

## 1.开启日志

### 1.1 修改配置文件

配置文件路径/home/**username**/postgresql/data/postgresql.conf

# Add settings for extensions here

# - What to Log -

debug\_print\_parse = on       #把SQL的解析树输出到日志中

debug\_print\_rewritten = on   #把SQL的查询重写打印到日志中

debug\_print\_plan = on        #把SQL的执行计划打印输出到日志中

debug\_pretty\_print = on       #美化上述的三种输出，使其更容易阅读

# - Query/Index Statistics Collector -

track\_activities = on

track\_counts = on

track\_io\_timing = on

track\_functions = all        # none, pl, all

# - Statistics Monitoring -

log\_parser\_stats = on    #记载数据库解析器的统计数据

log\_planner\_stats = on   #报告数据库查询优化器的统计数据

log\_executor\_stats = on  #报告数据库执行器的统计数据

#log\_statement\_stats = on   #报告整个语句的统计数据，注意与前面三个同时开启会引起冲突

#启用pg\_log并配置日志参数

log\_destination = 'csvlog'

logging\_collector = on

log\_directory = 'pg\_log'

log\_filename = 'postgresql-%Y-%m-%d\_%H%M%S.log'

log\_rotation\_age = 1d

log\_rotation\_size = 100MB

log\_statement = 'ddl'

log\_duration = on #是否记录每个已完成语句的持续时间

log\_min\_messages = info

## 1.2 restart server

1.3 tailf /home/username/postgresql/data/pg\_log/\*\*.csv 查看日志

## 2.日志介绍

### 2.1 create table

```
test=# create table tb1(c1 int primary key,c2 int);
CREATE TABLE
```

```
2019-04-12 18:34:51.981 CST,"dnc","test",784847,"[local]",5cb0674e.bf9cf,14,"CREATE TABLE",2019-04-12 18:24:14 CST,3/3,0,LOG,00000,"REWRITER STATISTIC
S",,! system usage stats:
! 0.00001 elapsed 0.00000 user 0.00000 system sec
! [0.006998 user 0.002999 sys total]
! 0/0 [0/264] filesystem blocks in/out
! 0/0 [0/1062] page faults/reclaims, 0 [0] swaps
! 0 [0] signals rcvd, 0/0 [0/0] messages rcvd/sent
! 0/0 [5/2] voluntary/involuntary context switches",,,,,,"create table tb1(c1 int primary key,c2 int);",,,,psql"
2019-04-12 18:34:51.981 CST,"dnc","test",784847,"[local]",5cb0674e.bf9cf,15,"CREATE TABLE",2019-04-12 18:24:14 CST,3/3,0,LOG,00000,"rewritten parse tr
ee:" "(
{QUERY
:commandType 5
:querySource 0
:canSetTag true
:utilityStmt
{CREATETMT
:relation
{RANGEVAR
:schemaname <>
:relname tb1
:inhOpt 2
:relpersistence p
:alias <>
:location 13
}
:tableElts (
{COLUMNDEF
:colname c1
:typeName
{TYPENAME
:names ("pg_catalog" "int4")
:typeOid 0
:setof false
:pct_type false
:typmods <>
:typemod -1
:arrayBounds <>
:location 20
}
:inhcount 0
:is_local true
:is_not_null false
:is_from_type false
:storage
},,,,,,"create table tb1(c1 int primary key,c2 int);",,,,psql"
2019-04-12 18:34:52.116 CST,"dnc","test",784847,"[local]",5cb0674e.bf9cf,16,"CREATE TABLE",2019-04-12 18:24:14 CST,3/0,0,LOG,00000,"duration: 134.750
ms",,,,,,"psql"
```

### 2.2 sample select

```
test=# select 1;
?column?
-----
      1
(1 row)
```

#### 2.2.1 parse & rewrite

```

0/0 [10/4] voluntary/involuntary context switches,,,,,select 1;,,,psql
2019-04-12 18:37:56.077 CST,"dnc","test",784847,"[local]",5cb0674e.bf9cf,21,"SELECT",2019-04-12 18:24:14 CST,3/4,0,LOG,00000,"rewritten parse tree:",
(
  {QUERY
    :commandType 1
    :querySource 0
    :canSetTag true
    :utilityStmt <>
    :resultRelation 0
    :hasAggs false
    :hasWindowFuncs false
    :hasSubLinks false
    :hasDistinctOn false
    :hasRecursive false
    :hasModifyingCTE false
    :hasForUpdate false
    :hasRowSecurity false
    :cteList <>
    :rtable <>
    :jointree
      {FROMEXPR
        :fromlist <>
        :quals <>
      }
    :targetList (
      {TARGETENTRY
        :expr
          {CONST
            :consttype 23
            :consttypmod -1
            :constcollid 0
            :constlen 4
            :constbyval true
            :constisnull false
            :location 7
            :constvalue 4 [ 1 0 0 0 0 0 0 0 ]
          }
        :resno 1
        :resname ?column?
        :ressortgroupref 0
        :resorigtbl 0
        :resorigcol 0
        :resjunk false
      }
    )
    :onConflict <>
    :returningList <>
    :groupClause <>
    :groupingSets <>
    :havingQual <>
    :windowClause <>
    :distinctClause <>
    :sortClause <>
    :limitOffset <>
    :limitCount <>
    :rowMarks <>
    :setOperations <>
    :constraintDeps <>
  }
)

```

```

,,,,,"select 1;,,,,psql"
2019-04-12 18:37:56.077 CST,"dnc","test",784847,"[local]",5cb0674e.bf9cf,22,"SELECT",2019-04-12 18:24:14 CST,3/4,0,LOG,00000,"PLANNER STATISTICS","! s
system usage stats:
!      0.000044 elapsed 0.000000 user 0.000000 system sec
!      [0.009998 user 0.005999 sys total]
!      0/0 [0/488] filesystem blocks in/out
!      0/0 [0/1435] page faults/reclaims, 0 [0] swaps
!      0 [0] signals rcvd, 0/0 [0/0] messages rcvd/sent
!      0/0 [10/4] voluntary/involuntary context switches,,,,,"select 1;,,,,psql"

```

## 2.2.2 optimization

```

2019-04-12 18:37:56.078 CST,"dhc","test",784847,"[local]",5cb0674e.bf9cf,23,"SELECT",2019-04-12 18:24:14 CST,3/4,0,LOG,00000,"plan:", "{PLANNEDSTMT
:commandType 1
:queryId 0
:hasReturning false
:hasModifyingCTE false
:canSetTag true
:transientPlan false
:dependsOnRole false
:parallelModeNeeded false
:planTree
{RESULT
:startup_cost 0.00
:total_cost 0.01
:plan_rows 1
:plan_width 4
:parallel_aware false
:plan_node_id 0
:targetlist (
{TARGETENTRY
:expr
{CONST
:consttype 23
:consttypmod -1
:constcollid 0
:constlen 4
:constbyval true
:constisnull false
:location 7
:constvalue 4 [ 1 0 0 0 0 0 0 ]
}
:resno 1
:resname ?column?
:ressortgroupref 0
:resorigtbl 0
:resorigcol 0
:resjunk false
}
)
:qual <>
:lefttree <>
:righttree <>
:initPlan <>
:extParam (b)
:allParam (b)
:resconstantqual <>
}
:rtable <>
:resultRelations <>
:utilityStmt <>
:subplans <>
:rewindPlanIDs (b)
:rowMarks <>
:relationOids <>
:invalItems <>
:nParamExec 0
}

```

```

,,,,,select 1;,,,,psql
2019-04-12 18:37:56.078 CST,"dhc","test",784847,"[local]",5cb0674e.bf9cf,24,"SELECT",2019-04-12 18:24:14 CST,3/4,0,LOG,00000,"EXECUTOR STATISTICS","!
system usage stats:
! 0.000029 elapsed 0.000000 user 0.000000 system sec
! [0.010998 user 0.005999 sys total]
! 0/0 [0/488] filesystem blocks in/out
! 0/0 [0/1435] page faults/reclaims, 0 [0] swaps
! 0 [0] signals rcvd, 0/0 [0/0] messages rcvd/sent
! 0/0 [10/4] voluntary/involuntary context switches,,,,,select 1;,,,,psql
2019-04-12 18:37:56.078 CST,"dhc","test",784847,"[local]",5cb0674e.bf9cf,25,"SELECT",2019-04-12 18:24:14 CST,3/0,0,LOG,00000,"duration: 0.898 ms",,,,,
"psql"

```