

## Object Explorer

- Servers (1)
  - PostgreSQL 17
    - Databases (1)
      - postgres
        - Cast
        - Catalogs
        - Event Triggers
        - Extensions
        - Foreign Data Wrappers
        - Languages
        - Publications
        - Schemas (1)
          - public
            - Aggregates
            - Collations
            - Domains
            - FTS Configurations
            - FTS Dictionaries
            - FTS Parsers
            - FTS Templates
            - Foreign Tables
            - Functions
            - Materialized Views
            - Operators
            - Procedures
            - Sequences
            - Tables (11)
              - airline
              - airport
              - baggage
              - baggage\_check
              - boarding\_pass
              - booking
              - booking\_flight
              - flights
              - passengers
              - passenger\_check

Dashboard X Properties X SQL X Statistics X Dependencies X Dependents X Processes X postgres/postgres@PostgreSQL 17\* X

postgres/postgres@PostgreSQL 17

Query Query History

Scratch Pad X

```
1 CREATE INDEX actual_departure_index ON flights(actual_departure);
```

Data Output Messages Notifications

CREATE INDEX

Query returned successfully in 167 msec.

- Servers (1)
  - PostgreSQL 17
    - Databases (1)
      - postgres
        - Casts
        - Catalogs
        - Event Triggers
        - Extensions
        - Foreign Data Wrappers
        - Languages
        - Publications
        - Schemas (1)
          - public
            - Aggregates
            - Collations
            - Domains
            - FTS Configurations
            - FTS Dictionaries
            - FTS Parsers
            - FTS Templates
            - Foreign Tables
            - Functions
            - Materialized Views
            - Operators
            - Procedures
            - Sequences
            - Tables (11)
              - airline
              - airport
              - baggage
              - baggage\_check
              - boarding\_pass
              - booking
              - booking\_flight
              - flights
              - passengers
              - security\_check

postgres/postgres@PostgreSQL 17

Query

Query History

Scratch Pad

1 CREATE UNIQUE INDEX name ON flights (flight\_no, scheduled\_departure);

Data Output

Messages

Notifications

ERROR: создать уникальный индекс "name" не удалось  
Ключ (flight\_no, scheduled\_departure)=(US-KS, 2023-09-04) дублируется.  
  
ОШИБКА: создать уникальный индекс "name" не удалось  
SQL state: 23505  
Detail: Ключ (flight\_no, scheduled\_departure)=(US-KS, 2023-09-04) дублируется.

Total rows: Query complete 00:00:00.150

CPLE In 1 Col 1

Object Explorer

> Collations

> Domains

> FTS Configurations

> FTS Dictionaries

> Aa FTS Parsers

> FTS Templates

> Foreign Tables

> Functions

> Materialized Views

> Operators

> Procedures

> 1..3 Sequences

> Tables (11)

> airline

> airport

> baggage

> baggage\_check

> boarding\_pass

> booking

> booking\_flight

> flights

> Columns (14)

flight\_id

flight\_no

scheduled\_departure

scheduled\_arrival

departure\_airport\_id

arrival\_airport\_id

departing\_gate

arriving\_gate

airline\_id

status

actual\_departure

actual\_arrival

created\_at

update\_at

Dashboard x Properties x SQL x Statistics x Dependencies x Dependents x Processes x postgres/postgres@PostgreSQL 17\* x

postgres/postgres@PostgreSQL 17

Query

Query History

Scratch Pad x

1

CREATE INDEX numb ON flights(departure\_airport\_id, arrival\_airport\_id);

Data Output

Messages

Notifications

CREATE INDEX

Query returned successfully in 66 msec.

✓ Query returned successfully in 66 msec. ✕

Object Explorer

> Collations

> Domains

> FTS Configurations

> FTS Dictionaries

> Aa FTS Parsers

> FTS Templates

> Foreign Tables

> Functions

> Materialized Views

> Operators

> Procedures

> 1..3 Sequences

> Tables (11)

> airline

> airport

> baggage

> baggage\_check

> boarding\_pass

> booking

> booking\_flight

> flights

> Columns (14)

flight\_id

flight\_no

scheduled\_departure

scheduled\_arrival

departure\_airport\_id

arrival\_airport\_id

departing\_gate

arriving\_gate

airline\_id

status

actual\_departure

actual\_arrival

created at

Dashboard x Properties x SQL x Statistics x Dependencies x Dependents x Processes x postgres/postgres@PostgreSQL 17\* x

postgres/postgres@PostgreSQL 17

Query

Query History

Scratch Pad x

1 EXPLAIN ANALYZE

2 SELECT \* FROM flights WHERE flight\_no = '10';

3

Data Output

Messages

Notifications

Showing rows: 1 to 5

Page No: 1

of 1

QUERY PLAN

text

1 Seq Scan on flights (cost=0.00..25.50 rows=1 width=61) (actual time=0.073..0.073 rows=0 loops=...

2 Filter: ((flight\_no)::text = '10'::text)

3 Rows Removed by Filter: 1000

4 Planning Time: 3.129 ms

5 Execution Time: 0.088 ms



```
1 CREATE INDEX num ON flights (flight_no);
2
3 EXPLAIN ANALYZE
4 SELECT * FROM flights WHERE flight_no = '10';
```



SQL

Showing rows: 1 to 4



Page No: 1

of 1



## QUERY PLAN

text



1	Index Scan using num on flights (cost=0.28..8.29 rows=1 width=61) (actual time=0.026..0.026 rows=0 loops=...
2	Index Cond: ((flight_no)::text = '10'::text)
3	Planning Time: 1.069 ms
4	Execution Time: 0.039 ms

Object Explorer

booking\_flight\_id

booking\_id

flight\_id

created\_at

update\_at

> Constraints

> Indexes

> RLS Policies

> Rules

> Triggers

flights

Columns (14)

flight\_id

flight\_no

scheduled\_departure

scheduled\_arrival

departure\_airport\_id

arrival\_airport\_id

departing\_gate

arriving\_gate

airline\_id

status

actual\_departure

actual\_arrival

created\_at

update\_at

> Constraints

> Indexes

> RLS Policies

> Rules

> Triggers

passengers

security\_check

student

Trigger Functions

Types

Dashboard x Properties x SQL x Statistics x Dependencies x Dependents x Processes x postgres/postgres@PostgreSQL 17\* x

postgres/postgres@PostgreSQL 17

Query Query History

1  
2 EXPLAIN ANALYZE  
3 SELECT DISTINCT departure\_airport\_id, arrival\_airport\_id FROM flights;  
4

Data Output Messages Notifications

Showing rows: 1 to 6 Page No: 1 of 1

QUERY PLAN  
text

1 HashAggregate (cost=28.00..29.00 rows=100 width=8) (actual time=0.393..0.417 rows=375 loops=1)

2 Group Key: departure\_airport\_id, arrival\_airport\_id

3 Batches: 1 Memory Usage: 61kB

4 -> Seq Scan on flights (cost=0.00..23.00 rows=1000 width=8) (actual time=0.030..0.109 rows=1000 loop=1)

5 Planning Time: 5.733 ms

6 Execution Time: 0.519 ms

Successfully run. Total query runtime: 53 msec. 6 rows affected.

Object Explorer

- booking\_flight\_id
- booking\_id
- flight\_id
- created\_at
- update\_at
- > Constraints
- > Indexes
- > RLS Policies
- > Rules
- > Triggers
- flights
  - Columns(14)
    - flight\_id
    - flight\_no
    - scheduled\_departure
    - scheduled\_arrival
    - departure\_airport\_id
    - arrival\_airport\_id
    - departing\_gate
    - arriving\_gate
    - airline\_id
    - status
    - actual\_departure
    - actual\_arrival
    - created\_at
    - update\_at
  - > Constraints
  - > Indexes
  - > RLS Policies
  - > Rules
  - > Triggers
- passengers
- security\_check
- student
- > Trigger Functions
- > Types
- > Views

Dashboard X Properties X SQL X Statistics X Dependencies X Dependents X Processes X postgres/postgres@PostgreSQL 17/\* X

postgres/postgres@PostgreSQL 17

Query Query History Scratch Pad X

```
1 CREATE UNIQUE INDEX pass_num_index ON passengers(passport_number);
```

Data Output Messages Notifications

CREATE INDEX

Query returned successfully in 54 msec.

Query complete 00:00:00.054

Query



Database Explorer

- arrival\_airport\_id
- departing\_gate
- arriving\_gate
- airline\_id
- status
- actual\_departure
- actual\_arrival
- created\_at
- update\_at
- > Constraints
- > Indexes
- > RLS Policies
- > Rules
- > Triggers
- passengers
  - Columns (10)
    - passenger\_id
    - first\_name
    - last\_name
    - date\_of\_birth
    - gender
    - country\_of\_citizenship
    - country\_of\_residence
    - passport\_number
    - created\_at
    - update\_at
  - > Constraints
  - > Indexes
  - > RLS Policies
  - > Rules
  - > Triggers
- security\_check
- student
- > Trigger Functions
- > Types
- > Views

postgres/postgres@PostgreSQL 17

Query History

```
1  INSERT INTO passengers (  
2      passenger_id,  
3      first_name,  
4      last_name,  
5      date_of_birth,  
6      gender,  
7      country_of_citizenship,  
8      country_of_residence,  
9      passport_number,  
10     created_at,  
11     update_at  
12 )  
13 VALUES (  
14     203,  
15     'Mrina',  
16     'Gedjj',  
17     '2001-07-17',  
18     'female',  
19     'Kazakhstan',  
20     'Kazakhstan',  
21     'KZ123477',  
22     NOW(),  
23     NOW()  
24 );  
25  
26  
27
```

Scratch Pad

Data Output Messages Notifications

INSERT 0 1

Query returned successfully in 39 msec.



- arrival\_airport\_id
- departing\_gate
- arriving\_gate
- airline\_id
- status
- actual\_departure
- actual\_arrival
- created\_at
- update\_at
- > Constraints
- > Indexes
- > RLS Policies
- > Rules
- > Triggers
- > passengers
  - > Columns (10)
    - passenger\_id
    - first\_name
    - last\_name
    - date\_of\_birth
    - gender
    - country\_of\_citizenship
    - country\_of\_residence
    - passport\_number
    - created\_at
    - update\_at
  - > Constraints
  - > Indexes
  - > RLS Policies
  - > Rules
  - > Triggers
- > security\_check
- > student
- > Trigger Functions
- > Types
- > Views

postgres/postgres@PostgreSQL 17

No limit

Query

Query History

Scratch Pad X

```
1  INSERT INTO passengers (  
2      passenger_id,  
3      first_name,  
4      last_name,  
5      date_of_birth,  
6      gender,  
7      country_of_citizenship,  
8      country_of_residence,  
9      passport_number,  
10     created_at,  
11     update_at  
12 )  
13 VALUES (  
14     204,  
15     'Mencwka',  
16     'Pkcdj',  
17     '2000-07-17',  
18     'female',  
19     'Kazakhstan',  
20     'Kazakhstan',  
21     'KZ123477',  
22     NOW(),  
23     NOW()  
24 );  
25  
26  
27
```

Data Output Messages Notifications

ERROR: повторяющееся значение ключа нарушает ограничение уникальности "pass\_num\_index"  
Ключ "(passport\_number)=(KZ123477)" уже существует.

ОШИБКА: повторяющееся значение ключа нарушает ограничение уникальности "pass\_num\_index"  
SQL state: 23505  
Detail: Ключ "(passport\_number)=(KZ123477)" уже существует.

6 When you create a unique index, PostgreSQL automatically ensures that the values in that column are all unique.

If you try to insert a row with a passport number that already exists, the database rejects it to keep data integrity.

- arrival\_airport\_id
- departing\_gate
- arriving\_gate
- airline\_id
- status
- actual\_departure
- actual\_arrival
- created\_at
- update\_at
- > Constraints
- > Indexes
- > RLS Policies
- > Rules
- > Triggers
- > passengers
  - > Columns (10)
    - passenger\_id
    - first\_name
    - last\_name
    - date\_of\_birth
    - gender
    - country\_of\_citizenship
    - country\_of\_residence
    - passport\_number
    - created\_at
    - update\_at
  - > Constraints
  - > Indexes
  - > RLS Policies
  - > Rules
  - > Triggers
- > security\_check
- > student
- > Trigger Functions
- > Types

postgres/postgres@PostgreSQL 17



No limit

Query Query History



Scratch Pad X

```
1 REATE INDEX pass_ind ON passengers(first_name,last_name,date_of_birth,country_of_citizenship);
```

Data Output Messages Notifications

CREATE INDEX

Query returned successfully in 39 msec.

Object Explorer

departing\_gate

arriving\_gate

airline\_id

status

actual\_departure

actual\_arrival

created\_at

update\_at

> Constraints

> Indexes

> RLS Policies

> Rules

> Triggers

passengers

Columns (10)

passenger\_id

first\_name

last\_name

date\_of\_birth

gender

country\_of\_citizenship

country\_of\_residence

passport\_number

created\_at

update\_at

> Constraints

> Indexes

> RLS Policies

> Rules

> Triggers

security\_check

student

Trigger Functions

Types

Views

> Subscriptions

> Login/Group Roles

Dashboard x Properties x SQL x Statistics x Dependencies x Dependents x Processes x postgres/postgres@PostgreSQL 17\* x

postgres/postgres@PostgreSQL 17

Query Query History

1 country\_of\_citizenship='Philippines' AND date\_of\_birth BETWEEN '1984-01-01' AND '1984-12-31';

2

Data Output Messages Notifications

Showing rows: 1 to 1 Page No: 1 of 1

	passenger_id [PK] integer	first_name character varying (50)	last_name character varying (50)	date_of_birth date	gender character varying (50)	country_of_citizenship character varying (50)	country_of_residence character varying (50)	passport_number character varying (50)
1	8	Howard	Igo	1984-03-29	Male	Philippines	China	408429911-1

7 The query used the index because the conditions matched the indexed columns directly. Using BETWEEN allowed the database to efficiently look up only the rows within the 1984 date range instead of scanning the whole table.

This makes the query faster and shows that the index is working as intended.

- departing\_gate
- arriving\_gate
- airline\_id
- status
- actual\_departure
- actual\_arrival
- created\_at
- update\_at
- > Constraints
- > Indexes
- > RLS Policies
- > Rules
- > Triggers
- passengers
  - Columns (10)
    - passenger\_id
    - first\_name
    - last\_name
    - date\_of\_birth
    - gender
    - country\_of\_citizenship
    - country\_of\_residence
    - passport\_number
    - created\_at
    - update\_at
  - > Constraints
  - > Indexes
  - > RLS Policies
  - > Rules
  - > Triggers
- security\_check
- student
- > Trigger Functions
- > Types
- > Views
- > Subscriptions

postgres/postgres@PostgreSQL 17

No limit

Query Query History

```
1 SELECT
2   indexname AS index_name,
3   indexdef AS definition
4 FROM
5   pg_indexes
6 WHERE
7   tablename='passengers'
```

Scratch Pad X

Data Output Messages Notifications

SQL

Showing rows: 1 to 5

Page No: 1

of 1

	index_name name	definition text
1	passengers_pkey	CREATE UNIQUE INDEX passengers_pkey ON public.passengers USING btree (passenger_id)
2	unique_id	CREATE UNIQUE INDEX unique_id ON public.passengers USING btree (passenger_id)
3	pass_num_index	CREATE UNIQUE INDEX pass_num_index ON public.passengers USING btree (passport_number)
4	pass_ind	CREATE INDEX pass_ind ON public.passengers USING btree (first_name, last_name, date_of_birth, country_of_citizenship)
5	gender_ind	CREATE INDEX gender_ind ON public.passengers USING btree (gender)

## Object Explorer

- departing\_gate
- arriving\_gate
- airline\_id
- status
- actual\_departure
- actual\_arrival
- created\_at
- update\_at
- > Constraints
- > Indexes
- > RLS Policies
- > Rules
- > Triggers
- passengers
  - Columns (10)
    - passenger\_id
    - first\_name
    - last\_name
    - date\_of\_birth
    - gender
    - country\_of\_citizenship
    - country\_of\_residence
    - passport\_number
    - created\_at
    - update\_at
  - > Constraints
  - > Indexes
  - > RLS Policies
  - > Rules
  - > Triggers
- > security\_check
- > student
- > Trigger Functions
- > Types
- > Views
- > Subscriptions
- > Login/Group Roles
- > Tablespaces

Dashboard × Properties × SQL × Statistics × Dependencies × Dependents × Processes × postgres/postgres@PostgreSQL 17\* ×

postgres/postgres@PostgreSQL 17

No limit

Query Query History

Scratch Pad ×

```
1 DROP INDEX pass_ind;  
2 DROP INDEX gender_ind;  
3 DROP INDEX pass_num_index;
```

Data Output Messages Notifications

DROP INDEX

Query returned successfully in 163 msec.

Total rows: Query complete 00:00:00.163

CRLF Ln 1, Col