Twiddler.cfg Version 5 Binary File Format

Overview

Header, Chord Table, String Location Table, String Contents Table

Header

Length (bytes): 16

Header Structure   **Example**

# Bytes	Field	Value	Note
1	Config Format Version	0x05	Version 5
1	Options (boolean flags) [0] Enable Key Repeat, 0=Off, 1=On [1] Enable Direct Key Mode, 0=Off, 1=On [2] Joystick Mouse Click, 0=Right-Click, 1=Left-Click [3] Disable Bluetooth Radio, 0=Enabled, 1=Disabled [4] Enable Stick Num Key, 0=Off, 1=On [5] 0 [6] 0 [7] Enable Stick Shift Key, 0=Off, 1=On	0x05	
2	Number of Chords in Chord Table (max 1020) *	0x0079	121 chords
2	Sleep Timeout *	0x05DC	1500 seconds
2	Mouse Left-Click or Chord Mapping Use 0x0000 to activate Mouse Click action. Other values follow the Chord Mapping syntax.	0x0000	
2	Mouse Right-Click or Chord Mapping Use 0x0000 to activate Mouse Click action. Other values follow the Chord Mapping syntax.	0x0000	
2	Mouse Middle-Click or Chord Mapping Use 0x0000 to activate Mouse Click action. Other values follow the Chord Mapping syntax.	0x0000	
1	Mouse Acceleration Factor	0x0A	
1	Key Repeat Delay	0x64	recommended
2	Reserved	0x0000	

Chord Table

List of Chords, each record is 4-bytes, containing the Chord Representation and Chord Mapping
Records sorted in ascending order of Chord Representation value
Length (bytes): 4 * # of chords in Chord Table (see Header)
Located immediately following the Header

Chord Representation Bitmasks (2-bytes)

Bit	Button
0	NUM button
4	ALT button
8	CTRL button
12	SHFT button
1	A button
2	E button
3	SP button
5	B button
6	F button
7	DEL button
9	C button

HID Modifier Bitmasks (1-byte)

Bit	Button
0	Left Ctrl
1	Left Shift
2	Left Alt
3	Left GUI
4	Right Ctrl
5	Right Shift
6	Right Alt
7	Right GUI

10	G button
11	BS button
13	D button
14	H button
15	ENT button

Chord Mapping (2-byte)

Byte	Single Keycode	String (Multiple Keycodes)
LSB	HID modifier byte	0xFF
MSB	HID key code	0-based index to record in String Location Table

Chord Table Record Structure

Example

# Bytes	Field		Value	Note
2	Chord Representation *		0x0002	O OOLO
2	Chord Mapping		0x00	no modifiers
			0x04	'a'

			Value	Note
			0x0220	O ORRO
			0xFF	(String)
			0x00	(String Index 0)

			Value	Note
			0x0280	O OMOL
			0x20	SHIFT
			0x21	'#' (shifted '3')

			Value	Note
			0x0420	S ORMO
			0xFF	(String)
			0x01	(String Index 1)

			Value	Note
			0x4044	O MMOM
			0x00	no modifiers
			0x2B	TAB

String Location Table

Lookup Table for Location of String
Max 256 records, 4 bytes per record
Length (bytes): 0 to 1024
Located immediately following the Chord Table

String Location Table Record Structure   **Example**

# Bytes	Field		Value	Note
4	Location of String index [i] *		0x00000220	String [0]
			0x0000022A	String [1]

String Contents Table

Variable-length records
2-byte prefix representing the length of the record, followed by 'n' Chord Mappings.
Chord mappings here must be single characters, not indexes to other strings.
Located immediately following the String Location Map

String Contents Table Record Structure   **Example**

# Bytes	Field		Value	Note
2	Number of bytes in this String record, little endian.		0x000A	10-byte record
	Length includes this Field, plus 2*n (n= number of characters)		0x00	no modifiers
2	[0] Single-Keycode Chord Mapping		0x17	't'
			0x00	no modifiers
	...		0x0B	'h'
2	[n-1] Single-Keycode Chord Mapping		0x00	no modifiers
			0x08	'e'
			0x00	no modifiers
			0x2C	<SPACE>

			Value	Note
			0x0008	8-byte record
			0x00	no modifiers
			0x12	'o'
			0x00	no modifiers
			0x09	'f'
			0x00	no modifiers
			0x2C	<SPACE>

Notes

All multi-byte values stored as Little Endian (LSB first then MSB) (*)
HID key codes referenced from: http://www.usb.org/developers/hidpage/Hut1_12v2.pdf
HID key codes:0xFB through 0xFE are reserved for special purposes (like going to upgrade mode)

Revision History

Revision	Notes
0	Initial Release