

Using smustextmidi

The SMUS-to-textmidi translator

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1 Overview

In previous epochs of the personal computer era, a variety of media formats were in use; this was certainly true of music files. Even as MIDI standard file format appeared, formats such as Simple Musical Score (SMUS) were available. Today, editors and players for SMUS files are largely defunct. As a result, a number of old SMUS score files exist and may require translation to MIDI for use.

The `smustextmidi` program translates an SMUS (IFF Simple Musical Score) music file into a text file in `textmidi` language, using the LAZY dialect. Using `smustextmidi`, it is possible to decode SMUS files into text files, which can be edited in text editors, enriched using a macro processor such as `m4`, and processed using text tools.

`textmidi` can be used to translate the `textmidi` file into a standard MIDI binary file.

Some items in SMUS files (such as the SMUS clef event) have no counterpart in MIDI standard files and are rendered as comments.

SMUS (IFF Simple Musical Score) file format was developed and published by Electronic Arts. `smustextmidi` was based on `smusmidi` for the Commodore Amiga. `smusmidi` was written to convert the SMUS files produced as a special save from Electronic Arts' *Deluxe Music Construction Set*, and `smustextmidi` also translates such files. If a file has an outer wrapper before the FORM chunk ID, `smustextmidi` will not be able to translate it.

The reason that `smustextmidi` translates SMUS files into `textmidi`'s LAZY dialect is that SMUS files encode notes as a pitch with a conventional (ratio) musical duration, and not in arbitrary numbers of delay ticks between events as in MIDI. Translation into LAZY mode using the conventional musical rhythms available in SMUS may make it easier to either edit the `textmidi` text file, or to compare it to the original as a score.

The `textmidi` language is described in the info page for `textmidi`.

1.1 What is `smustextmidi`?

The program `smustextmidi` reads an SMUS file and converts it to a text file, which is in the `textmidi` language. `smustextmidi` does not record or play over a MIDI interface. SMUS and MIDI files encode musical events in terms of notes to be played, and not the audio signal of a musical performance. This encoding makes SMUS and MIDI files very compact, perhaps around 500 bytes per second, compared to a possible 20- or 30- thousand bytes per second for a compressed audio file.

1.2 History

The original version of this program, `smusmidi`, was written for the Commodore (TM) Amiga (TM) (big-endian) personal computer no later than 1991 and released as open-source. It was used at first to convert SMUS files that had been produced by Electronic Arts' *Deluxe Music Construction Set*. `smusmidi` was ported in 2003 to run on an little-endian x86 PC and modestly improved in order to assist a music professor with some early baroque music which he had in SMUS format.

2 Invoking smustextmidi

2.1 Options

```
smustextmidi [-i|--smus] smus_input_file -o|--textmidi textmidi_output_file
[-a|--answer] [-h|--help] [-v|--version] [-V|--verbose]
[-y|--dynamics.configuration dynamics_configuration_file]
```

-h, --help

Print the options summary.

-v, --verbose

Verbose does not currently add any print-outs.

-V, --version

Print the version of smustextmidi.

-i, --smus smus_input_file

The input file: an SMUS file.

-a, --answer

If the output textmidi file already exists, ask before overwriting it.

-o, --textmidi textmidi_output_file

The output file, in textmidi text language, using LAZY dialect.

-y, --dynamics.configuration {dynamics_configuration_file}

To set the MIDI velocity values for lazy dynamics expressed with “forte”, “mf”, etc., edit a dynamics configuration file. It is in the same format as boost::program_options requires. You can see various settings for MIDI dynamics on wikipedia at the **Dynamics_(music)#Interpretation_by_notation_programs** page. It is not necessary to specify values for all of the dynamic symbols. An example file:

```
ppppp=5
pppp=10
ppp=25
pp=40
p=50
mp=62
mf=75
forte=90
ff=110
fff=120
ffff=127
fffff=127
```

2.2 Invocation Examples

The following command will read the SMUS file prelude.smus and convert it to the text-based textmidi language.

```
smustextmidi --smus prelude.smus --textmidi prelude.txt
```

3 Possible Issues

There may be an issue with tied notes. SMUS files set a tied-out bit in each note to mark it as tied out. The `smustextmidi` program does not audit whether there is a following matched note that is tied to. If a note has a tie-out flag set in the SMUS file, but no matching note to which to tie, then it may be set on and never given a corresponding NOTE-OFF, or it may be accidentally note-off'd later when the same pitch on the same channel is turned off. To address this, one may remove the tie-out mark (a dash, as in “C4-”, changed to “C4”). This can happen in a score in which some notes in a chord are tied to the next chord; the scoring program may not be capable of tie-ing just particular pitches in a chord. This description is based partly a supposition because the issue has not been fully examined.

4 Installation

This program was prepared for builds using GNU autoconf tools. Unpack the archive. Move to the directory created for the program. Run the configure script and run make.

```
./configure  
make
```

Make yourself superuser (root), or use sudo to run install targets:

```
make install  
make install-info
```

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6 Bibliography

- *The Complete MIDI 1.0 Detailed Specification*. Document version 96.1. Second edition. 1995. Los Angeles. The MIDI Manufacturers Association.
- *SMUSMIDI 1.0*. Thomas E. Janzen. Fish disk 537. Fred Fish.
- *SMUSMidi 1.0* 1996. Thomas E. Janzen. *AMINET 12*. (DVD). Schatztruhe. Stefan Ossowskis Schatztruhe. Gesellschaft fur Software mbH. Veronikastr. 33 D-45131 Essen Germany. GTI GmbH. Zimmersmuhlenweg 73 D-61440 Oberursel Germany.
- “SMUS IFF Simple Musical Score.” Hyperion Entertainment and contributors. (https://wiki.amigaos.net/wiki/SMUS_IFF_Simple_Musical_Score)
- *SMUS.H; Definitions for Simple MUSical score*. Jerry Morrison, Steve Hayes. 1986. Amiga header file for C and C++. Commodore.

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