

Chapter 1: Moving Data In and Out of PostGIS

```
Chapter 1 — bash — 80x26
x,y,place,size,update,startdate,enddate,title,url
-8.2499,42.37657,Avión,52,2011/03/07,2011/03/05,2011/03/06,Dos incendios calcinan 74 hectáreas el fin de semana,http://www.laregion.es/noticia/145578/incendios/calcinan/hectareas/semana/
-8.1013,42.13924,Quintela de Leirado,22,2011/03/07,2011/03/06,2011/03/06,Dos incendios calcinan 74 hectáreas el fin de semana,http://www.laregion.es/noticia/145578/incendios/calcinan/hectareas/semana/
3.48159,43.99156,Arrigas,4,2011/03/06,2011/03/05,2011/03/05,"À Arrigas, la forêt sous la menace d'un feu",http://www.midilibre.com/articles/2011/03/06/NIMES-A-Arrigas-la-foret-sous-la-menace-d-39-un-feu-1557923.php5
6.1672,44.96038,Vénéon,9,2011/03/06,2011/03/06,2011/03/06,Isère Spectaculaire incendie dans la vallée du Vénéon,http://www.ledauphine.com/isere-sud/2011/03/06/isere-spectaculaire-incendie-dans-la-vallee-du-veneon
bash-3.2$
```

```
Chapter 1 — psql — 80x26
bash-3.2$ psql -d postgis_cookbook
psql (9.6.3)
Type "help" for help.

postgis_cookbook=# SELECT COUNT(*) FROM chp01.firenews;
 count
-----
  3006
(1 row)

postgis_cookbook=#
```

```
Chapter 1 — psql — 80x26
postgis_cookbook=# SELECT f_table_name, f_geometry_column, coord_dimension, srid, type FROM geometry_columns where f_table_name = 'firenews';
 f_table_name | f_geometry_column | coord_dimension | srid | type
-----+-----+-----+-----+-----
 firenews     | the_geom          |                2 | 4326 | POINT
(1 row)

postgis_cookbook=#
```

```
Chapter 1 -- psql -- 103x26
postgis_cookbook=# SELECT place, ST_AsText(the_geom) AS wkt_geom FROM chp01.firenews ORDER BY place LIMIT 5;

```

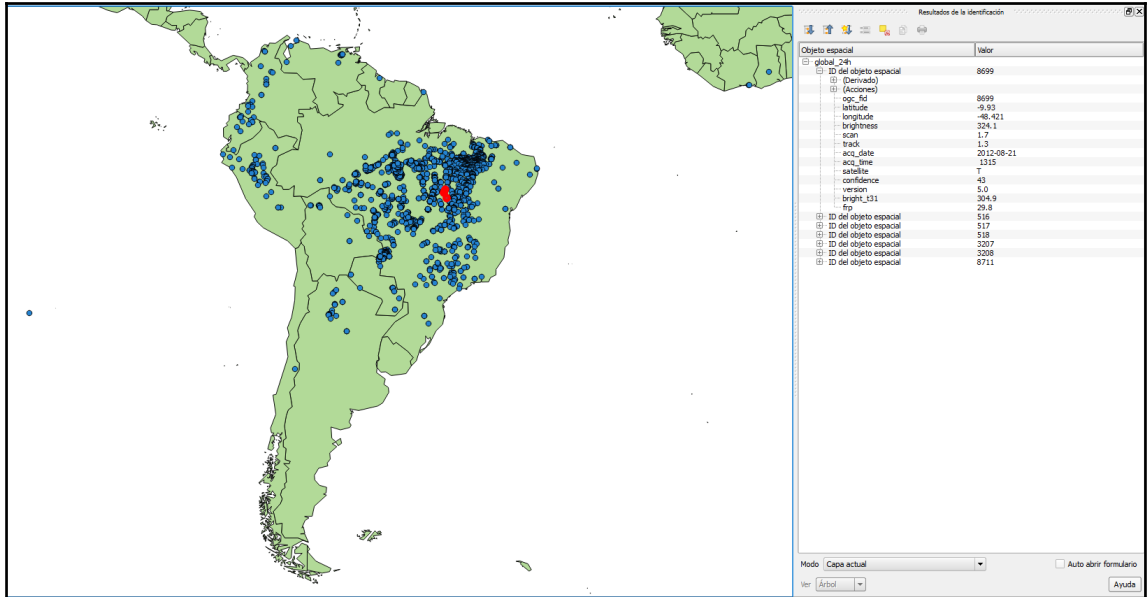
place	wkt_geom
'Ain Abid, Constantine, DZ	POINT(6.95 36.2333)
A Coruña	POINT(-8.4283 43.36)
A Fonsagrada	POINT(-7.0696263128 43.1247538232)
A Guarda	POINT(-8.87237 41.90273)
A Gudiña	POINT(-7.1376758921 42.0617733251)

```
(5 rows)
postgis_cookbook=#
```

```
Chapter 1 -- bash -- 103x26
bash-3.2$ head -n 5 Global_24h.csv
latitude,longitude,brightness,scan,track,acq_date,acq_time,satellite,confidence,version,bright_t31,frp
-23.386,-46.197,307.5,1.1,1,2012-08-20, 0140,T,54,5.0 ,285.7,16.5
-22.952,-47.574,330.1,1.2,1.1,2012-08-20, 0140,T,100,5.0 ,285.2,53.9
-23.726,-56.108,333.3,4.7,2,2012-08-20, 0140,T,100,5.0 ,283.5,404.1
-23.729,-56.155,311.8,4.7,2,2012-08-20, 0140,T,61,5.0 ,272,143.1
bash-3.2$
```

```
Chapter 1 — bash — 91x44
bash-3.2$ ogrinfo global_24h.vrt Global_24h -fid 1
INFO: Open of `global_24h.vrt'
       using driver `OGR_VRT' successful.

Layer name: Global_24h
Geometry: Point
Feature Count: 30326
Extent: (-155.284000, -40.751000) - (177.457000, 70.404000)
Layer SRS WKT:
GEOGCS["WGS 84",
  DATUM["WGS_1984",
    SPHEROID["WGS 84",6378137,298.257223563,
      AUTHORITY["EPSG","7030"]],
    AUTHORITY["EPSG","6326"]],
  PRIMEM["Greenwich",0,
    AUTHORITY["EPSG","8901"]],
  UNIT["degree",0.0174532925199433,
    AUTHORITY["EPSG","9122"]],
  AUTHORITY["EPSG","4326"]]
latitude: String (0.0)
longitude: String (0.0)
brightness: String (0.0)
scan: String (0.0)
track: String (0.0)
acq_date: String (0.0)
acq_time: String (0.0)
satellite: String (0.0)
confidence: String (0.0)
version: String (0.0)
bright_t31: String (0.0)
frp: String (0.0)
OGRFeature(Global_24h):1
  latitude (String) = -23.386
  longitude (String) = -46.197
  brightness (String) = 307.5
  scan (String) = 1.1
  track (String) = 1
  acq_date (String) = 2012-08-20
  acq_time (String) = 0140
  satellite (String) = T
  confidence (String) = 54
  version (String) = 5.0
  bright_t31 (String) = 285.7
  frp (String) = 16.5
```



```
Chapter 1 - psql - 91x29
postgres=# SELECT f_geometry_column, coord_dimension, srid, type FROM geometry_columns WHERE f_table_name = 'global_24h'
;
 f_geometry_column | coord_dimension | srid | type
-----
 the_geom          |                2 | 3857 | POINT
(1 row)

postgres=#
```

```
Chapter 1 - psql - 91x29
postgres=# SELECT count(*) FROM chp01.global_24h;
count
-----
 9190
(1 row)

postgres=#
```

```
Chapter 1 — psql — 91x29
postgis_cookbook=# SELECT ST_AsEWKT(the_geom) FROM chp01.global_24h LIMIT 1;
                st_asewkt
-----
SRID=3857;POINT(-5142626.51617686 -2678766.03496892)
(1 row)

postgis_cookbook=#
```

```
Chapter 1 — bash — 91x29
bash-3.2$ head -n 20 global_24h.sql
SET CLIENT_ENCODING TO UTF8;
SET STANDARD_CONFORMING_STRINGS TO ON;
BEGIN;
CREATE TABLE "chp01"."global_24h_geographic" (gid serial,
"latitude" varchar(80),
"longitude" varchar(80),
"brightness" varchar(80),
"scan" varchar(80),
"track" varchar(80),
"acq_date" varchar(80),
"acq_time" varchar(80),
"satellite" varchar(80),
"confidence" varchar(80),
"version" varchar(80),
"bright_t31" varchar(80),
"frp" varchar(80),
"geog" geography(POINT,4326));
ALTER TABLE "chp01"."global_24h_geographic" ADD PRIMARY KEY (gid);
INSERT INTO "chp01"."global_24h_geographic" ("latitude","longitude","brightness","scan","track","acq_date","acq_time","satellite","confidence","version","bright_t31","frp",geog) VALUES ('-23.386','-46.197','307.5','1.1','1','2012-08-20','0140','T','54','5.0','285.7','16.5','0101000020E6100000F0A7C64B371947C0894160E5D06237C0');
INSERT INTO "chp01"."global_24h_geographic" ("latitude","longitude","brightness","scan","track","acq_date","acq_time","satellite","confidence","version","bright_t31","frp",geog) VALUES ('-22.952','-47.574','330.1','1.2','1.1','2012-08-20','0140','T','100','5.0','285.2','53.9','0101000020E6100000B6F3FDD478C947C0C1CAA145B6F336C0');
bash-3.2$
```

```
Chapter 1 — psql — 91x29
postgis_cookbook=# SELECT f_geography_column, coord_dimension, srid, type FROM geography_columns WHERE f_table_name = 'global_24h_geographic';
 f_geography_column | coord_dimension | srid | type
-----
geog                |                2 | 4326 | Point
(1 row)

postgis_cookbook=#
```

```

Chapter 1 — bash — 91x29
Layer name: chp01.global_24h_geographic
Geometry: Point
Feature Count: 30326
Extent: (-155.284000, -40.751000) - (177.457000, 70.404000)
Layer SRS WKT:
GEOGCS["WGS 84",
  DATUM["WGS_1984",
    SPHEROID["WGS 84",6378137,298.257223563,
      AUTHORITY["EPSG","7030"]],
    AUTHORITY["EPSG","6326"]],
  PRIMEM["Greenwich",0,
    AUTHORITY["EPSG","8901"]],
  UNIT["degree",0.0174532925199433,
    AUTHORITY["EPSG","9122"]],
  AUTHORITY["EPSG","4326"]]
FID Column = gid
Geometry Column = geog
latitude: String (80.0)
longitude: String (80.0)
brightness: String (80.0)
scan: String (80.0)
track: String (80.0)
acq_date: String (80.0)
acq_time: String (80.0)
satellite: String (80.0)
confidence: String (80.0)
version: String (80.0)
bright_t31: String (80.0)
frp: String (80.0)

```

Add PostGIS Table(s) ? X

Connections

localhost

Connect New Edit Remove Load Save

Schema	Table	Comment	Column	Data Type	Spatial Type	SRID
chp01	firenews		the_geom	Geometry	Point	4326
chp01	global_24h		the_geom	Geometry	Point	3857
chp01	global_24h_geographic		geog	Geography	Point	4326
chp01	hotspots		the_geom	Geometry	Point	4326
chp01	hs_uploaded		the_geom	Geometry	Point	4326

Also list tables with no geometry Keep dialog open

Search options

Add Set Filter Close Help

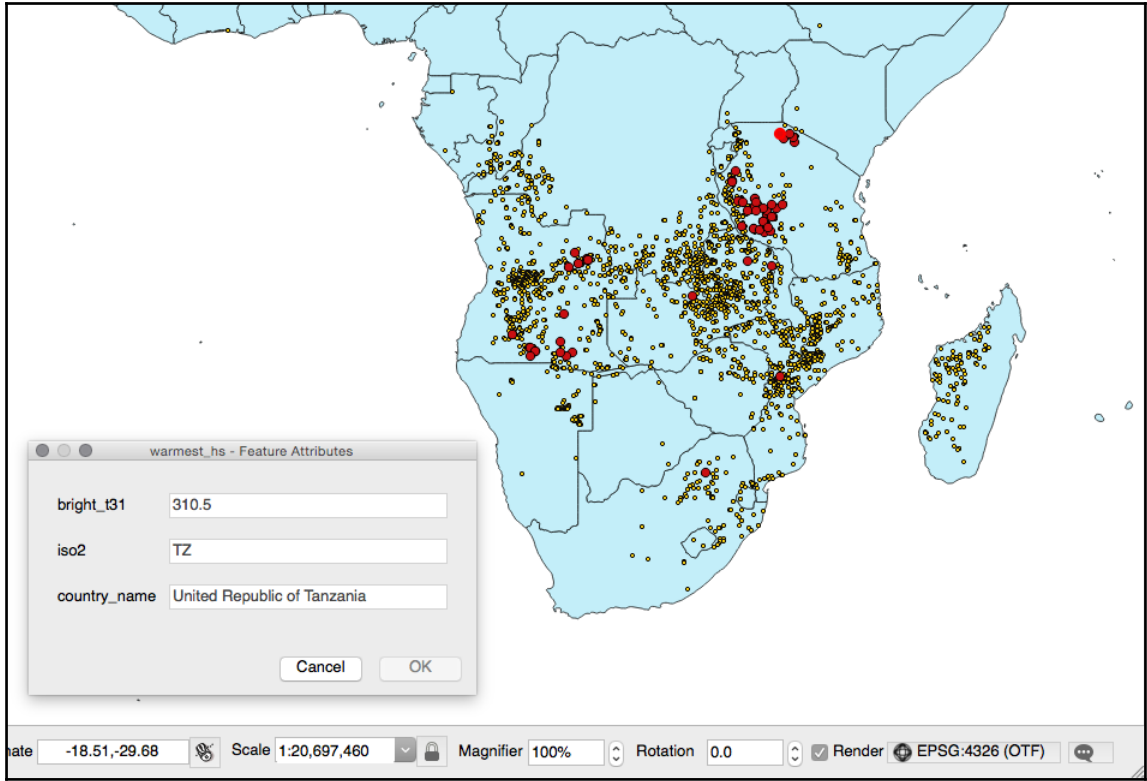
```
Chapter 1 — more — 91x33
postgis_cookbook=# SELECT
postgis_cookbook=# ST_AsText(the_geom) AS the_geom, bright_t31
postgis_cookbook=# FROM chp01.global_24h
postgis_cookbook=# ORDER BY bright_t31 DESC LIMIT 100;
  the_geom                                | bright_t31
-----+-----
POINT(-13361233.2019535 4991419.20457202) | 360.6
POINT(-13161080.7575072 8624445.64118912)  | 359.6
POINT(-13359897.3680639 4991124.84275376)  | 357.4
POINT(-13159077.0066729 8624904.79861514)  | 351.3
POINT(-13360120.0070455 4989800.32453147)  | 347.7
POINT(-13161859.9939427 8619855.65609598)  | 344.3
POINT(-13361455.840935 4990094.64636667)   | 338.3
POINT(-13359674.7290824 4992449.54093155)  | 332.2
POINT(-13160635.479544 8618020.47050205)  | 331.5
POINT(-13361010.5629719 4992743.942751)    | 330
POINT(5311052.90574708 3695374.96924629)   | 328
POINT(-13361121.8824627 4988623.12600837)  | 326
POINT(5519665.63149368 3125470.87992288)   | 325.8
POINT(-695524.178476373 5200607.76532119)  | 325.5
POINT(5268083.58230088 3601878.73296264)   | 325.1
POINT(5518552.43658574 3125595.83504836)   | 325
POINT(5269642.05517199 3617174.6454432)    | 325
POINT(5268083.58230088 3610561.39379457)   | 324.7
POINT(8043835.08523116 5919740.7848368)    | 324.4
POINT(-5933885.45673545 -1627849.34544934) | 324.1
POINT(5267526.98484691 3591778.16979249)  | 324.1
POINT(5269085.45771802 3591648.728413)     | 324
POINT(4936351.49973692 4236551.70176014)   | 324
POINT(-13359786.0485731 4988328.84857754)  | 323.7
POINT(8573938.50038872 5453224.87938544)   | 323.6
POINT(5269976.01364437 3591130.97629928)   | 323.5
:
```

```

postgis_cookbook=# SELECT
postgis_cookbook=# ST_AsText(f.the_geom) AS the_geom, f.bright_t31, ac.iso2, ac.country_name
postgis_cookbook=# FROM chp01.global_24h as f
postgis_cookbook=# JOIN chp01.africa_countries as ac
postgis_cookbook=# ON ST_Contains(ac.the_geom, ST_Transform(f.the_geom, 4326))
postgis_cookbook=# ORDER BY f.bright_t31 DESC
postgis_cookbook=# LIMIT 100;

```

the_geom	bright_t31	iso2	country_name
POINT(2297856.92895475 -1156211.27087933)	316.1	AO	Angola
POINT(3635694.56930832 -868851.746537112)	315.4	TZ	United Republic of Tanzania
POINT(2299860.67978903 -1163793.36952541)	315	AO	Angola
POINT(-626728.73316613 4186462.82578735)	314.9	MA	Morocco
POINT(2299304.08233507 -1156437.57872925)	314.7	AO	Angola
POINT(-625281.579785818 4186054.31484101)	314.6	MA	Morocco
POINT(2298524.84589951 -1157003.35465544)	314.1	AO	Angola
POINT(3191863.75951553 -2855246.3351064)	314.1	ZA	South Africa
POINT(3421738.50800364 -483589.255881647)	313.9	TZ	United Republic of Tanzania
POINT(3094459.20507142 -1438946.78512311)	313.8	ZM	Zambia
POINT(3640592.62690322 -951168.957166242)	313.8	TZ	United Republic of Tanzania
POINT(1900780.30529515 -1873614.98065512)	313.8	AO	Angola
POINT(3517807.22855824 -1173188.3759633)	313.7	ZM	Zambia
POINT(2298636.16539031 -1155758.65949881)	313.6	AO	Angola
POINT(578861.352125023 4366594.3451834)	313.2	DZ	Algeria
POINT(2301307.83316934 -1164019.72578116)	313.2	AO	Angola
POINT(3563225.58080189 -923375.606508147)	313	TZ	United Republic of Tanzania
POINT(773113.863559285 4361611.57547542)	313	DZ	Algeria
POINT(172433.891238781 4289344.1566943)	312.9	DZ	Algeria
POINT(487468.050183745 4412239.11061166)	312.8	DZ	Algeria
POINT(2159375.48240792 -1213513.85253403)	312.6	AO	Angola
POINT(2089912.12015292 -1796386.26248973)	312.6	AO	Angola
POINT(3562112.38589396 -923263.118552325)	312.4	TZ	United Republic of Tanzania



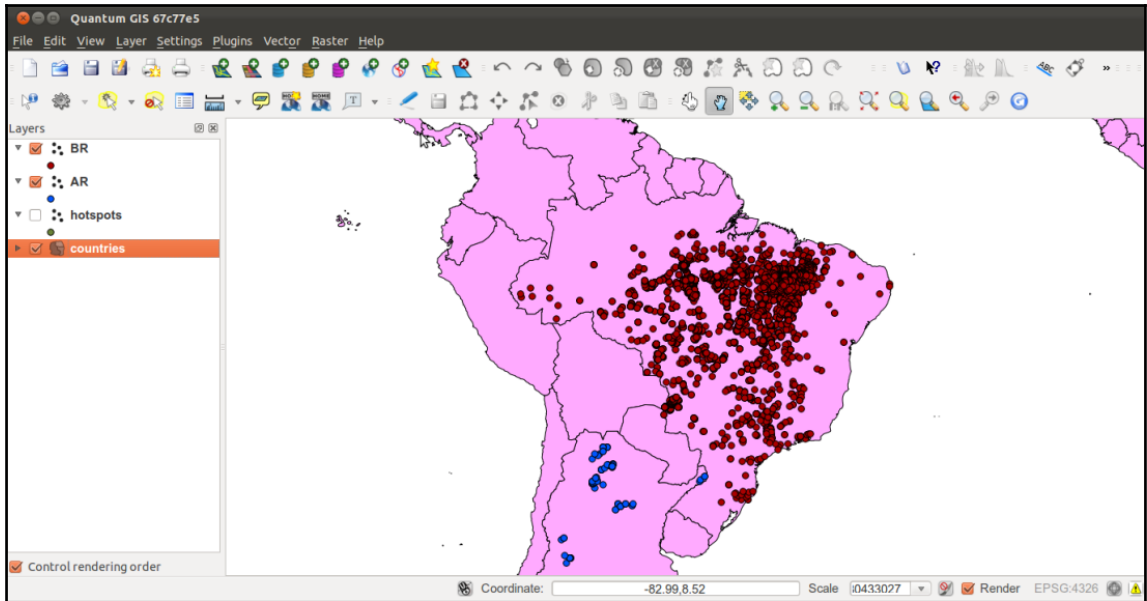
```
Chapter 1 — bash — 104x38
Supported Formats:
PCIDSK -raster,vector- (rw+v): PCIDSK Database File
netCDF -raster,vector- (rw+s): Network Common Data Format
JP2OpenJPEG -raster,vector- (rwv): JPEG-2000 driver based on OpenJPEG library
JPEG2000 -raster,vector- (rwv): JPEG-2000 part 1 (ISO/IEC 15444-1), based on Jasper library
ESRI Shapefile -vector- (rw+v): ESRI Shapefile
MapInfo File -vector- (rw+v): MapInfo File
UK .NTF -vector- (ro): UK .NTF
OGR_SDTS -vector- (ro): SDTS
S57 -vector- (rw+v): IHO S-57 (ENC)
DGN -vector- (rw+): Microstation DGN
OGR_VRT -vector- (rov): VRT - Virtual Datasource
REC -vector- (ro): EPIInfo .REC
Memory -vector- (rw+): Memory
BNA -vector- (rw+v): Atlas BNA
CSV -vector- (rw+v): Comma Separated Value (.csv)
NAS -vector- (ro): NAS - ALKIS
GML -vector- (rw+v): Geography Markup Language (GML)
GPX -vector- (rw+v): GPX
LIBKML -vector- (rw+v): Keyhole Markup Language (LIBKML)
KML -vector- (rw+v): Keyhole Markup Language (KML)
GeoJSON -vector- (rw+v): GeoJSON
Interlis 1 -vector- (rw+): Interlis 1
Interlis 2 -vector- (rw+): Interlis 2
OGR_GMT -vector- (rw+): GMT ASCII Vectors (.gmt)
GPKG -raster,vector- (rw+vs): GeoPackage
SQLite -vector- (rw+v): SQLite / Spatialite
OGR_DODS -vector- (ro): OGR_DODS
ODBC -vector- (rw+): ODBC
WASP -vector- (rw+v): WASP .map format
MSSQLSpatial -vector- (rw+): Microsoft SQL Server Spatial Database
OGR_OGDI -vector- (ro): OGDI Vectors (VPF, VMAP, DCW)
PostgreSQL -vector- (rw+): PostgreSQL/PostGIS
OpenFileGDB -vector- (rov): ESRI FileGDB
XPlane -vector- (rov): X-Plane/Flightgear aeronautical data
DXF -vector- (rw+v): AutoCAD DXF
Geoconcept -vector- (rw+): Geoconcept
GeoRSS -vector- (rw+v): GeoRSS
```

```

postgis_cookbook=# SELECT c.name, MIN(c.iso2) as iso2, count(*) as hs_count
FROM chp01.hotspots as hs JOIN chp01.countries as c ON ST_Contains(c.the_geom, hs.the_geom) GROUP BY c.n
ame ORDER BY c.name;

```

name	iso2	hs_count
Albania	AL	68
Algeria	DZ	358
Angola	AO	4555
Argentina	AR	94
Australia	AU	2272
Austria	AT	8
Belarus	BY	3
Belgium	BE	2
Bolivia	BO	54
Bosnia and Herzegovina	BA	61
Botswana	BW	41
Brazil	BR	4954
Brunei Darussalam	BN	1
Bulgaria	BG	32
Burundi	BI	11
Cambodia	KH	7
Canada	CA	657
Chile	CL	2
China	CN	197
Colombia	CO	31
Congo	CG	414
Costa Rica	CR	3
Cote d'Ivoire	CI	3
Croatia	HR	1
Cuba	CU	1
Cyprus	CY	1
Czech Republic	CZ	1
Democratic Republic of the Congo	CD	3227
Dominican Republic	DO	8
Ecuador	EC	34
Egypt	EG	5
Ethiopia	ET	8



```
Chapter 1 — psql — 104x38
postgis_cookbook=# SELECT upload_datetime, shapefile, ST_AsText(the_geom) FROM chp01.hs_uploaded WHERE I
S02='AT';

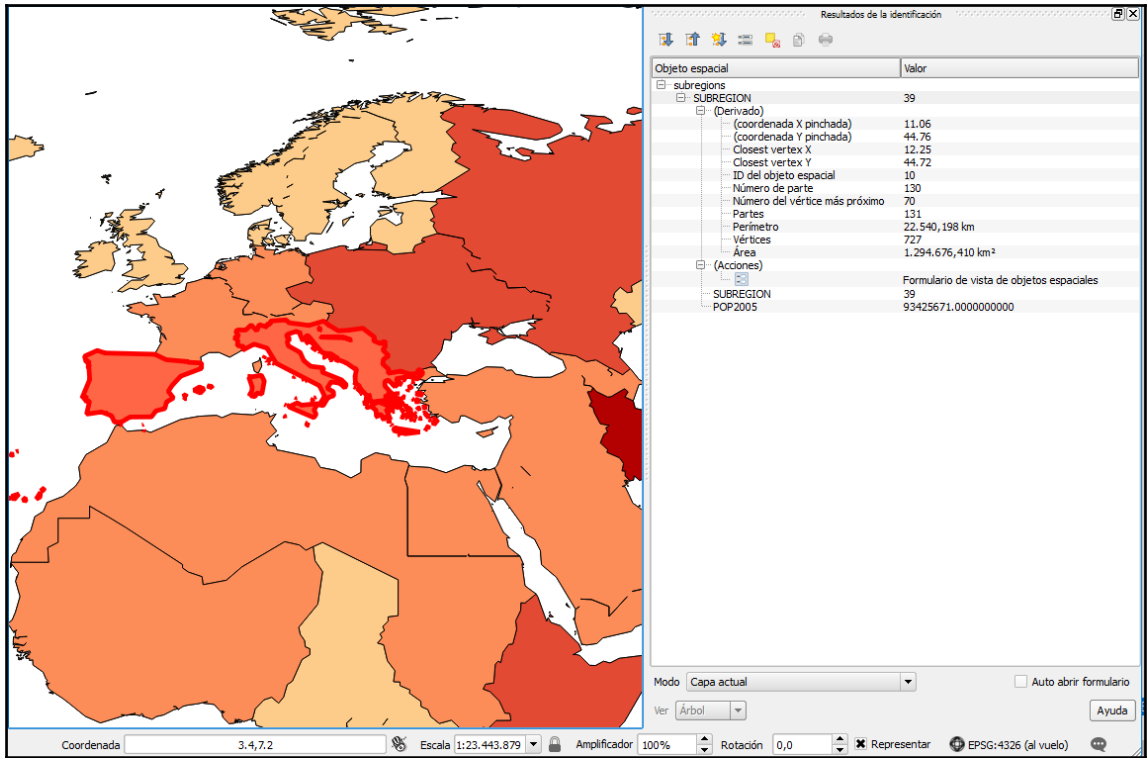
```

upload_datetime	shapefile	st_astext
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.333 48.279)
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.347 48.277)
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.327 48.277)
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.349 48.272)
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.345 48.275)
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.333 48.269)
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.343 48.275)
Fri Jun 23 11:27:48 COT 2017	out_shapefiles/AT.shp	POINT(14.329 48.271)

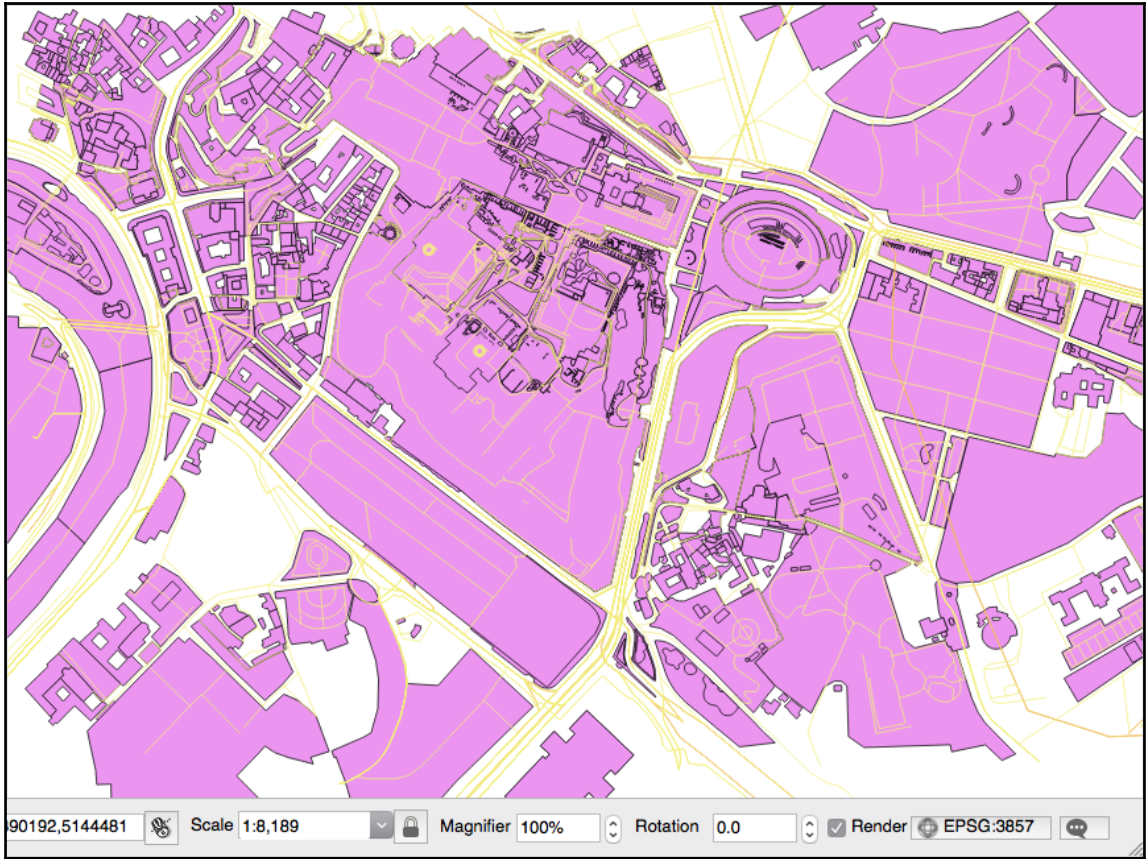
```
(8 rows)
postgis_cookbook=#
```

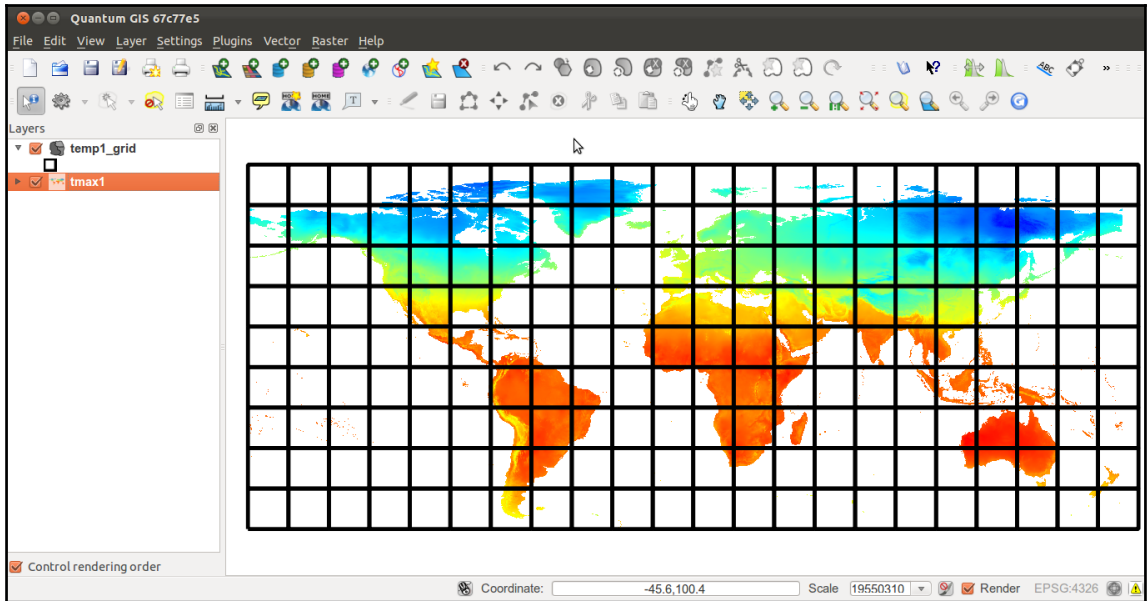
```
Chapter 1 - bash - 104x38
Layer name: chp01.hs_uploaded
Geometry: Point
Feature Count: 8
Extent: (-155.284000, -40.751000) - (177.457000, 70.404000)
Layer SRS WKT:
GEOGCS["WGS 84",
  DATUM["WGS_1984",
    SPHEROID["WGS 84",6378137,298.257223563,
      AUTHORITY["EPSG","7030"]],
    AUTHORITY["EPSG","6326"]],
  PRIMEM["Greenwich",0,
    AUTHORITY["EPSG","8901"]],
  UNIT["degree",0.0174532925199433,
    AUTHORITY["EPSG","9122"]],
  AUTHORITY["EPSG","4326"]]
FID Column = ogc_fid
Geometry Column = the_geom
acq_date: String (80.0)
acq_time: String (80.0)
bright_t31: String (80.0)
iso2: String (0.0)
upload_datetime: String (0.0)
shapefile: String (0.0)
OGRFeature(chp01.hs_uploaded):4706
  acq_date (String) = 2012-08-20
  acq_time (String) = 0110
  bright_t31 (String) = 292.7
  iso2 (String) = AT
  upload_datetime (String) = Fri Jun 23 11:27:48 COT 2017
  shapefile (String) = out_shapefiles/AT.shp
  POINT (14.333 48.279)

OGRFeature(chp01.hs_uploaded):4707
  acq_date (String) = 2012-08-20
  acq_time (String) = 0110
  bright_t31 (String) = 291.8
  iso2 (String) = AT
  upload_datetime (String) = Fri Jun 23 11:27:48 COT 2017
```



f_table_name	f_geometry_column	coord_dimension	srid	type
planet_osm_roads	way	2	900913	LINestring
planet_osm_point	way	2	900913	POINT
planet_osm_polygon	way	2	900913	GEOMETRY
planet_osm_line	way	2	900913	LINestring
(4 rows)				





r_raster_column	srid	scale_x	scale_y	blocksize_x	blocksize_y	num_bands	pixel_types	nodata_values	out_db
rast (1 row)	4326	0.17	-0.17	100	100	1	{16BSI}	{-9999}	{f}

rid	upperleftx	upperlefty	width	height	scalex	scaley	skewx	skewy	srid	numbands
1	-180	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
2	-163.333333333333	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
3	-146.666666666667	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
4	-130	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
5	-113.333333333333	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
6	-96.6666666666666	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
7	-79.9999999999999	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
8	-63.3333333333332	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
9	-46.6666666666665	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
10	-29.9999999999998	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
11	-13.3333333333331	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1
12	3.33333333333363	90	100	100	0.166666666666667	-0.166666666666667	0	0	4326	1

num_raster	original_file
198	tmax01.tif
198	tmax02.tif
198	tmax03.tif
198	tmax04.tif
198	tmax05.tif
198	tmax06.tif
198	tmax07.tif
198	tmax08.tif
198	tmax09.tif
198	tmax10.tif
198	tmax11.tif
198	tmax12.tif

(12 rows)

month	tmax
01	11.8
02	13.2
03	15.3
04	18.5
05	22.9
06	27
07	30
08	29.8
09	26.4
10	21.7
11	16.6
12	12.9

(12 rows)

```

Driver: VRT/Virtual Raster
Files: tmax_2012.vrt
       worldclim/tmax01.bil
       worldclim/tmax02.bil
       worldclim/tmax03.bil
       worldclim/tmax04.bil
       worldclim/tmax05.bil
       worldclim/tmax06.bil
       worldclim/tmax07.bil
       worldclim/tmax08.bil
       worldclim/tmax09.bil
       worldclim/tmax10.bil
       worldclim/tmax11.bil
       worldclim/tmax12.bil
Size is 2160, 900
Coordinate System is:
GEOGCS["WGS 84",
  DATUM["WGS_1984",
    SPHEROID["WGS 84",6378137,298.257223563,
      AUTHORITY["EPSG","7030"]],
    AUTHORITY["EPSG","6326"]],
  PRIMEM["Greenwich",0,
    AUTHORITY["EPSG","8901"]],
  UNIT["degree",0.0174532925199433,
    AUTHORITY["EPSG","9122"]],
  AUTHORITY["EPSG","4326"]]
Origin = (-180.00000000000057,90.00000000000000)
Pixel Size = (0.166666666666667,-0.166666666666667)
Corner Coordinates:
Upper Left (-180.000000, 90.000000) (180d 0' 0.00"W, 90d 0' 0.00"N)
Lower Left (-180.000000, -60.000000) (180d 0' 0.00"W, 60d 0' 0.00"S)
Upper Right ( 180.000000, 90.000000) (180d 0' 0.00"E, 90d 0' 0.00"N)
Lower Right ( 180.000000, -60.000000) (180d 0' 0.00"E, 60d 0' 0.00"S)
Center ( 0.000000, 15.000000) ( 0d 0' 0.00"E, 15d 0' 0.00"N)
Band 1 Block=128x128 Type=Int16, ColorInterp=Undefined
Min=-478.000 Max=418.000

```

r_raster_column	srid	blocksize_x	blocksize_y	num_bands	pixel_types
rast	4326	100	100	12	{16BSI,16BSI,16BSI,16BSI,16BSI,16BSI,16BSI,16BSI,16BSI,16BSI,16BSI,16BSI}

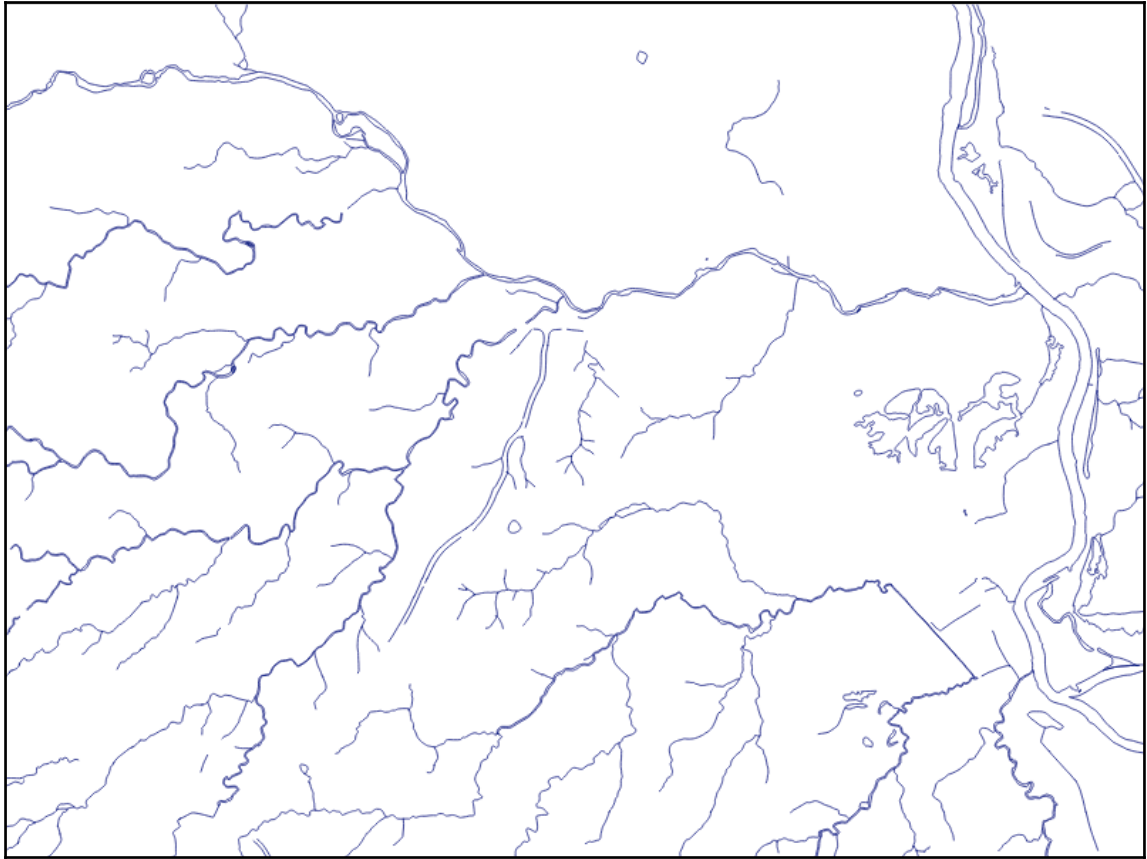
jan	feb	mar	apr	maj	jun	jul	aug	sep	oct	nov	dec
11.8	13.2	15.3	18.5	22.9	27	30	29.8	26.4	21.7	16.6	12.9
(1 row)											

st_extent
BOX(6.619759999999996 36.6491620000001,18.512218 47.0016630000001)
(1 row)

Chapter 2: Structures That Work

	x numeric	y numeric	z numeric	gid [PK] integer	geom geometry
1	4.67860845383257	6.45900910301134	85.2110590171069		1 [null]
2	3.63836708012968	3.47429635189474	36.4363031163812		2 [null]
3	0.985967454034835	3.52874203631654	19.2578147305176		3 [null]
4	1.7305088089779	4.95445863297209	22.9104127548635		4 [null]
5	3.65890902932733	4.32095986232162		106	5 0101000020960E0000F9FFDF1872450D400500C0B3A9481140
6	0.742483325302601	6.26183870760724		107	6 0101000020960E0000010000646CC2E73F010038721F0C1940
7	1.09579629963264	0.518613429740071		108	7 0101000020960E0000060060B36188F13FFDFFF307B98E03F
8	0.317031748127192	1.32443253044039		109	8 0101000020960E0000FBFF7F873F4AD43F0000402AE030F53F
9	2.05664261709899	4.71963535342366		110	9 0101000020960E00000700600B0174004006001017E8E01240

	x numeric	y numeric	z numeric	gid [PK] integer	geom geometry
1	4.67860845383257	6.45900910301134	85.2110590171069		1 0101000020960E000004007022E5B612400000787B06D61940
2	3.63836708012968	3.47429635189474	36.4363031163812		2 0101000020960E0000F9FF1F33601B0D400800C0E25BCB0B40
3	0.985967454034835	3.52874203631654	19.2578147305176		3 0101000020960E0000FFFF3F9E0B8DEF3FF7FFCF1ADD3A0C40
4	1.7305088089779	4.95445863297209	22.9104127548635		4 0101000020960E0000F7FF3F012AB0FB3FFEFF979A5DD11340
5	3.65890902932733	4.32095986232162		106	5 0101000020960E0000F9FFDF1872450D400500C0B3A9481140
6	0.742483325302601	6.26183870760724		107	6 0101000020960E0000010000646CC2E73F010038721F0C1940
7	1.09579629963264	0.518613429740071		108	7 0101000020960E0000060060B36188F13FFDFFF307B98E03F
8	0.317031748127192	1.32443253044039		109	8 0101000020960E0000FBFF7F873F4AD43F0000402AE030F53F
9	2.05664261709899	4.71963535342366		110	9 0101000020960E00000700600B0174004006001017E8E01240

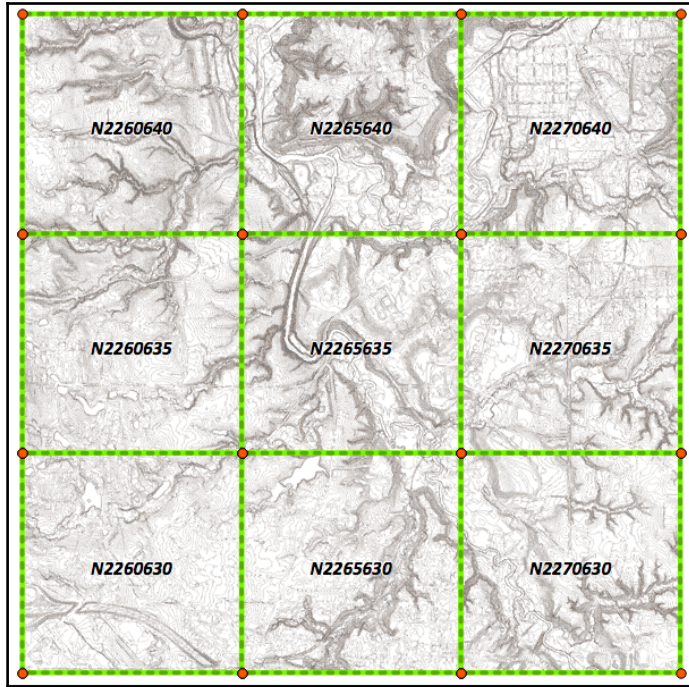


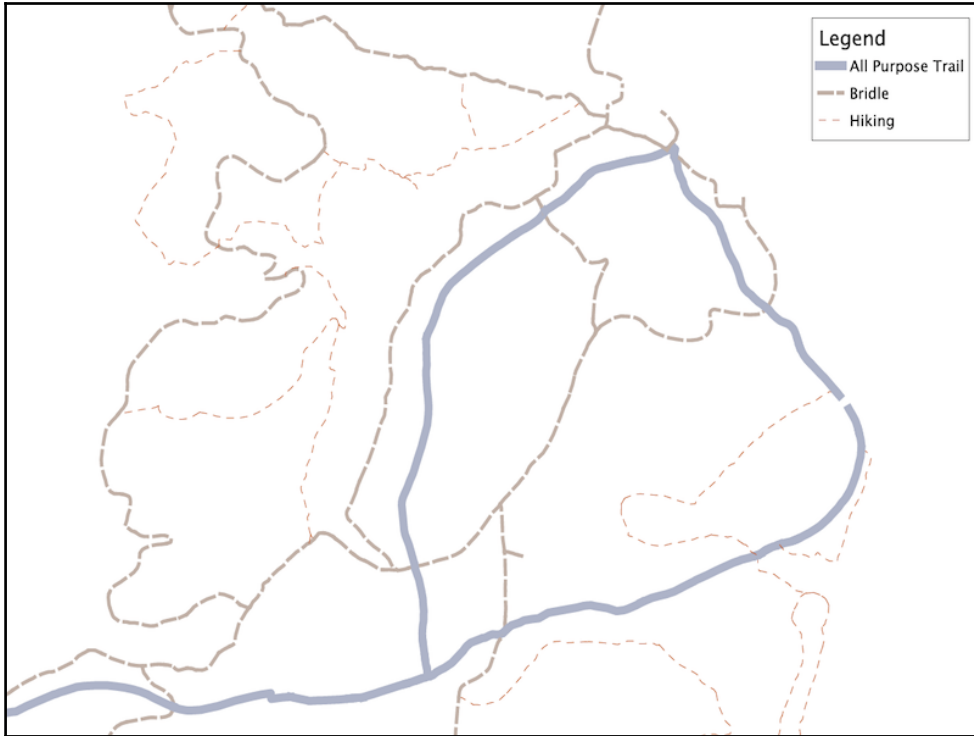
```
Chapter 1 — bash — 114x28
INFO: Open of `cuyahoga_hydro_polygon.shp'
      using driver `ESRI Shapefile' successful.

Layer name: cuyahoga_hydro_polygon
Geometry: Polygon
Feature Count: 579
Extent: (2142566.039992, 591583.960120) - (2178951.930105, 627276.599084)
Layer SRS WKT:
PROJCS["NAD_1983_StatePlane_Ohio_North_FIPS_3401_Feet",
  GEOGCS["GCS_North_American_1983",
    DATUM["North_American_Datum_1983",
      SPHEROID["GRS_1980",6378137.0,298.257222101]],
    PRIMEM["Greenwich",0.0],
    UNIT["Degree",0.0174532925199433]],
  PROJECTION["Lambert_Conformal_Conic_2SP"],
  PARAMETER["False_Easting",1968500.0],
  PARAMETER["False_Northing",0.0],
  PARAMETER["Central_Meridian",-82.5],
  PARAMETER["Standard_Parallel_1",40.43333333333333],
  PARAMETER["Standard_Parallel_2",41.7],
  PARAMETER["Latitude_Of_Origin",39.66666666666666],
  UNIT["Foot_US",0.3048006096012192]]
Name: String (30.0)
AREA: Real (19.11)
PERIMETER: Real (19.11)
hyd_type: String (50.0)
geom_type: String (15.0)
bash-3.2$
```

	gid [PK] integer	name text	hyd_type text	geom_type text	the_geom geometry
1	1	Lake Isaac	Pond or Lake	multipolygon	010600002...
2	2	[null]	Stream	multipolygon	010600002...
3	3	[null]	Stream	multipolygon	010600002...
4	4	Beyer's Pond	Pond or Lake	multipolygon	010600002...
5	5	[null]	Other Wet Area	multipolygon	010600002...
6	6	[null]	Other Wet Area	multipolygon	010600002...
7	7	[null]	Other Wet Area	multipolygon	010600002...
8	8	[null]	Other Wet Area	multipolygon	010600002...
9	9	[null]	Other Wet Area	multipolygon	010600002...
10	10	[null]	Other Wet Area	multipolygon	010600002...
11	11	[null]	Other Wet Area	multipolygon	010600002...
12	12	[null]	Pond or Lake	multipolygon	010600002...
13	13	[null]	Other Wet Area	multipolygon	010600002...
14	14	[null]	Other Wet Area	multipolygon	010600002...
15	15	[null]	Other Wet Area	multipolygon	010600002...
16	16	[null]	Pond or Lake	multipolygon	010600002...
17	17	[null]	Other Wet Area	multipolygon	010600002...
18	18	[null]	Other Wet Area	multipolygon	010600002...
19	19	[null]	Other Wet Area	multipolygon	010600002...
20	20	[null]	Other Wet Area	multipolygon	010600002...
21	21	[null]	Pond or Lake	multipolygon	010600002...
22	22	[null]	Other Wet Area	multipolygon	010600002...
23	23	[null]	Stream	multipolygon	010600002...
24	24	[null]	Other Wet Area	multipolygon	010600002...

	gid integer	name text	hyd_type text	geom_type text	the_geom geometry	length numeric	sinuosity numeric
1	580	[null]	Non-Stream Waterway	linestring	01050000E...	4039134630	0000000000
2	581	[null]	Non-Stream Waterway	linestring	01050000E...	19732715200	83613023587
3	582	[null]	Non-Stream Waterway	linestring	01050000E...	19742916700	99929583918
4	583	[null]	Non-Stream Waterway	linestring	01050000E...	12665436700	91803563396
5	584	[null]	Ditch	linestring	01050000E...	8303417700	99967999563
6	585	[null]	Ditch	linestring	01050000E...	18326783600	99929628256
7	586	[null]	Ditch	linestring	01050000E...	13971908500	99264311873
8	587	[null]	Ditch	linestring	01050000E...	15216740200	95220213360
9	588	[null]	Non-Stream Waterway	linestring	01050000E...	14463251100	96285677485
10	589	[null]	Non-Stream Waterway	linestring	01050000E...	14663221200	99751447311
11	590	[null]	Non-Stream Waterway	linestring	01050000E...	18777600900	98541087641
12	591	[null]	Non-Stream Waterway	linestring	01050000E...	17702293700	99901740366
13	592	[null]	Non-Stream Waterway	linestring	01050000E...	10697353920	97550639773
14	593	[null]	Non-Stream Waterway	linestring	01050000E...	14175308400	99972032150
15	594	[null]	Ditch	linestring	01050000E...	18966233330	99821067158
16	595	[null]	Non-Stream Waterway	linestring	01050000E...	17897864400	98636052492
17	596	[null]	Non-Stream Waterway	linestring	01050000E...	18968107330	99785430938
18	597	[null]	Ditch	linestring	01050000E...	18705548360	99983846322
19	598	[null]	Ditch	linestring	01050000E...	11769298810	99784885844
20	599	[null]	Ditch	linestring	01050000E...	19435483960	99999932726
21	600	[null]	Ditch	linestring	01050000E...	18006629180	99878874084
22	601	[null]	Non-Stream Waterway	linestring	01050000E...	19314161920	99420687124
23	602	[null]	Non-Stream Waterway	linestring	01050000E...	15607016130	99921978125





```
may — bash — 80x24
postgis_cookbook=# SELECT DISTINCT label_name FROM chp02.trails
  WHERE label_name LIKE '%&%' LIMIT 10;
          label_name
-----
All Purpose Trail & Buckeye Trail & Sagamore Creek Loop Trail
NC1 & NC2
BR3 & BR4 & Buckeye Trail
Hemlock Trail & NC2
Lake Isaac Trail & Lake to Lake Trail
BR4 & Deer Lick Cave Loop Trail
Bridle Trail & Deer Lick Cave Loop Trail & Hemlock Loop Trail
Towpath Trail & Buckeye Trail
Bridle Trail & Connector Trail
BR3 & BR4 & Deer Lick Cave Loop Trail
(10 rows)

postgis_cookbook=#
```

```
may — bash — 91x34
postgres_cookbook=# SELECT DISTINCT label_name, res
postgres_cookbook=# FROM chp02.trails
postgres_cookbook=# WHERE label_name NOT LIKE '%&%&'
postgres_cookbook=# ORDER BY label_name, res;
-----
label_name | res
-----
All Purpose Trail | Bedford Reservation
All Purpose Trail | Big Creek Reservation
All Purpose Trail | Bradley Woods Reservation
All Purpose Trail | Brecksville Reservation
All Purpose Trail | Brookside Reservation
All Purpose Trail | Cuyahoga Valley National Park
All Purpose Trail | Euclid Creek Reservation
All Purpose Trail | Garfield Park Reservation
All Purpose Trail | Hinckley Reservation
All Purpose Trail | Huntington Reservation
All Purpose Trail | Mill Stream Run Reservation
All Purpose Trail | North Chagrin Reservation
All Purpose Trail | Ohio and Erie Canal Reservation
All Purpose Trail | Rocky River Reservation
All Purpose Trail | South Chagrin Reservation
All Purpose Trail | Washington Reservation
Arboretum Loop Trail | South Chagrin Reservation
BR1 | Brecksville Reservation
BR2 | Brecksville Reservation
BR3 | Brecksville Reservation
BR4 | Brecksville Reservation
Bedford Reservation Physical Fitness Trail | Bedford Reservation
Bluebird Box Trail | North Chagrin Reservation
Bluebird Box Trail | South Chagrin Reservation
Bonnie Park Loop Trail | Mill Stream Run Reservation
Bridle Connector Trail | Rocky River Reservation
Bridle Trail | Bedford Reservation
:
```

gid integer	label character varying	res character varying
1	All Purpose Trail	Bradley Woods Re...
2	All Purpose Trail	Bradley Woods Re...
3	Swamp Forest Lo...	Bradley Woods Re...
4	Swamp Forest Lo...	Bradley Woods Re...
5	Swamp Forest Lo...	Bradley Woods Re...
6	Swamp Forest Lo...	Bradley Woods Re...
7	Swamp Forest Lo...	Bradley Woods Re...
8	Swamp Forest Lo...	Bradley Woods Re...
9	Swamp Forest Lo...	Bradley Woods Re...
10	Swamp Forest Lo...	Bradley Woods Re...
11	Swamp Forest Lo...	Bradley Woods Re...
12	All Purpose Trail	Bradley Woods Re...
13	All Purpose Trail	Bradley Woods Re...
14	Quarry Loop Trail	Bradley Woods Re...
15	All Purpose Trail	Bradley Woods Re...

gid integer	the_geom geometry	label character varying
1	01050000...	All Purpose Trail
2	01050000...	All Purpose Trail
3	01050000...	Swamp Forest Loo...
4	01050000...	Swamp Forest Loo...
5	01050000...	Swamp Forest Loo...
6	01050000...	Swamp Forest Loo...
7	01050000...	Swamp Forest Loo...
8	01050000...	Swamp Forest Loo...
9	01050000...	Swamp Forest Loo...
10	01050000...	Swamp Forest Loo...

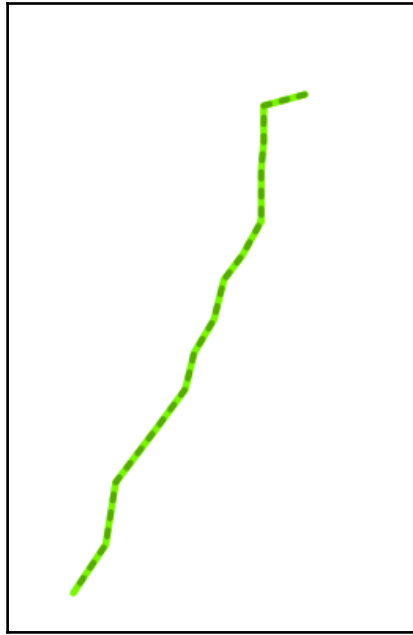
gid integer	location character varying
147	The Chalet
148	The Chalet
149	The Chalet
162	Strongsville Wildlife Area
163	Strongsville Wildlife Area
165	Strongsville Wildlife Area
167	Strongsville Wildlife Area
169	Strongsville Wildlife Area
158	York Road Picnic Area
156	Squire Rich Museum
612	Red Oak Picnic Area
613	Red Oak Picnic Area
631	Short Line Railroad & Pipe...

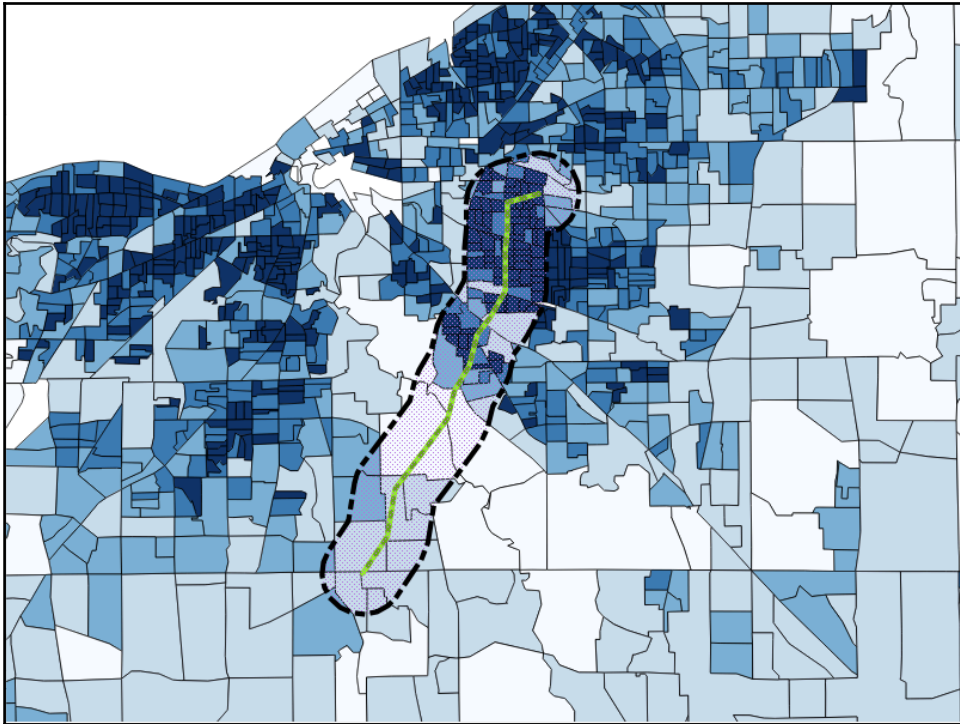
```
may — bash — 91x34
-----
  chp02.trail_alignment_prop.the_geom SRID:3734 TYPE:MULTILINESTRING DIMS:2
(1 row)

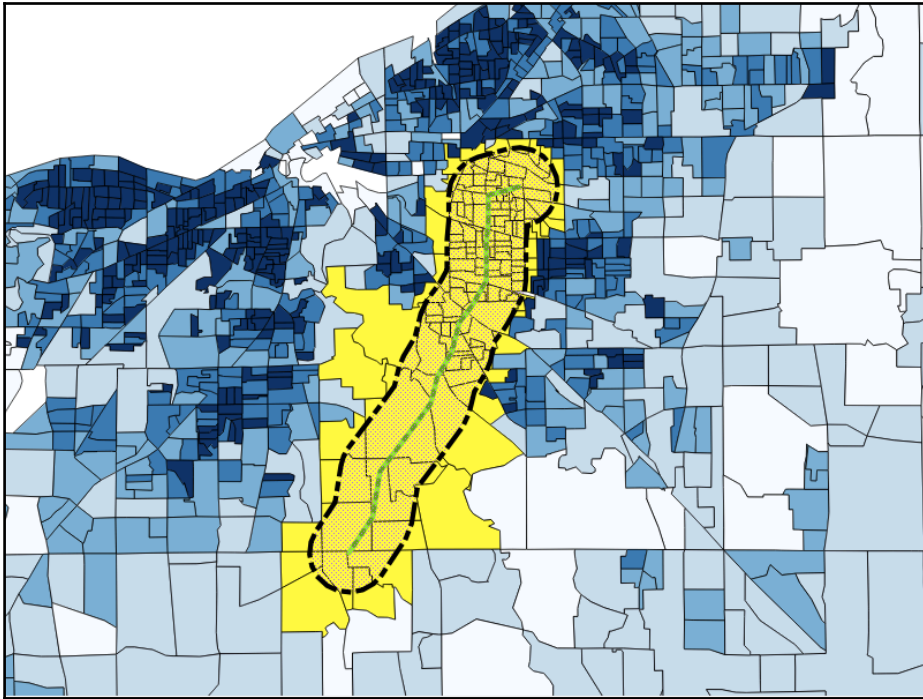
INSERT 0 1
CREATE INDEX
COMMIT
ANALYZE
bash-3.2$
bash-3.2$
sed_buffer chp02.trail_buffer | psql -U may -d postgis_cookbookl_alignment_propo
Shapefile type: Polygon
Postgis type: MULTIPOLYGON[2]
SET
SET
          dropgeometrycolumn
-----
  chp02.trail_buffer.the_geom effectively removed.
(1 row)

DROP TABLE
BEGIN
CREATE TABLE
ALTER TABLE
          addgeometrycolumn
-----
  chp02.trail_buffer.the_geom SRID:3734 TYPE:MULTIPOLYGON DIMS:2
(1 row)

INSERT 0 1
CREATE INDEX
COMMIT
ANALYZE
bash-3.2$ █
```







Chapter 3: Working with Vector Data – The Basics



run_year double pr...	run_month double pr...	distance double precision
2010	5	67.8069490339492
2010	6	81.18254818246
2010	7	139.380485552836
2010	8	92.5896428021623
2010	9	111.014558726927
2010	10	121.009036448297
2010	11	79.6208912564367
2010	12	91.7392081012794
2011	1	101.10522761749
2011	2	89.4396512604985
2011	3	96.0118360262582

name character...	run_distance double precision
Italy	2635.9526890749
Hungary	20.9972673975372
Switzerland	20.869686631018
Greece	18.1060004470219

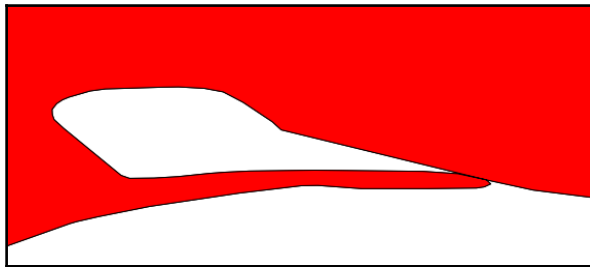
```
Chapter 3 — bash — 76x26
bash-3.2$ ogrinfo -so 2012-08-29-1930.gpx
Had to open data source read-only.
INFO: Open of `2012-08-29-1930.gpx'
      using driver `GPX' successful.
1: waypoints (Point)
2: routes (Line String)
3: tracks (Multi Line String)
4: route_points (Point)
5: track_points (Point)
bash-3.2$
```

gid integer	name character...	st_invalidreason text
24	Canada	Ring Self-intersection[-53.756367 48.50326200...
33	Chile	Ring Self-intersection[-70.917236 -54.708618]
155	Norway	Ring Self-intersection[5.33694400000002 61.5...
175	Russia	Ring Self-intersection[143.661926 49.31221]

```
Chapter 3 — bash — 69x26
postgres=# SELECT PostGIS_full_version();

 postgis_full_version
-----
POSTGIS="2.3.2 r15302" GEOS="3.6.1-CAPI-1.10.1 r0" PROJ="Rel. 4.9.3,
15 August 2016" GDAL="GDAL 1.11.5, released 2016/07/01" LIBXML="2.9.
4" LIBJSON="0.12" RASTER
(1 row)

postgres=#
```



status character...	st_nrings integer
broken	1
repaired	2

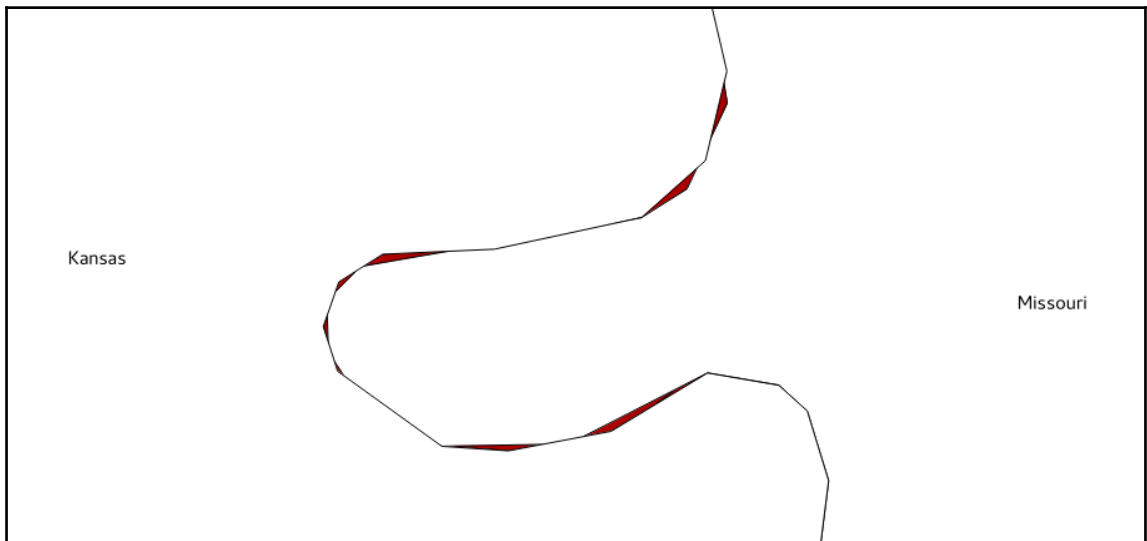
```
Chapter 3 – bash – 69x26
bash-3.2$ ogrinfo 2012_Earthquakes_ALL.kml
INFO: Open of `2012_Earthquakes_ALL.kml'
      using driver `LIBKML' successful.
1: Magnitude 8
2: Magnitude 7
3: Magnitude 6
4: Magnitude 5
5: Magnitude 4
6: Magnitude 3
7: Magnitude 2
8: Magnitude 1
9: Magnitude None
bash-3.2$
```

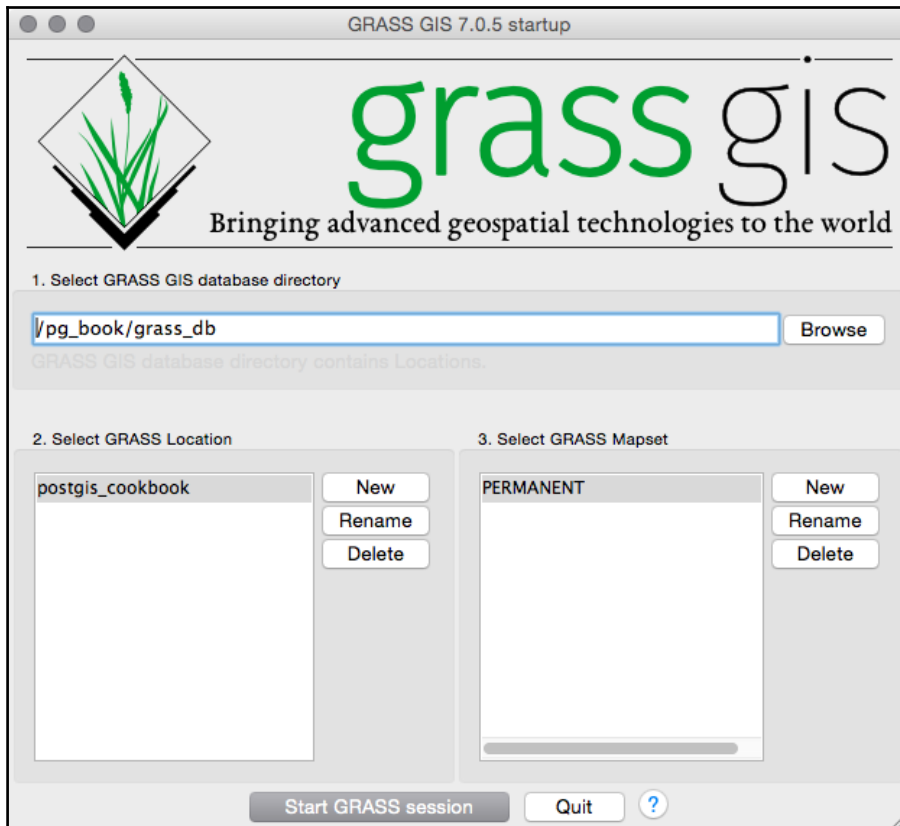
	state character varying (20)	hq_count bigint
1	Alaska	569
2	California	467
3	Hawaii	93
4	Oklahoma	69
5	Puerto Rico	50
6	Washington	45
7	Nevada	38
8	Texas	29
9	Utah	26
10	Montana	16
11	Virginia	15
12	Colorado	14
13	Wyoming	9
14	Missouri	8
15	South Carolina	7
16	Oregon	7
17	New Mexico	7
18	Arkansas	6

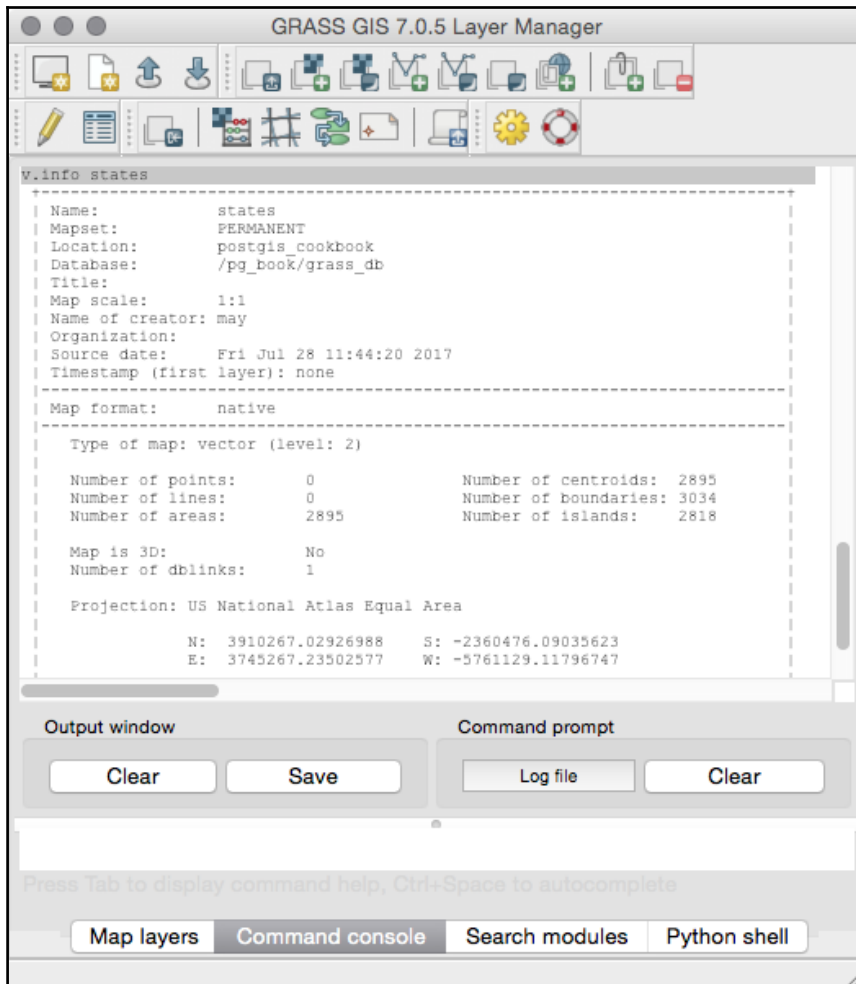
	name character varying (48)	magnitude integer	hq_count bigint
1	Chicago	2	1
2	Chicago	3	1
3	Dallas	2	12
4	Dallas	3	3
5	Los Angeles	1	6
6	Los Angeles	2	123
7	Los Angeles	3	42
8	Los Angeles	4	5
9	New York	2	1
10	Philadelphia	2	1
11	Phoenix	2	2
12	Phoenix	3	1
13	San Antonio	3	2
14	San Diego	1	5
15	San Diego	2	146
16	San Diego	3	115
17	San Diego	4	20
18	San Diego	5	2

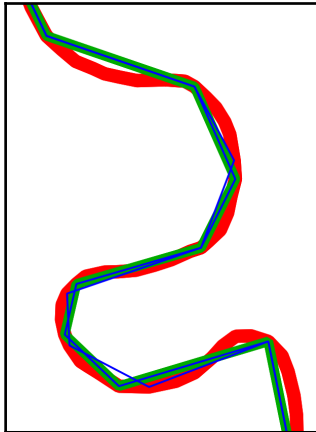
	name character varying (48)	magnitude integer	distance double precision
1	Dallas	2	10801.32538582
2	Los Angeles	3	13740.79435945
3	Los Angeles	2	14177.4254134
4	Los Angeles	3	14795.11395056
5	Los Angeles	2	16333.47874173
6	Los Angeles	2	16356.80430452
7	Los Angeles	2	17888.84269178
8	Los Angeles	3	17982.34713687
9	Los Angeles	2	18173.9790877
10	Los Angeles	1	18456.68842596
11	San Diego	2	20993.86018107
12	Los Angeles	2	21420.83066686
13	Los Angeles	2	21764.06476769
14	Los Angeles	2	25593.48907654
15	Los Angeles	2	29458.55628255
16	Los Angeles	2	30082.25041362

	state character varying (20)	city_count bigint	pop_2000 numeric
1	California	470	27380349
2	Texas	1182	15738629
3	New York	613	12139544
4	Illinois	1273	10617791
5	Florida	389	7658770
6	Ohio	933	7448610
7	Pennsylvania	1008	5653936
8	Michigan	532	5433183
9	New Jersey	323	4088938
10	Arizona	87	4045436
11	North Carolina	536	4040565
12	Minnesota	849	3912592
13	Wisconsin	581	3679692
14	Missouri	937	3611495
15	Washington	275	3408303
16	Indiana	560	3099686
17	Colorado	269	3025069
18	Massachusetts	44	3011742

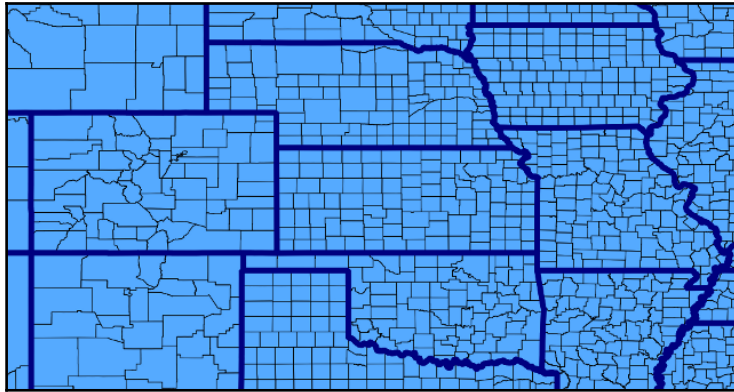




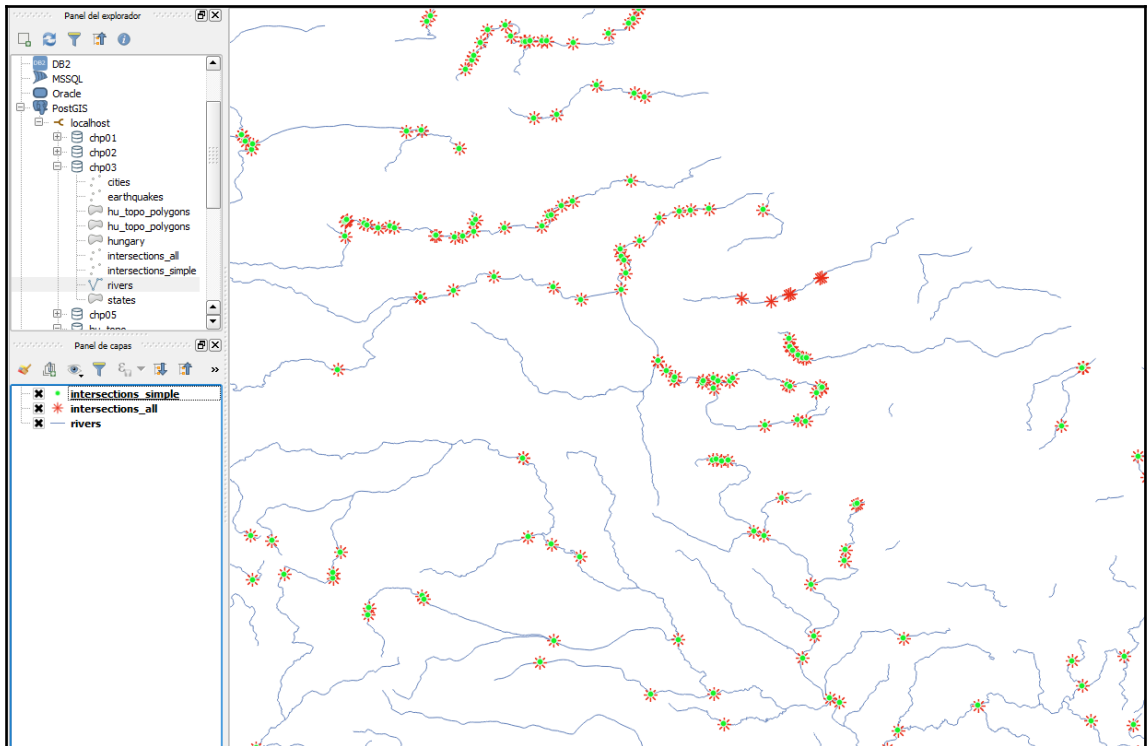


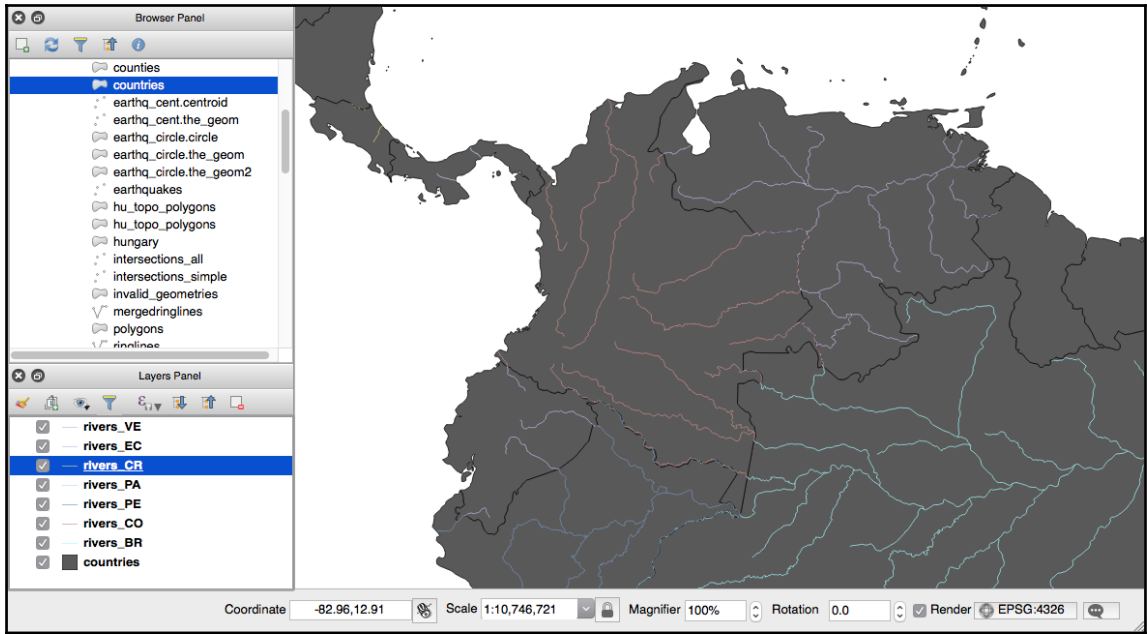


name character varying	name character...	distance_900913 double precision
Los Angeles	New York	5012.39789777705
New York	San Diego	4930.76973825481
Los Angeles	Philadelp...	4865.7736877805
Philadelphia	San Diego	4780.75534852016
New York	Phoenix	4357.65042348628
Philadelphia	Phoenix	4207.11144465307
Chicago	Los Angel...	3579.74499656761
Chicago	San Diego	3525.66220065254
New York	San Anto...	3131.1519653319
Chicago	Phoenix	2965.31085245556
Philadelphia	San Anto...	2964.38727187371
Houston	New York	2809.59489330785
Dallas	New York	2767.09085048549
Houston	Philadelp...	2641.3617700694
Houston	Los Angel...	2608.44376391324



count	geometry_type
1088	ST_Point
356	ST_MultiPoint
4	ST_GeometryCollection





count
bigint
20

id	name	srid	precision	hasz
integer	character...	integer	double pr...	boolean
1	hu_topo	3857	0	false

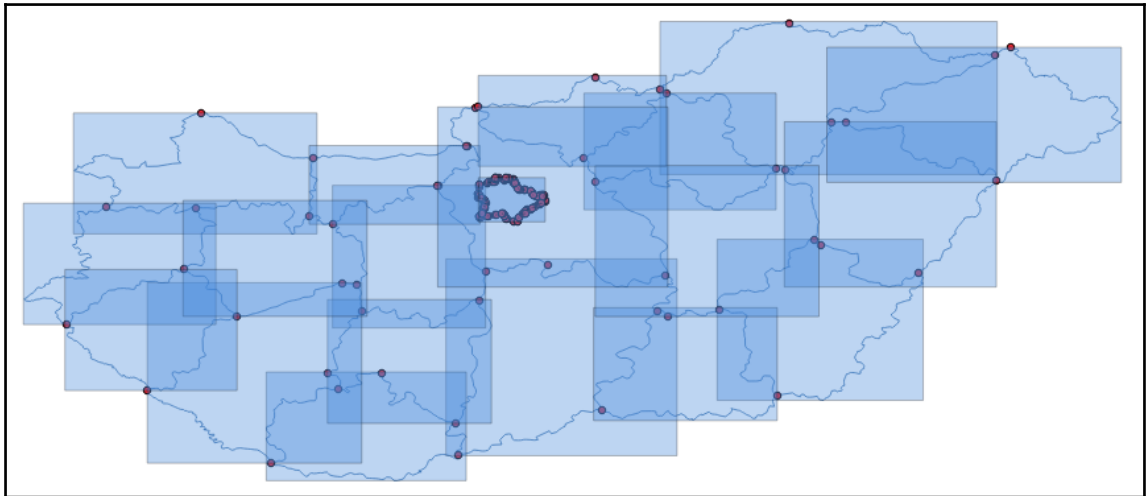
```
postgis_cookbook-# \dtv hu_topo.*
List of relations
Schema | Name | Type | Owner
-----|-----|-----|-----
hu_topo | edge | view | postgres
hu_topo | edge_data | table | postgres
hu_topo | face | table | postgres
hu_topo | node | table | postgres
hu_topo | relation | table | postgres
<5 rows>

postgis_cookbook-#
```

topology...
text
Topology hu_topo (id 1, SRID 3857,
precision 0)
0 nodes, 0 edges, 0 faces, 0
topogeoms in 0 layers
Close

topology...
text
Topology hu_topo (id 1, SRID 3857,
precision 0)
187 nodes, 277 edges, 92 faces, 20
topogeoms in 1 layers
Close

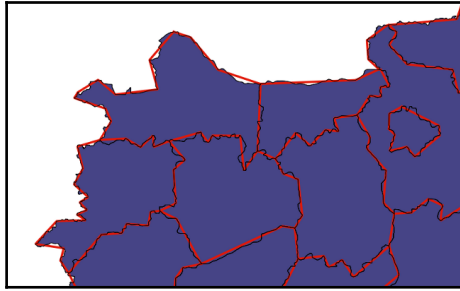
rownum bigint	area double precision
1	
2	366365.476705923
3	313236.739489459
4	290847.510314687
5	281960.845180014
6	266103.852066947
7	245731.431717149
8	235963.030648034
9	229519.671149496
10	207316.920420714
11	162677.435413211
12	158131.116221304
13	152034.757298787
14	148585.644854029
15	148471.930523326



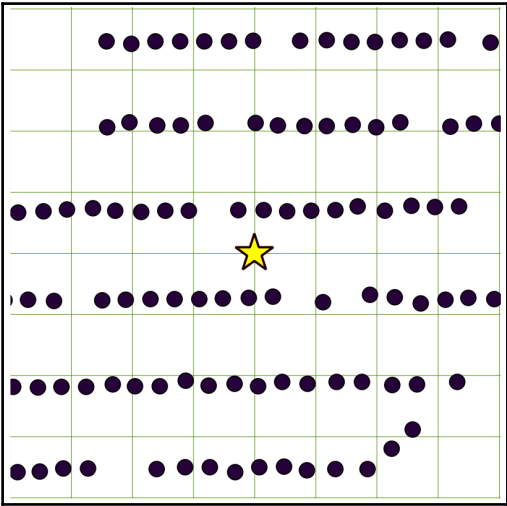
topology...
text

Topology hu_topo (id 4, SRID 3857,
precision 1)
52 nodes, 70 edges, 20 faces, 20
topogeoms in 1 layers

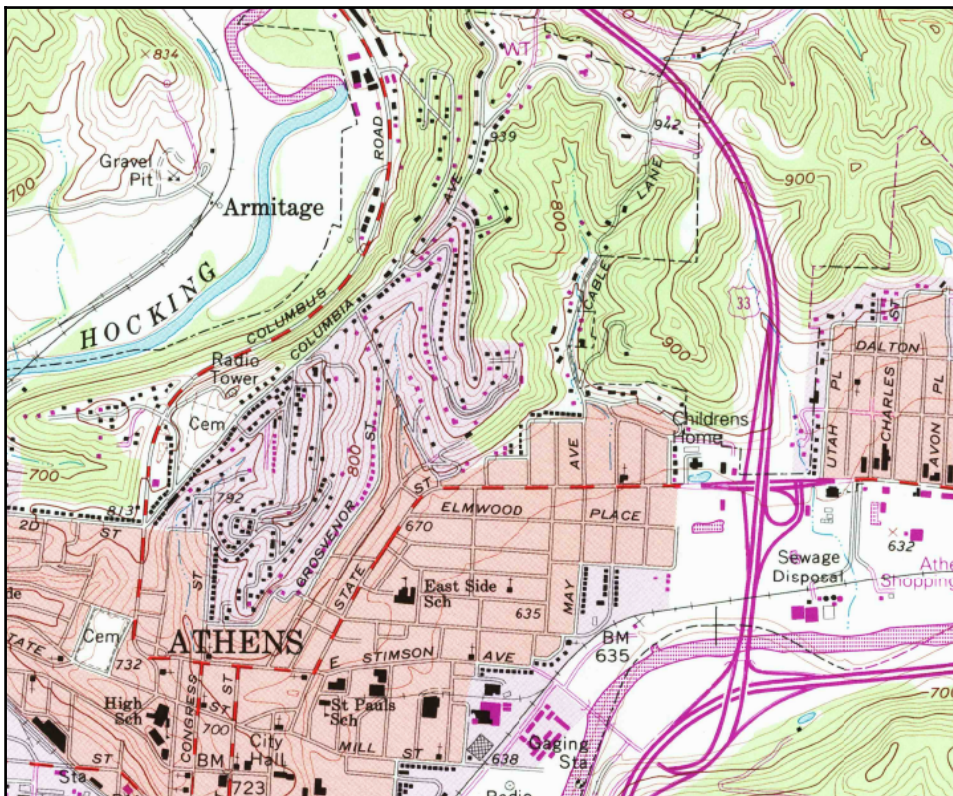
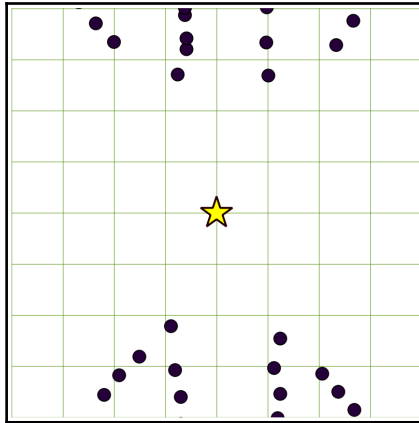
✕ Close

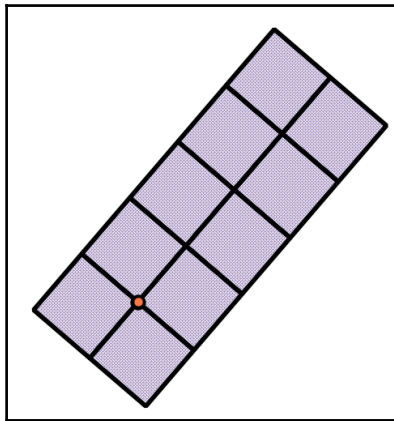
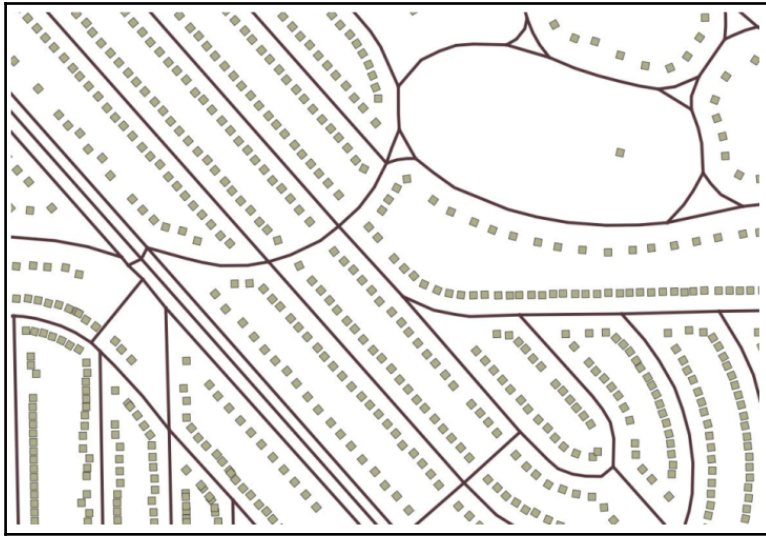


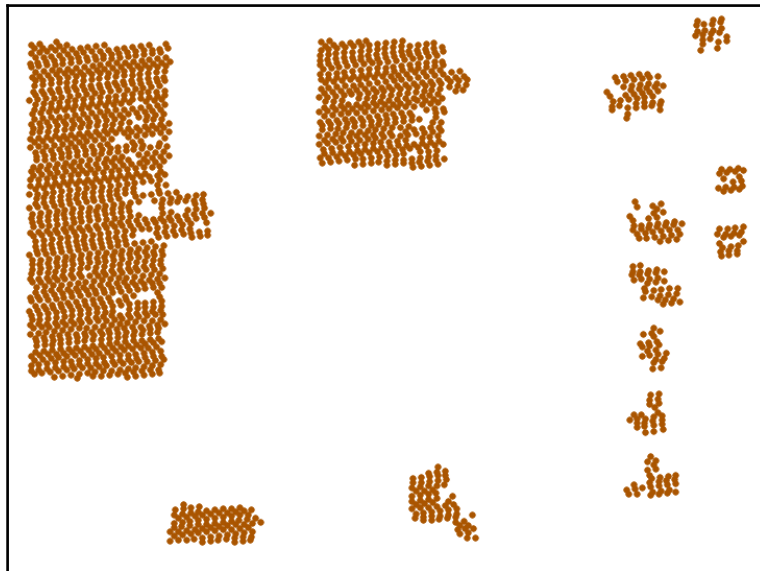
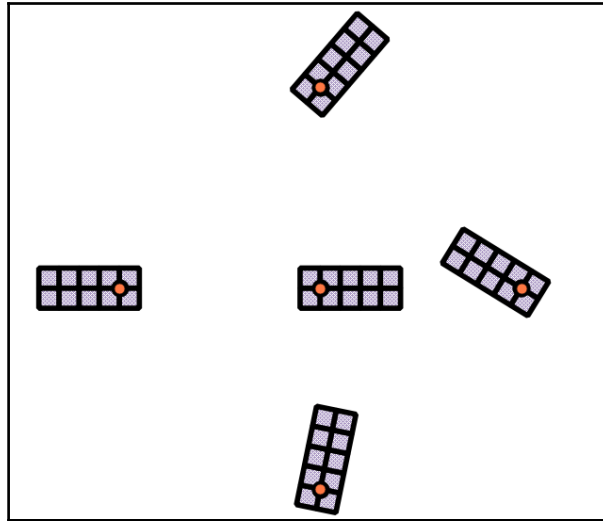
Chapter 4: Working with Vector Data – Advanced Recipes

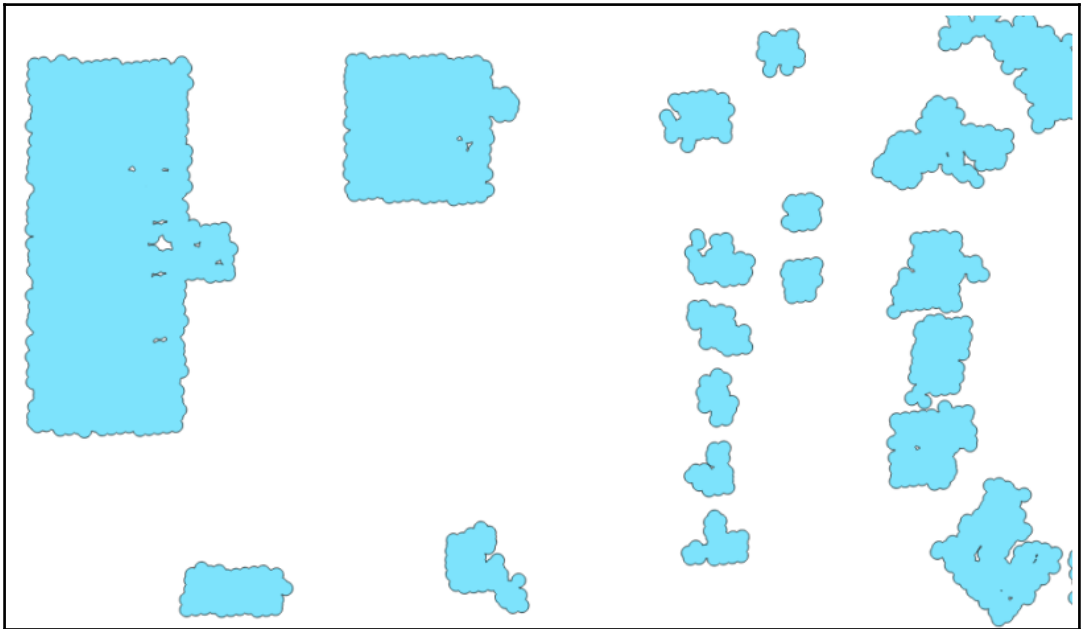
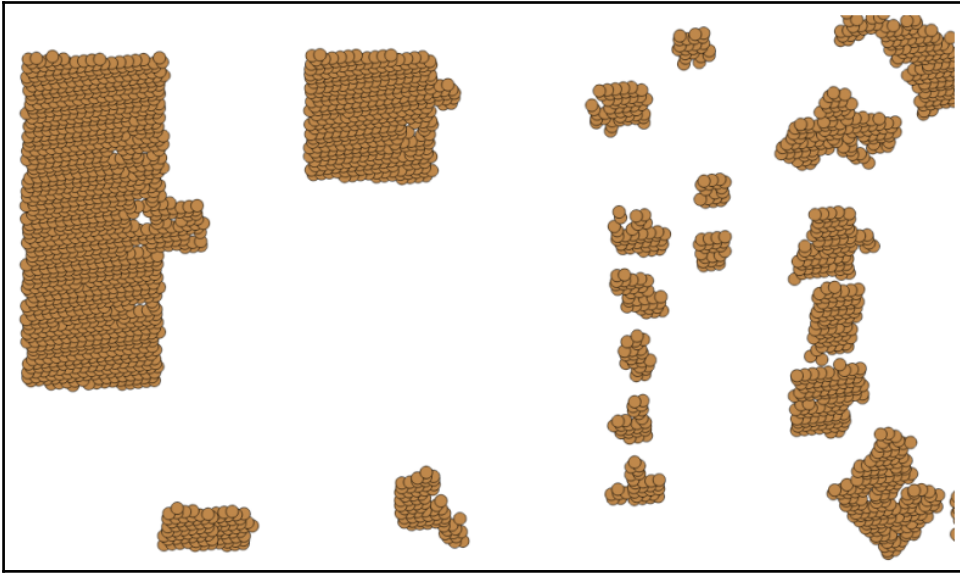


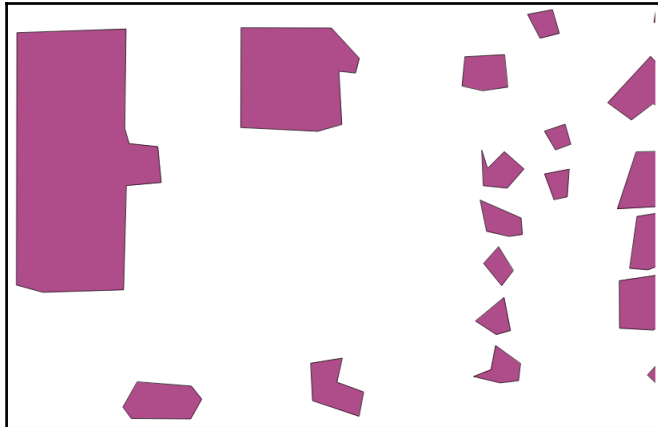
dist	gid	addr_id	str_id	addr_num	pre_dir	pre_type	str_name	str_type
double precision	integer	numeric	numeric	character var	character va	character v	character varying (30)	character va
72.0240864930752	22220	2.0000000	7.0000000	07810	[null]	[null]	LANYARD	DR
73.8171473817856	6776	1.0000000	0.0000000	07811	[null]	[null]	DEERFIELD	DR
76.0214998230187	28202	1.0000000	7.0000000	07808	[null]	[null]	LANYARD	DR
76.3407822341641	22215	0.0000000	0.0000000	07815	[null]	[null]	DEERFIELD	DR
88.3623418476741	6782	3.0000000	7.0000000	07902	[null]	[null]	LANYARD	DR
88.9067246262422	22216	2.0000000	0.0000000	07807	[null]	[null]	DEERFIELD	DR
100.849524292145	441562	9.0000000	0.0000000	07903	[null]	[null]	DEERFIELD	DR
115.121788763982	22221	4.0000000	7.0000000	07906	[null]	[null]	LANYARD	DR
117.703864029602	6777	3.0000000	0.0000000	07803	[null]	[null]	DEERFIELD	DR
128.249088418467	22214	8.0000000	0.0000000	07907	[null]	[null]	DEERFIELD	DR



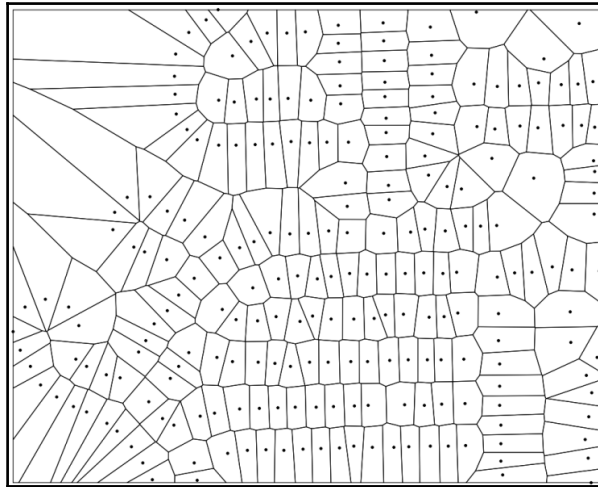
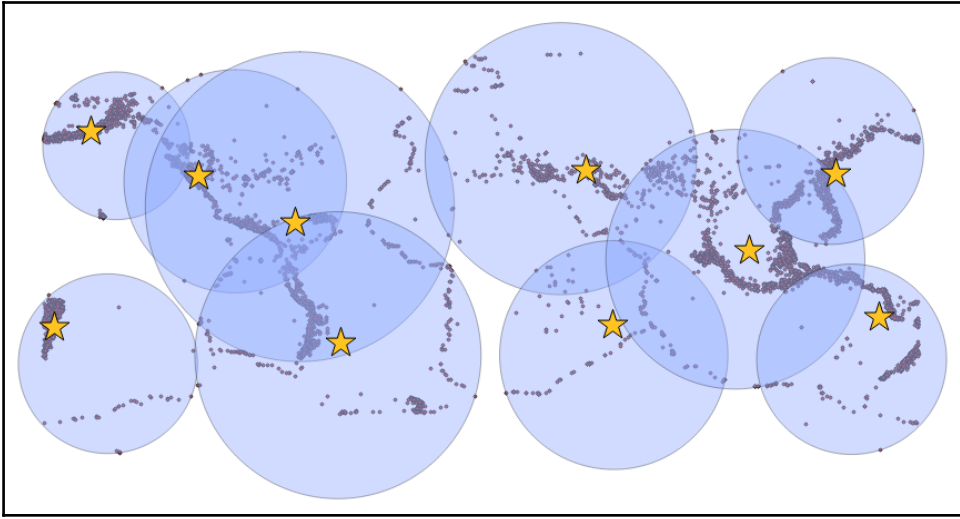


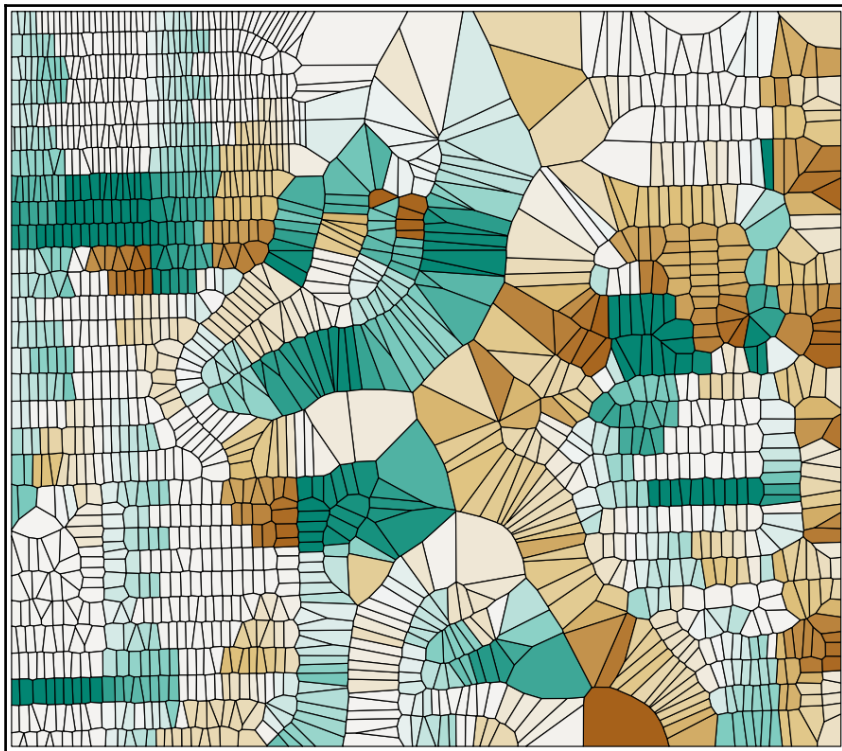
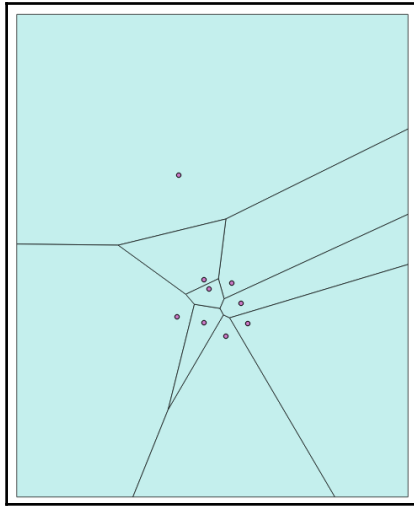






	cid integer	the_geom geometry
1	0	0101000020E6100000902728...
2	1	0101000020E6100000C626E4...
3	2	0101000020E61000004AC41D...
4	3	0101000020E6100000F5D636...
5	4	0101000020E6100000EA1BAD...
6	6	0101000020E6100000D6202E...
7	5	0101000020E6100000FD315E...
8	7	0101000020E61000001A534F...
9	9	0101000020E6100000E0B808...
10	8	0101000020E6100000743518...





Chapter 5: Working with Raster Data

```
Driver: AAIGrid/Arc/Info ASCII Grid
Files: PRISM_tmin_provisional_4kmM2_201703_asc.asc
      PRISM_tmin_provisional_4kmM2_201703_asc.asc.aux.xml
      PRISM_tmin_provisional_4kmM2_201703_asc.prj
Size is 1405, 621
Coordinate System is:
GEOGCS["GCS_North_American_1983",
  DATUM["North_American_Datum_1983",
    SPHEROID["GRS_1980",6378137.0,298.2572221011],
    PRIMEM["Greenwich",0.0],
    UNIT["Degree",0.01745329251994329511]
  ]
Origin = (-125.020833333333002,49.937499999999702)
Pixel Size = (0.041666666666700,-0.041666666666700)
Corner Coordinates:
Upper Left (-125.0208333, 49.9375000) (125d 1'15.00"W, 49d56'15.00"N)
Lower Left (-125.0208333, 24.0625000) (125d 1'15.00"W, 24d 3'45.00"N)
Upper Right (-66.4791667, 49.9375000) ( 66d28'45.00"W, 49d56'15.00"N)
Lower Right (-66.4791667, 24.0625000) ( 66d28'45.00"W, 24d 3'45.00"N)
Center (-95.7500000, 37.0000000) ( 95d45' 0.00"W, 37d 0' 0.00"N)
Band 1 Block=1405x1 Type=Float32, ColorInterp=Undefined
Min=-16.169 Max=20.986
Minimum=-16.169, Maximum=20.986, Mean=0.657, StdDev=6.186
NoData Value=-9999
Metadata:
  STATISTICS_MAXIMUM=20.986000061035
  STATISTICS_MEAN=0.65659218990218
  STATISTICS_MINIMUM=-16.169000062561
  STATISTICS_STDDEV=6.1857249305236
```


Seguro | <https://data.sfgov.org/Geographic-Locations-and-Boundaries/SF-Shoreline-and-Islands/rgcx-Stix>

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- JSON

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<https://data.sfgov.org/analytics>

	r_table_name	r_raster_column	srid	scale_x	scale_y	blocksize_x	blocksize_y
	name	name	integer	double precision	double precision	integer	integer
1	prism	rast	4269	0.0416666667	-0.0416666667	100	100

same_alignment	regular_blocking	num_bands	pixel_types	nodata_values	out_db	extent
boolean	boolean	integer	text[]	double precision[]	boolean[]	text
true	false	2	32BF,32BF	{-9999,-9999}	false,false	POLYG...

rid	upperleftx	upperlefty	width	height	scalex	scaley	skewx	skewy	srid	numbands
integer	double precision	double precision	integer	integer	double precision	double precision	double precision	double precision	integer	integer
1	125.020833333333	49.9374999999997	100	100	0.0416666666667	-0.0416666666667	0	0	4269	2

rid	pixeltype	nodatavalue	isoutdb	path	
integer	text	double precision	boolean	text	
1	54	32BF	-9999	false	[null]

count	sum	mean	stddev	min	max	
bigint	double precision	numeric	numeric	double precision	double precision	
1	10000	60549.6879644394	6.05	1.70	2.08899998664856	10.0200004577637

	min	max	count	percent
	numeric	numeric	bigint	numeric
1	2.09	2.62	85	0.01
2	2.62	3.15	211	0.02
3	3.15	3.68	354	0.04
4	3.68	4.20	622	0.06
5	4.20	4.73	1359	0.14
6	4.73	5.26	997	0.10
7	5.26	5.79	1270	0.13
8	5.79	6.32	984	0.10
9	6.32	6.85	803	0.08
10	6.85	7.38	890	0.09
11	7.38	7.91	833	0.08
12	7.91	8.43	547	0.05
13	8.43	8.96	378	0.04
14	8.96	9.49	533	0.05
15	9.49	10.02	134	0.01

	quantile double precision	value double precision
1	0	2.08899998664856
2	0.25	4.68800020217896
3	0.5	5.84000015258789
4	0.75	7.3254998922348
5	1	10.0200004577637

	value double precision	count integer
1	5.61299991607666	10
2	4.17600011825562	9
3	4.6230001449585	9
4	5.53999996185303	9
5	4.59700012207031	8
6	5.45100021362305	8
7	5.67999982833862	8
8	6.02799987792969	8
9	7.13800001144409	8
10	4.51700019836426	7

	value double precision	count integer
1	5.613	10
2	4.176	9
3	3	1
4	2	0
5	2.5	0

	state text	count bigint	sum numeric	mean numeric	stddev numeric	min numeric	max numeric
1	before	10000	60549.69	6.05	1.70	2.09	10.02
2	after	10000	428989.44	42.90	3.06	35.76	50.04

droprasterconstraints	
boolean	
1	true

addrasterconstraints	
boolean	
1	true

numbands	
integer	
1	2

	bandnum	pixeltype	nodatavalue	isoutdb	path
	integer	text	double precision	boolean	text
1	1	32BF	-9999	false	[null]
2	2	32BF	-9999	false	[null]

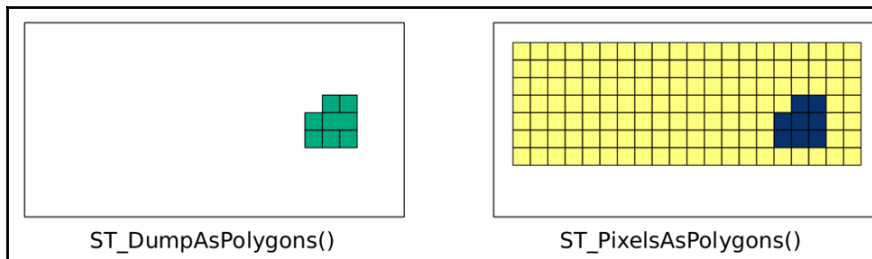
	bandnum	count	sum	mean	stddev	min	max
	integer	bigint	numeric	numeric	numeric	numeric	numeric
1	1	10000	60549.69	6.05	1.70	2.09	10.02
2	2	10000	428989.44	42.90	3.06	35.76	50.04

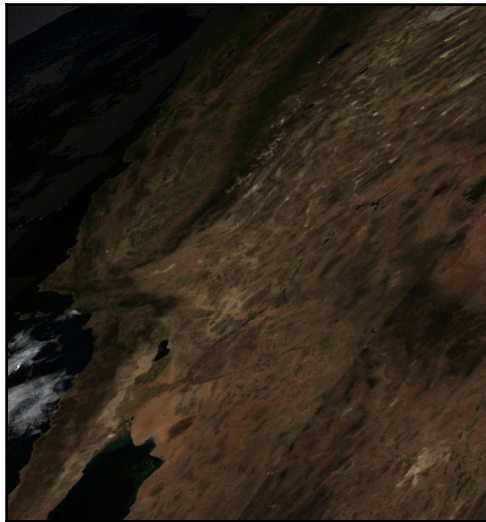
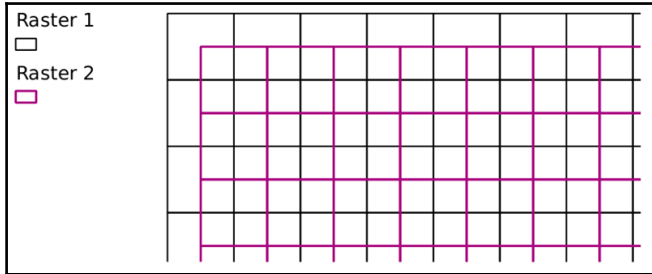
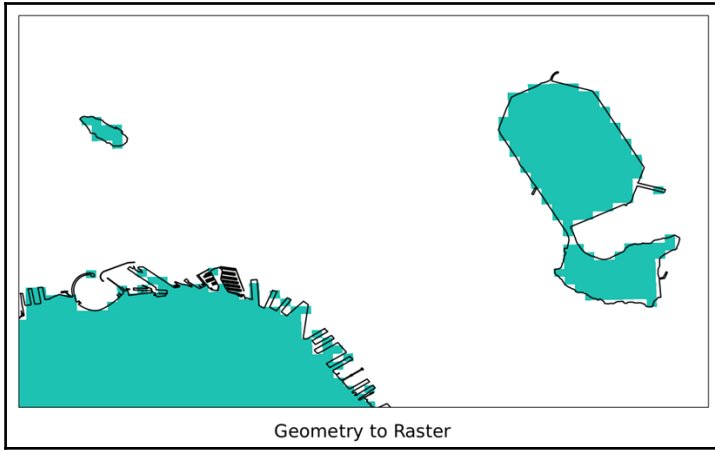
mean	
double precision	
1	9.53474998474121

	month_year	mean
	date	double precision
1	2017-03-01	9.53474998474121
2	2017-04-01	10.1283749341965
3	2017-05-01	10.4667500257492
4	2017-06-01	11.6341251134872
5	2017-07-01	12.1107499599457
6	2017-08-01	13.8238750696182

	val double precision	geom text
1	9.70699977874756	POLYGON((-122.479166666664 37.812499...
2	9.99499988555908	POLYGON((-122.437499999998 37.812499...
3	9.54199981689453	POLYGON((-122.520833333331 37.770833...
4	9.08399963378906	POLYGON((-122.479166666664 37.770833...
5	9.97900009155273	POLYGON((-122.437499999998 37.770833...
6	9.40200042724609	POLYGON((-122.520833333331 37.729166...
7	8.97700023651123	POLYGON((-122.479166666664 37.729166...
8	9.59200000762939	POLYGON((-122.437499999998 37.729166...

	val double precision	geom text
1	9.70699977874756	POLYGON((-122.479...
2	9.99499988555908	POLYGON((-122.437...
3	9.54199981689453	POLYGON((-122.520...
4	9.08399963378906	POLYGON((-122.479...
5	9.97900009155273	POLYGON((-122.437...
6	9.40200042724609	POLYGON((-122.520...
7	8.97700023651123	POLYGON((-122.479...
8	9.59200000762939	POLYGON((-122.437...

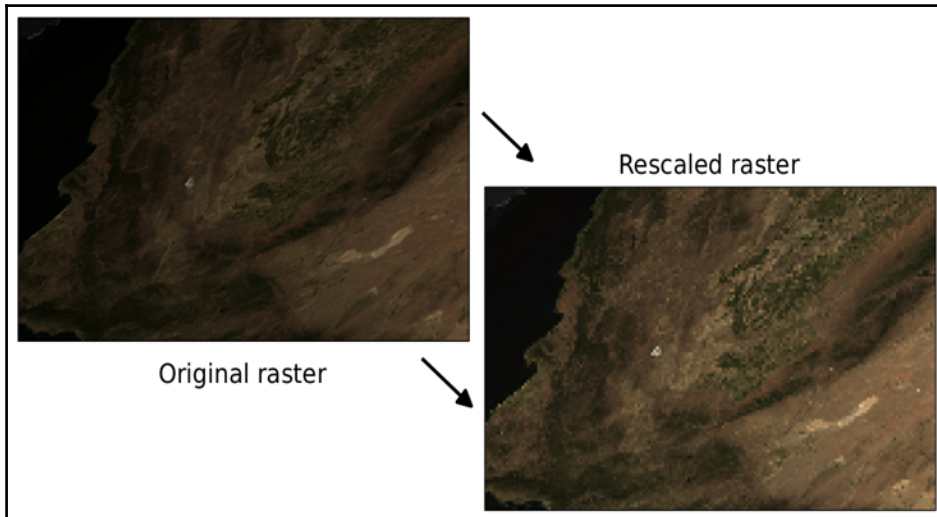




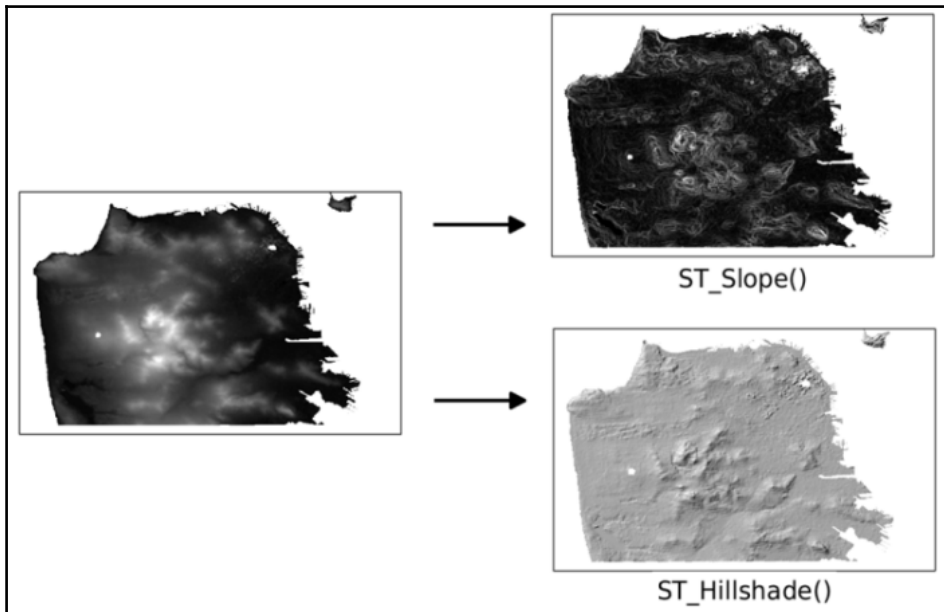
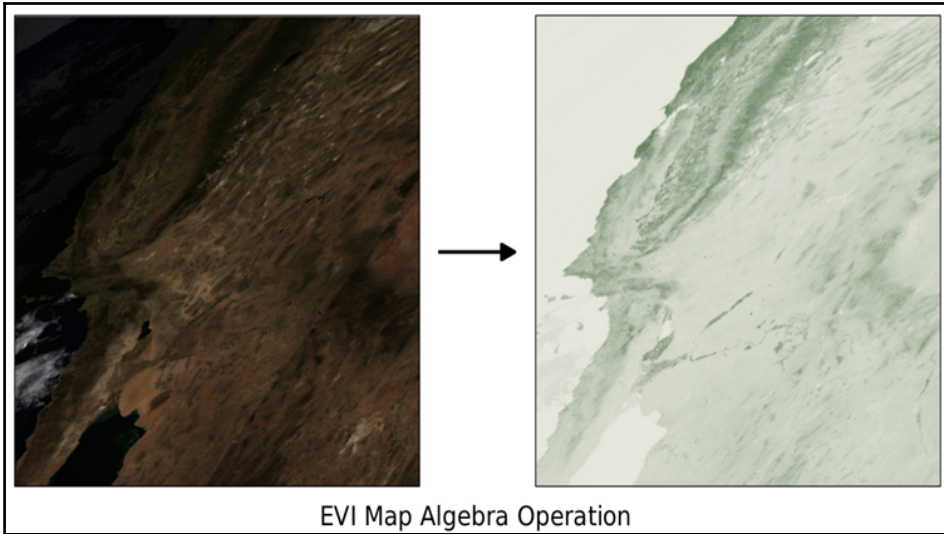
```

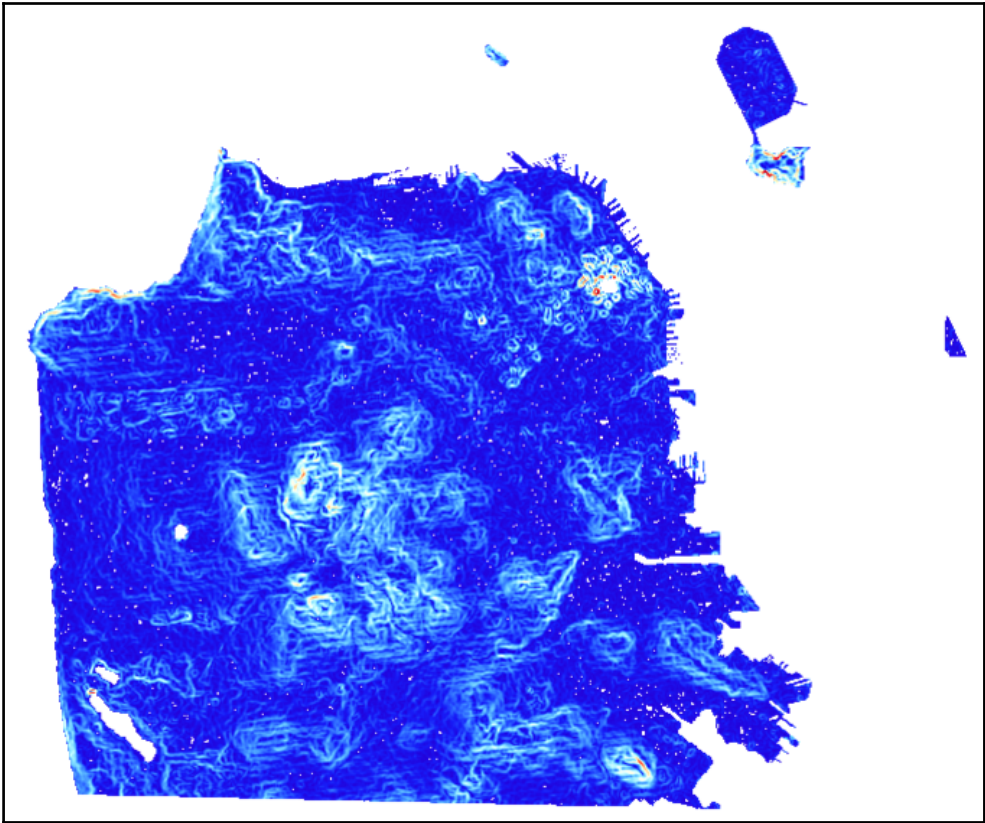
SUBDATASET_1_DESC=[2400x2400] sur_refl_b01 MOD_Grid_500m_Surface_Reflectance (
16-bit integer)
SUBDATASET_2_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_b02
SUBDATASET_2_DESC=[2400x2400] sur_refl_b02 MOD_Grid_500m_Surface_Reflectance (
16-bit integer)
SUBDATASET_3_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_b03
SUBDATASET_3_DESC=[2400x2400] sur_refl_b03 MOD_Grid_500m_Surface_Reflectance (
16-bit integer)
SUBDATASET_4_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_b04
SUBDATASET_4_DESC=[2400x2400] sur_refl_b04 MOD_Grid_500m_Surface_Reflectance (
16-bit integer)
SUBDATASET_5_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_b05
SUBDATASET_5_DESC=[2400x2400] sur_refl_b05 MOD_Grid_500m_Surface_Reflectance (
16-bit integer)
SUBDATASET_6_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_b06
SUBDATASET_6_DESC=[2400x2400] sur_refl_b06 MOD_Grid_500m_Surface_Reflectance (
16-bit integer)
SUBDATASET_7_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_b07
SUBDATASET_7_DESC=[2400x2400] sur_refl_b07 MOD_Grid_500m_Surface_Reflectance (
16-bit integer)
SUBDATASET_8_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_qc_500m
SUBDATASET_8_DESC=[2400x2400] sur_refl_qc_500m MOD_Grid_500m_Surface_Reflectan
ce (32-bit unsigned integer)
SUBDATASET_9_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.2012170065756
.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_szen
SUBDATASET_9_DESC=[2400x2400] sur_refl_szen MOD_Grid_500m_Surface_Reflectance
(16-bit integer)
SUBDATASET_10_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.201217006575
6.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_vzen
SUBDATASET_10_DESC=[2400x2400] sur_refl_vzen MOD_Grid_500m_Surface_Reflectance
(16-bit integer)
SUBDATASET_11_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.201217006575
6.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_raz
SUBDATASET_11_DESC=[2400x2400] sur_refl_raz MOD_Grid_500m_Surface_Reflectance
(16-bit integer)
SUBDATASET_12_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.201217006575
6.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_state_500m
SUBDATASET_12_DESC=[2400x2400] sur_refl_state_500m MOD_Grid_500m_Surface_Refle
ctance (16-bit unsigned integer)
SUBDATASET_13_NAME=HDF4_EOS:E0S_GRID:"MYD09A1.A2012161.h08v05.005.201217006575
6.hdf":MOD_Grid_500m_Surface_Reflectance:sur_refl_day_of_year

```



$$EVI = G \times \frac{(NIR - RED)}{(NIR + C1 \times RED - C2 \times BLUE + L)}$$

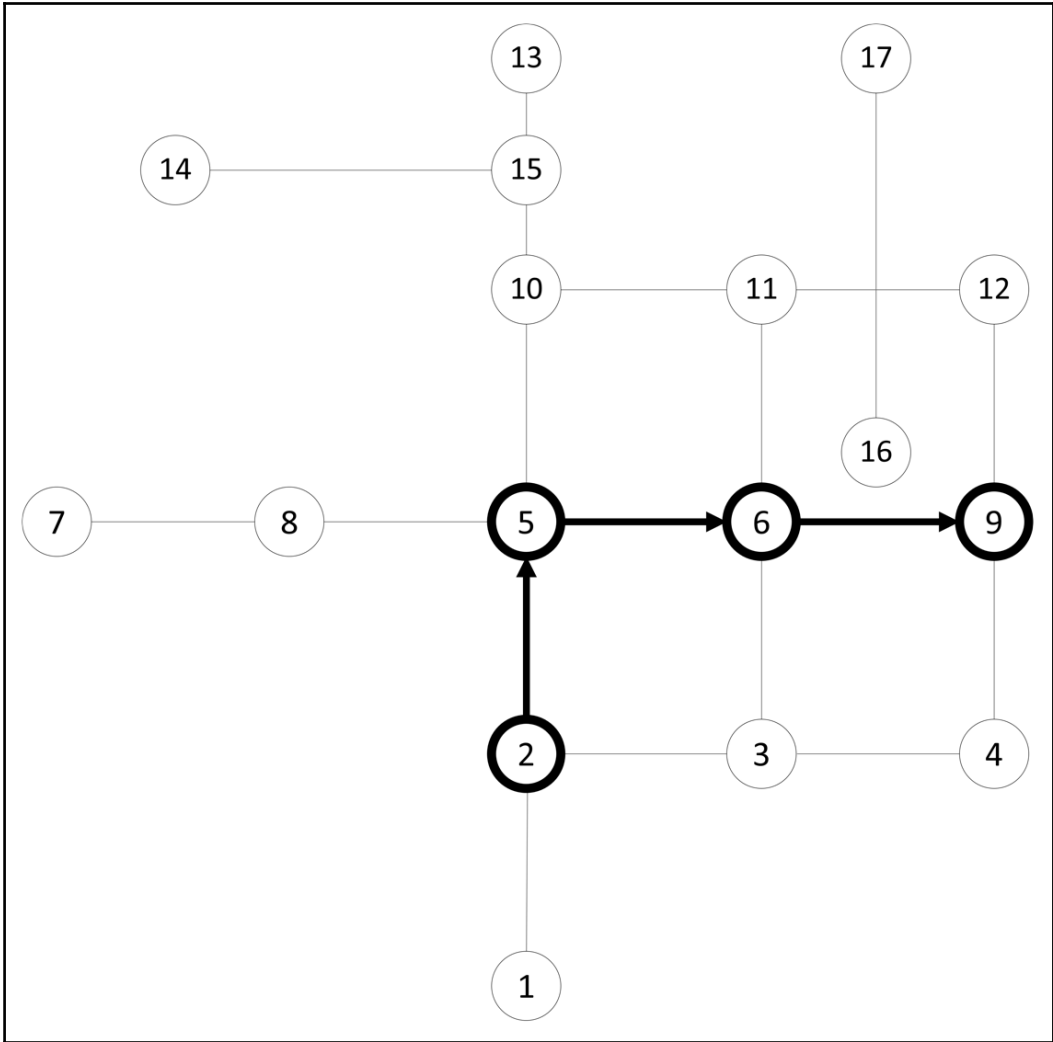




Chapter 6: Working with pgRouting

	seq integer	path_seq integer	node bigint	edge bigint	cost double precision	agg_cost double precision
1	1	1	2	4	1	0
2	2	2	5	8	1	1
3	3	3	6	9	1	2
4	4	4	9	-1	0	3

id bigint	st_astext text
4	LINestring(2 1,2 2)
8	LINestring(2 2,3 2)
9	LINestring(3 2,4 2)



```
bash-3.2$ osm2pgrouting
the option '--dbname' is required but missing
Allowed options:

Help:
  --help                Produce help message for this version.
  -v [ --version ]      Print version string

General:
  -f [ --file ] arg     REQUIRED: Name of the osm file.
  -c [ --conf ] arg     Name of the configuration xml file.
                        (= /usr/share/osm2pgrouting/mapconfig.xml)
  --schema arg          Database schema to put tables.
                        blank: defaults to default schema
                        dictated by PostgreSQL
                        search_path.
  --prefix arg          Prefix added at the beginning of the
                        table names.
  --suffix arg          Suffix added at the end of the table
                        names.
  --addnodes            Import the osm_nodes table.
  --clean               Drop previously created tables.

Database options:
  -d [ --dbname ] arg   Name of your database (Required).
  -U [ --username ] arg Name of the user, which have write
                        access to the database.
                        (= postgres)
  -h [ --host ] arg     Host of your postgresql database.
                        (= localhost)
  -p [ --port ] arg     db_port of your database.
                        (= 5432)
  -W [ --password ] arg Password for database access.

bash-3.2$ █
```

```
build -- bash -- 87x32
Export Types ...
  Processing 4 way types:      Inserted: 4 in osm_way_types

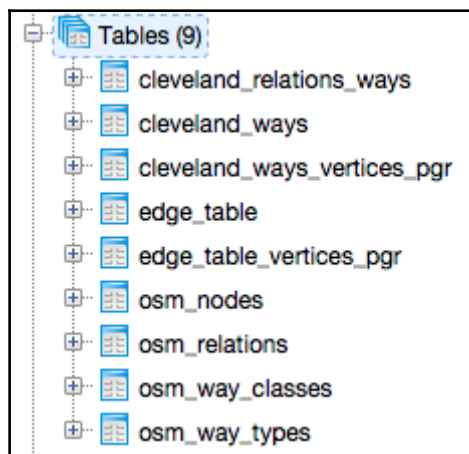
Export Classes ...
  Processing way's classes:    Inserted: 36 in osm_way_classes

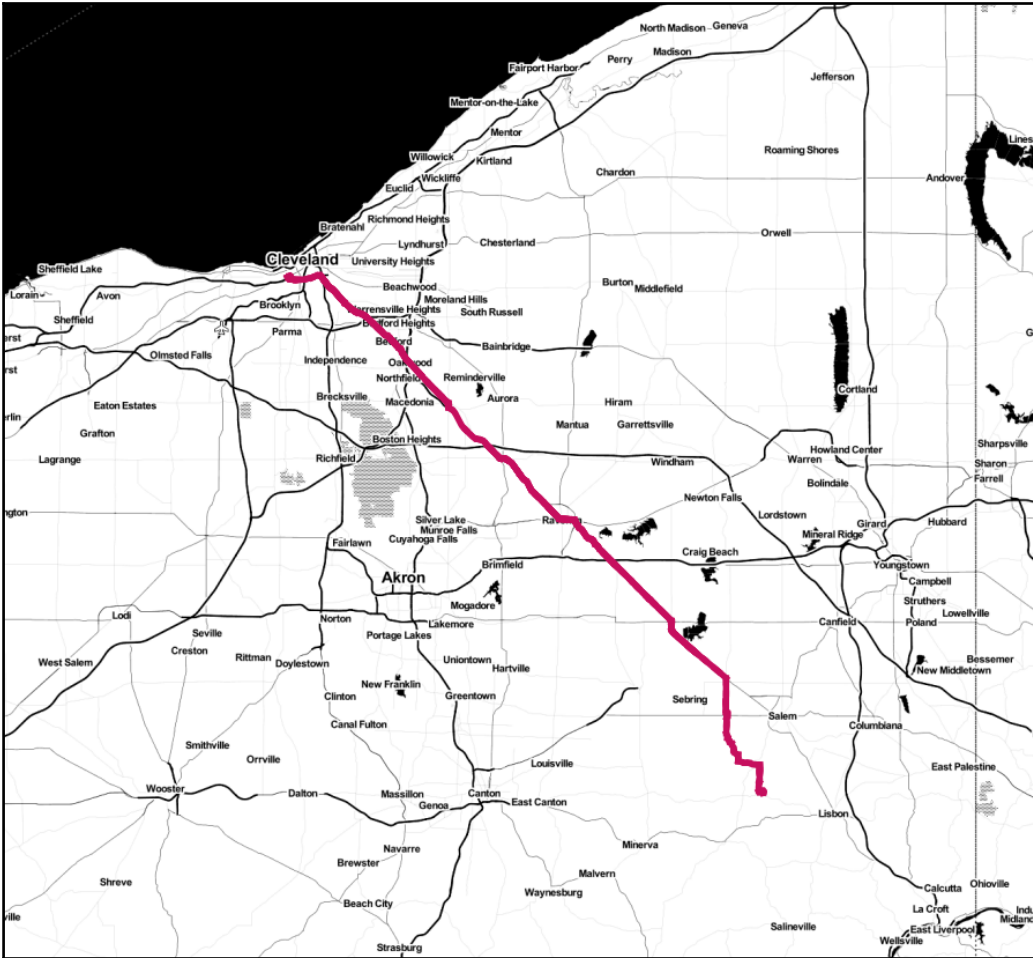
Export Relations ...
  Processing 0 relations:      Inserted: 0 in osm_relations

Export RelationsWays ...
  Processing way's relations:  Inserted: 0 in cleveland_relations_ways

Export Ways ...
  Processing 104065 ways:
[*****] ] (19%) Ways Processed: 20000
  Split Ways generated: 45305 Vertices inserted 41827 Inserted 45305 split ways
[*****] ] (38%) Ways Processed: 40000
  Split Ways generated: 43276 Vertices inserted 39811 Inserted 43276 split ways
[*****] ] (57%) Ways Processed: 60000
  Split Ways generated: 51371 Vertices inserted 41485 Inserted 51371 split ways
[*****] ] (76%) Ways Processed: 80000
  Split Ways generated: 48504 Vertices inserted 36168 Inserted 48504 split ways
[*****] ] (99%) Ways Processed: 104065
  Split Ways generated: 37114 Vertices inserted 14381 Inserted 37114 split ways

Creating Foreign Keys ...
Foreign keys for osm_way_classes table created
Foreign keys for cleveland_relations_ways table created
Foreign keys for Ways table created
#####
size of streets: 104065
#####
bash-3.2$
```

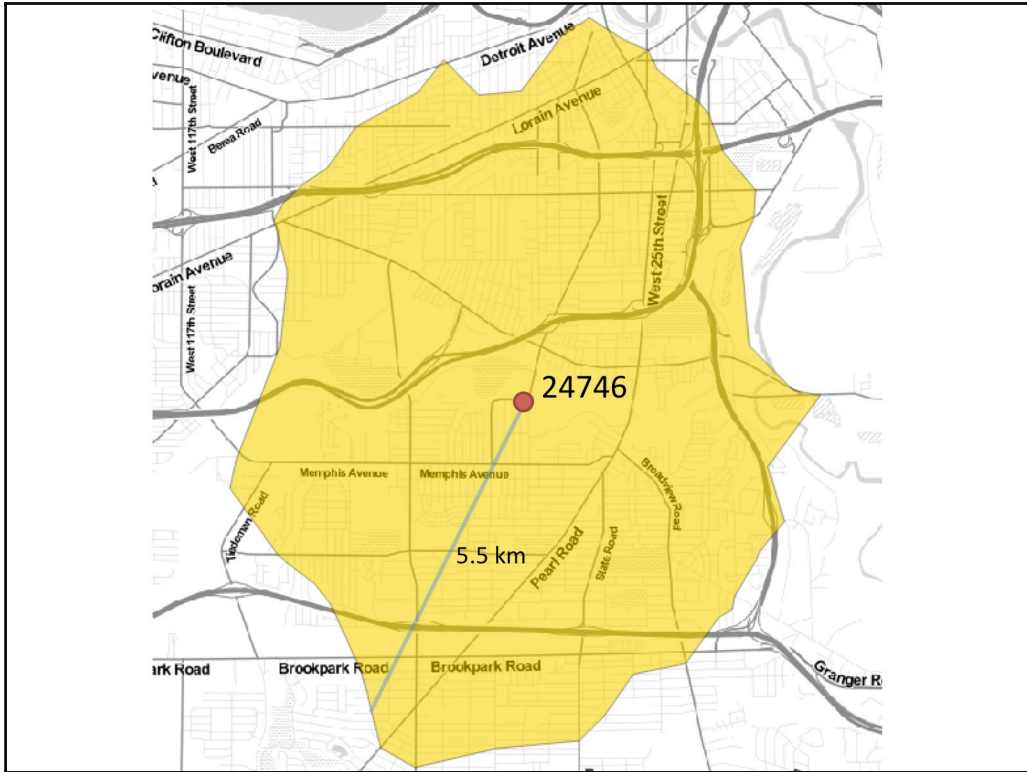


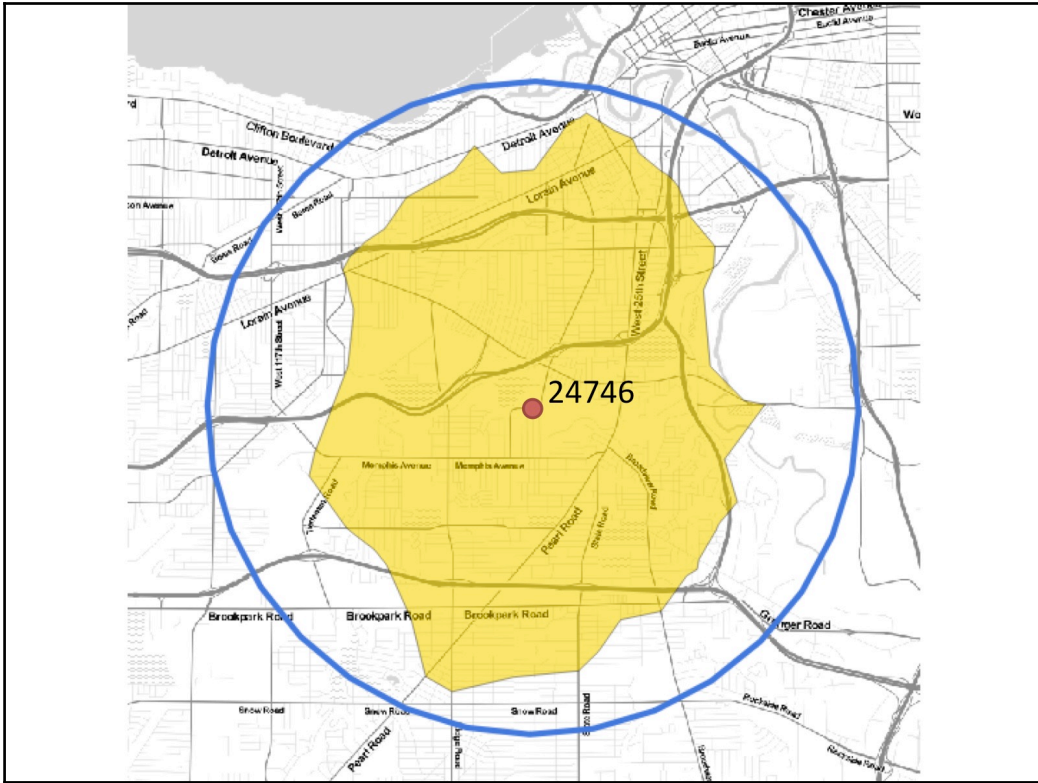


	seq integer	node bigint	edge bigint	cost double precision	agg_cost double precision
1	1	2	-1	0	0
2	2	5	4	1	1
3	3	6	8	1	2
4	4	10	10	1	2
5	5	9	9	1	3
6	6	11	11	1	3
7	7	13	14	1	3

	st_astext text
1	POINT(2 1)
2	POINT(2 2)
3	POINT(3 2)
4	POINT(2 3)
5	POINT(4 2)
6	POINT(3 3)
7	POINT(2 4)

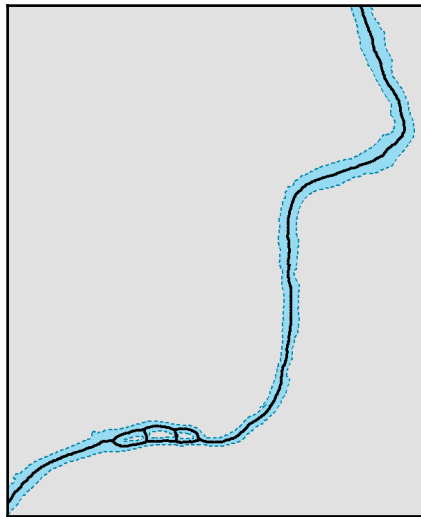
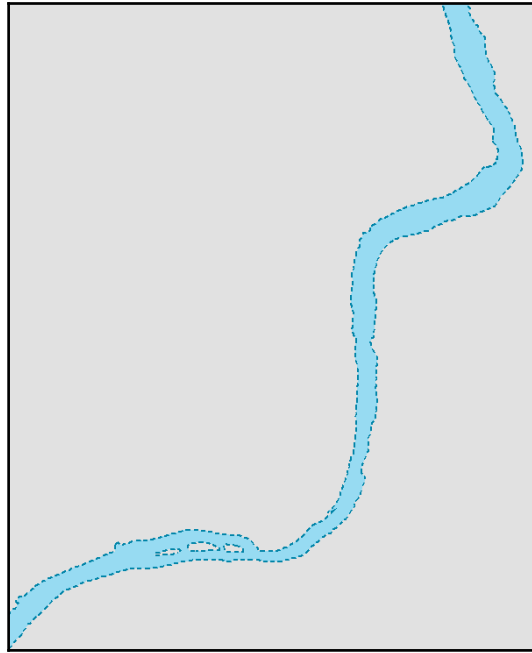
	id integer	x double precision	y double precision
1	2	2	1
2	5	2	2
3	6	3	2
4	10	2	3
5	9	4	2
6	11	3	3
7	13	2	4

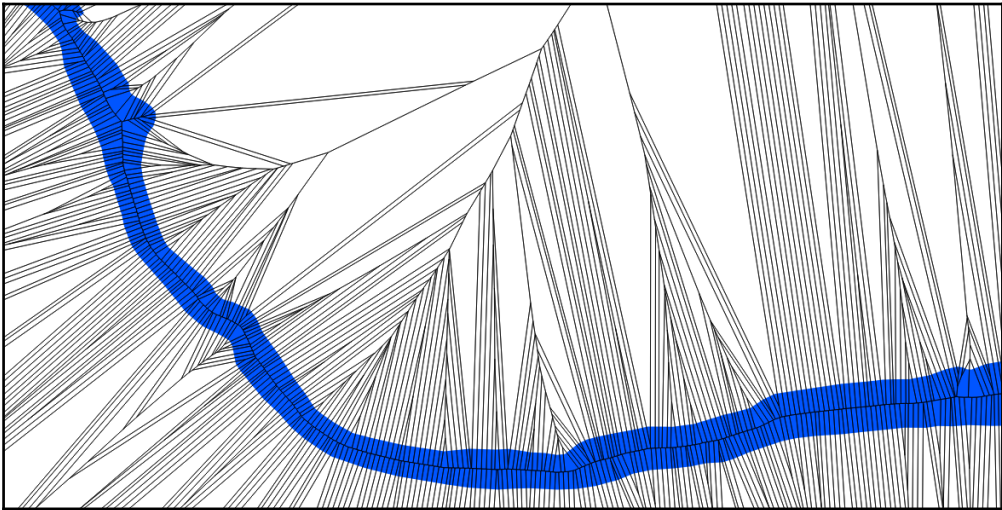
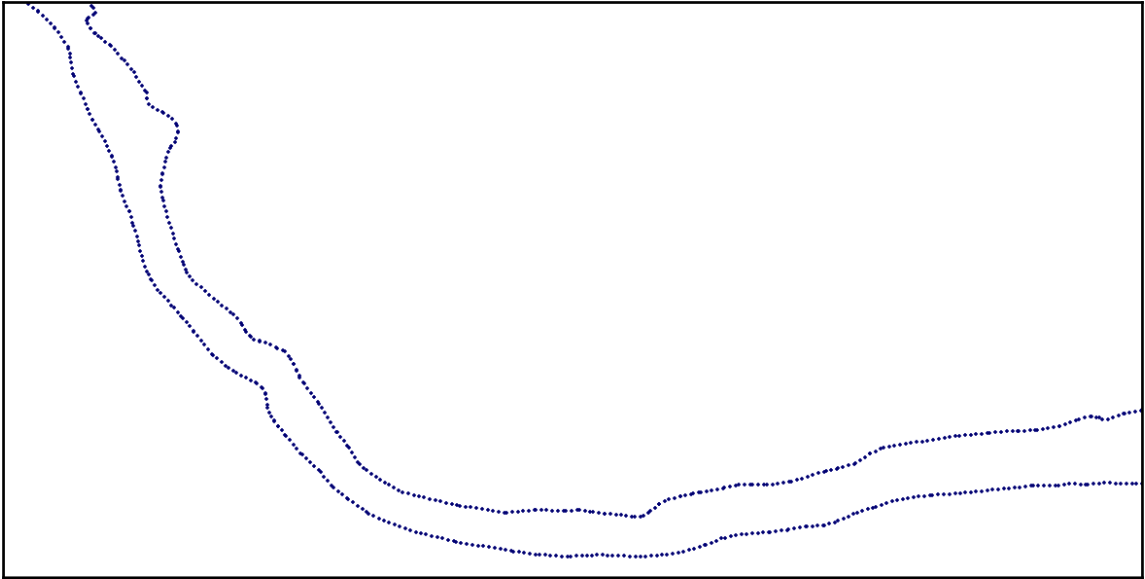


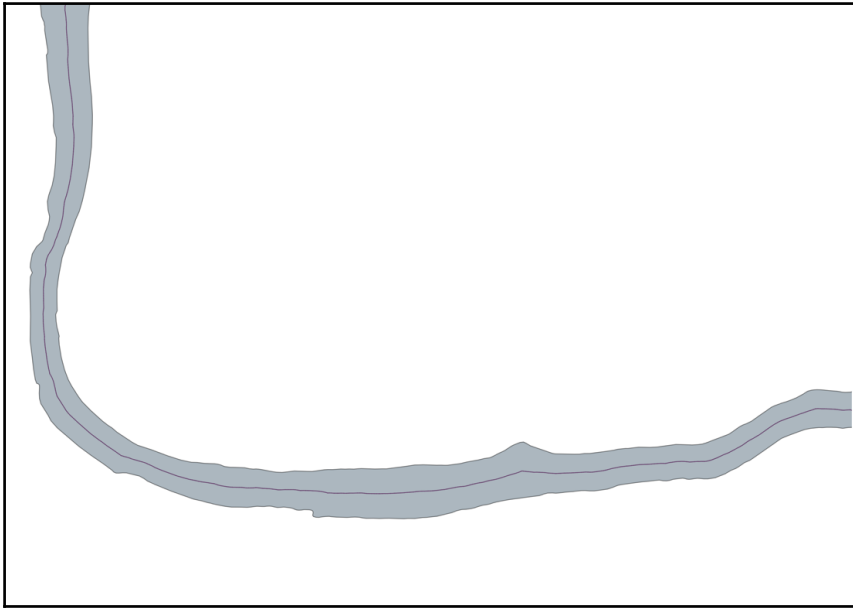
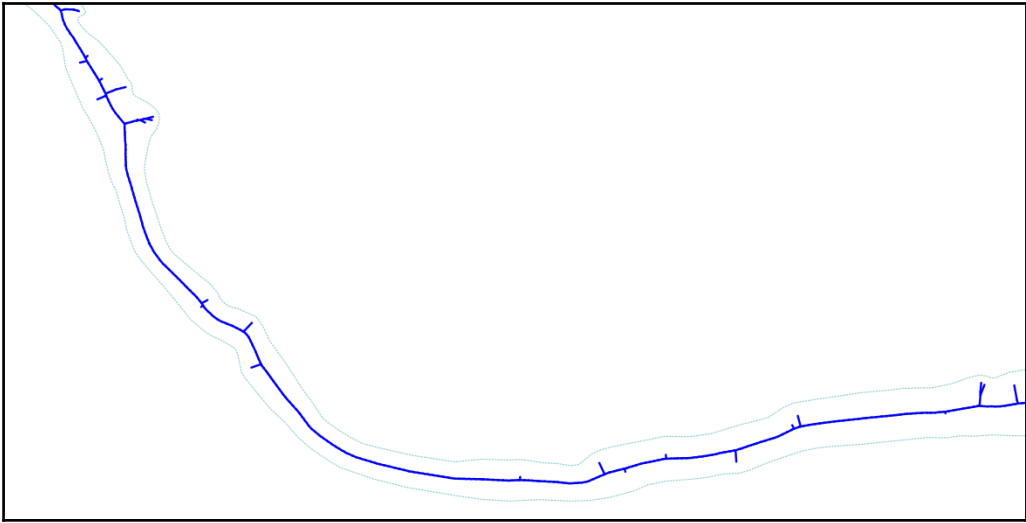


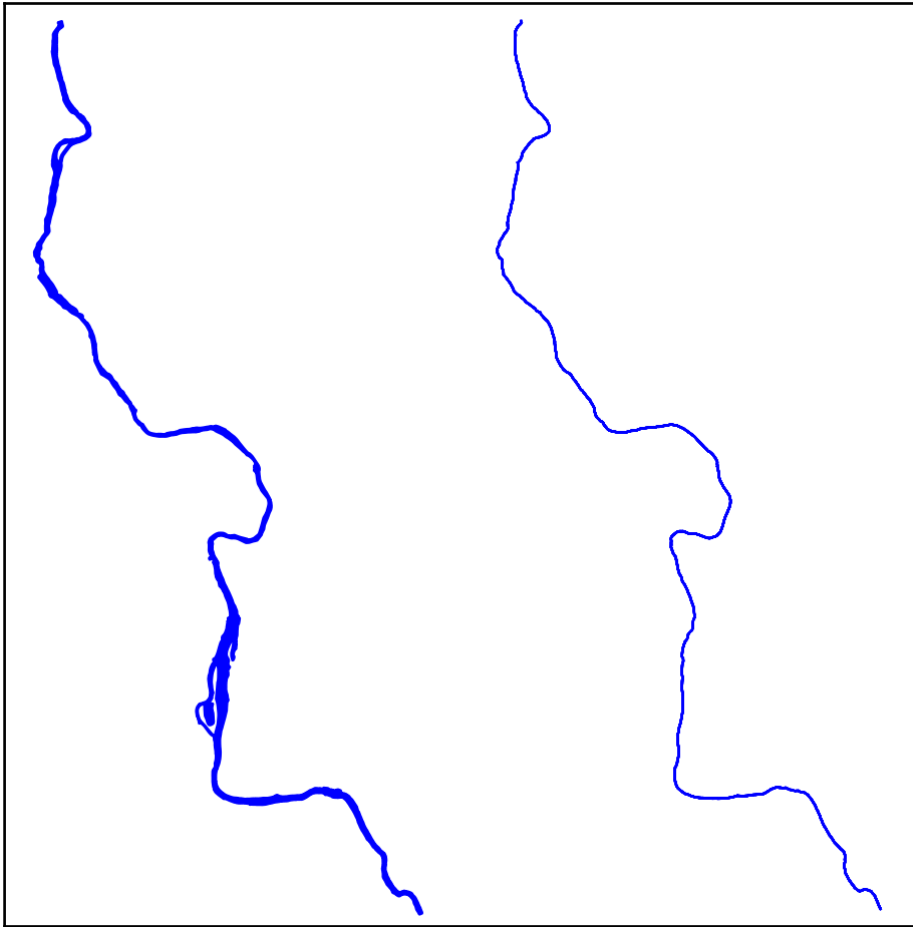
population	
numeric	
1	103021

population	
numeric	
1	168177



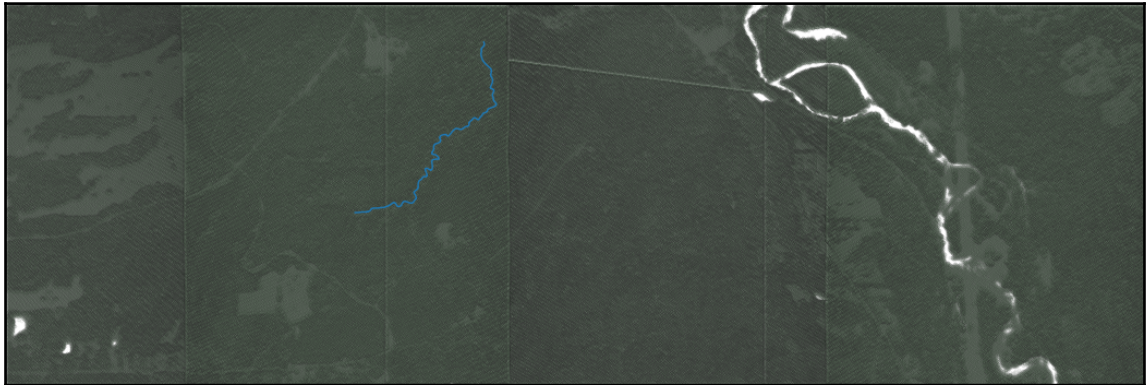
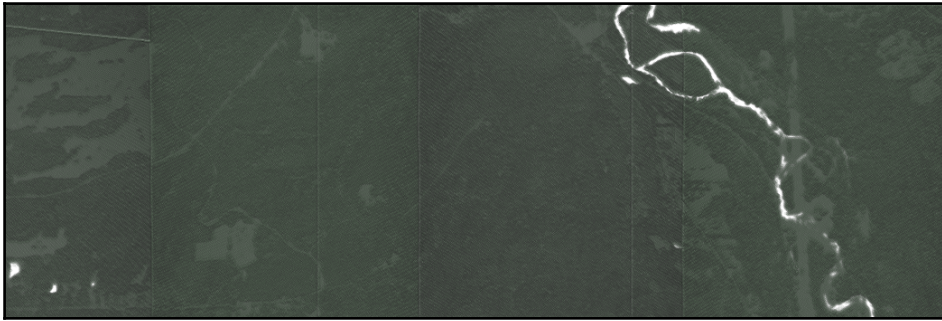


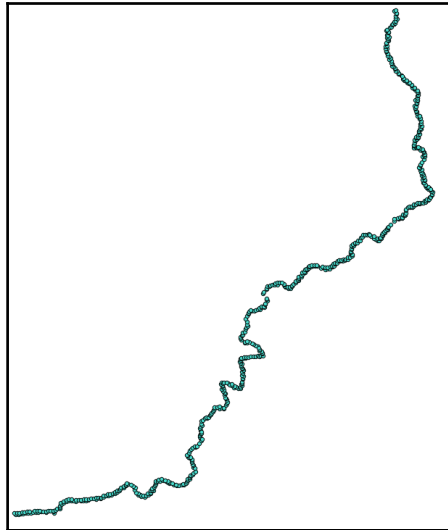




Chapter 7: Into the Nth Dimension

```
vim test — vim
1 {
2   "pipeline": [{
3     "type": "readers.las",
4     "filename": "/data/test_1.las"
5   }, {
6     "type": "writers.pgpointcloud",
7     "connection": "host='localhost' dbname='postgis-cookbook' user='me' password='me' port='5432'",
8     "table": "test_1",
9     "srid": "3734",
10    "schema": "chp07"
11  }]
12 }
13 }
```

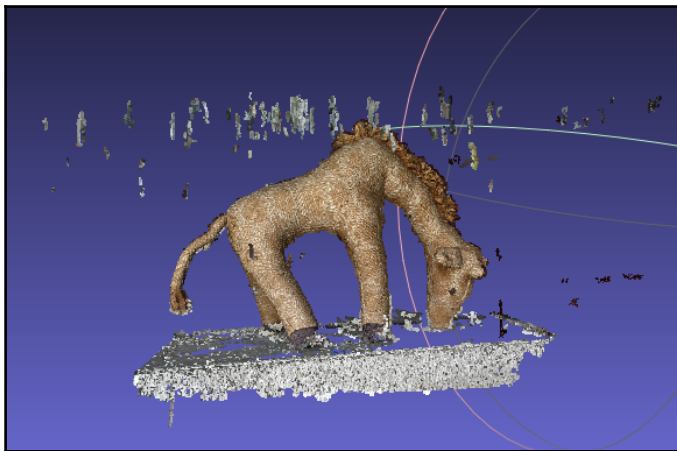
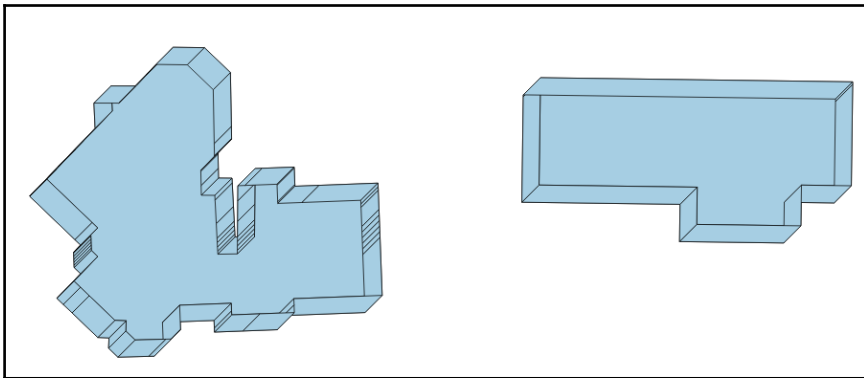
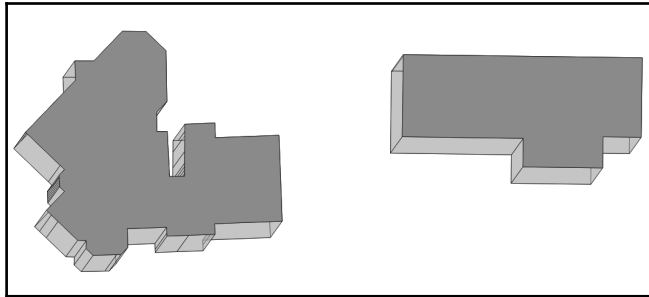




```
st_astext
-----
MULTILINESTRING((2 0,2 1),(1 2,0 2),(2 1,1 1),
(0 0,2 0),(1 1,1 2),(0 2,0 0))
(1 row)
```

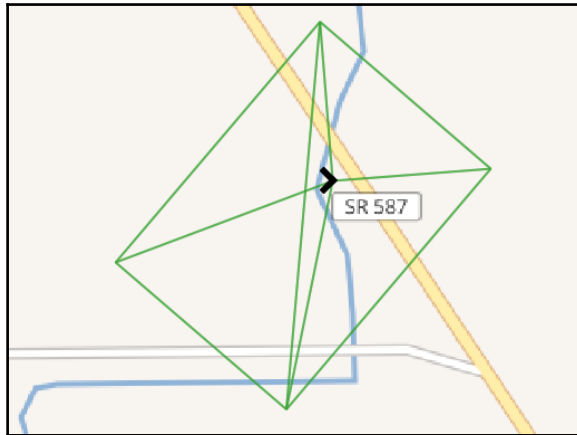
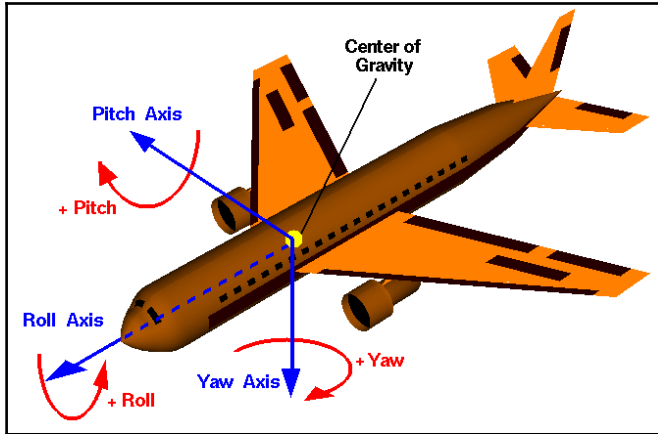
```
MULTILINESTRING Z ((2 0 0,2 1 0),(1 2 0,0 2 0),
(2 1 0,1 1 0),(0 0 0,2 0 0),(1 1 0,1 2 0),
(0 2 0,0 0 0))
```

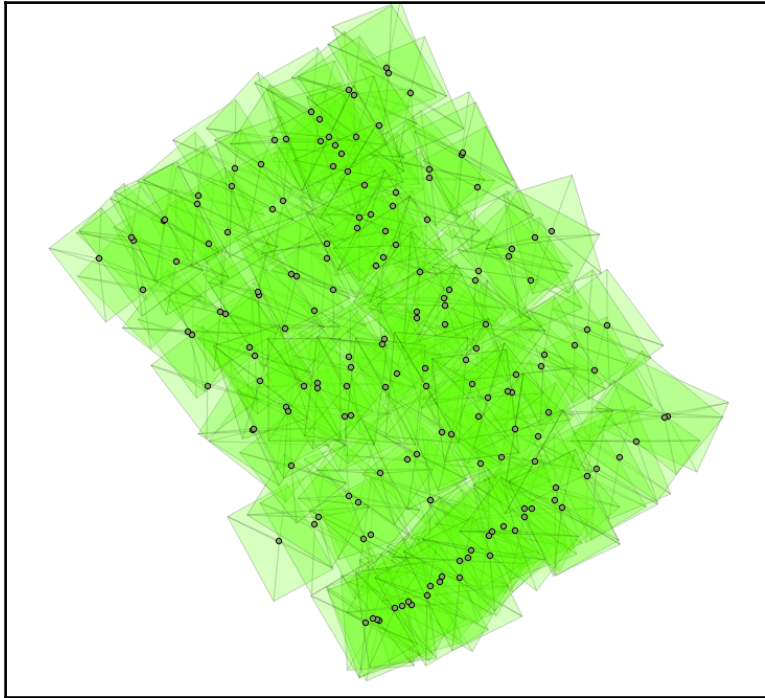
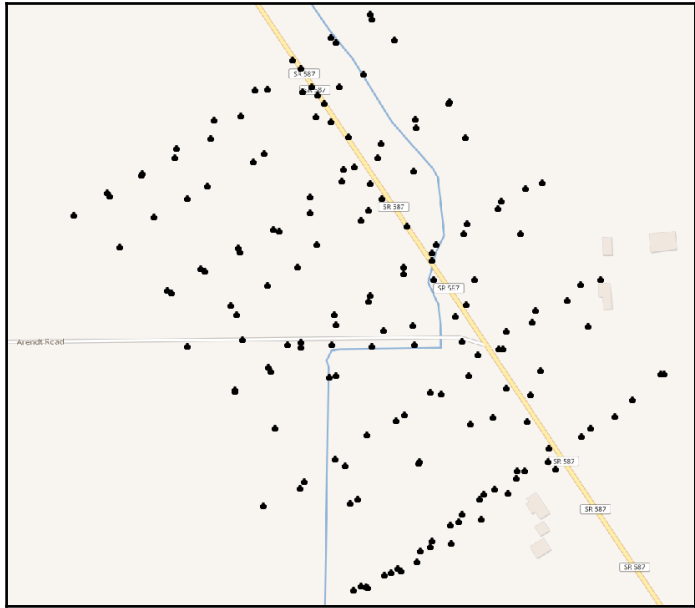
```
LINESTRING Z (2 0 0,2 1 0)
LINESTRING Z (1 2 0,0 2 0)
LINESTRING Z (2 1 0,1 1 0)
LINESTRING Z (0 0 0,2 0 0)
LINESTRING Z (1 1 0,1 2 0)
LINESTRING Z (0 2 0,0 0 0)
```

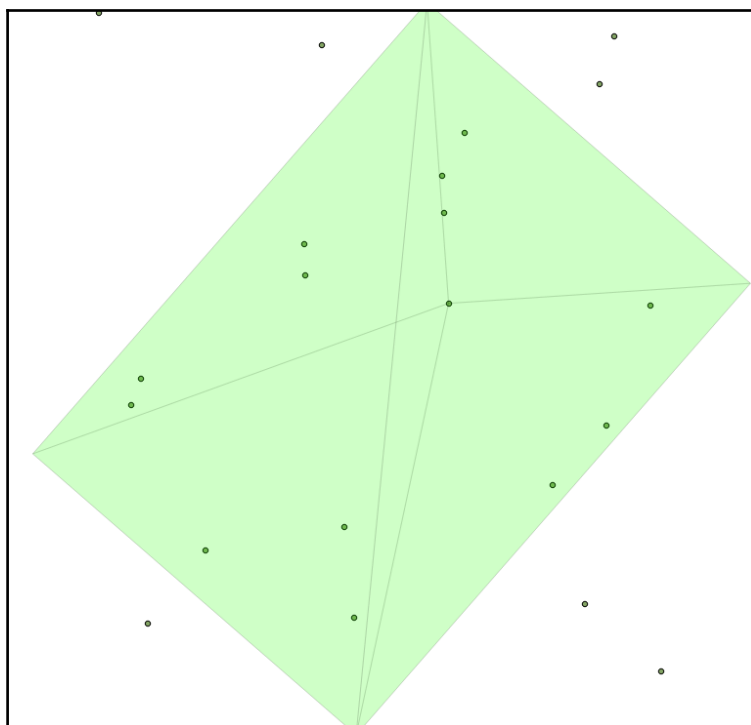


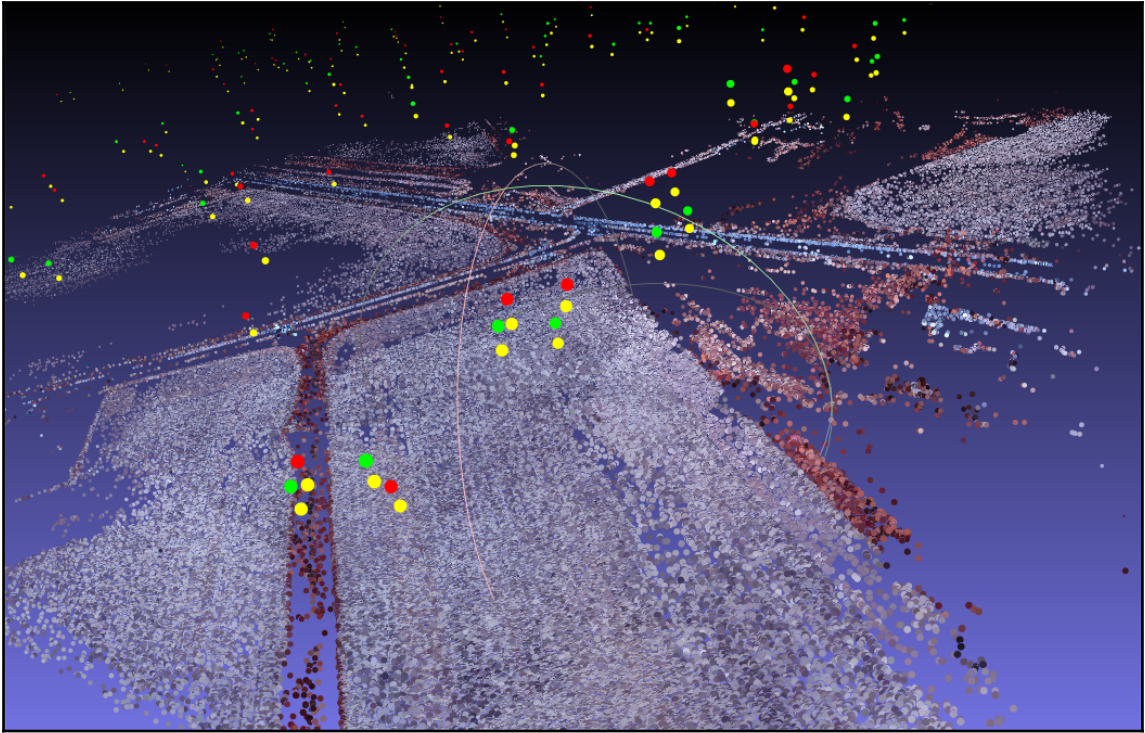
```
vim giraffe.ply -- vim
ply
format ascii 1.0
element vertex 276539
property float x
property float y
property float z
property float nx
property float ny
property float nz
property uchar red
property uchar green
property uchar blue
end_header
0.58174 -0.0940152 -8.62386 0.0897906 0.0893454 0.991945 185 185 179
0.663161 0.850887 -7.57239 -0.635235 0.475179 0.608836 144 117 85
0.660386 0.849393 -7.57599 -0.838368 0.530371 -0.125881 127 99 65
0.664645 0.849737 -7.56985 -0.736177 0.618385 0.275033 126 98 69
0.653817 0.84765 -7.58713 -0.955944 0.282847 -0.0785467 162 135 100
0.652211 0.845895 -7.58218 -0.678657 0.356864 0.641929 134 106 79
0.662668 0.848185 -7.57326 -0.785914 0.61084 0.0959887 143 116 84
0.660412 0.846526 -7.57264 -0.699131 0.700875 0.141383 144 114 84
```

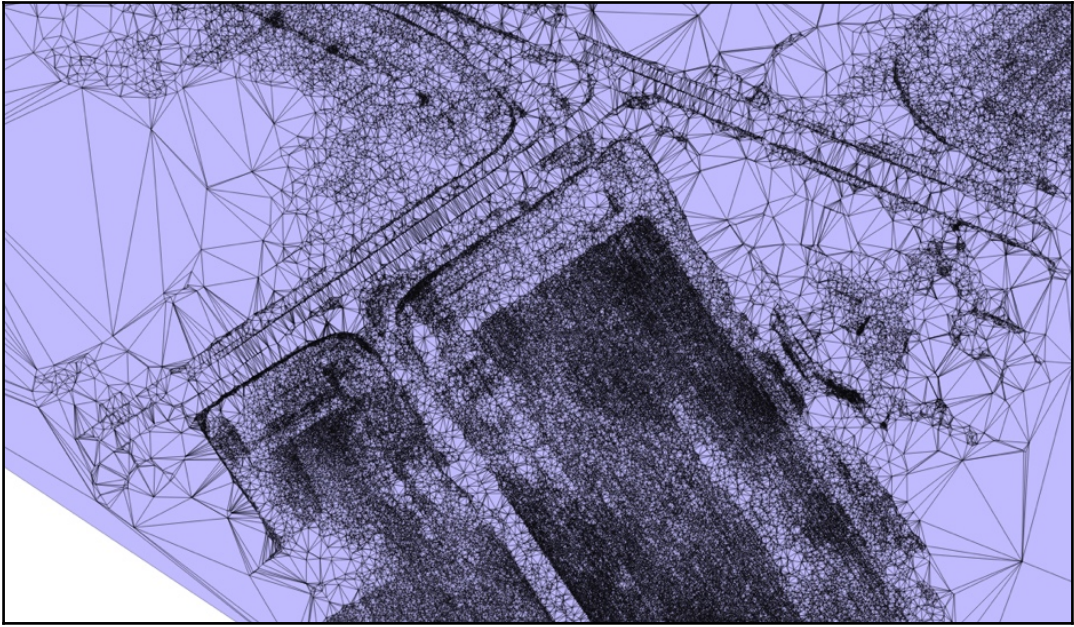













```

Chapter 8 — bash — 70x25
: u'http://www.geonames.org/img/wikipedia/77000/thumb-76073-100.jpg'},
{u'lang': u'en', u'elevation': 35, u'countryCode': u'fr', u'title': u
'La Courneuve', u'geoNameId': 3009824, u'feature': u'city', u'rank': 1
00, u'summary': u'La Courneuve is a commune in Seine-Saint-Denis, Fran
ce. It is located from the center of Paris. (...)', u'wikipediaUrl':
u'en.wikipedia.org/wiki/La_Courneuve', u'lat': 48.9322, u'lng': 2.3967
, u'thumbnailImg': u'http://www.geonames.org/img/wikipedia/87000/thumb
-86056-100.jpg'}, {u'lang': u'en', u'elevation': 49, u'countryCode': u
'fr', u'title': u'Charenton-le-Pont', u'geoNameId': 3026637, u'feature
': u'city', u'rank': 100, u'summary': u'Charenton-le-Pont is a commune
in the southeastern suburbs of Paris, France. It is located from the
centre of Paris. It is one of the most densely populated municipalitie
s in Europe. The Charenton Psychiatric Hospital is located in the neig
hbouring commune Charenton-Saint-Maurice, which changed its (...)', u'
wikipediaUrl': u'en.wikipedia.org/wiki/Charenton-le-Pont', u'lat': 48.
821389, u'lng': 2.411944, u'thumbnailImg': u'http://www.geonames.org/i
mg/wikipedia/47000/thumb-46131-100.jpg']}
Created a places titled Gare de Paris-Est.
Created a places titled Paris.
Created a places titled Paris-Gare de Lyon.
Created a places titled Gare Montparnasse.
Created a places titled Sorbonne.
Created a places titled University of Paris.
Created a places titled Gennevilliers.
Created a places titled Notre Dame de Paris.

```

	st_astext text	title character varying	countrycode character varying	feature character varying
1	POINT Z (-0.11832 51.50...	London	GB	city
2	POINT Z (-72.100833333...	New London, Con...	US	landmark
3	POINT Z (-81.2497 42.98...	London, Ontario	CA	city
4	POINT Z (27.9036078333...	East London, East...	ZA	city
5	POINT Z (-0.086 51.4965...	London Borough o...	GB	adm1st
6	POINT Z (-0.087778 51.5...	London Bridge	GB	landmark
7	POINT Z (-0.1004 51.372...	London Borough o...	GB	adm1st
8	POINT Z (-0.119722 51.5...	London Eye	GB	landmark
9	POINT Z (-0.333333 51.4...	London Borough o...	GB	adm1st
10	POINT Z (-0.1448 51.496...	London Victoria st...	GB	landmark
11	POINT Z (12.501944 41.9...	Roma Termini rail...	AT	landmark
12	POINT Z (-85.170833 34...	Rome, Georgia	US	city
13	POINT Z (12.71667 41.81...	Monte Porzio Cato...	IT	adm3rd
14	POINT Z (12.2775 42.088...	Anguillara Sabazia	IT	adm3rd
15	POINT Z (12.476816 41.8...	Pantheon, Rome		landmark
16	POINT Z (12.452 41.903 ...	Vatican City		city

```
IT -- bash -- 70x27
using driver `CSV' successful.

Layer name: IT
Geometry: Point
Feature Count: 49700
Extent: (1.200000, 35.483330) - (27.766670, 48.966670)
Layer SRS WKT:
(unknown)
GEONAMEID: String (0.0)
NAME: String (0.0)
ASCII_NAME: String (0.0)
ALTNAMES: String (0.0)
LATITUDE: Real (0.0)
LONGITUDE: Real (0.0)
FEATCLASS: String (0.0)
FEATCODE: String (0.0)
COUNTRY: String (0.0)
CC2: String (0.0)
ADMIN1: String (0.0)
ADMIN2: String (0.0)
ADMIN3: String (0.0)
ADMIN4: String (0.0)
POPULATION: Real (0.0)
ELEVATION: Integer (0.0)
GTOP030: Integer (0.0)
TIMEZONE: String (0.0)
MODDATE: String (0.0)
```

```

ELEVATION (Integer) = (null)
GTOPO30 (Integer) = 312
TIMEZONE (String) = Europe/Rome
MODDATE (String) = 2012-02-15
POINT (11.04272 43.46924)

OGRFeature(IT):37204
  GEONAMEID (String) = 6539741
  NAME (String) = San Gimignano
  ASCIINAME (String) = San Gimignano
  ALTNAMES (String) = Comune di San Gimignano,San Gimignano
  LATITUDE (Real) = 43.46924
  LONGITUDE (Real) = 11.04272
  FEATCLASS (String) = A
  FEATCODE (String) = ADM3
  COUNTRY (String) = IT
  CC2 (String) =
  ADMIN1 (String) = 16
  ADMIN2 (String) = SI
  ADMIN3 (String) = 052028
  ADMIN4 (String) =
  POPULATION (Real) = 7770
  ELEVATION (Integer) = (null)
  GTOPO30 (Integer) = 312
  TIMEZONE (String) = Europe/Rome
  MODDATE (String) = 2011-02-25
  POINT (11.04272 43.46924)

Nina:IT may$ █

```

	geom	place_name
	geometry	character varying
1	01010000...	Monte Rotondo
2	01010000...	Monte Canelle
3	01010000...	Rocca di Mezzo
4	01010000...	Rocca di Mezzo
5	01010000...	Monte Selva Canuta
6	01010000...	Rovere
7	01010000...	Rocca di Cambio
8	01010000...	Rocca di Cambio
9	01010000...	Monte della Cerreta
10	01010000...	Terranera

	geom	place_name
	geometry	character varying
1	01010000...	Monte Rotondo
2	01010000...	Monte Canelle
3	01010000...	Rocca di Mezzo
4	01010000...	Rocca di Mezzo
5	01010000...	Monte Selva Canuta

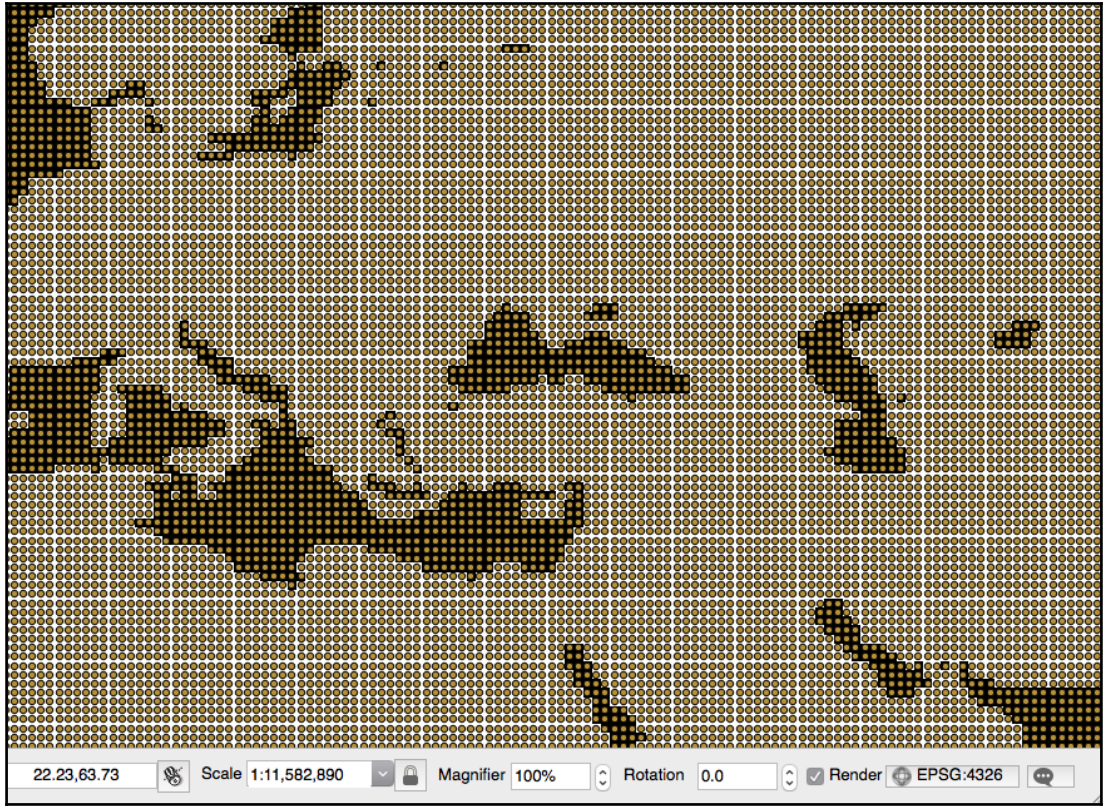
	geom	place_name
	geometry	character varying
1	01010000...	Rocca di Neto
2	01010000...	Rocca
3	01010000...	Rocca Pignatello
4	01010000...	Rocca Mollachella
5	01010000...	La Rocca
6	01010000...	Casa la Rocca
7	01010000...	Rocca Busambra
8	01010000...	Alessandria della ...
9	01010000...	Santa Maria Rocca
10	01010000...	Torre di Rocca Ve...

	name character varying	sml real	the_geom text
1	Via Benedetto Cro...	1	POINT(12....
2	Via Benedetto Cro...	1	POINT(13....
3	Via Benedetto Cro...	1	POINT(12....
4	Via Benedetto Cro...	1	POINT(13....
5	Via Benedetto Cro...	1	POINT(13....
6	Via Benedetto Cro...	1	POINT(12....
7	Via Benedetto Cro...	1	POINT(14....
8	Via Benedetto Cro...	1	POINT(12....
9	Via Benedetto XV	0.608696	POINT(12....
10	Piazza Benedetto ...	0.592593	POINT(12....
11	Via Benedetto XIV	0.583333	POINT(12....
12	Via Benedetto XIV	0.583333	POINT(12....
13	Via San Benedetto	0.583333	POINT(13....
14	Via San Benedetto	0.583333	POINT(13....
15	Via Benedetto Stay	0.56	POINT(12....
16	Via Benedetto Stay	0.56	POINT(12....

	name character varying	weight real
1	Via Benedetto Cro...	0
2	Via Benedetto Cro...	0
3	Via Benedetto Cro...	0
4	Via Benedetto Cro...	0
5	Via Benedetto Cro...	0
6	Via Benedetto Cro...	0
7	Via Benedetto Cro...	0
8	Via Benedetto Cro...	0
9	Via Benedetto XV	0.391304
10	Piazza Benedetto ...	0.407407

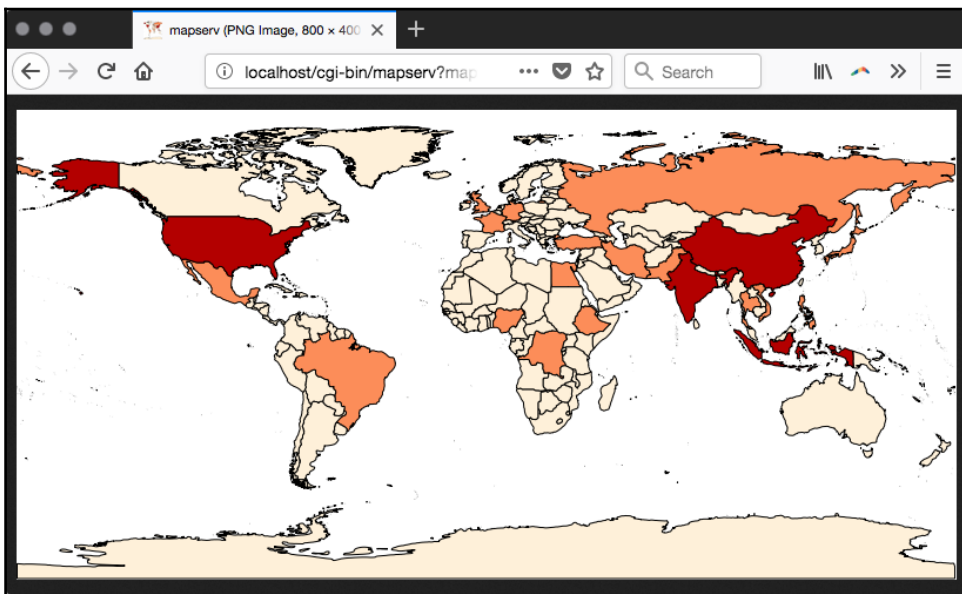
```
Chapter 8 — bash — 102x25
Driver: netCDF/Network Common Data Format
Files: none associated
Size is 512, 512
Coordinate System is ``
Metadata:
  NC_GLOBAL#Conventions=CF-1.0
  NC_GLOBAL#history=Created 2011/08/31 by doMonthLTM
  NC_GLOBAL#institution=NOAA/ESRL PSD
  NC_GLOBAL#not_missing_threshold_percent=minimum 3% values input to have non-missing output value
  NC_GLOBAL#references=http://www.cpc.ncep.noaa.gov/soilmst/index.htm
  http://www.esrl.noaa.gov/psd/data/gridded/data.cpcsoil.html
  NC_GLOBAL#title=CPC Soil Moisture
Subdatasets:
  SUBDATASET_1_NAME=NETCDF:"soilw.mon.ltm.v2.nc":climatology_bounds
  SUBDATASET_1_DESC=[12x2] climatology_bounds (64-bit floating-point)
  SUBDATASET_2_NAME=NETCDF:"soilw.mon.ltm.v2.nc":soilw
  SUBDATASET_2_DESC=[12x360x720] lwe_thickness_of_soil_moisture_content (32-bit floating-point)
  SUBDATASET_3_NAME=NETCDF:"soilw.mon.ltm.v2.nc":valid_yr_count
  SUBDATASET_3_DESC=[12x360x720] valid_yr_count (16-bit integer)
Corner Coordinates:
Upper Left ( 0.0, 0.0)
Lower Left ( 0.0, 512.0)
Upper Right ( 512.0, 0.0)
Lower Right ( 512.0, 512.0)
Center ( 256.0, 256.0)
```

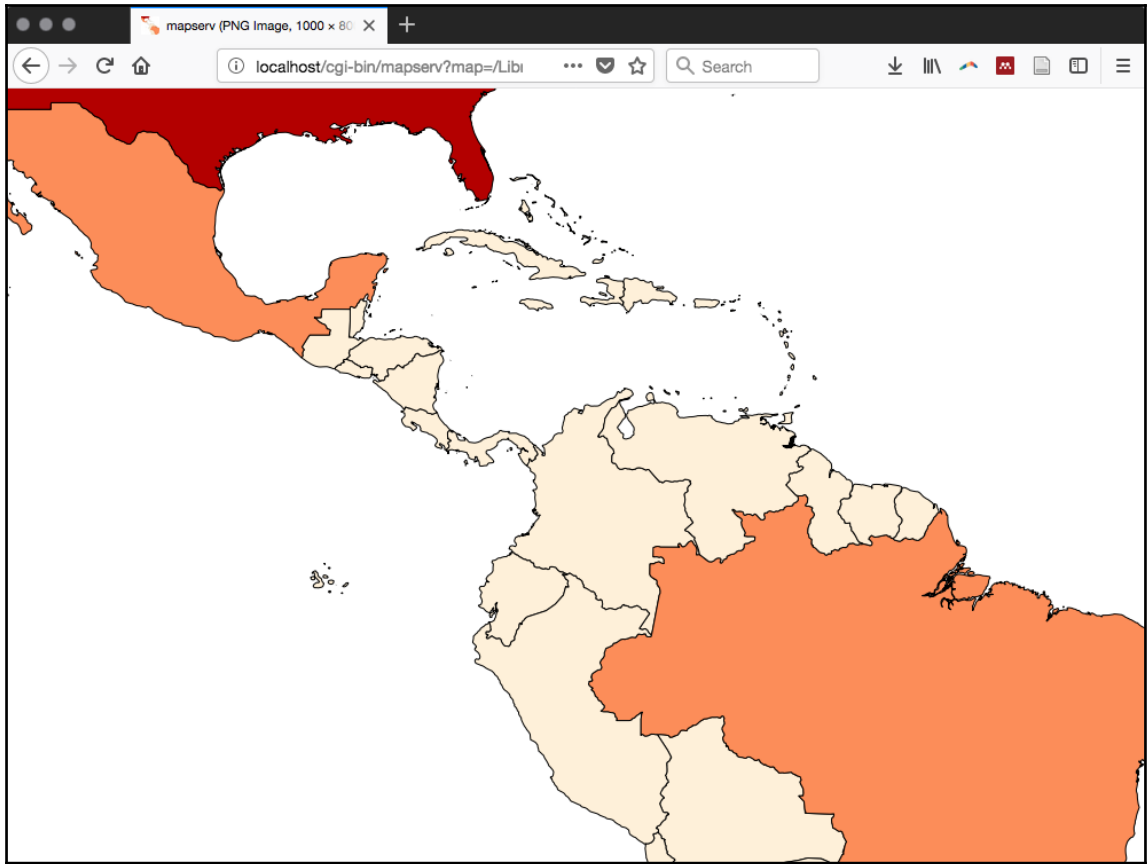
```
Chapter 8 — bash — 102x30
Driver: netCDF/Network Common Data Format
Files: none associated
Size is 512, 512
Coordinate System is ``
Metadata:
  NC_GLOBAL#Conventions=CF-1.0
  NC_GLOBAL#history=Created 2011/08/31 by doMonthLTM
  NC_GLOBAL#institution=NOAA/ESRL PSD
  NC_GLOBAL#not_missing_threshold_percent=minimum 3% values input to have non-missing output value
  NC_GLOBAL#references=http://www.cpc.ncep.noaa.gov/soilmst/index.htm
  http://www.esrl.noaa.gov/psd/data/gridded/data.cpcsoil.html
  NC_GLOBAL#title=CPC Soil Moisture
Subdatasets:
  SUBDATASET_1_NAME=NETCDF:"soilw.mon.ltm.v2.nc":climatology_bounds
  SUBDATASET_1_DESC=[12x2] climatology_bounds (64-bit floating-point)
  SUBDATASET_2_NAME=NETCDF:"soilw.mon.ltm.v2.nc":soilw
  SUBDATASET_2_DESC=[12x360x720] lwe_thickness_of_soil_moisture_content (32-bit floating-point)
  SUBDATASET_3_NAME=NETCDF:"soilw.mon.ltm.v2.nc":valid_yr_count
  SUBDATASET_3_DESC=[12x360x720] valid_yr_count (16-bit integer)
Corner Coordinates:
Upper Left ( 0.0, 0.0)
Lower Left ( 0.0, 512.0)
Upper Right ( 512.0, 0.0)
Lower Right ( 512.0, 512.0)
Center ( 256.0, 256.0)
Nina:Chapter 8 may$
Nina:Chapter 8 may$
Nina:Chapter 8 may$
Nina:Chapter 8 may$ gdalinfo NETCDF:"soilw.mon.ltm.v2.nc":soilw
Driver: netCDF/Network Common Data Format
```

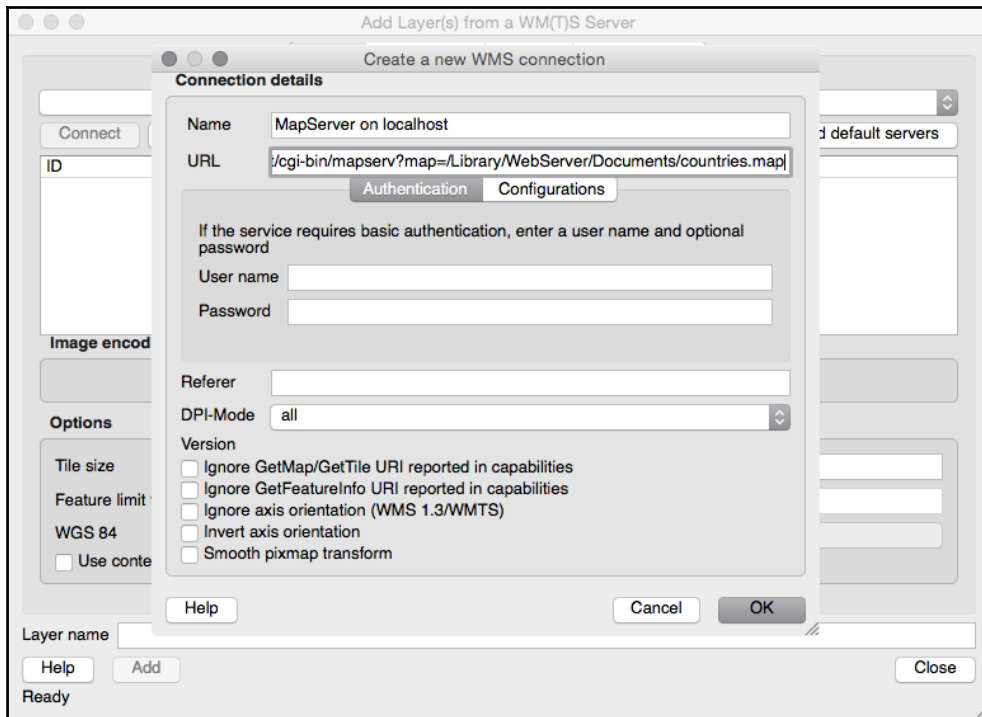
Chapter 9: PostGIS and the Web

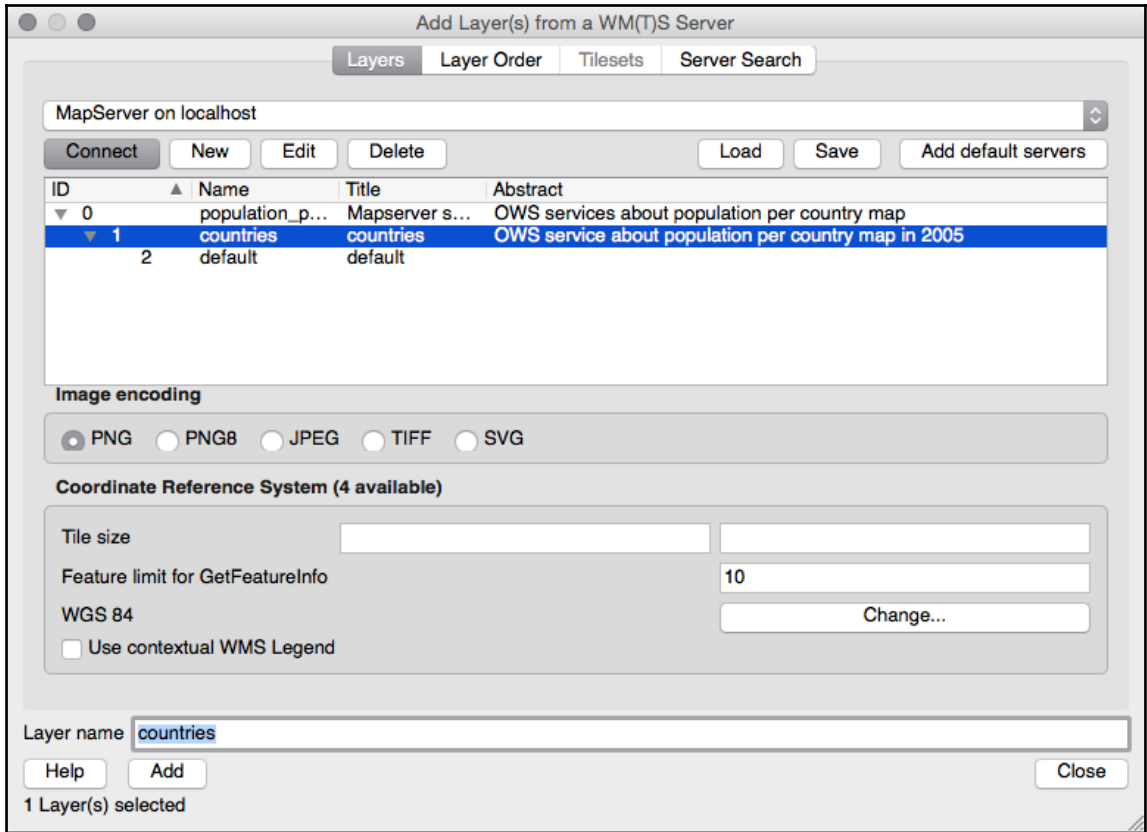
```
bash-3.2$ mapserv -v
MapServer version 7.0.7 OUTPUT=PNG OUTPUT=JPEG SUPPORTS=PROJ SUPPORTS=AGG SUPPORTS=
FREETYPE SUPPORTS=CAIRO SUPPORTS=ICONV SUPPORTS=WMS_SERVER SUPPORTS=WMS_CLIENT
SUPPORTS=WFS_SERVER SUPPORTS=WFS_CLIENT SUPPORTS=WCS_SERVER SUPPORTS=SOS_SERVER
SUPPORTS=GEOS INPUT=JPEG INPUT=POSTGIS INPUT=OGR INPUT=GDAL INPUT=SHAPEFILE
bash-3.2$
```

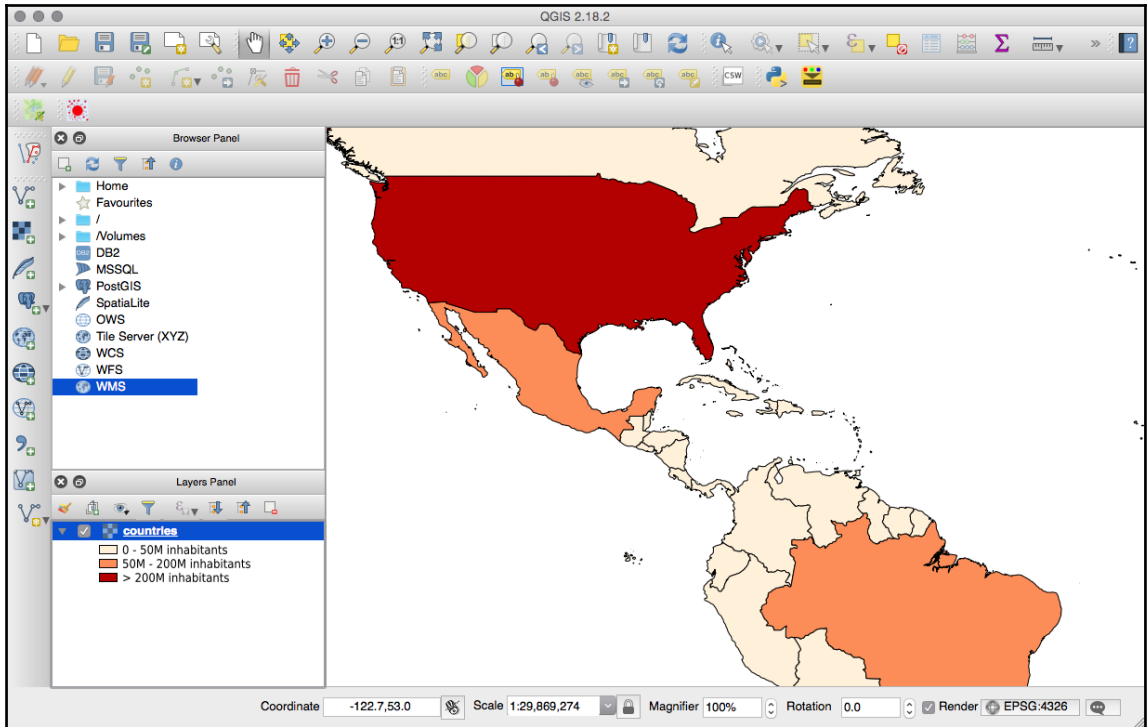


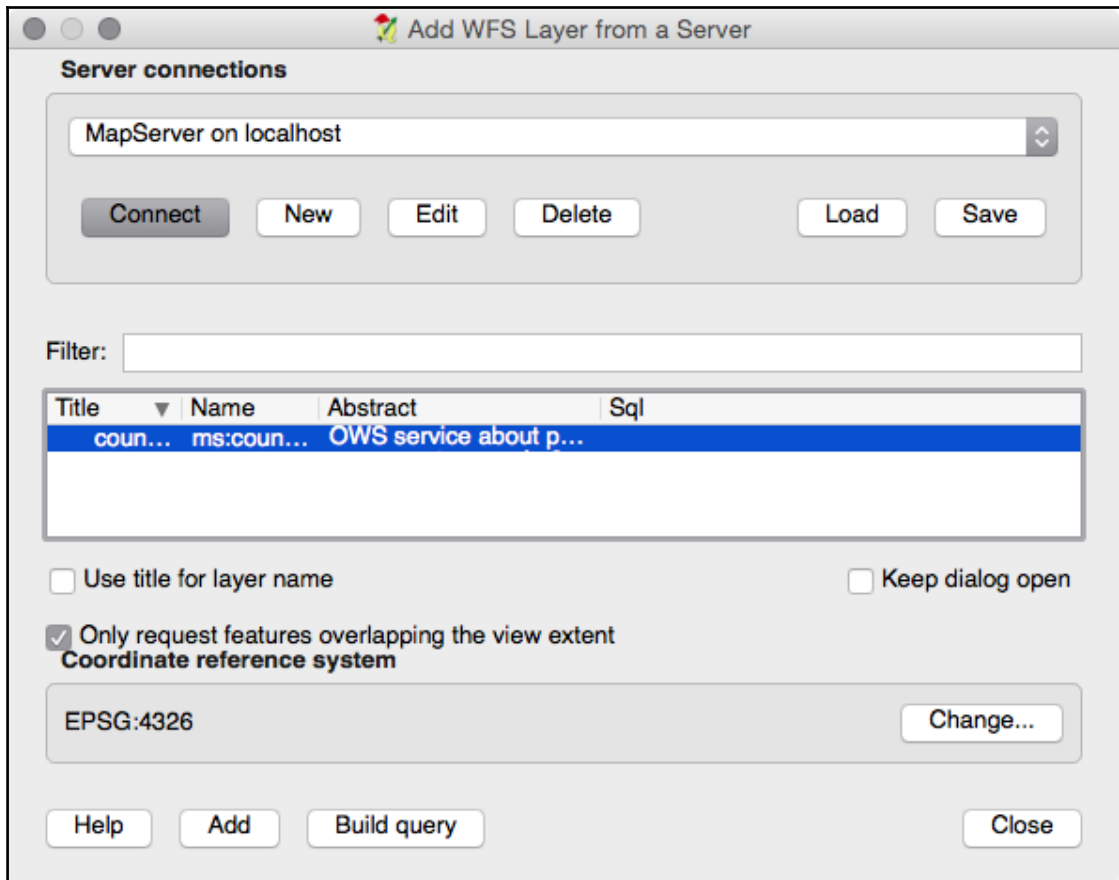


- **Name:** United States
- **ISO2:** US
- **ISO3:** USA
- **Population 2005:** 299846449









QGIS 2.18.2

ms:countries :: Features total: 246, filtered: 246, selected: 1

	gid	fips	iso2	iso3	un	name	area	pop2005	region	subregion	lon	lat
1	1	AC	AG	ATG	28	Antigua and ...	44	83039	19	29	-61.783	17.078
2	10	BA	BH	BHR	48	Bahrain	71	724788	142	145	50.562	26.019
3	100	LE	LB	LBN	422	Lebanon	1023	401074	142	145	35.888	33.92
4	101	LG	LV	LVA	428	Latvia	6205	2301793	150	154	25.641	56.858

GeoServer: Welcome

localhost:8080/geoserver/web/?jsessionId=nlmo1x14w7k

Username Remember me Login

Welcome

Welcome


This GeoServer belongs to [The ancient geographies INC.](#)

This GeoServer instance is running version **2.8.2**. For more information please contact the [administrator](#).

Service Capabilities

- WCS
 - 1.0.0
 - 1.1.0
 - 1.1.1
 - 1.1
 - 2.0.1
- WFS
 - 1.0.0
 - 1.1.0
 - 2.0.0
- WMS
 - 1.1.1
 - 1.3.0
- TMS
 - 1.0.0
- WMS-C
 - 1.1.1
- WMTS
 - 1.0.0





GeoServer

About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

Data

- Layer Preview
- Workspaces
- Stores
- Layers
- Layer Groups
- Styles

Services

- WCS
- WFS
- WMS

Settings

- Global
- JAI
- Coverage Access

Tile Caching

- Tile Layers
- Caching Defaults
- Gridsets
- Disk Quota

Security

- Settings
- Authentication

New Vector Data Source

Add a new vector data source

PostGIS
PostGIS Database

Basic Store Info

Workspace *
postgis_cookbook ▾

Data Source Name *
postgis_cookbook

Description

Enabled

Connection Parameters

host *
localhost

port *
5432

database
postgis_cookbook

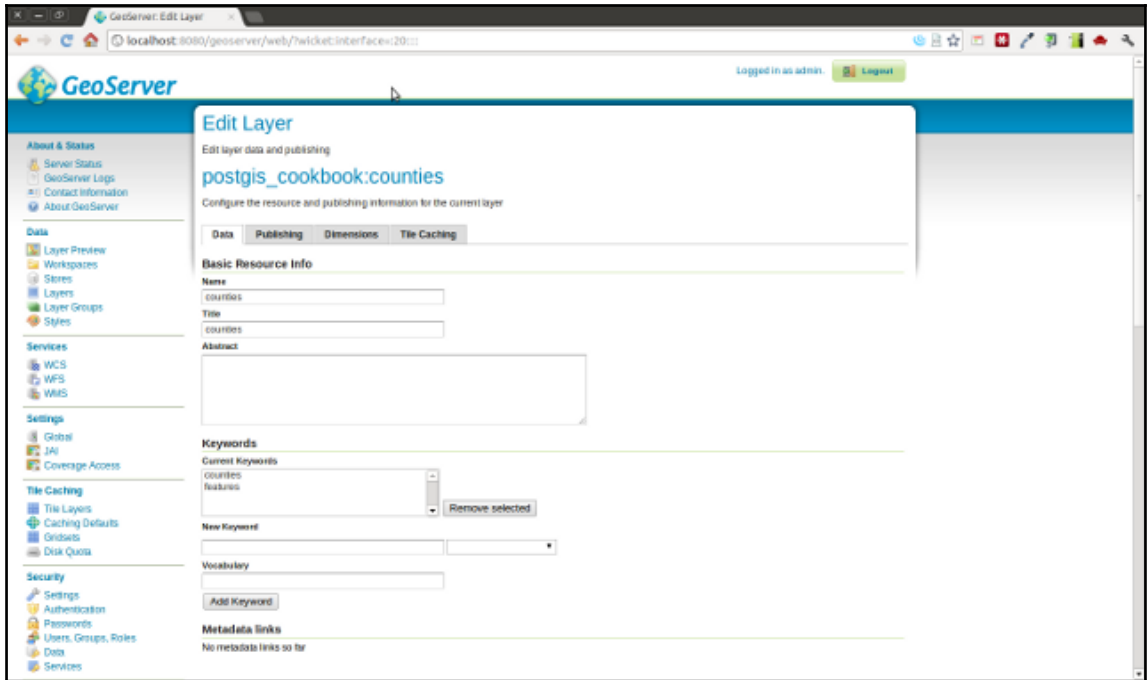
schema
public

user *
me

passwd

Namespace *
http://www.packtpub.com/postgis-cookbook/book

Expose primary keys



GeoServer: Layers GeoServer: New style OpenLayers: map preview

localhost:8080/geoserver/web/?ticket:book.markablePage=org.geoserver.wms.web.data.StyleNewPage

GeoServer Logged in as admin. [Logout](#)

No validation errors

New style

Type a new SLD definition, or use an existing one as a template, or upload a ready made style from your file system. The editor can provide syntax highlight and be brought to full screen. Click on the "validate" button to verify the style is a valid SLD document.

Name:

Workspace:

Copy from existing style:

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <sl:StyledLayerDescriptor xmlns="http://www.opengis.net/sld" xmlns:sld="http://www.opengis.net/sld" xmlns:ogc="http://www
3 <sl:NamedLayer>
4   <sl:Name>counties_classifications/sld/Name</sl:Name>
5   <sl:UserStyle>
6     <sl:Name>counties_classifications/sld/Name</sl:Name>
7     <sl:Title>County area classifications/sld/Title</sl:Title>
8     <sl:FeatureType>postgis
9     <sl:Name>name/sld/Name</sl:Name>
10    <sl:Rules>
11      <sl:Title>Large counties/sld/Title</sl:Title>
12      <ogc:Filter>
13        <ogc:PropertyIsGreaterThanEqual>
14          <ogc:PropertyName>SQMILE_M2</ogc:PropertyName>
15          <ogc:Literal>50000</ogc:Literal>
16        </ogc:PropertyIsGreaterThanEqual>
17      </ogc:Filter>
18      <sl:PolygonSymbolizer>
19        <sl:Fill>
20          <sl:CssParameter name="fill">#FF0000</sl:CssParameter>
21        </sl:Fill>
22        <sl:Stroke>
23          <sl:PolygonSymbolizer>
24        </sl:Stroke>
25      </sl:Rules>
26      <sl:Title>Small counties/sld/Title</sl:Title>
27      <ogc:Filter>
28        <ogc:PropertyIsLessThan>
29          <ogc:PropertyName>SQMILE_M2</ogc:PropertyName>
30          <ogc:Literal>10000</ogc:Literal>

```

WMS version: 1.1.1 Tiling: Single tile Antialias: Full Format: PNG 24bit

Styles: Counties classified per size Width/Height: Auto Auto

Filter: CQL

Scale = 1 : 9M

Filter URLs

Sta	Met	File	Dir	Headers	Cookies	Params	Response	Timings	Stack Trace
200	GET	ol.js	lo...						
200	GET	w...	lo...	Request URL: http://localhost:8080/geoserver/postgis_cookbook/wms?SERVICE=WMS&VERSION=1.1.1					
200	GET	w...	lo...	Request method: GET					
200	GET	w...	lo...	Remote address: [::1]:8080					
200	GET	w...	lo...	Status code: 200 OK	Edit and Resend	Raw headers			
200	GET	w...	lo...	Version: HTTP/1.1					

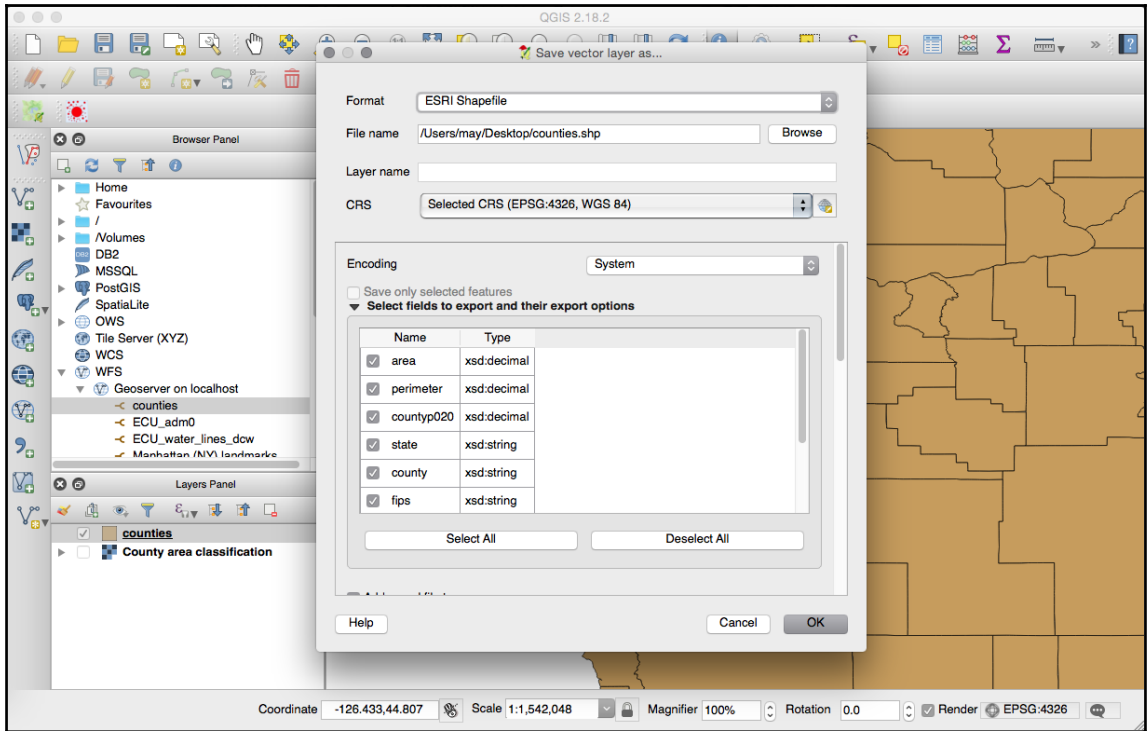
counties

fid	area	perimeter	countyp020	state	county	fips	state_fips	square_mil
counties.2958	0.456	4.010	2959	CA	Butte County	06007	06	1676.018

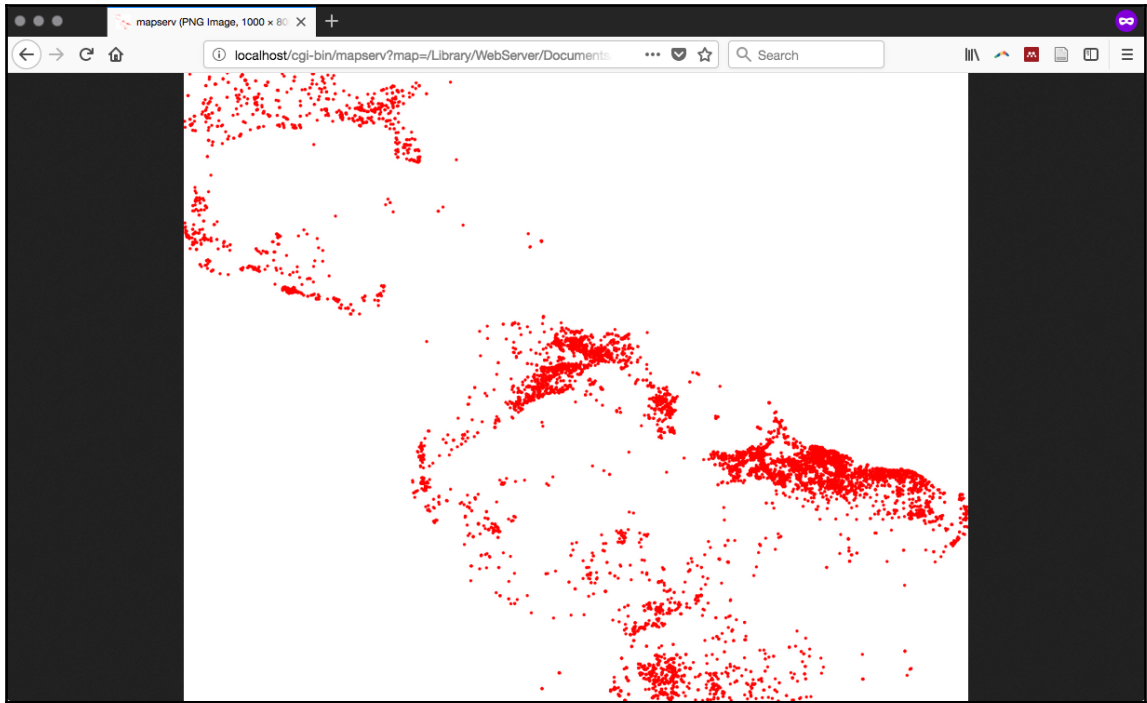
The screenshot shows a GIS application interface. On the left, the Browser Panel lists various layers, with 'counties' selected under 'Geoserver on localhost'. The Layers Panel shows 'County area classification' with a legend for 'Large counties' (red) and 'Small counties' (blue). The main map area displays a map of county boundaries, with some areas colored red and others blue. On the right, the Identify Results window shows the following table:

fid	area	perimeter	countyp020	state	county	fips	state_fips
counties.2245	1.747	6.300	2246	OR	Klamath County	41035	41

At the bottom of the application, the status bar shows the coordinate as -118.70, 47.19, a scale of 1:3,294,205, a magnifier of 100%, and a rotation of 0.0. The projection is set to EPSG:4326.



	acq_date date	hotspots_count bigint
1	2017-12-07	12009
2	2017-12-08	10433
3	2017-12-09	10100
4	2017-12-10	13918
5	2017-12-11	11226
6	2017-12-12	13131
7	2017-12-13	15986
8	2017-12-14	13465

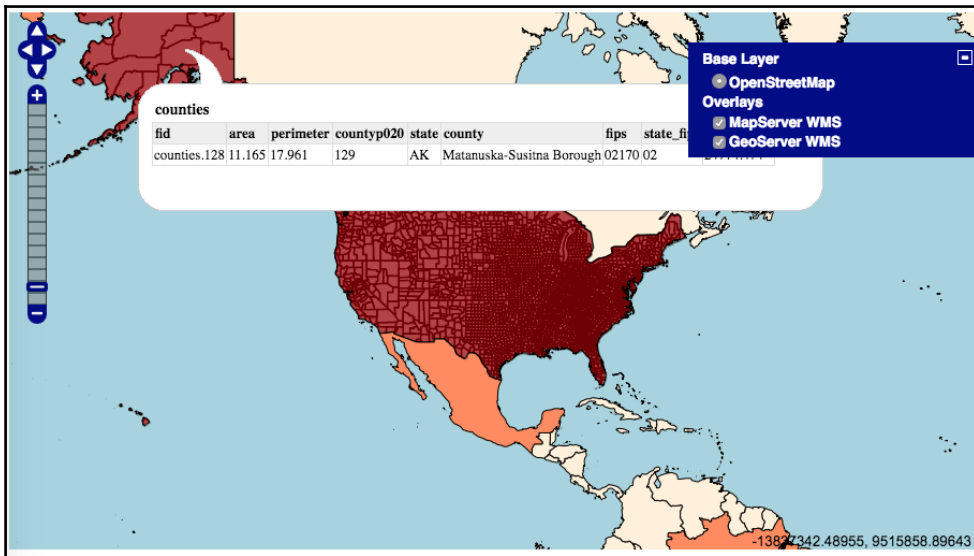


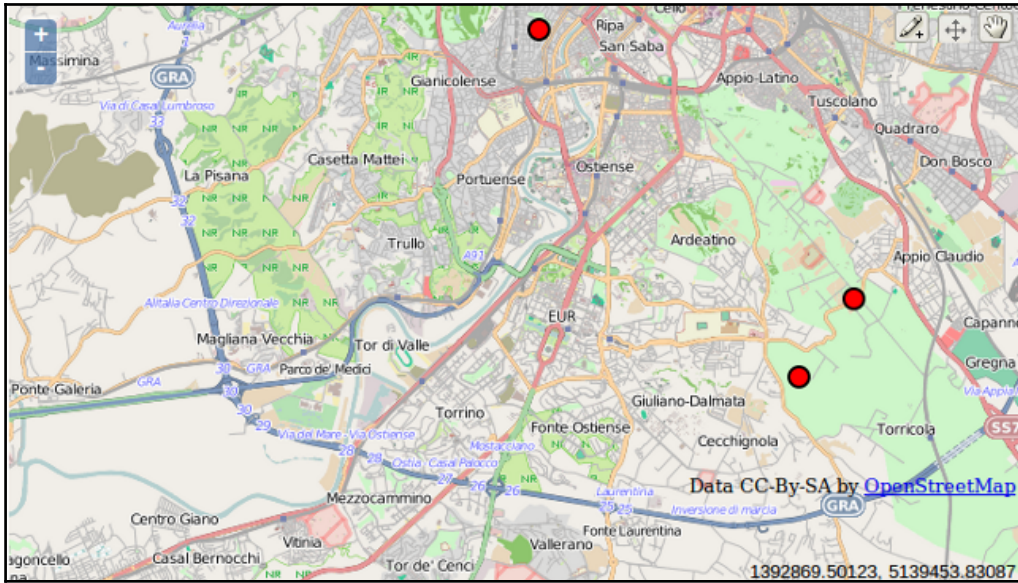
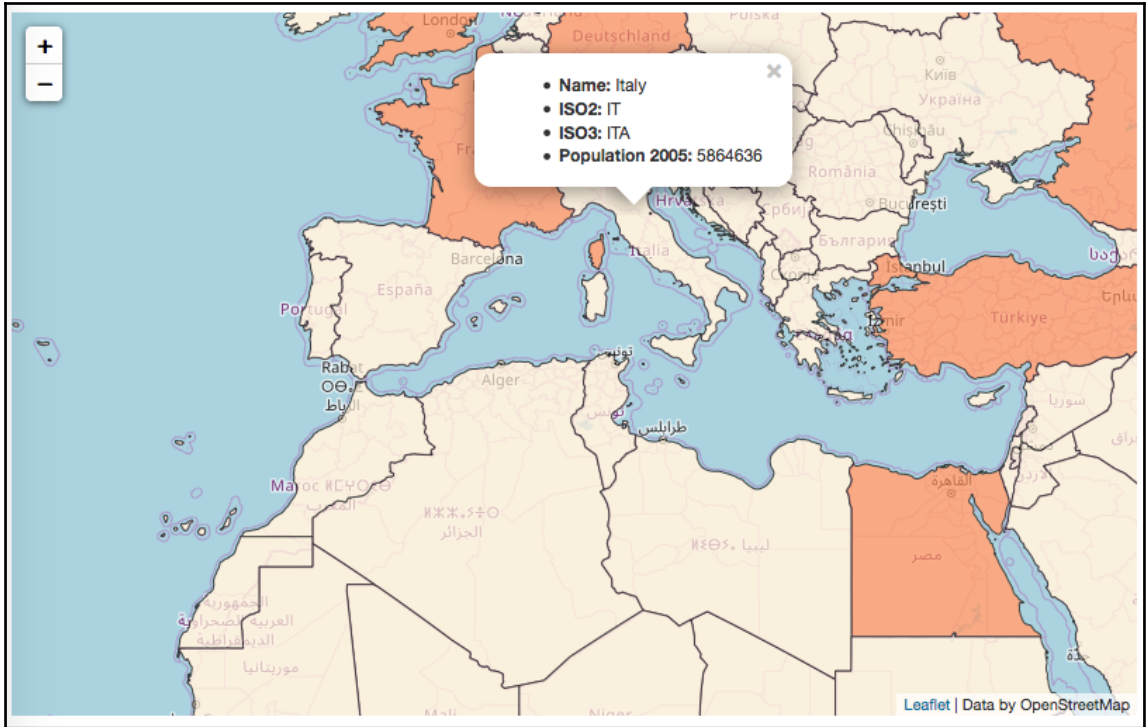
```

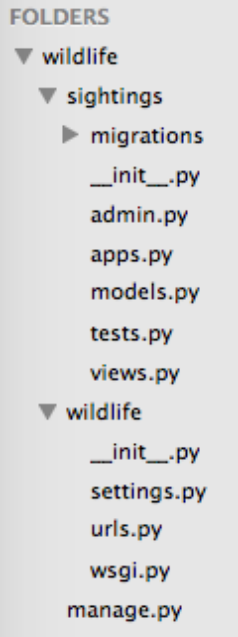
- <Layer>
  <Name>hotspots_time_series</Name>
  - <Title>
    World hotspots time series
  </Title>
  - <Abstract>
    Active fire data detected by NASA Earth Observing System Data and Information System (EOSDIS)
  </Abstract>
  <SRS>EPSG:4326 EPSG:3857</SRS>
  <LatLonBoundingBox minx="-180" miny="-90" maxx="180" maxy="90"/>
  <BoundingBox SRS="EPSG:4326" minx="-180" miny="-90" maxx="180" maxy="90"/>
  - <Layer queryable="1">
    <Name>hotspots</Name>
    <Title>World hotspots time series</Title>
    <LatLonBoundingBox minx="-175.394" miny="-49.247" maxx="174.895" maxy="67.807"/>
    <BoundingBox SRS="EPSG:4326" minx="-175.394" miny="-49.247" maxx="174.895" maxy="67.807"/>
    <Dimension name="time" units="ISO8601"/>
    <Extent name="time" default="2017-12-12" nearestValue="0">2000-01-01/2020-12-31</Extent>
  </Layer>
</Layer>

```









```
wildlife — bash — 90x20
(chp09-env) Nina:wildlife may$ python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, sessions, sightings
Running migrations:
  Rendering model states... DONE
  Applying contenttypes.0001_initial... OK
  Applying auth.0001_initial... OK
  Applying admin.0001_initial... OK
  Applying admin.0002_logentry_remove_auto_add... OK
  Applying contenttypes.0002_remove_content_type_name... OK
  Applying auth.0002_alter_permission_name_max_length... OK
  Applying auth.0003_alter_user_email_max_length... OK
  Applying auth.0004_alter_user_username_opts... OK
  Applying auth.0005_alter_user_last_login_null... OK
  Applying auth.0006_require_contenttypes_0002... OK
  Applying auth.0007_alter_validators_add_error_messages... OK
  Applying auth.0008_alter_user_username_max_length... OK
  Applying sessions.0001_initial... OK
  Applying sightings.0001_initial... OK
(chp09-env) Nina:wildlife may$
```

Select animal to change | Django site X +






localhost:8000/admin/sightir Search

Django administration WELCOME, ME. VIEW SITE / CHANGE PASSWORD / LOG OUT

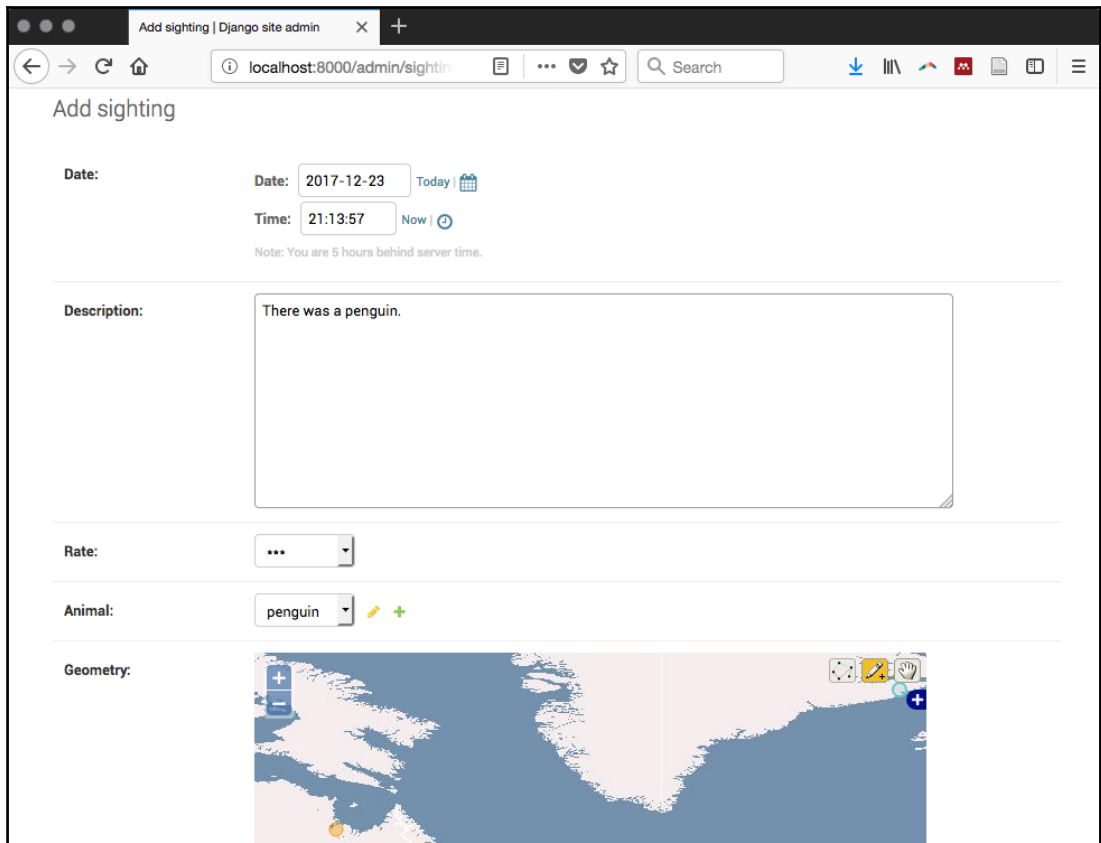
Home > Sightings > Animals

Select animal to change ADD ANIMAL +

Action: ----- Go 0 of 5 selected

<input type="checkbox"/>	NAME	IMAGE URL
<input type="checkbox"/>	cat	
<input type="checkbox"/>	horse	
<input type="checkbox"/>	penguin	
<input type="checkbox"/>	pig	
<input type="checkbox"/>	unicorn	

5 animals



Select sighting to change | Django site X +

localhost:8000/admin/sightin

Django administration WELCOME, ME. VIEW SITE / CHANGE PASSWORD / LOG OUT

Home > Sightings > Sightings

✓ The sighting "2017-11-13 21:17:06+00:00" was added successfully.

Select sighting to change ADD SIGHTING +

< All dates **November 2017** December 2017

Action: ----- Go 0 of 3 selected

<input type="checkbox"/>	DATE	ANIMAL	RATE
<input type="checkbox"/>	Nov. 13, 2017, 9:17 p.m.	cat	***
<input type="checkbox"/>	Dec. 12, 2017, 9:16 p.m.	horse	**
<input type="checkbox"/>	Dec. 23, 2017, 9:13 p.m.	penguin	***

3 sightings

localhost:8000/admin/sightings/sighting/?date__month=11&date__year=2017

FILTER

By date

- Any date
- Today
- Past 7 days
- This month
- This year

By animal

- All
- cat
- horse
- penguin
- pig
- unicorn

By rate

- All

```
Chapter 1 — bash — 80x29

bash-3.2$ ogrinfo TM_WORLD_BORDERS-0.3.shp TM_WORLD_BORDERS-0.3 -al -so
INFO: Open of `TM_WORLD_BORDERS-0.3.shp'
      using driver `ESRI Shapefile' successful.

Layer name: TM_WORLD_BORDERS-0.3
Metadata:
  DBF_DATE_LAST_UPDATE=2008-07-30
Geometry: Polygon
Feature Count: 246
Extent: (-180.000000, -90.000000) - (180.000000, 83.623596)
Layer SRS WKT:
GEOGCS["GCS_WGS_1984",
  DATUM["WGS_1984",
    SPHEROID["WGS_84",6378137.0,298.257223563]],
  PRIMEM["Greenwich",0.0],
  UNIT["Degree",0.0174532925199433]]
FIPS: String (2.0)
ISO2: String (2.0)
ISO3: String (3.0)
UN: Integer (3.0)
NAME: String (50.0)
AREA: Integer (7.0)
POP2005: Integer64 (10.0)
REGION: Integer (3.0)
SUBREGION: Integer (3.0)
LON: Real (8.3)
LAT: Real (7.3)
bash-3.2$ █
```

Change country | Django site admin

localhost:8000/admin/sightings/country/31/change/

Django administration

WELCOME, ME. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home › Sightings › Countrys › Afghanistan

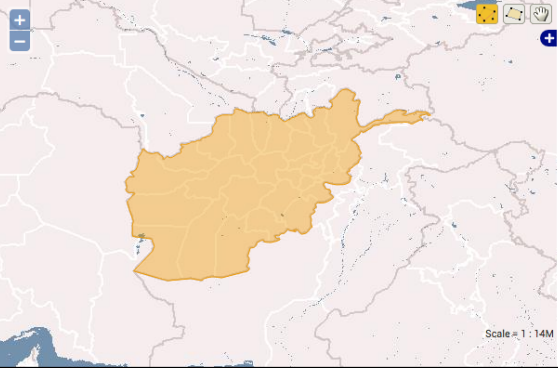
Change country

HISTORY

Isocode:

Name:

Geometry:



Scale = 1 : 14M

The image shows a web browser window displaying a Django administration page for changing a country. The browser's address bar shows the URL 'localhost:8000/admin/sightings/country/31/change/'. The page title is 'Django administration' and it includes a user greeting 'WELCOME, ME.' with links for 'VIEW SITE', 'CHANGE PASSWORD', and 'LOG OUT'. A breadcrumb trail indicates the current location: 'Home › Sightings › Countrys › Afghanistan'. The main heading is 'Change country', with a 'HISTORY' button to its right. Below this, there are three form fields: 'Isocode' with the value 'AF', 'Name' with the value 'Afghanistan', and 'Geometry'. The 'Geometry' field contains a map of the world with Afghanistan highlighted in orange. The map includes navigation controls (plus, minus, home, and a blue plus icon) and a scale of 'Scale = 1 : 14M'.

Wildlife's Sightings

localhost:8000

Wildlife's Sightings

There are 3 sightings in the database.

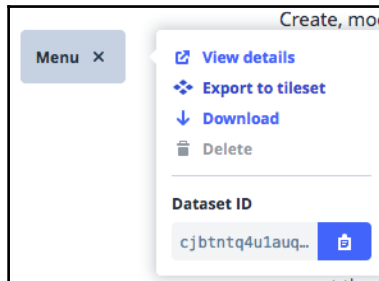
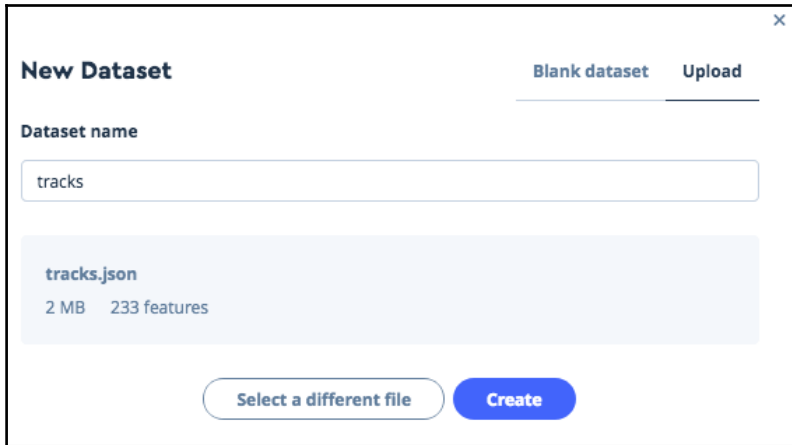
cat
Description: Cats!
Rate: 3
Date: 11/13/2017
Country: Italy

- **cat**, seen in Italy on Nov. 13, 2017, 9:17 p.m. and rated 3
- **horse**, seen in Colombia on Dec. 12, 2017, 9:16 p.m. and rated 2
- **penguin**, seen in Canada on Dec. 23, 2017, 9:13 p.m. and rated 3

```

tracks.json
1  {
2  "type": "FeatureCollection",
3  "crs": { "type": "name", "properties": { "name": "urn:ogc:def:crs:OGC:1.3:CRS84" } },
4  "features": [
5  { "type": "Feature", "properties": { "run_date": "2012\08\01", "start_time": "2012\08\01 09:30:00-05", "end_t
6  { "type": "Feature", "properties": { "run_date": "2010\06\16", "start_time": "2010\06\16 09:08:13-05", "end_t
7  { "type": "Feature", "properties": { "run_date": "2010\07\01", "start_time": "2010\07\01 09:46:35-05", "end_t
8  { "type": "Feature", "properties": { "run_date": "2011\03\17", "start_time": "2011\03\17 09:32:57-05", "end_t
9  { "type": "Feature", "properties": { "run_date": "2011\07\02", "start_time": "2011\07\02 21:30:11-05", "end_t
10 { "type": "Feature", "properties": { "run_date": "2012\08\26", "start_time": "2012\08\26 09:16:20-05", "end_t

```



New Style

✕

Pick a template
Upload a style

Style name

Outdoors

BASIC

Simple and flexible starting template.

- ❖ Streets

BRIGHT

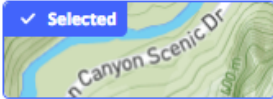
Template for complex custom basemaps.

- ❖ Streets

STREETS

A complete basemap, perfect for incorporating your own data.


- ❖ Streets, Terrain

✓ Selected


Outdoors

General basemap tailored to hiking, biking, and sport.


- ❖ Streets, Terrain



Dark

Subtle dark backdrop for data visualizations.


- ❖ Streets, Terrain




Light

Subtle light backdrop for data visualizations.


- ❖ Streets, Terrain



Satellite

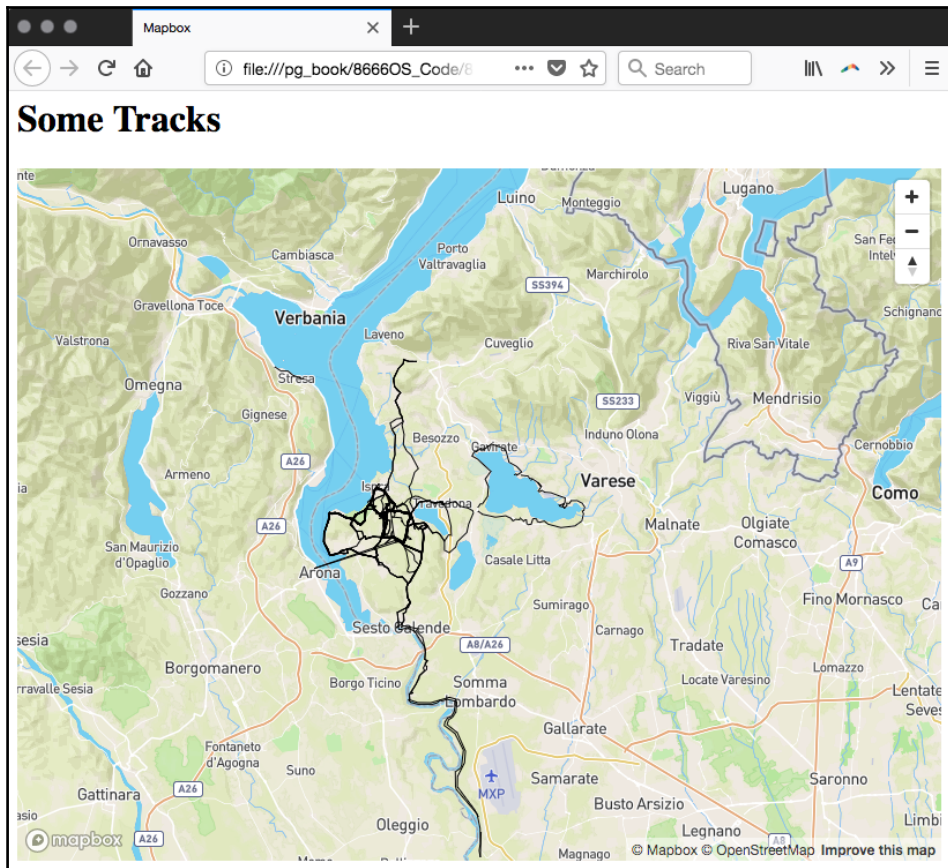


Satellite Streets



Navigation Preview Day

Create



Chapter 10: Maintenance, Optimization, and Performance Tuning

```
chapter10=# create extension postgis with schema postgis;
CREATE EXTENSION
chapter10=# SET search_path = public, postgis;
SET
chapter10=# \dn
      List of schemas
  Name  | Owner
  -----+-----
  postgis | postgres
  public  | postgres
(2 rows)
```

```
chapter10=# \d
      List of relations
 Schema | Name              | Type  | Owner
  -----+-----+-----+-----
  postgis | geography_columns | view  | postgres
  postgis | geometry_columns  | view  | postgres
  postgis | raster_columns    | view  | postgres
  postgis | raster_overviews  | view  | postgres
  postgis | spatial_ref_sys   | table | postgres
(5 rows)
```

```
chapter10=# \l
      List of databases
 Name      | Owner  | Encoding | Collation | Ctype  | Access privileges
  -----+-----+-----+-----+-----+-----
  chapter10 | postgres | UTF8     | en_US.UTF8 | en_US.UTF8 | =Tc/postgres +
  |          |          |          |          |          | postgres=CTc/postgres+
  |          |          |          |          |          | group1=Tc/postgres +
  |          |          |          |          |          | group2=CTc/postgres
  postgres  | postgres | UTF8     | en_US.UTF8 | en_US.UTF8 | =c/postgres +
  template0  | postgres | UTF8     | en_US.UTF8 | en_US.UTF8 | =c/postgres +
  |          |          |          |          |          | postgres=CTc/postgres
  template1  | postgres | UTF8     | en_US.UTF8 | en_US.UTF8 | =c/postgres +
  |          |          |          |          |          | postgres=CTc/postgres
```

```
chapter10=# \dn+
```

List of schemas			
Name	Owner	Access privileges	Description
postgis	postgres		standard public schema
public	postgres	postgres=UC/postgres+ =UC/postgres	

```
chapter10=# \dn+
```

List of schemas			
Name	Owner	Access privileges	Description
postgis	postgres	postgres=UC/postgres+ group1=U/postgres + group2=U/postgres	standard public schema
public	postgres	postgres=UC/postgres+ =UC/postgres	

(2 rows)

```
chapter10=> SELECT count(*) FROM postgis.spatial_ref_sys;
count
-----
  5435
(1 row)
```

```
--
-- PostgreSQL database dump
--

-- Dumped from database version 9.6.3
-- Dumped by pg_dump version 9.6.3

SET statement_timeout = 0;
SET lock_timeout = 0;
SET idle_in_transaction_session_timeout = 0;
SET client_encoding = 'UTF8';
SET standard_conforming_strings = on;
SET check_function_bodies = false;
SET client_min_messages = warning;
SET row_security = off;

--
-- Name: postgis; Type: SCHEMA; Schema: -; Owner: postgres
--

CREATE SCHEMA postgis;

ALTER SCHEMA postgis OWNER TO postgres;

--
-- Name: plpgsql; Type: EXTENSION; Schema: -; Owner:
--

CREATE EXTENSION IF NOT EXISTS plpgsql WITH SCHEMA pg_catalog;
```

```

CREATE INDEX caschools_geom_idx ON caschools USING gist (geom);

--
-- Name: prism_st_convexhull_idx; Type: INDEX; Schema: postgis;
Owner: postgres
--

CREATE INDEX prism_st_convexhull_idx ON prism USING gist
(st_convexhull(rast));

--
-- Name: sfpoly_geom_idx; Type: INDEX; Schema: postgis; Owner:
postgres
--

CREATE INDEX sfpoly_geom_idx ON sfpoly USING gist (geom);

--
-- Name: postgis; Type: ACL; Schema: -; Owner: postgres
--

GRANT USAGE ON SCHEMA postgis TO group2;
GRANT USAGE ON SCHEMA postgis TO group1;

```

QUERY PLAN

```

-----
Nested Loop (cost=0.00..4160.93 rows=4 width=9) (actual time=19.192..152.344 rows=234 loops=1)
  Join Filter: ((sf.geom && st_transform(sc.geom, 3310)) AND _st_intersects(sf.geom, st_transform(sc.geom, 3310)))
  Rows Removed by Join Filter: 13254
  -> Seq Scan on sfpoly sf (cost=0.00..1.01 rows=1 width=603872) (actual time=0.016..0.017 rows=1 loops=1)
  -> Seq Scan on caschools sc (cost=0.00..551.88 rows=13488 width=41) (actual time=0.006..1.654 rows=13488 loops=1)
Planning time: 0.126 ms
Execution time: 153.760 ms
(7 rows)

```

Time: 154,478 ms

QUERY PLAN

```

-----
Nested Loop (cost=0.00..4160.93 rows=4 width=9) (actual time=16.714..103.861 rows=234 loops=1)
  Join Filter: ((sf.geom && st_transform(sc.geom, 3310)) AND _st_intersects(sf.geom, st_transform(sc.geom, 3310)))
  Rows Removed by Join Filter: 13254
  -> Seq Scan on sfpoly sf (cost=0.00..1.01 rows=1 width=603872) (actual time=0.018..0.018 rows=1 loops=1)
  -> Seq Scan on caschools sc (cost=0.00..551.88 rows=13488 width=41) (actual time=0.007..1.352 rows=13488 loops=1)
Planning time: 0.154 ms
Execution time: 105.124 ms
(7 rows)

```

Time: 105,920 ms

QUERY PLAN

```

Nested Loop (cost=0.28..9.56 rows=4 width=9) (actual time=14.589..60.156 rows=234 loops=1)
-> Seq Scan on sfpoly sf (cost=0.00..1.01 rows=1 width=603872) (actual time=0.011..0.012 rows=1 loops=1)
-> Index Scan using caschools_geom_3310_idx on caschools sc (cost=0.28..8.54 rows=1 width=41) (actual time=14.188..59.715 rows=234 loops=1)
    Index Cond: (sf.geom && st_transform(geom, 3310))
    Filter: _st_intersects(sf.geom, st_transform(geom, 3310))
    Rows Removed by Filter: 34
Planning time: 0.163 ms
Execution time: 61.467 ms
(8 rows)

```

Time: 62,336 ms

school	police_address	distance
A. P. GIANNINI MIDDLE	1899 Waller St	1629.19944804967
ABRAHAM LINCOLN HIGH	461 6th Ave	348.311916238521
ADDA CLEVANGER JUNIOR PREPARAT	2345 24th Ave	1851.38147290568
AIM HIGH ACADEMY	850 Bryant St # 150	976.082872160513
ALAMO ELEMENTARY	201 Williams Ave	1652.607173246
ALICE FONG YU ELEMENTARY	1899 Waller St	1588.75288812506
ALVARADO ELEMENTARY	850 Bryant St # 475	1030.80925231483

YICK WO ELEMENTARY	301 Eddy St	718.415440909486
YOUTH CHANCE HIGH SCHOOL	301 Eddy St	302.654766715081
ZION LUTHERAN CHURCH SCHOOL	461 6th Ave	299.087501462243

(234 rows)

Time: 5076,363 ms

QUERY PLAN

```

-----
Unique (cost=311.56..311.57 rows=1 width=146) (actual time=1224.805..1226.031 rows=234 loops=1)
Output: scpo.school, (first_value(scpo.police_address) OVER (?)), (first_value(scpo.distance) OVER (?)), scpo.distance
CTE scpo
-> Sort (cost=311.49..311.49 rows=1 width=48) (actual time=1213.926..1214.563 rows=7956 loops=1)
Output: ca.name, ca_1.address, (st_distance(st_transform(ca_1.geom, 3310), st_transform(ca.geom, 3310)))
Sort Key: ca.name, (st_distance(st_transform(ca_1.geom, 3310), st_transform(ca.geom, 3310))), ca_1.address
Sort Method: quicksort Memory: 1112kB
-> Nested Loop (cost=0.15..311.48 rows=1 width=48) (actual time=15.047..1186.907 rows=7956 loops=1)
Output: ca.name, ca_1.address, st_distance(st_transform(ca_1.geom, 3310), st_transform(ca.geom, 3310))
-> Nested Loop (cost=0.00..302.98 rows=1 width=603921) (actual time=12.950..21.670 rows=34 loops=1)
Output: ca_1.address, ca_1.geom, sf.geom
-> Nested Loop (cost=0.00..301.96 rows=1 width=49) (actual time=12.922..21.117 rows=34 loops=1)
Output: ca_1.address, ca_1.geom
Join Filter: ((sf_1.geom && st_transform(ca_1.geom, 3310)) AND _st_intersects(sf_1.geom, st_transform(ca_1.geom, 3310)))
Rows Removed by Join Filter: 946
-> Seq Scan on public.sfpoly sf_1 (cost=0.00..1.01 rows=1 width=603872) (actual time=0.013..0.013 rows=1 loops=1)
Output: sf_1.gid, sf_1.objectid, sf_1.sde_sfgis_, sf_1.perimeter, sf_1.innerwater, sf_1.shape_are, sf_1.shape_len
, sf_1.geom
-> Seq Scan on public.capolice ca_1 (cost=0.00..38.80 rows=980 width=49) (actual time=0.004..0.118 rows=980 loops=1)
Output: ca_1.gid, ca_1.objectid, ca_1.policestat, ca_1.efclass, ca_1.tract, ca_1.name, ca_1.address, ca_1.city, ca_
1.zipcode, ca_1.statea, ca_1.contact, ca_1.phonnumbe, ca_1.yearbuilt, ca_1.numstories, ca_1.cost, ca_1.backuppowe, ca_1.area, ca_1.sheltercap, ca_1.k
itchen, ca_1.latitude, ca_1.longitude, ca_1.comment, ca_1.geom
-> Seq Scan on public.sfpoly sf (cost=0.00..1.01 rows=1 width=603872) (actual time=0.002..0.003 rows=1 loops=34)
Output: sf.gid, sf.objectid, sf.sde_sfgis_, sf.perimeter, sf.innerwater, sf.shape_are, sf.shape_len, sf.geom
-> Index Scan using caschools_geom_3310_idx on public.caschools ca (cost=0.15..8.42 rows=1 width=55) (actual time=0.326..0.334 row
s=234 loops=34)
Output: ca.gid, ca.objectid, ca.schoolid, ca.efclass, ca.tract, ca.name, ca.address, ca.city, ca.zipcode, ca.statea, ca.contact
, ca.phonnumbe, ca.yearbuilt, ca.numstories, ca.cost, ca.numstudent, ca.backuppowe, ca.sheltercap, ca.area, ca.district, ca.kitchen, ca.latitude, ca.
longitude, ca.comment, ca.geom
Index Cond: (sf.geom && st_transform(ca.geom, 3310))
Filter: _st_intersects(sf.geom, st_transform(ca.geom, 3310))
Rows Removed by Filter: 34
-> Sort (cost=0.07..0.07 rows=1 width=146) (actual time=1224.804..1225.153 rows=7956 loops=1)

```

RoMh | explain.depesz.com - Mozilla Firefox

explain.depesz.com/s/RoMh

RoMh | explain.depesz.com

explain.depesz.com

A tool for finding a real cause for slow queries.

new explain history help about contact login

Result: RoMh options

#	exclusive	inclusive	rows x	rows	loops	node
1.	3.553	4230.587	↓ 234.0	234	1	→ Unique (cost=19.43..19.45 rows=1 width=204) (actual time=4224.661..4230.587 rows=234 loops=1) Output: scpo.school, (first_value(scpo.police_address) OVER (?)), (first_value(scpo.distance) OVER (?)), scpo.distance
2.						CTE scpo
3.	128.068	3986.504	↓ 7956.0	7956	1	→ Sort (cost=19.36..19.37 rows=1 width=104) (actual time=3977.815..3986.504 rows=7956 loops=1) Output: ca.name, ca.address, (st_distance(st_transform(ca.geom, 3310), st_transform(ca.geom, 3310))) Sort Key: ca.name, (st_distance(st_transform(ca.geom, 3310), st_transform(ca.geom, 3310))), ca.address Sort Method: external merge Disk: 496kB
4.	135.534	3858.436	↓ 7956.0	7956	1	→ Nested Loop (cost=0.01..19.35 rows=1 width=104) (actual time=174.856..3858.436 rows=7956 loops=1) Output: ca.name, ca.address, st_distance(st_transform(ca.geom, 3310), st_transform(ca.geom, 3310))
5.	0.413	108.940	↓ 34.0	34	1	→ Nested Loop (cost=0.00..10.56 rows=1 width=81) (actual time=90.613..108.940 rows=34 loops=1) Output: ca.address, ca.geom, sf.geom
6.	2.338	108.221	↓ 34.0	34	1	→ Nested Loop (cost=0.00..9.54 rows=1 width=49) (actual time=90.576..108.221 rows=34 loops=1) Output: ca.address, ca.geom
7.	0.082	0.082	↑ 1.0	1	1	→ Seq Scan on public.sfpolys sf (cost=0.00..1.01 rows=1 width=32) (actual time=0.081..0.082 rows=1 loops=1) Output: sf.gid, sf.objectid, sf.sde_sfgis_ sf.perimeter, sf.innerwater, sf.shape__are, sf.shape__len, sf.geom
8.	105.801	105.801	↓ 34.0	34	1	→ Index Scan using capolice_st_transform_idx on public.capolice ca (cost=0.00..8.52 rows=1 width=49) (actual time=88.214..105.801 rows=34 loops=1) Output: ca.gid, ca.objectid, ca.policestat,

```

# TYPE  DATABASE          USER          ADDRESS          METHOD
# IPv4 local connections:
host    all                  all           127.0.0.1/32    trust
# IPv6 local connections:
host    all                  all           ::1/128         trust
# Allow replication connections from localhost, by a user with the
# replication privilege.
host    replication         postgres      127.0.0.1/32    trust
host    replication         postgres      ::1/128         trust

```

List of databases					
Name	Owner	Encoding	Collate	Ctype	Access privileges
postgres	postgres	UTF8	en_US.utf8	en_US.utf8	
template0	postgres	UTF8	en_US.utf8	en_US.utf8	=c/postgres +
template1	postgres	UTF8	en_US.utf8	en_US.utf8	=c/postgres +
test	postgres	UTF8	en_US.utf8	en_US.utf8	postgres=Ctc/postgres

```

test=# \d
      List of relations
 Schema | Name | Type | Owner
-----+-----+-----+-----
 public | test | table | postgres

```

```

test=# SELECT * FROM test;
 id | value
----+-----
  1 | one

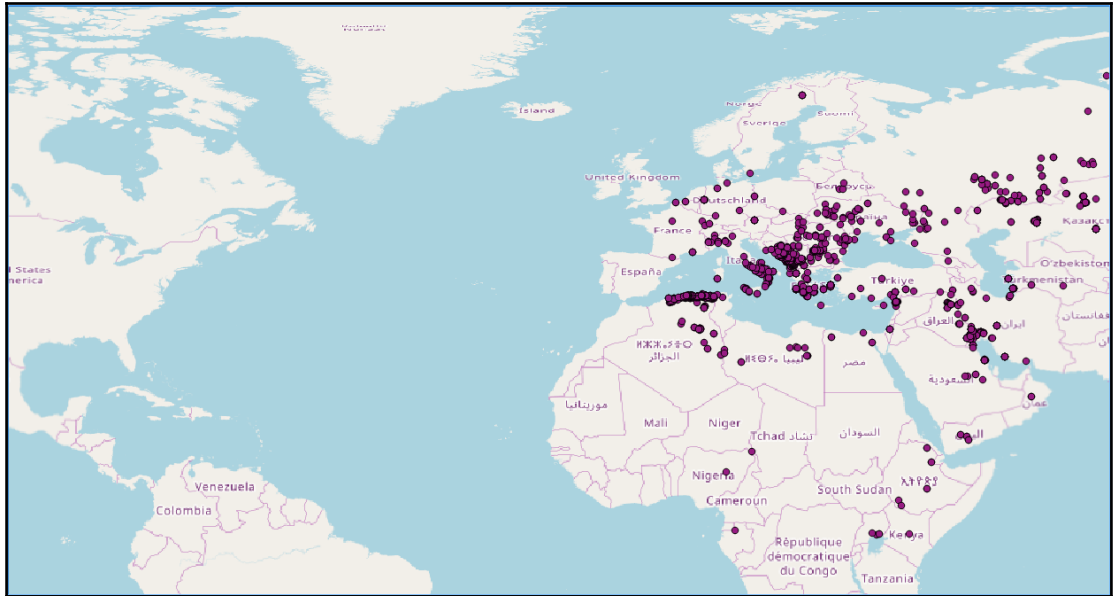
```

st_astext	
text	
1	POINT(-10 10)
2	POINT(10 10)
3	POINT(-10 -10)

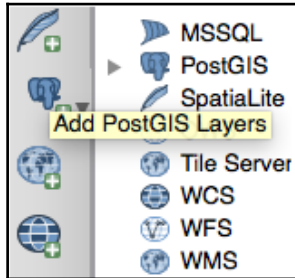
st_astext	
text	
1	POINT(10 10)

	st_astext
	text
1	POINT(-10 10)
2	POINT(-6.399 40.374)
3	POINT(-6.183 42.27)
4	POINT(-6.164 42.266)
5	POINT(-6.168 42.255)
6	POINT(-76.669 -0.189)
7	POINT(-78.113 -0.04)
8	POINT(-77.32 1.373)
9	POINT(-79.807 43.265)
10	POINT(-107.724 56.322)

	st_astext
	text
1	POINT(10 10)
2	POINT(140.543 52.902)
3	POINT(140.48 52.885)
4	POINT(140.545 52.885)
5	POINT(140.537 52.9)
6	POINT(140.476 52.883)
7	POINT(140.541 52.883)
8	POINT(140.572 40.274)
9	POINT(139.843 38.725)
10	POINT(139.837 38.719)



Chapter 11: Using Desktop Clients



Create a New PostGIS connection

Connection Information

Name: localhost

Service:

Host: localhost

Port: 5432

Database: postgis_cookbook

SSL mode: disable

Authentication Configurations

Username: postgres Save

Password: Save

Test Connection

Only show layers in the layer registries

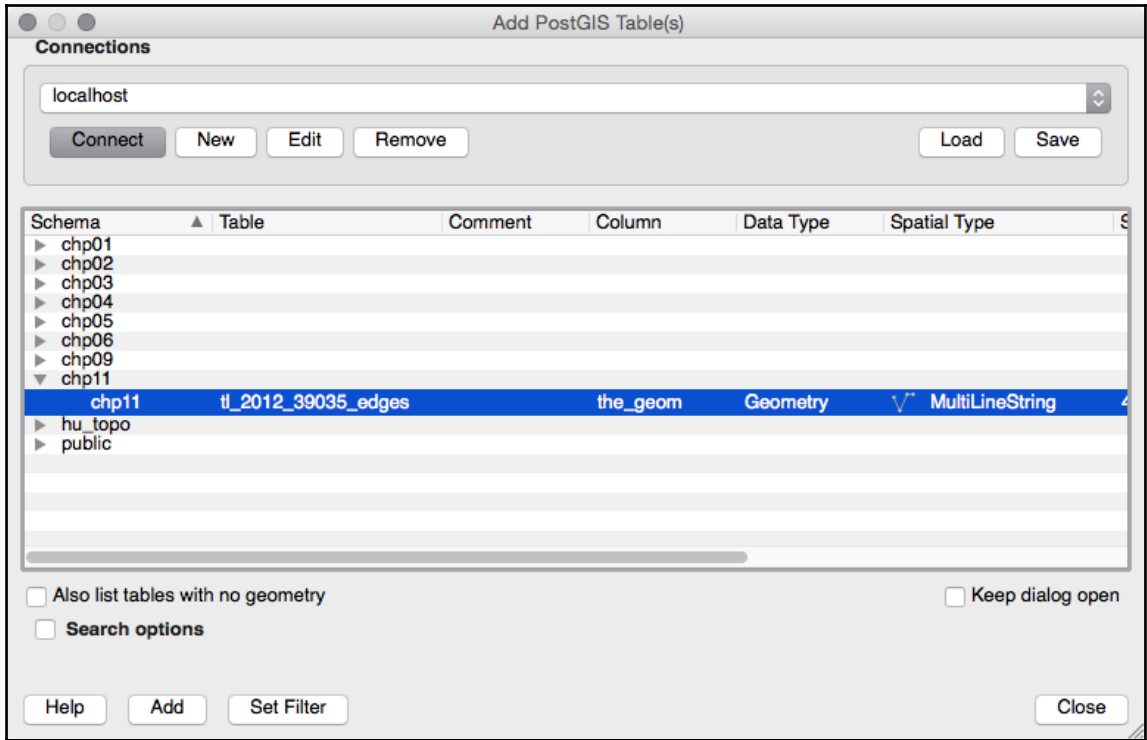
Don't resolve type of unrestricted columns (GEOMETRY)

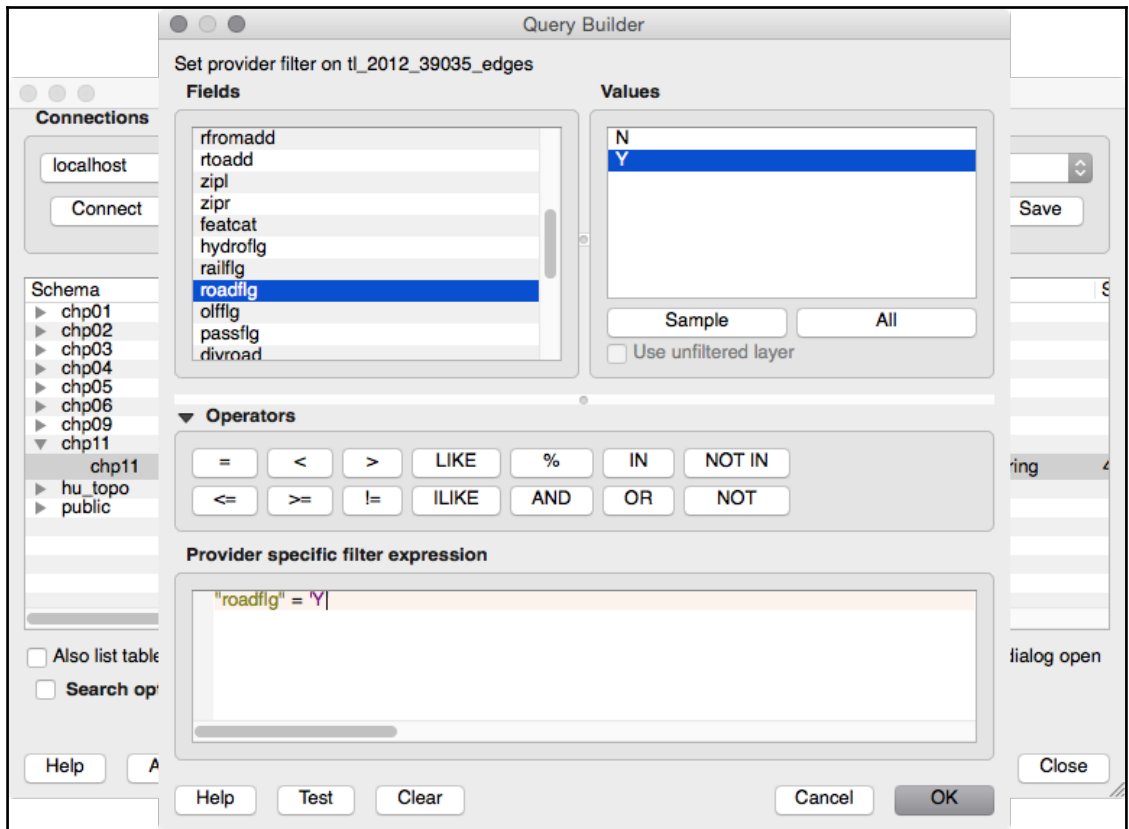
Only look in the 'public' schema

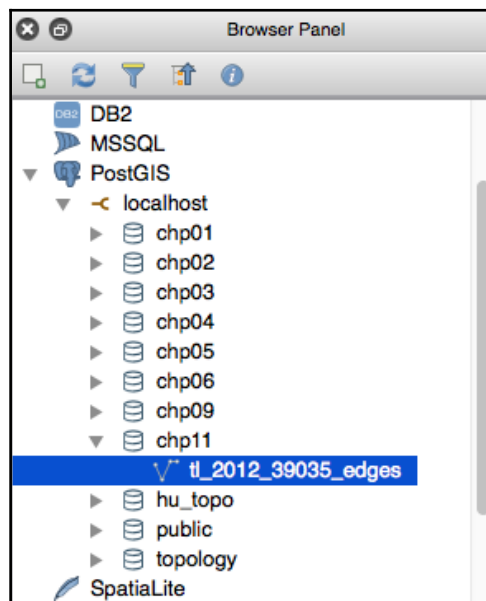
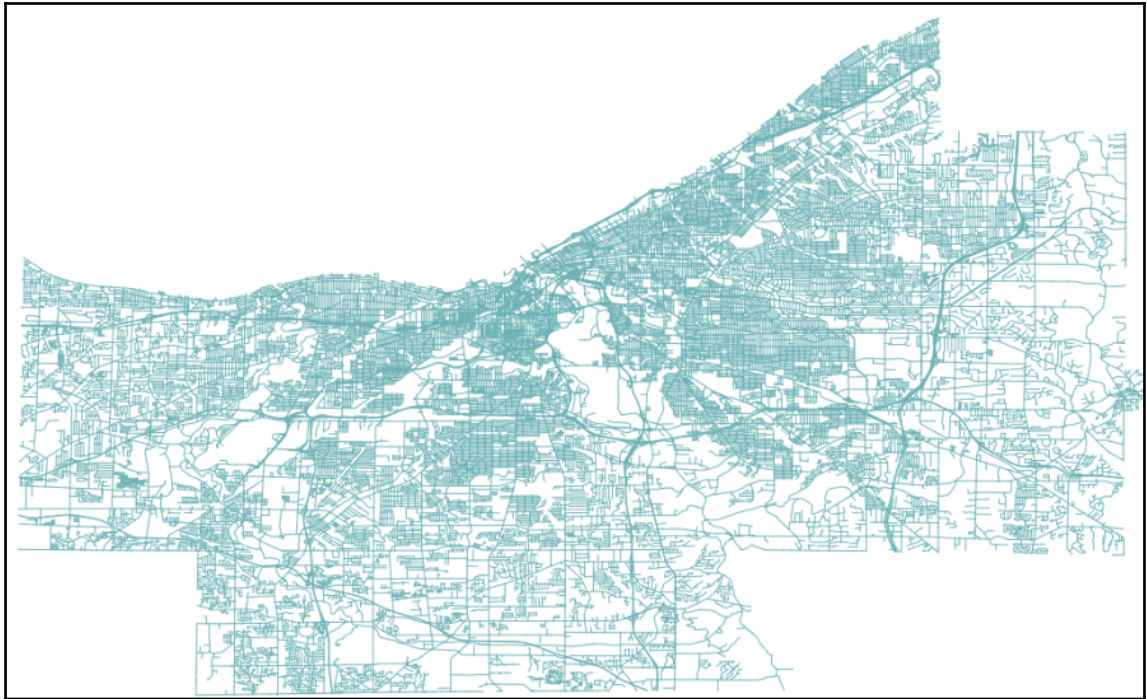
Also list tables with no geometry

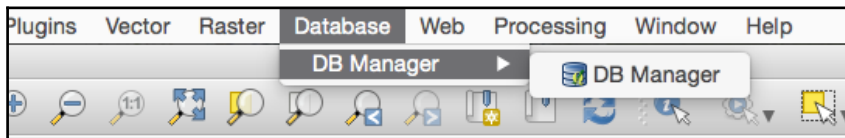
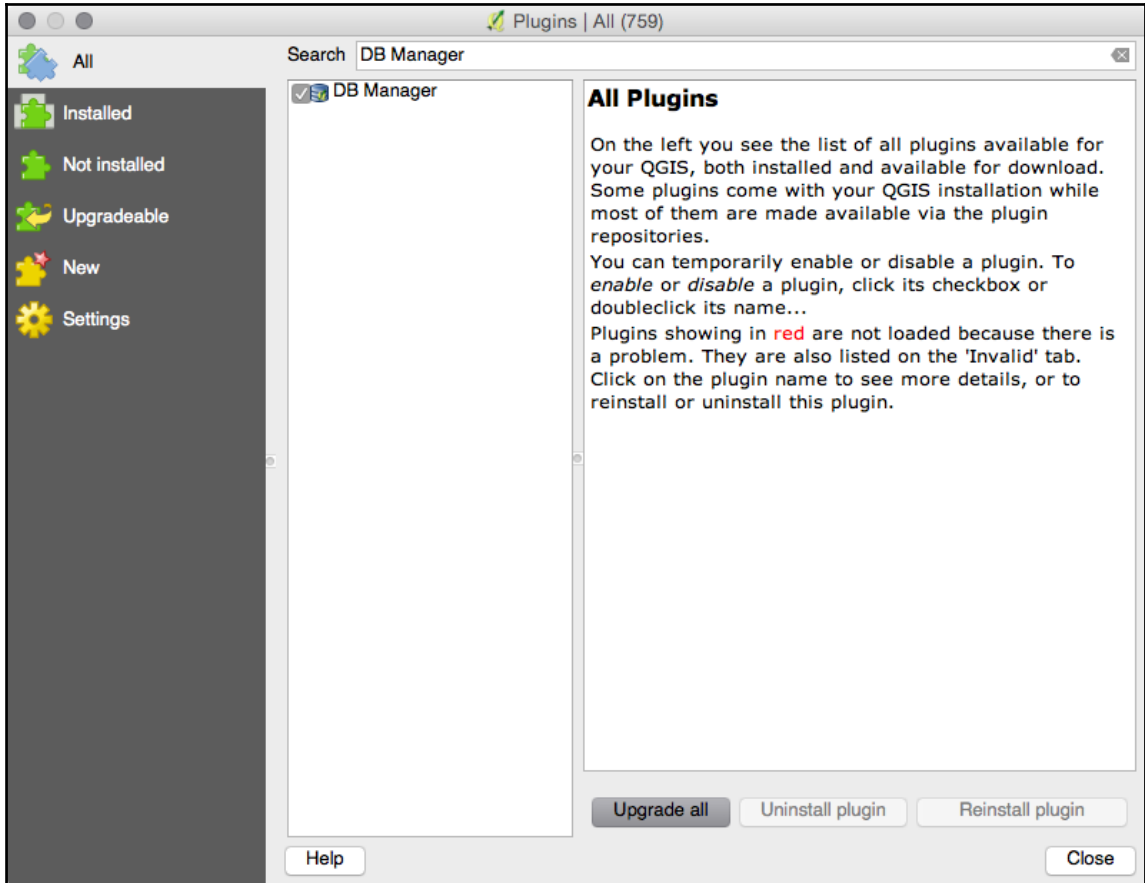
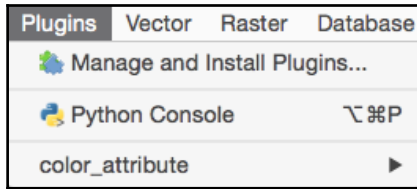
Use estimated table metadata

Help Cancel OK









DB Manager

Tree

- GeoPackage
- PostGIS
 - localhost
 - chp01
 - chp02
 - chp03
 - chp04
 - chp05
 - chp06
 - chp09
 - chp11
 - tl_2012_39035_edges**
 - hu_topo
 - public
 - topology
 - SpatialLite
 - Virtual Layers

Info Table Preview

tl_2012_39035_edges

General info

Relation type: Table
 Owner: may
 Pages: 2028
 Rows (estimation): 67905
 Privileges: select, insert, update, delete

PostGIS

Column: the_geom
 Geometry: MULTILINESTRING
 Dimension: 2
 Spatial ref: NAD83 (4269)
 Estimated extent: -81.97425, 41.27109 - -81.37179, 42.07051
 Extent: (unknown) ([find out](#))

Fields

#	Name	Type	Length	Null	Default
1	<u>gid</u>	int4	4	N	nextval('chp11.tl_2012_39035_edges_gid_seq':regclass)
2	statefp	varchar (2)		Y	
3	countyfp	varchar (3)		Y	
4	tlid	numeric (10,0)		Y	
5	tfid	numeric (10,0)		Y	

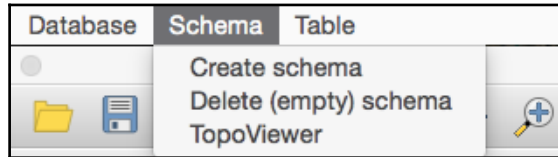
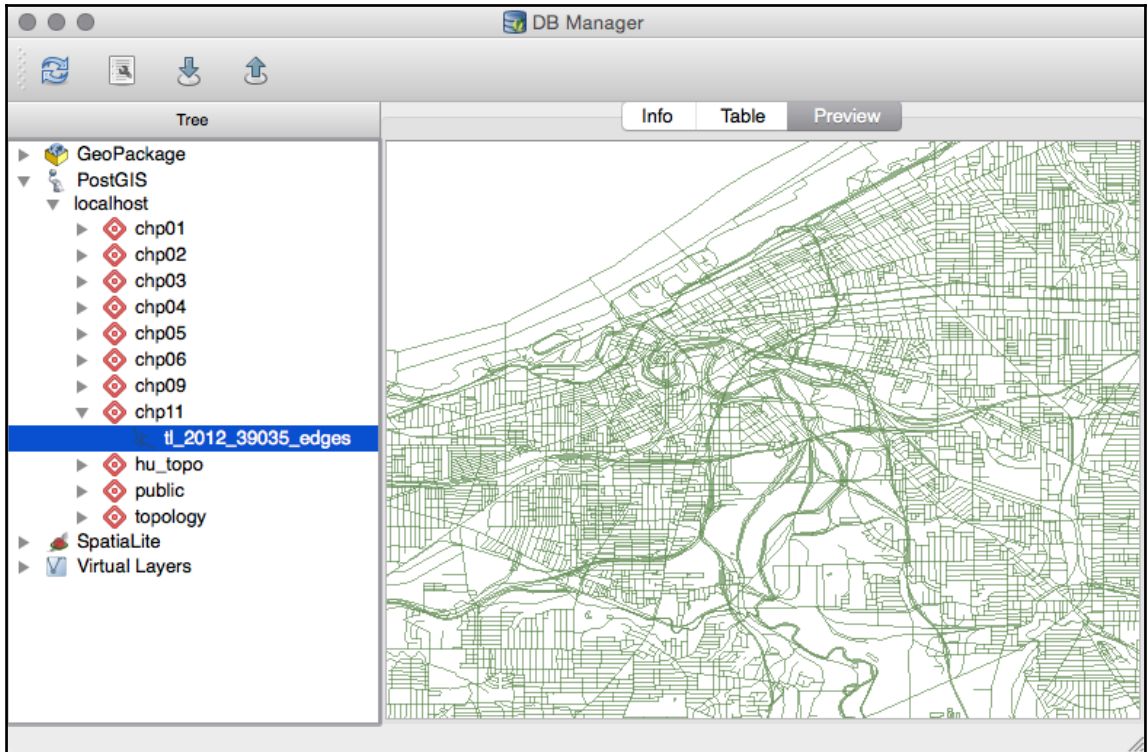
DB Manager

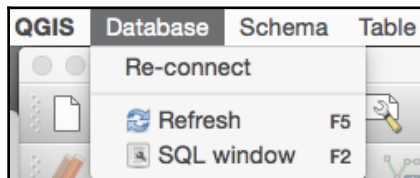
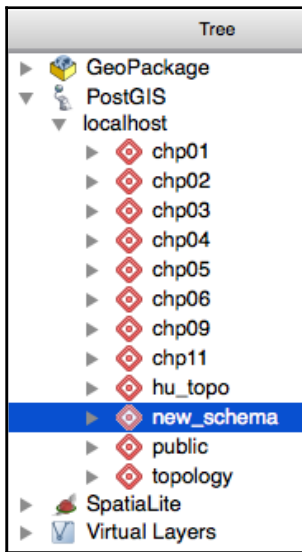
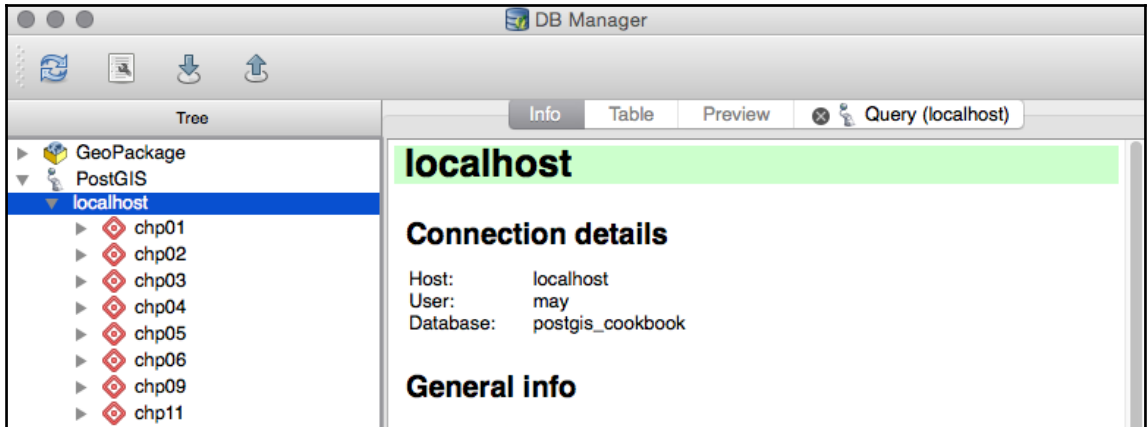
Tree

- GeoPackage
 - PostGIS
 - localhost
 - chp01
 - chp02
 - chp03
 - chp04
 - chp05
 - chp06
 - chp09
 - chp11
 - tl_2012_39035_edges**
 - hu_topo
 - public
 - topology
 - SpatialLite
 - Virtual Layers

Info Table Preview

	gid	statefp	countyfp	tlid	tfid	
1	1	39	035	61172752	213153467	258
2	2	39	035	61104536	213135486	213
3	3	39	035	61160240	213135486	213
4	4	39	035	61104709	213135487	213
5	5	39	035	613733044	260767276	227
6	6	39	035	613733302	227451079	227
7	7	39	035	638612260	260767275	227
8	8	39	035	61104546	213135489	213
9	9	39	035	61104553	213135489	213
10	10	39	035	61104556	213135490	213
11	11	39	035	61104732	257559669	213
12	12	39	035	61104758	213135554	213
13	13	39	035	61104578	213135499	213
14	14	39	035	61104579	213135499	213
15	15	39	035	61104592	257559617	213





Info Table Preview Query (localhost)

Saved query: Name Store Delete

```

1 SELECT AddGeometryColumn('chp11', 'lines', 'geom_sp', 3734, 'MULTILINESTRING', 2);
2 UPDATE "chp11".lines SET geom_sp = ST_Transform(the_geom, 3734);
3

```

Execute (F5) 67905 rows, 8.4 seconds Create a view Clear

DB Manager

Info Table Preview Query (localhost)

lines

General info

Relation type: Table
 Owner: may
 Pages: 4814
 Rows (estimation): 67905
 Privileges: select, insert, update, delete

PostGIS

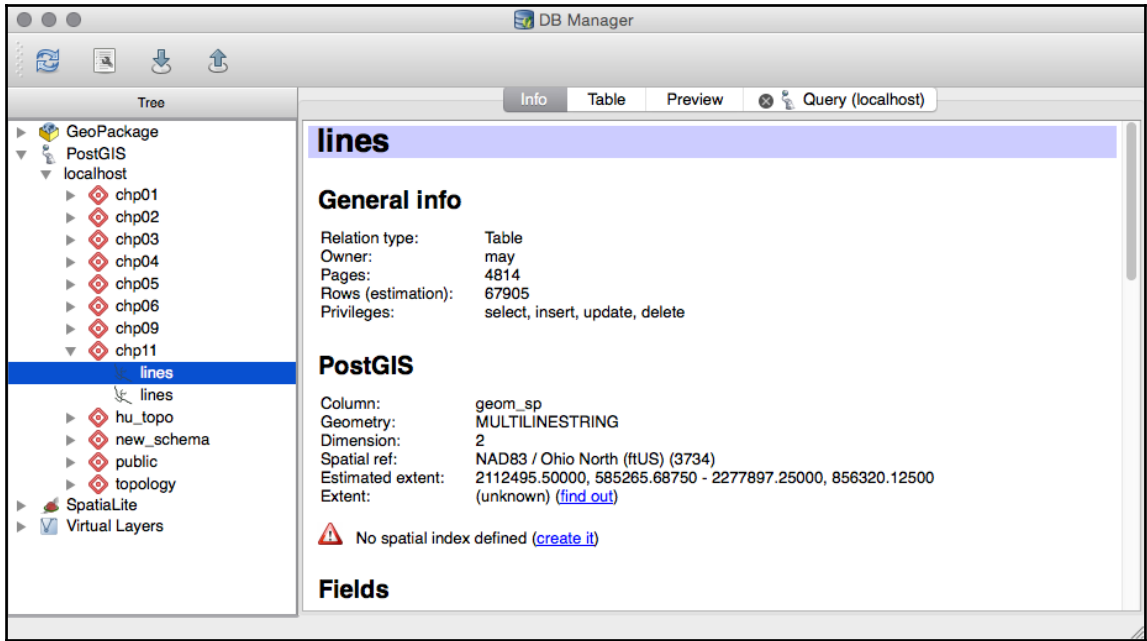
Column: the_geom
 Geometry: MULTILINESTRING
 Dimension: 2
 Spatial ref: NAD83 (4269)
 Estimated extent: -81.97425, 41.27142 - -81.37179, 42.01398
 Extent: (unknown) ([find out](#))

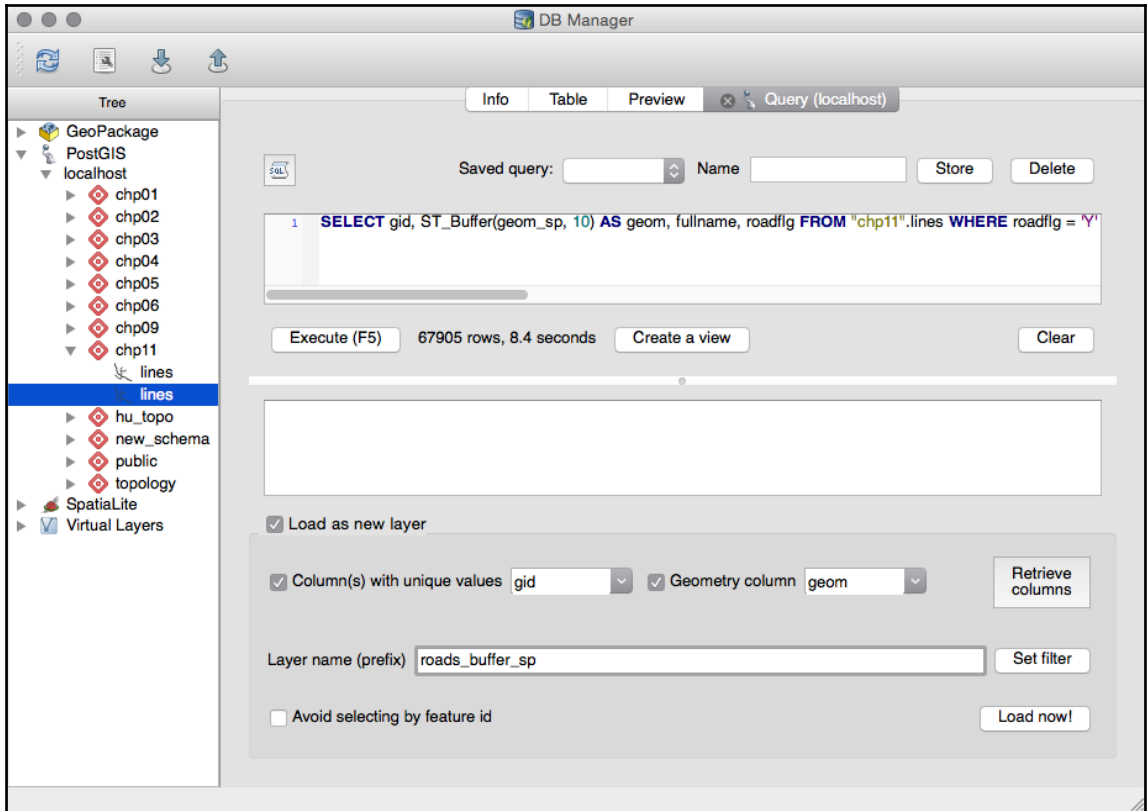
Fields

#	Name	Type	Length	Null	Default
1	oid	int4	4	N	nextval('chp11.tl_2012_39035_edges_oid')

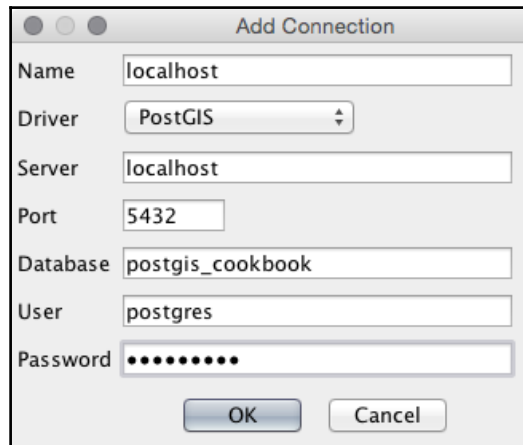
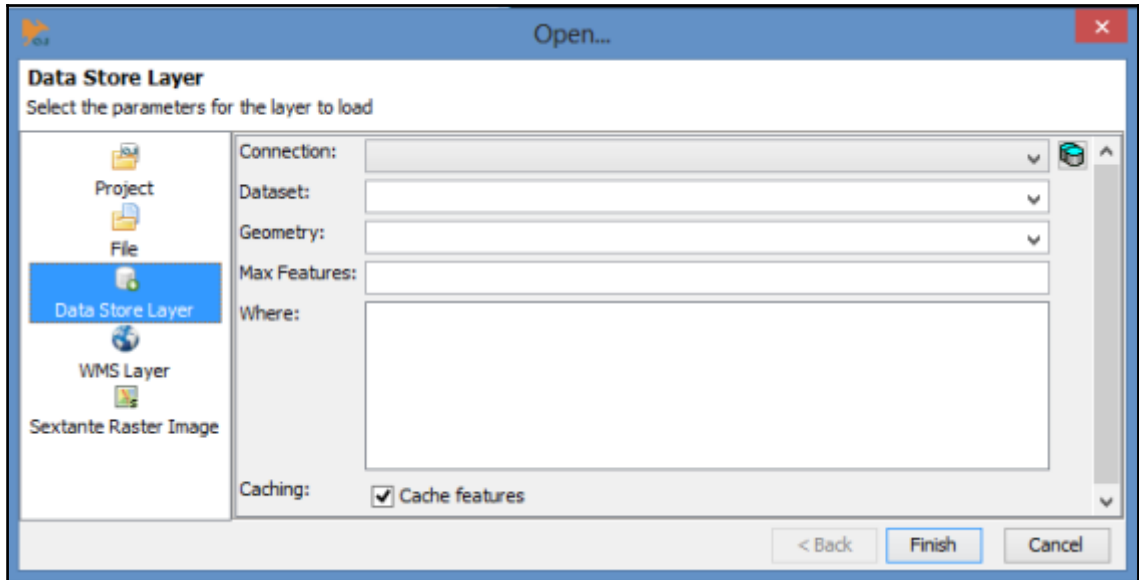
Tree

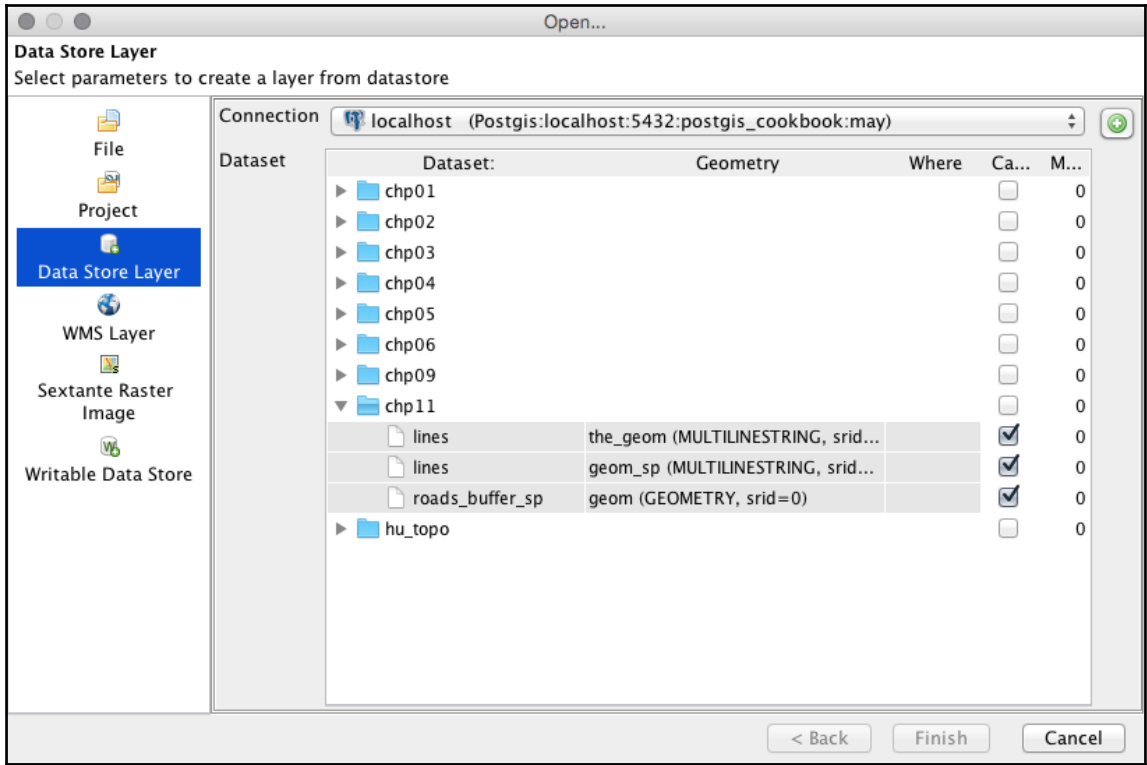
- GeoPackage
- PostGIS
 - localhost
 - chp01
 - chp02
 - chp03
 - chp04
 - chp05
 - chp06
 - chp09
 - chp11
 - lines
 - lines**
 - hu_topo
 - new_schema
 - public
 - topology
 - SpatialLite
 - Virtual Layers

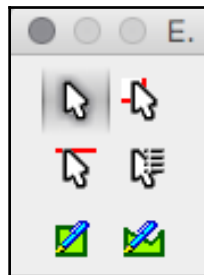
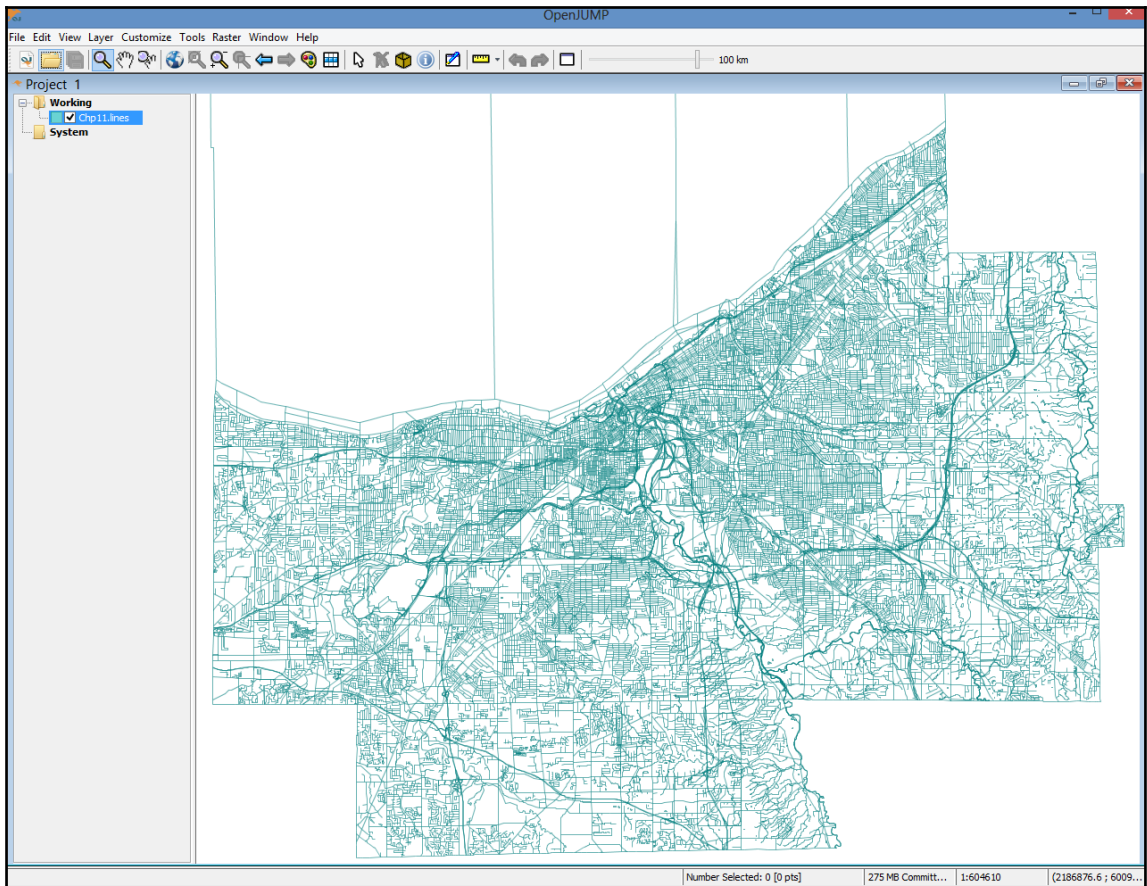


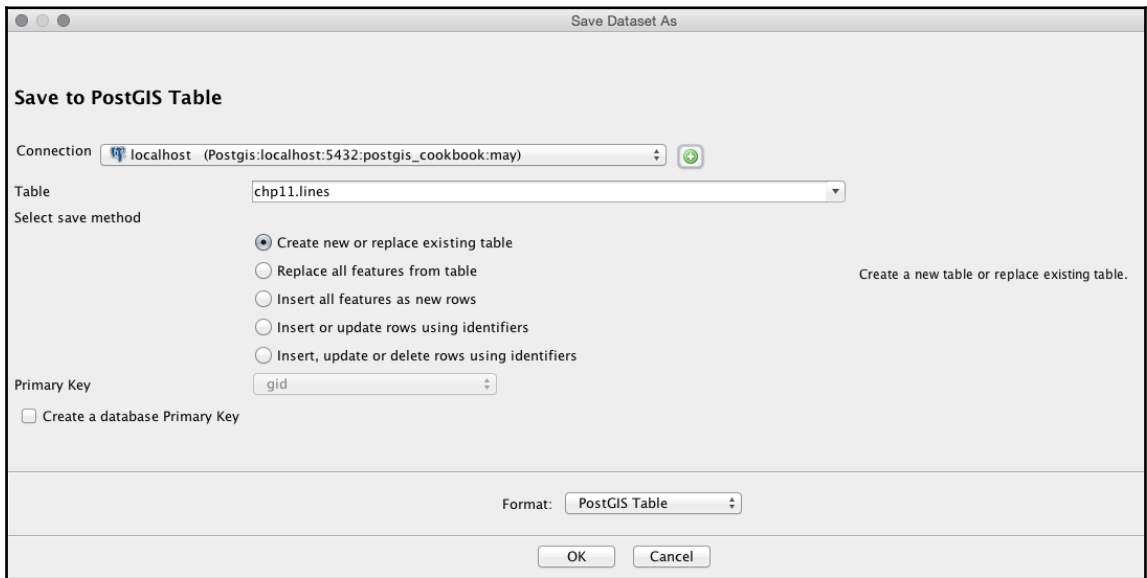
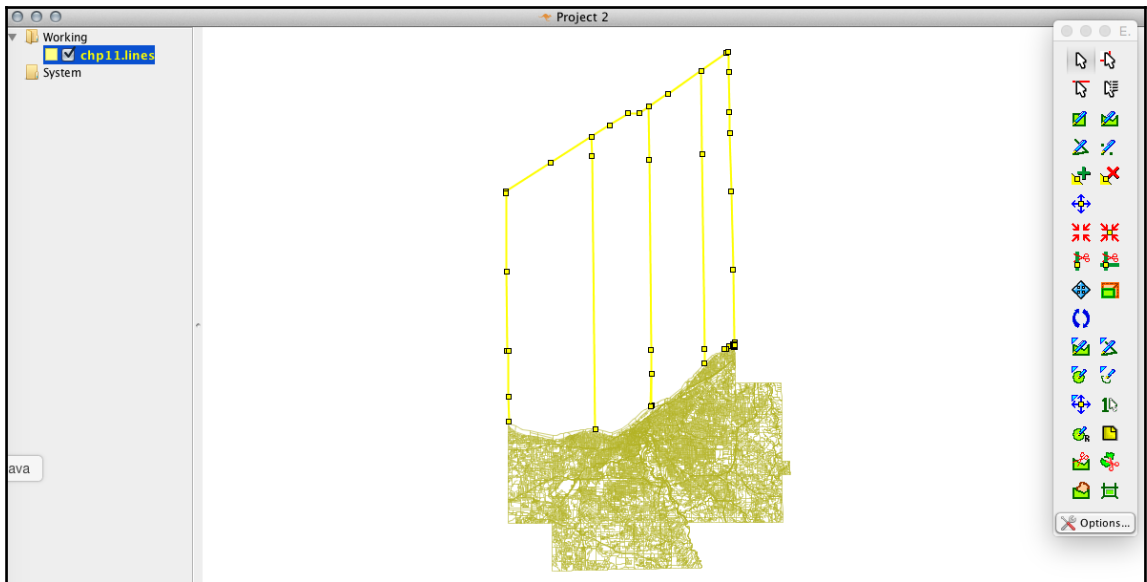


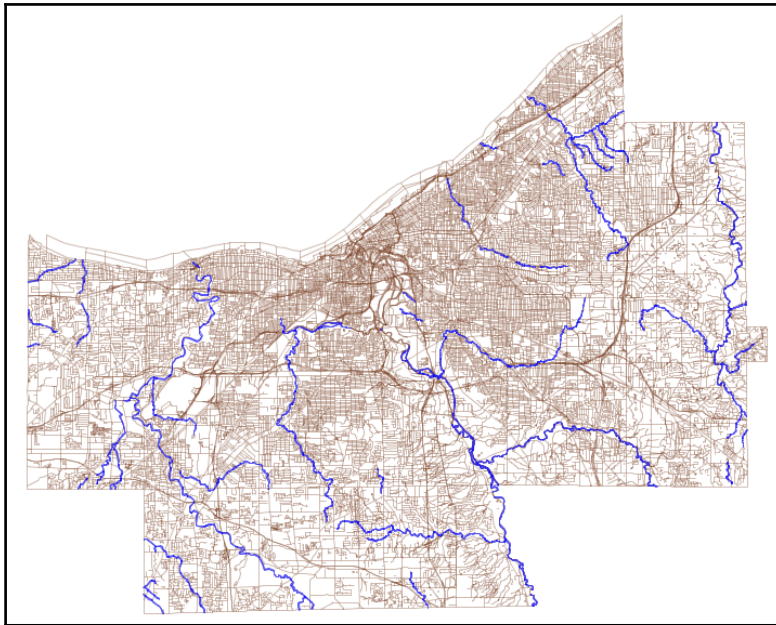
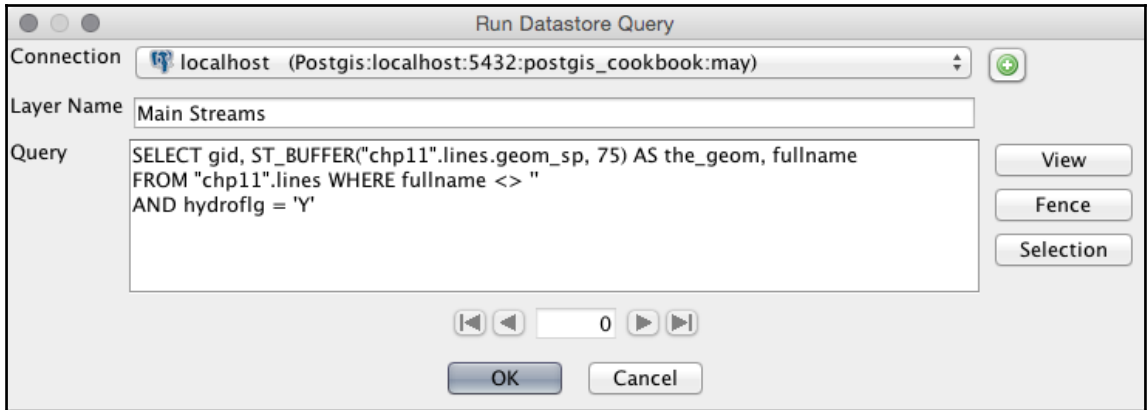


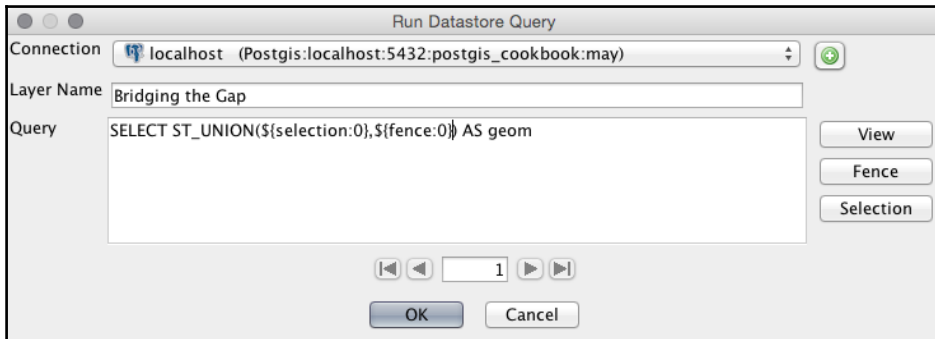
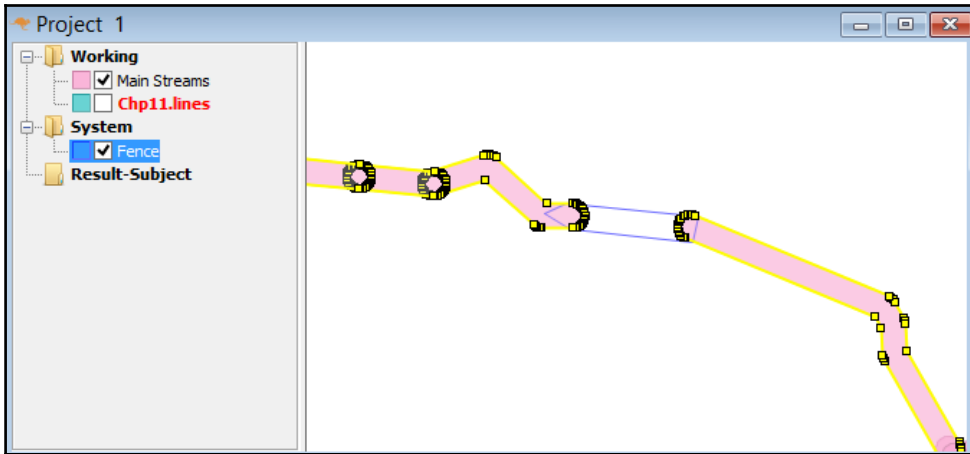


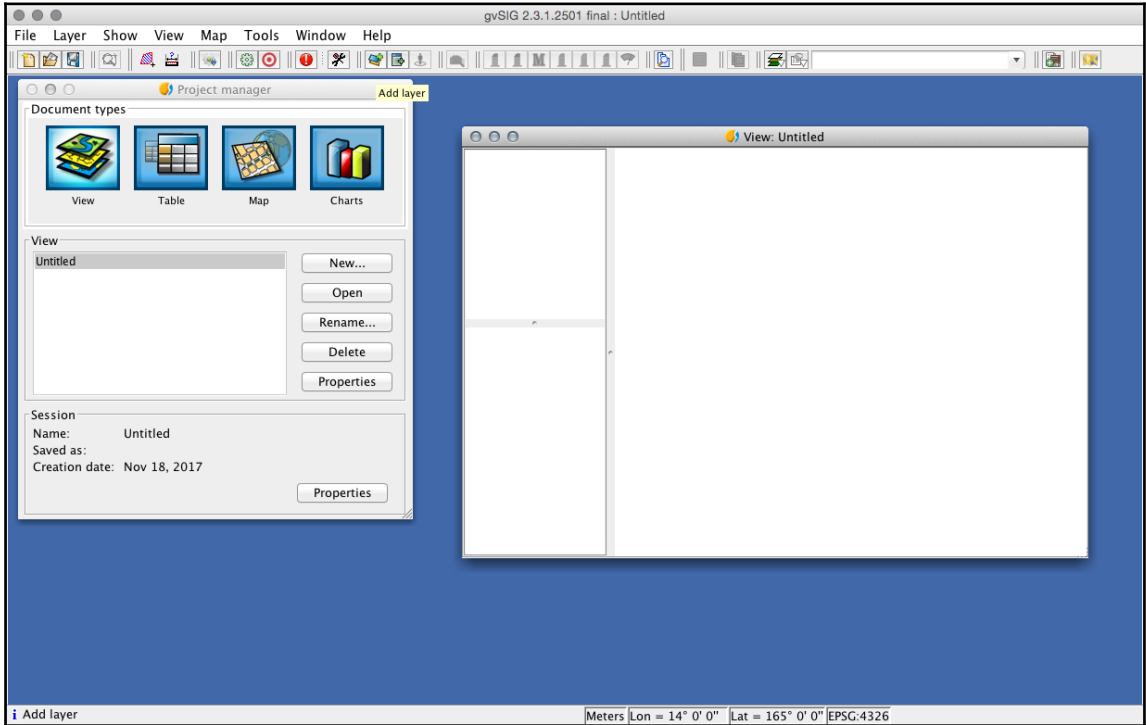
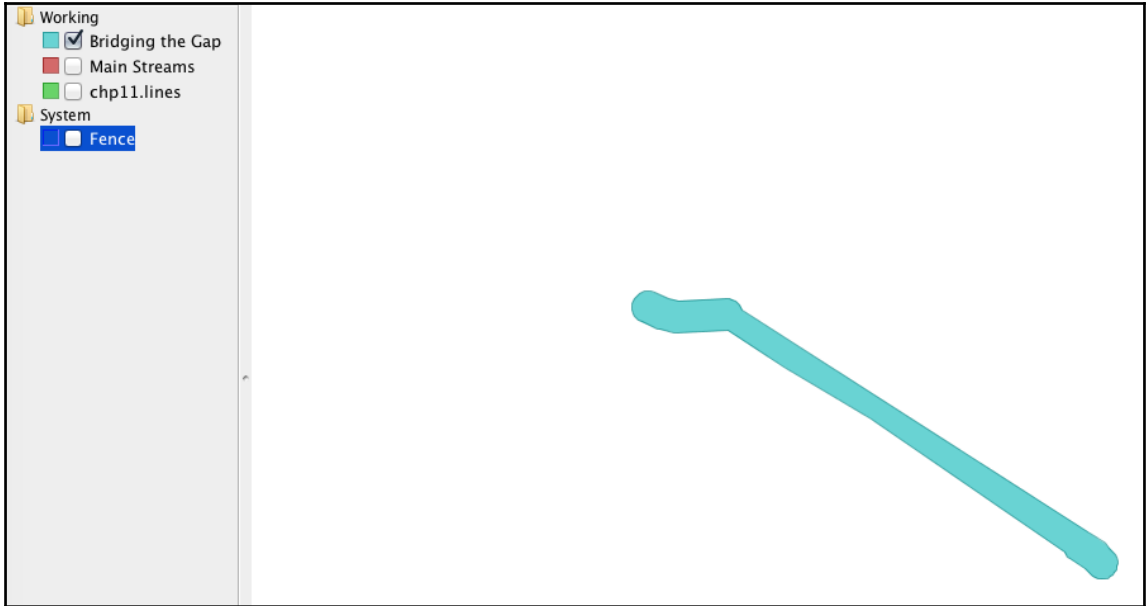


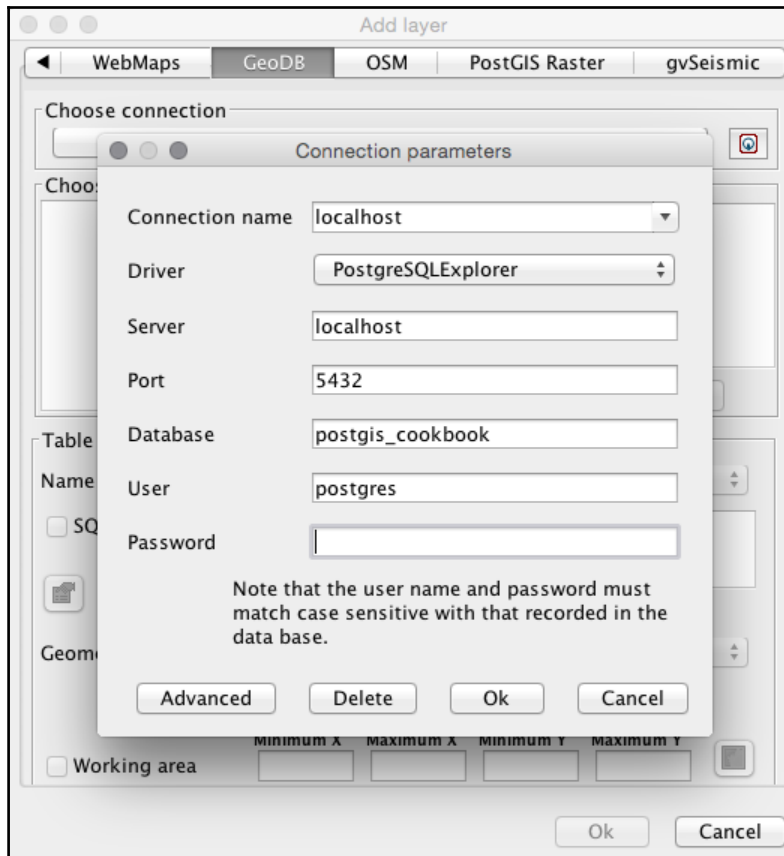


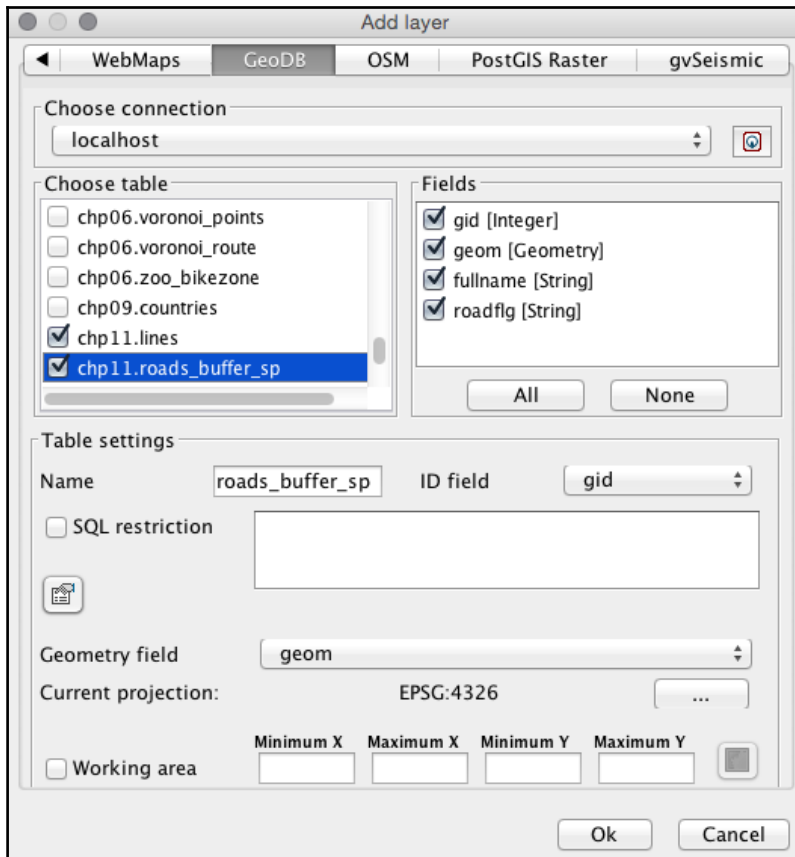


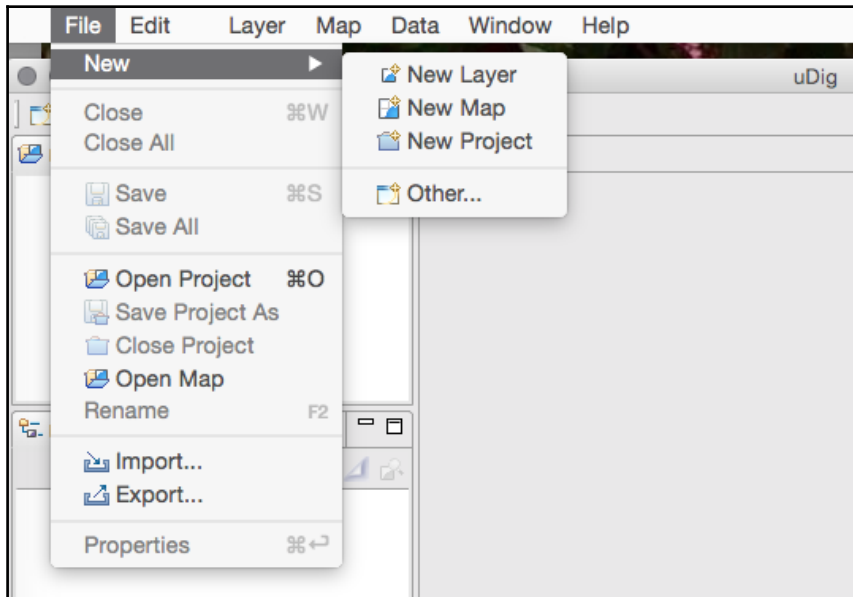
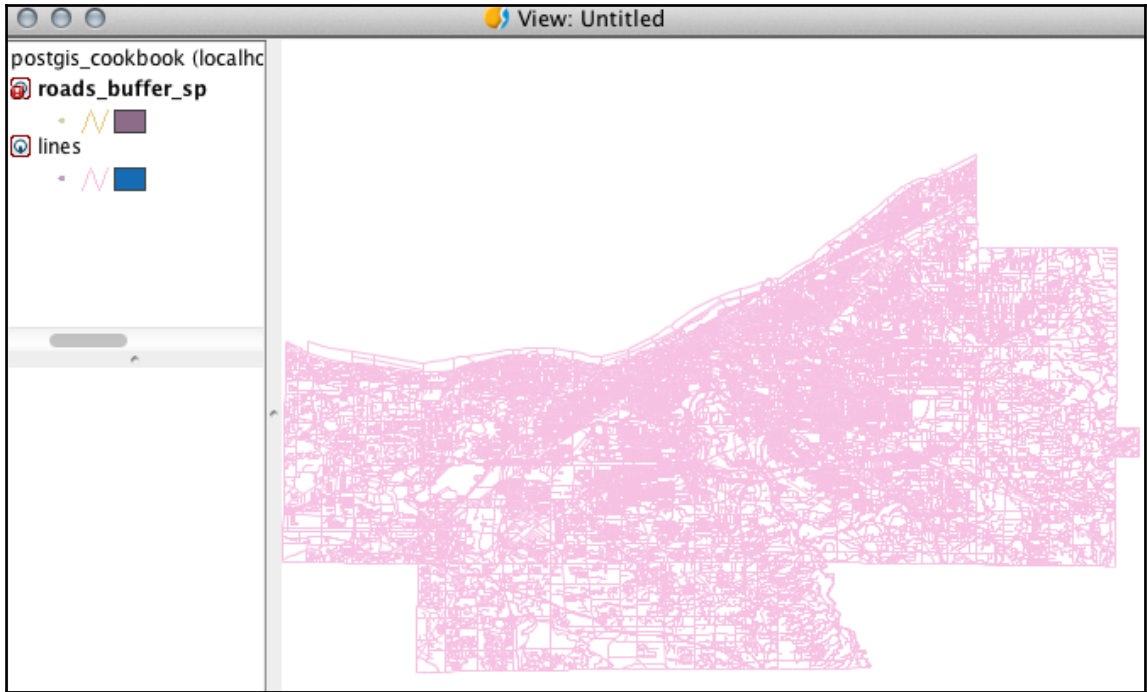


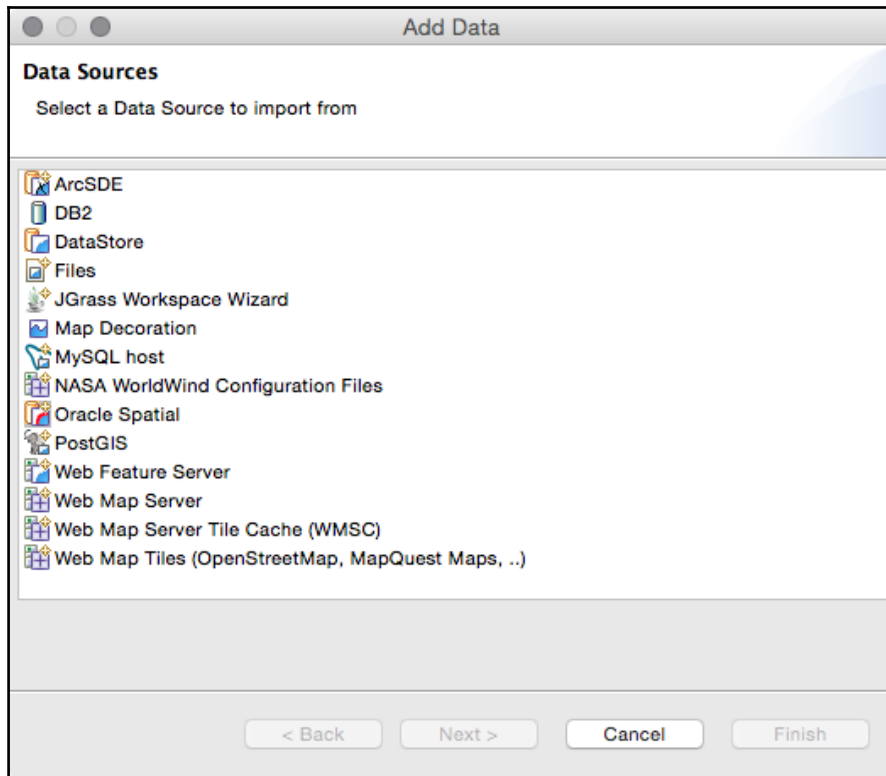













Add Data

PostGIS 

Connect to a PostGIS Server.

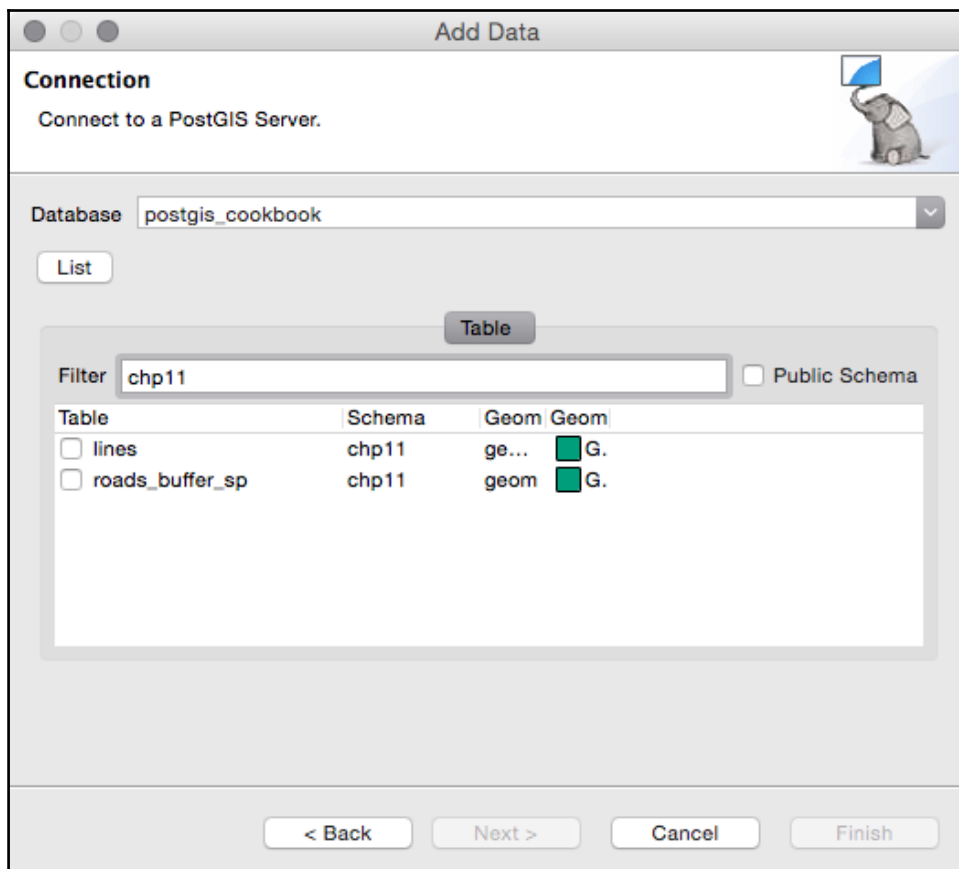
Previous Connections

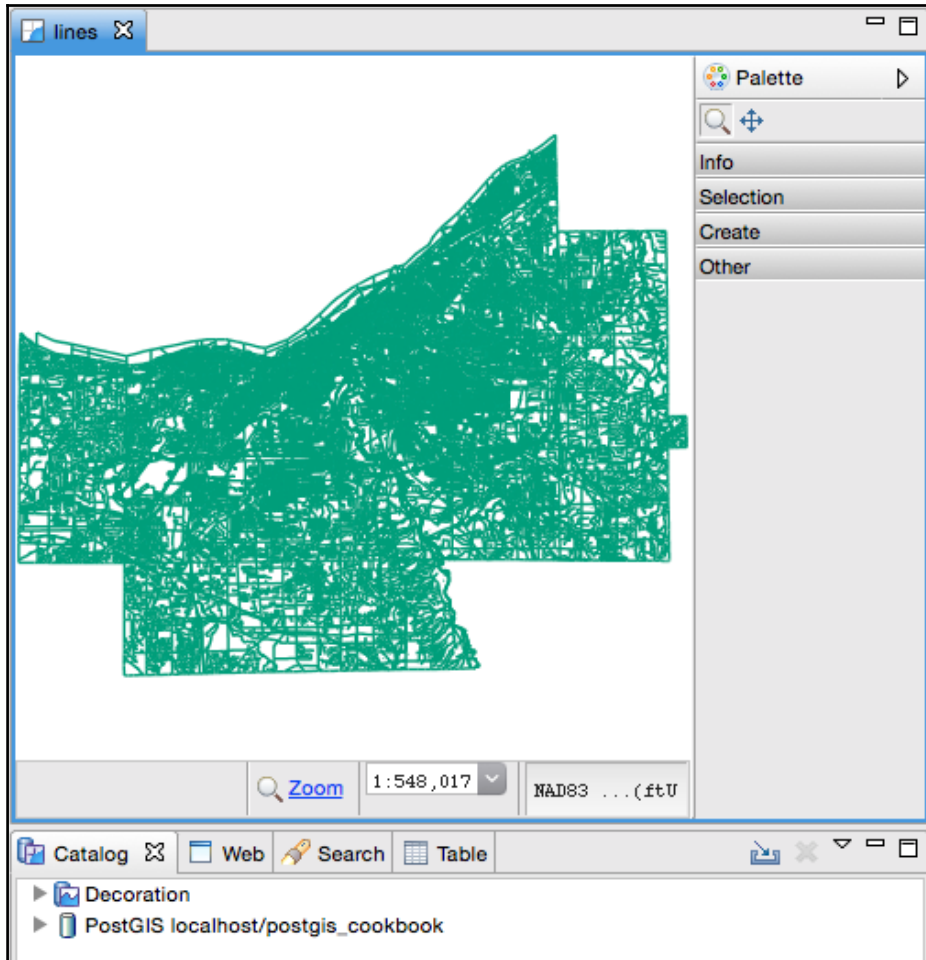
Host: Port:

User Name:

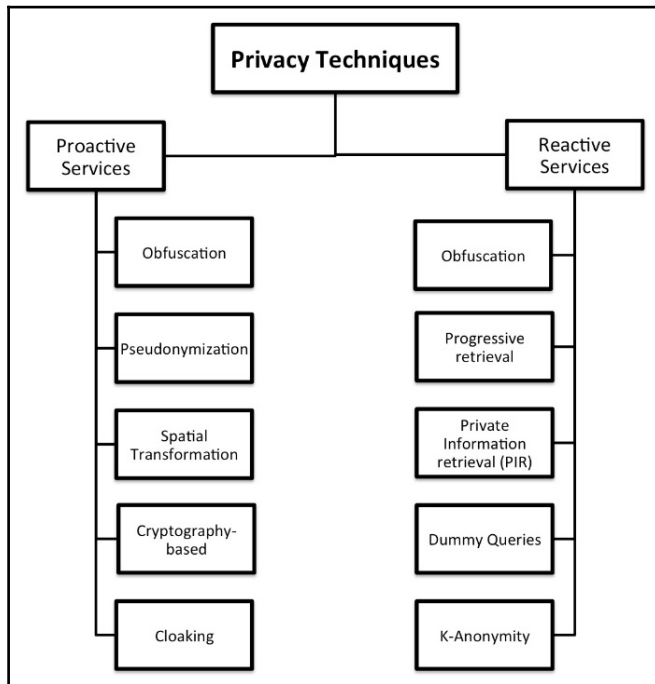
Password:

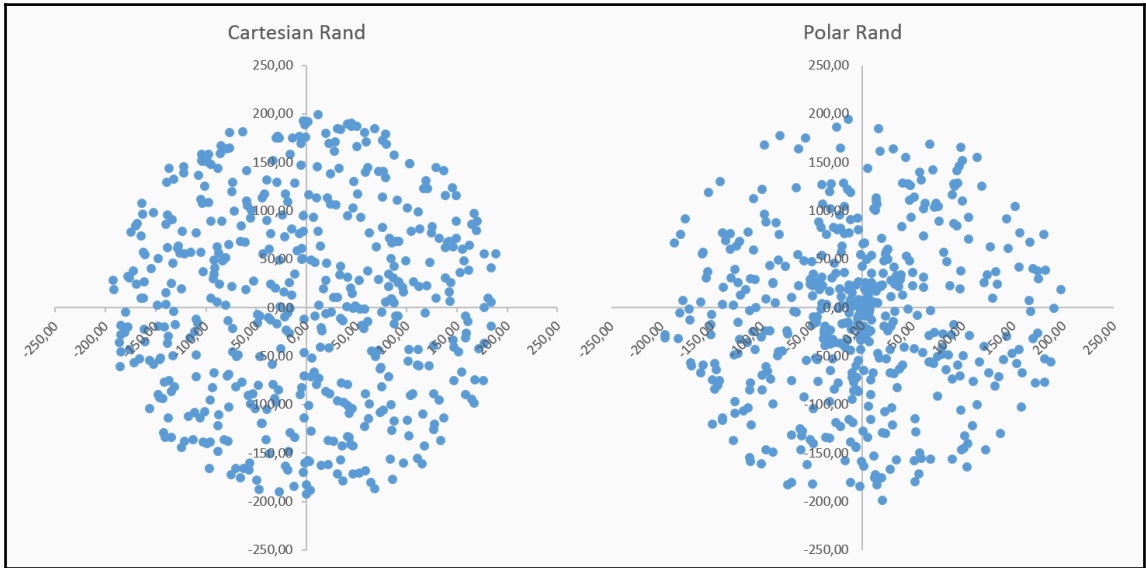
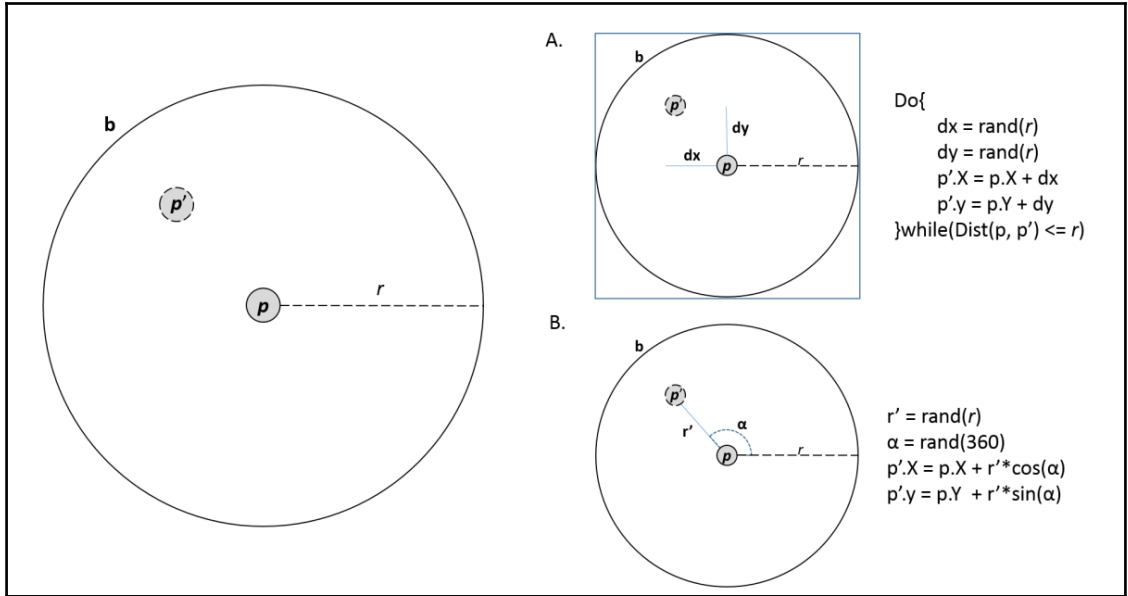
Store Password

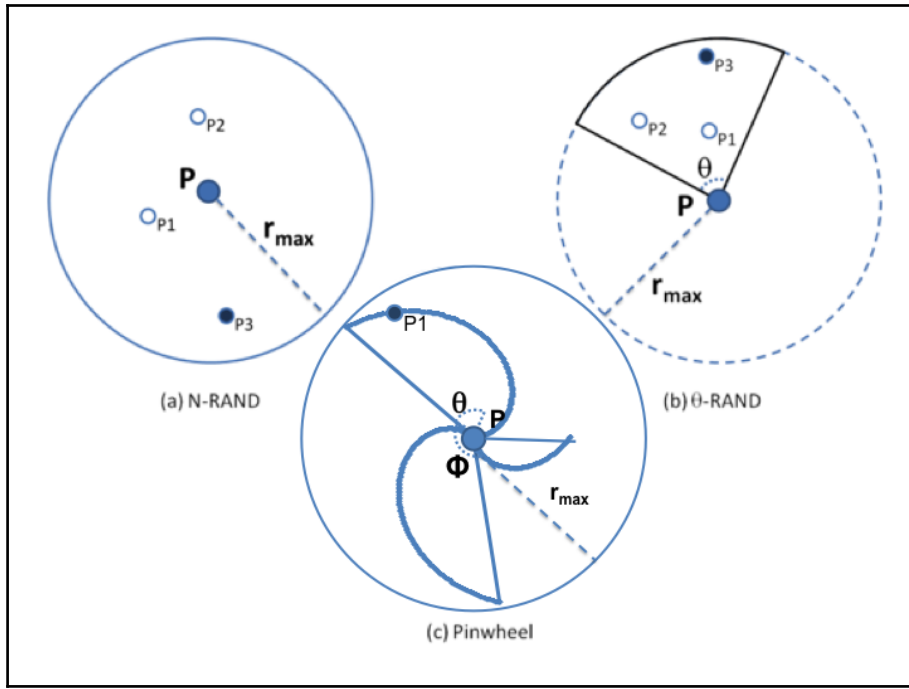




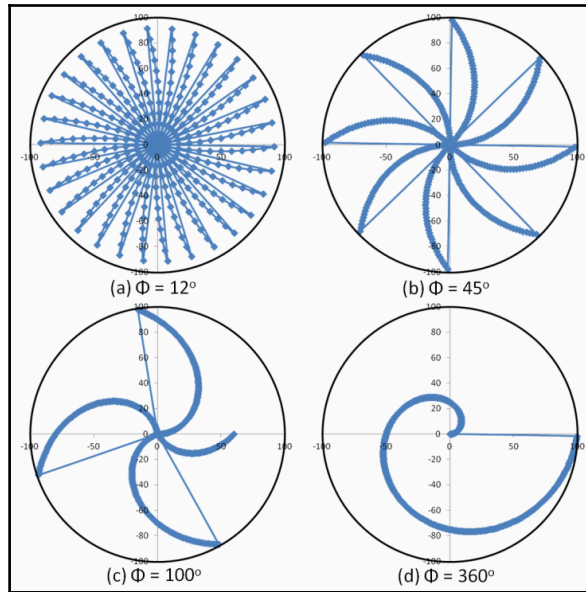
Chapter 12: Introduction to Location Privacy Protection Mechanisms



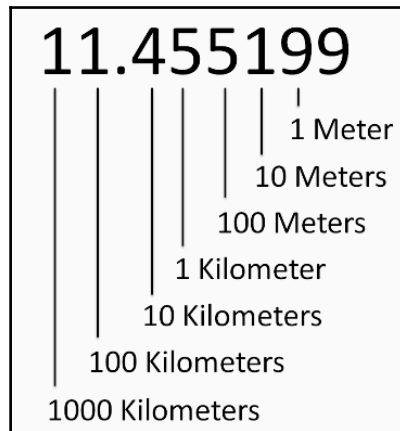
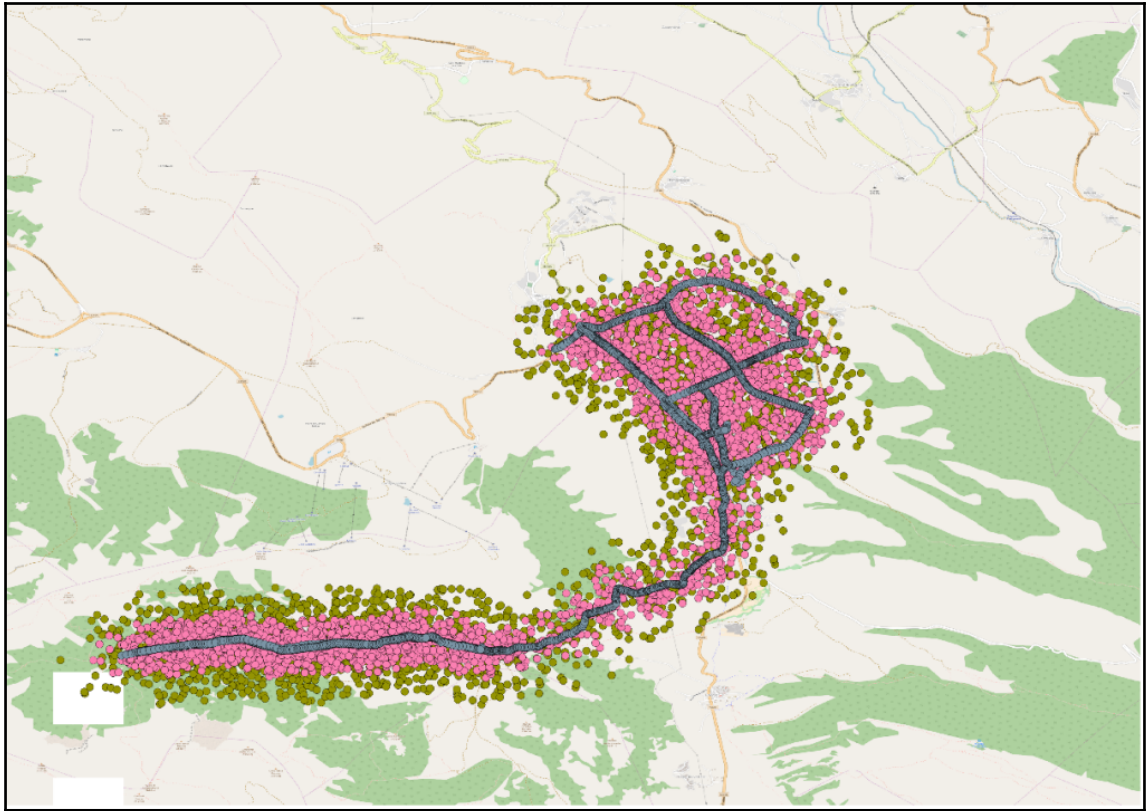




$$r_{\alpha} = (\alpha \bmod \phi) / \phi \cdot r_{max} (1)$$



	st_astext text	st_astext text
1	POINT(12.490049 41.842603)	POINT(12.4956085374046 41.8421401688101)
2	POINT(12.489853 41.842531)	POINT(12.4903858629488 41.83973295932)
3	POINT(12.489683 41.842414)	POINT(12.488238503296 41.8450166403716)
4	POINT(12.489497 41.842331)	POINT(12.4947481426845 41.8409761640323)
5	POINT(12.489404 41.84233)	POINT(12.4886152725506 41.8445327581563)
6	POINT(12.489305 41.842183)	POINT(12.4934162980532 41.8393513242803)
7	POINT(12.489317 41.842018)	POINT(12.485101470889 41.844016256977)
8	POINT(12.489247 41.841869)	POINT(12.4875397731734 41.8379176675626)
9	POINT(12.489026 41.841875)	POINT(12.4900647307263 41.8379892386432)
10	POINT(12.488962 41.841845)	POINT(12.4892071289802 41.8440740069694)



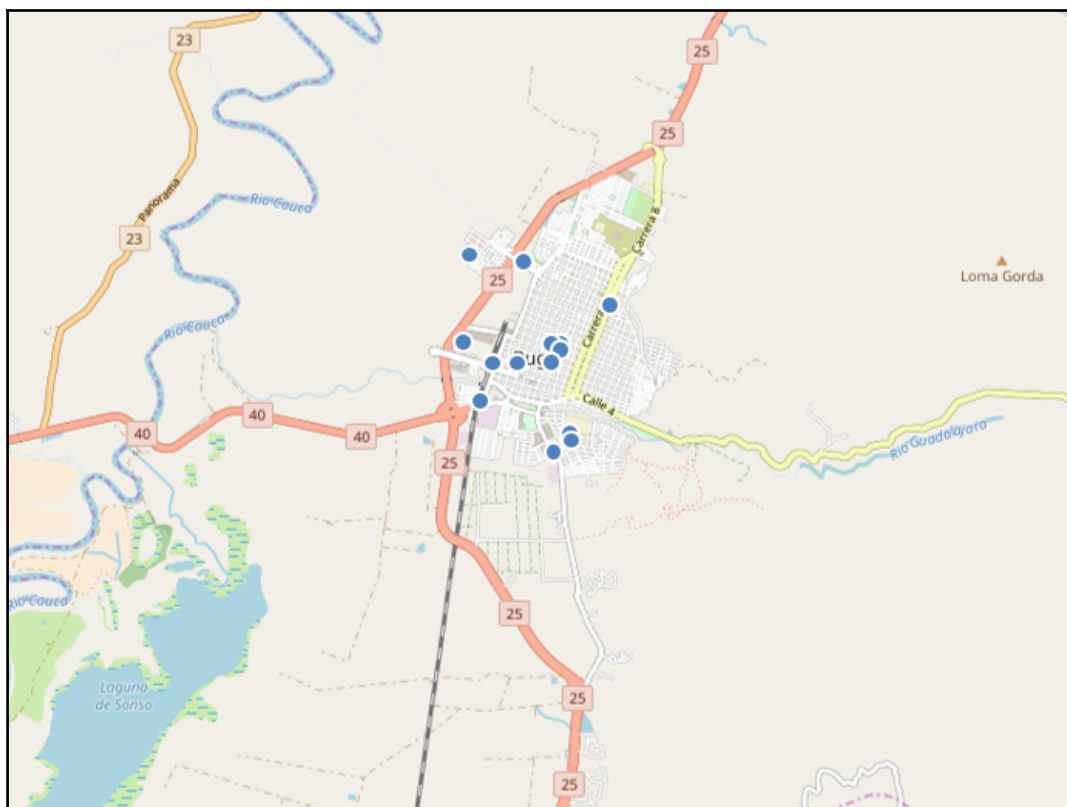
		<i>Lon Nth + 1</i>									
		10	9	8	7	6	5	4	3	2	1
<i>Lat Nth + 1</i>	10	1	2	3	4	5	6	7	8	9	10
	9	2	4	6	8	10	1	3	5	7	9
	8	3	6	9	1	4	7	10	2	5	8
	7	4	8	1	5	9	2	6	10	3	7
	6	5	10	4	9	3	8	2	7	1	6
	5	6	1	7	2	8	3	9	4	10	5
	4	7	3	10	6	2	9	5	1	8	4
	3	8	5	2	10	7	4	1	9	6	3
	2	9	7	5	3	1	10	8	6	4	2
	1	10	9	8	7	6	5	4	3	2	1

(10.964824,-74.804778),

N	Latitude Nth digit	Longitude Nth digit	Lat Nth + 1	Lon Nth + 1	Id
3	4	4	5	5	2
2	6	0	7	1	5
1	9	8	10	9	1

Pol ID	Type	Coordinates
123456	Restaurant	10.964824, -74.804778

Pol ID	Scale	ID
123456	3	2
123456	2	6
123456	1	1
123456	0	4



	sup_id integer	cellid integer	levelid integer
1	8	0	-2
2	8	7	-1
3	8	5	0
4	8	2	1
5	8	9	2
6	8	5	3
7	8	8	4
8	8	0	5
9	8	2	6

