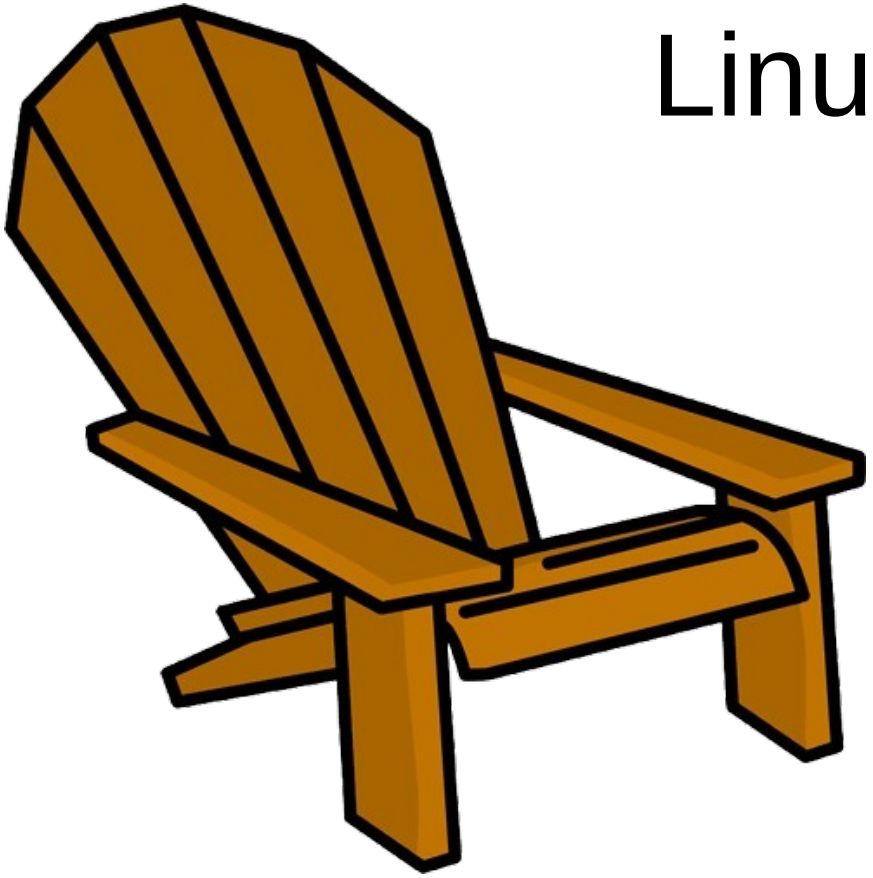
Linux in the Garden



Images removed for privacy reasons

My use case, and goals

- New house, new garden
- Food garden
- Ornamental garden
- Hummingbirds
- Zone 5a
- Deck oven
- Cedar is crap
- Privacy

“Privacy” vs “full-frontal botanical nudity”

Website – GeoOttawa

- https://maps.ottawa.ca/geoottawa/
- Geographic Information System (GIS)
- esri arcGIS (may, or may not be Linux).
- Useful information without payment.
- Lidar and photogrammetry data, for a fee.

GeoOttawa

- Boundary dimensions
- Building locations
- Background aerial views
  - 1928 to present
- 1965 (built 1967)
- 2002 (track old tree roots)

geoottawa

- Dimension measurement
- DIY survey… all fine

ROW land

- Municipal Right Of Way
- Strip of land perpendicular to road
- Homeowner obliged to maintain
- Allowed to plant (restrictions)
- Municipality may
  - dig whenever they need
  - do whatever they want
  - won’t restore when finished
  - charge for extra dig costs

ROW depth from geoottawa

- ROW includes road
- Measure lot to lot, and remove road.
- (18.2 – 8.9)/2 = 4.65m = 15’3” of front garden is municipal ROW
- 96’ lot width at road = 1464 ft²

ROW land

- At 1464 sqft, as much as some new build houses!
- One advantage of ‘bad pie’ and corner lots, if you use it.
- Neighbours seem to think the ROW is about 6’, so I keep quiet!

Hedges *could* be removed as they are on ROW land.

My use case – software goals

- Plan food garden.
- Plan ornamental garden.
- Model and track garden.
  - Learn and improve next year
  - Dynamic db model.

“FOSS projects” meet “Tug’s opinion”

- I’m looking for…
  - data projects, to model data.
  - API projects, to access data.
  - UI projects, to enter and present data.
- If databases resources exist, use them.
- Too many *all-in-one* combo projects
- I will build my own DB
- So there will be no API or UI projects

My database goals

- I like Relational databases.
  - Map to OO model
  - SQL perfectly functional, and portable
  - A db is for storing data, not implementing functionality
- Evolution, not creation.
- Don’t model everything, only if relevant to *my* garden.
- DIY db + using open source database tools.

Open source projects I have rejected

Completely necessary image, generated by AI, for illustrative purposes.

Database – trefle.io

- trefle.io
  - https://github.com/treflehq
  - French origin application
  - "botanical API for plants species, allowing you to build the next gardening apps and farming robots."
  - Trefle is dead
  - Trefle never worked
  - Acknowledges it sources its data from 3rd parties…

Database – Garden_Database

- https://github.com/callahnr/Garden_Database
- Just a database model.
- Another "not quite" idea.
  - Location (field name, row in field, column in field), so only rectangular fields,
  - no dimensions.
- A weekend school project for the Relational Database course, SQL lecture?

Db tool - beekeeper

- Uses nodejs. Electon based.
- requires HUGE build infrastructure - chromium and yarn, GBs of shite... basically a distro worth of source code
- Trying a bin version.
  - Limited, as it is a freemium open source project. Extras missing include
    - backup and restore
    - more than 2 table features
    - import from file
- demo version? I gave up on it.

Projects that had some useful stuff

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Application - garden_database

- https://github.com/papakonnekt/garden_database
- Django web application
  - comprehensive horticultural data.
  - includes REST/GraphQL APIs.
  - requires docker.
  - “integrates with AI tools via prompts for efficient data generation.”
- Includes a data model
  - worth looking at – most software reuse is in the mind, not the file.
  - https://github.com/papakonnekt/garden_database/blob/main/docs/DATA_MODEL.md

Application - openjardin

- Openjardin
  - https://sourceforge.net/projects/openjardin/
  - French, and limited documentation.
  - Needed porting from qt5 to qt6.
  - Flaky GUI
  - Aimed at permaculture. Food only. Beds of crops
  - No dimensions, so “topological gardens”
  - Seems to be dead
  - Gantt charts
    - like real life - "done", "not done", "skipped"
    - No garden sharing of tasks in our garden, so not applicable
  - Worth a fork, if that’s what you’re looking for.

Website – powo.science.kew.org

- very wordy, but not the words I want. I need
  - bloom time,
  - hardiness,
  - flower colour, etc
- Does have native / invasive / introduced status
- Lists of sources. Great for academic research.
- Example – bee balm
  - https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:452034-1

Open source projects I have accepted

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Application – PlantNet

- https://github.com/plantnet, stylised as Pl@ntNet
- Useful phone app to identify plants from photos. Often good, sometimes useless.
  - a citizen science project
  - plant identification API
  - research tools
- Europe based, French and English.
- Free for testing and non-commercial use, EUR 1000/year for commercial use.
- My goals are to select and track plants, not to identify them
- Future - everyone is a Victorian landowner, with robot gardeners.
- App based on data from Kew Gardens' POWO, and TDWG's WGSRPD

Website – garden.org

- https://garden.org/plants/
- Gives the data I want.
- not an API, but a website.
  - maybe there’s an accessible API.
  - I'm happy to use this, as is, to research data.
- Needs a free account
- https://garden.org/plants/view/77839/Bee-Balm-Monarda-didyma/

Website – pfaf.org

- https://pfaf.org/user/default.aspx
- Good source of plant research
- Focus on edible, medicinal, temperate perennials.
- Seems constantly in financial stress
- Projects out there to suck the db
- Example
  - https://pfaf.org/user/Plant.aspx?LatinName=Monarda+didyma

DB design tool

- Will build a new database
- Need to
  - Modify tables to add features as required
  - Input data as needed
  - Populate from multiple sources of data.
- Use SQLite, as it is sufficient and simple.
  - If not, migrating to other SQL is easy.

Db tool – sqlitebrowser

- My usual sqlite tool
- Is more than a browser, also allows for database models to be created
- Seems as usable as beekeeper.
- Can export to DDL
  - Easy to port to other SQL environment.
  - Good candidate

Db tool – sqlitestudio

- New to me
- Similar to sqlitebrowser.
- Has views, which sqlitebrowser lacks.
- IT HAS VIEWS!!!
- Ideal for evolving, populating, and viewing the db.
- *Demo for how to evolve, populate and view the db*

Interfacing to sqlite3 db

- Present GUI interfaces?
- Plenty of C++ wrapper libraries
  - I already have my own direct to dev-db/sqlite3
  - libodb-sqlite https://codesynthesis.com/products/odb/
  - sqlite_orm https://github.com/fnc12/sqlite_orm
  - wxsqlite3 http://wxcode.sourceforge.net/components/wxsqlite3
  - vsqlite++ http://evilissimo.fedorapeople.org/releases/vsqlite--/
- Plenty of wrappers for many languages you might prefer

  Guile, Haskell, Ocaml, Perl, Python, Ruby

Happy Tux in garden

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"That's all Folks!"