The Media Streaming Journal

April 2023

Covering Audio and Video Internet Broadcasting

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Welcome to The Media Streaming Journal

Welcome to the latest edition of The Media Streaming Journal.

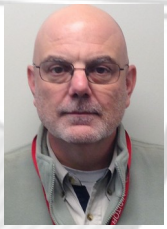
This month's edition covers the Openshot video editor software. The editor supports FFmpeg's multimedia compression formats, audio and video codecs. It provides excellent multimedia support for content creation for the open source software enthusiast.

Please feel free to contact either the Publication Director (Derek Bullard) or myself if you have any questions or comments regarding The Media Streaming Journal.

Namaste

David Childers

The Grand Master of Digital Disaster
(Editor In Chief)



www.linkedin.com/pub/david-childers/4/736/72a

The Media Streaming Journal

What is in this edition of the Media Streaming Journal

OpenShot Video Editor Documentation
Release 3.0.0

Join our technical discussion on Facebook

http://www.facebook.com/groups/internetradiosupport/

Magazine cover:

https://commons.wikimedia.org/wiki/File:OpenShot_logo_(2016).svg

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Our Mission

Let our friendly, knowledgeable staff assist you to build your project, such as an online radio station using our high end reliable video and audio streaming technologies. We want to become your partner for all your hosting needs, as well as your one stop shop for radio products such as custom DJ drops and radio ID's.

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Whatever you need to start Internet radio station, we will deliver! We provide high quality Internet Radio services to make your music radio project a success. We can provide Wowza, Icecast, SHOUTcast hosting and internet radio services to hobbyists, deejays, amateurs and established professionals. No radio station client is too big or too small for Radiosolution.

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Starting your own Internet radio has never been easier. Get in touch with us anytime to start your Internet radio station.

Radiosolution is a SHOUTcast hosting provider located in Quebec Canada. We also offer Icecast, Wowza and Web Hosting services. Contact us to discuss the best option available as you start internet radio station. Radiosolution can provide personalized service in English, Dutch, and French. Starting an internet radio station can be intimidating, many people want to start one, but have no idea where to start. Radiosolution will be there for you every step of the way. Everyday people are searching the internet for free SHOUTcast servers. With Radiosolution SHOUTcast hosting we will allow you to try our services for FREE. By trying our services, you can be confident that you have chosen the best radio server hosting provider. You have nothing to loose because we offer a 30 day satisfaction guarantee. What are you waiting for? Contact us now! Radiosolution offers everything you need to start internet radio station. You will not need to go anywhere else. We can create your website, market your station and help you submit your station to online directories. We also feature the voice of Derek Bullard aka Dibblebee He can create affordable commercials, DJ intros, sweepers, jingles, ids and so much more.

Hey You! Yes, You!
Why Should Anyone Listen to You?!

Do you need compelling, clever copy or catchphrases for your Internet station? If you do, please visit and let's talk!

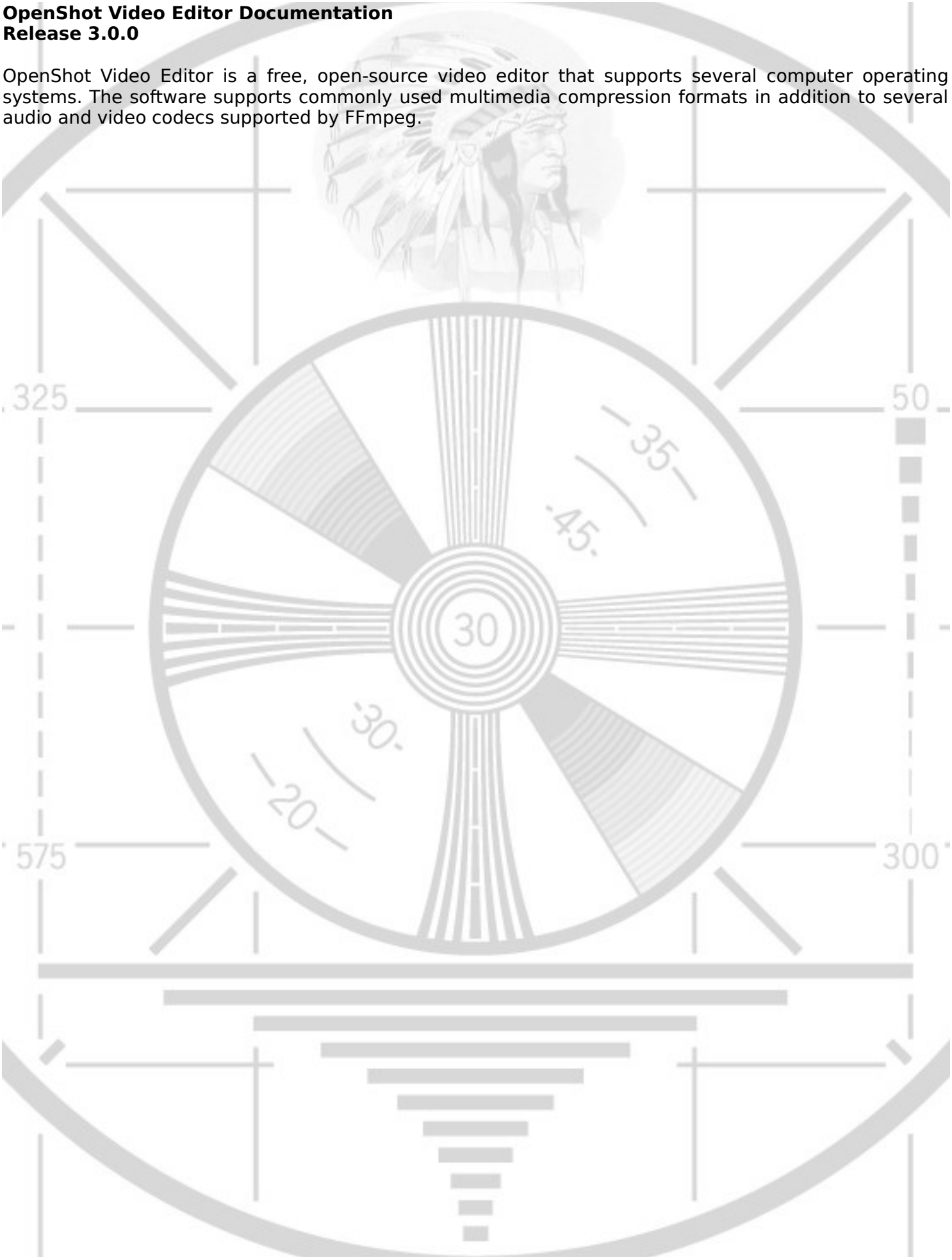
http://www.ielectrify.com/work-with-me/

I am a professional writer with 15+ years of experience creating high-converting copy, for a variety of radio, broadcasting and marketing applications.

https://www.wpclipart.com/people/professions/professions_3/radio_announcer.png.html

OpenShot Video Editor Documentation
Release 3.0.0

OpenShot Video Editor is a free, open-source video editor that supports several computer operating systems. The software supports commonly used multimedia compression formats in addition to several audio and video codecs supported by FFmpeg.



OpenShot Video Editor Documentation

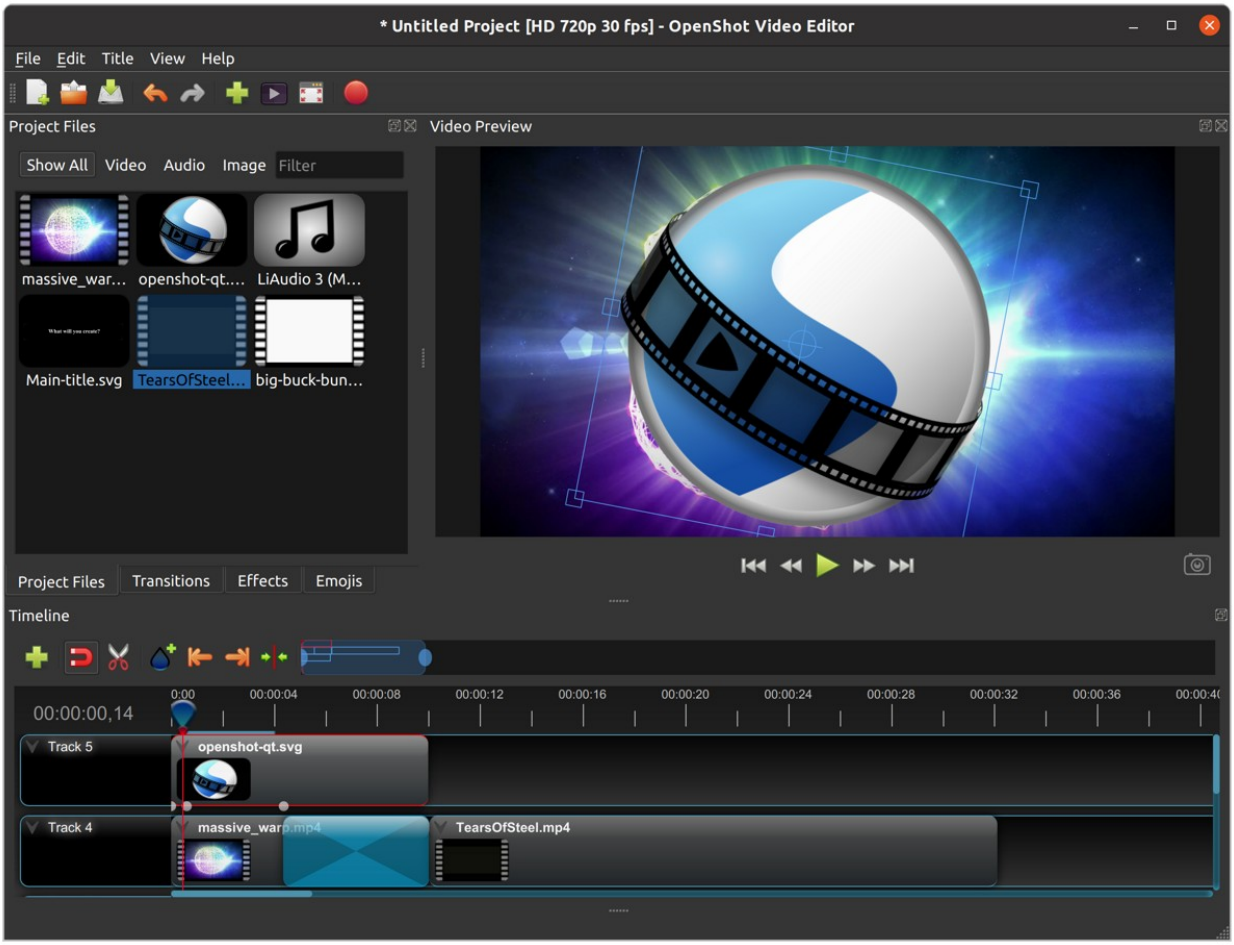
Release 3.0.0

OpenShot Studios, LLC

Mar 28, 2023

CONTENTS

OpenShot Video Editor is an award-winning, open-source video editor, available on Linux, Mac, Chrome OS, and Windows. OpenShot can create stunning videos, films, and animations with an easy-to-use interface and rich set of features.



CHAPTER

ONE

TABLE OF CONTENTS:

1.1 Introduction

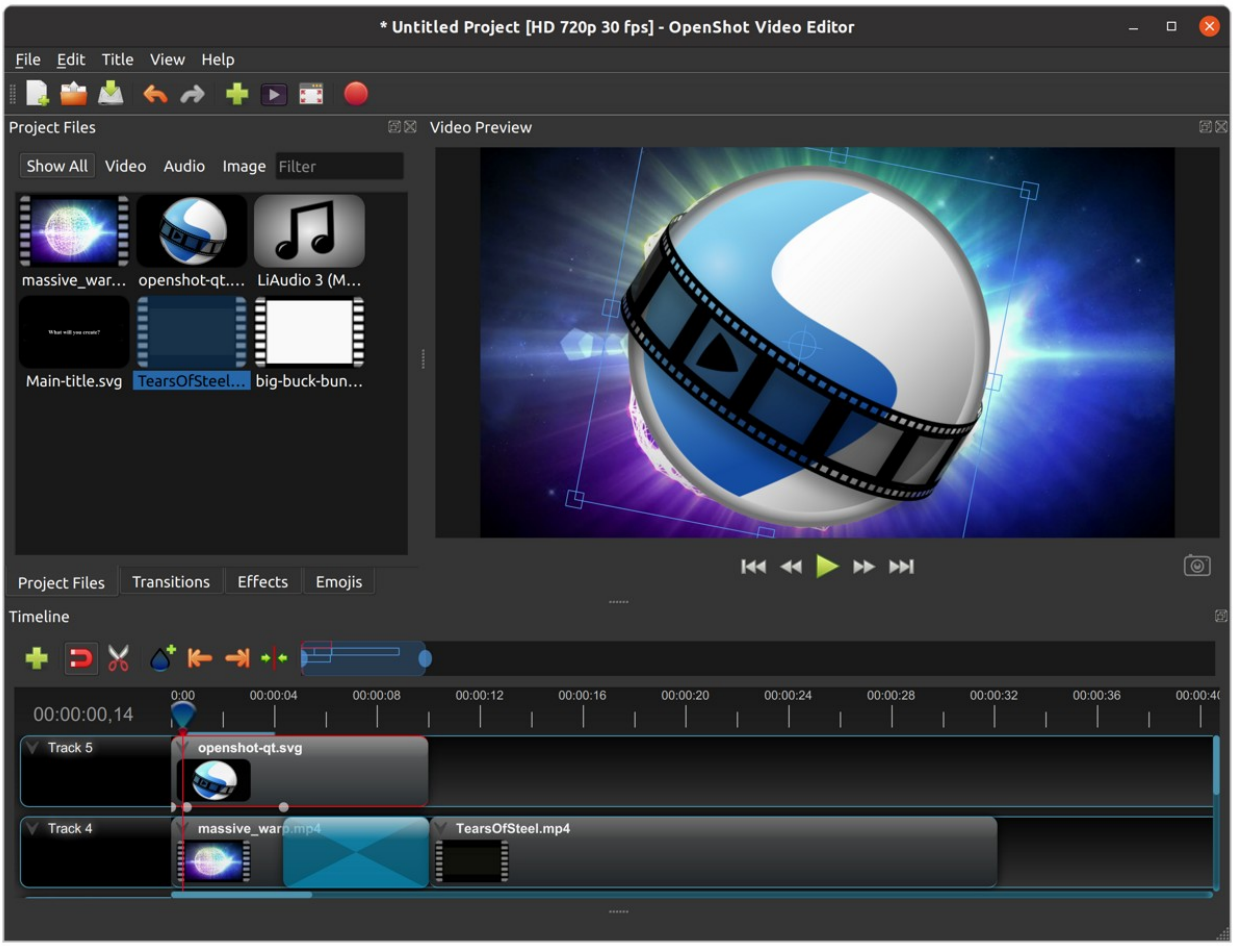
OpenShot Video Editor is an award-winning, open-source video editor, available on Linux, Mac, and Windows. OpenShot can create stunning videos, films, and animations with an easy-to-use interface and rich feature-set.

1.1.1 Features

- **Free & open-source** (licensed under GPLv3)
- **Cross-platform** (Linux, OS X, Chrome OS, and Windows)
- **Easy-to-use user interface** (designed for beginners, built-in tutorial)
- **Supports most video, audio, & image formats** (based on FFmpeg)
- **Includes popular video profiles & presets** (over 70+ profiles, including YouTube HD)
- **Advanced timeline** (including drag and drop, scrolling, panning, zooming, and snapping)
- **Advanced clips** (including trimming, alpha, scaling, location, rotation, and shearing)

- **Real-time preview** (multi-threaded, and optimized for performance)
- **Simple & advanced views** (or customize your own unique view)
- **Powerful, curve-based Keyframe animations** (*linear*, *Bézier*, and *constant* interpolation)
- **Compositing, image overlays, watermarks, & transparency**
- **Unlimited tracks / layers** (support for complex projects)
- **Video transitions, masks, & wipes** (grayscale images and animated masks)
- **Video & audio effects** (including brightness, gamma, hue, chroma key / blue screen, and more)
- **Image sequences & 2D animations** (*001.png*, *002.png*, *003.png*, etc. . .)
- **Blender 3D integration** (animated 3D title templates)
- **Vector file support & editing** (SVG / scalable vector graphics used for titles and credits)
- **Audio mixing, waveform, & editing**
- **Emojis** (open-source stickers & artwork included)
- **Frame accuracy** (step through each frame of video)
- **Time mapping & speed changes** (slow/fast, forward/backward)
- **Advanced AI** (motion tracking, object detection, & stabilization effects)
- **Credits & captions** (scrolling and animated)
- **Hardware accelerated** (encoding & decoding supports NVIDIA, AMD, Intel and more)
- **Import & export** (EDL and Final Cut Pro formats, supports most video editors)
- **Desktop integration** (drag and drop from file managers)
- **JSON project format** (compatible with OpenShot Cloud API for cloud-based automation)
- **Customizable keyboard shortcuts**
- **Translations** (available in 100+ languages)
- **Community support** (Join our community to ask questions and discuss topics)
- **Professional support**: Schedule a call

1.1.2 Screenshot



1.1.3 System Requirements

Video editing benefits from modern, multi-core CPUs with **fast clock speeds** (GHz), large amounts of memory, and fast hard disk drives. Basically, you want the best computer you can afford when video editing. Here are the **minimum system requirements**:

TL;DR

Most computers manufactured after 2017 will run OpenShot

Minimum Specifications

- 64-bit Operating System (*Linux, OS X, Chrome OS, Windows 7/8/10/11*)
- **Multi-core processor with 64-bit support**
  - Minimum cores: 2 (*recommended: 6+ cores*)
  - Minimum threads: 4 (*recommended: 6+ threads*)
  - Minimum turbo clock speed: 2.7 Ghz (*recommended: 3.4+ Ghz*)
- 4GB of RAM (*16+ GB recommended*)
- 1 GB of hard-disk space for installation & usage (*recommended: 50+ GB available hard-disk space for media, videos, images, and storage*)
- Optional: Solid-state drive (SSD), if utilizing disk-caching add an additional 10GB of hard-disk space

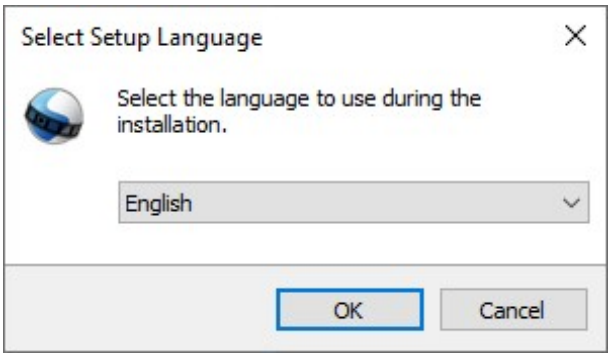
1.1.4 License

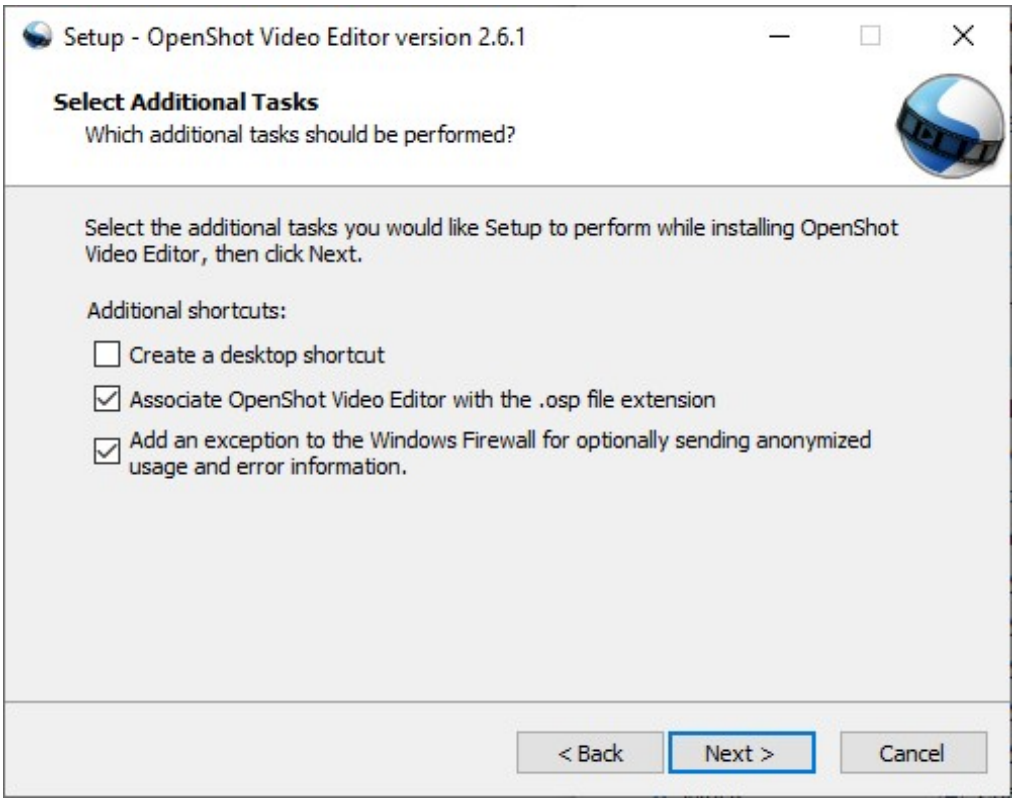
1.2 Installation

The latest **stable** version of OpenShot Video Editor for Linux, Mac, Chrome OS, and Windows can be downloaded from the official download page at https://www.openshot.org/download/. You can find our latest **unstable** versions (i.e. daily builds) at https://www.openshot.org/download#daily (these versions are updated very frequently, and often contain many improvements not yet released in our stable build).

1.2.1 Windows (Installer)

Download the Windows installer from the official download page (the download page contains both 64-bit and 32-bit versions), double click it, and follow the directions on screen. Once completed, OpenShot will be installed and available in your Start menu.



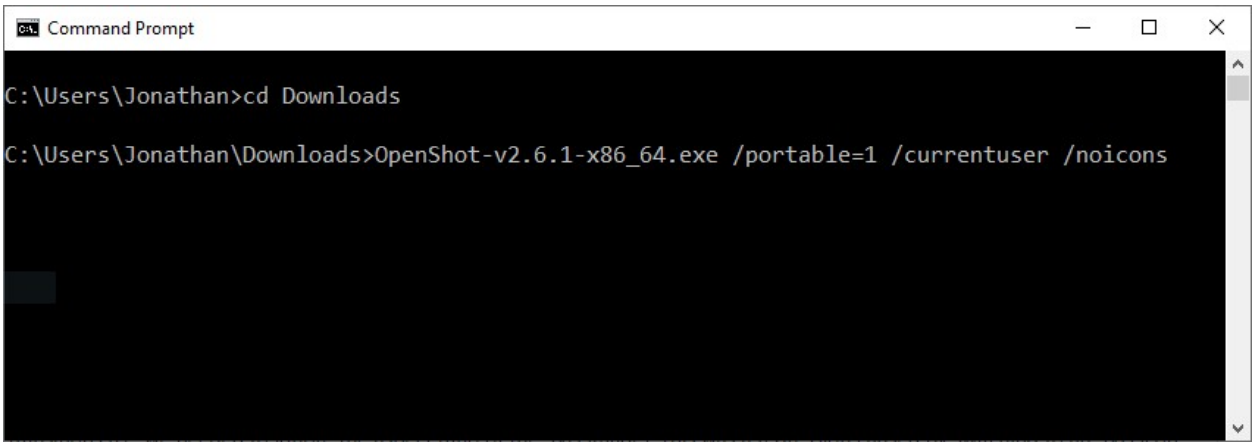


1.2.2 Windows (Portable)

If you need to install OpenShot on Windows without Administrator permissions, we also support a portable installation process. Download the Windows installer from the official download page, open the command prompt, and type the following commands:

Listing 1: Install portable version of OpenShot (no administrator permissions required)

```
cd C:\Users\USER\Downloads\
OpenShot-v2.6.1-x86_64.exe /portable=1 /currentuser /noicons
```



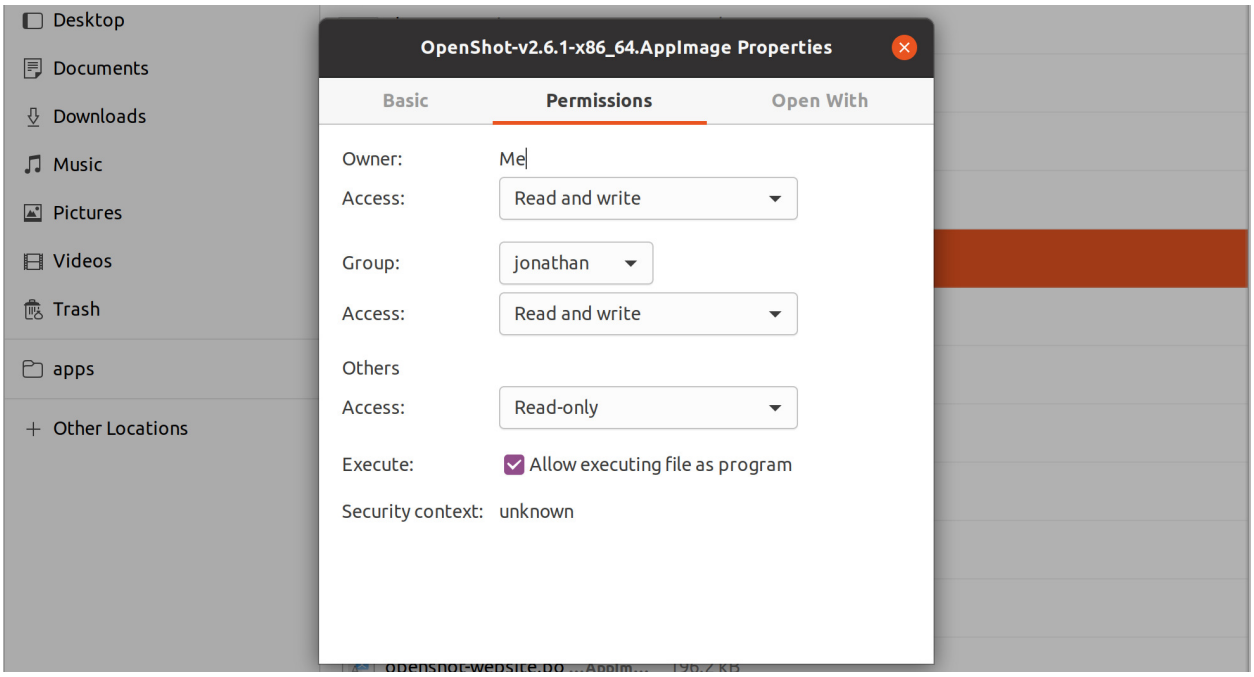
1.2.3 Mac

Download the DMG file from the official download page, double click it, and then drag the OpenShot application icon into your **Applications** shortcut. This is very similar to how most Mac applications are installed. Now launch OpenShot from *Launchpad* or *Applications* in Finder.

1.2.4 Linux (AppImage)

Most Linux distributions have a version of OpenShot in their software repositories, which can be installed using your package manager / software store. However, these packaged versions are often very outdated (be sure to check the version number: *Help→About OpenShot*). For this reason, we recommend installing an AppImage from the official download page.

Once downloaded, right click on the AppImage, choose Properties, and mark the file as **Executable**. Finally, double click the AppImage to launch OpenShot. If double clicking does not launch OpenShot, you can also right click on the AppImage, and choose *Execute* or *Run*. For a detailed guide on installing our AppImage and creating a launcher for it, see our AppImage Installation Guide.



1.2.5 Linux (PPA)

For Debian-based Linux distributions (Ubuntu, Mint, etc…), we also have a PPA (Personal Package Archive), which adds our official OpenShot software repository to your package manager, making it possible to install our latest version, without relying on our AppImages.

Listing 2: Stable PPA (Contains only official releases)

```
sudo add-apt-repository ppa:openshot.developers/ppa
sudo apt update
sudo apt install openshot-qt python3-openshot
```

Listing 3: Daily PPA (Highly experimental and unstable, for testers)

```
sudo add-apt-repository ppa:openshot.developers/libopenshot-daily
sudo apt update
sudo apt install openshot-qt python3-openshot
```

1.2.6 Chrome OS (Chromebook)

Chrome OS supports Linux apps, but this feature is off by default. You can turn it on in *Settings*. Once Linux is enabled, you can install and run OpenShot Linux AppImages on any *x86-based* Chromebook. The command below will download our AppImage and configure your system to run OpenShot successfully.

- Navigate to *chrome://os-settings/crostini* (Copy/Paste)
- Under "Linux (Beta)" select "Turn On". Default values are fine.
- **When the Terminal appears (i.e. black window), Copy/Paste the following command:**

  ```
  - bash <(wget -O - http://openshot.org/files/chromeos/install-stable.sh)
  ```

1.3 Quick Tutorial

Using OpenShot is very easy, and this tutorial will take you through the basics in **under 5 minutes**. After this tutorial, you will be able to make a simple photo slide-show with music.

1.3.1 Basic Terminology

To help understand the steps below, here are some definitions of a few basic terms used in this tutorial.

Term	Description
Project	A **project** includes references to all the video files and edits (animations, titles, etc. . .), saved in a single file.
Timeline	The **timeline** is an editing user interface that represents edits and clips on a horizontal ruler. Time progresses from left to right.
Track	A separate **layer** on the timeline, which can hold clips. A timeline is made up of many tracks, stacked vertically.
Clip	A **trimmed** portion of video, audio, or both positioned on a track, and at a specific position in time. When files are dropped on the timeline, they are represented as a Clip.
Transition	A method to **blend** two images. Transitions can take many forms, including cuts, dissolves, and wipes.

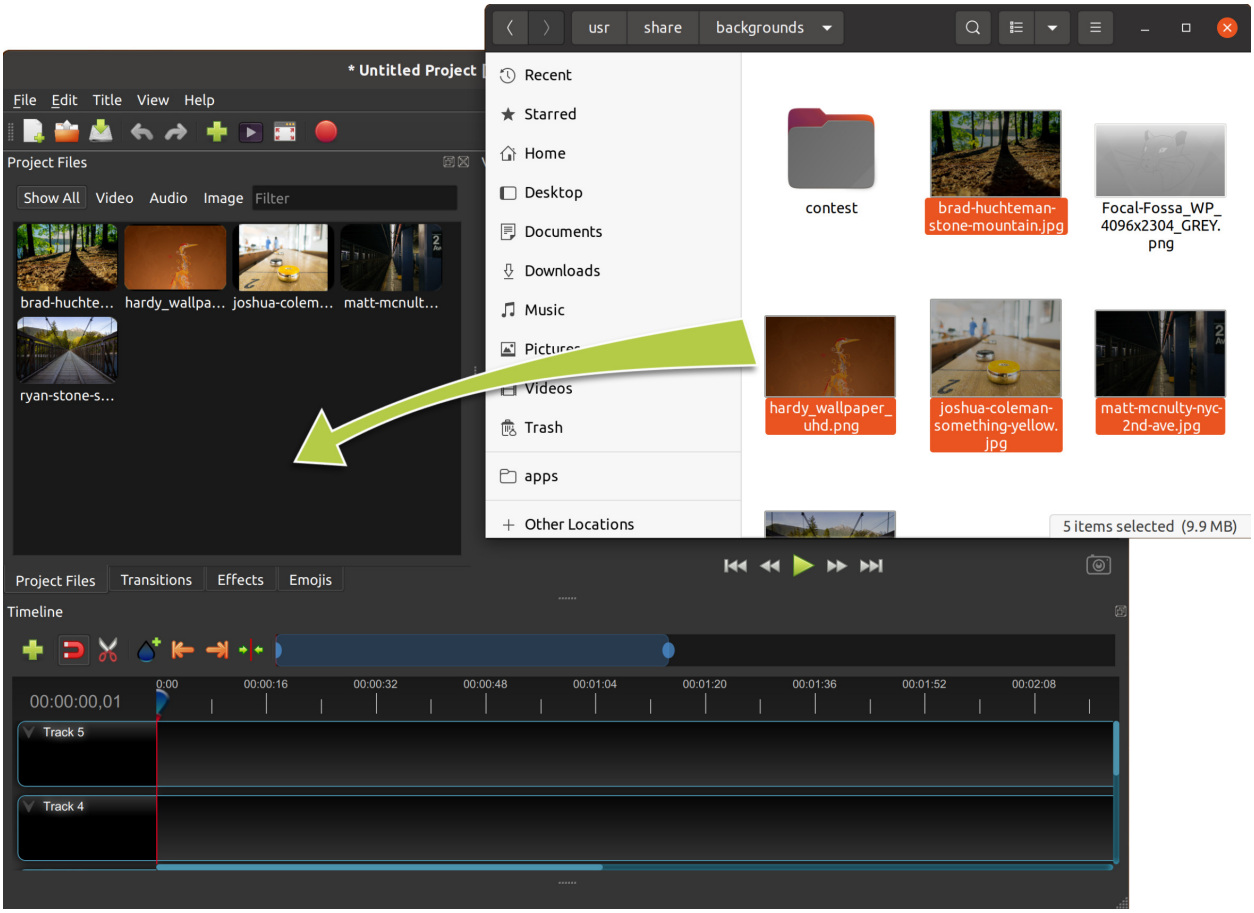
1.3.2 Video Tutorials

If you prefer to learn by **watching videos** instead of reading, we have many official video tutorials that cover a wide range of beginner and introductory topics. These videos are a great next step on your way to master OpenShot Video Editor!

- Video: Getting Started
- Video: The Basics (Part 1)
- Video: The Basics (Part 2)
- Video: Basic Animation
- Video: Trim, Slice, and Split
- Video: Chroma Key
- Video: Masks & Transitions
- Video: Backup & Recovery

1.3.3 Step 1 – Import Photos & Music

Before we can begin making a video, we need to import media files into OpenShot. Most video, image and music file formats will work. Drag and drop a few videos or images and a music file from your Desktop to OpenShot. Be sure to drop the files where the arrow in the illustration is pointing to.

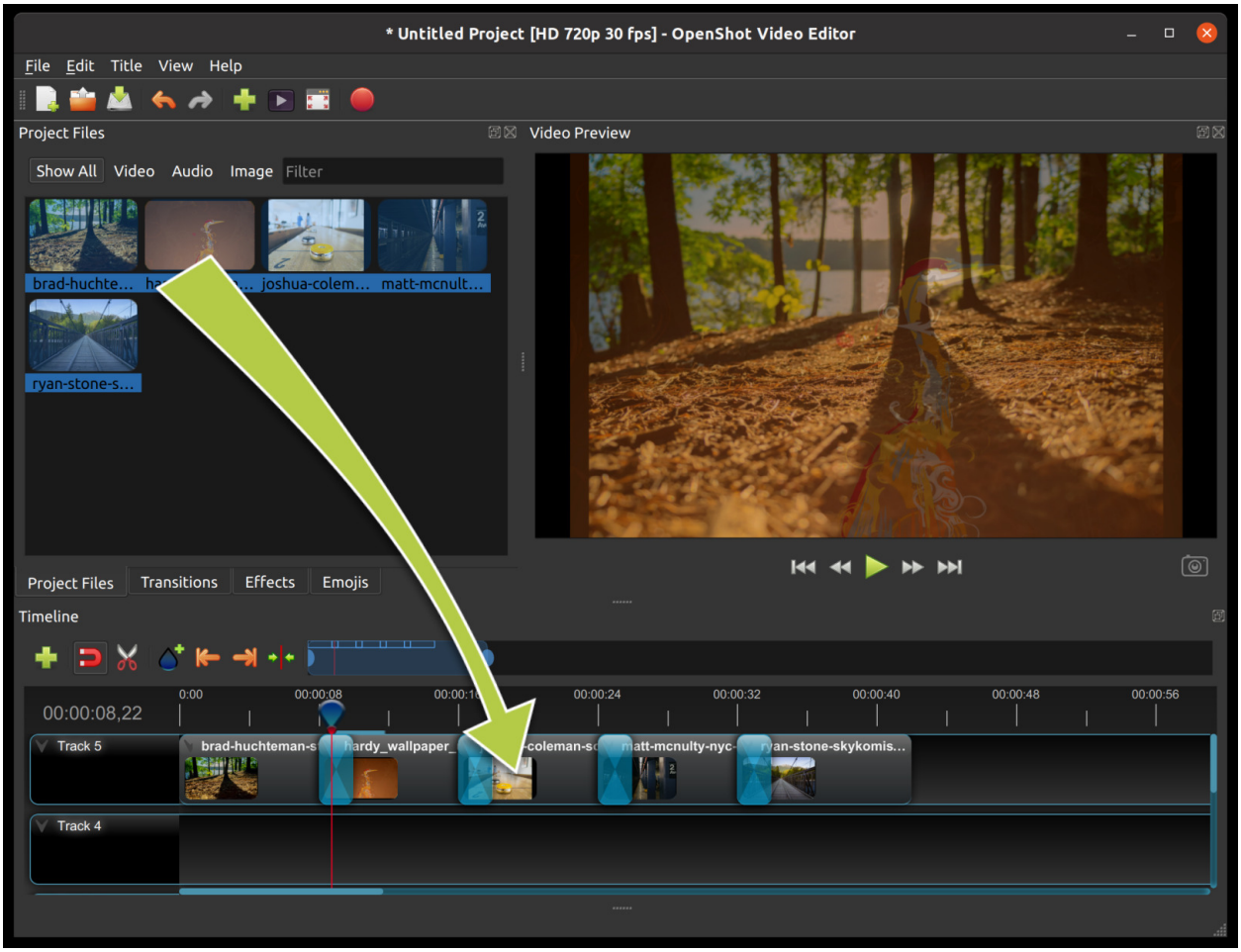


Alternative methods to add files to your projects are described in the section *Import Files*. The "Show All", "Video", "Audio", "Image" filters above the added files allows you to only see the file types you are interested in.

1.3.4 Step 2 – Add Photos to Timeline

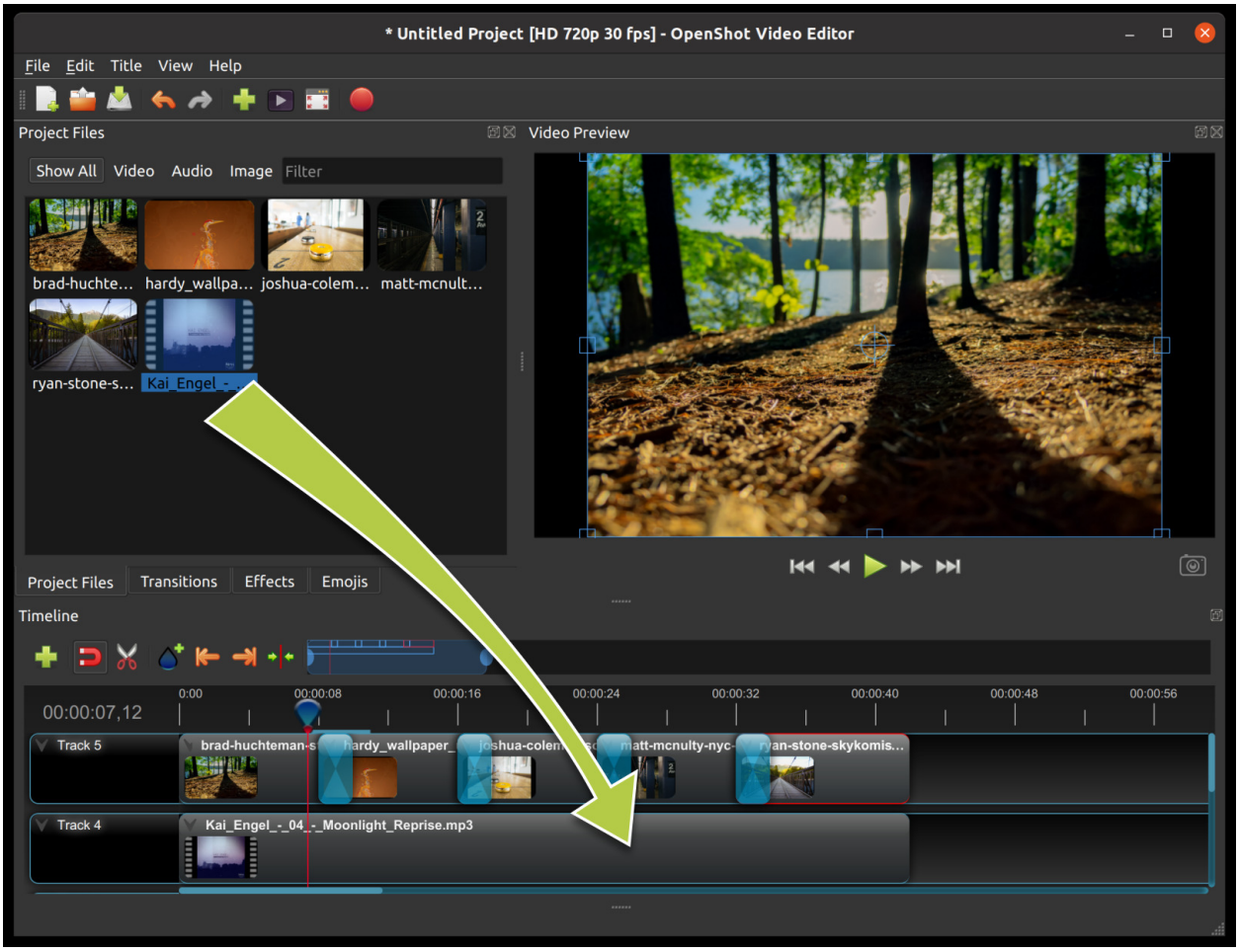
Next, drag each video or photo onto a track in the timeline (as seen in the illustration). The timeline represents your final video, so arrange your photos (i.e. clips) in whatever sequence you want them to appear in your video. If you overlap two clips, OpenShot will automatically create a smooth fade between them, displayed by blue rounded rectangles between the clips. Remember, you can rearrange the clips as many times as needed by simply dragging and dropping them.

You can also shorten or lengthen each clip, by clicking the left or right edge and dragging your mouse. For example, if you want a photo to last longer than 10 seconds (the default duration), simply grab the right edge of the photo (on the timeline), and drag it to the right (to increase the clip's duration on the timeline).



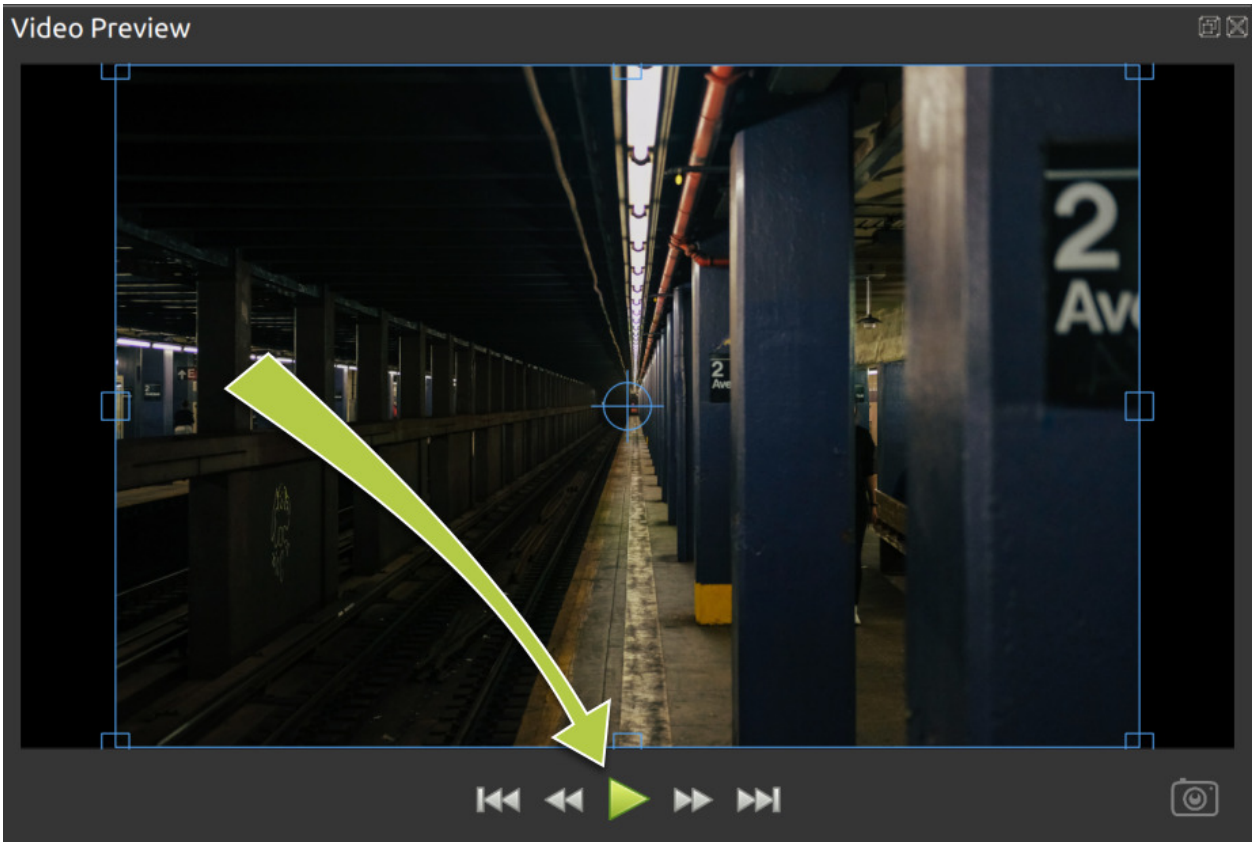
1.3.5 Step 3 – Add Music to Timeline

To make our creation more interesting, we need to add some music. Click on the music file that you imported in step 1, and drag it onto the timeline. If the song is too long, grab the right edge of your music clip, and resize it smaller (that will make it end earlier). You could also insert the same file multiple times, if your music is too short.



1.3.6 Step 4 – Preview your Project

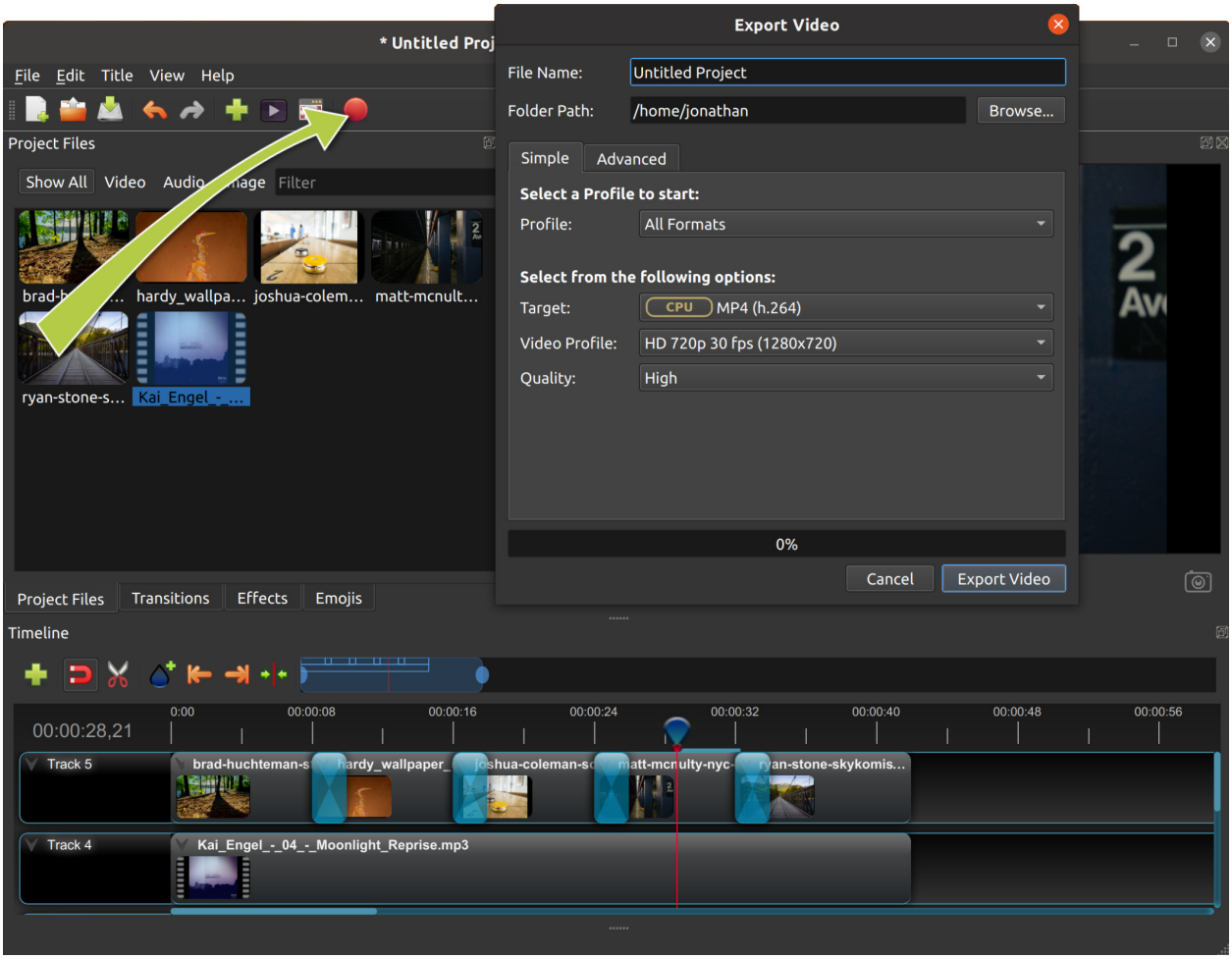
To preview what our video looks & sounds like, click the *Play* button under the preview window. You can also pause, rewind, and fast-forward your video project by clicking the corresponding buttons.



1.3.7 Step 5 – Export your Video

Once you have edited your photo slide-show video, the last step is to export the project. Exporting converts your OpenShot project into a single video output file. By using the default settings, the video works on most media players (such as VLC) or websites (such as YouTube, Vimeo, . . .).

Click on the Export Video icon at the top of the screen (or use the *File→Export Video* menu). The default values will work fine, so just click the *Export Video* button to render your new video.



1.3.8 Conclusion

You should now have a basic understanding of how OpenShot works. Importing, Arranging, Previewing, and Exporting. Hopefully this tutorial took less than **5 minutes** for you to complete. Please read the rest of this guide for a more detailed understanding of OpenShot and its advanced features.

If you have any questions after reading this User Guide, please consider joining our Reddit User Community to discuss topics, ask questions, and meet with other OpenShot users.

1.4 Video Editing Basics

You do not need to be a trained videographer to understand how to create videos well. Simple editing can keep your viewers engaged longer, and add a professional feel, even if you are not a professional video editor.

Basically, video editing is taking footage, cutting it up, removing the pieces you do not want, and keeping the bits you do. Back in the old days, editing was slicing reels of film and piecing it together. Thankfully software makes the whole process much more manageable.

There are three main jobs of video editing:

1. Remove mistakes or unwanted sections

2. Keep the video moving at an engaging pace
3. Insert supporting footage, audio, or titles

Use these three points as a checklist as you edit.

1.4.1 Computer

Video editing does not require an expensive machine, especially if you are a beginner. It would be best if you had a decent monitor and graphics card. If you have an older computer, check your system specifications against OpenShot's *System Requirements* to make sure it works for video editing. Unfortunately, many older computers are not fast enough for video editing, and you should upgrade your whole system, if possible.

1.4.2 Accessories

Before beginning a video project, ensure there is enough storage space on your computer to save all the necessary clips. For example, one hour of 1080i video, such as from a mini-DV camcorder, takes up nearly 11 GB of storage. If your computer's internal storage device cannot store all the clips, the solution is to buy an external drive.

It would help if you had several cables, usually Firewire or USB, to connect your computer, external hard drive, and a camera. Different computers and cameras accept other connectors, so check your manuals before buying anything.

1.4.3 Practical Tips

Becoming a great video editor isn't effortless, but with practice and patience, you'll be editing like a professional in no time. Here are a few of the essential tips and techniques you need to know to become a skilled video editor.

1. **Pick the Right Computer**
   While having a great computer won't necessarily make you a great video editor, a faster computer will allow you to focus more of your time on the story you're trying to tell rather than your computer rendering. Everyone has their own opinions about what computer is best for editing, but it all depends on your own preferences.
2. **Keep Shooting**
   Record more video that you think you will need for your project. Include video that enhances the scene, sets a mood, or tells a story. You can use the extra video for smooth transitions in your project. If you are comfortable using multiple devices, use two devices simultaneously the insert video from either device into your project.
3. **Organize Your Project Files**
   Composition is the key to success, whether you are running Linux, on a Mac, or a Windows machine. Be sure to label video files, audio files, and even still images clearly and keep all your clips on the same device and in the same folder for easy access. OpenShot tries to keep up with your clips, but if you move them after your project is saved, you could lose your entire project. Organizing before you begin editing can be very advantageous.
4. **Watch Everything**
   Watching everything is the first step in the editing process. Writer and filmmaker David Andrew Stoler says there is gold in the most unlikely of places: "Some of the most beautiful expressions you're going to get from the actors are after the cut."
5. **Edit for a Story**
   Remember that as you edit, you are telling a story. Editing is so much more than merely cutting footage and adding effects. It is an opportunity to take your audience on a journey. Whether you are editing a complex narrative film or only putting together a personal video, you tell a more in-depth story.

6. **Keyboard Shortcuts**
   One of the easiest ways to tell the difference between and professional video editor and a novice is to simply look at how much they use the keyboard. Editors that have been in the business for some time know that a few seconds saved add up over the length of the project.

7. **Learn the Lingo**
   Video editing is not just a hobby or a profession; it is an industry. And just like any industry, there is a ton of jargon to learn. Practically speaking, you do not need to know all the terms on the *Glossary* to become a better video editor, but a fundamental knowledge of the terms may help you communicate better with other video editors or clients.

8. **Assemble, Then Make a Rough Cut**
   Drag and drop all your video footage into a timeline and make sure your frame size and frame rates are consistent. Begin a new timeline and drag-and-drop the best clips into what becomes your assembly cut. Remember to save your work frequently, and notate the date and time of each version.

9. **Refine Your Video**
   In this phase, your rough cut begins to resemble a cohesive project. Adjust the sound and color, make sure the dialog is audible, and add music, titles, or graphics in this phase. Color correction is the process of setting your footage to a color baseline. No matter how great your subject looks on set, you will almost always need to do some basic post-processing for a consistent video.

10. **Refine Some More**
    A slow scene can set the mood and add tension or it can bore an audience. A fast scene can add adrenaline to your audience's systems or it can give them headaches. Some editors cut their projects several different ways before they find the right pace. Do not let cutting your project several times discourage you.

1.4.4 Exporting

People view most of their projects on phones, tablets, or computers, so it is essential to know how to export for the web. The goal when exporting a video for the web is to create the highest quality possible with the smallest file size. Four main factors determine the file size of your finished video:

- **Codec:**
  A codec determines the type of file format (MP4, AVI, MOV). The more compression performed by the codec, the smaller your video's size. Videos that are smaller in file size tend to be lower in visual quality.

- **Resolution:**
  Resolution refers to the number of horizontal and vertical pixels (dots on display) your video contains. For example, a 4K UHD (2160P) video has four times the resolution of FHD (1080P) video. A higher resolution means more information to store so that you will have larger file sizes.

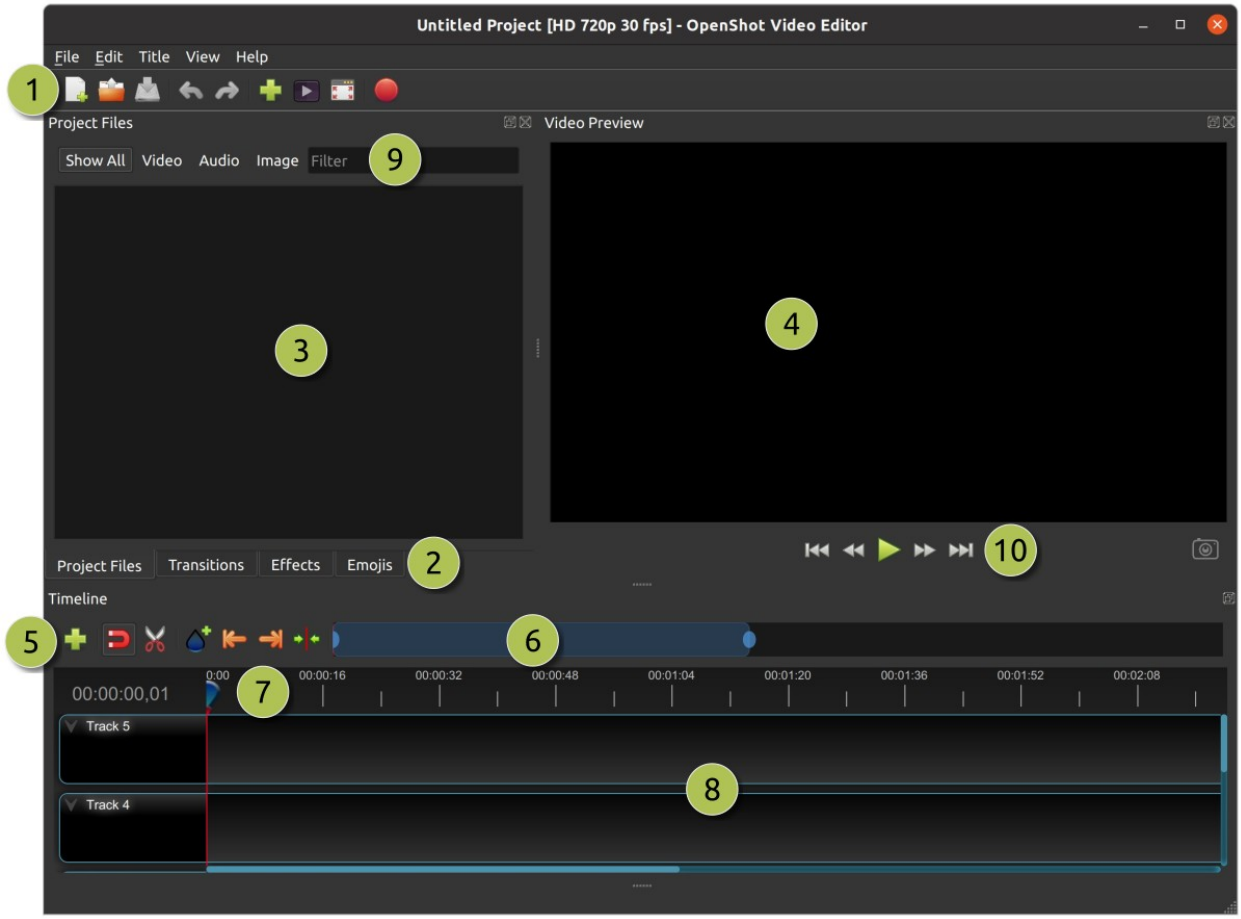
- **Bit Rate:**
  The Bit Rate is the measure of the speed of data processing of your video. A higher bit rate means higher-quality video and larger files. OpenShot allows you to manually set the Bit Rate / Quality in the Advanced tab of the Export Video window.

- **Frame Rate:**
  The frequency (in Hz) at which consecutive images, called frames, appear on the display is the Frame Rate. Typically, you export your video in the film standard (24fps) or the TV broadcast standard of 30fps (or 25fps in PAL). While there is not much wiggle room here, you should note that if you decide to export your video in 48fps, 50fps, or 60fps, your file size doubles.

1.5 Main Window

OpenShot Video Editor has one main window which contains most of the information, buttons, and menus needed to edit your video project.

1.5.1 Overview

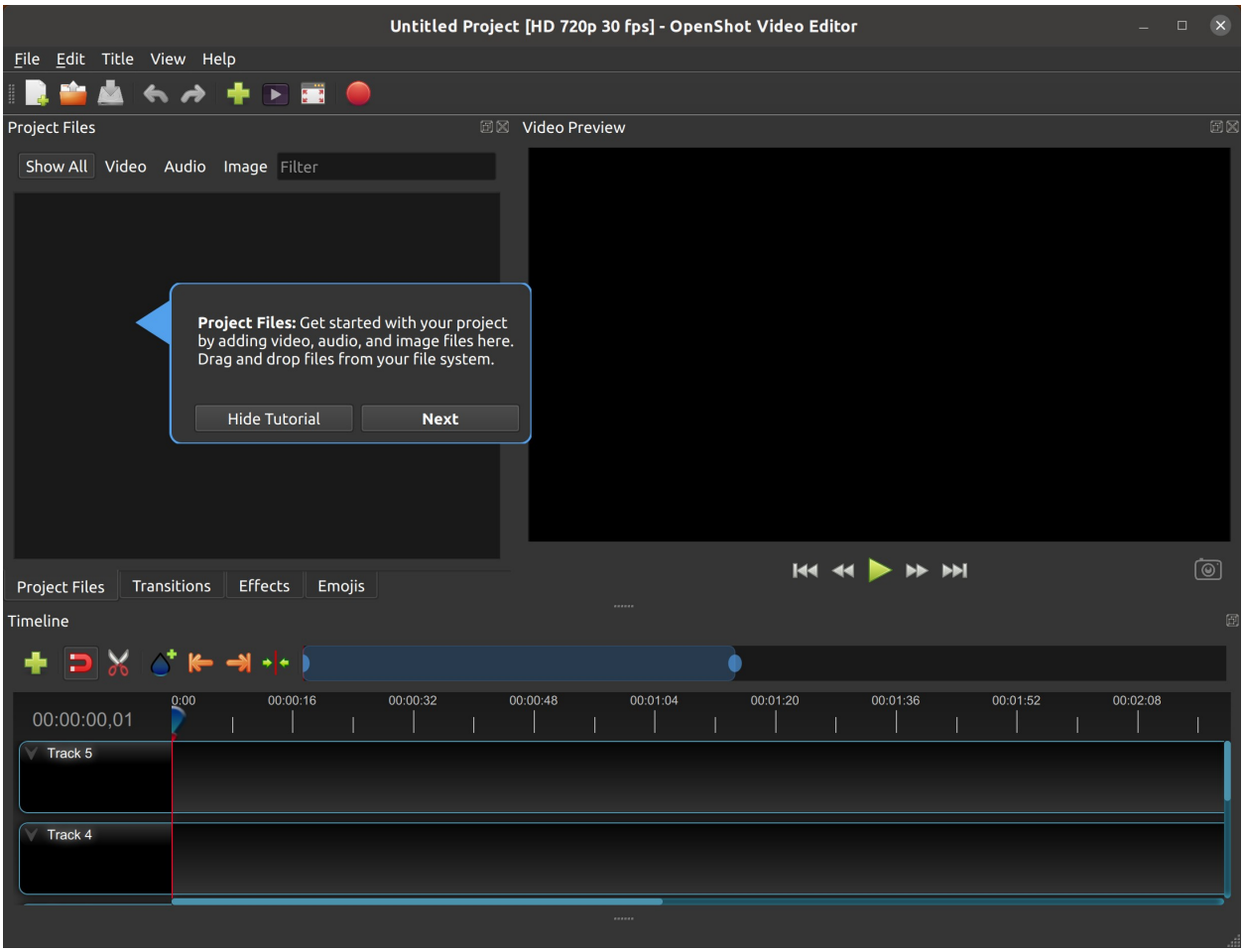


#	Name	Description
1	Main Toolbar	Contains buttons to open, save, and export your video project.
2	Function Tabs	Switch between Project Files, Transitions, Effects, and Emojis.
3	Project Files	All audio, video, and image files that have been imported into your project.
4	Preview Window	This is the area that the video will playback on the screen.
5	Edit Toolbar	This toolbar contains buttons used for snapping, inserting markers, slicing razor, and jumping between markers.
6	Zoom Slider	This slider will adjust the time-scale of your timeline. Drag the left or right edge to zoom in or out. Drag the blue area to scroll the timeline left or right. Clips and transitions are displayed as simple rectangles, to give you context for adjusting the zoom to specific clips.
7	Play-head / Ruler	The ruler shows the time-scale, and the red line is the play-head. The play-head represents the current playback position. Hold `Shift` key while dragging the playhead to snap to nearby clips.
8	Timeline	The timeline visualizes your video project, and each clip and transition in your project. You can drag the mouse to select, move, or delete multiple items.
9	Filter	Filter the list of items shown (project files, transitions, effects, and emojis) by using these buttons and filter textbox. Enter a few letters of what you are looking for, and the results will be shown.
10	Playback	Left to Right: Jump to Start, Rewind, Play/Pause, Fast Forward, and Jump to End

For step-by-step instructions on the basic usage of OpenShot, be sure to read the *Quick Tutorial*.

1.5.2 Built-in Tutorial

When you first launch OpenShot, you will be presented with a friendly built-in tutorial. It will demonstrate and explain the basics. Clicking *Next* will jump to the next topic. You can always view this tutorial again from the *Help→Tutorial* menu.



1.5.3 Tracks & Layers

OpenShot uses tracks to layer videos and images. The top most track is the top layer, and the bottom track is the bottom layer. If you are familiar with layers in a photo editing application, then you should be quite familiar with this concept. OpenShot will stack the layers and mix each one together, just like a photo editing application. You can have an unlimited number of tracks, but typically a simple video project will not need more than 5 tracks.

For example, imagine a 3 track video project

#	Name	Description
1	Top Track	Clips on this track will always be on top and visible. Often watermarks and titles are placed on higher tracks.
2	Middle Track	Clips in the middle (might or might not be visible, depending on what is above them)
3	Bottom Track	Clips on this track will always be on the bottom. Often audio clips are placed on lower tracks.

1.5.4 Keyboard Shortcuts

Here is a list of the default keyboard shortcuts supported by OpenShot. You can configure these shortcuts in the Preferences window, which is opened by selecting *Edit→Preferences* from the OpenShot menu bar. (On macOS, choose *OpenShot Video Editor→Preferences*.) Learning a few of these shortcuts can save you a bunch of time!

Shortcut	Action
`Ctrl+H`	About OpenShot
`Ctrl+M`	Add Marker
`Ctrl+Shift+T`	Add Track
`Ctrl+W`	Add to Timeline
`Ctrl+B`	Animated Title
`Ctrl+Up`	Center on Playhead

continues on next page

Table 1 – continued from previous page

Shortcut	Action
Ctrl+P	Choose Profile
Ctrl+Shift+ESC	Clear All Cache
Ctrl+C	Copy
Delete	Delete Item
Backspace	Delete Item (Alternate 1)
Ctrl+D	Details View
Ctrl+Shift+C	Duplicate Title
Not Set	Edit Title
Ctrl+E	Export Video
L	Fast Forward
F11	Fullscreen
Ctrl+F	Import Files…
Ctrl+Shift+E	Insert Keyframe
Ctrl+End	Jump To End
Ctrl+Home	Jump To Start
Ctrl+N	New Project
Right	Next Frame
Ctrl+Right	Next Marker
Shift+Left	Nudge left
Shift+Right	Nudge right
Ctrl+O	Open Project…
Ctrl+V	Paste
Space	Play/Pause Toggle
Up	Play/Pause Toggle (Alternate 1)
Down	Play/Pause Toggle (Alternate 2)
K	Play/Pause Toggle (Alternate 3)
Ctrl+Shift+P	Preferences
Left	Previous Frame
Ctrl+Left	Previous Marker
Ctrl+I	Properties
Ctrl+Q	Quit
Ctrl+Y	Redo
J	Rewind
Not Set	Save Current Frame
Ctrl+S	Save Project
Ctrl+Shift+S	Save Project As…
Ctrl+A	Select All
Ctrl+Shift+A	Select None
Ctrl+K	Slice All: Keep Both Sides
Ctrl+L	Slice All: Keep Left Side
Ctrl+J	Slice All: Keep Right Side
s	Slice Selected: Keep Both Sides
d	Slice Selected: Keep Left Side
a	Slice Selected: Keep Right Side
Ctrl+G	Snapping Enabled
Ctrl+X	Split Clip…
Ctrl+Shift+D	Thumbnail View
Ctrl+T	Title
R	Toggle Razor

continues on next page

Table 1 – continued from previous page

Shortcut	Action
`Ctrl+R`	Transform
`Ctrl+Z`	Undo
`=`	Zoom In
`-`	Zoom Out
`Ctrl+Middle Button`	Scroll Timeline

1.6 Files

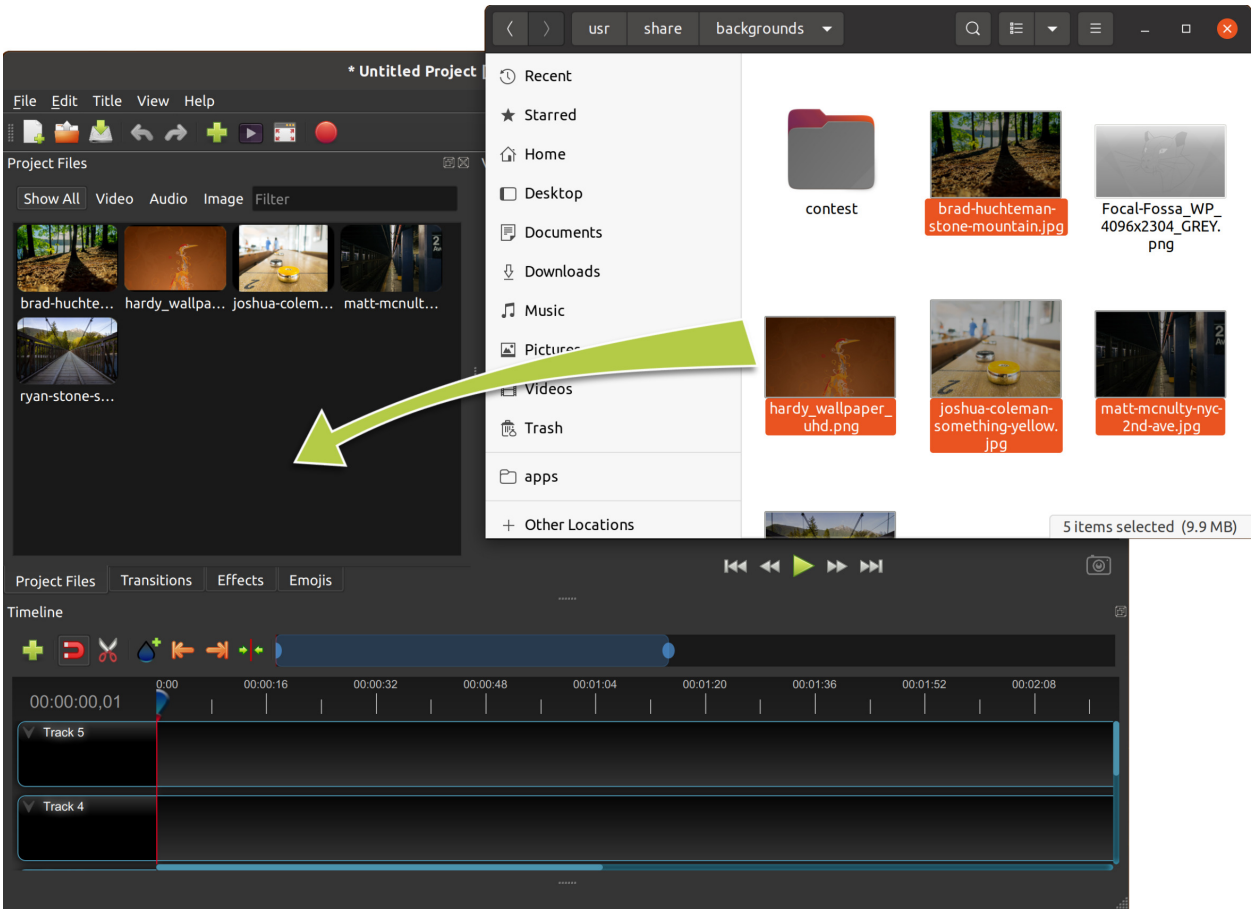
To create a video, we need to make media files available to our project by importing files into OpenShot. Most media file types are recognized, such as videos, images, and audio files. Files can be viewed and managed in the **Project Files** panel.

Note that imported files are not copied anywhere, they remain in the physical location they were before and are simply being made available to your video project. So, they must not be deleted, renamed, or moved after adding them to your project. The "Show All", "Video", "Audio", "Image" filters above the files allows you to only see the file types you are interested in. You can also toggle the view between details and thumbnails view of your files.

1.6.1 Import Files

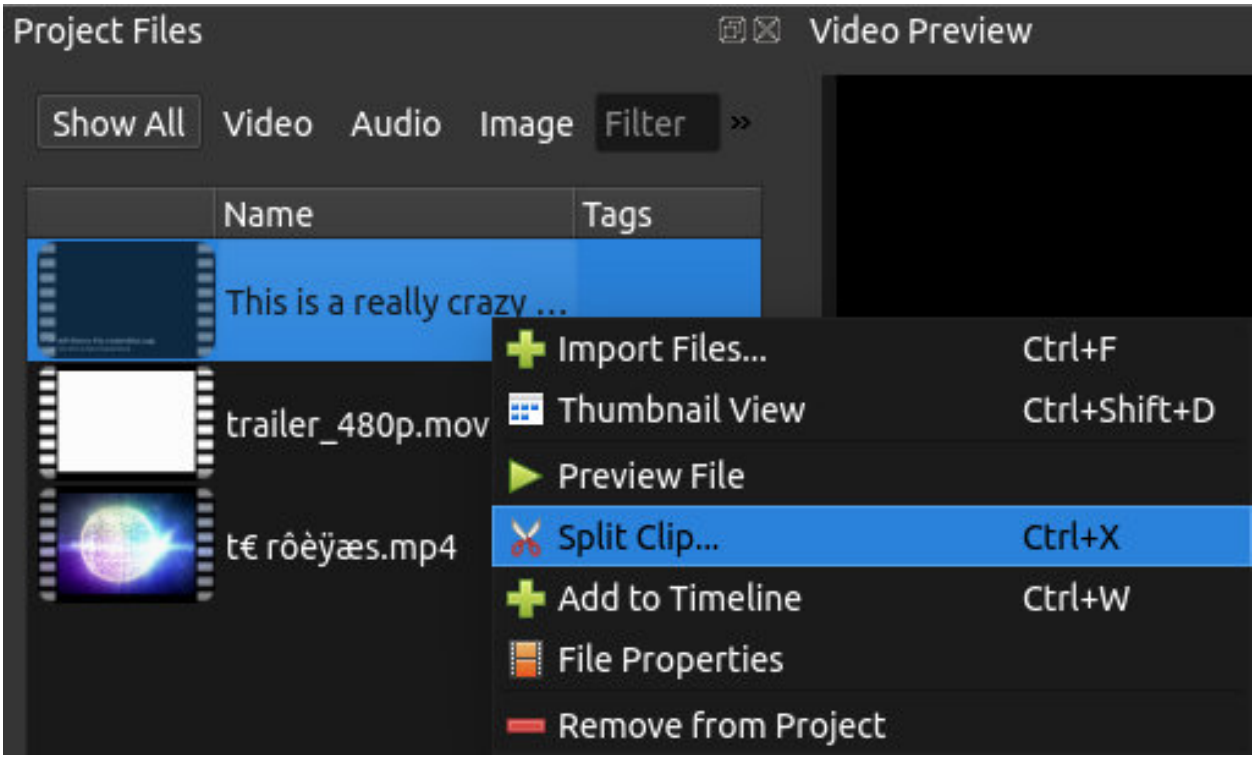
These are all possible methods to import media files into OpenShot:

Name	Description
Drag and Drop	Drag and drop the files from your file manager (file explorer, finder, etc…).
Context menu (*File Menu*)	Right click anywhere in the **Project Files** panel and choose *Import Files*.
Main Menu	In the main menu choose: *File→Import Files*.
Toolbar button	Click the + toolbar button in the main toolbar.
Keyboard shortcut	Press `Ctrl-F` (`Cmd-F` on Mac).



1.6.2 File Menu

To view the file menu, right click on a file (in the **Project Files** panel). Here are the actions you can use from the file menu.



Name	Description
Import Files…	Import files into your project
Thumbnail/Detail	Toggle the view between details and thumbnails
Preview File	Preview a media file
Split Clip…	Split a file into many smaller clips
Edit Title	Edit an existing title SVG file
Duplicate Title	Make a copy, and then edit the copied title SVG file
Add to Timeline	Add many files to the timeline in one step
File Properties	View the properties of a file, such as frame rate, size, etc…
Remove from Project	Remove a file from the project

1.6.3 Split Clip

If you need to cut a file into many smaller clips before editing, the **Split Clip** dialog is built exactly for this purpose. Right click on a file, and choose Split Clip… from the file menu. This opens the Split Clip dialog. Use this dialog to quickly cut out as many small clips as you need. The dialog stays open after you create a clip, to allow you to repeat the steps for your next clip. When you are finished, simply close the dialog.

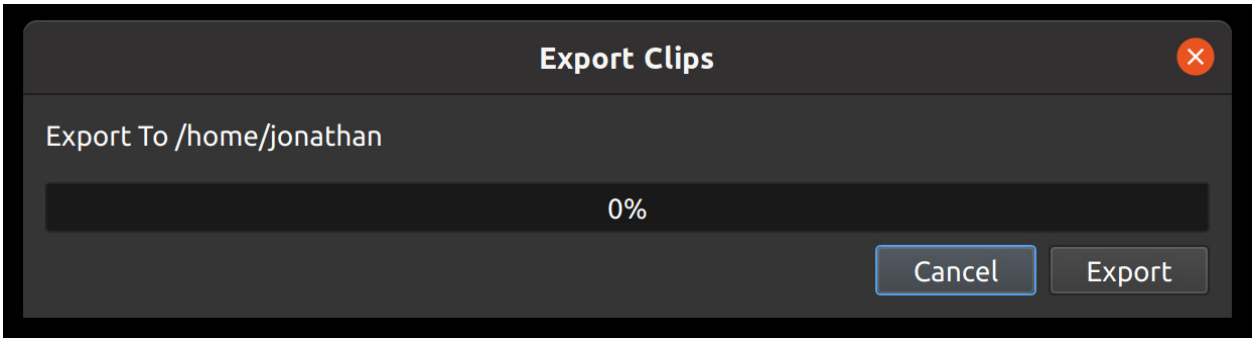
#	Name	Description
1	Start of Clip	Choose the starting frame of your clip by clicking this button
2	End of Clip	Choose the ending frame of your clip by clicking this button
3	Name of Clip	Enter an optional name
4	Create Clip	Create the clip (which resets this dialog, so you can repeat these steps for each clip)

Please refer to the section *Trimming & Slicing* for more ways to cut and slice clips directly in the timeline.

1.6.4 Export Clips

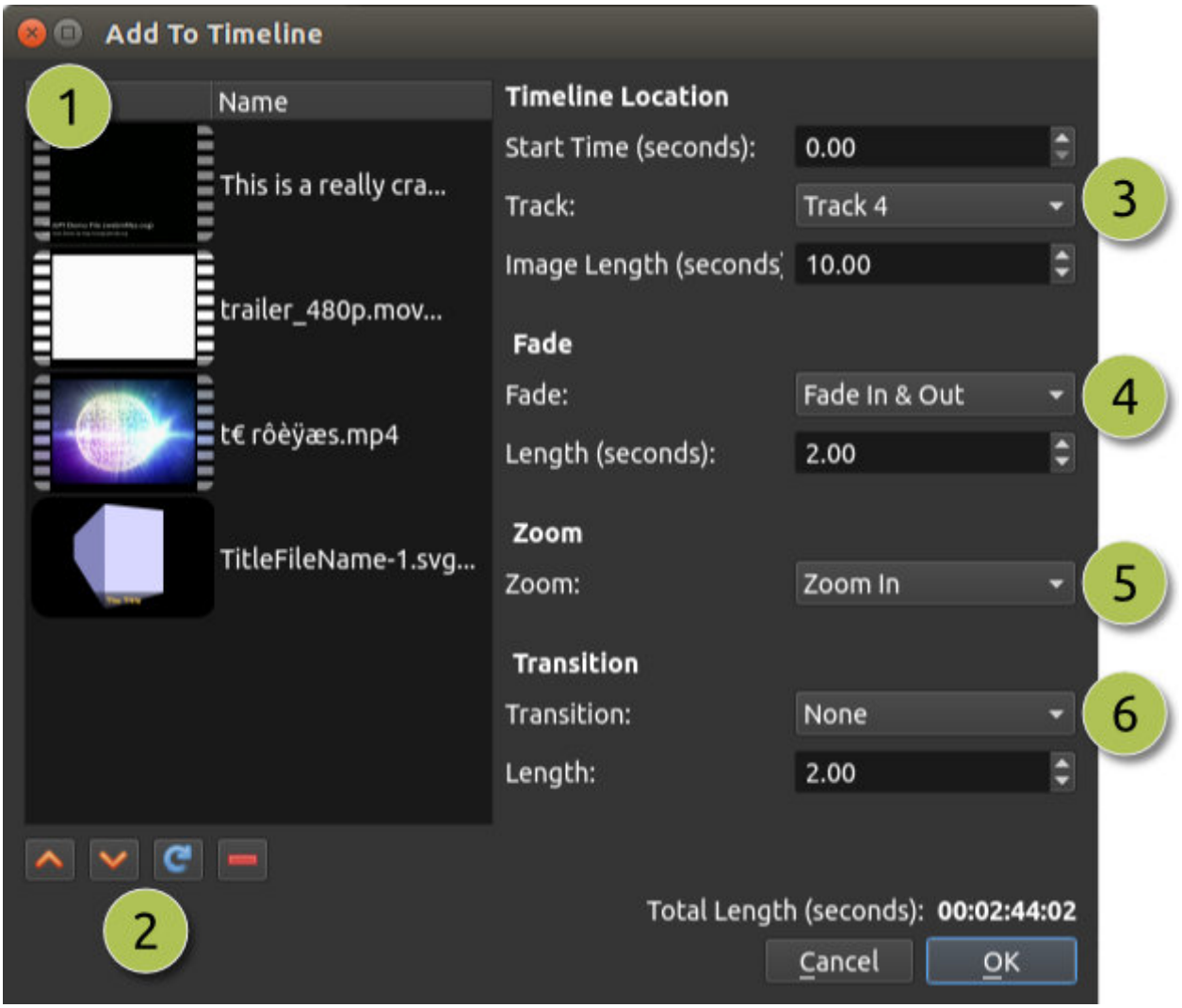
If you want your clips available outside of your OpenShot project, or want to copy all your video assets to one place, you can do this with the **Export Clips** dialog. Simply `Ctrl+Click` to select any clips or files you like, then `Right Click` and choose *Export Clips*. In the dialog that appears, choose a destination folder, and click *Export*.

NOTE: This will export each clip using it's **original video profile** (width, height, framerate, aspect ratio, etc...). It also supports any *Split Clip* (described above). For example, if you have split a long video file into many different clips (and named them), you can now export all the clips as separate video files (using the original clip's video profile).



1.6.5 Add to Timeline

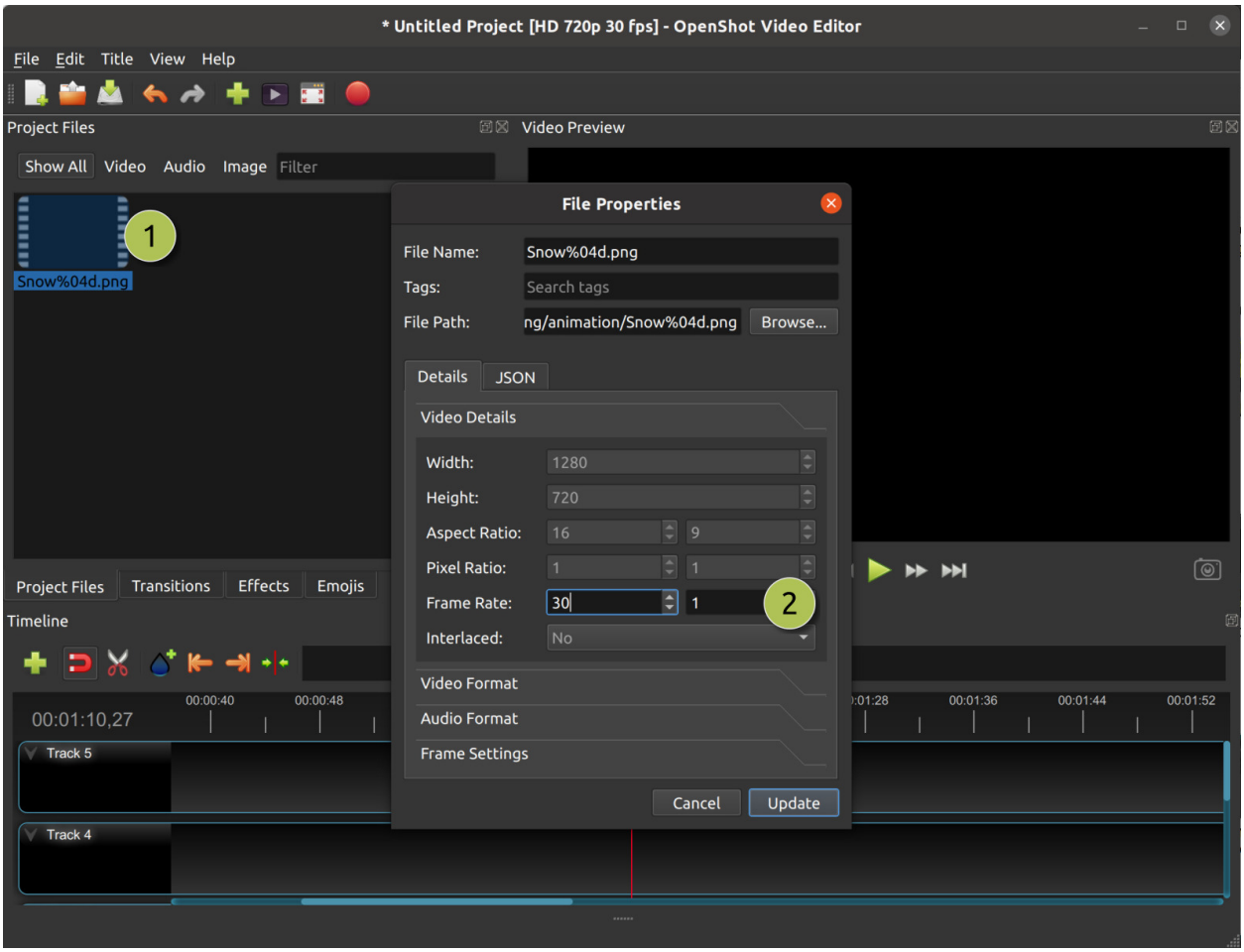
In certain cases, you might need to add many files to the timeline at the same time. For example, a photo slide show, or a large number of short video clips. The **Add to Timeline** dialog can automate this task for you. First, select all files you need to add, right click, and choose Add to Timeline.



#	Name	Description
1	Selected Files	The list of selected files that need to be added to the timeline
2	Order of Files	Use these buttons to reorder the list of files (move up, move down, randomize, remove)
3	Timeline Position	Choose the starting position and track where these files need to be inserted on the timeline
4	Fade Options	Fade in, fade out, both, or none
5	Zoom Options	Zoom in, zoom out, or none
6	Transitions	Choose a specific transition to use between files, random, or none

1.6.6 Properties

To view the properties of any imported file in your video project, right click on the file, and choose **File Properties**. This will launch the file properties dialog, which displays information about your media file. For certain types of images (i.e. image sequences), you can adjust the frame rate on this dialog also.



#	Name	Description
1	File Properties	Select an image sequence in the **Project Files** panel, right click and choose **File Properties**
2	Frame Rate	For image sequences, you can also adjust the frame rate of the animation

1.6.7 Remove from Project

This will remove a file from the project. It will not delete the underlying physical file though, so removing a file from the project merely makes it unavailable for this video project.

1.7 Clips

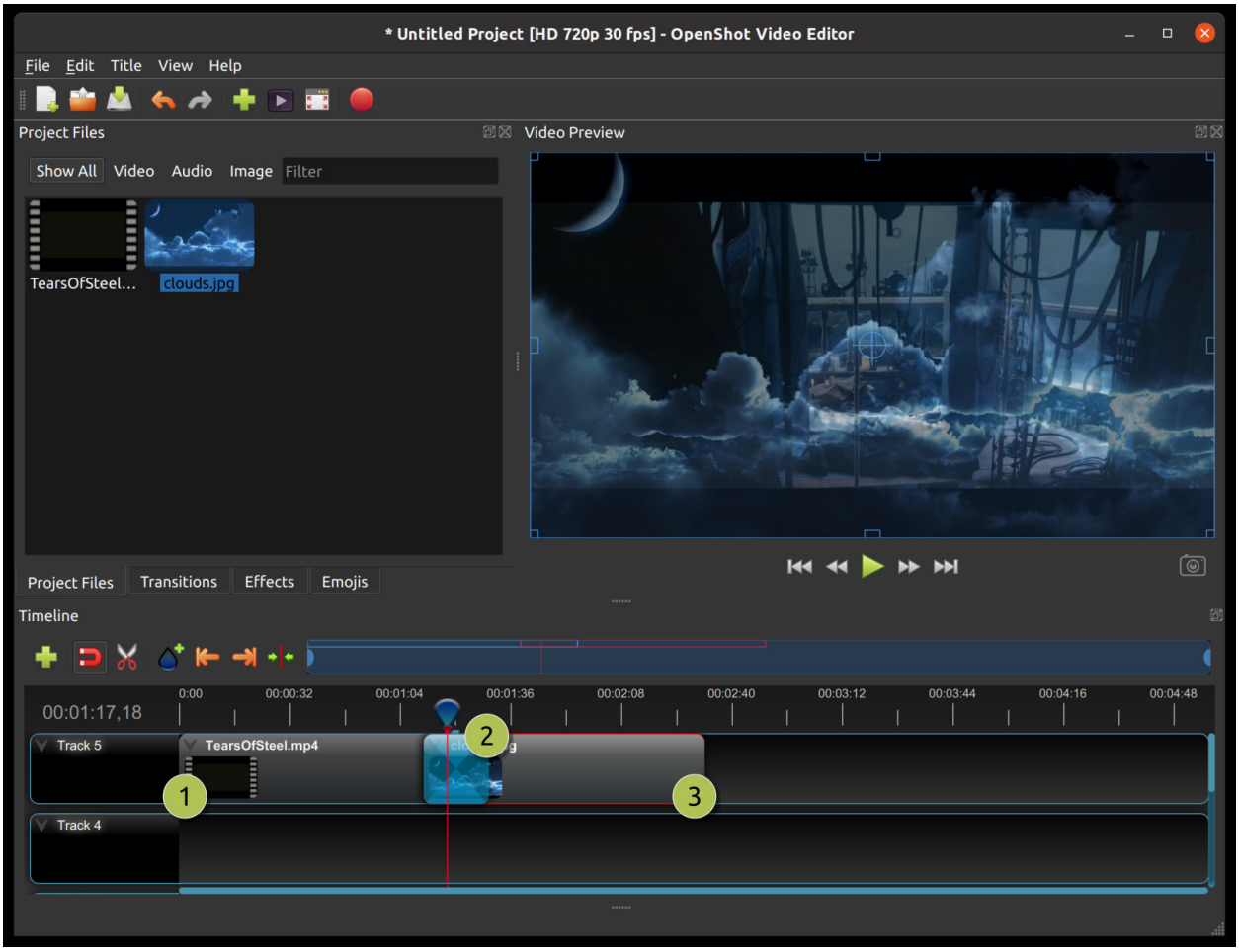
Each media file you add to the OpenShot timeline is called a clip and is visualized by a dark, rounded rectangle (as seen in the screenshot below). A clip has many properties, which affect how and when the clip is rendered and composited, such as position, layer, scale, location, rotation, and alpha. OpenShot can animate these properties over time, and when combined, can create some amazing effects.

To display a clip's properties, either right-click and choose `Properties` or double click on the clip. Clip properties appear in the properties dock, in alphabetical order. These properties can be filtered by typing a few letters in the filter box, at the top of the property panel.

To adjust a property, you can:

- click on its value and drag the slider from side to side for a coarse adjustment
- double click on its value and enter a value. Numerical values display to 2 decimal places, but you can enter more precise numbers. You can often enter valid values that are outside the range offered by the slider adjustment.
- right-click or double-click to select an option (for non-numerical values)

Clip properties are part of the *Animation* system. If you change a clip property, you create a keyframe at the current position of the playhead. If you want a property to apply throughout the clip, you must place the playhead at (or before) the start of the clip before making the change. An easy way to locate the start of a clip is to use 'next/previous marker' on the Timeline toolbar.



#	Name	Description
1	Clip 1	A video clip
2	Transition	A gradual fade transition between the 2 clips
3	Clip 2	An image clip

1.7.1 Trimming & Slicing

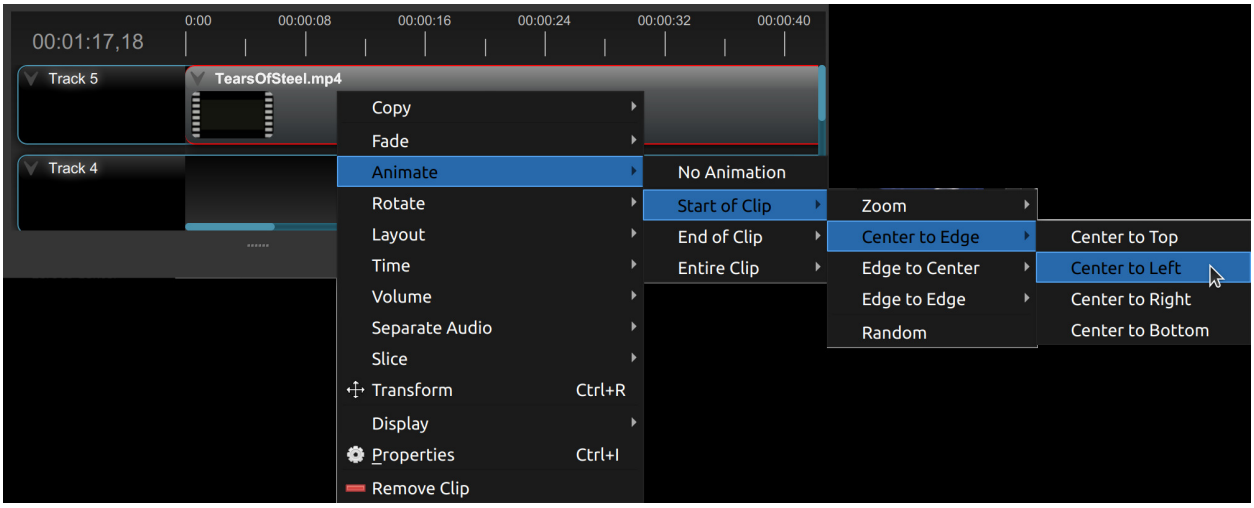
OpenShot has many easy ways to adjust the start and end trim positions of a clip (otherwise known as trimming). The most common method is simply clicking and dragging the left (or right) edge of the clip. Here is a list of all methods for cutting or trimming clips in OpenShot:

Trim & Slice Method	Description
Resizing Edge	Mouse over the edge of a clip, and resize the edge, by dragging it left/right.
Slice	When the play-head (i.e. vertical red playback line) is overlapping a clip, right click on the clip, and choose *Slice*.
Slice All	When the play-head is overlapping many clips, right click on the play-head, and choose *Slice All* (it will cut all intersecting clips on all tracks).
Split Clip Dialog	Right click on a file, and choose *Split Clip*. A dialog will appear which allows for creating lots of small cuts in a single video file.
Razor Tool	The *razor tool* from the **Edit Toolbar** cuts a clip wherever you click on it. So be careful, it is easy and dangerous!

Keep in mind that the above cutting methods also have *Keyboard Shortcuts*, to save even more time.

1.7.2 Preset Menu

OpenShot has tons of great preset animations and clip properties, such as fading, sliding, zooming, etc… These presets can be accessed by right clicking on a clip.



Name	Description
Fade	Fade in or out a clip (often easier than using a transition)
Animate	Zoom and slide a clip
Rotate	Rotate or flip a video
Layout	Make a video smaller or larger, and snap to any corner
Time	Reverse and speed up or slow down video
Volume	Fade in or out the volume for a clip
Separate Audio	Create a clip for each audio track
Slice	Cut the clip at the play-head position
Transform	Enable transform mode
Display	Show waveform or thumbnail for a clip
Properties	Show the properties panel for a clip
Copy / Paste	Copy and paste key frames or duplicate an entire clip (with all key frames)
Remove Clip	Remove a clip from the timeline

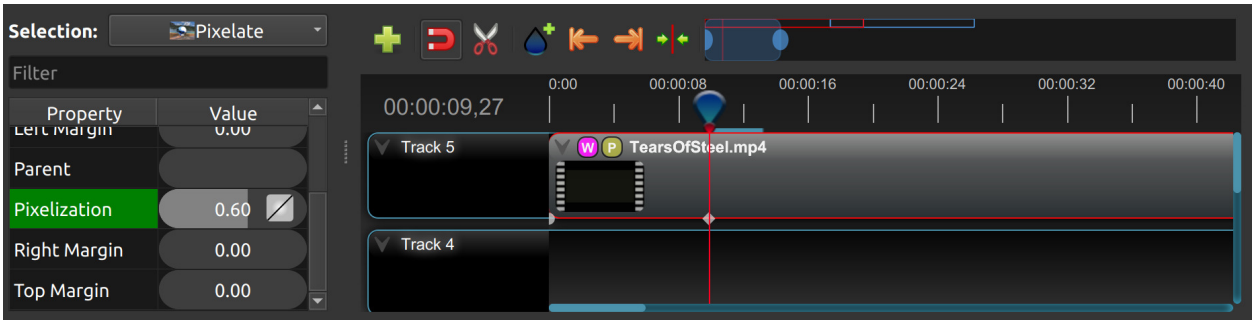
1.7.3 Transform

To quickly adjust the location, scale, rotation, and shear of a clip, select a clip on the timeline. By default, the selected clip appears in the preview window with transform controls (blue lines and squares). Or if disabled, right click on a clip and choose **Transform**. Dragging the blue squares will adjust scale, and dragging the center will move the image. Dragging the mouse on the outside of the blue lines will rotate the image. Dragging along the blue lines will shear the image in that direction. Dragging the circle in the middle will move the origin point that controls where we rotate the image. Note: Pay close attention to the play-head position (red playback line). Key frames are automatically created at the current playback position, to help create animations.

For more info on key frames and animation, see *Animation*.

1.7.4 Effects

In addition to the many clip properties which can be animated and adjusted, you can also drop an effect directly onto a clip. Each effect is represented by a small letter icon. Clicking the effect icon will populate the properties of that effect, and allow you to edit (and animate) them. For the full list of effects, see *Effects*.



1.7.5 Properties

Below is a list of clip properties which can be edited, and in most cases, animated over time. To view a clip's properties, right click and choose **Properties**. The property editor will appear, where you can change these properties. Note: Pay close attention to where the play-head (i.e. red playback line) is. Key frames are automatically created at the current playback position, to help create animations.

Name	Description
Alpha	Curve representing the alpha (1 to 0)
Channel Filter	A number representing an audio channel to filter (clears all other channels)
Channel Mapping	A number representing an audio channel to output (only works when filtering a channel)
Frame Number	The format to display the frame number (if any)
Duration	The length of the clip (in seconds)
End	The end trimming position of the clip (in seconds)
Gravity	The gravity of a clip determines where it snaps to its parent (details below)
Enable Audio	An optional override to determine if this clip has audio (-1=undefined, 0=no, 1=yes)
Enable Video	An optional override to determine if this clip has video (-1=undefined, 0=no, 1=yes)
ID	A randomly generated GUID (globally unique identifier) assigned to each clip
Track	The layer which holds the clip (higher tracks are rendered on top of lower tracks)
Location X	Curve representing the relative X position in percent based on the gravity (-1 to 1)
Location Y	Curve representing the relative Y position in percent based on the gravity (-1 to 1)
Volume Mixing	The volume mixing choices control how volume is adjusted before mixing (None=don't adjust volume of this clip, Reduce=lower the volume to 80%, Average=divide volume based on # of concurrent clips, details below)
Origin X	Curve representing the rotation origin point, X position in percent (-1 to 1)
Origin Y	Curve representing the rotation origin point, Y position in percent (-1 to 1)
Parent	The parent object to this clip, which makes many of these keyframe values initialize to the parent value
Position	The position of the clip on the timeline (in seconds, 0.0 is the beginning of the timeline)
Rotation	Curve representing the rotation (0 to 360)
Scale	The scale determines how a clip should be resized to fit its parent (details below)
Scale X	Curve representing the horizontal scaling in percent (0 to 1)
Scale Y	Curve representing the vertical scaling in percent (0 to 1)
Shear X	Curve representing X shear angle in degrees (-45.0=left, 45.0=right)
Shear Y	Curve representing Y shear angle in degrees (-45.0=down, 45.0=up)
Start	The start trimming position of the clip (in seconds)
Time	Curve representing the frames over time to play (used for speed and direction of video)
Volume	Curve representing the volume (0 to 1)
Wave Color	Curve representing the color of the audio wave form
Waveform	Should a waveform be used instead of the clip's image

Details

Gravity:

Gravity sets an initial position for the clip, once it has been scaled as above. The options are:

- *Top Left* – the top and left edges of the clip align with the top and left edges of the screen
- *Top Center* – the top edge of the clip aligns with the top edge of the screen; the clip is horizontally centered on the screen.
- *Top Right* – the top and right edges of the clip align with the top and right edges of the screen
- *Left* – the left edge of the clip aligns with the left edge of the screen; the clip is vertically centered on the screen.
- *Center* (default) – the clip is centered horizontally and vertically on the screen.
- *Right* – the right edge of the clip aligns with the right edge of the screen; the clip is vertically centered on the screen.
- *Bottom Left* – the bottom and left edges of the clip align with the bottom and left edges of the screen
- *Bottom Center* – the bottom edge of the clip aligns with the bottom edge of the screen; the clip is horizontally centered on the screen.
- Bottom Right – the bottom and right edges of the clip align with the bottom and right edges of the screen

Scale:

This is the initial resizing method, which may be further adjusted by Scale X and Scale Y (below). The options are:

- *Best Fit* (default) – the clip is as large as possible without changing the aspect ratio.
- *Crop* – the aspect ratio of the clip is maintained while the clip is enlarged to fill the entire screen, even if that means some of it will be cropped.
- *None* – the clip is its original size.
- *Stretch* – the clip is stretched to fill the entire screen, changing the aspect ratio if necessary.

Volume Mixing:

Mixing audio involves adjusting volume levels so that they maintain a good range within each clip, and then adjusting them in proportion to other clips used in the project. The following values are available:

- **None** - Make no adjustments to volume data before mixing audio
- **Average** - Automatically divide the volume of each clip based on the # of overlapping clips. For example, 2 overlapping clips would each have 50% volume.
- **Reduce** - Automatically reduce the clip's volume by 20%, allowing it to mix with other clips, and reducing the likelihood of over-volume loud events.

Consider the following guidelines when adjusting volume levels:

- If you combine particularly loud audio clips on multiple tracks, clipping (a staccato distortion) may occur. To avoid clipping, reduce volume levels.
- If you need to adjust the volume separately in different parts of a clip (for example, one person's voice is faint, while later another's is too loud), you can use keyframes to vary the volume throughout the clip.

- If the original level of a clip is much too high or low, you can change the input level. However, adjusting the level will not remove any distortion that may have resulted from recording the clip too high. In those cases, it is best to re-record the clip.

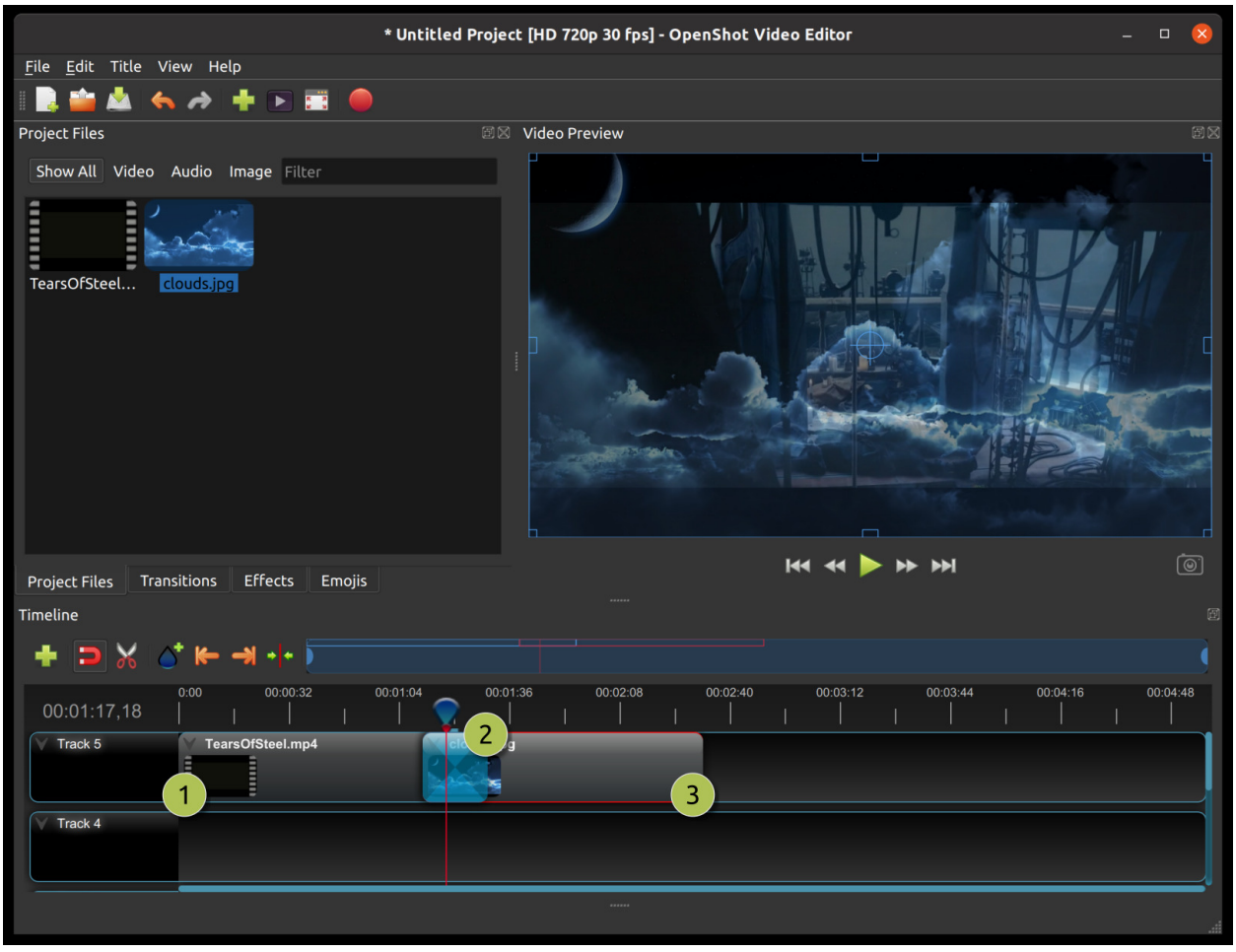
1.7.6 More Information

For more info on key frames and animation, see *Animation*.

1.8 Transitions

A transition is used to gradually fade (or wipe) between two clips. In OpenShot, transitions are represented by blue, rounded rectangles on the timeline. They are automatically created when you overlap two clips, and can be added manually by dragging one onto the timeline from the **Transitions** panel. A transition must be placed on top of a clip (overlapping it), with the most common location being the beginning or end.

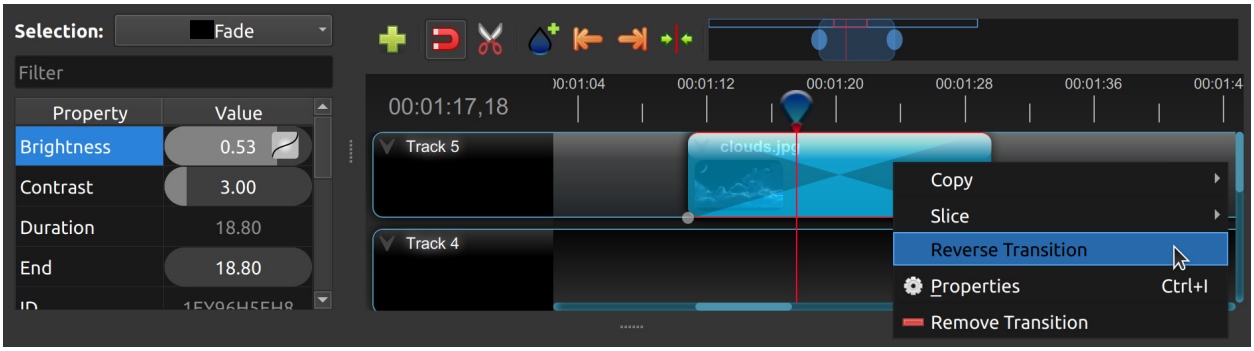
1.8.1 Overview



#	Name	Description
1	Clip 1	A video clip
2	Transition	A gradual fade transition between the 2 clips, created automatically by overlapping the clips.
3	Clip 2	An image clip

1.8.2 Direction

Transitions adjust the alpha/transparency of the clip below it, and can either fade from opaque to transparent, or transparent to opaque. Right click and choose **Reverse Transition** to change the direction of the fade. You can also manually adjust the **Brightness** curve, animating the fade in any way you wish.



1.8.3 Cutting & Slicing

OpenShot has many easy ways to adjust the start and end positions of a transition (otherwise known as cutting). The most common method is simply grabbing the left (or right) edge of the transition and dragging. Here is a list of methods for cutting transitions in OpenShot:

Name	Description
Slice	When the play-head (i.e. red playback line) is overlapping a transition, right click on the transition, and choose Slice
Slice All	When the play-head is overlapping many transitions, right click on the play-head, and choose Slice All (it will cut all intersecting transitions)
Resizing Edge	Mouse over the edge of a transition, and resize the edge
Razor Tool	The razor tool cuts a transition wherever you click, so be careful. Easy and dangerous.

Keep in mind that all of the above cutting methods also have *Keyboard Shortcuts*.

1.8.4 Mask

Like *Clips*, transitions also have properties which can be animated over time. The fade (or wipe) can be adjusted with the **Brightness** curve, or held at a constant value to create a transparency mask on top of a clip.

1.8.5 Custom Transition

Any greyscale image can be used as a transition (or mask), by adding it to your */.openshot_qt/transitions/* folder. Just be sure to name your file something that is easily recognizable, and restart OpenShot. Your custom transition/mask will now show up in the list of transitions.

1.8.6 Properties

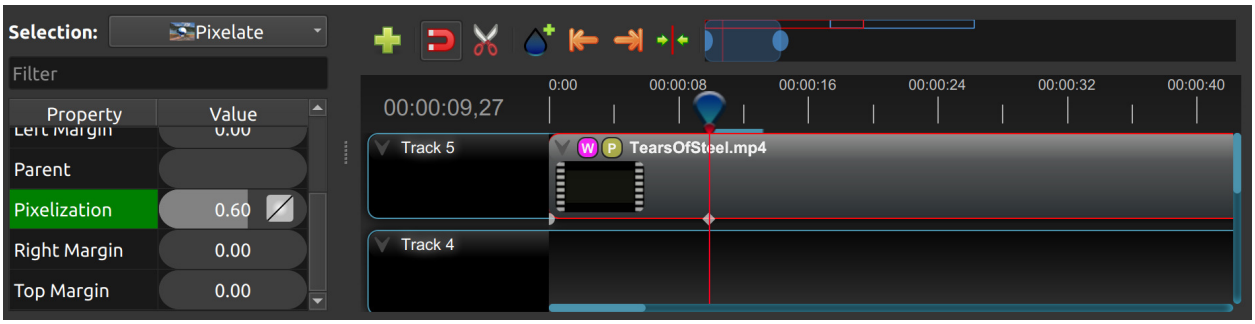
Below is a list of transition properties which can be edited, and in most cases, animated over time. To view a transition's properties, right click and choose **Properties**. The property editor will appear, where you can change these properties. NOTE: Pay close attention to where the play-head (i.e. red playback line) is. Key frames are automatically created at the current playback position, to help create animations.

Name	Description
Brightness	Curve representing the brightness of the transition image, which affects the fade/wipe (-1 to 1)
Contrast	Curve representing the contrast of the transition image, which affects the softness/hardness of the fade/wipe (0 to 20)
Replace Image	For debugging a problem, this property displays the transition image (instead of becoming a transparency)

1.9 Effects

Effects are used in OpenShot to enhance or modify the audio or video of a clip. They can modify pixels and audio data, and can generally enhance your video projects. Each effect has its own set of properties, most which can be animated over time.

Effects can be added to any clip by dragging and dropping them. Each effect is represented by a small colored icon and the first letter of the effect name. To view an effect's properties, click on the effect icon. The property editor will appear, where you can edit these properties. Note: Pay close attention to where the play-head (i.e. red playback line) is. Key frames are automatically created at the current playback position, to help create animations.



1.9.1 Video Effects

Effects are generally divided into two categories: video and audio effects. Video effects modify the image and pixel data of a clip. Below is a list of video effects, and their properties. Often it is best to experiment with an effect, entering different values into the properties, and observing the results.

Alpha Mask / Wipe Transition

Uses a grayscale mask image to gradually wipe / transition between 2 images.

Name	Description
brightness	`(float, -1 to 1)` This curve controls the motion across the wipe
contrast	`(float, 0 to 20)` This curve controls the hardness and softness of the wipe edge
reader	`(reader)` This reader can use any image or video as input for your grayscale wipe
replace_image	`(int, choices: ['Yes', 'No'])` Replace the clips image with the current grayscale wipe image, useful for troubleshooting

Bars

Add colored bars around your video.

Name	Description
bottom	`(float, 0 to 0.5)` The curve to adjust the bottom bar size
color	`(color)` The curve to adjust the color of bars
left	`(float, 0 to 0.5)` The curve to adjust the left bar size
right	`(float, 0 to 0.5)` The curve to adjust the right bar size
top	`(float, 0 to 0.5)` The curve to adjust the top bar size

Blur

Adjust the blur of the frame's image.

Name	Description
horizontal_radius	`(float, 0 to 100)` Horizontal blur radius keyframe. The size of the horizontal blur operation in pixels.
iterations	`(float, 0 to 100)` Iterations keyframe. The # of blur iterations per pixel. 3 iterations = Gaussian.
sigma	`(float, 0 to 100)` Sigma keyframe. The amount of spread in the blur operation. Should be larger than radius.
vertical_radius	`(float, 0 to 100)` Vertical blur radius keyframe. The size of the vertical blur operation in pixels.

Brightness & Contrast

Adjust the brightness and contrast of the frame's image.

Name	Description
brightness	(float, -1 to 1) The curve to adjust the brightness
contrast	(float, 0 to 100) The curve to adjust the contrast (3 is typical, 20 is a lot, 100 is max. 0 is invalid)

Caption

Add text captions on top of your video.

Name	Description
background	(color) Color of caption area background
background_alpha	(float, 0 to 1) Background color alpha
background_corner	(float, 0 to 60) Background corner radius
background_padding	(float, 0 to 60) Background padding
caption_font	(font) Font name or family name
caption_text	(caption) VTT/Subrip formatted caption text (multi-line)
color	(color) Color of caption text
fade_in	(float, 0 to 3) Fade in per caption (# of seconds)
fade_out	(float, 0 to 3) Fade out per caption (# of seconds)
font_alpha	(float, 0 to 1) Font color alpha
font_size	(float, 0 to 200) Font size in points
left	(float, 0 to 0.5) Size of left margin
line_spacing	(float, 0 to 5) Distance between lines (1.0 default)
right	(float, 0 to 0.5) Size of right margin
stroke	(color) Color of text border / stroke
stroke_width	(float, 0 to 10) Width of text border / stroke
top	(float, 0 to 1) Size of top margin

Chroma Key (Greenscreen)

Replaces the color (or chroma) of the frame with transparency (i.e. keys out the color).

Name	Description
color	(color) The color to match
fuzz	(float, 0 to 125) The fuzz factor (or threshold)
halo	(float, 0 to 125) The additional threshold for halo elimination.
keymethod	(int, choices: ['Basic keying', 'HSV/HSL hue', 'HSV saturation', 'HSL saturation', 'HSV value', 'HSL luminance', 'LCH luminosity', 'LCH chroma', 'LCH hue', 'CIE Distance', 'Cb,Cr vector']) The keying method or algorithm to use.

Color Saturation

Adjust the color saturation.

Name	Description
saturation	(float, 0 to 4) The curve to adjust the overall saturation of the frame's image (0.0 = greyscale, 1.0 = normal, 2.0 = double saturation)
saturation_B	(float, 0 to 4) The curve to adjust blue saturation of the frame's image
saturation_G	(float, 0 to 4) The curve to adjust green saturation of the frame's image (0.0 = greyscale, 1.0 = normal, 2.0 = double saturation)
saturation_R	(float, 0 to 4) The curve to adjust red saturation of the frame's image

Color Shift

Shift the colors of an image up, down, left, and right (with infinite wrapping).

Each pixel has 4 color channels:

- Red, Green, Blue, and Alpha (i.e. transparency)
- Each channel value is between 0 and 255

The Color Shift effect simply "moves" or "translates" a specific color channel on the X or Y axis. *Not all video and image formats support an alpha channel, and in those cases, you will not see any changes when adjusting the color shift of the alpha channel.*

Name	Description
alpha_x	(float, -1 to 1) Shift the Alpha X coordinates (left or right)
alpha_y	(float, -1 to 1) Shift the Alpha Y coordinates (up or down)
blue_x	(float, -1 to 1) Shift the Blue X coordinates (left or right)
blue_y	(float, -1 to 1) Shift the Blue Y coordinates (up or down)
green_x	(float, -1 to 1) Shift the Green X coordinates (left or right)
green_y	(float, -1 to 1) Shift the Green Y coordinates (up or down)
red_x	(float, -1 to 1) Shift the Red X coordinates (left or right)
red_y	(float, -1 to 1) Shift the Red Y coordinates (up or down)

Crop

Crop out any part of your video.

Name	Description
bottom	(float, 0 to 1) Size of bottom bar
left	(float, 0 to 1) Size of left bar
right	(float, 0 to 1) Size of right bar
top	(float, 0 to 1) Size of top bar
x	(float, -1 to 1) X-offset
y	(float, -1 to 1) Y-offset

Deinterlace

Remove interlacing from a video (i.e. even or odd horizontal lines)

Name	Description
isOdd	(bool, choices: ['Yes', 'No']) Use odd or even lines

Hue

Adjust the hue / color of the frame's image.

Name	Description
hue	(float, 0 to 1) The curve to adjust the percentage of hue shift

Negative

Negates the colors, producing a negative of the image.

Object Detector

Detect objects through the video.

Name	Description
class_filter	(string) Type of object class to filter (i.e. car, person)
confidence_threshold	(float, 0 to 1) Minimum confidence value to display the detected objects
display_box_text	(int, choices: ['Off', 'On']) Draw a rectangle around detected objects
objects	(list) List of detected object ids
selected_object_index	(int, 0 to 200) Index of the tracked object that was selected to modify its properties

Pixelate

Pixelate (increase or decrease) the number of visible pixels.

Name	Description
bottom	(float, 0 to 1) The curve to adjust the bottom margin size
left	(float, 0 to 1) The curve to adjust the left margin size
pixelization	(float, 0 to 0.99) The curve to adjust the amount of pixelization
right	(float, 0 to 1) The curve to adjust the right margin size
top	(float, 0 to 1) The curve to adjust the top margin size

Shift

Shift the image up, down, left, and right (with infinite wrapping).

Name	Description
x	(float, -1 to 1) Shift the X coordinates (left or right)
y	(float, -1 to 1) Shift the Y coordinates (up or down)

Stabilizer

Stabilize video clip to remove undesired shaking and jitter.

Name	Description
zoom	(float, 0 to 2) Percentage to zoom into the clip, to crop off the shaking and uneven edges

Tracker

Track the selected bounding box through the video. The tracked object can be selected as a parent on other clips.

Wave

Distort the frame's image into a wave pattern.

Name	Description
amplitude	(float, 0 to 5) The height of the wave
multiplier	(float, 0 to 10) Amount to multiply the wave (make it bigger)
shift_x	(float, 0 to 1000) Amount to shift X-axis
speed_y	(float, 0 to 300) Speed of the wave on the Y-axis
wavelength	(float, 0 to 3) The length of the wave

1.9.2 Audio Effects

Audio effects modify the waveforms and audio sample data of a clip. Below is a list of audio effects, and their properties. Often it is best to experiment with an effect, entering different values into the properties, and observing the results.

Compressor

Reduce the volume of loud sounds or amplify quiet sounds.

Name	Description
attack	(float, 0.1 to 100)
bypass	(bool)
makeup_gain	(float, -12 to 12)
ratio	(float, 1 to 100)
release	(float, 10 to 1000)
threshold	(float, -60 to 0)

Delay

Adjust the synchronism between the audio and video track.

Name	Description
delay_time	(float, 0 to 5)

Distortion

Alter the audio by clipping the signal.

Name	Description
distortion_type	(int, choices: ['Hard Clipping', 'Soft Clipping', 'Exponential', 'Full Wave Rectifier', 'Half Wave Rectifier'])
input_gain	(int, -24 to 24)
output_gain	(int, -24 to 24)
tone	(int, -24 to 24)

Echo

Reflection of sound with a delay after the direct sound.

Name	Description
echo_time	(float, 0 to 5)
feedback	(float, 0 to 1)
mix	(float, 0 to 1)

Expander

Louder parts of audio becomes relatively louder and quieter parts becomes quieter.

Name	Description
attack	(float, 0.1 to 100)
bypass	(bool)
makeup_gain	(float, -12 to 12)
ratio	(float, 1 to 100)
release	(float, 10 to 1000)
threshold	(float, -60 to 0)

Noise

Random signal having equal intensity at different frequencies.

Name	Description
level	(int, 0 to 100)

Parametric EQ

Filter that allows you to adjust the volume level of a frequency in the audio track.

Name	Description
filter_type	(int, choices: ['Low Pass', 'High Pass', 'Low Shelf', 'High Shelf', 'Band Pass', 'Band Stop', 'Peaking Notch'])
frequency	(int, 20 to 20000)
gain	(int, -24 to 24)
q_factor	(float, 0 to 20)

Robotization

Transform the voice present in an audio track into a robotic voice effect.

Name	Description
fft_size	(int, choices: ['128', '256', '512', '1024', '2048'])
hop_size	(int, choices: ['1/2', '1/4', '1/8'])
window_type	(int, choices: ['Rectangular', 'Bart Lett', 'Hann', 'Hamming'])

Whisperization

Transform the voice present in an audio track into a whispering voice effect.

Name	Description
fft_size	(int, choices: ['128', '256', '512', '1024', '2048'])
hop_size	(int, choices: ['1/2', '1/4', '1/8'])
window_type	(int, choices: ['Rectangular', 'Bart Lett', 'Hann', 'Hamming'])

For more info on key frames and animation, see *Animation*.

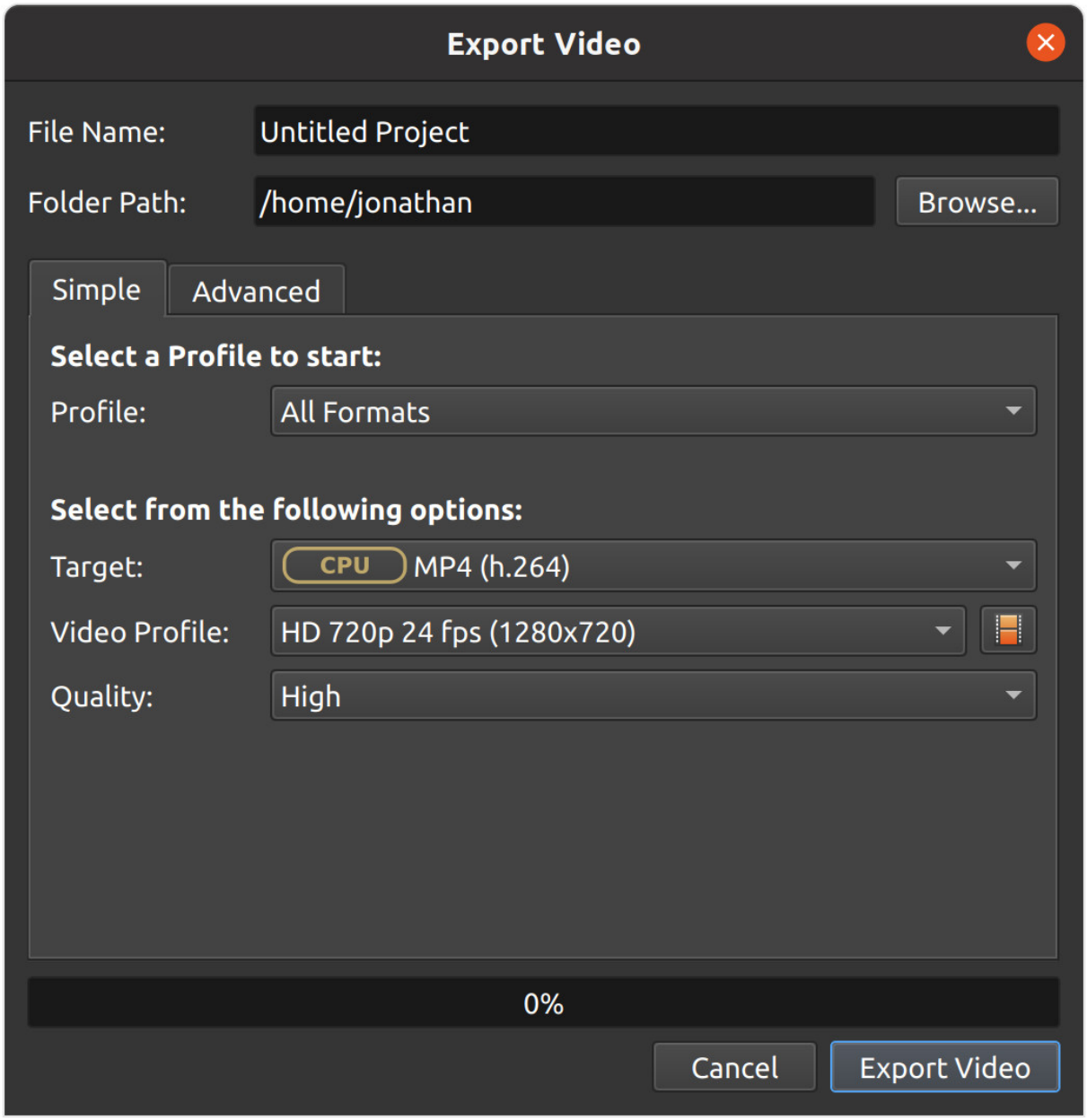
1.10 Export

Exporting converts your OpenShot project (clips, effects, animations, titles) into a single video output file (using a process called `video encoding`). By using the default settings, the exported video will be compatible with most media players (such as VLC) and websites (such as YouTube, Vimeo, Facebook).

Click on the *Export Video* icon at the top of the screen (or use the *File→Export Video* menu). The default values will work fine, so just click the *Export Video* button to render your new video. You can also create your own custom export profiles, see *Profiles*.

1.10.1 Simple Mode

While video encoding is very complicated, with dozens of interrelated settings and options, OpenShot makes it easy, with sensible defaults, and most of this complexity hidden away behind our *Simple* tab, which is the default export view.

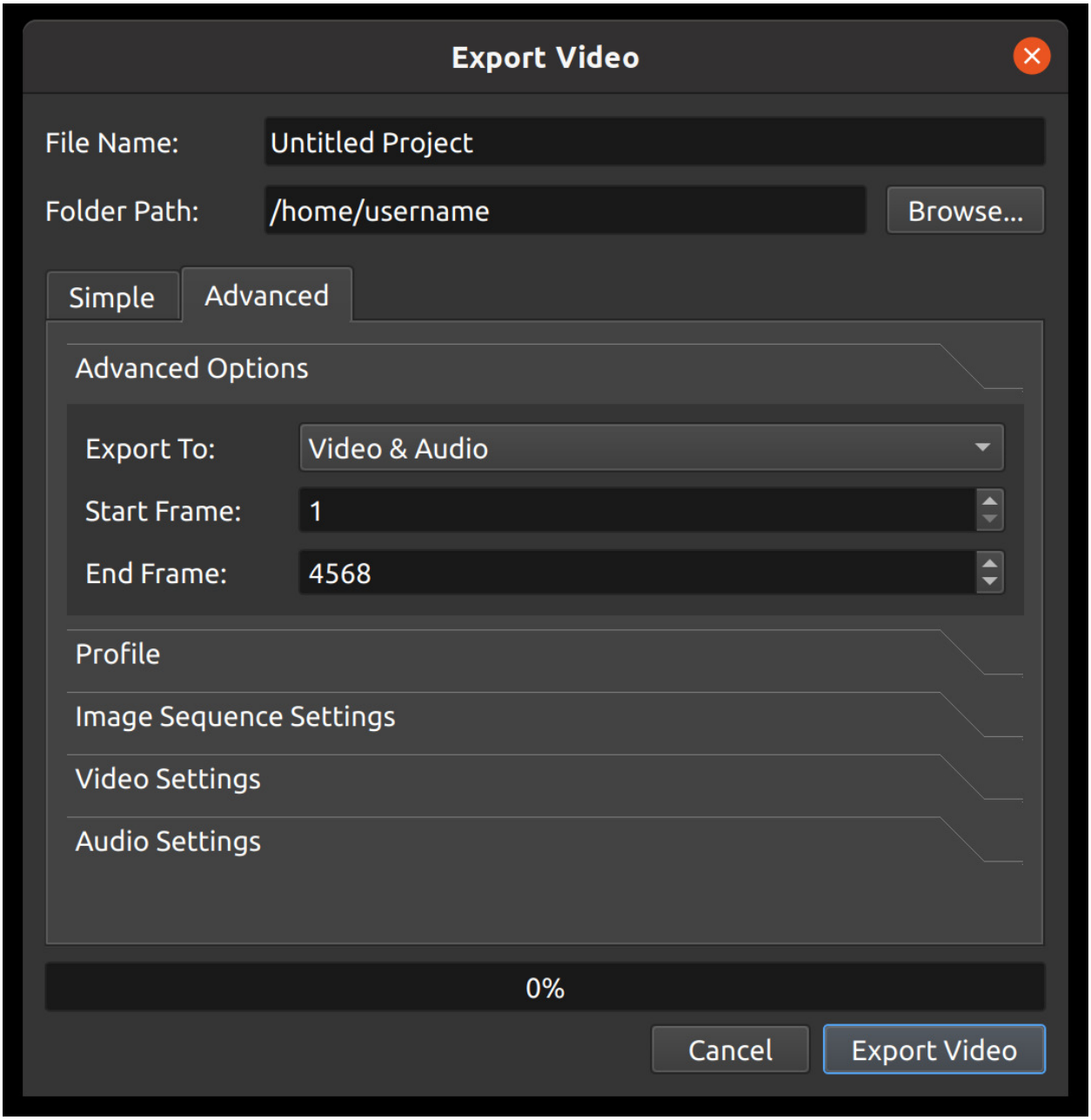


Name	Description
Profile	Common presets (combinations of presets and video profiles grouped by category, for example: **Web**)
Target	Target presets related to the current profile (collections of common formats, codecs, and quality settings, see *Preset List*)
Video Profile	Video profiles related to the current target (collections of common size, frame rate, and aspect ratios, see *Profile List* or create your own *Profiles*)
Quality	Quality settings (low, med, high), which relate to various video and audio bitrates.

1.10.2 Advanced Mode

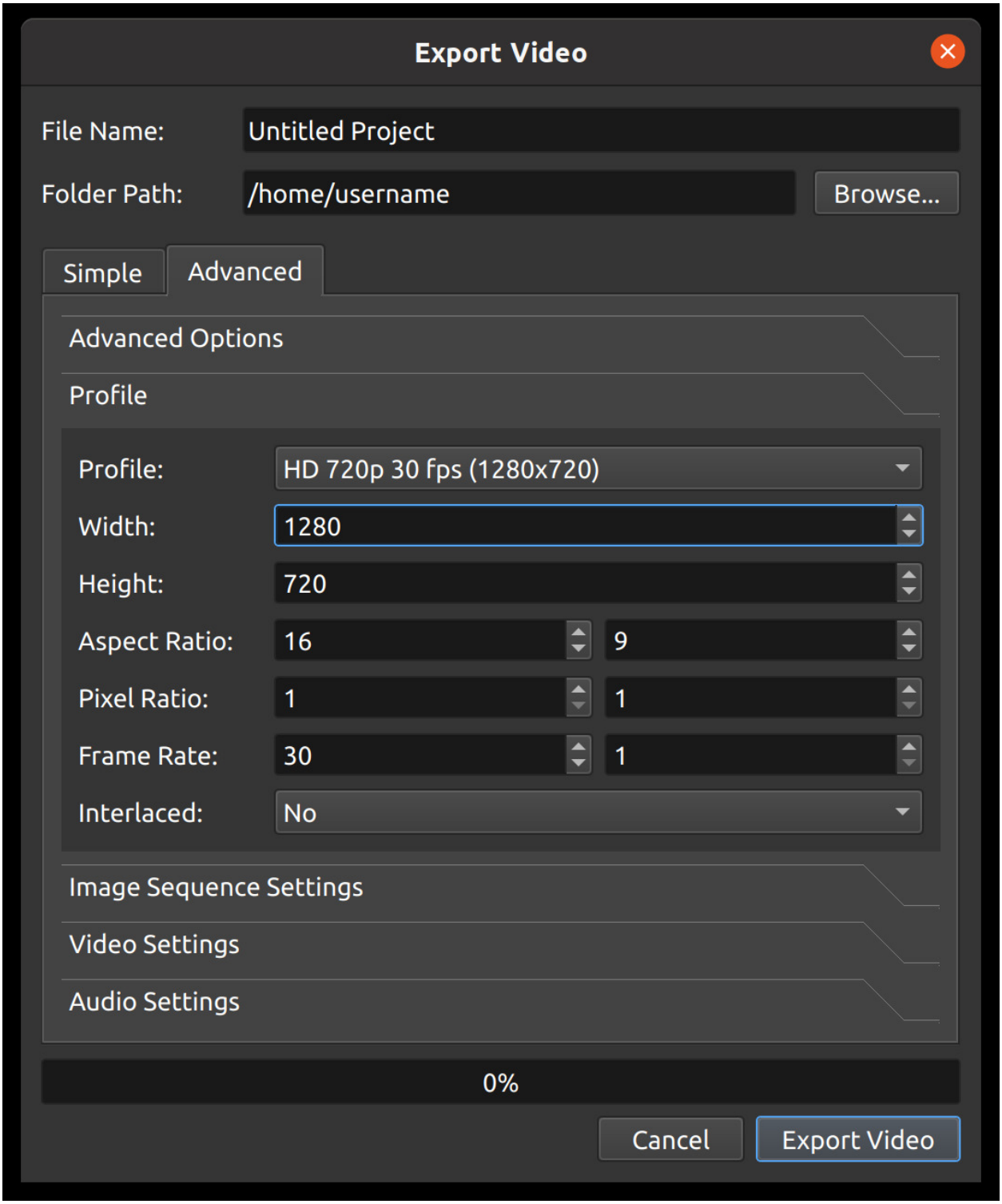
Most users will never need to switch to the *Advanced* tab, but if you need to customize any of the video encoding settings, for example, custom bitrates, different codecs, or limiting the range of frames exported, this is the tab for you.

Advanced Options



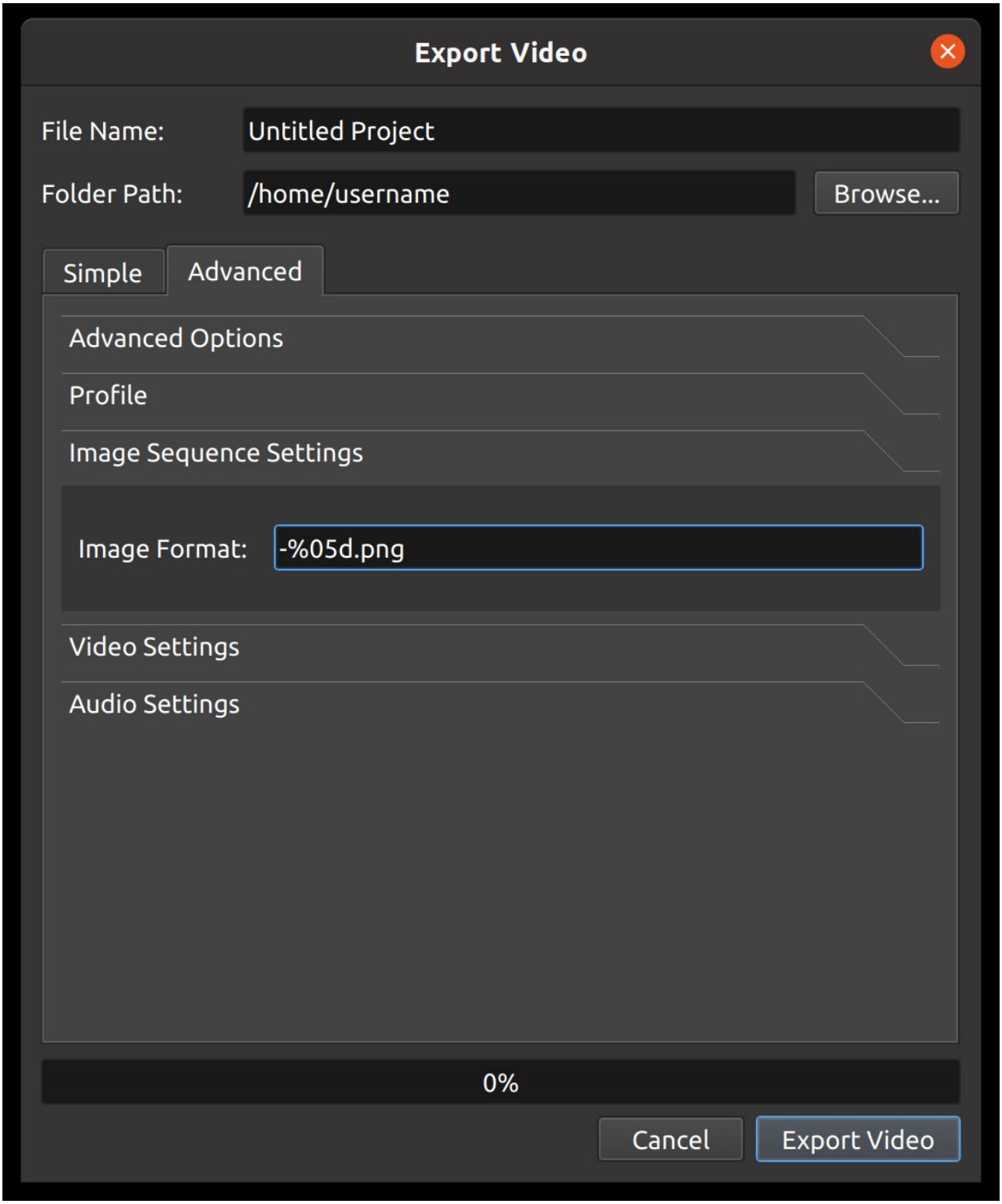
Name	Description
Export To	Export both *video & audio*, *only audio*, *only video*, or an *image sequence*
Start Frame	The first frame to export (default is 1)
End Frame	The final frame to export (default is the last frame in your project to contain a clip)

Profile


Export Video
File Name:
Untitled Project
Folder Path:
/home/username
Browse...
Simple
Advanced
Advanced Options
Profile
Profile:
HD 720p 30 fps (1280x720)
Width:
1280
Height:
720
Aspect Ratio:
16
9
Pixel Ratio:
1
1
Frame Rate:
30
1
Interlaced:
No
Image Sequence Settings
Video Settings
Audio Settings
0%
Cancel
Export Video

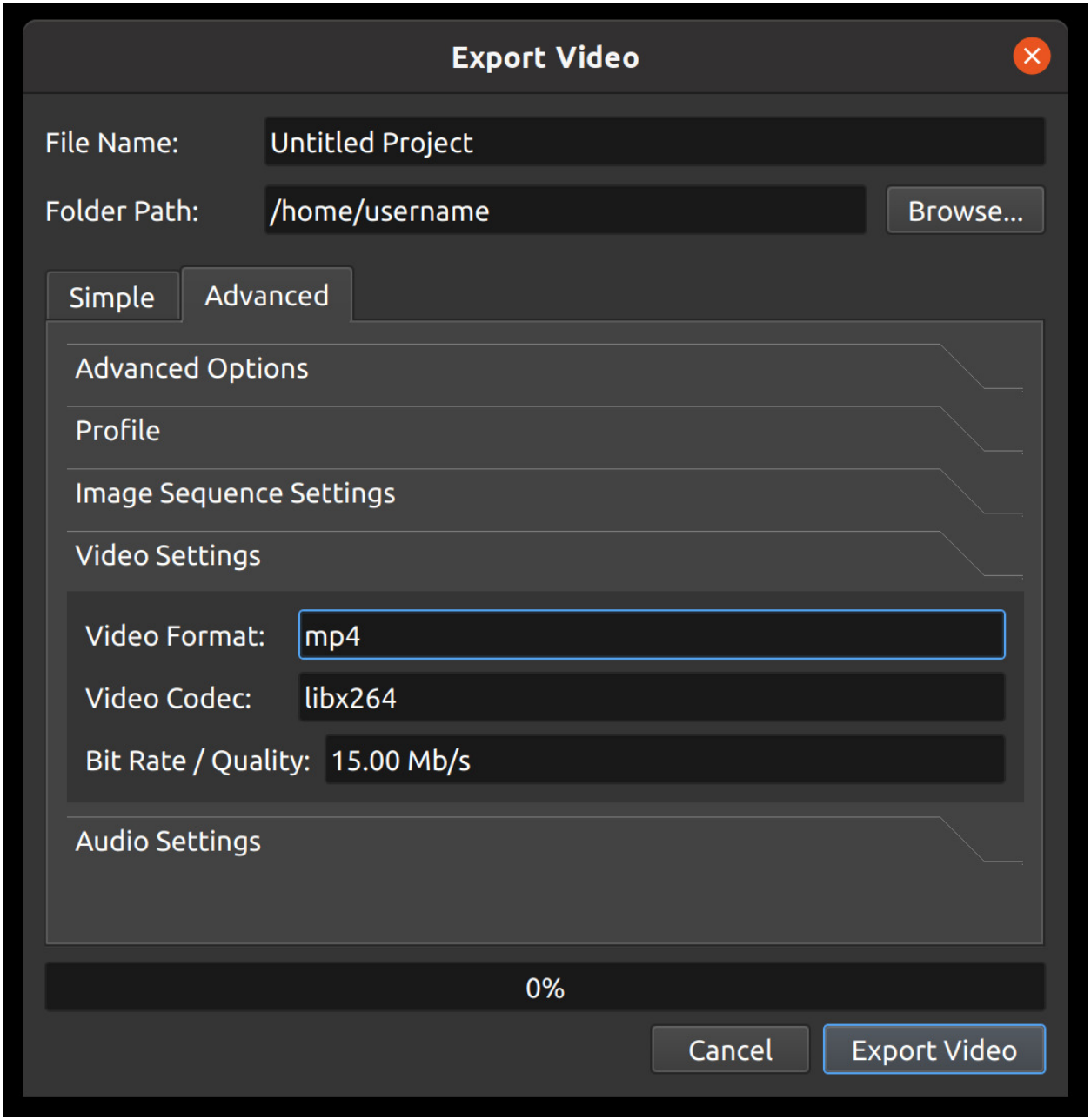
Name	Description
Profile	The video profile to use during export (collection of size, frame rate, and aspect ratios, see *Profile List*)
Width	The width of the video export (in pixels)
Height	The height of the video export (in pixels)
Aspect Ratio	The aspect ratio of the final exported video. 1920x1080 reduces to 16:9. This also takes into account the pixel ratio, for example 2:1 rectangular pixels will affect the aspect ratio.
Pixel Ratio	The ratio representing pixel shape. Most video profiles use a 1:1 square pixel shape, but others will use rectangular pixels.
Frame Rate	The frequency that the frames will be displayed at.
Interlaced	Is this format used on alternating scan lines (i.e. broadcast and analog formats)

Image Sequence Settings



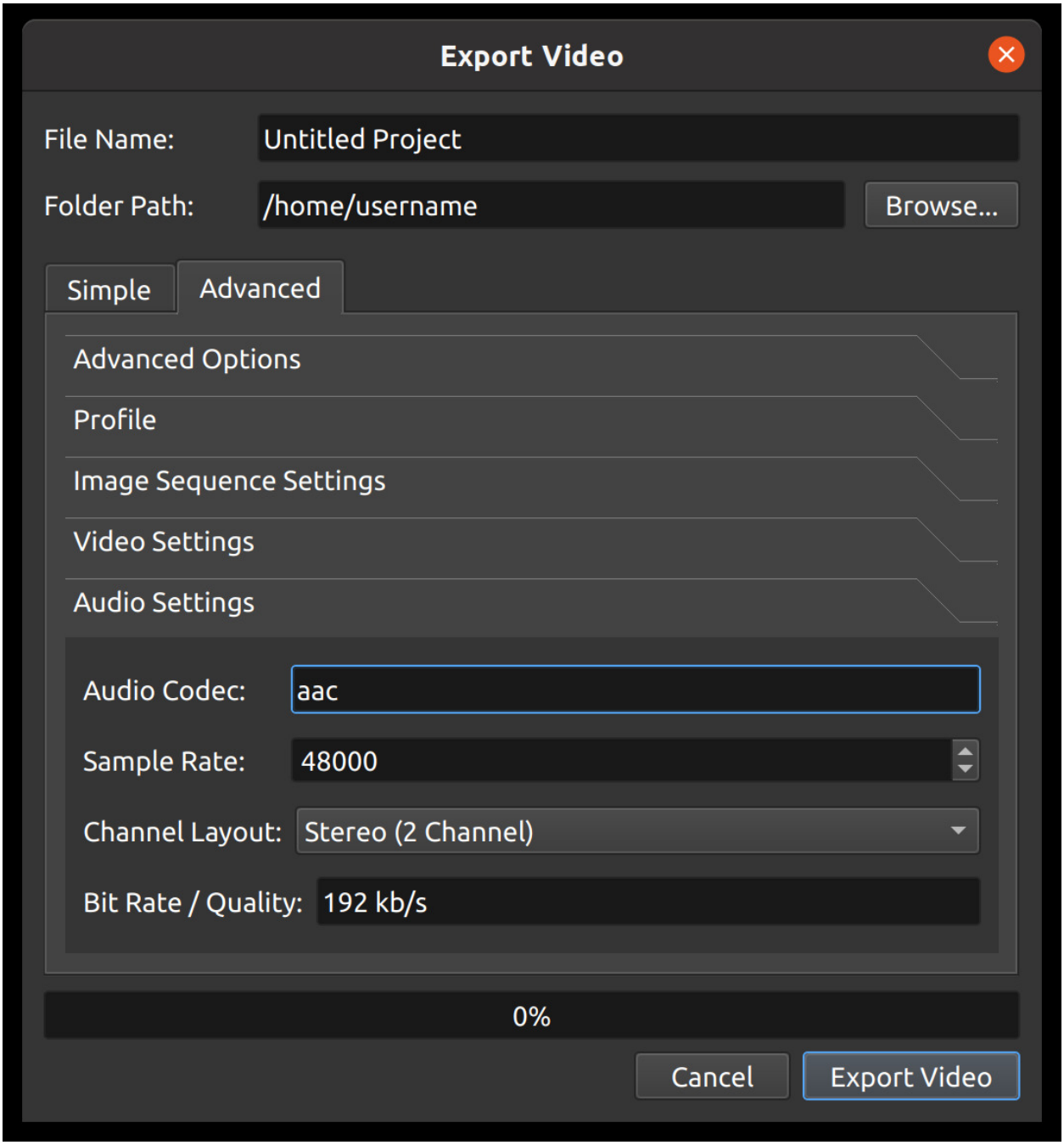
Name	Description
Image Format	The string format that represents the output file name in an sequence of images. For example, %05d.png would pad a number with 5 digits: 00001.png, 00002.png.

Video Settings



Name	Description
Video Format	The name of the container format (`mp4`, `mov`, `avi`, `webm`, etc...)
Video Codec	The name of the video codec used during video encoding (`libx264`, `mpeg4`, `libaom-av1`, etc...)
Bit Rate / Quality	The bitrate to use for video encoding. Accepts the following formats: `5 Mb/s`, `96 kb/s`, `23 crf`, etc...

Audio Settings



Name	Description
Audio Codec	The name of the audio codec used during audio encoding (`aac`, `mp2`, `libmp3lame`, etc…)
Sample Rate	The number of audio samples per second. Common values are `44100` and `48000`.
Channel Layout	The number and layout of audio channels (`Stereo`, `Mono`, `Surround`, etc…)
Bit Rate / Quality	The bitrate to use for audio encoding. Accepts the following formats: `96 kb/s`, `128 kb/s`, `192 kb/s`, etc…

1.11 Animation

OpenShot has been designed specifically with animation in mind. The powerful curve-based animation framework can handle most jobs with ease, and is flexible enough to create just about any animation. Key frames specify values at certain points on a clip, and OpenShot does the hard work of interpolating the in-between values.

1.11.1 Overview

#	Name	Description
1	Green Property	When the play-head is on a key frame, the property appears green
1	Blue Property	When the play-head is on an interpolated value, the property appears blue
2	Value Slider	Click and drag your mouse to adjust the value (this automatically creates a key frame if needed)
3	Play-head	Position the play-head over a clip where you need a key frame
4	Key frame Markers	Small icons are displayed on the bottom of the clip for each active keyframe (*circle=Bézier, diamond=linear, square=constant*). These icons are filtered based on the property window. For example, if you filter only `scale_x`, you will only see the icons for `scale_x` keyframes, for example.

1.11.2 Key Frames

To create a key frame in OpenShot, simply position the play-head (i.e. playback position) at any point over a clip, and edit properties in the property dialog. If the property supports key frames, it will turn green, and a small icon (*circle=Bézier, diamond=linear, square=constant*) will appear on the bottom of your clip at that position. Move your play-head to another point over that clip, and adjust the properties again. All animations require at least 2 key frames, but can support an unlimited number of them.

To adjust the **interpolation mode**, right click on the small graph icon next to a property value.

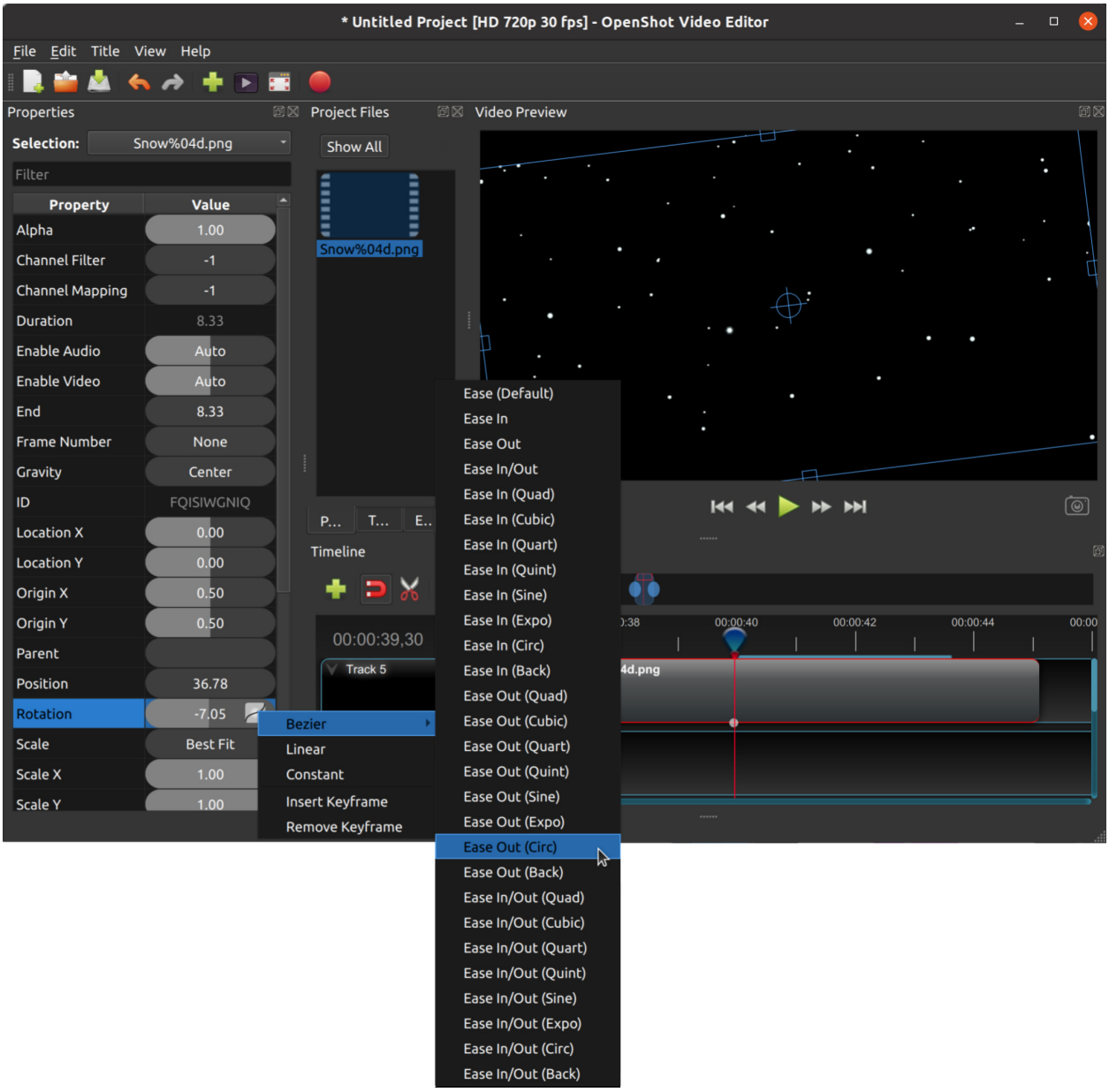
Name	Description
Bézier	Interpolated values use a quadratic curve, and ease-in and ease-out
Linear	Interpolated values are calculated linear (each step value is equal)
Constant	Interpolated values stay the same until the next key frame, and jump to the new value

For more info on creating key frames for location, rotation, scale, shear, and location, see *Transform*.
For more info on preset animations, see *Preset Menu*.
For more info on clip properties, see *Properties*.

1.11.3 Bézier Presets

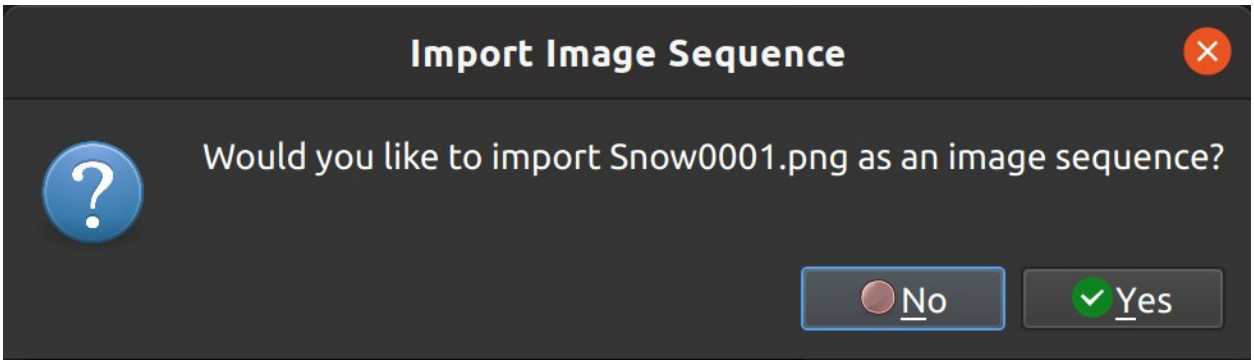
When using a Bézier curve for animation, OpenShot includes more than 20 curve presets (which affect the shape of the curve). For example, **Ease-In** has a more gradual slope at the beginning, making an animation move slower at the beginning, and faster at the end. **Ease-In/Out (Back)** has a gradual beginning and ending, but actually goes past the expected value and then back (producing a bounce effect).

To choose a curve preset, right click on the small graph icon next to a key frame.

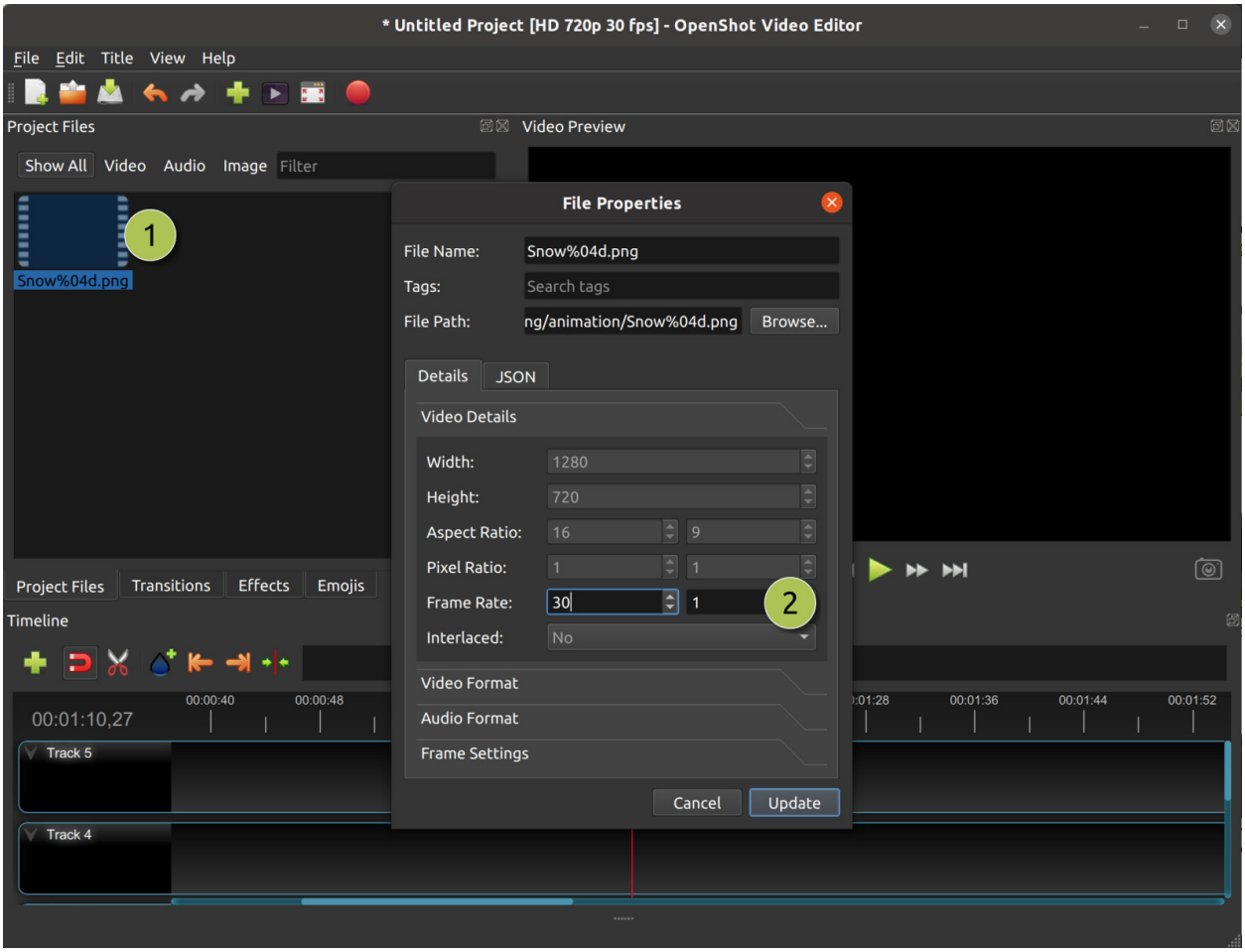


1.11.4 Image Sequences

If you have a sequence of similarly named images (such as, cat001.png, cat002.png, cat003.png, etc…), you can simply drag and drop one of them into OpenShot, and you will be prompted to import the entire sequence.



To adjust the frame rate of the animation, right click and choose **File Properties** in the **Project Files** panel, and adjust the frame rate. Once you have set the correct frame rate, drag the animation onto the timeline.

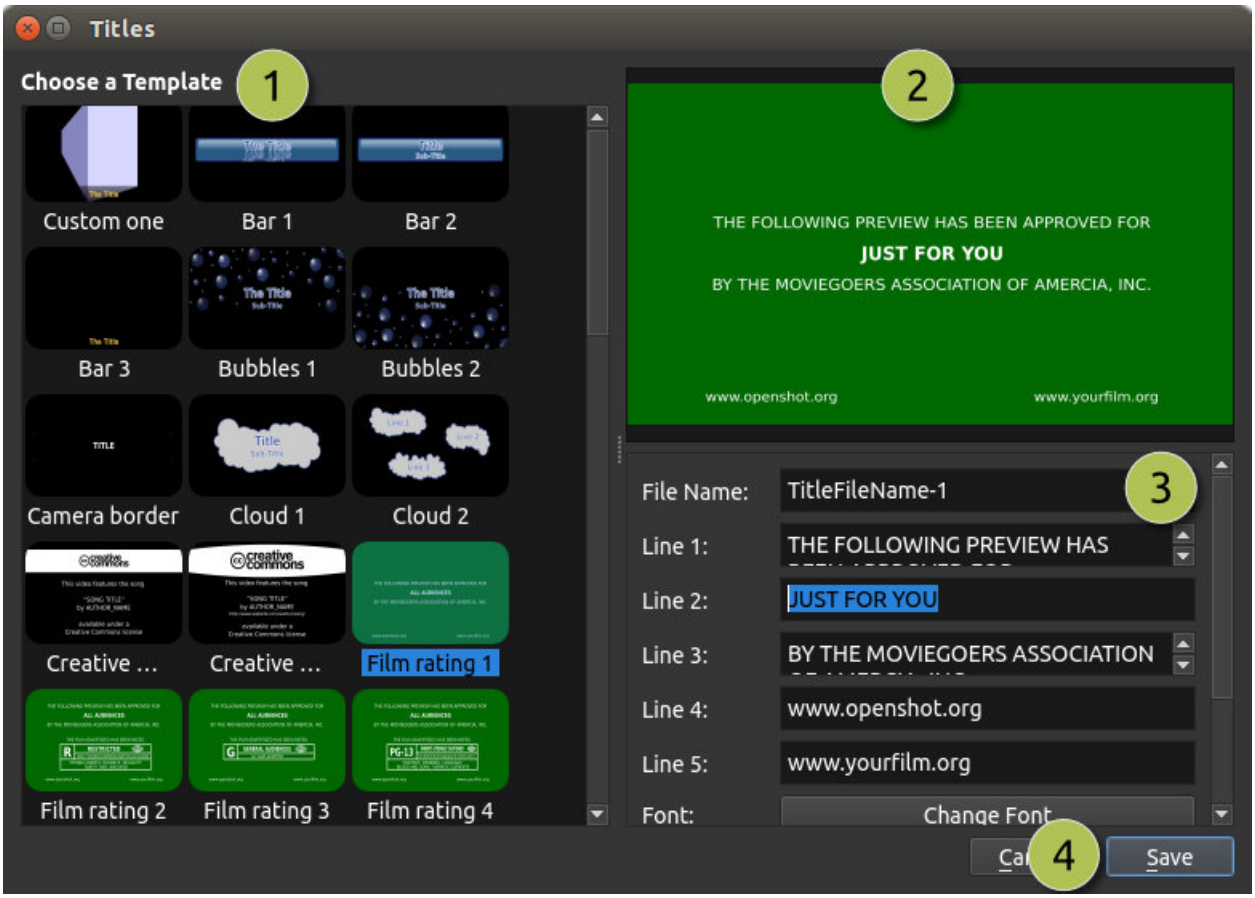


#	Name	Description
1	File Properties	Select an image sequence in the **Project Files** panel, right click and choose **File Properties**
2	Frame Rate	Adjust the frame rate of the animation. Typically, hand-drawn animations use 12 frames per second.

1.12 Titles

Adding text and titles is an important aspect of video editing, and OpenShot comes with an easy to use Title Editor. Use the Title menu (located in the main menu of OpenShot) to launch the Title Editor. You can also use the keyboard shortcut **Ctrl+T**.

1.12.1 Overview



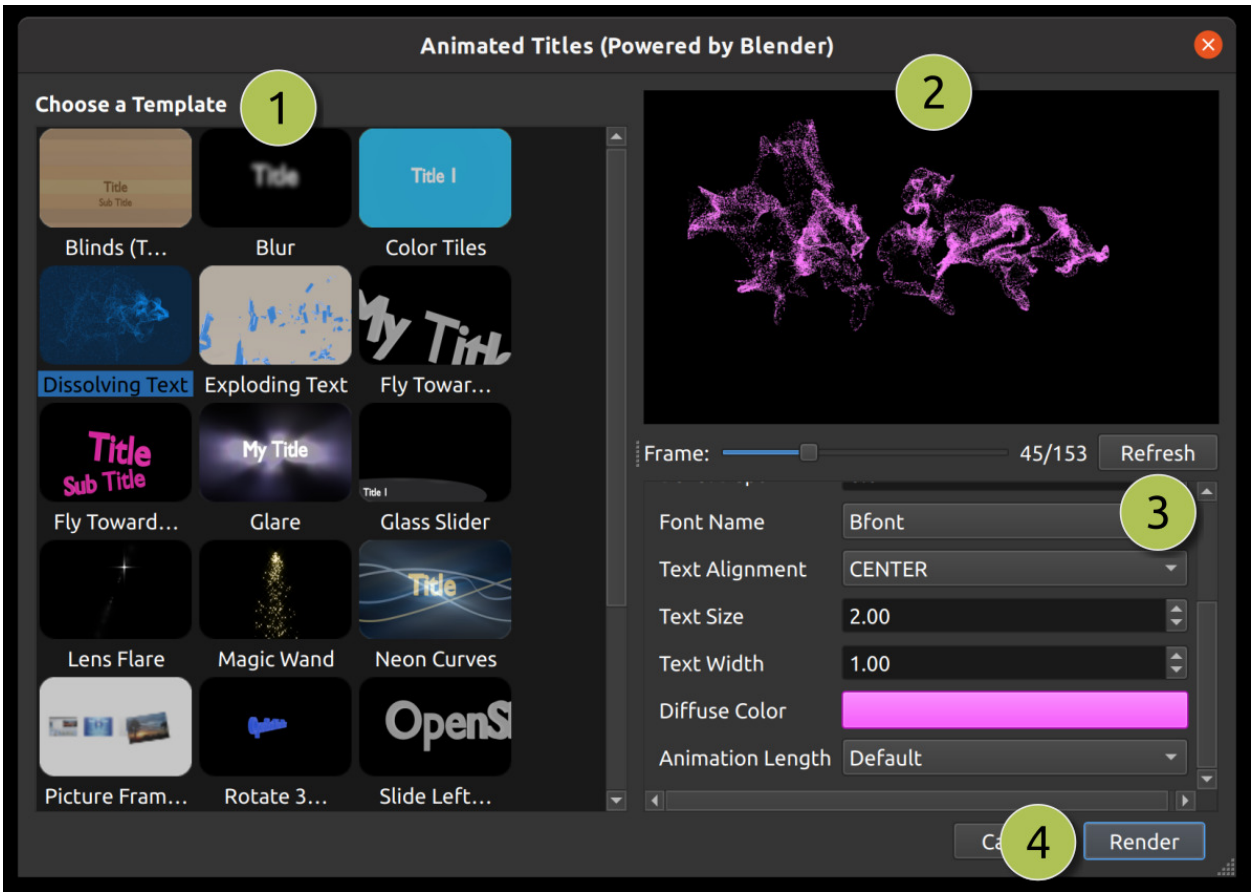
#	Name	Description
1	Choose a Template	Choose from any available vector title template
2	Preview Title	Preview your title as you make changes
3	Title Properties	Change the text, colors, or edit in an advanced SVG image editor (such as Inkscape)
4	Save	Save and add the title to your project

1.12.2 Custom Titles

OpenShot can use any vector SVG image file as a title template. Just add an SVG image file to your *.openshot_qt/title_templates/* folder, and it will appear the next time you open the Title Editor interface. You can also right click on any SVG files in your **Project Files** panel, and choose **Edit Title** or **Duplicate Title**.

1.12.3 3D Animated Titles

Adding a 3D animated title is just as easy, using our **Animated Title** dialog. Use the Title menu (located in the main menu of OpenShot) to launch the Animated Title editor. You can also use the keyboard shortcut **Ctrl+B**.



#	Name	Description
1	Choose a Template	Choose from any available 3D title templates
2	Preview Title	Preview your title as you make changes
3	Title Properties	Change the text, colors, and advanced properties
4	Render	Render the 3D animation, and add it to your project

1.12.4 Installing Inkscape & Blender

These features require the latest version of Blender (https://www.blender.org/download/) and Inkscape (https://inkscape.org/release/) be installed, and the OpenShot **Preferences** updated with the correct paths to the Blender & Inkscape executable. See the *General* tab in Preferences.

For a detailed guide on how to install these dependencies, see Blender & Inkscape Guide.

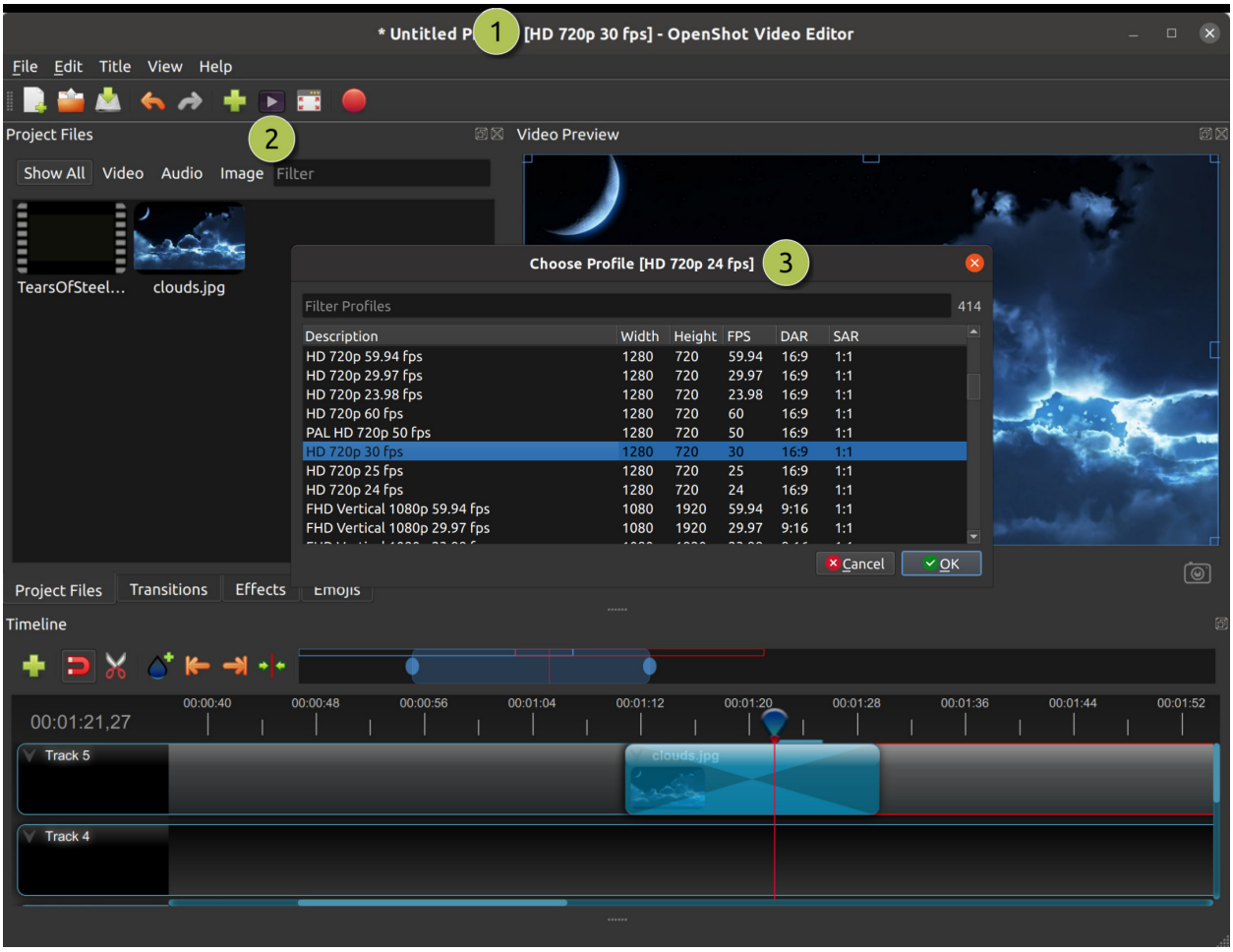
1.13 Profiles

A video profile is a collection of common video settings (*size, frame rate, aspect ratio*). Profiles are used during editing, previewing, and exporting to provide a quick way to switch between common combinations of these settings.

If you often use the same profile, you can set a default profile: *Edit→Preferences→Preview*.

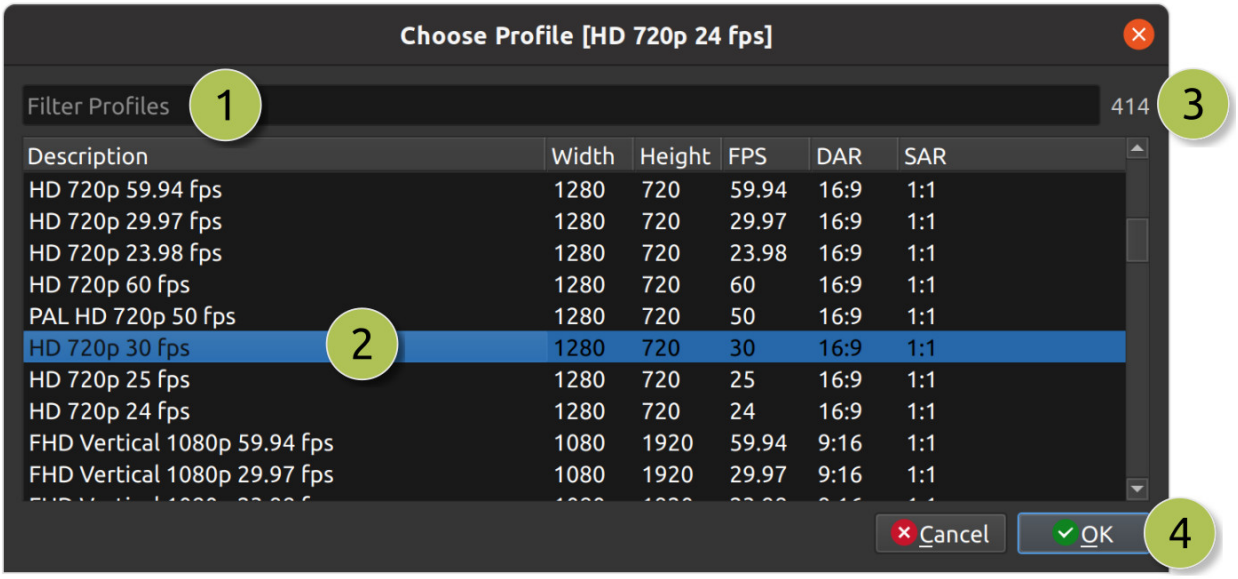
1.13.1 Project Profile

The project profile is used when previewing your project and editing. The default project profile is `HD 720p 30fps`. It is best practice to always switch to your target profile before you begin editing. For example, if you are targeting 1080p 30fps, switch to that profile before you begin editing your project. For a full list of included profiles see *Profile List*.



#	Name	Description
1	Title Bar	The title bar of OpenShot displays the current profile
2	Profile Button	Launch the profiles dialog
3	Choose Profile	Select a profile for editing and preview

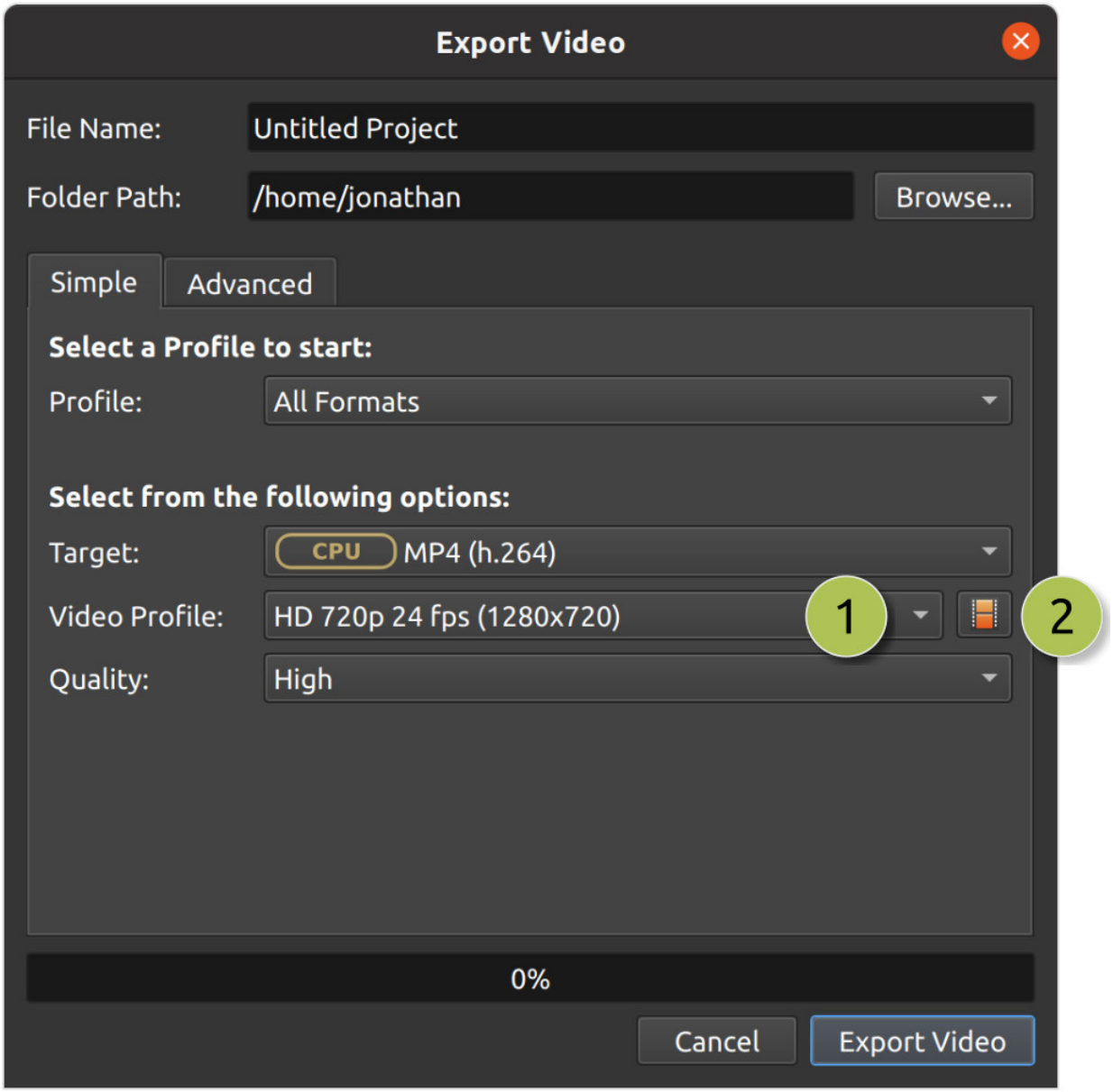
1.13.2 Choose Profile Dialog



#	Name	Description
1	Filter / Search	Filter the available profiles by typing a few characters (i.e. FHD, 720p, 16:9, etc…)
2	Selected Profile	Click on the desired profile, and then the *OK* button. You can also double click a profile to select it.
3	Filtered Count	Count of filtered profiles
4	Accept Profile	Click the *OK* button to switch to the selected profile.

1.13.3 Export Profile

The export profile always defaults to your current project profile, but can be changed to target different profiles.



#	Name	Description
1	Choose Profile	Select an export profile from a dropdown. This list is sorted from largest resolution at the top, smallest resolution at the bottom.
2	Search Profiles	Open Profile dialog to filter and search for an export profile, which can sometimes be much quicker to find a specific profile.

1.13.4 Custom Profile

Although OpenShot has more than 400 profiles (*Profile List*) included by default, you can also create your own custom profiles. Create a new text file in the `~/.openshot_qt/profiles/` or `C:\Users\USERNAME\.openshot_qt\profiles` folder. Use the following text as your template (i.e. copy and paste this into the new file):

```
description=Custom Profile Name
frame_rate_num=30000
frame_rate_den=1001
width=1280
height=720
progressive=1
sample_aspect_num=1
sample_aspect_den=1
display_aspect_num=16
display_aspect_den=9
```

Profile Property	Description
description	The friendly name of the profile (this is what OpenShot displays in the user interface)
frame_rate_num	The frame rate numerator. All frame rates are expressed as fractions. For example, `30 FPS == 30/1`.
frame_rate_den	The frame rate denominator. All frame rates are expressed as fractions. For example, `29.97 FPS == 30,000/1001`.
width	The number of horizontal pixels in the image. By reversing the values for *width* and *height*, you can create a vertical profile.
height	The number of vertical pixels in the image
progressive	`` `(0 or 1)` `` If 1, both even and odd rows of pixels are used. If 0, only odd or even rows of pixels are used.
sample_aspect_num	The numerator of the **SAR** (sample/pixel shape aspect ratio), `1:1` ratio would represent a square pixel, `2:1` ratio would represent a `2x1` rectangle pixel shape, etc…
sample_aspect_den	The denominator of the **SAR** (sample/pixel shape aspect ratio)
display_aspect_num	The numerator of the **DAR** (display aspect ratio), `(width/height) X (sample aspect ratio)`. This is the final ratio of the image displayed on screen, reduced to the smallest fraction possible (common ratios are 16:9 for wide formats, 4:3 for legacy television formats).
display_aspect_den	The denominator of the **DAR** (display aspect ratio)

Once you restart OpenShot, you will see your custom profile appear in the list of Profiles.

1.13.5 Preset List

OpenShot includes a large list of common profiles and their associated video export settings (`video codec`, `audio codec`, `audio channels`, `audio sample rate`, etc…), which targets specific websites and devices.

All Formats

AVI (h.264)

Attribute	Description
Video Format	AVI
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

AVI (mpeg2)

Attribute	Description
Video Format	AVI
Video Codec	mpeg2video
Audio Codec	mp2
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

AVI (mpeg4)

Attribute	Description
Video Format	AVI
Video Codec	mpeg4
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

GIF (animated)

Attribute	Description
Video Format	GIF
Video Codec	gif
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Profiles	All Profiles

MKV (h.264 dx)

Attribute	Description
Video Format	MKV
Video Codec	h264_dxva2
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MKV (h.264 nv)

Attribute	Description
Video Format	MKV
Video Codec	h264_nvenc
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MKV (h.264 qsv)

Attribute	Description
Video Format	MKV
Video Codec	h264_qsv
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MKV (h.264 va)

Attribute	Description
Video Format	MKV
Video Codec	h264_vaapi
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MKV (h.264 videotoolbox)

Attribute	Description
Video Format	MKV
Video Codec	h264_videotoolbox
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MKV (h.264)

Attribute	Description
Video Format	MKV
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MKV (h.265)

Attribute	Description
Video Format	MKV
Video Codec	libx265
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	50 crf
Video Bitrate (med)	23 crf
Video Bitrate (high)	0 crf
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MOV (h.264)

Attribute	Description
Video Format	MOV
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MOV (mpeg2)

Attribute	Description
Video Format	MOV
Video Codec	mpeg2video
Audio Codec	mp2
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MOV (mpeg4)

Attribute	Description
Video Format	MOV
Video Codec	mpeg4
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP3 (audio only)

Attribute	Description
Video Format	MP3
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (AV1 rav1e)

Attribute	Description
Video Format	MP4
Video Codec	librav1e
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	200 qp
Video Bitrate (med)	100 qp
Video Bitrate (high)	50 qp
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (AV1 svt)

Attribute	Description
Video Format	MP4
Video Codec	libsvtav1
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	60 qp
Video Bitrate (med)	50 qp
Video Bitrate (high)	30 qp
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (HEVC va)

Attribute	Description
Video Format	MP4
Video Codec	hevc_vaapi
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (Xvid)

Attribute	Description
Video Format	MP4
Video Codec	libxvid
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (h.264 dx)

Attribute	Description
Video Format	MP4
Video Codec	h264_dxva2
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (h.264 nv)

Attribute	Description
Video Format	MP4
Video Codec	h264_nvenc
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (h.264 qsv)

Attribute	Description
Video Format	MP4
Video Codec	h264_qsv
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (h.264 va)

Attribute	Description
Video Format	MP4
Video Codec	h264_vaapi
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (h.264 videotoolbox)

Attribute	Description
Video Format	MP4
Video Codec	h264_videotoolbox
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (h.264)

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (h.265)

Attribute	Description
Video Format	MP4
Video Codec	libx265
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	50 crf
Video Bitrate (med)	23 crf
Video Bitrate (high)	0 crf
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MP4 (mpeg4)

Attribute	Description
Video Format	MP4
Video Codec	mpeg4
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

MPEG (mpeg2)

Attribute	Description
Video Format	MPEG
Video Codec	mpeg2video
Audio Codec	mp2
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

OGG (theora/flac)

Attribute	Description
Video Format	OGG
Video Codec	libtheora
Audio Codec	flac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

OGG (theora/vorbis)

Attribute	Description
Video Format	OGG
Video Codec	libtheora
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

WEBM (vp9)

Attribute	Description
Video Format	WEBM
Video Codec	libvpx-vp9
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	50 crf
Video Bitrate (med)	30 crf
Video Bitrate (high)	5 crf
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

WEBM (vp9) lossless

Attribute	Description
Video Format	WEBM
Video Codec	libvpx-vp9
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	50 crf
Video Bitrate (med)	23 crf
Video Bitrate (high)	0 crf
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

WEBM (vpx)

Attribute	Description
Video Format	WEBM
Video Codec	libvpx
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

WEBP (vp9 va)

Attribute	Description
Video Format	WEBM
Video Codec	vp9_vaapi
Audio Codec	libopus
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

Device

Apple TV

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (high)	5 Mb/s
Audio Bitrate (high)	256 kb/s
Profiles	HD 720p 30 fps

Chromebook

Attribute	Description
Video Format	WEBM
Video Codec	libvpx
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	All Profiles

Nokia nHD

Attribute	Description
Video Format	AVI
Video Codec	libxvid
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	1 Mb/s
Video Bitrate (med)	3 Mb/s
Video Bitrate (high)	5 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	NTSC SD 1/4 QVGA 240p 29.97 fps

Xbox 360

Attribute	Description
Video Format	AVI
Video Codec	libxvid
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	2 Mb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	8 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	FHD 1080p 29.97 fps HD 720p 29.97 fps NTSC SD Widescreen Anamorphic 480i 29.97 fps

Web

Flickr-HD

Attribute	Description
Video Format	MOV
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	FHD 1080p 29.97 fps FHD PAL 1080p 25 fps HD 720p 25 fps HD 720p 29.97 fps

Instagram

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	3.5 Mb/s
Video Bitrate (high)	5.50 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	FHD 1080p 30 fps FHD PAL 1080p 25 fps FHD Vertical 1080p 25 fps FHD Vertical 1080p 30 fps HD 720p 25 fps HD 720p 30 fps HD Vertical 720p 25 fps HD Vertical 720p 30 fps

Metacafe

Attribute	Description
Video Format	MP4
Video Codec	mpeg4
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	44100
Video Bitrate (low)	2 Mb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	8 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	NTSC SD SQ VGA 480p 29.97 fps

Picasa

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	44100
Video Bitrate (low)	2 Mb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	8 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	NTSC SD SQ VGA 480p 29.97 fps

Twitter

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	1.7 Mb/s
Video Bitrate (high)	3.5 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	FHD 1080p 30 fps FHD PAL 1080p 25 fps FHD Vertical 1080p 25 fps FHD Vertical 1080p 30 fps HD 720p 25 fps HD 720p 30 fps HD Vertical 720p 25 fps HD Vertical 720p 30 fps

Vimeo

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	2 Mb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	8 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	NTSC SD SQ VGA 480p 29.97 fps NTSC SD Wide FWVGA 480p 29.97 fps

Vimeo-HD

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	4 Mb/s
Video Bitrate (med)	8 Mb/s
Video Bitrate (high)	12 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	FHD 1080p 23.98 fps FHD 1080p 24 fps FHD 1080p 29.97 fps FHD 1080p 30 fps FHD PAL 1080p 25 fps HD 720p 23.98 fps HD 720p 24 fps HD 720p 25 fps HD 720p 29.97 fps HD 720p 30 fps

Wikipedia

Attribute	Description
Video Format	OGG
Video Codec	libtheora
Audio Codec	libvorbis
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	384 kb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	15.00 Mb/s
Audio Bitrate (low)	96 kb/s
Audio Bitrate (med)	128 kb/s
Audio Bitrate (high)	192 kb/s
Profiles	NTSC SD 1/4 QVGA 240p 29.97 fps

YouTube HD

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	8 Mb/s
Video Bitrate (med)	10 Mb/s
Video Bitrate (high)	12 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	FHD 1080p 23.98 fps FHD 1080p 24 fps FHD 1080p 29.97 fps FHD 1080p 30 fps FHD 1080p 59.94 fps FHD 1080p 60 fps FHD PAL 1080p 25 fps FHD PAL 1080p 50 fps FHD Vertical 1080p 23.98 fps FHD Vertical 1080p 24 fps FHD Vertical 1080p 25 fps FHD Vertical 1080p 29.97 fps FHD Vertical 1080p 30 fps FHD Vertical 1080p 50 fps FHD Vertical 1080p 59.94 fps FHD Vertical 1080p 60 fps

YouTube HD (2K)

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	16 Mb/s
Video Bitrate (med)	20 Mb/s
Video Bitrate (high)	24 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	2.5K WQHD 1440p 23.98 fps 2.5K WQHD 1440p 24 fps 2.5K WQHD 1440p 25 fps 2.5K WQHD 1440p 29.97 fps 2.5K WQHD 1440p 30 fps 2.5K WQHD 1440p 50 fps 2.5K WQHD 1440p 59.94 fps 2.5K WQHD 1440p 60 fps

YouTube HD (4K)

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	45 Mb/s
Video Bitrate (med)	56 Mb/s
Video Bitrate (high)	68 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	4K UHD 2160p 23.98 fps 4K UHD 2160p 24 fps 4K UHD 2160p 25 fps 4K UHD 2160p 29.97 fps 4K UHD 2160p 30 fps 4K UHD 2160p 50 fps 4K UHD 2160p 59.94 fps 4K UHD 2160p 60 fps

YouTube HD (8K)

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	160 Mb/s
Video Bitrate (med)	200 Mb/s
Video Bitrate (high)	240 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	8K UHD 4320p 23.98 fps 8K UHD 4320p 24 fps 8K UHD 4320p 25 fps 8K UHD 4320p 29.97 fps 8K UHD 4320p 30 fps 8K UHD 4320p 50 fps 8K UHD 4320p 59.94 fps 8K UHD 4320p 60 fps

YouTube Standard

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	libmp3lame
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	2 Mb/s
Video Bitrate (med)	5 Mb/s
Video Bitrate (high)	8 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	256 kb/s
Audio Bitrate (high)	320 kb/s
Profiles	HD 720p 23.98 fps HD 720p 24 fps HD 720p 25 fps HD 720p 29.97 fps HD 720p 30 fps HD 720p 59.94 fps HD 720p 60 fps HD Vertical 720p 23.98 fps HD Vertical 720p 24 fps HD Vertical 720p 25 fps HD Vertical 720p 29.97 fps HD Vertical 720p 30 fps HD Vertical 720p 50 fps HD Vertical 720p 59.94 fps HD Vertical 720p 60 fps NTSC SD SQ VGA 480p 29.97 fps NTSC SD Wide FWVGA 480p 29.97 fps PAL HD 720p 50 fps

DVD

DVD-NTSC

Attribute	Description
Video Format	DVD
Video Codec	mpeg2video
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	1 Mb/s
Video Bitrate (med)	3 Mb/s
Video Bitrate (high)	5 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	192 kb/s
Audio Bitrate (high)	256 kb/s
Profiles	NTSC SD Anamorphic 480i 29.97 fps NTSC SD Widescreen Anamorphic 480i 29.97 fps

DVD-PAL

Attribute	Description
Video Format	DVD
Video Codec	mpeg2video
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	1 Mb/s
Video Bitrate (med)	3 Mb/s
Video Bitrate (high)	5 Mb/s
Audio Bitrate (low)	128 kb/s
Audio Bitrate (med)	192 kb/s
Audio Bitrate (high)	256 kb/s
Profiles	PAL SD Anamorphic 576i 25 fps PAL SD Widescreen Anamorphic 576i 25 fps

Blu-Ray/AVCHD

AVCHD Disks

Attribute	Description
Video Format	MP4
Video Codec	libx264
Audio Codec	aac
Audio Channels	2
Audio Channel Layout	Stereo
Sample Rate	48000
Video Bitrate (low)	15 Mb/s
Video Bitrate (high)	40 Mb/s
Audio Bitrate (low)	256 kb/s
Audio Bitrate (high)	256 kb/s
Profiles	FHD 1080i 30 fps FHD PAL 1080i 25 fps FHD PAL 1080p 25 fps

1.13.6 Profile List

OpenShot includes a large list of common profiles.

Definitions

- **Profile Name**: This is a short, friendly name for a video profile (FHD 1080p 30 fps, for example)
- **FPS**: Frames Per Second
- **DAR**: Display Aspect Ratio (i.e. 1920:1080 reduces to 16:9 aspect ratio)
- **SAR**: Sample Aspect Ratio (i.e. 1:1 ratio == square pixel, 2:1 horizontal rectangular pixel). The SAR directly affects the display aspect ratio. For example, a 4:3 video can be displayed as 16:9, if it uses rectangular pixels. However, rectangular pixels will cause the final display width to be adjusted.
- **PAR**: Pixel Aspect Ratio (identical to SAR - but some people prefer this term instead)
- **SAR Adjusted Width**: This is the width of the final display image, taking SAR (i.e. non-square pixels) into account
- **Interlaced**: Display alternating lines of the video image (odd lines, even lines), mostly used by analog broadcasting
- **NTSC**: NTSC is an analog TV color system used mostly in America (usually 29.97 fps)
- **PAL**: PAL is an analog TV color system used in Europe, Australia, and much of the rest of the world (usually 25 fps)
- **UHD**: Ultra High Definition
- **QHD**: Quad High Definition
- **FHD**: Full High Definition

- **HD**: High Definition (usually defined as any resolution at equal or greater than 1280x720 pixels)
- **SD**: Standard Definition (usually defined as any resolution smaller than 1280x720 pixels)

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
16K UHD 8640p 59.94 fps	15360	8640	59.94	16:9	1:1	No	15360
16K UHD 8640p 29.97 fps	15360	8640	29.97	16:9	1:1	No	15360
16K UHD 8640p 23.98 fps	15360	8640	23.98	16:9	1:1	No	15360
16K UHD 8640p 60 fps	15360	8640	60.00	16:9	1:1	No	15360
16K UHD 8640p 50 fps	15360	8640	50.00	16:9	1:1	No	15360
16K UHD 8640p 30 fps	15360	8640	30.00	16:9	1:1	No	15360
16K UHD 8640p 25 fps	15360	8640	25.00	16:9	1:1	No	15360
16K UHD 8640p 24 fps	15360	8640	24.00	16:9	1:1	No	15360
8K UHD 4320p 59.94 fps	7680	4320	59.94	16:9	1:1	No	7680
8K UHD 4320p 29.97 fps	7680	4320	29.97	16:9	1:1	No	7680
8K UHD 4320p 23.98 fps	7680	4320	23.98	16:9	1:1	No	7680
8K UHD 4320p 60 fps	7680	4320	60.00	16:9	1:1	No	7680
8K UHD 4320p 50 fps	7680	4320	50.00	16:9	1:1	No	7680
8K UHD 4320p 30 fps	7680	4320	30.00	16:9	1:1	No	7680
8K UHD 4320p 25 fps	7680	4320	25.00	16:9	1:1	No	7680
8K UHD 4320p 24 fps	7680	4320	24.00	16:9	1:1	No	7680
5K UHD 2880p 59.94 fps	5120	2880	59.94	16:9	1:1	No	5120
5K UHD 2880p 29.97 fps	5120	2880	29.97	16:9	1:1	No	5120
5K UHD 2880p 23.98 fps	5120	2880	23.98	16:9	1:1	No	5120
5K UHD 2880p 60 fps	5120	2880	60.00	16:9	1:1	No	5120
5K UHD 2880p 50 fps	5120	2880	50.00	16:9	1:1	No	5120
5K UHD 2880p 30 fps	5120	2880	30.00	16:9	1:1	No	5120
5K UHD 2880p 25 fps	5120	2880	25.00	16:9	1:1	No	5120
5K UHD 2880p 24 fps	5120	2880	24.00	16:9	1:1	No	5120
4K UHD 2160p 59.94 fps	3840	2160	59.94	16:9	1:1	No	3840
4K UHD 2160p 29.97 fps	3840	2160	29.97	16:9	1:1	No	3840
4K UHD 2160p 23.98 fps	3840	2160	23.98	16:9	1:1	No	3840
4K UHD 2160p 60 fps	3840	2160	60.00	16:9	1:1	No	3840
4K UHD 2160p 50 fps	3840	2160	50.00	16:9	1:1	No	3840
4K UHD 2160p 30 fps	3840	2160	30.00	16:9	1:1	No	3840
4K UHD 2160p 25 fps	3840	2160	25.00	16:9	1:1	No	3840
4K UHD 2160p 24 fps	3840	2160	24.00	16:9	1:1	No	3840
3K QHD+ 1800p 59.94 fps	3200	1800	59.94	16:9	1:1	No	3200
3K QHD+ 1800p 29.97 fps	3200	1800	29.97	16:9	1:1	No	3200
3K QHD+ 1800p 23.98 fps	3200	1800	23.98	16:9	1:1	No	3200
3K QHD+ 1800p 60 fps	3200	1800	60.00	16:9	1:1	No	3200
3K QHD+ 1800p 50 fps	3200	1800	50.00	16:9	1:1	No	3200
3K QHD+ 1800p 30 fps	3200	1800	30.00	16:9	1:1	No	3200
3K QHD+ 1800p 25 fps	3200	1800	25.00	16:9	1:1	No	3200
3K QHD+ 1800p 24 fps	3200	1800	24.00	16:9	1:1	No	3200
2.5K WQHD 1440p 59.94 fps	2560	1440	59.94	16:9	1:1	No	2560
2.5K WQHD 1440p 29.97 fps	2560	1440	29.97	16:9	1:1	No	2560
2.5K WQHD 1440p 23.98 fps	2560	1440	23.98	16:9	1:1	No	2560
2.5K WQHD 1440p 60 fps	2560	1440	60.00	16:9	1:1	No	2560
2.5K WQHD 1440p 50 fps	2560	1440	50.00	16:9	1:1	No	2560

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
2.5K WQHD 1440p 30 fps	2560	1440	30.00	16:9	1:1	No	2560
2.5K WQHD 1440p 25 fps	2560	1440	25.00	16:9	1:1	No	2560
2.5K WQHD 1440p 24 fps	2560	1440	24.00	16:9	1:1	No	2560
FHD 1080p 59.94 fps	1920	1080	59.94	16:9	1:1	No	1920
FHD 1080p 29.97 fps	1920	1080	29.97	16:9	1:1	No	1920
FHD 1080p 23.98 fps	1920	1080	23.98	16:9	1:1	No	1920
FHD 1080p 60 fps	1920	1080	60.00	16:9	1:1	No	1920
FHD PAL 1080p 50 fps	1920	1080	50.00	16:9	1:1	No	1920
FHD 1080p 30 fps	1920	1080	30.00	16:9	1:1	No	1920
FHD PAL 1080p 25 fps	1920	1080	25.00	16:9	1:1	No	1920
FHD 1080p 24 fps	1920	1080	24.00	16:9	1:1	No	1920
FHD 1080i 29.97 fps	1920	1080	29.97	16:9	1:1	Yes	1920
FHD 1080i 30 fps	1920	1080	30.00	16:9	1:1	Yes	1920
FHD PAL 1080i 25 fps	1920	1080	25.00	16:9	1:1	Yes	1920
FHD Anamorphic 1035i 29.97 fps	1920	1035	29.97	16:9	23:24	Yes	1840
FHD Anamorphic 1035i 30 fps	1920	1035	30.00	16:9	23:24	Yes	1840
FHD Anamorphic 1035i 25 fps	1920	1035	25.00	16:9	23:24	Yes	1840
HD+ 900p 59.94 fps	1600	900	59.94	16:9	1:1	No	1600
HD+ 900p 29.97 fps	1600	900	29.97	16:9	1:1	No	1600
HD+ 900p 23.98 fps	1600	900	23.98	16:9	1:1	No	1600
HD+ 900p 60 fps	1600	900	60.00	16:9	1:1	No	1600
HD+ 900p 50 fps	1600	900	50.00	16:9	1:1	No	1600
HD+ 900p 30 fps	1600	900	30.00	16:9	1:1	No	1600
HD+ 900p 25 fps	1600	900	25.00	16:9	1:1	No	1600
HD+ 900p 24 fps	1600	900	24.00	16:9	1:1	No	1600
HD Anamorphic 1152i 25 fps	1440	1152	25.00	16:9	64:45	Yes	2048
HD Anamorphic 1080p 59.94 fps	1440	1080	59.94	16:9	4:3	No	1920
HD Anamorphic 1080p 29.97 fps	1440	1080	29.97	16:9	4:3	No	1920
HD Anamorphic 1080p 23.98 fps	1440	1080	23.98	16:9	4:3	No	1920
HD Anamorphic 1080p 60 fps	1440	1080	60.00	16:9	4:3	No	1920
HD Anamorphic 1080p 50 fps	1440	1080	50.00	16:9	4:3	No	1920
HD Anamorphic 1080p 30 fps	1440	1080	30.00	16:9	4:3	No	1920
HD Anamorphic 1080p 25 fps	1440	1080	25.00	16:9	4:3	No	1920
HD Anamorphic 1080p 24 fps	1440	1080	24.00	16:9	4:3	No	1920
HD Anamorphic 1080i 29.97 fps	1440	1080	29.97	16:9	4:3	Yes	1920
HD Anamorphic 1080i 30 fps	1440	1080	30.00	16:9	4:3	Yes	1920
HD Anamorphic 1080i 25 fps	1440	1080	25.00	16:9	4:3	Yes	1920
NTSC SD 16CIF Anamorphic 1152p 29.97 fps	1408	1152	29.97	4:3	12:11	No	1536
PAL SD 16CIF Anamorphic 1152p 25 fps	1408	1152	25.00	4:3	12:11	No	1536
PAL SD 16CIF Anamorphic 1152p 15 fps	1408	1152	15.00	4:3	12:11	No	1536
HD 720p 59.94 fps	1280	720	59.94	16:9	1:1	No	1280
HD 720p 29.97 fps	1280	720	29.97	16:9	1:1	No	1280
HD 720p 23.98 fps	1280	720	23.98	16:9	1:1	No	1280
HD 720p 60 fps	1280	720	60.00	16:9	1:1	No	1280
PAL HD 720p 50 fps	1280	720	50.00	16:9	1:1	No	1280
HD 720p 30 fps	1280	720	30.00	16:9	1:1	No	1280
HD 720p 25 fps	1280	720	25.00	16:9	1:1	No	1280

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
HD 720p 24 fps	1280	720	24.00	16:9	1:1	No	1280
FHD Vertical 1080p 59.94 fps	1080	1920	59.94	9:16	1:1	No	1080
FHD Vertical 1080p 29.97 fps	1080	1920	29.97	9:16	1:1	No	1080
FHD Vertical 1080p 23.98 fps	1080	1920	23.98	9:16	1:1	No	1080
FHD Vertical 1080p 60 fps	1080	1920	60.00	9:16	1:1	No	1080
FHD Vertical 1080p 50 fps	1080	1920	50.00	9:16	1:1	No	1080
FHD Vertical 1080p 30 fps	1080	1920	30.00	9:16	1:1	No	1080
FHD Vertical 1080p 25 fps	1080	1920	25.00	9:16	1:1	No	1080
FHD Vertical 1080p 24 fps	1080	1920	24.00	9:16	1:1	No	1080
HD Vertical 1080p 60 fps	1080	1350	60.00	4:5	1:1	No	1080
HD Vertical 1080p 50 fps	1080	1350	50.00	4:5	1:1	No	1080
HD Vertical 1080p 30 fps	1080	1350	30.00	4:5	1:1	No	1080
HD Vertical 1080p 25 fps	1080	1350	25.00	4:5	1:1	No	1080
HD Vertical 1080p 24 fps	1080	1350	24.00	4:5	1:1	No	1080
HD Square 1080p 60 fps	1080	1080	60.00	1:1	1:1	No	1080
HD Square 1080p 50 fps	1080	1080	50.00	1:1	1:1	No	1080
HD Square 1080p 30 fps	1080	1080	30.00	1:1	1:1	No	1080
HD Square 1080p 25 fps	1080	1080	25.00	1:1	1:1	No	1080
HD Square 1080p 24 fps	1080	1080	24.00	1:1	1:1	No	1080
WSVGA 600p 59.94 fps	1024	600	59.94	128:75	1:1	No	1024
WSVGA 600p 29.97 fps	1024	600	29.97	128:75	1:1	No	1024
WSVGA 600p 23.98 fps	1024	600	23.98	128:75	1:1	No	1024
WSVGA 600p 60 fps	1024	600	60.00	128:75	1:1	No	1024
WSVGA 600p 50 fps	1024	600	50.00	128:75	1:1	No	1024
WSVGA 600p 30 fps	1024	600	30.00	128:75	1:1	No	1024
WSVGA 600p 25 fps	1024	600	25.00	128:75	1:1	No	1024
WSVGA 600p 24 fps	1024	600	24.00	128:75	1:1	No	1024
WSVGA 600p 15 fps	1024	600	15.00	128:75	1:1	No	1024
WSVGA 576p 59.94 fps	1024	576	59.94	16:9	1:1	No	1024
WSVGA 576p 29.97 fps	1024	576	29.97	16:9	1:1	No	1024
WSVGA 576p 23.98 fps	1024	576	23.98	16:9	1:1	No	1024
WSVGA 576p 60 fps	1024	576	60.00	16:9	1:1	No	1024
WSVGA 576p 50 fps	1024	576	50.00	16:9	1:1	No	1024
WSVGA 576p 30 fps	1024	576	30.00	16:9	1:1	No	1024
PAL SD Wide WSVGA 576p 25 fps	1024	576	25.00	16:9	1:1	No	1024
WSVGA 576p 24 fps	1024	576	24.00	16:9	1:1	No	1024
WSVGA 576p 15 fps	1024	576	15.00	16:9	1:1	No	1024
DVGA 640p 59.94 fps	960	640	59.94	3:2	1:1	No	960
DVGA 640p 29.97 fps	960	640	29.97	3:2	1:1	No	960
DVGA 640p 23.98 fps	960	640	23.98	3:2	1:1	No	960
DVGA 640p 60 fps	960	640	60.00	3:2	1:1	No	960
DVGA 640p 50 fps	960	640	50.00	3:2	1:1	No	960
DVGA 640p 30 fps	960	640	30.00	3:2	1:1	No	960
DVGA 640p 25 fps	960	640	25.00	3:2	1:1	No	960
DVGA 640p 24 fps	960	640	24.00	3:2	1:1	No	960
DVGA 640p 15 fps	960	640	15.00	3:2	1:1	No	960
qHD 540p 59.94 fps	960	540	59.94	16:9	1:1	No	960

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
qHD 540p 29.97 fps	960	540	29.97	16:9	1:1	No	960
qHD 540p 23.98 fps	960	540	23.98	16:9	1:1	No	960
qHD 540p 60 fps	960	540	60.00	16:9	1:1	No	960
qHD 540p 50 fps	960	540	50.00	16:9	1:1	No	960
qHD 540p 30 fps	960	540	30.00	16:9	1:1	No	960
qHD 540p 25 fps	960	540	25.00	16:9	1:1	No	960
qHD 540p 24 fps	960	540	24.00	16:9	1:1	No	960
FWVGA 480p 59.94 fps	854	480	59.94	16:9	1:1	No	854
NTSC SD Wide FWVGA 480p 29.97 fps	854	480	29.97	16:9	1:1	No	854
FWVGA 480p 23.98 fps	854	480	23.98	16:9	1:1	No	854
FWVGA 480p 60 fps	854	480	60.00	16:9	1:1	No	854
FWVGA 480p 50 fps	854	480	50.00	16:9	1:1	No	854
FWVGA 480p 30 fps	854	480	30.00	16:9	1:1	No	854
FWVGA 480p 25 fps	854	480	25.00	16:9	1:1	No	854
FWVGA 480p 24 fps	854	480	24.00	16:9	1:1	No	854
FWVGA 480p 15 fps	854	480	15.00	16:9	1:1	No	854
SVGA 600p 59.94 fps	800	600	59.94	4:3	1:1	No	800
SVGA 600p 29.97 fps	800	600	29.97	4:3	1:1	No	800
SVGA 600p 23.98 fps	800	600	23.98	4:3	1:1	No	800
SVGA 600p 60 fps	800	600	60.00	4:3	1:1	No	800
SVGA 600p 50 fps	800	600	50.00	4:3	1:1	No	800
SVGA 600p 30 fps	800	600	30.00	4:3	1:1	No	800
SVGA 600p 25 fps	800	600	25.00	4:3	1:1	No	800
SVGA 600p 24 fps	800	600	24.00	4:3	1:1	No	800
SVGA 600p 15 fps	800	600	15.00	4:3	1:1	No	800
WVGA 480p 59.94 fps	800	480	59.94	5:3	1:1	No	800
WVGA 480p 29.97 fps	800	480	29.97	5:3	1:1	No	800
WVGA 480p 23.98 fps	800	480	23.98	5:3	1:1	No	800
WVGA 480p 60 fps	800	480	60.00	5:3	1:1	No	800
WVGA 480p 50 fps	800	480	50.00	5:3	1:1	No	800
WVGA 480p 30 fps	800	480	30.00	5:3	1:1	No	800
WVGA 480p 25 fps	800	480	25.00	5:3	1:1	No	800
WVGA 480p 24 fps	800	480	24.00	5:3	1:1	No	800
WVGA 480p 15 fps	800	480	15.00	5:3	1:1	No	800
PAL SD SQ 576p 25 fps	768	576	25.00	4:3	1:1	No	768
WVGA 480p 59.94 fps	768	480	59.94	16:10	1:1	No	768
WVGA 480p 29.97 fps	768	480	29.97	16:10	1:1	No	768
WVGA 480p 23.98 fps	768	480	23.98	16:10	1:1	No	768
WVGA 480p 60 fps	768	480	60.00	16:10	1:1	No	768
WVGA 480p 50 fps	768	480	50.00	16:10	1:1	No	768
WVGA 480p 30 fps	768	480	30.00	16:10	1:1	No	768
WVGA 480p 25 fps	768	480	25.00	16:10	1:1	No	768
WVGA 480p 24 fps	768	480	24.00	16:10	1:1	No	768
WVGA 480p 15 fps	768	480	15.00	16:10	1:1	No	768
HD Vertical 720p 59.94 fps	720	1280	59.94	9:16	1:1	No	720
HD Vertical 720p 29.97 fps	720	1280	29.97	9:16	1:1	No	720
HD Vertical 720p 23.98 fps	720	1280	23.98	9:16	1:1	No	720

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
HD Vertical 720p 60 fps	720	1280	60.00	9:16	1:1	No	720
HD Vertical 720p 50 fps	720	1280	50.00	9:16	1:1	No	720
HD Vertical 720p 30 fps	720	1280	30.00	9:16	1:1	No	720
HD Vertical 720p 25 fps	720	1280	25.00	9:16	1:1	No	720
HD Vertical 720p 24 fps	720	1280	24.00	9:16	1:1	No	720
PAL SD Anamorphic 576p 50 fps	720	576	50.00	16:9	64:45	No	1024
PAL SD Anamorphic 576p 50 fps	720	576	50.00	4:3	16:15	No	768
PAL SD Widescreen Anamorphic 576p 25 fps	720	576	25.00	16:9	64:45	No	1024
PAL SD Anamorphic 576p 25 fps	720	576	25.00	4:3	16:15	No	768
PAL SD Widescreen Anamorphic 576i 25 fps	720	576	25.00	16:9	64:45	Yes	1024
PAL SD Anamorphic 576i 25 fps	720	576	25.00	4:3	16:15	Yes	768
NTSC SD Anamorphic 486p 23.98 fps	720	486	23.98	16:9	96:5	No	864
NTSC SD Anamorphic 486p 23.98 fps	720	486	23.98	4:3	9:10	No	648
NTSC SD Anamorphic 486i 29.97 fps	720	486	29.97	16:9	96:5	Yes	864
NTSC SD Anamorphic 486i 29.97 fps	720	486	29.97	4:3	9:10	Yes	648
NTSC SD Anamorphic 480p 59.94 fps	720	480	59.94	16:9	32:27	No	853
NTSC SD Anamorphic 480p 59.94 fps	720	480	59.94	4:3	8:9	No	640
WVGA 480p 59.94 fps	720	480	59.94	3:2	1:1	No	720
NTSC SD Widescreen Anamorphic 480p 29.97 fps	720	480	29.97	16:9	32:27	No	853
NTSC SD Anamorphic 480p 29.97 fps	720	480	29.97	4:3	8:9	No	640
WVGA 480p 29.97 fps	720	480	29.97	3:2	1:1	No	720
NTSC SD Anamorphic 480p 23.98 fps	720	480	23.98	16:9	32:27	No	853
NTSC SD Anamorphic 480p 23.98 fps	720	480	23.98	4:3	8:9	No	640
WVGA 480p 23.98 fps	720	480	23.98	3:2	1:1	No	720
NTSC SD Anamorphic 480p 60 fps	720	480	60.00	16:9	32:27	No	853
NTSC SD Anamorphic 480p 60 fps	720	480	60.00	4:3	8:9	No	640
WVGA 480p 60 fps	720	480	60.00	3:2	1:1	No	720
NTSC SD Anamorphic 480p 50 fps	720	480	50.00	16:9	32:27	No	853
NTSC SD Anamorphic 480p 50 fps	720	480	50.00	4:3	8:9	No	640
WVGA 480p 50 fps	720	480	50.00	3:2	1:1	No	720
NTSC SD Anamorphic 480p 30 fps	720	480	30.00	16:9	32:27	No	853
NTSC SD Anamorphic 480p 30 fps	720	480	30.00	4:3	8:9	No	640
WVGA 480p 30 fps	720	480	30.00	3:2	1:1	No	720
NTSC SD Anamorphic 480p 25 fps	720	480	25.00	16:9	32:27	No	853
NTSC SD Anamorphic 480p 25 fps	720	480	25.00	4:3	8:9	No	640
WVGA 480p 25 fps	720	480	25.00	3:2	1:1	No	720
NTSC SD Anamorphic 480p 24 fps	720	480	24.00	16:9	32:27	No	853
NTSC SD Anamorphic 480p 24 fps	720	480	24.00	4:3	8:9	No	640
WVGA 480p 24 fps	720	480	24.00	3:2	1:1	No	720
WVGA 480p 15 fps	720	480	15.00	3:2	1:1	No	720
NTSC SD Anamorphic 480i 59.94 fps	720	480	59.94	16:9	32:27	Yes	853
NTSC SD Anamorphic 480i 59.94 fps	720	480	59.94	4:3	8:9	Yes	640
NTSC SD Widescreen Anamorphic 480i 29.97 fps	720	480	29.97	16:9	32:27	Yes	853
NTSC SD Anamorphic 480i 29.97 fps	720	480	29.97	4:3	8:9	Yes	640
NTSC SD Anamorphic 480i 23.98 fps	720	480	23.98	16:9	32:27	Yes	853
NTSC SD Anamorphic 480i 23.98 fps	720	480	23.98	4:3	8:9	Yes	640
NTSC SD Anamorphic 480i 60 fps	720	480	60.00	16:9	32:27	Yes	853

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
NTSC SD Anamorphic 480i 60 fps	720	480	60.00	4:3	8:9	Yes	640
NTSC SD Anamorphic 480i 30 fps	720	480	30.00	16:9	32:27	Yes	853
NTSC SD Anamorphic 480i 30 fps	720	480	30.00	4:3	8:9	Yes	640
NTSC SD Anamorphic 480i 25 fps	720	480	25.00	16:9	32:27	Yes	853
NTSC SD Anamorphic 480i 25 fps	720	480	25.00	4:3	8:9	Yes	640
NTSC SD Anamorphic 480i 24 fps	720	480	24.00	16:9	32:27	Yes	853
NTSC SD Anamorphic 480i 24 fps	720	480	24.00	4:3	8:9	Yes	640
PAL SD 4CIF 4SIF Anamorphic 576p 29.97 fps	704	576	29.97	4:3	12:11	No	768
PAL SD 4CIF 4SIF Anamorphic 576p 25 fps	704	576	25.00	4:3	12:11	No	768
PAL SD 4CIF 4SIF Anamorphic 576p 15 fps	704	576	15.00	4:3	12:11	No	768
PAL SD Anamorphic 576i 25 fps	704	576	25.00	16:9	16:11	Yes	1024
PAL SD Anamorphic 576i 25 fps	704	576	25.00	4:3	12:11	Yes	768
NTSC SD Anamorphic 480p 59.94 fps	704	480	59.94	16:9	40:33	No	853
NTSC SD Anamorphic 480p 59.94 fps	704	480	59.94	4:3	10:11	No	640
NTSC SD Anamorphic 480p 29.97 fps	704	480	29.97	16:9	40:33	No	853
NTSC SD 4SIF Anamorphic 480p 29.97 fps	704	480	29.97	4:3	10:11	No	640
NTSC SD Anamorphic 480p 23.98 fps	704	480	23.98	16:9	40:33	No	853
NTSC SD Anamorphic 480p 23.98 fps	704	480	23.98	4:3	10:11	No	640
NTSC SD Anamorphic 480p 60 fps	704	480	60.00	16:9	40:33	No	853
NTSC SD Anamorphic 480p 60 fps	704	480	60.00	4:3	10:11	No	640
NTSC SD Anamorphic 480p 50 fps	704	480	50.00	16:9	40:33	No	853
NTSC SD Anamorphic 480p 50 fps	704	480	50.00	4:3	10:11	No	640
NTSC SD Anamorphic 480p 30 fps	704	480	30.00	16:9	40:33	No	853
NTSC SD Anamorphic 480p 30 fps	704	480	30.00	4:3	10:11	No	640
NTSC SD Anamorphic 480p 25 fps	704	480	25.00	16:9	40:33	No	853
NTSC SD 4SIF Anamorphic 480p 25 fps	704	480	25.00	4:3	10:11	No	640
NTSC SD Anamorphic 480p 24 fps	704	480	24.00	16:9	40:33	No	853
NTSC SD Anamorphic 480p 24 fps	704	480	24.00	4:3	10:11	No	640
NTSC SD 4SIF Anamorphic 480p 15 fps	704	480	15.00	4:3	10:11	No	640
NTSC SD Anamorphic 480i 29.97 fps	704	480	29.97	16:9	40:33	Yes	853
NTSC SD 4SIF Anamorphic 480i 29.97 fps	704	480	29.97	4:3	10:11	Yes	640
NTSC SD Anamorphic 480i 30 fps	704	480	30.00	16:9	40:33	Yes	853
NTSC SD Anamorphic 480i 30 fps	704	480	30.00	4:3	10:11	Yes	640
NTSC SD Anamorphic 480i 25 fps	704	480	25.00	16:9	40:33	Yes	853
NTSC SD Anamorphic 480i 25 fps	704	480	25.00	4:3	10:11	Yes	640
NTSC SD VGA 480p 59.94 fps	640	480	59.94	4:3	1:1	No	640
NTSC SD SQ VGA 480p 29.97 fps	640	480	29.97	4:3	1:1	No	640
NTSC SD VGA 480p 23.98 fps	640	480	23.98	4:3	1:1	No	640
NTSC SD VGA 480p 60 fps	640	480	60.00	4:3	1:1	No	640
NTSC SD VGA 480p 50 fps	640	480	50.00	4:3	1:1	No	640
NTSC SD VGA 480p 30 fps	640	480	30.00	4:3	1:1	No	640
NTSC SD VGA 480p 25 fps	640	480	25.00	4:3	1:1	No	640
NTSC SD VGA 480p 24 fps	640	480	24.00	4:3	1:1	No	640
VGA 480p 15 fps	640	480	15.00	4:3	1:1	No	640
NTSC SD 480i 29.97 fps	640	480	29.97	4:3	1:1	Yes	640
NTSC SD 480i 23.98 fps	640	480	23.98	4:3	1:1	Yes	640
NTSC SD 480i 30 fps	640	480	30.00	4:3	1:1	Yes	640

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
NTSC SD 480i 25 fps	640	480	25.00	4:3	1:1	Yes	640
NTSC SD 480i 24 fps	640	480	24.00	4:3	1:1	Yes	640
nHD 360p 59.94 fps	640	360	59.94	16:9	1:1	No	640
nHD 360p 29.97 fps	640	360	29.97	16:9	1:1	No	640
nHD 360p 23.98 fps	640	360	23.98	16:9	1:1	No	640
nHD 360p 60 fps	640	360	60.00	16:9	1:1	No	640
nHD 360p 50 fps	640	360	50.00	16:9	1:1	No	640
nHD 360p 30 fps	640	360	30.00	16:9	1:1	No	640
nHD 360p 25 fps	640	360	25.00	16:9	1:1	No	640
nHD 360p 24 fps	640	360	24.00	16:9	1:1	No	640
PAL SD Anamorphic 576p 25 fps	544	576	25.00	16:9	32:1	No	1024
PAL SD Anamorphic 576p 25 fps	544	576	25.00	4:3	24:1	No	768
PAL SD Anamorphic 576i 25 fps	544	576	25.00	16:9	32:1	Yes	1024
PAL SD Anamorphic 576i 25 fps	544	576	25.00	4:3	24:1	Yes	768
NTSC SD 3/4 Anamorphic 480p 23.98 fps	544	480	23.98	4:3	20:1	No	640
NTSC SD 3/4 Anamorphic 480p 25 fps	544	480	25.00	4:3	20:1	No	640
NTSC SD 3/4 Anamorphic 480i 29.97 fps	544	480	29.97	4:3	20:1	Yes	640
NTSC SD 3/4 Anamorphic 480i 25 fps	544	480	25.00	4:3	20:1	Yes	640
NTSC SD 3/4 Anamorphic 480p 23.98 fps	528	480	23.98	4:3	40:33	No	640
NTSC SD 3/4 Anamorphic 480p 25 fps	528	480	25.00	4:3	40:33	No	640
NTSC SD 3/4 Anamorphic 480i 29.97 fps	528	480	29.97	4:3	40:33	Yes	640
NTSC SD 3/4 Anamorphic 480i 25 fps	528	480	25.00	4:3	40:33	Yes	640
PAL SD 1/4 Wide 288p 25 fps	512	288	25.00	16:9	1:1	No	512
PAL SD Anamorphic 576p 25 fps	480	576	25.00	16:9	32:15	No	1024
PAL SD Anamorphic 576p 25 fps	480	576	25.00	4:3	8:5	No	768
PAL SD Anamorphic 576i 25 fps	480	576	25.00	16:9	32:15	Yes	1024
PAL SD Anamorphic 576i 25 fps	480	576	25.00	4:3	8:5	Yes	768
NTSC SD Anamorphic 480i 29.97 fps	480	480	29.97	16:9	16:9	Yes	853
NTSC SD Anamorphic 480i 29.97 fps	480	480	29.97	4:3	4:3	Yes	640
NTSC SD Anamorphic 480i 23.98 fps	480	480	23.98	16:9	16:9	Yes	853
NTSC SD Anamorphic 480i 23.98 fps	480	480	23.98	4:3	4:3	Yes	640
NTSC SD Anamorphic 480i 30 fps	480	480	30.00	4:3	4:3	Yes	640
HVGA 320p 59.94 fps	480	320	59.94	3:2	1:1	No	480
HVGA 320p 29.97 fps	480	320	29.97	3:2	1:1	No	480
HVGA 320p 23.98 fps	480	320	23.98	3:2	1:1	No	480
HVGA 320p 60 fps	480	320	60.00	3:2	1:1	No	480
HVGA 320p 50 fps	480	320	50.00	3:2	1:1	No	480
HVGA 320p 30 fps	480	320	30.00	3:2	1:1	No	480
HVGA 320p 25 fps	480	320	25.00	3:2	1:1	No	480
HVGA 320p 24 fps	480	320	24.00	3:2	1:1	No	480
HVGA 320p 15 fps	480	320	15.00	3:2	1:1	No	480
NTSC SD 1/4 Wide 240p 29.97 fps	427	240	29.97	16:9	1:1	No	427
WQVGA 240p 59.94 fps	400	240	59.94	5:3	1:1	No	400
WQVGA 240p 29.97 fps	400	240	29.97	5:3	1:1	No	400
WQVGA 240p 23.98 fps	400	240	23.98	5:3	1:1	No	400
WQVGA 240p 60 fps	400	240	60.00	5:3	1:1	No	400
WQVGA 240p 50 fps	400	240	50.00	5:3	1:1	No	400

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
WQVGA 240p 30 fps	400	240	30.0	5:3	1:1	No	400
WQVGA 240p 25 fps	400	240	25.0	5:3	1:1	No	400
WQVGA 240p 24 fps	400	240	24.0	5:3	1:1	No	400
WQVGA 240p 15 fps	400	240	15.0	5:3	1:1	No	400
PAL SD 1/4 288p 25 fps	384	288	25.0	4:3	1:1	No	384
WQVGA 240p 59.94 fps	384	240	59.94	16:10	1:1	No	384
WQVGA 240p 29.97 fps	384	240	29.97	16:10	1:1	No	384
WQVGA 240p 23.98 fps	384	240	23.98	16:10	1:1	No	384
WQVGA 240p 60 fps	384	240	60.00	16:10	1:1	No	384
WQVGA 240p 50 fps	384	240	50.00	16:10	1:1	No	384
WQVGA 240p 30 fps	384	240	30.00	16:10	1:1	No	384
WQVGA 240p 25 fps	384	240	25.00	16:10	1:1	No	384
WQVGA 240p 24 fps	384	240	24.00	16:10	1:1	No	384
WQVGA 240p 15 fps	384	240	15.00	16:10	1:1	No	384
WQVGA 240p 59.94 fps	360	240	59.94	3:2	1:1	No	360
WQVGA 240p 29.97 fps	360	240	29.97	3:2	1:1	No	360
WQVGA 240p 23.98 fps	360	240	23.98	3:2	1:1	No	360
WQVGA 240p 60 fps	360	240	60.00	3:2	1:1	No	360
WQVGA 240p 50 fps	360	240	50.00	3:2	1:1	No	360
WQVGA 240p 30 fps	360	240	30.00	3:2	1:1	No	360
WQVGA 240p 25 fps	360	240	25.00	3:2	1:1	No	360
WQVGA 240p 24 fps	360	240	24.00	3:2	1:1	No	360
WQVGA 240p 15 fps	360	240	15.00	3:2	1:1	No	360
PAL SD Anamorphic 576p 25 fps	352	576	25.00	16:9	32:1	No	1024
PAL SD CVD Anamorphic 576p 25 fps	352	576	25.00	4:3	24:1	No	768
PAL SD Anamorphic 576i 25 fps	352	576	25.00	16:9	32:1	Yes	1024
PAL SD CVD Anamorphic 576i 25 fps	352	576	25.00	4:3	24:1	Yes	768
NTSC SD CVD Anamorphic 480p 29.97 fps	352	480	29.97	4:3	20:1	No	640
NTSC SD 1/2 Anamorphic 480p 23.98 fps	352	480	23.98	4:3	20:1	No	640
NTSC SD 1/2 Anamorphic 480p 25 fps	352	480	25.00	4:3	20:1	No	640
NTSC SD CVD 1/2 Anamorphic 480i 29.97 fps	352	480	29.97	4:3	20:1	Yes	640
NTSC SD 1/2 Anamorphic 480i 25 fps	352	480	25.00	4:3	20:1	Yes	640
PAL SD CIF SIF Anamorphic 288p 29.97 fps	352	288	29.97	4:3	12:1	No	384
PAL SD Anamorphic 288p 25 fps	352	288	25.00	16:9	16:1	No	512
PAL SD CIF SIF VCD Anamorphic 288p 25 fps	352	288	25.00	4:3	12:1	No	384
PAL SD CIF SIF Anamorphic 288p 15 fps	352	288	15.00	4:3	12:1	No	384
PAL SD Anamorphic 288i 25 fps	352	288	25.00	16:9	16:1	Yes	512
PAL SD CIF Anamorphic 288i 25 fps	352	288	25.00	4:3	12:1	Yes	384
NTSC SD SIF VCD Anamorphic 240p 29.97 fps	352	240	29.97	4:3	10:1	No	320
NTSC SD SIF Anamorphic 240p 23.98 fps	352	240	23.98	4:3	10:1	No	320
NTSC SD SIF Anamorphic 240p 25 fps	352	240	25.00	4:3	10:1	No	320
NTSC SD SIF Anamorphic 240p 15 fps	352	240	15.00	4:3	10:1	No	320
NTSC SD SIF Anamorphic 240i 29.97 fps	352	240	29.97	4:3	10:1	Yes	320
QVGA 240p 59.94 fps	320	240	59.94	4:3	1:1	No	320
NTSC SD 1/4 QVGA 240p 29.97 fps	320	240	29.97	4:3	1:1	No	320
QVGA 240p 23.98 fps	320	240	23.98	4:3	1:1	No	320
QVGA 240p 60 fps	320	240	60.00	4:3	1:1	No	320

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Table 2 – continued from previous page

Profile Name	Width	Height	FPS	DAR	SAR	Interlaced	SAR Adjusted Width
QVGA 240p 50 fps	320	240	50.00	4:3	1:1	No	320
QVGA 240p 30 fps	320	240	30.00	4:3	1:1	No	320
QVGA 240p 25 fps	320	240	25.00	4:3	1:1	No	320
QVGA 240p 24 fps	320	240	24.00	4:3	1:1	No	320
QVGA 240p 15 fps	320	240	15.00	4:3	1:1	No	320
HQVGA 160p 59.94 fps	256	160	59.94	16:10	1:1	No	256
HQVGA 160p 29.97 fps	256	160	29.97	16:10	1:1	No	256
HQVGA 160p 23.98 fps	256	160	23.98	16:10	1:1	No	256
HQVGA 160p 60 fps	256	160	60.00	16:10	1:1	No	256
HQVGA 160p 50 fps	256	160	50.00	16:10	1:1	No	256
HQVGA 160p 30 fps	256	160	30.00	16:10	1:1	No	256
HQVGA 160p 25 fps	256	160	25.00	16:10	1:1	No	256
HQVGA 160p 24 fps	256	160	24.00	16:10	1:1	No	256
HQVGA 160p 15 fps	256	160	15.00	16:10	1:1	No	256
HQVGA 160p 59.94 fps	240	160	59.94	3:2	1:1	No	240
HQVGA 160p 29.97 fps	240	160	29.97	3:2	1:1	No	240
HQVGA 160p 23.98 fps	240	160	23.98	3:2	1:1	No	240
HQVGA 160p 60 fps	240	160	60.00	3:2	1:1	No	240
HQVGA 160p 50 fps	240	160	50.00	3:2	1:1	No	240
HQVGA 160p 30 fps	240	160	30.00	3:2	1:1	No	240
HQVGA 160p 25 fps	240	160	25.00	3:2	1:1	No	240
HQVGA 160p 24 fps	240	160	24.00	3:2	1:1	No	240
HQVGA 160p 15 fps	240	160	15.00	3:2	1:1	No	240
PAL SD QCIF Anamorphic 144p 29.97 fps	176	144	29.97	4:3	12:11	No	192
PAL SD QCIF Anamorphic 144p 25 fps	176	144	25.00	4:3	12:11	No	192
PAL SD QCIF Anamorphic 144p 15 fps	176	144	15.00	4:3	12:11	No	192
NTSC SD SIF 1/2 Anamorphic 120p 23.98 fps	176	120	23.98	4:3	10:11	No	160
NTSC SD SIF 1/2 Anamorphic 120p 25 fps	176	120	25.00	4:3	10:11	No	160
QQVGA 120p 59.94 fps	160	120	59.94	4:3	1:1	No	160
QQVGA 120p 29.97 fps	160	120	29.97	4:3	1:1	No	160
QQVGA 120p 23.98 fps	160	120	23.98	4:3	1:1	No	160
QQVGA 120p 60 fps	160	120	60.00	4:3	1:1	No	160
QQVGA 120p 50 fps	160	120	50.00	4:3	1:1	No	160
QQVGA 120p 30 fps	160	120	30.00	4:3	1:1	No	160
QQVGA 120p 25 fps	160	120	25.00	4:3	1:1	No	160
QQVGA 120p 24 fps	160	120	24.00	4:3	1:1	No	160
QQVGA 120p 15 fps	160	120	15.00	4:3	1:1	No	160
NTSC SD SQ CIF 96p 29.97 fps	128	96	29.97	4:3	1:1	No	128
NTSC SD SQ CIF 96p 25 fps	128	96	25.00	4:3	1:1	No	128
NTSC SD SQ CIF 96p 15 fps	128	96	15.00	4:3	1:1	No	128

1.14 Import & Export

Video editing projects (including tracks, clips, and keyframes) can be **imported** and **exported** from OpenShot Video Editor in widely supported formats (**EDL**: Edit Decision Lists, and **XML**: Final Cut Pro format). For example, if you start editing a video in a different program (Adobe Premier, Final Cut Pro, etc…), but later need to move all your edits to OpenShot (or vice versa).

1.14.1 EDL (Edit Decision Lists)

The following features are supported when importing and exporting an EDL file with OpenShot.

Name	Description
EDL Format	CMX-3600 (a very widely supported variation)
Single Track	Only a single track can be imported at a time (this is a limitation of the EDL format)
Tape Name	Only **AX** and **BL** tape names are currently supported in OpenShot
Edits (V and A)	Only edits are currently supported (transitions are not yet supported)
Opacity	Opacity keyframes are supported
Audio Levels	Volume keyframes are supported

Listing 4: Example EDL format supported by OpenShot:

```
TITLE: Clips - TRACK 5
FCM: NON-DROP FRAME

001  BL       V     C        00:00:00:01 00:00:03:17 00:00:00:01 00:00:03:17
001  AX       V     C        00:00:00:01 00:00:10:01 00:00:03:17 00:00:13:17
* FROM CLIP NAME: Intro.png

002  BL       V     C        00:00:00:01 00:00:05:09 00:00:13:17 00:00:18:25
002  AX       V     C        00:00:00:01 00:00:10:01 00:00:18:25 00:00:28:25
* FROM CLIP NAME: FileName.mp4
* OPACITY LEVEL AT 00:00:00:01 IS 0.00%  (REEL AX)
* OPACITY LEVEL AT 00:00:01:01 IS 100.00%  (REEL AX)
* OPACITY LEVEL AT 00:00:09:01 IS 100.00%  (REEL AX)
* OPACITY LEVEL AT 00:00:10:01 IS 0.00%  (REEL AX)

003  BL       V     C        00:00:00:01 00:00:33:15 00:00:28:25 00:01:02:09
003  AX       V     C        00:00:14:25 00:00:34:29 00:01:02:09 00:01:22:13
003  AX       A     C        00:00:14:25 00:00:34:29 00:01:02:09 00:01:22:13
* FROM CLIP NAME: FileName2.mp4

004  BL       V     C        00:00:00:01 00:00:26:25 00:01:22:13 00:01:49:07
004  AX       A     C        00:00:00:01 00:02:20:01 00:01:49:07 00:04:09:07
* FROM CLIP NAME: Music.wav
* AUDIO LEVEL AT 00:00:00:01 IS -99.00 DB  (REEL AX A1)
* AUDIO LEVEL AT 00:00:03:01 IS 0.00 DB  (REEL AX A1)
* AUDIO LEVEL AT 00:02:17:01 IS 0.00 DB  (REEL AX A1)
* AUDIO LEVEL AT 00:02:20:01 IS -99.00 DB  (REEL AX A1)
```

1.14.2 XML (Final Cut Pro format)

The following features are supported when importing and exporting an XML file with OpenShot. This XML format is supported in many video editors (not just Final Cut Pro). In fact, most commercial video editors have some support for importing and exporting this same XML format.

Name	Description
XML Format	Final Cut Pro format (but most commercial video editors also support this format)
All Tracks	All video and audio tracks are supported
Edits	All clips on all tracks are supported (video, image, and audio files). Transitions are not yet supported.
Opacity	Opacity keyframes are supported
Audio Levels	Volume keyframes are supported

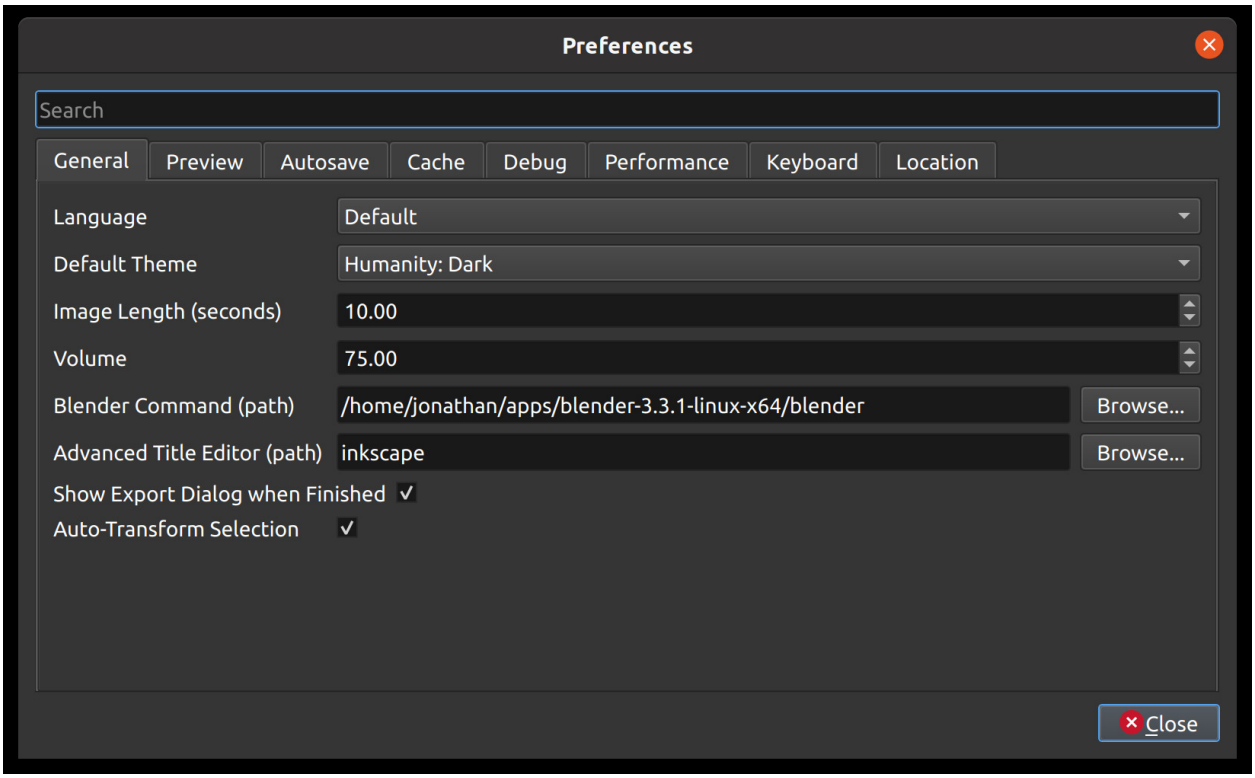
Example XML Output (tree view)

1.15 Preferences

The Preferences window contains many important settings and configuration options for OpenShot. They can be found in the top menu under *Edit→Preferences*. Many settings will require OpenShot to be restarted after your changes are applied.

NOTE: Some features such as *Animated Titles* and *external SVG editing* require setting the paths for **Blender** and **Inkscape** under the General tab. And if you notice audio playback issues, such as audio drift, you many need to adjust the audio settings under the Preview tab.

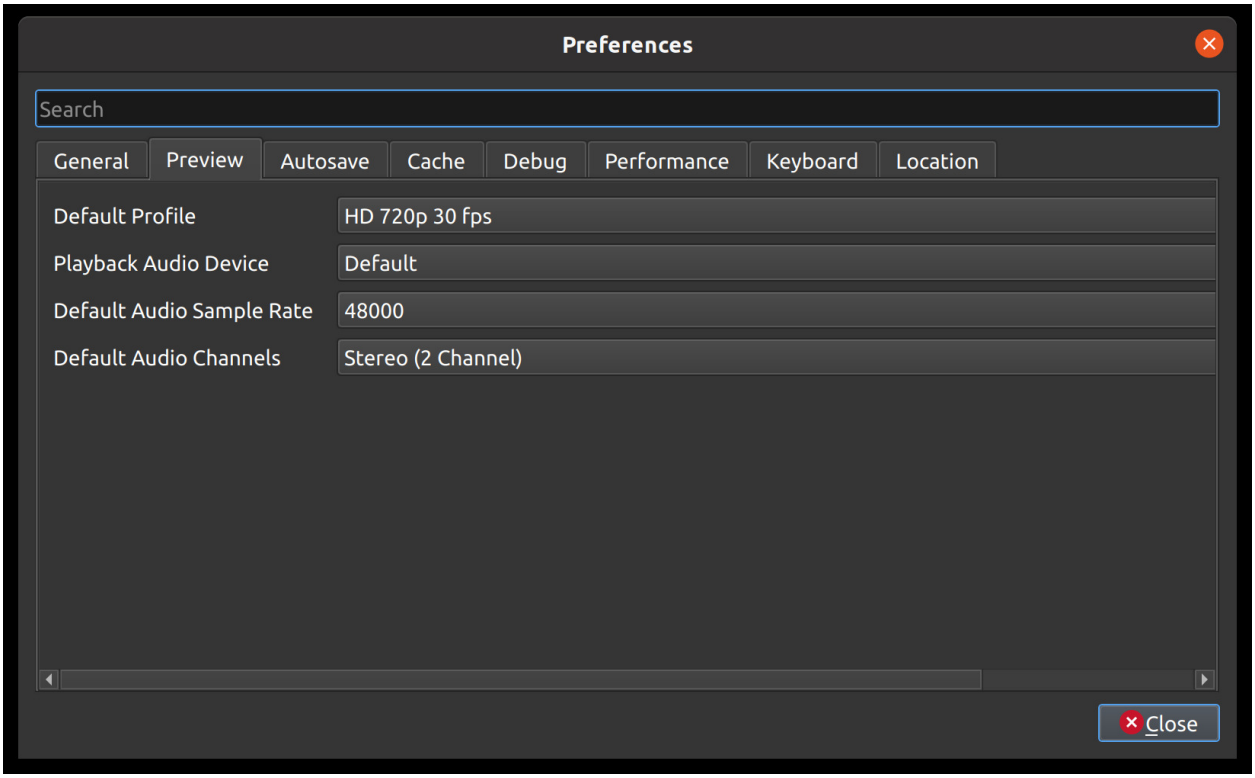
1.15.1 General



The General tab of the Preferences window allows you to modify the settings that apply to OpenShot as a whole.

Setting	Default	Description
Language	Default	Choose your preferred language for OpenShot menus and windows
Default Theme	Humanity:Dark	Choose your theme for OpenShot, either Light, Dark or None
Image Length (seconds)	10.00	How long the image displays on the screen when added to the timeline
Volume	75.00	The percentage of the volume of the clip when added to the timeline
Blender Command (path)	<*blank*>	The path to the binary for Blender
Advanced Title Editor (path)	<*blank*>	The path to the binary for Inkscape
Show Export Dialog when Finished	<*checked*>	Displays the Export Video windows after the export is finished

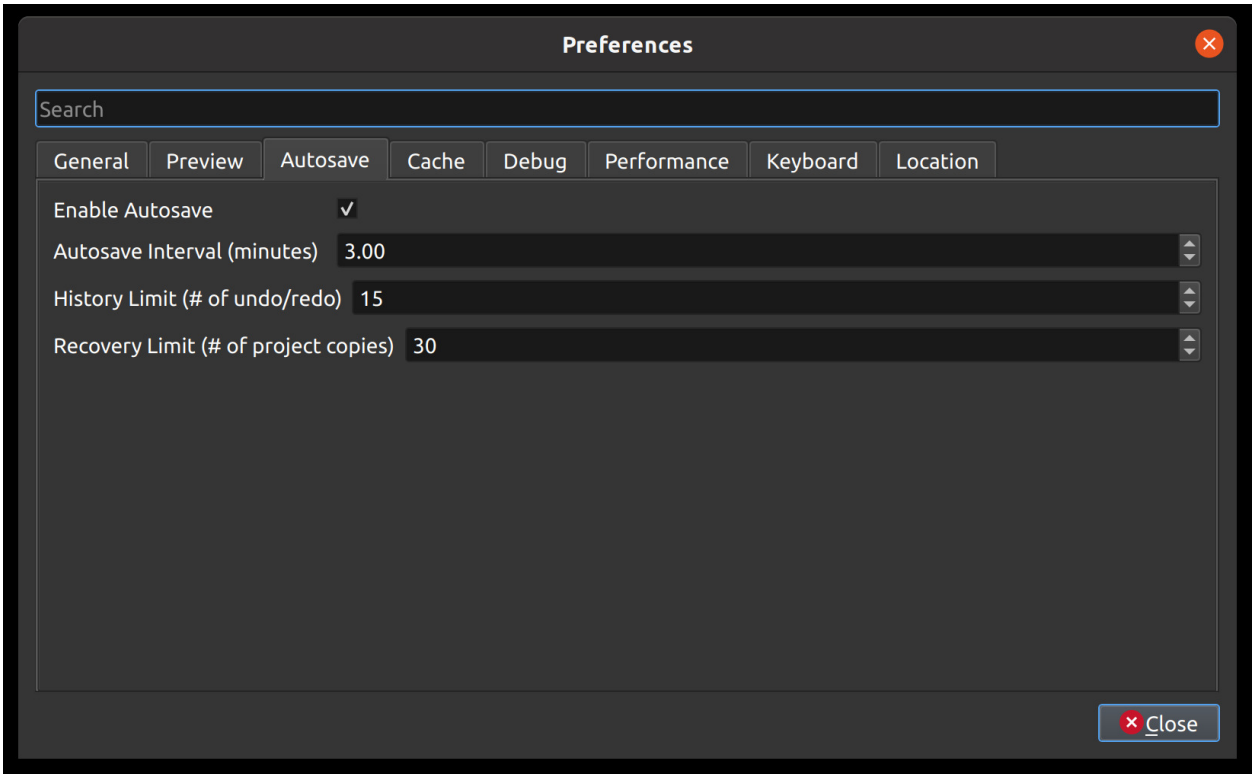
1.15.2 Preview



The Preview tab of the Preferences window allows you to set a **Default Video Profile** for your project, if you have a preference for a specific editing profile. More about *Profiles*. Also, you can adjust the real-time preview audio settings, for example, which audio device and sample rate to use.

Setting	Default	Description
Default Video Profile	HD 720P 30 fps	Select the profile for Preview and Export defaults
Playback Audio Device	Default	
Default Audio Sample Rate	44100	
Default Audio Channels	Stereo (2 Channel)	

1.15.3 Autosave

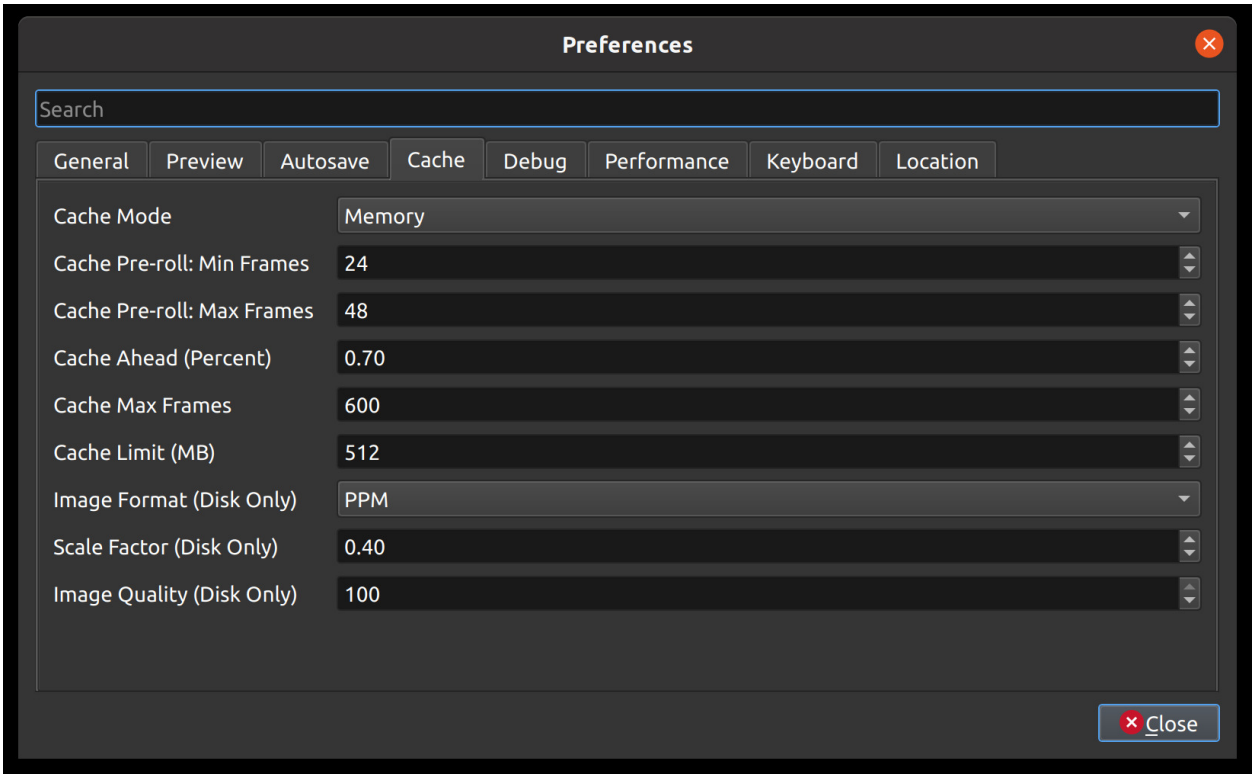


Autosave is a saving function in OpenShot which automatically saves the current changes to your project after a specific number of minutes, helping to reduce the risk or impact of data loss in case of a crash, freeze or user error.

Recovery

Before each save, a copy of the current project is created in a recovery folder, to further reduce the risk of data loss. The recovery folder is located at `~/.openshot_qt/recovery/` or `C:\Users\USERNAME\.openshot_qt\recovery`. If you need to recover a corrupt or broken `*.osp` project file, please find the most recent copy in the recovery folder, and copy/paste the file in your original project folder location (i.e. the folder that contains your broken project), and then **open** this recovered project file in OpenShot. Many versions of each project are stored in the recovery folder, and if you still have issues with the recovered `*.osp` file, you can repeat this process with older versions contained in the recovery folder.

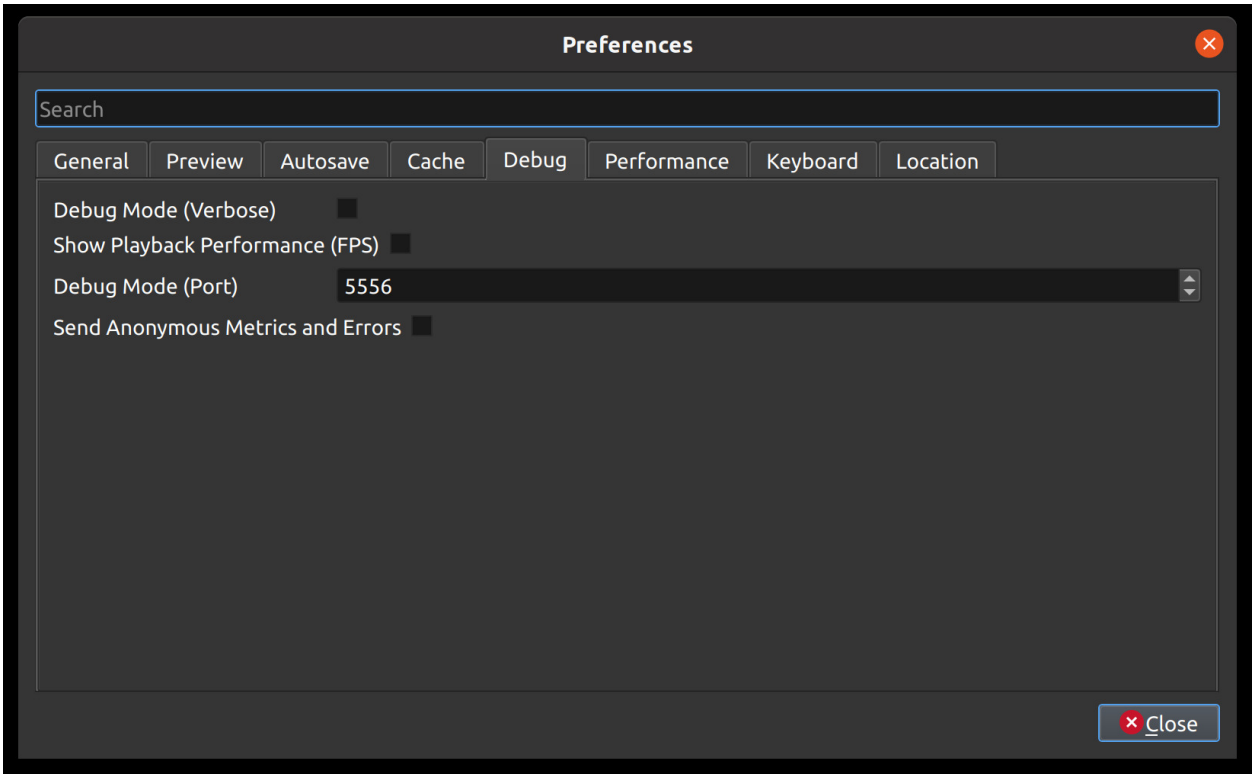
1.15.4 Cache



Cache settings can be adjusted to make real-time playback faster or less CPU intensive. The cache is used to store image and audio data for each frame of video requested. The more frames that are cached, the smoother the real-time playback will be. However, the more that needs to be cached requires more CPU to generate the cache. There is a balance, and the default settings provide a generally sane set of cache values, which should allow most computers to playback video and audio smoothly.

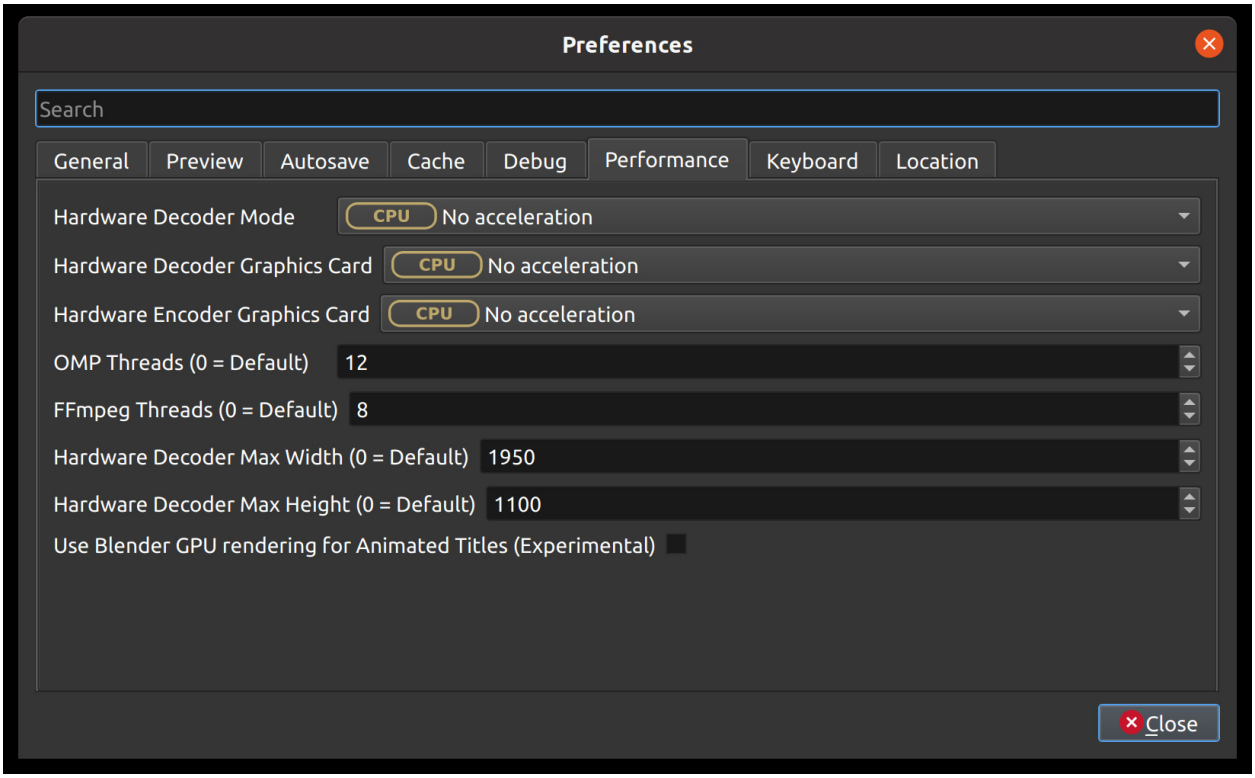
Setting	Description
Cache Mode	Choose between Memory or Disk caching (memory caching is preferred). Disk caching writes image data to the hard disk for later retrieving, and works best with an SSD.
Cache Limit (MB)	How many MB are set aside for cache related data. Larger numbers are not always better, since it takes more CPU to generate more frames to fill the cache.
Image Format (Disk Only)	Image format to store disk cache image data
Scale Factor (Disk Only)	Percentage (0.1 to 1.0) to reduce the size of disk based image files stored in the disk cache. Smaller numbers make writing and reading cached image files faster.
Image Quality (Disk Only)	Quality of the image files used in disk cache. The higher compression can cause more slowness, but results in smaller file sizes.
Cache Pre-roll: Min Frames:	Minimum # of frames that must be cached before playback begins. The larger the #, the larger the wait before playback begins.
Cache Pre-roll: Max Frames:	Maximum # of frames that can be cached during playback (in front of the playhead). The larger the #, the more CPU is required to cache ahead - vs display the already cached frames.
Cache Ahead (Percent):	Between 0.0 and 1.0. This represents how much % we cache ahead of the playhead. For example, 0.5 would cache 50% behind and 50% ahead of the playhead. 0.8 would cache 20% behind and 80% ahead of the playhead.
Cache Max Frames:	This is an override on the total allowed frames that can be cached by our caching thread. It is defaulted to 600 frames, but even if you give a huge amount of RAM to OpenShot's cache size, this will override the max # of frames cached. The reason is... sometimes when the preview window is very small, and the cache size is set very high, OpenShot might calculate that we can cache 30,000 frames, or something silly which will take a huge amount of CPU, lagging the system. This setting is designed to clamp the upper limit of the cache to something reasonable... even on systems that give OpenShot huge amounts of RAM to work with.

1.15.5 Debug



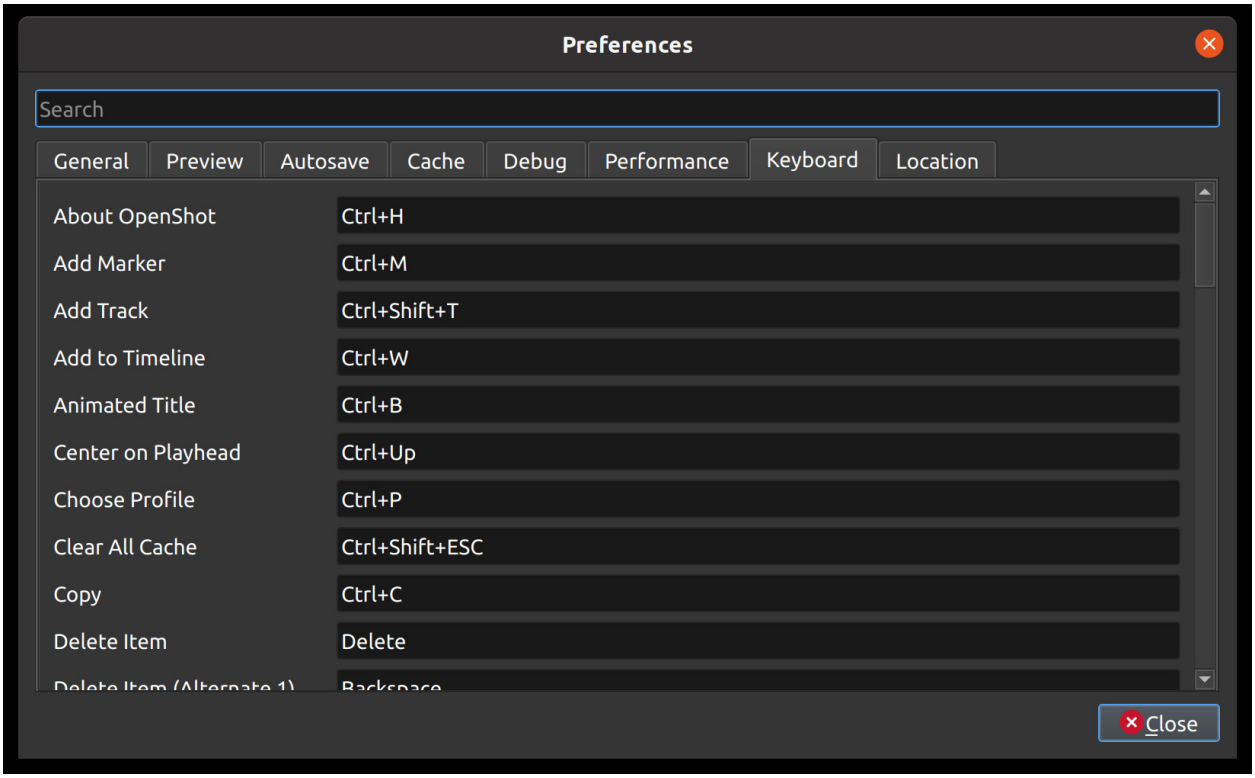
Here you can modify how much data should be logged. Normally, *Debug Mode (verbose)* is off. The default port is 5556. If you want to help improve OpenShot you can enable **Send Anonymous Metrics and Errors**.

1.15.6 Performance



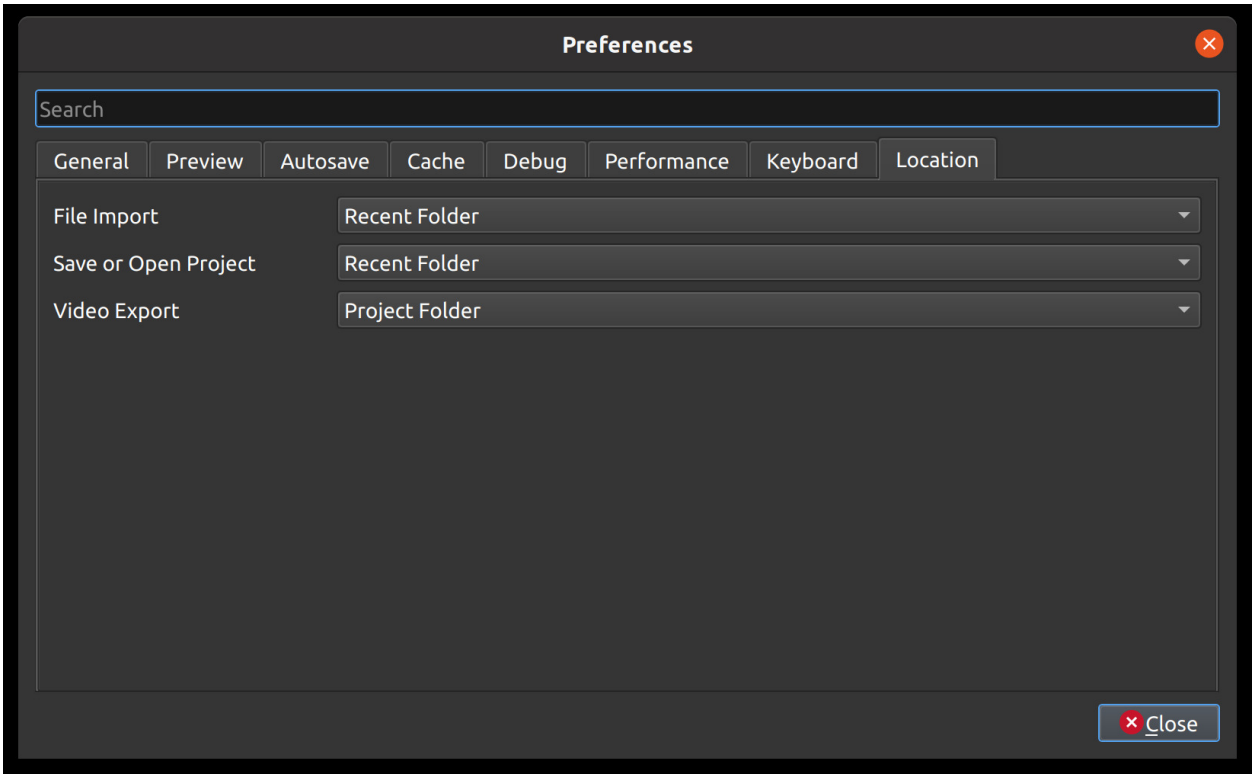
Please keep in mind that hardware acceleration is experimental at the moment. OpenShot supports both decoding and encoding acceleration. For more information take a look at our Github HW-ACCEL Doc. NOTE: On systems with older graphics cards, hardware acceleration may not always be faster than CPU encoding.

1.15.7 Keyboard



This is where hotkeys can be seen and re-assigned, as described under *Keyboard Shortcuts*.

1.15.8 Location



Default file path locations for saving/opening projects, importing files, and exporting videos can be configured here. This can save you time by defaulting the open/save file dialogs to the most appropriate starting folder (options described below).

Setting	Description
File Import	Default folder to choose when importing a file
Save or Open Project	Default folder to choose when saving or opening a project file
Video Export	Default folder to choose when exporting a video

Values	Description
Recent Folder	The last folder used for this same operation. Project folders, Import folders, and Export folders are tracked separately.
Project Folder	The current project folder (or the user's home folder, if the project is not yet saved)

1.16 Developers

If you are a programmer (or want to become a programmer), and are interested in developing new features, fixing bugs, or improving the user interface for OpenShot, the following sections will explain how to get started and get involved!

1.16.1 The Big Picture

OpenShot Video Editor has 3 main components, a Python & PyQt user interface (openshot-qt), a C++ audio library (libopenshot-audio) and a C++ video library (libopenshot). If you are not familiar with Python, PyQt, or C++, those would be great topics to research and learn more about at this point.

However, many bugs can be fixed and new features added with only Python knowledge, since the C++ components are not involved in the user interface at all. Python is an amazing language, and is super fun to learn, and is the only prerequisite skill needed to become an OpenShot developer!

Warning: The instructions that follow are for Ubuntu Linux, which is the easiest environment to configure for OpenShot development. If you are using another OS, I suggest running a virtual machine with Ubuntu LTS before continuing any further.

If you must use a Windows or Mac system for development, start by referring to the build notes in the `libopenshot` wiki. Building the library with all of its dependencies is the most challenging part of the process.

- Windows Build Instructions
- Mac Build Instructions

1.16.2 Getting the Latest Source Code

Before we can fix any bugs or add any features, we need to get the source code onto your computer.

Use git to clone our 3 repositories:

```
git clone https://github.com/OpenShot/libopenshot-audio.git
git clone https://github.com/OpenShot/libopenshot.git
git clone https://github.com/OpenShot/openshot-qt.git
```

1.16.3 Configuring your Development Environment

In order to actually compile or run OpenShot, we need to install some dependencies on your system. The easiest way to accomplish this is with our Daily PPA. A PPA is an unofficial Ubuntu repository, which has our software packages available to download and install.

```
sudo add-apt-repository ppa:openshot.developers/libopenshot-daily
sudo apt-get update
sudo apt-get install openshot-qt \
                     cmake \
                     libx11-dev \
                     libasound2-dev \
                     libavcodec-dev \
                     libavdevice-dev \
                     libavfilter-dev \
                     libavformat-dev \
                     libavresample-dev \
                     libavutil-dev \
                     libfdk-aac-dev \
                     libfreetype6-dev \
                     libjsoncpp-dev \
```

(continues on next page)

(continued from previous page)

```
                    libmagick++-dev \
                    libopenshot-audio-dev \
                    libprotobuf-dev \
                    libqt5svg5-dev \
                    libswscale-dev \
                    libunittest++-dev \
                    libxcursor-dev \
                    libxinerama-dev \
                    libxrandr-dev \
                    libzmq3-dev \
                    pkg-config \
                    python3-dev \
                    protobuf-compiler \
                    qtbase5-dev \
                    libqt5svg5-dev \
                    libxcb-xfixes0-dev \
                    qtmultimedia5-dev \
                    swig
```

At this point, you should have all 3 OpenShot components source code cloned into local folders, the OpenShot daily PPA installed, and all of the required development and runtime dependencies installed. This is a great start, and we are now ready to start compiling some code!

1.16.4 libopenshot-audio (Build Instructions)

This library is required for audio playback and audio effects. It is based on the JUCE audio framework. Here are the commands to build it:

```
cd libopenshot-audio
mkdir build
cd build
cmake -DCMAKE_INSTALL_PREFIX=dist ..
make
make install
```

Essentially, we are switching to the `libopenshot-audio/build` folder, then running `cmake ..` on the parent folder. This finds dependencies and creates all the needed Makefiles used to compile this library. Then `make` uses those Makefiles to compile this library, and `make install` installs them in the location we specified. If `CMAKE_INSTALL_PREFIX` isn't set, the files will install to `/usr/local/` (by default) and `make install` will require administrative privileges to run.

1.16.5 libopenshot (Build Instructions)

This library is required for video decoding, encoding, animation, and just about everything else. It does all the heavy lifting of video editing and video playback. Here are the commands to build it:

```
cd libopenshot
mkdir build
cd build
cmake -DLIBOPENSHOT_AUDIO_DIR=../../libopenshot-audio/build/dist ..
make
```

Essentially, we are switching to the `libopenshot/build` folder, then running `cmake ..` on the parent folder. This finds dependencies and creates all the needed Makefiles used to compile this library. Then `make` uses those Makefiles to compile this library. Because we provided the location of our compiled `libopenshot-audio` installation, that version of the library will be used instead of the system version (if any).

We don't install our `libopenshot` after building, because we don't need to. For testing purposes, we can tell OpenShot to use `libopenshot` right from our `build` directory.

1.16.6 openshot-qt (Launch Instructions)

This is our main PyQt Python application. Because it is written in Python, it does not require any compiling to run. To launch OpenShot from the source code with our newly-built `libopenshot-audio` and `libopenshot` libraries, use the following commands:

```
cd openshot-qt
PYTHONPATH=../libopenshot/build/src/bindings/python
python3 src/launch.py
```

This should launch the OpenShot user interface. Any changes you have made to the source code files (`*.py` Python files, `*.ui` PyQt UI files, etc...) will be included. This requires the `libopenshot-audio` and `libopenshot` libraries, and if anything went wrong with the steps above, OpenShot will likely not launch.

If OpenShot launches at this point, congratulations! You now have a working local version of OpenShot, which is running off your local source code. Try making some changes to the source code and re-launch OpenShot... you should now see your changes!

1.16.7 GitHub Issues

Now that you have successfully compiled and launched OpenShot Video Editor from source code, be sure to check out our list of bug reports on GitHub: OpenShot Issues. Also, you are encouraged to fill out our quick contributor form and introduce yourself!

1.16.8 Share your Changes

Once you have fixed a bug or added an amazing new feature, be sure to share it with the OpenShot team. Ideally, we can merge this into our main source code branch. The easiest way to share your changes is by creating a fork of our repo, pushing your changes back to GitHub, and creating a Pull Request. A Pull Request lets the OpenShot team know you have changes ready to be merged. Then we can review things, give feedback, and hopefully merge your changes into the main branch.

1.17 Contributing

Want to help improve OpenShot (*and make some friends in the process*)? Please consider joining our open-source team by filling out this quick contributor form and introduce yourself! All volunteers are welcome, regardless of skills or skill level. **Let's build something amazing!**

1.17.1 How to Contribute

There are many different ways to help and support OpenShot, including:

- Testing
- Translations
- Documentation
- Customer Service
- Social Media / Marketing
- Software Development
- Art / Design / UI
- User Community
- Donations

All of these areas are **equally important**, so we would love to know which ones appeal to you the most. Please take a moment and fill-out our quick contributor form.

1.17.2 Did you find a bug?

Please use our step-by-step bug reporting page: https://openshot.org/issues/new/ to troubleshoot a potential new bug. This guide will instruct you on how to delete you log files, test with the latest daily build, and search for duplicate bug reports (in case someone else has already reported this same issue). At the end of the guide, it will help you create a detailed and useful bug report for our development team and volunteers.

1.17.3 Software Developers

OpenShot uses GitHub to manage issues and source code: https://github.com/OpenShot. Please read our guide on Becoming a Developer for a step-by-step guide on compiling OpenShot and making your first pull request on GitHub.

1.17.4 Made with Love

OpenShot Video Editor is a volunteer effort and a **labor of love**. Please be patient with any issues you find, and feel free to get involved and help us fix them!

Thank you for your support!
– *OpenShot Team*

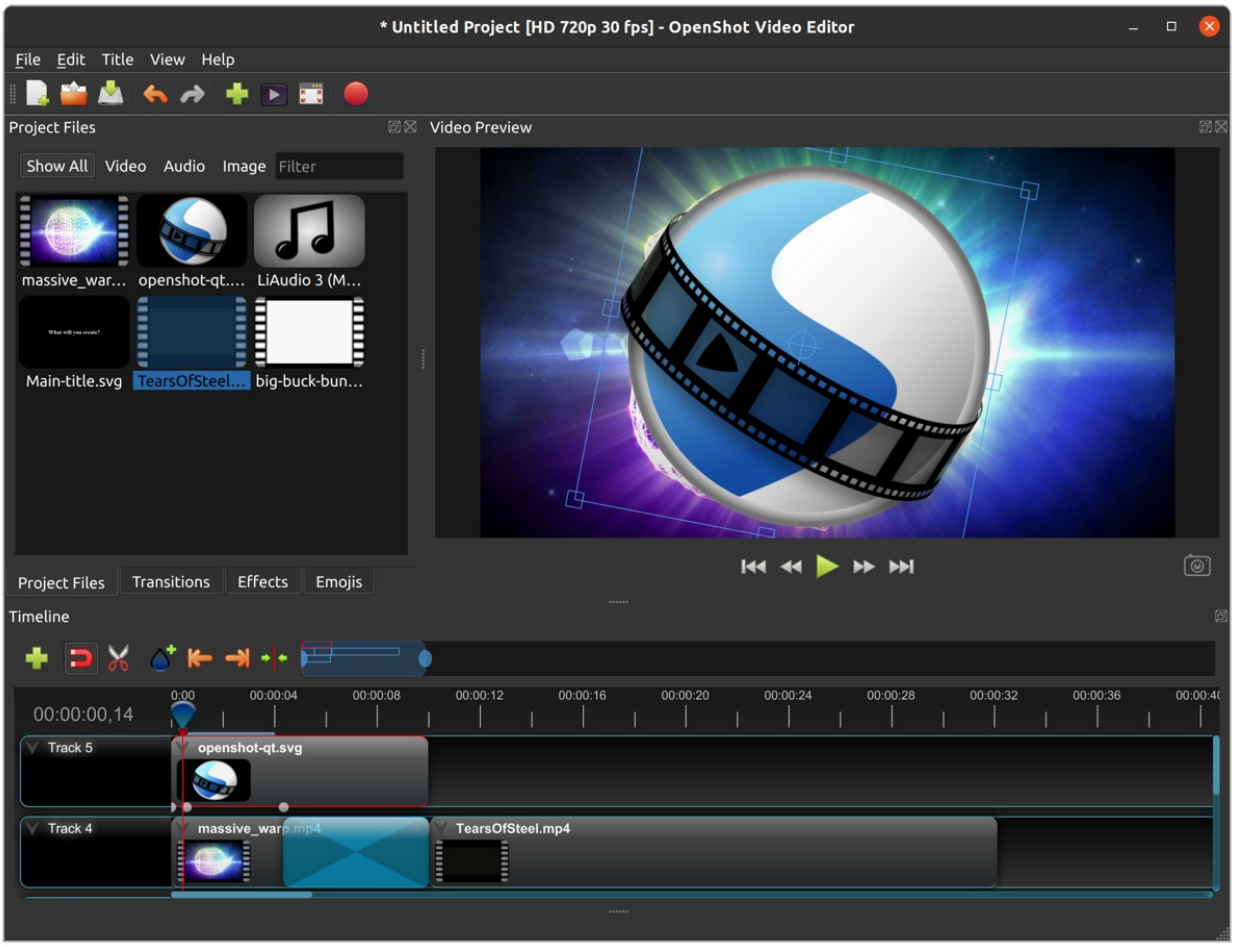
1.18 Learn More

We are working hard to expand this user guide and to improve OpenShot Video Editor, but if you are stuck and don't know where to turn, OpenShot has several sources for additional information.

1. OpenShot has several YouTube Tutorials available to help you learn more.
2. OpenShot has a Reddit User Community dedicated to users helping users, answering questions, and discussing video editing and OpenShot topics.
3. If you would like to help improve this User Guide, view source on GitHub.
4. If you have discovered a new bug, please Report a Bug.
5. If you need professional support, you can open a ticket by sending an message to support@openshot.org or Schedule a call.

1.19 Glossary

There is much technical terminology in today's fast-moving media-centric world. If you find yourself wondering what a video production term or an acronym means, you are certainly not alone. Like most industries, video production has a language all its own. Here is a list of terms commonly found in video editing. Becoming familiar with these terms only makes your job easier.



1.19.1 Definitions

These definitions are a work-in-progress. Please let us know if you need a term defined by contacting support@openshot.org.

-A- *-B-* *-C-* *-D-* *-E-* *-F-* *-G-* *-H-* *-I-* *-J-* *-K-* *-L-* *-M-* *-N-* *-O-* *-P-* -Q- *-R-* *-S-* *-T-* -U- *-V-* *-W-* -X- -Y- *-Z-*

-A-

A-Roll:
The Principal video that is usually someone speaking.

Aliasing:
The undesirable jagged or stair-stepped appearance of angled lines in an image, graphic, or text.

Alpha:
Alpha blending is a convex combination of two colors allowing for transparency effects in computer graphics. The value of alpha in the color code ranges from 0.0 to 1.0, where 0.0 represents a fully transparent color, and 1.0 represents a fully opaque color.

Alpha Channel:
An alpha channel is a channel in an image or movie clip that controls the opacity region.

Ambient Noise:
Ambient noise is background noise specific to the shooting location.

Animation:
The technique of making inanimate objects or drawings appear to move in motion pictures or computer graphics.

Anti-Aliasing:
Anti-aliasing is a process for smoothing jagged lines in an image. Anti-aliasing can also mean a method of filtering out erroneous frequencies in an audio signal.

Artifact:
An artifact is undesired data in an image because of digital processing.

Aspect Ratio:
The ratio of width to height in a flat surface or 2-dimensional abstract construction, such as an image, video, character, or pixel. The standard ratios for NTSC SD videos are 4:3 (or 1.33:1) and HD 16:9 (or 1.77:1). The most common aspect ratios for motion pictures are 1.85:1 and 2.35:1.

ATSC:
ATSC is a digital broadcast standard that replaced the older analog NTSC standard. The standard covers both standard and high-definition formats.

Audio Sample Rate:
The number of samples taken per second to reproduce audio digitally. The higher the sample rate, the higher the quality of the digital audio. A rate of 44,100 samples per second produces CD-quality audio and captures the range of human hearing.

-B-

B-roll:
B-roll is supplemental footage that provides supporting details and greater flexibility when editing video. Common examples include the footage used to cut away from an interview or news report to help tell the story.

Bit:
The elementary unit for digital storage. A BIT can be either a 1 (one) or a 0 (zero).

Bit Depth:
In digital graphics and video, bit depth indicates the number of colors an image can display. A high-contrast (no gray tones) black and white image is 1bit, meaning it can be off or on, black or white. As bit depth increases, more colors become available. 24-bit color allows for displays of millions of colors. Similarly, in digital audio, bit depth indicates the number of bits per sample. The higher the number, the better the sound quality.

Bitrate:
The frequency at which bits (binary digits) pass a given physical or metaphorical point, measured in bps (bits per second). For every second in the video, the Bit Rate, or Data Rate, is the amount of data used each second. The bitrate, in Kilobits per second, can be variable or constant.

Blue Screen:
A blue screen is a blue background that the subject stands in front of that the computer later replaces with another background in post-production. See also blue screen compositing and green screen.

Blue Screen Compositing:
The process of making all blue elements in an image transparent and placing a different background underneath.

-C-

Capture:
The process of transferring source video from a camcorder or tape deck to a computer. If the source video is analog, the capture process converts the video to digital.

Channel:
A channel is one of several grayscale components used to make up a color image. Red, green, and blue channels make up RGB images, with an optional alpha channel for transparency.

Chromakey:
Chromakey is a method of creating transparency in a video source by selecting a specific "key color" to create an alpha matte. It is frequently used on news programs to display weather graphics behind talent and for visual effects compositing.

Clip:
A digitized or captured portion of video, audio, or both. Clips are media files added to the Timeline, usually part of a more extensive recording.

Codec:
Codec is a video compression technology used to compress data in a video file. Codec stands for "Compression Decompression." An example of a popular codec is H.264.

Color Correction:
The process of altering the color of a video, especially one shot under less than ideal conditions, such as low light.

Compositing:
Construction of a composite image by combining multiple images and other elements.

Coverage:
Coverage is the process of shooting additional footage and camera angles to cover the action in the scene. Coverage is so that the editor has a more excellent range of choices when the film reaches the post-production stage.

Compression:
The process of reducing data, such as in an audio or video file, into a form that requires less space.

Crop Factor:
Crop factor is a number (typically from 1.3-2.0) that represents the ratio of a sensor's imaging area to that of a full-frame sensor. Try multiplying the focal length of your lens by your camera sensor's crop factor. It gives you the focal length for the lens/sensor combination.

Crawl:
Crawl is a text effect where the text moves right-to-left (in the English-speaking world).

Cross-fade:
A cross-fade is a simultaneous fade-in of one audio or video source as another fades out so that they overlap temporarily. Also called a dissolve.

Cut:
A cut is an instantaneous change from one shot to another.

Cut-in (Insert Shot):
It is a type of shot that most often shows the objects the subject is in contact with or manipulating. Cut-in shots are correspondingly helpful to b-roll because they stray from the subject for a short time.

Cutting on Action:
Cutting on action is a technique used to create a more interesting scene. The concept is simple… when you cut in the middle of an action, it will appear less jarring and more visual interesting.

-D-

Data Rate:
The amount of data moved over time (for example, 10 MB per second). Often used to describe a hard drive's ability to retrieve and deliver information.

Denominator:
The number or expression below the line in a fraction (such as 2 in ½).

Digital Video:
Digital video is an electronic representation of moving visual images (video) in the form of encoded digital data. In contrast, analog video represents moving visual images with analog signals. Digital video comprises a series of digital images displayed in rapid succession.

Digitize:
To convert analog video or audio to digital form.

Dissolve:
Dissolve is an image transition effect where one picture gradually disappears as another appears. Also called a cross-fade.

-E-

Editing:
Editing is the process or result of selectively sequencing video and audio clips into a new video file. Typically involves reviewing raw footage and transferring desired segments from source footage into a new predetermined sequence.

Effect:
Synthetic sounds and animations created in the digital domain applied to a clip to change a specific parameter of video or audio. Examples: the color of a visual element or the reverb on an audio track.

Encode:
To merge the individual video signals (for example, red, green, and blue) into a combined signal, or to convert a video file to a different format using a codec.

Export:
Export refers to the process of assembling your edited video project into a single file that then plays back on its own, shared, or uploaded.

-F-

Fade:
A fade is the gradual diminishing or heightening of visual or audio intensity. Usage: fade-out, fade to black, fade-in, or fade up from black.

Fade-in:
1.(n.) a shot that begins in total darkness and gradually lightens to full brightness. 2. (v.) To gradually bring sound from inaudibility to the required volume.

Fade-out:
1.(n.) a shot that begins in full brightness and gradually dims to total darkness. 2. (v.) To gradually bring sound from the required volume to inaudibility.

Filter:
A video filter is a software component that performs some operation on a multimedia stream. Multiple filters used in a chain, known as a filter graph, are the process in which each filter receives input from its upstream filter. The filter graph processes the input and outputs the processed video to its downstream filter.

Final Cut:
The final video production, assembled from high-quality clips, and ready for export to the selected delivery media.

Finishing:
The stage that brings together all assets of a piece. Your output from this stage is your master/sub-master.

Footage:
Derived from having feet of film, this is almost synonymous with video clips.

Frame:
In filmmaking, video production, animation, and related fields, a frame is one of the many still images which compose the complete moving picture.

Frames Per Second (fps):
The number of frames played every second. At 15 fps and lower, the human eye can detect individual frames, causing the video to appear jerky.

Frame Rate:
Frame rate (expressed in frames per second or FPS) is the frequency (rate expressed in Hz) at which consecutive

images called frames appear on display. The term applies equally to film and video cameras, computer graphics, and motion capture systems. Common Frame Rate Examples: 24, 25, 29.97, 30, 50, 60.

Frequency:
The number of audio cycles per second, expressed in hertz (Hz). Frequency determines the pitch of a sound.

-G-

Gamma:
A measurement of the intensity of mid-tones in an image. Adjusting the gamma adjusts the level of the mid-tones while leaving the blacks and whites untouched.

GPU:
Graphics processing unit. A microprocessor with built-in capabilities for handling 3D graphics more efficiently than a CPU (central processing unit).

Gravity:
Gravity in OpenShot is a property of each clip that sets the clip's initial position on the screen.

Green screen
A green background that the subject stands in front of that is another background in post-production.

Green Screen Compositing
The process of making all green elements in an image transparent and placing a different background underneath, so it appears that the subject is in a different location.

-H-

High Definition (HD):
A general term for a video signal with a significantly higher resolution than standard definition.

HDMI:
High Definition Multimedia Interface. Interface for transmitting high definition digital audio and video data.

HDR:
HDR (high dynamic range) is the compositing of two images, one that correctly exposes the highlights, and another that properly exposes the dark areas. When composited together, you get a properly exposed image.

HDTV:
High Definition TV. A broadcast format that allows for a higher resolution signal than the traditional formats, NTSC, PAL, and SECAM.

HDV:
High Definition Video. The format used to record HDTV-quality data with video camcorders.

Headroom:
The space between the top of a character's head and the top of the frame.

Hiss:
Noise caused by imperfections in the recording medium.

Hue:
The shade of a color. This is the general color category into which the color falls. For example, pink, crimson, and plum are different colors, but they all fall under the hue of red. White, black, and gray tones are not hues.

-I-

Image Stabilizer:
Also referred to as an electronic image stabilizer. A technique used to remove the movement caused by camera shake.

Importing:
Importing is the process of transferring videos from your camera onto your computer or into a piece of editing software.

Interframe Compression:
A compression scheme, such as MPEG that reduces the amount of video information by storing only the differences between a frame and those preceding it.

Interpolation:
Used in animation to calculate the motion in between two user-generated keyframes so that the editor does not need to animate each frame manually. This speeds up the process and makes the resulting animation smoother.

Intertitles:
Titles that appear on their own between footage. Commonly seen in silent movies to substitute dialogue, also used as chapter headings.

-J-

J-Cut:
An edit in which the audio starts before the video, giving the video a dramatic introduction. Also known as an audio lead.

Jog
To move forward or backward through video by playing it one field or frame at a time.

Jump Cut:
A jump cut is an unnatural, abrupt switch between shots identical in the subject but slightly different in screen location, so the subject appears to jump from one screen location to another.

-K-

Key:
A method for creating transparency, such as a bluescreen key or a chroma key.

Keyframe:
A keyframe is a frame that contains a record of specific settings (e.g., scale, rotation, brightness). Start and endpoints for animated effects. By setting multiple keyframes, you can adjust these parameters as the video plays to animate certain aspects.

-L-

L-Cut:
An L-cut is an edit in which the video ends before the audio. L-cuts act as a subtle transition from one scene to the next.

Letterbox:
A technique used to preserve the original aspect ratio of a motion picture when played on a TV. Letterboxing adds black bars to the top and bottom of the screen.

Linear Editing:
A form of video editing which lays out cuts sequentially, one by one, to produce the final scene. This contrasts with non-linear editing which allows cutting in any order.

Log:
A record of start and end timecode, reel numbers, scene descriptions, and other information for a specified clip.

Lossless:
A compression scheme that results in no loss of data from decompressing the file. Lossless files are generally quite large (but still smaller than uncompressed versions) and sometimes require considerable processing power to decode the data.

Lossy:
Lossy compression is a compression scheme that degrades quality. Lossy algorithms compress digital data by eliminating the data least sensitive to the human eye and offer the highest compression rates available.

-M-

Mark In:
Placing a marker at the beginning of where you want your clip to start.

Mark Out:
Placing a marker at the beginning of where you want your clip to end.

Match Action:
Match action (or match cut) is a technique where an editor will cut from one visually similar scene to another.

Memory Bank:
A Memory Bank is a video that documents specific periods or events in someone's life. It can be set to music, make use of natural sound, record vacations, or just capture moments in everyday life.

Marker:
An object used to mark a location. Clip markers signify essential points within a clip. Timeline markers indicate scenes, locations for titles, or other significant points within an entire movie. Use clip markers and timeline markers for positioning and trimming clips.

Mask:
The transparent area of an image, typically defined by a graphic shape or a bluescreen background. Also called a matte.

Matte:
Matte is an image mask used in visual effects to control applying an effect to certain parts of the image.

Montage:
A montage is a self-contained sequence of shots assembled in juxtaposition to each other to communicate an idea or mood. The implied relationship between seemingly unrelated material creates a new message.

Motion Artifact:
Visual interference caused by the difference between the frame rate of the camera and the motion of the object. The most common display of this is when filming a computer or television screen. The screen flickers or a line scans down it, which is the difference in frame rates and a lack of synchronization between the camera and television.

-N-

Noise:
Undesired data in a video or audio signal. See also artifact.

Non-linear Editing:
An editing system that performs edits at any time, in any order. Access is random, which means that the system can jump to specific pieces of data without having to look through the whole footage to find it.

Numerator:
The number or expression above the line in a fraction (such as 1 in ½).

NTSC:
NTSC is an abbreviation for National Television Standards Committee. NTSC is the group that initially developed the black & white and subsequently color television system. The United States, Japan, and many other countries use NTSC. Five-hundred twenty-five interlaced lines make up NTSC that display at a rate of 29.97 frames per second. ATSC Has now superseded by NTSC.

-O-

Offline Editing:
Editing a rough cut using low-quality clips, and then producing the final cut with high-quality clips, usually on a more sophisticated editing system than that used for developing the rough.

Online Editing:
Doing all editing (including the rough cut) on the same clips that produce the final cut.

Opacity:
An inverse measure of the level of transparency in an image, which is of importance when compositing. An image's alpha channel stores its opacity information.

-P-

PAL:
PAL is an abbreviation for Phase Alternate Line. This is the video format standard used in many European countries. Six-hundred twenty-five lines make up a PAL picture that displays at a rate of 25 frames per second.

Pan:
A horizontal movement of the camera on a fixed axis.

Pan and Scan:
A method of converting widescreen images to a 4:3 aspect ratio. Cropping the video so that it fills the entire screen and panning it into position shows the essential parts of the scene.

Picture in Picture (PIP):
An effect of superimposing a small window of footage over a larger window and the two play at the same time.

Pixel:
One of the tiny dots that make up the representation of an image in a computer's memory. The smallest unit of a digital image.

Pixel Aspect Ratio:
Aspect ratio is the ratio between the width and height of your video; the Pixel Aspect Ratio is the ratio between the width and height of the pixels. A standard Pixel Aspect Ratio is 1:1.

Pixelation:
The display of large, blocky pixels in an image caused by over-enlarging it.

Playhead:
When editing audio or video in a current computer, the Playhead is a graphic line in the Timeline that represents the current accessed position, or frame, of the material.

Post-production (Post):
Post-production (post) is any video production activity following the initial recording. Typically, post involves editing, the addition of background music, voice-over, sound effects, titles, and various visual effects resulting in completed production.

Poster Frame:
A single frame of a clip, selected as a thumbnail to indicate the clip's contents.

Project:
A project is all the files, transitions, effects, and animations that you make or use within OpenShot.

-R-

Raw Footage:
Raw footage is pre-edited footage, usually direct from the camera.

Real-time:
Real-time occurs immediately, without delay for rendering. If a transition occurs in real-time, there is no waiting, the computer creates the effect or transition on-the-fly, showing it the results immediately.

Rendering:
The process by which the video editing software and hardware convert the raw video, effects, transitions, and filters into a new continuous video file.

Render Time:
The render time is the time it takes an editing computer to composite source elements and commands into a single video file. Rendering allows the sequence, including titles and transition effects, to play in full motion.

Resolution:
Resolution refers to the actual number of horizontal and vertical pixels your video contains. Common resolution Examples: (SD) 640×480, (HD) 854x480, (HD) 1280×720, (FHD) 1920×1080, (QHD) 2560x1440, (UHD) 3840x2160, and (FUHD) 7680x4320. Often the numbers that appear vertically refer to the resolution. The examples listed would appear as SD, 480p, 720p, 1080p, 1440p, 4K and 8K, respectively.

RGB:
Monitors, cameras, and digital projectors use the primary colors of light (Red, Green, and Blue) to make images.

RGBA:
A file containing an RGB image plus an alpha channel for transparency information.

Roll:
Roll is a text effect commonly seen in end credits, where text typically moves from the bottom to the top of the screen.

Rough cut:
A rough cut is a preliminary edit of footage in the approximate sequence, length, and content of a finished program.

-S-

Sample Rate:
In digital audio, the number of samples per second. The higher the number, the better the sound quality.

Scene:
Action that occurs in one location at one time.

Scrub:
Scrubbing is an act of moving the cursor or playhead across the Timeline manually. Once specific to audio tracks, the term now also refers to video tracks.

Shot:
A recording of a single take.

Slow-motion:
A shot in which action takes place at a slower than average speed. The camera achieves slow-motion by speeding up the frame rate during recording and then playing back the frames at a slower speed.

Snap:
Snapping quickly positions an object in alignment with grid lines, guidelines, or another object. Snapping causes the object to automatically jump to an exact position when the user drags it to the proximity of the desired location.

Splice:
The process of physically attaching two pieces of film using tape or cement.

Split cut (L-cut or J-cut):
An edit in which the audio starts before or after the picture cut. Used for easing the transition from one scene or shot to another.

Splitscreen:
A unique effect that displays two or more scenes simultaneously on different parts of the screen.

Sound Effects:
Sound effects are contrived audio, usually prerecorded, incorporated with a video soundtrack to resemble a real occurrence. Blowing on a microphone, for example, might simulate wind to accompany hurricane images.

Soundtrack:
The soundtrack is the audio portion of a video recording, often multifaceted with natural sound, voiceovers, background music, or other sounds.

Stabilization:
Image stabilization is a family of techniques that reduce blurring associated with the motion of a camera or other imaging device during exposure.

Standard Definition (SD):
Television broadcasting standard with a lower resolution than high definition.

Step:
The act of moving forward or backward through video one frame at a time.

Still Frame:
A single frame of video is repeated, so it appears to have no motion.

Straight Cut:
The most common edit, consecutive clips placed one after another in the Timeline window. Straight cuts are preferable to transitions when the scenes are similar, and you do not want edits to be noticeable.

Superimposing:
Combining images, where one or more layers involve transparency.

Sync (Synchronization):
Synchronization refers to the relative timing of audio (sound) and video (image) parts during creation, post-production (mixing), transmission, reception, and play-back processing.

SECAM:
Systeme Electronique Couleur Avec Memoire, a TV format used mainly in Eastern Europe, Russia, and Africa.

-T-

Tilt:
Tilting is a cinematographic technique in which the camera stays in a fixed position but rotates up/down in a vertical plane.

Timecode:
The timecode is the discrete address given to each frame of the video (for example, 1:20:24:09). Timecode makes frame-accurate editing possible and allows editors to identify scenes precisely in a log.

Time-lapse:
It is a technique for capturing each frame in a video at a much slower rate than usual. When played back at regular speed, time appears to go by faster. An editing program achieves this by fast-forwarding or increasing the speed of your video.

Timeline:
The Timeline is an editing interface that lays out a video project in a linear fashion consisting of clips laid horizontally across the screen.

Timeline Editing:
Timeline editing is a computer-based method of editing, in which bars proportional to the length of a clip, represent video and audio clips on a computer screen.

Titling:
Titling is the process or result of incorporating on-screen text as credits, captions, or any other alphanumeric communication.

Track:
A separate audio or video layer on a timeline.

Transcode:
Converting a digital file to another digital file format. This usually involves audio and video compression.

Transparency:
Percentage of the opacity of a video clip or element.

Transition:
A method of juxtaposing two scenes. Transitions can take many forms, including cuts, dissolves, and wipes.

Trim:
Removing frames from the beginning, middle, or end of a clip.

-V-

Video Format:
The video format is a standard that determines the way a video signal records on videotape. Standards include DV, 8-mm, Beta, and VHS.

Voiceover:
A term used to describe off-camera narration that is not part of a scene (non-diegetic).

VTR:
A Videotape recorder also referred to as a 'deck'. Decks duplicate videotapes and inputting and outputting from a computer.

-W-

Widescreen:
A format in which the width-to-height ratio of the frame is greater than 4:3 so that it is significantly wider than it is tall.

Wipe:
A wipe is a transition from one shot to another. The edge of the transition moves across the original image as a line or a pattern, revealing the new shot.

-Z-

Zoom:
A shot where the image grows more substantial or smaller by adjusting the focal length of the lens instead of physically moving the camera.