

Appendix C

The following are the core instructions for enabling logging in PostgreSQL.

Note: The following instructions use the PGDATA and PGVER environment variables. Refer to supplementary content APPENDIX-F and APPENDIX-H for instructions on configuring PGDATA and PGVER.

Where To Log

stderr

PostgreSQL can be configured to use `stderr` for logging. This allows the server to log events from the database to a directory specified in `postgresql.conf`.

Configuring `stderr` Logging

As the database administrator (usually `postgres`), edit the `postgresql.conf` file:

```
$ sudo su - postgres
$ vi ${PGDATA?}/postgresql.conf
```

The following parameters must be configured:

```
log_destination = 'stderr'
logging_collector = on
log_directory = 'log'
log_filename = 'postgresql-%a.log'
log_file_mode = 0600
log_truncate_on_rotation = on
log_rotation_age = 1d
log_rotation_size = 0
```

As a `sudo` user, reload the PostgreSQL server:

```
# SERVER USING SYSTEMCTL ONLY
$ sudo systemctl reload postgresql-${PGVER?}

# SERVER USING INITD ONLY
$ sudo service postgresql-${PGVER?} reload
```

syslog

PostgreSQL can be configured to use `syslog` for logging. This allows the server to log events from the database to a centralized location and give log ownership to root instead of the database administrator (usually `postgres`). It is advised to use `syslog` whenever possible.

Configuring syslog Logging

Note: Syslog must be configured in your organization. The following instructions are only to configure PostgreSQL to use syslog.

As the database administrator (usually `postgres`), edit the `postgresql.conf` file:

```
$ sudo su - postgres
$ vi ${PGDATA?}/postgresql.conf
```

The following parameters must be configured:

```
log_destination = 'syslog'
syslog_facility = 'LOCAL0' # choose the facility that makes sense
syslog_ident = 'postgres'
```

Note: Depending on the need, `log_destination` can be set to multiple locations such as the below:

```
log_destination = 'stderr, syslog'
```

As a `sudo` user, reload the PostgreSQL server:

```
# SERVER USING SYSTEMCTL ONLY
$ sudo systemctl reload postgresql-${PGVER?}

# SERVER USING INITD ONLY
$ sudo service postgresql-${PGVER?} reload
```

What To Log

PostgreSQL can log a variety of events out of the box. The following parameters can be set to log additional information.

As the database administrator (usually `postgres`), edit the `postgresql.conf` file:

```
$ sudo su - postgres
$ vi ${PGDATA?}/postgresql.conf
```

The following parameters can be configured:

```
log_checkpoints = on
log_connections = on
log_disconnections = on
log_duration = off
log_error_verbosity = default
log_hostname = off
log_lock_waits = on
log_statement = 'none' # pgaudit will be configured to log specific events
log_replication_commands = on
log_timezone = 'UTC'
```

Additionally log_line_prefix can be configured to include extra information:

```
log_line_prefix = '< %m %a %u %d %c %s %r %p >'
# %a = application name
# %u = user name
# %d = database name
# %r = remote host and port
# %h = remote host
# %b = backend type
# %p = process ID
# %P = process ID of parallel group leader
# %t = timestamp without milliseconds
# %m = timestamp with milliseconds
# %n = timestamp with milliseconds (as a Unix epoch)
# %Q = query ID (0 if none or not computed)
# %i = command tag
# %e = SQL state
# %c = session ID
# %l = session line number
# %s = session start timestamp
# %v = virtual transaction ID
# %x = transaction ID (0 if none)
# %q = stop here in non-session processes
# %% = '%'
```

When To Log

PostgreSQL allows administrators to control what levels of detail are exposed to logs, administrators, and clients.

As the database administrator (usually postgres), edit the `postgresql.conf` file:

```
$ sudo su - postgres
$ vi ${PGDATA?}/postgresql.conf
```

The following parameters can be configured:

```
client_min_messages = notice
log_min_messages = warning
log_min_error_statement = error
log_min_duration_statement = -1
```

For more information on logging, refer to the official documentation:

<http://www.postgresql.org/docs/current/static/runtime-config-logging.html>.