



iPad Filetypes - Audio

MP3

M4A

iPad & iPhone

(iOS 11 and above)

iPaddlers

Designed for iPad. Relevant to the iPhone also.

Screen shots captured on iPad Pro 9.7" running iPadOS 13

March 2020

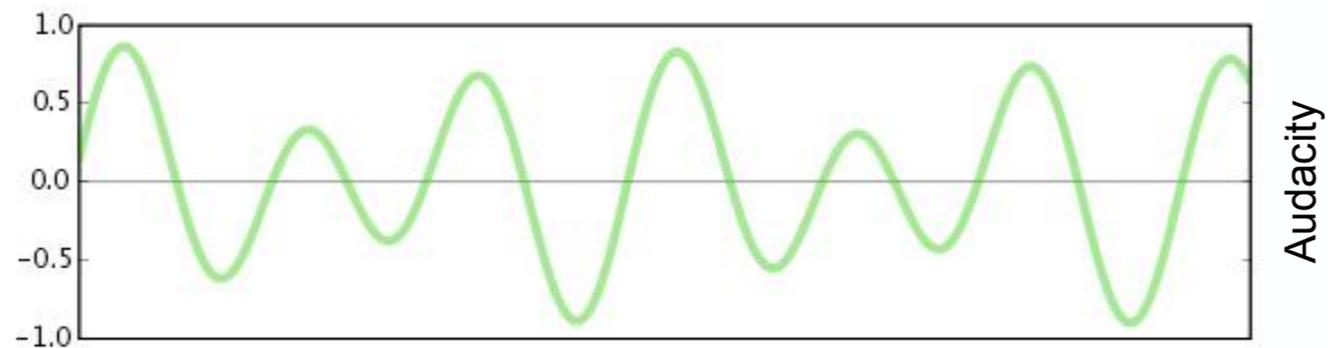


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Audio - Sound Represented by a Waveform

Analogue or Digital

The **Waveform** represents the audio pressure waves that create the sensation of sound. It is defined by **wavelength** and **amplitude**.



Waveform - visual representation

Analogue sound reproduction - the waveform is reproduced physically on vinyl records (through groove properties) and on audio cassette tapes (through the properties of magnetism).

Digital sound - the waveform is represented by numerical values for the properties of the waveform. A digital sound file can therefore be stored on a computer (iPads and iPhones included), or any other medium capable of storing digital code (such as a compact disc CD).



Audio - File Conversion

Using digital encoding



QuickTime Player - an audio recording can be made using **Quicktime** on an Apple Mac. It will be saved as an **M4A** audio file. Using Quicktime also, we can export the sound component of a video using the '**Export As**' option. The sound file will be saved as an **M4A** file.

M4A is MPEG 4 Audio and was meant to be the successor to **MP3**, It uses **AAC** (Advanced Audio Coding) audio compression which is newer and more efficient than MP3.

M4A uses **lossy** compression. File size compression is used, with almost imperceptible loss of quality. This is important for streaming music over the internet.

An M4A audio file will have the file name format **example.m4a** (as opposed to **example.mp3** for an MP3 audio file).

| Today | Size | Kind | Date Added |
|--|--------|--------------------|------------------|
|  currawongs-lilly-pilly.m4a | 701 KB | Apple MPEG-4 audio | Today at 8:09 pm |
|  currawongs-lilly-pilly.mp3 | 962 KB | MP3 audio | Today at 8:13 pm |

The same audio recording in MP3 and M4A. Notice the different file size. M4A offers greater compression for the same quality of sound.

iPadOS

Advanced Audio Coding (AAC)

Advanced Audio Coding was released by the **Moving Pictures Experts Group** as part of the **MPEG-2** standard in 1997 and updated to the **MPEG-4** standard in 1999. There are a lot of complex variations and subsets of these standards. Apple uses **AAC** as the default audio type on iOS devices (equals **M4A**).

Apple has also implemented support for other kinds of audio file types on iOS devices. These audio file types include, amongst others:

- **HE-AAC** (High Efficiency AAC)
- **MP3** (MPEG-1 Audio Layer-3)
- **Dolby Digital**
- **WAV** (Waveform Audio File Format)
- **AIFF** (Audio Interchange File Format)



No matter which iOS device you are using, you are not restricted to streaming music over the internet from the **Apple Music** service. All iOS devices support the other main audio file types, allowing you to listen to music from other music streaming services such as **Spotify**. You can also watch, and listen to, music videos from video streaming services such as **YouTube**.

Apple Apps for Managing Audio Files



On **iPadOS** (and iOS devices) there are native apps for working with audio files, such as these:



Apple Music
- streaming service



iTunes Store
- purchase music



Voice Memos
- record sound



Podcasts
- listen to radio broadcasts over the internet

iPadOS

Additional apps:



GarageBand
- music creation



YouTube
- Google's video sharing app

On Apple computers and mobile devices, there are native apps for managing audio files. On the **iPad** (and iPhone), the **Voice Memos** app provides some very basic audio recording and editing capability.

Now, for newer devices, there is the **GarageBand** app. It can be used for creating music, using your own recordings and/or the sound libraries of pre-recorded music provided by Apple.



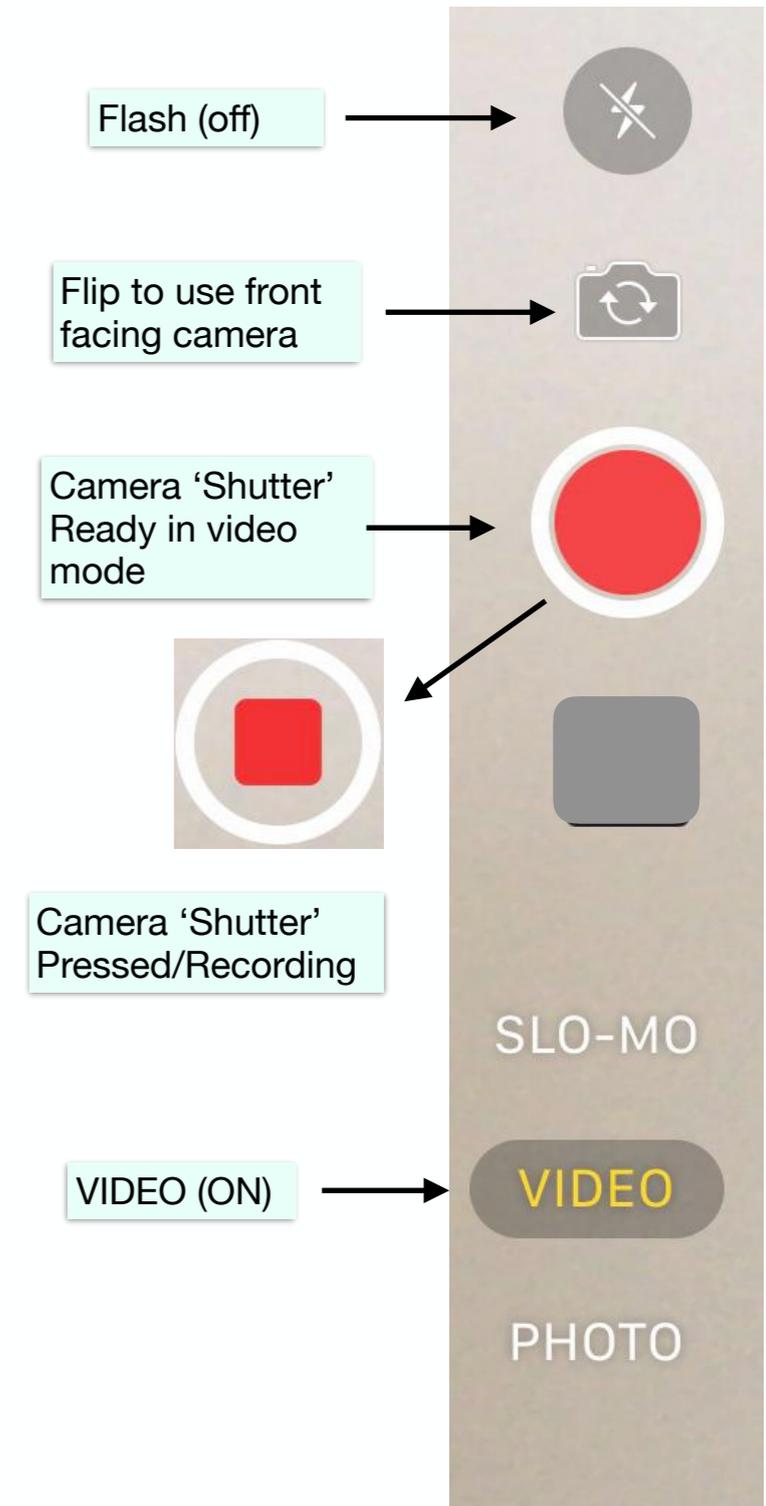
Capturing Audio - iPad OS

Of course when you capture any video using the **Camera** app on your iPad, the video file will contain an audio component.

On newer devices (with iOS11 or later), when you film in video mode, the video is saved to the **Photos** app as a video file (HECV). Currently, to separate out the audio from the video container, you would need to use an app such as QuickTime Player on a Mac (or a third party sound editing app such as Audacity). Using **QuickTime** Player, you can Export the audio file as an **m4a** file which uses **AAC** (Advanced Audio Coding) audio compression. Using **Audacity**, you can Export to other sound file types such as MP3 and WAV once the original sound file has been separated out from the video.



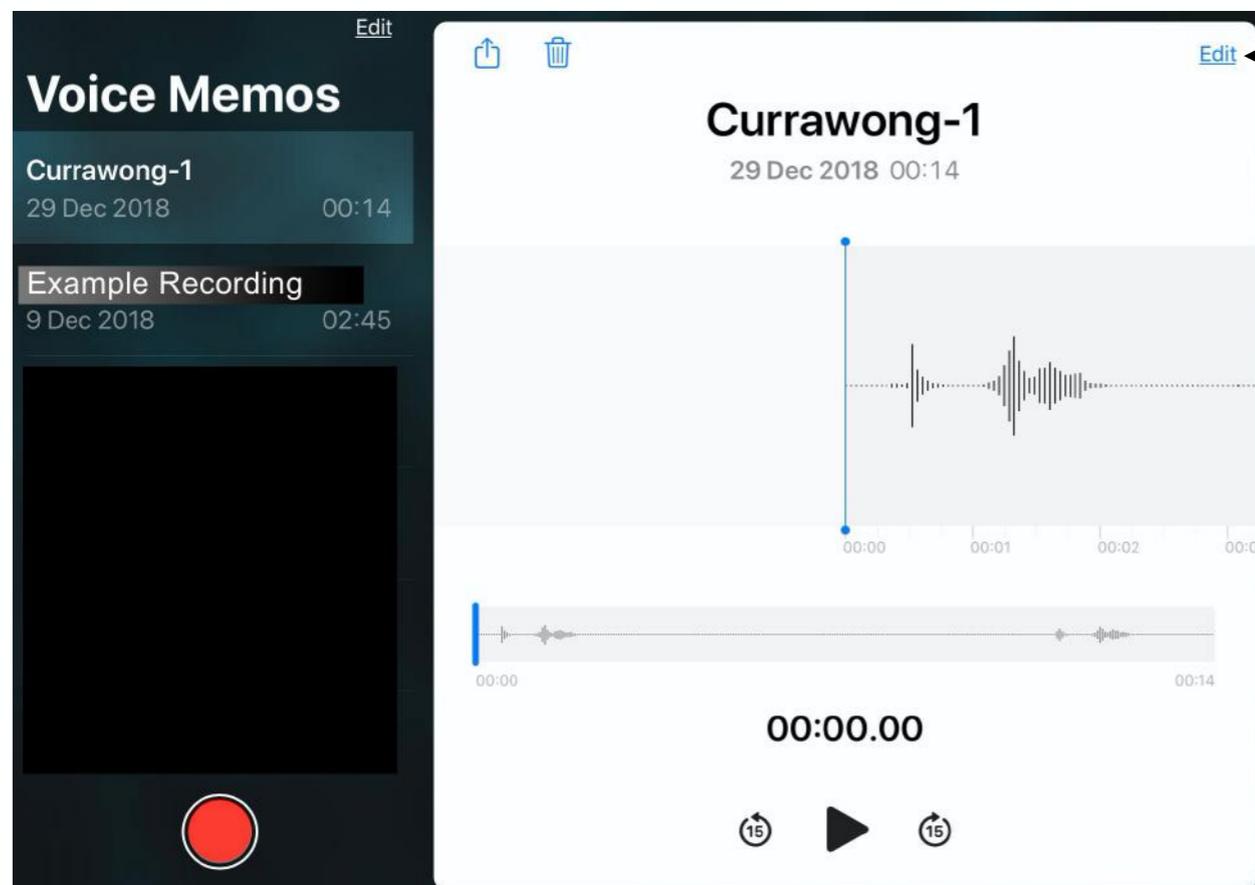
When using the **Camera** in VIDEO mode, the shutter button will appear red (as opposed to white for still images). Once you press the button, it will change to a square as the camera is recording. Press the button to end recording. The button will revert to the round shape (standby mode.)



Voice Memos - Recording



Voice Memos is a native iOS app pre-installed on newer iOS devices. Really useful for quickly recording pure audio on the iPad (and iPhone).

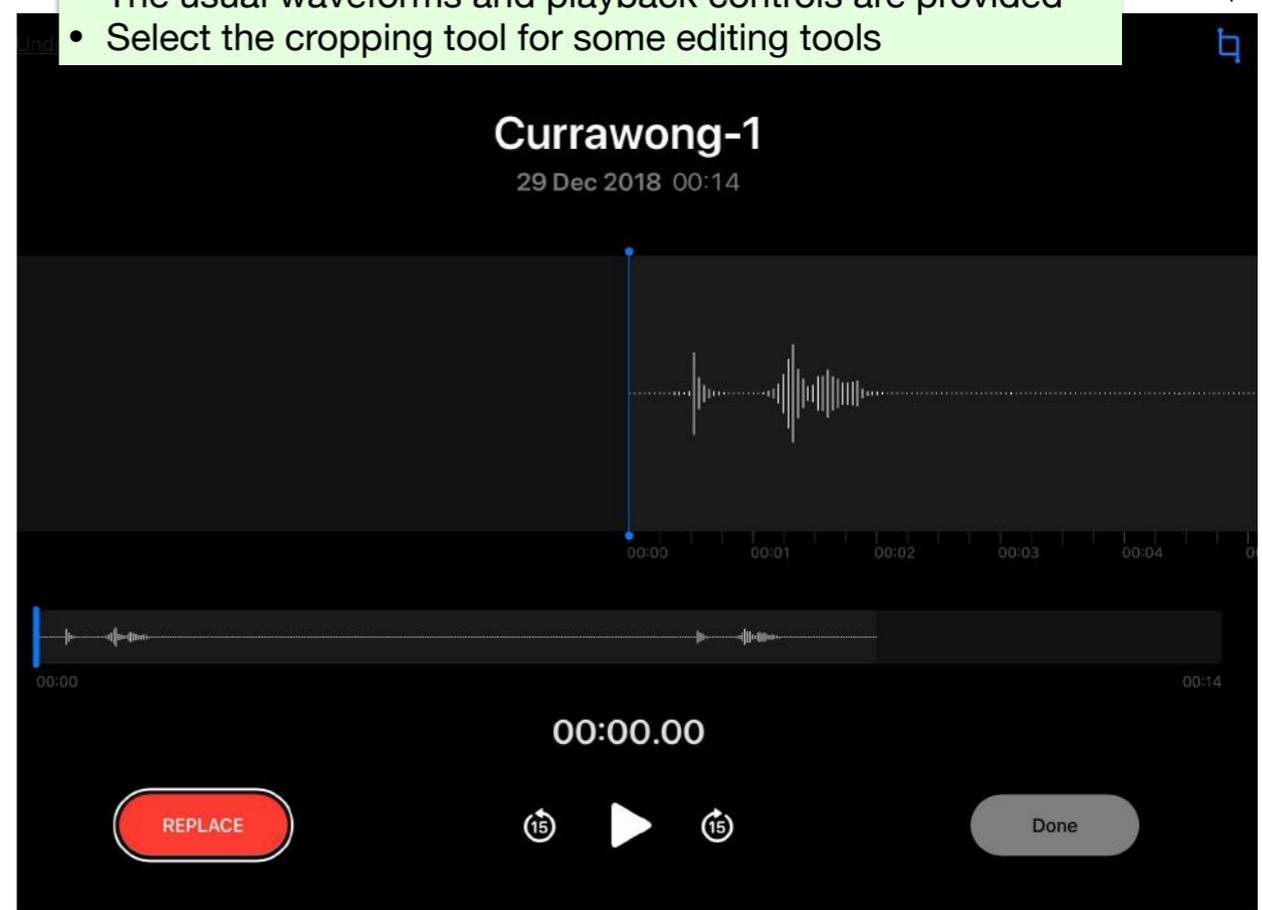


Edit

Edit - User Interface

- Single panel with recording name
- Red **REPLACE** button for recording over
- The usual waveforms and playback controls are provided
- Select the cropping tool for some editing tools

Crop



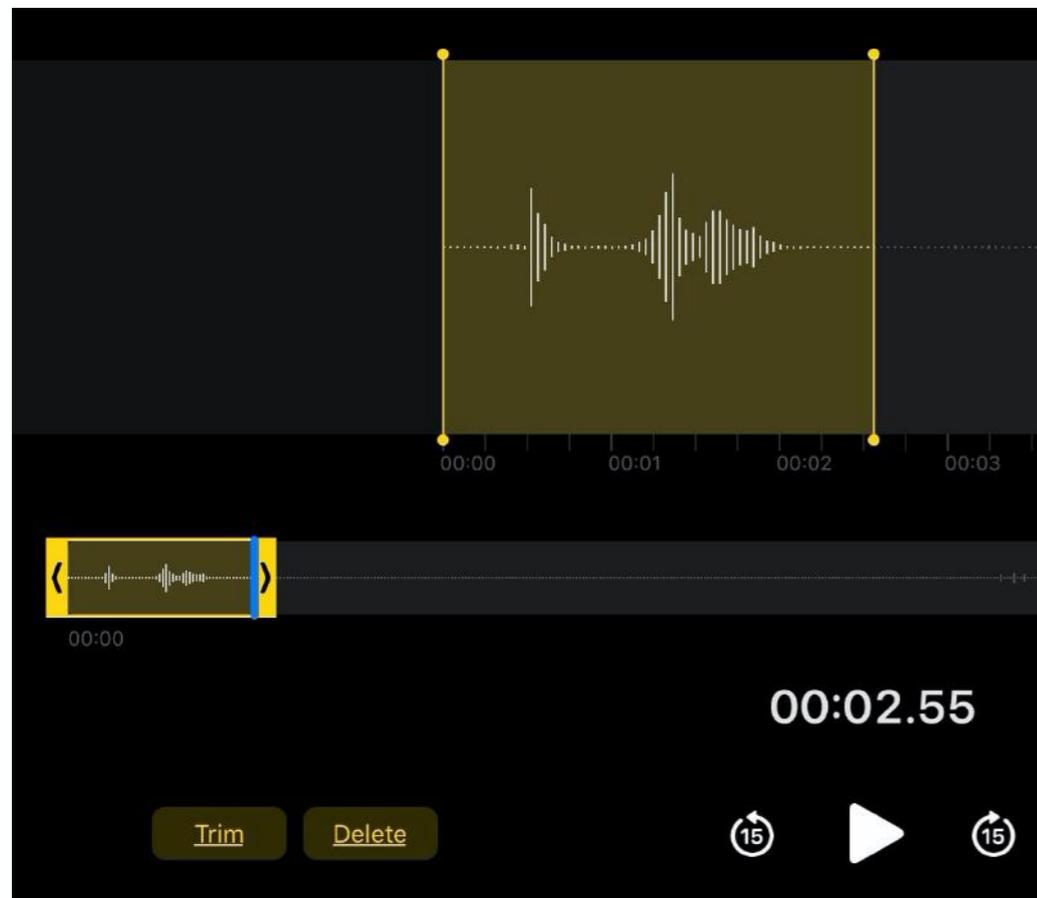
Voice Memos - User Interface

- Left panel shows list of recordings and red **RECORD** button
- Right panel shows information about currently selected recording
- Recordings are represented in 'waveform'
- Play/Pause button and timer is also provided in right panel
- Blue slider helps to fine select point for playback
- At top of right panel there are **Share**, **Trash** icons and **Edit** option

The example used above is from an iPad Pro 9.7" running iPadOS 13

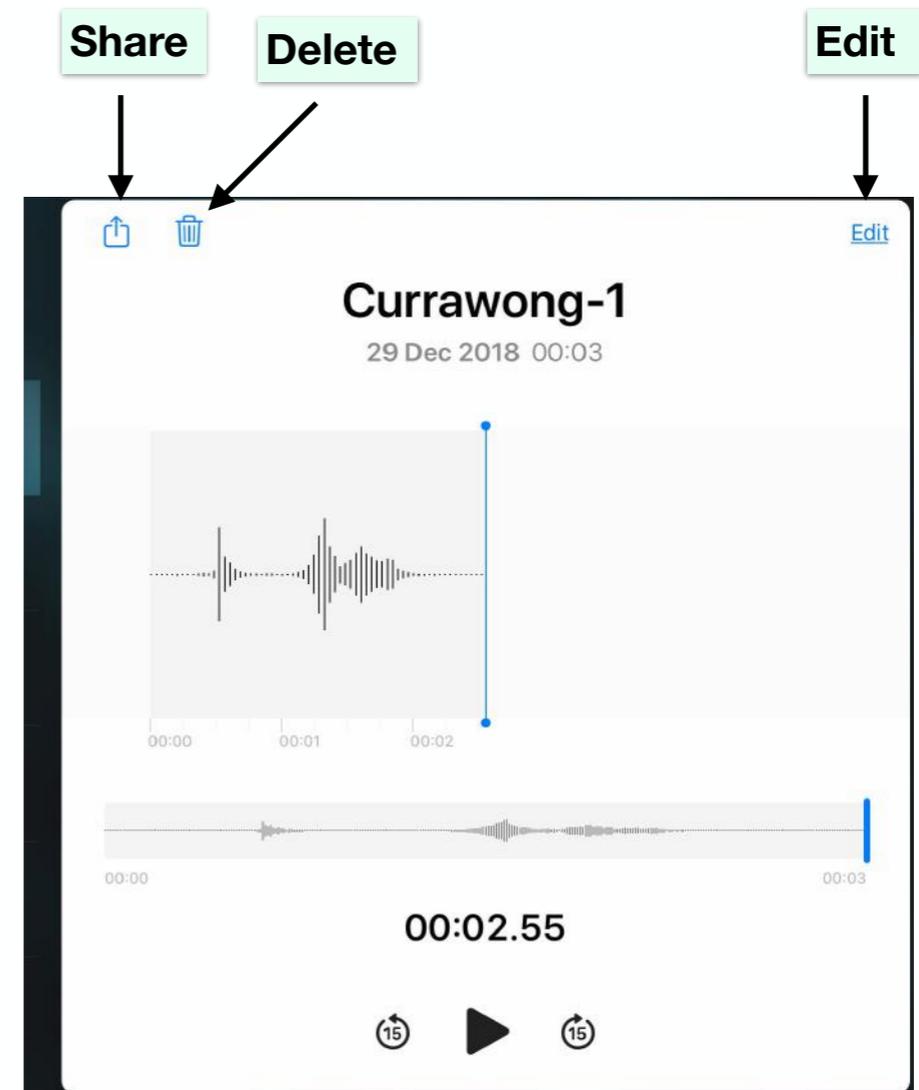
Audio - Recording

Voice Memos (Continued)



Edit User Interface - Cropping Tool

- Drag the **yellow sliders** around the audio you wish to keep
- The **Timer** will show the position of the selected slider
- The timer is calibrated to **hours:minutes:seconds**
- Select **Trim** to crop the recording
- Once you press Trim, you will be presented with a **Save** button
- The **Cancel** option also exists (upper lefthand corner)



User Interface - Cropped Audio File

- The cropped audio will **replace** the original file once saved
- The **waveform** will show attributes of the new audio file
- The **Timer** will show its length
- The new file can be **Shared, Deleted** or further **Edited**
- If you use the **Share** button, you will see options such as:
 - **Save to Files** etc (depending on the setup of your device)

Summary - Audio File Types on iPad



iPad (since iOS11)

- Digital **AUDIO** - the sound waveform is encoded in numerical values in a continual sequence
- **M4A (or MPEG-4 Audio)** is a newer lossy compression for sound files (more efficient than MP3)
- **M4A** uses **AAC** - Advanced Audio Coding
- **MPEG - Motion Picture Engineers Group** develops the standards for video and audio file compression
- **QuickTime Player** on Apple Mac computers can be used to do audio recording and to extract audio from video files
- **Voice Memos** can be used to record audio on **iOS** and **iPadOS** devices
- **GarageBand** can be used for music creation and sound editing on **iOS** and **iPadOS** devices



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