88 + (bool) listenerfv: dummy(ALenum) *parameter* values:(ALfloat∗) *values*

Write a float array paramter to the current listener.

Parameters

parameter	The parameter to write to.
values	The values to write.

Returns

TRUE if the operation was successful.

4.14.2.89 + (bool) listeneri: dummy(ALenum) *parameter* value:(ALint) *value*

Write an integer paramter to the current listener.

Parameters

parameter	The parameter to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.90 + (bool) listeneriv: dummy(ALenum) *parameter* values:(ALint∗) *values*

Write an integer array paramter to the current listener.

Parameters

parameter	The parameter to write to.
values	The values to write.

Returns

TRUE if the operation was successful.

4.14.2.91 + (bool) makeContextCurrent: dummy(ALCcontext∗) *context*

Make the specified context the current context.

Parameters

context	the context to make current.

Returns

TRUE if the operation was successful.

4.14.2.92 + (bool) makeContextCurrent: dummy(ALCcontext∗) *context* deviceReference:(ALCdevice∗) *deviceReference*

Make the specified context the current context, passing in a device reference for more informative logging info.

Parameters

context	The context to make current.
device-Reference	The device reference to use when logging an error.

Returns

TRUE if the operation was successful.

4.14.2.93 + (ALCdevice ∗) openCaptureDevice: dummy(NSString∗) *deviceName* frequency:(ALCuint) *frequency* format:(ALCenum) *format* bufferSize:(ALCsizei) *bufferSize*

∗UNSUPPORTED ON IOS∗ Open an audio capture device.

Parameters

deviceName	The name of the device to open (nil = open the default device).
frequency	The sampling frequency to use.
format	The format to capture the data as.
bufferSize	The size of capture buffer to use.

Returns

The opened device, or nil if an error occurred.

4.14.2.94 + (ALCdevice ∗) openDevice: dummy(NSString∗) *deviceName*

Open a device.

Parameters

deviceName	The name of the device to open (nil = open the default device).

Returns

The opened device, or nil on failure.

4.14.2.95 + (void) processContext: dummy(ALCcontext∗) *context*

Process a context.

Parameters

context	The contect to process.

Returns

TRUE if the operation was successful.

4.14.2.96 + (void) setMixerOutputDataRate: dummy(ALdouble) *frequency*

Set the iOS device's mixer output data rate.

Parameters

frequency	The output data rate (frequency).

4.14.2.97 + (bool) source3f: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* v1:(ALfloat) *v1* v2:(ALfloat) *v2* v3:(ALfloat) *v3*

Write a 3 float paramter to a source.

Parameters

sourceId	The source's ID.
parameter	the parameter to write to.
v1	The first value to write.
v2	The second value to write.
v3	The third value to write.

Returns

TRUE if the operation was successful.

4.14.2.98 + (bool) source3i: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* v1:(ALint) *v1* v2:(ALint) *v2* v3:(ALint) *v3*

Write a 3 integer paramter to a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to write to.
v1	The first value to write.
v2	The second value to write.
v3	The third value to write.

Returns

TRUE if the operation was successful.

4.14.2.99 + (bool) sourcef: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* value:(ALfloat) *value*

Write a float paramter to a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.100 + (bool) sourcefv: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* values:(ALfloat∗) *values*

Write a float array paramter to a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to write to.
values	The values to write.

Returns

TRUE if the operation was successful.

4.14.2.101 + (bool) sourcei: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* value:(ALint) *value*

Write an integer paramter to a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to write to.
value	The value to write.

Returns

TRUE if the operation was successful.

4.14.2.102 + (bool) sourceiv: dummy(ALuint) *sourceId* parameter:(ALenum) *parameter* values:(ALint∗) *values*

Write an integer array paramter to a source.

Parameters

sourceId	The source's ID.
parameter	The parameter to write to.
values	The values to write.

Returns

TRUE if the operation was successful.

4.14.2.103 + (bool) sourcePause: dummy(ALuint) *sourceId*

Pause a source.

Parameters

sourceId	The ID of the source to pause.

Returns

TRUE if the operation is successful.

4.14.2.104 + (bool) sourcePausev: dummy(ALuint∗) *sourceIds* numSources:(ALsizei) *numSources*

Pause a bunch of sources.

Parameters

sourceIds	The sources to pause.
numSources	The number of sources in sourceIds.

Returns

TRUE if the operation is successful.

4.14.2.105 + (bool) sourcePlay: dummy(ALuint) *sourceId*

Play a source.

Parameters

sourceId	The ID of the source to play.

Returns

TRUE if the buffer exists.

4.14.2.106 + (bool) sourcePlayv: dummy(ALuint∗) *sourceIds* numSources:(ALsizei) *numSources*

Play a bunch of sources.

Parameters

sourceIds	The sources to play.
numSources	The number of sources in sourceIds.

Returns

TRUE if the operation is successful.

4.14.2.107 + (bool) sourceQueueBuffers: dummy(ALuint) *sourceId* numBuffers:(ALsizei) *numBuffers* bufferIds:(ALuint∗) *bufferIds*

Queue buffers into a source for sequential playback.

Parameters

sourceId	The source to use for playback.
numBuffers	The number of buffers to queue.
bufferIds	The IDs of the buffers to queue.

Returns

TRUE if the operation is successful.

4.14.2.108 + (bool) sourceRewind: dummy(ALuint) *sourceId*

Rewind a source.

Parameters

sourceId	The ID of the source to rewind.

Returns

TRUE if the operation is successful.

4.14.2.109 + (bool) sourceRewindv: dummy(ALuint∗) *sourceIds* numSources:(ALsizei) *numSources*

Rewind a bunch of sources.

Parameters

sourceIds	The sources to rewind.
numSources	The number of sources in sourceIds.

Returns

TRUE if the operation is successful.

4.14.2.110 + (bool) sourceStop: dummy(ALuint) *sourceId*

Stop a source.

Parameters

sourceId	The ID of the source to stop.

Returns

TRUE if the operation is successful.

4.14.2.111 + (bool) sourceStopv: dummy(ALuint∗) *sourceIds* numSources:(ALsizei) *numSources*

Stop a bunch of sources.

Parameters

sourceIds	The sources to stop.
numSources	The number of sources in sourceIds.

Returns

TRUE if the operation is successful.

4.14.2.112 + (bool) sourceUnqueueBuffers: dummy(ALuint) *sourceId* numBuffers:(ALsizei) *numBuffers* bufferIds:(ALuint∗) *bufferIds*

Unqueue previously queued buffers.

Parameters

sourceId	The source the buffers were previously queued in.
numBuffers	The number of buffers to unqueue.
bufferIds	The IDs of the buffers to unqueue.

Returns

TRUE if the operation is successful.

4.14.2.113 + (bool) speedOfSound: dummy(ALfloat) *value*

Set the speed of sound.

Parameters

value	The value to set.

Returns

TRUE if the operation was successful.

4.14.2.114 + (bool) startCapture: dummy(ALCdevice∗) *device*

Start capturing audio data.

Parameters

device	The device to capture on.

Returns

TRUE if the operation was successful.

4.14.2.115 + (bool) stopCapture: dummy(ALCdevice∗) *device*

Stop capturing audio data.

Parameters

device	The device capturing audio data.

Returns

TRUE if the operation was successful.

4.14.2.116 + (void) suspendContext: dummy(ALCcontext∗) *context*

Suspend a context.

Parameters

context	The contect to suspend.

Returns

TRUE if the operation was successful.

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

- ALWrapper.h
- ALWrapper.m

4.15 ALWrapper(Private) Class Reference

Private interface to ALWrapper.

Public Member Functions

- (BOOL) - checkIfSuccessful

  Check the OpenAL error status and log an error message if necessary.
- (BOOL) - checkIfSuccessfulWithDevice

  Check the OpenAL error status and log an error message if necessary.

Static Public Member Functions

- (NSArray ∗) + decodeNullSeparatedStringList:

  Decode an OpenAL supplied NULL-separated string list into an NSArray.
- (NSArray ∗) + decodeSpaceSeparatedStringList:

  Decode an OpenAL supplied space-separated string list into an NSArray.

4.15.1 Detailed Description

Private interface to ALWrapper.

4.15.2 Member Function Documentation

4.15.2.1 - (BOOL) checkIfSuccessful dummy(const char ∗) *contextInfo*

Check the OpenAL error status and log an error message if necessary.

Parameters

contextInfo	Contextual information to add when logging an error.

Returns

TRUE if the operation was successful (no error).

4.15.2.2 - (BOOL) checkIfSuccessfulWithDevice dummy(const char ∗) *contextInfo* (ALCdevice ∗) *device*

Check the OpenAL error status and log an error message if necessary.

Parameters

contextInfo	Contextual information to add when logging an error.
device	The device to check for errors on.

Returns

TRUE if the operation was successful (no error).

4.15.2.3 + (NSArray∗) decodeNullSeparatedStringList: dummy(const ALCchar ∗) *source*

Decode an OpenAL supplied NULL-separated string list into an NSArray.

Parameters

source	the string list as supplied by OpenAL.

Returns

the string list in an NSArray of NSString.

4.15.2.4 + (NSArray∗) decodeSpaceSeparatedStringList: dummy(const ALCchar ∗) *source*

Decode an OpenAL supplied space-separated string list into an NSArray.

Parameters

source	the string list as supplied by OpenAL.

Returns

the string list in an NSArray of NSString.

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

- ALWrapper.m

4.16 IOSVersion Class Reference

Reports the version of iOS being run on the current device.

```
#import <IOSVersion.h>
```

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

Properties

- float version

  Holds the current iOS version.

4.16.1 Detailed Description

Reports the version of iOS being run on the current device.

4.16.2 Member Function Documentation

4.16.2.1 - IOSVersion: dummy(IOSVersion)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (IOSVersion∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

4.16.3 Property Documentation

4.16.3.1 - (float) version `[read, assign]`

Holds the current iOS version.

The version of iOS being run on the current device as a float in the format x.yy.

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

- IOSVersion.h

4.17 NSMutableArray Class Reference

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

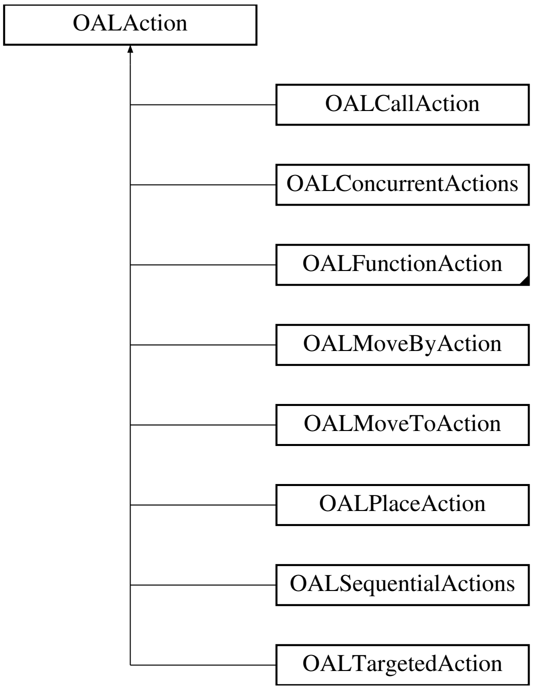
- NSMutableArray+WeakReferences.m

4.18 OALAction Class Reference

Represents an action that can be performed on an object.

`#import <OALAction.h>`

Inheritance diagram for OALAction:



Public Member Functions

- (id) - initWithDuration:

  Initialize an action.
- (void) - runWithTarget:

  Run this action on a target.
- (void) - prepareWithTarget:

  Called by runWithTraget to do any final preparations before running.
- (void) - startAction

Called by runWithTarget to start the action running.

- (void) - updateCompletion:

  Called by OALActionManager to update this action's progress.
- (void) - stopAction

  Stop this action.

Protected Attributes

- bool runningInManager_

  If TRUE, this action is running via OALActionManager.

Properties

- id target

  The target to perform the action on.
- float duration

  The duration of the action, in seconds.
- float elapsed

  The amount of time that has elapsed for this action, in seconds.
- bool running

  If true, the action is currently running.

4.18.1 Detailed Description

Represents an action that can be performed on an object.

4.18.2 Member Function Documentation

4.18.2.1 - (id) initWithDuration: dummy(float) *duration*

Initialize an action.

Parameters

duration	The duration of this action in seconds.

Returns

The initialized action.

4.18.2.2 - (void) prepareWithTarget: dummy(id) *target*

Called by runWithTraget to do any final preparations before running.

Subclasses must ensure that duration is valid when this method returns.

Parameters

target	The target to run the action on.

4.18.2.3 - (void) runWithTarget: dummy(id) *target*

Run this action on a target.

Parameters

target	The target to run the action on.

4.18.2.4 - (void) startAction

Called by runWithTarget to start the action running.

4.18.2.5 - (void) stopAction

Stop this action.

4.18.2.6 - (void) updateCompletion: dummy(float) *proportionComplete*

Called by OALActionManager to update this action's progress.

Parameters

proportionComplete	The proportion of this action's duration that has elapsed.

4.18.3 Member Data Documentation

4.18.3.1 - (bool) runningInManager_ `[protected]`

If TRUE, this action is running via OALActionManager.

4.18.4 Property Documentation

4.18.4.1 - (float) duration `[read, assign]`

The duration of the action, in seconds.

4.18.4.2 - (float) elapsed `[read, write, assign]`

The amount of time that has elapsed for this action, in seconds.

4.18.4.3 - (bool) running `[read, assign]`

If true, the action is currently running.

4.18.4.4 - (id) target `[read, assign]`

The target to perform the action on.

WEAK REFERENCE.

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

- OALAction.h
- OALAction.m

4.19 OALActionManager Class Reference

Manages all ObjectAL actions.

`#import <OALActionManager.h>`

Public Member Functions

- (void) - stopAllActions

  Stops ALL running actions on ALL targets.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

Protected Attributes

- NSMutableArray ∗ targets

  All targets that have actions running on them (id).
- NSMutableArray ∗ targetActions

  Parallel array to "targets", maintaining a list of all actions per target (NSMutableArray∗)
- NSMutableArray ∗ actionsToAdd

  All actions that are to be added on the next pass (OALAction∗)

- NSMutableArray ∗ actionsToRemove

  All actions that are to be removed on the next pass (OALAction∗)
- NSTimer ∗ stepTimer

  The timer which we use to update the actions.
- uint64_t lastTimestamp

  The last time that was recorded.

4.19.1 Detailed Description

Manages all ObjectAL actions.

4.19.2 Member Function Documentation

4.19.2.1 - (void) stopAllActions

Stops ALL running actions on ALL targets.

4.19.2.2 - OALActionManager: dummy(OALActionManager)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALAudioSupport∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

4.19.3 Member Data Documentation

4.19.3.1 - (NSMutableArray∗) actionsToAdd [protected]

All actions that are to be added on the next pass (OALAction∗)

4.19.3.2 - (NSMutableArray∗) actionsToRemove [protected]

All actions that are to be removed on the next pass (OALAction∗)

4.19.3.3 - (uint64_t) lastTimestamp [protected]

The last time that was recorded.

4.19.3.4 - (NSTimer∗) stepTimer [protected]

The timer which we use to update the actions.

4.19.3.5 - (NSMutableArray∗) targetActions [protected]

Parallel array to "targets", maintaining a list of all actions per target (NSMutableArray∗)

4.19.3.6 - (NSMutableArray∗) targets [protected]

All targets that have actions running on them (id).

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

- OALActionManager.h
- OALActionManager.m

4.20 OALAudioFile Class Reference

Maintains an open audio file and allows loading data from that file into new ALBuffer objects.

```
#import <OALAudioFile.h>
```

Public Member Functions

- (id) - initWithUrl:reduceToMono:

  Initialize this object with the audio file at the specified URL.
- (void ∗) - audioDataWithStartFrame:numFrames:bufferSize:

  Read audio data from this file into a new buffer.
- (ALBuffer ∗) - bufferNamed:startFrame:numFrames:

  Create a new ALBuffer with the contents of this file.

Static Public Member Functions

- (OALAudioFile ∗) + fileWithUrl:reduceToMono:

  Open the audio file at the specified URL.
- (ALBuffer ∗) + bufferFromUrl:reduceToMono:

  Convenience method to load the entire contents of a URL into a new ALBuffer.

Protected Attributes

- AudioStreamBasicDescription streamDescription

  A description of the audio data in this file.
- ExtAudioFileRef fileHandle

  The OS specific file handle.
- UInt32 originalChannelsPerFrame

  The actual number of channels in the audio data if not reducing to mono.

Properties

- NSURL ∗ url

  The URL of the audio file.
- AudioStreamBasicDescription ∗ streamDescription

  A description of the audio data in this file.
- SInt64 totalFrames

  The total number of audio frames in this file.
- bool reduceToMono

  If YES, reduce any stereo data to mono (stereo samples don't support panning or positional audio).

4.20.1 Detailed Description

Maintains an open audio file and allows loading data from that file into new ALBuffer objects.

4.20.2 Member Function Documentation

4.20.2.1 - (void ∗) audioDataWithStartFrame: dummy(SInt64) *startFrame* numFrames:(SInt64) *numFrames* bufferSize:(UInt32∗) *bufferSize*

Read audio data from this file into a new buffer.

Parameters

startFrame	The starting audio frame to read data from.
numFrames	The number of frames to read.
bufferSize	On successful return, contains the size of the returned buffer, in bytes.

Returns

The audio data or nil on error. You are responsible for calling free() on the data.

4.20.2.2 + (ALBuffer ∗) bufferFromUrl: dummy(NSURL∗) *url* reduceToMono:(bool) *reduceToMono*

Convenience method to load the entire contents of a URL into a new ALBuffer.

Parameters

url	The URL to open the audio file from.
reduceToMono	If YES, reduce any stereo track to mono (stereo samples don't support panning or positional audio).

Returns

an ALBuffer object.

4.20.2.3 - (ALBuffer ∗) bufferNamed: dummy(NSString∗) *name* startFrame:(SInt64) *startFrame* numFrames:(SInt64) *numFrames*

Create a new ALBuffer with the contents of this file.

Parameters

name	The name to be given to this ALBuffer.
startFrame	The starting audio frame to read data from.
numFrames	The number of frames to read.

Returns

a new ALBuffer containing the audio data.

4.20.2.4 + (OALAudioFile ∗) fileWithUrl: dummy(NSURL∗) *url* reduceToMono:(bool) *reduceToMono*

Open the audio file at the specified URL.

Parameters

url	The URL to open the audio file from.
reduceToMono	If YES, reduce any stereo track to mono (stereo samples don't support panning or positional audio).

Returns

a new audio file object.

4.20.2.5 - (id) initWithUrl: dummy(NSURL∗) *url* reduceToMono:(bool) *reduceToMono*

Initialize this object with the audio file at the specified URL.

Parameters

url	The URL to open the audio file from.
reduceToMono	If YES, reduce any stereo track to mono (stereo samples don't support panning or positional audio).

Returns

the initialized audio file object.

4.20.3 Member Data Documentation

4.20.3.1 - (ExtAudioFileRef) fileHandle [protected]

The OS specific file handle.

4.20.3.2 - (UInt32) originalChannelsPerFrame [protected]

The actual number of channels in the audio data if not reducing to mono.

4.20.3.3 - (AudioStreamBasicDescription *) streamDescription [protected]

A description of the audio data in this file.

4.20.4 Property Documentation

4.20.4.1 - (bool) reduceToMono [read, write, assign]

If YES, reduce any stereo data to mono (stereo samples don't support panning or positional audio).

4.20.4.2 - (AudioStreamBasicDescription*) streamDescription [read, assign]

A description of the audio data in this file.

4.20.4.3 - (SInt64) totalFrames [read, assign]

The total number of audio frames in this file.

4.20.4.4 - (NSURL *) url [read, retain]

The URL of the audio file.

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

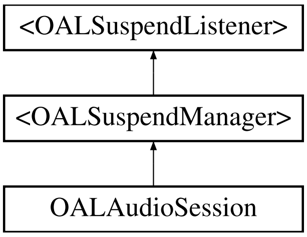
- OALAudioFile.h
- OALAudioFile.m

4.21 OALAudioSession Class Reference

Handles the audio session and interrupts.

```
#import <OALAudioSession.h>
```

Inheritance diagram for OALAudioSession:



Public Member Functions

- (void) - forceEndInterruption

  Force an interrupt end.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

Protected Attributes

- bool handlingErrorNotification

  Flag signifying that we are currently handling an error notification.
- bool audioSessionWasActive

  If true, the audio session was active when the interrupt occurred.
- OALSuspendHandler ∗ suspendHandler

  Handles suspending and interrupting for this object.
- NSDate ∗ lastResetTime

  Marks the last time the audio session was reset due to error.

Properties

- NSString ∗ audioSessionCategory

  The current audio session category.
- bool allowIpod

If YES, allow ipod music to continue playing (NOT SUPPORTED ON THE SIMULATOR).

- bool ipodDucking

  If YES, ipod music will duck (lower in volume) when the audio session activates.

- bool useHardwareIfAvailable

  Determines what to do if no other application is playing audio and allowIpod = YES (NOT SUPPORTED ON THE SIMULATOR).

- bool honorSilentSwitch

  If true, mute when backgrounded, screen locked, or the ringer switch is turned off (NOT SUPPORTED ON THE SIMULATOR).

- bool handleInterruptions

  If true, automatically handle interruptions.

- id$<$ AVAudioSessionDelegate $>$ audioSessionDelegate

  Delegate that will receive all audio session events (WEAK reference).

- float preferredIOBufferDuration

  The preferred I/O buffer duration, in seconds.

- bool ipodPlaying

  If true, another application (usually iPod) is playing music.

- bool audioSessionActive

  If true, the audio session is active.

- float hardwareVolume

  Get the device's final hardware output volume, as controlled by the volume button on the side of the device.

- bool hardwareMuted

  Check if the hardware mute switch is on (not supported on the simulator or iOS 5+).

- NSString $*$ audioRoute

  Check what hardware route the audio is taking, such as "Speaker" or "Headphone" (not supported on the simulator).

4.21.1 Detailed Description

Handles the audio session and interrupts.

4.21.2 Member Function Documentation

4.21.2.1 - (void) forceEndInterruption

Force an interrupt end.

This can be useful in cases where a buggy OS fails to end an interrupt.

Be VERY CAREFUL when using this!

4.21.2.2 - OALAudioSession: dummy(OALAudioSession)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALAudioSupport*) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

4.21.3 Member Data Documentation

4.21.3.1 - (bool) audioSessionWasActive [protected]

If true, the audio session was active when the interrupt occurred.

4.21.3.2 - (bool) handlingErrorNotification [protected]

Flag signifying that we are currently handling an error notification.

This prevents onAudioError: from becoming reentrant due to self.manuallySuspended setting off a chain of calls that result in another error notification broadcast.

4.21.3.3 - (NSDate*) lastResetTime [protected]

Marks the last time the audio session was reset due to error.

This is used to avoid getting stuck in a rapid-fire reset-error loop.

4.21.3.4 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

4.21.4 Property Documentation

4.21.4.1 - (bool) allowIpod [read, write, assign]

If YES, allow ipod music to continue playing (NOT SUPPORTED ON THE SIMULATO-R).

Note: If this is enabled, and another app is playing music, background audio playback will use the SOFTWARE codecs, NOT hardware.

If allowIpod = NO, the application will ALWAYS use hardware decoding.

See also

useHardwareIfAvailable

Default value: YES

4.21.4.2 - (NSString ∗) audioRoute `[read, retain]`

Check what hardware route the audio is taking, such as "Speaker" or "Headphone" (not supported on the simulator).

4.21.4.3 - (bool) audioSessionActive `[read, write, assign]`

If true, the audio session is active.

4.21.4.4 - (NSString ∗) audioSessionCategory `[read, write, retain]`

The current audio session category.

If this value is explicitly set, the other session properties "allowIpod", "useHardwareIfAvailable", "honorSilentSwitch", and "ipodDucking" may be modified to remain compatible with the category.

See also

AVAudioSessionCategory

Default value: nil

4.21.4.5 - (id<AVAudioSessionDelegate>) audioSessionDelegate `[read, write, assign]`

Delegate that will receive all audio session events (WEAK reference).

4.21.4.6 - (bool) handleInterruptions `[read, write, assign]`

If true, automatically handle interruptions.

Default value: YES

4.21.4.7 - (bool) hardwareMuted `[read, assign]`

Check if the hardware mute switch is on (not supported on the simulator or iOS 5+).

Note: If headphones are plugged in, hardwareMuted will always return FALSE regardless of the switch state.

Note: Please file a bug report with Apple to get this functionality restored in iOS 5!

4.21.4.8 - (float) hardwareVolume `[read, assign]`

Get the device's final hardware output volume, as controlled by the volume button on the side of the device.

4.21.4.9 - (bool) honorSilentSwitch `[read, write, assign]`

If true, mute when backgrounded, screen locked, or the ringer switch is turned off (NOT SUPPORTED ON THE SIMULATOR).

Default value: YES

4.21.4.10 - (bool) ipodDucking `[read, write, assign]`

If YES, ipod music will duck (lower in volume) when the audio session activates.

Default value: NO

4.21.4.11 - (bool) ipodPlaying `[read, assign]`

If true, another application (usually iPod) is playing music.

4.21.4.12 - (float) preferredIOBufferDuration `[read, write, assign]`

The preferred I/O buffer duration, in seconds.

Lower values give less playback latencey, but use more CPU.

4.21.4.13 - (bool) useHardwareIfAvailable `[read, write, assign]`

Determines what to do if no other application is playing audio and allowIpod = YES (NOT SUPPORTED ON THE SIMULATOR).

If NO, the application will ALWAYS use software decoding. The advantage to this is that the user can background your application and then start audio playing from another application. If useHardwareIfAvailable = YES, the user won't be able to do this.

If this is set to YES, the application will use hardware decoding if no other application is currently playing audio. However, no other application will be able to start playing audio if it wasn't playing already.

Note: This switch has no effect if allowIpod = NO.

See also

allowIpod

Default value: YES

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

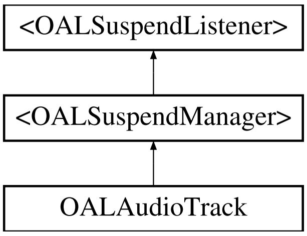
- OALAudioSession.h
- OALAudioSession.m

4.22 OALAudioTrack Class Reference

Plays an audio track via AVAudioPlayer.

`#import <OALAudioTrack.h>`

Inheritance diagram for OALAudioTrack:



Public Member Functions

- (bool) - preloadUrl:

  Preload the contents of a URL for playback.
- (bool) - preloadUrl:seekTime:

  Preload the contents of a URL for playback.
- (bool) - preloadFile:

  Preload the contents of a file for playback.
- (bool) - preloadFile:seekTime:

  Preload the contents of a file for playback.
- (bool) - preloadUrlAsync:target:selector:

  Asynchronously preload the contents of a URL for playback.
- (bool) - preloadUrlAsync:seekTime:target:selector:

  Asynchronously preload the contents of a URL for playback.
- (bool) - preloadFileAsync:target:selector:

  Asynchronously preload the contents of a file for playback.
- (bool) - preloadFileAsync:seekTime:target:selector:

  Asynchronously preload the contents of a file for playback.
- (bool) - playUrl:

  Play the contents of a URL once.
- (bool) - playUrl:loops:

  Play the contents of a URL and loop the specified number of times.
- (bool) - playFile:

  Play the contents of a file once.
- (bool) - playFile:loops:

  Play the contents of a file and loop the specified number of times.
- (void) - playUrlAsync:target:selector:

  Play the contents of a URL asynchronously once.

- (void) - playUrlAsync:loops:target:selector:

  Play the contents of a URL asynchronously and loop the specified number of times.
- (void) - playFileAsync:target:selector:

  Play the contents of a file asynchronously once.
- (void) - playFileAsync:loops:target:selector:

  Play the contents of a file asynchronously and loop the specified number of times.
- (bool) - play

  Play the currently loaded audio track.
- (bool) - playAtTime:

  Plays a sound asynchronously, starting at a specified point in the audio output device's timeline.
- (bool) - playAfterTrack:

  Plays the currently preloaded track asynchronously when the specified track completes.
- (bool) - playAfterTrack:timeAdjust:

  Plays the currently preloaded track asynchronously when the specified track completes.
- (void) - stop

  Stop playing and stop all operations.
- (void) - fadeTo:duration:target:selector:

  Fade to the specified gain value.
- (void) - stopFade

  Stop the currently running fade operation, if any.
- (void) - panTo:duration:target:selector:

  Pan to the specified pan value.
- (void) - stopPan

  Stop the currently running pan operation, if any.
- (void) - stopActions

  Stop any internal fade or pan actions.
- (void) - clear

  Unload and clear all audio data, stop playing, and stop all operations.
- (void) - updateMeters

  Updates the metering system to give current values.
- (float) - averagePowerForChannel:

  Gives the average power for a given channel, in decibels, for the sound being played.
- (float) - peakPowerForChannel:

  Gives the peak power for a given channel, in decibels, for the sound being played.

Static Public Member Functions

- (id) + track

  Create a new audio track.

Protected Attributes

- bool interrupted

  If YES, this object is interrupted.
- AVAudioPlayer ∗ simulatorPlayerRef

  When the simulator is running (and the playback fix is in use), player will be copied to here, and then player set to nil.
- NSOperationQueue ∗ operationQueue

  Operation queue for running asynchronous operations.
- OALAction ∗ gainAction

  The current action being applied to gain.
- OALAction ∗ panAction

  The current action being applied to pan.
- OALSuspendHandler ∗ suspendHandler

  Handles suspending and interrupting for this object.

Properties

- NSURL ∗ currentlyLoadedUrl

  The URL of the currently loaded audio data.
- id< AVAudioPlayerDelegate > delegate

  Optional object that will receive notifications for decoding errors, audio interruptions (such as an incoming phone call), and playback completion.
- float gain

  The gain (volume) for playback (0.0 - 1.0, where 1.0 = no attenuation).
- float volume

  The volume (alias to gain) for playback (0.0 - 1.0, where 1.0 = no attenuation).
- float pan

  Pan value (-1.0 = far left, 1.0 = far right).
- bool muted

  If true, audio track is muted.
- bool autoPreload

  If true, automatically preload again when playback stops.
- bool preloaded

  If true, audio track is in preloaded state.
- NSInteger numberOfLoops

  The number of times to loop playback (-1 = forever).
- bool paused

  If true, pause playback.
- AVAudioPlayer ∗ player

  Access to the underlying AVAudioPlayer object.
- bool playing

  If true, the audio player is currently playing.
- NSTimeInterval currentTime

The current playback position in seconds from the start of the sound.

- NSTimeInterval deviceCurrentTime

  The value of this property increases monotonically while an audio player is playing or paused.

- NSTimeInterval duration

  The duration, in seconds, of the currently loaded sound.

- NSUInteger numberOfChannels

  The number of channels in the currently loaded sound.

- bool meteringEnabled

  If true, this track is recording metering data.

4.22.1 Detailed Description

Plays an audio track via AVAudioPlayer.

Unlike AVAudioPlayer, however, it can be re-used to play another file. Interruptions can be handled by OALAudioSupport (enabled by default).

4.22.2 Member Function Documentation

4.22.2.1 - (float) averagePowerForChannel: dummy(NSUInteger) *channelNumber*

Gives the average power for a given channel, in decibels, for the sound being played.

0 dB indicates maximum power (full scale).

-160 dB indicates minimum power (near silence).

If the signal provided to the audio player exceeds full scale, then the value may be $>$ 0.

Note: The value returned is in reference to when updateMeters was last called. You must call updateMeters again before calling this method to get a current value.

Parameters

channelNumber	The channel to get the value from. For mono or left, use 0. For right, use 1.

Returns

the average power for the channel.

4.22.2.2 - (void) clear

Unload and clear all audio data, stop playing, and stop all operations.

4.22.2.3 - (void) fadeTo: dummy(float) *gain* duration:(float) *duration* target:(id) *target* selector:(SEL) *selector*

Fade to the specified gain value.

Parameters

gain	The gain to fade to.
duration	The duration of the fade operation in seconds.
target	The target to notify when the fade completes (can be nil).
selector	The selector to call when the fade completes. The selector must accept a single parameter, which will be the object that performed the fade.

4.22.2.4 - (void) panTo: dummy(float) *pan* duration:(float) *duration* target:(id) *target* selector:(SEL) *selector*

Pan to the specified pan value.

Note: This will have no effect on iOS versions prior to 4.0.

Parameters

pan	The value to pan to.
duration	The duration of the pan operation in seconds.
target	The target to notify when the pan completes (can be nil).
selector	The selector to call when the pan completes. The selector must accept a single parameter, which will be the object that performed the pan.

4.22.2.5 - (float) peakPowerForChannel: dummy(NSUInteger) *channelNumber*

Gives the peak power for a given channel, in decibels, for the sound being played.

0 dB indicates maximum power (full scale).

-160 dB indicates minimum power (near silence).

If the signal provided to the audio player exceeds full scale, then the value may be $>$ 0.

Note: The value returned is in reference to when updateMeters was last called. You must call updateMeters again before calling this method to get a current value.

Parameters

channelNumber	The channel to get the value from. For mono or left, use 0. For right, use 1.

Returns

the average power for the channel.

4.22.2.6 - (bool) play

Play the currently loaded audio track.

Returns

TRUE if the operation was successful.

4.22.2.7 - (bool) playAfterTrack: dummy(OALAudioTrack∗) *track*

Plays the currently preloaded track asynchronously when the specified track completes.

Note: This will have no effect on iOS versions prior to 4.0.

Parameters

track	The track to play after

Returns

YES if the playback was successfully scheduled.

4.22.2.8 - (bool) playAfterTrack: dummy(OALAudioTrack∗) *track* timeAdjust:(NSTimeInterval) *timeAdjust*

Plays the currently preloaded track asynchronously when the specified track completes.

Note: This will have no effect on iOS versions prior to 4.0.

Parameters

track	The track to play after
timeAdjust	fine-tune value added to the time start offset.

Returns

YES if the playback was successfully scheduled.

4.22.2.9 - (bool) playAtTime: dummy(NSTimeInterval) *time*

Plays a sound asynchronously, starting at a specified point in the audio output device's timeline.

Note: This will have no effect on iOS versions prior to 4.0.

Parameters

time	The time (device time) to start playing at.

Returns

YES if the playback was successfully scheduled.

4.22.2.10 - (bool) playFile: dummy(NSString∗) *path*

Play the contents of a file once.

Parameters

path	The file containing the sound data.

Returns

TRUE if the operation was successful.

4.22.2.11 - (bool) playFile: dummy(NSString∗) *path* loops:(NSInteger) *loops*

Play the contents of a file and loop the specified number of times.

Parameters

path	The file containing the sound data.
loops	The number of times to loop playback (-1 = forever)

Returns

TRUE if the operation was successful.

4.22.2.12 - (void) playFileAsync: dummy(NSString∗) *path* loops:(NSInteger) *loops* target:(id) *target* selector:(SEL) *selector*

Play the contents of a file asynchronously and loop the specified number of times.

Parameters

path	The file containing the sound data.
loops	The number of times to loop playback (-1 = forever)
target	the target to inform when playing has started.
selector	the selector to call when playing has started.

4.22.2.13 - (void) playFileAsync: dummy(NSString∗) *path* target:(id) *target* selector:(SEL) *selector*

Play the contents of a file asynchronously once.

Parameters

path	The file containing the sound data.
target	the target to inform when playing has started.
selector	the selector to call when playing has started.

4.22.2.14 - (bool) playUrl: dummy(NSURL∗) *url*

Play the contents of a URL once.

Parameters

url	The URL containing the sound data.

Returns

TRUE if the operation was successful.

4.22.2.15 - (bool) playUrl: dummy(NSURL∗) *url* loops:(NSInteger) *loops*

Play the contents of a URL and loop the specified number of times.

Parameters

url	The URL containing the sound data.
loops	The number of times to loop playback (-1 = forever)

Returns

TRUE if the operation was successful.

4.22.2.16 - (void) playUrlAsync: dummy(NSURL∗) *url* loops:(NSInteger) *loops* target:(id) *target* selector:(SEL) *selector*

Play the contents of a URL asynchronously and loop the specified number of times.

Parameters

url	The URL containing the sound data.
loops	The number of times to loop playback (-1 = forever)
target	the target to inform when playing has started.
selector	the selector to call when playing has started.

4.22.2.17 - (void) playUrlAsync: dummy(NSURL∗) *url* target:(id) *target* selector:(SEL) *selector*

Play the contents of a URL asynchronously once.

Parameters

url	The URL containing the sound data.
target	the target to inform when playing has started.
selector	the selector to call when playing has started.

4.22.2.18 - (bool) preloadFile: dummy(NSString∗) *path*

Preload the contents of a file for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

path	The file containing the sound data.

Returns

TRUE if the operation was successful.

4.22.2.19 - (bool) preloadFile: dummy(NSString∗) *path* seekTime:(NSTimeInterval) *seekTime*

Preload the contents of a file for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

path	The file containing the sound data.
seekTime	The position in the file to start playing at.

Returns

TRUE if the operation was successful.

4.22.2.20 - (bool) preloadFileAsync: dummy(NSString∗) *path* seekTime:(NSTimeInterval) *seekTime* target:(id) *target* selector:(SEL) *selector*

Asynchronously preload the contents of a file for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

path	The file containing the sound data.
seekTime	The position in the file to start playing at.
target	the target to inform when preparation is complete.
selector	the selector to call when preparation is complete.

Returns

TRUE if the operation was successfully queued.

4.22.2.21 - (bool) preloadFileAsync: dummy(NSString∗) *path* target:(id) *target* selector:(SEL) *selector*

Asynchronously preload the contents of a file for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

path	The file containing the sound data.
target	the target to inform when preparation is complete.
selector	the selector to call when preparation is complete.

Returns

TRUE if the operation was successfully queued.

4.22.2.22 - (bool) preloadUrl: dummy(NSURL∗) *url*

Preload the contents of a URL for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

url	The URL containing the sound data.

Returns

TRUE if the operation was successful.

4.22.2.23 - (bool) preloadUrl: dummy(NSURL∗) *url* seekTime:(NSTimeInterval) *seekTime*

Preload the contents of a URL for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

url	The URL containing the sound data.
seekTime	The position in the file to start playing at.

Returns

TRUE if the operation was successful.

4.22.2.24 - (bool) preloadUrlAsync: dummy(NSURL∗) *url* seekTime:(NSTimeInterval) *seekTime* target:(id) *target* selector:(SEL) *selector*

Asynchronously preload the contents of a URL for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

url	The URL containing the sound data.
seekTime	The position in the file to start playing at.
target	the target to inform when preparation is complete.
selector	the selector to call when preparation is complete.

Returns

TRUE if the operation was successfully queued.

4.22.2.25 - (bool) preloadUrlAsync: dummy(NSURL∗) *url* target:(id) *target* selector:(SEL) *selector*

Asynchronously preload the contents of a URL for playback.

Once the audio data is preloaded, you can call "play" to play it.

Parameters

url	The URL containing the sound data.
target	the target to inform when preparation is complete.
selector	the selector to call when preparation is complete.

Returns

TRUE if the operation was successfully queued.

4.22.2.26 - (void) stop

Stop playing and stop all operations.

4.22.2.27 - (void) stopActions

Stop any internal fade or pan actions.

4.22.2.28 - (void) stopFade

Stop the currently running fade operation, if any.

4.22.2.29 - (void) stopPan

Stop the currently running pan operation, if any.

Note: This will have no effect on iOS versions prior to 4.0.

4.22.2.30 + (id) track

Create a new audio track.

Returns

A new audio track.

4.22.2.31 - (void) updateMeters

Updates the metering system to give current values.

You must call this method before calling averagePowerForChannel or peakPowerForChannel in order to get current values.

4.22.3 Member Data Documentation

4.22.3.1 - (OALAction*) gainAction [protected]

The current action being applied to gain.

4.22.3.2 - (bool) interrupted [protected]

If YES, this object is interrupted.

Note: This property must NOT be set by the user!

Reimplemented from <OALSuspendListener>.

4.22.3.3 - (NSOperationQueue∗) operationQueue [protected]

Operation queue for running asynchronous operations.

Note: Only one asynchronous operation is allowed at a time.

4.22.3.4 - (OALAction∗) panAction [protected]

The current action being applied to pan.

4.22.3.5 - (AVAudioPlayer∗) simulatorPlayerRef [protected]

When the simulator is running (and the playback fix is in use), player will be copied to here, and then player set to nil.

This prevents other code from inadvertently raising the volume and starting playback.

4.22.3.6 - (OALSuspendHandler∗) suspendHandler [protected]

Handles suspending and interrupting for this object.

4.22.4 Property Documentation

4.22.4.1 - (bool) autoPreload [read, write, assign]

If true, automatically preload again when playback stops.

4.22.4.2 - (NSURL ∗) currentlyLoadedUrl [read, retain]

The URL of the currently loaded audio data.

4.22.4.3 - (NSTimeInterval) currentTime [read, write, assign]

The current playback position in seconds from the start of the sound.

You can set this to change the playback position, whether it is currently playing or not.

4.22.4.4 - (id< AVAudioPlayerDelegate >) delegate [read, write, assign]

Optional object that will receive notifications for decoding errors, audio interruptions (such as an incoming phone call), and playback completion.

Note: OALAudioTrack keeps a WEAK reference to delegate, so make sure you clear it when your object is going to be deallocated.

4.22.4.5 - (NSTimeInterval) deviceCurrentTime [read, assign]

The value of this property increases monotonically while an audio player is playing or paused.

If more than one audio player is connected to the audio output device, device time continues incrementing as long as at least one of the players is playing or paused.

If the audio output device has no connected audio players that are either playing or paused, device time reverts to 0.

Use this property to indicate “now” when calling the playAtTime: instance method. - By configuring multiple audio players to play at a specified offset from deviceCurrentTime, you can perform precise synchronization—as described in the discussion for that method.

Note: This will have no effect on iOS versions prior to 4.0.

4.22.4.6 - (NSTimeInterval) duration [read, assign]

The duration, in seconds, of the currently loaded sound.

4.22.4.7 - (float) gain [read, write, assign]

The gain (volume) for playback (0.0 - 1.0, where 1.0 = no attenuation).

4.22.4.8 - (bool) meteringEnabled [read, write, assign]

If true, this track is recording metering data.

If true, metering is enabled.

4.22.4.9 - (bool) muted [read, write, assign]

If true, audio track is muted.

4.22.4.10 - (NSUInteger) numberOfChannels [read, assign]

The number of channels in the currently loaded sound.

4.22.4.11 - (NSInteger) numberOfLoops [read, write, assign]

The number of times to loop playback (-1 = forever).

Note: This value will be ignored, and get changed when you call the various playXX methods. Only "play" will use the current value of "numberOfLoops".

4.22.4.12 - (float) pan [read, write, assign]

Pan value (-1.0 = far left, 1.0 = far right).

Note: This will have no effect on iOS versions prior to 4.0.

4.22.4.13 - (bool) paused [read, write, assign]

If true, pause playback.

4.22.4.14 - (AVAudioPlayer *) player [read, retain]

Access to the underlying AVAudioPlayer object.

WARNING: Be VERY careful when accessing this, as some methods could cause it to fall out of sync with OALAudioTrack (particularly play/pause/stop methods).

4.22.4.15 - (bool) playing [read, assign]

If true, the audio player is currently playing.

If true, background music is currently playing.

We need to maintain our own value because AVAudioPlayer will sometimes say it's not playing when it actually is.

4.22.4.16 - (bool) preloaded [read, assign]

If true, audio track is in preloaded state.

4.22.4.17 - (float) volume [read, write, assign]

The volume (alias to gain) for playback (0.0 - 1.0, where 1.0 = no attenuation).

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

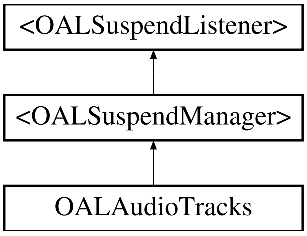
- OALAudioTrack.h
- OALAudioTrack.m

4.23 OALAudioTracks Class Reference

Keeps track of all AudioTrack objects.

`#import <OALAudioTracks.h>`

Inheritance diagram for OALAudioTracks:



Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

Protected Attributes

- NSMutableArray ∗ tracks

  All instantiated audio tracks.
- NSTimer ∗ deviceTimePoller

  Timer to poll deviceCurrentTime so that it doesn't get reset on a device.
- OALSuspendHandler ∗ suspendHandler

  Handles suspending and interrupting for this object.

Properties

- bool paused

  Pauses/unpauses all audio tracks.
- bool muted

  Mutes/unmutes all audio tracks.
- NSArray ∗ tracks

  All instantiated audio tracks.

4.23.1 Detailed Description

Keeps track of all AudioTrack objects.

4.23.2 Member Function Documentation

4.23.2.1 - OALAudioTracks: dummy(OALAudioTracks)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALAudioTracks∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

4.23.3 Member Data Documentation

4.23.3.1 - (NSTimer∗) deviceTimePoller `[protected]`

Timer to poll deviceCurrentTime so that it doesn't get reset on a device.

4.23.3.2 - (OALSuspendHandler∗) suspendHandler `[protected]`

Handles suspending and interrupting for this object.

4.23.3.3 - (NSMutableArray∗) tracks `[protected]`

All instantiated audio tracks.

4.23.4 Property Documentation

4.23.4.1 - (bool) muted `[read, write, assign]`

Mutes/unmutes all audio tracks.

4.23.4.2 - (bool) paused `[read, write, assign]`

Pauses/unpauses all audio tracks.

4.23.4.3 - (NSArray∗) tracks `[read, retain]`

All instantiated audio tracks.

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

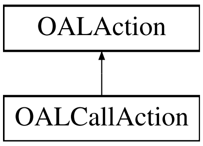
- OALAudioTracks.h
- OALAudioTracks.m

4.24 OALCallAction Class Reference

Calls a selector on a target.

`#import <OALUtilityActions.h>`

Inheritance diagram for OALCallAction:



Public Member Functions

- (id) - initWithCallTarget:selector:

  Initialize an action.
- (id) - initWithCallTarget:selector:withObject:

  Initialize an action.
- (id) - initWithCallTarget:selector:withObject:withObject:

  Initialize an action.

Static Public Member Functions

- (id) + actionWithCallTarget:selector:

  Create an action.
- (id) + actionWithCallTarget:selector:withObject:

  Create an action.
- (id) + actionWithCallTarget:selector:withObject:withObject:

  Create an action.

Protected Attributes

- id callTarget_

  The target to call the selector on.
- SEL selector_

  The selector to invoke.
- int numObjects_

  The number of parameters which will be passed to the selector.
- id object1_

  The first object to pass to the selector, if any.
- id object2_

  The second object to pass to the selector, if any.

4.24.1 Detailed Description

Calls a selector on a target.

This action will ignore whatever target it is run against, and will invoke the selector on the target specified at creation time.

4.24.2 Member Function Documentation

4.24.2.1 + (id) actionWithCallTarget: dummy(id) *callTarget* selector:(SEL) *selector*

Create an action.

Parameters

callTarget	The target to call.
selector	The selector to invoke.

Returns

A new action.

4.24.2.2 + (id) actionWithCallTarget: dummy(id) *callTarget* selector:(SEL) *selector* withObject:(id) *object*

Create an action.

Parameters

callTarget	The target to call.
selector	The selector to invoke.
object	The object to pass to the selector.

Returns

A new action.

4.24.2.3 + (id) actionWithCallTarget: dummy(id) *callTarget* selector:(SEL) *selector* withObject:(id) *firstObject* withObject:(id) *secondObject*

Create an action.

Parameters

callTarget	The target to call.
selector	The selector to invoke.
firstObject	The first object to pass to the selector.
secondObject	The second object to pass to the selector.

Returns

A new action.

4.24.2.4 - (id) initWithCallTarget: dummy(id) *callTarget* selector:(SEL) *selector*

Initialize an action.

Parameters

callTarget	The target to call.
selector	The selector to invoke.

Returns

The initialized action.

4.24.2.5 - (id) initWithCallTarget: dummy(id) *callTarget* selector:(SEL) *selector* withObject:(id) *object*

Initialize an action.

Parameters

callTarget	The target to call.
selector	The selector to invoke.
object	The object to pass to the selector.

Returns

Initialize an action.

4.24.2.6 - (id) initWithCallTarget: dummy(id) *callTarget* selector:(SEL) *selector* withObject:(id) *firstObject* withObject:(id) *secondObject*

Initialize an action.

Parameters

callTarget	The target to call.
selector	The selector to invoke.
firstObject	The first object to pass to the selector.
secondObject	The second object to pass to the selector.

Returns

The initialized action.

4.24.3 Member Data Documentation

4.24.3.1 - (id) callTarget_ [protected]

The target to call the selector on.

4.24.3.2 - (int) numObjects_ [protected]

The number of parameters which will be passed to the selector.

4.24.3.3 - (id) object1_ [protected]

The first object to pass to the selector, if any.

4.24.3.4 - (id) object2_ [protected]

The second object to pass to the selector, if any.

4.24.3.5 - (SEL) selector_ [protected]

The selector to invoke.

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

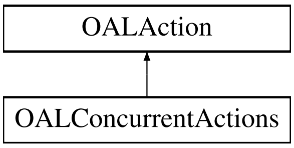
- OALUtilityActions.h
- OALUtilityActions.m

4.25 OALConcurrentActions Class Reference

A set of actions that get run concurrently.

`#import <OALUtilityActions.h>`

Inheritance diagram for OALConcurrentActions:



Public Member Functions

- (id) - initWithActions:

  Initialize an action.

Static Public Member Functions

- (id) + actions:

    Create an action.
- (id) + actionsFromArray:

    Create an action.

Properties

- NSMutableArray ∗ actions

    The actions which will be run.

4.25.1 Detailed Description

A set of actions that get run concurrently.

4.25.2 Member Function Documentation

4.25.2.1 + (id) actions: dummy(OALAction∗) *actions* , *NS_REQUIRES_NIL_TERMINATION*

Create an action.

Parameters

actions	The comma separated list of actions.
NS_REQUIRES_NIL_TERMINATION	List of actions must be terminated by a nil.

Returns

A new set of concurrent actions.

4.25.2.2 + (id) actionsFromArray: dummy(NSArray∗) *actions*

Create an action.

Parameters

actions	The actions to run.

Returns

A new set of concurrent actions.

4.25.2.3 - (id) initWithActions: dummy(NSArray∗) *actions*

Initialize an action.

Parameters

actions	The actions to run.

Returns

The initialized set of concurrent actions.

4.25.3 Property Documentation

4.25.3.1 - (NSMutableArray∗) actions `[read, write, retain]`

The actions which will be run.

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

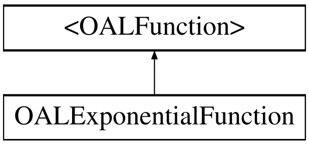
- OALUtilityActions.h
- OALUtilityActions.m

4.26 OALExponentialFunction Class Reference

Changes slowly at the start, and quickly at the end.

`#import <OALFunction.h>`

Inheritance diagram for OALExponentialFunction:



Static Public Member Functions

- (id) + function

  Generate an instance of this function.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

4.26.1 Detailed Description

Changes slowly at the start, and quickly at the end.

```
                         #
                         #
                         #
                        #
                        #
                       #
                     ##
                  ###
              ####
         #####
   ######
```

4.26.2 Member Function Documentation

4.26.2.1 + (id) function

Generate an instance of this function.

Returns

An instance of this function.

4.26.2.2 - OALExponentialFunction: dummy(OALExponentialFunction)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALExponentialFunction∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

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

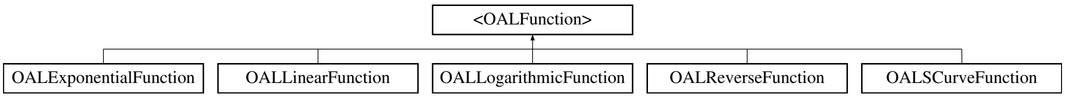
- OALFunction.h
- OALFunction.m

4.27 <OALFunction> Protocol Reference

A function takes a value from 0.0 to 1.0 and returns another value from 0.0 to 1.0.

`#import <OALFunction.h>`

Inheritance diagram for <OALFunction>:



Public Member Functions

- (float) - valueForInput:

  Calculate the function value.

4.27.1 Detailed Description

A function takes a value from 0.0 to 1.0 and returns another value from 0.0 to 1.0.

4.27.2 Member Function Documentation

4.27.2.1 - (float) valueForInput: dummy(float) *inputValue*

Calculate the function value.

Parameters

inputValue	A value from 0.0 to 1.0

Returns

The resulting value, which will also be from 0.0 to 1.0.

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

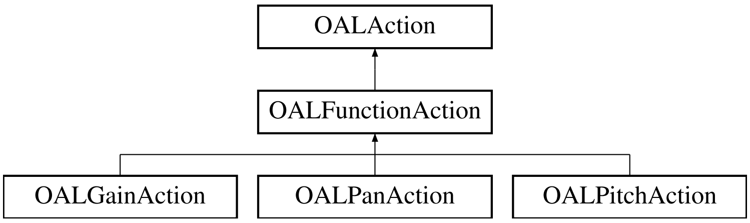
- OALFunction.h

4.28 OALFunctionAction Class Reference

An action that applies a function to the proportionComplete parameter in [update] before applying the result to the target.

```
#import <OALAction.h>
```

Inheritance diagram for OALFunctionAction:



Public Member Functions

- (id) - initWithDuration:endValue:

  Initialize an action using the default function.
- (id) - initWithDuration:endValue:function:

  Initialize an action.
- (id) - initWithDuration:startValue:endValue:function:

  Initialize an action.

Static Public Member Functions

- (id) + actionWithDuration:endValue:

  Create a new action using the default function.
- (id) + actionWithDuration:endValue:function:

  Create a new action.
- (id) + actionWithDuration:startValue:endValue:function:

  Create a new action.
- (id< OALFunction, NSObject >) + defaultFunction

  Get the function that this action would use by default if none was specified.

Protected Attributes

- float lowValue

  The lowest value that will ever be set over the course of this function.
- float delta

  The difference between the lowest and highest value.
- OALReverseFunction ∗ reverseFunction

  The reverse function, if any.
- id< OALFunction, NSObject > realFunction

  The basic function that will be applied normally, or reversed.

Properties

- id< OALFunction, NSObject > function

  The function that will be applied.
- float startValue

  The value that the property in the target will hold at the start of the action.
- float endValue

  The value that the property in the target will hold at the end of the action.

4.28.1 Detailed Description

An action that applies a function to the proportionComplete parameter in [update] before applying the result to the target.

This allows things like exponential and s-curve functions when applying gain transitions, for example.

4.28.2 Member Function Documentation

4.28.2.1 + (id) actionWithDuration: dummy(float) *duration* endValue:(float) *endValue*

Create a new action using the default function.

The start value will be the current value of the target this action is applied to.

Parameters

duration	The duration of this action in seconds.
endValue	The "ending" value that this action will converge upon when setting the target's property.

Returns

A new action.

4.28.2.2 + (id) actionWithDuration: dummy(float) *duration* endValue:(float) *endValue* function:(id<OALFunction,NSObject>) *function*

Create a new action.

The start value will be the current value of the target this action is applied to.

Parameters

duration	The duration of this action in seconds.
endValue	The "ending" value that this action will converge upon when setting the target's property.
function	The function to apply in this action's update method.

Returns

A new action.

4.28.2.3 + (id) actionWithDuration: dummy(float) *duration* startValue:(float) *startValue* endValue:(float) *endValue* function:(id<OALFunction,NSObject>) *function*

Create a new action.

Parameters

duration	The duration of this action in seconds.
startValue	The "starting" value that this action will diverge from when setting the target's property. If NAN, use the current value from the target.
endValue	The "ending" value that this action will converge upon when setting the target's property.
function	The function to apply in this action's update method.

Returns

A new action.

4.28.2.4 + (id< OALFunction, NSObject >) defaultFunction

Get the function that this action would use by default if none was specified.

4.28.2.5 - (id) initWithDuration: dummy(float) *duration* endValue:(float) *endValue*

Initialize an action using the default function.

The start value will be the current value of the target this action is applied to.

Parameters

duration	The duration of this action in seconds.
endValue	The "ending" value that this action will converge upon when setting the target's property.

Returns

The initialized action.

4.28.2.6 - (id) initWithDuration: dummy(float) *duration* endValue:(float) *endValue* function:(id<OALFunction,NSObject>) *function*

Initialize an action.

The start value will be the current value of the target this action is applied to.

Parameters

duration	The duration of this action in seconds.
endValue	The "ending" value that this action will converge upon when setting the target's property.
function	The function to apply in this action's update method.

Returns

The initialized action.

4.28.2.7 - (id) initWithDuration: dummy(float) *duration* startValue:(float) *startValue* endValue:(float) *endValue* function:(id<**OALFunction**,NSObject>) *function*

Initialize an action.

Parameters

duration	The duration of this action in seconds.
startValue	The "starting" value that this action will diverge from when setting the target's property. If NAN, use the current value from the target.
endValue	The "ending" value that this action will converge upon when setting the target's property.
function	The function to apply in this action's update method.

Returns

The initialized action.

4.28.3 Member Data Documentation

4.28.3.1 - (float) delta `[protected]`

The difference between the lowest and highest value.

4.28.3.2 - (float) lowValue `[protected]`

The lowest value that will ever be set over the course of this function.

4.28.3.3 - (id<OALFunction,NSObject>) realFunction `[protected]`

The basic function that will be applied normally, or reversed.

4.28.3.4 - (OALReverseFunction∗) reverseFunction `[protected]`

The reverse function, if any.

When this is not null, the reverse function is used.

4.28.4 Property Documentation

4.28.4.1 - (float) endValue `[read, write, assign]`

The value that the property in the target will hold at the end of the action.

4.28.4.2 - (id< OALFunction, NSObject >) function `[read, write, retain]`

The function that will be applied.

4.28.4.3 - (float) startValue `[read, write, assign]`

The value that the property in the target will hold at the start of the action.

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

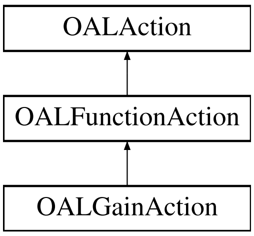
- OALAction.h
- OALAction.m

4.29 OALGainAction Class Reference

A function-based action that modifies the target's gain.

`#import <OALAudioActions.h>`

Inheritance diagram for OALGainAction:



4.29.1 Detailed Description

A function-based action that modifies the target's gain.

The target's gain poperty is assumed to be a float, accepting values from 0.0 (no sound) to 1.0 (max gain).

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

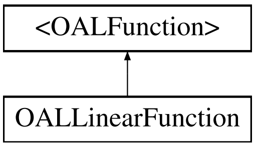
- OALAudioActions.h

4.30 OALLinearFunction Class Reference

Function that changes at a constant rate.

```
#import <OALFunction.h>
```

Inheritance diagram for OALLinearFunction:



Static Public Member Functions

- (id) + function

  Generate an instance of this function.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

4.30.1 Detailed Description

Function that changes at a constant rate.

```
                    ##
                  ##
                ##
              ##
            ##
          ##
        ##
      ##
    ##
  ##
##
```

4.30.2 Member Function Documentation

4.30.2.1 + (id) function

Generate an instance of this function.

Returns

An instance of this function.

4.30.2.2 - OALLinearFunction: dummy(OALLinearFunction)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALLinearFunction∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

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

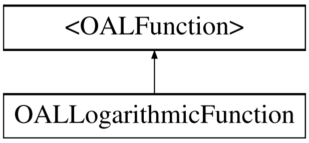
- OALFunction.h
- OALFunction.m

4.31 OALLogarithmicFunction Class Reference

Changes quickly at the start, and slowly at the end.

```
#import <OALFunction.h>
```

Inheritance diagram for OALLogarithmicFunction:



Static Public Member Functions

- (id) + function

  Generate an instance of this function.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

4.31.1 Detailed Description

Changes quickly at the start, and slowly at the end.

```
                  ######
            #####
        ####
     ###
   ##
  #
 #
 #
#
#
#
```

4.31.2 Member Function Documentation

4.31.2.1 + (id) function

Generate an instance of this function.

Returns

An instance of this function.

4.31.2.2 - OALLogarithmicFunction: dummy(OALLogarithmicFunction)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALLogarithmicFunction∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

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

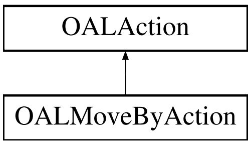
- OALFunction.h
- OALFunction.m

4.32 OALMoveByAction Class Reference

Moves the target from its current position by the specified delta over time in 3D space.

`#import <OALAudioActions.h>`

Inheritance diagram for OALMoveByAction:



Public Member Functions

- (id) - initWithDuration:delta:

  Initialize an action.
- (id) - initWithUnitsPerSecond:delta:

  Initialize an action.

Static Public Member Functions

- (id) + actionWithDuration:delta:

  Create a new action.
- (id) + actionWithUnitsPerSecond:delta:

  Create a new action.

Protected Attributes

- ALPoint startPoint

  The point this move is starting at.

Properties

- ALPoint delta

  The amount to move the target by.
- float unitsPerSecond

  The speed at which to move the target.

4.32.1 Detailed Description

Moves the target from its current position by the specified delta over time in 3D space.

4.32.2 Member Function Documentation

4.32.2.1 + (id) actionWithDuration: dummy(float) *duration* delta:(ALPoint) *delta*

Create a new action.

Parameters

duration	The duration of the move.
delta	The amount to move by.

Returns

A new action.

4.32.2.2 + (id) actionWithUnitsPerSecond: dummy(float) *unitsPerSecond* delta:(ALPoint) *delta*

Create a new action.

Parameters

unitsPerSecond	The rate of movement.
delta	The amount to move by.

Returns

A new action.

4.32.2.3 - (id) initWithDuration: dummy(float) *duration* delta:(ALPoint) *delta*

Initialize an action.

Parameters

duration	The duration of the move.
delta	The amount to move by.

Returns

The initialized action.

4.32.2.4 - (id) initWithUnitsPerSecond: dummy(float) *unitsPerSecond* delta:(ALPoint) *delta*

Initialize an action.

Parameters

unitsPerSecond	The rate of movement.
delta	The amount to move by.

Returns

The initialized action.

4.32.3 Member Data Documentation

4.32.3.1 - (ALPoint) startPoint `[protected]`

The point this move is starting at.

4.32.4 Property Documentation

4.32.4.1 - (ALPoint) delta `[read, write, assign]`

The amount to move the target by.

4.32.4.2 - (float) unitsPerSecond `[read, write, assign]`

The speed at which to move the target.

If this is 0, the target will be moved at the speed determined by duration.

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

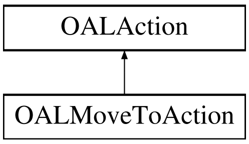
- OALAudioActions.h
- OALAudioActions.m

4.33 OALMoveToAction Class Reference

Moves the target from its current position to the specified position over time in 3D space.

`#import <OALAudioActions.h>`

Inheritance diagram for OALMoveToAction:



Public Member Functions

- (id) - initWithDuration:position:

  Initialize an action.
- (id) - initWithUnitsPerSecond:position:

  Initialize an action.

Static Public Member Functions

- (id) + actionWithDuration:position:

  Create a new action.
- (id) + actionWithUnitsPerSecond:position:

  Create a new action.

Protected Attributes

- ALPoint startPoint

  The point this move is starting at.
- ALPoint delta

  The distance being moved.

Properties

- ALPoint position

  The position to move the target to.
- float unitsPerSecond

  The speed at which to move the target.

4.33.1 Detailed Description

Moves the target from its current position to the specified position over time in 3D space.

4.33.2 Member Function Documentation

4.33.2.1 + (id) actionWithDuration: dummy(float) *duration* position:(ALPoint) *position*

Create a new action.

Parameters

duration	The duration of the move.
position	The position to move to.

Returns

A new action.

4.33.2.2 + (id) actionWithUnitsPerSecond: dummy(float) *unitsPerSecond* position:(ALPoint) *position*

Create a new action.

Parameters

unitsPerSecond	The rate of movement.
position	The position to move to.

Returns

A new action.

4.33.2.3 - (id) initWithDuration: dummy(float) *duration* position:(ALPoint) *position*

Initialize an action.

Parameters

duration	The duration of the move.
position	The position to move to.

Returns

The initialized action.

4.33.2.4 - (id) initWithUnitsPerSecond: dummy(float) *unitsPerSecond* position:(ALPoint) *position*

Initialize an action.

Parameters

unitsPerSecond	The rate of movement.
position	The position to move to.

Returns

The initialized action.

4.33.3 Member Data Documentation

4.33.3.1 - (ALPoint) delta `[protected]`

The distance being moved.

4.33.3.2 - (ALPoint) startPoint `[protected]`

The point this move is starting at.

4.33.4 Property Documentation

4.33.4.1 - (ALPoint) position `[read, write, assign]`

The position to move the target to.

4.33.4.2 - (float) unitsPerSecond `[read, write, assign]`

The speed at which to move the target.

If this is 0, the target will be moved at the speed determined by duration.

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

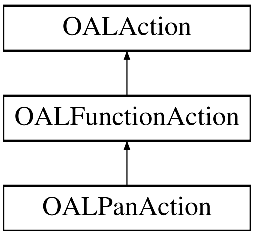
- OALAudioActions.h
- OALAudioActions.m

4.34 OALPanAction Class Reference

A function-based action that modifies the target's pan.

`#import <OALAudioActions.h>`

Inheritance diagram for OALPanAction:



4.34.1 Detailed Description

A function-based action that modifies the target's pan.

The target's pan property is assumed to be a float, accepting values from -1.0 (max left) to 1.0 (max right).

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

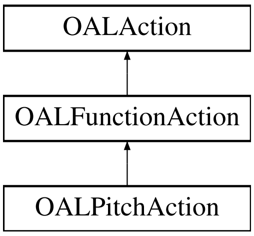
- OALAudioActions.h

4.35 OALPitchAction Class Reference

A function-based action that modifies the target's pitch.

`#import <OALAudioActions.h>`

Inheritance diagram for OALPitchAction:



4.35.1 Detailed Description

A function-based action that modifies the target's pitch.

The target's pitch property is assumed to be a float, with 1.0 representing normal pitch, and lower values giving lower pitch.

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

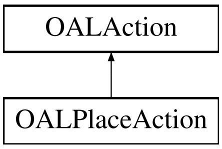
- OALAudioActions.h

4.36 OALPlaceAction Class Reference

Places the target at the specified position.

`#import <OALAudioActions.h>`

Inheritance diagram for OALPlaceAction:



Public Member Functions

- (id) - initWithPosition:

  Initialize an action with the specified position.

Static Public Member Functions

- (id) + actionWithPosition:

  Create an action with the specified position.

Properties

- ALPoint position

  The position where the target will be placed.

4.36.1 Detailed Description

Places the target at the specified position.

4.36.2 Member Function Documentation

4.36.2.1 + (id) actionWithPosition: dummy(ALPoint) *position*

Create an action with the specified position.

Parameters

position	The position to place the target at.

Returns

A new action.

4.36.2.2 - (id) initWithPosition: dummy(ALPoint) *position*

Initialize an action with the specified position.

Parameters

position	The position to place the target at.

Returns

The initialized action.

4.36.3 Property Documentation

4.36.3.1 - (ALPoint) position `[read, write, assign]`

The position where the target will be placed.

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

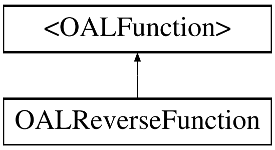
- OALAudioActions.h
- OALAudioActions.m

4.37 OALReverseFunction Class Reference

Returns the reverse of another function.

```
#import <OALFunction.h>
```

Inheritance diagram for OALReverseFunction:



Public Member Functions

- (id) - initWithFunction:

    Initialize a reverse function.

Static Public Member Functions

- (id) + functionWithFunction:

    Create a new reverse function.

Properties

- id< OALFunction, NSObject > function

    The function which will have its value reversed.

4.37.1 Detailed Description

Returns the reverse of another function.

For example, a linear up ramp will become a linear down ramp:

```
| Before:       | After:        |
|           ## | ##            |
|         ##   |   ##          |
|       ##     |     ##        |
|     ##       |       ##      |
|   ##          |        ##    |
| ##            |          ##  |
```

4.37.2 Member Function Documentation

4.37.2.1 + (id) functionWithFunction: dummy(id<**OALFunction**, NSObject>) *function*

Create a new reverse function.

Parameters

function	The function to reverse.

Returns

the new reversed function.

4.37.2.2 - (id) initWithFunction: dummy(id<**OALFunction**, NSObject>) *function*

Initialize a reverse function.

Parameters

function	The function to reverse.

Returns

the initialized reversed function.

4.37.3 Property Documentation

4.37.3.1 - (id< **OALFunction**, NSObject >) function `[read, write, retain]`

The function which will have its value reversed.

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

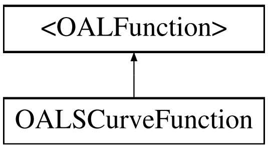
- OALFunction.h
- OALFunction.m

4.38 OALSCurveFunction Class Reference

Changes slowly at the start, quickly at the midpoint, then slowly again at the end.

`#import <OALFunction.h>`

Inheritance diagram for OALSCurveFunction:



Static Public Member Functions

- (id) + function

  Generate an instance of this function.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

4.38.1 Detailed Description

Changes slowly at the start, quickly at the midpoint, then slowly again at the end.

```
                 ####
              ###
            ##
           #
          #
          #
          #
         #
       ##
    ###
####
```

4.38.2 Member Function Documentation

4.38.2.1 + (id) function

Generate an instance of this function.

Returns

An instance of this function.

4.38.2.2 - OALSCurveFunction: dummy(OALSCurveFunction)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALSCurveFunction∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

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

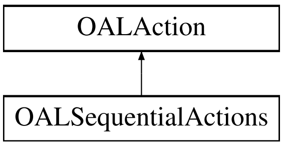
- OALFunction.h
- OALFunction.m

4.39 OALSequentialActions Class Reference

A set of actions that get run in sequence.

```
#import <OALUtilityActions.h>
```

Inheritance diagram for OALSequentialActions:



Public Member Functions

- (id) - initWithActions:

  Initialize an action.

Static Public Member Functions

- (id) + actions:

  Create an action.
- (id) + actionsFromArray:

  Create an action.

Protected Attributes

- uint actionIndex_

  The index of the action currently being processed.
- float pLastComplete_

  The last completeness proportion value acted upon.

- float pCurrentActionDuration_

  The proportional duration of the current action.
- float pCurrentActionComplete_

  The proportional completeness of the current action.

Properties

- NSMutableArray ∗ actions

  The actions which will be run.

4.39.1 Detailed Description

A set of actions that get run in sequence.

4.39.2 Member Function Documentation

4.39.2.1 + (id) actions: dummy(OALAction∗) *actions* , *NS_REQUIRES_NIL_TERMINATION*

Create an action.

Parameters

actions	The comma separated list of actions.
NS_REQUIRES_NIL_TERMINATION	List of actions must be terminated by a nil.

Returns

A new set of sequential actions.

4.39.2.2 + (id) actionsFromArray: dummy(NSArray∗) *actions*

Create an action.

Parameters

actions	The actions to run.

Returns

A new set of sequential actions.

4.39.2.3 - (id) initWithActions: dummy(NSArray∗) *actions*

Initialize an action.

Parameters

actions	The actions to run.

Returns

The initialized set of sequential actions.

4.39.3 Member Data Documentation

4.39.3.1 - (uint) actionIndex_ [protected]

The index of the action currently being processed.

4.39.3.2 - (float) pCurrentActionComplete_ [protected]

The proportional completeness of the current action.

4.39.3.3 - (float) pCurrentActionDuration_ [protected]

The proportional duration of the current action.

4.39.3.4 - (float) pLastComplete_ [protected]

The last completeness proportion value acted upon.

4.39.4 Property Documentation

4.39.4.1 - (NSMutableArray∗) actions [read, write, retain]

The actions which will be run.

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

- OALUtilityActions.h
- OALUtilityActions.m

4.40 OALSimpleAudio Class Reference

A simpler interface to the ObjectAL sound library.

```
#import <OALSimpleAudio.h>
```

Public Member Functions

- (bool) - preloadBg:

  Preload background music.
- (bool) - preloadBg:seekTime:

  Preload background music.
- (bool) - playBg

  Play whatever background music is preloaded.
- (bool) - playBgWithLoop:

  Play whatever background music is preloaded.
- (bool) - playBg:

  Play the background music at the specified path.
- (bool) - playBg:loop:

  Play the background music at the specified path.
- (bool) - playBg:volume:pan:loop:

  Play the background music at the specified path.
- (void) - stopBg

  Stop the background music playback and rewind.
- (ALBuffer ∗) - preloadEffect:

  Preload and cache a sound effect for later playback.
- (ALBuffer ∗) - preloadEffect:reduceToMono:

  Preload and cache a sound effect for later playback.
- (bool) - unloadEffect:

  Unload a preloaded effect.
- (void) - unloadAllEffects

  Unload all preloaded effects that are not currently being played (paused or not).
- (id< ALSoundSource >) - playEffect:

  Play a sound effect with volume 1.0, pitch 1.0, pan 0.0, loop NO.
- (id< ALSoundSource >) - playEffect:loop:

  Play a sound effect with volume 1.0, pitch 1.0, pan 0.0.
- (id< ALSoundSource >) - playEffect:volume:pitch:pan:loop:

  Play a sound effect.
- (id< ALSoundSource >) - playBuffer:volume:pitch:pan:loop:

  Play a sound effect from a user-supplied buffer.
- (void) - stopAllEffects

  Stop ALL sound effect playback.
- (void) - stopEverything

  Stop all effects and bg music.
- (void) - resetToDefault

  Reset everything in this object to its default state.

Static Public Member Functions

- (OALSimpleAudio ∗) + sharedInstanceWithSources:

  Start OALSimpleAudio with the specified number of reserved sources.
- (OALSimpleAudio ∗) + sharedInstanceWithReservedSources:monoSources-:stereoSources:

  Start OALSimpleAudio with the specified parameters.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

Protected Attributes

- NSMutableDictionary ∗ preloadCache

  Cache for preloaded sound samples.
- uint pendingLoadCount

  keeping track of how many effects remain to be loaded

Properties

- bool allowIpod

  If YES, allow ipod music to continue playing (NOT SUPPORTED ON THE SIMULATOR).
- bool useHardwareIfAvailable

  Determines what to do if no other application is playing audio and allowIpod = YES (NOT SUPPORTED ON THE SIMULATOR).
- bool honorSilentSwitch

  If true, mute when backgrounded, screen locked, or the ringer switch is turned off (NOT SUPPORTED ON THE SIMULATOR).
- int reservedSources

  The number of sources OALSimpleAudio is using (max 32 on current iOS devices).
- ALDevice ∗ device

  The device we are using.
- ALContext ∗ context

  The context we are using.
- ALChannelSource ∗ channel

  The sound channel used by this object.
- NSURL ∗ backgroundTrackURL

  Background audio URL.
- OALAudioTrack ∗ backgroundTrack

  Audio track to play background music.

- bool bgPaused

  Pauses BG music playback.
- bool bgMuted

  Mutes BG music playback.
- bool bgPlaying

  If true, BG music is currently playing.
- float bgVolume

  Background music playback gain/volume (0.0 - 1.0)
- bool effectsPaused

  Pauses effects playback.
- bool effectsMuted

  Mutes effects playback.
- float effectsVolume

  Master effects gain/volume (0.0 - 1.0)
- bool paused

  Pauses everything.
- bool muted

  Mutes all audio.
- bool preloadCacheEnabled

  Enables/disables the preload cache.
- NSUInteger preloadCacheCount

  The number of items currently in the preload cache.
- bool manuallySuspended

  Set to YES to manually suspend the sound system.
- bool interrupted

  If YES, the sound system is interrupted.
- bool suspended

  If YES, the sound system is suspended.

4.40.1 Detailed Description

A simpler interface to the ObjectAL sound library.

This singleton can be used alone for simpler audio needs, or in conjunction with user-created audio objects for more advanced needs (as is done in many of the demos).

For sound effects, it initializes OpenAL with the default ALDevice, an ALContext, and an ALChannelSource consisting of all 32 interruptible ALSource objects (the maximum currently allowed for iOS). If you want to create your own sources as well, change the reservedSources property.

For background audio, it creates a single OALAudioTrack, which will not reserve resources unless used. (you can create more OALAudioTrack objects for your own use if you want).

This singleton also provides access to the more common configuration options available in OALAudioSupport.

All audio playback commands are delegated either to the ALChannelSource (for sound effects), or to the OALAudioTrack (for BG music).

4.40.2 Member Function Documentation

4.40.2.1 - (bool) playBg

Play whatever background music is preloaded.

Returns

TRUE if the operation was successful.

4.40.2.2 - (bool) playBg: dummy(NSString∗) *path*

Play the background music at the specified path.

If the music has not been preloaded, this method will load the music and then play, incurring a slight delay.

Note: only **ONE** background music file may be played or preloaded at a time via OALSimpleAudio. If you play or preload another file, the one currently playing will stop.

Parameters

path	The path containing the background music.

Returns

TRUE if the operation was successful.

4.40.2.3 - (bool) playBg: dummy(NSString∗) *path* loop:(bool) *loop*

Play the background music at the specified path.

If the music has not been preloaded, this method will load the music and then play, incurring a slight delay.

Note: only **ONE** background music file may be played or preloaded at a time via OALSimpleAudio. If you play or preload another file, the one currently playing will stop.

Parameters

path	The path containing the background music.
loop	If true, loop the bg track.

Returns

TRUE if the operation was successful.

4.40.2.4 - (bool) playBg: dummy(NSString∗) *filePath* volume:(float) *volume* pan:(float) *pan* loop:(bool) *loop*

Play the background music at the specified path.

If the music has not been preloaded, this method will load the music and then play, incurring a slight delay.

Note: only **ONE** background music file may be played or preloaded at a time via OALSimpleAudio. If you play or preload another file, the one currently playing will stop. To play multiple audio tracks, create an OALAudioTrack.

Note: pan will have no effect when running on iOS versions prior to 4.0.

Parameters

filePath	The path containing the sound data.
volume	The volume (gain) to play at (0.0 - 1.0).
pan	Left-right panning (-1.0 = far left, 1.0 = far right) (Only on iOS 4.0+).
loop	If TRUE, the sound will loop until you call "stopBg".

Returns

TRUE if the operation was successful.

4.40.2.5 - (bool) playBgWithLoop: dummy(bool) *loop*

Play whatever background music is preloaded.

Parameters

loop	If true, loop the bg track.

Returns

TRUE if the operation was successful.

4.40.2.6 - (id< ALSoundSource >) playBuffer: dummy(ALBuffer∗) *buffer* volume:(float) *volume* pitch:(float) *pitch* pan:(float) *pan* loop:(bool) *loop*

Play a sound effect from a user-supplied buffer.

Parameters

buffer	The buffer containing the sound data.
volume	The volume (gain) to play at (0.0 - 1.0).
pitch	The pitch to play at (1.0 = normal pitch).
pan	Left-right panning (-1.0 = far left, 1.0 = far right).
loop	If TRUE, the sound will loop until you call "stop" on the returned sound source.

Returns

The sound source being used for playback, or nil if an error occurred (You'll need to keep this if you want to be able to stop a looped playback).

4.40.2.7 - (id< ALSoundSource >) playEffect: dummy(NSString∗) *filePath*

Play a sound effect with volume 1.0, pitch 1.0, pan 0.0, loop NO.

The sound will be loaded and cached if it wasn't already.

Parameters

filePath	The path containing the sound data.

Returns

The sound source being used for playback, or nil if an error occurred.

4.40.2.8 - (id< ALSoundSource >) playEffect: dummy(NSString∗) *filePath* loop:(bool) *loop*

Play a sound effect with volume 1.0, pitch 1.0, pan 0.0.

The sound will be loaded and cached if it wasn't already.

Parameters

filePath	The path containing the sound data.
loop	If TRUE, the sound will loop until you call "stop" on the returned sound source.

Returns

The sound source being used for playback, or nil if an error occurred.

4.40.2.9 - (id< ALSoundSource >) playEffect: dummy(NSString∗) *filePath* volume:(float) *volume* pitch:(float) *pitch* pan:(float) *pan* loop:(bool) *loop*

Play a sound effect.

The sound will be loaded and cached if it wasn't already.

Parameters

filePath	The path containing the sound data.
volume	The volume (gain) to play at (0.0 - 1.0).
pitch	The pitch to play at (1.0 = normal pitch).
pan	Left-right panning (-1.0 = far left, 1.0 = far right).
loop	If TRUE, the sound will loop until you call "stop" on the returned sound source.

Returns

> The sound source being used for playback, or nil if an error occurred (You'll need to keep this if you want to be able to stop a looped playback).

4.40.2.10 - (bool) preloadBg: dummy(NSString∗) *path*

Preload background music.

Note: only **ONE** background music file may be played or preloaded at a time via OALSimpleAudio. If you play or preload another file, the one currently playing will stop.

Parameters

path	The path containing the background music.

Returns

> TRUE if the operation was successful.

4.40.2.11 - (bool) preloadBg: dummy(NSString∗) *path* seekTime:(NSTimeInterval) *seekTime*

Preload background music.

Note: only **ONE** background music file may be played or preloaded at a time via OALSimpleAudio. If you play or preload another file, the one currently playing will stop.

Parameters

path	The path containing the background music.
seekTime	the position in the file to start playing at.

Returns

> TRUE if the operation was successful.

4.40.2.12 - (ALBuffer ∗) preloadEffect: dummy(NSString∗) *filePath*

Preload and cache a sound effect for later playback.

Parameters

filePath	The path containing the sound data.

4.40.2.13 - (ALBuffer ∗) preloadEffect: dummy(NSString∗) *filePath* reduceToMono:(bool) *reduceToMono*

Preload and cache a sound effect for later playback.

Parameters

filePath	The path containing the sound data.
reduceToMono	If true, reduce the sample to mono (stereo samples don't support panning or positional audio).

4.40.2.14 - (void) resetToDefault

Reset everything in this object to its default state.

4.40.2.15 + (OALSimpleAudio ∗) sharedInstanceWithReservedSources: dummy(int) *reservedSources* monoSources:(int) *monoSources* stereoSources:(int) *stereoSources*

Start OALSimpleAudio with the specified parameters.

With this initializer, you can set the total number of mono and stereo sources available, as well as how many sources are to be reserved by OALSimpleAudio.

The number of mono and stereo sources represents the GLOBAL number of sources available for EVERYONE, not just OALSimpleAudio. Their combined values must not exceed 32 (the max allowed sources in iOS).

reservedSources is independent of this; it represents how many of the above mentioned sources to reserve for OALSimpleAudio's use.

Note: This method must be called ONLY ONCE, *BEFORE* any attempt is made to access the shared instance.

Parameters

reservedSources	The number of sources to reserve for OALSimpleAudio's use when initializing. iOS currently supports up to 32 sources total.
monoSources	The GLOBAL number of sources supporting mono (default 28).
stereoSources	The GLOBAL number of sources supporting stereo (default 4).

Returns

The shared instance.

4.40.2.16 + (OALSimpleAudio ∗) sharedInstanceWithSources: dummy(int) *sources*

Start OALSimpleAudio with the specified number of reserved sources.

Call this initializer if you want to use OALSimpleAudio, but keep some of the device's audio sources (there are 32 in total) for your own use.

Note: This method must be called ONLY ONCE, *BEFORE* any attempt is made to access the shared instance. To change the reserved sources after instantiation, modify reservedSources.

Parameters

sources	the number of sources OALSimpleAudio will reserve for itself.

Returns

The shared instance.

4.40.2.17 - (void) stopAllEffects

Stop ALL sound effect playback.

4.40.2.18 - (void) stopBg

Stop the background music playback and rewind.

4.40.2.19 - (void) stopEverything

Stop all effects and bg music.

4.40.2.20 - OALSimpleAudio: dummy(OALSimpleAudio)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OALSimpleAudio∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

4.40.2.21 - (void) unloadAllEffects

Unload all preloaded effects that are not currently being played (paused or not).

Turning on debug logging will show which effects were not unloaded. It is useful to put a call to this method in "applicationDidReceiveMemoryWarning" in your app delegate.

4.40.2.22 - (bool) unloadEffect: dummy(NSString∗) *filePath*

Unload a preloaded effect.

Only unloads if no source is currently playing that effect (or paused with the effect loaded).

Parameters

filePath	The path containing the sound data that was previously loaded.

Returns

YES if the effect was unloaded. Turn on debug logging to see why an effect was not unloaded.

4.40.3 Member Data Documentation

4.40.3.1 - (uint) pendingLoadCount `[protected]`

keeping track of how many effects remain to be loaded

4.40.3.2 - (NSMutableDictionary∗) preloadCache `[protected]`

Cache for preloaded sound samples.

4.40.4 Property Documentation

4.40.4.1 - (bool) allowIpod `[read, write, assign]`

If YES, allow ipod music to continue playing (NOT SUPPORTED ON THE SIMULATO-R).

Note: If this is enabled, and another app is playing music, background audio playback will use the SOFTWARE codecs, NOT hardware.

If allowIpod = NO, the application will ALWAYS use hardware decoding.

See also

useHardwareIfAvailable

Default value: YES

4.40.4.2 - (OALAudioTrack *) backgroundTrack [read, retain]

Audio track to play background music.

Background audio track.

4.40.4.3 - (NSURL *) backgroundTrackURL [read, retain]

Background audio URL.

4.40.4.4 - (bool) bgMuted [read, write, assign]

Mutes BG music playback.

4.40.4.5 - (bool) bgPaused [read, write, assign]

Pauses BG music playback.

4.40.4.6 - (bool) bgPlaying [read, assign]

If true, BG music is currently playing.

4.40.4.7 - (float) bgVolume [read, write, assign]

Background music playback gain/volume (0.0 - 1.0)

4.40.4.8 - (ALChannelSource *) channel [read, retain]

The sound channel used by this object.

The channel source used by OALSimpleAudio.

Only mess with this if you know what you are doing!

4.40.4.9 - (ALContext *) context [read, retain]

The context we are using.

4.40.4.10 - (ALDevice *) device [read, retain]

The device we are using.

4.40.4.11 - (bool) effectsMuted `[read, write, assign]`

Mutes effects playback.

4.40.4.12 - (bool) effectsPaused `[read, write, assign]`

Pauses effects playback.

4.40.4.13 - (float) effectsVolume `[read, write, assign]`

Master effects gain/volume (0.0 - 1.0)

4.40.4.14 - (bool) honorSilentSwitch `[read, write, assign]`

If true, mute when backgrounded, screen locked, or the ringer switch is turned off (NOT SUPPORTED ON THE SIMULATOR).

Default value: YES

4.40.4.15 - (bool) interrupted `[read, assign]`

If YES, the sound system is interrupted.

4.40.4.16 - (bool) manuallySuspended `[read, write, assign]`

Set to YES to manually suspend the sound system.

4.40.4.17 - (bool) muted `[read, write, assign]`

Mutes all audio.

4.40.4.18 - (bool) paused `[read, write, assign]`

Pauses everything.

4.40.4.19 - (NSUInteger) preloadCacheCount `[read, assign]`

The number of items currently in the preload cache.

4.40.4.20 - (bool) preloadCacheEnabled `[read, write, assign]`

Enables/disables the preload cache.

If the preload cache is disabled, effects preloading will do nothing (BG preloading will still work).

4.40.4.21 - (int) reservedSources `[read, write, assign]`

The number of sources OALSimpleAudio is using (max 32 on current iOS devices).

4.40.4.22 - (bool) suspended `[read, assign]`

If YES, the sound system is suspended.

4.40.4.23 - (bool) useHardwareIfAvailable `[read, write, assign]`

Determines what to do if no other application is playing audio and allowIpod = YES (NOT SUPPORTED ON THE SIMULATOR).

If NO, the application will ALWAYS use software decoding. The advantage to this is that the user can background your application and then start audio playing from another application. If useHardwareIfAvailable = YES, the user won't be able to do this.

If this is set to YES, the application will use hardware decoding if no other application is currently playing audio. However, no other application will be able to start playing audio if it wasn't playing already.

Note: This switch has no effect if allowIpod = NO.

See also

allowIpod

Default value: YES

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

- OALSimpleAudio.h
- OALSimpleAudio.m

4.41 OALSuspendHandler Class Reference

Provides two controls (interrupted and manuallySuspended) for suspending a slave object, and also propagates such control messages to interested listeners.

```
#import <OALSuspendHandler.h>
```

Public Member Functions

- (id) - initWithTarget:selector:

Initialize a handler with the specified slave target and selector.

- (void) - addSuspendListener:

  Add a listener that will receive manual suspend and interrupt events.
- (void) - removeSuspendListener:

  Remove a registered listener.

Static Public Member Functions

- (OALSuspendHandler ∗) + handlerWithTarget:selector:

  Create a new handler with the specified slave target and selector.

Protected Attributes

- NSMutableArray ∗ listeners

  Listeners that will receive manualSuspend and interrupt events.
- NSMutableArray ∗ manualSuspendStates

  Holder for the state of manualSuspend in listeners when this object is manually suspended.
- SEL suspendStatusChangeSelector

  Selector to be invoked on suspend or unsuspend.
- bool manualSuspendLock

  Holds the current "manually suspended" state.
- bool interruptLock

  Holds the current "interrupted" state.

Properties

- bool manuallySuspended

  If YES, the manual suspend control is set.
- bool interrupted

  If YES, the interrupt control is set.
- bool suspended

  If YES, the slave object is suspended.

4.41.1 Detailed Description

Provides two controls (interrupted and manuallySuspended) for suspending a slave object, and also propagates such control messages to interested listeners.

"interrupted" is meant to be set by the system when an interrupt occurs.

"manuallySuspended" is a user-settable control for suspending an object.

"manuallySuspended" also has an extra step in its processing: When set, the handler makes a note of what its listeners' "manuallySuspended" values are. When cleared, it will only clear a listener's "manuallySuspended" value if it was not set at suspend time. This allows for ad-hoc setting/clearing of "manuallySuspended" in the middle of a handler/listener graph rather than only from the top level.

When either control is set, the slave object will be suspended. When both are cleared, the slave object will be unsuspended.

4.41.2 Member Function Documentation

4.41.2.1 - (void) addSuspendListener: dummy(id<OALSuspendListener>) *listener*

Add a listener that will receive manual suspend and interrupt events.

Parameters

listener	The listener to register with this handler.

4.41.2.2 + (OALSuspendHandler ∗) handlerWithTarget: dummy(id) *target* selector:(SEL) *selector*

Create a new handler with the specified slave target and selector.

The selector provided must take a single boolean value like so:

- (void) setSuspended:(bool) value

Parameters

target	The slave object that will receive suspend/unsuspend events.
selector	The selector for a "set suspended" method, taking a single boolean parameter.

4.41.2.3 - (id) initWithTarget: dummy(id) *target* selector:(SEL) *selector*

Initialize a handler with the specified slave target and selector.

The selector provided must take a single boolean value like so:

- (void) setSuspended:(bool) value

Parameters

target	The slave object that will receive suspend/unsuspend events.
selector	The selector for a "set suspended" method, taking a single boolean parameter.

4.41.2.4 - (void) removeSuspendListener: dummy(id<OALSuspendListener>) *listener*

Remove a registered listener.

Parameters

listener	The listener to unregister from this handler.

4.41.3 Member Data Documentation

4.41.3.1 - (bool) interruptLock [protected]

Holds the current "interrupted" state.

4.41.3.2 - (NSMutableArray*) listeners [protected]

Listeners that will receive manualSuspend and interrupt events.

4.41.3.3 - (bool) manualSuspendLock [protected]

Holds the current "manually suspended" state.

4.41.3.4 - (NSMutableArray*) manualSuspendStates [protected]

Holder for the state of manualSuspend in listeners when this object is manually suspended.

4.41.3.5 - (SEL) suspendStatusChangeSelector [protected]

Selector to be invoked on suspend or unsuspend.

Takes the signature: setSelected:(bool) value

4.41.4 Property Documentation

4.41.4.1 - (bool) interrupted [read, write, assign]

If YES, the interrupt control is set.

4.41.4.2 - (bool) manuallySuspended [read, write, assign]

If YES, the manual suspend control is set.

4.41.4.3 - (bool) suspended `[read, assign]`

If YES, the slave object is suspended.

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

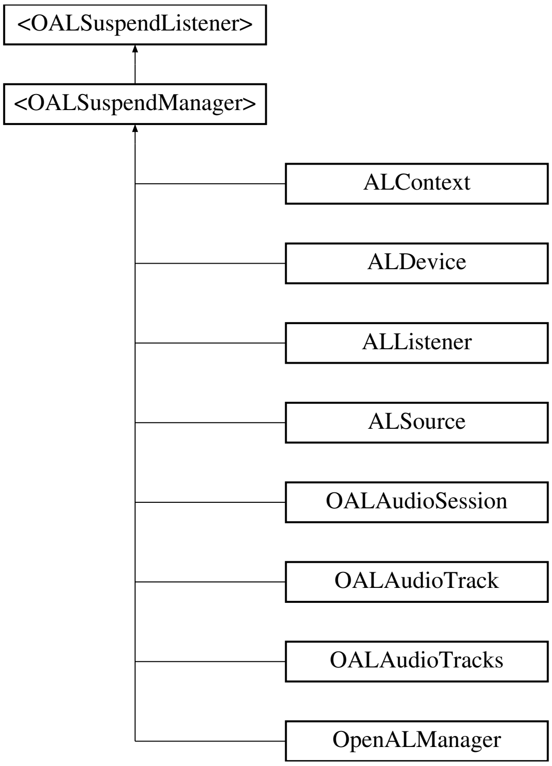
- OALSuspendHandler.h
- OALSuspendHandler.m

4.42 <OALSuspendListener> Protocol Reference

Allows an object to participate in interrupt and suspend operations.

`#import <OALSuspendHandler.h>`

Inheritance diagram for <OALSuspendListener>:



Properties

- bool manuallySuspended

  Set to YES to manually suspend.
- bool interrupted

  If YES, this object is interrupted.

4.42.1 Detailed Description

Allows an object to participate in interrupt and suspend operations.

Objects may hook into OALAudioSession's interrupt and suspend model by calling [[OALAudioSession sharedInstance] addSuspendListener:self].

Note: You must NOT set the "interrupted" property manually. It is designed to be set automatically by system interrupts.

See also

OALAudioSession

4.42.2 Property Documentation

4.42.2.1 - (bool) interrupted `[read, write, assign]`

If YES, this object is interrupted.

Note: This property must NOT be set by the user!

Reimplemented in OALAudioTrack.

4.42.2.2 - (bool) manuallySuspended `[read, write, assign]`

Set to YES to manually suspend.

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

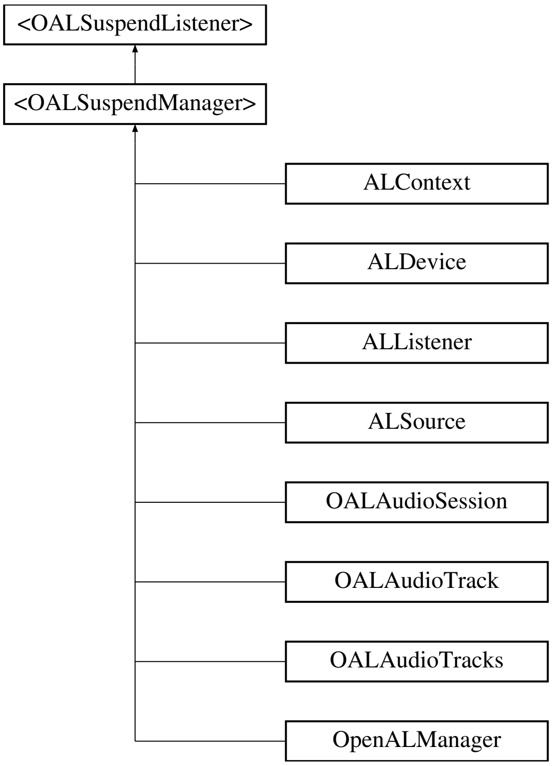
- OALSuspendHandler.h

4.43 <OALSuspendManager> Protocol Reference

A suspend manager is a listener that also allows other objects to subscribe to receive events as the manager receives them.

`#import <OALSuspendHandler.h>`

Inheritance diagram for <OALSuspendManager>:



Public Member Functions

- (void) - addSuspendListener:

  Add a listener that will receive manual suspend and interrupt events.
- (void) - removeSuspendListener:

  Remove a registered listener.

Properties

- bool suspended

  If YES, this object is suspended.

4.43.1 Detailed Description

A suspend manager is a listener that also allows other objects to subscribe to receive events as the manager receives them.

4.43.2 Member Function Documentation

4.43.2.1 - (void) addSuspendListener: dummy(id< OALSuspendListener >) *listener*

Add a listener that will receive manual suspend and interrupt events.

Parameters

listener	The listener to register with this handler.

4.43.2.2 - (void) removeSuspendListener: dummy(id< OALSuspendListener >) *listener*

Remove a registered listener.

Parameters

listener	The listener to unregister from this handler.

4.43.3 Property Documentation

4.43.3.1 - (bool) suspended `[read, assign]`

If YES, this object is suspended.

Reimplemented in ALContext.

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

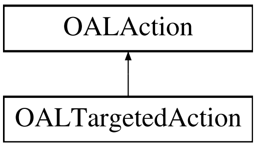
- OALSuspendHandler.h

4.44 OALTargetedAction Class Reference

Ignores whatever target it was invoked upon and applies the specified action on the target specified at creation time.

`#import <OALUtilityActions.h>`

Inheritance diagram for OALTargetedAction:



Public Member Functions

- (id) - initWithTarget:action:

  Initialize an action.

Static Public Member Functions

- (id) + actionWithTarget:action:

  Create an action.

Protected Attributes

- OALAction ∗ action_

  The action that will be run on the target.

Properties

- id forcedTarget

  The target which this action will actually be invoked upon.

4.44.1 Detailed Description

Ignores whatever target it was invoked upon and applies the specified action on the target specified at creation time.

4.44.2 Member Function Documentation

4.44.2.1 + (id) actionWithTarget: dummy(id) *target* action:(OALAction∗) *action*

Create an action.

Parameters

target	The target to run the action upon.
action	The action to run.

Returns

A new action.

4.44.2.2 - (id) initWithTarget: dummy(id) *target* action:(OALAction∗) *action*

Initialize an action.

Parameters

target	The target to run the action upon.
action	The action to run.

Returns

The initialized action.

4.44.3 Member Data Documentation

4.44.3.1 - (OALAction∗) action_ `[protected]`

The action that will be run on the target.

4.44.4 Property Documentation

4.44.4.1 - (id) forcedTarget `[read, write, assign]`

The target which this action will actually be invoked upon.

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

- OALUtilityActions.h
- OALUtilityActions.m

4.45 OALTools Class Reference

Miscellaneous tools used by ObjectAL.

`#import <OALTools.h>`

Static Public Member Functions

- (NSURL ∗) + urlForPath:

  Returns the URL corresponding to the specified path.
- (void) + notifyExtAudioError:function:description:

  Notify an error if the specified ExtAudio error code indicates an error.
- (void) + notifyAudioSessionError:function:description:

  Notify an error if the specified AudioSession error code indicates an error.

4.45.1 Detailed Description

Miscellaneous tools used by ObjectAL.

4.45.2 Member Function Documentation

4.45.2.1 + (void) notifyAudioSessionError: dummy(OSStatus) *errorCode* function:(const char∗) *function* description:(NSString∗) *description* , ...

Notify an error if the specified AudioSession error code indicates an error.

This will log the error and also potentially post an audio error notification (OALAudioErrorNotification) if it is suspected that this error is a result of the audio session getting corrupted.

Parameters

errorCode,:	The error code returned from an OS call.
function,:	The function name where the error occurred.
description,:	A printf-style description of what happened.

4.45.2.2 + (void) notifyExtAudioError: dummy(OSStatus) *errorCode* function:(const char∗) *function* description:(NSString∗) *description* , ...

Notify an error if the specified ExtAudio error code indicates an error.

This will log the error and also potentially post an audio error notification (OALAudioErrorNotification) if it is suspected that this error is a result of the audio session getting corrupted.

Parameters

errorCode,:	The error code returned from an OS call.
function,:	The function name where the error occurred.
description,:	A printf-style description of what happened.

4.45.2.3 + (NSURL ∗) urlForPath: dummy(NSString∗) *path*

Returns the URL corresponding to the specified path.

If the path is not absolute (starts with a "/"), this method will look for the file in the application's main bundle.

Parameters

path	The path to convert to a URL.

Returns

The corresponding URL or nil if a URL could not be formed.

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

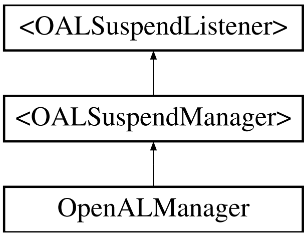
- OALTools.h
- OALTools.m

4.46 OpenALManager Class Reference

Manager class for OpenAL objects (ObjectAL).

```
#import <OpenALManager.h>
```

Inheritance diagram for OpenALManager:



Public Member Functions

- (ALBuffer ∗) - bufferFromFile:

  Load an OpenAL buffer with the contents of an audio file.
- (ALBuffer ∗) - bufferFromFile:reduceToMono:

  Load an OpenAL buffer with the contents of an audio file.
- (ALBuffer ∗) - bufferFromUrl:

  Load an OpenAL buffer with the contents of an audio file.
- (ALBuffer ∗) - bufferFromUrl:reduceToMono:

  Load an OpenAL buffer with the contents of an audio file.
- (NSString ∗) - bufferAsyncFromFile:target:selector:

  Load an OpenAL buffer with the contents of an audio file asynchronously.
- (NSString ∗) - bufferAsyncFromFile:reduceToMono:target:selector:

  Load an OpenAL buffer with the contents of an audio file asynchronously.
- (NSString ∗) - bufferAsyncFromUrl:target:selector:

  Load an OpenAL buffer with the contents of a URL asynchronously.
- (NSString ∗) - bufferAsyncFromUrl:reduceToMono:target:selector:

  Load an OpenAL buffer with the contents of a URL asynchronously.
- (void) - clearAllBuffers

  Clear all references to sound data from ALL buffers, managed or not.

Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

  Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

Protected Attributes

- NSMutableArray ∗ devices

    All opened devices.
- OALSuspendHandler ∗ suspendHandler

    Handles suspending and interrupting for this object.
- NSOperationQueue ∗ operationQueue

    Operation queue for asynchronous loading.

Properties

- NSArray ∗ availableDevices

    List of available playback devices (NSString∗).
- NSArray ∗ availableCaptureDevices

    List of available capture devices (NSString∗).
- ALContext ∗ currentContext

    The current context (some context operations require the context to be the "current" one).
- NSString ∗ defaultCaptureDeviceSpecifier

    Name of the default capture device.
- NSString ∗ defaultDeviceSpecifier

    Name of the default playback device.
- NSArray ∗ devices

    List of all open devices (ALDevice∗).
- ALdouble mixerOutputFrequency

    The frequency of the output mixer.

4.46.1 Detailed Description

Manager class for OpenAL objects (ObjectAL).

Keeps track of devices that have been opened, and allows high level OpenAL management.

Provides methods for loading ALBuffer objects from audio files.

The OpenAL 1.1 specification is available at `http://connect.creativelabs.com/openal/Documentation`

Be sure to read through it (especially the part about distance models) as ObjectAL follows the OpenAL object model.

Alternatively, you may opt to use OALSimpleAudio for a simpler interface.

4.46.2 Member Function Documentation

4.46.2.1 - (NSString ∗) bufferAsyncFromFile: dummy(NSString∗) *filePath* reduceToMono:(bool) *reduceToMono* target:(id) *target* selector:(SEL) *selector*

Load an OpenAL buffer with the contents of an audio file asynchronously.

This method will schedule a request to have the buffer created and filled, and then call the specified selector with the newly created buffer.

The buffer's name will be the fully qualified URL of the path.

Returns the fully qualified URL of the path, which you can match up to the buffer name in your callback method.

See the class description note regarding sound file formats.

Parameters

filePath	The path of the file containing the audio data.
reduceToMono	If true, reduce the sample to mono (stereo samples don't support panning or positional audio).
target	The target to call when the buffer is loaded.
selector	The selector to invoke when the buffer is loaded.

Returns

The fully qualified URL of the path.

4.46.2.2 - (NSString ∗) bufferAsyncFromFile: dummy(NSString∗) *filePath* target:(id) *target* selector:(SEL) *selector*

Load an OpenAL buffer with the contents of an audio file asynchronously.

This method will schedule a request to have the buffer created and filled, and then call the specified selector with the newly created buffer.

The buffer's name will be the fully qualified URL of the path.

Returns the fully qualified URL of the path, which you can match up to the buffer name in your callback method.

See the class description note regarding sound file formats.

Parameters

filePath	The path of the file containing the audio data.
target	The target to call when the buffer is loaded.
selector	The selector to invoke when the buffer is loaded.

Returns

The fully qualified URL of the path.

4.46.2.3 - (NSString ∗) bufferAsyncFromUrl: dummy(NSURL∗) *url* reduceToMono:(bool) *reduceToMono* target:(id) *target* selector:(SEL) *selector*

Load an OpenAL buffer with the contents of a URL asynchronously.

This method will schedule a request to have the buffer created and filled, and then call the specified selector with the newly created buffer.

The buffer's name will be the fully qualified URL.

Returns the fully qualified URL, which you can match up to the buffer name in your callback method.

See the class description note regarding sound file formats.

Parameters

url	The URL of the file containing the audio data.
reduceToMono	If true, reduce the sample to mono (stereo samples don't support panning or positional audio).
target	The target to call when the buffer is loaded.
selector	The selector to invoke when the buffer is loaded.

Returns

The fully qualified URL of the path.

4.46.2.4 - (NSString ∗) bufferAsyncFromUrl: dummy(NSURL∗) *url* target:(id) *target* selector:(SEL) *selector*

Load an OpenAL buffer with the contents of a URL asynchronously.

This method will schedule a request to have the buffer created and filled, and then call the specified selector with the newly created buffer.

The buffer's name will be the fully qualified URL.

Returns the fully qualified URL, which you can match up to the buffer name in your callback method.

See the class description note regarding sound file formats.

Parameters

url	The URL of the file containing the audio data.
target	The target to call when the buffer is loaded.
selector	The selector to invoke when the buffer is loaded.

Returns

The fully qualified URL of the path.

4.46.2.5 - (ALBuffer ∗) bufferFromFile: dummy(NSString∗) *filePath*

Load an OpenAL buffer with the contents of an audio file.

The buffer's name will be the fully qualified URL of the path.

See the class description note regarding sound file formats.

Parameters

filePath	The path of the file containing the audio data.

Returns

An ALBuffer containing the audio data.

4.46.2.6 - (ALBuffer ∗) bufferFromFile: dummy(NSString∗) *filePath* reduceToMono:(bool) *reduceToMono*

Load an OpenAL buffer with the contents of an audio file.

The buffer's name will be the fully qualified URL of the path.

See the class description note regarding sound file formats.

Parameters

filePath	The path of the file containing the audio data.
reduceToMono	If true, reduce the sample to mono (stereo samples don't support panning or positional audio).

Returns

An ALBuffer containing the audio data.

4.46.2.7 - (ALBuffer ∗) bufferFromUrl: dummy(NSURL∗) *url*

Load an OpenAL buffer with the contents of an audio file.

The buffer's name will be the fully qualified URL.

See the class description note regarding sound file formats.

Parameters

url	The URL of the file containing the audio data.

Returns

An ALBuffer containing the audio data.

4.46.2.8 - (ALBuffer ∗) bufferFromUrl: dummy(NSURL∗) *url* reduceToMono:(bool) *reduceToMono*

Load an OpenAL buffer with the contents of an audio file.

The buffer's name will be the fully qualified URL.

See the class description note regarding sound file formats.

Parameters

url	The URL of the file containing the audio data.
reduceToMono	If true, reduce the sample to mono (stereo samples don't support panning or positional audio).

Returns

An ALBuffer containing the audio data.

4.46.2.9 - (void) clearAllBuffers

Clear all references to sound data from ALL buffers, managed or not.

4.46.2.10 - OpenALManager: dummy(OpenALManager)

Singleton implementation providing "sharedInstance" and "purgeSharedInstance" methods.

- (OpenALManager∗) sharedInstance: Get the shared singleton instance.

- (void) purgeSharedInstance: Purge (deallocate) the shared instance.

4.46.3 Member Data Documentation

4.46.3.1 - (NSMutableArray∗) devices [protected]

All opened devices.

4.46.3.2 - (NSOperationQueue∗) operationQueue [protected]

Operation queue for asynchronous loading.

4.46.3.3 - (OALSuspendHandler∗) suspendHandler [protected]

Handles suspending and interrupting for this object.

4.46.4 Property Documentation

4.46.4.1 - (NSArray ∗) availableCaptureDevices [read, retain]

List of available capture devices (NSString∗).

4.46.4.2 - (NSArray ∗) availableDevices [read, retain]

List of available playback devices (NSString∗).

4.46.4.3 - (ALContext ∗) currentContext [read, write, assign]

The current context (some context operations require the context to be the "current" one).

WEAK reference.

4.46.4.4 - (NSString ∗) defaultCaptureDeviceSpecifier [read, retain]

Name of the default capture device.

4.46.4.5 - (NSString ∗) defaultDeviceSpecifier [read, retain]

Name of the default playback device.

4.46.4.6 - (NSArray∗) devices [read, retain]

List of all open devices (ALDevice∗).

4.46.4.7 - (ALdouble) mixerOutputFrequency [read, write, assign]

The frequency of the output mixer.

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

- OpenALManager.h
- OpenALManager.m