

PostgreSQL Server Config

Merely a convenient reproduction of the advice given by Christophe Pettus during his excellent PyCon PostgreSQL workshop: Check out the video! .

Config Files

postgresql.conf pg_hba.conf

Aside from log files, these are the ONLY files you should edit in the main postgresql directory.

LOGGING (postgresql.conf)

```
log_destination = 'csvlog'
log_directory = 'pg_log'
logging_collector = on
log_filename = 'postgresql-
%Y-%m-%d_%H%M%S'
log_rotation_age = 1d
log_rotation_size = 1GB
log_min_duration_statement
= 250ms
log_checkpoints = on
log_connections = on
log_disconnections = on
log_lock_waits = on
log_temp_files = 0
```

Be generous with logging; it has very low impact on the system.

NOTE: "Standard format" or "stderr" is obsolete. There is no good reason to use it anymore.

Changing Settings

Most settings just require a server reload to take effect.

Some require a full server restart (such as shared_buffers).

pg_hba.conf

```
local all postgres peer
local replication repl trust
local fugu fugu trust
host all all 127.0.0.1/32 md5
host all all ::1/128 md5
hostssl fugu fugu 178.79.19 -
1.8/32 md5
hostssl replication repl
178.79.19 1.8/32 md5
```

Example file

User Settings

By default, database traffic is not encrypted.

Turn on ssl if you are running in a cloud provider.

For pre-9.4, set ssl_renegotiation_limit = 0.

Memory Config

Consists of:

```
shared_buffers
work_mem
maintenance_work_mem
```

SHARED BUFFERS (postgresql.conf)

Below 2gb RAM?

20% Total System Memory

Below 64gm RAM?

25% Total System Memory

> 64gm RAM?

shared_buffers = 16gb

WORK MEM (postgresql.conf)

Start low: 32-64MB.

Look for 'temporary file' lines in logs.

THEN - Set to 2-3x the largest temp file you see.

Can cause a huge speed-up if set properly. But be careful: It can use that amount of memory per planner node.

MAINTENANCE WORK MEM

10% of system memory, up to 1GB.

DO NOT TOUCH

The contents and special files in the main PostgreSQL directories should never, ever be modified directly. Ever.

Exceptions: pg_log (if you put the log files there), and the configuration files.

pg_xlog and pg_clog are off-limits!

Checkpoint Config

Essentially, don't let checkpoint segments get out of hand.

9.4 and earlier (postgresql.conf)

```
wal_buffers = 16MB
checkpoint_completion_target = 0.9
checkpoint_timeout = 10m-30m
# Depends on restart time
checkpoint_segments = 32 # To start.
```

checkpoint_segments happening more often than checkpoint_timeout?

Adjust checkpoint_segments so that checkpoints happen due to timeouts rather filling segments.



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9.5 and later (postgresql.conf)

```
wal_buffers = 16MB
checkpoint_timeout = 5min
checkpoint_target = 0.9
checkpoint_timeout = 10m-30m
# Depends on restart time
min_wal_size = 512MB
max_wal_size = 2GB
```

checkpoint_segments happening more often than checkpoint_timeout?

Step 1: Adjust min_wal_size so that checkpoints happen due to timeouts rather filling segments.

Step 2: Adjust max_wal_size to be about three times min_wal_size.

effective_cache_size

Set to the amount of file system cache available.

Otherwise:

If you don't know, set it to 75% of total system memory.

REFERENCE

<http://thebuild.com/presentations/pycon-2016-pppp.pdf>



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