

MP4, fMP4, Matroska/WebM and MPEG-TS — where each one stores its audio.

## The one rule

The codec compresses the sound (Opus, AAC, AC-3, FLAC). The container labels and bundles it (MP4, MKV, TS).

**Audio lives in self-describing tracks, so one file can carry many languages and mixes.**

## The four containers

Container	Structure	Audio named by	Best at
<b>MP4 / fMP4</b>	Box tree (moov/mdat)	stsd entry: mp4a + esds	Universal playback; CMAF streaming
<b>Matroska / MKV</b>	EBML element tree	CodecID: A_OPUS, A_AAC	Flexibility, archival, many tracks
<b>WebM</b>	EBML (Matroska subset)	CodecID SHOULD be A_OPUS	Open web <video>, royalty-free
<b>MPEG-TS</b>	188-byte packets + PIDs	stream_type in the PMT	Broadcast, loss recovery, legacy HLS

## MPEG-TS audio stream\_type (in the PMT)

<b>0x0F</b>	- AAC (ADTS framing)
<b>0x11</b>	- AAC (LATM framing)
<b>0x81</b>	- AC-3 (ATSC convention)
<b>0x03 / 0x04</b>	- MPEG-1 / MPEG-2 audio

### How an MP4 stores audio (ISO/IEC 14496-12 / -14)

moov = table of contents | mdat = cargo (raw samples) | path: moov > trak > mdia > minf > stbl > stsd  
AAC codec entry = mp4a; setup bytes = esds. fast-start moves moov to the front for progressive play.

## Silent-track checklist (audio plays in one player, fails in another)

- MP4: the esds box (AAC AudioSpecificConfig) is present and correct.
- Matroska: the CodecPrivate setup bytes are present for the audio track.
- MPEG-TS: the PMT lists the audio PID with the right stream\_type.
- Language tag set on each audio track so players show the menu.
- fast-start: moov relocated to the front for progressive download.
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