Greenplum 元数据信息

1、获取集群中数据库信息

1.1 集群中的创建的数据库信息

select datname from pg_database where datname not in ('template1','template0','postgres');

1.2 查看每个数据库的储存大小

select pg_size_pretty(pg_database_size('databases')) as databasesize, 'databases' as databasename

databases： 数据库信息

2、查看数据库下 schema 信息

2.1 查看数据库下创建的 schema 信息

select nspname as schemaname from pg_namespace where nspname!~'pg_*' ORDER BY nspname

2.2 查看数据库下每个 schema 的大小

select pg_size_pretty(cast(sum(pg_relation_size(schemaname || '.' || tablename)) as bigint)), schemaname
from pg_tables t inner join pg_namespace d on t.schemaname=d.nspname group by schemaname;

3、查看 schema 下表的信息

3.1 查看 schema 下的表的清单

select 'schemaname '||'.'||c.relname as tablename
from pg_catalog.pg_class c, pg_catalog.pg_namespace n

```
where
n.oid = c.relnamespace
and n.nspname='schemaname '
and pc.relstorage IN ('type')
```

schemaname : schema 的名字
type：a 和 c 是 AO 表,h 是 heap 表,x 是外表

3.2 查看表的字段的信息

```
select table_schema||'.'||table_name as tablename,column_name,
case character_maximum_length is null
when 't' then data_type
else data_type||'('||character_maximum_length||')' end as character_maximum_length
from information_schema.columns where table_schema='schema'
and table_name='tablename';
```

schema : schema 的信息
Tablename : 表的名字

3.3 查看 schema 下的每个表的大小

```
select schemaname||'.'||tablename,
pg_relation_size(schemaname || '.' || tablename)/1024/1024/1024 as tablesize
from pg_tables t inner join pg_namespace d on t.schemaname=d.nspname
and nspname='schema '
ORDER BY tablesize desc
limit 100;
```

schema : schema 的信息

3.4 获取表的生命周期

```
select  staactionname,stausename,stasubtype,to_char(statime,'yyyy-mm-dd  hh24:mm:ss')||''  as
statime
from pg_stat_last_operation where objid = 'tablename'::regclass   order by statime desc
```

tablename : 表的名字

3.5 获取表的膨胀率

```
select percent_hidden
from gp_toolkit.__gp_aovisimap_compaction_info('main.t_ent_baseinfo'::regclass)
ORDER BY percent_hidden desc;
```

3.6 查看表的倾斜率

```
SELECT max(c) AS MaxSegRows, min(c) AS MinSegRows,
substr((max(c)-min(c))*100.0/max(c)||'',0,8) AS PercentageDifferenceBetween
FROM (SELECT count(*) c, gp_segment_id FROM tablename
GROUP BY 2) AS a
```

tablename： 表的名字

3.7 查看需要 Analyze 的表

```
select smischema||'.'||smitable as tablename,smisize,smicols,smirecs from
gp_toolkit.gp_stats_missing where smisize='f' limit 10;
```

3.8 查看表的字段个类型信息

```
select table_schema||'.'||table_name as tablename,column_name,
case character_maximum_length is null
when 't' then data_type
else data_type||'('||character_maximum_length||')' end as character_maximum_length
from information_schema.columns where table_schema='schema'
and table_name='tablename';
```

schema ： schem 信息
tablename： 表的名字

3.9 查看表字段的注释信息

```
SELECT 'tablename' as table_name
        ,a.attname                                  AS column_name
```

```
        ,format_type(a.atttypid, a.atttypmod) AS data_type
        ,d.description                          AS description
        ,a.attnum
        ,a.attnotnull                           AS notnull
        ,coalesce(p.indisprimary, FALSE)        AS primary_key
        ,f.adsrc                                AS default_val
FROM    pg_attribute    a
LEFT    JOIN pg_index   p ON p.indrelid = a.attrelid AND a.attnum = ANY(p.indkey)
LEFT    JOIN pg_description d ON d.objoid  = a.attrelid AND d.objsubid = a.attnum
LEFT    JOIN pg_attrdef f ON f.adrelid = a.attrelid  AND f.adnum = a.attnum
WHERE   a.attnum > 0
AND     NOT a.attisdropped
AND     a.attrelid = 'tablename'::regclass
ORDER   BY a.attnum;
```

tablename : 表的名字

4 查看集群中用户相关的信息

4.1 集群中创建的用户信息

```
select rolname,case rolsuper when 't' then '是管理员' when 'f' then '不是管理员'
end as rolsuper, case rolcreaterole when 't' then '可以创建角色' when 'f' then '不可以创建角色'
end as rolcreaterole,
case rolcreatedb  when 't' then '可以创建DB' when 'f' then '不可以创建DB' end as rolcreatedb,
case rolcanlogin  when 't' then '可以登录' when 'f' then '不可以登录' end as rolcanlogin,
case rolconnlimit when  '-1' then '没有限制' else '有限制' end as rolconnlimit,
case  when rolvaliduntil is null  then '永不失效' else '有失效时间' end as rolvaliduntil,rsqname
from pg_roles,gp_toolkit.gp_resqueue_status where rolname not like 'gpcc%' and
pg_roles.rolresqueue=gp_toolkit.gp_resqueue_status.queueid
order by rolname
```

4.2 用户创建的表信息

```
select grantee,table_schema||'.'||table_name as tablename,privilege_type,is_grantable
from information_schema.table_privileges where grantee= 'gpadmin'  limit 100
```

5 集群中 Function 的信息

5.1 查看创建的所有 Function 的信息

```
SELECT pg_proc.proname AS proname,pg_type.typname AS typename,
pg_proc.pronargs AS argscount FROM pg_proc JOIN pg_type ON
(pg_proc.prorettype = pg_type.oid) WHERE pg_type.typname != 'void'
and pg_proc.proname like 'sp_%' ORDER BY pg_proc.proname    ;
```

void： 返回的类型
sp_%： 函数的前缀

5.2 查看制定 schema 下的 Function 信息

```
SELECT pg_proc.proname AS proname,pg_type.typname AS typename,
pg_proc.pronargs AS argscount FROM pg_proc JOIN pg_type ON
(pg_proc.prorettype = pg_type.oid) WHERE pg_type.typname != 'void'
and pg_proc.proname like 'sp_%' and pronamespace = (SELECT pg_namespace.oid FROM
pg_namespace WHERE nspname = 'schema' )
ORDER BY pg_proc.proname ;
```

void： 返回的类型
sp_%： 函数的前缀
schema： 制定的 schema 的信息

6 集群中资源队列的信息

6.1 查看创建的资源队列

```
select    * from pg_resqueue
```

6.2 查看资源队列的参数配置

```
select rsqname,resname,ressetting from pg_resqueue_attributes
```

7 集群中正在运行的 SQL 信息

6.1 查看正在运行的 SQL 信息

```
select datname,procpid,usename,current_query,waiting,
  to_char(query_start,'yyyy-mm-dd hh24:mm:ss') as query_start,
to_char(backend_start,'yyyy-mm-dd hh24:mm:ss') as backend_start,
((substr(now()||'',0,20)::timestamp)  -  (substr(query_start||'',0,20)::timestamp))||''  as
takingTime,
client_addr,application_name,waiting_reason  from pg_stat_activity where current_query <>
'<IDLE>'
order by takingTime desc
```

8 查询数据库与表的年龄

8.1 查询数据库的年龄

```
select datname,age(datfrozenxid) from pg_database where age(datfrozenxid) > 1500000000
```

1500000000: 15 亿的年龄

如果超过 15 亿，建议用户在业务空闲时间段，执行：

```
 set vacuum_freeze_min_age = 0;
 vacuum freeze;
```

8.2 查询表的年龄

```
select * from (
select pt.schemaname||'.'||ts.relname as tablename,
pg_relation_size(pt.schemaname||'.'||ts.relname)/1024/1024/1024 as tablesizegb,
ts.relfrozenxid,ts.stausename,ts.stasubtype,ts.statime from (
SELECT  ps.stausename,ps.staactionname,ps.stasubtype,pc.relname,ps.statime,age(relfrozenxid)
as relfrozenxid
FROM pg_stat_last_operation ps,pg_class pc WHERE ps.objid = pc.oid
and age(pc.relfrozenxid) > 1500000000
```

```
) ts,pg_tables pt
where ts.relname = pt.tablename
order by tablesizegb desc
) txd
where txd.tablesizegb > 0
```

1500000000 : 15 亿的年龄
tablename : 表的名字

如果超过 15 亿，建议用户在业务空闲时间段，执行：

```
set vacuum_freeze_min_age = 0;
vacuum freeze tablename;
```