

# FreeDroid

Google free Android

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# About Jens Kühnel

- Book author, trainer, Consultant, System Administrator
- Freelancer since 2000
- Freelancer @ Deutsche Börse since 2008
- 90% Employed @ Deutsche Börse since 2016
  
- Really likes free software phone for a long time :
  - 2007 OpenMoko Neo FreeRunner (GTA02)
  - 2009 Nokia N900
  - 2013 Fairphone 1
  - 2015 Fairphone 2

# About FreeDroid

- My name for a special version of Android
- Based on Android, Lineage, MicroG and Fdroid
- Based on <https://fsfe.org/campaigns/android/liberate.en.html>

# About Android:

- Based on Android AOSP
- Open Source Version of Android
- Normal Android adds google Apps ( incl Google Playstore) which is not open source

# About Lineage:

- Based on Android AOSP
- Rebuilds Android
- Added support for a lot of other devices
  - Including Binary Blobs if necessary
- Extends the lifetime of supported hardware
- Official Support requires a lot of quality test
- Ships without google apps, but does not support other play stores

# F-Droid

- play store like tool to install other software
- Only supports free software/open source
- Warns about unwanted features, like not open network services (youtube player), Ads, tracking, non-free assets (pictures, google maps...)
- Can be installed on every Android phone
- System service App can be install for automatic installs/updates (via F-Droid Privileged Extension)

# MicroG

- Supports Google library (API), but without google code
  - Service Core (GmsCore) = library needed to support Google Play Services or Google Maps Android API (v2)
  - Services Framework Proxy (GsfProxy) = supports apps needing Google Cloud to Device Messaging (C2DM)
  - Unified Network Location Provider (UnifiedNlp) = Geolocation service, but without google

# LineageOS for MicroG

- Patches LineageOS with support for MicroG
- Adds fdroid with system app as well
- Base for my installation

# FDroid Apps

- Fdroid has a lot of stuff that is needed:
  - Webbrowser: Debian firefox (IceCatMobile), firefox Focus (in Germany firefox klar)
  - Mail: K-9
  - Chat: conversation, riot.im, signal, ...
  - Multimedia: vlc, kodi, newPipe(youtube), radiodroid
  - Travel: transportr, öffi, maps, osmand+
  - Other: binary Eye (QR Code), Battery Pro, Bitcoin, gadgetbridge (MiiBand without clode), FreeOTP (Authenticator), Giggity (Event calender), gitlab, Keepass, NTP-Sync, Termux (mini linux Enviroment with apt), WifiAnalyse

# Non-free Software on FreeDroid

- Some necessary software is only on google:
  - Deutsche Bahn, Flinkster, Leo, RMV, Tradfri, Carsharing
- Some software will not work:
  - Every paid software from google playstore!
    - Some software like threema and titanium backup support payment without the 30% google tax.
  - Almost every Banking software and other security software

# How to put in on

- Install it on device with yalp/aurora Store (available in fdroid)
  - Download from google and install software directly on the device
- Download it external and added it to a fdroid compatible repo
  - Download with racoon (Java app for the desktop)
  - Create the needed fdroid repo file with fdroid tool (python) on PC
  - Push to webserver

# My Cloud / NextCloud

- Adds Address / Calender / Tasks and Photo-Sync to Andoird without central server
- Host your own instance or buy one from a provider (like Mail)
- Offers plugins:
  - Talk, notes, bookmarks, pools (like doodle), SMS-Sync, phone-tracker
- Needs freedroid software:
  - Nextcloud Client
  - davx<sup>5</sup>
  - (Nextcloud Task)
  - (Nextcloud PhoneTrack)
  - (Nextcloud Notes)

# My system = I'm root

- Default Android does not allow root
- su is needed.
- My preferred rooting solution: magisk  
<https://github.com/topjohnwu/Magisk/releases>

# What is needed for all this

- Supported Phone from the lineageOS list
  - <https://wiki.lineageos.org/devices/>
  - Look for price search engine, some can search for „lineageOS support“
- Unlock bootloader
- Boot TWRP (Team Win Recovery Project trwp.me) or install it
- Install MicroG for LineageOS
- Install magisk
- Boot into lineageOS
- Enable Support „Google stuff“ in microG
- Add private fdroid-repo
- Install software

# Demo

# Questions

# Additional Infos

- Cell Manufacturar open for free software:  
Fairphone, shiftphone, xiaomi , bq
- Demo: `adb shell screenrecord --output-format=h264 - | ffplay -`