

MIDI File Grammar, byte-by-byte (Twinkle, twinkle little star....)

Music 253/CS 275B Stanford University

Eleanor Selfridge-Field (1998)

Header Chunk:

HEX	ASCII	MEANING
4d	M	)Header ID
54	T)
68	h)
64	d)
00		)Header size = 6 (bytes): look for them below
00)
00)
06)
00		)File format = Type 0 (one track only)
00)
00		)No. of track channels =10 (redundant with Type 0 file format)
01)
00		)No. of bytes to follow =128
80	128)

Track chunk:

4d	M	)Track ID
54	T)
72	r)
6b	k)
00		)Track size = 140 bytes (in track chunk)
00)
00)
8c	140)
00		delta time = 0
ff	255	event-type = meta-event
58	88	time signature type = "88" = 4/4
04	4	no. of bytes to follow = 4
04	4	)numerator = 4
02	2	)denominator = 2 raised to power 2
30	48	no. of clicks per quarter note = 48 (tempo)
08	8	no. of 32nd notes per quarter-note = 8 (smallest note denomination)

00	delta time = 0
ff	event-type= meta-event
59	) event type: key signature
02	) no of bytes to follow = 2
00	no sharps/no flats
00	major mode

Data chunk:

00	delta time=0
90	status: note on
3c	key no.: 60
28	velocity (dynamic-level): 40
81	delta time: 128 [the last note was on for 128 ticks]
00	
90	status: note on
3c	key no.: 60
00	velocity: 0 (i.e., note is “on” but not sounding)
00	delta time = 0
90	status: note on
3c	key no.: 60
1e	velocity: 30
81	delta time: 128
00	
90	status: note on
3c	key no: 60
00	velocity: 0
00	delta time = 0
90	status: note on
43	key no: 67
2d	velocity: 45
81	delta time: 128
00	
90	status: note on
43	key no.: 67
00	velocity: 0
00	delta time = 0

90	status: note on	
43	key no: 67	G4
2d	velocity: 45	
81	delta time: 128	
00		
90	status: note on	
43	key no.: 67	
00	velocity: 0	
00	delta time = 0	
90	status: note on	
45	key no.: 69	A4
2d	velocity: 45	
81	delta time: 128	
00		
90	status: note on	
45	key no.: 69	
00	velocity: 0 [note off]	
00	delta time: 0	
90	status: note on	
45	key no.: 45	A4
32	velocity: 50	
81	delta time: 128	
00		
90	status: note on	
45	key no.: 45	
00	velocity: 0	
00	delta time: 0	
90	status: note on	
43	key no.: 67	G4
23	velocity: 35	
82	delta time: 128 [see other handout]	
00		
90	status: note on	
43	key no.: 67	
00	velocity: 0 [note off]	
00	delta time: 0	

90	status: note on	
41	key no.: 65	F4
32	velocity: 50	
81	delta time: 128	
00		
90	status: note on	
41	key no.: 65	
00	velocity: 0 [note off]	
00	delta time: 0	
90	status: note on	
41	key no.: 65	F4
2d	velocity: 46	
81	delta time: 128	
00		
90	status: note on	
41	key no.: 65	
00	velocity: 0 [note off]	
00	delta time: 0	
90	status: note on	
40	key no.: 64	E4
32	velocity: 50	
40	delta time: 64	
90	status: note on	
40	key no.: 64	
00	velocity: 0 [note off]	
40	delta time: 64	
90	status: note on	
40	key no.: 64	E4
28	velocity: 40	
40	delta time: 64	
90	status: note on	
40	key no.: 64	
00	velocity: 0 [note off]	
40	delta time: 64	
90	status: note on	
3e	key no.: 62	D4

2d	velocity: 45	
40	delta time: 64	
90	status: note on	
3e	key no.: 62	
00	velocity: 0 [note off]	
40	delta time: 64	
90	status: note on	
3e	key no.: 62	D4
32	velocity: 50	
40	delta time: 64	
90	status: note on	
3e	key no.: 62	
00	velocity: 0 [note off]	
40	delta time: 64	
90	status: note on	
3c	key no.: 60	C4
1e	velocity: 30	
82	delta time: 256	
00		
90	status: note on	
3c	key no.: 60	
00	velocity: 0 [note off]	
00	delta time: 0	

End-of-track (file) marker:

ff	Event-type: meta-event
2f	End-of-track
00	No further info