

Gentoo Linux

Danny Robson

Stereotypes

<@insomnia> it only takes three commands to install Gentoo

```
<@insomnia> cfdisk /dev/hda && mkfs.xfs /dev/hda1 &&  
mount /dev/hda1 /mnt/gentoo/ && chroot /mnt/gentoo/ &&  
env-update && . /etc/profile && emerge sync &&  
cd /usr/portage && scripts/bootsrap.sh && emerge system &&  
emerge vim && vi /etc/fstab && emerge gentoo-dev-sources && c
```

<@insomnia> that's the first one

What is Gentoo?

- Source based
- Rolling release
- Highly configurable
- Meta-distribution

What is Gentoo?

“Less of an operating system, more of a hobby.”

— An amused onlooker

Why Gentoo?

- Configuration
- Flexibility

Configuration

I want:

1. XFCE4 desktop
2. with init.d
3. without PAM
4. using only python3.5
5. optimised for Skylake
6. with custom patches for GDB

Why Not Gentoo?

- Configuration
- Build-time resource constraints
- Exposure to low level details

Installation

- A bootable ISO (of any distribution)
- The Gentoo Handbook
- A few free hours (or days) to bootstrap

Portage

Inspired by BSD ports.

emerge

manages installations, dependencies, package database. (like apt)

ebuild

a shell script that configures, builds, and installs one package. (like dpkg)

Concepts

- USE flags
- slots,eselect
- masks,
keywords
- repos

ebuild

ctags-0000.ebuild

```
# Copyright 1999-2018 Gentoo Foundation
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EAPI=6

DESCRIPTION="Exuberant ctags generates tags files for quick source
HOME PAGE="http://ctags.sourceforge.net"
SRC_URI="mirror://sourceforge/ctags/${P}.tar.gz"

LICENSE="GPL-2"
SLOT="0"
KEYWORDS="~mips ~sparc ~x86"

src_configure() {
    econf --with-posix-regex
}
```

emerge

```
emerge --sync  
emerge --update @world  
emerge www-client/firefox  
dispatch-conf
```

make.conf

/etc/portage/make.conf

```
CFLAGS="${CFLAGS} -O2 -pipe -march=native"  
CXXFLAGS="${CFLAGS}"  
CHOST="x86_64-pc-linux-gnu"  
  
ACCEPT_KEYWORDS="~amd64"  
  
USE="${USE} mmx sse sse2"  
LINGUAS="en en_GB en_AU"  
VIDEO_CARDS="nvidia"  
CPU_FLAGS_X86="aes avx avx2 f16c fma3 mmx mmxext popcnt sse sse2"  
RUBY_TARGETS="ruby21 ruby22 ruby24 ruby25"  
PYTHON_TARGETS="python2_7 python3_4 python3_5 python3_6"  
  
MAKEOPTS="-j16"
```

USE flags

Enables/disables one build-time feature per package or globally.

```
www-client/chromium widevine -hangouts system-libvpx system-icu c  
www-plugins/chrome-binary-plugins widevine
```

slots

Supports parallel installations of package versions.

```
danny@sybil ~ $ equery list python
* Searching for python ...
[IP-] [ ] dev-lang/python-2.7.14-r1:2.7
[IP-] [ ] dev-lang/python-3.4.6-r1:3.4/3.4m
[IP-] [ ] dev-lang/python-3.5.4-r1:3.5/3.5m
[IP-] [ ] dev-lang/python-3.6.4:3.6/3.6m
```

eselect

Enables implementations and/or options for a package.

```
danny@sybil ~ $ eselect python list
Available Python interpreters, in order of preference:
[1]    python3.4
[2]    python3.6 (fallback)
[3]    python3.5 (fallback)
[4]    python2.7 (fallback)
```


masks

Prohibits specific versions of packages.

```
# massive system stability issues. tends to cause minor system fr  
# rendering context changes.  
=x11-drivers/nvidia-drivers-390.12
```

repos

```
layman -a steam-overlay  
layman -d steam-overlay
```

Extra utilities

equery detailed package information

eclean removes unneeded distfiles

eix efficient package searching

dispatch-conf merge new configs