

PARTY WITH POSTGIS

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WHAT IS IT?

- An extension to PostgreSQL

```
psql (9.5.2)
Type "help" for help.

test=# CREATE EXTENSION postgis;
CREATE EXTENSION
test=#
```

- A special data type

```
test=# SELECT pg_typeof(geom), geom FROM foo;
 pg_typeof |          geom
-----+-----
 geometry  | 0101000020E6100000000000000004056C000000000000804540
(1 row)
```

- A set of functions

```
test=# SELECT ST_Area(ST_Buffer(geom, 1)) FROM foo;
      st_area
-----
 3.12144515225804
(1 row)
```

WHAT CAN I DO WITH IT?
GIS things!

ADVANTAGES

- Interoperability
- Existing knowledge
- Efficient
- Prototyping
- Great for collaborative environments

DISADVANTAGES

- Existing knowledge
- Reliance on SQL
- Parallel processing
- Management at scale

NEITHER HERE NOR THERE

- Reliance on scripting

USE CASES

- Management of related datasets
- Diverse needs or unsure
- Cleaning
- "Cloud"
- Limited budget
- Processing pipelines

WHEN NOT TO USE IT

- Your data is not already in PostGIS and your task is simple

SOLD! HOW DO I USE IT?



PostGIS

Spatial and Geographic objects for PostgreSQL

Home Download Documentation Development Support OSGeo

Compiling from Source

PostGIS has many packaged installations, but if you are more adventurous and want to compile your own, refer to our source download and compilation instructions:

- [Source Download and Compile Instructions](#)

Binary Installers

Binary distributions of PostGIS are available for various operating systems.

Windows

- More details about getting up and running with windows can be found on [Windows Downloads](#) page.

OSX

- The most reliable way to get PostGIS on OSX is to download and install [Postgres.app](#). Great for development and testing. Do not mix with other installations.
- The [builds from KyngChaos](#) are sometimes more up-to-date. Read the instructions carefully. Do not mix with other installations.

Getting Started

These instructions are for PostgreSQL 9.1 and higher, PostGIS 2.0 and higher that is compiled with raster support. Note: if you have postgis, without raster support, you can not use CREATE EXTENSION. Refer to [PostGIS install](#).

#1. DIY

Enabling PostGIS

PostGIS is an optional extension that must be enabled in each database you want to use it in before you can use it. Installing the software is just the first step. DO NOT INSTALL it in the database called `postgres`.

Connect to your database with `psql` or PgAdmin. Run the following SQL. You need only install the features you want:

```
-- Enable PostGIS (includes raster)
CREATE EXTENSION postgis;
-- Enable Topology
CREATE EXTENSION postgis_topology;
-- Enable PostGIS Advanced 3D
-- and other geoprocessing algorithms
-- sfcgal not available with all distributions
CREATE EXTENSION postgis_sfcgal;
-- fuzzy matching needed for Tiger
```

PERKS

- Free(?)
- Flexible

DOWNSIDES

- Can be difficult to install (on Windows)
- Management at scale

TOOLS TO HELP YOU

- QGIS
- Postico
- postgis-preview
- Postgres.app
- pg-tune

CARTO

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PREDICT THROUGH LOCATION

CARTO is an open, powerful, and intuitive platform for discovering and predicting the key insights underlying the location data in our world.

#2. CARTO

http://localhost:3000/#/0?export&_k=3hwahn

PERKS

- Easy and user-friendly
- Free to start
- Nothing to install or manage
- Built in geocoding
- Easily create interactive maps

DOWNSIDES

- If you have > 250mb, costs\$\$\$\$\$

ALTERNATIVES

- MySQL/MariaDB
- MongoDB

IN ACTION

NATURAL EARTH DATA States & Provinces and Populated Places

Admin 0 – Breakaway, disputed areas

Kashmir to the Eleme Triangle

[Download breakaway and disputed areas](#)
(28.68 KB) version 2.0.0

[Download boundary lines](#) (14.97 KB) version 2.0.0

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Admin 0 – States, provinces

Internal administrative boundaries

[Download states and provinces](#) (449.64 KB) version 3.0.0

[Download without major lakes](#) (49.54 KB) version 2.0.0

[Download boundary lines](#) (62.44 KB) version 2.0.0

[Download scale ranks](#) (432.77 KB) version 3.0.0

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Populated Places

City and town points, from Tokyo to Wasilla, Cairo to Kandahar

[Download populated places](#) (28.43 KB) version 2.0.0

[Download simple \(less detailed\)](#) (14.74 KB) version 2.0.0

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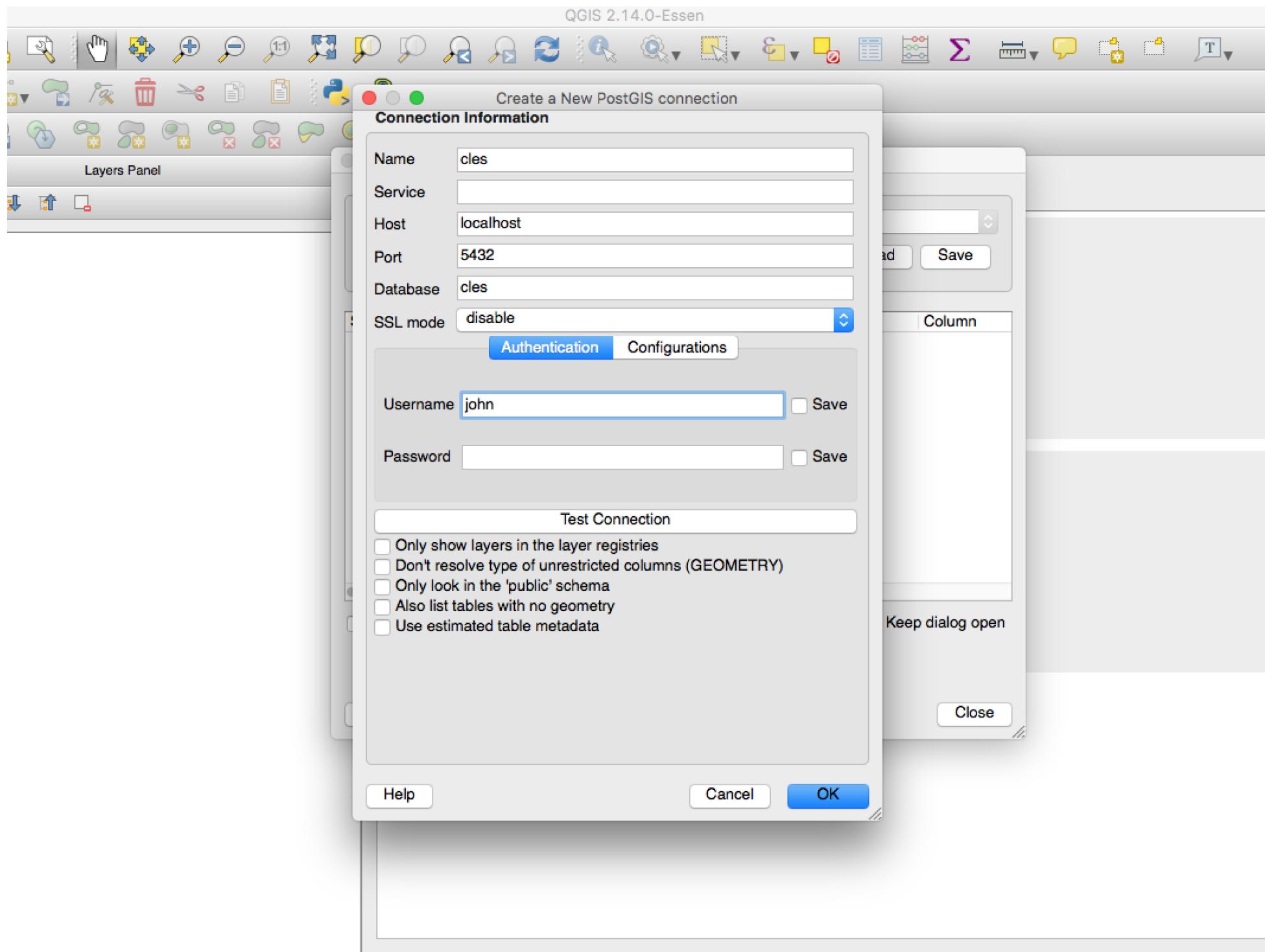
Airports

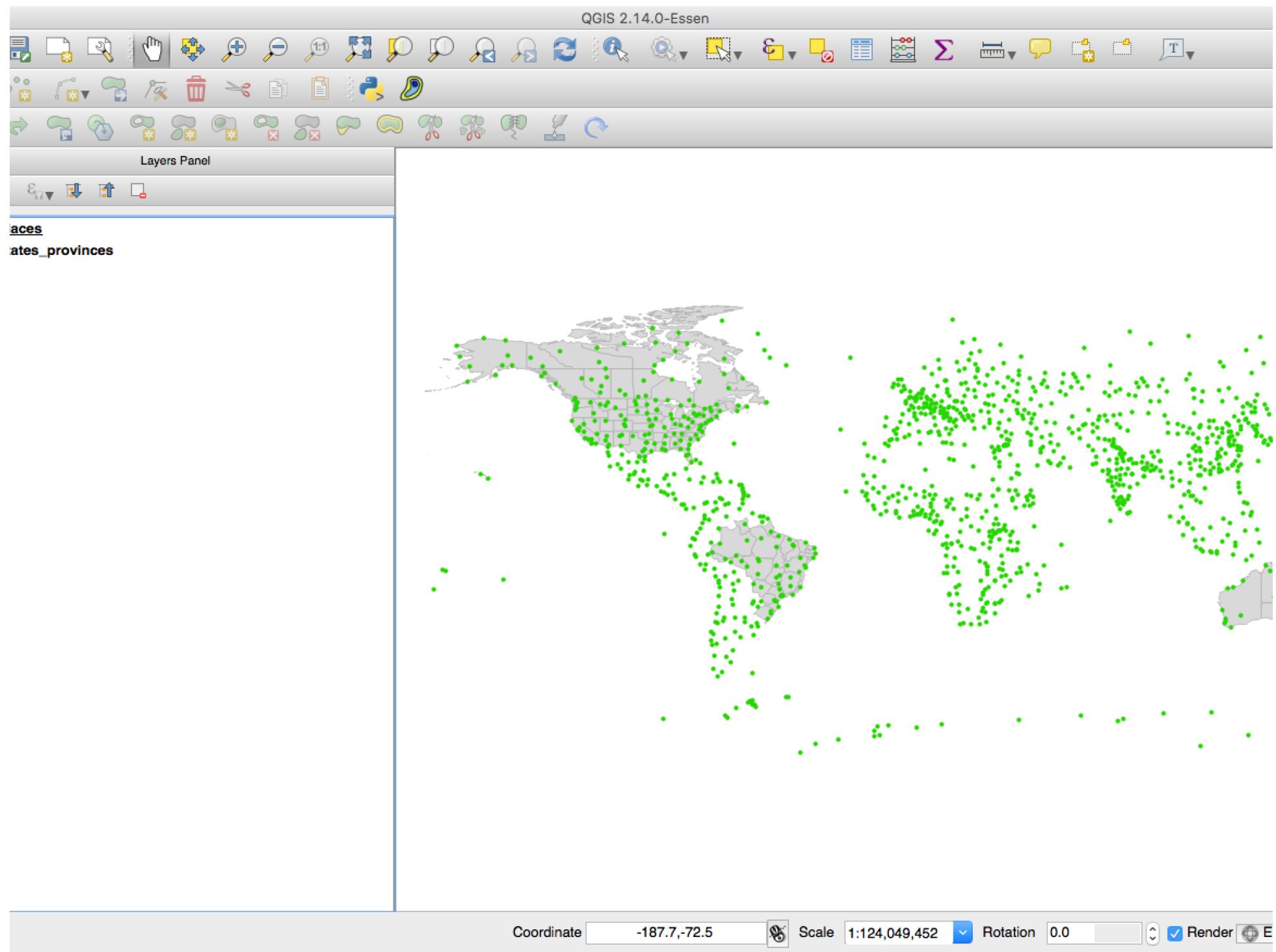
Transportation.

[Download airports](#) (24.55 KB) version 2.0.0

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```
> createdb cles
> psql -U john cles -c "CREATE EXTENSION postgis"
> shp2pgsql -s 4326 -I ne_50m_admin_1_states_provinces_lakes.shp public.states_provinces | psql -U john cles
> shp2pgsql -s 4326 -I ne_50m_populated_places_simple.shp public.places | psql -U john cles
```





```
[mjczaplewski-w:party-with-postgis john$ psql -U john cles
Expanded display is used automatically.
Null display is "[NULL]".
psql (9.5.2)
Type "help" for help.

[cles=# SELECT name FROM places LIMIT 5;
      name
-----
Bombo
Fort Portal
Potenza
Campobasso
Aosta
(5 rows)

[cles=# SELECT name FROM states_provinces LIMIT 5;
      name
-----
Western Australia
Northern Territory
Rio Grande do Norte
South Australia
Tasmania
(5 rows)

cles=# ]
```

localhost cles public places Connected. PostgreSQL 9.5.2 Local

	palt	capin	worldcity	megacity	sov0name	sov_a3	adm0name	adm0_a3	adm1name	iso_a2	note	latitude
ns	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Bamunanika	UG	NULL	0.58329910562
s	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Kabarole	UG	NULL	0.67100412113
	0	NULL	0	0	Italy	ITA	Italy	ITA	Basilicata	IT	NULL	40.6420021301
	0	NULL	0	0	Italy	ITA	Italy	ITA	Molise	IT	NULL	41.5629991186
	0	NULL	0	0	Italy	ITA	Italy	ITA	Valle d'Aosta	IT	NULL	45.7370010671
	0	NULL	0	0	Finland	ALD	Aland	ALD	Finstrom	AX	NULL	60.0969961849
	0	NULL	0	0	Indeterminate	PSE	Palestine	PSE	NULL	PS	NULL	31.9029447514
	0	NULL	1	0	Vatican (Holy Sea)	VAT	Vatican (Holy Sea)	VAT	Lazio	VA	NULL	41.9000122264
	0	NULL	0	0	French Republic	FRA	France	FRA	Poitou-Charentes	FR	NULL	46.5832922557
	0	NULL	0	0	French Republic	FRA	France	FRA	Auvergne	FR	NULL	45.7799821158
	0	NULL	0	0	French Republic	FRA	France	FRA	Franche-Comte	FR	NULL	47.2299969677
	0	NULL	0	0	Indeterminate	ATA	Antarctica	ATA	NULL	AQ	NULL	-62.17388669198
	0	NULL	0	0	Zambia	ZMB	Zambia	ZMB	Eastern	ZM	NULL	-13.6295698864
	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Jinja	UG	NULL	0.44042401011
	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Arua Municipality	UG	NULL	3.02036989228
	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Bungokho	UG	NULL	1.09041017548
	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Moroto	UG	NULL	2.54034751272
	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Masaka	UG	NULL	-0.32960650747
	0	NULL	0	0	Uganda	UGA	Uganda	UGA	Kashari	UG	NULL	-0.5996158662
	0	NULL	0	0	Namibia	NAM	Namibia	NAM	Otjozondjupa	NA	NULL	-20.4595405896
	0	NULL	0	0	Italy	ITA	Italy	ITA	Emilia-Romagna	IT	NULL	44.5004219758
	0	NULL	0	0	Italy	ITA	Italy	ITA	Sardegna	IT	NULL	39.2223978872
	0	NULL	0	0	Italy	ITA	Italy	ITA	Calabria	IT	NULL	38.9003761994
	0	NULL	0	0	Italy	ITA	Italy	ITA	Apulia	IT	NULL	41.114220397
	0	NULL	0	0	Italy	ITA	Italy	ITA	Abruzzo	IT	NULL	42.3503981721
	0	NULL	0	0	Italy	ITA	Italy	ITA	Marche	IT	NULL	43.6003735546

Content Structure + Row

1-100

Filter

The screenshot shows a PostgreSQL client interface with the following details:

- Toolbar:** Includes standard window controls (red, yellow, green circles), navigation arrows, and tabs for "localhost" and "SQL Query". The "Connected" status is displayed.
- Left Panel (Schema Browser):** Shows the database schema with the "public" schema expanded. It contains tables: "geography_columns", "geometry_columns", "places", "raster_columns", "raster_overviews", "spatial_ref_sys", and "states_provinces". Other schemas like "pg_catalog" and "information_schema" are also listed.
- Central Panel (SQL Editor):** Displays a SQL query:

```
1 SELECT places.name
2 FROM places, states_provinces
3 WHERE ST_Intersects(states_provinces.geom, places.geom)
4 AND states_provinces.name = 'California'
```
- Bottom Panel (Result Grid):** A table showing the results of the query, listing city names:

name
San Bernardino
Santa Barbara
Fresno
Eureka
San Jose
Sacramento
San Diego
San Francisco
Los Angeles

ILL-ADVISED LIVE DEMO TIME!

QUESTIONS?

THANKS!

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<https://github.com/jczaplew/party-with-postgis>

