

# A look at Mobian trixie: phosh edition

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# Pleased to make your acquaintance

## \$ whoami

- goes by devrtz
- Daily driving "Linux first" phones since early 2020
- used phones with a physical keypad before that
- Mobian member, Debian Maintainer
- Contributor to the wider Phosh ecosystem

- Mobian: A Debian based operating system for mobile devices
- Phosh: A graphical environment for use on mobile devices

# Disclaimer

- Most of the things I'm showing have been done by other people (all of them awesome)
- All opinions (errors) are my own

- Only free software
- Based on (close to) mainline Linux
- Reuse existing userspace components
- Run traditional distributions
- Upstream first mentality

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- User freedom and control
- Fun things (for arbitrary values of fun):

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- Debian is the universal operating systems
- User freedom and control
- Fun things (for arbitrary values of fun):
  - Use ansible to setup your fleet of SSH enabled mobile phones
  - LUKS encrypted your rootfs
  - `sudo rm -rf --no-preserve-root /`

# Mobian - What is it?

- Debian based Distribution supporting mobile devices
- <https://wiki.debian.org/Mobian/Devices>
- Small overlay on top of Debian: ~25 source packages  
<https://packages.mobian.org>
- Goal:
  - Dissolve completely into Debian
  - Become a Debian Pure Blend



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- Goal:
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- Non-Goals:
  - Support every phone in the wild
  - Rely on nasty unmaintainable hacks

# Mobian - How does it work?

## TL;DR

- <https://salsa.debian.org/Mobian-team>  
<https://packages.mobian.org>
- <https://salsa.debian.org/DebianOnMobile-team>  
92 source packages
- Images build using debos  
<https://salsa.debian.org/Mobian-team/mobian-recipes>
- CI: automated rebasing of kernel patches

## TL;DW

- <https://toulouse2024.mini.debconf.org/talks/9-trixie-on-mobile-are-we-there-yet/>

# Mobian - Overview of Devices

- Almost all devices are running a 6.12 kernel, Librem 5 6.6
- Linux first devices:
  - PINE 64: PinePhone (2019), PinePhone Pro (2021??)
  - Purism: Librem 5 (2019)
  - amd64 and other tablets
- Reasonably well supported Android devices:
  - OnePlus 6, OnePlus 6T, PocoPhone F1 (sdm845)
- Experimental support
  - FairPhone 3, 4, 5
  - Google Pixel 3A, 3XL
  - SHIFT 6mq

# Device support in Forky?

- sensor support
- both cameras working ootb on all devices from the previous slide
- Newer models from the previous slide: e.g. Pixel 6
- personally excited about <https://liberux.net/>

# Porting a mainline supported phone to Mobian

- `#mobian-ports:matrix.org`
- `mobian-recipes: qcom-wip`
  - build kernel package for device and copy to `devices/qcom/packages`
  - fill in `devices/qcom/configs/wip.toml` information for the target device
  - optional: create a `droid-juicer(1)` config named `<compatible>.toml` and copy it to the `devices/qcom/droid-juicer` folder
  - run `./build.sh -t qcom-wip`

# Upgrading from Bookworm

Help wanted testing the upgrade path

<https://wiki.debian.org/Teams/Mobian/TrixieUpgrade>

# What's new?

- Almost all devices running 6.12 kernels
- Initial support CellBroadcast in MM & Phosh (thanks to NLnet & agx)
- Desktop Environments:
  - phosh 0.46.0
  - plasma Mobile 6.3.4
  - sxmo-utils 1.12.0
  - lomiri 0.4.1
- GNOME 48: papers, loupe
- more mobile friendly applications (railway, iotas, etc)
- new greeter! old one removed: <https://bugs.debian.org/1104110>

# What broke?

- echo cancellation broken on the Librem 5 under pipewire; but we can install pulseaudio instead
- GTK4.18 dropped GLES2 renderer
  - affected devices: PinePhone, Librem 5(, MNT Reform)
  - mesa patch <https://bugs.debian.org/1104029>
  - disable rendering shadows: `~/.config/gtk-4.0/gtk.css`  
`{ box-shadow: none; }`
- calamares installer currently broken



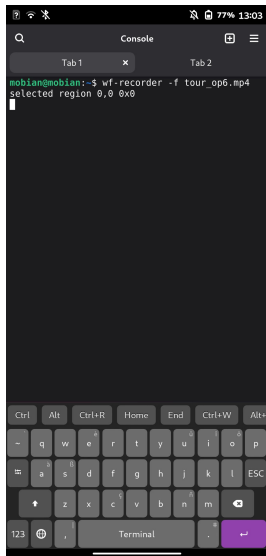
# Phosh in a nutshell

- Phosh (Phone Shell); Phoc (Phone Compositor)
- the word "phosh" can mean
  - the phone shell as a software project; sources @ <https://gitlab.gnome.org/World/Phosh/phosh>
  - the phosh ecosystem: "core" applications and components, e.g. on screen keyboard, calling and messaging, led, vibration

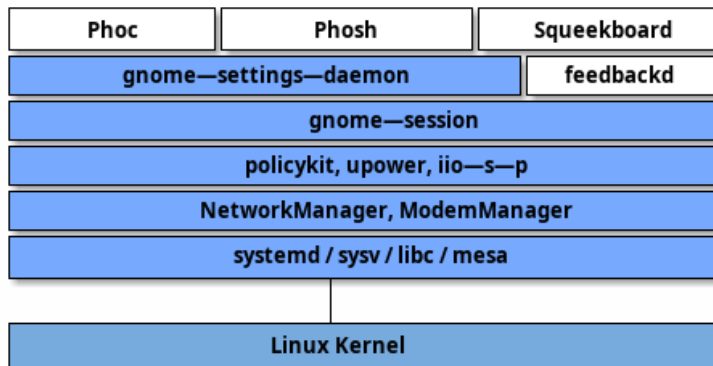


# A quick tour

[https://fortysixandtwo.eu/minidc25/tour\\_op6.mp4](https://fortysixandtwo.eu/minidc25/tour_op6.mp4)



# The stack roughly



Standing on the shoulders of giants

# The ecosystem

## The main cast

- phosh, phoc
- squeekboard, phosh-osk-stub
- feedbackd
- phosh-mobile-settings

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## Lesser known (?)

- phog, phrog
- libphosh, libcall-ui
- gmobile
- xdg-desktop-portal-phosh, PhoshFileSelector
- phosh-tour
- PhoshEv, phosh-antispam, phom

- 2018-09-20 v0.0.1 released
- 2020-04-15 first upload to Debian \ø/ phosh (0.2.2-1) on 2020-04-15
- Bullseye shipped 0.8.0-1, Bookworm 0.24.0-1

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- Bullseye shipped 0.8.0-1, Bookworm 0.24.0-1
- Trixie 0.46.0-2
- translated for ~50 different locales

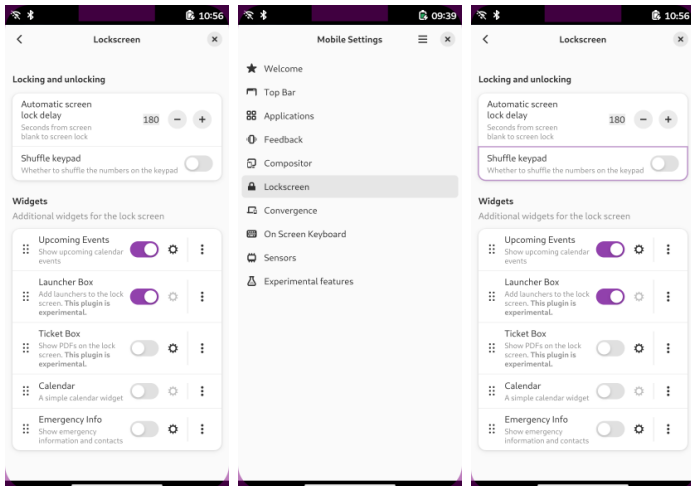
# gmobile: Notches and more

- support library
- wakeup keys (udev, hwdb)
- notch support
- <https://phosh.mobi/posts/notch-support/>

```
gm-display-panel-run-phosh -c oneplus,fajita
```



# gmobile: all dem notches



# feature matrix

| Feature                         | Google Pixel 3A | OnePlus 6  | OnePlus 6T | Pine64 PinePhone | Purism Librem 5 |
|---------------------------------|-----------------|------------|------------|------------------|-----------------|
| Automatic Screen Rotation       | _ 1             | _ 2        | _ 3        | ★★★★★            | ★★★★★<br>★      |
| Use Front Camera to Take Photos | -               | _ 4        | _ 5        | ★★★★ 6           | ★★★★ 7          |
| Receive Cell Broadcasts         | _ 8             | _ 9        | _ 10       | ★★★★★ 11         | ★★★★★ 12        |
| GPS Positioning                 | ★ 13            | ★★ 14      | ★★ 15      | ★                | ★ 16            |
| Send and Receive MMS            | ★★ 17           | ★★ 18      | ★★ 19      | ★★★★★ 20         | ★★★★ 21         |
| Mobile Data                     | ★★★★★<br>★      | ★★★★★<br>★ | ★★★★★<br>★ | ★★★★★            | ★★ 22           |

<https://phosh.mobi/about/features/>  
<https://codeberg.org/Phosh/phosh-site/>

# Placing and receiving GSM calls

- OG PP & L5
- PPP (?)
- "can be made to work" on other devices
- audio routing is very device specific (e.g. hexagonrcpd to talk to DSP on SDM)
- wake up not working on Android devices on Android Devices

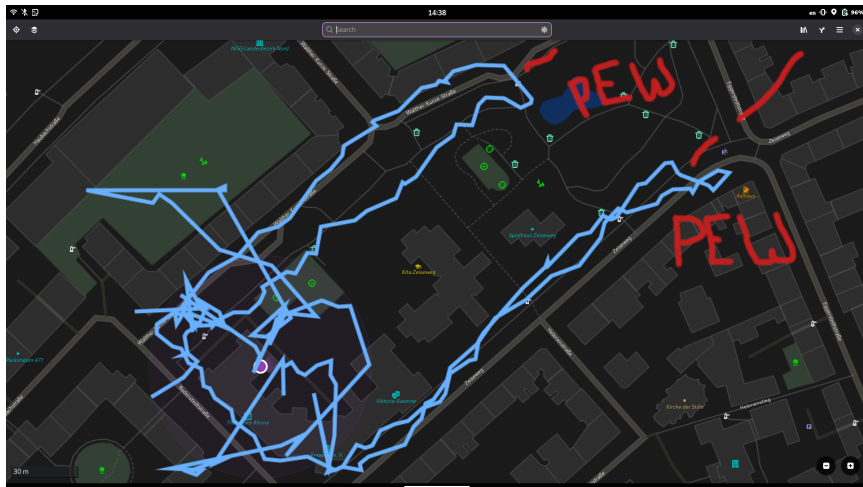
- works fully on PP, PPP & L5
- phone wakeup not working on Android Devices

# apt install battery-stats

- OG PP should get you through a day
- PPP ~3h ?
- L5 should get you through a workday
- Android devices consume way less when idle and should get you through maybe 2 days?

# gps (and compass)

- GNSS works on PP, L5, OP6
- Acquiring a fix (AGPS)
- ootb GPS setup qcom-phone-utils!15
- gnome-maps
- organic maps (in NEW)



GPS Spaceship (OnePlus 6)

- L5 is generally fine, if a bit fiddly sometimes `#ShotOnLibrem5`
- postprocessing
- it's complicated
- libcamera





<https://social.librem.one/@dos/114041147306661468>

- sensors working on PP,PPP & L5 ootb
- For Android devices it's more complicated (hexagonrpcd, ...)

- OTP
- ebook reader
- banking (?)
- mapping applications
- note taking
- public transport
- RSS feeds & podcasts
- messaging (signal, telegram, ...)
- waydroid (not yet packaged in Debian, but can be made to work)

# Want to help?

- package mobile friendly applications
- contribute code upstream
- submit translations
- file issues, test test test :)
- talk about #LinuxMobile

# Testing the latest and greatest

## phosh-nightly

- <https://phosh.mobi/posts/phosh-nightly/>
- <https://gitlab.gnome.org/guidog/phosh>
- <https://gitlab.gnome.org/guidog/phoc>

## Running the latest and greatest

```
$ cat /etc/apt/sources.list.d/phosh-nightly.sources
Types: deb
URIs: http://deb.phosh.mobi/nightly/
Suites: trixie-nightly
Components: main
[...]
$ apt -t trixie-nightly full-upgrade
```

- <https://codema.in/dephcom/>
- <https://opencollective.com/dephcom>

# from future import \*

- runtime management background apps
- push notifications
- wake-up on IP connections
- more applications
- "share to" functionality
- better hardware support
- monetization in app store to incentivize developers

# My only friend the end

Thanks <3



# My only friend the end

Thanks <3  
Questions?

- Homepage: <https://mobian.org>
- Matrix:
  - #mobian:matrix.org
  - #mobian-dev:matrix.org
  - #mobian-ports:matrix.org
- IRC:
  - #mobian
  - #mobian-dev
- Fediverse: @mobian@fosstodon.org
- Donate: <https://liberapay.com/mobian>

- Homepage: <https://phosh.mobi>
- Matrix: [#phosh:sigxcpu.org](https://matrix.to/#/phosh:sigxcpu.org)
- Fedi: [@phosh@fosstodon.org](https://fosstodon.org/@phosh)
- Donate: <https://liberapay.com/Phosh>

## devrtz

- Email: [devrtz@fortysixandtwo.eu](mailto:devrtz@fortysixandtwo.eu)
- Matrix: [@devrtz:fortysixandtwo.eu](https://matrix.to/#/@devrtz:fortysixandtwo.eu)
- Fediverse: [@devrtz@fosstodon.org](https://fosstodon.org/@devrtz)
- IRC: devrtz @ oftc