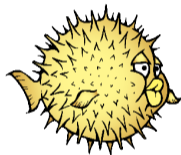


Towards running a Wayland Compositor on OpenBSD

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<https://homepages.laas.fr/matthieu/talks/wayland-openbsd.pdf>

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About the author

1988

- during my PhD thesis, got my hands on a X window system release 10 source code tape, built it on the Sun 3 workstations of the lab and started developing on X.
- later I also experimented with NeWS, before it was part of OpenWindows.

August 1993 I got a PC with a 486 CPU and 16 MB of RAM, with an S3 SVGA card,

- installed NetBSD 0.9
- tried to build and run the XFree86 2.1 X XF86_S3 server
- sent patches to XFree86 for that
- became co-maintainer of XFree86 on NetBSD for a while (before OpenBSD)



Wayland?

<https://wayland.freedesktop.org/>



- a “new” architecture for graphical desktop applications
- applications do direct rendering using a *compositor*
- the compositor is in charge of inputs, outputs, applications windows management and inter-applications communication.
- better application security (no system-wide sharing of screen contents or input)

- no more separate Window Manager
- requires DRI
- input and inter-process communication is Linux centered

Where to start?

Compositors:

- Weston - reference implementation - too many Linux-isms for now
- mutter (Gnome) - tightly coupled with Gnome
- kwin (KDE/Qt) - tightly coupled with KDE
- wlroots + Sway - a toolkit for building compositors + i3 compatible tiling compositor

Components:

- *output (display)*: DRM + Mesa - already there (thanks jsg@ and kettenis@)
- *input (keyboard, mouse,...)*: libinput - libinput port by mpi@ and rsadowski@
- *Linuxisms*: epoll-shim, udev,... already there or possible
- wayland-libs and protocol: quite portable - already there (thanks sadowski@)
- *Xwayland*: enabling legacy X applications to run on Wayland.

Porting wroots, Sway and small applications...

Work started during g2k23 in Tallinn 2-9 july 2023.

- in the ports tree (because of the dependencies)
- some easy parts: `sysutils/libdisplay-info`, `graphics/libltoff`
- `sysutils/seatd`: “seat” management: for now stub with the `noop` backend
- `sysutils/libinput`: more code needed:
 - keyboard translation table for wscons
 - handling of scrolling events for touchpads
 - symbols hiding
- `wayland/wroots` the Wayland helper library
- `wayland/sway` the composite manager
- `wayland/havoc` a simple terminal emulator
- `wayland/wev` xev(1) for Wayland.

Going further...

Other Wayland applications have More dependencies...

- `char32_t` and `<uchar.h>` added to base
work done by schwarze@
- C11 threads
added `sysutils/libstdthreads`

→ `wayland/foot` a better Wayland native terminal emulator

Patches to enable Wayland in `x11/gtk-3`, `x11/gtk-4` and `www/mozilla-firefox`

→ `firefox` works with Wayland

Work done at Summer 2023 HAM in Massiac (11-16 august 2023).

More work...

- Input handling, two possible ways:
 - libinput: need support for pointer acceleration, gestures, multiple devices,...
 - wlroots: fully wscons-based backend for input
- Linux / Posix / ISO C compatibility:
 - Thread Local Storage
 - memfd
- Gnome and Qt/KDE support
 - Wayland native applications
- Packaging and installer integration
 - choose a Wayland desktop at install time
 - Wayland xenodm?
- What about other architectures (non amd64)?

Demo...

How to help ?

Skills :

- C language and debugging with gdb
- OpenBSD's [ports tree](#)
- the [Meson build system](#)
- a look at the [wscons](#) console driver
- optionnally Rust programming language for the tools written in Rust

Look at the [Wayland page of the Arch Linux wiki](#) and choose an application or a topic to work on.

...And submit patches / ports / questions to the [ports@](#) mailing list.

Conclusion

- X11 is fading away
- Wayland is the way to go for graphical desktops
- This is possible and not too far away
- Already a number of contributors, need more help
- Feedback to upstream (Freedesktop.org) as much as possible
- Even on Linux, Wayland still has a number of rough edges



</usr/ports/wayland/TODO-Wayland.md>