迁移步骤过程

# 新建用户

su - postgres -c "psql -c \"

CREATE USER dbadmin SUPERUSER PASSWORD 'Siemens@Tcm@2023';

CREATE USER infodba SUPERUSER PASSWORD 'Siemens@Tcm123';

CREATE USER replica PASSWORD '123456' REPLICATION;

CREATE USER pgrewind SUPERUSER PASSWORD '123456';

\" "

# 新建表空间

infodba\_idate /data01/pgsql/tc/infodba\_idata

infodba\_ilog /data01/pgsql/tc/infodba\_ilog

infodba\_indx /data01/pgsql/tc/infodba\_indx

tcclusterdb\_idata /data01/pgsql/tc/tcclusterdb\_idata

CREATE TABLESPACE infodba\_idate LOCATION '/data01/pgsql/tc/infodba\_idata';

CREATE TABLESPACE infodba\_ilog LOCATION '/data01/pgsql/tc/infodba\_ilog';

CREATE TABLESPACE infodba\_indx LOCATION '/data01/pgsql/tc/infodba\_indx';

CREATE TABLESPACE tcclusterdb\_idata LOCATION '/data01/pgsql/tc/tcclusterdb\_idata';

# 新建库

su - postgres -c "psql -c \"CREATE DATABASE tc WITH owner infodba encoding 'UTF8' template template0 LC\_COLLATE='C' ;\""

create user TcClusterDB password 'tcclusterdb';

create tablespace TcClusterDB\_idata owner TcClusterDB location '/data01/pgsql/tc/tcclusterdb\_idata';

create database TcClusterDB with owner TcClusterDB encoding 'UTF8' template template0 lc\_collate 'C' tablespace TcClusterDB\_idata;

grant all privileges on database TcClusterDB to TcClusterDB;

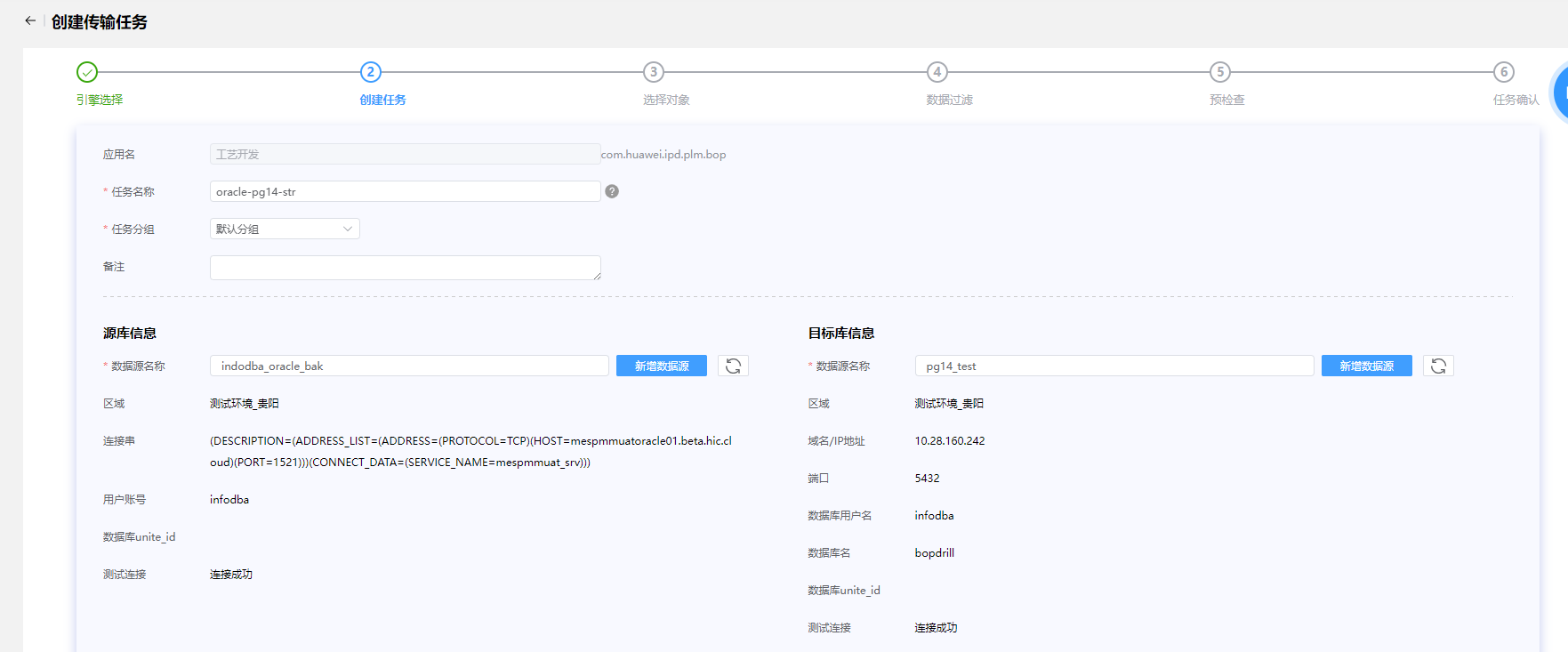
grant CREATE ON TABLESPACE TcClusterDB\_idata to TcClusterDB;

3.--新建schema

--su - postgres -c "psql -d bopdrill -c \"CREATE SCHEMA infodba;\" "

# 使用flashsync导表结构

4.1创建传输任务

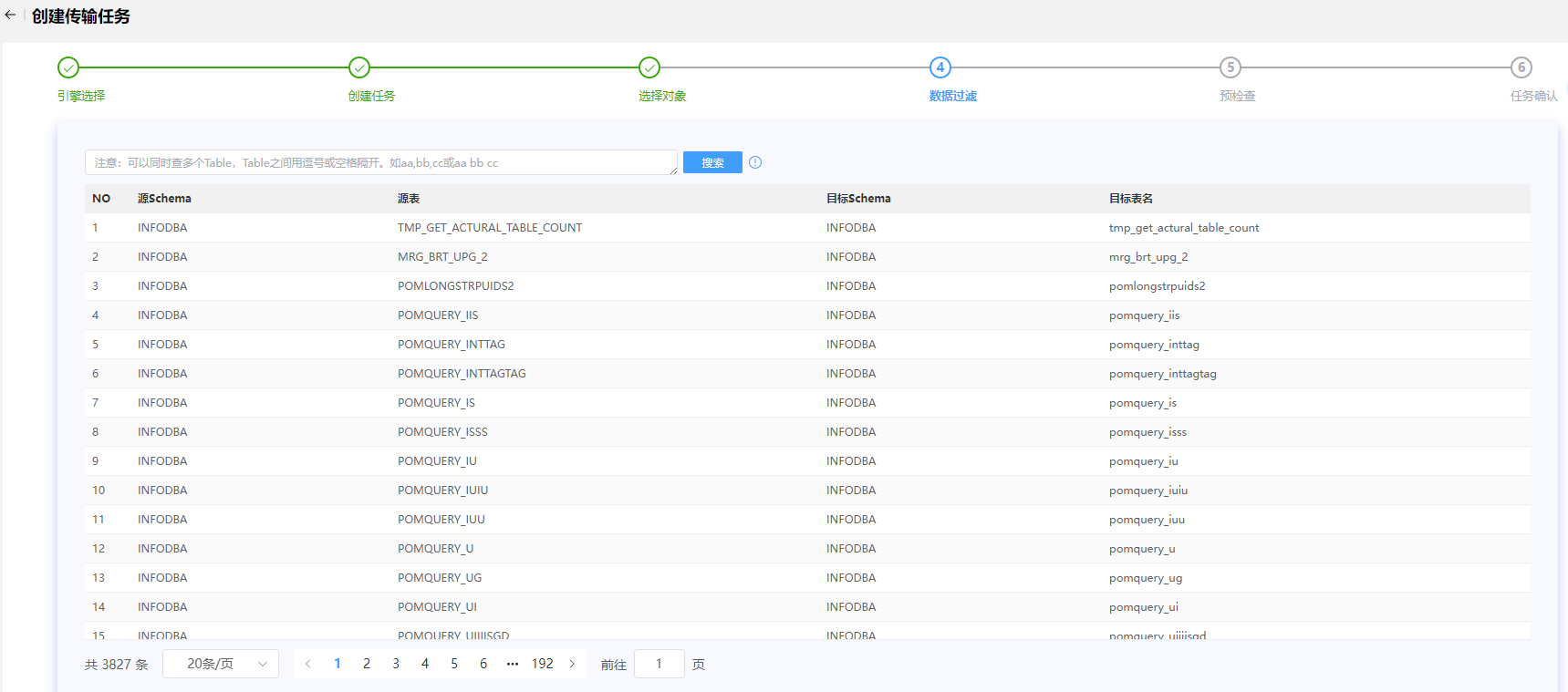


4.2添加schema列表或者Table列表（数据搬迁）

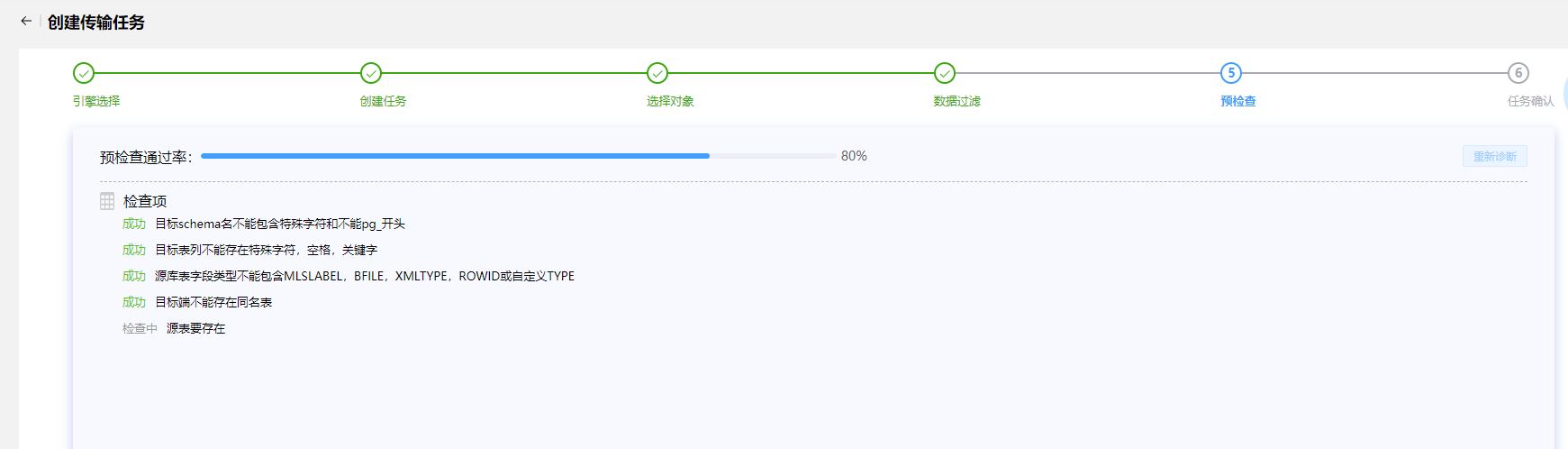


排除表（MMV\_SPATIAL\_CELL\_INDEX、TEMP\_SESSION、TEMP\_SESSION\_0618、TEMP\_SESSION\_0619\_1）

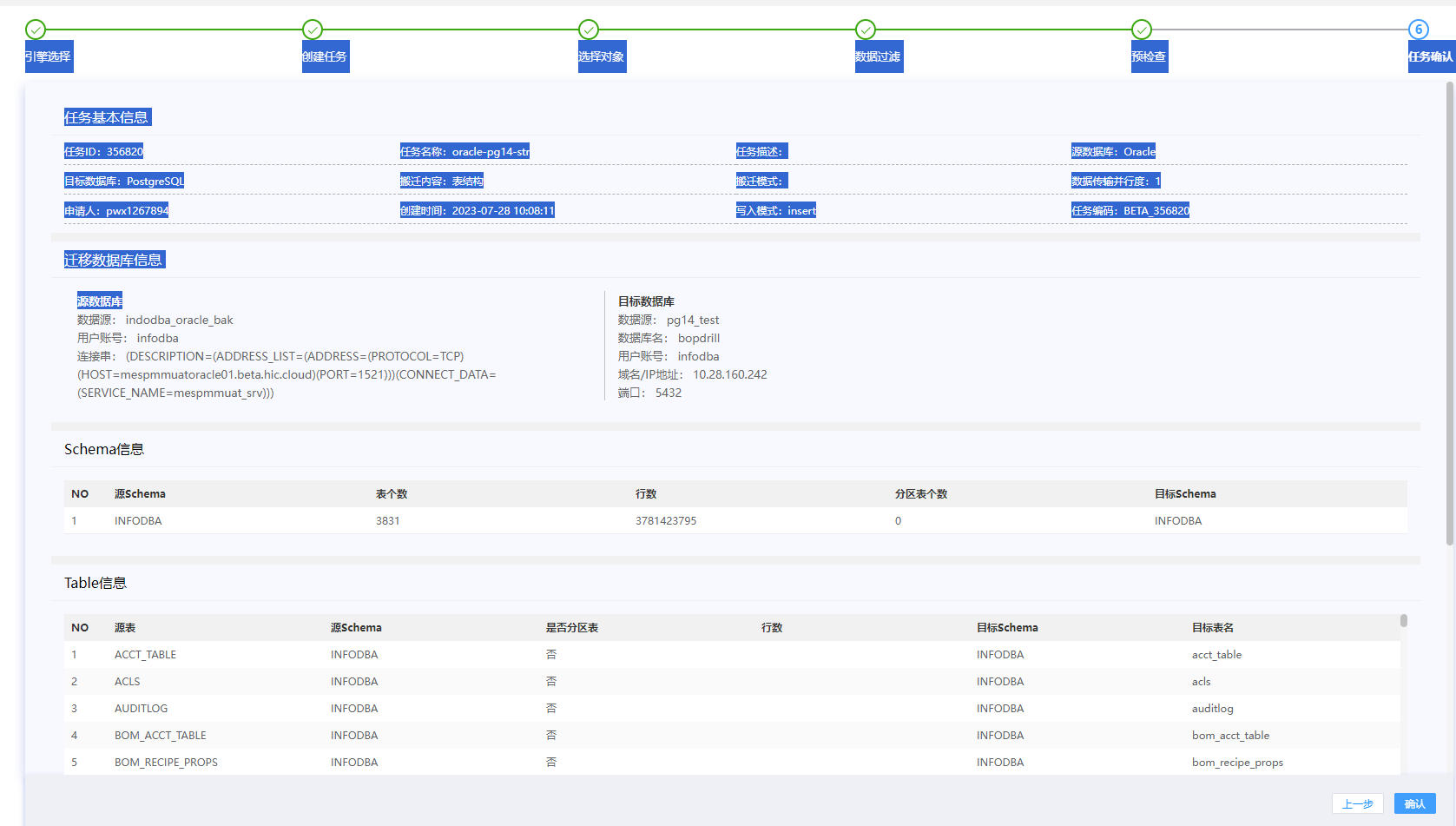
4.3数据过滤



4.4预检查



4.5任务确认



时长：25分32秒

5.新建排除4张的表结构

create table MMV\_SPATIAL\_CELL\_INDEX

(

puid VARCHAR(15) not null,

spatial\_rep VARCHAR(15) not null,

cell\_id INTEGER not null,

occ\_path\_prefix VARCHAR(900) not null,

occ\_path\_suffix VARCHAR(4000),

pxmin numeric,

ymin numeric,

zmin numeric,

pxmax numeric,

ymax numeric,

zmax numeric

);

create unique index MMVSPATIALCELLINDEX\_PUID\_PK on MMV\_SPATIAL\_CELL\_INDEX (PUID);

create index MMV\_SPATIAL\_CELLID1 on MMV\_SPATIAL\_CELL\_INDEX (CELL\_ID);

create index MMV\_SPATIAL\_OCCPATHPREFIX1 on MMV\_SPATIAL\_CELL\_INDEX (OCC\_PATH\_PREFIX);

create index MMV\_SPATIAL\_SPATIALREP1 on MMV\_SPATIAL\_CELL\_INDEX (SPATIAL\_REP);

create table TEMP\_SESSION

(

id numeric,

exetime DATE,

sid numeric,

"serial#" numeric,

process VARCHAR(24),

machine VARCHAR(64),

program VARCHAR(48),

osuser VARCHAR(30),

status VARCHAR(8),

prev\_sql\_id VARCHAR(24),

sql\_id VARCHAR(24)

);

create table TEMP\_SESSION\_0618

(

id numeric,

exetime DATE,

sid numeric,

"serial#" numeric,

process VARCHAR(24),

machine VARCHAR(64),

program VARCHAR(48),

osuser VARCHAR(30),

status VARCHAR(8)

);

create table TEMP\_SESSION\_0619\_1

(

id numeric,

exetime DATE,

sid numeric,

"serial#" numeric,

process VARCHAR(24),

machine VARCHAR(64),

program VARCHAR(48),

osuser VARCHAR(30),

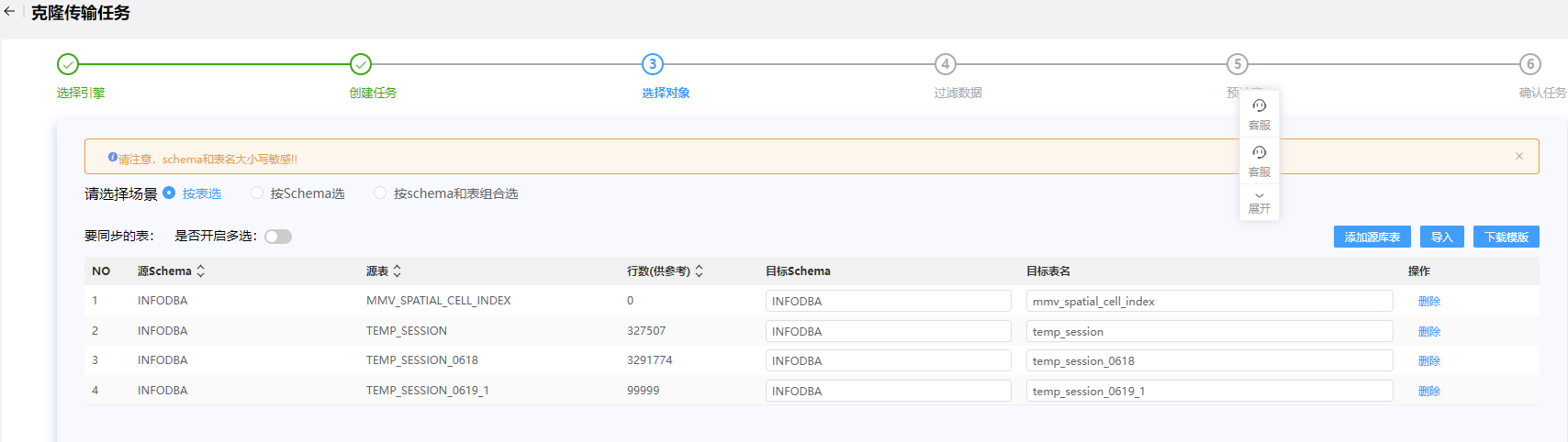
status VARCHAR(8),

prev\_sql\_id VARCHAR(24),

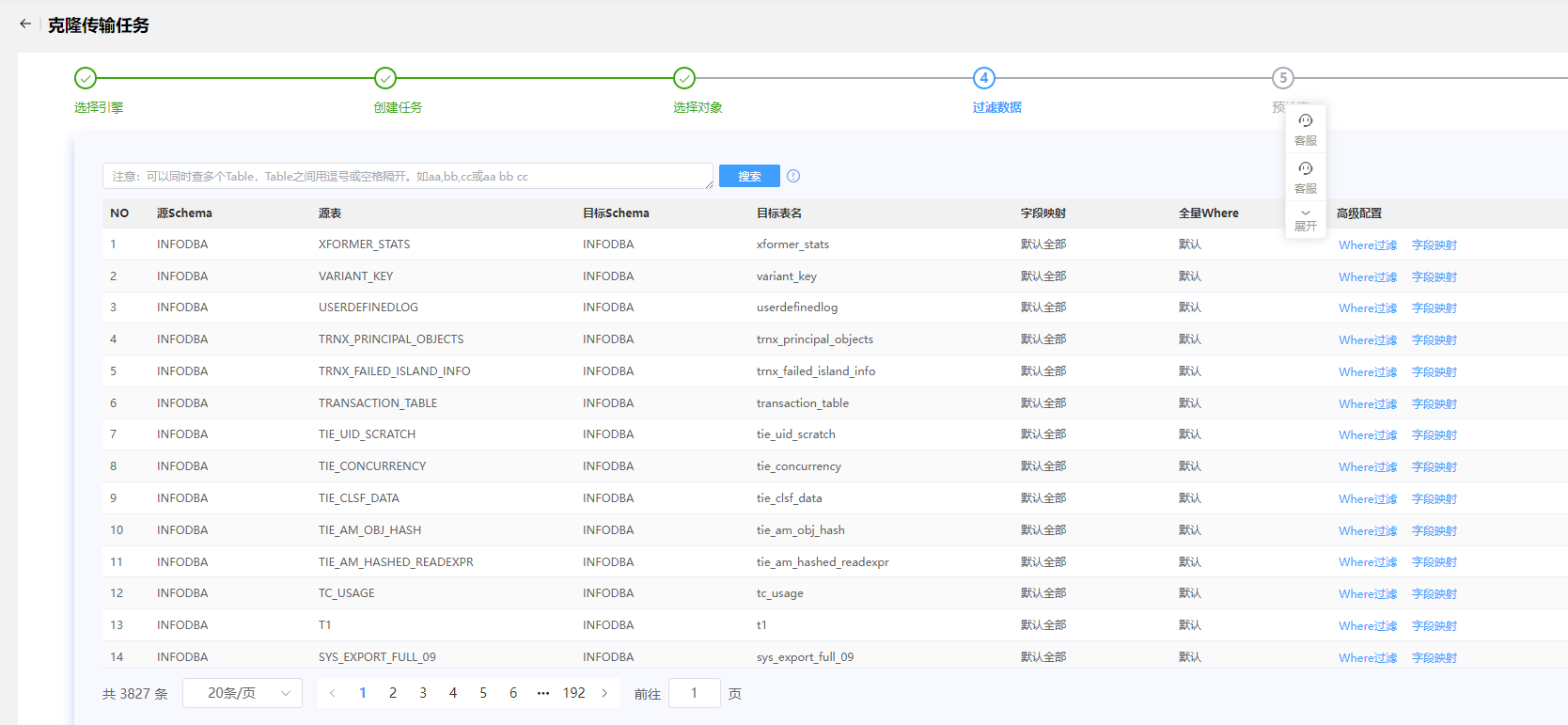
sql\_id VARCHAR(24)

)

6.导入四张表的数据，MMV\_SPATIAL\_CELL\_INDEX、TEMP\_SESSION、TEMP\_SESSION\_0618、TEMP\_SESSION\_0619\_1 （flashsync)



7.导入所有表的数据除MMV\_SPATIAL\_CELL\_INDEX、TEMP\_SESSION、TEMP\_SESSION\_0618、TEMP\_SESSION\_0619\_1 （flashsync)。



索引重建报错：rebuild index piph6specialoperationreq\_0 error,error:index row size 2808 exceeds btree version 4 maximum 2704 for index "piph6specialoperationreq\_0" DETAIL: Index row references tuple (8386,36) in relation "ph6specialoperationreq". HINT: Values larger than 1/3 of a buffer page cannot be indexed. Consider a function index of an MD5 hash of the value, or use full text indexing.

解决方案：

create extension pg\_trgm;

create index ph6specialoperationreq\_0 on ph6specialoperationreq using gin (PVAL\_0 gin\_trgm\_ops);

create index ph6notice1\_0 on ph6notice1 using gin (PVAL\_0 gin\_trgm\_ops)

安装插件create extension pg\_trgm;报错信息是extenction文件目录中缺少control文件。应该是编译信息没有遍全

( tar -zxvf postgresql-14.8.tar.gz -C /app/install

cd /app/install/postgresql-14.8

./configure –prefix=/app/postgresql

make world && make install-world)

8.大概对比数据量oracle迁移到PG

8.1对比表数据

Oracle:

select count(\*) from user\_tables; 3831

Pg14:

SELECT COUNT(\*) AS table\_count

FROM information\_schema.tables

WHERE table\_schema = 'public' and table\_type = 'BASE TABLE; 3831

8.2视图数据

Oracle:

Select count(\*) from user\_views; 283

Pg14:

SELECT table\_name

FROM information\_schema.views

WHERE table\_schema = current\_schema; 0

8.3索引数据

oracle:

select index\_name as indexname from user\_indexes i where i.index\_name not like ‘SYS\_%’; 6660

pg:

select upper(indexname) from pg\_indexes where schemaname = ‘infodba’ and not like ‘sys\_%’; 6656

select index\_name as indexname from user\_indexes i where i.index\_name not like ‘SYS\_%’ except select upper(indexname) from pg\_indexes where schemaname = ‘infodba’ and not like ‘sys\_%’; 结果为

INDEXNAME

MMV\_SPATIAL\_CELLID1

MMVSPTIALCELLINDEX\_PUID\_PK

MMV\_SPATIAL\_SPATIALREP1

PIPOM\_BACKPOINTER2

MMV\_SPATIAL\_OCCPATHPATHPREEIX1

PIPH6SPECIALOPERATIONREQ\_0

Select \* from user\_indexes i where i.index\_name not like ‘SYS\_%’ and table\_name=’MMV\_SPATIAL\_CELL\_INDEX’;

MMV\_SPATIAL\_CELLID1

MMVSPTIALCELLINDEX\_PUID\_PK

MMV\_SPATIAL\_SPATIALREP1

MMV\_SPATIAL\_OCCPATHPATHPREEIX1

PIPOM\_BACKPOINTER2

辅助SQL语句（Select \* from user\_indexes i where i.index\_name not like ‘SYS\_%’ and table\_name=’MMV\_SPATIAL\_CELL\_INDEX’;

Select \* from user\_indexes i where i.index\_name not like ‘SYS\_%’ and index\_name=’PIPOM\_BACKPOINTER2’;）

create index PIPOM\_BACKPOINTER2 on pom\_backpointer (to\_uid);

create index PIPH6SPECIALOPERATIONREQ\_0 on ph6specialoperationreq(pval\_0);

问题

创建PIPH6SPECIALOPERATIONREQ\_0报错

Error:index row size 2808 exceeds btree version 4 maximum 2704 for index”piph6specialoperationreq\_0”

DETAIL:Index row references tuple(838636) in relation “ph6specialoperationreq”

HINT:values larger than 1/3 of a buffer page cannot be indexed.

8.4序列数据

oracle:

SELECT count(\*) FROM user\_sequences; 310

pg：

SELECT count(\*)

FROM information\_schema.sequences

WHERE sequence\_schema = current\_schema; 0

8.5对比约束。

9.迁移其它对象

9.1导出约束

Vi ora2pg.conf

--修改内容如下

TYPE TABLE

Ora2pg -c /data01/soft\_tar/export\_dir/ora2pg.conf -o /data01/soft\_tar/export\_dir/test1/output.sql > /data01/soft\_tar/export\_dir/test1/output.sql

产生的 output.sql 文件用 table\_split.pl 处理下，将table的创建语句和constraint，index的创建语句分开。

table\_split.pl 内容如下

----------------------------------------------------------------------------------------------------------------------

open(INPUT, "output.sql");

open(OUTPUT, ">", "table.sql");

open(OUTPUT2, ">", "constraints.sql");

open(OUTPUT3, ">", "index.sql");

while(<INPUT>){

$str.=$\_

}

@index=$str=~/CREATE\s\*(?:UNIQUE)?\s\*INDEX\s+\w+\s+ON[^\n]\*;\n/igm;

@constraint=$str=~/ALTER\s\*TABLE[^\n]\*;\n/igm;

$str=~s/CREATE\s\*(?:UNIQUE)?\s\*INDEX\s+\w+\s+ON[^\n]\*;\n//igm;

$str=~s/ALTER\s\*TABLE[^\n]\*;\n//igm;

print OUTPUT3 @index;

print OUTPUT2 @constraint;

导入约束

psql -U infodba -d infodba\_test -f constraints.sql > constraints\_output.log 2>&1

grep ‘psql’ constraints\_output.log

psql:constraints.sql:53:ERROR:cannot alter system column “xmin”

psql:constraints.sql:56:ERROR:cannot alter system column “xmin”

alter table mmv\_spatial\_cell\_index alter column pxmin set not null;

alter table mmv\_spatial\_cell\_index alter column pxmax set not null;

9.2序列

Vi ora2pg.conf

--修改内容如下

TYPE SEQUENCE

ora2pg -c /data01/soft\_tar/export\_dir/ora2pg.conf -o /data01/soft\_tar/export\_dir/test1/sequence.sql > /data01/soft\_tar/export\_dir/test1/sequence.sql

导入

psql -U infodba -d infodba\_test -f sequence.sql > sequence\_output.log 2>&1

查看oracle序列个数：select count(\*) from user\_sequences; 310

查看PG序列个数：select count(\*) from information\_schema.sequences where sequence\_schema =CURRENT\_SCHEMA; 310

9.3视图

Vi ora2pg.conf

--修改内容如下

TYPE VIEW

ora2pg -c /data01/soft\_tar/export\_dir/ora2pg.conf -o /data01/soft\_tar/export\_dir/test1/view.sql > /data01/soft\_tar/export\_dir/test1/view.sql.log

导入

psql -U infodba -d infodba\_test -f view.sql > view\_output.log 2>&1

grep “psql” view\_output.log

psql:view.sql:744: ERROR: function lpad(bigint,integer,unknown) does not exist

psql:view.sql:892: ERROR: function lpad(bigint,integer,unknown) does not exist

psql:view.sql:1116: ERROR: function lpad(bigint,integer,unknown) does not exist

解决方案：

CREATE OR REPLACE FUNCTION pg\_catalog.lpad(bigint, integer, varchar)

RETURNS text

LANGUAGE sql

IMMUTABLE STRICT

AS $function$

SELECT pg\_catalog.lpad($1::text, $2, $3::text)

$function$

CREATE OR REPLACE VIEW vl10n\_einfo (puid, locale, preference, status, sequence\_no, pval\_0) AS SELECT puid, SUBSTR(pval\_0,1,5) as locale, SUBSTR(pval\_0,7,1) as preference, SUBSTR(pval\_0,9,1) as status, SUBSTR(pval\_0,11,4) as sequence\_no, SUBSTR(pval\_0,49,240) as pval\_0 FROM PL10N\_EINFO

UNION ALL

SELECT PEINFO.puid, 'NONE' as locale, 'M' as preference, 'M' as status, pg\_catalog.lpad(pseq, 4, '0') as sequence\_no, pval\_0 FROM PEINFO, PICML WHERE PICML.puid=PEINFO.puid AND PICML.VLA\_487\_5=0;

CREATE OR REPLACE VIEW vl10n\_awp0contentnames (puid, locale, preference, status, sequence\_no, pval\_0) AS SELECT puid, SUBSTR(pval\_0,1,5) as locale, SUBSTR(pval\_0,7,1) as preference, SUBSTR(pval\_0,9,1) as status, SUBSTR(pval\_0,11,4) as sequence\_no, SUBSTR(pval\_0,49,128) as pval\_0 FROM PL10N\_AWP0CONTENTNAMES

UNION ALL

SELECT PAWP0CONTENTNAMES.puid, 'NONE' as locale, 'M' as preference, 'M' as status, lpad(pseq, 4, '0') as sequence\_no, pval\_0 FROM PAWP0CONTENTNAMES, PAWP0TILETEMPLATE WHERE PAWP0TILETEMPLATE.puid=PAWP0CONTENTNAMES.puid AND PAWP0TILETEMPLATE.VLA\_1310\_9=0;

CREATE OR REPLACE VIEW vl10n\_value (puid, locale, preference, status, sequence\_no, pval\_0) AS SELECT puid, SUBSTR(pval\_0,1,5) as locale, SUBSTR(pval\_0,7,1) as preference, SUBSTR(pval\_0,9,1) as status, SUBSTR(pval\_0,11,4) as sequence\_no, SUBSTR(pval\_0,49,256) as pval\_0 FROM PL10N\_VALUE

UNION ALL

SELECT PVALUE.puid, 'NONE' as locale, 'M' as preference, 'M' as status, lpad(pseq, 4, '0') as sequence\_no, pval\_0 FROM PVALUE, PSTXT WHERE PSTXT.puid=PVALUE.puid AND PSTXT.VLA\_491\_19=0;

查看oracle视图数量：select count(\*) from user\_views; 283

查看pg视图数量：select count(\*) from information\_schema.views where table\_schema = CURRENT\_SCHEMA; 283

9.4过程

Vi ora2pg.conf

--修改内容如下

TYPE PROCEDURE

ora2pg -c /data01/soft\_tar/export\_dir/ora2pg.conf -o /data01/soft\_tar/export\_dir/test1/procedure.sql > /data01/soft\_tar/export\_dir/test1/procedure.sql.log

导入

psql -U infodba -d infodba\_test -f procedure.sql > procedure\_output.log 2>&1

grep ‘psql’ procedure\_output.log

psql:procedure.sql:59:ERROR: syntax error at or near “dbms\_stats”

9.5函数

Vi ora2pg.conf

--修改内容如下

TYPE FUNCTION

ora2pg -c /data01/soft\_tar/export\_dir/ora2pg.conf -o /data01/soft\_tar/export\_dir/test1/function.sql > /data01/soft\_tar/export\_dir/test1/function.sql.log

导入

psql -U infodba -d infodba\_test -f function.sql > function\_output.log 2>&1

ERROR:syntax error at or near “IS”

LINE 13:TYPE lookup\_decision\_map IS TABLE OF BOOLEAN INDEX BY VARCHAR

CONTEXT:invalid type name “lookup\_decison\_map IS TABLE OF BOOLEAN INDEX BY VARCHAR(500);

函数tc\_configure\_cnf(cnf varchar)导入报错。

对比函数

Oracle查看函数：

9.6触发器

Vi ora2pg.conf

--修改内容如下

TYPE TRIGGER

ora2pg -c /data01/soft\_tar/export\_dir/ora2pg.conf -o /data01/soft\_tar/export\_dir/test1/trigger.sql > /data01/soft\_tar/export\_dir/test1/trigger.sql.log

导入

psql -U infodba -d infodba\_test -f trigger.sql > trigger\_output.log 2>&1

报错

Psql:trigger.sql:8 NOTICE:trigger “fast\_sync\_add\_trigger” for relation “ppom\_object” does not exist,skipping

Psql:trigger.sql:24 NOTICE:trigger “fast\_sync\_delete\_trigger” for relation “ppom\_object” does not exist,skipping

触发器用初始化库的，因为初始化库包含了。

9.7包

Vi ora2pg.conf

--修改内容如下

TYPE PACKAGE

ora2pg -c /data01/soft\_tar/export\_dir/ora2pg.conf -o /data01/soft\_tar/export\_dir/test1/package.sql > /data01/soft\_tar/export\_dir/test1/package.sql.log

导入

psql -U infodba -d infodba\_test -f package.sql > package\_output.log 2>&1

二部分 对比数据定义的int

* + - 1. 导出所有int字段

PG：select table\_name,column\_name,data\_type,udt\_name from information\_schema.columns where table\_schema = ‘infodba’ and udt\_name like ‘int%’;

* + - 1. oracle迁移到PG的字段int
      2. PG初始化的数据库的字段int
      3. Oracle迁移到PG与PG初始化相同的int字段
      4. Oracle迁移到PG与PG初始化不同的int字段

三部分 把PG初始化的对象在迁移过来没有的放入到迁移库中

1. 表的迁移
2. 索引迁移
3. 约束迁移
4. 序列迁移
5. 视图的迁移
6. 函数的迁移
7. 存储过程的迁移

8.触发器的迁移