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The image displays two screenshots of the pgAdmin 4 interface, showing SQL queries and their results in a PostgreSQL database.

Top Screenshot:

- Query:** The query editor shows a SQL script for creating a table and adding constraints. The script includes comments in Polish and SQL code for creating a table, adding a primary key, creating a spatial index, and adding raster constraints.
- Data Output:** The results pane shows a single row with the value 'true' for the 'addRasterConstraints' function.
- Query History:** The query history shows the executed query.

Bottom Screenshot:

- Query:** The query editor shows a SQL script for creating a table and adding constraints. The script includes comments in Polish and SQL code for creating a table, adding a primary key, creating a spatial index, and adding raster constraints.
- Data Output:** The results pane shows a single row with the value 'true' for the 'addRasterConstraints' function.
- Query History:** The query history shows the executed query.

pgAdmin 4

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Query Query History

```
11 CREATE INDEX idx_intersects_rast_gist ON schema_name.intersects USING gist (ST_ConvexHull(rast));
12
13 -- 3. Dodanie raster constraints
14 -- schema: name table_name: name raster_column: name
15 SELECT AddRasterConstraints('schema_name', 'name', 'intersects', 'name', 'rast', 'name');
16
17 -- Przykład 2 - ST_Clip
18 -- Obcięcie rastra na podstawie wektora.
19
20 CREATE TABLE schema_name.clip AS SELECT ST_Clip(a.rast, b.geom, true), b.municipality FROM rasters.dem AS a,
21 vectors.porto_parishes AS b WHERE ST_Intersects(a.rast, b.geom) AND b.municipality ilike 'porto';
22
23 -- Przykład 3 - ST_Union
24 -- Połączenie wielu kafelków w jeden raster.
25
26 CREATE TABLE schema_name.union AS SELECT ST_Union(ST_Clip(a.rast, b.geom, true)) FROM
27 rasters.dem AS a, vectors.porto_parishes AS b WHERE b.municipality ilike 'porto' and
28 ST_Intersects(b.geom, a.rast);
29
30
31 Data Output Messages Notifications
```

SELECT 1

Query returned successfully in 146 msec.

Total rows: 1 of 1 Query complete 00:00:00.146 Ln 29, Col 1

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Query Query History

```
25 -- Połączenie wielu kafeleków w jeden raster.
26
27 CREATE TABLE schema_name.union AS SELECT ST_Union(ST_Clip(a.rast, b.geom, true)) FROM
28 rasters.dem AS a, vectors.porto_parishes AS b WHERE b.municipality ilike 'porto' and
29 ST_Intersects(b.geom, a.rast);
30
31 -- Tworzenie rastrow z wektorów (rastrowanie)
32 -- Poniższe przykłady pokazują rastrowanie wektoru.
33
34 -- Przykład 1 - ST_AsRaster
35
36 CREATE TABLE schema_name.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
37 SELECT ST_AsRaster(a.geom, r.rast, '8BUI', a.id, -32767) AS rast FROM vectors.porto_parishes AS a
38 , r WHERE a.municipality ilike 'porto';
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pgAdmin 4

File Object Tools Help

Browser

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 - Materialized Views
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 - Procedures
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 - Tables (2)
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 - landsat8
 - Trigger Functions
 - Types
 - Views
 - schema_name
 - vectors
 - Subscriptions
- postgres

Dashboard Properties SQL Statistics Dependencies Dependents Processes

Zadanie6/postgres@PostgreSQL 15*

Query Query History

```
-- Przykład 1 - ST_AsRaster
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36 CREATE TABLE schema_name.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
37 SELECT ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767) AS rast FROM vectors.porto_parishes AS a
38 , r WHERE a.municipality ilike 'porto';
39
40 -- Przykład 2 - ST_Union
41 DROP TABLE schema_name.porto_parishes; --> drop table porto_parishes first
42 CREATE TABLE schema_name.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
43 SELECT st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)) AS rast FROM
44 vectors.porto_parishes AS a, r WHERE a.municipality ilike 'porto';
45
46 -- Przykład 3 - ST_Tile
47 DROP TABLE schema_name.porto_parishes; --> drop table porto_parishes first
48 CREATE TABLE schema_name.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
49 SELECT st_tile(st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)),128,128,true,-32767) AS
50 rast FROM vectors.porto_parishes AS a, r WHERE a.municipality ilike 'porto';
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Data Output Messages Notifications

SELECT 8

Query returned successfully in 166 msec.

Total rows: 1 of 1 Query complete 00:00:00.106 Ln 46, Col 1

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File Object Tools Help

Browser

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- Event Triggers
- Extensions
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- Publications
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 - Tables (2)
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 - Trigger Functions
 - Types
 - Views
 - schema_name
 - vectors
 - Subscriptions
- postgres

Dashboard Properties SQL Statistics Dependencies Dependents Processes

Zadanie6/postgres@PostgreSQL 15*

Query Query History

```
-- Przykład 2 - ST_Union
38
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42 DROP TABLE schema_name.porto_parishes; --> drop table porto_parishes first
43 CREATE TABLE schema_name.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
44 SELECT st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)) AS rast FROM
45 vectors.porto_parishes AS a, r WHERE a.municipality ilike 'porto';
46
47 -- Przykład 3 - ST_Tile
48 DROP TABLE schema_name.porto_parishes; --> drop table porto_parishes first
49 CREATE TABLE schema_name.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
50 SELECT st_tile(st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)),128,128,true,-32767) AS
51 rast FROM vectors.porto_parishes AS a, r WHERE a.municipality ilike 'porto';
52
53 -- Konwertowanie rastrow na wektory (wektoryzowanie)
54 -- Przykład 1 - ST_Intersection
55 create table schema_name.intersection as SELECT a.rid,(ST_Intersection(b.geom,a.rast)).geom,
56 (ST_Intersection(b.geom,a.rast)).val FROM rasters.landsat8 AS a, vectors.porto_parishes AS
57 b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
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Data Output Messages Notifications

SELECT 6629

Query returned successfully in 3 secs 366 msec.

Total rows: 1 of 1 Query complete 00:00:03.360 Ln 53, Col 1

pgAdmin 4

File Object Tools Help

Browser

- Catalogs
- Event Triggers
- Extensions
- Foreign Data Wrappers
- Languages
- Publications
- Schemas (4)
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 - portals
 - Aggregates
 - Collations
 - Domains
 - FTS Configurations
 - FTS Dictionaries
 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Operators
 - Procedures
 - Sequences
 - Tables (7)
 - clip
 - dumpspolygons
 - intersection
 - intersects
 - landsat_nir
 - landsat8_nir
 - Trigger Functions
 - Types
 - Views
 - schema_name
 - vectors
 - Subscriptions
- postgres

Dashboard Properties SQL Statistics Dependencies Dependents Processes

Zadanie6/postgres@PostgreSQL 15*

Query Query History

```
-- Przykład 3 - ST_Tile
42
43
44
45
46 DROP TABLE schema_name.porto_parishes; --> drop table porto_parishes first
47 CREATE TABLE schema_name.porto_parishes AS WITH r AS (SELECT rast FROM rasters.dem LIMIT 1)
48 SELECT st_tile(st_union(ST_AsRaster(a.geom,r.rast,'8BUI',a.id,-32767)),128,128,true,-32767) AS
49 rast FROM vectors.porto_parishes AS a, r WHERE a.municipality ilike 'porto';
50
51 -- Konwertowanie rastrow na wektory (wektoryzowanie)
52 -- Przykład 1 - ST_Intersection
53 create table schema_name.intersection as SELECT a.rid,(ST_Intersection(b.geom,a.rast)).geom,
54 (ST_Intersection(b.geom,a.rast)).val FROM rasters.landsat8 AS a, vectors.porto_parishes AS
55 b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
56
57 -- Przykład 2 - ST_DumpAsPolygons
58 CREATE TABLE schema_name.dumpspolygons AS SELECT a.rid,(ST_DumpAsPolygons(st_clip(a.rast,b.geom))).geom,
59 (ST_DumpAsPolygons(st_clip(a.rast,b.geom))).val FROM rasters.landsat8 AS a,
60 vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
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Data Output Messages Notifications

SELECT 384

Query returned successfully in 814 msec.

Total rows: 1 of 1 Query complete 00:00:00.814 Ln 58, Col 1

pgAdmin 4

File Object Tools Help

Browser

- Functions
- Materialized Views
- Operators
- Procedures
- Sequences
- Tables (2)
 - dem
 - landsat8
- Trigger Functions
- Types
- Views
- schema_name
 - Aggregates
 - Collations
 - Domains
 - FTS Configurations
 - FTS Dictionaries
 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Operators
 - Procedures
 - Sequences
 - Tables (7)
 - clip
 - dumppolygons
 - intersection
 - intersects
 - landsat_nir
 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
50
51 -- Konwertowanie rastrow na wektory (wektoryzowanie)
52 -- Przyklad 1 - ST_Intersection
53 create table schema_name.intersection as SELECT a.rid,(ST_Intersection(b.geom,a.rast)).geom,
54 (ST_Intersection(b.geom,a.rast)).val FROM rasters.landsat8 AS a, vectors.porto_parishes AS
55 b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
56
57 -- Przyklad 2 - ST_DumpAsPolygons
58 CREATE TABLE schema_name.dumppolygons AS SELECT a.rid,(ST_DumpAsPolygons(ST_Clip(a.rast,b.geom))).geom,
59 (ST_DumpAsPolygons(ST_Clip(a.rast,b.geom))).val FROM rasters.landsat8 AS a,
60 vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
61
62 -- Analiza rastrow
63 -- Przyklad 1 - ST_Band
64 CREATE TABLE schema_name.landsat_nir AS SELECT rid, ST_Band(rast,4) AS rast FROM rasters.landsat8;
65
66
67
68
69
```

Data Output Messages Notifications

SELECT 384

Query returned successfully in 814 msec.

Total rows: 1 of 1 Query complete 00:00:00.814 Ln 62, Col 1

pgAdmin 4

File Object Tools Help

Browser

- Functions
- Materialized Views
- Operators
- Procedures
- Sequences
- Tables (2)
 - dem
 - landsat8
- Trigger Functions
- Types
- Views
- schema_name
 - Aggregates
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 - FTS Configurations
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 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
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 - Procedures
 - Sequences
 - Tables (7)
 - clip
 - dumppolygons
 - intersection
 - intersects
 - landsat_nir
 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
52 -- Przyklad 1 - ST_Intersection
53 create table schema_name.intersection as SELECT a.rid,(ST_Intersection(b.geom,a.rast)).geom,
54 (ST_Intersection(b.geom,a.rast)).val FROM rasters.landsat8 AS a, vectors.porto_parishes AS
55 b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
56
57 -- Przyklad 2 - ST_DumpAsPolygons
58 CREATE TABLE schema_name.dumppolygons AS SELECT a.rid,(ST_DumpAsPolygons(ST_Clip(a.rast,b.geom))).geom,
59 (ST_DumpAsPolygons(ST_Clip(a.rast,b.geom))).val FROM rasters.landsat8 AS a,
60 vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
61
62 -- Analiza rastrow
63 -- Przyklad 1 - ST_Band
64 CREATE TABLE schema_name.landsat_nir AS SELECT rid, ST_Band(rast,4) AS rast FROM rasters.landsat8;
65
66 -- Przyklad 2 - ST_Clip
67 CREATE TABLE schema_name.paranhos_dem AS SELECT a.rid,ST_Clip(a.rast, b.geom,true)
68 as rast FROM rasters.dem AS a, vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos'
69 and ST_Intersects(b.geom,a.rast);
70
71
72
73
74
```

Data Output Messages Notifications

SELECT 4

Query returned successfully in 58 msec.

Total rows: 1 of 1 Query complete 00:00:00.058 Ln 67, Col 1

pgAdmin 4

File Object Tools Help

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- Functions
- Materialized Views
- Operators
- Procedures
- Sequences
- Tables (2)
 - dem
 - landsat8
- Trigger Functions
- Types
- Views
- schema_name
 - Aggregates
 - Collations
 - Domains
 - FTS Configurations
 - FTS Dictionaries
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 - Materialized Views
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 - Sequences
 - Tables (7)
 - clip
 - dumppolygons
 - intersection
 - intersects
 - landsat_nir
 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
55 b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
56
57 -- Przyklad 2 - ST_DumpAsPolygons
58 CREATE TABLE schema_name.dumppolygons AS SELECT a.rid,(ST_DumpAsPolygons(ST_Clip(a.rast,b.geom))).geom,
59 (ST_DumpAsPolygons(ST_Clip(a.rast,b.geom))).val FROM rasters.landsat8 AS a,
60 vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
61
62 -- Analiza rastrow
63 -- Przyklad 1 - ST_Band
64 CREATE TABLE schema_name.landsat_nir AS SELECT rid, ST_Band(rast,4) AS rast FROM rasters.landsat8;
65
66 -- Przyklad 2 - ST_Clip
67 CREATE TABLE schema_name.paranhos_dem AS SELECT a.rid,ST_Clip(a.rast, b.geom,true)
68 as rast FROM rasters.dem AS a, vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos'
69 and ST_Intersects(b.geom,a.rast);
70
71 -- Przyklad 3 - ST_Slope
72 CREATE TABLE schema_name.paranhos_slope AS SELECT a.rid,ST_Slope(a.rast,1,'32BP','PERCENTAGE')
73 as rast FROM schema_name.paranhos_dem AS a;
74
```

Data Output Messages Notifications

SELECT 4

Query returned successfully in 231 msec.

Total rows: 1 of 1 Query complete 00:00:00.231 Ln 72, Col 1

pgAdmin 4

File Object Tools Help

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- Functions
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- Sequences
- Tables (2)
 - dem
 - landsat8
- Trigger Functions
- Types
- Views
- schema_name
 - Aggregates
 - Collations
 - Domains
 - FTS Configurations
 - FTS Dictionaries
 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
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 - Procedures
 - Sequences
 - Tables (7)
 - clip
 - dumpgpolygons
 - intersection
 - intersects
 - landsat_nir
 - schema_name

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```

52 ST_DumpAsPolygons(ST_Clip(a.rast,b.geom)).val FROM rasters.landsat8 AS a,
61 vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos' and ST_Intersects(b.geom,a.rast);
62 -- Analiza rastrow
63 -- Przyklad 1 - ST_Band
64 CREATE TABLE schema_name.landsat_nir AS SELECT rid, ST_Band(rast,4) AS rast FROM rasters.landsat8;
65
66 -- Przyklad 2 - ST_Clip
67 CREATE TABLE schema_name.paranhos_dem AS SELECT a.rid,ST_Clip(a.rast, b.geom,true)
68 as rast FROM rasters.dem AS a, vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos'
69 and ST_Intersects(b.geom,a.rast);
70
71 -- Przyklad 3 - ST_Slope
72 CREATE TABLE schema_name.paranhos_slope AS SELECT a.rid,ST_Slope(a.rast,1,'32BF','PERCENTAGE')
73 as rast FROM schema_name.paranhos_dem AS a;
74
75 -- Przyklad 4 - ST_Reclass
76 CREATE TABLE schema_name.paranhos_slope_reclass AS SELECT a.rid,
77 ST_Reclass(a.rast,1,'32BF',1, (15-30):1, (15-30):2, (30-9999:3,'32BF',0)
78 FROM schema_name.paranhos_slope AS a;

```

Data Output Messages Notifications

SELECT 4

Query returned successfully in 66 msec.

Total rows: 1 of 1 Query complete 00:00:00.066 Ln 76, Col 1

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File Object Tools Help

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- Types
- Views
- schema_name
 - Aggregates
 - Collations
 - Domains
 - FTS Configurations
 - FTS Dictionaries
 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Operators
 - Procedures
 - Sequences
 - Tables (7)
 - clip
 - dumpgpolygons
 - intersection
 - intersects
 - landsat_nir
 - schema_name

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```

62 -- Analiza rastrow
63 -- Przyklad 1 - ST_Band
64 CREATE TABLE schema_name.landsat_nir AS SELECT rid, ST_Band(rast,4) AS rast FROM rasters.landsat8;
65
66 -- Przyklad 2 - ST_Clip
67 CREATE TABLE schema_name.paranhos_dem AS SELECT a.rid,ST_Clip(a.rast, b.geom,true)
68 as rast FROM rasters.dem AS a, vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos'
69 and ST_Intersects(b.geom,a.rast);
70
71 -- Przyklad 3 - ST_Slope
72 CREATE TABLE schema_name.paranhos_slope AS SELECT a.rid,ST_Slope(a.rast,1,'32BF','PERCENTAGE')
73 as rast FROM schema_name.paranhos_dem AS a;
74
75 -- Przyklad 4 - ST_Reclass
76 CREATE TABLE schema_name.paranhos_slope_reclass AS SELECT a.rid,
77 ST_Reclass(a.rast,1,'32BF',1, (15-30):1, (15-30):2, (30-9999:3,'32BF',0)
78 FROM schema_name.paranhos_slope AS a;
79
80 -- Przyklad 5 - ST_SummaryStats
81 SELECT st_summarystats(a.rast) AS stats FROM schema_name.paranhos_dem AS a;

```

Data Output Messages Notifications

stats
summarystats
1 (2616.27835...
2 (682.8558134...
3 (216.3187414...
4 (4463.816615...

Total rows: 4 of 4 Query complete 00:00:00.058 Ln 81, Col 1

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File Object Tools Help

Browser

- Functions
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- Operators
- Procedures
- Sequences
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 - landsat8
- Trigger Functions
- Types
- Views
- schema_name
 - Aggregates
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 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Operators
 - Procedures
 - Sequences
 - Tables (7)
 - clip
 - dumpgpolygons
 - intersection
 - intersects
 - landsat_nir
 - schema_name

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```

65 -- Przyklad 2 - ST_Clip
66 CREATE TABLE schema_name.paranhos_dem AS SELECT a.rid,ST_Clip(a.rast, b.geom,true)
67 as rast FROM rasters.dem AS a, vectors.porto_parishes AS b WHERE b.parish ilike 'paranhos'
68 and ST_Intersects(b.geom,a.rast);
69
70 -- Przyklad 3 - ST_Slope
71 CREATE TABLE schema_name.paranhos_slope AS SELECT a.rid,ST_Slope(a.rast,1,'32BF','PERCENTAGE')
72 as rast FROM schema_name.paranhos_dem AS a;
73
74 -- Przyklad 4 - ST_Reclass
75 CREATE TABLE schema_name.paranhos_slope_reclass AS SELECT a.rid,
76 ST_Reclass(a.rast,1,'32BF',1, (15-30):1, (15-30):2, (30-9999:3,'32BF',0)
77 FROM schema_name.paranhos_slope AS a;
78
79 -- Przyklad 5 - ST_SummaryStats
80 SELECT st_summarystats(a.rast) AS stats FROM schema_name.paranhos_dem AS a;
81
82 -- Przyklad 6 - ST_SummaryStats oraz Union
83 SELECT st_summarystats(ST_Union(a.rast))FROM schema_name.paranhos_dem AS a;

```

Data Output Messages Notifications

st_summarystats
summarystats
1 (9977.1224551...

Total rows: 1 of 1 Query complete 00:00:00.058 Ln 84, Col 1

pgAdmin 4

File Object Tools Help

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 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie/postgres@PostgreSQL 15

Query Query History

```

70 and ST_Intersects(b.geom,a.rast);
71
72 -- Przykład 3 - ST_Slope
73 CREATE TABLE schema_name.paranhos_slope AS SELECT a.rid,ST_Slope(a.rast,1,'32BF','PERCENTAGE')
74 as rast FROM schema_name.paranhos_dem AS a;
75
76 -- Przykład 4 - ST_Reclass
77 CREATE TABLE schema_name.paranhos_slope_reclass AS SELECT a.rid,
78 ST_Reclass(a.rast,1,'0-15':1, (15-30):2, (30-9999:3','32BF',0)
79 FROM schema_name.paranhos_slope AS a;
80
81 -- Przykład 5 - ST_SummaryStats
82 SELECT st_summarystats(a.rast) AS stats FROM schema_name.paranhos_dem AS a;
83
84 -- Przykład 6 - ST_SummaryStats oraz Union
85 SELECT st_summarystats(ST_Union(a.rast))FROM schema_name.paranhos_dem AS a;
86
87 -- Przykład 7 - ST_SummaryStats z lepszą kontrolą złożonego typu danych
88 WITH t AS (SELECT st_summarystats(ST_Union(a.rast)) AS stats FROM schema_name.paranhos_dem AS a)
89 SELECT (stats).min,(stats).max,(stats).mean FROM t;

```

Data Output Messages Notifications

	min	max	mean
	double precision	double precision	double precision
1	87	158	122.527312819484

Total rows: 1 of 1 Query complete 00:00:00.064 Ln 87, Col 1

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File Object Tools Help

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 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie/postgres@PostgreSQL 15

Query Query History

```

76 CREATE TABLE schema_name.paranhos_slope_reclass AS SELECT a.rid,
77 ST_Reclass(a.rast,1,'0-15':1, (15-30):2, (30-9999:3','32BF',0)
78 FROM schema_name.paranhos_slope AS a;
79
80 -- Przykład 5 - ST_SummaryStats
81 SELECT st_summarystats(a.rast) AS stats FROM schema_name.paranhos_dem AS a;
82
83 -- Przykład 6 - ST_SummaryStats oraz Union
84 SELECT st_summarystats(ST_Union(a.rast))FROM schema_name.paranhos_dem AS a;
85
86 -- Przykład 7 - ST_SummaryStats z lepszą kontrolą złożonego typu danych
87 WITH t AS (SELECT st_summarystats(ST_Union(a.rast)) AS stats FROM schema_name.paranhos_dem AS a)
88 SELECT (stats).min,(stats).max,(stats).mean FROM t;
89
90 -- Przykład 8 - ST_SummaryStats w połączeniu z GROUP BY
91 WITH t AS (SELECT b.parish AS parish, st_summarystats(ST_Union(ST_Clip(a.rast,b.geom,true)))
92 AS stats FROM rasters.dem AS a, vectors.porto-parishes AS
93 b WHERE b.municipality ilike 'porto' and
94 ST_Intersects(b.geom,a.rast)group by b.parish)
95 SELECT parish,(stats).min,(stats).max,(stats).mean FROM t;

```

Data Output Messages Notifications

parish	min	max	mean
character varying (254)	double precision	double precision	double precision
1 Bonfim	1	159	107.565884266790
2 Campanhã	0	178	74.6673221308544
3 Paranhos	87	158	122.527312819484
4 Ramalde	48	108	77.5844444444444
5 União das freguesias d...	-4	83	34.6673548979123

Total rows: 7 of 7 Query complete 00:00:00.246 Ln 91, Col 1

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File Object Tools Help

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Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie/postgres@PostgreSQL 15

Query Query History

```

84 SELECT st_summarystats(ST_Union(a.rast))FROM schema_name.paranhos_dem AS a;
85
86 -- Przykład 7 - ST_SummaryStats z lepszą kontrolą złożonego typu danych
87 WITH t AS (SELECT st_summarystats(ST_Union(a.rast)) AS stats FROM schema_name.paranhos_dem AS a)
88 SELECT (stats).min,(stats).max,(stats).mean FROM t;
89
90 -- Przykład 8 - ST_SummaryStats w połączeniu z GROUP BY
91 WITH t AS (SELECT b.parish AS parish, st_summarystats(ST_Union(ST_Clip(a.rast,b.geom,true)))
92 AS stats FROM rasters.dem AS a, vectors.porto-parishes AS
93 b WHERE b.municipality ilike 'porto' and
94 ST_Intersects(b.geom,a.rast)group by b.parish)
95 SELECT parish,(stats).min,(stats).max,(stats).mean FROM t;
96
97 -- Przykład 9 - ST_Value
98 SELECT b.name,st_value(a.rast,(ST_Dump(b.geom)).geom)
99 FROM
100 rasters.dem a, vectors.places AS b
101 WHERE ST_Intersects(a.rast,b.geom)
102 ORDER BY b.name;
103

```

Data Output Messages Notifications

name	st_value
character varying (48)	double precision
1 Aldeia São Miguel	96
2 Alpendurada e Matos	145
3 Amaranite	71
4 Baião	581
5 Cabeceiras de Basto	[null]

Total rows: 33 of 33 Query complete 00:00:00.078 Ln 98, Col 1

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File Object Tools Help

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 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
89
90 -- Przykład 8 - ST_SummaryStats w połączeniu z GROUP BY
91 WITH t AS (SELECT b.parish AS parish, st_summarystats(ST_Union(ST_Clip(a.rast,b.geom,true)))
92 AS stats FROM rasters.dem AS a, vectors.porto_parishes AS
93 b WHERE b.municipality ilike 'porto' and
94 ST_Intersects(b.geom,a.rast)group by b.parish)
95 SELECT parish,(stats).min,(stats).max,(stats).mean FROM t;
96
97 -- Przykład 9 - ST_Value
98 SELECT b.name,st_value(a.rast,(ST_Dump(b.geom)).geom)
99 FROM
100 rasters.dem a, vectors.places AS b
101 WHERE ST_Intersects(a.rast,b.geom)
102 ORDER BY b.name;
103
104 -- Przykład 10 - ST_TPI
105 create table schema_name.tp130 as
106 select ST_TPI(a.rast,1) as rast
107 from rasters.dem a;
108
```

Data Output Messages Notifications

SELECT 589

Query returned successfully in 35 secs 278 msec.

Total rows: 33 of 33 Query complete 00:00:35.278 Ln 105, Col 1

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File Object Tools Help

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 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
98 SELECT b.name,st_value(a.rast,(ST_Dump(b.geom)).geom)
99 FROM
100 rasters.dem a, vectors.places AS b
101 WHERE ST_Intersects(a.rast,b.geom)
102 ORDER BY b.name;
103
104 -- Przykład 10 - ST_TPI
105 create table schema_name.tp130 as
106 select ST_TPI(a.rast,1) as rast
107 from rasters.dem a;
108
109 -- Ponizsza kwerenda utworzy indeks przestrzenny:
110 CREATE INDEX idx_tp130_rast_gist ON schema_name.tp130
111 USING gist (ST_ConvexHull(rast));
112 -- Dodanie constraintow:
113 SELECT AddRasterConstraints('schema_name':name,
114 'tp130':name,'rast':iname);
115
116
117
```

Data Output Messages Notifications

addRasterconstraints
boolean
1 true

Total rows: 1 of 1 Query complete 00:00:00.266 Ln 113, Col 1

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File Object Tools Help

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 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
118 CREATE INDEX idx_tp130_rast_gist ON schema_name.tp130
119 USING gist (ST_ConvexHull(rast));
120 -- Dodanie constraintow:
121 SELECT AddRasterConstraints('schema_name':name,
122 'tp130':name,'rast':iname);
123
124 -- PROBLEM DO SAMODZIELNEGO ROZW
125 create table schema_name.tp130_porto as
126 select ST_TPI(a.rast,1) as rast
127 FROM rasters.dem AS a, vectors.porto_parishes AS b
128 WHERE ST_Intersects(a.rast, b.geom) AND b.municipality ilike 'porto'
129 -- Dodanie indeksu przestrzennego:
130 CREATE INDEX idx_tp130_porto_rast_gist ON schema_name.tp130_porto
131 USING gist (ST_ConvexHull(rast));
132 -- Dodanie constraintow:
133 SELECT AddRasterConstraints('schema_name':name,
134 'tp130_porto':name,'rast':iname);
135
136
137
138
```

Data Output Messages Notifications

addRasterconstraints
boolean
1 true

Total rows: 1 of 1 Query complete 00:00:00.064 Ln 125, Col 1

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 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```

125 'tp138_porto'::name,'rast'::name);
127
128 -- Algebra map
129 -- Przykład 1 - Wyrażenie Algebra Map
130 CREATE TABLE schema_name.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] +
141 [rast1.val]):float','32BF'
142 ) AS rast
143 FROM r;
145

```

Data Output Messages Notifications

SELECT 23

Query returned successfully in 233 msec.

Total rows: 1 of 1 Query complete 00:00:00.233 Ln 128, Col 1

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 - landsat_nir

Dashboard Properties SQL Statistics Dependencies Dependents Processes **kodza6.sql***

Zadanie6/postgres@PostgreSQL 15

Query Query History

```

148 SELECT AddRasterConstraints('schema_name'::name,
149 'porto_ndvi'::name,'rast'::name);
150
151 --Przykład 2 - funkcja zwrotna
152 --W pierwszym kroku należy utworzyć funkcję, które będzie wywołana później:
153 create or replace function schema_name.ndvi(
154 value double precision [], [],
155 pos integer [],
156 VARIADIC userargs text []
157 )
158 RETURNS double precision AS
159 $$
160 BEGIN
161 --RAISE NOTICE 'Pixel Value: %', value [1][1][1];-->For debug purposes
162 RETURN (value [2][1][1] - value [1][1][1])/(value [2][1][1]+value
163 [1][1][1]); --> NDVI calculation!
164 END;
165 $$
166 LANGUAGE 'plpgsql' IMMUTABLE COST 1000;
167 -- W kwerendzie algebry map należy można wywołać zdefiniowaną wcześniej funkcję:

```

Data Output Messages Notifications

addRasterconstraints

boolean

1 true

Total rows: 1 of 1 Query complete 00:00:00.236 Ln 153, Col 1

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File Object Tools Help

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 - landsat_outlines

Dashboard Properties SQL Statistics Dependencies Dependents Processes kodza6.sql*

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
174 SELECT
175 r.rid,ST_MapAlgebra(
176 r.rast, ARRAY[1,4],
177 'schema_name.ndv1(double precision[],
178 integer[],text[])::regprocedure, --> This is the function!
179 '32BF'::text
180 ) AS rast
181 FROM r;
182 -- Dodanie indeksu przestrzennego:
183 CREATE INDEX idx_porto_ndv12_rast_gist ON schema_name.porto_ndv12
184 USING gist (ST_ConvexHull(rast));
185 --Dodanie constraintów:
186 SELECT AddRasterConstraints('schema_name'::name,
187 'porto_ndv12'::name, 'rast'::name);
188
189 -- Eksport danych
190 -- Przykład 1 - ST_AstTiff
191 SELECT ST_AstTiff(ST_Union(rast))
192 FROM schema_name.porto_ndv1;
193
```

Data Output Messages Notifications

st_asttiff	bytes
1	Binary data...

Total rows: 1 of 1 Query complete 00:00:00.209 Ln 191, Col 1

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Dashboard Properties SQL Statistics Dependencies Dependents Processes kodza6.sql*

Zadanie6/postgres@PostgreSQL 15

Query Query History

```
196 'PREDICTOR=2', 'PZLEVEL=9'])
197 FROM schema_name.porto_ndv1;
198
199 -- Przykład 3 - Zapisywanie danych na dysku za pomocą dużego obiektu (large object,lo)
200 CREATE TABLE tmp_out AS
201 SELECT lo_from_bytea(0,
202 ST_AsGDALRaster(ST_Union(rast), 'GTiff', ARRAY['COMPRESS=DEFLATE',
203 'PREDICTOR=2', 'PZLEVEL=9'])
204 ) AS loId
205 FROM schema_name.porto_ndv1;
206
207 SELECT lo_export(loId, 'C:\Users\johnny.weak\Desktop\B02\cw0\myraster.tiff')
208 FROM tmp_out;
209
210 SELECT lo_unlink(loId)
211 FROM tmp_out; --> Delete the large object.
212
213
214
215
```

Data Output Messages Notifications

SELECT 1

Query returned successfully in 397 msec.

Total rows: 1 of 1 Query complete 00:00:00.307 Ln 215, Col 1