THE SONG FILE

A song file is prepared using the song editor. In the following description, lower case terms appearing in braces ({ }) are intended to be descriptive and are NOT to be included literally as part of the file.

General

A song file can be entered in free format. Spaces are treated as terminators, but are otherwise ignored. Multiple spaces can occur whereever a single space can occur. Horizontal tabs are treated as spaces.

A song file can be created either measure by measure or voice by voice. In either case, each measure in the file will be numbered by the editor. Measure and voice number will be displayed by the editor at the beginning of each line.

Measure by Measure Format

If the file is created measure by measure, the song is made up of a number of measures separated by "/"'s. The song is terminated by "//". E.g.,

```
{measure 1} /
{measure 2} /
{measure 3} /
{measure 4} //
```

Each measure is comprised of a number (1 to 6) of voices. Every measure of a song must contain the same number of voices, and each voice in a particular measure must be of the same total duration. Two different measures, however, need not be of the same total duration.

Voices within a measure are separated by end-of-line (carriage return - line feed). E.g.,

```
{voice 1}
{voice 2}
{voice 3} /
```

The editor will prefix each line with voice number and measure number. Thus,

```
1:1     {voice 1, measure 1}
2:1     {voice 2, measure 1} /
1:2     {voice 1, measure 2}
2:2     {voice 2, measure 2} /
1:3     {voice 1, measure 3}
2:3     {voice 2, measure 3} //
```

An ampercand ("&") at the end of a line indicates that a voice is to be continued on the following line:

```
1:1     {voice 1, measure 1} &
1:1     {rest of voice 1, measure 1}
```

Voice by Voice Format

To enter a song voice by voice, the individual voices as in measure by measure, as if eaach voice was a song of noe voice. Thus,

```
{  voice 1} //
{   voice 2} //
{voice 3   } //
```

As with measure by measure files, measures are separated by "/" and any measure must have the same total time dutation in each voice. Also as before, two different measures need not be of the same duration. Thus, measure 1 of voice 1 must be of the same duration as measure 1 of voice 2, but measure 1 need not be of the same duration as measure 2.

Each line in t he file must end with "/", "//", or "&".

Thus,

```
1:1     {voice 1, measure 1} / {voice 1, measure 2}/
1:3     {voice 1, measure 3}/ {voice 1 measure 4} //
2:1     {voice 2, measure 1} / {voice 2, measure 2} &
2:2     {voice 2, rest of measure 2} / {voice 2, measure 3} /
2:4     {voice 2, measure 4} //
```

Notes and Control

Voices are made up of notes to be played and control information. Notes are always keyed in lower case; control information in upper case.

Key Signatures

The key signature indicates which notes are to be sharped or flatted. Format is

(KEY {key signature})

The key signature itself can be given by name or by
explicitly indicating sharps and flats. Named signatures are:

MAJOR: C, G, D, A, E, B, F#, C#, F, Bb, Eb, Ab, DB, GB, Cb;

MINOR: A, E, B, F#, C#, G#, D#, A#, D, G, C, F, Bb, Eb, Ab.

To name a key signature or to explicitly state which notes are
to be sharped or flated, note letters "A" - "G" optionally follow-
ed by "S" (sharp) or "F" (flat) are used. For example, A major
can be written as

    (KEY A MAJOR)

or by explicitly naming sharped notes:

    (KEY FS CS GS).

Similarly, Eb minor can be written as

    (KEY EF MINOR)

or by explicitly naming flated notes:

    (KEY BF EF AF)

Non-standard key signatures can be given by explicitly indicating
which notes are to be sharped or flatted:

    (KEY EF BF FS)

A key signature can be given at the beginning of any measure
in the song file, and it has effect from that point until the next
key signature appears.

If the song is entered voice by voice, the key signature

does not apply to voices preceding the one in which it appears.
Thus, "(KEY FS)" appearing in measure 3 of voice 2 will cause
all F's to be sharped from measure 3 on in voices 2, 3, etc.,
but will not affect voice 1. Thus, the key signature should
normally appear at the start os a measure in voice 1.

If no key signature is given, C major (or A minor) is
assumed.

Notes

A note is defined by duration and pitch. Duration indicates
the length of itme a note is to be played. Durations available
are:

    1. , 1 , 2. , 2 , 4. , 4 , 8. , 8 , 16. , 16 , 32. ,
    32 , 64. , 64.

representing dotted whole, whole, dotted half, Half, etc.
If the duration is omitted when writing a note (or rest), the
note is assumed to have the same duration of the preceding note
or rest in the same voice. This holds true even across measure
boundaries.

The pitch of a note is given by note letter ("a" through "g")
optionally followed by an accidental mark ("f", "s", or "n",
indicating flat, shartp, or natural), and an octave. An octave
is indicated by a digit in the range 1 through 8. "1" represents
the lowest octave available, with "a1" cprresponding to the lowest
A onthe piano keyboard. Thus, "c4" is middle C, etc.

As in standard notaion, an accidental applies to every
succeeding instance of the note in the same octave for the
remainder of the measure (unless offset by another actidental).

The octave of a note can be given in three ways: explicit,
implied, or relative.

explicit octave --

The octave of a note can be explicitly given by following
the note with one of the digits "1" through "8"; e.g.,
"a1", "c4", "fs3"(third F sharp on the piano), "bf5"
(fifth F flat), etc.

implied octave --

If the octave of a note is not explicitly specified, the
note is assumed to be within a fourth above or a fourth
below the preceding note in the same voice. This holds
true across measures and across rests. For example,
following a "c4" any of the notes "c4", "d4", "e4", "f4",
"b4", "a4", or "g3" can be written without explicitly
specifying the octave.

relative octave --

A note that is in the octave beginning a fifth above the
preceding note of the voice can be indicated by following
the note letter by a "+". Immediately following "c4"
for instance, "g4" can be written as "g+"; "a5" can
be written as "a+"; etc. Additional octaves can
be reached relatively by using several "+" 's. Thus,
following "c4", "g++" denotes "g5"; "a++" denotes "a6"; etc.
A note that is in the octave ending a fifth below the pre-
ceding note of the voice can be indicated by following
the note letter with a "-". As with "+", x several
"-" 's can be used to get to lower octaves.

~~No spaces can be included when writing a duration, note~~

~~letter, accidental mark and~~

n	default m
2	3 (duplet)
3	2 (triplet)
4	3
greater than 4	4

Tied Notes

Notes of identical pitch can be tied by connecting them with a caret (^) or up-arrow. Notes following a tie are indicated by giving their duration only. (NOTE: Is this a good rule? :ETON) E.g.,

2f4^4^4^8

denotes the following:

When tying across a measure, into a plet, or out of a plet, append the caret to the first note. E.g., in this measure

```
2b5 a^
4c4 d 2e
1b3^/
```

the first and third voices end with notes tied to notes in the next measure. In the following,

4c4^(3 4 d e^) 4

the quarter note "4c4" is tied to the first note of the triplet, and the "e" in the triplet is tied to the quarter note that follwos.

Repeats

A section of a song can be repeated by using the notation

        REPEAT {n} THROUGH {m}

or

        REPEAT {n}

in place of a measure body. In the first case, measures n
through m will be repeated. In the second case, measure n
will be repeated. Measures n and m must already have been entered.
If this notation is used in a measure by measure file, it
refers to repetition of all voices. If it occurs in a voice by
voice file, it refers only to the voice in which it occurs.

    Note that this only replaces a measure body; the measure
separators must still appear; e.g.,

```
                .
                .
                .
    4:15    {voice 4, measure 15} /
    1:16    REPEAT 1 THROUGH 12   /
    1:28    {voice 1, measure 28}
                .
                .
                .
```

    Also note that the repetition refers to the generated
music, not the notation of the song file. Thus the context
in which a REPEAT occurs has no effect on which notes are played.
(I.e., a REPEAT is not a macro that causes the notation of the
original repeated measures to be reinterpreted in the context of
the repeat.)

Dynamics

The following dynamic markings are available, with the
obvious meanings:

PPP,PP,P,MP,MF,F,FF,FFF

The default value is MF. A dynamic mark is in effect until
the occurance of another dynamic mark. In measure by measure
files, a dynamic mark ~~mustxapps~~ appearing in a voice applies
to that voice and all following voices. (E.g., an "FF" appearing
in voice 2 applies to voice 2, 3, etc., but not to voice 1.)
In voice by voice fiels, a dynamic mark applies only to
the voice in which it occurs. In measure by measure fiels,
it is possible to restrict a dynamic mark to a single voice by
preceding the mark with the notation ~~XTXISXYSXSEXEXXXXX~~

THIS VOICE:

The eight dynamic levels are equally spaced on the prevailing
loudness scale. Maximum and minimum loudness (represented by
FFF and PPP) are determined at performance time.

Crescendos and decrescendos

The beginning of a crescendo is indicated by the symbol "$<$".
The end of a crescendo is indicated by the next dynamic mark.
The crescendo causes an even increse in loudness from the
prevailing level at the start to the level indicated at the end.
For instance,

... P $<$ ... F P ...

indicates a crescendo from P to F, and an immediate return to P.

Decrescendo is indicated by the symbol "$>$". The mechanism
is similar to that mentioned above for crescendo.

The loudness level indicated for the end of a crescendo must be higher than for the beginning of the crescendo. Similarly, the level for the end of a decrecendo must be lower than for the beginning.

As with dynamics marks, crescendo and decrescendo markings refer only to the voice in which they occur in a voice by voice file. In a measure by measure file, they refer to the voice in which they occur and to all following voices, unless preceded by "THIS VOICE:". Note: the notation "THIS VOICE:" refers to any control markings following it and before the next note. For instance, in the following

... THIS VOICE: P <{ some notes} F ...

the piano marking and the crescendo refer only to the voice in which they occur, while the forte marking refers to any following voiceses as well. In this, however,

... THIS VOICE: P <{ some notes} THIS VOICE: F ...

all of the indicated markings refer only to the voice in which they occur.

Accents

A note can be accented by folloing it with the symbol " ' ". An accent caused the note to be played at the next higer loudness level. For example, in

...P ... c4' ... ,

the "c4" will be played mezzopiano (MP). Notes cannot be accented at the level FFF.

A prevailing accent pattern can be established by the
following notation:

(ACCENT { beat pattern })

This notation must occur at the start of a measure, and describes
the accent pattern until another pattern is encountered.
"beat pattern" is a sequence of durations describing where
accents are to be placed in a measure. For instance, a three four=
rhythm can be described by

(ACCENT 4' 4 4)

or equivalently

(ACCENT 4' 2).

A four four rhythm might be accented as

(ACCENT 4' 4 4' 4) .

The following would then remove the above accents:

(ACCENT 1).

Note that the ACCENT notation simply gives the relative
position in a measure of the start of a note that is to be accent-
ed. Thus, "(ACCENT 4' 4 4' 4)" indicates that the note at the
start of the measure is to be accented (whether or not it is
a quarter), and a note that begins two quarters after the start
of the measure is to be accented. The notation "(ACCENT 2' 2')"
or even "(ACCENT 2' 8')" would accomplish the same result.

If tkx a measure were encountered that was shorter than a
half note long, or had no note beginning "a half note into
the measure," there would be only one accent; e.g., this measure

4c4 2d 4e

would have only one accent with the xbxxxx prevailing accent
"(ACCENT 4' 4 4' 4)". (i.e., the 4c4).

Accents given by appending " ' " to a note are in addition
to any prevailing accent.

The rules for accents with respect to the voices to which they
apply are the same as with dynamic marks: in fx voice by voice files,
they apply only to the voice in which they appear.; in measure
by measure files, they apply to the voice in which they appear
and to all following voices. In measure by measure fieb,
the notation "THIS VOICE:" can precede "(ACCENT ...)" with
the obvious effect.

Tempo

All tempo settings must be given in the first voice and refeer
to all voices in the song. It is not possible to have diff\ent
tempo setting for different voices.

The tempo can be set by the notation

MM {duration} = {beats per minuite}

For example,

MM 4 = 60

sets the tempo to 60 quarter notes per minuite. (Tempo can
also be controlled at perform time; thus, the tempo being set
here is actually a relative tempo.)

~~The Setting of Tempo with rit and a tempo~~

The notation "RIT TO {beats per minuite}" will cause a
gradual linear retardation to the indicated tempo. This tempo
must be slower than the tempo in effect at the retard. The end
of the retard is indicated by either the notation "A TEMPO", which
causes a return to the tempo before the retard, or by an explicit
tempo setting. The tempo must have been explicitly set before
a retard can be done. E.g.,

MM 4 = 120 ... RIT TO 60 ... A TEMPO ...