




Linux selber bauen



LARRY THE COW WAS A BIT FRUSTRATED AT THE CURRENT STATE OF LINUX DISTRIBUTIONS...



...UNTIL HE TRIED GENTOO LINUX.

Larry the Cow was a bit frustrated with Linux. The latest distros seemed to be just a bunch of the same old stuff. Nothing new -- nothing innovative. Then Larry tried Gentoo Linux. He was impressed. He found a BSD-style ports system with a bunch of advanced features. He discovered lots of up-to-date packages that could be auto-built using the optimization settings and build-time functionality that he wanted, rather than what some distro creator thought would be best for him. All of the sudden, Larry the Cow was in control. And he liked it.

- **Dienste konfigurieren**
- emerge und qpkg leichtgemacht
- Installation Applikationen
- Fragen, Fragen, Fragen

- **Netzwerk einrichten**
- Runlevel anpassen
- X-Server konfigurieren

```
-:[~]#> cat /etc/conf.d/net  
iface_eth0="192.168.1.3 broadcast 192.168.1.255 netmask 255.255.255.0"  
#iface_eth0="dhcp"  
#dhcpcd_eth0="-h $HOSTNAME"  
gateway="eth0/192.168.1.1"
```

- Netzwerk einrichten
- **Runlevel anpassen**
- X-Server konfigurieren

Linux selber bauen – Runlevel anpassen

```
-:[~]#> rc-update add net.eth0 default
```

```
-:[~]#> rc-update add sshd default
```

- Netzwerk einrichten
- Runlevel anpassen
- **X-Server konfigurieren**

Linux selber bauen – X-Server konfigurieren

```
-:[~]#> xorgcfg --help
```

Usage:

```
xorgcfg [-option ...]
```

Options:

```
-config <xorg.conf>  Alternate configuration file.
-modulepath <module-path>  Xorg modules location.
-serverpath <server-path>  X server to start (if $DISPLAY is not defined).
-fontpath <font-path>     Font path for fonts.
-rgbpath <rgb-path>       Where the rgb.txt file is located.
-textmode             Use this option for the text only interface.
-nomodules            Use this option if xorgcfg is slow to start.
-verbose <number>     Verbosity used in the loader (default 1).
-verify               Verify modules/options integrity.
```

Konfigurationsdateien:

/etc/X11/xorg.conf

oder

/etc/X11/XF86Config

Linux selber bauen – X-Server konfigurieren

```
Section "Files"
    RgbPath      "/usr/X11R6/lib/X11/rgb"
    ModulePath   "/usr/X11R6/lib/modules"
    FontPath     "/usr/share/fonts/misc/"
    FontPath     "/usr/share/fonts/TTF/"
    FontPath     "/usr/share/fonts/Speedo/"
    FontPath     "/usr/share/fonts/Type1/"
    FontPath     "/usr/share/fonts/CID/"
    FontPath     "/usr/share/fonts/75dpi/"
    FontPath     "/usr/share/fonts/100dpi/"
EndSection

Section "Module"
    Load "record"
    Load "extmod"
    Load "dbe"
    Load "dri"
    Load "glx"
    Load "xtrap"
    Load "freetype"
    Load "type1"
    Load "speedo"
EndSection
```

Linux selber bauen – X-Server konfigurieren

```
Section "InputDevice"
    Identifier "Keyboard0"
    Driver     "keyboard"
    Option     "XkbModel" "pc105"
    Option     "XkbLayout" "de"
EndSection

Section "InputDevice"
    Identifier "Mouse0"
    Driver     "mouse"
    Option     "Protocol" "ImPS/2"
    Option     "Device"  "/dev/psaux"
    Option     "ZAxisMapping" "4 5"
EndSection

Section "InputDevice"
    Identifier "Mouse1"
    Driver     "mouse"
    Option     "Protocol" "ImPS/2"
    Option     "Device"  "/dev/input/mice"
    Option     "ZAxisMapping" "4 5"
EndSection
```

Linux selber bauen – X-Server konfigurieren

```
Section "Monitor"
    Identifier      "Monitor0"
    VendorName      "PHL"
    ModelName       "PHILIPS 107G"
    DisplaySize     310      230
    HorizSync       31.5 - 79.0
    VertRefresh     50.0 - 70.0
    Option          "DPMS"
EndSection

Section "Monitor"
    Identifier      "Monitor1"
    VendorName      "BELINEA"
    ModelName       "BELINEA"
    DisplaySize     310      230
    HorizSync       31.5 - 79.0
    VertRefresh     50.0 - 70.0
    Option          "DPMS"
EndSection
```

Linux selber bauen – X-Server konfigurieren

```
Section "Device"
    Option      "DRI"                "true"
    Identifier  "Card0"
    Driver      "mga"
    VendorName  "Matrox Graphics, Inc."
    BoardName   "MGA G400 AGP"
    ChipSet     "mgag400"
    Card        "mga mgag400"
    BusID       "PCI:1:0:0"
    Screen      0
EndSection

Section "Device"
    Option      "DRI"                "true"
    Identifier  "Card1"
    Driver      "mga"
    VendorName  "Matrox Graphics, Inc."
    BoardName   "MGA G400 AGP"
    ChipSet     "mgag400"
    Card        "mga mgag400"
    BusID       "PCI:1:0:0"
    Screen      1
EndSection
```

Linux selber bauen – X-Server konfigurieren

```
Section "Screen"
    Identifier "Screen0"
    Device      "Card0"
    Monitor     "Monitor0"
    DefaultDepth 16
    SubSection "Display"
        Depth    16
        Modes    "1280x1024" "1024x768" "800x600" "640x480" "320x240"
    EndSubSection
    SubSection "Display"
        Depth    24
        Modes    "1280x1024" "1024x768" "800x600" "640x480" "320x240"
    EndSubSection
EndSection
```

```
Section "Screen"
    Identifier "Screen1"
    Device      "Card1"
    Monitor     "Monitor1"
    DefaultDepth 16
    SubSection "Display"
        Depth    16
        Modes    "1280x1024" "1024x768" "800x600" "640x480" "320x240"
    EndSubSection
    SubSection "Display"
        Depth    24
        Modes    "1280x1024" "1024x768" "800x600" "640x480" "320x240"
    EndSubSection
EndSection
```

Linux selber bauen – X-Server konfigurieren

```
Section "ServerFlags"
    Option      "Xinerama" "yes"
EndSection

Section "ServerLayout"
    Identifier   "Mirabilis Dualhead"
    Screen      0 "Screen0" 0 0
    Screen      1 "Screen1" RightOf "Screen0"
    InputDevice "Mouse0" "CorePointer"
    InputDevice "Mouse1" "SendCoreEvents"
    InputDevice "Keyboard0" "CoreKeyboard"
EndSection
```


- Dienste konfigurieren
- **emerge und qpkg leichtgemacht**
- Installation Applikationen
- Fragen, Fragen, Fragen

Linux selber bauen - emerge und qpkg leichtgemacht

```
--:[~]#> emerge --help
```

Usage:

```
emerge [ options ] [ action ] [ ebuildfile | tbz2file | dependency ] [ ... ]
emerge [ options ] [ action ] < system | world >
emerge < sync | info >
emerge --resume [ --pretend | --ask | --skipfirst ]
emerge help [ system | config | sync ]
Options: -[abcCdDefhikKlnoOpPsSuUvV] [--oneshot] [--noconfmem]
          [--columns] [--nospinner]
Actions: [ clean | depclean | inject | prune | regen | search | unmerge ]
```

Linux selber bauen - emerge und qpkg leichtgemacht

`clean` (-c short option)

Cleans the system by removing outdated packages which will not remove functionalities or prevent your system from working.

The arguments can be in several different formats :

* world

* system or

* 'dependency specification' (in single quotes is best.)

`depclean`

Cleans the system by removing packages that are not associated with explicitly merged packages. Depclean works by creating the full dependency tree from the system list and the world file, then comparing it to installed packages. Packages installed, but not associated with an explicit merge are listed as candidates for unmerging. **WARNING:** This can seriously affect your system by removing packages that may have been linked against, but due to changes in USE flags may no longer be part of the dep tree. Use caution when employing this feature.

`info`

Displays important portage variables that will be exported to `ebuild.sh` when performing merges. This information is useful for bug reports and verification of settings. All settings in `make.{conf,globals,defaults}` and the environment show up if run with the `'--verbose'` flag.

`unmerge` (-C short option)

WARNING: This action can remove important packages!

Removes all matching packages without checking for outdated versions, effectively removing a package completely from your system. Specify arguments using the dependency specification format described in the `clean` action above.

Linux selber bauen - emerge und qpkg leichtgemacht

- `--ask` (-a short option)
before performing the merge, display what ebuilds and tbz2s will be installed, in the same format as when using `--pretend`; then ask whether to continue with the merge or abort. Using `--ask` is more efficient than using `--pretend` and then executing the same command without `--pretend`, as dependencies will only need to be calculated once.
- `--buildpkg` (-b short option)
tell emerge to build binary packages for all ebuilds processed (in addition to actually merging the packages. Useful for maintainers or if you administrate multiple Gentoo Linux systems (build once, emerge tbz2s everywhere).
- `--buildpkgonly` (-B short option)
Creates a binary package, but does not merge it to the system. This has the restriction that unsatisfied dependencies must not exist for the desired package as they cannot be used if they do not exist on the system.
- `--changelog` (-l short option)
When pretending, also display the ChangeLog entries for packages that will be upgraded.
- `--deep` (-D short option)
When used in conjunction with `--update`, this flag forces emerge to consider the entire dependency tree of packages, instead of checking only the immediate dependencies of the packages. As an example, this catches updates in libraries that are not directly listed in the dependencies of a package.

Linux selber bauen - emerge und qpkg leichtgemacht

`--emptytree (-e short option)`

Virtually tweaks the tree of installed packages to only contain glibc, this is great to use together with `--pretend`. This makes it possible for developers to get a complete overview of the complete dependency tree of a certain package.

`--fetchonly (-f short option)`

Instead of doing any package building, just perform fetches for all packages (main package as well as all dependencies.) When used in combination with `--pretend` all the `SRC_URIs` will be displayed multiple mirrors per line, one line per file.

`--oneshot`

Emerge as normal, but don't add packages to the world profile. This package is will only be updated if it is depend on by another package.

`--onlydeps (-o short option)`

Only merge (or pretend to merge) the dependencies of the specified packages, not the packages themselves.

`--pretend (-p short option)`

instead of actually performing the merge, simply display what ebuilds and tbz2s *would* have been installed if `--pretend` weren't used. Using `--pretend` is strongly recommended before installing an unfamiliar package. In the printout, N = new, U = updating, R = replacing, B = blocked by an already installed package, D = possible downgrading. `--verbose` causes affecting use flags to be printed out accompanied by a '+' for enabled and a '-' for disabled flags.

Linux selber bauen - emerge und qpkg leichtgemacht

`--resume`

Resumes the last merge operation. Can be treated just like a regular merge as `--pretend` and other options work along side. 'emerge `--resume`' only returns an error on failure. Nothing to do exits with a message and a success condition.

`--searchdesc (-S short option)`

Matches the search string against the description field as well the package's name. Take caution as the descriptions are also matched as regular expressions.

```
emerge -S html
```

```
emerge -S applet
```

```
emerge -S 'perl.*module'
```

`--update (-u short option)`

Updates packages to the best version available, which may not always be the highest version number due to masking for testing and development.

`--upgradeonly (-U short option)`

Updates packages, but excludes updates that would result in a lower version of the package being installed. SLOTS are considered at a basic level.

`--usepkg (-k short option)`

Tell emerge to use binary packages (from `$PKGDIR`) if they are available, thus possibly avoiding some time-consuming compiles. This option is useful for CD installs; you can export `PKGDIR=/mnt/cdrom/packages` and then use this option to have emerge "pull" binary packages from the CD in order to satisfy dependencies.

`--verbose (-v short option)`

Effects vary, but the general outcome is an increased or expanded display of content in portage's displays.

Linux selber bauen - Übersicht

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Linux selber bauen - Installation Applikationen

```
~#> emerge -pv kde
```

These are the packages that I would merge, in order:

Calculating dependencies ...done!

```
[ebuild N    ] media-sound/cdparanoia-3.9.8-r1    113 kB
[ebuild N    ] dev-util/pkgconfig-0.15.0      596 kB
[ebuild N    ] media-libs/giflib-4.1.0-r3    -X +gif  294 kB
[ebuild N    ] media-libs/lcms-1.12    +jpeg +python +tiff +zlib  554 kB
[ebuild N    ] media-libs/libmng-1.0.4      555 kB
[ebuild N    ] x11-misc/ttmkfdirdir-3.0.9-r1   19 kB
[ebuild N    ] media-libs/fontconfig-2.2.2    726 kB
[ebuild N    ] app-arch/cabextract-0.6       90 kB
[ebuild N    ] x11-base/opengl-update-1.5     [empty/missing/bad digest]
[ebuild N    ] x11-base/xfree-4.3.0-r5    -3dfx -3dnw -bindist -cjk -debug -doc -ipv6 -mmx +nls +pam -sdk -sse
-static +truetype +xml2  71,131 kB
[ebuild N    ] media-libs/libungif-4.1.0.1b  -X +gif  305 kB
[ebuild N    ] x11-libs/qt-3.3.2    -cups -doc -firebird +gif -icc -ipv6 +mysql -nas -odbc -opengl -postgres
-sqlite -xinerama +zlib  14,096 kB
[...]
```

```
[ebuild N    ] kde-base/kdeaccessibility-3.2.2  -debug  1,232 kB
[ebuild N    ] media-libs/musicbrainz-2.0.2-r2  +python  569 kB
[ebuild N    ] media-libs/libfame-0.9.0    -debug   231 kB
[ebuild N    ] media-libs/xvid-0.9.1      457 kB
[ebuild N    ] media-libs/flac-1.1.0-r1    -X -sse -xmms  1,173 kB
[ebuild N    ] media-libs/xine-lib-1_rc4    -X -aalib -alsa -arts -avi -directfb -dvd -esd -gnome -ipv6 +nls
+oggvorbis -sdl -speex -theora  6,629 kB
[ebuild N    ] media-libs/taglib-1.0    -debug   672 kB
[ebuild N    ] kde-base/kdeaddons-3.2.2    -esd -sdl -svga -xmms  1,320 kB
[ebuild N    ] kde-base/kdeadmin-3.2.2    +pam    1,523 kB
[ebuild N    ] kde-base/kdegames-3.2.2    -debug  8,901 kB
[ebuild N    ] kde-base/kdeartwork-3.2.2    -opengl 16,783 kB
[ebuild N    ] kde-base/kde-3.2.2     [empty/missing/bad digest]
```

Total size of downloads: 232,899 kB


```
-:[~]#> emerge kde
```

Linux selber bauen - Übersicht

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- Nächstes Mal:
 - USE-Flags
 - CFLAGS

Vielen Dank für Eure Aufmerksamkeit

