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

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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
                          )Track ID
        M
54
        T
                          )
72
                          )
        r
6b
        k
                          )Track size = 140 bytes (in track chunk)
00
00
                          )
00
8c
         140
00
                          delta time = 0
ff
         255
                          event-type = meta-event
                          time signature type = "88" = 4/4
58
          88
04
           4
                          no. of bytes to follow = 4
           4
04
                          )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	
00	-4-4	
90 3c	status: note on key no.: 60	C4
28	velocity (dynamic-level): 40	C4
20	velocity (dynamic-level). 40	
81	delta time: 128 [the last note was on for 128 ticks]	
00	delta diffe. 120 [the last note was on for 126 tieks]	
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	C4
1e	velocity: 30	
0.1	1-14-4:	
81 00	delta time: 128	
00		
90	status: note on	
3c	key no: 60	
00	velocity: 0	
	, 510 510, 10	
00	delta time = 0	
90	status: note on	
43	key no: 67	G4
2d	velocity: 45	
81	delta time: 128	
00		
0.0		
90	status: note on	
43	key no.: 67	
00	velocity: 0	
00	delta time = 0	
00	uena mne – u	

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

90 41	status: note on key no: 65	F4
32	velocity: 50	
81 00	delta time: 128	
90	status: note on	
41 00	key no.: 65 velocity: 0 [note off]	
00	delta time: 0	
	della time.	
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	
90 40	status: note on key no.: 64	
90 40 00	status: note on key no.: 64 velocity: 0 [note off]	
40	key no.: 64	
40 00 40	key no.: 64 velocity: 0 [note off] delta time: 64	
40 00 40 90	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on	E4
40 00 40 90 40	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64	E4
40 00 40 90 40 28	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64 velocity: 40	E4
40 00 40 90 40	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64	E4
40 00 40 90 40 28	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64 velocity: 40	E4
40 00 40 90 40 28 40 90 40	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64 velocity: 40 delta time: 64 status: note on key no.: 64	E4
40 00 40 90 40 28 40	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64 velocity: 40 delta time: 64 status: note on	E4
40 00 40 90 40 28 40 90 40	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64 velocity: 40 delta time: 64 status: note on key no.: 64	E4
40 00 40 90 40 28 40 90 40 00 40	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64 velocity: 40 delta time: 64 status: note on key no.: 64 velocity: 0 [note off] delta time: 64	E4
40 00 40 90 40 28 40 90 40 00	key no.: 64 velocity: 0 [note off] delta time: 64 status: note on key no.: 64 velocity: 40 delta time: 64 status: note on key no.: 64 velocity: 0 [note off]	E4

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