

Nowa baza danych

```
PS C:\Program Files\PostgreSQL> pg_restore -U postgres -d postgis_raster -1 "C:\Users\PC\13powód\przestrzenne\PostGIS raster - dane\PostGIS raster - dane\postgis_raster.backup"
pg_restore: warning: restoring tables WITH OIDS is not supported anymore
pg_restore: warning: restoring tables WITH OIDS is not supported anymore
Hasło:

PS C:\Program Files\PostgreSQL>
```

Ładowanie wysokości

Przykład 1 – ładowanie rastrow przy użyciu pliku .sql

& do uruchomienia aplikacji

```
PS C:\Program Files\PostgreSQL\rasters> & "C:\Program Files\PostgreSQL\17\bin\raster2pgsql.exe" -s 3763 -N -32767 -t 100x100 -I -C -M -d "C:\Program Files\PostgreSQL\rasters\srtm_1arc_v3.tif" rasters.dem > "C:\Users\PC\13powód\przestrzenne\dem.sql"
Processing 1/1: C:\Program Files\PostgreSQL\rasters\srtm_1arc_v3.tif
```

Przykład 2 – ładowanie rastrow bezpośrednio do bazy

```
PS C:\Program Files\PostgreSQL> & "C:\Program Files\PostgreSQL\17\bin\raster2pgsql.exe" -s 3763 -N -32767 -t 100x100 -I -C -M -d "C:\Program Files\PostgreSQL\rasters\srtm_1arc_v3.tif" rasters.dem | psql -d postgis_raster -h localhost -U postgres -p 5432
Processing 1/1: C:\Program Files\PostgreSQL\rasters\srtm_1arc_v3.tif
Hasło użytkownika postgres:

BEGIN
UWAGA: tabela "dem" nie istnieje, pominiÄtto
DROP TABLE
CREATE TABLE
INSERT 0 1
INSERT 0 1
INSERT 0 1
```

```
INSERT 0 1
INSERT 0 1
CREATE INDEX
ANALYZE
UWAGA: Adding SRID constraint
UWAGA: Adding scale-X constraint
UWAGA: Adding scale-Y constraint
UWAGA: Adding blocksize-X constraint
UWAGA: Adding blocksize-Y constraint
UWAGA: Adding alignment constraint
UWAGA: Adding number of bands constraint
UWAGA: Adding pixel type constraint
UWAGA: Adding no data value constraint
UWAGA: Adding out-of-database constraint
UWAGA: Adding maximum extent constraint
  addrasterconstraints
-----
t
(1 wiersz)

COMMIT
VACUUM
PS C:\Program Files\PostgreSQL>
```

Przykład 3 – załadowanie danych landsat8 o wielkości kafelka 128x128 bezpośrednio do bazy danych.

```
PS C:\Program Files\PostgreSQL> & "C:\Program Files\PostgreSQL\17\bin\raster2pgsql.exe" -s 3763 -N -32767 -t 128x128 -I  
-C -M -d "C:\Program Files\PostgreSQL\rasters\Landsat8_L1TP-RGBN.TIF" rasters.landsat8 | psql -d postgres -h local  
host -U postgres -p 5432  
Processing 1/1: C:\Program Files\PostgreSQL\rasters\Landsat8_L1TP-RGBN.TIF  
Hasło użytkownika postgres:  
  
BEGIN  
UWAGA: tabela "landsat8" nie istnieje, pominiÄtto  
DROP TABLE  
CREATE TABLE  
INSERT 0 1  
INSERT 0 1  
INSERT 0 1  
INSERT 0 1
```

[illegible]

Przykład 1 - ST_Intersects

```

3  ✓ CREATE TABLE schema_stec.intersects AS
4  SELECT a.rast, b.municipality
5  FROM rasters.dem AS a, vectors.porto_parishes AS b
6  WHERE ST_Intersects(a.rast, b.geom) AND b.municipality ilike 'porto';
7
8  ✓ alter table schema_stec.intersects
9  add column rid SERIAL PRIMARY KEY;
10
11 ✓ CREATE INDEX idx_intersects_rast_gist ON schema_stec.intersects
12 USING gist (ST_ConvexHull(rast));
13
14 -- schema::name table_name::name raster_column::name
15 SELECT AddRasterConstraints('schema_stec'::name, 'intersects'::name, 'rast'::name);

```

Data Output		Messages	Notifications
<div> <div>≡ +</div> <div> <div>📄</div> <div>▼</div> <div>📋</div> <div>▼</div> <div>🗑️</div> <div>🗄️</div> <div>⬇️</div> <div>📈</div> <div>SQL</div> </div> </div>			
	addrasterconstraints	boolean	🔒
1	true		

Przykład 2 - ST_Clip

```

17 ✓ CREATE TABLE schema_stec.clip AS
18 SELECT ST_Clip(a.rast, b.geom, true), b.municipality
19 FROM rasters.dem AS a, vectors.porto_parishes AS b
20 WHERE ST_Intersects(a.rast, b.geom) AND b.municipality like 'PORTO';
21
22

```

Data Output Messages Notifications

SELECT 25

Query returned successfully in 66 msec.

- schema_stec
 - Aggregates
 - Collations
 - Domains
 - FTS Configurations
 - FTS Dictionaries
 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Operators
 - Procedures
 - Sequences
 - Tables (2)
 - clip
 - Intersects

Przykład 3 - ST_Union

```

12 ✓ CREATE TABLE schema_stec.union AS
13 SELECT ST_Union(ST_Clip(a.rast, b.geom, true))
14 FROM rasters.dem AS a, vectors.porto_parishes AS b
15 WHERE b.municipality ilike 'porto' and ST_Intersects(b.geom,a.rast);

```

Data Output Messages Notifications

SELECT 1

Query returned successfully in 96 msec.

Tworzenie rastrów z wektorów (rastrowanie)

Przykład 1 - ST_AsRaster

```

27 ✓ CREATE TABLE schema_stec.porto_parishes AS
28 WITH r AS (
29 SELECT rast FROM rasters.dem
30 LIMIT 1
31 )
32 SELECT ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767) AS rast
33 FROM vectors.porto_parishes AS a, r
34 WHERE a.municipality ilike 'porto';

```

Data Output Messages Notifications

SELECT 7

Query returned successfully in 86 msec.

Przykład 2 - ST_Union

```

36 DROP TABLE schema_stec.porto_parishes; --> drop table porto_parishes first
37 ✓ CREATE TABLE schema_name.porto_parishes AS
38 WITH r AS (
39 SELECT rast FROM rasters.dem
40 LIMIT 1
41 )
42 SELECT st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)) AS rast
43 FROM vectors.porto_parishes AS a, r
44 WHERE a.municipality ilike 'porto';

```

Data Output Messages Notifications

DROP TABLE

Query returned successfully in 68 msec.

Przykład 3 - ST_Tile

```

46 DROP TABLE schema_stec.porto_parishes; --> drop table porto_parishes first
47 ✓ CREATE TABLE schema_stec.porto_parishes AS
48 WITH r AS (
49 SELECT rast FROM rasters.dem
50 LIMIT 1 )
51 SELECT st_tile(st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)),128,128,true,-327
52 FROM vectors.porto_parishes AS a, r
53 WHERE a.municipality ilike 'porto';

```

Data Output Messages Notifications

SELECT 8

Query returned successfully in 61 msec.

Konwertowanie rastrow na wektory (wektoryzowanie)

Przykład 1 - ST_Intersection

```

56 ✓ create table schema_stec.intersection as
57 SELECT a.rid,(ST_Intersection(b.geom,a.rast)).geom,(ST_Intersection(b.geom,a.rast)).val
58 FROM rasters.landsat8 AS a, vectors.porto_parishes AS b
59 WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);

```

Data Output Messages Notifications

SELECT 6629

Query returned successfully in 2 secs 534 msec.

Przykład 2 - ST_DumpAsPolygons

```

61 ▾ CREATE TABLE schema_stec.dumppolygons AS
62   SELECT a.rid, (ST_DumpAsPolygons(ST_Clip(a.rast,b.geom))).geom, (ST_DumpAsPolygons(ST_Clip
63   FROM rasters.landsat8 AS a, vectors.porto_parishes AS b
64   WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);

```

Data Output Messages Notifications

SELECT 6422

Query returned successfully in 120 msec.

Analiza rastrów

Przykład 1 - ST_Band

```

66 ▾ CREATE TABLE schema_stec.landsat_nir AS
67   SELECT rid, ST_Band(rast,4) AS rast
68   FROM rasters.landsat8;
69

```

Data Output Messages Notifications

SELECT 384

Query returned successfully in 330 msec.

Przykład 2 - ST_Clip

```

68   FROM rasters.landsat8;
69
70 ▾ CREATE TABLE schema_stec.paranhos_dem AS
71   SELECT a.rid,ST_Clip(a.rast, b.geom,true) as rast
72   FROM rasters.dem AS a, vectors.porto_parishes AS b
73   WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
74

```

Data Output Messages Notifications

SELECT 4

Query returned successfully in 57 msec.

Przykład 3 - ST_Slope

```

75 ▾ CREATE TABLE schema_stec.paranhos_slope AS
76   SELECT a.rid,ST_Slope(a.rast,1,'32BF','PERCENTAGE') as rast
77   FROM schema_stec.paranhos_dem AS a;
78

```

Data Output Messages Notifications

SELECT 4

Query returned successfully in 105 msec.

Przykład 4 - ST_Reclass

```

79 CREATE TABLE schema_stec.paranhos_slope_reclass AS
80 SELECT a.rid, ST_Reclass(a.rast, 1, '0-15':1, (15-30]:2, (30-9999:3', '32BF', 0)
81 FROM schema_stec.paranhos_slope AS a;
82

```

Data Output Messages Notifications

SELECT 4

Query returned successfully in 75 msec.

Przykład 5 - ST_SummaryStats

```

83 SELECT st_summarystats(a.rast) AS stats
84 FROM schema_stec.paranhos_dem AS a;

```

Data Output Messages Notifications

	stats
	summarystats
1	(2616,278385,106.41628440366972,11.622628762211638,87,14...
2	(682,95581,140.14809384164224,12.078072186605759,103,158)
3	(216,31874,147.5648148148148,4.262830628315728,137,158)
4	(6463,816615,126.35231316725978,14.0438229209133,94,158)

Przykład 6 - ST_SummaryStats oraz Union

```

86 SELECT st_summarystats(ST_Union(a.rast))
87 FROM schema_stec.paranhos_dem AS a;
88

```

Data Output Messages Notifications

	st_summarystats
	summarystats
1	(9977,1222455,122.52731281948482,16.908004202736272,87,15...

Przykład 7 - ST_SummaryStats z lepszą kontrolą złożonego typu danych

```

89 WITH t AS (
90 SELECT st_summarystats(ST_Union(a.rast)) AS stats
91 FROM schema_stec.paranhos_dem AS a
92 )
93 SELECT (stats).min, (stats).max, (stats).mean FROM t;
94

```

Data Output Messages Notifications

	min	max	mean
	double precision	double precision	double precision
1	87	158	122.52731281948482

Przykład 8 - ST_SummaryStats w połączeniu z GROUP BY

```

95 WITH t AS (
96 SELECT b.parish AS parish, st_summarystats(ST_Union(ST_Clip(a.rast, b.geom,true))) AS s
97 FROM rasters.dem AS a, vectors.porto_parishes AS b
98 WHERE b.municipality ilike 'porto' and ST_Intersects(b.geom,a.rast)
99 group by b.parish
100 )
101 SELECT parish,(stats).min,(stats).max,(stats).mean FROM t;
102

```

Data Output Messages Notifications

	parish character varying (254)	min double precision	max double precision	mean double precision
1	Bonfim	1	159	107.5658842667906
2	Campanhã	0	178	74.66732213085449
3	Paranhos	87	158	122.52731281948482
4	Ramalde	48	108	77.58444444444444
5	União das freguesias de Aldoar, Foz do Douro e Nevogilde	-4	83	34.66735489791237
6	União das freguesias de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	1	157	95.00277741039545
7	União das freguesias de Lordelo do Ouro e Massarelos	-1	117	49.50051440329218

Przykład 9 - ST_Value

```

103 SELECT b.name,st_value(a.rast,(ST_Dump(b.geom)).geom)
104 FROM
105 rasters.dem a, vectors.places AS b
106 WHERE ST_Intersects(a.rast,b.geom)
107 ORDER BY b.name;
108

```

Data Output Messages Notifications

	name character varying (48)	st_value double precision
1	Aldeia São Miguel	96
2	Alpendurada e Matos	145
3	Amarante	71
4	Baião	581
5	Cabeceiras de Basto	[null]
6	Castelo de Paiva	284
7	Celorico de Basto	227
8	Pinhão	405

Przykład 10 - ST_TPI

```

109 create table schema_stec.tpi30 as
110 select ST_TPI(a.rast,1) as rast
111 from rasters.dem a;
112 --Poniższa kwerenda utworzy indeks przestrzenny:
113 CREATE INDEX idx_tpi30_rast_gist ON schema_stec.tpi30
114 USING gist (ST_ConvexHull(rast));
115 --Dodanie constraintów:
116 SELECT AddRasterConstraints('schema_name'::name, 'tpi30'::name,'rast'::name);
117

```

Data Output Messages Notifications

```
SELECT 589
```

Query returned successfully in 25 secs 785 msec.

Problem do samodzielnego rozwiązania

```

117
118 ✓ CREATE TABLE schema_stec.tpi30_porto AS
119 SELECT ST_TPI(a.rast, 1) AS rast
120 FROM rasters.dem a, vectors.porto_parishes b
121 WHERE ST_Intersects(a.rast, b.geom)
122 AND b.municipality ILIKE 'Porto';
123

```

Data Output Messages Notifications

SELECT 25

Query returned successfully in 2 secs 169 msec.

Algebra map

```

129
130 ✓ CREATE TABLE schema_stec.porto_ndvi AS
131 WITH r AS (
132 SELECT a.rid, ST_Clip(a.rast, b.geom, true) AS rast
133 FROM rasters.landsat8 AS a, vectors.porto_parishes AS b
134 WHERE b.municipality ilike 'porto' and ST_Intersects(b.geom, a.rast)
135 )
136 SELECT
137 r.rid, ST_MapAlgebra(
138 r.rast, 1,
139 r.rast, 4,
140 '([rast2.val] - [rast1.val]) / ([rast2.val] + [rast1.val])::float', '32BF'
141 ) AS rast
142 FROM r;

```

Data Output Messages Notifications

SELECT 23

Query returned successfully in 355 msec.

Przykład 2 – Funkcja zwrotna

```

3 ✓ CREATE TABLE schema_stec.porto_ndvi2 AS
4 WITH r AS (
5 SELECT a.rid, ST_Clip(a.rast, b.geom, true) AS rast
6 FROM rasters.landsat8 AS a, vectors.porto_parishes AS b
7 WHERE b.municipality ilike 'porto' and ST_Intersects(b.geom, a.rast)
8 )
9 SELECT
10 r.rid, ST_MapAlgebra(
11 r.rast, ARRAY[1,4],
12 'schema_stec.ndvi(double precision[], integer[], text[])::regprocedure, --> This is the function!
13 '32BF'::text
14 ) AS rast
15 FROM r;
16

```

Data Output Messages Notifications

SELECT 23

Query returned successfully in 132 msec.

Data Output		Messages	Notifications
<div> <div>+</div> <div>📄</div> <div>▼</div> <div>📋</div> <div>▼</div> <div>🗑️</div> <div>🗄️</div> <div>⬇️</div> <div>📈</div> <div>SQL</div> </div>			
	addresserconstraints		🔒
	boolean		
1	true		

[illegible]

Przykład 1 - ST_AsTiff

Przykład 2 - ST_AsGDALRaster

```
15 SELECT ST_AsGDALRaster(ST_Union(rast), 'GTiff', ARRAY['COMPRESS=DEFLATE', 'PREDICTOR=2', 'PZLEVEL=9'])
16 FROM schema_stec.porto_ndvi;
```

Data Output Messages Notifications



st_asgdalraster	bytea
-----------------	-------

Przykład 3 - Zapisywanie danych na dysku za pomocą dużego obiektu (large object, lo)

```
24 SELECT lo_export(loid, 'C:\Users\Public\Documents\myraster.tiff')
25 FROM tmp_out;
26 -----
```

Data Output Messages Notifications



lo_export	integer
1	1



myraster

Udostępnij

Szczegóły

Typ
Rozmiar
Lokalizacja pliku
Data modyfikacji...
Wymiary

Plik TIFF
145 KB
C:\Uzytkownicy\Publiczne\Do...
08.12.2024 23:02
384 x 179

Właściwości