# 测试任务

rhel7.4下pg10.6一主两备升级到pg12.0

架构：一个主库，一个流复制备库，一个逻辑复制备库

插件：plpgsql、postgres\_fdw、pg\_stat\_statements

测试环境如下：

流复制主库、发布库：192.168.191.81/rhel7.4/pg10.6

流复制备库：192.168.191.82/rhel7.4/pg10.6

订阅库：192.168.191.83/rhel7.4/pg10.6

# 升级过程

思路：先升级主备，流复制状态正常后升级逻辑复制的订阅库

方法：使用pg\_upgrade -k 即使用链接模式升级流复制主库，主库升级完后，使用rsync升级备库，流复制正常后，升级订阅库

过程：

1、主备源码安装pg12并确保contrib下的扩展插件已编译完成（不要安装其定义，如CREATE EXTENSION xxx），初始化主库pg12的data目录

2、修改主库pg12的参数配置，升级时pg12处于关闭状态

3、保证主和备pg10的Latest checkpoint location一致，关闭主备pg10数据库，升级时主备pg10处于关闭状态。备份主库pg10的data

4、主库运行pg12的pg\_upgrade加入-c进行升级检查，如

[postgres@host ~]$ /opt/postgres12/bin/pg\_upgrade -b /opt/postgres10/bin -B /opt/postgres12/bin -d /opt/postgres10/data -D /opt/postgres12/data -p 6432 -P 5432 -c

5、检测无误后去掉-c进行升级，主库升级完毕

6、在主库高于pg10\12的目录下运行rsync加入--dry-run进行检测，有用户自定义的表空间时，同样需要在高于pg10\12表空间目录进行检测

[postgres@host ~]$ cd /opt/

[postgres@host opt]$ rsync --archive --delete --hard-links --size-only --no-inc-recursive /opt/postgres10 /opt/postgres12 192.168.191.82:/opt -v --dry-run > /home/postgres/up\_rsync.log

[postgres@host opt]$ cd /home/postgres/lhzdata/

[postgres@host lhzdata]$ rsync --archive --delete --hard-links --size-only --no-inc-recursive /home/postgres/lhzdata/PG\_10\_201707211 /home/postgres/lhzdata/PG\_12\_201909212 192.168.191.82:/home/postgres/lhzdata -v --dry-run > /home/postgres/up\_rsync\_space.log

7、检测无误后去掉--dry-run进行升级备库，备库升级完毕

8、启动数据库前，修改主备pg12的端口号为6432，和之前pg10一致。先启动主库pg12，运行./analyze\_new\_cluster.sh、./delete\_old\_cluster.sh脚本，登录数据库，查看并创建复制槽（流复制、逻辑复制）

9、备库pg12创建standby.signal空文件，在postgresql.auto.conf写入恢复参数（primary\_conninfo、recovery\_target\_timeline、primary\_slot\_name），启动备库pg12，查看流复制，状态正常。至此主备流复制升级完成

10、逻辑复制订阅端暂停订阅，pg\_upgrade升级，升级后开启订阅，目前refresh后需要truncate表才能进行同步，查看状态。订阅端升级完成

# 实验

## 搭建

系统环境

[root@host ~]# cat /etc/redhat-release

Red Hat Enterprise Linux Server release 7.4 (Maipo)

三个库安装pg10.6和pg12.0

tar -zvxf postgresql-10.6.tar.gz

cd postgresql-10.6/

./configure --prefix=/opt/postgres10

make

make install

cd contrib/

make & make install

tar -zvxf postgresql-12.0.tar.gz

cd postgresql-12.0/

./configure --prefix=/opt/postgres12

make

make install

groupadd postgres

useradd postgres -g postgres

passwd postgres

chown -R postgres:postgres postgres10/

chown -R postgres:postgres postgres12/

主库81上pg10.6参数、环境变量配置

pg\_hba.conf

# IPv4 local connections:

host all all 0.0.0.0/0 md5

# replication privilege.

host replication all 0.0.0.0/0 md5

postgresql.conf

listen\_addresses = '\*'

port = 6432

[postgres@host ~]$ cat ~/.bash\_profile

export PATH

export PGHOME=/opt/postgres10

export PGPORT=6432

export PGDATA=$PGHOME/data

export PATH=$PGHOME/bin:$PATH:$HOME/bin

export LD\_LIBRARY\_PATH=$PGHOME/lib:$LD\_LIBRARY\_PATH

[postgres@host data]$ cat postgresql.auto.conf

# Do not edit this file manually!

# It will be overwritten by the ALTER SYSTEM command.

max\_connections = '2000'

shared\_buffers = '500MB'

checkpoint\_completion\_target = '0.8'

log\_destination = 'csvlog'

logging\_collector = 'on'

log\_directory = 'pg\_log'

log\_filename = 'postgres\_%d.log'

log\_rotation\_age = '1d'

log\_rotation\_size = '0'

log\_truncate\_on\_rotation = 'on'

log\_statement = 'ddl'

log\_connections = 'on'

log\_disconnections = 'on'

checkpoint\_timeout = '30min'

maintenance\_work\_mem = '1GB'

archive\_command = 'test ! -f /home/postgres/backup/archive/%f && cp %p /home/postgres/backup/archive/%f'

archive\_mode = 'on'

archive\_timeout = '30min'

[postgres@host data]$ vi postgresql.conf

shared\_preload\_libraries = 'pg\_stat\_statements'

pg\_stat\_statements.max = 10000

pg\_stat\_statements.track = top

pg\_stat\_statements.track\_utility = on

pg\_stat\_statements.save = on

[postgres@host data]$ pg\_ctl restart

创建扩展、创建流复制用户、复制槽

[postgres@host contrib]$ psql

psql (10.6)

Type "help" for help.

postgres=#

postgres=# create extension pg\_stat\_statements ;

CREATE EXTENSION

postgres=# create extension postgres\_fdw ;

CREATE EXTENSION

postgres=# \dx

List of installed extensions

Name | Version | Schema | Description

--------------------+---------+------------+-----------------------------------------------------------

pg\_stat\_statements | 1.6 | public | track execution statistics of all SQL statements executed

plpgsql | 1.0 | pg\_catalog | PL/pgSQL procedural language

postgres\_fdw | 1.0 | public | foreign-data wrapper for remote PostgreSQL servers

(3 rows)

[postgres@host ~]$ psql

psql (10.6)

Type "help" for help.

postgres=#

postgres=# create user repuser WITH REPLICATION LOGIN ENCRYPTED PASSWORD 'repuser';

CREATE ROLE

postgres=# select \* from pg\_create\_physical\_replication\_slot('stand1');

slot\_name | lsn

-----------+-----

stand1 |

(1 row)

postgres=# select slot\_name,slot\_type,active,active\_pid,restart\_lsn from pg\_replication\_slots;

slot\_name | slot\_type | active | active\_pid | restart\_lsn

-----------+-----------+--------+------------+-------------

stand1 | physical | f | |

(1 row)

备库82上拷贝data，部署异步流复制

[postgres@host ~]$ cd /opt/postgres10/

[postgres@host postgres10]$ rm -rf data

[postgres@host postgres10]$ vi ~/.pgpass

# host:port:database:user:password

192.168.191.81:6432:replication:repuser:repuser

192.168.191.82:6432:replication:repuser:repuser

[postgres@host postgres10]$ chmod 0600 ~/.pgpass

[postgres@host postgres10]$ pg\_basebackup -h 192.168.191.81 -U repuser -Fp -Xs -v -P -R -p 6432 -D $PGDATA

[postgres@host postgres10]$ cd data/

[postgres@host data]$ vi recovery.conf

standby\_mode = 'on'

primary\_conninfo = 'user=repuser passfile=''/home/postgres/.pgpass'' host=192.168.191.81 port=6432 sslmode=disable sslcompression=1 target\_session\_attrs=any'

recovery\_target\_timeline = 'latest'

primary\_slot\_name = 'stand1'

[postgres@host data]$ pg\_ctl start

主库查看流复制状态

postgres=# select application\_name,client\_addr,state,sync\_state from pg\_stat\_replication ;

application\_name | client\_addr | state | sync\_state

------------------+----------------+-----------+------------

walreceiver | 192.168.191.82 | streaming | async

(1 row)

postgres=# select slot\_name,slot\_type,active,active\_pid,restart\_lsn from pg\_replication\_slots;

slot\_name | slot\_type | active | active\_pid | restart\_lsn

-----------+-----------+--------+------------+-------------

stand1 | physical | t | 5208 | 0/A000060

(1 row)

主库81创建测试表空间、数据库、模式、表，搭建逻辑复制

[postgres@host ~]$ mkdir lhzdata

[postgres@host ~]$ psql

psql (10.6)

Type "help" for help.

postgres=# create user lhz with password 'postgres123';

CREATE ROLE

postgres=# create tablespace lhzspace owner lhz location '/home/postgres/lhzdata';

CREATE TABLESPACE

postgres=# create database lhzdb owner lhz tablespace lhzspace;

CREATE DATABASE

postgres=# \c lhzdb lhz

You are now connected to database "lhzdb" as user "lhz".

lhzdb=> create schema lhz;

CREATE SCHEMA

lhzdb=> create table lhz.test01 (id int primary key , info text , c\_time timestamp);

CREATE TABLE

lhzdb=> insert into test01 select generate\_series(1,10),md5(random()::text),clock\_timestamp();

INSERT 0 10

修改参数为replica、创建publication

postgres=# show wal\_level ;

wal\_level

-----------

replica

(1 row)

postgres=# alter system set wal\_level = logical;

ALTER SYSTEM

postgres=# \q

[postgres@host data]$ pg\_ctl restart

postgres=# \c lhzdb

You are now connected to database "lhzdb" as user "postgres".

lhzdb=# alter system set search\_path = "$user", public,lhz;

ALTER SYSTEM

lhzdb=# select pg\_reload\_conf();

pg\_reload\_conf

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

t

(1 row)

lhzdb=# create publication pub01 for table test01 ;

CREATE PUBLICATION

lhzdb=# select \* from pg\_publication;

pubname | pubowner | puballtables | pubinsert | pubupdate | pubdelete

---------+----------+--------------+-----------+-----------+-----------

pub01 | 10 | f | t | t | t

(1 row)

83逻辑复制订阅端，创建subscription

[postgres@host data]$ vi ~/.pgpass

[postgres@host data]$ chmod 0600 ~/.pgpass

postgres=# create schema lhz;

CREATE SCHEMA

postgres=# create table lhz.test01 (id int primary key , info text , c\_time timestamp);

CREATE TABLE

postgres=# create subscription sub01 connection 'host=192.168.191.81 port=6432 dbname=lhzdb user=postgres' publication pub01;

NOTICE: created replication slot "sub01" on publisher

CREATE SUBSCRIPTION

postgres=# select \* from pg\_subscription;

subdbid | subname | subowner | subenabled | subconninfo | subslotname | subsynccommit | subpublicat

ions

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13212 | sub01 | 10 | t | host=192.168.191.81 port=6432 dbname=lhzdb user=postgres | sub01 | off | {pub01}

(1 row)

## 升级

升级顺序是 先主、备库，流复制状态正常后升级逻辑复制订阅端

[postgres@host ~]$ ls /opt/postgres12/share/extension/

plpgsql--1.0.sql plpgsql.control plpgsql--unpackaged--1.0.sql

[postgres@host ~]$ cd /up/postgresql-12.0/contrib/

[postgres@host contrib]$ which pg\_config

/opt/postgres12/bin/pg\_config

[postgres@host contrib]$ make

[postgres@host contrib]$ make install

[postgres@host ~]$ /opt/postgres12/bin/initdb -D /opt/postgres12/data

编译安装扩展，但不要安装扩展定义，如create extension xx

[postgres@host bin]$ /opt/postgres12/bin/pg\_ctl start -D /opt/postgres12/data/

[postgres@host lib]$ /opt/postgres12/bin/psql -p 5432

psql (12.0)

Type "help" for help.

postgres=# alter user postgres with password 'postgres123';

ALTER ROLE

postgres=# \q

确保主备Latest checkpoint location 一致

主：

[postgres@host ~]$ /opt/postgres10/bin/pg\_ctl start -D /opt/postgres10/data

备：

[postgres@host ~]$ /opt/postgres10/bin/pg\_ctl start -D /opt/postgres10/data

主

postgres=#

postgres=# checkpoint ;

CHECKPOINT

postgres=# \q

[postgres@host pg\_log]$ /opt/postgres10/bin/pg\_ctl stop -D /opt/postgres10/data

waiting for server to shut down..... done

server stopped

[postgres@host pg\_log]$ /opt/postgres10/bin/pg\_controldata -D /opt/postgres10/data | grep "Latest checkpoint location"

Latest checkpoint location: 0/10000028

备

[postgres@host data]$ /opt/postgres10/bin/pg\_ctl stop -D /opt/postgres10/data

waiting for server to shut down......... done

server stopped

[postgres@host pg\_log]$ /opt/postgres10/bin/pg\_controldata -D /opt/postgres10/data | grep "Latest checkpoint location"

Latest checkpoint location: 0/10000028

主库备份data，防止出错

[postgres@host ~]$ cd /opt/postgres10/

[postgres@host postgres10]$ ls

bin data include lib share

[postgres@host postgres10]$ cp -rf data data.bak

主初始化12数据目录，配置数据库参数

[postgres@host ~]$ initdb

[postgres@host ~]$ cd /opt/postgres12/data/

[postgres@host data]$ vi pg\_hba.conf

[postgres@host data]$

[postgres@host data]$ vi postgresql.conf

[postgres@host data]$ vi postgresql.auto.conf

[postgres@host data]$

[postgres@host data]$ pg\_ctl start

waiting for server to start....2020-09-29 14:10:34.136 CST [3385] LOG: starting PostgreSQL 12.0 on x86\_64-pc-linux-gnu, compiled by gcc (GCC) 4.8.5 20150623 (Red Hat 4.8.5-16), 64-bit

2020-09-29 14:10:34.160 CST [3385] LOG: listening on IPv4 address "0.0.0.0", port 5432

2020-09-29 14:10:34.160 CST [3385] LOG: listening on IPv6 address "::", port 5432

2020-09-29 14:10:34.188 CST [3385] LOG: listening on Unix socket "/tmp/.s.PGSQL.5432"

2020-09-29 14:10:35.095 CST [3385] LOG: redirecting log output to logging collector process

2020-09-29 14:10:35.095 CST [3385] HINT: Future log output will appear in directory "pg\_log".

done

server started

[postgres@host data]$ psql

psql (12.0)

Type "help" for help.

postgres=# alter user postgres with password 'postgres123';

ALTER ROLE

postgres=# \q

[postgres@host data]$ pg\_ctl stop -mf

waiting for server to shut down.... done

server stopped

主库进行升级检查、升级

[postgres@host ~]$ /opt/postgres12/bin/pg\_upgrade -b /opt/postgres10/bin -B /opt/postgres12/bin -d /opt/postgres10/data -D /opt/postgres12/data -p 6432 -P 5432 -c

Performing Consistency Checks

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Checking cluster versions ok

Checking database user is the install user ok

Checking database connection settings ok

Checking for prepared transactions ok

Checking for reg\* data types in user tables ok

Checking for contrib/isn with bigint-passing mismatch ok

Checking for tables WITH OIDS ok

Checking for presence of required libraries ok

Checking database user is the install user ok

Checking for prepared transactions ok

\*Clusters are compatible\*

[postgres@host ~]$ /opt/postgres12/bin/pg\_upgrade -b /opt/postgres10/bin -B /opt/postgres12/bin -d /opt/postgres10/data -D /opt/postgres12/data -p 6432 -P 5432 -k

Performing Consistency Checks

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

Checking cluster versions ok

Checking database user is the install user ok

Checking database connection settings ok

Checking for prepared transactions ok

Checking for reg\* data types in user tables ok

Checking for contrib/isn with bigint-passing mismatch ok

Checking for tables WITH OIDS ok

Creating dump of global objects ok

Creating dump of database schemas

ok

Checking for presence of required libraries ok

Checking database user is the install user ok

Checking for prepared transactions ok

If pg\_upgrade fails after this point, you must re-initdb the

new cluster before continuing.

Performing Upgrade

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Analyzing all rows in the new cluster ok

Freezing all rows in the new cluster ok

Deleting files from new pg\_xact ok

Copying old pg\_xact to new server ok

Setting next transaction ID and epoch for new cluster ok

Deleting files from new pg\_multixact/offsets ok

Copying old pg\_multixact/offsets to new server ok

Deleting files from new pg\_multixact/members ok

Copying old pg\_multixact/members to new server ok

Setting next multixact ID and offset for new cluster ok

Resetting WAL archives ok

Setting frozenxid and minmxid counters in new cluster ok

Restoring global objects in the new cluster ok

Restoring database schemas in the new cluster

ok

Adding ".old" suffix to old global/pg\_control ok

If you want to start the old cluster, you will need to remove

the ".old" suffix from /opt/postgres10/data/global/pg\_control.old.

Because "link" mode was used, the old cluster cannot be safely

started once the new cluster has been started.

Linking user relation files

ok

Setting next OID for new cluster ok

Sync data directory to disk ok

Creating script to analyze new cluster ok

Creating script to delete old cluster ok

Upgrade Complete

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Optimizer statistics are not transferred by pg\_upgrade so,

once you start the new server, consider running:

./analyze\_new\_cluster.sh

Running this script will delete the old cluster's data files:

./delete\_old\_cluster.sh

[postgres@host ~]$

主库运行rsync

[postgres@host ~]$ cd /opt/

[postgres@host opt]$ rsync --archive --delete --hard-links --size-only --no-inc-recursive /opt/postgres10 /opt/postgres12 192.168.191.82:/opt -v > /home/postgres/up\_rsync.log

The authenticity of host '192.168.191.82 (192.168.191.82)' can't be established.

ECDSA key fingerprint is SHA256:qfjD+9LjFdy60ZuXFrEH0Od7KiJ7HGfwti8/l+2D37c.

ECDSA key fingerprint is MD5:74:64:59:30:34:4f:ef:1d:61:00:0d:5b:b8:de:36:b8.

Are you sure you want to continue connecting (yes/no)? yes

Warning: Permanently added '192.168.191.82' (ECDSA) to the list of known hosts.

postgres@192.168.191.82's password:

[postgres@host opt]$

[postgres@host opt]$

[postgres@host opt]$ cd /home/postgres/lhzdata/

[postgres@host lhzdata]$ rsync --archive --delete --hard-links --size-only --no-inc-recursive /home/postgres/lhzdata/PG\_10\_201707211 /home/postgres/lhzdata/PG\_12\_201909212 192.168.191.82:/home/postgres/lhzdata -v > /home/postgres/up\_rsync\_space.log

postgres@192.168.191.82's password:

[postgres@host lhzdata]$

主库启动：运行脚本

[postgres@host ~]$ pg\_ctl start

waiting for server to start....2020-09-29 14:18:39.616 CST [3691] LOG: starting PostgreSQL 12.0 on x86\_64-pc-linux-gnu, compiled by gcc (GCC) 4.8.5 20150623 (Red Hat 4.8.5-16), 64-bit

2020-09-29 14:18:39.617 CST [3691] LOG: listening on IPv4 address "0.0.0.0", port 5432

2020-09-29 14:18:39.617 CST [3691] LOG: listening on IPv6 address "::", port 5432

2020-09-29 14:18:39.620 CST [3691] LOG: listening on Unix socket "/tmp/.s.PGSQL.5432"

2020-09-29 14:18:39.666 CST [3691] LOG: redirecting log output to logging collector process

2020-09-29 14:18:39.666 CST [3691] HINT: Future log output will appear in directory "pg\_log".

done

server started

[postgres@host ~]$ ls

analyze\_new\_cluster.sh backup delete\_old\_cluster.sh lhzdata up\_rsync.log up\_rsync\_space.log

[postgres@host ~]$ ./analyze\_new\_cluster.sh

This script will generate minimal optimizer statistics rapidly

so your system is usable, and then gather statistics twice more

with increasing accuracy. When it is done, your system will

have the default level of optimizer statistics.

If you have used ALTER TABLE to modify the statistics target for

any tables, you might want to remove them and restore them after

running this script because they will delay fast statistics generation.

If you would like default statistics as quickly as possible, cancel

this script and run:

"/opt/postgres12/bin/vacuumdb" --all --analyze-only

vacuumdb: processing database "lhzdb": Generating minimal optimizer statistics (1 target)

vacuumdb: processing database "postgres": Generating minimal optimizer statistics (1 target)

vacuumdb: processing database "template1": Generating minimal optimizer statistics (1 target)

vacuumdb: processing database "lhzdb": Generating medium optimizer statistics (10 targets)

vacuumdb: processing database "postgres": Generating medium optimizer statistics (10 targets)

vacuumdb: processing database "template1": Generating medium optimizer statistics (10 targets)

vacuumdb: processing database "lhzdb": Generating default (full) optimizer statistics

vacuumdb: processing database "postgres": Generating default (full) optimizer statistics

vacuumdb: processing database "template1": Generating default (full) optimizer statistics

Done

[postgres@host ~]$

[postgres@host ~]$ psql

psql (12.0)

Type "help" for help.

postgres=# select \* from pg\_replication\_slots ;

slot\_name | plugin | slot\_type | datoid | database | temporary | active | active\_pid | xmin | catalog\_xmin | restart\_lsn | confirmed\_flush\_lsn

-----------+--------+-----------+--------+----------+-----------+--------+------------+------+--------------+-------------+---------------------

(0 rows)

postgres=# \q

[postgres@host ~]$

[postgres@host ~]$

[postgres@host ~]$ cd /opt/postgres12/data/

修改主库pg12参数，比如port、wal\_revel

[postgres@host data]$ vi postgresql.conf

[postgres@host data]$

[postgres@host data]$ pg\_ctl restart

主库pg12创建复制槽

postgres=# select \* from pg\_create\_physical\_replication\_slot('stand1');

slot\_name | lsn

-----------+-----

stand1 |

(1 row)

postgres=# \c lhzdb postgres

You are now connected to database "lhzdb" as user "postgres".

lhzdb=#

lhzdb=#

lhzdb=# SELECT \* FROM pg\_create\_logical\_replication\_slot('sub01', 'pgoutput');

slot\_name | lsn

-----------+------------

sub01 | 0/1524B180

(1 row)

lhzdb=# select \* from pg\_replication\_slots ;

slot\_name | plugin | slot\_type | datoid | database | temporary | active | active\_pid | xmin | catalog\_xmin | restart\_lsn | confirmed\_flush\_lsn

-----------+----------+-----------+--------+----------+-----------+--------+------------+------+--------------+-------------+--------------------

-

sub01 | pgoutput | logical | 16402 | lhzdb | f | t | 4710 | | 1015 | 0/1524B148 | 0/1524B180

stand1 | | physical | | | f | t | 4438 | | | 0/1524B180 |

(2 rows)

备库修改参数，恢复流复制

[postgres@host data]$ vi postgresql.auto.conf

primary\_conninfo = 'user=repuser passfile=''/home/postgres/.pgpass'' host=192.168.191.81 port=6432 sslmode=disable sslcompression=1 target\_session\_attrs=any'

recovery\_target\_timeline = 'latest'

primary\_slot\_name = 'stand1'

[postgres@host data]$

[postgres@host data]$

[postgres@host data]$ touch standby.signal

[postgres@host ~]$ pg\_ctl start

逻辑复制订阅端升级

postgres=# alter subscription sub01 disable ;

ALTER SUBSCRIPTION

postgres=# select \* from pg\_subscription;

subdbid | subname | subowner | subenabled | subconninfo | subslotname | subsynccommit | subpublicat

ions

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13212 | sub01 | 10 | f | host=192.168.191.81 port=6432 dbname=lhzdb user=postgres | sub01 | off | {pub01}

(1 row)

postgres=# alter subscription sub01 enable ;

postgres=# alter subscription sub01 refresh publication;

ALTER SUBSCRIPTION

postgres=# truncate lhz.test01 ;

TRUNCATE TABLE

## 实验中的一些错误

1、pg12没有提前编译安装扩展，即make & make install

[postgres@host ~]$ /opt/postgres12/bin/pg\_upgrade -b /opt/postgres10/bin -B /opt/postgres12/bin -d /opt/postgres10/data -D /opt/postgres12/data -c

Performing Consistency Checks

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

Checking cluster versions ok

Checking database user is the install user ok

Checking database connection settings ok

Checking for prepared transactions ok

Checking for reg\* data types in user tables ok

Checking for contrib/isn with bigint-passing mismatch ok

Checking for tables WITH OIDS ok

Checking for presence of required libraries fatal

Your installation references loadable libraries that are missing from the

new installation. You can add these libraries to the new installation,

or remove the functions using them from the old installation. A list of

problem libraries is in the file:

loadable\_libraries.txt

Failure, exiting

[postgres@host ~]$

2、没有了解清楚pg12新特性，备库没有往postgresql.conf或postgresql.auto.conf写恢复参数导致流复制恢复失败

备库状态

[postgres@host ~]$ ps -ef|grep postgres

root 12564 1811 0 09:35 pts/0 00:00:00 su - postgres

postgres 12565 12564 0 09:35 pts/0 00:00:00 -bash

postgres 14208 1 1 10:10 ? 00:00:01 /opt/postgres12/bin/postgres

postgres 14209 14208 0 10:10 ? 00:00:00 postgres: logger

postgres 14211 14208 0 10:10 ? 00:00:00 postgres: checkpointer

postgres 14212 14208 0 10:10 ? 00:00:00 postgres: background writer

postgres 14213 14208 0 10:10 ? 00:00:00 postgres: walwriter

postgres 14214 14208 0 10:10 ? 00:00:00 postgres: autovacuum launcher

postgres 14215 14208 0 10:10 ? 00:00:00 postgres: archiver

postgres 14216 14208 0 10:10 ? 00:00:00 postgres: stats collector

postgres 14217 14208 0 10:10 ? 00:00:00 postgres: logical replication launcher

postgres 14240 12565 0 10:12 pts/0 00:00:00 ps -ef

postgres 14241 12565 0 10:12 pts/0 00:00:00 grep --color=auto postgres

[postgres@host ~]$

[postgres@host ~]$

[postgres@host ~]$

[postgres@host ~]$ pg\_controldata

pg\_control version number: 1201

Catalog version number: 201909212

Database system identifier: 6877454104229017882

Database cluster state: in production

3、升级后复制槽会丢失，流复制、逻辑复制都需要重建复制槽

逻辑复制订阅端日志

2020-09-29 14:58:59.996 CST,,,3684,,5f72db33.e64,2,,2020-09-29 14:58:59 CST,4/0,0,ERROR,XX000,"could not start WAL streaming: ERROR: replication slot ""sub01"" does not exist",,,,,,,,,""

2020-09-29 14:58:59.996 CST,,,1975,,5f72c9ea.7b7,728,,2020-09-29 13:45:14 CST,,0,LOG,00000,"worker process: logical replication worker for subscription 16403 (PID 3684) exited with exit code 1",,,,,,,,,""

2020-09-29 14:59:05.004 CST,,,3685,,5f72db39.e65,1,,2020-09-29 14:59:05 CST,4/237,0,LOG,00000,"logical replication apply worker for subscription ""sub01"" has started",,,,,,,,,""

2020-09-29 14:59:05.008 CST,,,3685,,5f72db39.e65,2,,2020-09-29 14:59:05 CST,4/0,0,ERROR,XX000,"could not start WAL streaming: ERROR: replication slot ""sub01"" does not exist",,,,,,,,,""

2020-09-29 14:59:05.009 CST,,,1975,,5f72c9ea.7b7,729,,2020-09-29 13:45:14 CST,,0,LOG,00000,"worker process: logical replication worker for subscription 16403 (PID 3685) exited with exit code 1",,,,,,,,,""

2020-09-29 14:59:10.017 CST,,,3686,,5f72db3e.e66,1,,2020-09-29 14:59:10 CST,4/240,0,LOG,00000,"logical replication apply worker for subscription ""sub01"" has started",,,,,,,,,""

2020-09-29 15:02:51.888 CST,,,3759,"[local]",5f72dc1b.eaf,1,"",2020-09-29 15:02:51 CST,,0,LOG,00000,"connection received: host=[local]",,,,,,,,,""

2020-09-29 15:02:51.890 CST,"postgres","lhzdb",3759,"[local]",5f72dc1b.eaf,2,"authentication",2020-09-29 15:02:51 CST,5/25,0,LOG,00000,"connection authorized: user=postgres database=lhzdb",,,,,,,,,""

2020-09-29 15:02:51.890 CST,"postgres","lhzdb",3759,"[local]",5f72dc1b.eaf,3,"startup",2020-09-29 15:02:51 CST,5/25,0,FATAL,3D000,"database ""lhzdb"" does not exist",,,,,,,,,""

4、逻辑复制订阅端升级时问题，enable开启订阅，refresh刷新后，需要truncate表才进行同步

postgres=# alter subscription sub01 enable;

ALTER SUBSCRIPTION

postgres=# alter subscription sub01 refresh publication;

ALTER SUBSCRIPTION

postgres=# truncate lhz.test01 ;

TRUNCATE TABLE

2020-09-30 14:15:04.202 CST,,,2944,,5f742268.b80,2,,2020-09-30 14:15:04 CST,5/151,900,ERROR,23505,"duplicate key value violates unique constraint ""test01\_pkey""","Key (id)=(1) already exists.",,,,"COPY test01, line 1",,,,""

2020-09-30 14:15:04.203 CST,,,2725,,5f741f35.aa5,19,,2020-09-30 14:01:25 CST,,0,LOG,00000,"background worker ""logical replication worker"" (PID 2944) exited with exit code 1",,,,,,,,,""

2020-09-30 14:15:09.212 CST,,,2946,,5f74226d.b82,1,,2020-09-30 14:15:09 CST,5/155,0,LOG,00000,"logical replication table synchronization worker for subscription ""sub01"", table ""test01"" has started",,,,,,,,,""

2020-09-30 14:15:09.231 CST,,,2946,,5f74226d.b82,2,,2020-09-30 14:15:09 CST,5/158,902,ERROR,23505,"duplicate key value violates unique constraint ""test01\_pkey""","Key (id)=(1) already exists.",,,,"COPY test01, line 1",,,,""

2020-09-30 14:15:09.232 CST,,,2725,,5f741f35.aa5,20,,2020-09-30 14:01:25 CST,,0,LOG,00000,"background worker ""logical replication worker"" (PID 2946) exited with exit code 1",,,,,,,,,""

2020-09-30 14:15:14.241 CST,,,2947,,5f742272.b83,1,,2020-09-30 14:15:14 CST,5/160,0,LOG,00000,"logical replication table synchronization worker for subscription ""sub01"", table ""test01"" has started",,,,,,,,,""

2020-09-30 14:15:14.356 CST,,,2947,,5f742272.b83,2,,2020-09-30 14:15:14 CST,5/164,0,LOG,00000,"logical replication table synchronization worker for subscription ""sub01"", table ""test01"" has finished",,,,,,,,,""