



SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

(APPROVED BY AICTE AND AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

ACCREDITED BY NAAC WITH "A" GRADE

MUSIC SEPARATOR FOR WINDOWS APPLICATION

A MINI PROJECT PRSENTATION

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ABSTRACT

Last years, Music Source Separation (MSS) has been one of the most active fields within signal processing.

Music Source separation for music is the task of isolating contributions, or stems, from different instruments recorded individually and arranged together to form a song.

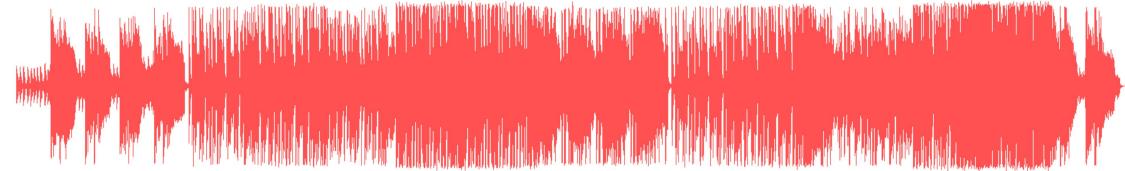
Such components include voice, bass, drums and any other accompaniments.

Our mainly goal is a normal people can separate the music file into stems (Vocal, Bass, Drums and Others) in the easier way.

MSS

MUSIC SOURCE SEPARATION

MUSIC SOURCE SEPARATION



ORIGINAL AUDIO FILE

ISOLATING STEMS FROM MUSIC FILE



BASS



PIANO



VOCALS



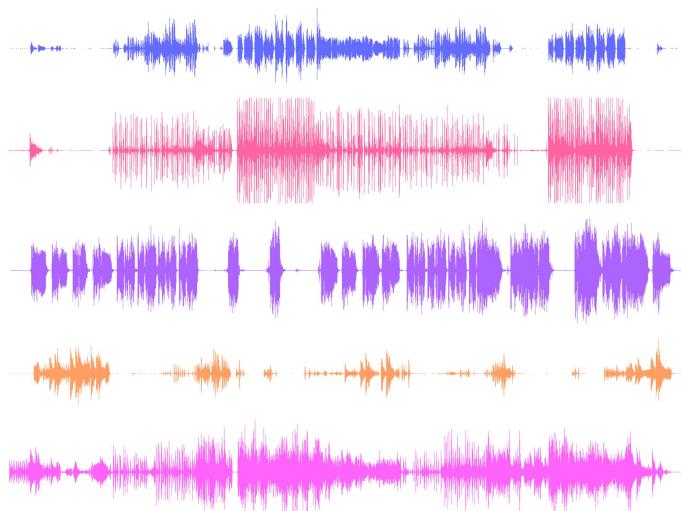
DRUMS



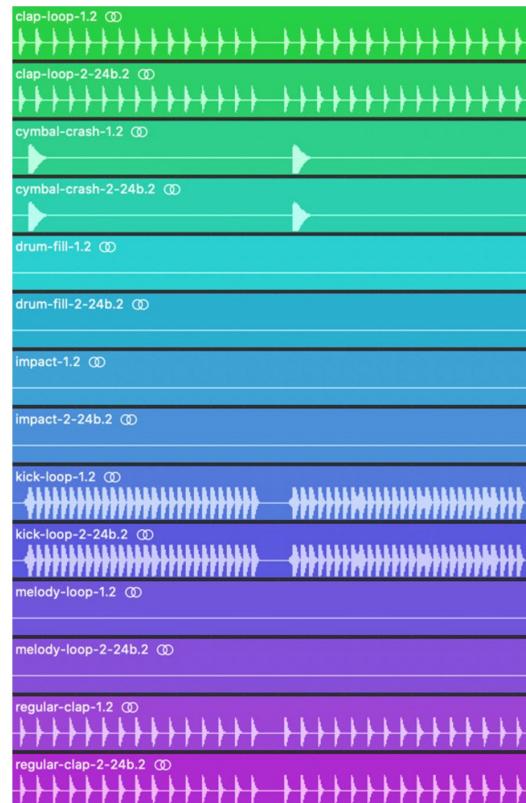
OTHER

STEMS

Music stems are a type of audio file that breaks down a complete track into individual mixes. Stems in music are packaged groups of multiple tracks that have been layered together. For example, a single electric guitar track while four or five guitars layered on top of one another in a stem.



STEMS



While an entire song might feature 25 individual tracks, stems can lump them all into just four or five categories. Essentially, stems split your songs into distinct and usable sections like bass, vocals, keys, etc.

Using stems opens up for creativity as you can mix and match according to your preferences. While widely used by other artists, stems can also be used for video production and YouTubers.

STEMS

HOW TO SEPARATE A STEMS?



Ableton



Audacity®



USING THIS SOFTWARE WE CAN SEPARATE MUSIC FILE INTO STEMS.

BUT YOU HAVE MUSIC KNOWLEDGE TO SEPARATE STEMS.



REQUIREMENTS

REQUIREMENTS

REQUIREMENTS

REQUIREMENTS



python™

FFmpeg

The FFmpeg logo icon features a green stylized 'F' composed of several diagonal bars.

spleeter



TensorFlow

SPLEETER



Spleeter is a source separation **Python library** created by the **Deezer R&D team**(**Deezer** is a music streaming platform like Spotify).

Spleeter is described as a “**state-of-the-art source separation algorithm**”.

It comes with **pre-trained** state-of-the-art models built using Tensorflow for various types of source separation tasks.

HOW SPLEETER MADE?



Spleeter is made up with SOTA using Tensorflow.

The pre-trained models in Spleeter are U-Nets,CNN

The models were trained on internal dataset from Deezer using L1-norm loss between masked input mix spectrograms and target spectrograms.

These models were compared with Open-Umix on the musdb18 dataset.

HOW SPLEETER MADE?



Standard source separation metrics were used for the comparison.

Signal to Distortion Ratio (SDR),
Signal to Artifacts Ratio (SAR),
Signal to Interference Ratio (SIR),
and
source Image to Spatial distortion
Ratio (ISR).

FFMPEG

FFMPEG



FFmpeg is a free and open-source software project consisting of a suite of libraries and programs for handling video, audio, and other multimedia files and streams.



MusicSeparator



MUSIC SEPARATOR

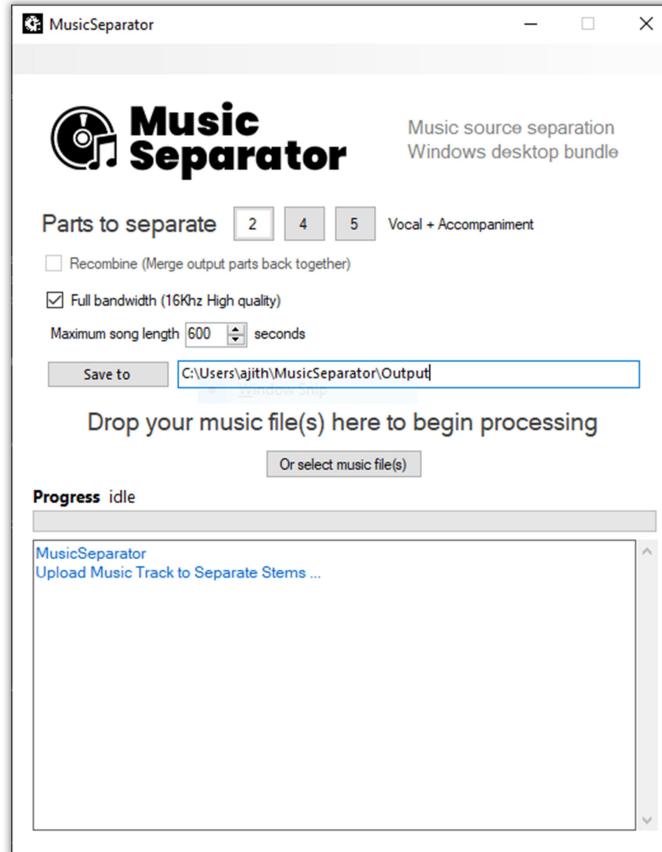


MusicSeparator



USER INTERFACE

MusicSeparator

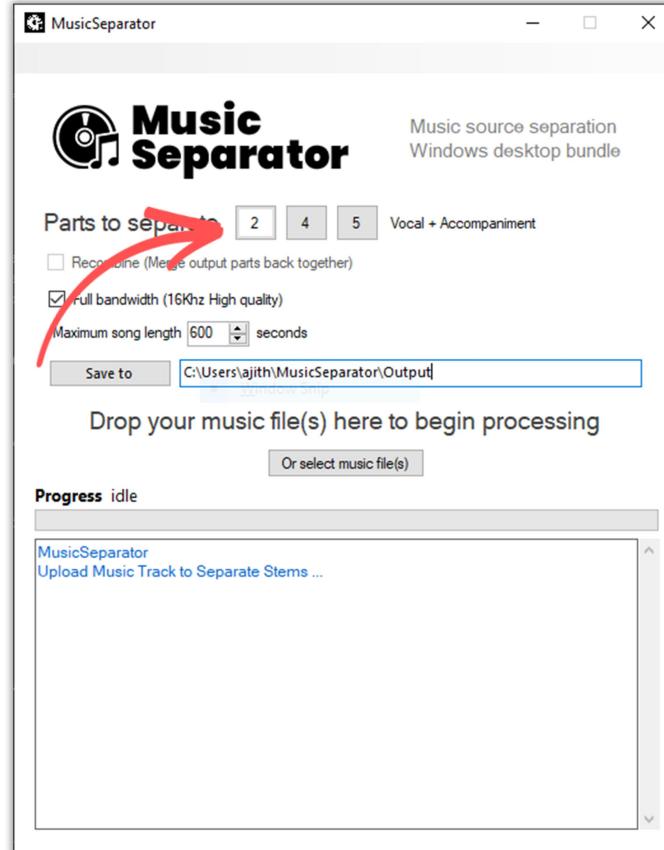




PARTS TO SEPARATE

MusicSeparator

**TWO STEM SEPARATION IS THE
PROCESS OF SEPARATING A MUSIC
TRACK INTO TWO STEMS
(VOCAL + ACCOMPANIMENT)
RESPECTIVELY.**

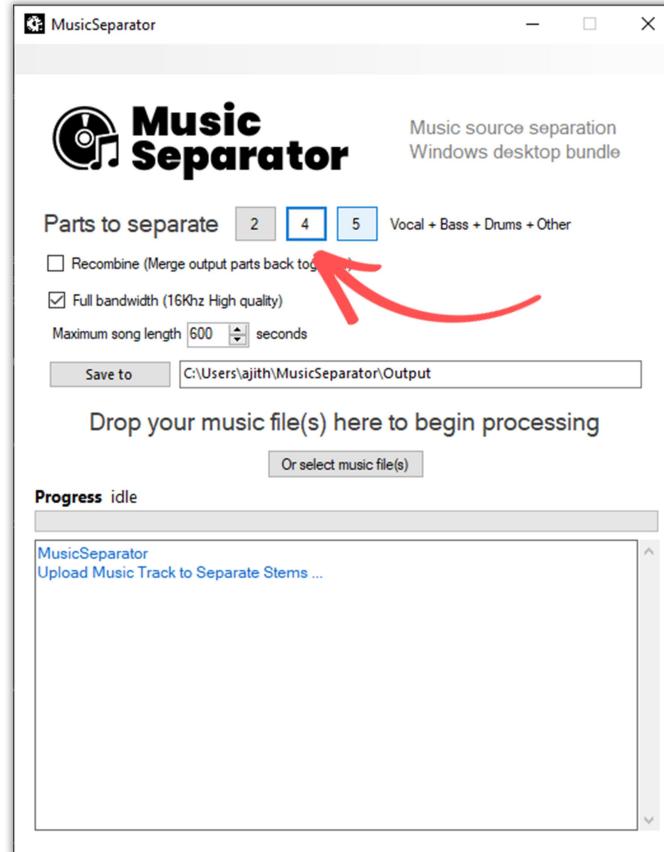


MusicSeparator



PARTS TO SEPARATE

MusicSeparator



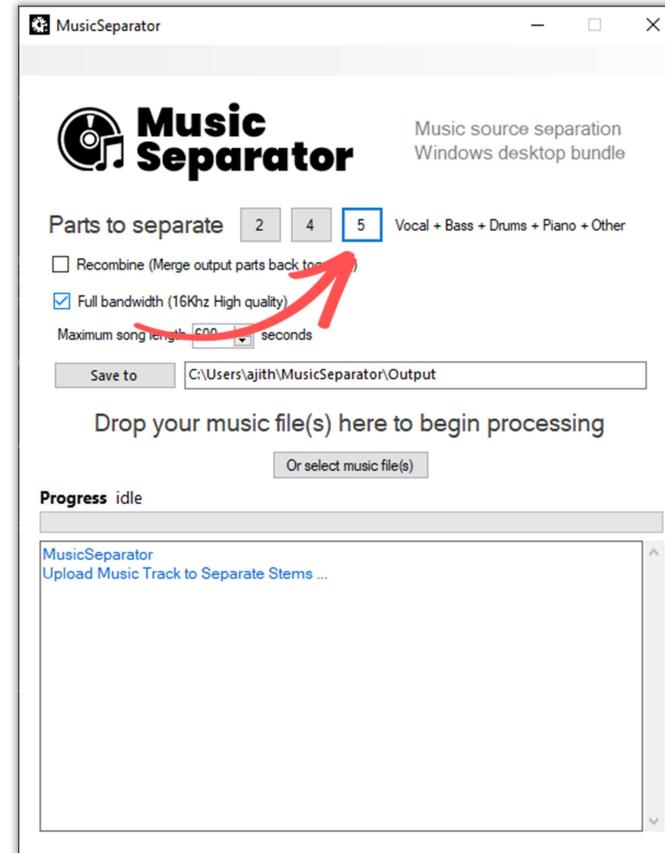
**FOUR STEM SEPARATION IS THE
PROCESS OF SEPARATING A MUSIC
TRACK INTO FOUR STEMS
(VOCAL + BASS + DRUMS +
OTHER) RESPECTIVELY.**

MusicSeparator



PARTS TO SEPARATE

MusicSeparator



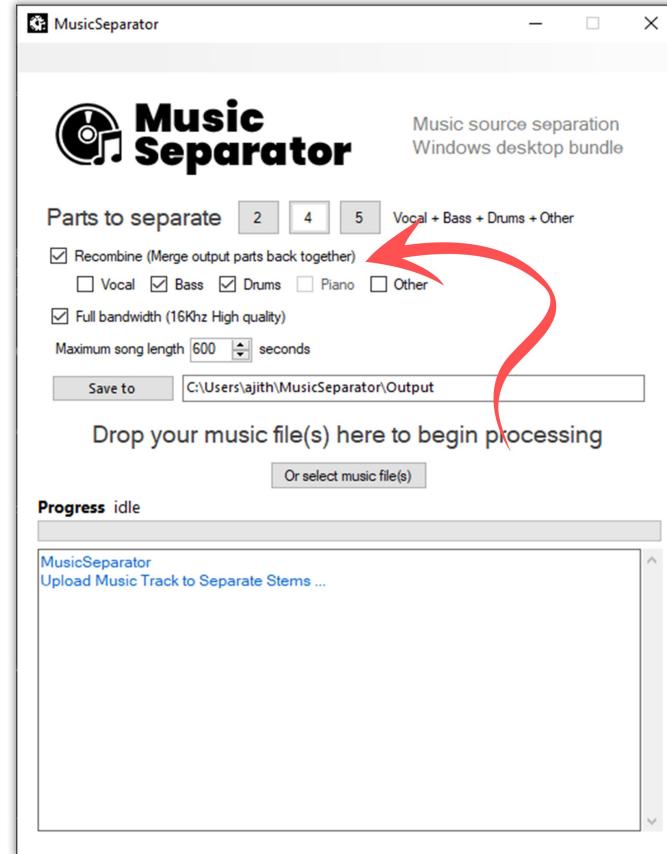
**FIVE STEM SEPARATION IS THE
PROCESS OF SEPARATING A MUSIC
TRACK INTO FIVE STEMS
(**VOCAL + BASS + DRUMS +
PIANO + OTHER**) RESPECTIVELY.**

MusicSeparator



RECOMBINE

MusicSeparator



**RECOMBINE IS THE FEATURE, WHICH
CAN COMBINE WITH OTHER STEMS
AND SAVE IT AS A ADDITIONAL STEM.
LIKE VOCAL + DRUMS OR DRUMS
+ BASS, ETC. LIKE THAT WE CAN
COMBINE MORE THAN 2 STEMS.**

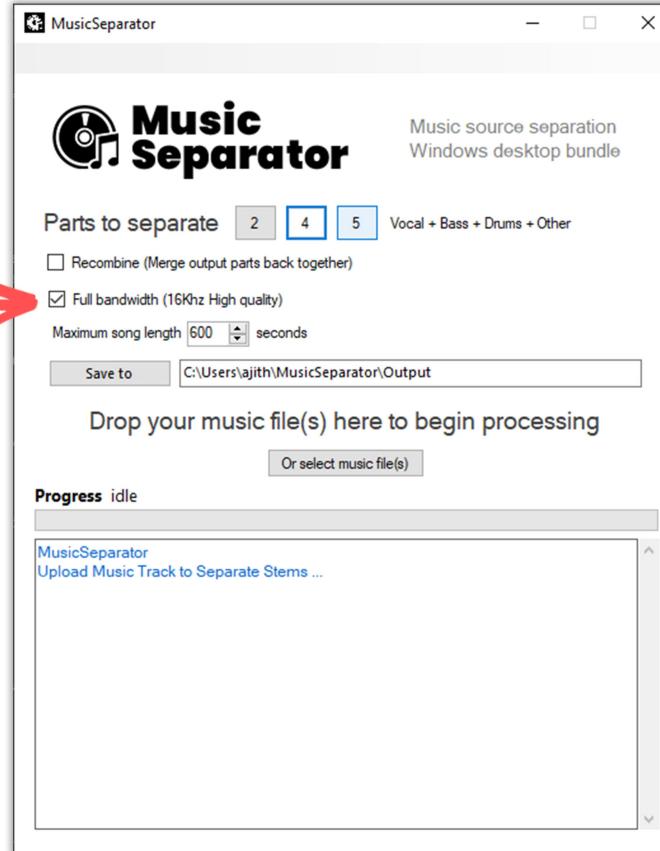
MusicSeparator



BANDWIDTH

MusicSeparator

BANDWIDTH IS A OPTION TO CHOOSE A 16KZ FREQUENCY OF HIGH QUALITY OUTPUT. WIDEBAND CODECS HAVE A TYPICAL SAMPLE RATE OF 16 KHz. A RATE OF 16,000 SAMPLES PER SECOND IS EQUAL TO 16,000 Hz (OR 16 kHz).

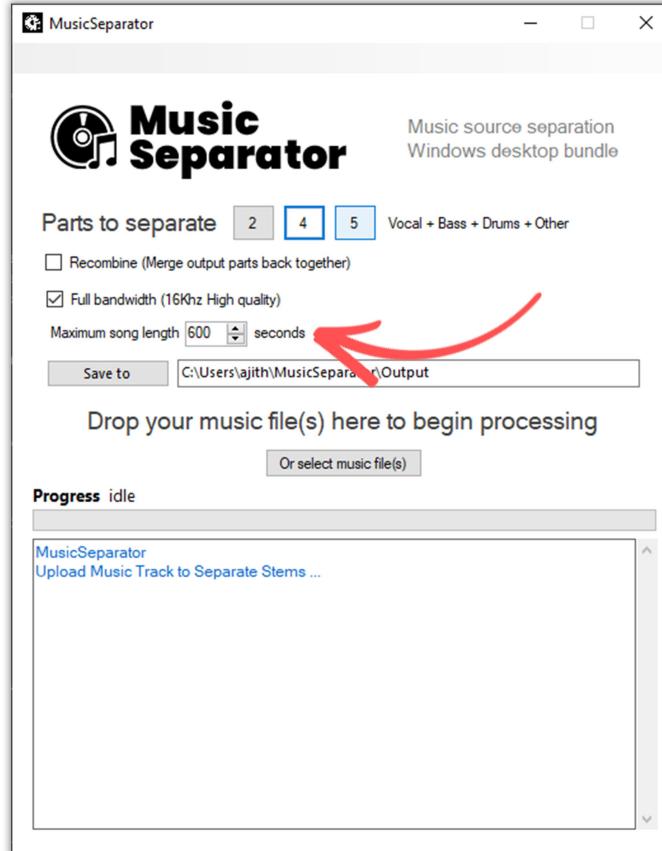


MusicSeparator



MAXIMUM SONG LENGTH

MusicSeparator



**MAXIMUM SONG LENGTH IS
A OPTION TO ADJUST THE LENGTH
OF THE AUDIO TRACK.
600 SECONDS (10 MINUTES)
IS A DEFAULT SONG LENGTH.**

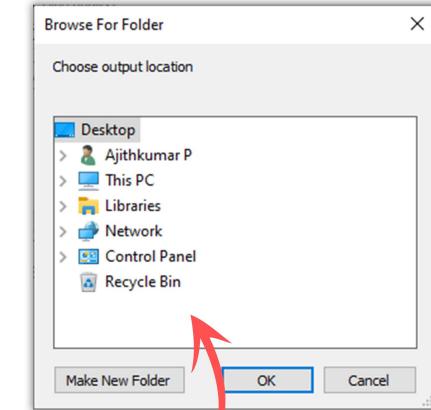
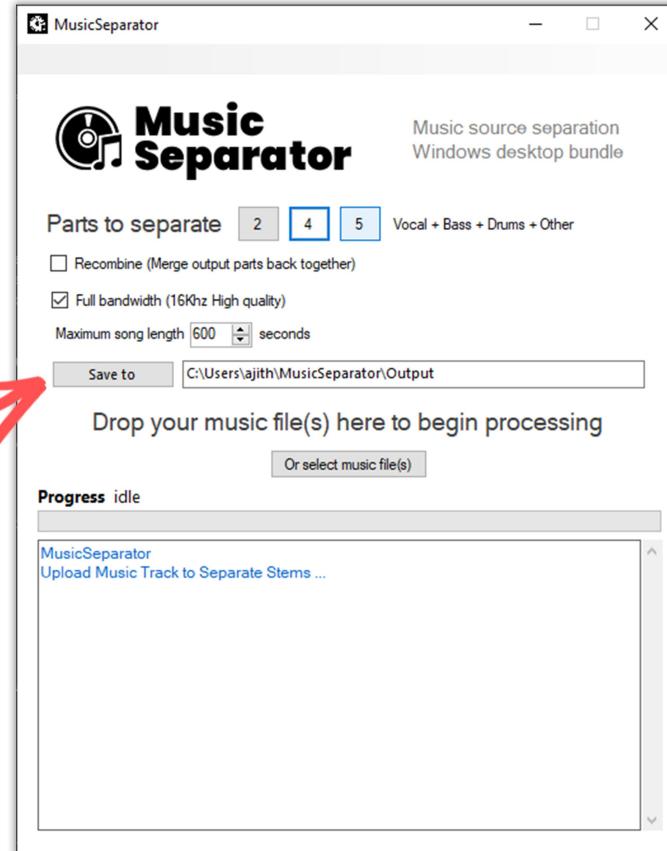
MusicSeparator



SAVE TO

MusicSeparator

SAVE TO IS A OPTION TO SAVE THE OUTPUT IN THE PATH (USER GIVEN).



WHEN CLICK THE *SAVE TO* IT WILL OPEN A *DIALOGUE BOX* THERE WE CHOOSE THE DIRECTORY AND SAVE THE OUTPUT.

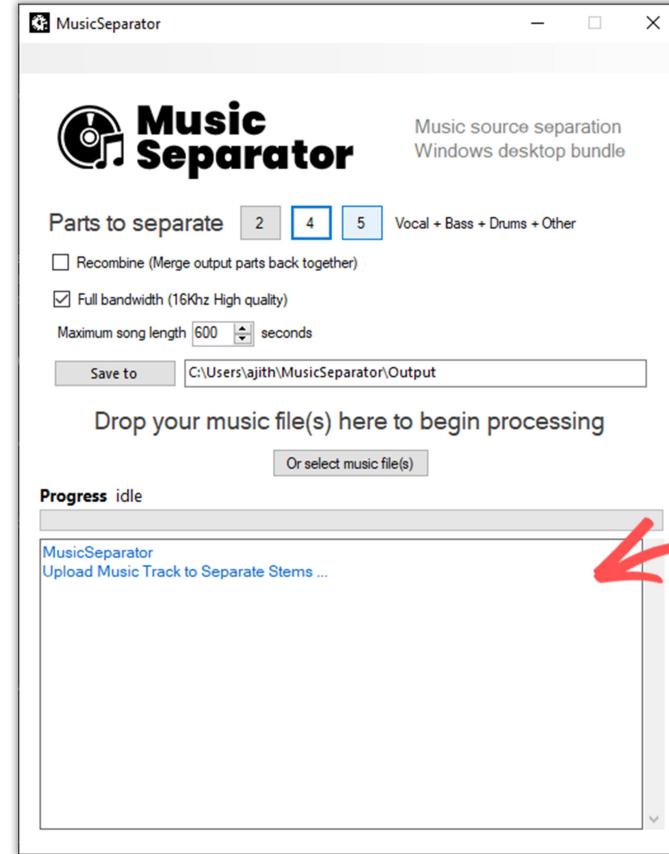
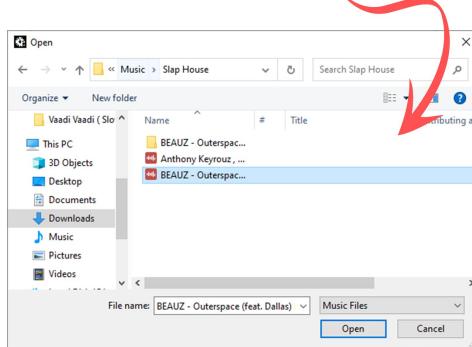
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MusicSeparator

UPLOAD

**USER CAN *UPLOAD THE MUSIC FILE*
BY IN *TWO WAYS.***
**BY CLICKING *SELECT MUSIC FILE*
AND CHOOSE THE FILE FROM
THE DRIVE.**



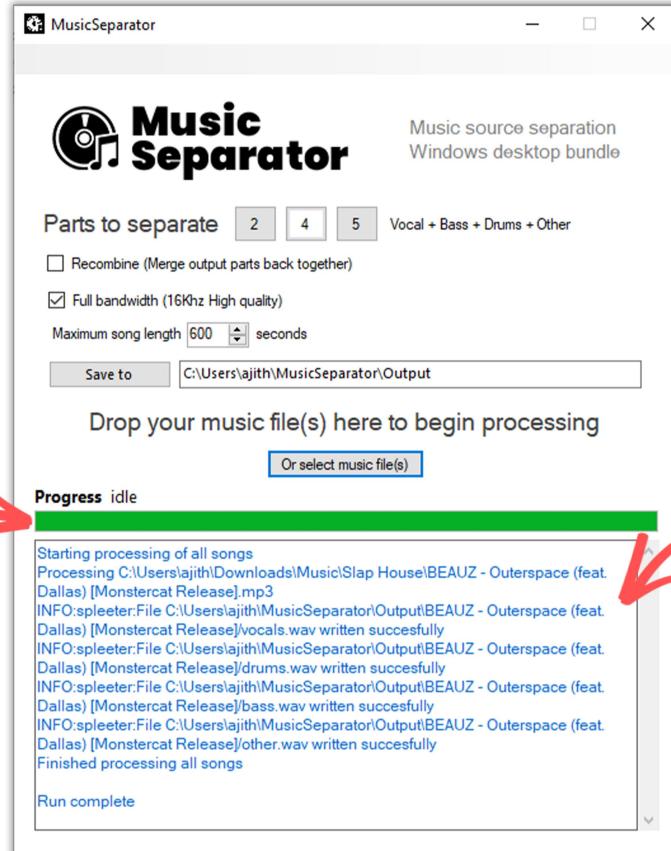
**OR *DRAG & DROP THE MUSIC FILE*
INTO THE APPLICATION.**

MusicSeparator



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PROGRESS



**SHOWS THE PROGRESS OF
THE PROCESS**



**SHOWS THE STATUS OF
THE PROCESS**

MusicSeparator



MusicSeparator

OUTPUT

BEAUZ - Outerspace (feat. Dallas) [Monstercat Release]

Share View

📁 << Users > ajith > MusicSeparator > Output > BEAUZ - Outerspace (feat. Dallas) [Monstercat Release] ⏺ ⏴

Name	#	Title	Contributing artists	Album
bass				
drums				
other				
vocals				



THE OUTPUT RESULTS IN THE GIVEN DIRECTORY PATH.



MusicSeparator



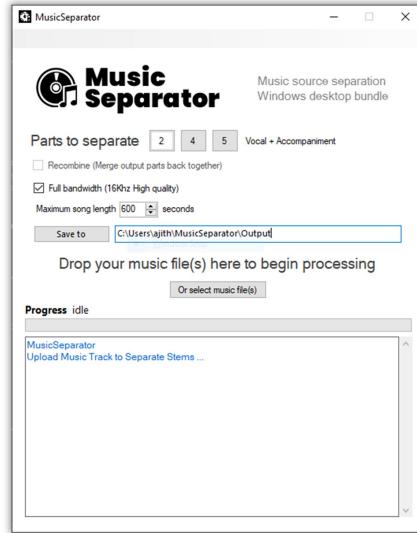
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 MusicSeparator



MusicSeparator

FUTURE AIM



Our Future goal is to develop an Web Application and Native Application (Android,ios) for this Application (MusicSeparator).

MusicSeparator

THANK YOU



MusicSeparator