

My phone runs Debian - and it does phone calls!

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2020-08-26

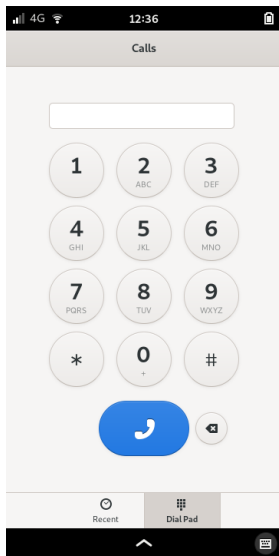
- 1 Introduction
- 2 The GNOME/Phosh software stack
- 3 State in Debian
- 4 Summary
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- Debian Developer (libvirt et al., git-buildpackage, ...)
- Freelancing Free Software Developer
- Working with Purism on the Librem 5 Phone

- How does the mobile software stack look like and why?
- What's in Debian already?
- What is left to do?

Overview



Why do we want mobile devices to run Debian

- Software Freedom
- Proper (Security) Updates
- User instead of vendor control

Obstacles device side

- Lack of hardware/spec (but postmarkeOS did a great job)
- Proprietary userspace bits (e.g. OpenGL/Vulkan drivers)
- Heavily forked Android kernels (non mainline interfaces, vendor drivers)
- Userspace looks pretty much different

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Obstacles Debian side

- Lack of adaptable user interfaces and apps in Debian

Quote

Having a few devices that are affordable and current (like OpenMoko was) would give as a good start for devs to hack on it.

Librem 5 announcement

Mission statement

Let's build a modern smart phone running a pure Wayland, GNOME based software stack with a mainline Linux kernel, a Debian based OS and no binary blobs that userspace needs to mess with.

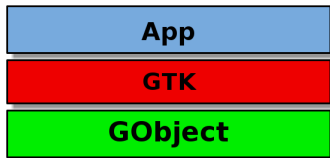
Mission statement

Let's build a modern smart phone running a pure Wayland, GNOME based software stack with a mainline Linux kernel, a Debian based OS and no binary blobs that userspace needs to mess with.
Now how hard can that be?

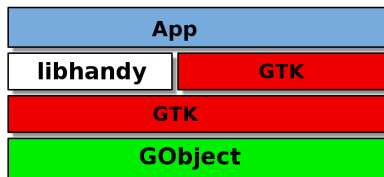
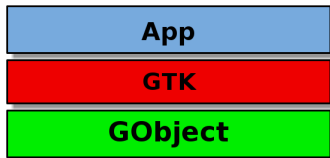
- Hardware wasn't designed yet
- i.MX8 SoC not yet publicly available
- GNOME not suitable for mobile devices as is

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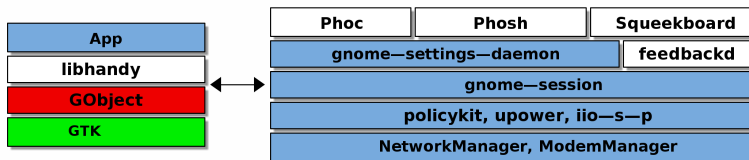


Apps should stay regular GTK/GNOME apps

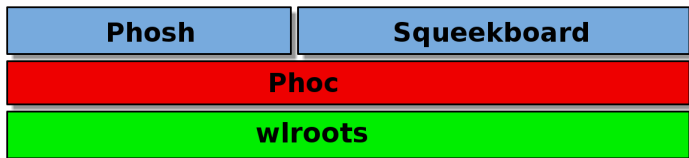
Demo time

- `videos/viewswitcher2.mp4`
- `videos/leaflet2.mp4`

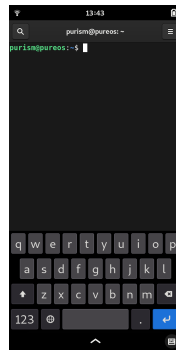
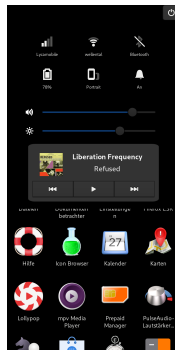
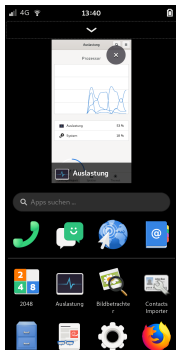
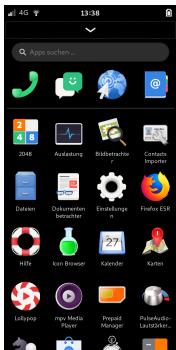
Almost regular GNOME session



The Graphical Shell



Phosh/Phoc/Squeekboard



Linux Kernel

UBoot / ATF

Lots of polishing

- Improving gesture support in the shell
- Avoid flickering
- Improving XWayland support for convergence
- figure out desktop vs mobile

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But we can go bug by bug now.

Summary

- Overall pretty close to a 'regular' GNOME, Linux system
- Supposed to work on mobile and desktop
- Extend existing programs/services when available
- Try to inherit the existing stability of the GNOME stack

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- Most of the base packages are already part of Debian Bullseye
- Most notably missing squeekeyboard
- GNOME 3.38 brings in more adaptive GNOME apps

- Apps that have not yet mainlineable patches
- a handful of GTK3 patches

- a functional kernel
- uboot / ATF

Diff to mainline Linux

KVer	files changed	insertions	deletions
4.18.11	407	111510	7155
5.3.0	169	37413	1900
5.7.14	130	34539	1207

Librem 5 Numbers

~ 35000 LoC outstanding:

LoC	what	status
20000	wifi driver	mainline replacement
4500	DCSS display controller	reviewed
6000	MHDP (DP/HDMI)	posted
1400	NWL DSI Bridge	in 5.8
750	L5 LCD panel	drm-misc-next
<100	misc (vcnl4000, ...)	in 5.8

57 files changed, 2050 insertions(+), 151 deletions(-)

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- Upstreamed about ~ 125 patches so far

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- TODO uboot/atf

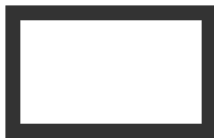
- installer / flashable images
- out of the box support
- Mobile tweaks
- Meta package

And right now?

- Mobian



- PureOS



How to help?

- Join DebianOnMobile-team
- Join Mobian || PureOS
- Package more apps
- Make more apps adaptive

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Debian on mobile devices is becoming a thing. It would be great to have official support for first devices in Bookworm (Debian 12).

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Debian on Mobile

<https://wiki.debian.org/Teams/DebianOnMobile>

Mobian

- Mobian Project: <https://mobian-project.org/>
- Arnaud Ferraris: https://meetings-archive.debian.net/pub/debian-meetings/2020/MiniDebConfOnline/debian_mobile_phones.webm

Librem 5/PureOS project

- <https://developer.puri.sm/Librem5/Contact/Community.html>

Phosh, libhandy and related projects

- <https://gitlab.gnome.org/GNOME/libhandy>
- <https://github.com/swaywm/wlroots>
- <https://source.puri.sm/Librem5/phosh>
- <https://source.puri.sm/Librem5/phoc>
- <https://source.puri.sm/Librem5/squeekboard>
- <https://source.puri.sm/Librem5/calls>
- <https://source.puri.sm/Librem5/chatty>

Talks / BoFs

- W. Martin Borger: Debconf17 BoF: Pushing forward Debian Mobile
- Nicole Färber: CCCamp talk: A mobile phone that respects your freedom

Debian on Android

- <https://wiki.debian.org/ChrootOnAndroid>

Slides

- <https://git.sigxcpu.org/cgit/talks/2020-debconf-mobile/>

- Mail: <agx@sigxcpu.org>
- Fediverse: @agx@librem.one
- IRC OFTC: agx_

- Mobian logo:
`https://mobian-project.org/images/mobian.png`
- PureOS logo: `https://puri.sm/wp-content/uploads/2015/04/purism-logo-1748x1120px.png`
- Screenshots: myself using
`https://packages.debian.org/sid/grim`
- Videos: myself using
`https://packages.debian.org/sid/wf-recorder`