USB HID codes (keys and modifier keys) for flirc_util record_api x y

By jonascj, March 13, 2016 in How To

hid flirc_util record_api modifier modifier keys usb hid keyboard

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Posted March 13, 2016

tl;dr USB HID codes from here http://www.freebsddiary.org/APC/usb_hid_usages.php should be given to flirc_util record_api as decimal

Hi all

Just had to deal with flirc_util record_api on account of the GUI not recognizing the Flirc board as connected (http://forum.flirc.tv/index.php?/topic/2208-linux-x64-flirc_util-works-without-root-but-flirc-gui-always-say-disconnected/#comment-12182), and I thought I'd save the information I found in a topic with a descriptive title for future reference:

This is also a good resource: http://forum.flirc.tv/index.php?/topic/128-modifier-keys-in-command-line-recording/

flirc_util record_api x y where **x** is the modifier key and **y** is the HID key.

Modifier keys

According to the documentation presented when running "flirc_util record_api" the modifier keys are specified by logically OR'ing these values together as binary (the de facto standard for specifying flags as a single parameter):

> **Quote**

```
Key modifiers are defined in the IEEE HID Spec as fol
LEFT  CONTROL          1    # 00000001 as binary
LEFT  SHIFT            2    # 00000010
LEFT  ALT              4    # 00000100
LEFT  CMD|WIN          8    # 00001000
RIGHT CONTROL          16   # 00010000
RIGHT SHIFT            32   # 00100000
RIGHT ALT              64   # 01000000
RIGHT CMD|WIN          128  # 10000000
```

OR'ing binary numbers is done by going through the two numbers bit by bit and comparing corresponding bits. If one of the two bits is 1 set the corresponding result bit to 1, otherwise set it to 0, e.g. 0101 OR 0010 = 0111.

For these specific binary numbers (1,2,4...128 as decimal) OR'ing is the same as ADDing, and since "flirc_util record_api" expects a decimal input we might as add them in decimal:

LEFT CTRL + LEFT SHFIT = 1 + 2 = 3
LEFT CTRL + LEFT ALT + LEFT SHIFT = 1 + 2 + 4 = 7

HID keys

The HID key codes can be found here:
http://www.freebsddiary.org/APC/usb_hid_usages.php

"flirc_util record_api" expects the code as decimal, but the freebsddiary.org page gives them in HEX, so get your hex-to-dec converter out.

For example, '**g and G**' is specified as **0x0A** which is **10** in decimal. So if you want to program the g/G keyboard key with "flirc_util record_api x y" you have to specify y as 10, not 0x0A or similar. Another example is **DownArrow** which is specified as **0x52** in hex which needs to be specified as **82** in decimal.

Putting it together

If you want to program LEFT CTRL + LEFT SHIFT + UP ARROW you need 1+2=3 as modifier key and 0x52=82 as HID key:

flirc_util record_api 3 82

Another example is LEFT CTRL + LEFT SHIFT + LEFT ALT + S which would be 1+2+4=7 as modifier key and 0x16=22 as HID key:

flirc_util record_api 7 22

Documentation from flirc_util

> **Quote**

```
$ flirc_util record_api
Help for `record_api' command:
Send the raw HID value down to flirc to be linked wit
usage:
  record_api 'arg1 arg2'   arg1 is key-modifier
                           arg2 is HID key
example:
  flirc record_api 136 4   '136' represents right cmd
                           '4' represents 'a' in HID

Key modifiers are defined in the IEEE HID Spec as fol
LEFT  CONTROL          1
LEFT  SHIFT            2
LEFT  ALT              4
LEFT  CMD|WIN          8
RIGHT CONTROL          16
RIGHT SHIFT            32
RIGHT ALT              64
RIGHT CMD|WIN          128

To record Control + Shift, logically or 1 & 2 to make
```

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