# ObjectAL

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# Contents

# Chapter 1

# ObjectAL for iPhone

**iOS Audio development, minus the headache.**

Version 2.2



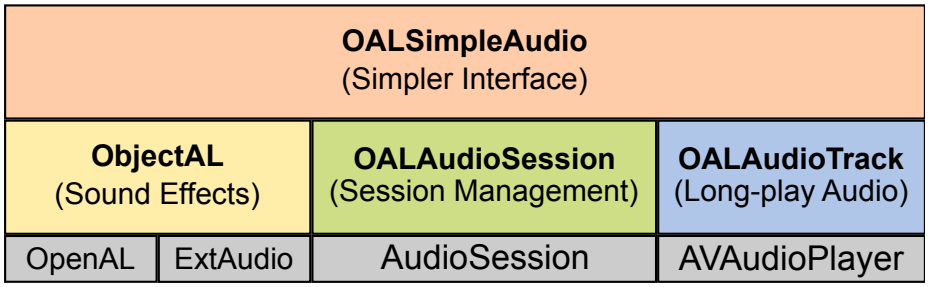


## 1.1 Contents



## 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.

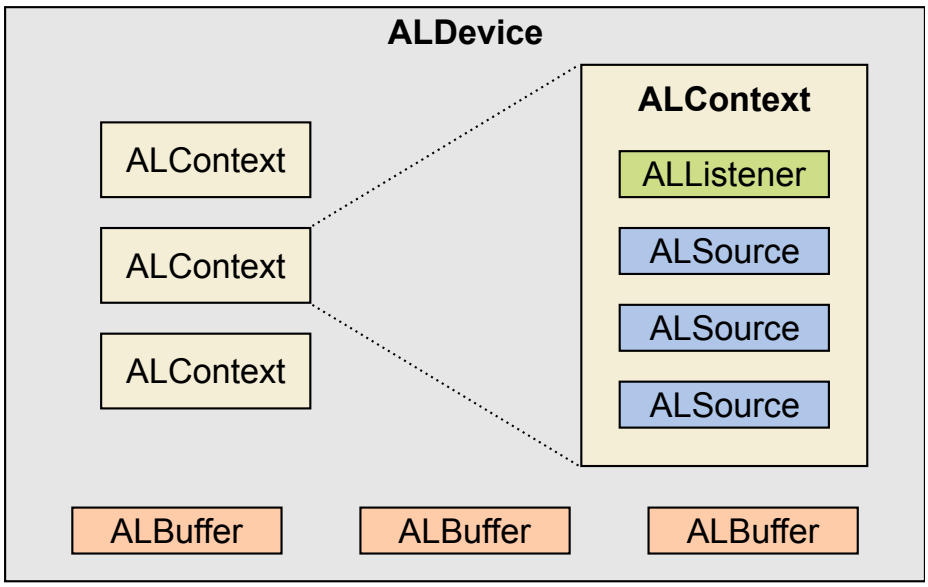
- OALAudioTrack provides a simpler interface to AVAudioPlayer, allowing you to play, stop, pause, fade, and mute background music tracks.

- 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 Homebrew.
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!

You can try out the demos by building and running the OALDemo target for iOS or OSX.

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.
- **PlanetKillerDemo**: Demonstrates using OALSimpleAudio in a game setting.
- **IntroAndMainTrackDemo**: Demonstrates a short intro track followed by a main loop track.
- **SourceNotificationsDemo**: Demonstrates using OpenAL playback notifications.
- **HardwareDemo**: Demonstrates hardware monitoring features.
- **AudioSessionDemo**: Allows you to play with various audio session settings.

## 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

# Hierarchical 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

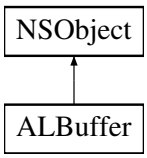
# Class Documentation

## 4.1 ALBuffer Class Reference

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

`#import <ALBuffer.h>`

Inheritance diagram for ALBuffer:




### Instance Methods

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

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

  *Returns a part of the buffer as a new buffer.*

### Class Methods

- (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 Method Documentation

#### 4.1.2.1 + (id) bufferWithName: (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: (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: (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], [nonatomic], [assign]

The size of a sample in bits.

#### 4.1.4.2 - (ALuint) bufferId [read], [nonatomic], [assign]

The ID assigned to this buffer by OpenAL.

#### 4.1.4.3 - (ALint) channels [read], [nonatomic], [assign]

The number of channels the buffer data plays in.

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

The device this buffer was created for.

#### 4.1.4.5 - (float) duration [read], [nonatomic], [assign]

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

#### 4.1.4.6 - (ALenum) format [read], [nonatomic], [assign]

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

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

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

Default: YES

#### 4.1.4.8 - (ALint) frequency [read], [nonatomic], [assign]

The frequency this buffer runs at.

#### 4.1.4.9 - (NSString *) name [read], [write], [nonatomic], [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], [nonatomic], [assign]

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

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

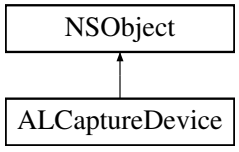
- ALBuffer.h
- ALBuffer.m

## 4.2 ALCaptureDevice Class Reference

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

`#import <ALCaptureDevice.h>`

Inheritance diagram for ALCaptureDevice:



### Instance Methods

- (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).*

### Class Methods

- (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 Method Documentation

### 4.2.2.1 + (id) deviceWithDeviceSpecifier: (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: (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: (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: (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: (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], [nonatomic], [assign]

The number of capture samples available.

#### 4.2.3.2 - (ALCdevice *) device [read], [nonatomic], [assign]

The OpenAL device pointer.

#### 4.2.3.3 - (NSArray *) extensions [read], [nonatomic], [retain]

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

#### 4.2.3.4 - (int) majorVersion [read], [nonatomic], [assign]

The specification revision for this implementation (major version).

#### 4.2.3.5 - (int) minorVersion [read], [nonatomic], [assign]

The specification revision for this implementation (minor version).

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

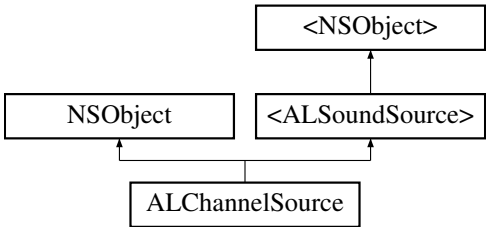
- ALCaptureDevice.h
- ALCaptureDevice.m

## 4.3 ALChannelSource Class Reference

A Sound source composed of other sources.

`#import <ALChannelSource.h>`

Inheritance diagram for ALChannelSource:




## Instance Methods

- (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.*
- (NSArray *) - clearUnusedBuffers

  *Set all buffers in all non-playing sources to nil.*
- (BOOL) - removeBuffersNamed:

  *Remove all instances of the specified buffer.*

## Class Methods

- (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**
- float **gain**
- float **maxDistance**
- float **rolloffFactor**
- float **referenceDistance**
- float **minGain**
- float **maxGain**
- float **coneOuterGain**
- float **coneInnerAngle**
- float **coneOuterAngle**
- float **reverbSendLevel**

- float **reverbOcclusion**
- float **reverbObstruction**
- ALPoint **position**
- ALVector **velocity**
- ALVector **direction**
- int **sourceRelative**
- int **sourceType**
- bool **looping**
- 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**
- bool **muted**
- bool **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 Method Documentation

### 4.3.2.1 - (void) addChannel: (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: (id<ALSoundSource>) *source*

Add a source to this channel.

**Parameters**

| | |
|---|---|
| *source* | The source to add. |

#### 4.3.2.3 + (id) channelWithSources: (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 - (NSArray *) clearUnusedBuffers

Set all buffers in all non-playing sources to nil.

**Returns**

A list of buffers that were cleared.

#### 4.3.2.5 - (id) initWithSources: (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.

#### 4.3.2.6 - (BOOL) removeBuffersNamed: (NSString*) *name*

Remove all instances of the specified buffer.

**Parameters**

| | |
|---|---|
| *name* | The name of the buffer. |

**Returns**

NO if any of the matching buffers are currently being played.

#### 4.3.2.7 - (id< ALSoundSource >) removeSource: (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.

#### 4.3.2.8 - (void) resetToDefault

Reset all sources in this channel to their default state.

#### 4.3.2.9 - (void) setDefaultsFromSource: (id<ALSoundSource>) *source*

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

**Parameters**

| | |
|---|---|
| *source* | the source to set default values from. |

#### 4.3.2.10 - (ALChannelSource *) splitChannelWithSources: (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 - (int) currentFadeCallbackCount [protected]

The actual number of sources that have called back.

#### 4.3.3.2 - (int) currentPanCallbackCount [protected]

The actual number of sources that have called back.

#### 4.3.3.3 - (int) currentPitchCallbackCount [protected]

The actual number of sources that have called back.

#### 4.3.3.4 - (float) defaultConeInnerAngle [protected]

Default cone inner angle.

#### 4.3.3.5 - (float) defaultConeOuterAngle [protected]

Default cone outer angle.

#### 4.3.3.6 - (float) defaultConeOuterGain [protected]

Default cone outer gain.

#### 4.3.3.7 - (ALVector) defaultDirection [protected]

Default direction.

#### 4.3.3.8 - (float) defaultGain [protected]

Default gain.

#### 4.3.3.9 - (bool) defaultLooping [protected]

Default looping.

#### 4.3.3.10 - (float) defaultMaxDistance [protected]

Default max distance.

#### 4.3.3.11 - (float) defaultMaxGain [protected]

Default max gain.

#### 4.3.3.12 - (float) defaultMinGain [protected]

Default min gain.

#### 4.3.3.13 - (float) defaultPitch [protected]

Default pitch.

#### 4.3.3.14 - (ALPoint) defaultPosition [protected]

Default position.

#### 4.3.3.15 - (float) defaultReferenceDistance [protected]

Default reference distance.

#### 4.3.3.16 - (float) defaultReverbObstruction [protected]

Default obstruction.

#### 4.3.3.17 - (float) defaultReverbOcclusion [protected]

Default occlusion.

#### 4.3.3.18 - (float) defaultReverbSendLevel [protected]

Default reverb send level.

#### 4.3.3.19 - (float) defaultRolloffFactor [protected]

Default rolloff factor.

#### 4.3.3.20 - (bool) defaultsInitialized [protected]

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

#### 4.3.3.21 - (int) defaultSourceRelative [protected]

Default source relative.

#### 4.3.3.22 - (int) defaultSourceType [protected]

Default source type.

#### 4.3.3.23 - (ALVector) defaultVelocity [protected]

Default veloxity.

#### 4.3.3.24 - (int) expectedFadeCallbackCount [protected]

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

#### 4.3.3.25 - (int) expectedPanCallbackCount [protected]

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

#### 4.3.3.26 - (int) expectedPitchCallbackCount [protected]

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

#### 4.3.3.27 - (SEL) fadeCompleteSelector [protected]

Selector to call when the current fade operation completes.

#### 4.3.3.28 - (id) fadeCompleteTarget [protected]

Target to inform when the current fade operation completes.

#### 4.3.3.29 - (SEL) panCompleteSelector [protected]

Selector to call when the current pan operation completes.

#### 4.3.3.30 - (id) panCompleteTarget [protected]

Target to inform when the current pan operation completes.

#### 4.3.3.31 - (SEL) pitchCompleteSelector [protected]

Selector to call when the current pitch operation completes.

#### 4.3.3.32 - (id) pitchCompleteTarget [protected]

Target to inform when the current pitch operation completes.

### 4.3.4 Property Documentation

#### 4.3.4.1 - (ALContext *) context [read], [nonatomic], [retain]

This source's owning context.

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

The number of sources reserved by this channel.

#### 4.3.4.3 - (ALSoundSourcePool *) sourcePool [read], [nonatomic], [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:

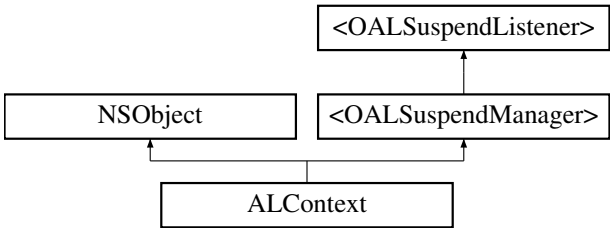
- ALChannelSource.h
- ALChannelSource.m

## 4.4 ALContext Class Reference

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

`#import <ALContext.h>`

Inheritance diagram for ALContext:



### Instance Methods

- (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).*

### Class Methods

- (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**
- 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 Method Documentation

#### 4.4.2.1 - (void) clearBuffers

Clear all buffers being used by sources in this context.

#### 4.4.2.2 + (id) contextOnDevice: (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: (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). |
| *synchronous-Context* | 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: (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: (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: (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). |
| *synchronous-Context* | 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: (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 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

### 4.4.4 Property Documentation

#### 4.4.4.1 - (NSString *) alVersion [read], [nonatomic], [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], [nonatomic], [retain]

The current context's attribute list.

Only valid when this is the current context.

#### 4.4.4.3 - (ALCcontext *) context [read], [nonatomic], [assign]

The OpenAL context pointer.

#### 4.4.4.4 - (ALDevice*) device [read], [nonatomic], [retain]

The device this context was opened on.

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

Exaggeration factor for Doppler effect.

Only valid when this is the current context.

#### 4.4.4.7 - (NSArray *) extensions [read], [nonatomic], [retain]

List of available extensions (NSString*).

Only valid when this is the current context.

#### 4.4.4.8 - (ALListener *) listener [read], [nonatomic], [retain]

This context's listener.

#### 4.4.4.9 - (NSString *) renderer [read], [nonatomic], [retain]

Information about the specific renderer.

Only valid when this is the current context.

#### 4.4.4.10 - (NSArray*) sources [read], [nonatomic], [retain]

All sources associated with this context (ALSource*).

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

Speed of sound in same units as velocities.

Only valid when this is the current context.

#### 4.4.4.12 - (NSString *) vendor [read], [nonatomic], [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 ALContext() Category Reference

### Properties

- ALDevice * **device**

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

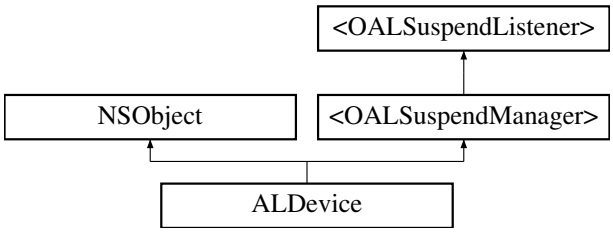
- ALContext.m

## 4.6 ALDevice Class Reference

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

`#import <ALDevice.h>`

Inheritance diagram for ALDevice:




### Instance Methods

- (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.*

### Class Methods

- (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).*

#### 4.6.1 Detailed Description

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

### 4.6.2 Method Documentation

#### 4.6.2.1 - (void) clearBuffers

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

#### 4.6.2.2 + (id) deviceWithDeviceSpecifier: (NSString∗) *deviceSpecifier*

Open the specified device.

**Parameters**

| | |
|---|---|
| *deviceSpecifier* | The device to open (nil = default device). |

**Returns**

A new device.

#### 4.6.2.3 - (void ∗) getProcAddress: (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.

#### 4.6.2.4 - (id) initWithDeviceSpecifier: (NSString∗) *deviceSpecifier*

Initialize with the specified device.

**Parameters**

| | |
|---|---|
| *deviceSpecifier* | The device to open (nil = default device). |

**Returns**

the initialized device.

#### 4.6.2.5 - (bool) isExtensionPresent: (NSString∗) *name*

Check if the specified extension is present.

**Parameters**

| | |
|---|---|
| *name* | The extension to check. |

**Returns**

TRUE if the extension is present.

### 4.6.3 Member Data Documentation

#### 4.6.3.1 - (NSMutableArray*) contexts [protected]

All contexts opened from this device.

#### 4.6.3.2 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

### 4.6.4 Property Documentation

#### 4.6.4.1 - (NSArray*) contexts [read], [nonatomic], [retain]

All contexts created on this device (ALContext*).

#### 4.6.4.2 - (ALCdevice *) device [read], [nonatomic], [assign]

The OpenAL device pointer.

#### 4.6.4.3 - (NSArray *) extensions [read], [nonatomic], [retain]

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

#### 4.6.4.4 - (int) majorVersion [read], [nonatomic], [assign]

The specification revision for this implementation (major version).

#### 4.6.4.5 - (int) minorVersion [read], [nonatomic], [assign]

The specification revision for this implementation (minor version).

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

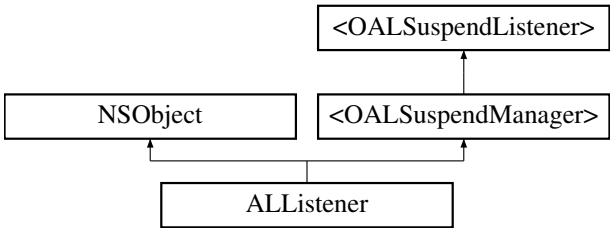
- ALDevice.h
- ALDevice.m

## 4.7 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.*

### Additional Inherited Members

## 4.7.1 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.

## 4.7.2 Member Data Documentation

### 4.7.2.1 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

## 4.7.3 Property Documentation

### 4.7.3.1 - (ALContext*) context [read], [nonatomic], [assign]

The context this listener belongs to (WEAK reference).

#### 4.7.3.2 - (float) gain [read], [write], [nonatomic], [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.

#### 4.7.3.3 - (float) globalReverbLevel [read], [write], [nonatomic], [assign]

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

(iOS 5.0+)

#### 4.7.3.4 - (bool) muted [read], [write], [nonatomic], [assign]

Causes this listener to stop hearing sound.

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

#### 4.7.3.5 - (ALOrientation) orientation [read], [write], [nonatomic], [assign]

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

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

#### 4.7.3.6 - (ALPoint) position [read], [write], [nonatomic], [assign]

Position (x, y, z).

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

#### 4.7.3.7 - (float) reverbEQBandwidth [read], [write], [nonatomic], [assign]

The equalizer bandwidth for reverb.

(iOS 5.0+)

#### 4.7.3.8 - (float) reverbEQFrequency [read], [write], [nonatomic], [assign]

The equalizer frequency for reverb.

(iOS 5.0+)

#### 4.7.3.9 - (float) reverbEQGain [read], [write], [nonatomic], [assign]

The equalizer gain for reverb.

(iOS 5.0+)

#### 4.7.3.10 - (bool) reverbOn [read], [write], [nonatomic], [assign]

Turns on reverb.

(iOS 5.0+)

#### 4.7.3.11 - (int) reverbRoomType [read], [write], [nonatomic], [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

#### 4.7.3.12 - (ALVector) velocity [read], [write], [nonatomic], [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

## 4.8 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".*

### 4.8.1 Detailed Description

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

### 4.8.2 Member Data Documentation

#### 4.8.2.1 ALVector ALOrientation::at

The "at" vector, representing "forward".

#### 4.8.2.2 ALVector ALOrientation::up

The "up" vector, representing "up".

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

- ALTypes.h

## 4.9 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.*

### 4.9.1 Detailed Description

Represents a 3-dimensional point for certain ObjectAL properties.

### 4.9.2 Member Data Documentation

#### 4.9.2.1 float ALPoint::x

The "X" coordinate.

#### 4.9.2.2 float ALPoint::y

The "Y" coordinate.

#### 4.9.2.3 float ALPoint::z

The "Z" coordinate.

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

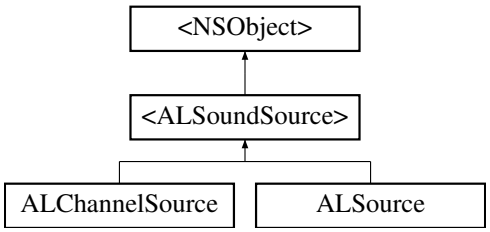
- ALTypes.h

## 4.10 <ALSoundSource> Protocol Reference

Manages all properties relating to an OpenAL sound source.

`#import <ALSoundSource.h>`

Inheritance diagram for <ALSoundSource>:




## Instance Methods

- (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).*

### 4.10.1 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

### 4.10.2 Method Documentation

#### 4.10.2.1 - (void) clear

Clear any buffers this source is currently using.

#### 4.10.2.2 - (void) fadeTo: (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. |

#### 4.10.2.3 - (void) panTo: (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. |

#### 4.10.2.4 - (void) pitchTo: (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. |

#### 4.10.2.5 - (id<ALSoundSource>) play: (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.

#### 4.10.2.6 - (id<ALSoundSource>) play: (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.

#### 4.10.2.7 - (id<ALSoundSource>) play: (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.

#### 4.10.2.8 - (void) rewind

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

#### 4.10.2.9 - (void) stop

Stop playing the current sound.

#### 4.10.2.10 - (void) stopActions

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

#### 4.10.2.11 - (void) stopFade

Stop the currently running fade operation, if any.

#### 4.10.2.12 - (void) stopPan

Stop the currently running pan operation, if any.

#### 4.10.2.13 - (void) stopPitch

Stop the currently running pitch operation, if any.

### 4.10.3 Property Documentation

#### 4.10.3.1 - (float) coneInnerAngle [read], [write], [nonatomic], [assign]

Cone inner angle (OpenAL property).

#### 4.10.3.2 - (float) coneOuterAngle [read], [write], [nonatomic], [assign]

Cone outer angle (OpenAL property).

#### 4.10.3.3 - (float) coneOuterGain [read], [write], [nonatomic], [assign]

Cone outer gain (OpenAL property).

#### 4.10.3.4 - (ALVector) direction [read], [write], [nonatomic], [assign]

Direction (OpenAL property).

#### 4.10.3.5 - (float) gain [read], [write], [nonatomic], [assign]

Gain (volume) (OpenAL property).

#### 4.10.3.6 - (bool) interruptible [read], [write], [nonatomic], [assign]

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

#### 4.10.3.7 - (bool) looping [read], [write], [nonatomic], [assign]

Looping (OpenAL property).

#### 4.10.3.8 - (float) maxDistance [read], [write], [nonatomic], [assign]

Max distance (OpenAL property).

#### 4.10.3.9 - (float) maxGain [read], [write], [nonatomic], [assign]

Max gain (OpenAL property).

#### 4.10.3.10 - (float) minGain [read], [write], [nonatomic], [assign]

Min gain (OpenAL property).

#### 4.10.3.11 - (bool) muted [read], [write], [nonatomic], [assign]

If true, this source is muted.

#### 4.10.3.12 - (float) pan [read], [write], [nonatomic], [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.

#### 4.10.3.13 - (bool) paused [read], [write], [nonatomic], [assign]

If true, this source is currently paused.

#### 4.10.3.14 - (float) pitch [read], [write], [nonatomic], [assign]

Pitch (OpenAL property).

#### 4.10.3.15 - (bool) playing [read], [nonatomic], [assign]

If true, this source is currently playing audio.

#### 4.10.3.16 - (ALPoint) position [read], [write], [nonatomic], [assign]

Position (OpenAL property).

#### 4.10.3.17 - (float) referenceDistance [read], [write], [nonatomic], [assign]

Reference distance (OpenAL property).

#### 4.10.3.18 - (float) reverbObstruction [read], [write], [nonatomic], [assign]

Reverb obstruction (object between listener and source).

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

#### 4.10.3.19 - (float) reverbOcclusion [read], [write], [nonatomic], [assign]

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

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

#### 4.10.3.20 - (float) reverbSendLevel [read], [write], [nonatomic], [assign]

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

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

#### 4.10.3.21 - (float) rolloffFactor [read], [write], [nonatomic], [assign]

Rolloff factor (OpenAL property).

#### 4.10.3.22 - (int) sourceRelative [read], [write], [nonatomic], [assign]

Source relative (OpenAL property).

#### 4.10.3.23 - (int) sourceType [read], [nonatomic], [assign]

Source type (OpenAL property).

#### 4.10.3.24 - (ALVector) velocity [read], [write], [nonatomic], [assign]

Velocity (OpenAL property).

#### 4.10.3.25 - (float) volume [read], [write], [nonatomic], [assign]

Volume (alias to gain).

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

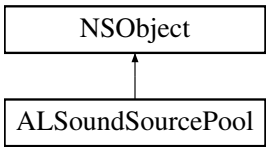
- ALSoundSource.h

## 4.11 ALSoundSourcePool Class Reference

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

`#import <ALSoundSourcePool.h>`

Inheritance diagram for ALSoundSourcePool:




### Instance Methods

- (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.*

### Class Methods

- (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>).*

## 4.11.1 Detailed Description

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

## 4.11.2 Method Documentation

#### 4.11.2.1 - (void) addSource: (id<ALSoundSource>) *source*

Add a source to this pool.

**Parameters**

| | |
|---|---|
| *source* | The source to add. |

#### 4.11.2.2 - (id< ALSoundSource >) getFreeSource: (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**

| | |
|---|---|
| *attemptToInterrupt* | If TRUE, attempt to interrupt sources to free them for use. |

**Returns**

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

#### 4.11.2.3 + (id) pool

Make a new pool.

**Returns**

A new pool.

#### 4.11.2.4 - (void) removeSource: (id<ALSoundSource>) *source*

Remove a source from this pool.

**Parameters**

| | |
|---|---|
| *source* | The source to remove. |

## 4.11.3 Member Data Documentation

#### 4.11.3.1 - (NSMutableArray*) sources [protected]

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

### 4.11.4 Property Documentation

#### 4.11.4.1 - (NSArray*) sources [read], [nonatomic], [retain]

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

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

- ALSoundSourcePool.h
- ALSoundSourcePool.m

## 4.12 ALSoundSourcePool(Private) Category Reference

Private interface to SoundSourcePool.

### Instance Methods

- (void) - moveToHead:
  *Move a source to the head of the list.*

### 4.12.1 Detailed Description

Private interface to SoundSourcePool.

### 4.12.2 Method Documentation

#### 4.12.2.1 - (void) moveToHead: (int) *index*

Move a source to the head of the list.

**Parameters**

| | |
|---|---|
| *index* | the index of the source to move. |

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

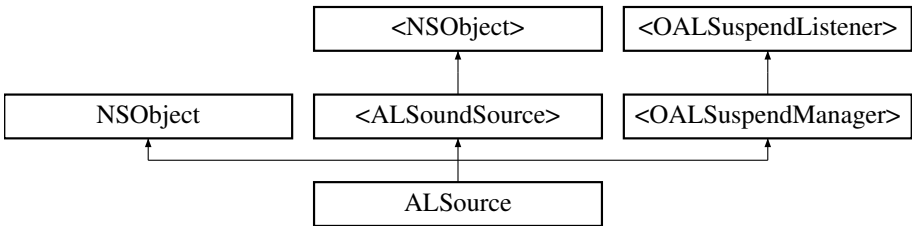
- ALSoundSourcePool.m

## 4.13 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:




## Instance Methods

- (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.*
- (void) - registerNotification:callback:userData:

  *Register to receive notifications about an event on this source.*
- (void) - unregisterNotification:

  *Unregister notifications for a notification type on this source.*
- (void) - unregisterAllNotifications

  *Unregister all notifications for this source.*

## Class Methods

- (id) + source

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

  *Create a new source on the specified context.*

## Protected Attributes

- bool **interruptible**
- float **gain**
- bool **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.*

## 4.13.1 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.

## 4.13.2 Method Documentation

### 4.13.2.1 - (id) initOnContext: (ALContext*) *context*

Initialize a new source on the specified context.

**Parameters**

| | |
|---|---|
| *context* | the context to create the source on. |

**Returns**

A new source.

### 4.13.2.2 - (id< ALSoundSource >) play

Play the currently attached buffer.

**Returns**

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

#### 4.13.2.3 - (bool) queueBuffer: (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.

#### 4.13.2.4 - (bool) queueBuffer: (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.

#### 4.13.2.5 - (bool) queueBuffers: (NSArray*) *buffers*

Add buffers to the buffer queue.

**Parameters**

| | |
|---|---|
| *buffers* | the buffers to add to the queue. |

**Returns**

TRUE if the operation was successful.

#### 4.13.2.6 - (bool) queueBuffers: (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.

#### 4.13.2.7 - (void) registerNotification: (ALuint) *notificationID* callback:(OALSourceNotificationCallback) *callback* userData:(void*) *userData*

Register to receive notifications about an event on this source.

(iOS 5.0+)

The following notification types are recognized: AL_SOURCE_STATE - Sent when a source's state changes. AL_BUFFERS_PROCESSED - Sent when all buffers have been processed. AL_QUEUE_HAS_LOOPED - Sent when a looping source has looped to it's start point.

**Parameters**

| | |
|---|---|
| *notificationID* | The kind of notification to be informed of (see above). |
| *callback* | The block to call for notification. |
| *userData* | a pointer that will be passed to the callback. |

#### 4.13.2.8 + (id) source

Create a new source.

**Returns**

A new source.

#### 4.13.2.9 + (id) sourceOnContext: (**ALContext***) *context*

Create a new source on the specified context.

**Parameters**

| | |
|---|---|
| *context* | the context to create the source on. |

**Returns**

A new source.

#### 4.13.2.10 - (bool) unqueueBuffer: (**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.

#### 4.13.2.11 - (bool) unqueueBuffers: (NSArray*) *buffers*

Remove buffers from the buffer queue.

**Parameters**

| | |
|---|---|
| *buffers* | the buffers to remove from the queue. |

**Returns**

TRUE if the operation was successful.

#### 4.13.2.12 - (void) unregisterAllNotifications

Unregister all notifications for this source.

(iOS 5.0+)

#### 4.13.2.13 - (void) unregisterNotification: (ALuint) *notificationID*

Unregister notifications for a notification type on this source.

(iOS 5.0+)

**Parameters**

| | |
|---|---|
| *notificationID* | The kind of notification to remove. |

### 4.13.3 Member Data Documentation

#### 4.13.3.1 - (bool) abortPlaybackResume [protected]

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

#### 4.13.3.2 - (OALAction*) gainAction [protected]

Current action operating on the gain control.

#### 4.13.3.3 - (OALAction*) panAction [protected]

Current action operating on the pan control.

#### 4.13.3.4 - (OALAction*) pitchAction [protected]

Current action operating on the pitch control.

#### 4.13.3.5 - (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.

#### 4.13.3.6 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

### 4.13.4 Property Documentation

#### 4.13.4.1 - (ALBuffer *) buffer [read], [write], [nonatomic], [retain]

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

#### 4.13.4.2 - (int) buffersProcessed [read], [nonatomic], [assign]

How many of these buffers have been processed during playback.

#### 4.13.4.3 - (int) buffersQueued [read], [nonatomic], [assign]

How many buffers this source has queued.

#### 4.13.4.4 - (ALContext *) context [read], [nonatomic], [retain]

The context this source was opened on.

#### 4.13.4.5 - (float) offsetInBytes [read], [write], [nonatomic], [assign]

The offset into the current buffer (in bytes).

#### 4.13.4.6 - (float) offsetInSamples [read], [write], [nonatomic], [assign]

The offset into the current buffer (in samples).

#### 4.13.4.7 - (float) offsetInSeconds [read], [write], [nonatomic], [assign]

The offset into the current buffer (in seconds).

#### 4.13.4.8 - (ALuint) sourceId [read], [nonatomic], [assign]

OpenAL's ID for this source.

#### 4.13.4.9 - (int) state [read], [write], [nonatomic], [assign]

The state of this source.

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

- ALSource.h
- ALSource.m

## 4.14 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.*

### 4.14.1 Detailed Description

Represents a 3-dimensional vector for certain ObjectAL properties.

Properties are the same as for ALPoint.

### 4.14.2 Member Data Documentation

#### 4.14.2.1 float ALVector::x

The "X" coordinate.

#### 4.14.2.2 float ALVector::y

The "Y" coordinate.

#### 4.14.2.3 float ALVector::z

The "Z" coordinate.

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

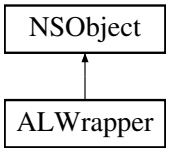
- ALTypes.h

## 4.15 ALWrapper Class Reference

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

`#import <ALWrapper.h>`

Inheritance diagram for ALWrapper:



### Class Methods

- (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.*
- (bool) + 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.*
- (bool) + setRenderingQuality:

  *Set the rendering quality.*
- (ALint) + getRenderingQuality

  *Get the rendering quality.*
- (bool) + addNotification:onSource:callback:userData:

  *Add a notification callback to a source.*
- (bool) + removeNotification:onSource:callback:userData:

  *Remove a notification callback from a source.*

### 4.15.1 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.

### 4.15.2 Method Documentation

#### 4.15.2.1 + (bool) addNotification: (ALuint) *notificationID* onSource:(ALuint) *source* callback:(alSourceNotificationProc) *callback* userData:(void∗) *userData*

Add a notification callback to a source.

The following notification types are recognized: AL_SOURCE_STATE - Sent when a source's state changes. AL_-BUFFERS_PROCESSED - Sent when all buffers have been processed. AL_QUEUE_HAS_LOOPED - Sent when a looping source has looped to it's start point.

**Parameters**

| | |
|---|---|
| *notificationID* | The kind of notification to be informed of (see above). |
| *source* | The source ID. |
| *callback* | The function to call for notification. |
| *userData* | a pointer that will be passed to the callback. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.2 + (bool) asaGetListenerb: (ALuint) *property*

Read a boolean ASA property from a listener.

**Parameters**

| | |
|---|---|
| *property* | The property to read. |

**Returns**

The property's value.

#### 4.15.2.3 + (ALfloat) asaGetListenerf: (ALuint) *property*

Read a floating point ASA property from a listener.

**Parameters**

| | |
|---|---|
| *property* | The property to read. |

**Returns**

The property's value.

#### 4.15.2.4 + (ALint) asaGetListeneri: (ALuint) *property*

Read an integer ASA property from a listener.

**Parameters**

| | |
|---|---|
| *property* | The property to read. |

**Returns**

The property's value.

#### 4.15.2.5 + (bool) asaGetSourceb: (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.

#### 4.15.2.6 + (ALfloat) asaGetSourcef: (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.

#### 4.15.2.7 + (ALint) asaGetSourcei: (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.

#### 4.15.2.8 + (bool) asaListenerb: (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.

#### 4.15.2.9 + (bool) asaListenerf: (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.

#### 4.15.2.10 + (bool) asaListeneri: (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.

#### 4.15.2.11 + (bool) asaSourceb: (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.

#### 4.15.2.12 + (bool) asaSourcef: (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.

#### 4.15.2.13 + (bool) asaSourcei: (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.

#### 4.15.2.14 + (bool) buffer3f: (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.

#### 4.15.2.15 + (bool) buffer3i: (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.

#### 4.15.2.16 + (bool) bufferData: (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. |

#### 4.15.2.17 + (bool) bufferDataStatic: (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. |

#### 4.15.2.18 + (bool) bufferf: (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.

#### 4.15.2.19 + (bool) bufferfv: (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.

#### 4.15.2.20 + (bool) bufferi: (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.

#### 4.15.2.21 + (bool) bufferiv: (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.

#### 4.15.2.22 + (bool) captureSamples: (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. |

#### 4.15.2.23 + (bool) closeCaptureDevice: (ALCdevice*) *device*

Close a capture device.

**Parameters**

| | |
|---|---|
| *device* | The device to close. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.24 + (bool) closeDevice: (ALCdevice*) *device*

Close a device.

**Parameters**

| | |
|---|---|
| *device* | The device to close. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.25 + (ALCcontext ∗) createContext: (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.

#### 4.15.2.26 + (bool) deleteBuffer: (ALuint) *bufferId*

Delete a buffer.

**Parameters**

| | |
|---|---|
| *bufferId* | The ID of the buffer to delete. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.27 + (bool) deleteBuffers: (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.

#### 4.15.2.28 + (bool) deleteSource: (ALuint) *sourceId*

Delete a source.

**Parameters**

| | |
|---|---|
| *sourceId* | The ID of the source to delete. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.29 + (bool) deleteSources: (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.

#### 4.15.2.30 + (void) destroyContext: (ALCcontext*) *context*

Destroy a context.

**Parameters**

| | |
|---|---|
| *context* | The contect to destroy. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.31 + (bool) disable: (ALenum) *capability*

Disable a capability.

**Parameters**

| | |
|---|---|
| *capability* | The capability to disable. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.32 + (bool) distanceModel: (ALenum) *value*

Set the distance model.

**Parameters**

| | |
|---|---|
| *value* | The value to set. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.33 + (bool) dopplerFactor: (ALfloat) *value*

Set the doppler factor.

**Parameters**

| | |
|---|---|
| *value* | The value to set. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.34 + (bool) enable: (ALenum) *capability*

Enable a capability.

**Parameters**

| | |
|---|---|
| *capability* | The capability to enable. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.35 + (ALuint) genBuffer

Generate a buffer.

**Returns**

the buffer's ID.

#### 4.15.2.36 + (bool) genBuffers: (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.

#### 4.15.2.37 + (ALuint) genSource

Generate a source.

**Returns**

the source's ID.

#### 4.15.2.38 + (bool) genSources: (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.

#### 4.15.2.39 + (bool) getBoolean: (ALenum) *parameter*

Get a boolean parameter.

**Parameters**

| | |
|---|---|
| *parameter* | The parameter to fetch. |

**Returns**

The parameter's current value.

#### 4.15.2.40 + (bool) getBooleanv: (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.

#### 4.15.2.41 + (bool) getBuffer3f: (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.

#### 4.15.2.42 + (bool) getBuffer3i: (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.

#### 4.15.2.43 + (ALfloat) getBufferf: (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.

#### 4.15.2.44 + (bool) getBufferfv: (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.

#### 4.15.2.45 + (ALint) getBufferi: (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.

#### 4.15.2.46 + (bool) getBufferiv: (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.

#### 4.15.2.47 + (ALCdevice *) getContextsDevice: (ALCcontext*) *context*

Get the device a context was created from.

**Parameters**

| | |
|---|---|
| *context* | The context. |

**Returns**

The context's device.

#### 4.15.2.48 + (ALCdevice *) getContextsDevice: (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.

#### 4.15.2.49 + (ALCcontext *) getCurrentContext

Get the current context.

**Returns**

the current context.

#### 4.15.2.50 + (ALdouble) getDouble: (ALenum) *parameter*

Get a double parameter.

**Parameters**

| | |
|---|---|
| *parameter* | The parameter to fetch. |

**Returns**

The parameter's current value.

#### 4.15.2.51 + (bool) getDoublev: (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.

#### 4.15.2.52 + (ALenum) getEnumValue: (NSString*) *enumName*

Get the enum value from its name.

**Parameters**

| | |
|---|---|
| *enumName* | the name of the enum value. |

**Returns**

The enum value.

#### 4.15.2.53 + (ALenum) getEnumValue: (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.

#### 4.15.2.54 + (ALfloat) getFloat: (ALenum) *parameter*

Get a float parameter.

**Parameters**

| | |
|---|---|
| *parameter* | The parameter to fetch. |

**Returns**

The parameter's current value.

#### 4.15.2.55 + (bool) getFloatv: (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.

#### 4.15.2.56 + (ALint) getInteger: (ALenum) *parameter*

Get an integer parameter.

**Parameters**

| | |
|---|---|
| *parameter* | The parameter to fetch. |

**Returns**

The parameter's current value.

#### 4.15.2.57 + (ALint) getInteger: (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.

#### 4.15.2.58 + (bool) getIntegerv: (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.

#### 4.15.2.59 + (bool) getIntegerv: (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.

#### 4.15.2.60 + (bool) getListener3f: (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.

#### 4.15.2.61 + (bool) getListener3i: (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.

#### 4.15.2.62 + (ALfloat) getListenerf: (ALenum) *parameter*

Read a float paramter from the current listener.

**Parameters**

| | |
|---|---|
| *parameter* | The parameter to read. |

**Returns**

The parameter's value.

#### 4.15.2.63 + (bool) getListenerfv: (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.

#### 4.15.2.64 + (ALint) getListeneri: (ALenum) *parameter*

Read an integer paramter from the current listener.

**Parameters**

| | |
|---|---|
| *parameter* | The parameter to read. |

**Returns**

The parameter's value.

#### 4.15.2.65 + (bool) getListeneriv: (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.

#### 4.15.2.66 + (ALdouble) getMixerOutputDataRate

Get the iOS device's mixer outut data rate.

**Returns**

The mixer output data rate.

#### 4.15.2.67 + (NSArray *) getNullSeparatedStringList: (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∗).

#### 4.15.2.68 + (NSArray ∗) getNullSeparatedStringList: (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∗).

#### 4.15.2.69 + (void ∗) getProcAddress: (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.

#### 4.15.2.70 + (void ∗) getProcAddress: (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.

#### 4.15.2.71 + (ALint) getRenderingQuality

Get the rendering quality.

**Returns**

The current rendering quality.

#### 4.15.2.72 + (bool) getSource3f: (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.

#### 4.15.2.73 + (bool) getSource3i: (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.

#### 4.15.2.74 + (ALfloat) getSourcef: (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.

#### 4.15.2.75 + (bool) getSourcefv: (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.

#### 4.15.2.76 + (ALint) getSourcei: (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.

#### 4.15.2.77 + (bool) getSourceiv: (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.

#### 4.15.2.78 + (NSArray ∗) getSpaceSeparatedStringList: (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∗).

#### 4.15.2.79 + (NSArray ∗) getSpaceSeparatedStringList: (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∗).

#### 4.15.2.80 + (NSString ∗) getString: (ALenum) *parameter*

Get a string parameter.

**Parameters**

| | |
|---|---|
| *parameter* | The parameter to fetch. |

**Returns**

The parameter's current value.

#### 4.15.2.81 + (NSString ∗) getString: (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.

#### 4.15.2.82 + (bool) isBuffer: (ALuint) *bufferId*

Check if the speified buffer exists.

**Parameters**

| | |
|---|---|
| *bufferId* | The ID of the buffer to query. |

**Returns**

TRUE if the buffer exists.

#### 4.15.2.83 + (bool) isEnabled: (ALenum) *capability*

Check if a capability is enabled.

**Parameters**

| | |
|---|---|
| *capability* | The capability to check. |

**Returns**

TRUE if the capability is enabled.

#### 4.15.2.84 + (bool) isExtensionPresent: (NSString∗) *extensionName*

Check if an extension is present.

**Parameters**

| | |
|---|---|
| *extensionName* | The name of the extension to check. |

**Returns**

TRUE if the extension is present.

#### 4.15.2.85 + (bool) isExtensionPresent: (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.

#### 4.15.2.86 + (bool) isSource: (ALuint) *sourceId*

Check if the speified source exists.

**Parameters**

| | |
|---|---|
| *sourceId* | The ID of the source to query. |

**Returns**

TRUE if the buffer exists.

#### 4.15.2.87 + (bool) listener3f: (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.

#### 4.15.2.88 + (bool) listener3i: (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.

#### 4.15.2.89 + (bool) listenerf: (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.

#### 4.15.2.90 + (bool) listenerfv: (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.

#### 4.15.2.91 + (bool) listeneri: (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.

#### 4.15.2.92 + (bool) listeneriv: (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.

#### 4.15.2.93 + (bool) makeContextCurrent: (ALCcontext∗) *context*

Make the specified context the current context.

**Parameters**

| | |
|---|---|
| *context* | the context to make current. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.94 + (bool) makeContextCurrent: (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. |
| *deviceReference* | The device reference to use when logging an error. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.95 + (ALCdevice ∗) openCaptureDevice: (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.

#### 4.15.2.96 + (ALCdevice ∗) openDevice: (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.

#### 4.15.2.97 + (void) processContext: (ALCcontext∗) *context*

Process a context.

**Parameters**

| | |
|---|---|
| *context* | The contect to process. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.98 + (bool) removeNotification: (ALuint) *notificationID* onSource:(ALuint) *source* callback:(alSourceNotificationProc) *callback* userData:(void∗) *userData*

Remove a notification callback from a source.

**Parameters**

| | |
|---|---|
| *notificationID* | The kind of notification (see addNotification). |
| *source* | The source ID. |
| *callback* | The function to be unregistered. |
| *userData* | not actually needed but part of the API. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.99 + (bool) setMixerOutputDataRate: (ALdouble) *frequency*

Set the iOS device's mixer output data rate.

**Parameters**

| | |
|---|---|
| *frequency* | The output data rate (frequency). |

#### 4.15.2.100 + (bool) setRenderingQuality: (ALint) *quality*

Set the rendering quality.

The value may be one of:

ALC_MAC_OSX_SPATIAL_RENDERING_QUALITY_HIGH ALC_MAC_OSX_SPATIAL_RENDERING_QUALITY-_LOW ALC_IPHONE_SPATIAL_RENDERING_QUALITY_HEADPHONES (iOS only)

**Parameters**

| | |
|---|---|
| *quality* | The quality. |

#### 4.15.2.101 + (bool) source3f: (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.

#### 4.15.2.102 + (bool) source3i: (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.

#### 4.15.2.103 + (bool) sourcef: (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.

#### 4.15.2.104 + (bool) sourcefv: (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.

#### 4.15.2.105 + (bool) sourcei: (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.

#### 4.15.2.106 + (bool) sourceiv: (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.

#### 4.15.2.107 + (bool) sourcePause: (ALuint) *sourceId*

Pause a source.

**Parameters**

| | |
|---|---|
| *sourceId* | The ID of the source to pause. |

**Returns**

TRUE if the operation is successful.

#### 4.15.2.108 + (bool) sourcePausev: (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.

#### 4.15.2.109 + (bool) sourcePlay: (ALuint) *sourceId*

Play a source.

**Parameters**

| | |
|---|---|
| *sourceId* | The ID of the source to play. |

**Returns**

TRUE if the buffer exists.

#### 4.15.2.110 + (bool) sourcePlayv: (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.

#### 4.15.2.111 + (bool) sourceQueueBuffers: (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.

#### 4.15.2.112 + (bool) sourceRewind: (ALuint) *sourceId*

Rewind a source.

**Parameters**

| | |
|---|---|
| *sourceId* | The ID of the source to rewind. |

**Returns**

TRUE if the operation is successful.

#### 4.15.2.113 + (bool) sourceRewindv: (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.

#### 4.15.2.114 + (bool) sourceStop: (ALuint) *sourceId*

Stop a source.

**Parameters**

| | |
|---|---|
| *sourceId* | The ID of the source to stop. |

**Returns**

TRUE if the operation is successful.

#### 4.15.2.115 + (bool) sourceStopv: (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.

#### 4.15.2.116 + (bool) sourceUnqueueBuffers: (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.

#### 4.15.2.117 + (bool) speedOfSound: (ALfloat) *value*

Set the speed of sound.

**Parameters**

| | |
|---|---|
| *value* | The value to set. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.118 + (bool) startCapture: (ALCdevice*) *device*

Start capturing audio data.

**Parameters**

| | |
|---|---|
| *device* | The device to capture on. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.119 + (bool) stopCapture: (ALCdevice*) *device*

Stop capturing audio data.

**Parameters**

| | |
|---|---|
| *device* | The device capturing audio data. |

**Returns**

TRUE if the operation was successful.

#### 4.15.2.120 + (void) suspendContext: (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

## 4.16 ALWrapper(Private) Category Reference

Private interface to ALWrapper.

### Instance Methods

- (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.*

### Class Methods

- (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.*

### 4.16.1 Detailed Description

Private interface to ALWrapper.

### 4.16.2 Method Documentation

#### 4.16.2.1 - (BOOL) checkIfSuccessful (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).

#### 4.16.2.2 - (BOOL) checkIfSuccessfulWithDevice (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).

#### 4.16.2.3 + (NSArray*) decodeNullSeparatedStringList: (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.

#### 4.16.2.4 + (NSArray*) decodeSpaceSeparatedStringList: (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 category was generated from the following file:

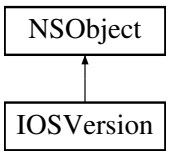
- ALWrapper.m

## 4.17 IOSVersion Class Reference

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

`#import <IOSVersion.h>`

Inheritance diagram for IOSVersion:




### Protected Member Functions

- () - SYNTHESIZE_SINGLETON_FOR_CLASS_HEADER

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

### Properties

- float version

  *Holds the current iOS version.*

### 4.17.1 Detailed Description

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

### 4.17.2 Method Documentation

#### 4.17.2.1 - IOSVersion: (IOSVersion)

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

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

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

### 4.17.3 Property Documentation

#### 4.17.3.1 - (float) version `[read],[nonatomic],[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

## 4.18 NSMutableArray(WeakReferences) Category Reference

Adds to NSMutableArray the ability to create an array that keeps weak references.

`#import <NSMutableArray+WeakReferences.h>`

### Class Methods

- (id) + mutableArrayUsingWeakReferences

  *Create an NSMutableArray that uses weak references.*

- (id) + mutableArrayUsingWeakReferencesWithCapacity:

  *Create an NSMutableArray that uses weak references.*
- (id) + newMutableArrayUsingWeakReferences

  *Create an NSMutableArray that uses weak references (no pending autorelease).*
- (id) + newMutableArrayUsingWeakReferencesWithCapacity:

  *Create an NSMutableArray that uses weak references (no pending autorelease).*

### 4.18.1 Detailed Description

Adds to NSMutableArray the ability to create an array that keeps weak references.

### 4.18.2 Method Documentation

#### 4.18.2.1 + (id) mutableArrayUsingWeakReferences

Create an NSMutableArray that uses weak references.

#### 4.18.2.2 + (id) mutableArrayUsingWeakReferencesWithCapacity: (NSUInteger) *capacity*

Create an NSMutableArray that uses weak references.

**Parameters**

| | |
|---|---|
| *capacity* | The initial capacity of the array. |

#### 4.18.2.3 + (id) newMutableArrayUsingWeakReferences

Create an NSMutableArray that uses weak references (no pending autorelease).

#### 4.18.2.4 + (id) newMutableArrayUsingWeakReferencesWithCapacity: (NSUInteger) *capacity*

Create an NSMutableArray that uses weak references (no pending autorelease).

**Parameters**

| | |
|---|---|
| *capacity* | The initial capacity of the array. |

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

- NSMutableArray+WeakReferences.h
- NSMutableArray+WeakReferences.m

## 4.19 NSMutableDictionary(WeakReferences) Category Reference

### Class Methods

- (NSMutableDictionary ∗) + mutableDictionaryUsingWeakReferences

  *Create an NSMutableDictionary that uses weak references.*
- (NSMutableDictionary ∗) + mutableDictionaryUsingWeakReferencesWithCapacity:

  *Create an NSMutableDictionary that uses weak references.*

- (NSMutableDictionary ∗) + newMutableDictionaryUsingWeakReferences

  *Create an NSMutableDictionary that uses weak references (no pending autorelease).*
- (NSMutableDictionary ∗) + newMutableDictionaryUsingWeakReferencesWithCapacity:

  *Create an NSMutableDictionary that uses weak references (no pending autorelease).*

### 4.19.1 Method Documentation

#### 4.19.1.1 + (NSMutableDictionary ∗) mutableDictionaryUsingWeakReferences

Create an NSMutableDictionary that uses weak references.

#### 4.19.1.2 + (NSMutableDictionary ∗) mutableDictionaryUsingWeakReferencesWithCapacity: (NSUInteger) *capacity*

Create an NSMutableDictionary that uses weak references.

**Parameters**

| | |
|---|---|
| *capacity* | The initial capacity of the dictionary. |

#### 4.19.1.3 + (NSMutableDictionary ∗) newMutableDictionaryUsingWeakReferences

Create an NSMutableDictionary that uses weak references (no pending autorelease).

#### 4.19.1.4 + (NSMutableDictionary ∗) newMutableDictionaryUsingWeakReferencesWithCapacity: (NSUInteger) *capacity*

Create an NSMutableDictionary that uses weak references (no pending autorelease).

**Parameters**

| | |
|---|---|
| *capacity* | The initial capacity of the dictionary. |

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

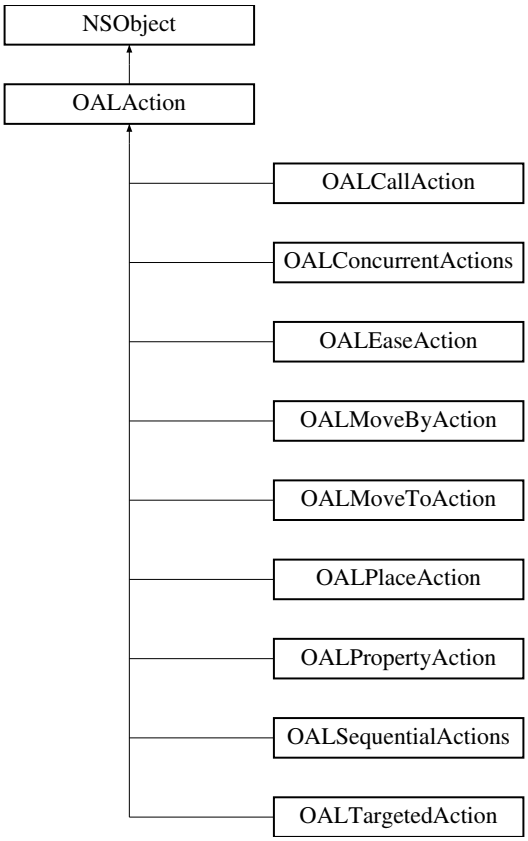
- NSMutableDictionary+WeakReferences.h
- NSMutableDictionary+WeakReferences.m

## 4.20 OALAction Class Reference

Represents an action that can be performed on an object.

`#import <OALAction.h>`

Inheritance diagram for OALAction:




## Instance Methods

- (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.*

### 4.20.1 Detailed Description

Represents an action that can be performed on an object.

### 4.20.2 Method Documentation

#### 4.20.2.1 - (id) initWithDuration: (float) *duration*

Initialize an action.

**Parameters**

| | |
|---|---|
| *duration* | The duration of this action in seconds. |

**Returns**

The initialized action.

#### 4.20.2.2 - (void) prepareWithTarget: (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. |

#### 4.20.2.3 - (void) runWithTarget: (id) *target*

Run this action on a target.

**Parameters**

| | |
|---|---|
| *target* | The target to run the action on. |

#### 4.20.2.4 - (void) startAction

Called by runWithTarget to start the action running.

#### 4.20.2.5 - (void) stopAction

Stop this action.

#### 4.20.2.6 - (void) updateCompletion: (float) *proportionComplete*

Called by OALActionManager to update this action's progress.

**Parameters**

| | |
|---|---|
| *proportion-Complete* | The proportion of this action's duration that has elapsed. |

### 4.20.3 Member Data Documentation

#### 4.20.3.1 - (bool) runningInManager_ [protected]

If TRUE, this action is running via OALActionManager.

### 4.20.4 Property Documentation

#### 4.20.4.1 - (float) duration [read], [nonatomic], [assign]

The duration of the action, in seconds.

#### 4.20.4.2 - (float) elapsed [read], [write], [nonatomic], [assign]

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

#### 4.20.4.3 - (bool) running [read], [nonatomic], [assign]

If true, the action is currently running.

#### 4.20.4.4 - (id) target [read], [nonatomic], [assign]

The target to perform the action on.

WEAK REFERENCE.

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

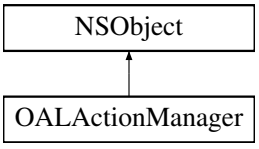
- OALAction.h
- OALAction.m

## 4.21 OALActionManager Class Reference

Manages all ObjectAL actions.

`#import <OALActionManager.h>`

Inheritance diagram for OALActionManager:



### Instance Methods

- (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.*

## 4.21.1 Detailed Description

Manages all ObjectAL actions.

## 4.21.2 Method Documentation

### 4.21.2.1 - (void) stopAllActions

Stops ALL running actions on ALL targets.

### 4.21.2.2 - OALActionManager: (OALActionManager)

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 - (NSMutableArray*) actionsToAdd [protected]

All actions that are to be added on the next pass (OALAction*)

### 4.21.3.2 - (NSMutableArray*) actionsToRemove [protected]

All actions that are to be removed on the next pass (OALAction*)

#### 4.21.3.3 - (uint64_t) lastTimestamp [protected]

The last time that was recorded.

#### 4.21.3.4 - (NSTimer*) stepTimer [protected]

The timer which we use to update the actions.

#### 4.21.3.5 - (NSMutableArray*) targetActions [protected]

Parallel array to "targets", maintaining a list of all actions per target (NSMutableArray*)

#### 4.21.3.6 - (NSMutableArray*) targets [protected]

All targets that have actions running on them (id).

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

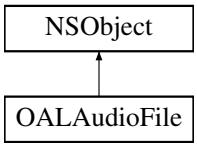
- OALActionManager.h
- OALActionManager.m

## 4.22 OALAudioFile Class Reference

Maintains an open audio file and allows loading data from that file into new ALBuffer objects.

`#import <OALAudioFile.h>`

Inheritance diagram for OALAudioFile:




### Instance Methods

- (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.*

### Class Methods

- (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).*

## 4.22.1 Detailed Description

Maintains an open audio file and allows loading data from that file into new ALBuffer objects.

## 4.22.2 Method Documentation

#### 4.22.2.1 - (void *) audioDataWithStartFrame: (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.

#### 4.22.2.2 + (ALBuffer *) bufferFromUrl: (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.

#### 4.22.2.3 - (ALBuffer *) bufferNamed: (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.

#### 4.22.2.4 + (OALAudioFile *) fileWithUrl: (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.

#### 4.22.2.5 - (id) initWithUrl: (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.

### 4.22.3 Member Data Documentation

#### 4.22.3.1 - (ExtAudioFileRef) fileHandle [protected]

The OS specific file handle.

#### 4.22.3.2 - (UInt32) originalChannelsPerFrame [protected]

The actual number of channels in the audio data if not reducing to mono.

#### 4.22.3.3 - (AudioStreamBasicDescription) streamDescription [protected]

A description of the audio data in this file.

### 4.22.4 Property Documentation

#### 4.22.4.1 - (bool) reduceToMono [read], [write], [nonatomic], [assign]

If YES, reduce any stereo data to mono (stereo samples don't support panning or positional audio).

#### 4.22.4.2 - (AudioStreamBasicDescription *) streamDescription [read], [nonatomic], [assign]

A description of the audio data in this file.

#### 4.22.4.3 - (SInt64) totalFrames [read], [nonatomic], [assign]

The total number of audio frames in this file.

#### 4.22.4.4 - (NSURL *) url [read], [nonatomic], [retain]

The URL of the audio file.

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

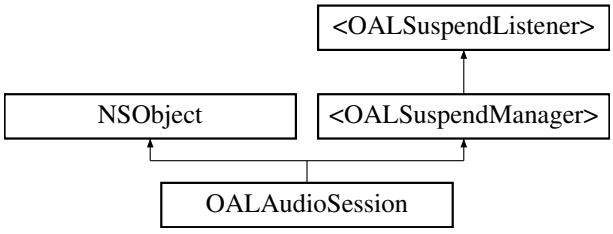
- OALAudioFile.h
- OALAudioFile.m

## 4.23 OALAudioSession Class Reference

Handles the audio session and interrupts.

`#import <OALAudioSession.h>`

Inheritance diagram for OALAudioSession:




### Instance Methods

- (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.*
- 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).*

#### 4.23.1 Detailed Description

Handles the audio session and interrupts.

## 4.23.2 Method Documentation

### 4.23.2.1 - (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!

### 4.23.2.2 - OALAudioSession: (OALAudioSession)

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

**- (OALAudioSupport*) sharedInstance**: Get the shared singleton instance.

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

## 4.23.3 Member Data Documentation

### 4.23.3.1 - (bool) audioSessionWasActive [protected]

If true, the audio session was active when the interrupt occurred.

### 4.23.3.2 - (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.

### 4.23.3.3 - (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.

### 4.23.3.4 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

## 4.23.4 Property Documentation

### 4.23.4.1 - (bool) allowIpod [read], [write], [nonatomic], [assign]

If YES, allow ipod music to continue playing (NOT SUPPORTED ON THE SIMULATOR).

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

#### 4.23.4.2 - (NSString*) audioRoute [read], [nonatomic], [retain]

Check what hardware route the audio is taking, such as "Speaker" or "Headphone" (not supported on the simulator).

#### 4.23.4.3 - (bool) audioSessionActive [read], [write], [nonatomic], [assign]

If true, the audio session is active.

#### 4.23.4.4 - (NSString *) audioSessionCategory [read], [write], [nonatomic], [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

#### 4.23.4.5 - (bool) handleInterruptions [read], [write], [nonatomic], [assign]

If true, automatically handle interruptions.

Default value: YES

#### 4.23.4.6 - (bool) hardwareMuted [read], [nonatomic], [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!

#### 4.23.4.7 - (float) hardwareVolume [read], [nonatomic], [assign]

Get the device's final hardware output volume, as controlled by the volume button on the side of the device.

#### 4.23.4.8 - (bool) honorSilentSwitch [read], [write], [nonatomic], [assign]

If true, mute when backgrounded, screen locked, or the ringer switch is turned off (NOT SUPPORTED ON THE SIMULATOR).

Default value: YES

#### 4.23.4.9 - (bool) ipodDucking [read], [write], [nonatomic], [assign]

If YES, ipod music will duck (lower in volume) when the audio session activates.

Default value: NO

#### 4.23.4.10 - (bool) ipodPlaying [read], [nonatomic], [assign]

If true, another application (usually iPod) is playing music.

#### 4.23.4.11 - (float) preferredIOBufferDuration [read],[write],[nonatomic],[assign]

The preferred I/O buffer duration, in seconds.

Lower values give less playback latencey, but use more CPU.

#### 4.23.4.12 - (bool) useHardwareIfAvailable [read],[write],[nonatomic],[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:

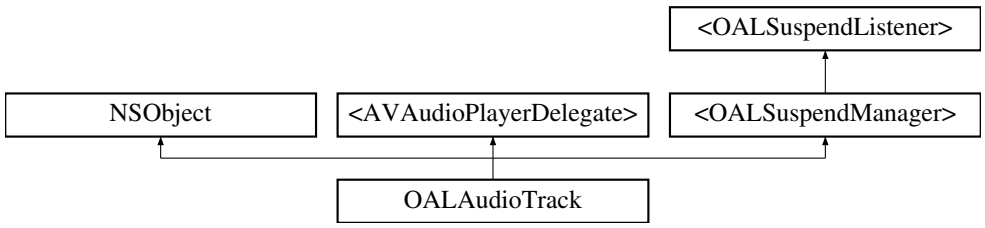
- OALAudioSession.h
- OALAudioSession.m

## 4.24 OALAudioTrack Class Reference

Plays an audio track via AVAudioPlayer.

`#import <OALAudioTrack.h>`

Inheritance diagram for OALAudioTrack:




### Instance Methods

- (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.*

### Class Methods

- (id) + track

  *Create a new audio track.*

### Protected Attributes

- bool **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.*

### 4.24.1 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).

### 4.24.2 Method Documentation

#### 4.24.2.1 - (float) averagePowerForChannel: (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.

#### 4.24.2.2 - (void) clear

Unload and clear all audio data, stop playing, and stop all operations.

#### 4.24.2.3 - (void) fadeTo: (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. |

#### 4.24.2.4 - (void) panTo: (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. |

#### 4.24.2.5 - (float) peakPowerForChannel: (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.

#### 4.24.2.6 - (bool) play

Play the currently loaded audio track.

**Returns**

TRUE if the operation was successful.

#### 4.24.2.7 - (bool) playAfterTrack: (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.

#### 4.24.2.8 - (bool) playAfterTrack: (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.

#### 4.24.2.9 - (bool) playAtTime: (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.

#### 4.24.2.10 - (bool) playFile: (NSString∗) *path*

Play the contents of a file once.

**Parameters**

| | |
|---|---|
| *path* | The file containing the sound data. |

**Returns**

TRUE if the operation was successful.

#### 4.24.2.11 - (bool) playFile: (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.

#### 4.24.2.12 - (void) playFileAsync: (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. |

#### 4.24.2.13 - (void) playFileAsync: (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. |

#### 4.24.2.14 - (bool) playUrl: (NSURL∗) *url*

Play the contents of a URL once.

**Parameters**

| | |
|---|---|
| *url* | The URL containing the sound data. |

**Returns**

TRUE if the operation was successful.

#### 4.24.2.15 - (bool) playUrl: (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.

#### 4.24.2.16 - (void) playUrlAsync: (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. |

#### 4.24.2.17 - (void) playUrlAsync: (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. |

#### 4.24.2.18 - (bool) preloadFile: (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.

#### 4.24.2.19 - (bool) preloadFile: (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.

#### 4.24.2.20 - (bool) preloadFileAsync: (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.

#### 4.24.2.21 - (bool) preloadFileAsync: (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.

#### 4.24.2.22 - (bool) preloadUrl: (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.

#### 4.24.2.23 - (bool) preloadUrl: (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.

#### 4.24.2.24 - (bool) preloadUrlAsync: (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.

#### 4.24.2.25 - (bool) preloadUrlAsync: (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.

#### 4.24.2.26 - (void) stop

Stop playing and stop all operations.

#### 4.24.2.27 - (void) stopActions

Stop any internal fade or pan actions.

#### 4.24.2.28 - (void) stopFade

Stop the currently running fade operation, if any.

#### 4.24.2.29 - (void) stopPan

Stop the currently running pan operation, if any.

**Note:** This will have no effect on iOS versions prior to 4.0.

#### 4.24.2.30 + (id) track

Create a new audio track.

**Returns**

A new audio track.

#### 4.24.2.31 - (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.

### 4.24.3 Member Data Documentation

#### 4.24.3.1 - (OALAction*) gainAction [protected]

The current action being applied to gain.

#### 4.24.3.2 - (NSOperationQueue*) operationQueue [protected]

Operation queue for running asynchronous operations.

**Note:** Only one asynchronous operation is allowed at a time.

#### 4.24.3.3 - (OALAction*) panAction [protected]

The current action being applied to pan.

#### 4.24.3.4 - (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.

#### 4.24.3.5 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

### 4.24.4 Property Documentation

#### 4.24.4.1 - (bool) autoPreload [read], [write], [nonatomic], [assign]

If true, automatically preload again when playback stops.

#### 4.24.4.2 - (NSURL *) currentlyLoadedUrl [read], [nonatomic], [retain]

The URL of the currently loaded audio data.

#### 4.24.4.3 - (NSTimeInterval) currentTime [read], [write], [nonatomic], [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.

#### 4.24.4.4 - (id< AVAudioPlayerDelegate >) delegate [read], [write], [nonatomic], [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.

#### 4.24.4.5 - (NSTimeInterval) deviceCurrentTime [read], [nonatomic], [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.

#### 4.24.4.6 - (NSTimeInterval) duration [read], [nonatomic], [assign]

The duration, in seconds, of the currently loaded sound.

#### 4.24.4.7 - (float) gain [read], [write], [nonatomic], [assign]

The gain (volume) for playback (0.0 - 1.0, where 1.0 = no attenuation).

#### 4.24.4.8 - (bool) meteringEnabled [read], [write], [nonatomic], [assign]

If true, this track is recording metering data.

If true, metering is enabled.

#### 4.24.4.9 - (bool) muted [read], [write], [nonatomic], [assign]

If true, audio track is muted.

#### 4.24.4.10 - (NSUInteger) numberOfChannels [read], [nonatomic], [assign]

The number of channels in the currently loaded sound.

#### 4.24.4.11 - (NSInteger) numberOfLoops [read], [write], [nonatomic], [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".

#### 4.24.4.12 - (float) pan [read], [write], [nonatomic], [assign]

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

**Note:** This will have no effect on iOS versions prior to 4.0.

#### 4.24.4.13 - (bool) paused [read], [write], [nonatomic], [assign]

If true, pause playback.

#### 4.24.4.14 - (AVAudioPlayer *) player [read], [nonatomic], [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).

#### 4.24.4.15 - (bool) playing [read], [nonatomic], [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.

#### 4.24.4.16 - (bool) preloaded [read], [nonatomic], [assign]

If true, audio track is in preloaded state.

#### 4.24.4.17 - (float) volume [read], [write], [nonatomic], [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:

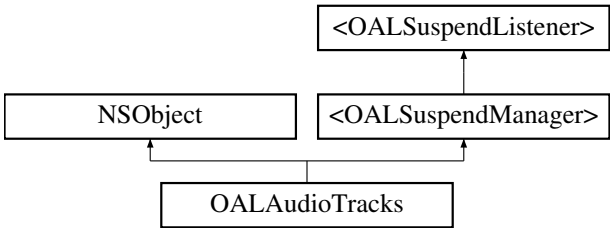
- OALAudioTrack.h
- OALAudioTrack.m

## 4.25 OALAudioTracks Class Reference

Keeps track of all AudioTrack objects.

`#import <OALAudioTracks.h>`

Inheritance diagram for OALAudioTracks:



### Instance Methods

- (void) - stopAllTracks

  *Stop playback on all audio tracks.*
- () - 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.*

## 4.25.1 Detailed Description

Keeps track of all AudioTrack objects.

## 4.25.2 Method Documentation

### 4.25.2.1 - (void) stopAllTracks

Stop playback on all audio tracks.

### 4.25.2.2 - OALAudioTracks: (OALAudioTracks)

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

**- (OALAudioTracks*) sharedInstance**: Get the shared singleton instance.

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

## 4.25.3 Member Data Documentation

### 4.25.3.1 - (NSTimer*) deviceTimePoller [protected]

Timer to poll deviceCurrentTime so that it doesn't get reset on a device.

### 4.25.3.2 - (OALSuspendHandler*) suspendHandler [protected]

Handles suspending and interrupting for this object.

#### 4.25.3.3 - (NSMutableArray*) tracks [protected]

All instantiated audio tracks.

### 4.25.4 Property Documentation

#### 4.25.4.1 - (bool) muted [read], [write], [nonatomic], [assign]

Mutes/unmutes all audio tracks.

#### 4.25.4.2 - (bool) paused [read], [write], [nonatomic], [assign]

Pauses/unpauses all audio tracks.

#### 4.25.4.3 - (NSArray*) tracks [read], [nonatomic], [retain]

All instantiated audio tracks.

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

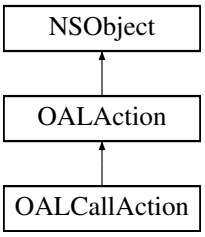
- OALAudioTracks.h
- OALAudioTracks.m

## 4.26 OALCallAction Class Reference

Calls a selector on a target.

`#import <OALUtilityActions.h>`

Inheritance diagram for OALCallAction:




### Instance Methods

- (id) - initWithCallTarget:selector:
  *Initialize an action.*
- (id) - initWithCallTarget:selector:withObject:
  *Initialize an action.*
- (id) - initWithCallTarget:selector:withObject:withObject:
  *Initialize an action.*

### Class Methods

- (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.*

### Additional Inherited Members

## 4.26.1 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.

## 4.26.2 Method Documentation

#### 4.26.2.1 + (id) actionWithCallTarget: (id) *callTarget* selector:(SEL) *selector*

Create an action.

**Parameters**

| | |
|---|---|
| *callTarget* | The target to call. |
| *selector* | The selector to invoke. |

**Returns**

A new action.

#### 4.26.2.2 + (id) actionWithCallTarget: (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.

#### 4.26.2.3 + (id) actionWithCallTarget: (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.

#### 4.26.2.4 - (id) initWithCallTarget: (id) *callTarget* selector:(SEL) *selector*

Initialize an action.

**Parameters**

| | |
|---|---|
| *callTarget* | The target to call. |
| *selector* | The selector to invoke. |

**Returns**

The initialized action.

#### 4.26.2.5 - (id) initWithCallTarget: (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.

#### 4.26.2.6 - (id) initWithCallTarget: (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.

### 4.26.3 Member Data Documentation

#### 4.26.3.1 - (id) callTarget_ [protected]

The target to call the selector on.

#### 4.26.3.2 - (int) numObjects_ [protected]

The number of parameters which will be passed to the selector.

#### 4.26.3.3 - (id) object1_ [protected]

The first object to pass to the selector, if any.

#### 4.26.3.4 - (id) object2_ [protected]

The second object to pass to the selector, if any.

#### 4.26.3.5 - (SEL) selector_ [protected]

The selector to invoke.

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

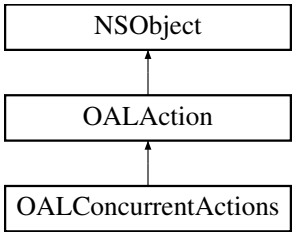
- OALUtilityActions.h
- OALUtilityActions.m

## 4.27 OALConcurrentActions Class Reference

A set of actions that get run concurrently.

`#import <OALUtilityActions.h>`

Inheritance diagram for OALConcurrentActions:



### Instance Methods

- (id) - initWithActions:

  *Initialize an action.*

### Class Methods

- (id) + actions:

  *Create an action.*
- (id) + actionsFromArray:

  *Create an action.*

### Properties

- NSMutableArray * actions

  *The actions which will be run.*

### Additional Inherited Members

## 4.27.1 Detailed Description

A set of actions that get run concurrently.

## 4.27.2 Method Documentation

#### 4.27.2.1 + (id) actions: (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.

#### 4.27.2.2 + (id) actionsFromArray: (NSArray*) *actions*

Create an action.

**Parameters**

| | |
|---|---|
| *actions* | The actions to run. |

**Returns**

A new set of concurrent actions.

#### 4.27.2.3 - (id) initWithActions: (NSArray*) *actions*

Initialize an action.

**Parameters**

| | |
|---|---|
| *actions* | The actions to run. |

**Returns**

The initialized set of concurrent actions.

### 4.27.3 Property Documentation

#### 4.27.3.1 - (NSMutableArray*) actions [read], [write], [nonatomic], [retain]

The actions which will be run.

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

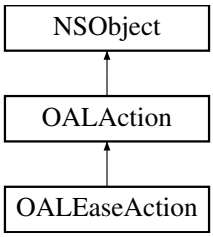
- OALUtilityActions.h
- OALUtilityActions.m

## 4.28 OALEaseAction Class Reference

Applies an easing function to another action.

`#import <OALAction.h>`

Inheritance diagram for OALEaseAction:




### Instance Methods

- (id) - initWithShape:phase:action:
  *Initialize an ease action.*

### Class Methods

- (OALEaseAction *) + actionWithShape:phase:action:
  *Create a new ease action.*
- (EaseFunctionPtr) + easeFunctionForShape:phase:
  *Get a pointer to an ease function of the specified shape and phase.*

### Protected Attributes

- OALAction * **action_**

### Additional Inherited Members

### 4.28.1 Detailed Description

Applies an easing function to another action.

Normally, an action progresses at a linear rate. An ease changes that to a curve.

### 4.28.2 Method Documentation

#### 4.28.2.1 + (OALEaseAction ∗) actionWithShape: (OALEaseShape) *shape* phase:(OALEasePhase) *phase* action:(OALAction∗) *action*

Create a new ease action.

**Parameters**

| | |
|---|---|
| *shape* | The shape of the curve to apply. |
| *phase* | What phase of the action to apply the curve to. The action to apple the curve to. |

**Returns**

A new action.

#### 4.28.2.2 + (EaseFunctionPtr) easeFunctionForShape: (OALEaseShape) *shape* phase:(OALEasePhase) *phase*

Get a pointer to an ease function of the specified shape and phase.

**Parameters**

| | |
|---|---|
| *shape* | The shape of the curve to apply. |
| *phase* | What phase of the action to apply the curve to. |

**Returns**

a pointer to the appropriate function.

#### 4.28.2.3 - (id) initWithShape: (OALEaseShape) *shape* phase:(OALEasePhase) *phase* action:(OALAction∗) *action*

Initialize an ease action.

**Parameters**

| | |
|---|---|
| *shape* | The shape of the curve to apply. |
| *phase* | What phase of the action to apply the curve to. The action to apple the curve to. |

**Returns**

The initialized action.

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

- OALAction.h
- OALAction.m

## 4.29 OALEaseAction() Category Reference

### Properties

- OALAction * **action**
- EaseFunctionPtr **easeFunction**

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

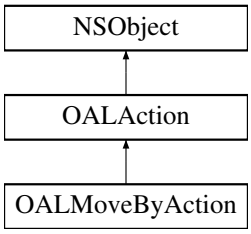
- OALAction.m

## 4.30 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:




### Instance Methods

- (id) - initWithDuration:delta:

  *Initialize an action.*
- (id) - initWithUnitsPerSecond:delta:

  *Initialize an action.*

### Class Methods

- (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.*

### 4.30.1 Detailed Description

Moves the target from its current position by the specified delta over time in 3D space.

### 4.30.2 Method Documentation

#### 4.30.2.1 + (id) actionWithDuration: (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.

#### 4.30.2.2 + (id) actionWithUnitsPerSecond: (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.

#### 4.30.2.3 - (id) initWithDuration: (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.

#### 4.30.2.4 - (id) initWithUnitsPerSecond: (float) *unitsPerSecond* delta:(ALPoint) *delta*

Initialize an action.

**Parameters**

| | |
|---|---|
| *unitsPerSecond* | The rate of movement. |
| *delta* | The amount to move by. |

**Returns**

The initialized action.

### 4.30.3 Member Data Documentation

#### 4.30.3.1 - (ALPoint) startPoint [protected]

The point this move is starting at.

### 4.30.4 Property Documentation

#### 4.30.4.1 - (ALPoint) delta [read], [write], [nonatomic], [assign]

The amount to move the target by.

#### 4.30.4.2 - (float) unitsPerSecond [read], [write], [nonatomic], [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:

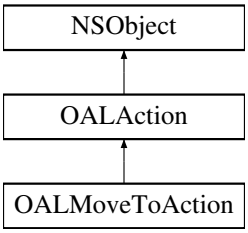
- OALAudioActions.h
- OALAudioActions.m

## 4.31 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:




### Instance Methods

- (id) - initWithDuration:position:

  *Initialize an action.*
- (id) - initWithUnitsPerSecond:position:

  *Initialize an action.*

### Class Methods

- (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.*

## 4.31.1 Detailed Description

Moves the target from its current position to the specified position over time in 3D space.

## 4.31.2 Method Documentation

### 4.31.2.1 + (id) actionWithDuration: (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.

### 4.31.2.2 + (id) actionWithUnitsPerSecond: (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.

#### 4.31.2.3 - (id) initWithDuration: (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.

#### 4.31.2.4 - (id) initWithUnitsPerSecond: (float) *unitsPerSecond* position:(ALPoint) *position*

Initialize an action.

**Parameters**

| | |
|---|---|
| *unitsPerSecond* | The rate of movement. |
| *position* | The position to move to. |

**Returns**

The initialized action.

### 4.31.3 Member Data Documentation

#### 4.31.3.1 - (ALPoint) delta [protected]

The distance being moved.

#### 4.31.3.2 - (ALPoint) startPoint [protected]

The point this move is starting at.

### 4.31.4 Property Documentation

#### 4.31.4.1 - (ALPoint) position [read], [write], [nonatomic], [assign]

The position to move the target to.

#### 4.31.4.2 - (float) unitsPerSecond [read], [write], [nonatomic], [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:

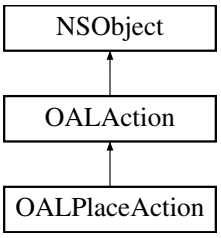
- OALAudioActions.h
- OALAudioActions.m

## 4.32 OALPlaceAction Class Reference

Places the target at the specified position.

`#import <OALAudioActions.h>`

Inheritance diagram for OALPlaceAction:




### Instance Methods

- (id) - initWithPosition:

  *Initialize an action with the specified position.*

### Class Methods

- (id) + actionWithPosition:

  *Create an action with the specified position.*

### Properties

- ALPoint position

  *The position where the target will be placed.*

### Additional Inherited Members

### 4.32.1 Detailed Description

Places the target at the specified position.

### 4.32.2 Method Documentation

#### 4.32.2.1 + (id) actionWithPosition: (ALPoint) *position*

Create an action with the specified position.

**Parameters**

| | |
|---|---|
| *position* | The position to place the target at. |

**Returns**

A new action.

#### 4.32.2.2 - (id) initWithPosition: (ALPoint) *position*

Initialize an action with the specified position.

**Parameters**

| | |
|---|---|
| *position* | The position to place the target at. |

**Returns**

The initialized action.

### 4.32.3 Property Documentation

#### 4.32.3.1 - (ALPoint) position [read], [write], [nonatomic], [assign]

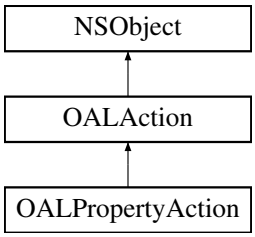
The position where the target will be placed.

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

- OALAudioActions.h
- OALAudioActions.m

## 4.33 OALPropertyAction Class Reference

Inheritance diagram for OALPropertyAction:




### Instance Methods

- (id) - initWithDuration:propertyKey:endValue:
  *Initialize an action using the default function.*
- (id) - initWithDuration:propertyKey:startValue:endValue:
  *Initialize an action.*

### Class Methods

- (id) + actionWithDuration:propertyKey:endValue:
  *Create a new action using the default function.*
- (id) + actionWithDuration:propertyKey:startValue:endValue:
  *Create a new action.*
- (OALPropertyAction *) + **pitchActionWithDuration:endValue:**
- (OALPropertyAction *) + **pitchActionWithDuration:startValue:endValue:**
- (OALPropertyAction *) + **panActionWithDuration:endValue:**
- (OALPropertyAction *) + **panActionWithDuration:startValue:endValue:**
- (OALPropertyAction *) + **gainActionWithDuration:endValue:**
- (OALPropertyAction *) + **gainActionWithDuration:startValue:endValue:**

### Properties

- 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.*

### Additional Inherited Members

## 4.33.1 Method Documentation

#### 4.33.1.1 + (id) actionWithDuration: (float) *duration* propertyKey:(NSString∗) *propertyKey* 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. |
| *propertyKey* | The property to modify. |
| *endValue* | The "ending" value that this action will converge upon when setting the target's property. |

**Returns**

A new action.

#### 4.33.1.2 + (id) actionWithDuration: (float) *duration* propertyKey:(NSString∗) *propertyKey* startValue:(float) *startValue* endValue:(float) *endValue*

Create a new action.

**Parameters**

| | |
|---|---|
| *duration* | The duration of this action in seconds. |
| *propertyKey* | The property to modify. |
| *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. |

**Returns**

A new action.

#### 4.33.1.3 - (id) initWithDuration: (float) *duration* propertyKey:(NSString∗) *propertyKey* 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. |
| *propertyKey* | The property to modify. |
| *endValue* | The "ending" value that this action will converge upon when setting the target's property. |

**Returns**

The initialized action.

#### 4.33.1.4 - (id) initWithDuration: (float) *duration* propertyKey:(NSString∗) *propertyKey* startValue:(float) *startValue* endValue:(float) *endValue*

Initialize an action.

**Parameters**

| | |
|---|---|
| *duration* | The duration of this action in seconds. |
| *propertyKey* | The property to modify. |
| *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. |

**Returns**

The initialized action.

### 4.33.2 Property Documentation

#### 4.33.2.1 - (float) endValue [read], [write], [nonatomic], [assign]

The value that the property in the target will hold at the end of the action.

#### 4.33.2.2 - (float) startValue [read], [write], [nonatomic], [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

## 4.34 OALPropertyAction() Category Reference

### Properties

- float **delta**
- NSString ∗ **propertyKey**

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

- OALAction.m

## 4.35 OALPropertyAction(Audio) Category Reference

### Class Methods

- (OALPropertyAction ∗) + **pitchActionWithDuration:endValue:**

- (OALPropertyAction *) + **pitchActionWithDuration:startValue:endValue:**
- (OALPropertyAction *) + **panActionWithDuration:endValue:**
- (OALPropertyAction *) + **panActionWithDuration:startValue:endValue:**
- (OALPropertyAction *) + **gainActionWithDuration:endValue:**
- (OALPropertyAction *) + **gainActionWithDuration:startValue:endValue:**

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

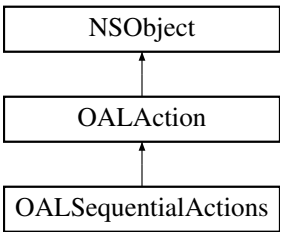
- OALAudioActions.h
- OALAudioActions.m

## 4.36 OALSequentialActions Class Reference

A set of actions that get run in sequence.

`#import <OALUtilityActions.h>`

Inheritance diagram for OALSequentialActions:




### Instance Methods

- (id) - initWithActions:

  *Initialize an action.*

### Class Methods

- (id) + actions:

  *Create an action.*
- (id) + actionsFromArray:

  *Create an action.*

### Protected Attributes

- NSUInteger 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.*

## 4.36.1 Detailed Description

A set of actions that get run in sequence.

## 4.36.2 Method Documentation

#### 4.36.2.1 + (id) actions: (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.

#### 4.36.2.2 + (id) actionsFromArray: (NSArray*) *actions*

Create an action.

**Parameters**

| | |
|---|---|
| *actions* | The actions to run. |

**Returns**

A new set of sequential actions.

#### 4.36.2.3 - (id) initWithActions: (NSArray*) *actions*

Initialize an action.

**Parameters**

| | |
|---|---|
| *actions* | The actions to run. |

**Returns**

The initialized set of sequential actions.

## 4.36.3 Member Data Documentation

#### 4.36.3.1 - (NSUInteger) actionIndex_ [protected]

The index of the action currently being processed.

#### 4.36.3.2 - (float) pCurrentActionComplete_ [protected]

The proportional completeness of the current action.

#### 4.36.3.3 - (float) pCurrentActionDuration_ [protected]

The proportional duration of the current action.

#### 4.36.3.4 - (float) pLastComplete_ [protected]

The last completeness proportion value acted upon.

### 4.36.4 Property Documentation

#### 4.36.4.1 - (NSMutableArray*) actions [read], [write], [nonatomic], [retain]

The actions which will be run.

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

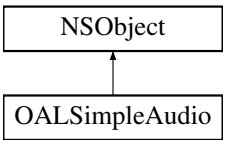
- OALUtilityActions.h
- OALUtilityActions.m

## 4.37 OALSimpleAudio Class Reference

A simpler interface to the ObjectAL sound library.

`#import <OALSimpleAudio.h>`

Inheritance diagram for OALSimpleAudio:




### Instance Methods

- (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.*

## Class Methods

- (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.*

### 4.37.1 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).

### 4.37.2 Method Documentation

#### 4.37.2.1 - (bool) playBg

Play whatever background music is preloaded.

**Returns**

TRUE if the operation was successful.

#### 4.37.2.2 - (bool) playBg: (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.

#### 4.37.2.3 - (bool) playBg: (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.

#### 4.37.2.4 - (bool) playBg: (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.

#### 4.37.2.5 - (bool) playBgWithLoop: (bool) *loop*

Play whatever background music is preloaded.

**Parameters**

| | |
|---|---|
| *loop* | If true, loop the bg track. |

**Returns**

TRUE if the operation was successful.

#### 4.37.2.6 - (id< ALSoundSource >) playBuffer: (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).

#### 4.37.2.7 - (id< ALSoundSource >) playEffect: (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.

#### 4.37.2.8 - (id< ALSoundSource >) playEffect: (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.

#### 4.37.2.9 - (id< ALSoundSource >) playEffect: (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).

#### 4.37.2.10 - (bool) preloadBg: (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.

#### 4.37.2.11 - (bool) preloadBg: (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.

#### 4.37.2.12 - (ALBuffer ∗) preloadEffect: (NSString∗) *filePath*

Preload and cache a sound effect for later playback.

**Parameters**

| | |
|---|---|
| *filePath* | The path containing the sound data. |

#### 4.37.2.13 - (ALBuffer ∗) preloadEffect: (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). |

#### 4.37.2.14 - (void) resetToDefault

Reset everything in this object to its default state.

#### 4.37.2.15 + (OALSimpleAudio ∗) sharedInstanceWithReservedSources: (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.

#### 4.37.2.16 + (OALSimpleAudio ∗) sharedInstanceWithSources: (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.

#### 4.37.2.17 - (void) stopAllEffects

Stop ALL sound effect playback.

#### 4.37.2.18 - (void) stopBg

Stop the background music playback and rewind.

#### 4.37.2.19 - (void) stopEverything

Stop all effects and bg music.

#### 4.37.2.20 - OALSimpleAudio: (OALSimpleAudio)

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

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

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

#### 4.37.2.21 - (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.

#### 4.37.2.22 - (bool) unloadEffect: (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.

### 4.37.3 Member Data Documentation

#### 4.37.3.1 - (uint) pendingLoadCount [protected]

keeping track of how many effects remain to be loaded

#### 4.37.3.2 - (NSMutableDictionary∗) preloadCache [protected]

Cache for preloaded sound samples.

### 4.37.4 Property Documentation

#### 4.37.4.1 - (bool) allowIpod [read], [write], [nonatomic], [assign]

If YES, allow ipod music to continue playing (NOT SUPPORTED ON THE SIMULATOR).

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.

iOS Only.

**See Also**

useHardwareIfAvailable

Default value: YES

#### 4.37.4.2 - (OALAudioTrack ∗) backgroundTrack [read], [nonatomic], [retain]

Audio track to play background music.

Background audio track.

#### 4.37.4.3 - (NSURL *) backgroundTrackURL [read], [nonatomic], [retain]

Background audio URL.

#### 4.37.4.4 - (bool) bgMuted [read], [write], [nonatomic], [assign]

Mutes BG music playback.

#### 4.37.4.5 - (bool) bgPaused [read], [write], [nonatomic], [assign]

Pauses BG music playback.

#### 4.37.4.6 - (bool) bgPlaying [read], [nonatomic], [assign]

If true, BG music is currently playing.

#### 4.37.4.7 - (float) bgVolume [read], [write], [nonatomic], [assign]

Background music playback gain/volume (0.0 - 1.0)

#### 4.37.4.8 - (ALChannelSource *) channel [read], [nonatomic], [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!

#### 4.37.4.9 - (ALContext *) context [read], [nonatomic], [retain]

The context we are using.

#### 4.37.4.10 - (ALDevice *) device [read], [nonatomic], [retain]

The device we are using.

#### 4.37.4.11 - (bool) effectsMuted [read], [write], [nonatomic], [assign]

Mutes effects playback.

#### 4.37.4.12 - (bool) effectsPaused [read], [write], [nonatomic], [assign]

Pauses effects playback.

#### 4.37.4.13 - (float) effectsVolume [read], [write], [nonatomic], [assign]

Master effects gain/volume (0.0 - 1.0)

#### 4.37.4.14 - (bool) honorSilentSwitch [read], [write], [nonatomic], [assign]

If true, mute when backgrounded, screen locked, or the ringer switch is turned off (NOT SUPPORTED ON THE SIMULATOR).

iOS Only.

Default value: YES

#### 4.37.4.15 - (bool) interrupted [read], [nonatomic], [assign]

If YES, the sound system is interrupted.

iOS Only.

#### 4.37.4.16 - (bool) manuallySuspended [read], [write], [nonatomic], [assign]

Set to YES to manually suspend the sound system.

#### 4.37.4.17 - (bool) muted [read], [write], [nonatomic], [assign]

Mutes all audio.

#### 4.37.4.18 - (bool) paused [read], [write], [nonatomic], [assign]

Pauses everything.

#### 4.37.4.19 - (NSUInteger) preloadCacheCount [read], [nonatomic], [assign]

The number of items currently in the preload cache.

#### 4.37.4.20 - (bool) preloadCacheEnabled [read], [write], [nonatomic], [assign]

Enables/disables the preload cache.

If the preload cache is disabled, effects preloading will do nothing (BG preloading will still work).

#### 4.37.4.21 - (int) reservedSources [read], [write], [nonatomic], [assign]

The number of sources OALSimpleAudio is using (max 32 on current iOS devices).

#### 4.37.4.22 - (bool) suspended [read], [nonatomic], [assign]

If YES, the sound system is suspended.

#### 4.37.4.23 - (bool) useHardwareIfAvailable [read], [write], [nonatomic], [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.

iOS Only.

**See Also**

allowIpod

Default value: YES

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

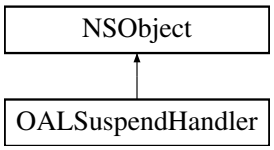
- OALSimpleAudio.h
- OALSimpleAudio.m

## 4.38 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>`

Inheritance diagram for OALSuspendHandler:




### Instance Methods

- (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.*

### Class Methods

- (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.*

### 4.38.1 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.

### 4.38.2 Method Documentation

#### 4.38.2.1 - (void) addSuspendListener: (id<OALSuspendListener>) *listener*

Add a listener that will receive manual suspend and interrupt events.

**Parameters**

| | |
|---|---|
| *listener* | The listener to register with this handler. |

#### 4.38.2.2 + (OALSuspendHandler *) handlerWithTarget: (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. |

#### 4.38.2.3 - (id) initWithTarget: (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. |

#### 4.38.2.4 - (void) removeSuspendListener: (id<OALSuspendListener>) *listener*

Remove a registered listener.

**Parameters**

| | |
|---|---|
| *listener* | The listener to unregister from this handler. |

### 4.38.3 Member Data Documentation

#### 4.38.3.1 - (bool) interruptLock [protected]

Holds the current "interrupted" state.

#### 4.38.3.2 - (NSMutableArray*) listeners [protected]

Listeners that will receive manualSuspend and interrupt events.

#### 4.38.3.3 - (bool) manualSuspendLock [protected]

Holds the current "manually suspended" state.

#### 4.38.3.4 - (NSMutableArray*) manualSuspendStates [protected]

Holder for the state of manualSuspend in listeners when this object is manually suspended.

#### 4.38.3.5 - (SEL) suspendStatusChangeSelector [protected]

Selector to be invoked on suspend or unsuspend.

Takes the signature: setSelected:(bool) value

### 4.38.4 Property Documentation

#### 4.38.4.1 - (bool) interrupted [read], [write], [nonatomic], [assign]

If YES, the interrupt control is set.

#### 4.38.4.2 - (bool) manuallySuspended [read], [write], [nonatomic], [assign]

If YES, the manual suspend control is set.

#### 4.38.4.3 - (bool) suspended [read], [nonatomic], [assign]

If YES, the slave object is suspended.

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

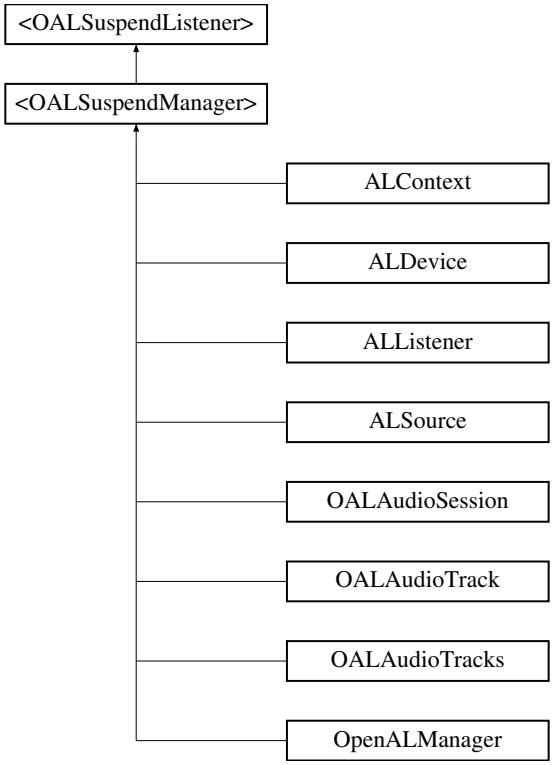
- OALSuspendHandler.h
- OALSuspendHandler.m

## 4.39 <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.*

### 4.39.1 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

### 4.39.2 Property Documentation

#### 4.39.2.1 - (bool) interrupted [read], [write], [nonatomic], [assign]

If YES, this object is interrupted.

Note: This property must NOT be set by the user!

#### 4.39.2.2 - (bool) manuallySuspended [read], [write], [nonatomic], [assign]

Set to YES to manually suspend.

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

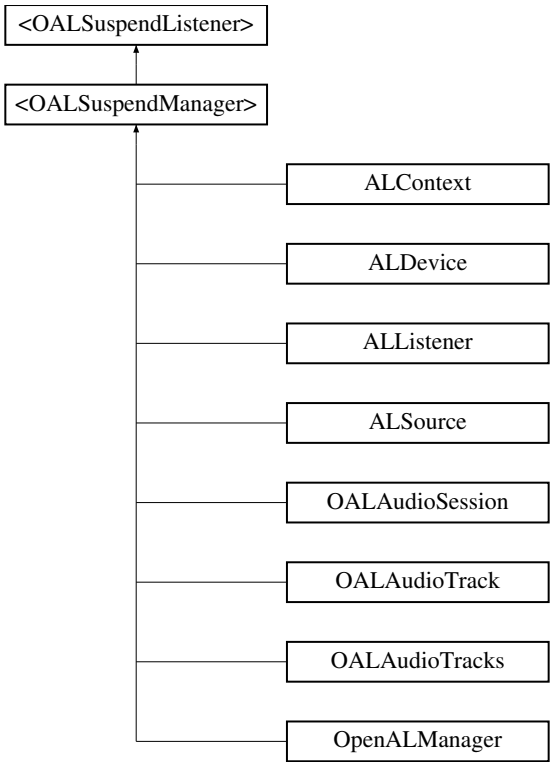
- OALSuspendHandler.h

## 4.40 <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>:




## Instance Methods

- (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.*

### 4.40.1 Detailed Description

A suspend manager is a listener that also allows other objects to subscribe to receive events as the manager receives them.

### 4.40.2 Method Documentation

#### 4.40.2.1 - (void) addSuspendListener: (id< OALSuspendListener >) *listener*

Add a listener that will receive manual suspend and interrupt events.

**Parameters**

| | |
|---|---|
| *listener* | The listener to register with this handler. |

#### 4.40.2.2 - (void) removeSuspendListener: (id< OALSuspendListener >) *listener*

Remove a registered listener.

**Parameters**

| | |
|---|---|
| *listener* | The listener to unregister from this handler. |

### 4.40.3 Property Documentation

#### 4.40.3.1 - (bool) suspended [read], [nonatomic], [assign]

If YES, this object is suspended.

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

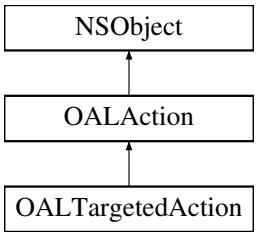
- OALSuspendHandler.h

## 4.41 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:




### Instance Methods

- (id) - initWithTarget:action:
  *Initialize an action.*

### Class Methods

- (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.*

### 4.41.1 Detailed Description

Ignores whatever target it was invoked upon and applies the specified action on the target specified at creation time.

### 4.41.2 Method Documentation

#### 4.41.2.1 + (id) actionWithTarget: (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.

#### 4.41.2.2 - (id) initWithTarget: (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.

### 4.41.3 Member Data Documentation

#### 4.41.3.1 - (OALAction∗) action_ [protected]

The action that will be run on the target.

### 4.41.4 Property Documentation

#### 4.41.4.1 - (id) forcedTarget [read], [write], [nonatomic], [assign]

The target which this action will actually be invoked upon.

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

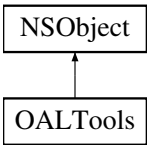
- OALUtilityActions.h
- OALUtilityActions.m

## 4.42 OALTools Class Reference

Miscellaneous tools used by ObjectAL.

`#import <OALTools.h>`

Inheritance diagram for OALTools:




## Class Methods

- (void) + setDefaultBundle:

  *Set the default bundle to use when looking up paths.*
- (NSBundle ∗) + defaultBundle

  *The default bundle used when looking up paths.*
- (NSURL ∗) + urlForPath:

  *Returns the URL corresponding to the specified path.*
- (NSURL ∗) + urlForPath:bundle:

  *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.*

### 4.42.1 Detailed Description

Miscellaneous tools used by ObjectAL.

### 4.42.2 Method Documentation

#### 4.42.2.1 + (NSBundle ∗) defaultBundle

The default bundle used when looking up paths.

return The default bundle.

#### 4.42.2.2 + (void) notifyAudioSessionError: (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. |

#### 4.42.2.3 + (void) notifyExtAudioError: (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. |

#### 4.42.2.4 + (void) setDefaultBundle: (NSBundle∗) *bundle*

Set the default bundle to use when looking up paths.

**Parameters**

| | |
|---|---|
| *bundle* | The new default bundle. |

#### 4.42.2.5 + (NSURL ∗) urlForPath: (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 default bundle.

**Parameters**

| | |
|---|---|
| *path* | The path to convert to a URL. |

**Returns**

The corresponding URL or nil if a URL could not be formed.

#### 4.42.2.6 + (NSURL ∗) urlForPath: (NSString∗) *path* bundle:(NSBundle∗) *bundle*

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 specified bundle.

**Parameters**

| | |
|---|---|
| *path* | The path to convert to a URL. |
| *bundle* | The bundle to look inside for relative paths. |

**Returns**

The corresponding URL or nil if a URL could not be formed.

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

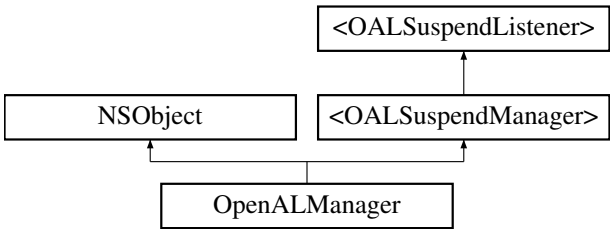
- OALTools.h
- OALTools.m

## 4.43 OpenALManager Class Reference

Manager class for OpenAL objects (ObjectAL).

`#import <OpenALManager.h>`

Inheritance diagram for OpenALManager:




### Instance Methods

- (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.*
- ALint renderingQuality

  *The rendering quality.*

## 4.43.1 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.

## 4.43.2 Method Documentation

### 4.43.2.1 - (NSString *) bufferAsyncFromFile: (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.

#### 4.43.2.2 - (NSString ∗) bufferAsyncFromFile: (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.

#### 4.43.2.3 - (NSString ∗) bufferAsyncFromUrl: (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.

#### 4.43.2.4 - (NSString ∗) bufferAsyncFromUrl: (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.

#### 4.43.2.5 - (ALBuffer *) bufferFromFile: (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.

#### 4.43.2.6 - (ALBuffer *) bufferFromFile: (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.

#### 4.43.2.7 - (ALBuffer *) bufferFromUrl: (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.

#### 4.43.2.8 - (ALBuffer ∗) bufferFromUrl: (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.

#### 4.43.2.9 - (void) clearAllBuffers

Clear all references to sound data from ALL buffers, managed or not.

#### 4.43.2.10 - OpenALManager: (OpenALManager)

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

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

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

### 4.43.3 Member Data Documentation

#### 4.43.3.1 - (NSMutableArray∗) devices [protected]

All opened devices.

#### 4.43.3.2 - (NSOperationQueue∗) operationQueue [protected]

Operation queue for asynchronous loading.

#### 4.43.3.3 - (OALSuspendHandler∗) suspendHandler [protected]

Handles suspending and interrupting for this object.

### 4.43.4 Property Documentation

#### 4.43.4.1 - (NSArray ∗) availableCaptureDevices [read], [nonatomic], [retain]

List of available capture devices (NSString∗).

#### 4.43.4.2 - (NSArray ∗) availableDevices [read], [nonatomic], [retain]

List of available playback devices (NSString∗).

#### 4.43.4.3 - (ALContext ∗) currentContext [read], [write], [nonatomic], [assign]

The current context (some context operations require the context to be the "current" one).

WEAK reference.

#### 4.43.4.4 - (NSString ∗) defaultCaptureDeviceSpecifier [read], [nonatomic], [retain]

Name of the default capture device.

#### 4.43.4.5 - (NSString ∗) defaultDeviceSpecifier [read], [nonatomic], [retain]

Name of the default playback device.

#### 4.43.4.6 - (NSArray∗) devices [read], [nonatomic], [retain]

List of all open devices (ALDevice∗).

#### 4.43.4.7 - (ALdouble) mixerOutputFrequency [read], [write], [nonatomic], [assign]

The frequency of the output mixer.

#### 4.43.4.8 - (ALint) renderingQuality [read], [write], [nonatomic], [assign]

The rendering quality.

Can be one of:

- ALC_MAC_OSX_SPATIAL_RENDERING_QUALITY_HIGH
- ALC_MAC_OSX_SPATIAL_RENDERING_QUALITY_LOW
- ALC_IPHONE_SPATIAL_RENDERING_QUALITY_HEADPHONES (iOS only)

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

- OpenALManager.h
- OpenALManager.m

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