



State of OpenStreetMap on Internet-in-a-Box

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Software Engineer

OpenStreetMap Editing

Off-The-Grid / Open Data

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Software Engineer

Data Pipelines

Open-Source tools

Internet-in-a-Box

Wikipedia

TED Talks

Khan Academy

OpenStreetMap



Internet-in-a-Box

Schools, Libraries, Clinics

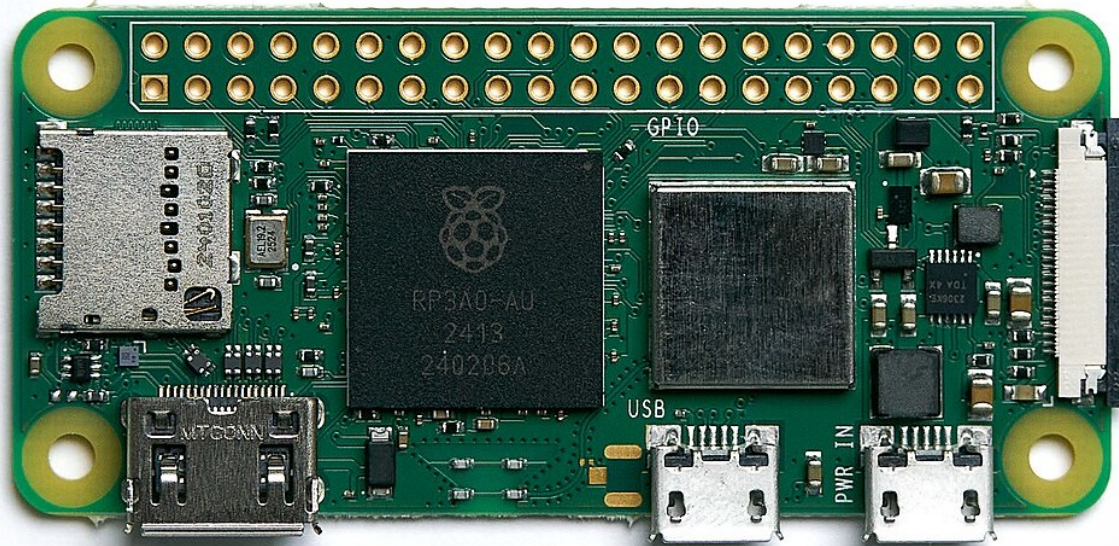
Low Internet Access

Custom Needs



Works on Dirt Cheap Devices!

Raspberry Pi Zero 2 W



Goals for IIAB Maps

What is useful in educational setting?

Political boundaries, satellite and terrain

Search

- Cities, Population
- Geography, History, POIs?

Lesson plans (“bookmarks”)?

Goals for IIAB Maps

Local Data

Up-to-date OSM data

Facilities in the area (hospitals, etc)

Secret (or sacred) information

Self-Hosting OSM Tiles

Look at what easy self-hosting has facilitated!

Self-Hosting OSM Tiles

PMTiles

Standard web server

Fast on Zero 2 W!

Maps.black

by Svante Richter



Maps.black



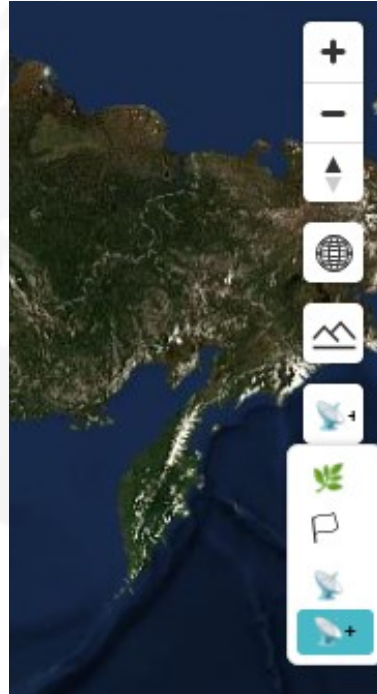
Tiles: Vector [monthly], satellite, terrain

Integration/UI

Trivial setup: copy a few files + nginx configs



Maps.black Customizations





fit to bounds

☐ Inspect features☐ Show tile bounds

view metadata





Search Google Maps



Restaurants

Hotels

Things to do

Museums

Transit

Pharm >



Ask Maps



Saved



Recents



Cincinnati &...



Milwaukee &...



Hong Kong



Honolulu



Mexico City



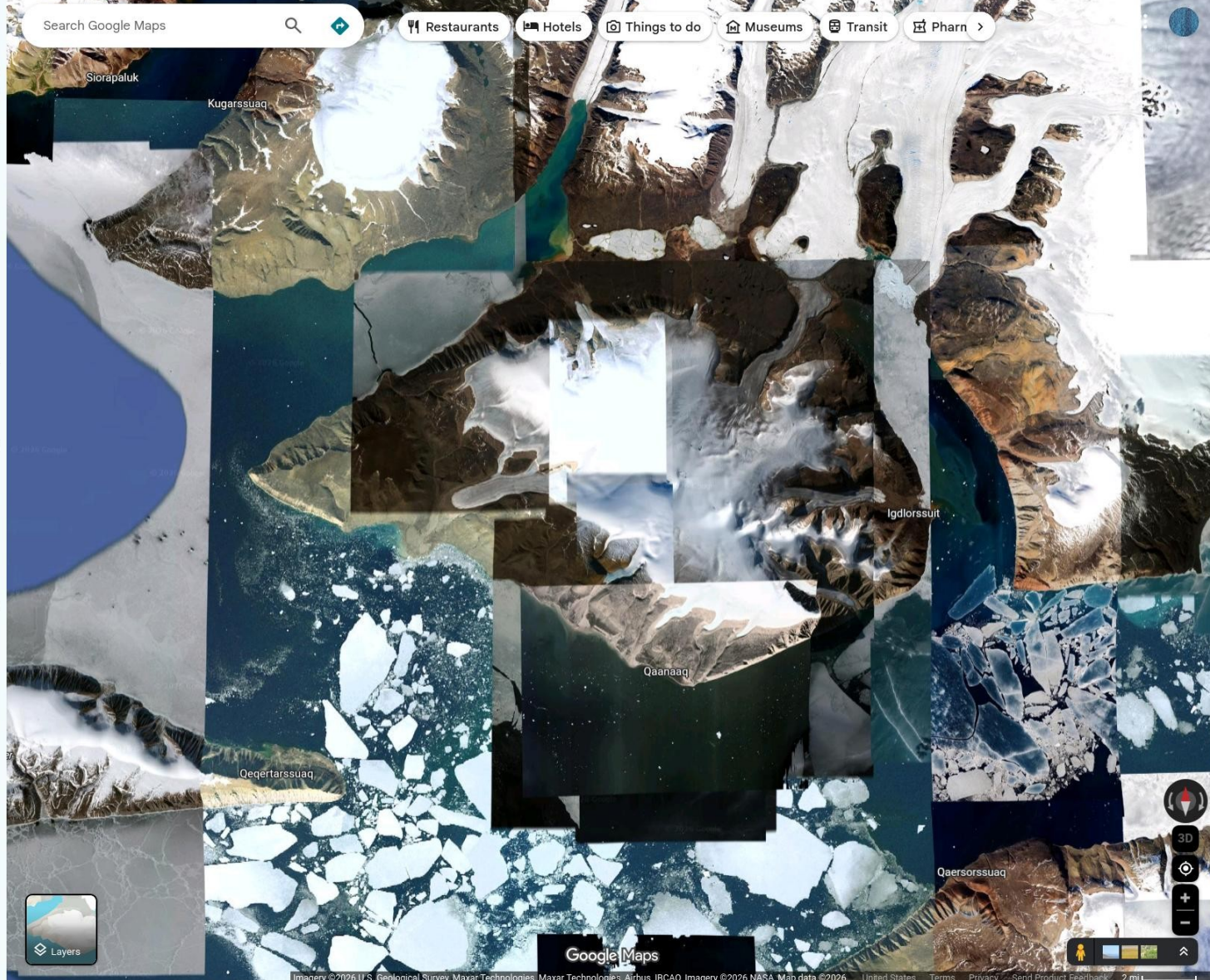
Holland



View more

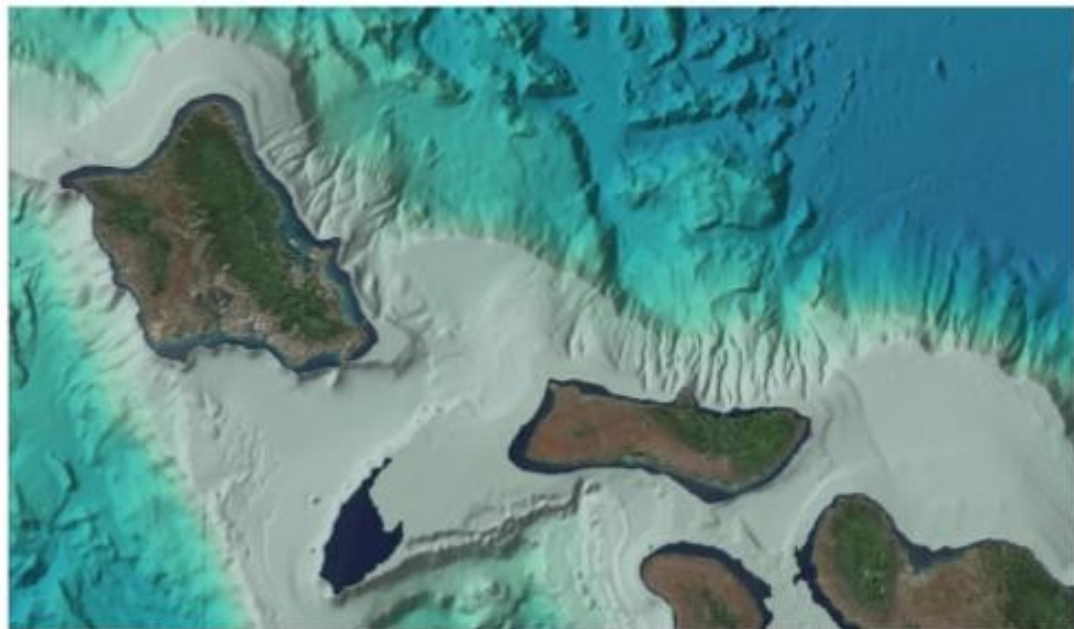


Get app



Google Maps

Building a cloud-free basemap

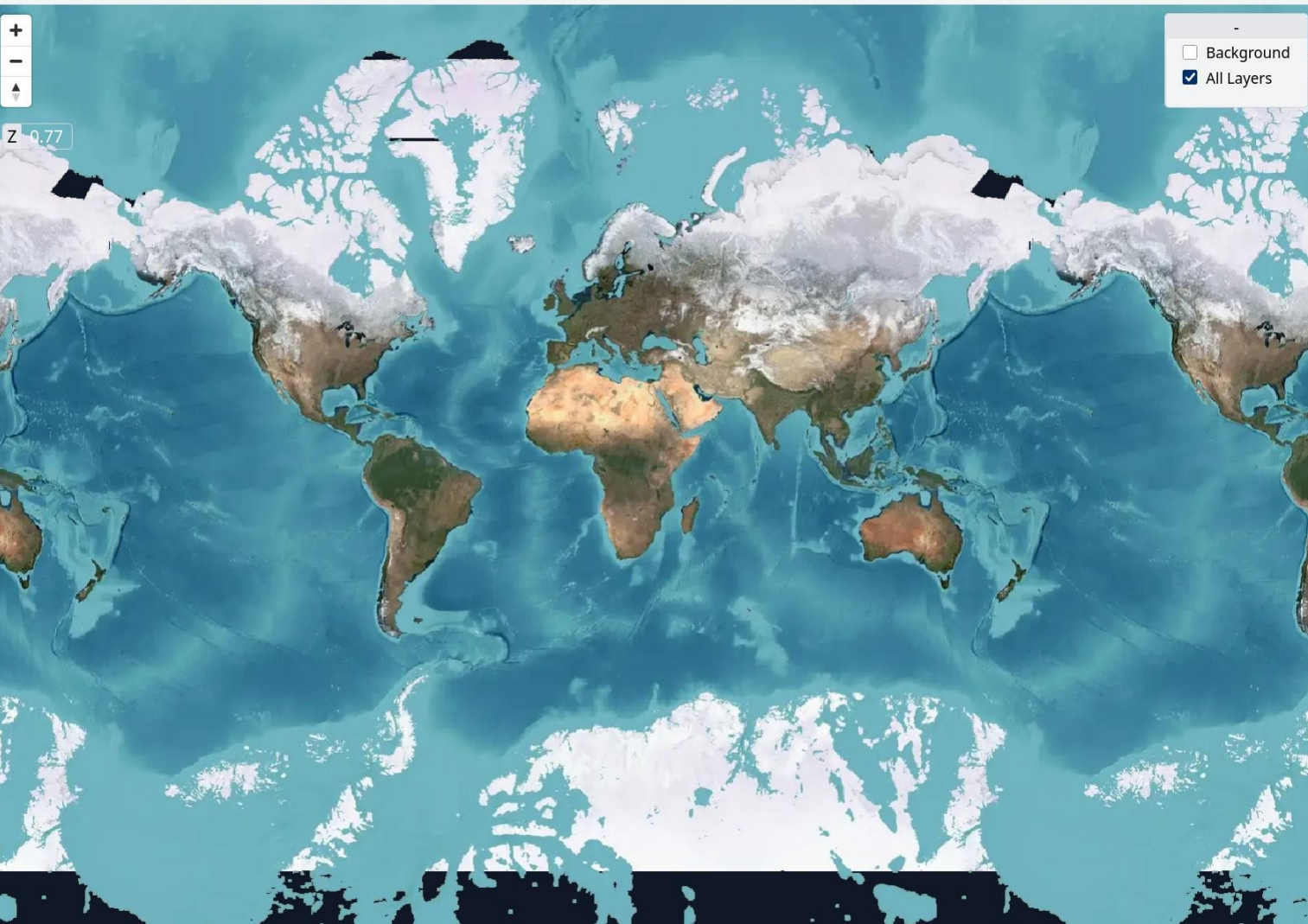


The pipeline pulls public-domain imagery, bathymetric data, and composites a clean basemap sized for the box.

fit to bounds

☐ Inspect features☐ Show tile bounds

view metadata



What about Search?

Airmail: Work in progress?

Nominatim w/ SQLite: Slow on Zero
2 W (*for now?*)

Search

DIY SQLite/FTS5

Maybe not radical enough?

Search ???

If we can statically host pmtiles...

Static Search

yor.json.gz:

```
...  
{  
  "lat": "40.71427",  
  "lon": "-74.00597",  
  "pop": "8804190",  
  "name": "New York City",  
  "admin1": "New York",  
  "country": "US"  
},  
{  
  "lat": "53.60371",  
  "lon": "-113.42757",  
  "pop": "3836",  
  "name": "York",  
  "admin1": "Alberta",  
  "country": "CA"  
},  
...
```

Query ("New York")→

JSON file (new.json.gz) →

Finish search locally

Static Search

Small db: Cities (Geonames)

Sort by population, distance, etc

Static Search

Super fast on Zero 2 W!

Static Search

Next:

Geographical features, landmarks, etc

POIs?

Static Search

Next:

Wikidata summaries?

Wikipedia integration?

An Informal Ecosystem



An Informal Ecosystem

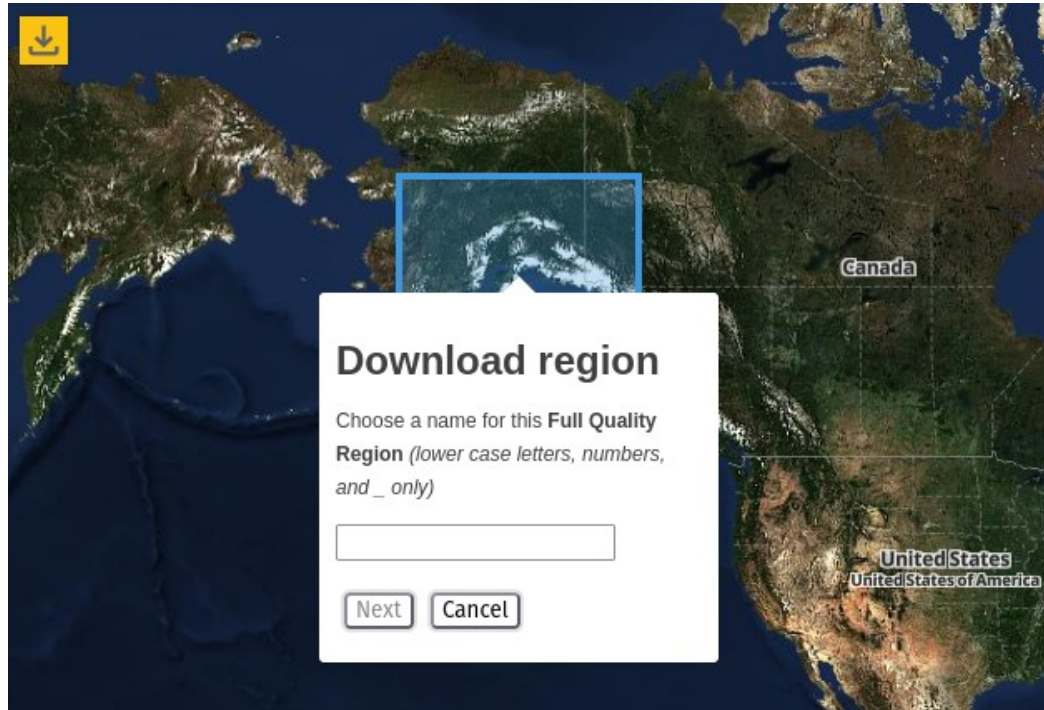
Disk and Bandwidth Constraints

```
maps_vector_quality: osm-z11  
maps_satellite_zoom: 7  
maps_terrain_zoom: 8
```



An Informal Ecosystem

Full Quality Regions



An Informal Ecosystem

“The Sneakernet of Alexandria”

Trade world maps and
FQRs at the bus stop?

Live Demo



Come check out our poster
and connect to the box!

Reach Out

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