zTimbreTool 0.1.1 Development Report

# To-Do List

|  |  |  |
| --- | --- | --- |
| Date | Task | Done? |
| 3/11/2020 | Find variable stored at 0x18 – why is it not allocated? | n |

# Runtime Errors

## Menu Section 3: User Chooses New File

### Error List

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Error ID | File | Code | Error | File where Error Appears | Line where Error Appears | Explanation | Notes |
| 3.1 | Clip.cpp | audioBuffer->setSize(\*numChannels, \*numSamples); | Thread 4: EXC\_BAD\_ACCESS (code=1, address=0x4) | juce\_AuidosampleBuffer.h | **if** (newNumSamples != size || newNumChannels != numChannels) | Invalid memory address. |  |
| 3.2 | juce\_FFT.cpp | Clip.cpp | Thread 4: EXC\_BAD\_INSTRUCTION (code=EXC\_I386\_INVOP, subcode=0x0)  **TimbreTool\_0\_1\_1(51700,0x700007c3f000) malloc: Incorrect checksum for freed object 0x104b051a0: probably modified after being freed.**  **Corrupt value: 0x3f3504f3b33bbd2e**  **TimbreTool\_0\_1\_1(51700,0x700007c3f000) malloc: \*\*\* set a breakpoint in malloc\_error\_break to debug**  TimbreTool\_0\_1\_1(51700,0x700007c3f000) malloc: Incorrect checksum for freed object 0x104b051a0: probably modified after being freed.  Corrupt value: 0x3f3504f3b33bbd2e  TimbreTool\_0\_1\_1(51700,0x700007c3f000) malloc: Incorrect checksum for freed object 0x104b051a0: probably modified after being freed.  Corrupt value: 0x3f3504f3b33bbd2e | juce\_FFT.cpp | fftSetup (vDSP\_create\_fftsetup (order, 2)), | Loop in Clip.cpp for adding frames ends before all of the frames have been created. I.e, number of frames have been calculated incorrectly. | Enable malloc scribble, malloc guard edges and guard malloc in diagnostics tab in Edit Scheme to show line w/ problem. See source 1. |
| 3.3 | Frames.cpp | Frames::Frames(**int** startSample, **int** numSamples, juce::AudioBuffer<**float**> \*&bufferToReadFrom, juce::AudioFormatReader \*formatReaderRef, juce::dsp::WindowingFunction<**float**> &clipWindowFunctionRef) : frameAudioBuffers(**new** **float**\*[formatReaderRef->numChannels]()), frameFFTBuffers(**new** **float**\*[formatReaderRef->numChannels]()), frameFFT(512) | Thread 4: EXC\_BAD\_ACCESS (code=1, address=0x12ada3004) | juce\_FFT.cpp | fftSetup (vDSP\_create\_fftsetup (order, 2)), | Size of FFT is too large. For an FFT size of 512, order should be set to 9 (2 ^ 9 = 512). Simple misunderstanding. | Changing frameFFT to a unique ptr does not fix issue |

### Valgrind Tests

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| --- | --- | --- |
| Error ID | Screenshot | Explanation |
| 3.1 | Text  Description automatically generated | Address 0x18 does not correspond to any heap blocks. It has not been allocated memory. |

# Runtime Error Solutions

## Menu Section 3: User Chooses New File

### Solutions List

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Error ID | Old Code | New Code | New Code Location | Explanation |
| 3.1 | Code not present | audioBuffer(**new** juce::AudioBuffer<**float**>()) | Initialisation list for Clip::Clip | Memory for AudioBuffer was not allocated |
| 3.3 | Frames::Frames(**int** startSample, **int** numSamples, juce::AudioBuffer<**float**> \*&bufferToReadFrom, juce::AudioFormatReader \*formatReaderRef, juce::dsp::WindowingFunction<**float**> &clipWindowFunctionRef) : frameAudioBuffers(**new** **float**\*[formatReaderRef->numChannels]()), frameFFTBuffers(**new** **float**\*[formatReaderRef->numChannels]()), frameFFT(512) | Frames::Frames(**int** startSample, **int** numSamples, juce::AudioBuffer<**float**> \*&bufferToReadFrom, juce::AudioFormatReader \*formatReaderRef, juce::dsp::WindowingFunction<**float**> &clipWindowFunctionRef) : frameAudioBuffers(**new** **float**\*[formatReaderRef->numChannels]()), frameFFTBuffers(**new** **float**\*[formatReaderRef->numChannels]()), frameFFT(9) | Frames.cpp | Order now generates FFT size of 512 |

### Valgrind Tests

|  |  |  |
| --- | --- | --- |
| ID | Screenshot | Explanation |
| 3.1 | Text  Description automatically generated | 0x18 is still not correctly allocated. 0x18 is not related to the AudioBuffer object. |

# Sources

1. <https://stackoverflow.com/questions/19840671/malloc-error-incorrect-checksum-for-freed-object-object-was-probably-mod/19841133> [Accessed 24 Nov. 20]