Предмет	Управление и автоматизация баз данных
Курс	4
Семестр	1
Работа	Lab11 extensions
Дата	20.10.2021
Группа	484
Фамилия	Серебряков
Имя	Максим
Отчество	Андреевич

1 Установка Pager из Release версий

```
postgres@debian:~$ curl https://codeload.github.com/okbob/pspg/tar.gz/refs/tags/5. > pspg.tar
.gz
```

curl

2. tar -vfx pspg.tar.gz

```
postgres@debian:~$ cd pspg-5.4.1/
postgres@debian:~/pspg-5.4.1$ ls
aclocal.m4          config.o       linebuffer.d  readline.d        table.d
args.d              config.status  linebuffer.o  readline.o        table.o
args.o              configure      Makefile      README.md         tests
autogen.sh          configure.ac   menu.d        screenshots       theme_loader.d
bash-completion.sh  csv.d          menu.o        sort.d            theme_loader.o
bscommands.d        csv.o          pgclient.d    sort.o            themes.d
bscommands.o        export.d       pgclient.o    src               themes.o
commands.d          export.o       print.d       st_menu.d         ToDo
commands.o          infra.d        print.o       st_menu.o         tools
config.d            infra.o        pspg          st_menu_styles.d  unicode.d
config.log          inputs.d       pspg.d        st_menu_styles.o  unicode.o
config.make         inputs.o       pspg.o        string.d
config.make.in      LICENSE        pspg.spec     string.o
postgres@debian:~/pspg-5.4.1$ S
```

Tar archive

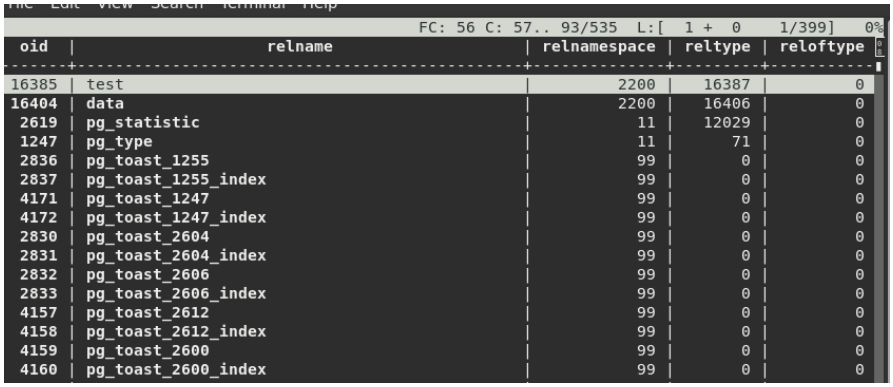
3. Make -j 2

4. nano .bashrc

```
GNU nano 3.2                                  .bashrc

    . /etc/bash_completion
  fi
fi

export PGDATA=/usr/local/pgsql/data


export PATH=$PATH:/usr/local/pgsql/bin

export PAGER="/home/postgres/pspg-5.4.1/pspg -s -t"
```

PAGER=

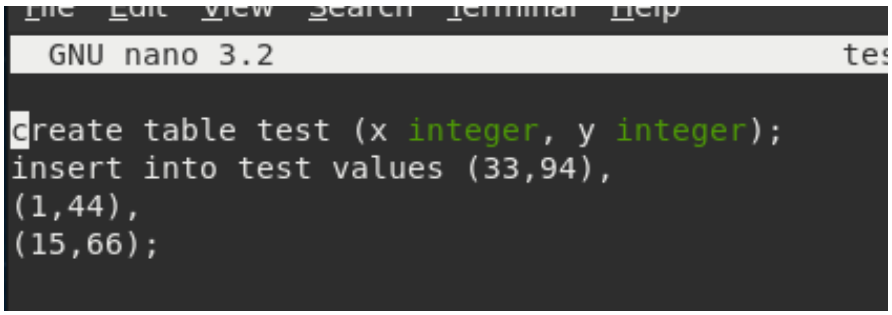
5. psql Select * from pg_class



```
                                                FC: 56 C: 57.. 93/535  L:[  1 +  0    1/399]   0%
 oid   |                  relname                  | relnamespace | reltype | reloftype |
-------+-------------------------------------------+--------------+---------+-----------+
 16385 | test                                      |         2200 |   16387 |         0
 16404 | data                                      |         2200 |   16406 |         0
  2619 | pg_statistic                              |           11 |   12029 |         0
  1247 | pg_type                                   |           11 |      71 |         0
  2836 | pg_toast_1255                             |           99 |       0 |         0
  2837 | pg_toast_1255_index                       |           99 |       0 |         0
  4171 | pg_toast_1247                             |           99 |       0 |         0
  4172 | pg_toast_1247_index                       |           99 |       0 |         0
  2830 | pg_toast_2604                             |           99 |       0 |         0
  2831 | pg_toast_2604_index                       |           99 |       0 |         0
  2832 | pg_toast_2606                             |           99 |       0 |         0
  2833 | pg_toast_2606_index                       |           99 |       0 |         0
  4157 | pg_toast_2612                             |           99 |       0 |         0
  4158 | pg_toast_2612_index                       |           99 |       0 |         0
  4159 | pg_toast_2600                             |           99 |       0 |         0
  4160 | pg_toast_2600_index                       |           99 |       0 |         0
```

Work pager

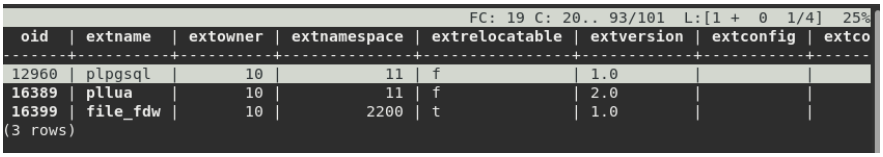
6. sql сценарий



```
  GNU nano 3.2                                                    tes

create table test (x integer, y integer);
insert into test values (33,94),
(1,44),
(15,66);
```

Create table

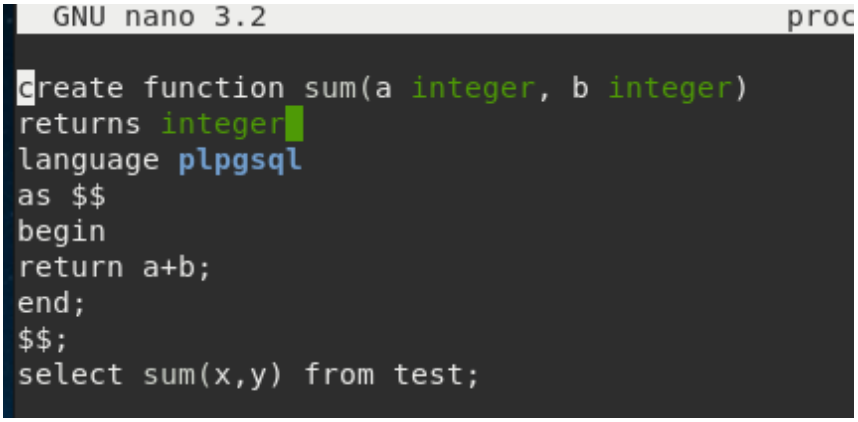
7. select * from pg_extensions



```
                                                FC: 19 C: 20.. 93/101  L:[1 +  0  1/4]  25%
 oid   | extname  | extowner | extnamespace | extrelocatable | extversion | extconfig | extco
-------+----------+----------+--------------+----------------+------------+-----------+------
 12960 | plpgsql  |       10 |           11 | f              | 1.0        |           |
 16389 | pllua    |       10 |           11 | f              | 2.0        |           |
 16399 | file_fdw |       10 |         2200 | t              | 1.0        |           |
(3 rows)
```

Installed extensions

8. Sql сценарий для расчета



```
  GNU nano 3.2                                                    proc

create function sum(a integer, b integer)
returns integer
language plpgsql
as $$
begin
return a+b;
end;
$$;
select sum(x,y) from test;
```

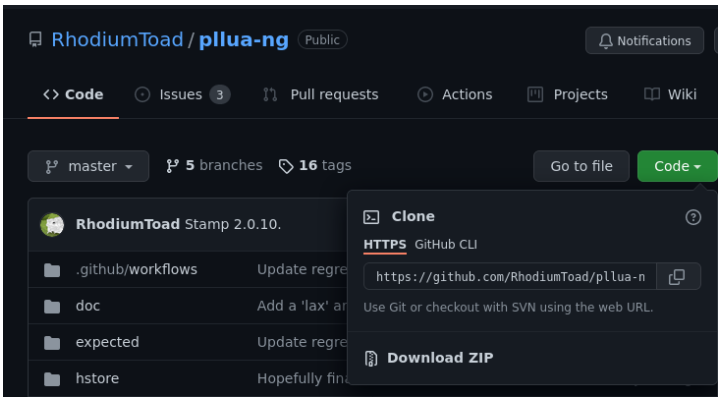
a+b

9 Работа sql

```
postgres@debian:~$ psql -d ser_db -f proced.sql
2021-10-20 19:16:31.067 MSK [26377] ERROR:  func
types
2021-10-20 19:16:31.067 MSK [26377] STATEMENT:
        returns integer
        language plpgsql
        as $$
        begin
        return a+b;
        end;
        $$;
psql:proced.sql:8: ERROR:  function "sum" alread
 sum
-----
 127
  45
  81
(3 rows)
```

Working func

10. Install pllua



Install pllua from git

11. Makefile

```
# General
LUA_INCDIR ?= /usr/include/lua5.3
LUALIB ?= -llua5.3
LUAC ?= luac5.3
LUA ?= lua5.3
```

12 Make/ make install

13. create extension pllua

14. pg_extensions

```
                                                FC: 19 C: 20.. 93/101  L:[1 +  0  1/4]  25%
 oid   | extname  | extowner | extnamespace | extrelocatable | extversion | extconfig | extco
-------+----------+----------+--------------+----------------+------------+-----------+------
 12960 | plpgsql  |       10 |           11 | f              | 1.0        |           |
 16389 | pllua    |       10 |           11 | f              | 2.0        |           |
 16399 | file_fdw |       10 |         2200 | t              | 1.0        |           |
(3 rows)
```

15. Script lua

```
create function sumLua(a integer, b integer, c integer)
returns integer
language pllua
as $$
local d = (a+b)*c;
return d
$$;
select sumLua(x,y,5) from test;
```

```
postgres@debian:~$ psql -d ser_db -f procedLua.lua
2021-10-20 19:29:27.512 MSK [26456] ERROR:  function "
nt types
2021-10-20 19:29:27.512 MSK [26456] STATEMENT:  create
c integer)
        returns integer
        language pllua
        as $$
        local d = (a+b)*c;
        return d
        $$;
psql:procedLua.lua:7: ERROR:  function "sumlua" alread
 sumlua
--------
    635
    225
    405
(3 rows)
```

Working lua script

16. Установка file_fdw

```
postgres@debian:~/postgresql-14.0/contrib/file_fdw$ ls
data       file_fdw--1.0.sql  file_fdw.control  file_fdw.so  Makefile  sql
expected   file_fdw.c         file_fdw.o        input        output
postgres@debian:~/postgresql-14.0/contrib/file_fdw$
```

Install fdw from contrib

17. Make install

18. create extension file_fdw

19. select * from pg_extensions

```
                                                FC: 19 C: 20.. 93/101  L:[1 +  0  1/4]  25%
 oid   | extname  | extowner | extnamespace | extrelocatable | extversion | extconfig | extco
-------+----------+----------+--------------+----------------+------------+-----------+------
 12960 | plpgsql  |       10 |           11 | f              | 1.0        |           |
 16389 | pllua    |       10 |           11 | f              | 2.0        |           |
 16399 | file_fdw |       10 |         2200 | t              | 1.0        |           |
(3 rows)
```

20 file data.csv

```
  GNU nano 3.2                                  data.csv

1,33
44,55
15,9
```

Csv file

21 file fdw.sqlA

```
 GNU nano 3.2                                  fdw.sql

create server dateserv foreign data wrapper file_fdw;
create foreign table data (x integer, y integer)
server dateserv
options (filename '/home/postgres/data.csv', format 'csv');

select * from data;
```

22 Execute

```
postgres@debian:~$ psql -d ser_db -f fdw.sql
2021-10-20 19:34:46.427 MSK [26491] ERROR:  se
2021-10-20 19:34:46.427 MSK [26491] STATEMENT:
ile_fdw;
psql:fdw.sql:1: ERROR:  server "dateserv" alre
2021-10-20 19:34:46.428 MSK [26491] ERROR:  re
2021-10-20 19:34:46.428 MSK [26491] STATEMENT:
er)
        server dateserv
        options (filename '/home/postgres/data
psql:fdw.sql:4: ERROR:  relation "data" alread
 x  | y
----+----
  1 | 33
 44 | 55
 15 |  9
(3 rows)
```

\df

```
ser_db=# \df
                                    List of functions
 Schema |        Name        | Result data type |       Argument data types       | Type
--------+--------------------+------------------+---------------------------------+------
 public | file_fdw_handler   | fdw_handler      |                                 | func
 public | file_fdw_validator | void             | text[], oid                     | func
 public | sum                | integer          | a integer, b integer            | func
 public | sumlua             | integer          | a integer, b integer, c integer | func
(4 rows)
```

Git:

```
postgres@debian:~/extensions$ ls
data.csv  fdw.sql  k  procedLua.lua  proced.sql  somr  test.sql
postgres@debian:~/extensions$
```

```
postgres@debian:~/extensions$ git push
Username for 'https://github.com': MaxSerebrriacov
Password for 'https://MaxSerebrriacov@github.com':
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 2 threads
Compressing objects: 100% (8/8), done.
Writing objects: 100% (9/9), 1.14 KiB | 389.00 KiB/s, done.
Total 9 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/MaxSerebrriacov/extensions.git
   d667c18..703c6ad  main -> main
postgres@debian:~/extensions$ cd ~
```