The XKB Configuration Guide

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Abstract

This document describes how to configure Xorg XKB from a user's point of view. It covers basic configuration syntax and gives also a few examples.

This version covers Xorg server versions 1.8 and later, used with the data files from the xkeyboard-config [https://www.freedesktop.org/wiki/Software/XKeyboardConfig] project.

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Overview

The XKB configuration is decomposed into a number of components. Selecting proper parts and combining them back you can achieve most of the configurations you might need. nless you have a completely atypical keyboard you really don't need to touch any of the xkb configuration files.

Some desktop environments now provide integrated graphical configuration tools for setting XKB configuration as part of your desktop session. The instructions in this document are provided for those without such support, those who need to configure XKB before the session startup such as at the login screen , or those who need to perform more advanced configuration than those tools provide.

Selecting XKB Configuration

The easiest and the most natural way to specify a keyboard mapping is to use the `rules` component. s its name suggests it describes a number of general rules to combine all bits and pieces into a valid and useful keyboard mapping. ll you need to do is to select a suitable rules file and then to feed it with a few parameters that will adjust the keyboard behaviour to fulfill your needs.

The parameters are:

`XkbRules` files of rules to be used for keyboard mapping composition

`XkbModel` name of the model of your keyboard type

`XkbLayout` layout s you intend to use

`XkbVariant` variant s of the layout you intend to use

`XkbOptions` extra xkb configuration options

The rules file used depends on your system. The rules files commonly used with Xorg are provided by the xkeyboard-config [https://www.freedesktop.org/wiki/Software/XKeyboardConfig] project. n inux systems, the `evdev` rules are most commonly used, on other systems the `base` rules are used. Some additional rules files exist for historical reasons, but are no longer widely used. In general, it's best to simply not specify the rules file, in order to use the default rules selected automatically by the X server.

or each rules file there is a description file named `<vendor-rules>.lst`, for instance `base.lst` which is located in the xkb configuration subdirectory `rules` for example `/usr/share/X11/xkb/rules` .

Basic Configuration

et's say you want to configure a C-style merican keyboard with 1 keys as described in `base.lst`. This can be done by simply writing several lines from below to a new configuration file in `/etc/X11/xorg.conf.d`, such as `/etc/X11/xorg.conf.d/90-custom-kbd.conf`.

```
Section "InputClass"
    Identifier "keyboard defaults"
    MatchIsKeyboard "on"

    Option "XkbModel" "pc104"
    Option "XkbLayout" "us"
    Option "XKbOptions" ""
EndSection
```

The values of `XkbModel` and `XkbLayout` are really not surprising. The `XkbOptions` has been explicitly set to the empty set of parameters. The `XkbVariant` option has been left out. That means the default variant named `basic` is loaded.

 f course, this can be also done at runtime using the utility . The shell command loading the same keyboard mapping would look like:

```
setxkbmap -model pc104 -layout us -option ""
```

The configuration and the shell command would be very analogous for most other layouts internationali ed mappings .

If you wanted to enable the se uence to kill the X server by default, you could create a configuration snippet `/etc/X11/xorg.conf.d/90-zap.conf` containing:

```
Section "InputClass"
    Identifier "keyboard defaults"
    MatchIsKeyboard "on"

    Option "XKbOptions" "terminate:ctrl_alt_bksp"
EndSection
```

This would be e uivalent to running the shell command:

```
setxkbmap -option "terminate:ctrl_alt_bksp"
```

Advanced Configuration

 ou can use multi-layouts xkb configuration. hat does it mean Basically it allows to load up to four di erent keyboard layouts at a time. ach such layout would reside in its own group. The groups unlike complete keyboard remapping can be switched very fast from one to another by a combination of keys.

 et's say you want to configure your new ogitech cordless desktop keyboard, you intend to use three di erent layouts at the same time - us, c ech and german in this order , and that you are used to combination for switching among them.

Then the configuration snippet could look like this:

```
Section "InputClass"
    Identifier "Logitech Cordless"
    MatchIsKeyboard   "on"

    Option "XkbModel" "logicordless"
    Option "XkbLayout" "us,cz,de"
    Option "XKbOptions" "grp:alt_shift_toggle"
EndSection
```

f course, this can be also done at runtime using the utility . The shell command loading the same keyboard mapping would look like:

```
setxkbmap -model logicordless -layout "us,cz,de" \
         -option "grp:alt_shift_toggle"
```

Even More Advanced Configuration

kay, let's say you are more demanding. ou do like the example above but you want it to change a bit. et's imagine you want the c ech keyboard mapping to use another variant but basic. The configuration snippet then changes into:

```
Section "InputClass"
    Identifier "Logitech Cordless"
    MatchIsKeyboard   "on"

    Option "XkbModel" "logicordless"
    Option "XkbLayout" "us,cz,de"
    Option "XkbVariant" ",bksl,"
    Option "XKbOptions" "grp:alt_shift_toggle"
EndSection
```

That seems tricky but it is not. The logic for settings of variants is the same as for layouts, that means the first and the third variant settings are left out set to `basic` , the second is set to `bksl` a special variant with an enhanced definition of the backslash key .

nalogously, the loading runtime will change to:

```
setxkbmap -model logicordless -layout "us,cz,de" \
         -variant ",bksl," -option "grp:alt_shift_toggle"
```

Basic Global Options

or a list of available options, with a short description of what they do, see the section starting with `! option` in the `rules/*.lst` files.

Keymap XKB Configuration

Keymap configuration is the way formerly used to configure xkb. The user included a special keymap file which specified the direct xkb configuration. This method has been obsoleted by previously described rules files which are far more exible and allow simpler and more intuitive syntax. It is preserved merely for compatibility reasons and should be avoided if possible.