Infrared Data Association
Specifications for Ir Mobile Communications (IrMC)

iMelody

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1. Overview

The iMelody format is a minimal set of tones that can be used to transfer melodies between devices. The definition can be extended by defining new formats for MIDI/WAV, DTMF, polyphonic etc. The FORMAT field is mandatory, as it is used to specify the format of the following data.

In all cases, a letter designating a note, style, volume, etc will precede a number.

Example applications include ring tones, alarm tones and power-on melodies.

2. BNF Definition

<imelody-object>::=
"BEGIN:IMELODY"<cr><line-feed>
"VERSION:"<version><cr><line-feed>
"FORMAT:"<format><cr><line-feed>
 ["NAME:"<characters-not-lf><cr><line-feed>]
["COMPOSER:"<characters-not-lf><cr><line-feed>]
["BEAT:"<beat><cr><line-feed>]
["STYLE:"<style><cr><line-feed>]
["VOLUME:"<volume><cr><line-feed>]
"MELODY:"<melody><cr><line-feed>
"END:IMELODY"<cr><line-feed>

<version>::="1.2"
<format>::"CLASS1.0" | " CLASS2.0"
<beat>::="25" | "26" | "27" | ... | "899" | "900"
<style>::= "S0" | "S1" | "S2"
<volume-modifier>::="V+"|"V-"   (changes volume + or – from current volume)
<volume>::="V0" | "V1" | ... | "V15" |<volume-modifier>
<basic-note>::="c" | "d" | "e" | "f" | "g" | "a" | "b"
<ess-note >::="&d" | "&e" | "&g" | "&a" | "&b"   (flat notes)
<iss-note >::="#c" | "#d" | "#f" | "#g" | "#a"   (sharp notes)
<basic-ess-iss- note >::=<basic-note> | <ess-note> | <iss-note>
<octave-prefix>::="*0" | "*1" | … | "*8"   (A=55Hz) | (A=110Hz) | … | (A=14080 Hz)
<duration>::="0" | "1" | "2" | "3" | "4" | "5"
<duration-specifier>::="." | ":" | ";"
<rest>::="r"
<led>::="ledoff" | "ledon"
<vibe>::="vibeon" | "vibeoff"
<backlight>::="backon" | "backoff"
<note>::=[<octave-prefix>]<basic-ess-iss-note><duration>[<duration-specifier]
<silence>::=<rest ><duration>[<duration-specifier]
<repeat>::= "("{<silence>|<note>|<led>|<vib>|volume|<backlight>}+"@"<repeat-count>[<volume-modifier>]")"
<repeat-count>::="0" | "1" | "2" | …   (0 is repeat forever)
<melody>::={<silence>|<note>|<led>|<vib>|<repeat>|<volume>|<backlight>}+
<characters-not-lf >::= 'Any character in the ASCII character-set except *<line-feed>*.'

Note : no <repeat> block within <repeat> block!(The repeat blocks cannot be nested in this simple CLASS1.0 definition)
Default octave-prefix is *4. I,e, A=880Hz
The volume can optionally be adjusted up, or down, within a repeat block, by including a V+/V- character anywhere within the repeat block. i.e (#d1r3d2e2@3V+).
The volume changes within a repeat loop continue after the loop is exited.
The default character set is UTF-8.
The file extension is imy. For example "ringring.imy"
The field name (text before the colon) is not case sensitive.
The field value (text after the colon) is case sensitive.

A maximum length for the melody has not been defined. For interoperability, the length should be kept as short as possible. Receiving devices must be able to truncate iMelody messages longer than the device's allocated receiving buffer.

The beat is a decimal representation of the tempo in beats per minute. i.e. a bpm of 63 gives a length of a ¼ note as 0.95 sec. The beat rate has been restricted to values between 25bpm and 900bpm, to place realistic requirements on the receiving device. A default value of 120 bpm should be used if a beat is not specified.

Lines of text in the iMelody, SHOULD NOT be longer than 75 octets, excluding the line break. Long content lines SHOULD be split into a multiple line representations, using a line *folding* technique. That is, a long line can be split between any two characters, by inserting a CRLF immediately followed by a single linear white space character (i.e., SPACE, US-ASCII decimal 32 or HTAB, US-ASCII decimal 9).

Duration

Value	Duration
0	Full-note
1	1/2-note
2	1/4-note
3	1/8-note
4	1/16-note
5	1/32-note

Duration Specifier

Symbol	Duration
	No special duration
.	Dotted note
:	Double dotted note
;	2/3 length

Style

Value	Style	Ratio of note to rest period
S0	Natural Style (rest between notes), default	20:1
S1	Continuous Style (no rest between notes)	No rest
S2	Staccato Style (shorter notes and longer rest period)	1:1

Volume

iMelody V1.2 Approved

Value	Volume
V0	tone-off
V1	level-1
V2	level-2
V3	level-3
V4	level-4
V5	level-5
V6	level-6
V7	level-7, default
V8	level-8
V9	level-9
V10	level-10
V11	level-11
V12	level-12
V13	level-13
V14	level-14
V15	level-15

3. Example of a "CLASS1.0" iMelody object

BEGIN:IMELODY VERSION:1.2 FORMAT:CLASS1.0	Required Header Info
NAME:Melody1 COMPOSER:Moz art	Optional Header info
BEAT:120 STYLE:S1 VOLUME:V7	Optional iMelody modifiers
MELODY:V7&b2#c3V-c2*4g3d3V+#d1r3d2e2:d1V+f2f3.	Required iMelody
END:IMELODY	Required footer info

Note that in the V1.0 of the iMelody specification, the example omitted the letter V in the VOLUME modifier and S in the STYLE. Implementations should be capable of receiving the volume with, and without the letter V. Implementations should transmit with the letter V. Similarly implementations should be capable of receiving the style with, and without the letter S, but always send with an S.