



Chimera Linux

2023 in Chimera Linux

Overview

- General-purpose Linux distribution
- Built from scratch with broad focus
- Based on FreeBSD core tools, musl, and LLVM
- Hardened (more than most)
- Portable (aarch64, ppc64le, ppc64, riscv64, x86_64)

Overview

- Binary packaging (apk-tools), rolling release
- Custom-built source packaging infra (cports)
- Lightweight and pragmatic, but also versatile
- Not trying to be like anything else
- No systemd, but not militant about it

Why?

- Make a well-rounded system I'd enjoy using
- Make proper use of LLVM (e.g. security hardening)
- Improve software I'm unhappy with
- Focus on robustness, determinism, and good defaults
- Have some fun doing all that

Core tenets

- Purity is counter-productive and makes things worse
- “Minimalism” doesn’t actually mean anything
- Simple > complex, but complex > complicated
- Opinionated = good, but dogmatic = bad
- Good software design is key

Core tenets

- Inclusive, open, accessible
- It's free software
- It's important to have fun
- Reactionaries ruin everything, so keep them out
- Otherwise, almost anything goes

System design

- Always be strict by default
- There should be a good, obvious way to do things
- Portability > security > benchmarks
- Self-sustaining, transparent tooling
- Flexible, retargetable infrastructure

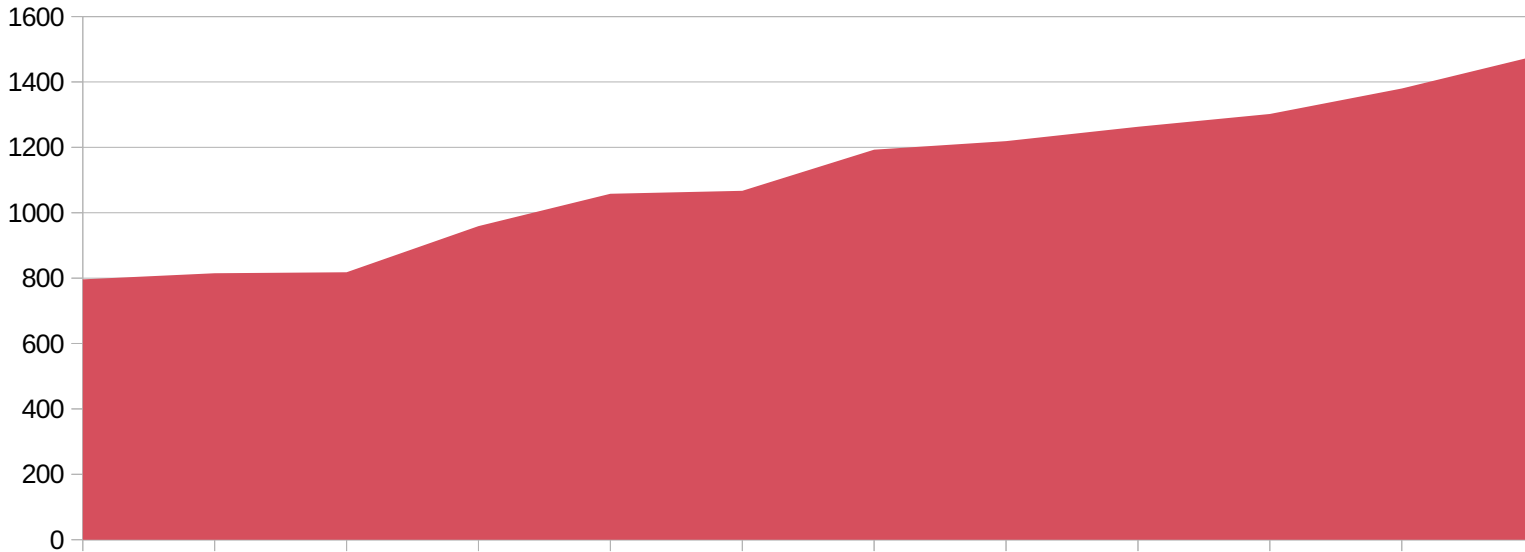
System design

- Atomicity and determinism
- It should usually not be written in shell
- Encourage doing good
- Always improve, nothing is good enough
- Systemd is not the devil, no shame in inspiration

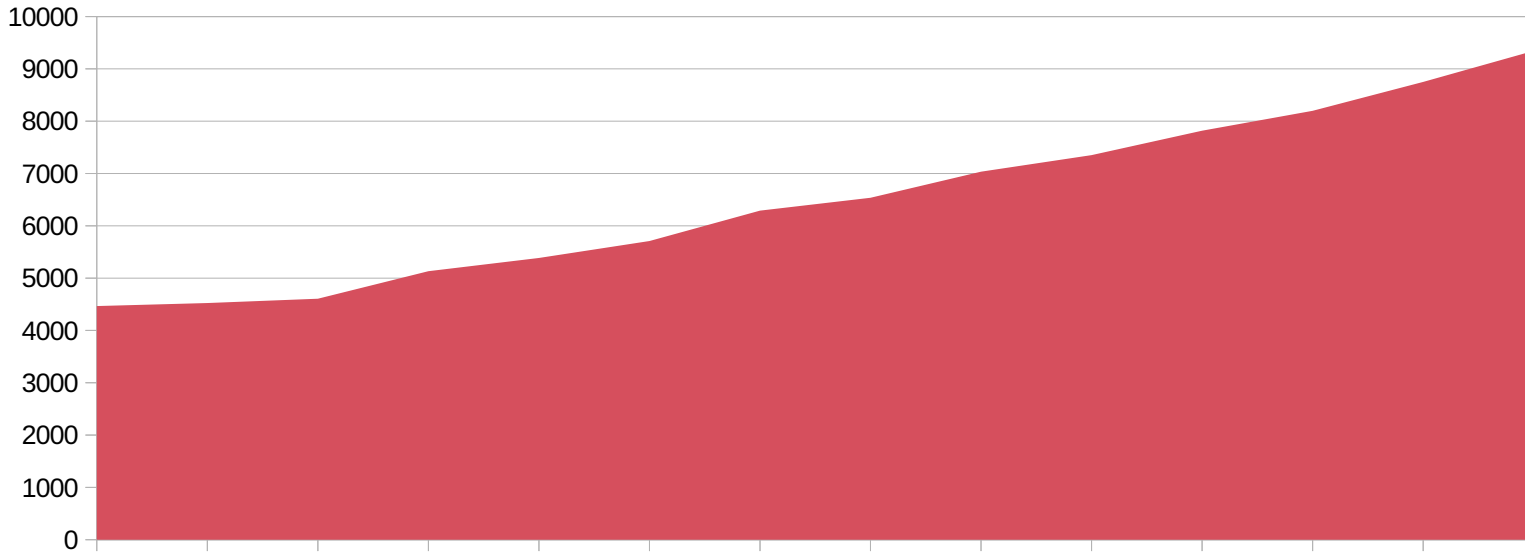
Packaging infrastructure

- Custom system (cports)
- Written in Python
- Sandboxed, fast, and easy to use
- Optimized to minimize effort needed for small teams
- Easy to add new packages

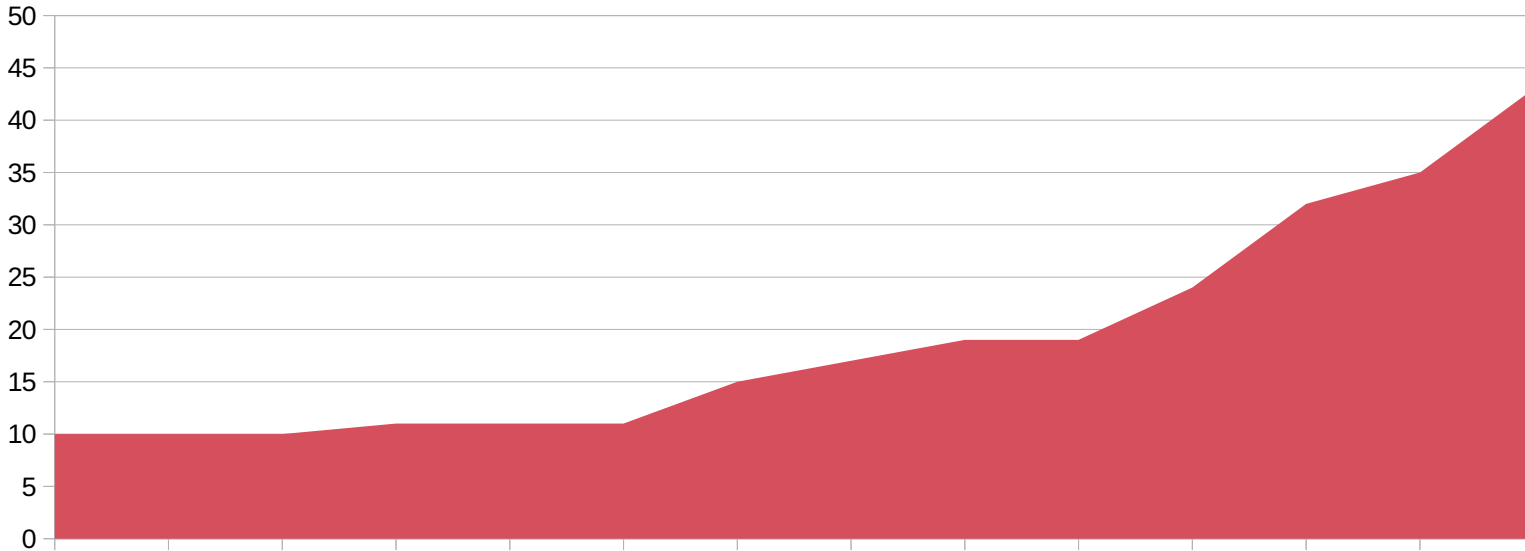
Cports templates in 2023-now



Cports commmits in 2023-now



Cports authors in 2023-now



Alpha “release”

- The project is now ready to take on adventurous users
- Repositories receiving major expansion
- The system is usable as a daily driver
- Still plenty more work to be done in all areas
- Add what you like to the repos

Major software packaged

- All big open source web browsers present:
 - Firefox, Chromium, GNOME Web
- Container infrastructure
 - Podman, Docker, containerd, and related
- LibreOffice

Major software packaged

- Qt6
- OpenJDK 17
- GIMP, Inkscape, Thunderbird, QEMU, etc.
- Various popular software, from neovim to emacs and sway
- Flatpak support

Toolchain changes

- LLVM 17
- -fno-semantic-interposition by default
- -ftrivial-auto-var-init=zero by default
- Hardened libc++, expanded `_FORTIFY_SOURCE`
- -z pack-relative-relocs for smaller executables

Infrastructure update

- Buildbot
 - Packages are now built automatically for all architectures as soon as changes reach the cports Git repo
 - Build servers for aarch64, ppc64le, ppc64, riscv64, x86_64
- Fancy package browser at pkgs.chimera-linux.org

Low level userland changes

- Initial API for our Turnstile session tracker
- Userland based on FreeBSD 14
- Systemd-udev in place of eudev
- Adoption of systemd-tmpfiles and systemd-sysusers
- Systemd-compatible binfmt support

Service management

- Preparing for adoption of dbus-broker
 - Fully service-driven dbus activation (supervised)
- Libdinitctl
 - An API to interact with Dinit from C and over D-Bus
 - To be used in various other places

Service management

- New service targets (e.g. for firewalls and time-sync)
- Early services overhaul
 - Various new helpers, e.g. for swclock, swap, sysctl
- Improved support for read-only root
- Countless minor quality-of-life improvements

Hardware support



Hardware support

- LTS kernel 6.6 and stable kernel 6.7
- Raspberry Pi 5 support (unified image 3/4/5)
- Steam Deck support (incl. OLED)
- Big endian ppc64 repos introduced (G5+)
- Ampere Altra amdgpu support out of the box

Conclusion

- A good, productive year
- Beta release possibly in late spring/summer
- Upcoming focus is service mgmt, session tracking
 - And getting rid of elogind if we can
- And also package management

Thanks for listening!

- <https://chimera-linux.org>
- <https://github.com/chimera-linux>
- https://floss.social/@chimera_linux
- #chimera-linux @ OFTC (irc.oftc.net)
- #chimera-linux:matrix.org