



# PostGIS kezdő tanfolyam

**Geo4All Labor**  
**BME Geodézia**



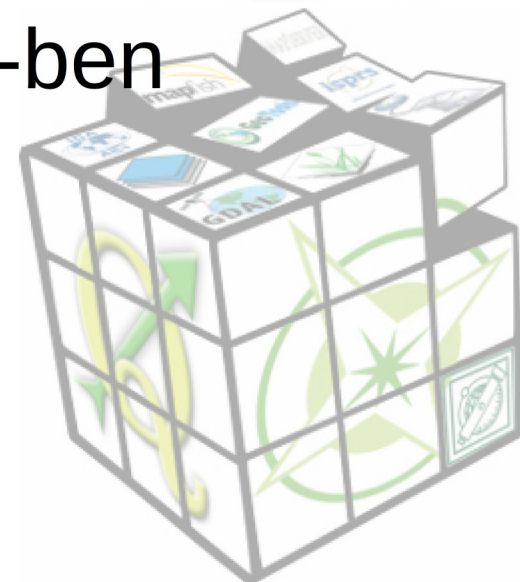
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# Tartalom

- PostgreSQL és PostGIS telepítése
- psql és PgAdmin III kliens programok
- Téradatbázis létrehozása
- Adatok betöltése a téradatbázisba
  - shp2pgsql és shp2pgsql-gui
- Adatok lekérdezése elemzése
  - PgAdmin III használata
  - PostGIS adatok megjelenítése QGIS-ben
  - QGIS DB kezelő használata
- Adatok exportálása
  - pgsql2shp
  - QGIS





# PostgreSQL telepítés

## Telepítési változatok

Windows

<http://download.osgeo.org/postgis/windows>

Linux

OSGeo Live DVD, minta adatokkal együtt

Fedora:

```
dnf install postgresql postgresql-server postgresql-contrib postgresql-libs
```

Korábbi változatokban

```
yum install postgresql postgresql-server postgresql-contrib postgresql-libs
```

Ubuntu:

```
apt-get install postgresql postgresql-contrib
```

Segédletek a telepítéshez

<http://download.osgeo.org/postgis/windows>

Szerver elindítása

Tűzfal beállítások

A PostGIS a PostgreSQL szerverrel együtt települ a gépre





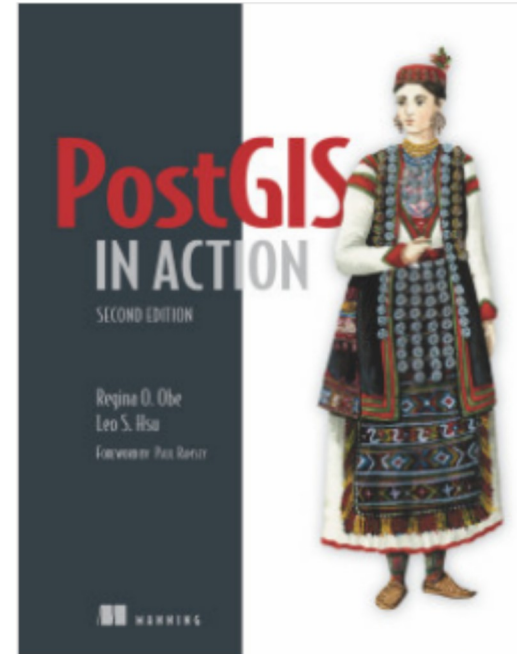
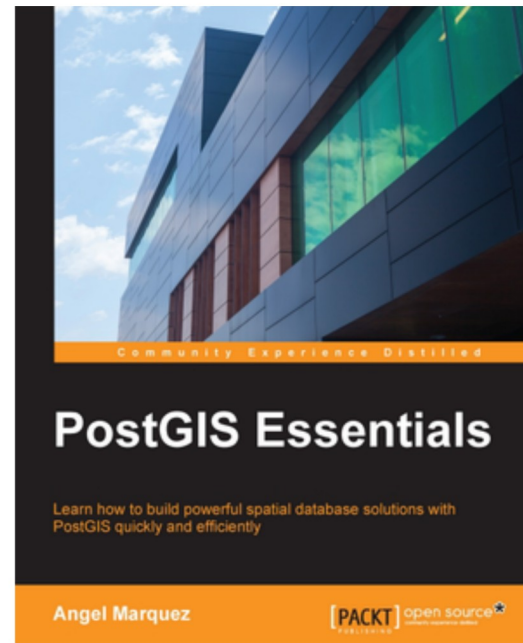
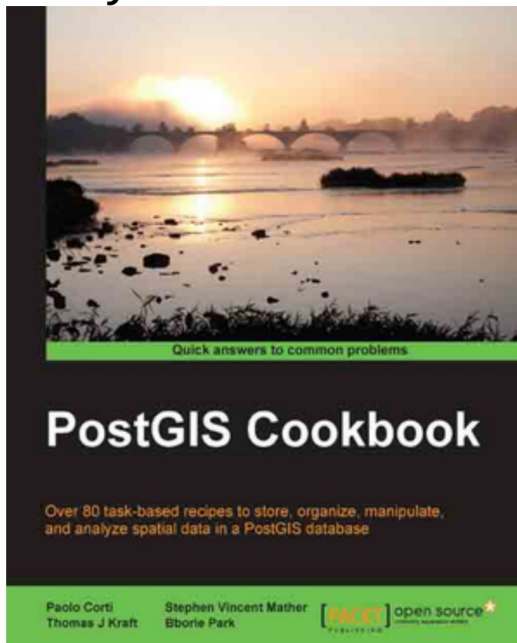
# PostGIS források

Magyar anyagok:

<http://www.geo.bme.hu/gis/postgis>

<http://postgresql.lap.hu/>

Könyvek:



Dokumentáció:

<http://postgis.net/documentation/>

Oktatóanyagok:

<http://workshops.boundlessgeo.com/postgis-intro/>



# Minta adatok letöltése

<http://www.agt.bme.hu/php/browse.php?/foss>

The screenshot shows a web browser window with the address bar containing [www.agt.bme.hu/php/browse.php?/foss](http://www.agt.bme.hu/php/browse.php?/foss). The browser displays a table of files for download. A dialog box titled "Opening mo.zip" is overlaid on the table, showing the file name "mo.zip", its size "17.3 MB", and the source "http://www.agt.bme.hu". The dialog asks "What should Firefox do with this file?" and offers three options: "Open with Archive Manager (default)", "Save File", and "Do this automatically for files like this from now on." The "Open with" option is selected and circled in red. The "mo.zip" file in the table below is also circled in red.

<a href="#">gama-local-1.9.04.exe</a>	2832051 byte	2008.04.25.	<a href="#">GNU GaMa 1.9.04 Windows binary (Dev-C++)</a> static
<a href="#">gama-local-1.9.05.exe</a>	2884		ary ( <a href="#">Dev-C++</a> ) static
<a href="#">gama-local-1.9.06.exe</a>	2884		ary ( <a href="#">Dev-C++</a> ) static
<a href="#">gama-local-1.9.07.exe</a>	2885		ary ( <a href="#">Dev-C++</a> ) static
<a href="#">itr2dxf.pdf</a>	110		F nyiltforrású (GPLv3)
<a href="#">itr2dxf.zip</a>	4024		F nyiltforrású (GPLv3)
<a href="#">jumpxy.tgz</a>	3		rkép koordinátával adott
<a href="#">mo.zip</a>	18167	21:25	jlok Magyarországról
<a href="#">robot.zip</a>	172834 byte	2012.11.20. 22:28	Program Leica mérőállomások robotvezérléséhez (Windows)
<a href="#">server_scripts.zip</a>	20919 byte	2013.02.24. 10:49	Szerver oldali szkriptek, <a href="#">Ulyxes</a>





# Adatok kicsomagolása

Archive Manager

Archive Edit View Help

Open Add Files Extract Downloads könyvtár

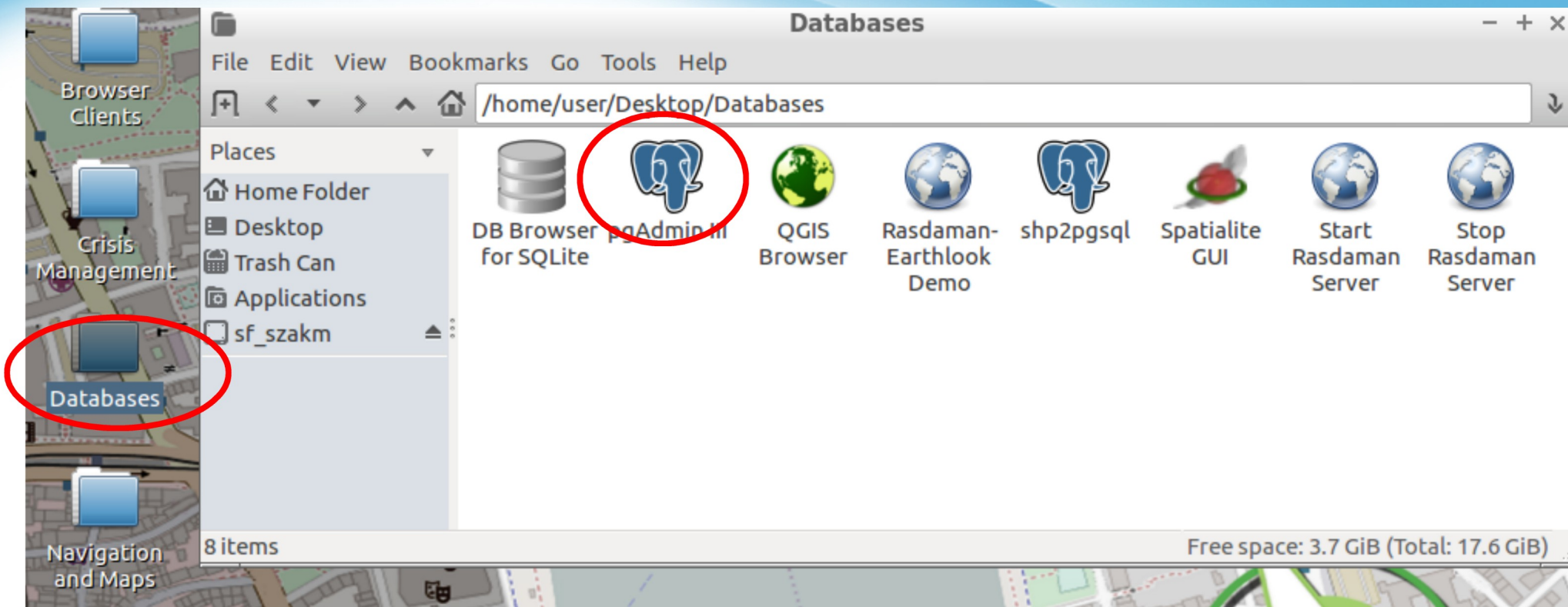
Location: /

Name	Size	Type	Modified
csapadek.prj	461 bytes	ESRI coordi...	14 April 2013, 22:35
csapadek.qpj	692 bytes	unknown	28 July 2012, 20:35
csapadek.shp	22.2 kB	ESRI shape ...	14 April 2013, 21:45
csapadek.shx	388 bytes	ESRI shape ...	14 April 2013, 21:45
folyo.dbf	1.5 kB	Xbase docu...	01 July 2014, 13:12
folyo.prj	461 bytes	ESRI coordi...	14 April 2013, 22:35
folyo.qpj	692 bytes	unknown	28 July 2012, 20:35
folyo.shp	9.7 kB	ESRI shape ...	01 July 2014, 13:12
folyo.shx	412 bytes	ESRI shape ...	01 July 2014, 13:12
megye.prj	461 bytes	ESRI coordi...	19 April 2013, 14:48
megye.qpj	727 bytes	unknown	19 April 2013, 14:48

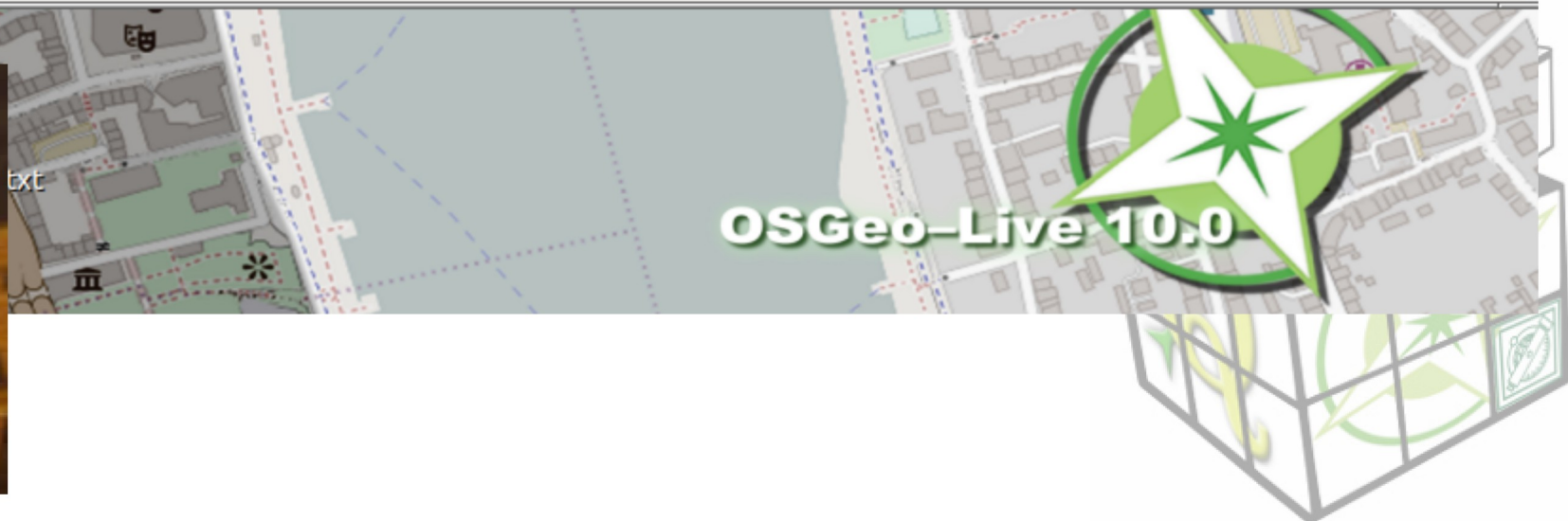
28 objects (1.7 MB)



# Téradatbázis létrehozása

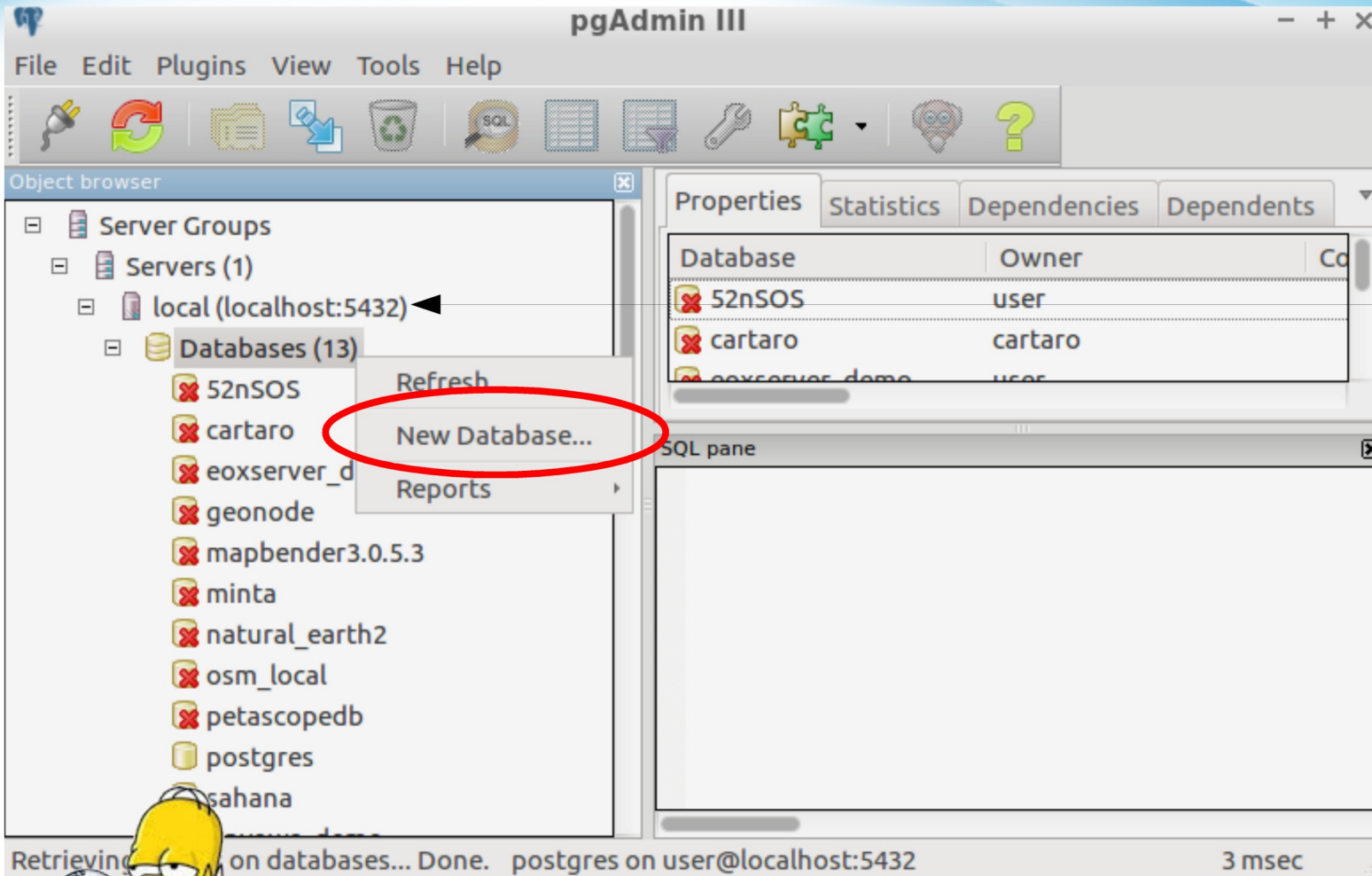


Paul Ramsey





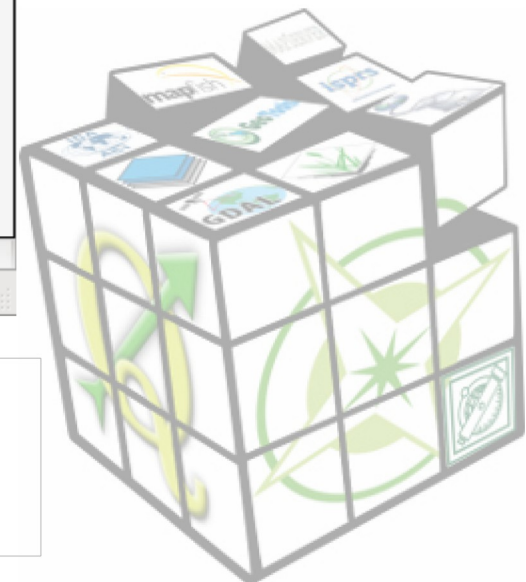
# pgadmin3



Dupla kattintás  
a csatlakozáshoz



Adatbázist a parancssorból is létrehozhatunk a **createdb** paranccsal vagy a psql-ből a **CREATE DATABASE** SQL paranccsal







# pgadmin3

pgAdmin III

New Database...

Properties Definition Variables Privileges Security Labels SQL

Name: minta

OID:

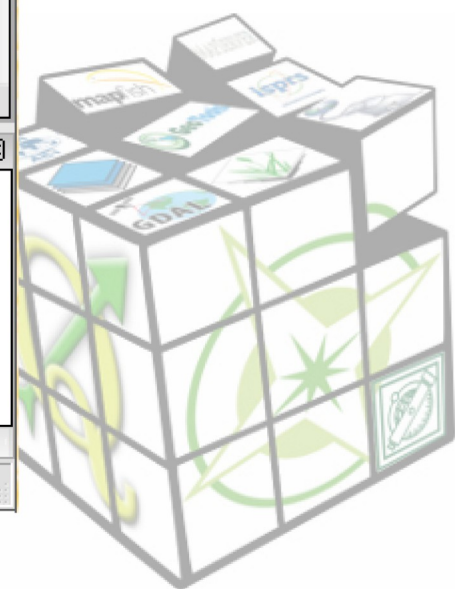
Owner: user

Comment:

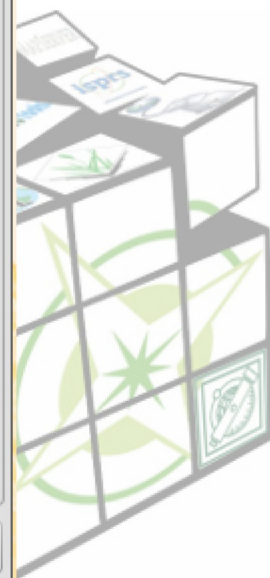
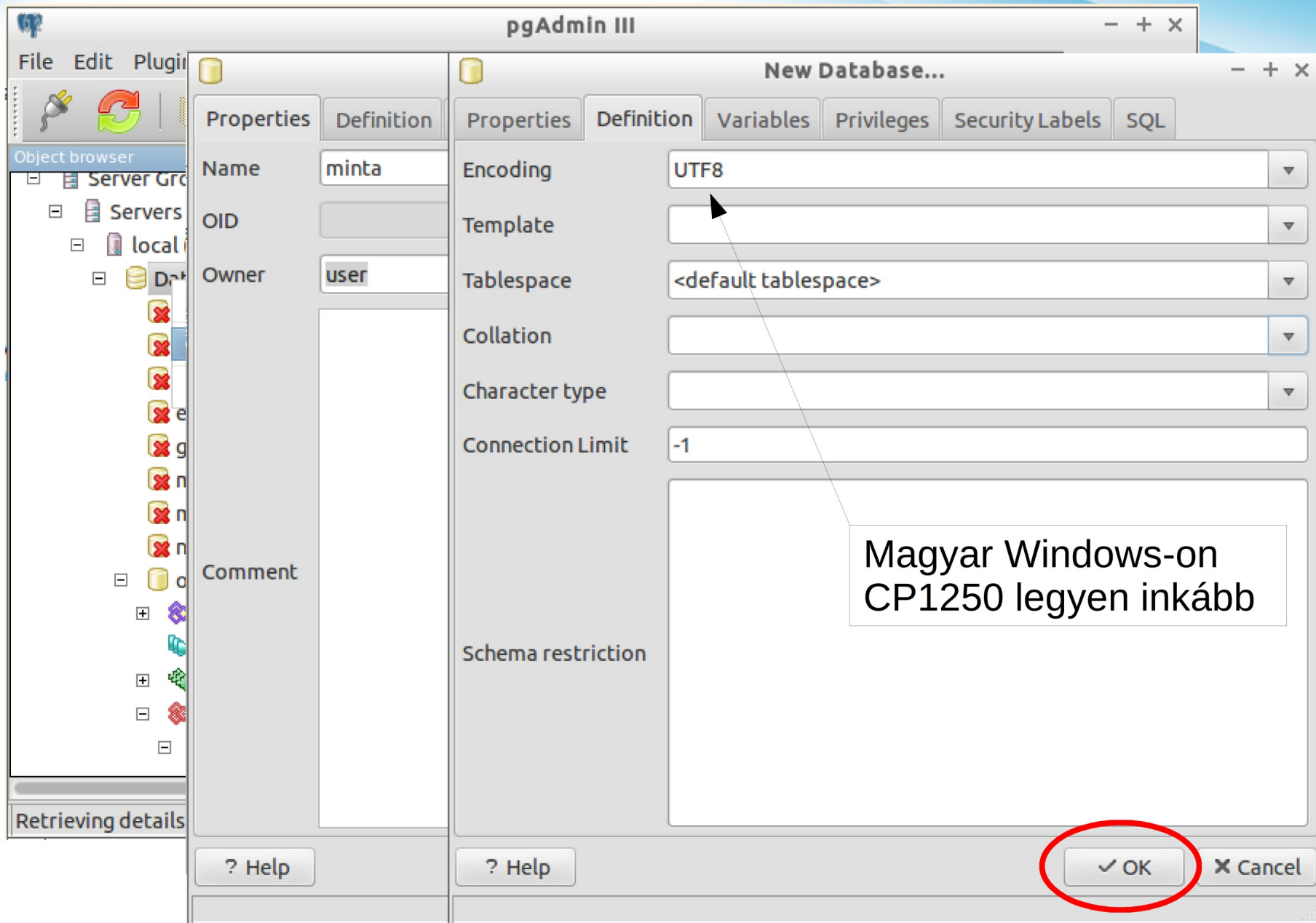
Retrieving details

? Help OK Cancel

Az adatbázis tulajdonosa minden joggal rendelkezik az adatbázisban



# pgadmin3





# pgadmin3

The screenshot shows the pgAdmin III interface. The left pane displays the object browser tree with the following structure:

- Server Groups
  - Servers (1)
    - local (localhost:5432)
      - Databases (15)
        - 52nsos
        - RASBASE
        - cartaro
        - eoxserver\_demo
        - geonode
        - mapbender3.0.3.1
        - minta** (highlighted with a red circle)
        - Catalogs (2)
        - Event Triggers (0)
        - Extensions (2)
        - Schemas (1)
        - Stony Replication
        - natural\_earth2
        - openbiomaps

The right pane shows the Properties tab for the selected database 'minta'.

Property	Value
Name	minta
OID	55762
Owner	user
ACL	
Tablespace	pg_default
Default tablespace	pg_default
Encoding	UTF8
Collation	en_US.UTF-8
Character type	en_US.UTF-8
Default schema	public

The bottom pane shows the SQL pane with the following SQL commands:

```
-- Database: minta
-- DROP DATABASE minta;

CREATE DATABASE minta
  WITH OWNER = "user"
  ENCODING = 'UTF8'
```

The status bar at the bottom indicates: Retrieving details on database minta... Done. 0.19 secs

# PostGIS



The screenshot shows the pgAdmin III application window. The main window is titled "Query - mintan on user@localhost:5432 \*". The SQL Editor tab is active, displaying the command `CREATE EXTENSION PostGIS;` which is circled in red. The toolbar above the editor has a red circle around the SQL execution button (a green play icon). The left sidebar shows a tree view of the database structure, with the "mintan" database selected. The bottom status bar indicates "Unix Ln 1, Col 26, Ch 26".

**További bővítmények:**  
postgis\_topology  
postgis\_sfcgal  
pointcloud





# PostGIS specifikus táblák/view-k

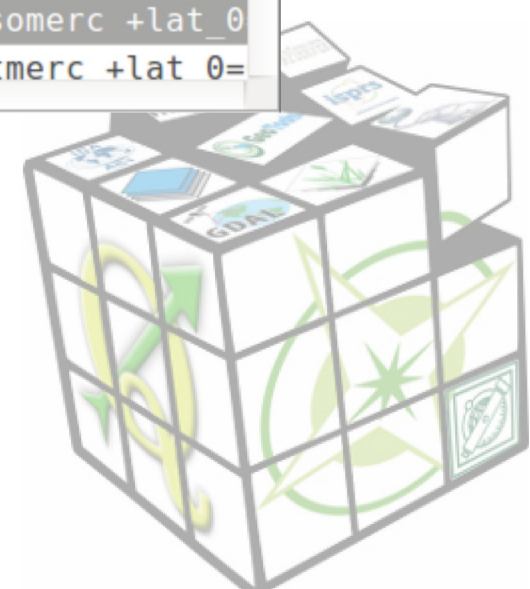
spatial\_ref\_sys

Edit Data - local (localhost:5432) - minta - public.spatial\_ref\_sys

File Edit View Tools Help

No limit

	srid [PK] integer	auth_name character varying(255)	auth_srid integer	srsauth_name character varying(255)	srsproj4text character varying(2048)
4197	23090	EPSG	23090	PROJCS["ED50 / TM 0 N",GEOGCS["ED50",DATUM["ED50",SPHEROID["Spheroid",6378137,0],PRIMEM["Greenwich",0],UNIT["Meter",1]]]]	+proj=tmerc +lat_0=0 +lon_0=0 +k=1 +x_0=0 +y_0=0 +axis=EPSG
4198	23095	EPSG	23095	PROJCS["ED50 / TM 5 NE",GEOGCS["ED50",DATUM["ED50",SPHEROID["Spheroid",6378137,0],PRIMEM["Greenwich",0],UNIT["Meter",1]]]]	+proj=tmerc +lat_0=0 +lon_0=0 +k=1 +x_0=0 +y_0=0 +axis=EPSG
4199	23239	EPSG	23239	PROJCS["Fahud / UTM zone 39N",GEOGCS["Fahud",DATUM["Fahud",SPHEROID["Spheroid",6378137,0],PRIMEM["Greenwich",0],UNIT["Meter",1]]]]	+proj=utm +zone=39 +units=m +no_defs
4200	23240	EPSG	23240	PROJCS["Fahud / UTM zone 40N",GEOGCS["Fahud",DATUM["Fahud",SPHEROID["Spheroid",6378137,0],PRIMEM["Greenwich",0],UNIT["Meter",1]]]]	+proj=utm +zone=40 +units=m +no_defs
4201	23433	EPSG	23433	PROJCS["Garoua / UTM zone 33N (deprecated)",GEOGCS["Garoua",DATUM["Garoua",SPHEROID["Spheroid",6378137,0],PRIMEM["Greenwich",0],UNIT["Meter",1]]]]	+proj=utm +zone=33 +units=m +no_defs
4202	23700	EPSG	23700	PROJCS["HD72 / EO V",GEOGCS["HD72",DATUM["HD72",SPHEROID["Spheroid",6378137,0],PRIMEM["Greenwich",0],UNIT["Meter",1]]]]	+proj=somerc +lat_0=0 +lon_0=0 +k=1 +x_0=0 +y_0=0 +axis=EPSG
4203	23830	EPSG	23830	PROJCS["DGN95 / Indonesia TM-3 zone 46.2",GEOGCS["DGN95",DATUM["DGN95",SPHEROID["Spheroid",6378137,0],PRIMEM["Greenwich",0],UNIT["Meter",1]]]]	+proj=tmerc +lat_0=0 +lon_0=0 +k=1 +x_0=0 +y_0=0 +axis=EPSG





# PostGIS specifikus táblák/view-k

spatial\_ref\_sys

geometry\_columns

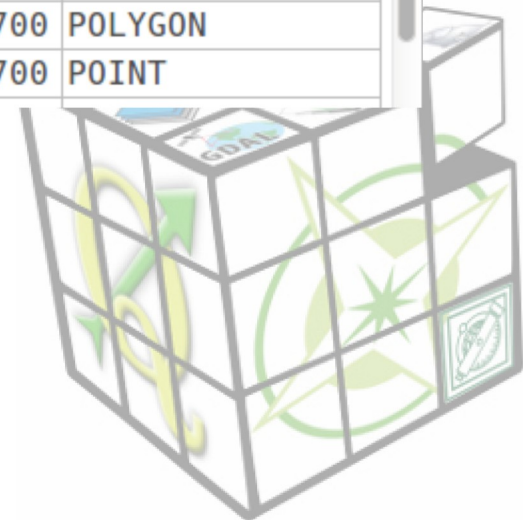
	f_table_catalog	f_table_schema	f_table_name	f_geometry_column	coord_dimension	srid	type	
4197	character varying	name	name	name	integer	integer	character varying(30)	
4198	1	minta	public	csapadek	geom	2	23700	POLYGON
4200	2	minta	public	folyo	geom	2	23700	LINestring
4201	3	minta	public	megye	geom	2	23700	POLYGON
4202	4	minta	public	ország	geom	2	23700	POLYGON
4203	5	minta	public	tal	geom	2	23700	POLYGON
	6	minta	public	to	geom	2	23700	POLYGON
	7	minta	public	varos	geom	2	23700	POINT

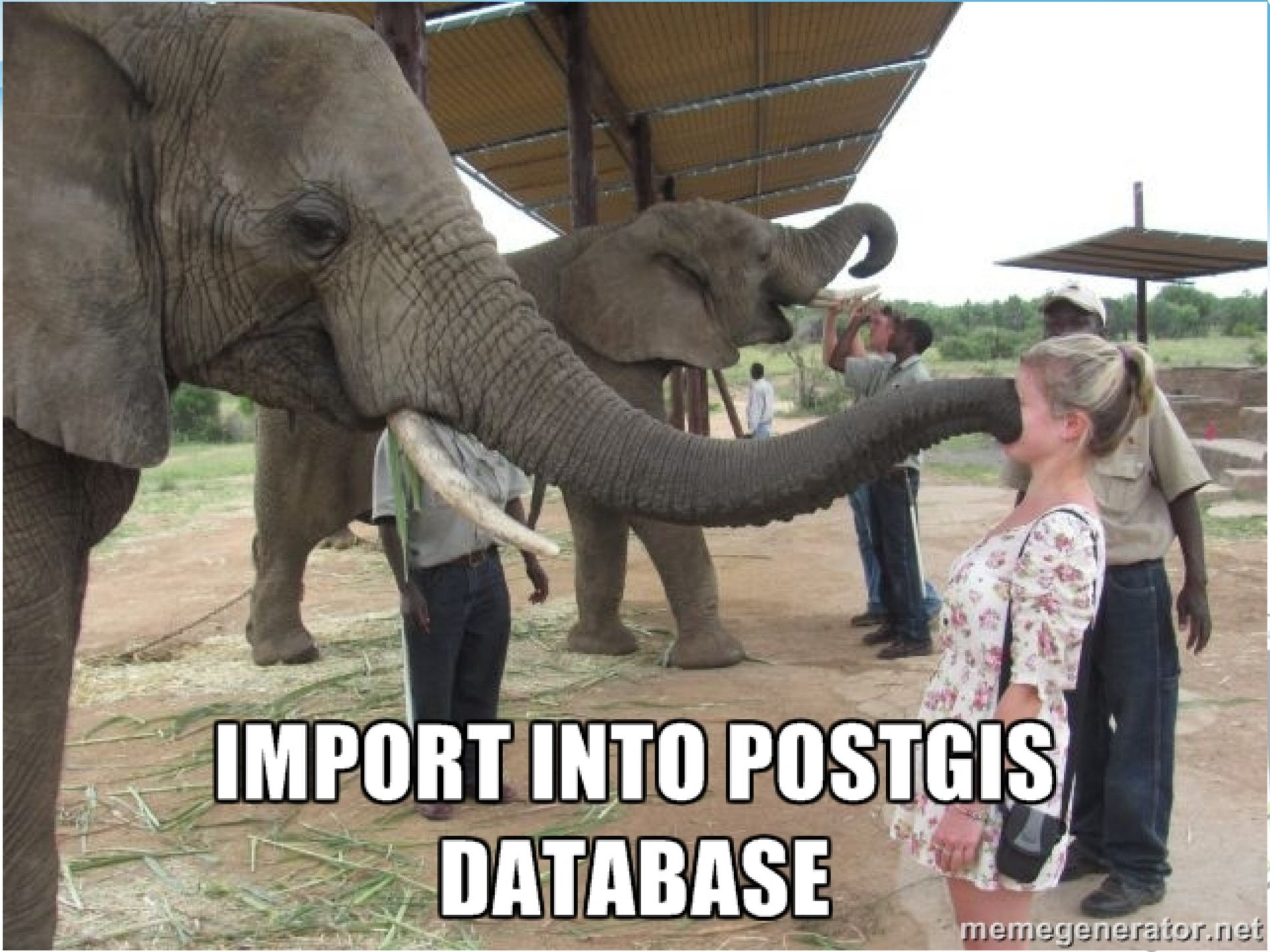
## További speciális táblák:

geography\_columns

raster\_columns

raster\_overviews





**IMPORT INTO POSTGIS  
DATABASE**

memegenerator.net



# shp2pgsql-gui



```
user@osgoe-live:~$ shp2pgsql-gui
```

shp2pgsql-gui



PostGIS Shapefile Import/Export Manager

PostGIS Connection

View connection details...

Import Export

Import List

Shapefile	Schema	Table	Geo Column	SRID	Mode	Rm
/home/user/mo/csapadek.shp	public	csapadek	geom	0	Create	<input type="checkbox"/>
/home/user/mo/folyo.shp	public	folyo	geom	0	Create	<input type="checkbox"/>
/home/user/mo/megye.shp	public	megye	geom	0	Create	<input type="checkbox"/>
/home/user/mo/nap.shp	public	nap	geom	0	Create	<input type="checkbox"/>
/home/user/mo/tal.shp	public	tal	geom	0	Create	<input type="checkbox"/>

Add File

Options... Import About Cancel

Log Window



# shp2pgsql-gui



PostGIS Shapefile Import/Export Manager

PostGIS Connection

View connection details...

Import Export

Import List

Shapefile	Schema	Table	Geo Column
/home/user/mo/csapadek.shp	public	csapadek	geom
/home/user/mo/folyo.shp	public	folyo	geom
/home/user/mo/megye.shp	public	megye	geom
/home/user/mo/nap.shp	public	nap	geom
/home/user/mo/tal.shp	public	tal	geom

Add File

Options...

Import

About

Log Window

Import Options

latin2

DBF file character encoding

Preserve case of column names

Do not create 'bigint' columns

Create spatial index automatically after load

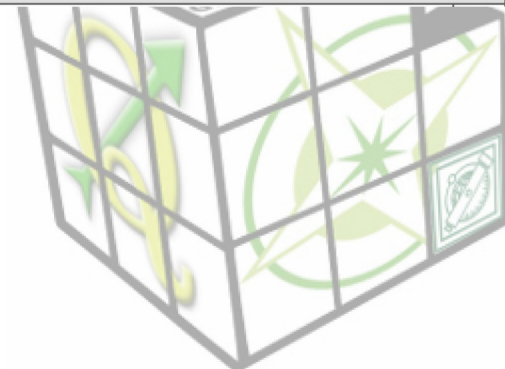
Load only attribute (dbf) data

Load data using COPY rather than INSERT

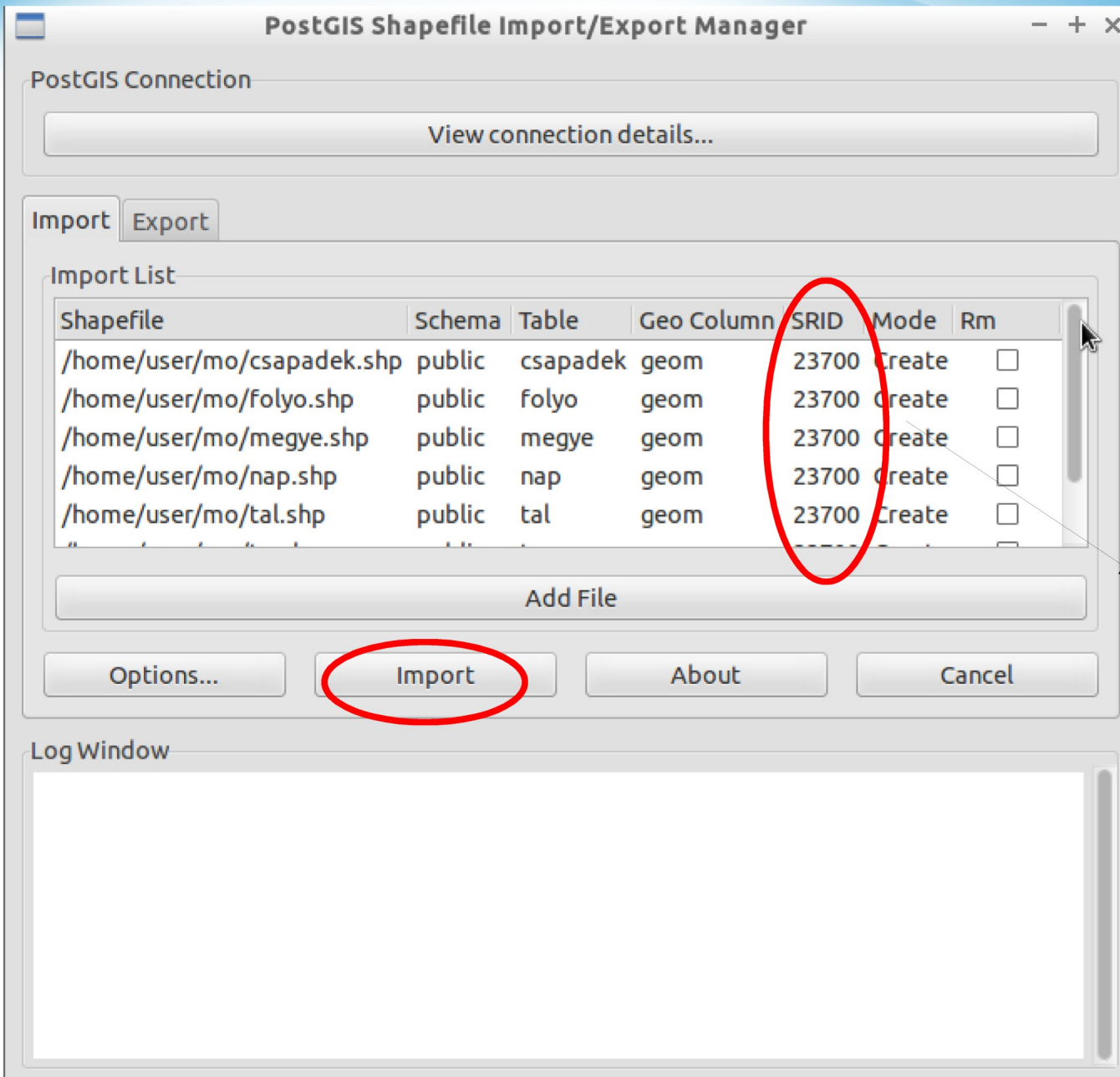
Load into GEOGRAPHY column

Generate simple geometries instead of MULTI geometries

OK



# shp2pgsql



EOV vetület





# shp2pgsql

Az sph2pgsql-gui programot a pgadmin3 programból is használhatjuk, ehhez az alábbi sorokat adjuk hozzá a **plugins.ini** fájl végéhez a **/usr/share/pgadmin3/plugins.d** könyvtárban

```
; pgShapeLoader (Linux):  
Title=PostGIS Shapefile and DBF loader  
Command=$$PGBINDIR/shp2pgsql-gui -U $$USERNAME -d $$DATABASE -p $$PORT -h $$HOSTNAME  
Description=Open a PostGIS ESRI Shapefile or Plain dbf loader console to the current database.  
KeyFile=$$PGBINDIR/shp2pgsql-gui  
Platform=unix  
ServerType=postgresql  
Database=Yes  
SetPassword=No
```

A plugins.ini fájl szerkesztéséhez rendszergazda jogok kellene:  
`sudo leafpad /usr/share/pgadmin3/plugins.d/plugins.ini`

Az import még többféle módon megoldható:  
Parancssorból: shp2pgsql vagy ogr2ogr  
Grafikus felületen: QGIS DB kezelő vagy QGIS mentés másként





# pgadmin3

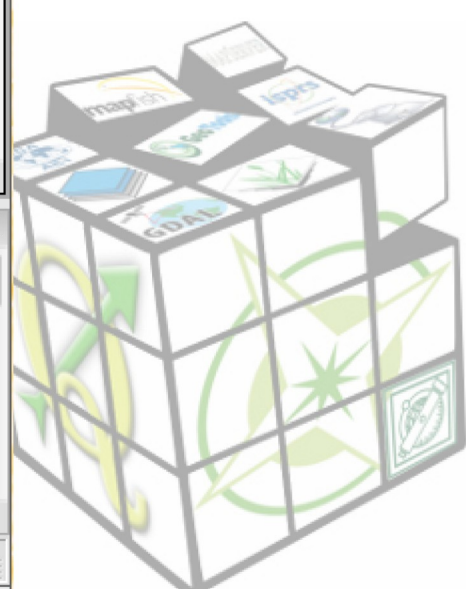
The screenshot shows the pgAdmin III interface. The 'Object browser' on the left lists several tables, with 'megye' highlighted in a red circle. The 'Properties' tab is active, displaying the following table:

Property	Value
Name	megye
OID	57084
Owner	user
Tablespace	pg_default
ACL	
Of type	
Primary key	gid
Rows (estimated)	20
Fill factor	
Rows (counted)	20

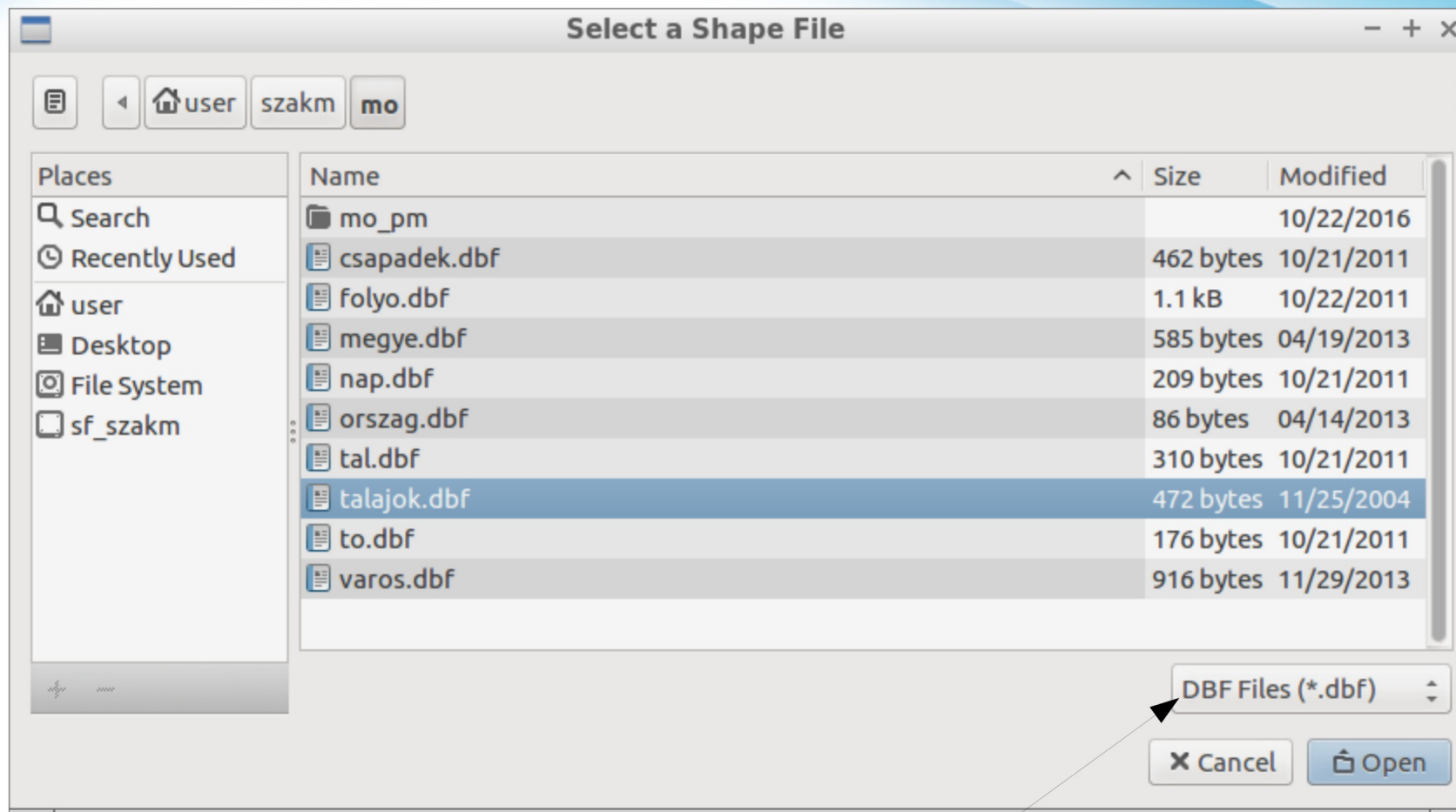
The 'SQL pane' at the bottom shows the following SQL code:

```
-- Table: megye
-- DROP TABLE megye;
CREATE TABLE megye
(
  gid serial NOT NULL
```

At the bottom of the window, a status bar indicates: 'Retrieving details on table megye... Done. 0.01 secs'



# shp2pgsql-gui



Csak alfanumerikus adatokat tartalmazó tábla



# pgadmin3

**Select a Shape File**

user szakm mo

Places: mo\_pm (10/22/2016)

PostGIS Connection: View connection details...

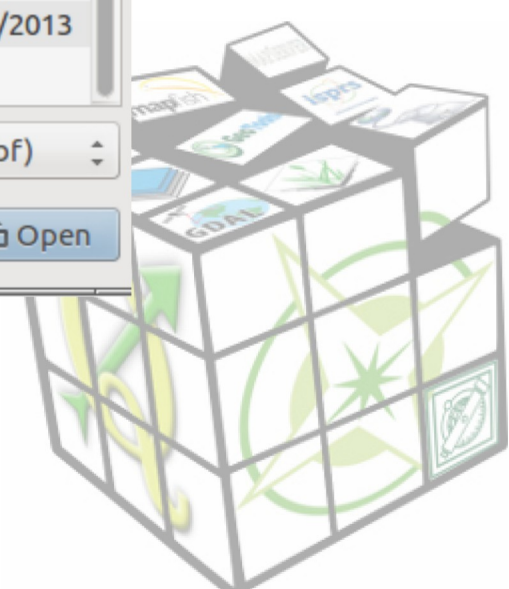
Import | Export

Shapefile	Schema	Table	Geo Column	SRID	Mode	Rm
/home/user/szakm/mo/talajok.dbf	public	talajok	geom	0	Create	<input type="checkbox"/>

Add File

Options... **Import** About Cancel

Log Window



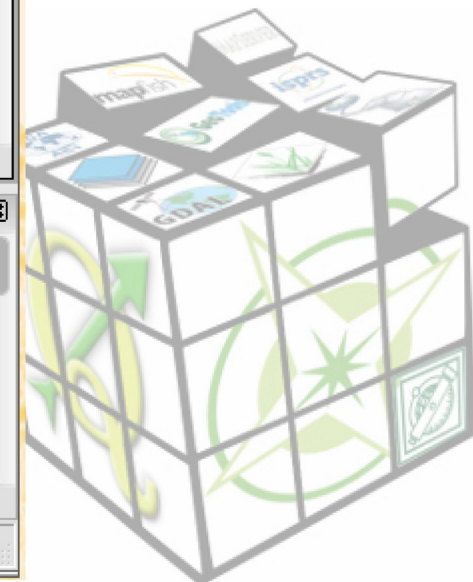


# pgadmin3

The screenshot shows the pgAdmin III interface. The 'Object browser' on the left shows a tree structure with 'Tables (9)' expanded to show 'csapadek', 'folyo', 'me...', 'nap...', 'ors...', 'spa...', 'tal...', 'to...', 'var...', 'Trigge...', 'Views', 'Slony Rep...', 'natural\_ear...', 'openbiomap...', and 'osm\_local...'. A context menu is open over the 'folyo' table, listing actions such as 'Refresh', 'Count', 'New Object', 'Delete/Drop...', 'Drop cascaded...', 'Truncate', 'Truncate Cascaded', 'Reset table statistics', 'Scripts', 'View Data', 'Reports', 'Maintenance...', 'Backup...', 'Restore...', and 'Import'. The 'View Data' option is expanded, showing sub-options: 'View Top 100 Rows', 'View Last 100 Rows', 'View All Rows', and 'View Filtered Rows...'. The 'Properties' tab is active, displaying the following table:

Property	Value
Name	folyo
OID	59866
Owner	user
Tablespace	pg_default
ACL	
File type	
Primary key	gid
Rows (estimated)	38
Row factor	
Rows (counted)	38

The status bar at the bottom right indicates '0.18 secs'.



# pgadmin3



WKB

pgAdmin III

File Edit Plugins View Tools Help

Object browser

Domains (0)

Properties Statistics Dependencies Dependents

Property Value

Edit Data - local (localhost:5432) - minta - megye

File Edit View Tools Help

100 rows

	gid [PK] serial	nev character varying(25)	sl n	sl n	sl n	kod smallint	geom geometry(Polygon,23700)
1	1	Budapest	9	1	1	5	0103000020945C0000001000000C90100
2	2	Fejér	6	1	1	7	0103000020945C0000001000000E20400
3	3	Tolna	5	8	1	17	0103000020945C00000010000008F0500
4	4	Bács-Kiskun	1	1	1	1	0103000020945C0000001000000400600
5	5	Heves	5	1	2	10	0103000020945C0000001000000440500
6	6	Jász-Nagykun-Szol	8	7	8	11	0103000020945C0000001000000C30600
7	7	Borsod-Abaúj-Zemp	1	2	1	4	0103000020945C0000001000000E80400

Scratch pad

Retrieving

20 rows.

An arrow points from the text 'WKB' to the 'geom' column in the table, specifically to the first row's value.



# pgadmin3



The screenshot displays the pgAdmin III application window. The main window has a menu bar (File, Edit, Plugins, View, Tools, Help) and a toolbar. A red circle highlights the 'SQL' icon in the toolbar. The 'Object browser' on the left shows a tree view of database objects, with 'Tables (8)' expanded to show 'csapadek', 'folyo', 'megye', 'nap', 'spatial\_ref\_sys', 'tal', 'to', and 'varos'. The 'megye' table is selected. The 'Query - minta on user@localhost:5432 \*' window is open, showing the SQL Editor with the query: `SELECT ST_AsText(geom) FROM varos`. The 'Output pane' shows the results of the query in a table format.

WKT

	st_astext text
1	POINT(466772.097657108 260000.473886692)
2	POINT(465638.521809064 210788.737132531)
3	POINT(483619.62860708 165560.958011648)
4	POINT(588947.817264933 79800.3640568266)
5	POINT(625087.827028208 107170.224088278)

OK. Unix Ln 1, Col 34, Ch 34 21 rows. 13 ms



# Geometria aktualizálása

```
INSERT INTO varos (nev, lako, geom)
VALUES ('Esztergom', 24000, ST_GeomFromText('POINT(626766 272076)', 23700));
```

vagy

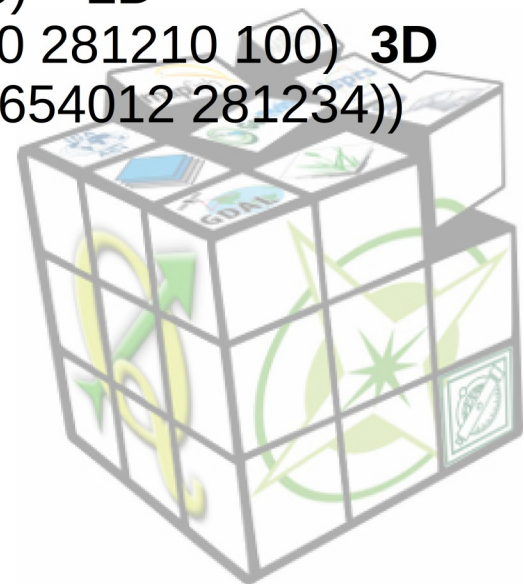
WKT      EPSG

```
INSERT INTO varos VALUES (nextval('varos_gid_seq'), 'Nagykanizsa', 50000,
ST_GeomFromText('POINT(492280 125860)', 23700));
```

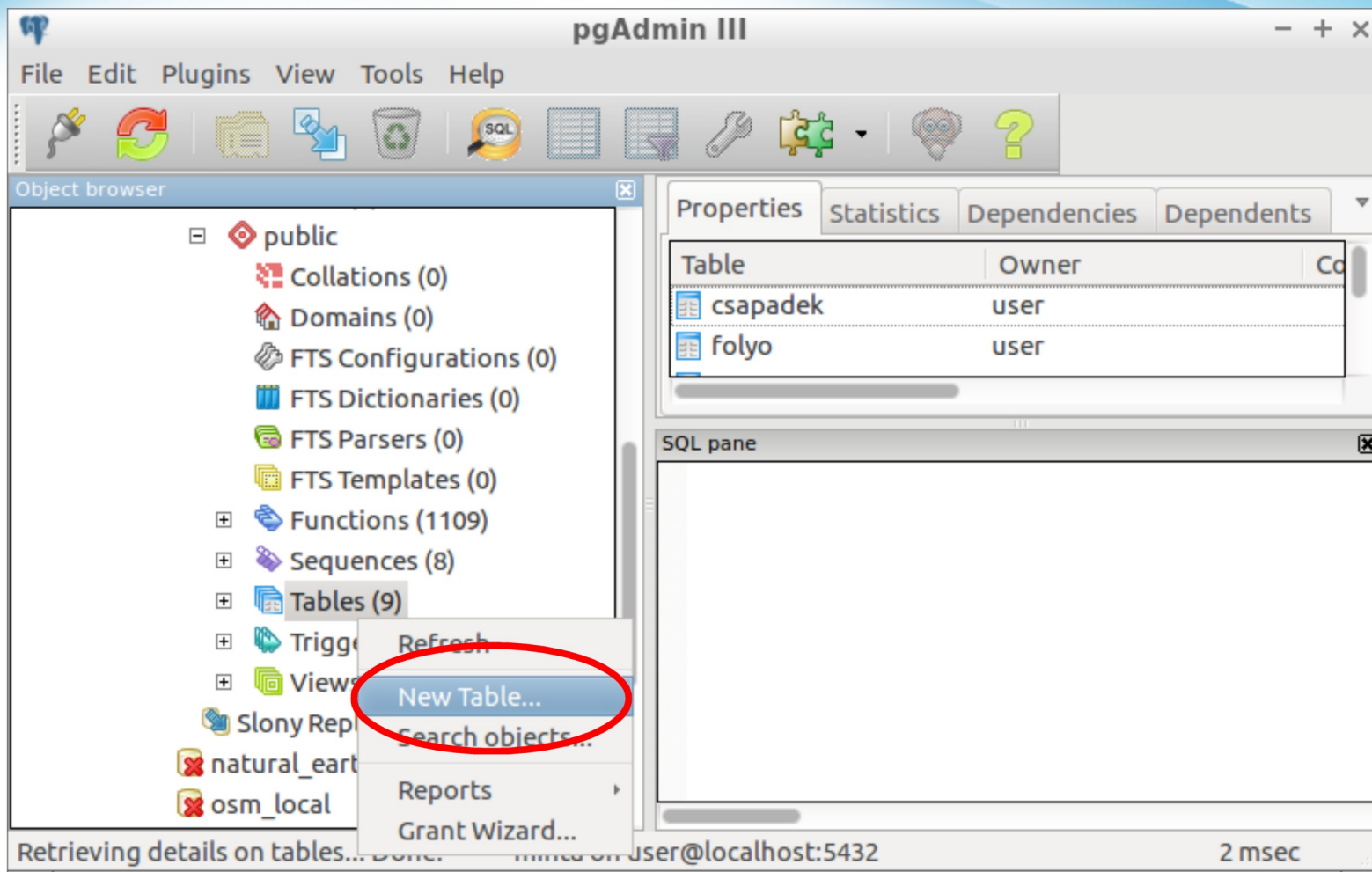
## WKT példák:

```
LINESTRING(654012 281234, 654023 281196, 654030 281210)    2D
LINESTRING(654012 281234 104, 654023 281196 103, 654030 281210 100)    3D
POLYGON((654012 281234, 654023 281196, 654030 281210, 654012 281234))
```

```
MULTIPOINT
MULTILINESTRING
MULTIPOLYGON
```



# Új tábla létrehozása

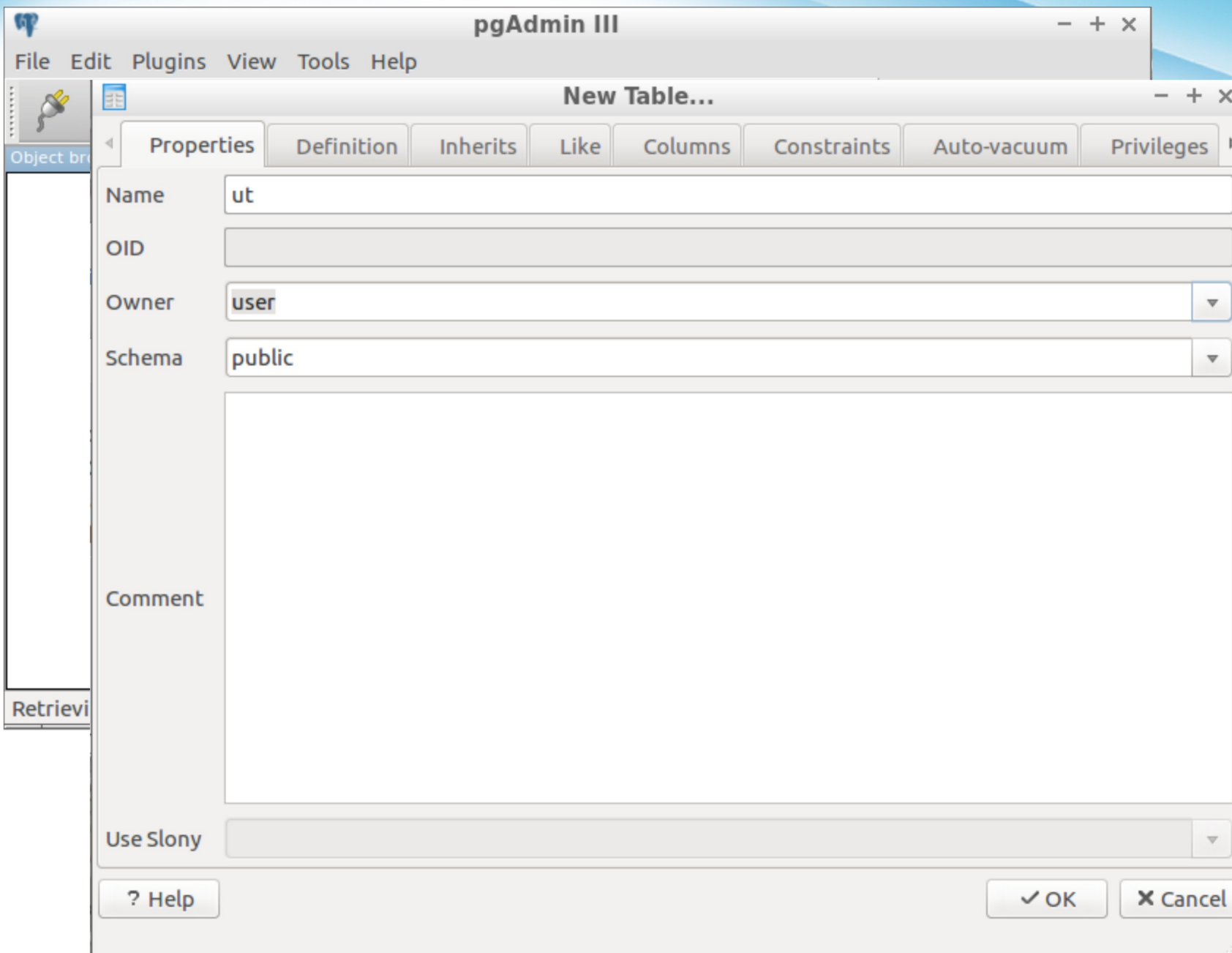


The screenshot shows the pgAdmin III application window. The 'Object browser' on the left displays a tree view of the database structure. The 'Tables (9)' folder is selected, and a context menu is open over it. The 'New Table...' option is highlighted with a red circle. The 'Properties' tab is active in the right pane, showing a table list with columns 'Table' and 'Owner'. The 'SQL pane' is empty. The status bar at the bottom indicates 'Retrieving details on tables... Done.' and '2 msec'.

Table	Owner
csapadek	user
folyo	user



# Új tábla létrehozása



The image shows a screenshot of the pgAdmin III software interface. The main window is titled "pgAdmin III" and has a menu bar with "File", "Edit", "Plugins", "View", "Tools", and "Help". A "New Table..." dialog box is open, showing the "Properties" tab. The dialog has several input fields: "Name" with the value "ut", "OID" (empty), "Owner" with a dropdown menu showing "user", and "Schema" with a dropdown menu showing "public". There is a large empty text area for "Comment" and a "Use Slony" dropdown menu at the bottom. At the bottom of the dialog are buttons for "? Help", "✓ OK", and "✗ Cancel".

pgAdmin III

File Edit Plugins View Tools Help

New Table...

Properties Definition Inherits Like Columns Constraints Auto-vacuum Privileges

Name ut

OID

Owner user

Schema public

Comment

Use Slony

? Help ✓ OK ✗ Cancel



# Új tábla létrehozása

The screenshot shows the pgAdmin III interface. The main window is titled "pgAdmin III" and has a menu bar with "File", "Edit", "Plugins", "View", "Tools", and "Help". The "Object browser" on the left shows a tree structure. The "Properties" tab is selected for a table named "ut". The "New Table..." dialog box is open, showing the "Columns" tab. The dialog has a table with the following data:

Column name	Definition	Inherited from table
gid	serial	0
name	character varying(25)	1

The dialog also has buttons for "Add", "Remove", "? Help", "OK", and "Cancel".

# Új tábla létrehozása

The screenshot displays the pgAdmin III interface. The main window is titled "pgAdmin III" and has a menu bar with "File", "Edit", "Plugins", "View", "Tools", and "Help". A "New Table..." dialog box is open, showing the "Constraints" tab. The dialog has several tabs: "Properties", "Definition", "Inherits", "Like", "Columns", "Constraints", "Auto-vacuum", and "Privileges".

The "Properties" tab is active, showing the following fields:

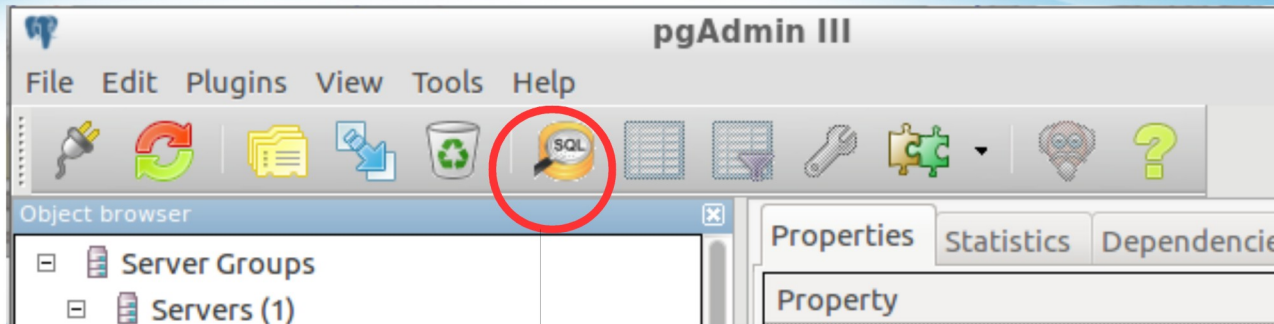
- Name: ut
- OID: [empty]
- Owner: use
- Schema: put
- Comment: [empty]
- Use Slony: [unchecked]

The "Constraints" tab is active, showing a table with the following columns:

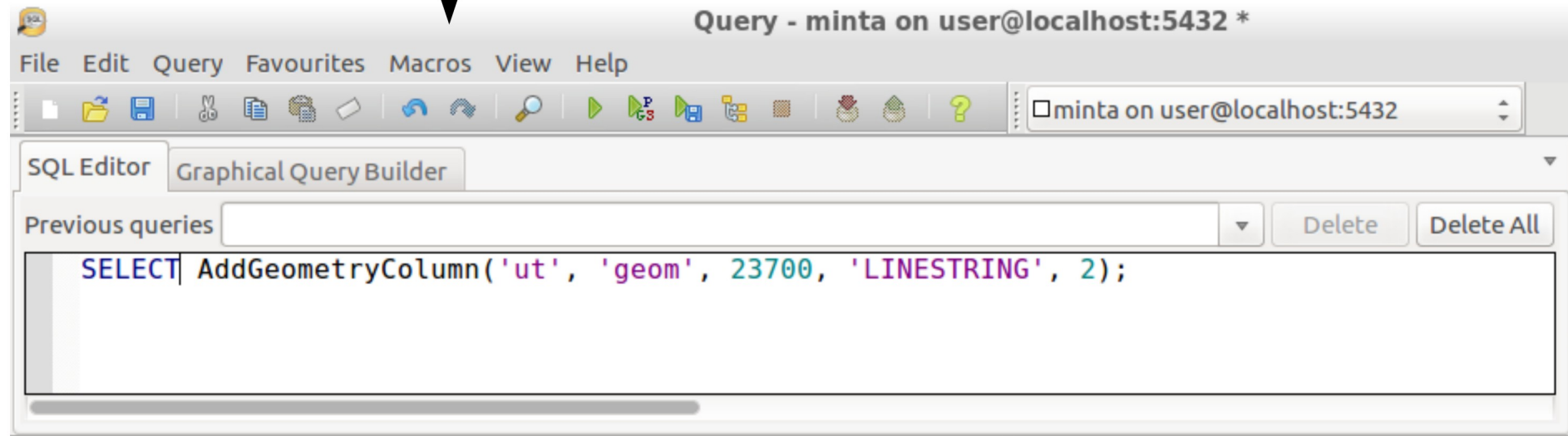
Constraint name	Definition
ut_pkey	(gid)

At the bottom of the dialog, there is a "Foreign Key" dropdown menu, an "Add" button, and a "Remove" button. The "Add" button is highlighted.

# Geometria oszlop



Query - minta on user@localhost:5432 \*



Output pane

Data Output		Explain	Messages	History
	<b>addgeometrycolumn</b> text			
1	public.ut.geom SRID:23700 TYPE:LINESTRING DIMS:2			



# Tábla bővítése

Query - minta on user@localhost:5432 \*

File Edit Query Favourites Macros View Help

Previous queries  Delete Delete All

```
INSERT INTO ut (name, geom) VALUES ('test',  
ST_GeomFromText('LINESTRING(654123 281234, 654235 281111)', 23700))
```

Output pane

Data Output Explain Messages History

Query returned successfully: one row affected, 43 msec execution time.

Edit Data - local (localhost:5432) - minta - public.ut

File Edit View Tools Help

100 rows

	gid [PK] serial	name character varying(25)	geom geometry(LineString,23700)
1	1	test	0102000020945C000002000000000000056F6234100000000482A114100000
*			







# Tábla létrehozása (SQL)



```
CREATE TABLE ut(  
  gid serial PRIMARY KEY,  
  name varchar(25)  
);  
SELECT AddGeometryColumn('ut', 'geom', 23700, 'LINESTRING', 2);
```

## Térbeli index:

```
CREATE INDEX ut_gist ON ut USING GIST (geom);
```

Opció az  
shp2pgsql-gui-ban

## Tábla törlése:

```
DROP INDEX ut_gist; (opcionális, automatikusan tölésre kerül)  
Select DropGeometryColumn('ut', 'geom');  
DROP TABLE ut
```



## SQL szkriptek:

SQL utasítások egy szövegfájlban (automatizálás)  
pgadmin3 és psql használható a szkriptek futtatására



# Egyszerű lekérdezések

## PostGIS verzió

```
SELECT postgis_full_version();
```

## Folyószakaszok hossza

```
SELECT nev, ST_Length(geom) FROM folyo;
```

## Megyék területe, a területek növekvő sorrendjében

```
SELECT nev, ST_Area(geom) FROM megye ORDER BY 2;
```

## Városok 50000-nél több lakossal

```
SELECT * FROM varos WHERE lako > 50000;
```

## 50000-nél több lakosú városok száma

```
SELECT count(*) FROM varos WHERE lako > 50000;
```

## Városokban az éves csapadék

```
SELECT nev, mm FROM varos INNER JOIN csapadek ON  
ST_Within(varos.geom, csapadek.geom)
```





# Egyszerű lekérdezések

**Leghosszabb magyarországi szakasszal bíró folyó**

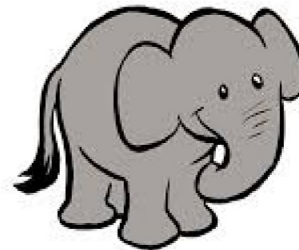
```
SELECT nev, sum(ST_Length(geom)) FROM folyo  
GROUP BY nev ORDER BY 2 DESC LIMIT 1
```

**Egerhez legközelebbi vízfolyás**

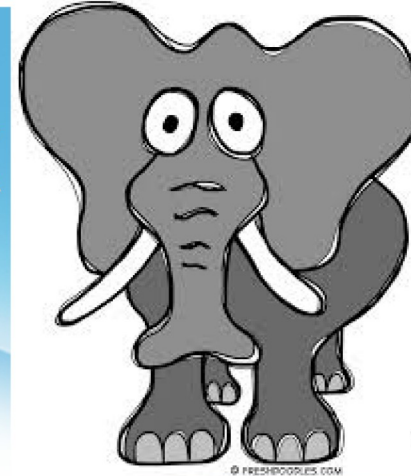
```
SELECT varos.nev, folyo.nev, ST_Distance(varos.geom, folyo.geom)  
FROM varos CROSS JOIN folyo  
WHERE varos.nev='Eger' ORDER BY 3 LIMIT 1
```

**Az egyes városokhoz legközelebbi vízfolyás távolsága**

```
SELECT v.nev, min(ST_Distance(v.geom, f.geom))  
FROM varos AS v CROSS JOIN folyo AS f  
GROUP BY v.nev  
ORDER BY 2;
```



# Egyszerű lekérdezések



## Egymáshoz legközelebbi város-folyó párok

```
SELECT v.nev, f.nev, ST_Distance(v.geom, f.geom)
FROM varos AS v CROSS JOIN folyo AS f
WHERE (v.nev, ST_Distance(v.geom, f.geom)) in (
SELECT varos.nev, min(ST_Distance(varos.geom, folyo.geom))
FROM varos CROSS JOIN folyo
WHERE varos.nev = v.nev
GROUP BY varos.nev);
```

## Városok melyik megyébe esnek

```
SELECT megye.nev AS megye, varos.nev AS varos FROM
Varos INNER JOIN megye
ON ST_Contains(megye.geom, varos.geom)
ORDER BY varos.nev;
```

## Veszprém megye szomszédai

```
SELECT b.nev FROM megye AS a INNER JOIN megye AS b
ON ST_Touches(a.geom, b.geom)
WHERE a.nev='Veszprém' and b.nev <> 'Veszprém';
```



# Térbeli lekérdezések SQL



## Legcsapadékosabb város

```
SELECT varos.nev, csapadek.mm FROM
  csapadek INNER JOIN varos ON
  ST_Contains(csapadek.geom, varos.geom)
WHERE csapadek.mm = (
  SELECT max(mm) FROM csapadek INNER JOIN varos ON
  ST_Contains(csapadek.geom, varos.geom));
```

## Összesen a leghosszabb folyószakaszokat tartalmazó megye

```
SELECT nev, sum(ST_Length(geom)) FROM
  (SELECT megye.nev as nev,
    ST_Intersection(megye.geom, folyo.geom) AS geom
  FROM megye INNER JOIN folyo
  ON (ST_INTERSECTS(megye.geom, folyo.geom))) AS szakasz
GROUP BY nev
ORDER BY 2 DESC LIMIT 1;
```



# PostGIS QGIS-ből

osgeo [Running] - Oracle VM VirtualBox

Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help

Layers Panel

Connections

minta

Connect New

Schema ^ Table Cor

Authentication Configurations

Username  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

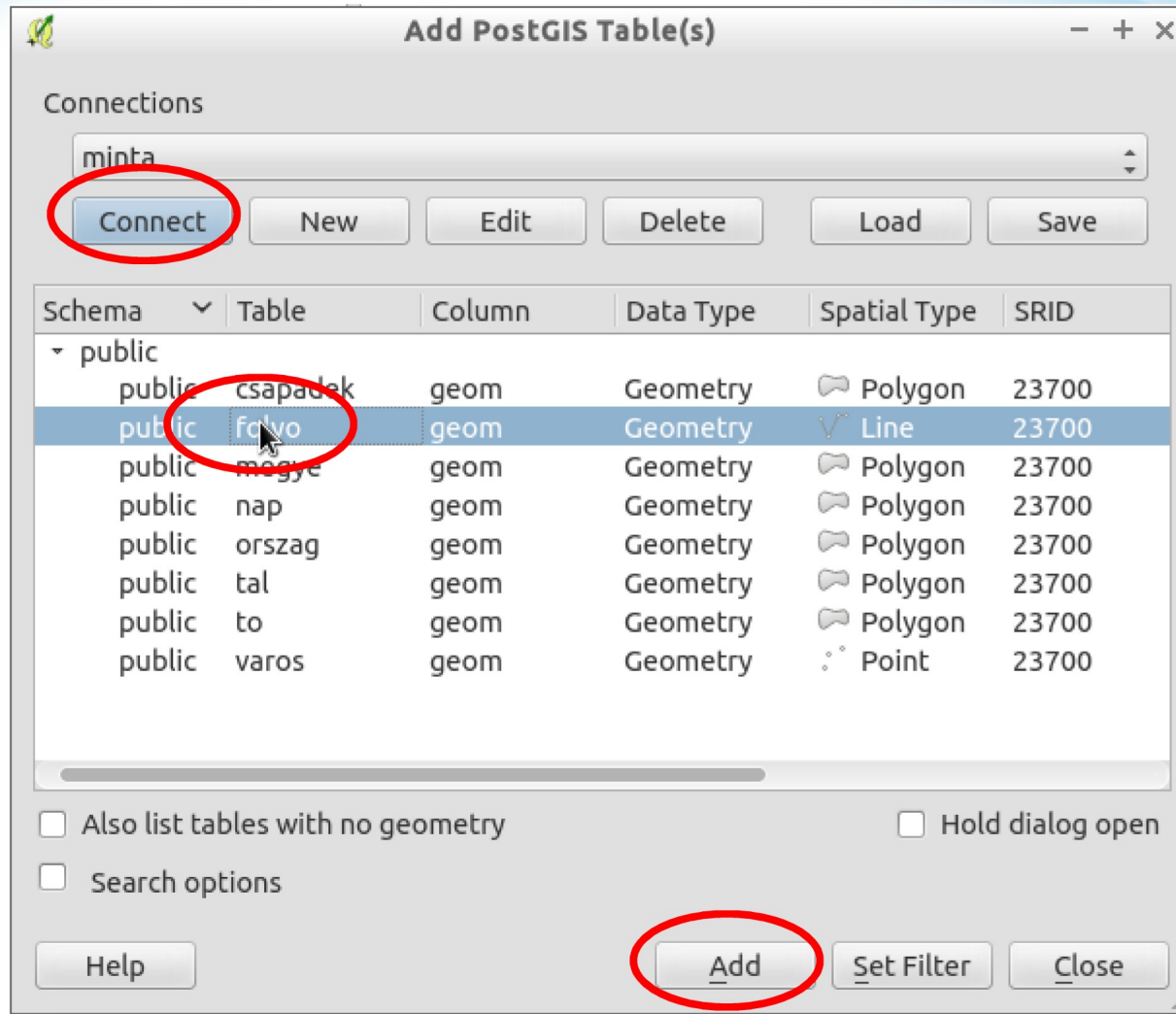
Help Cancel **OK**

Coordinate 16.8494,46.5194 Scale 1:56,959 Rot

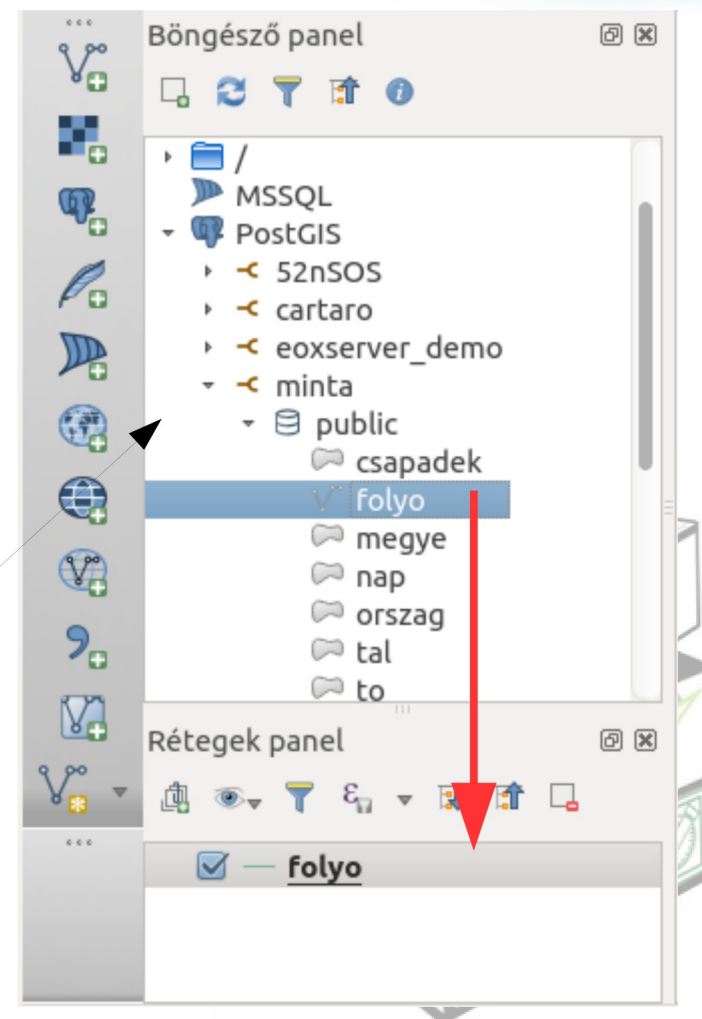
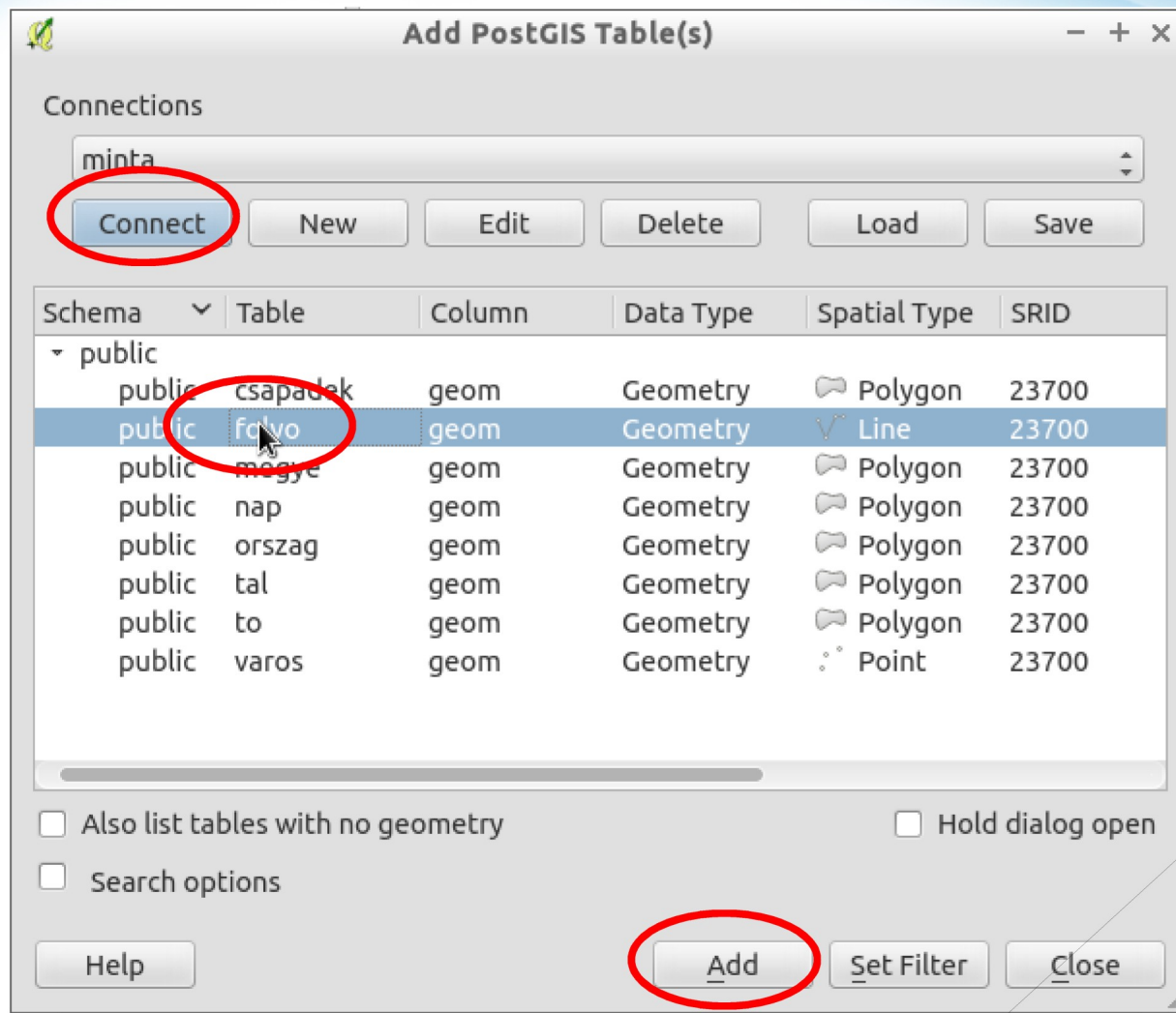
Desktop GIS QGIS 2.14.3-Essen Add PostGIS Ta... Create a New P...

odézia

# PostGIS réteg



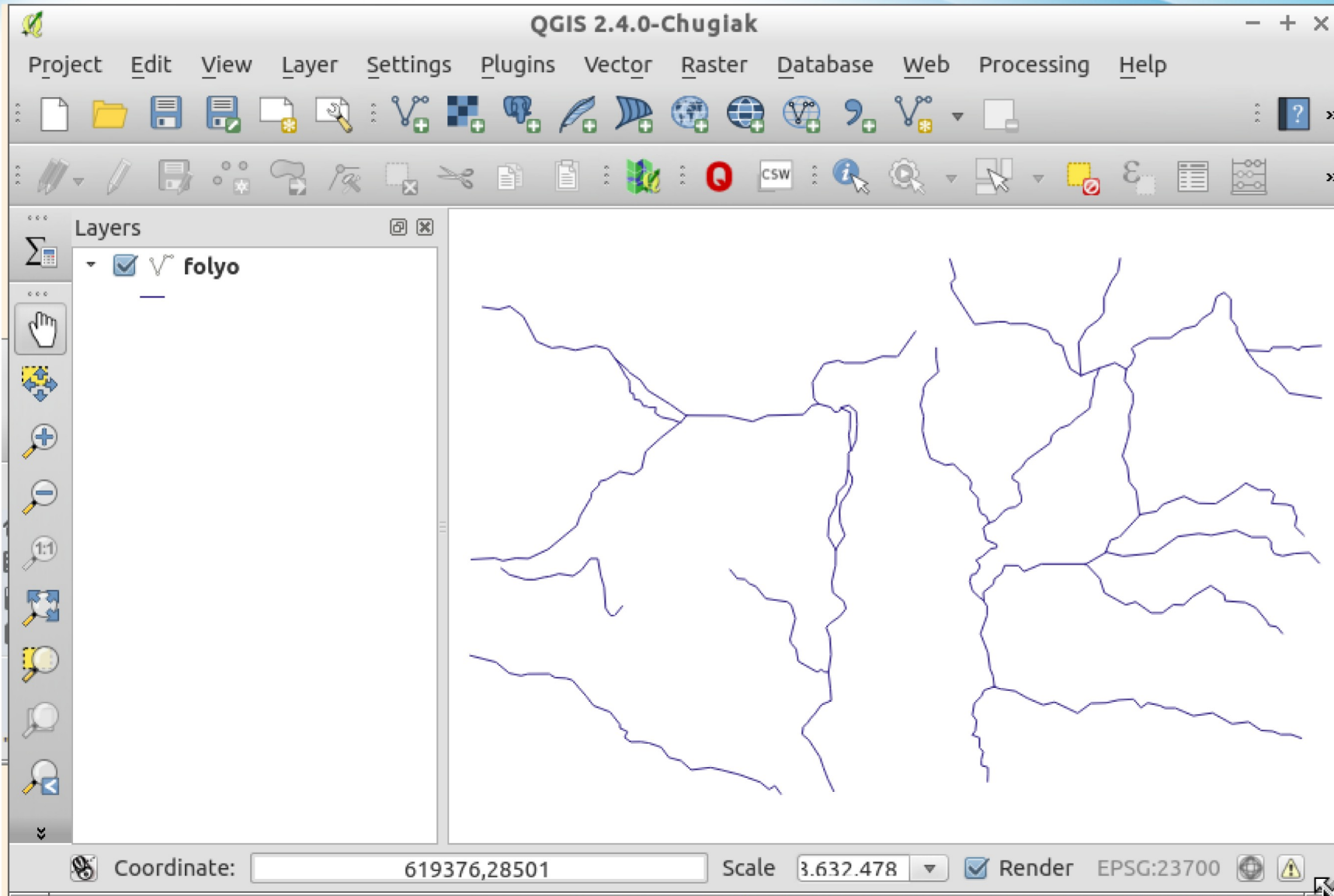
# PostGIS réteg



A PostGIS rétegek a QGIS böngésző panelből is áthúzhatók

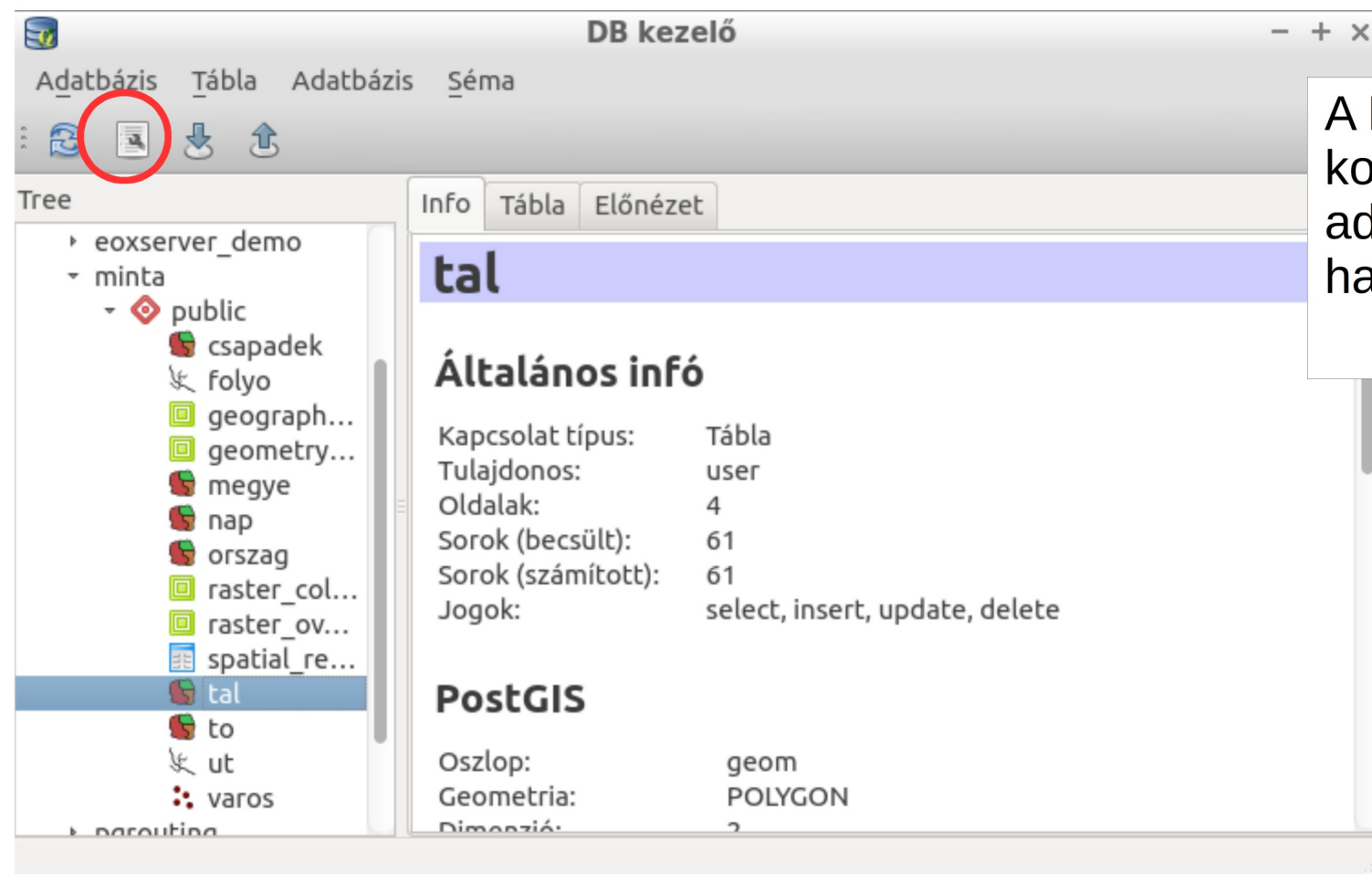
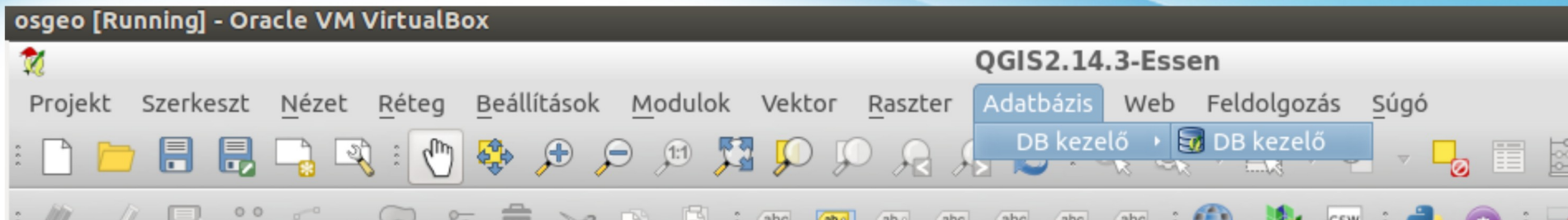


# Megjelenítés QGIS-ben



A PostGIS táblák szerkeszthetők QGIS-ből

# QGIS DB Kezelő



A DB kezelő is a korábban létrehozott adatbázis kapcsolatot használja



# QGIS DB Kezelő

osgeo [Running] - Oracle VM VirtualBox

DB kezelő

Adatbázis Tábla Adatbázis Séma

Projekt Szerkeszt

Tree

Info Tábla Előnézet Lekérdezés (minta) X

Mentett lekérdezés: Név Tárol Töröl

```
SELECT geom, gid, tipus from tal where tipus = 7
```

Végrehajt (F5) 6 sor, 0.0 másodperc Nézet létrehozás Töröl

	geom	gid	tipus
1	0103000020945C000001000000080000003DDB1CD8F2C22241...	19	7
2	0103000020945C0000010000000600000077606C05FC5E2541F...	22	7

Betöltés új réteggént

Oszlop(ok) egyedi értékekkel gid  Geometria oszlop geom Oszlopok letöltése

Rétegnév (előtag) Szűrő beállítás

Kerüld az azonosító alapján történő szelekciót **Betöltés most!**

# Térbeli elemzések grafikus eredménnyel



## Erdei talajok (tábla összekapcsolás)

```
SELECT tal.gid AS gid, talajok.talaj_nev AS nev, tal.geom AS geom  
FROM tal INNER JOIN talajok ON tal.tipus=talajok.tipus  
WHERE talajok.talaj_nev LIKE '%erdo';
```

## Folyó szakaszok megyénként

```
SELECT megye.gid * 100 + folyo.gid AS gid, megye.nev, folyo.nev,  
ST_Intersection(megye.geom, folyo.geom) AS geom  
FROM megye INNER JOIN folyo  
ON (ST_INTERSECTS(megye.geom, folyo.geom));
```

## Talajok és napsütéses órák metszete

```
SELECT ROW_NUMBER() OVER () AS gid, tipus, ora, geom  
FROM (SELECT tal.tipus, nap.ora,  
(ST_Dump(ST_Intersection(tal.geom, nap.geom))).geom AS geom  
FROM tal INNER JOIN nap ON  
ST_Intersects(tal.geom, nap.geom)) AS talnap  
WHERE ST_GeometryType(geom) = 'ST_Polygon';
```



# Térbeli elemzések grafikus eredménnyel



## Folyó szakaszok megyénként

```
SELECT megye.gid * 100 + folyo.gid AS gid, megye.nev, folyo.nev,  
ST_Intersection(megye.geom, folyo.geom) AS geom  
FROM megye INNER JOIN folyo  
ON (ST_INTERSECTS(megye.geom, folyo.geom));
```

## Talajok és napsütéses órák metszete

```
SELECT ROW_NUMBER() OVER () AS gid, tipus, ora, geom  
FROM (SELECT tal.tipus, nap.ora,  
(ST_Dump(ST_Intersection(tal.geom, nap.geom))).geom AS geom  
FROM tal INNER JOIN nap ON  
ST_Intersects(tal.geom, nap.geom)) AS talnap  
WHERE ST_GeometryType(geom) = 'ST_Polygon';
```





# Komplex lekérdezés

```
select row_number() over() as gid,  
ST_Intersection(ST_Union(a.buf, b.buf), tn.good)  
from (select ST_Union(ST_Buffer(folyo.geom, 10000)) as buf  
from folyo) as a,  
(select ST_Union(ST_Buffer(tavak.geom, 10000)) as buf  
from tavak) as b,  
(select ST_Union(ST_Intersection(tal.geom, nap.geom)) as good  
from nap inner join tal on ST_Intersects(tal.geom, nap.geom)  
where nap.ora>1800 and tal.tipus=8) as tn  
where ST_Intersects(ST_Union(a.buf, b.buf),tn.good)
```

Gumipitypang termesztésére alkalmas területek:  
folyók, tavak 10 km-es környezetében, ahol  
a talajtípus 8 és a napsütéses órák száma nagyobb mint 1800



# Adatok exportálása

## Parancssorból

pgsql2shp (csak shp formátumba)  
ogr2ogr (többféle formátum)

## Grafikus felületen

pgsql2shp-gui (export fül)  
QGIS mentés másként (többféle formátum)

