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Azure Cosmos DB for PostgreSQL Cluster

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Essentials

Resource group : NetworkWatchRG

Location : East US 2

Subscription : Azure for Students

Subscription ID : 3f5d4df1-ac9-4206-92de-59ad1816224

PostgreSQL version : 15

Citus version : 11.3

Configuration : Single node configuration

Tags (add) : Click here to add tags

Node Monitoring Recommendations (0)

See all metrics here

Show data for last

1 hour 5 hours 12 hours 1 day 7 days 30 days

CPU

Storage

JSON View

Coordinator name : c-cloud-test-wplpyov6vg2v-postgres.cosmos.azure.com

Database name : citus

Admin username : citus

Connectivity method : Public access (allowed IP addresses)

Coordinator node : 2xCores / 8 GiB RAM, 128 GiB storage

Worker nodes : ---

Replication role : No replicas

High availability : No

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Create new table

Let's create two tables github\_users and github\_events in "cosmosdb\_tutorial" schema.

DROP SCHEMA IF EXISTS cosmosdb\_tutorial CASCADE;  
CREATE SCHEMA cosmosdb\_tutorial;  
-- Using schema created for tutorial  
SET search\_path to cosmosdb\_tutorial;

Quick start 1: Creating tables in Azure Cosm...  
JSONB data-type to store unstructured data

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SET  
citus-> CREATE TABLE github\_users  
(  
citus-> user\_id bigint,  
citus-> url text,  
citus-> login text,  
citus-> display\_name text,  
citus-> display\_login text  
citus-> );  
citus-> CREATE TABLE github\_events  
(  
citus-> event\_id bigint,  
citus-> event\_name text,  
citus-> event\_public boolean,  
citus-> repo\_id bigint,  
citus-> payload\_jsonb,  
citus-> user\_id bigint,  
citus-> org\_jsonb,  
citus-> created\_at timestamp  
citus-> );  
CREATE INDEX  
ON github\_events USING GIN (payload\_jsonb\_path\_ops);  
CREATE INDEX  
ON github\_events USING GIN (payload\_jsonb\_path\_ops);  
citus->

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Let's distribute the two tables using the create\_distributed\_table() function.

We are choosing "user\_id" as the distribution column for our sample dataset.

Create distributed table

... Using schema created for the tutorial  
SET search\_path to cosmosdb\_tutorial;  
SELECT create\_distributed\_table('github\_users', 'user\_id');  
SELECT create\_distributed\_table('github\_events', 'user\_id');

Quick start 2: Distributing tables in Azure Co...  
user\_id as distribution column to co-locate both tables

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```
cituser> event_type text,  
cituser> repo_id bigint,  
cituser> payload jsonb,  
cituser> user_id bigint,  
cituser> org jsonb,  
cituser> created_at timestamp  
cituser> );  
CREATE TABLE  
cituser> CREATE INDEX event_type_index ON github_events (event_type);  
cituser> CREATE INDEX payload_index ON github_events USING GIN (payload_jsonb_path_ops);  
CREATE INDEX  
cituser> SET search_path to cosmosdb_tutorial;  
cituser> SELECT create_distributed_table('github_users', 'user_id');  
create_distributed_table  
-----  
(1 row)  
cituser> SELECT create_distributed_table('github_events', 'user_id');  
create_distributed_table  
-----  
(1 row)  
cituser> ]
```

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Let's load the two tables with a sample dataset generated from the GitHub API.

Load data

... Using schema created for the tutorial  
SET search\_path to cosmosdb\_tutorial;  
-- download users and store in table  
COPY github\_users FROM PROGRAM 'wget -q -O - "sgp" https://raw.githubusercontent.com/.../users.json' WITH (FORMAT CSV);  
-- download events and store in table  
COPY github\_events FROM PROGRAM 'wget -q -O - "sgp" https://raw.githubusercontent.com/.../events.json' WITH (FORMAT CSV);  
cituser> ]

Quick start 3: Loading data into Azure Cosm...  
resources by parallelism across nodes

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```
cituser> );  
CREATE TABLE  
cituser> CREATE INDEX event_type_index ON github_events (event_type);  
CREATE INDEX  
cituser> CREATE INDEX payload_index ON github_events USING GIN (payload_jsonb_path_ops);  
CREATE INDEX  
cituser> SET search_path to cosmosdb_tutorial;  
cituser> SELECT create_distributed_table('github_users', 'user_id');  
create_distributed_table  
-----  
(1 row)  
cituser> SELECT create_distributed_table('github_events', 'user_id');  
create_distributed_table  
-----  
(1 row)  
cituser> SET search_path to cosmosdb_tutorial;  
SET  
cituser> COPY github_users FROM PROGRAM 'wget -q -O - "sgp" https://raw.githubusercontent.com/.../users.json' WITH (FORMAT CSV);  
COPY 264308  
cituser> COPY github_events FROM PROGRAM 'wget -q -O - "sgp" https://raw.githubusercontent.com/.../events.json' WITH (FORMAT CSV);  
COPY 32345  
cituser> ]
```

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Congratulations on creating and distributing your tables. Now, it's time to run your first query!

Try queries

-- Using schema created for the tutorial  
SET search\_path to cosmosdb\_tutorial;  
  
-- count all rows (across shards)  
SELECT count(\*) FROM github\_users;

Quick start 4: Querying tables in Azure Cosmos in PostgreSQL

SELECT data\_trunc('hour', created\_at) AS hour, sum(row\_count) AS row\_count  
FROM github\_users GROUP BY hour;

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count

264388  
(1 row)

citius-> SELECT github\_events  
citius-> SELECT count(\*) AS row\_count;  
citius-> SELECT created\_at, event\_type, repo->>'name' AS repo\_name  
citius-> SELECT count(\*) AS row\_count;  
citius-> SELECT created\_at, event\_type, repo\_name  
citius-> SELECT count(\*) AS row\_count;  
citius-> SELECT data\_trunc('hour', created\_at) AS hour, sum(row\_count) AS row\_count  
citius-> SELECT count(\*) AS row\_count;

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