Guide to MUSIC V Sources: Victor Lazzarini

MUSIC V – by Max Mathews

Here you can find the sources for Max Mathews' classic MUSIC V program. Unlike all other code in this book, this was written in FORTRAN. The sources have been rescued and fixed by Bill Schottstaedt and now compile with gfortran.

Victor Lazzarini provided further additions. These include **GEN 4**, **GEN 6**, **GEN 7** and **GEN 8**, based on code from J. C. Risset's "*An Introductory Catalog of Computer Synthesized Sounds*" and a interpolating oscillator, **IOS**, used in instruments from the catalog.

Building MUSIC V

To build MUSIC V, you will need to install the gfortran compiler, which you can find at http://gcc.gnu.org/wiki/GFortran:

With this installed, just type

```
$ make
```

Running MUSIC V

MUSIC V is based on a 3-pass set of commands (which take no arguments):

1. **pass1** takes a score file named '*score*' and produce '*pass1.data*'
2. **pass2** takes a '*pass1.data*' file and produces '*pass2.data*'
3. **pass3** takes a '*pass2.data*' file and produces '*snd.raw*'

'*snd.raw*' is: **mono**, **44.1KHz**, **32-bit float** – with your system's endianess. You can open this file on editors such as **Audacity** or use the commands *tosf* and *todac* supplied in the cmusic sources to convert or play it (see the guide to cmusic sources for more info on these programs).

A script is included for convenience, to which you can pass any score file name, e.g.

```
$ ./music5.sh myscore
```

Risset's Catalog

In general, we expect that most, if not all, of Risset's catalog instruments can be run in this version of MUSIC V. However, since this version does not include some of the conversion subroutines he requires, the scores will require some editing.

In particular, oscillators in MUSIC V take a sampling increment argument instead of frequency. To convert from frequency in Hz to a sampling increment, we use the following relationship:

$$SI = \frac{f \times N}{SR} \qquad (1)$$

where SI is the sampling increment, *f* is the frequency. *N*, the table size should always be 512 (this value is hardwired into some parts of MUSIC V code) and the *SR* is set at 44100.

The 'general conversion subroutine' discussed by Risset, not present here, does this conversion as well as converting envelope durations into sampling increments (referred to as SUM in MUSIC V parlance).

To convert envelope durations, just set the frequency $f = 1/T$, where *T* is the required duration.