

Course Code 005636 (Fall 2019)

# Multimedia



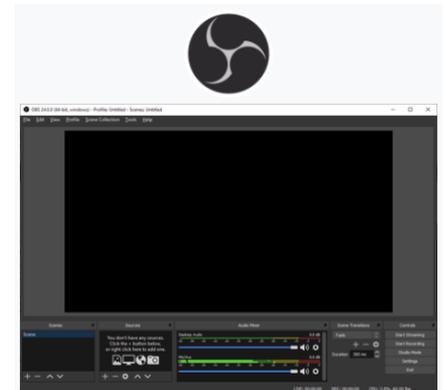
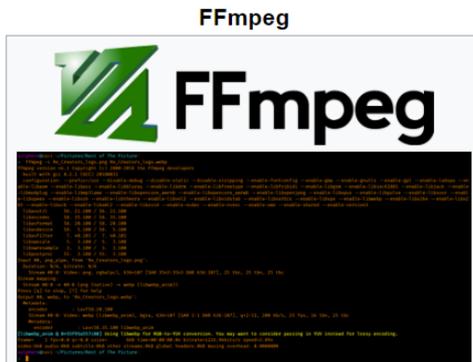
Multimedia Frameworks & Tools

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# Outline

- Introduction to FFmpeg
- Introduction to OpenShot Video Editor
- Introduction to Open Broadcaster Software (OBS)



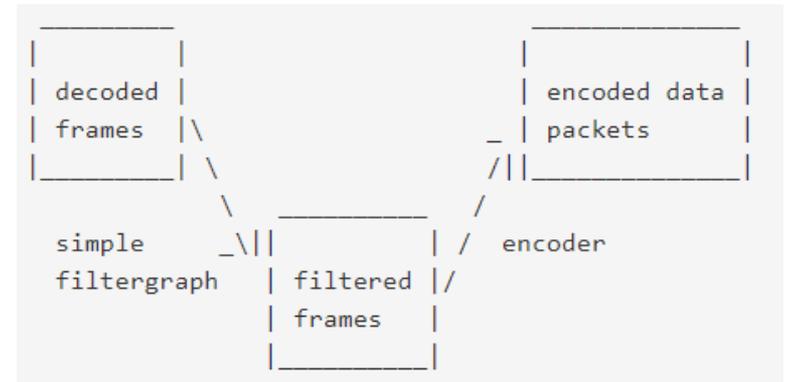
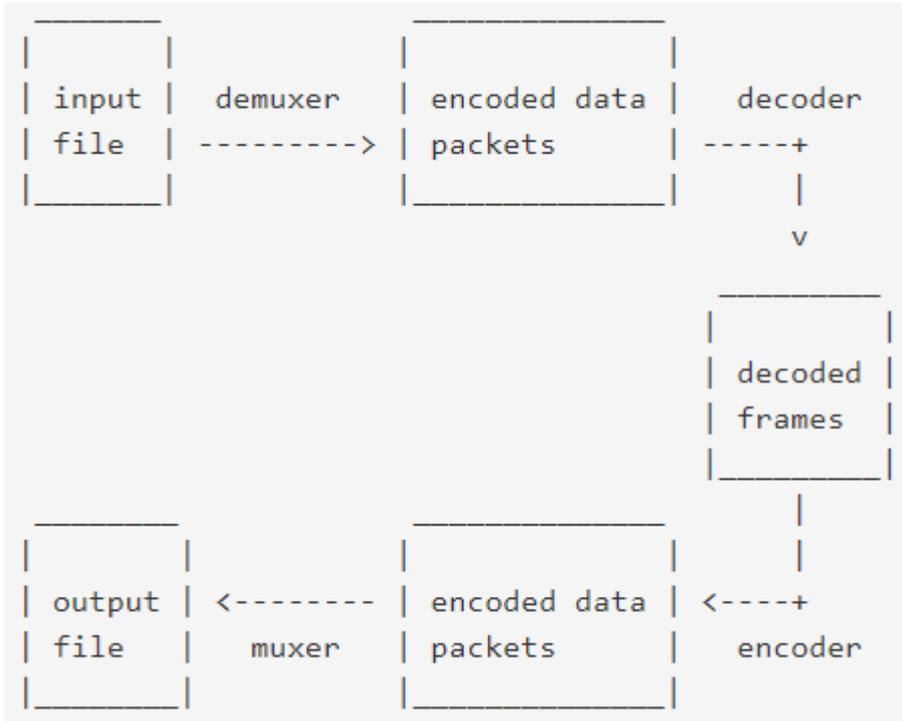
# What is FFmpeg

- A vast software suite of libraries and programs for handling video, audio, and other multimedia files and streams.
- Command-line-based processing of video and audio files, and widely used for format transcoding, basic editing, video scaling, video post-production effects, and standards compliance.
- FFMPEG requires this kind of syntax in a shell command:

```
ffmpeg [input options] -i "input_name" [output options] "output_file_name"
```

# What is FFmpeg

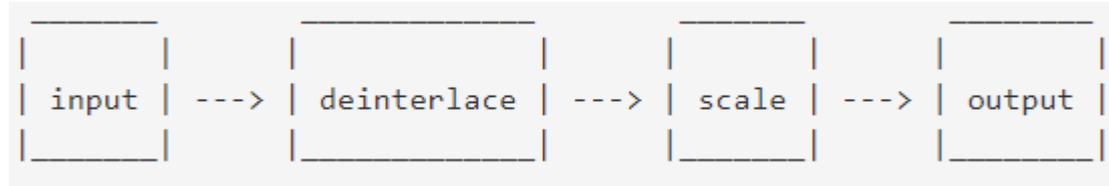
## Transcodign Process



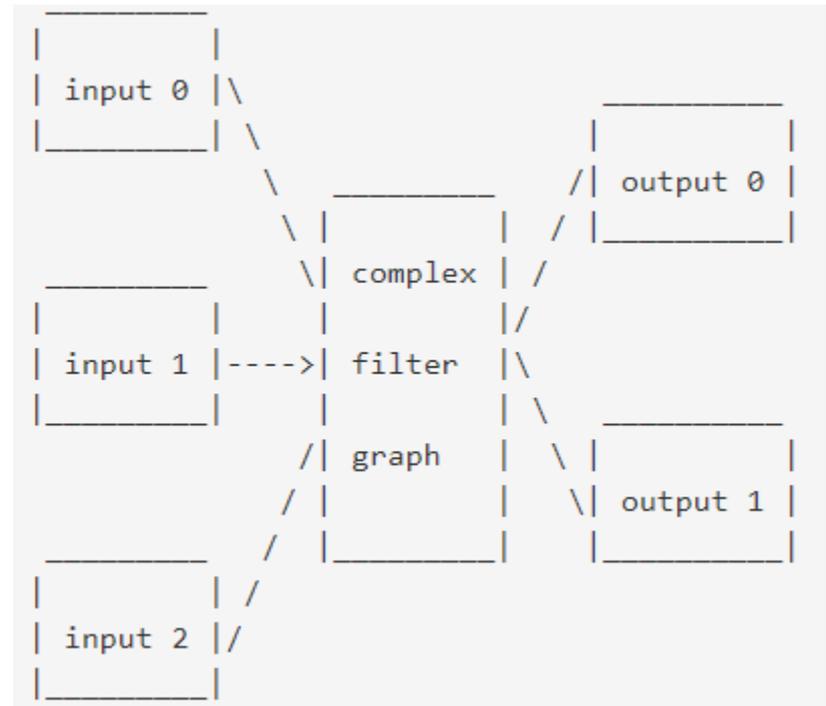
Before encoding, ffmpeg can process raw audio and video frames using filters from the libavfilter library.

# What is FFmpeg

## Filtering



- Several chained filters form a filter graph.
- ffmpeg distinguishes between two types of filtergraphs: simple and complex.



# Ffmpeg Basics

## Video Settings

- `-r` : determines what the frame rate for either input or output. This is measured in units of frames per second. For example `-r 20` would mean 20 frames per second.
- `-vcodec` or `-c:v` : allows you to set the video codec. H264, avi, and various mpeg formats are all supported. For example: `-vcodec avi`
- `-acodec` or `-c:a` : allows you to set the audio codec. Supported formats include AAC, FLAC, and various modes of mp3. For example: `-acodec libfdk_aac`
- `-video_size`: it controls the video resolution. This is done typically by pixel values. For example, `-video_size 1920x1080` would be HD resolution.

# Ffmpeg Basics

FFMPEG outputs typically are video or audio files. There are certain settings that pertain to them.

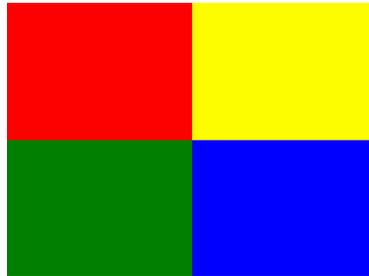
- -y: This indicator states that the output file can overwrite an older file of the same name.
- -t: This indicates how long the video should be. t is stated in seconds. -t 60 would cause the video to run for one minute.
- -q:v: Indicates the video quality ranging from 1-31. 1 would be the highest indicator, and 31 would be the lowest. (-crf for mp4)

# FFmpeg

## Filters

- FFMPEG also allows the user to apply filters to video
- Allows users to edit videos on the fly via terminal
- `-filter_complex`

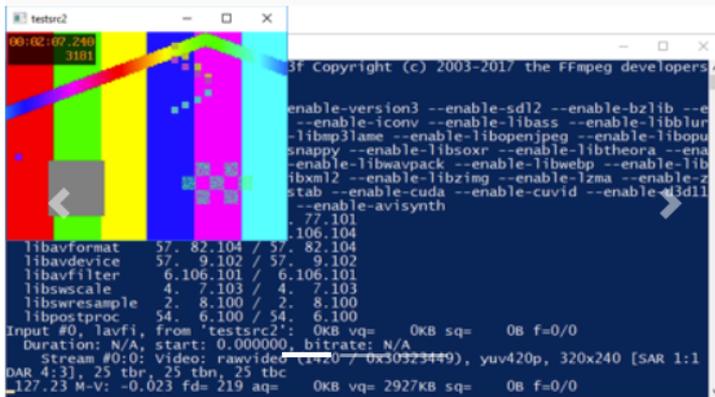
More interesting feature: ability to tile four video streams into one.



# Ffmpeg Installation

- FFmpeg Builds

<https://ffmpeg.zeranoe.com/builds/>



## Version

20191110-3a84081

4.2.1

## Architecture

Windows 64-bit

Windows 32-bit

macOS 64-bit

## Linking

Static

Shared

Dev

Download Build

<https://youtu.be/qjtmgCb8NcE>

see Video

INSTALL  
FFMPEG  
WINDOWS 10



# Ffmpeg Commands

- 20+ FFmpeg Commands For Beginners

<https://www.ostechnix.com/20-ffmpeg-commands-beginners/>

- FFMPEG Introduction & Examples

[https://youtu.be/BiMP\\_hN8f6s](https://youtu.be/BiMP_hN8f6s)



# Ffmpeg Commands

- How to use FFMPEG

<https://youtu.be/MPV7JXTWPWI>



- FFMPEG Advanced Techniques Pt1 - Advanced Filters

[https://youtu.be/M58rc7cxl\\_s](https://youtu.be/M58rc7cxl_s)



- FFMPEG Advanced Techniques Pt2 - Filtergraphs & Timeline

<https://youtu.be/hEIDsyuAQDA>



# OpenShot Video Editor

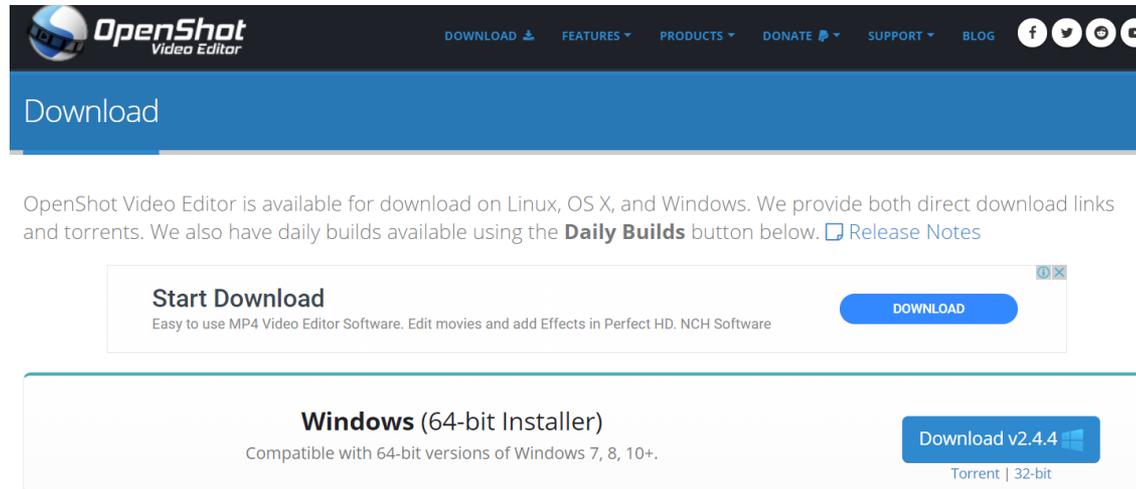
- This is an Open Source Video Editor.
- Basic video editing features like trimming and slicing.
- It facilitates tile templates, transitions, and audio/video effects.



# OpenShot Video Editor

- OpenShot Installation

<https://www.openshot.org/download/>



The screenshot shows the OpenShot Video Editor website's download page. At the top, there is a navigation bar with the OpenShot logo and links for DOWNLOAD, FEATURES, PRODUCTS, DONATE, SUPPORT, and BLOG. Below the navigation bar is a blue header with the word "Download". The main content area contains a paragraph stating that OpenShot Video Editor is available for download on Linux, OS X, and Windows, and provides direct download links and torrents. Below this paragraph is a "Start Download" section with a "DOWNLOAD" button. Further down is a "Windows (64-bit Installer)" section with a "Download v2.4.4" button and a link to "Torrent | 32-bit".

- OpenShot Video Editor Tutorial

[https://youtu.be/l\\_r12b99Tlg](https://youtu.be/l_r12b99Tlg)



# Open Broadcast Software (OBS)

## OBS

- Free and open-source cross-platform streaming and recording program
- It can be used to capture computer screen and record it.
- It supports multiple source types to capture while dynamically mixing in the prerecorded video, talking heads, audio, graphics, window captures, browser windows, and webcams.

***To know more (optional):***

<https://help.vidizmo.com/support/solutions/articles/17000066855-how-to-record-video-presentations-using-obs-studio>

# Open Broadcast Software (OBS)

- OBS Installation

<https://obsproject.com/download>



- OBS Tutorial

[https://youtu.be/DTk99mHDX\\_I](https://youtu.be/DTk99mHDX_I)



# Q&A

