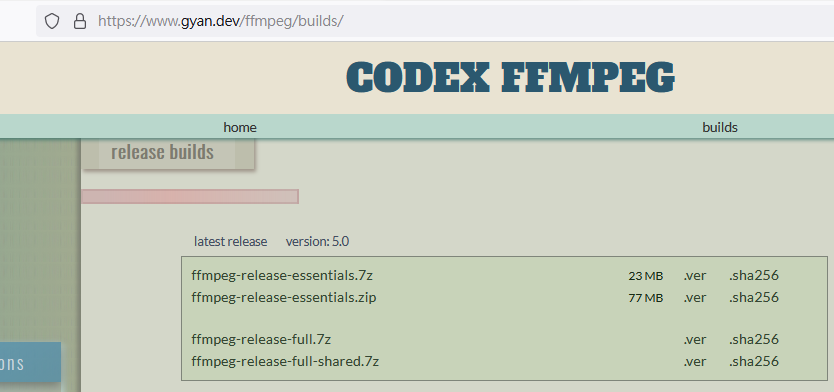
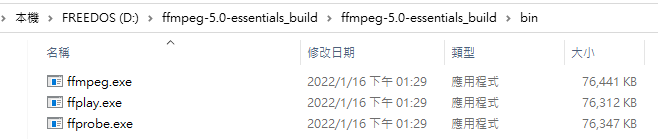
20220210 在 win10 安裝並使用 ffmpeg 影音轉檔程式

1. 至[[WINDOW版下載處 https://www.gyan.dev/ffmpeg/builds/](https://www.gyan.dev/ffmpeg/builds/)]的release builds處下載[ffmpeg-release-essentials.zip](https://www.gyan.dev/ffmpeg/builds/ffmpeg-release-essentials.zip) 77 MB並解開至d:\



1. 將如下解開資料夾D:\ffmpeg-5.0-essentials\_build\ffmpeg-5.0-essentials\_build\bin 中的ffmpeg.exe 和ffplay.exe 拷至d:\



1. 備妥一個i.mp4影片檔

(可將<http://lfwiki.kmvs.km.edu.tw/lftree/uploads/output.mp4> 下載為d:\i.mp4)

1. 執行CMD(命令提示字元)並輸入如下ffmpeg指令，會出現本指令的版本、編譯組態與用法如下：

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1. 同(4)再執行ffmpeg –h ，會出現更多的使用說明如下。

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| D:\>ffmpeg -h  :  usage: ffmpeg [options] [[infile options] -i infile]... {[outfile options] outfile}...  Getting help:  -h -- print basic options  -h long -- print more options  -h full -- print all options (including all format and codec specific options, very long)  -h type=name -- print all options for the named decoder/encoder/demuxer/muxer/filter/bsf/protocol  See man ffmpeg for detailed description of the options.  Print help / information / capabilities:  -L show license  -h topic show help  -? topic show help  -help topic show help  --help topic show help  -version show version  -buildconf show build configuration  -formats show available formats  -muxers show available muxers  -demuxers show available demuxers  -devices show available devices  -codecs show available codecs  -decoders show available decoders  -encoders show available encoders  -bsfs show available bit stream filters  -protocols show available protocols  -filters show available filters  -pix\_fmts show available pixel formats  -layouts show standard channel layouts  -sample\_fmts show available audio sample formats  -dispositions show available stream dispositions  -colors show available color names  -sources device list sources of the input device  -sinks device list sinks of the output device  -hwaccels show available HW acceleration methods  Global options (affect whole program instead of just one file):  -loglevel loglevel set logging level  -v loglevel set logging level  -report generate a report  -max\_alloc bytes set maximum size of a single allocated block  -y overwrite output files  -n never overwrite output files  -ignore\_unknown Ignore unknown stream types  -filter\_threads number of non-complex filter threads  -filter\_complex\_threads number of threads for -filter\_complex  -stats print progress report during encoding  -max\_error\_rate maximum error rate ratio of decoding errors (0.0: no errors, 1.0: 100% errors) above which ffmpeg returns an error instead of success.  -vol volume change audio volume (256=normal)  Per-file main options:  -f fmt force format  -c codec codec name  -codec codec codec name  -pre preset preset name  -map\_metadata outfile[,metadata]:infile[,metadata] set metadata information of outfile from infile  -t duration record or transcode "duration" seconds of audio/video  -to time\_stop record or transcode stop time  -fs limit\_size set the limit file size in bytes  -ss time\_off set the start time offset  -sseof time\_off set the start time offset relative to EOF  -seek\_timestamp enable/disable seeking by timestamp with -ss  -timestamp time set the recording timestamp ('now' to set the current time)  -metadata string=string add metadata  -program title=string:st=number... add program with specified streams  -target type specify target file type ("vcd", "svcd", "dvd", "dv" or "dv50" with optional prefixes "pal-", "ntsc-" or "film-")  -apad audio pad  -frames number set the number of frames to output  -filter filter\_graph set stream filtergraph  -filter\_script filename read stream filtergraph description from a file  -reinit\_filter reinit filtergraph on input parameter changes  -discard discard  -disposition disposition  Video options:  -vframes number set the number of video frames to output  -r rate set frame rate (Hz value, fraction or abbreviation)  -fpsmax rate set max frame rate (Hz value, fraction or abbreviation)  -s size set frame size (WxH or abbreviation)  -aspect aspect set aspect ratio (4:3, 16:9 or 1.3333, 1.7777)  -vn disable video  -vcodec codec force video codec ('copy' to copy stream)  -timecode hh:mm:ss[:;.]ff set initial TimeCode value.  -pass n select the pass number (1 to 3)  -vf filter\_graph set video filters  -ab bitrate audio bitrate (please use -b:a)  -b bitrate video bitrate (please use -b:v)  -dn disable data  Audio options:  -aframes number set the number of audio frames to output  -aq quality set audio quality (codec-specific)  -ar rate set audio sampling rate (in Hz)  -ac channels set number of audio channels  -an disable audio  -acodec codec force audio codec ('copy' to copy stream)  -vol volume change audio volume (256=normal)  -af filter\_graph set audio filters  Subtitle options:  -s size set frame size (WxH or abbreviation)  -sn disable subtitle  -scodec codec force subtitle codec ('copy' to copy stream)  -stag fourcc/tag force subtitle tag/fourcc  -fix\_sub\_duration fix subtitles duration  -canvas\_size size set canvas size (WxH or abbreviation)  -spre preset set the subtitle options to the indicated preset |

1. 執行ffmpeg -i i.mp4 -c:v libx264 -c:a aac o.mp4

以影像編碼採用 H.264 、音訊編碼採用 AAC將 i.mp4 轉為 o.mp4，  
並再執行DIR \*.MP4 結果如下：  
註1: 進階音訊編碼（英語：Advanced Audio Coding，AAC）是有損音訊壓縮的專利數位音訊編碼標準，由Fraunhofer IIS、杜比實驗室、貝爾實驗室、Sony、Nokia等公司共同開發。

註2: H.264，也稱作MPEG-4 AVC（Advanced Video Codec，高級影像編碼），是一種視訊壓縮標準，同時也是一種被廣泛使用的高精度影像的錄製、壓縮和發佈格式，採基於運動補償的視訊編碼標準。

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| D:\>ffmpeg -i i.mp4 -c:v libx264 -c:a aac o.mp4  :  Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'i.mp4':  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf56.40.101  Duration: 00:00:23.04, start: 0.000000, bitrate: 2346 kb/s  Stream #0:0[0x1](eng): Video: h264 (High) (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], 2070 kb/s, 59.94 fps, 59.94 tbr, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  Stream #0:1[0x2](eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 262 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  Stream mapping:  Stream #0:0 -> #0:0 (h264 (native) -> h264 (libx264))  Stream #0:1 -> #0:1 (aac (native) -> aac (native))  Press [q] to stop, [?] for help  [libx264 @ 000001d9b5562e80] using SAR=1/1  [libx264 @ 000001d9b5562e80] using cpu capabilities: MMX2 SSE2Fast SSSE3 SSE4.2 AVX FMA3 BMI2 AVX2  [libx264 @ 000001d9b5562e80] profile High, level 4.2, 4:2:0, 8-bit  [libx264 @ 000001d9b5562e80] 264 - core 164 r3081 19856cc - H.264/MPEG-4 AVC codec - Copyleft 2003-2021 - http://www.videolan.org/x264.html - options: cabac=1 ref=3 deblock=1:0:0 analyse=0x3:0x113 me=hex subme=7 psy=1 psy\_rd=1.00:0.00 mixed\_ref=1 me\_range=16 chroma\_me=1 trellis=1 8x8dct=1 cqm=0 deadzone=21,11 fast\_pskip=1 chroma\_qp\_offset=-2 threads=6 lookahead\_threads=1 sliced\_threads=0 nr=0 decimate=1 interlaced=0 bluray\_compat=0 constrained\_intra=0 bframes=3 b\_pyramid=2 b\_adapt=1 b\_bias=0 direct=1 weightb=1 open\_gop=0 weightp=2 keyint=250 keyint\_min=25 scenecut=40 intra\_refresh=0 rc\_lookahead=40 rc=crf mbtree=1 crf=23.0 qcomp=0.60 qpmin=0 qpmax=69 qpstep=4 ip\_ratio=1.40 aq=1:1.00  Output #0, mp4, to 'o.mp4':  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf59.16.100  Stream #0:0(eng): Video: h264 (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], q=2-31, 59.94 fps, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  encoder : Lavc59.18.100 libx264  Side data:  cpb: bitrate max/min/avg: 0/0/0 buffer size: 0 vbv\_delay: N/A  Stream #0:1(eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 128 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  encoder : Lavc59.18.100 aac  frame= 1381 fps= 42 q=-1.0 Lsize= 14995kB time=00:00:23.01 bitrate=5337.5kbits/s speed=0.701x  video:14591kB audio:367kB subtitle:0kB other streams:0kB global headers:0kB muxing overhead: 0.249055%  [libx264 @ 000001d9b5562e80] frame I:7 Avg QP:22.34 size:168652  [libx264 @ 000001d9b5562e80] frame P:610 Avg QP:25.42 size: 17810  [libx264 @ 000001d9b5562e80] frame B:764 Avg QP:30.29 size: 3790  [libx264 @ 000001d9b5562e80] consecutive B-frames: 4.7% 64.0% 1.7% 29.5%  [libx264 @ 000001d9b5562e80] mb I I16..4: 6.0% 77.6% 16.4%  [libx264 @ 000001d9b5562e80] mb P I16..4: 0.5% 3.1% 0.1% P16..4: 33.5% 6.4% 3.5% 0.0% 0.0% skip:52.8%  [libx264 @ 000001d9b5562e80] mb B I16..4: 0.0% 0.2% 0.0% B16..8: 33.5% 0.9% 0.2% direct: 0.3% skip:64.8% L0:41.1% L1:57.5% BI: 1.4%  [libx264 @ 000001d9b5562e80] 8x8 transform intra:81.2% inter:82.3%  [libx264 @ 000001d9b5562e80] coded y,uvDC,uvAC intra: 51.2% 23.6% 1.2% inter: 6.7% 1.5% 0.0%  [libx264 @ 000001d9b5562e80] i16 v,h,dc,p: 30% 38% 19% 13%  [libx264 @ 000001d9b5562e80] i8 v,h,dc,ddl,ddr,vr,hd,vl,hu: 23% 15% 33% 4% 5% 5% 5% 5% 5%  [libx264 @ 000001d9b5562e80] i4 v,h,dc,ddl,ddr,vr,hd,vl,hu: 26% 16% 16% 6% 8% 8% 8% 6% 6%  [libx264 @ 000001d9b5562e80] i8c dc,h,v,p: 79% 10% 9% 1%  [libx264 @ 000001d9b5562e80] Weighted P-Frames: Y:7.5% UV:1.0%  [libx264 @ 000001d9b5562e80] ref P L0: 75.3% 17.5% 6.2% 1.0% 0.1%  [libx264 @ 000001d9b5562e80] ref B L0: 96.1% 3.7% 0.2%  [libx264 @ 000001d9b5562e80] ref B L1: 99.8% 0.2%  [libx264 @ 000001d9b5562e80] kb/s:5187.65  [aac @ 000001d9b5583840] Qavg: 476.761  D:\>DIR \*.MP4  :  D:\ 的目錄  2022/02/11 下午 02:02 6,757,887 i.mp4  2022/02/11 下午 02:17 15,354,465 o.mp4  2 個檔案 22,112,352 位元組 |

1. 同(6)增加如下-b:v 1M -b:a 256k 選項來調整bitRate(位元率)，

執行ffmpeg -i i.mp4 -c:v libx264 -c:a aac -b:v 1M -b:a 256k o.mp4

並再執行DIR \*.MP4，結果如下(o.mp4檔案已降為 3.6 MB，可是畫質很差)：

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| D:\>ffmpeg -i i.mp4 -c:v libx264 -c:a aac -b:v 1M -b:a 256k o.mp4  :  Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'i.mp4':  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf56.40.101  Duration: 00:00:23.04, start: 0.000000, bitrate: 2346 kb/s  Stream #0:0[0x1](eng): Video: h264 (High) (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], 2070 kb/s, 59.94 fps, 59.94 tbr, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  Stream #0:1[0x2](eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 262 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  File 'o.mp4' already exists. Overwrite? [y/N] Y  Stream mapping:  Stream #0:0 -> #0:0 (h264 (native) -> h264 (libx264))  Stream #0:1 -> #0:1 (aac (native) -> aac (native))  Press [q] to stop, [?] for help  [libx264 @ 000001b589b831c0] using SAR=1/1  [libx264 @ 000001b589b831c0] using cpu capabilities: MMX2 SSE2Fast SSSE3 SSE4.2 AVX FMA3 BMI2 AVX2  [libx264 @ 000001b589b831c0] profile High, level 4.2, 4:2:0, 8-bit  [libx264 @ 000001b589b831c0] 264 - core 164 r3081 19856cc - H.264/MPEG-4 AVC codec - Copyleft 2003-2021 - http://www.videolan.org/x264.html - options: cabac=1 ref=3 deblock=1:0:0 analyse=0x3:0x113 me=hex subme=7 psy=1 psy\_rd=1.00:0.00 mixed\_ref=1 me\_range=16 chroma\_me=1 trellis=1 8x8dct=1 cqm=0 deadzone=21,11 fast\_pskip=1 chroma\_qp\_offset=-2 threads=6 lookahead\_threads=1 sliced\_threads=0 nr=0 decimate=1 interlaced=0 bluray\_compat=0 constrained\_intra=0 bframes=3 b\_pyramid=2 b\_adapt=1 b\_bias=0 direct=1 weightb=1 open\_gop=0 weightp=2 keyint=250 keyint\_min=25 scenecut=40 intra\_refresh=0 rc\_lookahead=40 rc=abr mbtree=1 bitrate=1000 ratetol=1.0 qcomp=0.60 qpmin=0 qpmax=69 qpstep=4 ip\_ratio=1.40 aq=1:1.00  Output #0, mp4, to 'o.mp4':  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf59.16.100  Stream #0:0(eng): Video: h264 (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], q=2-31, 1000 kb/s, 59.94 fps, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  encoder : Lavc59.18.100 libx264  Side data:  cpb: bitrate max/min/avg: 0/0/1000000 buffer size: 0 vbv\_delay: N/A  Stream #0:1(eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 256 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  encoder : Lavc59.18.100 aac  frame= 1381 fps= 49 q=-1.0 Lsize= 3552kB time=00:00:23.01 bitrate=1264.3kbits/s speed=0.811x  video:2821kB audio:694kB subtitle:0kB other streams:0kB global headers:0kB muxing overhead: 1.059906%  [libx264 @ 000001b589b831c0] frame I:7 Avg QP:39.79 size: 40197  [libx264 @ 000001b589b831c0] frame P:610 Avg QP:44.04 size: 2919  [libx264 @ 000001b589b831c0] frame B:764 Avg QP:49.34 size: 1081  [libx264 @ 000001b589b831c0] consecutive B-frames: 4.7% 64.0% 1.7% 29.5%  [libx264 @ 000001b589b831c0] mb I I16..4: 14.3% 77.9% 7.8%  [libx264 @ 000001b589b831c0] mb P I16..4: 0.6% 1.7% 0.0% P16..4: 15.7% 0.3% 0.4% 0.0% 0.0% skip:81.5%  [libx264 @ 000001b589b831c0] mb B I16..4: 0.0% 0.0% 0.0% B16..8: 18.2% 0.0% 0.0% direct: 0.0% skip:81.8% L0:28.9% L1:71.0% BI: 0.0%  [libx264 @ 000001b589b831c0] final ratefactor: 40.88  [libx264 @ 000001b589b831c0] 8x8 transform intra:75.2% inter:97.2%  [libx264 @ 000001b589b831c0] coded y,uvDC,uvAC intra: 19.6% 12.9% 0.1% inter: 0.7% 0.3% 0.0%  [libx264 @ 000001b589b831c0] i16 v,h,dc,p: 39% 36% 11% 14%  [libx264 @ 000001b589b831c0] i8 v,h,dc,ddl,ddr,vr,hd,vl,hu: 11% 7% 68% 2% 3% 2% 3% 2% 2%  [libx264 @ 000001b589b831c0] i4 v,h,dc,ddl,ddr,vr,hd,vl,hu: 21% 17% 20% 8% 9% 7% 7% 5% 4%  [libx264 @ 000001b589b831c0] i8c dc,h,v,p: 95% 3% 2% 0%  [libx264 @ 000001b589b831c0] Weighted P-Frames: Y:7.5% UV:1.0%  [libx264 @ 000001b589b831c0] ref P L0: 78.7% 6.5% 11.2% 3.4% 0.2%  [libx264 @ 000001b589b831c0] ref B L0: 96.3% 3.4% 0.3%  [libx264 @ 000001b589b831c0] ref B L1: 99.6% 0.4%  [libx264 @ 000001b589b831c0] kb/s:1002.77  [aac @ 000001b58a0aa040] Qavg: 9373.473  D:\>DIR \*.MP4  :  2022/02/11 下午 02:02 6,757,887 i.mp4  2022/02/11 下午 02:29 3,637,048 o.mp4  2 個檔案 10,394,935 位元組 |

1. 同(7)改如下-b:v 4M選項來調整bitRate(位元率)，

執行ffmpeg -i i.mp4 -c:v libx264 -c:a aac -b:v 4M -b:a 256k o.mp4

並再執行DIR \*.MP4，結果如下(o.mp4檔案昇為 13MB，可是畫質不會變更好)：

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| D:\>ffmpeg -i i.mp4 -c:v libx264 -c:a aac -b:v 4M -b:a 256k o.mp4  :  Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'i.mp4':  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf56.40.101  Duration: 00:00:23.04, start: 0.000000, bitrate: 2346 kb/s  Stream #0:0[0x1](eng): Video: h264 (High) (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], 2070 kb/s, 59.94 fps, 59.94 tbr, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  Stream #0:1[0x2](eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 262 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  File 'o.mp4' already exists. Overwrite? [y/N] Y  Stream mapping:  Stream #0:0 -> #0:0 (h264 (native) -> h264 (libx264))  Stream #0:1 -> #0:1 (aac (native) -> aac (native))  Press [q] to stop, [?] for help  [libx264 @ 00000222132031c0] using SAR=1/1  [libx264 @ 00000222132031c0] using cpu capabilities: MMX2 SSE2Fast SSSE3 SSE4.2 AVX FMA3 BMI2 AVX2  [libx264 @ 00000222132031c0] profile High, level 4.2, 4:2:0, 8-bit  [libx264 @ 00000222132031c0] 264 - core 164 r3081 19856cc - H.264/MPEG-4 AVC codec - Copyleft 2003-2021 - http://www.videolan.org/x264.html - options: cabac=1 ref=3 deblock=1:0:0 analyse=0x3:0x113 me=hex subme=7 psy=1 psy\_rd=1.00:0.00 mixed\_ref=1 me\_range=16 chroma\_me=1 trellis=1 8x8dct=1 cqm=0 deadzone=21,11 fast\_pskip=1 chroma\_qp\_offset=-2 threads=6 lookahead\_threads=1 sliced\_threads=0 nr=0 decimate=1 interlaced=0 bluray\_compat=0 constrained\_intra=0 bframes=3 b\_pyramid=2 b\_adapt=1 b\_bias=0 direct=1 weightb=1 open\_gop=0 weightp=2 keyint=250 keyint\_min=25 scenecut=40 intra\_refresh=0 rc\_lookahead=40 rc=abr mbtree=1 bitrate=4000 ratetol=1.0 qcomp=0.60 qpmin=0 qpmax=69 qpstep=4 ip\_ratio=1.40 aq=1:1.00  Output #0, mp4, to 'o.mp4':  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf59.16.100  Stream #0:0(eng): Video: h264 (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], q=2-31, 4000 kb/s, 59.94 fps, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  encoder : Lavc59.18.100 libx264  Side data:  cpb: bitrate max/min/avg: 0/0/4000000 buffer size: 0 vbv\_delay: N/A  Stream #0:1(eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 256 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  encoder : Lavc59.18.100 aac  frame= 1381 fps= 44 q=-1.0 Lsize= 12754kB time=00:00:23.01 bitrate=4539.8kbits/s speed=0.728x  video:12023kB audio:694kB subtitle:0kB other streams:0kB global headers:0kB muxing overhead: 0.292939%  [libx264 @ 00000222132031c0] frame I:7 Avg QP:24.34 size:145205  [libx264 @ 00000222132031c0] frame P:610 Avg QP:27.57 size: 14355  [libx264 @ 00000222132031c0] frame B:764 Avg QP:32.51 size: 3321  [libx264 @ 00000222132031c0] consecutive B-frames: 4.7% 64.0% 1.7% 29.5%  [libx264 @ 00000222132031c0] mb I I16..4: 6.4% 78.2% 15.4%  [libx264 @ 00000222132031c0] mb P I16..4: 0.6% 2.9% 0.1% P16..4: 33.1% 5.3% 2.7% 0.0% 0.0% skip:55.4%  [libx264 @ 00000222132031c0] mb B I16..4: 0.0% 0.2% 0.0% B16..8: 32.7% 0.6% 0.1% direct: 0.2% skip:66.1% L0:41.1% L1:58.1% BI: 0.8%  [libx264 @ 00000222132031c0] final ratefactor: 25.42  [libx264 @ 00000222132031c0] 8x8 transform intra:80.5% inter:84.8%  [libx264 @ 00000222132031c0] coded y,uvDC,uvAC intra: 45.2% 21.0% 0.7% inter: 5.5% 1.2% 0.0%  [libx264 @ 00000222132031c0] i16 v,h,dc,p: 30% 37% 18% 14%  [libx264 @ 00000222132031c0] i8 v,h,dc,ddl,ddr,vr,hd,vl,hu: 22% 14% 36% 4% 5% 5% 5% 4% 4%  [libx264 @ 00000222132031c0] i4 v,h,dc,ddl,ddr,vr,hd,vl,hu: 22% 17% 17% 7% 9% 8% 8% 6% 6%  [libx264 @ 00000222132031c0] i8c dc,h,v,p: 82% 10% 8% 1%  [libx264 @ 00000222132031c0] Weighted P-Frames: Y:7.5% UV:1.0%  [libx264 @ 00000222132031c0] ref P L0: 74.4% 18.4% 6.1% 1.0% 0.1%  [libx264 @ 00000222132031c0] ref B L0: 96.4% 3.4% 0.2%  [libx264 @ 00000222132031c0] ref B L1: 99.8% 0.2%  [libx264 @ 00000222132031c0] kb/s:4274.55  [aac @ 0000022213b6a040] Qavg: 9373.473  D:\>DIR \*.MP4  :  2022/02/11 下午 02:02 6,757,887 i.mp4  2022/02/11 下午 02:39 13,059,644 o.mp4  2 個檔案 19,817,531 位元組 |

(9)在CMD 執行 ffplay I.MP4 會出現影片播放，按esc結束後結果如下：

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| --- |
| D:\>FFPLAY I.MP4  :  Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'I.MP4':B sq= 0B f=0/0  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf56.40.101  Duration: 00:00:23.04, start: 0.000000, bitrate: 2346 kb/s  Stream #0:0[0x1](eng): Video: h264 (High) (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], 2070 kb/s, 59.94 fps, 59.94 tbr, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  Stream #0:1[0x2](eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 262 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  : |



(10) 同(9)在CMD 執行 ffplay o.MP4，會出現影片播放，按esc結束後結果如下：

|  |
| --- |
| D:\>FFPLAY o.MP4  :  Input #0, mov,mp4,m4a,3gp,3g2,mj2, from 'o.MP4':B sq= 0B f=0/0  Metadata:  major\_brand : isom  minor\_version : 512  compatible\_brands: isomiso2avc1mp41  encoder : Lavf59.16.100  Duration: 00:00:23.04, start: 0.000000, bitrate: 4534 kb/s  Stream #0:0[0x1](eng): Video: h264 (High) (avc1 / 0x31637661), yuvj420p(pc, progressive), 1920x1080 [SAR 1:1 DAR 16:9], 4274 kb/s, 59.94 fps, 59.94 tbr, 60k tbn (default)  Metadata:  handler\_name : VideoHandler  vendor\_id : [0][0][0][0]  Stream #0:1[0x2](eng): Audio: aac (LC) (mp4a / 0x6134706D), 48000 Hz, stereo, fltp, 246 kb/s (default)  Metadata:  handler\_name : SoundHandler  vendor\_id : [0][0][0][0]  :  D:\> |

常用指令用法參考文章：<https://lnpcd.blogspot.com/2012/09/ffmpeg.html>