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PostgreSQL 19: Autovacuum scoring

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What is it about?

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- Automatic background cleanup (Autovacuum)
- Autovacuum has two main process types
  - Autovacuum-Launcher
  - Autovacuum-Worker
- Autovacuum-Launcher starts worker every `autovacuum_naptime/database_count`
- Autovacuu-Worker executes VACUUM or ANALYZE at tables... but in which order?

PostgreSQL 19 is introducing system for priorization: Nathan Bossart (https://www.postgresql.org/message-id/E1w68wa-001iA8-2c%40gemulon.postgresql.org)

What is PostgreSQL doing before Version 19?

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1. Launcher starts worker for database
2. Worker checks statistics of tables in order of `pg_class`
3. VACUUM when:
   - dead tuples reach threshold or scalefactor
   - inserted tuples reach threshold or scalefactor
   - `XID` age reaches threshold (wraparound vacuum)
4. ANALYZE when reaching threshold with counted changes (INSERT, UPDATE, DELETE)

What is PostgreSQL doing in Version 19?

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1. Launcher starts worker for database
2. Worker creates list of tables with scores using these criteria:
   - age of `XID`
   - age of `MXID`
   - Count of dead tuples (UPDATE, DELETE)
   - Count of inserts
   - Analyze-Score (INSERT, UPDATE, DELETE)
3. VACUUM or ANALYZE with descendig order

Catalog view

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```
                View "pg_catalog.pg_stat_autovacuum_scores"

    Column             |        Type         | Collation | Nullable | Default
-----------------------+---------------------+-----------+----------+---------
relid                  | oid                 |           |          |
schemaname             | name                |           |          |
relname                | name                |           |          |
score                  | double precision    |           |          |
xid_score              | double precision    |           |          |
mxid_score             | double precision    |           |          |
vacuum_score           | double precision    |           |          |
vacuum_insert_score    | double precision    |           |          |
analyze_score          | double precision    |           |          |
do_vacuum              | boolean             |           |          |
do_analyze             | boolean             |           |          |
for_wraparound         | boolean             |           |          |
```

Configuration

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- `autovacuum_freeze_score_weight`
- `autovacuum_multixact_freeze_score_weight`
- `autovacuum_vacuum_score_weight`
- `autovacuum_vacuum_insert_score_weight`
- `autovacuum_analyze_score_weight`

Default weight is always `1.0`

Thank you

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