

MakeMAUD

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REVISION HISTORY

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Chapter 1

MakeMAUD

1.1 MakeMAUD

MakeMAUD, v2.00

MakeMAUD converts a raw audio file to a MAUD data file. MAUD is the file format used by the Toccata system and replayed by ex. Play16. MakeMAUD is freeware and freely distributable. ©1996 by Sami Klemola. SH-Ware and MakeMAUD are trademarks of Sami Klemola. All Rights Reserved.

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Why is the archive called RAW3MAUD?

For long I have been very annoyed by the fact that almost everyone writing some kind of a converter will name his program "ThisToThat". This is OK, but when the "To" is changed to "2" things start to go very wrong. Apart from the fact that the preposition "to" and the numeral 2 sound a bit alike, they have absolutely nothing to do with each other and using 2 in the place of a "to" is really idiotic. Therefore, I decided to change the "To" to a 3 instead, just to show you how stupid "RAW three MAUD" looks. Just as stupid would be "RAW two MAUD". Get my point? Stop doing it!

1.2 makemaud_1

Command specification

MakeMAUD

Format: MakeMAUD <RawFile> <MAUDFile> [FREQ=FREQUENCY <Frequency>]
 [MONO] [8BIT] [SIGNED]

Template: RAWFILE/A, MAUDFILE/A, FREQ=FREQUENCY/K/N, MONO/S,
8BIT/S, SIGNED/S

Purpose: To convert a raw audio file to a MAUD data file.

Path: MakeMAUD/

Specification:

MacroSystem GmbH introduced the MAUD format for sampled audio. It is part of the Interchange File Format (IFF) scheme. MAUD audio can be replayed using the MacroSystem Toccata sound card and the supplied software. There are also programs that replay it on the standard Amiga sound hardware, for example Play16. They can replay any kind of sound stored in a MAUD file. The sampled data in a MAUD file may be 8- or 16-bit, mono or stereo, sampled at any frequency and compressed even. For more information about the MAUD format, please refer to the documentation released by MacroSystem GmbH.

MakeMAUD is a converter, that produces a MAUD file from raw data, which defaults to 16-bit stereo sound sampled at 44100 Hz (CD standard). Use the options to change the parameters. They will be written in the MAUD file, and the replay program will know what kind of audio the data chunk contains. MakeMAUD will simply write a MAUD header in the destination file and then copy the audio data from the source file, and if requested, convert each byte or swap the bytes of 16-bit sample words.

The options

- MONO Defines 1-channel sound. All data bytes or words will be output through the same channel. Otherwise stereophonic sound is assumed, and every two bytes or words are expected to be a left and right channel pair, thus being output on different channels.
- 8BIT Changes the sample resolution from 16 bits to 8 bits. Normally you would perhaps need this option, if you deal with conventional Amiga audio. However, if you digitize yourself using the Toccata sound card, the default will do for you. Reading digital data from a CD, may produce each one. Read later
more about this subject
.
- SIGNED Your raw 8-bit data is probably signed, and as MAUD defines 8-bit data to be unsigned, it must be converted. If you know this is the case, or if the output from the MAUD file has static and poor sound quality, try doing the conversion again with this option set, and it will probably go away.

IMPORTANT! The SIGNED option only works when converting 8-bit sample data. The option does something very different when converting 16-bit data. Instead of converting signed data to unsigned, it causes the bytes of each data word to be swapped. SCSIUtil outputs sample data from a CD in a manner that is incompatible with the Amiga. It has the Intel orientation of bytes, ie. the least significant byte leads. Use the SIGNED

option to swap them.

Note! The resulting MAUD file should have a "maud" extension. The Toccata software is very strict about it, and it **REQUIRES** it. To play a MAUD sound on the Toccata, you might want to try the shtp program. It is a shell based MAUD player, that uses the Toccata hardware via toccata.library to produce the sound. It will also show you the parameters of the sound, if you would like it to. The shtp accompanies MakeMAUD, and you will find it in this archive as well. You should really consider purchasing the Toccata sound card. Its sound quality is just fabulous! It plays even 8-bit sound much clearer than the Paula auntey.

Examples:

```
MakeMAUD Sound Sound.maud SIGNED
```

This will convert a sound file called "Sound" consisting of raw sample data to a MAUD file called "Sound.maud". The raw data is signed, so it will be converted to unsigned values.

```
MakeMAUD Data Data.maud MONO 8BIT
```

Converts 8-bit monophonic sound. It is assumed to be unsigned.

```
MakeMAUD Audio Audio.maud FREQUENCY 32000 8BIT
```

This is 8-bit stereophonic sound digitized at 32000 Hz. Unsigned again.

See also: `Play16,SCSIUtil`

1.3 makemaud_2

Reading audio data from a CD

This is an interesting subject, and the thing that actually started this whole project. I needed a program to produce MAUD files from raw data read from a compact disk. There are only a few compact disk drives available, that support reading digital data from audio CDs. Mainly these are a few models from Sony and Toshiba. Mine is from the latter manufacturer. It is the XM-5201TA.

The program for the job is SCSIUtil. It can do other tasks too, but this is the one of them we need here. You can read the contents of a CD-DA (compact disk - digital audio) by issuing the command:

```
SCSIUtil 6 -t
```

This assumes that your CD drive is configured as unit 6. You will see a listing that looks like this:

```
TOC len: 138
First/last track: 1, 16
#001: ADR:cur.posdt. no-pre-emphasis Dig.copy.prohb. Audio tr. 2Chan. 33
#002: ADR:cur.posdt. no-pre-emphasis Dig.copy.prohb. Audio tr. 2Chan. 9670
<...>
```

```
#006: ADR:cur.posdt. no-pre-emphasis Dig.copy.prohb. Audio tr. 2Chan. 53620
#007: ADR:cur.posdt. no-pre-emphasis Dig.copy.prohb. Audio tr. 2Chan. 65095
#008: ADR:cur.posdt. no-pre-emphasis Dig.copy.prohb. Audio tr. 2Chan. 74045
#009: ADR:cur.posdt. no-pre-emphasis Dig.copy.prohb. Audio tr. 2Chan. 82245
<...>
```

The length of the contents is 138 bytes, and the audio tracks on the disk range from 1 to 16. One line of information follows for each track ending to the starting sector of the track. It will be needed when reading the data. For more information about the TOC and related issues, look at the SCSIUtil documentation. I am using an Elvis Presley CD here, it is the "Greatest Number One Hits". You can use any CD you might have. I want to read track 7, title "All Shook Up".

The `-ds` command does the reading. It needs to be supplied with the starting sector of the data to be read and the number of sectors to be read. You can calculate this from the beginning of the next track: $74045 - 65095 = 8950$. The next value must be zero for correct sector length. The weird thing about SCSIUtil is, that in addition to not using AmigaDOS standard command line, it produces the output to `stdout`. This is common in the Unix, but NOT the way to operate on the Amiga. Anyway, redirect the output to a data file, where the raw digital audio will be written:

```
SCSIUtil 6 -ds 65095 8950 0 >data:AllShookUp.RAW
```

This will take a while, and the file produced will be over 20 megabytes in this case, and may be bigger. Wait for the data to be read from the CD. At this point, you can play the sound if you let the player know exactly what kind of a sound it is:

```
Play16 data:AllShookUp.RAW FREQ 44100 TRACKS 2 BITS 16
```

To convert the raw audio data file to MAUD format, apply this command:

```
MakeMAUD data:AllShookUp.RAW data:AllShookUp.maud SIGNED
```

And then you will no longer need to supply the player the parameters describing the sound:

```
Play16 data:AllShookUp.maud
```

This is the file produced by MakeMAUD:

```
AllShookUp.maud          21050524 ----rwd Saturday  15:56:26
```

Delete the original raw data file. You will need something like 50 megabytes or more to do this. The hard disk space required can be reduced by telling SCSIUtil to convert each 16-bit sample to an 8-bit sample. Do this by using the `-D` command instead. However, for some strange reason the weird program will not output stereo sound then. You will need to supply MakeMAUD the options `MONO` and `8BIT`. The hard disk space required will only be 25 per cent of what it was earlier.

I have some future plans in the field of digital audio. Read more about it below the

version history

chapter.

1.4 makemaud_3

Contact addresses

You may contact the author at

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or using FTN netmail

2:220/851@fidonet
39:262/1@amiganet
65:10/5@sakunet
81:4358/111@OS2-Net

or by calling the author's BBS

Star Fleet TechnoBBS running TechnoBBS 0.93 on an A3000-030/25.

1.5 makemaud_4

Version history

V1.00 9.3. First version. Only converts 16-bit stereo sound.
V2.00 12.3. Now takes in arguments to vary the parameters from that described above. Can now do mono and 8-bit too. Also will convert each sample from unsigned value if needed, and swap the bytes when converting 16-bit audio.

Future plans

I would like to improve MakeMAUD to support compression, and add code to do "resampling" or something to change the sample frequency. Some sort of a front end for all the different programs would also be a good idea. Considering the fact that SCSIUtil is a difficult program to use and very non-Amiga-like too (and needs a LOT of memory), I might write a completely new program to do the exact job of reading audio data from a CD-DA. I will then also cover more ground in the documentation on the subject. Send me mail and let me know what YOU would like.
