

SPATIAL DATABASE WITH POSTGIS



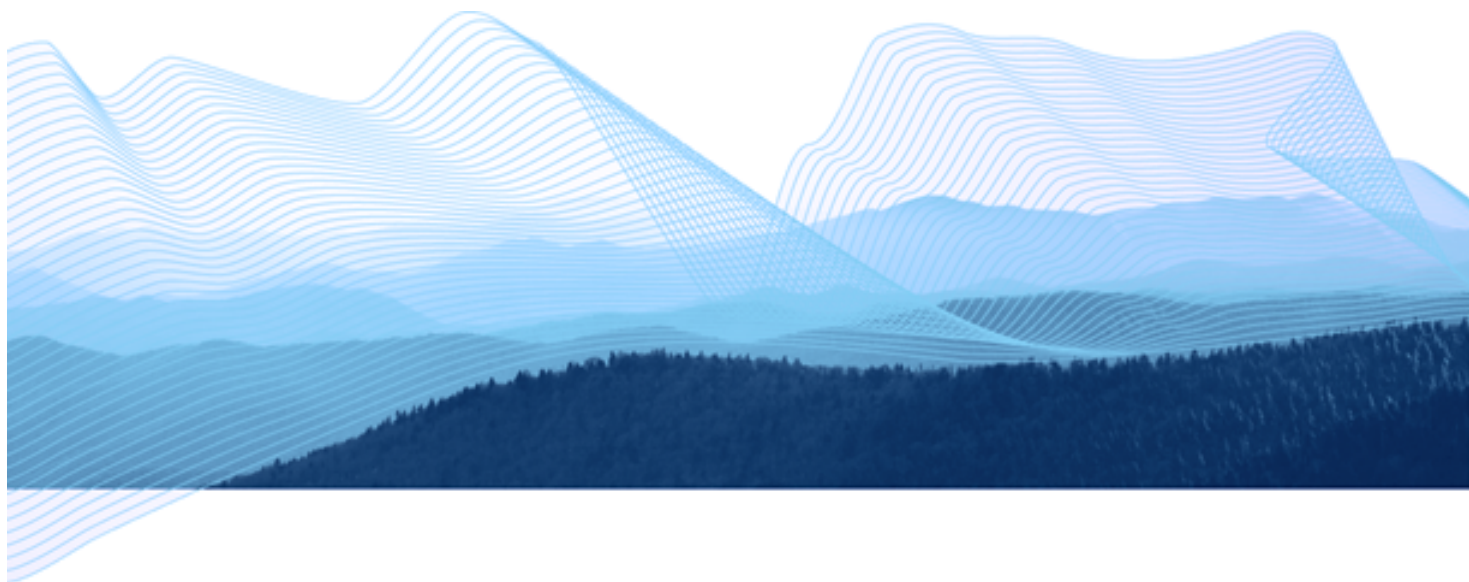
A Friendly Survey of Popular Geospaital Services

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Environmental Engineering

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1 WELCOME

This workshop provides a survey of popular open source geospatial software. We are going to take time out to focus on a specific area – Spatial Databases.

PostGIS is a spatial extension to the PostgreSQL database produced by Refractions Research. PostGIS is an implementation of the Simple Features for SQL (SFSQL) standard. We are pleased that PostGIS has submitted for the OSGeo incubation process this year.

The top question is from people asking me to compare the spatial support provided by PostGIS and MySQL. The quick answer is that MySQL spatial support is a joke. In actual fact it was a bit of résumé-ware and the Russians involved have since got a job.

PostGIS is gradually picking up more SQL Multi Media functionality (such as curves) and has a number of active development efforts such as storing rasters in the database.

Mark Leslie

Mark has broad experience at LISAssoft integrating proprietary and open source solutions. An active PostGIS committer he has developed and extended software across the Open Source Geospatial stack, including UMN MapServer, PostGIS, uDig and GeoTools.

Jody Garnett

Jody is the lead uDig architect and on the steering committee for GeoTools; GeoServer and uDig. Jody Garnett is an employee of LISAssoft with a background in training and mentoring.

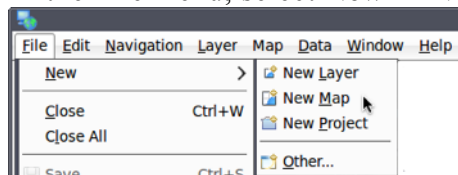
Andrea Antonello

Andrea from HydroloGIS develops geospatial open source solutions for environmental analysis. Andrea is well known as the lead developer of the JGrass project and is part of the uDig project steering committee.

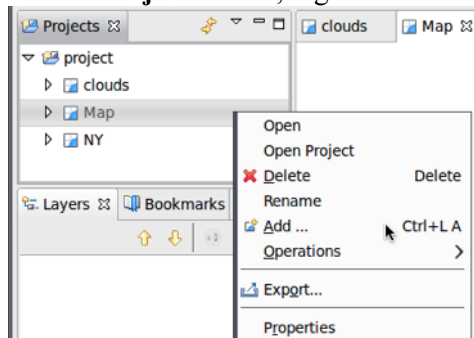
2 ADDING A LAYER FROM POSTGIS

This section shows how you can add a Layer from a PostGIS table using uDig. PostGIS is an extension to the popular open source PostgreSQL database. uDig handles other databases like Oracle and DB2 in a similar manner:

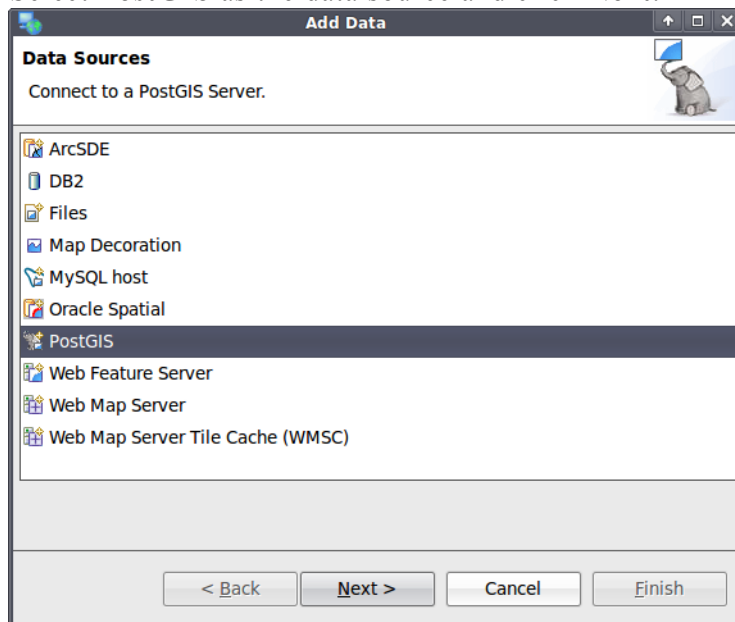
1. In the File menu, select **New -> New Map**.



2. In the **Projects** view, right-click on **Map** and select **Add**.



3. Select **PostGIS** as the data source and click **Next**.



4. Enter the following connection information:

Host: localhost
Port: 5432
Username: user
Password: user

*If you are
connected to the
Internet there is
a public PostGIS
database
available here:*

www.refractive.net

5432

demo

demo

Add Data

PostGIS
Connect to a PostGIS Server.

Previous Connections

Host: localhost Port: 5432

User Name: user

Password: ●●●●

☐ Store Password

Remove Connection

< Back Next > Cancel Finish

And press Next.

5. Once the connection is established choose the “Medford” database and press List.

Add Data

Connection
Connect to a PostGIS Server.

Database: medford

List

Table: SQL

Filter: ☐ Public Schema

Table	Schema	Geometry Name	Geometry Type
<input type="checkbox"/> jacksonco_schools	public	the_geom	POINT
<input checked="" type="checkbox"/> jacksonco_streets	public	the_geom	MULTILINESTRING
<input type="checkbox"/> jacksonco_taxlots	public	the_geom	MULTIPOLYGON
<input type="checkbox"/> medford_citylimits	public	the_geom	MULTIPOLYGON
<input checked="" type="checkbox"/> medford_hydro	public	the_geom	MULTILINESTRING
<input checked="" type="checkbox"/> medford_parks	public	the_geom	MULTIPOLYGON
<input type="checkbox"/> medford_planzone	public	the_geom	POINT
<input type="checkbox"/> medford_stormdrain	public	the_geom	MULTILINESTRING
<input type="checkbox"/> medford_wards	public	the_geom	MULTIPOLYGON

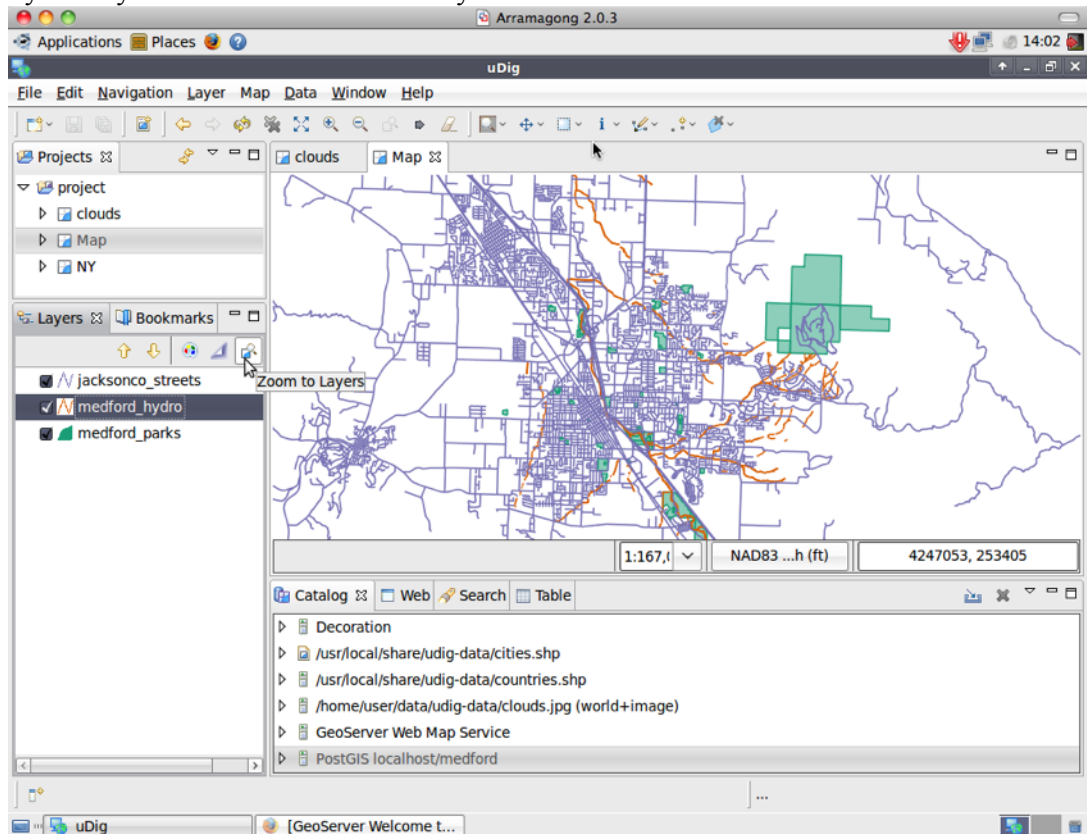
< >

< Back Next > Cancel Finish

6. Select the **jacksonco_streets**, **medford_hydro** and **medford_parks** tables and press finish.

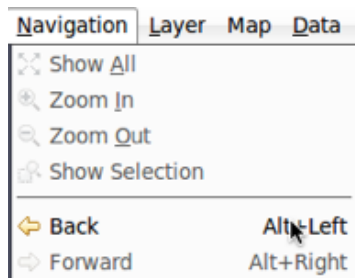
- Initially the screen will look empty (showing the entire world!). Select the medford hydro layer and choose zoom to layer.

Zoom to Layer is very useful when adding new layers that happen to be off screen or not visible at the current scale.



- The map will now zoom in to show the extent of medford hydro layer.
- You can return to your previous position in the world by selecting Back in the Navigation menu.

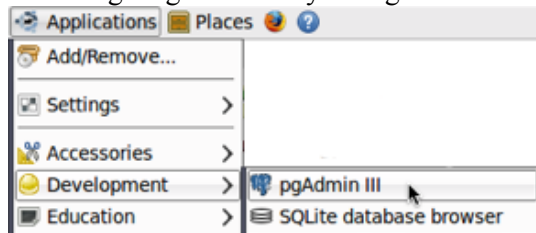
You can also select Back on the tool bar, a history of your position is kept similar to a web browser.



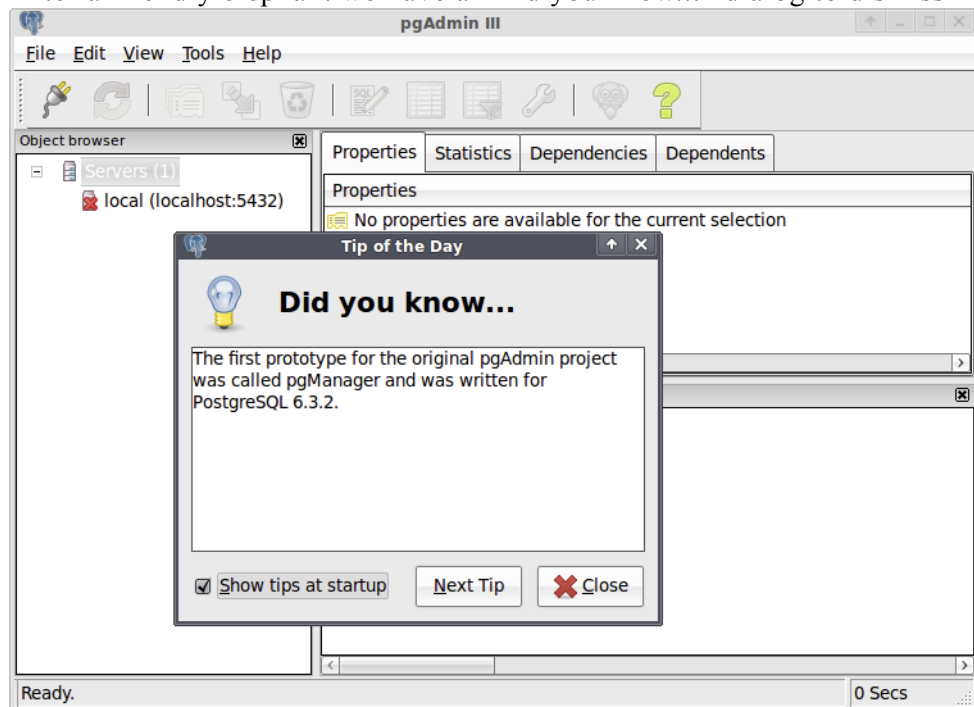
3 POSTGIS

To have a closer look at PostGIS we are going to use the PGAdmin program to have a look at how the tables are laid out in the database and practice with an SQL statement.

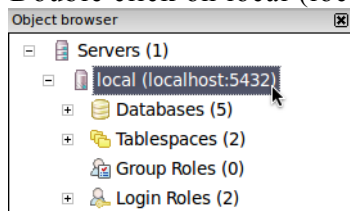
1. We are going to start by using a nice front end called “PGAdmin”.



2. After a friendly elephant we have a “Did you know...” dialog to dismiss

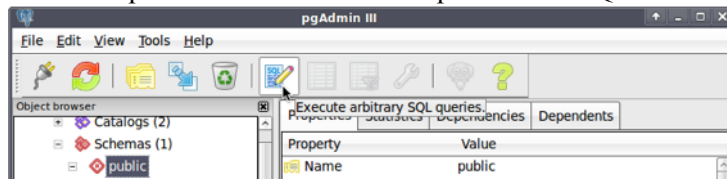


3. Double click on local (localhost:5432) to connect.



4. Open up the medford database and select into the public schema, you can open it up to look at some of the tables if you like.

With the public schema selected press the “SQL” button in the toolbar.



5. We are just going to use a simple query as an example.

```
SELECT sum(st_area(the_geom)) FROM medford_parks;
```

*ST stands for
spatial type
according to
Mark.*

*It is part of SQL
Multi-Media
sepcfication.*