ffmpeg Audio/video converter

CONCEPTS

> Options apply to the next file: before -i they describe the input, before an output name they describe that output.

Input -i file
↓ demux
Decoder raw frames
↓ -vf / -af
Filters scale, trim...
↓ -c:v / -c:a
Encoder codec + quality
↓ mux
Output container

> -c copy skips decoding and encoding: fast and lossless, but no filters and cuts land on keyframes.

BASICS

ffmpeg -i *<in>* *<out>*
Convert; format follows the extension

ffprobe *<file>*
Show container and stream info

ffmpeg -i *<in>* **-c copy** *<out>*
Remux without re-encoding

ffmpeg -y -i *<in>* *<out>*
Overwrite output without asking

ffmpeg -hide_banner -i *<in>*
Print file info, no banner

ffmpeg -loglevel error -i *<in>* *<out>*
Only show errors

ffprobe -v error -show_format -show_streams *<file>*
Full detail of every stream

TRIM AND JOIN

-ss *<time>* **-i** *<in>*
Seek before input: fast

-t *<duration>*
Stop after this much output

-to *<time>*
Stop at this timestamp

ffmpeg -ss *<t>* **-i** *<in>* **-t** *<dur>* **-c copy** *<out>*
Cut a clip losslessly

TRIM AND JOIN (cont.)

-f concat -safe 0 -i *<list.txt>* **-c copy** *<out>*
Join files of the same codec

-frames:v 1
Write a single frame

VIDEO

-c:v libx264
Encode H.264

-c:v libx265
Encode H.265 (HEVC)

-crf *<n>*
Constant quality; lower is better

-preset *<name>*
Speed vs size, slow to ultrafast

-b:v *<rate>*
Target video bitrate, e.g. 2M

-r *<fps>*
Set frame rate

-pix_fmt yuv420p
Maximise player compatibility

-movflags +faststart
Put MP4 index first for web play

-vn
Drop the video stream

AUDIO

-vn -c:a copy *<out>*
Extract audio unchanged

-vn -c:a libmp3lame -q:a 2 *<out.mp3>*
Extract audio as MP3

-c:a aac -b:a 128k
Encode AAC audio

-an
Drop all audio

-ac *<n>*
Set channel count

-ar *<hz>*
Set sample rate

-af volume=*<factor>*
Change volume, e.g. 1.5 or 6dB

FILTERS

-vf scale=*<w>*:*<h>*
Resize

-vf scale=-2:*<h>*
Resize keeping aspect, even width

FILTERS (cont.)

-vf fps=*<n>*
Change frame rate

-vf crop=*<w>*:*<h>*:*<x>*:*<y>*
Crop a region

-vf transpose=1
Rotate 90 degrees clockwise

-vf setpts=PTS/*<n>*
Speed up video n times

-vf subtitles=*<file.srt>*
Burn in subtitles

-vf "scale=iw/2:-2,fps=10"
Chain filters with commas

-filter_complex "*<graph>***"**
Filters with several inputs/outputs

STREAMS AND METADATA

-map *<in>*:*<stream>*
Choose streams, e.g. -map 0:a:0

-map 0
Keep all streams of input 0

-map 0:v -map 1:a
Video from one file, audio from another

-metadata title="*<txt>***"**
Set a tag

DISCOVERY

ffmpeg -codecs
List codecs

ffmpeg -encoders
List encoders

ffmpeg -h encoder=*<name>*
Options of one encoder

RECIPES

Shrink a video for sharing

```
ffmpeg -i in.mov -c:v libx264 -
crf 26 -preset slow \
  -vf scale=-2:720 -pix_fmt
yuv420p \
  -c:a aac -b:a 128k -movflags
+faststart out.mp4
```

GIF with a good palette

```
ffmpeg -i in.mp4 -vf
"fps=12,scale=480:-1:flags=lanczos,palette
pal.png
ffmpeg -i in.mp4 -i pal.png -
lavfi "fps=12,scale=480:-1:flags=
lanczos[x];[x][1:v]paletteuse"
out.gif
```