

Debian on Mobile BoF

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Arnaud Ferraris
aferraris@debian.org



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Summary

- Debian on mobile devices in recent years
 - Available devices
 - Mobile-friendly software in Debian
 - Mobian vs. Debian
- Improving Debian for mobile devices
 - Device-specific tweaks and configs
 - Hardware enablement
 - Other potential improvements

Who am I?

- Debian user since the “Woody” era
- Senior Software Engineer @ Collabora
- Frustrated with non-hackable smartphones
- Initiated the Mobian project in 2020
- Debian Developer in 2022
 - Member of the DebianOnMobile team
 - Contributor to the Rust and GNOME teams





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Debian on mobile devices

The “Linux on Mobile” space

- Multiple Linux-first devices available
 - PINE64 PinePhone (Pro), PineTab (2, V)
 - Purism Librem 5
- Several well-supported Android phones
 - OnePlus 6/6T, Pocophone F1 (Qualcomm Snapdragon 845)
 - WIP : FairPhone 3, 4 & 5 + a lot more
- x86-based tablets



▶ **Linux-first
mobile devices**



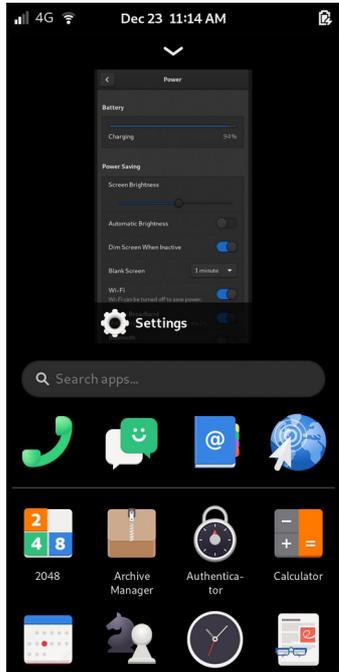
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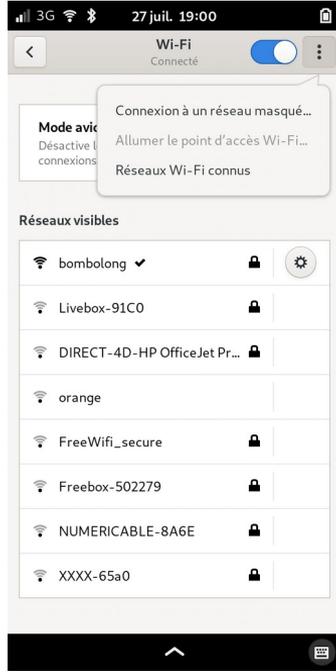
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Multiple graphical environments



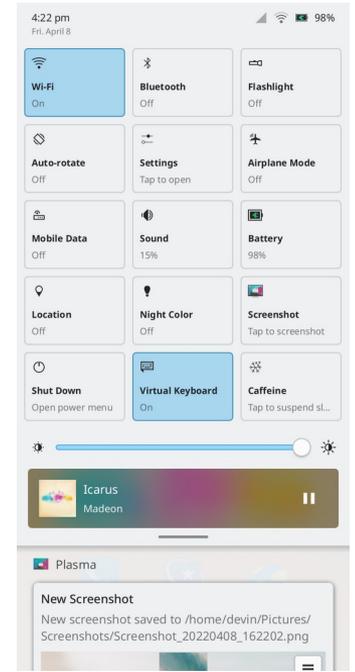
Phosh



SXMO



KDE Plasma Mobile



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Packaging mobile-friendly software

- DebianOnMobile team
 - Graphical environments: Phosh, Plasma Mobile, SXMO...
 - Essential middleware: ModemManager, mmsd-tng...
 - Applications only/mostly useful on mobile devices
- Adaptive apps → relevant teams (e.g. GNOME)
- Mobian team
 - Downstream kernels and device-specific tweaks
 - Flashable images



Mobian vs. Debian

- What is Mobian?
 - Debian derivative AND a Debian team (subset of DebianOnMobile)
 - 35 source packages (as of Nov 2023)
 - 1/3 kernel packages (100-300 downstream patches each)
 - 1/3 device-specific packages (metapackages and config tweaks)
- Why Mobian?
 - Packages not fit for Debian (low quality, temporary and/or downstream forks)
 - Broader device support, not limited to what upstream Linux supports



Improving Debian for mobile

Device-specific “tweaks” management

- Devices usually require specific configuration
 - Audio sample rate & format
 - `udev` rules related to downstream kernel patches
 - ...
- Currently one package per device in Mobian → doesn't scale!
- `mobile-tweaks` exists in Debian
 - Only uncontroversial, upstream-backed configs
 - One binary package per device as well



Practical “tweaks” management

- The `droid-juicer` way:
 - Boot-time service for fetching binary firmware from Android partitions
 - Identifies the device through device-tree “compatible”
 - Loads corresponding config and copies firmware to `/lib/firmware/updates`
- Could we re-use this approach?
 - Lots of files unknown to `dpkg`
 - Adds files to `/etc` and other places → keep or remove on uninstall?
 - Other concerns?



Hardware enablement

- As mentioned previously, lots of downstream patches
 - Needed for full functionality
 - Basic support upstream for most devices!
- Add relevant config options to Debian kernel?
 - Concerns from the kernel team about the ever-increasing package size
 - Have a specific package for mobile devices? (similar to e.g. the cloud variant)
 - Probably requires additional maintainers
- Other suggestions?



Other potential improvements

- Debian-wide image build service
 - Ability to generate device-specific images
- Push notifications
 - No “standard” way to deal with those on Linux (per-app implementations)
 - [UnifiedPush](#) might fill this gap
 - Could Debian host a [UnifiedPush](#) server?
- Mobile-friendly [debian-installer](#)
- Anything else?



Thank you!



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