# Table of Contents

Requirements

- A x64/64-bit PC, required for FFmpeg to run.
- FFmpeg (this will be automatically installed and set up by the programs if you don't already have it)

SFDExtractor

This program is intended for ripping (and splitting) the video and audio track(s) from Sofdec video files, or "SFD" files for short. It also converts them to more modern and widely compatible formats by default.

Program Overview
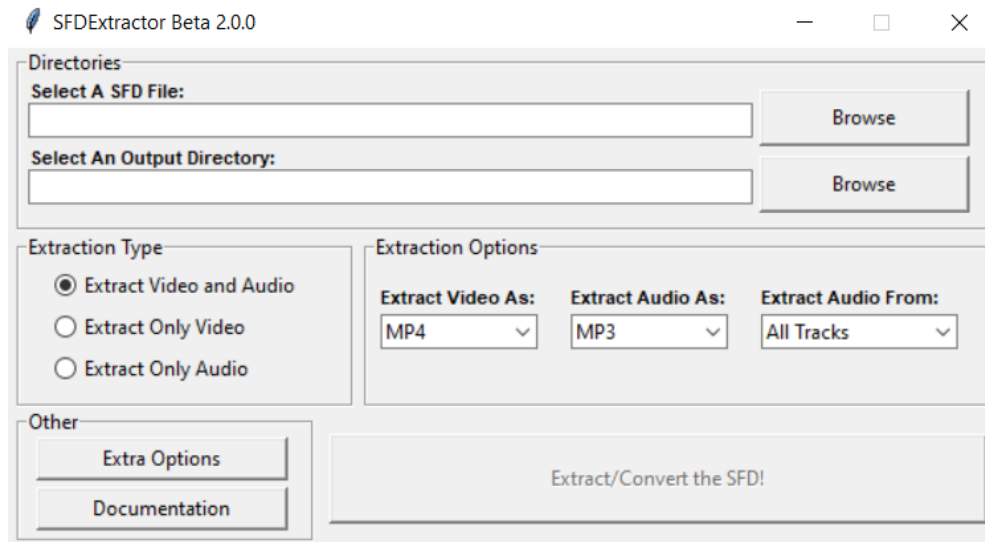
Main Window

This is the main window of the program. On this window, you have the option to switch settings for the Extraction Type, and what format you want the extracted files to be in, as well as what audio track to extract from. Below, you can find brief descriptions of the options.

Extraction Type

This section allows you to change what is extracted with the SFD, such as only extracting the video, or only extracting the audio. The default is to extract both video and audio.

Extraction Options

Extract Video As:
This dropdown box will allow you to extract the video in one of the selected formats. The options currently available are MP4, AVI, and MPEG. The default is MP4, as it's the most widely compatible of the three.
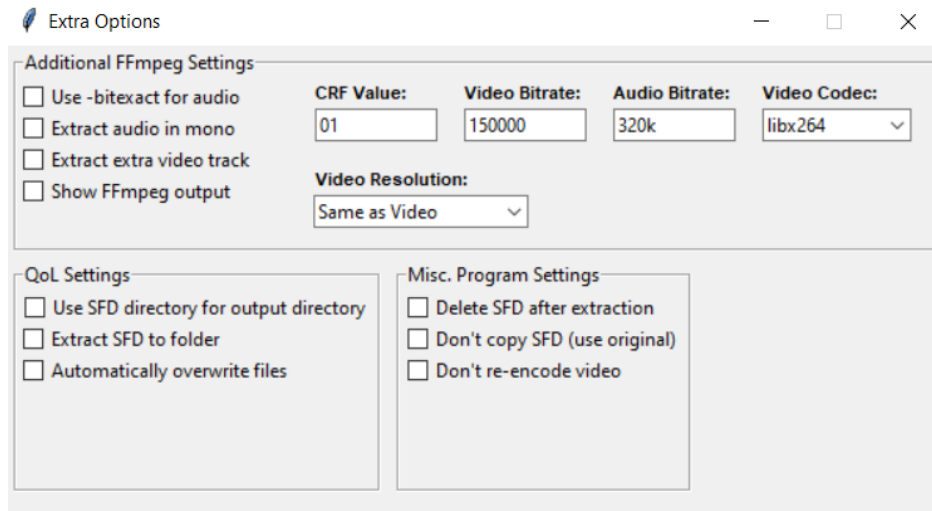
Extract Audio As:
This dropdown box will allow you to choose what format the audio is extracted in. The options available are MP3, WAV, and ADX. The default is MP3, as it's the most widely compatible of the three.

Extract Audio From:
This dropdown box will allow you to extract audio from specific tracks if you need to. If you don't know how many tracks an SFD has, it's best to leave it at "All Tracks".

Extra Options Window

This is the Extra Options window. In this window, various additional FFmpeg settings can be modified. The settings for Video Codec and Video Bitrate vary depending on the Extract Video As option in the main window. More options may be added in future updates. Brief descriptions of the options are down below.

FFmpeg Settings:

Use -bitexact for audio:
Forces FFmpeg to use "-bitexact" instead of a value in Audio Bitrate.

Extract audio in mono:
Forces FFmpeg to export audio as mono (1 channel) instead of stereo (2 channels).

Extract Extra Video Track:
Forces FFmpeg to extract a 2nd video track in the SFD if it exists.

Show FFmpeg output:
Forces FFmpeg output to be displayed.

CRF Value:
This box allows you to change the Constant Rate Factor in FFmpeg. Any value from 1 to 51 can be put into this box.

Video Bitrate:
This box allows you to change the extracted video's bitrate in FFmpeg. The default is 150000. The options available vary depending on the Video file type chosen in the Extract Video As box, found on the main window of the program.

Audio Bitrate:
This box allows you to change the extracted audio's bitrate in FFmpeg. The default is 320k.

Video Codec:
This option allows you to choose a video codec for the output video. The options available vary depending on the Video file type chosen in the Extract Video As box, found on the main window of the program.

Video Resolution:
This option allows you to change the output resolution of the video.

QoL Settings:

Use SFD directory for output directory:
Sets the output directory to the same one as in the input SFD file.

Extract SFD to folder:
Creates a folder in the output directory and extracts the SFD file to that folder.

Automatically overwrite files:
Automatically overwrites files if they already exist in the output directory.

Misc. Program Settings:

Delete SFD after extraction:
Deletes the original SFD file after it's extracted.

Don't re-encode video:
Extracts the video using FFmpeg's -c:v copy command, skip re-encoding it.

Q&A

Q: The video extracted is stretched or squished. Why is this?

A: This is due to the video dimensions from the SFD file, as SFDExtractor doesn't touch the dimensions of the video file. Some games (especially those on GameCube) had their videos squished in the SFD file, and then expanded to the correct size in game to save space. To fix this, you'd need to open the extracted video in a video editor and correct its size.

SFDCreator

This program is intended for creating your Sofdec video files, or "SFD" files for use in various games.

Program Overview

Main Window

This is the main window of SFDCreator. Here, you'll find the main options you'll need to create an SFD file. More options can be found by clicking on the Extra Options button. Documentation can be accessed in the same way, by clicking the Documentation button. Below, you'll find brief descriptions of the options on the main menu, and what they do.

Input File Options

Use Audio from Input Video

This checkbox allows you to use the audio from the input video.

Use Track 1 Audio for Track 2

This checkbox allows you to copy any input audio from track 1 to track 2.

Output File Options

Video Options

Video Resolution

This dropdown menu will allow you to change the resolution of the output SFD. The options in the drop down menu are written in the format of 4:3 width/16:9 width x height (resolution). The following options are available in the menu:

- 320/426 x 240 (240p)
- 480/640 x 360 (360p)
- 640/848 x 480 (480p)
- 960/1280 x 720 (720p)

Additionally, if none of these options are what you need, you can type a custom resolution in the format of width x height (i.e. "1920 x 1080", 1920 being the width and 1080 being the height). Do note that you cannot input a custom resolution if you're using the SFDMUX V1.07 muxer.

Video Framerate

This dropdown menu allows you to change the framerate of the output SFD. The following options are available in the menu:

- 24
- 29.97
- 30
- 59.97
- 60

Do keep in mind that it's best to not go above what the framerate of the original input video is.

Video Bitrate

This box allows you to change the bitrate of the output video. Unlike the other video options, this does not have a dropdown menu, instead, you must type the value into the box. The default value is 80000000, as it creates a near identical output. If you don't need to change this, or don't know what to put it at, it's best to leave it at its default.

Scale/Crop Settings

This dropdown menu allows you to select various options for scaling/cropping the video to either 4:3 or 16:9. A list of the possible options with an example image from Sonic Unleashed is below. Brief descriptions of each option is available above each image example.
None (No change to video, can also be 4:3 to 4:3):

This option will make it so no crop or scale is applied to the output video.

Crop (16:9 to 4:3):
This option will cut the left and right side of the video to fit a 4 by 3 (or 4:3) aspect ratio.

Scale (16:9 to 4:3):
This option will put black bars on the top and bottom of the video to make it fit into a 4:3 aspect ratio.

Audio Options

Audio Bitrate

This box allows you to change the bitrate of the audio in the output video. Similarly to the Video Bitrate option, you must type the value into the box. The default value is 320k. If you don't need to change this, or don't know what to put it at, it's best to leave it at its default.

Audio Hz/Audio Sample Rate

This box allows you to change the bitrate of the audio in the output video. Similarly to the previously mentioned Audio Bitrate option, you must type the value into the box. The default value is 44100. If you don't need to change this, or don't know what to put it at, it's best to leave it at its default.

Audio Channel Type

This drop down menu allows you to change the number of channels of the audio in the output video. The following options are available in the menu:

- Stereo (2 channels)
- Mono (1 channel)

If you don't need to change this, or don't know what to put it at, it's best to leave it at its default.
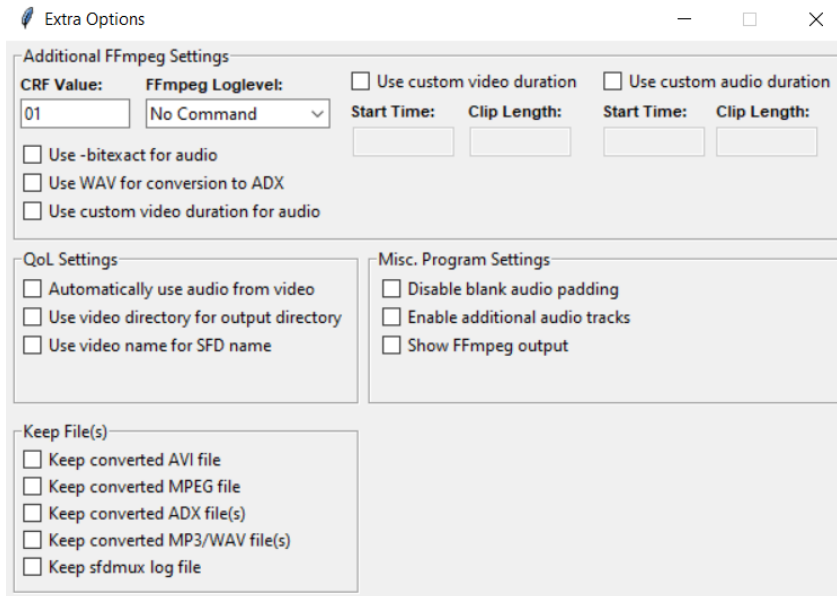
Output SFD Options

SFD Filename:

This option allows you to set a custom filename for the SFD.

Encode As:

This option allows you to change between a couple different Sofdec stream types/versions and muxers. V1 (aka "SofdecStream") is commonly used on Dreamcast games such as Sonic Adventure 2, and V2 (aka "SofdecStream2") is typically used on later games like Sonic Unleashed.

(If you're unsure what Sofdec version the game you're encoding the SFD for is, open up the file in https://hexed.it/, and under the "Go to" section, enter 0x1000. You should see something along the lines of either SofdecStream or SofdecStream2 somewhere around that 0x1000 range. If you don't see anything like that, try encoding it as a V1 file if a V2 file doesn't work.)

Extra Options Menu

This is the Extra Options window. Here, you can change some FFmpeg settings, keep files created when muxing the SFD, use some QoL settings and toggle some other program settings.

FFmpeg Settings

CRF Value:
This box allows you to change the Constant Rate Factor in FFmpeg. Any value from 1 to 51 can be put into this box.

FFmpeg Loglevel:
Forces FFmpeg to use a specific loglevel (loglevel being what is shown on the command prompt window).

Use -bitexact for audio:
Forces FFmpeg to use "-bitexact" instead of a value in Audio Bitrate.

Use WAV for conversion to ADX:
This box allows you to change the format used before converting audio to ADX from MP3 to WAV.

Use custom video duration for audio:
This box copies the value in the custom video duration box to the custom audio duration box, making the files equal in length.

Use custom video/audio duration:
This option allows you to clip the video you're encoding from a certain start time to a certain length. For example, the start time could be 0:00, and the clip length could be 0:02, meaning the video starts at 0:00 and ends at 0:02.

Keep File(s)

Keep Converted File:
These options allow you to keep files used when creating the SFD. Do note that if any one of these are checked, the selected files will be moved to the same location as the SFD file when created.

QoL Settings

Automatically use audio from video:
Automatically inputs audio from the input video file.

Use video directory for output directory:
Sets the output directory to the same one as the input video.

Use video name for SFD name:
Sets the SFD name to the input video's filename.

Misc. Program Settings

Disable blank audio padding:
Removes the blank audio padding normally added into the SFD file, except in the case that V1 (SFDMUX V1.07) is chosen and no track is provided for track 1, but one is provided for track 2.

Enable additional audio tracks:
Enables additional audio tracks on the main window, allowing up to 4 tracks to be added into the SFD.
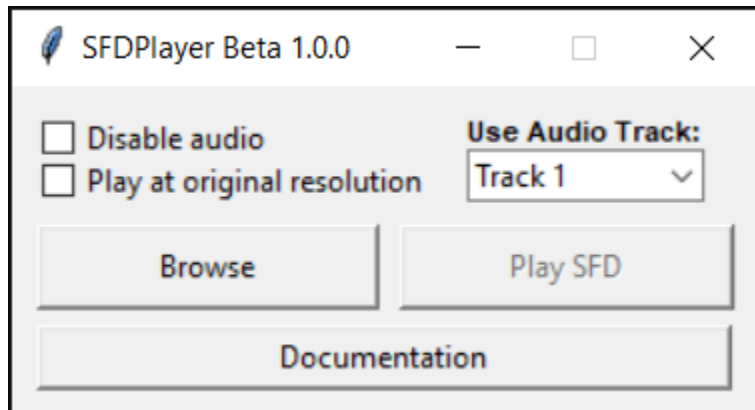
Show FFmpeg output:
Prints FFmpeg output to the CMD window.

SFDPlayer

This program is intended for viewing Sofdec video files.

Program Overview

Main Window

This is the main window of SFDPlayer. You can find brief descriptions of the options below.

Use Audio Track

This dropdown menu will allow you to choose the audio track you want played with the SFD.

Disable Audio

This option will disable audio playback for the SFD.

Play At Original Resolution

This option will display FFplay's window at the original video's dimensions, instead of scaling it down to fit a specific box size.

Credits + Other Information

If you come across any issues (bugs, crashes, etc) or have suggestions, please either:
- Leave an issue on the GitHub repo; the issue page can be found [here](#).
  OR
- Leave a comment on the GameBanana page, which can be found [here](#).

If you're experiencing an issue, make sure to specify how to replicate it if possible, and any other important information, such as error messages.

Program licenses

FFmpeg is licensed under the [GNU Lesser General Public License (LGPL) version 2.1](#) or later. For more details, please see [this page](#). Copyright (c) [2000-2023] FFmpeg developers

SFDmux (used in SFDCreator and part of [CryTools](#) is created by [ThisKwasior](#). The license for it can be found [here](#).

[SFD_Muxer](#) is created by [nebulas-star](#). The license for it can be found [here](#).

SFDMUX 1.07 is from the SEGA Dreamcast Katana SDK.

legaladx is taken from [video2dreamcastdisc](#), and is licensed under the BSD 3-Clause License. It's license can be found [here](#).

wget is licensed under the GNU General Public License Version 3.0, which can be found [here](#). More info on wget can be found [here](#).

Special Thanks

Thanks to [kTeo-0](#) for their suggestions regarding QoL settings.