tmk / **tmk_keyboard**

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ADB German Keyboard layout ^ and < reversed (Windows) #35

New issue

Closed **DOCaCola** opened this issue on May 24, 2013 · 8 comments

DOCaCola commented on May 24, 2013

This is more or less a follow up on the older bug #22 that was fixed in the adb_usb converter.
I have now noticed something else. While these keys work as expected on my mac, They are reversed when the keyboard is plugged in on Windows (M3501 Extended II keyboard).
So when i press the ^ key (left of the 1 key), i get <.
If i press <, i get ^.
I thought it to be some kind of issue with Windows, so i googled and found this site (it is german though), but it might be helpful in analyzing this issue.
He describes some low level patch for the keyboard driver of Mac OS X.
http://snark.de/mac/usbkbpatch/
As it is already in the adb_usb code, he describes the adb keyboard codes as
0x32 <
0x0a ^

but he has an interesting note on the usb codes for these keys:
0x64 ^ (caret - on wintel-usb switched with < (smaller))
0x35 < (smaller - on wintel-usb switched with ^ (caret))

Not sure what this means though. But there seems some kind of difference how Mac OS X interpretes these keys.

Switching the ADB code in the keymap.c obviously did the trick, but i guess a better solution exists, since other keyboards do not have this issue.

tmk commented on May 24, 2013 Owner

Hmm,
How does windows keyboard work on Mac? How does apple keyboard work on Windows(Not bootcamp)? Those keys work correctly?

Actually I want to know what codes German keyboard sends for those keys. Though that'll be difficult or need some hassle...

DOCaCola commented on May 24, 2013

yes, a windows keyboard (logitech) connected to my macbook -> keys work correct
apple aluminium keyboard connected to my windows pc -> keys also work correct. no special drivers loaded

if you explain what is required, i will try to help

DOCaCola commented on May 24, 2013

Labels

NOTE

TODO

Milestone

No milestone

Assignee

No one assigned

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2 participants

i have loaded an usb monitor software on my windows machine
data transmitted from the apple keyboard AND logitech keyboard are both:
<
00 00 64 00 00 00 00 00

and
^
00 00 35 00 00 00 00 00

as expected, when having the adb_usb teensy connected, it behaves the other way round...
now it would be interesting to get this data on mac...

edit: i think i found the issue.....actually i was...
When you plug in a new keyboard to mac, the keyboard setup assistant appears and asks you to press the key right from the left shift key...however i never saw that dialog on my mac..
I just found another site where someone describes this very issue. So if i press the caret key (which is actually the < in adb_usb) the behaviour is switched (like it is wrong now under windows).

Those two keys should be interchanged in adb_usb. Sorry for reporting it wrong in the first place.

The keyboard layout can be reset by deleting the /Library/Preferences/com.apple.keyboardtype.plist file. Then restart. Mac OS X now brings up the keyboard assistant again. With the correct adb_usb keyboard layout, after using this assistant, the keys should also work correct then.

tmk commented on May 25, 2013 Owner

I seemed to be confused about those keys, if I can get them correctlly they should be like following table, right?
ADB ISO(DE) keyboard has different code0A) for key left of 1 from US layout(32). This is very confusing.
I think we should have another KEYMAP macro for ISO in keymap.c.

```
                                         Code
                    -----------------------------------------------
Key Position        ADB-US      ADB-DE(ISO)        USB
-----------------------------------------------------------------
Left of 1           0x32        0x0A               0x35 Grave
Right of LShift     NONE        0x32               0x64 Non-US \
```

tmk closed this on May 25, 2013

DOCaCola commented on May 27, 2013

i am really 100% sure. As it is now in the keycode.c file it is not correct for the german keyboard. It will work under OS X, but it will turn out wrong on Windows etc.

tmk commented on May 1, 2014 Owner

Looks like two solutions can exist.

1) adb_usb needs ISO keymap macro. US and ISO layout are incompatible due to two keys above.

2) Or if we are able to know layout(US, ISO or JIS?) with ADB command firmware can handle the two keys especially and we can have one universal keymap. I don't know this command really exists.

French AZERTY has same problem.
http://geekhack.org/index.php?topic=14290.msg1312242#msg1312242

tmk reopened this on May 1, 2014

tmk added the TODO label on May 1, 2014

tmk commented on May 1, 2014 Owner

OSX can recognize its layout(ANSI, ISO or JIS) automatically for **Apple products only** so that faithful users doens't need 'Keyboard Setup Assistant' to start using it. Meanwhile **third party products** including TMK are handled as **ANSI layout** by default unless user specified its layout in some way.

OSX checks **only** Apple USB vendor/product ID.(and ADB product ID, probably.) See IOHIDKeyboard::handlerID.
http://opensource.apple.com/source/IOHIDFamily/IOHIDFamily-503.1.13/IOHIDFamily/IOHIDKeyboard.cpp

OSX uses ADB scan codes as internal key codes and USB codes(usages) should be converted into ADB codes. This file defines USB-ADB code convert table.
http://opensource.apple.com/source/IOHIDFamily/IOHIDFamily-503.1.13/IOHIDFamily/Cosmo_USB2ADB.c

OSX checks **only** Apple USB vendor/product ID and ADB product ID, probably.(See IOHIDKeyboard::handlerID) And the table is patched when Apple ISO keyboard is using. This circumvents the key swap problem.(See IOHIDKeyboard::deviceType)
http://opensource.apple.com/source/IOHIDFamily/IOHIDFamily-503.1.13/IOHIDFamily/IOHIDKeyboard.cpp

But our keyboard is handled as ANSI layout so we suffer from the key swap problem.

[DELETE]
YOU NEED TO SPECIFY LAYOUT UNLESS YOUR KEYBOARD IS APPLE PRODUCT OR ANSI.
Maybe you can use **Keyboard Setup Assistant**. This itself is not problem at all.
[/DELETE]

Problem is USB-ADB convert table to support both ISO and ANSI ADB keyboard layouts which are incompatile with eatch other. ANSI uses ADB code 0x32 to register '^'(left of '1') while ISO uses 0x32 for '<'(right of Left Shift) and 0x0A for '^'. How iMate resolves this? Maybe solution 2.

Methinks. Just two cents.

tmk closed this on May 1, 2014

tmk added the NOTE label on May 13, 2014

tmk referenced this issue from a commit on May 20, 2014

`Add ISO keymap(issue #35) and use new keymap API` ed8cf12

tmk commented on May 20, 2014 Owner

Use ISO keymap with `make KEYMAP=iso` to circumvent this problem.

ADB ISO keyboard has weird layout which swaps key on left of 1(*a) and key on right of Shift(*b). We need to use keymap for this ISO layout.

```
ADB ANSI/ISO Keymapping Note
============================
ANSI
,-----------    ----------.
```

```
| *a|  1|  2     =|Backspa|
|-----------    ----------|
|Tab  |  Q|     |  ]|   *c|
|-----------    ----------|
|CapsLo|  A|    '|Return  |
|-----------    ----------|
|Shift   |      Shift     |
`-----------    ----------'

ISO
,-----------    ----------.
| *a|  1|  2     =|Backspa|
|-----------    ----------|
|Tab  |  Q|     |  ]|Retur|
|-----------    -----`    |
|CapsLo|  A|    '| *c|    |
|-----------    ----------|
|Shif| *b|      Shift     |
`-----------    ----------'

ADB Keyboard scan code:
        ADB scan code   USB usage
        -------------   ---------
Key     ANSI    ISO     ANSI    ISO
---------------------------------------------
*a      0x32    0x0A    0x35    0x35
*b      ----    0x32    ----    0x64
*c      0x2A    0x2A    0x31    0x31(or 0x32)


TMK ADB-USB mapping:
ADB     USB(ANSI)   USB(ISO)
---------------------------------
0x32    0x35        0x64
0x0A    ----        0x35
0x2A    0x31        0x31(or 0x32)
```

argyakrivos referenced this issue from a commit in argyakrivos/tmk_keyboard on May 30, 2014

`Merge remote-tracking branch 'upstream/master'` … `0c68f2c`

coreyjewett referenced this issue from a commit on Oct 25, 2014

`Merge branch 'cub_layout' of github.com:coreyjewett/tmk_keyboard` … `cc44ef0`

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