A multimedia project used by
VLC, Youtube, Vimeo, HandBrake
and many others

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FFmpeg

- Fabrice Bellard (QEMU) December 2000
- Michael Niedermayer since 2004

- >1.000.000 LOC, >1000 contributors
- ~200 contributors, 3000 commits per year
- LGPL (optional parts: GPL and proprietary)
- Source code, no "products"

Command line utilities

- ffmpeg

- ffplay

- ffprobe

- qt-faststart

Libraries

- libavformat
- libavcodec
- libavfilter
- libswscale

- libswresample
- libavdevice
- libpostproc
- libavutil

libavformat 1/2

- mov/mp4/isom (Apple QuickTime)
- avi (Microsoft)
- asf/wma/wmv (Microsoft)
- Matroska/WebM
- MPEG-TS (DVB) , MPEG-PS (DVD)
- ogg (Xiph)

libavformat 2/2

- MXF
- HLS / DASH (streaming)
- wav (Microsoft audio)
- caf (Apple audio)
- flv (Macromedia / Adobe)
- nut (FFmpeg)

aa	dtshd	image_png_pipe	mxg	siff
aac	dv	image_ppm_pipe	nc	sln
ac3	dvbsub	image_psd_pipe	nistsphere	smacker
acm	dvbtxt	image_qdraw_pipe	nsv	smjpeg
act	dxa	image_sgi_pipe	nut	smush
adf	ea	image_sunrast_pipe	nuv	sol
adp	ea_cdata	image_svg_pipe	ogg	sox
ads	eac3	image_tiff_pipe	oma	spdif
adx	epaf	image_webp_pipe	paf	srt
aea	ffm	image_xpm_pipe	pcm_alaw	stl
afc	ffmetadata	ingenient	pcm_f32be	str
aiff	filmstrip	ipmovie	pcm_f32le	subviewer
aix	fits	ircam	pcm_f64be	subviewer1
amr	flac	iss	pcm_f64le	sup
amrnb	flic	iv8	pcm_mulaw	svag
amrwb	flv	ivf	pcm_s16be	swf
anm	fourxm	ivr	pcm_s16le	tak
apc	frm	jacosub	pcm_s24be	tedcaptions
ape	fsb	jv	pcm_s24le	thp
apng	g722	libgme	pcm_s32be	threedostr
aqtitle	g723_1	libmodplug	pcm_s32le	tiertexseq
asf	g726	libopenmpt	pcm_s8	tmv
asf_o	g726le	live_flv	pcm_u16be	truehd
ass	g729	lmlm4	pcm_u16le	tta
ast	gdv	loas	pcm_u24be	tty
au	genh	lrc	pcm_u24le	txd
avi	gif	lvf	pcm_u32be	ty
avisynth	gsm	lxf	pcm_u32le	v210
avr	gxf	m4v	pcm_u8	v210x
avs	h261	matroska	pjs	vag
bethsoftvid	h263	mgsts	pmp	vc1
bfi	h264	microdvd	pva	vc1t
bfstm	hevc	mjpeg	pvf	vivo
bink	hls	mjpeg_2000	qcp	vmd
bintext	hnm	mlp	r3d	vobsub
bit	ico	mlv	rawvideo	voc
bmv	idcin	mm	realtext	vpk
boa	idf	mmf	redspark	vplayer
brstm	iff	mov	rl2	vqf
c93	ilbc	mp3	rm	w64
caf	image2	mpc	roq	wav
cavsvideo	image2_alias_pix	mpc8	rpl	wc3
cdg	image2_brender_pix	mpegps	rsd	webm_dash_manifest
cdxl	image2pipe	mpegts	rso	webvtt
cine	image_bmp_pipe	mpegtsraw	rtp	wsaud
concat	image_dds_pipe	mpegvideo	rtsp	wsd
dash	image_dpx_pipe	mpjpeg	s337m	wsvqa
data	image_exr_pipe	mpl2	sami	wtv
daud	image_j2k_pipe	mpsub	sap	wv
dcstr	image_jpeg_pipe	msf	sbg	wve
dfa	image_jpegls_pipe	msnwc_tcp	scc	xa
dirac	image_pam_pipe	mtaf	sdp	xbin
dnxhd	image_pbm_pipe	mtv	sdr2	xmv
dsf	image_pcx_pipe	musx	sds	xvag
dsicin	image_pgm_pipe	mv	sdx	xwma
dss	image_pgmyuv_pipe	mvi	segafilm	yop
dts	image_pictor_pipe	mxf	shorten	yuv4mpegpipe

libavcodec video 1/2

- MPEG Video / H.261 (Encoding & Decoding)

- MPEG-4 ASP / H.263 (Encoding & Decoding)

- MPEG-4 AVC / H.264

- HEVC

- VC-1 (Microsoft)

- Theora

libavcodec video 2/2

- Duck TrueMotion 1.0, 2.0, VP3, VP4, VP5, VP6, VP7, VP8, VP9 (Google)
- Sorenson Video 1, 3, Spark (Apple, Flash)
- RV10, RV20, RV30, RV40 (RealVideo)
- huffyuv, ffvhuff, Lagarith (lossless)
- DnxHD, ProRes, CineForm (Intermediate)
- FFv1, Snow (FFmpeg)

AV1

- Internal parser
- Two external decoding libraries
- Two external encoding libraries
- no internal decoder (yet?)

libavcodec audio

- MP1, MP2, MP3

- AC-3, E-AC-3, TrueHD (Dolby)

- AAC

- DTS, …, DTS HD-Master

- Vorbis, Opus

- ~~Sonic (FFmpeg)~~

libavcodec image formats

- jpg / lossless jpeg / jpeg lossless
- bmp
- png
- SGI
- TIFF
- DPX
- JPEG-2000

libavfilter

- Scale, Crop

- Overlay

- Hue

- De-interlacers, Inverse telecine filters

- Framerate interpolation filters

- > 250 Filters

Obsolescence (media formats)

- WMV

- Duck Truemotion (Sega Saturn)
- 4xm (Gameboy, Sega, Windows)
- Sega Film
- SNM (LucasArts)
- THP (Nintendo)

Obsolescence (FFmpeg)

- ANSI C, Posix

NIH

- The Ten commandments for C programmers:
  - 7) Thou shalt study thy libraries and strive not to reinvent them without cause, that thy code may be short and readable and thy days pleasant and productive.

- FFmpeg:
  - Our wheels are rounder

Bugs

- FLAC: 2006 – 2015

  - Possibly relevant for Archivists

  - Produced non-lossless files

  - Recoverable

  - Reproducible only with FFmpeg, not Xiph's libflac

What's new

- 8-channel E-AC-3 decoding (Paul B Mahol)

- Many new filters (Paul B Mahol)

- Bit-exact vc1 decoding (Jerome Borsboom)

- HLS and DASH improvements

- Improved hardware decoding and encoding for Nvidia, AMD and Intel

What's missing

- Removal of an external filter because of license violations

What is FFmpeg not

- FFmpeg is not a file archiving system

- FFmpeg is not a file validator

- FFmpeg is not bug-free

- FFmpeg is not feature-complete