GIS Instructions

Installing the right environment and packages

Anaconda Powershell Prompt

We will use several special Python packages to process geodata and to interact with geodatabases. The following list is not comprehensive:

- os
- geopandas
- shapely
- sodapy
- matplotlib
- json
- requests
- etc.

- Create a new Anaconda environment. Do NOT install the packages in the base environment, e.g.

```
conda create -c conda-forge -n geo python=3 jupyterlab geopandas shapely matplotlib requests
```

```
conda activate geo
```

```
pip install sodapy
```

```
cd ...
```

```
jupyter-lab
```

```
conda install -c conda-forge ... (or pip install ...)
```

(For more information, see the file attached

conda-cheatsheet.pdf

).

qgis_workshop_day_1.pdf

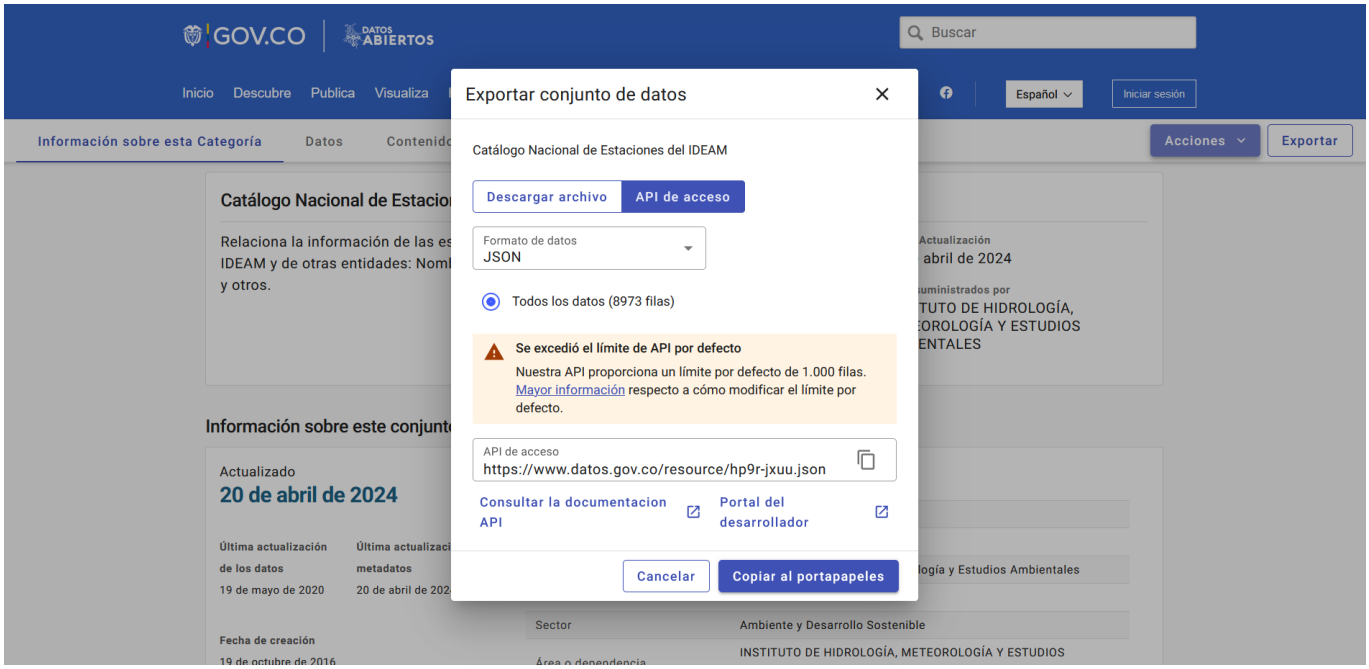
NEWS:
https://www.ideam.gov.co/sala-de-prensa/noticia/ideam-el-icpet-de-ecopetrol-y-fundacion-natura-entregan-colombia-el-mapa-nacional-de-coberturas-de

Python Programming (Geoprocessing)

API

- **What is an API?**

APIs (Application Programming Interfaces) are essential for accessing and manipulating geospatial data. When using Python for geoprocessing, the API libraries available in the Python environment can be a powerful tool in GIS application.



- **Server: IDEAM | App Token**

An App Token is used to authenticate and access data from web services. This token ensures secure and authorized access to the geospatial data. By integrating APIs in Python, users can automate geoprocessing tasks, such as spatial analysis, data conversion, and map production. We will be using the Socrata Open Data API (SODA) with the Socrata Query Language (SoQL), you can:

1. **Access and visualize geospatial data**: Retrieve data from Socrata servers and display it on interactive maps.
2. **Perform spatial analysis**: Conduct operations like filtering, sorting, and aggregating geospatial data using SoQL queries.
3. **Manage GIS data**: Create, update, and delete spatial datasets and manage user permissions.

For further information, you can check the documentation from Socrata Developer Portal: Socrata Developers