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Create your own personal keyboard layout

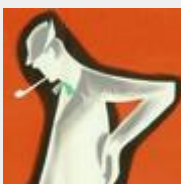**Thread: Create your own personal keyboard layout**

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📄 June 4th, 2006   #1

henriquemaia 🧑

Grande Half-n-Half Cinnamon Ubuntu

☕ ☕ ● ● ●

Join Date:
Apr 2005
Location:
Sintra, Portugal
Beans:
835

Create your own personal keyboard layout

**********UPDATED May 2010**********

This HowTo is for those of you who are not satisfied with the layout of your keyboard, like myself.

You can have several reasons to do this (eg. for the sake of the experience, for achieving a more ergonomical typing experience, etc). I have done this for the sake of ergonomy. I type a lot (professionally) and I use my computer most of the time (99%). My keyboard is now non-standard, but that's not a problem, since I'm much more productive this way and I STILL know how to use a normal keyboard.

1. The Basics

You don't have to mess with many things. Just edit one file. But to achieve your goal, you have to understand what's in it.

The file is located at:

/usr/share/X11/xkb/symbols/

This is where the different language keyboard layout files are. I use **pt** and I'll use that as an example. First, backup the file you want to edit so you can put things back normal again if not satisfied. For that do:

Code:
```
cp /usr/share/X11/xkb/symbols/pt /usr/share/X11/xkb/symbols/pt_backup
```

just change **pt** for your selected keyboard.

now open the file:

Code:

```
sudo gedit /usr/share/X11/xkb/symbols/pt
```

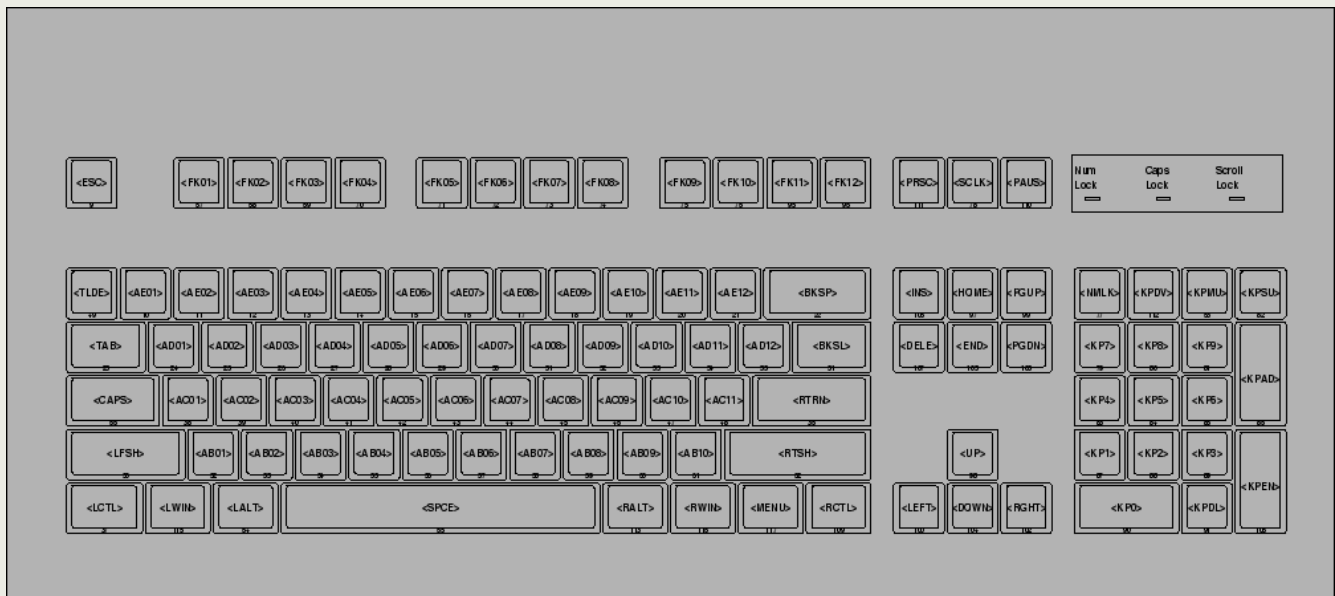You'll see something like this (it's not the complete file, but just a part of it):

key <AE01> { [1, copyright, registered, trademark] };
key <AE03> { [3, numbersign, section, paragraph] };
key <AE04> { [4, EuroSign, dollar, sterling] };
key <AE11> { [masculine, ordfeminine, dead_circumflex, dead_caron] };
key <AE12> { [apostrophe, asterisk, plus, dead_abovering] };

key <AD11> { [dead_acute, dead_grave, dead_diaeresis, dead_macron] };
key <AD12> { [question, exclam, questiondown, slash] };
key <AC10> { [ccedilla, Ccedilla, dead_acute, dead_doubleacute] };
key <AC11> { [dead_tilde, dead_circumflex, dead_diaeresis, dead_breve] };
key <TLDE> { [backslash, bar, notsign, notsign] };

key <BKSL> { [question, exclam, questiondown, slash] };

The entries with key <xxxx> are the name of the keys (based on xkb keycodes*) and their resulting symbols*.
There are four symbols you can get when pressing a given key: normal (no modifier key), with Shift key modifier,
with Alt Gr key modifier and with Alt Gr + Shift key modifiers.

Let's take a look at a particular example. Where is located the key <AE12>? You can take a look at following
image:

or you can understand the logic behind it. The key <**AE12**> is located is an **A**lphanumeric character, located at the
row **E** at the column **12**. You can understand the rows and columns layout looking at the picture below:

The other keys, like Control, Alt, and so on, have particular keycodes names. Consult the list of available keycodes to know the key you want.

2. The Actual Configuration

- Look at you keyboard and have a thought on what keys you like to change.
- Go to your opened language file (**pt** in my case).
- Edit the entries accordingly to your needs.

Example:

I wanted to change the dead accent and the dead tilde location** as I find them rather unergonomically on the pt keyboard. As such, I edited the file and exchanged the places of the symbols entries for those keys:

key <AD11> { [plus, asterisk, dead_diaeresis, dead_abovering] };
key <AD12> { [dead_acute, dead_grave, dead_tilde, dead_macron] };

and:

key <AC10> { [ccedilla, Ccedilla, dead_acute, dead_doubleacute] };
key <AC11> { [masculine, ordfeminine, dead_circumflex, dead_caron] };

to become:

key <AD11> { [dead_acute, dead_grave, dead_tilde, dead_macron] };
key <AD12> { [plus, asterisk, dead_diaeresis, dead_abovering] };

and:

key <AC10> { [masculine, ordfeminine, dead_circumflex, dead_caron] };
key <AC11> { [ccedilla, Ccedilla, dead_acute, dead_doubleacute] };

It's easy as this. Remember that you can even put different symbols that weren't there in the first place, like making your backspace key type an ® you you want. It's all up to you.

You then
- save the file
- restart your X session (logout and press ctrl+alt+backspace
Before you do this, take a look at the next section, 3. Hints.

3. Hints

1. Since to try the new keyboard layout you'll need to restart your X session, you can use this trick to test it without abandoning your current session. After saving the file, you open a terminal and type:

Code:

```
sudo xinit -- :2
```

This will open a new screen with a terminal on it. Type around on that terminal to see if you got the expected results. To end that session, just press ctrl+alt+backspace and you'll get back to your current session again. Do this as many times as you like it until you have achived your final keyboard layout.

2. If you really like your new keyboard layout (like I do) and want it to survice future installations, you just have to put your keyboard layout file on a archive folder on you home (supposing you have a different partition for you /home) and then link the file to the actual file on /etc.

example:

You create a archive folder on your /home on the location:

/home/archive/keyboard/layout

and put there your layout file my_layout.

Then you just have to backup your language layout file (probably you just did on the beginning of the HowTo) and then link your layout file to the actual language layout file, like this:

Code:

```
sudo ln -sf /home/archive/keyboard/layout/my_layout /usr/share/X11/xkb/symbols/pt
```

Just adjust the folders and file names to your needs. Your layout will be preserved even if newly install your system. You can repeat the link step after an installation to get you layout working again.

4. Documentation

You can find further information about this topic on the following sites:
- **An unreliable guide to xkb configuration** (don't let the name fool you)
- **How to configure xkb**

5. Reverting to the Original Layout

1. Ok, you are not satisfied with the experience, you grow tired of your layout and want your old keyboard back. No problem, since you made a backup at the beginning of the HowTo. To revert to your original layout, you just have to do:

Code:

```
sudo cp /usr/share/X11/xkb/symbols/pt_backup /usr/share/X11/xkb/symbols/pt
```

After this, you just have to restart your X session and next time you login you'll have the normal layout again. Please note that the **pt** must be changed to your own language keyboard layout.

2. You thought you were Dvorak himself and changed your complete keyboard layout. You were prepared to chalenge yourself for the hard work of learning a complete new set of keys and then you fail miserably in doing so, finding yourself stuck with a untypeable keyboard where it's a headache to find the keys. Don't stress. You have the layout backup. "But I can't type the commands!".

No problem. Press ctrl+alt+F1 and you're on the console. Login and type:

Code:

```
sudo cp /usr/share/X11/xkb/symbols/pt_backup /usr/share/X11/xkb/symbols/pt
```

After this, press ctrl+alt+F7 to get back to your X session again.

Restart your session and you'll have your normal keyboard back again.

*An extensive list of keycodes and symbols available can be found on the files I attached for your convinience.

**In actuality, I changed the location of all dead accents and the ? and the ! punctuation marks. I don't know who designated those keys on the Portuguese keyboard, but certainly it was not a professional typist versed in this language. It's not my point to discuss this here, so I just simplified the example.

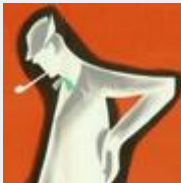📎 Attached Files
📁 keycodes_list.txt.zip (3.1 KB, 553 views)
📁 symbols_list.txt.zip (23.5 KB, 554 views)

*Last edited by henriquemaia; May 12th, 2010 at 07:41 PM. **Reason:** Updated to match the new locations of X11 files*

↩ **Adv Reply**

📄 June 6th, 2006   #2

henriquemaia 🧑

Grande Half-n-Half Cinnamon Ubuntu

☕☕🫘🫘🫘

Join Date:
Apr 2005

Location:
Sintra, Portugal

Beans:
835

Re: Create your own personal keyboard layout

I have updated the HowTo. I have added the section **Reverting to the Original Layout**.

↩ **Adv Reply**

📄 June 6th, 2006   #3

ow50 👤

Cookies and cream

🫘🫘☕🫘🫘

Join Date:
Dec 2004

Location:
Finland

Beans:
398

Re: Create your own personal keyboard layout

Another way to configure the keyboard for X is to use a ~/.xmodmap file. It gets loaded automatically on X login. You can get the keycodes at least with xev (run in terminal). As an example, SWE/FIN Colemak layout.

Code:

```
! Q W F P G   J L U Y Ö Å ¨
!  A R S T D   H N E I O Ä '
! < Z X C V B   K M , . -

!keycode    9 = Escape Escape
!keycode   10 = 1 exclam
!keycode   11 = 2 quotedbl at
!keycode   12 = 3 numbersign sterling
!keycode   13 = 4 currency dollar
!keycode   14 = 5 percent
!keycode   15 = 6 ampersand
!keycode   16 = 7 slash braceleft
!keycode   17 = 8 parenleft bracketleft
!keycode   18 = 9 parenright bracketright
!keycode   19 = 0 equal braceright
!keycode   20 = plus question backslash
!keycode   21 = dead_acute dead_grave
!keycode   22 = BackSpace Terminate_Server
!keycode   23 = Tab Tab
keycode   24 = q Q
keycode   25 = w W
keycode   26 = f F
keycode   27 = p P
keycode   28 = g G
keycode   29 = j J
keycode   30 = l L
keycode   31 = u U
```

For virtual consoles, a separate .kmap file is needed. See /usr/share/keymaps for examples. As an example, SWE/FIN Colemak layout in file ~/.colemak.kmap.

Code:

```
# Q W F P G   J L U Y Ö Å ¨
#  A R S T D   H N E I O Ä '
# < Z X C V B   K M , . -

charset "iso-8859-1"
keymaps 0-2,4-6,8-10,12-14
alt_is_meta
include "qwerty-layout"
include "linux-with-alt-and-altgr"
strings as usual

keycode   1 = Escape
keycode   2 = one exclam
keycode   3 = two quotedbl at
keycode   4 = three numbersign sterling
keycode   5 = four dollar dollar
keycode   6 = five percent
keycode   7 = six ampersand
keycode   8 = seven slash braceleft
keycode   9 = eight parenleft bracketleft
keycode  10 = nine parenright bracketright
keycode  11 = zero equal braceright
keycode  12 = plus question backslash
keycode  13 = dead_acute dead_grave
keycode  14 = Delete
keycode  15 = Tab
keycode  16 = q
```

Handy aliases for virtual console

Code:

```
alias asdf='sudo loadkeys ~/.colemak.kmap'
alias arst='sudo loadkeys fi-latin1'
```

↩ **Adv Reply**

📄 June 7th, 2006

#4

henriquemaia 🧔

Grande Half-n-Half Cinnamon Ubuntu

☕ ☕ ☕ ☕ ☕

Join Date:
Apr 2005

Location:
Sintra, Portugal

Beans:
835

Re: Create your own personal keyboard layout

> 💬 Originally Posted by **ow50**
>
> *Another way to configure the keyboard for X is to use a ~/.xmodmap file. It gets loaded automatically on X login. You can get the keycodes at least with xev (run in terminal). As an example, SWE/FIN Colemak layout.*
>
> *Code:*

```
! Q W F P G   J L U Y Ö Å ¨
!  A R S T D   H N E I O Ä '
! < Z X C V B   K M , . -

!keycode   9 = Escape Escape
!keycode  10 = 1 exclam
!keycode  11 = 2 quotedbl at
!keycode  12 = 3 numbersign sterling
!keycode  13 = 4 currency dollar
!keycode  14 = 5 percent
!keycode  15 = 6 ampersand
!keycode  16 = 7 slash braceleft
!keycode  17 = 8 parenleft bracketleft
!keycode  18 = 9 parenright bracketright
!keycode  19 = 0 equal braceright
!keycode  20 = plus question backslash
!keycode  21 = dead_acute dead_grave
!keycode  22 = BackSpace Terminate_Server
!keycode  23 = Tab Tab
keycode  24 = q Q
keycode  25 = w W
keycode  26 = f F
keycode  27 = p P
keycode  28 = g G
keycode  29 = j J
keycode  30 = l L
keycode  31 = u U
```

> *For virtual consoles, a separate .kmap file is needed. See /usr/share/keymaps for examples. As an example, SWE/FIN Colemak layout in file ~/.colemak.kmap.*
>
> *Code:*

```
# Q W F P G   J L U Y Ö Å ¨
#  A R S T D   H N E I O Ä '
# < Z X C V B   K M , . -

charset "iso-8859-1"
keymaps 0-2,4-6,8-10,12-14
alt_is_meta
include "qwerty-layout"
include "linux-with-alt-and-altgr"
strings as usual

keycode  1 = Escape
keycode  2 = one exclam
keycode  3 = two quotedbl at
keycode  4 = three numbersign sterling
keycode  5 = four dollar dollar
keycode  6 = five percent
keycode  7 = six ampersand
keycode  8 = seven slash braceleft
keycode  9 = eight parenleft bracketleft
keycode 10 = nine parenright bracketright
keycode 11 = zero equal braceright
keycode 12 = plus question backslash
keycode 13 = dead_acute dead_grave
keycode 14 = Delete
keycode 15 = Tab
keycode 16 = q
```

Handy aliases for virtual console

> *Code:*

```
alias asdf='sudo loadkeys ~/.colemak.kmap'
alias arst='sudo loadkeys fi-latin1'
```

Thanks, nice to know this! I wasn't aware of this other way. I'm very familiarized with the method I presented, but yours looks much simpler.

🔄 **Adv Reply**

📄 July 7th, 2007   **#5**

soren.kyale 👤
First Cup of Ubuntu

☕ ☕ ☕ ☕ ☕

Join Date:
Jul 2007

Beans:
2

Re: Create your own personal keyboard layout

I have two questions:

How can I create my own dead keys, or modify existing dead keys.
I use semicolon and comma as dead keys, and they don't quite match any of the existing dead keys.

How do I save configuration settings?
I modified the us file under etc\x11\xkb\symbols . But I get an access denied message every time I try to save it. I also tried saving to usr\share\x11\xkb .

I'm using the Feisty version of Kubuntu. Konqueror and Kite are the programs I attempted to save the changes with.

Adv Reply

July 7th, 2007

henriquemaia

Grande Half-n-Half Cinnamon Ubuntu

Join Date:
Apr 2005

Location:
Sintra, Portugal

Beans:
835

Re: Create your own personal keyboard layout

> **Originally Posted by soren.kyale**
>
> *I have two questions:*
>
> *How can I create my own dead keys, or modify existing dead keys.*
> *I use semicolon and comma as dead keys, and they don't quite match any of the existing dead keys.*
>
> *How do I save configuration settings?*
> *I modified the us file under etc\x11\xkb\symbols . But I get an access denied message every time I try to save it. I also tried saving to usr\share\x11\xkb .*
>
> *I'm using the Feisty version of Kubuntu. Konqueror and Kite are the programs I attempted to save the changes with.*

I'm not very familiar with dead keys, so I can't help you much on this. But regarding on the issue of not being able to save your changes, that is most certainly due to the fact that you must edit the files using **sudo**, otherwise you do not have the permissions to write to those files.

If you use konqueror to access and edit the files, run konqueror in sudo mode, i.e. open a terminal and type: **sudo konqueror**

Adv Reply

July 7th, 2007

soren.kyale
First Cup of Ubuntu

Join Date:
Jul 2007

Beans:
2

Re: Create your own personal keyboard layout

Thank you. "Sudo konqueror" really helped. Though it made me realize that the admin (root) level belongs to the system not the user. There's something evil about that ("Dave, what are you doing Dave?"). But at least I have the basic keys of my layout working.

Now, I just need to add the dead keys and turn my left alt to a shift, my left winkey to alt, caps lock to winkey,

backspace to caps lock and AB05 to backspace.

Thank you, Henriquemaia, you helped me a great deal (I thought Sudo was just a copy command).

Last edited by soren.kyale; July 7th, 2007 at 05:16 AM.

↩ **Adv Reply**

📄 September 25th, 2007   **#8**

Yellow Onion 👤
5 Cups of Ubuntu

🫘 🫘 🫘 🫘 🫘

Join Date:
Jun 2006

Location:
Christchurch, New Zealand

Beans:
39

Distro:
Ubuntu 8.10 Intrepid Ibex

Re: Create your own personal keyboard layout

Hello Ive Made a international dvorak with dead keys layout variant in the us file. woks fine

but it isnt in the layout list for gnome, im not exactly sure how i got it running i have set it through xorg.conf file
and i can select it through kcontrol
just not through gnome keyboard settings
Is there a a cache that need refreshing or is it something else

add this to bottom of the us file if you want to use it

Code:

```
partial alphanumeric_keys
xkb_symbols "dv-intl" {

        name[Group1]= "Dvorak - International (with dead keys)";

    include "us(dvorak)"

   key <TLDE> { [dead_grave, dead_tilde,          grave,      asciitilde ] };
    key <AE01> { [          1,      exclam,     exclamdown,     onesuperior ] };
    key <AE02> { [          2,          at,    twosuperior, dead_doubleacute ] };
    key <AE03> { [          3, numbersign, threesuperior,      dead_macron ] };
    key <AE04> { [          4,      dollar,      currency,        sterling ] };
    key <AE05> { [          5,     percent,       EuroSign                 ] };
    key <AE06> { [     6, dead_circumflex,     onequarter,      asciicircum ] };
    key <AE07> { [          7,   ampersand,        onehalf,       dead_horn ] };
    key <AE08> { [          8,     asterisk, threequarters,      dead_ogonek ] };
    key <AE09> { [          9,    parenleft, leftsinglequotemark, dead_breve ] };
    key <AE10> { [          0, parenright, rightsinglequotemark, dead_abovering ] };
    key <AE11> { [ bracketleft,   braceleft,   guillemotleft, guillemotleft ] };
    key <AE12> { [bracketright, braceright, guillemotright,guillemotright ] };

    key <AD01> { [dead_acute, dead_diaeresis, apostrophe,       quotedbl ] };
    key <AD02> { [     comma,       less,      ccedilla,       Ccedilla ] };
    key <AD03> { [     period,    greater, dead_abovedot,      dead_caron ] };
    key <AD04> { [          p,          P,     odiaeresis,      Odiaeresis ] };
    key <AD05> { [          y,          Y,     udiaeresis,      Udiaeresis ] };
    key <AD08> { [          c,          C,      copyright,           cent ] };
```

↩ **Adv Reply**

October 10th, 2007   #9

jtschrock 👤   **Join Date:**
First Cup of Ubuntu   Oct 2007

🫘 🫘 🫘 🫘 🫘   **Beans:**
                                                              6

Re: Create your own personal keyboard layout

What does the syntax look like when you want to use UTF-8 encoding rather than the standard naming conventions like "ssharp" and "period" to make your layout?

I'm used to stuff looking like U+026C and U+F242 and I'm pretty sure that's not the correct syntax in XKB. (alright all you unicode linguistics freaks out there, based on the symbols I just mentioned, what part of the world/languages am I dealing with?)

thanks

                                                              ↩ **Adv Reply**

December 6th, 2007   #10

Dries_Lee 👤   **Join Date:**
First Cup of Ubuntu   Jul 2006

🫘 🫘 🫘 🫘 🫘   **Beans:**
                                                              3

Re: Create your own personal keyboard layout

I've got a question about this method. When I change my keymap to the following (the rest stays the same):

Code:

```
key <AE08> { [     8,  asterisk, dead_breve ]  };

...

include "level3(ralt_switch)"
```

the breve (˘) only works with the 'a' (ă), not with other letters. While I actually only need the 'u' with a breve...

Do you have any idea on how to fix this?

Thanks,
Dries

                                                              ↩ **Adv Reply**

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