Setting up OpenWebRX+ with SDR devices and a Linux system

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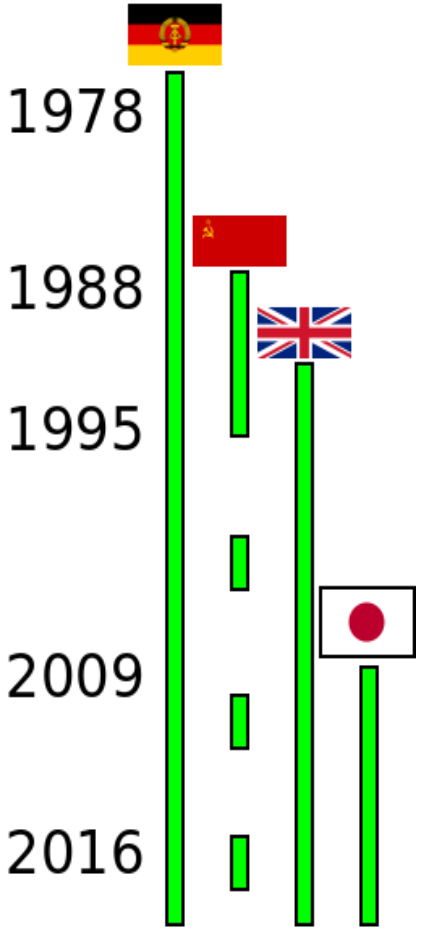
Agenda

- Who am I?
- What's possible with the OpenWebRX+ setup?
- Recommended hardware for this setup
- How to setup the software?
- Live demo

Who is Christian Horn?

- 1978: Born in Mühlhausen/Thüringen/East Germany
- 1989: experienced German reunification
- 1997: finished school, German army duty, learning on OpenSource
- 2001: finished work training. No Linux work in my homearea, so moving to Munich, work as linux-engineer
- 2008: 3 months work in Tokyo, starting to learn Japanese
- 2016: Move to Tokyo

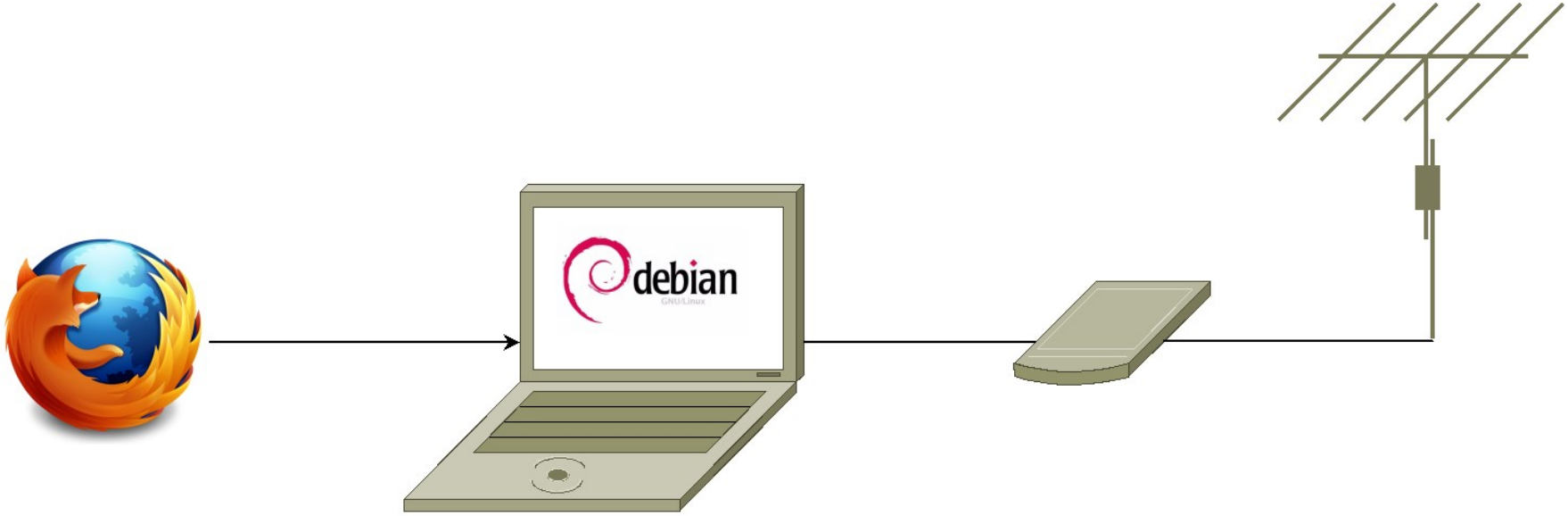


..and after work?

- Learning Japanese
- Singing Beethoven's 9th (第九) - with ~5000 others in Tokyo
- Cycling, mountains, onsen, jogging
- HAM: learning for higher class exam right now, and CW
- Researching computer things and culture
  - writing #japan-blog (English), #japan-pictures, best of pictures
  - Sharing my typography, language learning, Linux, sustainability things with the world via https://fluxcoil.net
- Have not yet found a partner to create an own family, often going to Germany to meet parents

"Chris at Tanigawadake" by chorn@fluxcoil.net / BY-CC

Our setup

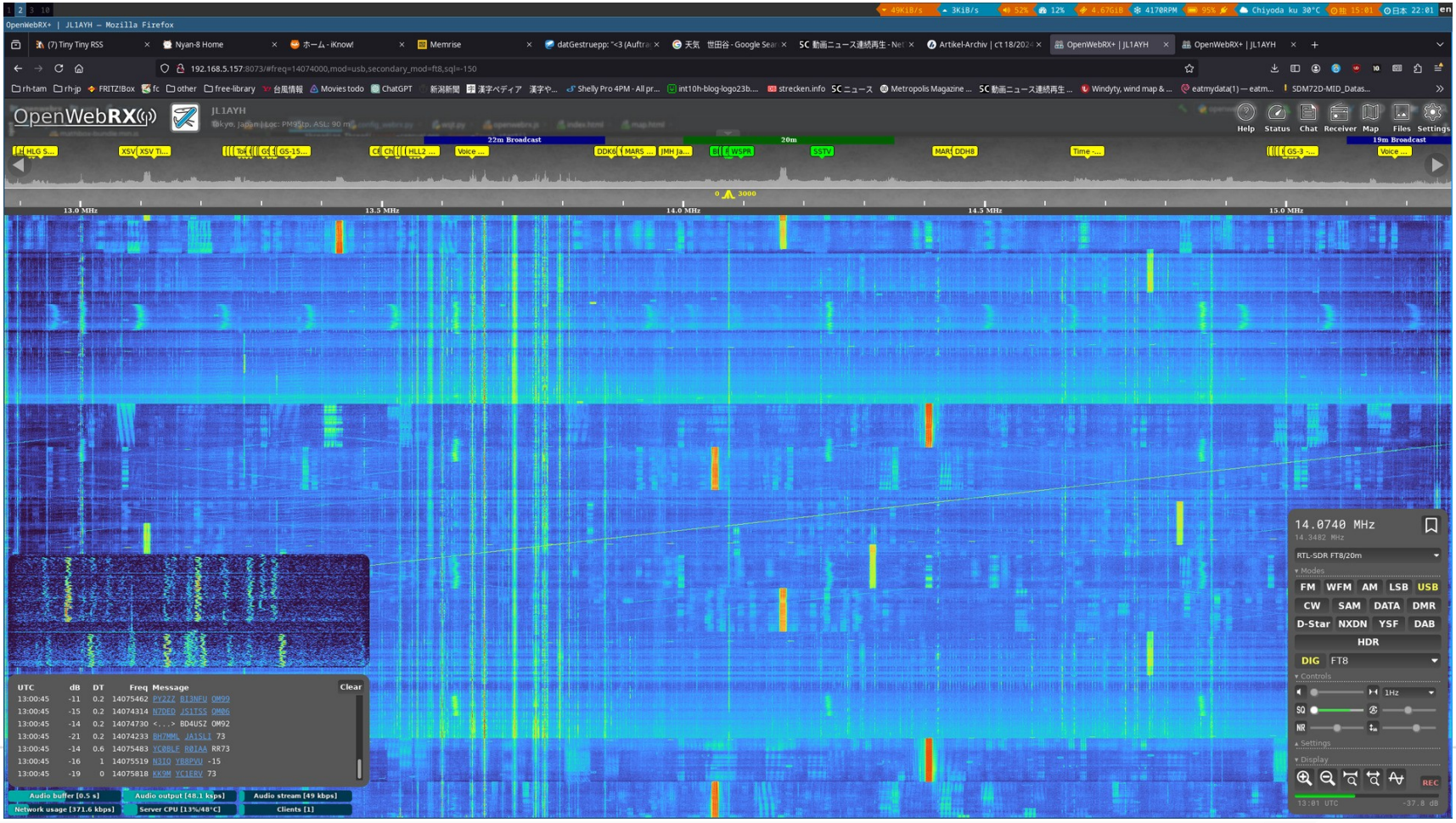

debian
GNU/Linux
Webbrowser
Laptop with Debian Linux
SDR device,
i.e. RTL-SDR
antenna

What's possible with this setup?

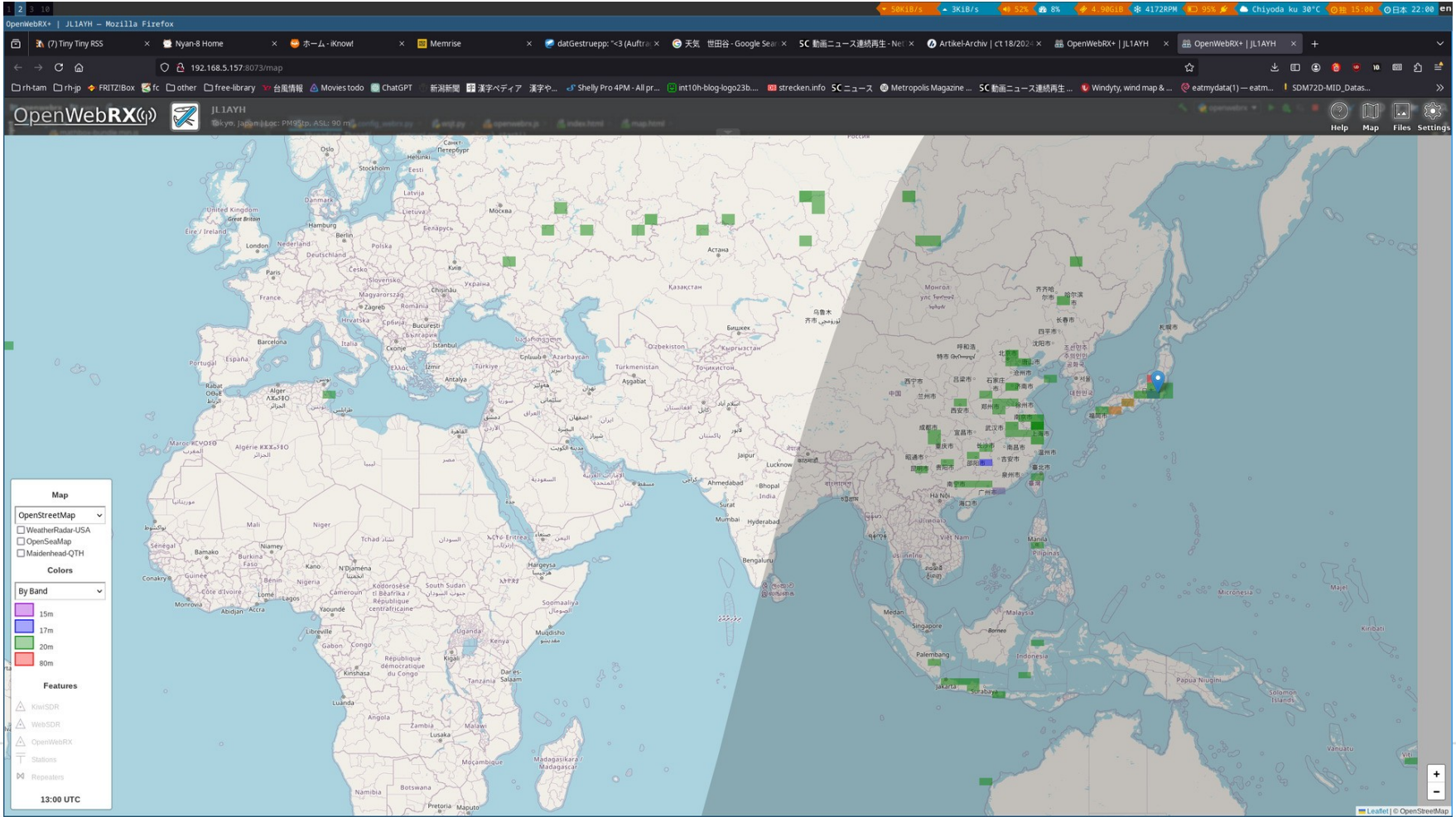
- Setup OpenWebRX+ on a system, connect an SDR device
  - run a web browser (Firefox, Google Chrome etc.) directly on the system
  - OR run the web browser somewhere else and access via network!
- Listen in on all bands supported by the SDR device.

  Many decode modes: (near)FM, WideFM, SSB, AM
- Also many decoders available: ADSB, FT8 (also showing contacts on a map), CW + much more

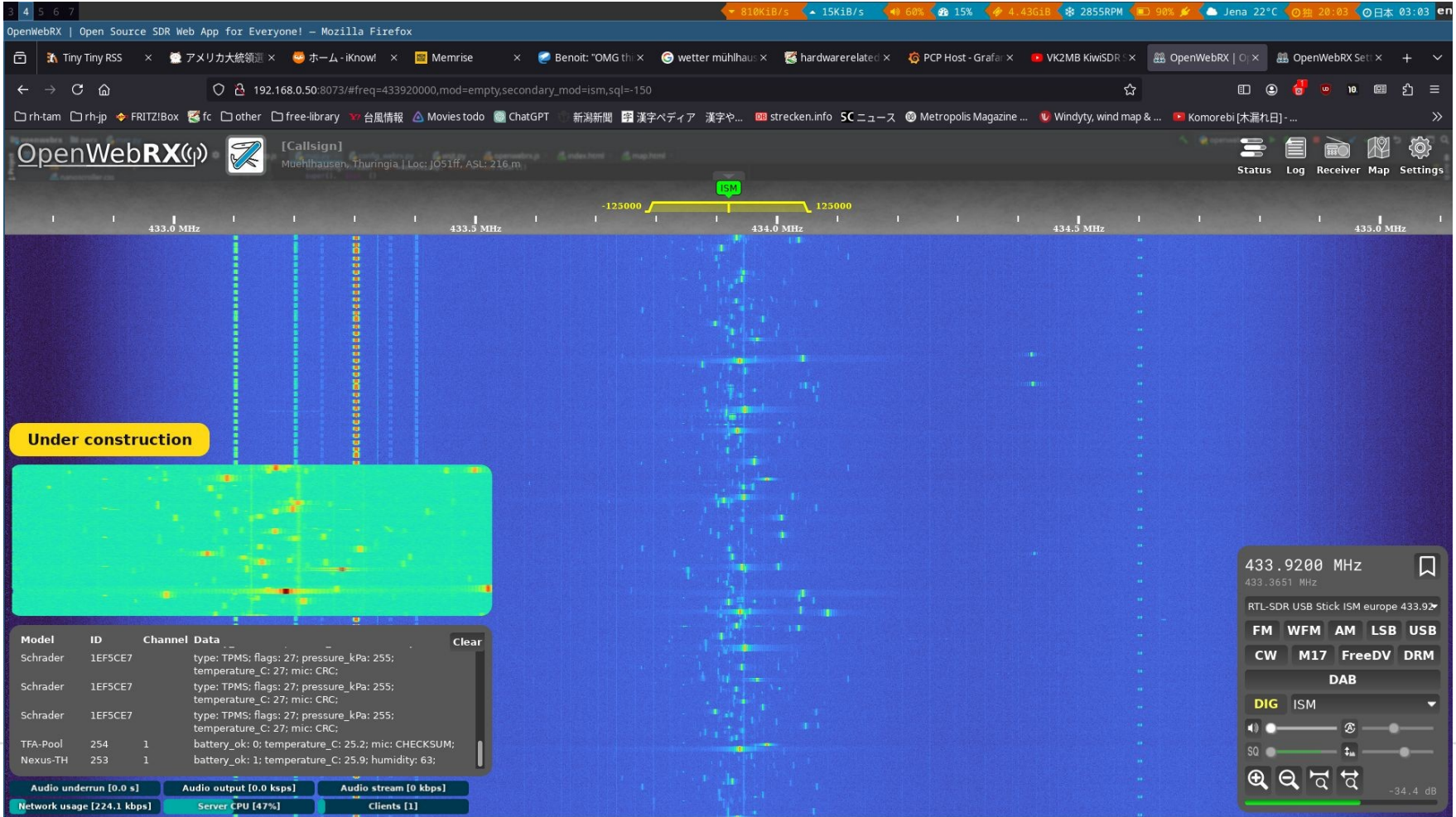
Receiving FT8



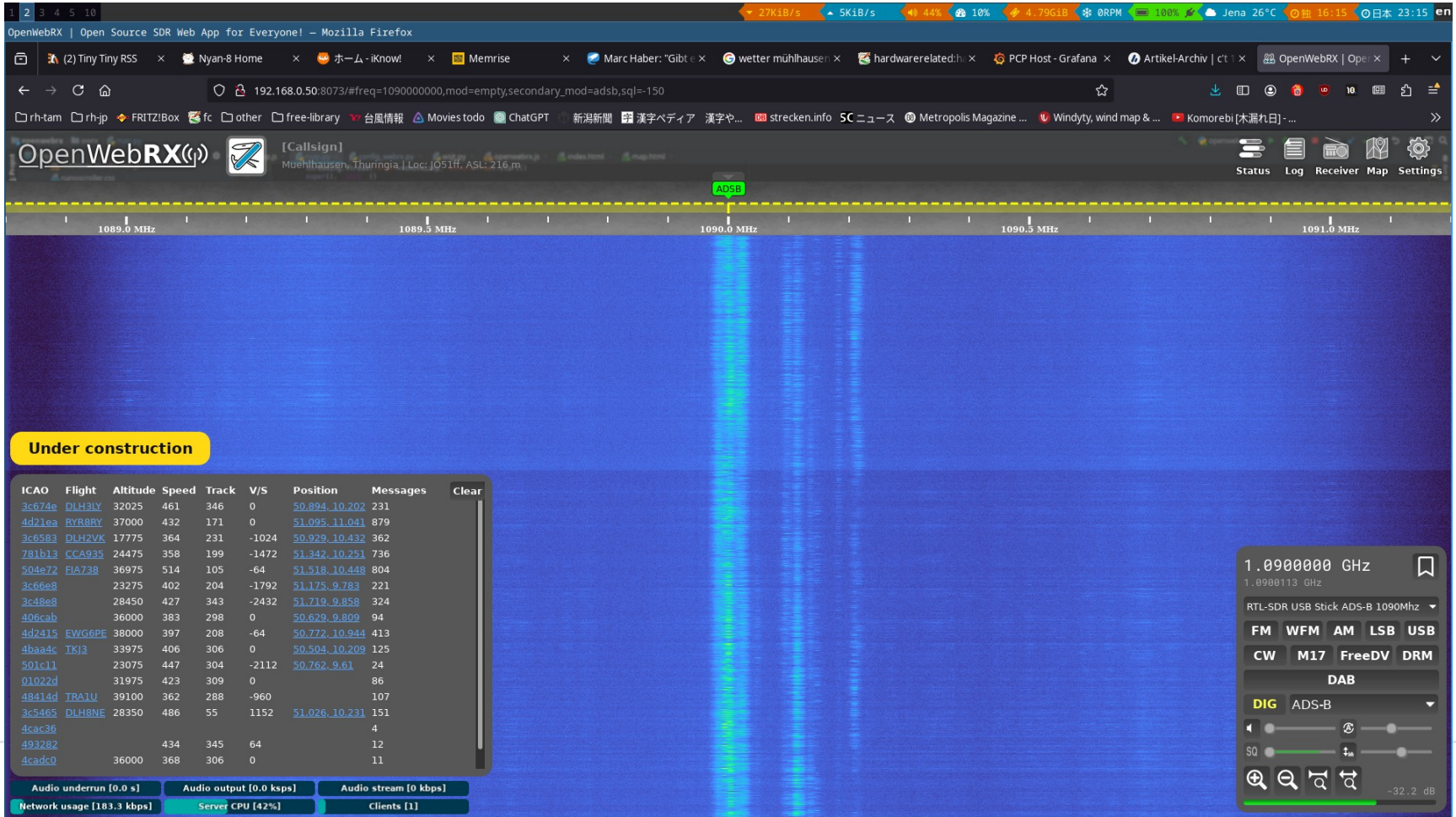
FT8 map


OpenWebRX+ | JL1AYH — Mozilla Firefox
192.168.5.157:8073/map
OpenWebRX
JL1AYH
Help
Map
Files
Settings
Map
OpenStreetMap
WeatherRadar-USA
OpenSeaMap
Maidenhead-QTH
Colors
By Band
15m
17m
20m
80m
Features
KiwiSDR
WebSDR
OpenWebRX
Stations
Repeaters
13:00 UTC
Leaflet | © OpenStreetMap

Receiving sensors



Receiving ADSB



Full setup with RTL-SDRv4

Recommended hardware

- System
  - An older x86-64 laptop is ok, 4GB RAM recommended
  - Or, Raspberry pie 4 or later
- SDR
  - OpenWebRX+ supports quite some
  - RTL-SDRv3 or v4 work ok, manual driver install required
  - HackRF is also ok. More expensive, or clones for around $130
- Antenna, cables
  - Depends on what you want to do, of course.
  - Default antenna bought with RTL-SDR kits are a good start

How to setup?

- System setup
  - get Debian Bookworm for AMD64 or aarch64
  - flash it to a USB-stick, install Debian
- Software
  - Add the OpenWebRX+ repos, details on the openwebrx+ site
  - Install OpenWebRX+: apt update; apt install openwebrx
  - Prepare for your SDR device:
    - If using RTL-SDR: install the drivers, details on my wiki
    - If using HackRF or a clone: no extra drivers required
  - Start openwebrx: systemctl enable --now openwebrx
  - Access http://127.0.0.1:8073 or http://<systemip>:8073 from a browser

Live demo!

Or, have a look at https://www.receiverbook.de/ to get an idea.

Questions and answers

- Please reach out via email (English, 日本語 , Deutsch): chris@fluxcoil.net
- Website: https://fluxcoil.net