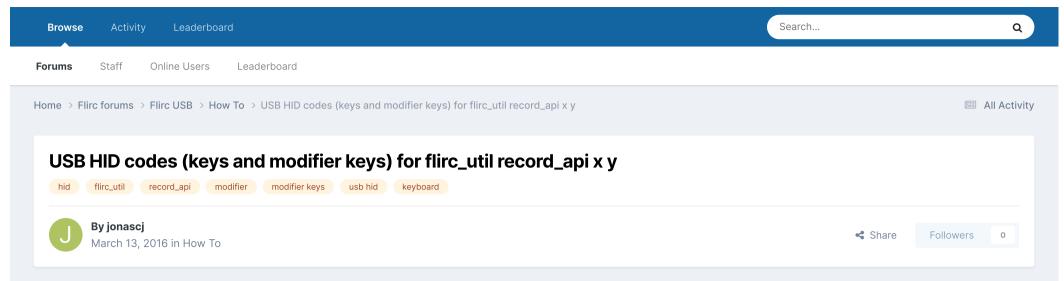
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tl;dr USB HID codes from here http://www.freebsddiary.org/APC/usb_hid_usages.php should be given to flirc_util record_api as decimal

Hi all

Just had to deal with flirc_util record_api on account of the GUI not recognizing the Flirc board as connected (https://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):



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 0×0A 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 0×0A or similar. Another example is **DownArrow** which is specified as 0×52 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 0×52=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 0×16=22 as HID key:

flirc_util record_api 7 22

Documentation from flirc_util

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```
$ flirc_util record_api
Help for `record_api' command:
Send the raw HID value down to flire to be linked with button recorded
usage:
 record_api 'arg1 arg2' arg1 is key-modifier
                          arg2 is HID key
example:
 flirc record_api 136 4 '136' represents right cmd + left cmd
                          '4' represents 'a' in HID
Key modifiers are defined in the IEEE HID Spec as follows:
LEFT CONTROL
                     1
LEFT SHIFT
                     2
LEFT ALT
LEFT CMD|WIN
RIGHT CONTROL
                     16
RIGHT SHIFT
                     32
RIGHT ALT
                      64
RIGHT CMD WIN
                     128
To record Control + Shift, logically or 1 & 2 to make 3
```

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