

Stream history storage in SQL DB

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Backend server uses SQL DB to store stream history. It is recommended to use Postgresql. Embedded H2 DB is allowed for debug and testing purposes, but it should not be used in production.

DB structure

Backend server SQL DB contains the following tables which are created automatically on first launch:

Field	Type	Note
ALARM		
id	bigint	PRIMARY KEY
name	character varying(255)	UNIQUE CONSTRAINT
time	bigint	
type	bigint	
value	bigint	
metric_id	bigint	FOREIGN KEY REFERENCES metric(id)
node_id	bigint	FOREIGN KEY REFERENCES node(id)
METRIC		
id	bigint	PRIMARY KEY
enum_name	character varying(255)	UNIQUE CONSTRAINT
name	character varying(255)	UNIQUE CONSTRAINT
note	character varying(255)	
NODE		
id	bigint	PRIMARY KEY
host	character varying(255)	UNIQUE CONSTRAINT
NODE_PROFILE		
node_id	bigint	FOREIGN KEY REFERENCES node(id)
profile_id	bigint	FOREIGN KEY REFERENCES profile(id)
PROFILE		
id	bigint	PRIMARY KEY
name	character varying(255)	UNIQUE CONSTRAINT
rate	integer	
PROFILE_METRICS		
profile_id	bigint	FOREIGN KEY REFERENCES profile(id)
metrics_id	bigint	FOREIGN KEY REFERENCES metric(id)
PROFILE_RULE		
profile_id	bigint	FOREIGN KEY REFERENCES profile(id)
rule_id	bigint	FOREIGN KEY REFERENCES rule(id)
RULE		
id	bigint	PRIMARY KEY

name	character varying(255)	UNIQUE CONSTRAINT
type	bigint	
value	character varying(255)	
STREAM		
id	bigint	PRIMARY KEY
create_date	timestamp without time zone	
duration	bigint	
media_id	character varying(255)	
name	character varying(255)	
node_id	bigint	FOREIGN KEY REFERENCES node(id)
publisher_id	bigint	FOREIGN KEY REFERENCES stream(id)
STREAM_STATUS		
id	bigint	PRIMARY KEY
status	character varying(255)	
timestamp	timestamp without time zone	
stream_id	bigint	FOREIGN KEY REFERENCES stream(id)

Postgresql installation and setup

1. Install Postgresql (for example, on CentOS 7) with command

```
yum install postgresql-server
```

2. Initialize DB and start Postgresql

```
postgresql-setup initdb
systemctl enable postgresql
systemctl start postgresql
```

3. Enter Postgresql console

```
su - postgres
psql
```

4. Create database and user, grant privileges to the user

```
CREATE USER wcoam WITH PASSWORD 'wcoam';
CREATE DATABASE wcoam;
\c wcoam
GRANT ALL PRIVILEGES ON ALL TABLES IN SCHEMA public TO "wcoam";
```

5. Exit Postgresql console

```
\q
exit
```

DB queries optimizing

In builds before [1.163](#), to speed up Postgresql and to decrease CPU load, the following indexed should be created after successful launch of WCS OAM:

```
CREATE INDEX ON stream(name, media_id, node_id);
CREATE INDEX ON stream(node_id, name, status);
CREATE INDEX ON stream(publisher_id);
```

Data structure of stream table in wccoam database should look as follows:

```
wccoam=# \d stream
          Table "public.stream"
  Column      |          Type          |          Modifiers
-----+-----+-----
 id           | bigint                 | not null default nextval('stream_id_seq'::regclass)
 create_date  | timestamp without time zone |
 duration     | bigint                 |
 media_id     | character varying(255) |
 name         | character varying(255) |
 status       | character varying(255) |
 node_id      | bigint                 | not null
 publisher_id | bigint                 |
Indexes:
    "stream_pkey" PRIMARY KEY, btree (id)
    "stream_name_media_id_node_id_idx" btree (name, media_id, node_id)
    "stream_node_id_name_status_idx" btree (node_id, name, status)
    "stream_publisher_id_idx" btree (publisher_id)
Foreign-key constraints:
    "fkfvlh9nv3oa5ge11ocxqlm7bf1" FOREIGN KEY (node_id) REFERENCES node(id)
    "fkh48fb2gtjt8o6acfv1jn3o4v3" FOREIGN KEY (publisher_id) REFERENCES stream(id)
Referenced by:
    TABLE "stream_status" CONSTRAINT "fkc3g764hn776vf7b7gl4ux81vy" FOREIGN KEY (stream_id) REFERENCES stream(id)
    TABLE "stream" CONSTRAINT "fkh48fb2gtjt8o6acfv1jn3o4v3" FOREIGN KEY (publisher_id) REFERENCES stream(id)
```