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 commits 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