REPRESENTATION

****MIDI** — Musical Instrument Digital Interface notation

DESCRIPTION

The ****MIDI** representation is a Humdrum version of the well-known MIDI standard. MIDI is an industry standard used to exchange information between sound synthesizers. MIDI is also used in various software applications such as some music printing software. MIDI is a type of "tablature" notation. It describes a set of performance actions rather than specifying the sounded result. MIDI represents note-on, note-off, information, for various "channels." MIDI events include note-on, note-off, key-velocity, after-touch, control codes, and system-exclusive codes. MIDI does not represent many other musically-pertinent signifiers, such as ties, slurs, phrasings, ornaments, etc. MIDI does not represent rests.

FILE TYPE

It is recommended that files containing predominantly `**MIDI` data should be given names with the distinguishing '.hmd' extension.

SIGNIFIERS

The following table summarizes the ****MIDI** mappings of signifiers and signifieds.

0-9	decimal values
/	value delimiter
=	barline; == double barline
–	note off

Summary of ****MIDI** *Signifiers*

EXAMPLES

A sample document is given below:

```
!! C-major scale.
**MIDI
*Ch8
72/60/64
72/-60/64 72/62/64
36/-62/64 36/64/64
36/-64/64 36/65/64
36/-65/64 36/67/64
36/-67/64 36/69/64
36/-69/64 36/71/64
36/-71/64 36/72/64
72/-72/64
*-
```

Each ****MIDI** data token consist of three elements or components. Each element is an integer value; elements within a data token are delimited by the slash character (/).

The first element in a data token represents the number of clock ticks (since the previous event) before the event is to occur. The absolute duration of a single clock tick is determined by the MIDI clock speed, which is variable.

The second element in a data token represents the MIDI key number — that is, the address of the key event. Key events can be either *key-on* or *key-off*. Key-on events are represented by positive integers, whereas key-off events are represented by negative integers. For example, -60 means to turn-off key 60.

The third element in a data token represents the MIDI key-velocity value. MIDI instruments normally interpret key-velocity as dynamic or accent information. Higher key-velocity values are associated with accented notes. Permissible key-velocity values range between 0 and 127. encodings. In the case of key-off events, the key-velocity component represents the after-touch.

Note that the key-velocity component of a data token is optional and need not appear. However, both the clock-tick value and the key-event values must be present in each ****MIDI** data token.

Barlines are represented using the "common system" for barlines — see **barlines (2).**

PERTINENT COMMANDS

The following Humdrum commands accept ****MIDI** encoded data as inputs:

cents	translates ****MIDI** to ****cents**
fade	fade-in or fade-out ****MIDI** data

freq	translates ****MIDI** to ****freq**
kern	translates ****MIDI** to ****kern**
perform	play Humdrum ****MIDI** files
pitch	translates ****MIDI** to ****pitch**
semits	translates ****MIDI** to ****semits**
smf	generate standard MIDI file
solfg	translates ****MIDI** to ****solfg**
tonh	translates ****MIDI** to ****Tonh**

The following Humdrum commands produce ****MIDI** data as outputs:

midi	produces ****MIDI** output from ****kern** input
record	records ****MIDI** data from a MIDI input

TANDEM INTERPRETATIONS

The following tandem interpretations can be used in conjunction with ****MIDI**:

MIDI channel	`*Ch1`
meter signatures	`*M6/8`
key signatures	`*k[f#c#]`
key	`*c#:`
tempo	`*MM96.3`

Tandem interpretations for ****MIDI**

SEE ALSO

barlines (2), ****cents** (2), ****freq** (2), ****kern** (2), ****pitch** (2), ****semits** (2), ****specC** (2), ****Tonh** (2)