

# About Audio (& Video) in iOS

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# As an introduction...



## Audio & video

- Difficult to avoid now!
- Smartphone is now
  - ▶ Phone + multimedia player
  - ▶ To ease construction, built it on top of an ultra-mobile computer



## This is an important function

- Especially now



## Audio & Video in iOS

- Common principles





# About supported audio formats (playback)

Audio decoder/ playback format	Hardware-assisted decoding	Software-based decoding
AAC (MPEG-4)	Yes	Yes, starting in iOS 3.0
ALAC (Apple Lossless)	Yes	Yes, starting in iOS 3.0
HE-AAC (MPEG-4 High)	Yes	-
iLBC (internet Low)	-	Yes
IMA4 (IMA/ADPCM)	-	Yes
Linear PCM	-	Yes
MP3 (MPEG-1 audio)	Yes	Yes, starting in iOS 3.0
$\mu$ -law and a-law	-	Yes



# About supported audio formats (recording)

<b>Audio encoder/ recording format</b>	<b>Hardware-assisted encoding</b>	<b>Software-based encoding</b>
AAC (MPEG-4 Advanced Audio Coding)	Yes, starting in iOS 3.1 for iPhone 3GS and iPod touch, Yes, starting in iOS 3.2 for iPad(2nd generation)	Yes, starting in iOS 4.0 for iPhone 3GS and iPod touch (2nd generation)
ALAC (Apple Lossless)	-	Yes
iLBC (internet Low Bitrate Codec, for speech)	-	Yes
IMA4 (IMA/ADPCM)	-	Yes
Linear PCM (uncompressed, linear pulse-code modulation)	-	Yes
$\mu$ -law and a-law	-	Yes



# Several types of sounds

## System Sound Services

- Dedicated to «short sounds» (< 30s)
- Quite basic — not presented here



### son «vibration» (iPhones)

```
AudioServicesPlayAlertSound(kSystemSoundID_Vibrate)  
AudioServicesPlaySystemSound(kSystemSoundID_Vibrate)
```

## AVAudioPlayer (presented)

- Provided by AVFoundation
- To decode files or audio streams
- Might be associated to AVAudioPlayerDelegate
  - ▶ Handling events while playing
  - ▶ End of the file, urgent events, etc.



# Access to the music library

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## **MPMusicPlayerController (presented)**

- Implemented in MediaPlayer
- Play of a playlist
  - ▶ Go forward/backward in the playlist
  - ▶ play modes (fast forward, fast backward, pause, etc.)
- Notification mechanisms
  - ▶ Piece of music change, volume change, etc.

## **Creating a playlist**

- Queries to fetch music from the device
- Use of a MPMediaPickerController



# as a conclusion, what about video?

## Major codec supported

- H.264 supported for a long time
- H.265/HEVC supported since iPhone 6
  - ▶ Hardware supported since iPhone 7 & iPad Pro/iPad Air 2

## Based on similar principles

- To be studied later
- API
  - ▶ `MPMoviePlayerController`, `MPMoviePlayerViewController`
- Video editing (not studied)
  - ▶ `AVVideoComposition` / `AVMutableVideoComposition`
- Recording
  - ▶ `UIImagePickerController` (already seen)
  - ▶ Appropriate media configuration

