PgMetadata

A QGIS **plugin** to manage metadata

for your **PostgreSQL** data

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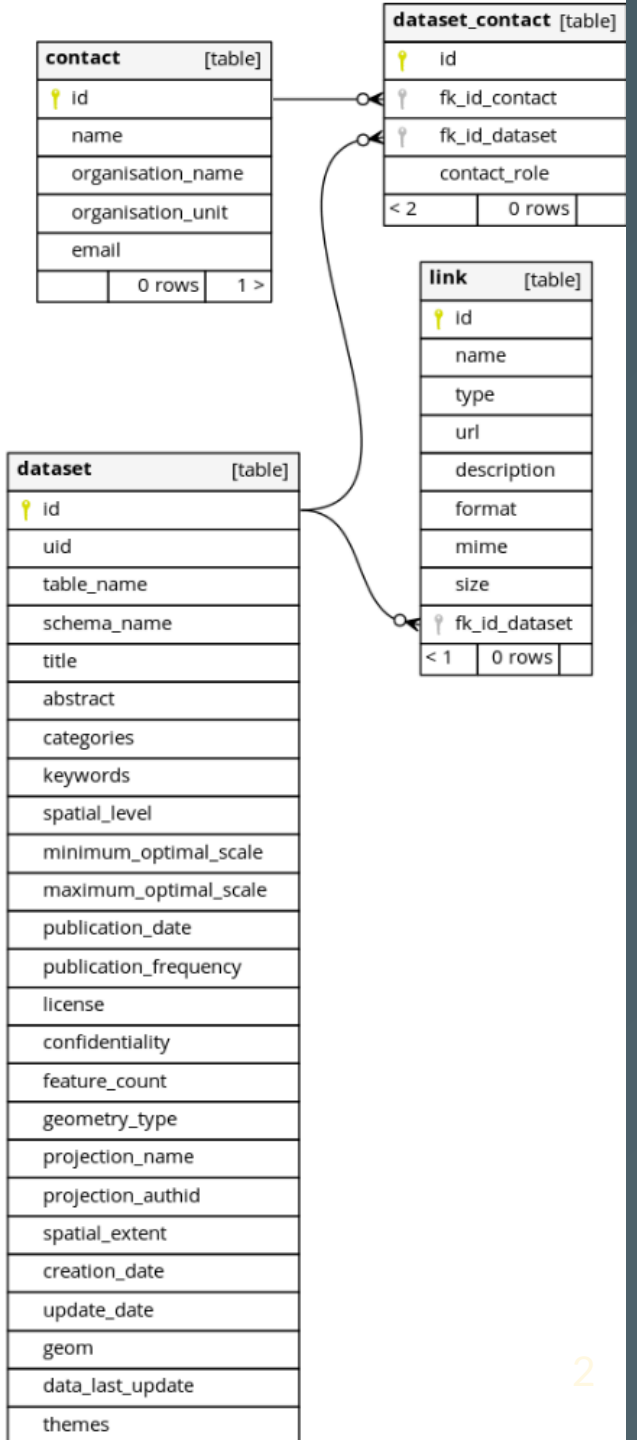
3Liz

What is Metadata ?

Help people to understand your data

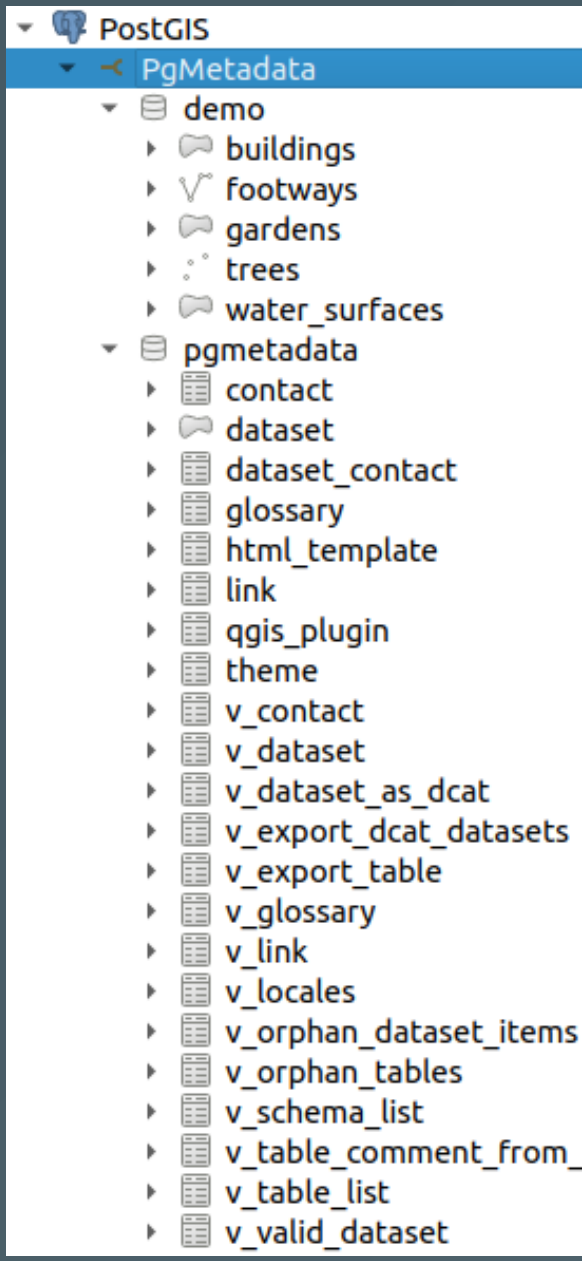
- **Identification**: Title, abstract, categories, themes, keywords, data last update,
- **Spatial properties**: spatial level, optimal scales,
- **Publication**: date, frequency, license, confidentiality
- **Computed**: feature count, geometry type, projection name & code, extent
- **Contact(s)**: owner, publisher, custodian, etc.
- **Link(s)** to resources, web pages, documents



Pg 🐘 Metadata

Designed for people using **PostgreSQL** to store their vector (& raster) data.

- **Centralized**: data & metadata in the **same database**
- **Accessible**: a PostgreSQL connection to share the metadata
- **PostgreSQL** rich features:
  - **SQL powered**: relations, constraints, views, functions, triggers
  - **Rights** & access control: readers VS editors
- **See & Edit** with your preferred SQL client:
  - Libreoffice, PgAdmin, psql, DBeaver,
  - **QGIS** with its powerful forms !
- **Backup & restore** metadata with your data

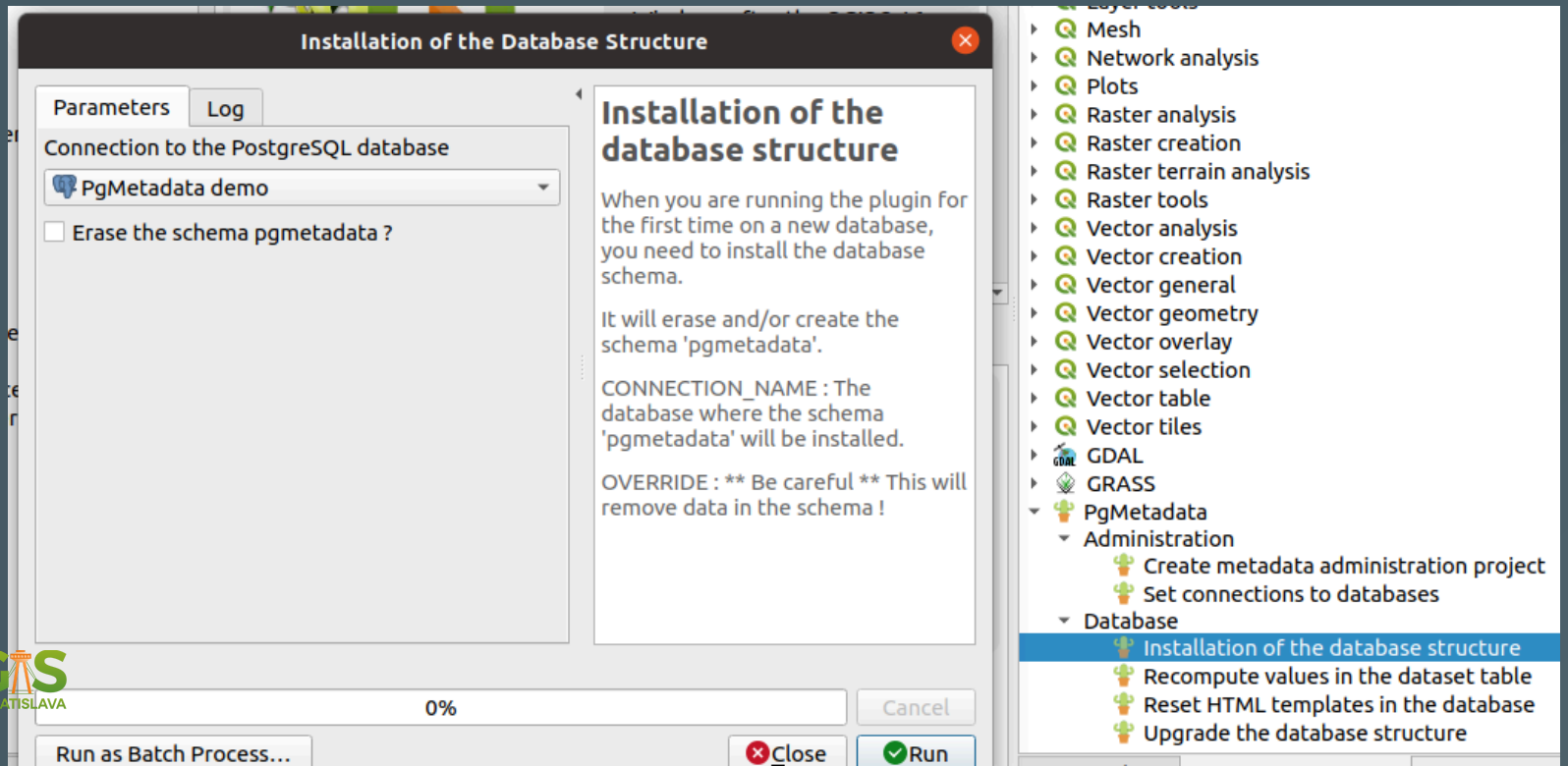


PgMetadata for the GIS administrator

Create the pgmetadata schema

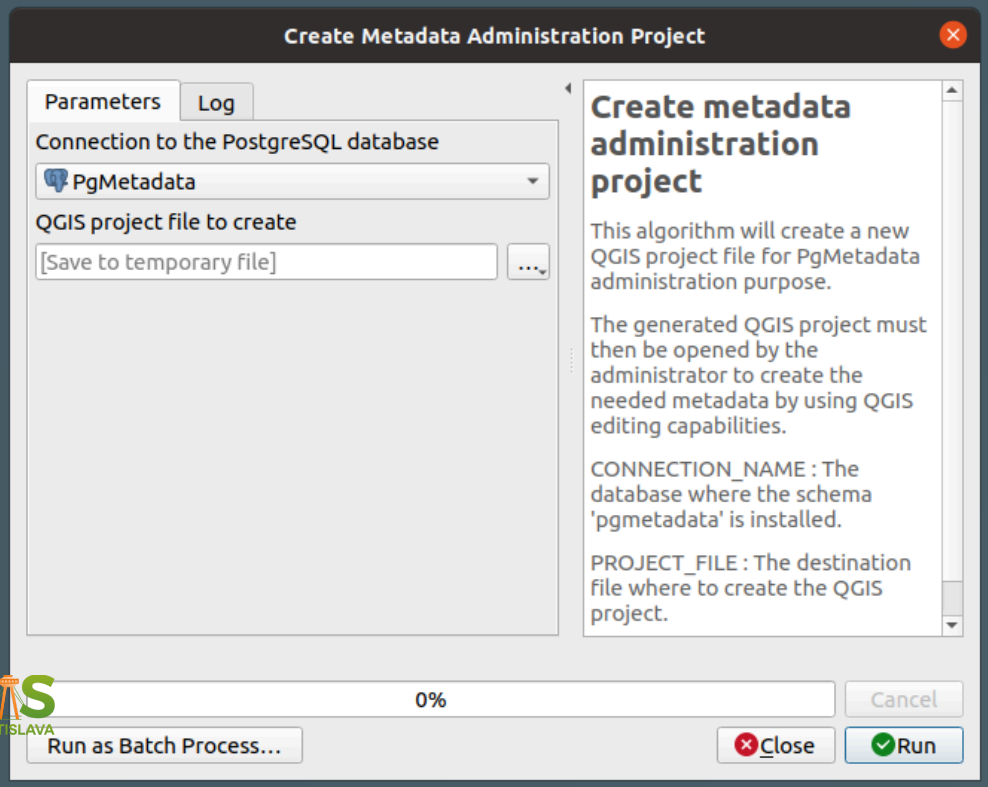
The plugin is using a **schema** `pgmetadata` in PostgreSQL.

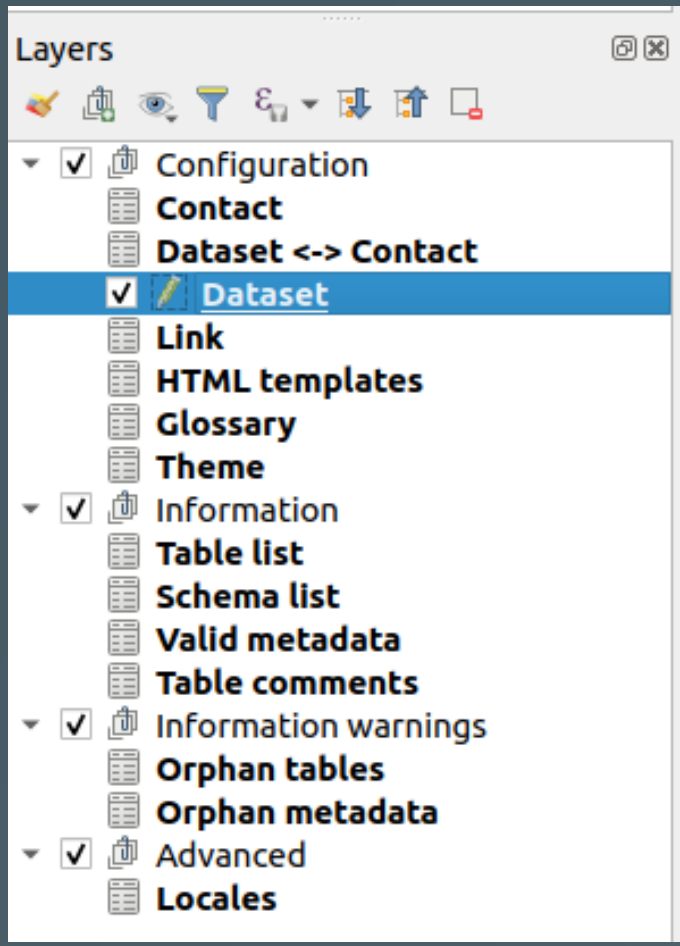
A **QGIS processing algorithm** allows to create it in your database and fill it with the needed **tables, views and data** (glossary and translations)



A QGIS admin project builder

A QGIS processing algorithm to create a full featured **QGIS administration project** with rich forms:

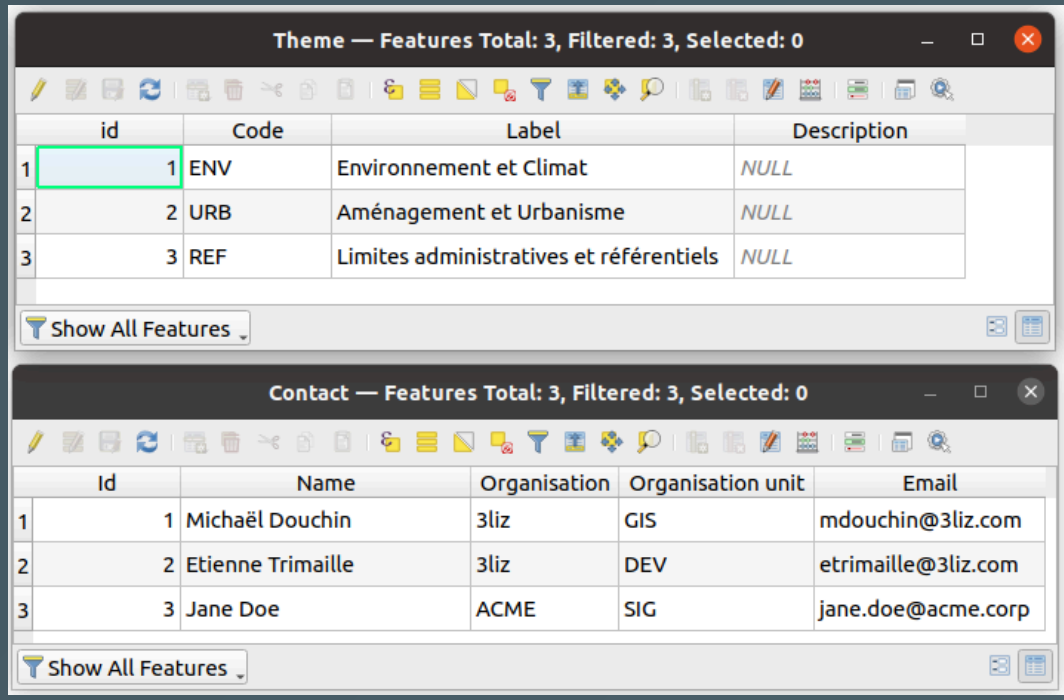




Prepare editing

Create the needed contextual data in the dedicated **tables**:

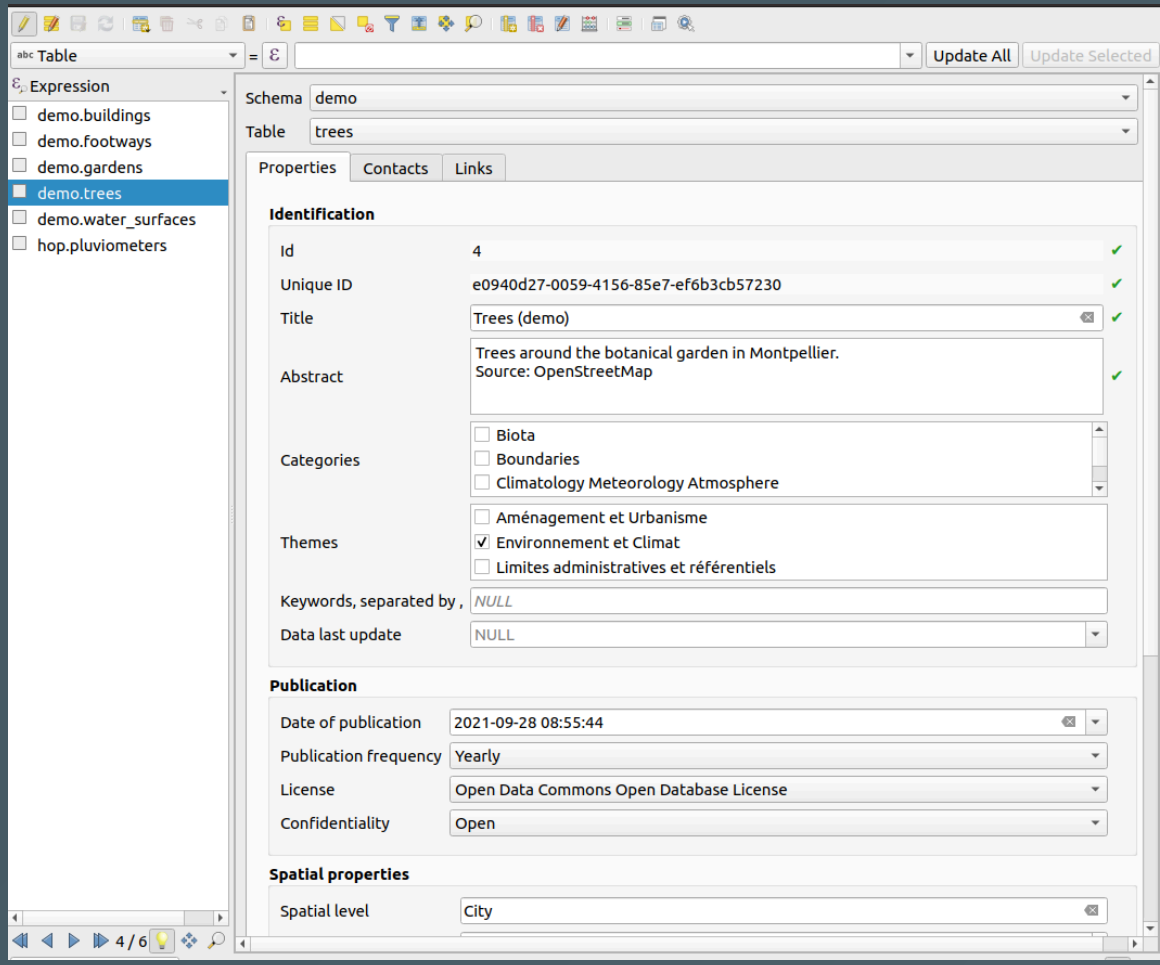
- User-defined **themes**
- **Contacts**: name, organisation, unit, email
- The existing **glossary** can be changed
- **Translations** can be added if missing



Edit your datasets with QGIS forms

Choose the `schema` and `table`, then edit:

- the main **fields**: title, abstract, keywords, etc.
- the **contacts** and their roles
- the **dataset** related links



Admin helpers

Some data are **calculated** from the table content:

- valid **unique id** for the dataset `e0940d27-0059-4156-85e7-ef6b3cb57230`
- layer extent, feature count, geometry type, projection id & name.
- creation and update timestamps, etc.

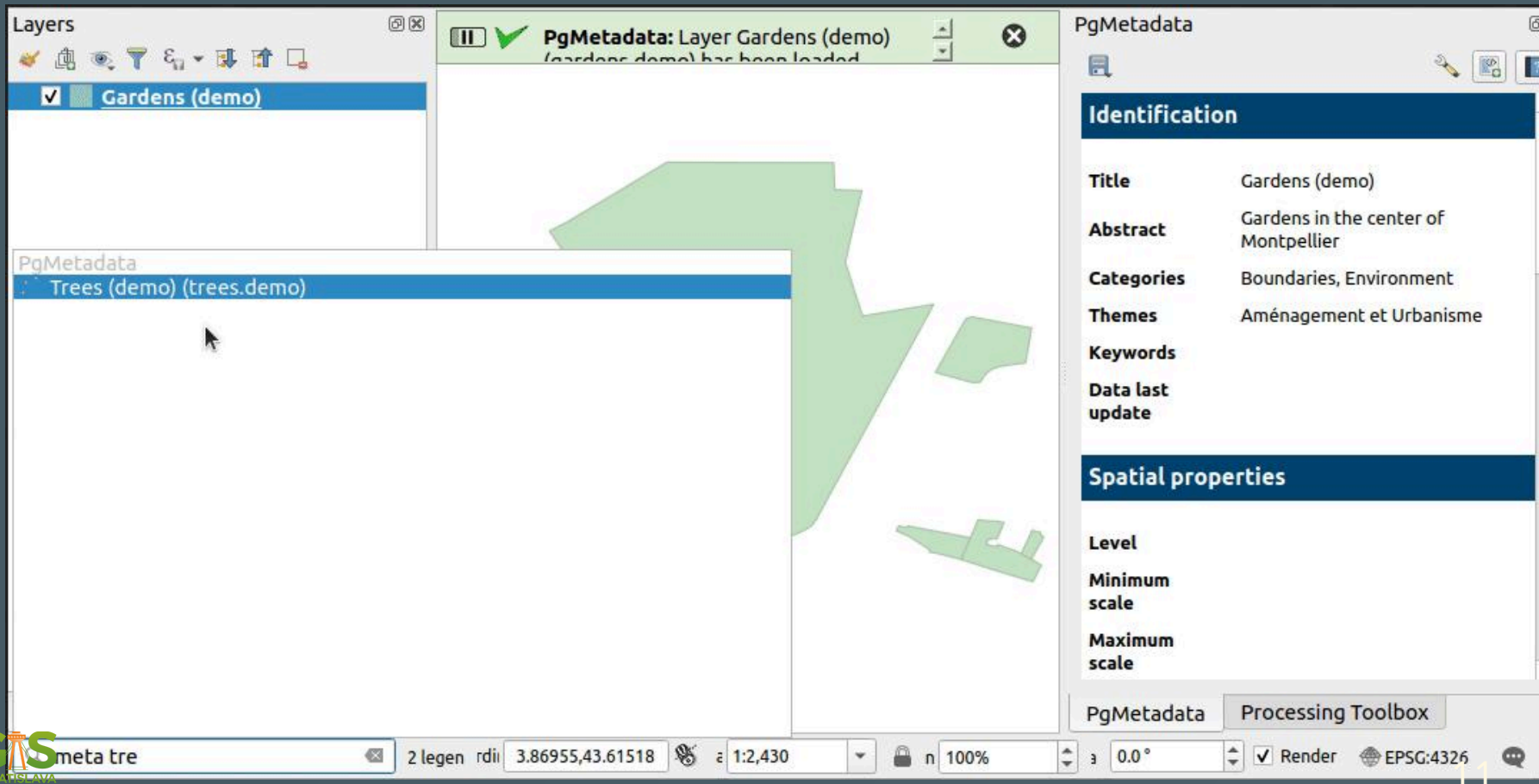
Some useful **views**:

- **Orphan PostgreSQL tables**: no metadata exists in the dataset table for this tables
- **Orphan metadata**: a line exists in your dataset table, but no table corresponds in your database
- **Flat representation of the datasets**: lists the datasets with contacts and links aggregated

PgMetadata for the GIS user in

QGIS locator & Metadata panel

`CTRL+K`, type `meta`, find the table, add the layer & view metadata.
See animated GIF



QGIS locator & Metadata panel

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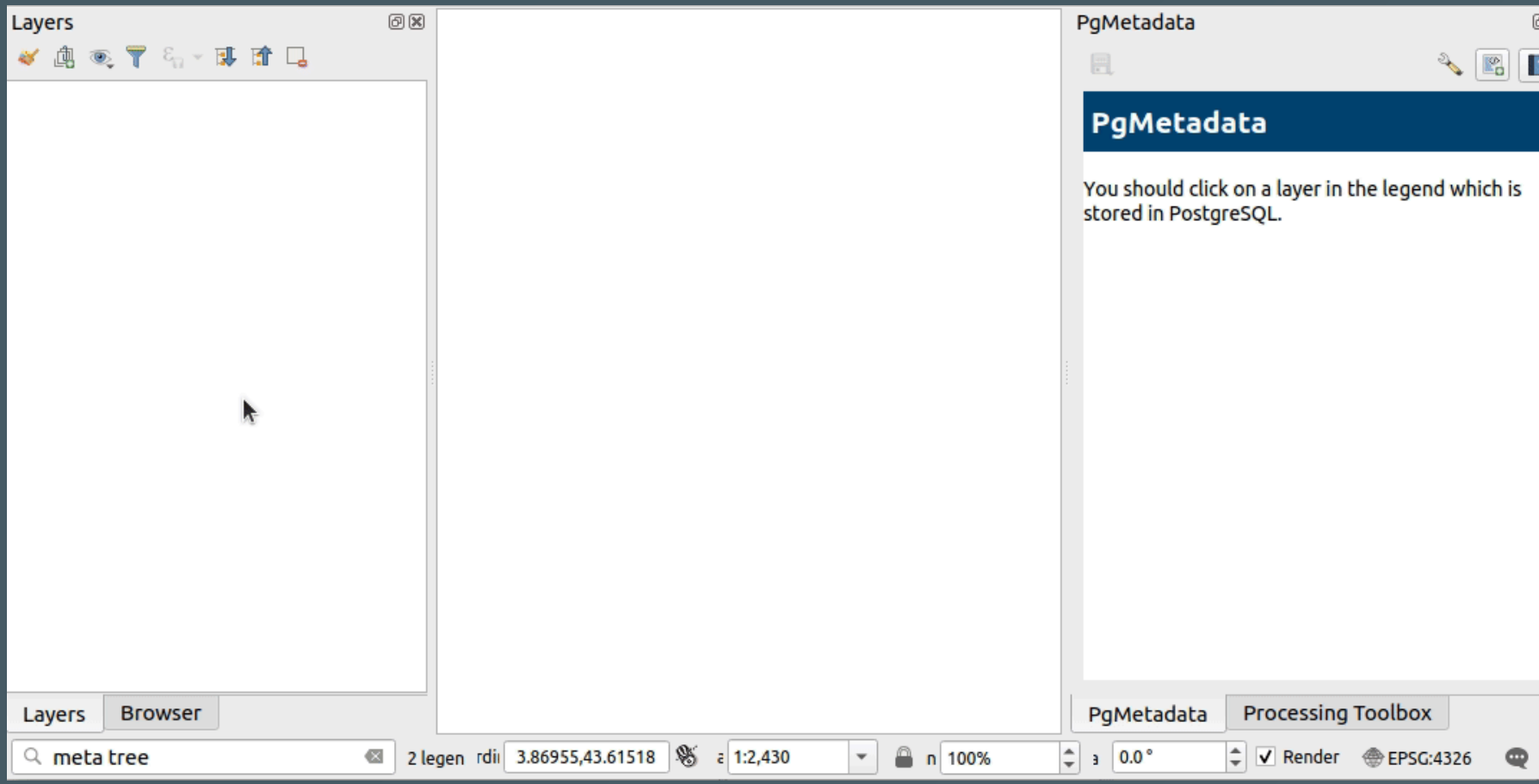


Export

The user can export each dataset metadata to:

- HTML
- PDF
- DCAT https://www.w3.org/TR/vocab-dcat-2/

```
<dcat:dataset>
  <dcat:Dataset>
    <dct:identifier>e0940d27-0059-4156-85e7-ef6b3cb57230</dct:identifier>
    <dct:title>Trees (demo)</dct:title>
    <dct:description>Trees around the botanical garden in Montpellier.
Source: OpenStreetMap</dct:description>
    <dct:language>en</dct:language>
    <dct:license>Open Data Commons Open Database License</dct:license>
    <dct:rights>Open</dct:rights>
    <dct:accrualPeriodicity>Yearly</dct:accrualPeriodicity>
    <dct:spatial>{&quot;type&quot;:&quot;Polygon&quot;,&quot;coordinates&quot;:[]]}</dct:spatial>
    <dct:created rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2021-09-28T08:55:44.606067</dct:created>
    <dct:issued rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2021-09-28T08:55:44.606067</dct:issued>
    <dct:modified rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2021-09-28T08:55:44.606067</dct:modified>
    <dcat:contactPoint>
      <vcard:Organization>
        <vcard:fn>Jane Doe - ACME (SIG)</vcard:fn>
        <vcard:hasEmail rdf:resource="jane.doe@acme.corp">jane.doe@acme.corp</vcard:hasEmail>
      </vcard:Organization>
    </dcat:contactPoint>
```

PgMetadata advanced features

Advanced features

- Easily change the **templates** for the HTML content (visible in the panel): they are stored inside the `html_template` table
- Generate a dataset **HTML card** with **SQL**

```sql
SELECT pgmetadata.get_dataset_item_html_content('demo', 'trees', 'fr');
```

- Generate a **DCAT representation** with SQL for one or many tables

```sql
SELECT *
FROM pgmetadata.get_datasets_as_dcat_xml('fr')
WHERE True
```

- **Deploy easily in you organisation** with QGIS configuration file variables (hide admin tools, auto-activate plugin)

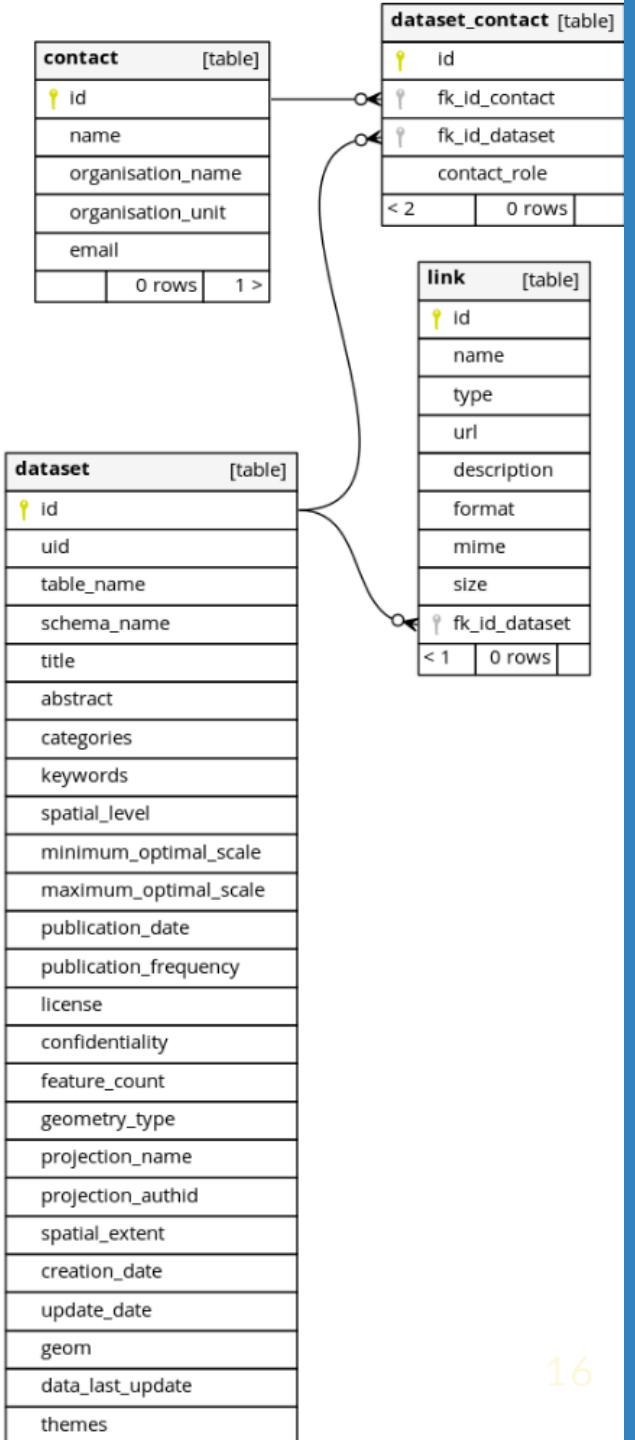
```
[pgmetadata]
auto_open_dock=true
end_user_only=true
connection_names=Connection 1;Connection 2;Connection 3

[Plugins]
pg_metadata=true
```

SQL "centric"

Most of the logic is done in the database **it self**.

Except for the initial schema installation, the Python plugin is not *"strictly"* necessary.

It's **mainly** 4 tables. Then it's a set of SQL functions and triggers.



Share

(web) Applications can use the **SQL functions** to show the localized metadata in **HTML format** or **publish the full catalog** in **DCAT** (and be harvested by Third party Metadata portals).

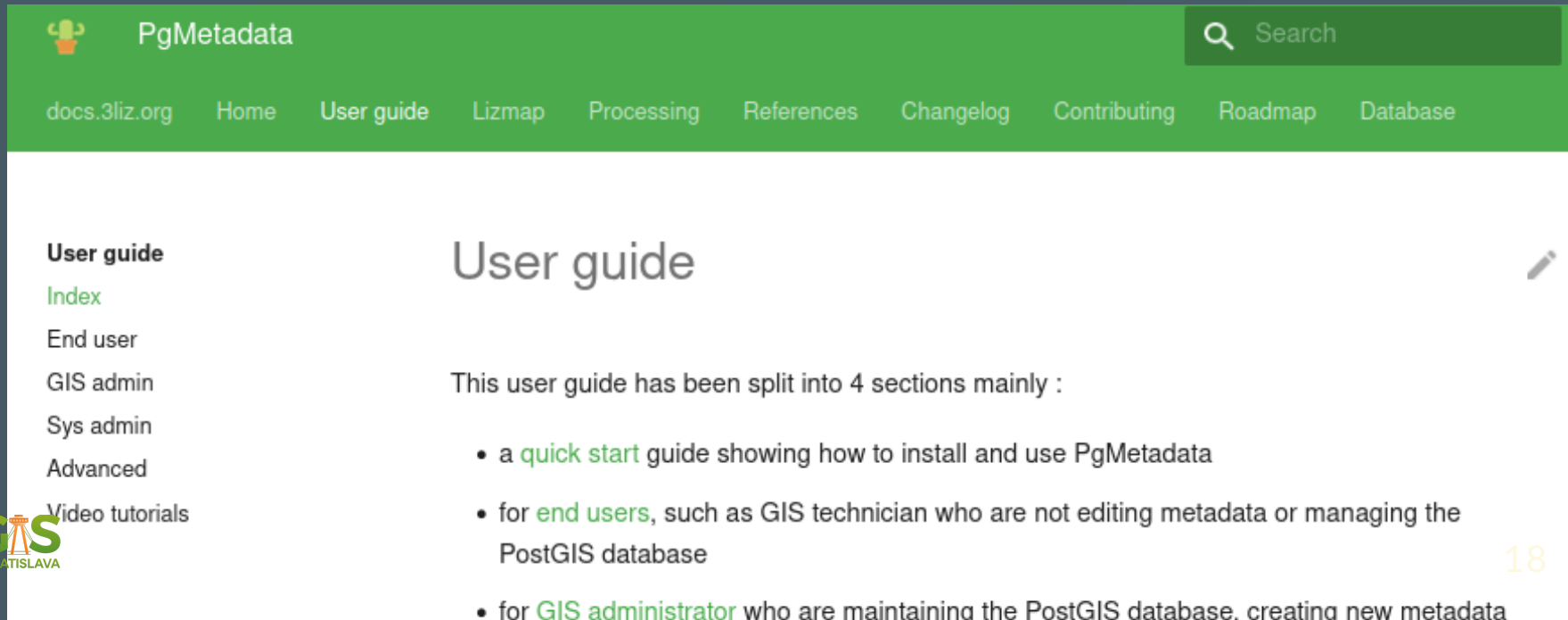
Example of **Lizmap Web Client PgMetadata module**: https://github.com/3liz/lizmap-pgmetadata-module/

Lizmap Web Client conference tomorrow at 02:00 PM 🤭

Documentation

https://docs.3liz.org/qgis-pgmetadata-plugin/

- For the **administrator**
- For the **end user**
- For the **system administrator**
- **Ressources**: Changelogs, videos, road map, database structure, etc.



Conclusion

Why another metadata tool ?

Many open-source tools already exist to store and share metadata.
Why **PgMetadata** ?

- See the previous slide about **PostgreSQL** 🐘
- Keep the metadata **as close as possible to the data**
- Not a new application, but a set of tools for **QGIS** and your **existing PostgreSQL database**:
  - the GIS administrator already uses PostgreSQL and can understand easily how PgMetadata works,
  - the GIS users do not need to learn to use a new application
- **GIS user oriented**: as a user, search & get the metadata **from QGIS** *VERSUS* browse a web page and download the data
- It is **NOT designed to replace the existing metadata web portals**, but to be used as a **complementary** tool !

Road map

We released a new version in last week, September 2024, mainly a maintenance version.

But earlier this year, some contributions from **@effjot Florian Jenn** and **@mixedbredie Ross McDonald**. They contributed adding more terms about INSPIRE and UK Open Government Licence.

Other ideas:

- Use the **QGIS native** "metadata panel", the SQL schema has been designed according to QGIS internal metadata schema.
- **Auto-fill** the dataset table from a selection of PostgreSQL tables/views
- **Import/Export** the QGIS native layer metadata properties
- Import metadata from **DCAT**

Resources

- Documentation: https://docs.3liz.org/qgis-pgmetadata-plugin/
- Database structure: https://docs.3liz.org/qgis-pgmetadata-plugin/database/
- Source code: https://github.com/3liz/qgis-pgmetadata-plugin/
- Translations: https://www.transifex.com/3liz-1/pgmetadata/
- Twitter: @3liz_news
- Email: info@3liz.com

Thanks

Thanks to the French **Gard province** for funding the first version of this extension !

Many thanks to our external active **contributors**:

- **Florian Jenn** @effjot for ideas, fixes & improvements
- Our kind translators in Transifex for
  - **Finnish** (Santtu Majuri @BinkiBai, Santtu Pyykkönen @santtuvp),
  - **German** (Florian Jenn @effjot)
  - **Spanish** (Carlos López Quintanilla @carlos.psig)

Thank you for your attention

Questions ?

I would love to hear feedback from any PgMetadata user !