

# FFMPEG Module

## 1 Module Name

FFMPEG

## 2 Scope

This module introduces how to use FFMPEG, a tool used to perform conversions and modifications on multimedia files. It introduces the most basic uses which happen to be the most common use cases.

## 3 Learning Objectives

At the end of a module, the student will be able to

1. Convert a video between multiple formats and qualities
2. Have a concept of how bit rate affects file size and quality of videos
3. Pad/crop a video and take thumbnails from videos

## 4 Level of Effort Required

- 1-2 hours of understanding material and going through lecture slides
- 1 hour of exercises

## 5 Prerequisite Knowledge Required

Basic knowledge of Unix commands and Unix file structure

## 6 Body of Knowledge

- Installing FFMPEG with libraries
  - <http://jungels.net/articles/ffmpeg-howto.html>
- FFMPEG command examples
  - <http://ffmpeg.org/ffmpeg.html#toc-Examples-5>
- FFMPEG list of options
  - <http://ffmpeg.org/ffmpeg.html>

## 7 Resources

- FFMPEG Documentation
  - <http://ffmpeg.org/ffmpeg.html>

## 8 Exercises/Learning Activities

1. Try converting your video with various bit rate tolerances (the -bt switch), how does this affect the size of the video?
2. Try converting your video with various bit rates (the -b:v switch), how does this affect the size? Is there a strong correlation between bit rate and file size?
3. Convert a video so it has half the dimensions of the original and has a bit rate of 400kbps with 0 bit rate tolerance.
4. Trim a video from 10 seconds till the end of the video.
5. Pad a video with 30px of red around each border.
6. Grab a screenshot from any video at 10 seconds that crops only the bottom left quadrant.
7. Pick 3 options (that haven't been reviewed in this module) and use them in separate commands – explain what each command does.

## 9 Evaluation of learning objective achievement

- Are students confident in using FFMPEG via the command line?
- Can students explain the correlation between bit rate and file size and video quality?
- Are students capable of performing more involved operations (such as making thumbnails, using new options, cropping a video, etc.) using FFMPEG?

## 10 Contributors

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