

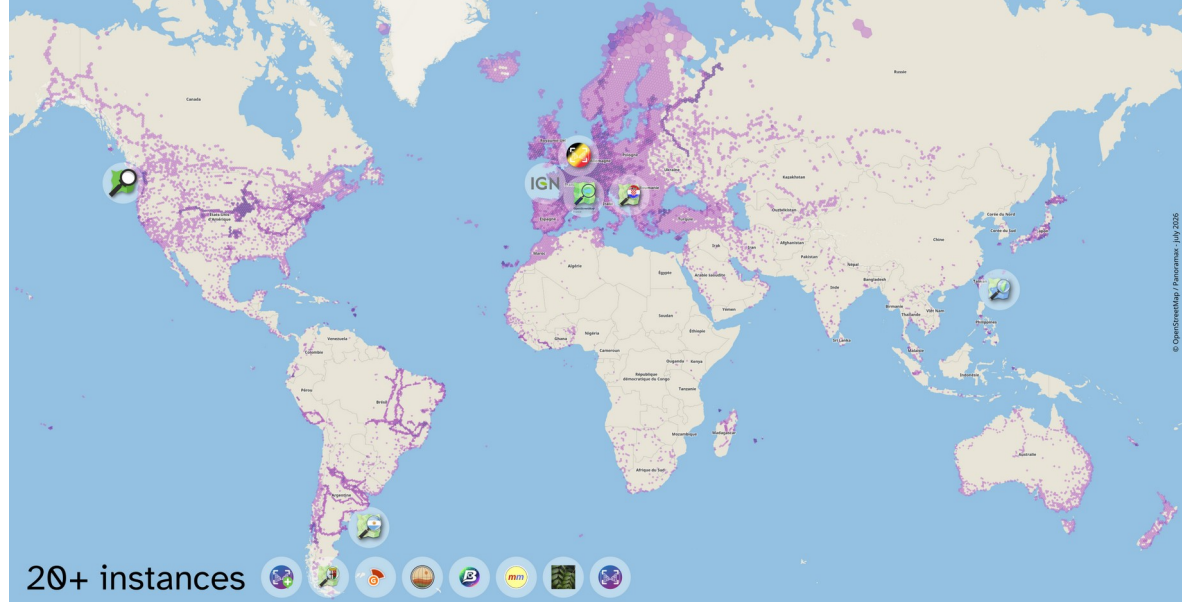


Panoramax

Designed with ❤️ by :



OpenStreetMap
France



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What is Panoramax ?

A new digital common and not-for-profit project

- The **resource** : a large growing catalog of ground level photos
- The **rules** : open licensed content, open code, based on existing standards
- The **community** : public sector, OSM contributors, private sector...

→ A new (fully open) way to share ground level photos !

No *GAFAM*, not only *streets*, more than just a right to view !!!



How does Panoramax work ?

- **Panoramax instances**

- Photos storage
- Local catalog of available photos (STAC)
- Upload API/UI + search/access API and viewer

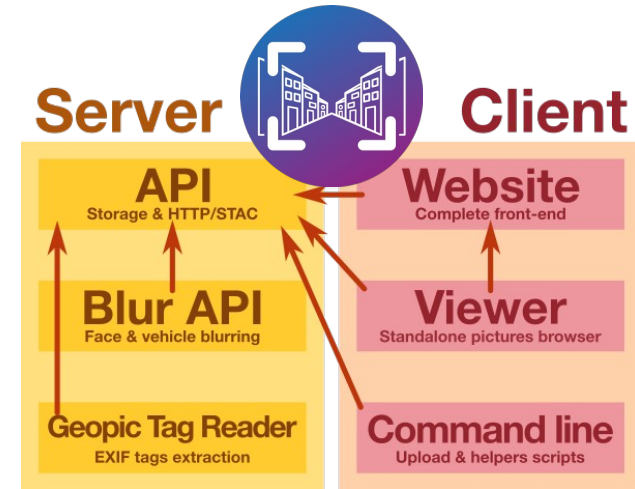
- **Panoramax blurring service**

- Independent*, called by instances, can be shared
- Detects faces and licence plates... and more ;)

* Models are fully open-source too (published on huggingface)

- **Panoramax « federated » meta-catalog**

Provides seamless access to all pictures on all “federated” instances
STAC catalogs agregation



Panoramax : 3rd birthday !

- **Started with IGN° 3 years ago (late 2022) as a « state startup »**
 - Funded by public money (IGN / DINUM / NLnet)... > 1M€ total ;)
 - First opening in mid-2023, with **2 instances** (IGN + OSM-France)
- **Currently :**
 - Close to **120M** pictures ! ~ average of 150k new pictures every day
 - **2500+ contributors**, 400+ active contributors in summer months
 - **21 instances** : IGN, OSM-France, MapComplete, Taiwan, Wales, Multimob, OSM-Belgium, Argentina, NW USA, 3 local ones in Germany... more coming soon !



°IGN = Institut Géographique National (France)

Additional features...

- **Semantic tagging**

- Add **semantic tags** to sequences of pictures, pictures or parts of pictures
- Allow to search picture using tags
- Best way to publish automatic detection (computer vision)
- Link Panoramax pictures with other commons (OSM, wikidata, etc)

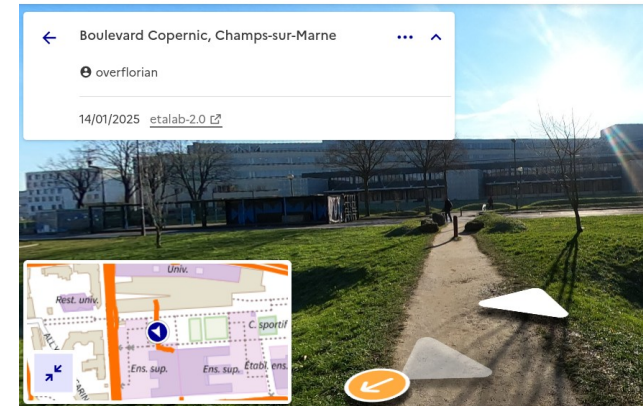
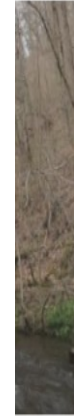
- **Hybrid instances**

- Allows to have **public and private** pictures sequences
example : Fire Department internal use of some pictures



Example use case : from 2D to 3D

- 3D reconstruction in Paris
- Mapping of natural disasters (wildfires, floodings...)
- Integration in third party tools



Launching the Panoramax Foundation !

- Time to create a dedicated neutral structure for the project !
- Would take care of :
 - Coordination of Panoramax core software stack evolution
 - Run shared services (meta-catalog, dev tools, forum, weblate, etc)
 - Promoting the project / brand and domains owner
 - The place for the project governance... and financing the above
- No « foundation instance », only a dev/test one



Panoramax Foundation dedicated structure

- **Not-for-profit organization based in France**
 - « Association Loi de 1901 » : easy to setup !
 - With support from INRIA Foundation (french computer science research institute)
- **Mixed type of members :**
 - Public sector
 - Private (business oriented) sector
 - Non public and non business members

Work in progress... articles of associations in draft stage



Q & A !!!

<https://panoramax.org>

 [@panoramax@mapstodon.space](https://twitter.com/panoramax)

 panoramax@panoramax.org



OSM France Panoramax instance

- Full bare metal, hosted in DC near Paris : 2 redundant 10G fibers
 - Second hand hardware (only SSDs are new !)
 - Dell R7910 server / 256GB RAM / 28 CPU cores
 - 2 x GTX1070 GPU for the blurring service
 - IBM storage bay (up to 60 x 3.5" HDD) – ZFS redundancy/caching
 - Storage started with 90TB, currently 450TB (33% free space)
- Accepts pictures outside of France for testing purposes



How does a Panoramax instance work ?

- **Photos storage : local or S3**
 - pre-tiling of 360° pictures
 - Keeps all original meta-data (EXIF and XMP tags)
- **Local catalog of available photos (postgresql+python)**
 - search/access API is based on STAC (Spatio Temporal Assets Catalog)
 - STAC is supported by major imagery actors (Airbus, Maxar, NASA...)
 - API provides interoperability with existing STAC code base
- **Upload API/UI... (outside of STAC scope)**



Upload photos to Panoramax

- **Uploads can be done thru :**
 - Web interface (drag & drop, also works on mobile)
 - CLI tool (for mass uploads)
 - Mobile apps (Baba on Android)
 - **API for any other code/script/app/tool and mobile apps too !**
 - Detect and removes duplicates, splits uploads in sequences
- **Choice of instance**

Currently several public instances open to uploads but mostly geographically limited



OSM France instance !



Recently donated hardware...

- **Storage bay (Dell MD3460)**
 - 60 x 4TB HDD (SAS) ~ 200TB to use
 - Donated by Octopuce (Paris)
- **Backups of small instances ?**
 - PanoBackup currently under test
 - Runs nightly, then powers off



Panoramax for OSM contribution

- **IGN and OSM-FR instance compatible licensing**
 - IGN = Open License (similar to CC-BY)
 - OSM-FR = CC-BY-SA + authorization to create ODbL or Open License data for non photographic derivatives
- **Integration in OSM ecosystem**
 - OSM based OAuth login on OSM-France instance
 - Direct access in iD (openstreetmap.org web based editor)
 - Upload integrated in MapComplete... Vespucci / Every door are next !



Panoramax and computer vision

- **Blurring API also detects road signs**
 - 16 millions of road signs detected and extracted from original photos
 - 12 millions classified (250+ types of road signs)
- **Classification model already trained**
 - 70000 photos in training dataset for FR road signs
 - 250+ types of road signs
 - Trained on also on some other european countries (BE, NL, DE, CH)

