



Gentoo Kernel recent and Future project

*Fast Releasing and Testing of Gentoo Kernel Packages
and*

Future plans of the Gentoo Kernel Project

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kernel :~ \$ whoami



- Gentoo Kernel Project Leader
- Gentoo Kernel Security
- Gentoo General System Administrator
- Gentoo Proxy Maintainer
- Gentoo Study Meeting Tokyo Organizer

Tokyo University of Technology

- Google Summer of Code 2017 for Gentoo organization
- Currently searching job as researcher in Japan

Summary



- What is Gentoo?
 - Why I should consider Gentoo?
- What is Gentoo Kernel Project?
- Kernel related project in Gentoo
- Gentoo Kernel recent and Future project
 - Toward Automation
 - Gentoo Kernel CI
 - kernel security live patch
 - Considering PAX fork
- Concluding

What is Gentoo?



- Highly customizable **meta-distribution**
- **Built from source** and support for **user patching**
- Available in **most architecture**
- Freedom of choice (OpenRC, SystemD, Runit, Epoch, and Busybox)
- Easy maintenance (also of the **Linux Kernel**)

Who is using Gentoo?



- Chrome OS
 - Chrome OS Has Double the Marketshare of Regular Linux in USA(2017/03)
 - Chromebooks outsold Macs for the first time in the US (2016/05)
- Softbank Pepper (NAOqi OS)
- CoreOS
- Most of Gentoo's sponsors run Gentoo:
 - <https://www.gentoo.org/inside-gentoo/sponsors/>
- Daniel Robbins maintains a useful graphic of Gentoo derivatives:
 - [http://www.funtoo.org/Gentoo Ecosystem](http://www.funtoo.org/Gentoo_Ecosystem)

Why I should consider Gentoo?



- Easy management of most recent upstream including kernel
- Many Kernel options (gentoo-sources, git-sources, rt-sources, ck-sources)
- Increased security with Hardened package
- Kernel Patches managed by package settings (USE flag)
- Gentoo Kernel wiki documentation
- Automatic Kernel deblobbing for specific kernel (ck-sources, hardened-sources, rt-sources)

Project:Kernel

With an ever increasing userbase demanding a higher quality of stable, production-ready kernel sources and featureful desktop support the professionalism and staffing of the kernel project is very important. Because we as users want the best from Gentoo Linux we supply a selection of both generic and specialised sources capable of handling the day-to-day grind to make life a little easier.

In order to provide a rich choice of high quality kernel trees Gentoo Linux must apply, write and test several kernel patches to the official upstream releases before they can offer finished ebuilds to the users. This is where the Gentoo Kernel project comes into play. By maintaining quality control, clearly defined road maps, highly skilled developers and a standard base across all of our kernels the project will help bring the end-user experience of our kernels to even higher levels.

All Gentoo Developers listed in the Kernel box can be reached by e-mail using `nickname@gentoo.org` (replace their nickname).

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- 3 Genpatches
- 4 Maintainers guide
- 5 Documentation
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 - 7.1 gentoo-kernel@gentoo.org
- 8 External resources

Subprojects [edit]

The kernel project has the following subprojects:

gentoo-sources [edit]

Full sources including the Gentoo patchset for the 3.4.x to 4.x kernel tree. [4.0]

Lead: [Mike Pagano](#)

mips-sources [edit]

Gentoo Kernel Project

Description The Gentoo Kernel Project aims to deliver the best possible experience from its sources across all supported architectures.

Email kernel@gentoo.org ✉

IRC Channel [#gentoo-kernel](#) ✉

Lead(s)

- [Alice Ferrazzi](#) (*alicef*)
Leader (Kernel, gentoo-sources, genpatches)

Last elected: 2017/01/31

Members

- [Anthony G. Basile](#) (*blueness*)
Member (Kernel, gentoo-sources, hardened-sources, genpatches)
- [Tony Vroon](#) (*Chainsaw*)
Member (Kernel, mm-sources, vanilla-sources)
- [Greg Kroah-Hartman](#) (*gregkh*)
Member (Kernel, gentoo-sources, genpatches)
- [Mike Pagano](#) (*mpagano*)
Member (Kernel, gentoo-sources, genpatches)
- [Manuel Rüger](#) (*mrueg*)
Member (Kernel, gentoo-sources, genpatches)
- [Tom Wijsman](#) (*TomWij*)
Member (Kernel, gentoo-sources, genpatches)
- [Magnus Granberg](#) (*Zorry*)
Member (Kernel, hardened)

Subprojects (none)
(and inherited members)

Parent Project [Gentoo Linux](#)

[Project listing](#)



What is the Gentoo Kernel Project?



- Writing Gentoo Kernel guide and policy
- Stabilizing Gentoo Kernel for most architectures
- Releasing Gentoo Kernel sources packages
- Writing library for managing the Gentoo Kernel sources installation. (kernel-2.eclass, linux-info.eclass, linux-mod.eclass)
- Supporting Gentoo Kernel sources on Gentoo bugzilla and #gentoo-kernel freenode irc

Maintaining most of the Gentoo kernel sources in Gentoo project.



Kernel/Overview

Kernel

[Translate this page.](#) This page contains [changes](#) which are not marked for translation.

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This document provides an overview on all kernel sources that Gentoo provides through Portage.

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 - 4.15 uclinux-sources
 - 4.16 win4lin-sources
 - 4.17 xen-sources
 - 4.18 zen-sources
- 5 See also



Kernel related project in Gentoo

genpatches-misc



- Toolbox of scripts for helping with the Gentoo kernel releasing
- <https://github.com/gentoo/linux-patches/tree/genpatches-misc>

hardened-sources



- Is part of hardened-gentoo project
- Increased security with grsecurity PAX and SELinux support
- Mantained by the sub-project hardened-sources part of hardened-gentoo

Eclean-kernel2



- A simple tool for old kernel cleanup/removal
- <https://github.com/mgorny/eclean-kernel2>

Kernelconfig



- Generate custom Linux kernel configurations from curated sources
- Improvement of genconfig with python
- <https://github.com/Calchan/kernelconfig>

Genkernel



- Genkernel is a tool for building a general-purpose modular Linux kernel for Gentoo Linux
- <https://github.com/gentoo/genkernel>

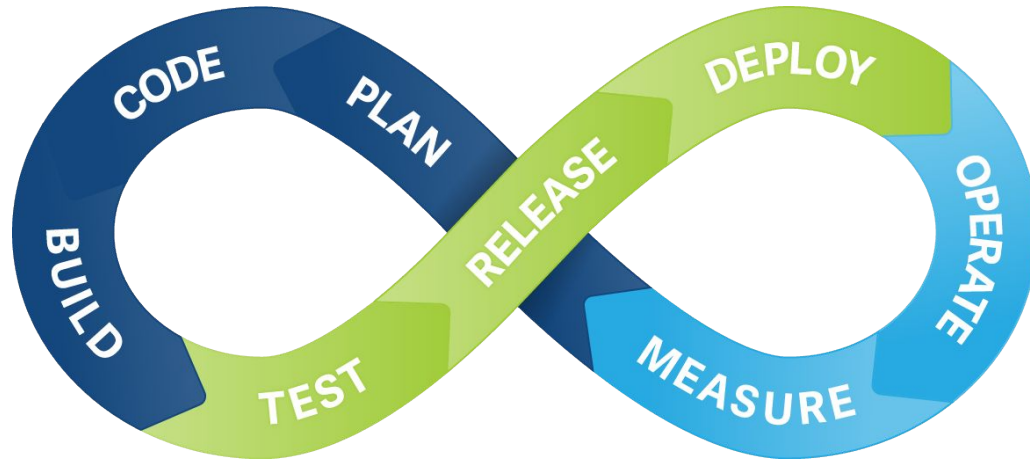


Gentoo Kernel recent and Future project

Toward Automation



- Gentoo Kernel CI
- Gentoo-kernel
- kernel security live patch





Gentoo Kernel CI

Reinventing the wheel?



- Buildbot based
- <http://buildbot.net/>
- Collaborating for making a buildbot configuration example for testing kernels

Features



- Forcing to check every code pushed to gentoo-sources git
- Check errors on boot-up with qemu
- Keep up with the recent upstream releasing style

demo



[https://github.com/gentoo/linux-patches/commits/4.](https://github.com/gentoo/linux-patches/commits/4)

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Gentoo Kernel CI future



- More architectures support for **better and fast stabilization**



Future projects

kernel security live patch



- Google Summer of Code 2017 **accepted**
- Automatically check kernel for **security issue**
- Supply **live patch creating system** for the kernel if there is a security risk found



Considering forking pax



Concluding

Want to know more ?



Official page: gentoo.org

Gentoo Study Meeting Tokyo: <https://gentoo.comnpass.com>

Submit bugs: [Bugzilla.gentoo.org](https://bugzilla.gentoo.org)

Gentoo Kernel Support: IRC freenode #gentoo-kernel

Want to help in Gentoo Kernel?



Kernel Project Official Page:

<https://wiki.gentoo.org/wiki/Project:Kernel>

Submit bugs: [Bugzilla.gentoo.org](https://bugzilla.gentoo.org)

Gentoo Kernel Maintenance Guide:

<https://wiki.gentoo.org/wiki/Project:Kernel/Maintenance>



Q&A



Thank You!

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