**FFMPEG**

**FFmpeg is a multimedia framework, able to**

* **Decode**
* **encode**
* **transcode**
* **mux: this technique allows to integrate (Video+audio) into single source.**
* **Demux: allow to extract (Video+ audio) from single source.**
* **stream**
* **filter**
* **and play pretty much anything that humans and machines have created.**

**MP3 from Video**

**ffmpeg -i input.mp4 output.mp3**

* **-i = next token is input**
* **Last token is output**
* **Audio transcoded from AAC (input file) to MP3 (output file)**

**Any thing in command line is not interpreted as an (option or input) file is considered output file.**

**In this process ffmpeg demux input to video source + audio source then then ffmpeg drop the video source and transcode ACC audio to mp3 and then mux for the first time and save the new mux as output.mp3 file.**

**How to check input metadata details?**

**ffprobe -i input.mp4**

**\*Copying the input source is much more faster than transcode the input from source to source**

**For example:**

**AAC -> mp3 file require more processing to convert to the target fileCopy Audio from video rather than transcoding it**

**ffmpeg -I input.mp4 -vn -c:a copy output.aac**

* **-vn = video none**
* **-c:a copy = copy audio into new file output.aac**
  + **Note\* a = qualify to the audio stream only copy**
* **FASTER THAN TRANSCODING**

**Reduce audio Bitrate**

**ffmpeg -i input.acc -ab 96k output.aac**

* **-ab 96k = set audio bitrate to 96kbps**
* **\*lower case k = kb per second**
* **\*upper case K or M = kbyte**
* **this processing cost time to execut because we need to decode and the incode (taken copy is pretty faster).**
* **Bit rate = (vertical (bit depth) + horizontal (sampling rate))**
  + **Bits/s**
* **When change bitrate, horizontal rate does not change** 
  + **Effectively chaning bit-depth**

**Copy Clip from long video**

**ffmpeg -I input.mp4 -ss 02:00 -t 01:00 -c copy output.mp4**

* **-ss 02:00 skip first 2 minutes from input file**
* **-t 01:00 duration. Process input for 2 minutes**
* **-c copy = copy both video and audio**
* **-codec shortcut**
  + **-c:v copy = copy video only**
  + **-c:a copy = copy audio only**
  + **-c:s copy = copy subtitle**

**Video Snapshots**

**ffmpeg -I input.mp4 -r .01 blink\_lv\_%03d.png**

* **-r .01 = process input at rate .01 Hz**
  + **(1 frame every 100 second)**
* **blink\_lv\_%03d.png**
  + **blink\_lv\_001 , blink\_lv\_002 , blink\_lv\_......n**

**1080 to 720**

**ffmpeg -i input.mp4 -vf scale=-1:720 output\_720.mp4**

* **-vf** 
  + **v = video**
  + **f = filter**
* **scale =-1:720** 
  + **-1 mean get the original width**
  + **720 = new heigh**

**Animated GIF**

**ffmpeg -i input.mp4 -r 2 output.gif**

**-r 2 mean take frames at 2 Hz (every .5 second)**

**Drop audio from video**

**ffmpeg -i input.mp4 -c copy -an output.mov**

* **-an = audio none skip stream audio inclusion**
  + **-vn , -an , -sn , -dn**

**Merge audio and video**

**ffmpeg -i audioInput.mp3 -i input.mp4 -c:v copy -c:a copy -shortest output\_adele\_zero\_down.mp4**

**Concatenate Videos**

**ffmpeg -f concat -i con\_list.txt -c copy output.mp4**

**-f concat = force format. concatenate format.**

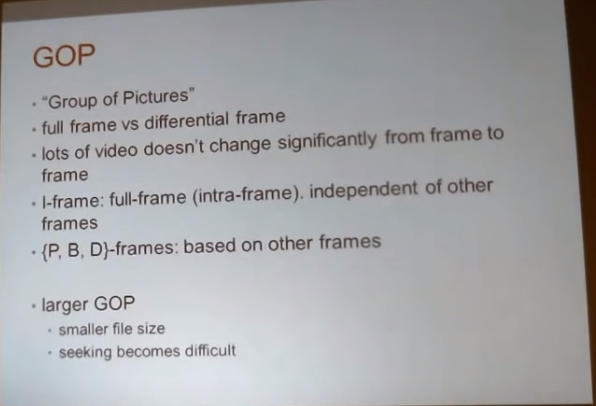
* **con\_list.txt**
* **file input1.mp4**
* **file input2.mp4**
* **file input3.mp4 …. And more**

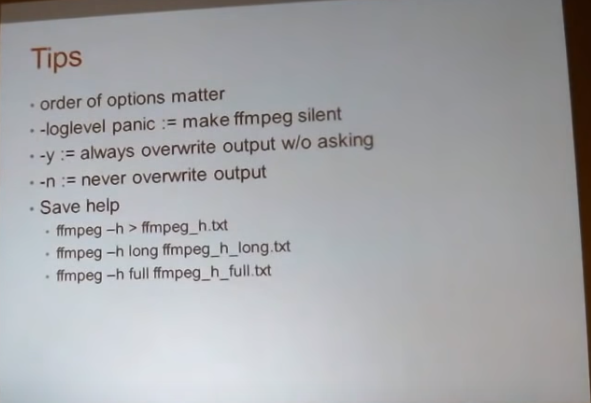
**key word and definitions**

**Container = is the place that you can store multilabel stream at on output file.**

**Streams are media components**

* **-video**
  + **h.264, MPEG-2, WMV, VP\***
* **-audio**
  + **MP3, AAC, WMA**

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