Percobaan 1

1.

```
ubuntu@prak-tbd: ~/prak_tbd
  GNU nano 7.2                                                    docker-compose.yml
version: '3.8'
services:
  postgres_primary:
    container_name: prak_tbd_modul_3_primary
    image: postgres
    environment:
      POSTGRES_USER: postgres
      POSTGRES_PASSWORD: password
      POSTGRES_DB: prak_tbd_modul_3_db
    volumes:
      - db_data:/var/lib/postgresql/data
    ports:
      - "6543:5432"
    networks:
      - prak_tbd_network
    restart: unless-stopped

  postgres_standby:
    container_name: prak_tbd_modul_3_standby
    image: postgres
    environment:
      POSTGRES_USER: postgres
      POSTGRES_PASSWORD: password
      POSTGRES_DB: prak_tbd_modul_3_db
    volumes:
      - db_data_standby:/var/lib/postgresql/data
    ports:
      - "6544:5432"
    networks:
      - prak_tbd_network
    restart: unless-stopped

volumes:
  db_data:
  db_data_standby:

networks:
  prak_tbd_network:

                                                  [ Read 38 lines ]
28°C
Mostly cloudy
Search
5:30 PM
11/1/2024
```

2.

```
ubuntu@prak-tbd: ~/prak_tbd
ubuntu@prak-tbd:~/prak_tbd$ docker-compose [sudo docker compose up -d]
Command 'docker-compose' not found, but can be installed with:
sudo snap install docker          # version 24.0.5, or
sudo apt  install docker-compose  # version 1.29.2-6
See 'snap info docker' for additional versions.
ubuntu@prak-tbd:~/prak_tbd$ sudo docker compose up -d
validating /home/ubuntu/prak_tbd/docker-compose.yml: services.volumes Additional property db_data_standby is not allowed
ubuntu@prak-tbd:~/prak_tbd$ nano docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ sudo docker compose up -d
validating /home/ubuntu/prak_tbd/docker-compose.yml: services.networks Additional property prak_tbd_network is not allowed
ubuntu@prak-tbd:~/prak_tbd$ nano docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ sudo docker-compose up -d
sudo: docker-compose: command not found
ubuntu@prak-tbd:~/prak_tbd$ sudo docker compose up -d
validating /home/ubuntu/prak_tbd/docker-compose.yml: services.networks Additional property prak_tbd_network is not allowed
ubuntu@prak-tbd:~/prak_tbd$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
ubuntu@prak-tbd:~/prak_tbd$ nano docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ sudo docker compose up -d
validating /home/ubuntu/prak_tbd/docker-compose.yml: services.networks Additional property prak_tbd_network is not allowed
ubuntu@prak-tbd:~/prak_tbd$ nano docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ docker compose up -d
validating /home/ubuntu/prak_tbd/docker-compose.yml: services.networks Additional property prak_tbd_network is not allowed
ubuntu@prak-tbd:~/prak_tbd$ docker-compose up -d
Command 'docker-compose' not found, but can be installed with:
sudo snap install docker          # version 24.0.5, or
sudo apt  install docker-compose  # version 1.29.2-6
See 'snap info docker' for additional versions.
ubuntu@prak-tbd:~/prak_tbd$ nano docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ ubuntu@prak-tbd:~/prak_tbd$ s
s: command not found
ubuntu@prak-tbd:~/prak_tbd$ sudo docker compose up -d
yaml: line 32: did not find expected key
ubuntu@prak-tbd:~/prak_tbd$ nano docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ sudo docker compose up -d
WARN[0000] /home/ubuntu/prak_tbd/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 5/5
 ✔Network prak_tbd_prak_tbd_network   Created                                                                    0.1s
 ✔Volume "prak_tbd_db_data"           Created                                                                    0.0s
 ✔Volume "prak_tbd_db_data_standby"   Created                                                                    0.0s
 ✔Container prak_tbd_modul_3_primary  Started                                                                    0.4s
 ✔Container prak_tbd_modul_3_standby  Started                                                                    0.4s
ubuntu@prak-tbd:~/prak_tbd$ nano docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED         STATUS         PORTS                                       NAMES
cd5540b16318   postgres   "docker-entrypoint.s…"   2 minutes ago   Up 2 minutes   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp   prak_tbd_modul_3_standby
bb52a4955342   postgres   "docker-entrypoint.s…"   2 minutes ago   Up 2 minutes   0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp   prak_tbd_modul_3_primary
ubuntu@prak-tbd:~/prak_tbd$
28°C
Mostly cloudy
Search
5:33 PM
11/1/2024
```

3.

```
ubuntu@prak-tbd: ~/prak_tbd
[+] Running 5/5
 ✔Container prak_tbd_modul_3_primary  Removed                                                                    0.0s
 ✔Container prak_tbd_modul_3_standby  Removed                                                                    0.2s
 ✔Volume prak_tbd_db_data_standby     Removed                                                                    0.1s
 ✔Volume prak_tbd_db_data             Removed                                                                    0.1s
 ✔Network prak_tbd_prak_tbd_network   Removed                                                                    0.1s
ubuntu@prak-tbd:~/prak_tbd$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
ubuntu@prak-tbd:~/prak_tbd$ sudo docker compose up -d
WARN[0000] /home/ubuntu/prak_tbd/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 5/5
 ✔Network prak_tbd_prak_tbd_network   Created                                                                    0.1s
 ✔Volume "prak_tbd_db_data"           Created                                                                    0.0s
 ✔Volume "prak_tbd_db_data_standby"   Created                                                                    0.0s
 ✔Container prak_tbd_modul_3_standby  Started                                                                    0.4s
 ✔Container prak_tbd_modul_3_primary  Started                                                                    0.4s
ubuntu@prak-tbd:~/prak_tbd$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED         STATUS         PORTS                                       NAMES
413c4f10a9af   postgres   "docker-entrypoint.s…"   5 seconds ago   Up 4 seconds   0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp   prak_tbd_modul_3_primary
8974265f42d4   postgres   "docker-entrypoint.s…"   5 seconds ago   Up 4 seconds   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp   prak_tbd_modul_3_standby
ubuntu@prak-tbd:~/prak_tbd$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED          STATUS          PORTS                                       NAMES
413c4f10a9af   postgres   "docker-entrypoint.s…"   53 seconds ago   Up 52 seconds   0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp   prak_tbd_modul_3_primary
8974265f42d4   postgres   "docker-entrypoint.s…"   53 seconds ago   Up 52 seconds   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp   prak_tbd_modul_3_standby
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@413c4f10a9af:/# nano /var/lib/postgresql/data/postgresql.conf
bash: nano: command not found
root@413c4f10a9af:/# apt-get update
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]
Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8,787 kB]
Get:5 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [2,468 B]
Get:6 http://deb.debian.org/debian-security bookworm-security/main amd64 Packages [190 kB]
Get:7 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg InRelease [129 kB]
Get:8 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg/main amd64 Packages [358 kB]
Fetched 9,721 kB in 2s (4,524 kB/s)
Reading package lists... Done
root@413c4f10a9af:/# apt-get install nano
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

```
ubuntu@prak-tbd: ~/prak_tbd
Reading state information... Done
Package nano is not available, but is referred to by another package.
This may mean that the package is missing, has been obsoleted, or
is only available from another source

E: Package 'nano' has no installation candidate
root@bb52a4955342:/# apt-get update
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]
Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8,787 kB]
Get:5 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [2,468 B]
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Get:7 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg InRelease [129 kB]
Get:8 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg/main amd64 Packages [358 kB]
Fetched 9,721 kB in 2s (5,461 kB/s)
Reading package lists... Done
root@bb52a4955342:/# apt-get install nano
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  hunspell
The following NEW packages will be installed:
  nano
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 690 kB of archives.
After this operation, 2,871 kB of additional disk space will be used.
Get:1 http://deb.debian.org/debian bookworm/main amd64 nano amd64 7.2-1+deb12u1 [690 kB]
Fetched 690 kB in 0s (32.7 MB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package nano.
(Reading database ... 12134 files and directories currently installed.)
Preparing to unpack .../nano_7.2-1+deb12u1_amd64.deb ...
Unpacking nano (7.2-1+deb12u1) ...
Setting up nano (7.2-1+deb12u1) ...
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group pico) doesn't exist
root@bb52a4955342:/# nano /var/lib/postgresql/data/postgresql.conf
root@bb52a4955342:/#
```

```
ubuntu@prak-tbd: ~/prak_tbd
  GNU nano 7.2                    /var/lib/postgresql/data/postgresql.conf *
#allow_alter_system = on


#------------------------------------------------------------------------------
# ERROR HANDLING
#------------------------------------------------------------------------------

#exit_on_error = off                    # terminate session on any error?
#restart_after_crash = on               # reinitialize after backend crash?
#data_sync_retry = off                  # retry or panic on failure to fsync
                                        # data?
                                        # (change requires restart)
#recovery_init_sync_method = fsync      # fsync, syncfs (Linux 5.8+)


#------------------------------------------------------------------------------
# CONFIG FILE INCLUDES
#------------------------------------------------------------------------------

# These options allow settings to be loaded from files other than the
# default postgresql.conf.  Note that these are directives, not variable
# assignments, so they can usefully be given more than once.

#include_dir = '...'                    # include files ending in '.conf' from
                                        # a directory, e.g., 'conf.d'
#include_if_exists = '...'               # include file only if it exists
#include = '...'                        # include file


#------------------------------------------------------------------------------
# CUSTOMIZED OPTIONS
#------------------------------------------------------------------------------

# Add settings for extensions here

wal_level = replica
archive_mode = on
archive_command = 'cp %p /var/lib/postgresql/data/archive/%f'
max_wal_senders = 3
wal_keep_size = 64
```

4.

```
ubuntu@prak-tbd: ~/prak_tbd
Reading state information... Done
Package nano is not available, but is referred to by another package.
This may mean that the package is missing, has been obsoleted, or
is only available from another source

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Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8,787 kB]
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Get:6 http://deb.debian.org/debian-security bookworm-security/main amd64 Packages [190 kB]
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root@bb52a4955342:/# apt-get install nano
Reading package lists... Done
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Suggested packages:
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0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
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Get:1 http://deb.debian.org/debian bookworm/main amd64 nano amd64 7.2-1+deb12u1 [690 kB]
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Unpacking nano (7.2-1+deb12u1) ...
Setting up nano (7.2-1+deb12u1) ...
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group pico) doesn't exist
root@bb52a4955342:/# nano /var/lib/postgresql/data/postgresql.conf
root@bb52a4955342:/# psql -U postgres -c "CREATE ROLE replicator WITH REPLICATION PASSWORD 'replica_password' LOGIN;"
CREATE ROLE
root@bb52a4955342:/#
```

5.

```
ubuntu@prak-tbd: ~/prak_tbd
Reading state information... Done
Package nano is not available, but is referred to by another package.
This may mean that the package is missing, has been obsoleted, or
is only available from another source

E: Package 'nano' has no installation candidate
root@bb52a4955342:/# apt-get update
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
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Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8,787 kB]
Get:5 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [2,468 B]
Get:6 http://deb.debian.org/debian-security bookworm-security/main amd64 Packages [190 kB]
Get:7 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg InRelease [129 kB]
Get:8 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg/main amd64 Packages [358 kB]
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root@bb52a4955342:/# apt-get install nano
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Building dependency tree... Done
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Suggested packages:
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The following NEW packages will be installed:
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0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
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Preparing to unpack .../nano_7.2-1+deb12u1_amd64.deb ...
Unpacking nano (7.2-1+deb12u1) ...
Setting up nano (7.2-1+deb12u1) ...
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group pico) doesn't exist
root@bb52a4955342:/# nano /var/lib/postgresql/data/postgresql.conf
root@bb52a4955342:/# psql -U postgres -c "CREATE ROLE replicator WITH REPLICATION PASSWORD 'replica_password' LOGIN;"
CREATE ROLE
root@bb52a4955342:/# nano /var/lib/postgresql/data/pg_hba.conf
root@bb52a4955342:/#
```

```
ubuntu@prak-tbd: ~/prak_tbd
  GNU nano 7.2                    /var/lib/postgresql/data/pg_hba.conf *
# use another authentication method.


# TYPE  DATABASE        USER            ADDRESS                 METHOD

# "local" is for Unix domain socket connections only
local   all             all                                     trust
# IPv4 local connections:
host    all             all             127.0.0.1/32            trust
# IPv6 local connections:
host    all             all             ::1/128                 trust
# Allow replication connections from localhost, by a user with the
# replication privilege.
local   replication     all                                     trust
host    replication     all             127.0.0.1/32            trust
host    replication     all             ::1/128                 trust
host    replication     replicator             0.0.0.0/0               md5

host all all all scram-sha-256

^G Help      ^O Write Out  ^W Where Is   ^K Cut       ^T Execute    ^C Location   M-U Undo      M-A Set Mark  M-] To Bracket
```

6.

```
ubuntu@prak-tbd: ~/prak_tbd
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Nov  1 13:51:29 UTC 2024

  System load:  0.0               Processes:             146
  Usage of /:   6.9% of 44.07GB   Users logged in:       0
  Memory usage: 2%                IPv4 address for ens3: 10.0.0.201
  Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

32 updates can be applied immediately.
16 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


Last login: Fri Nov  1 13:43:11 2024 from 36.85.222.59
ubuntu@prak-tbd:~$ cd prak_tbd
ubuntu@prak-tbd:~/prak_tbd$ sudo docker restart prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~/prak_tbd$
```

7-8

```
ubuntu@prak-tbd: ~/prak_tbd
16 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


Last login: Fri Nov  1 16:31:32 2024 from 114.10.129.29
ubuntu@prak-tbd:~$ cd prak_tbd
ubuntu@prak-tbd:~/prak_tbd$ sudo docker restart prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~/prak_tbd$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED         STATUS         PORTS
        NAMES
08632f39d0dd   postgres   "docker-entrypoint.s…"   4 minutes ago   Up 4 minutes   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp   prak_tbd_modul_3_standby
981ad4c618e5   postgres   "docker-entrypoint.s…"   4 minutes ago   Up 2 seconds   0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp   prak_tbd_modul_3_primary
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# rm -rf /var/lib/postgresql/data/*
root@08632f39d0dd:/# cd /var/lib/postgresql/data/
root@08632f39d0dd:/var/lib/postgresql/data# ls
root@08632f39d0dd:/var/lib/postgresql/data# ls
root@08632f39d0dd:/var/lib/postgresql/data# cd
root@08632f39d0dd:~# ls
root@08632f39d0dd:~# ls
root@08632f39d0dd:~# pg_basebackup -h prak_tbd_modul_3_primary -D /var/lib/postgresql/data -U replicator -v -P --wal-method=stream
Password:
pg_basebackup: initiating base backup, waiting for checkpoint to complete
pg_basebackup: checkpoint completed
pg_basebackup: write-ahead log start point: 0/2000028 on timeline 1
pg_basebackup: starting background WAL receiver
pg_basebackup: created temporary replication slot "pg_basebackup_41"
30607/30607 kB (100%), 1/1 tablespace
pg_basebackup: write-ahead log end point: 0/2000158
pg_basebackup: waiting for background process to finish streaming ...
pg_basebackup: syncing data to disk ...
pg_basebackup: renaming backup_manifest.tmp to backup_manifest
ubuntu@prak-tbd:~/prak_tbd$
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# toouch /var/lib/postgresql/data/standby.signal
bash: toouch: command not found
root@08632f39d0dd:/# touch /var/lib/postgresql/data/standby.signal
root@08632f39d0dd:/# nano /var/lib/postgresql/data/standby.signal
```

```
ubuntu@prak-tbd: ~/prak_tbd
32 updates can be applied immediately.
16 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


Last login: Fri Nov  1 16:31:32 2024 from 114.10.129.29
ubuntu@prak-tbd:~$ cd prak_tbd
ubuntu@prak-tbd:~/prak_tbd$ sudo docker restart prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~/prak_tbd$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED         STATUS         PORTS
        NAMES
08632f39d0dd   postgres   "docker-entrypoint.s…"   4 minutes ago   Up 4 minutes   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp   prak_tbd_modul_3_standby
081ad4c618e5   postgres   "docker-entrypoint.s…"   4 minutes ago   Up 2 seconds   0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp   prak_tbd_modul_3_primary
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# rm -rf /var/lib/postgresql/data/*
root@08632f39d0dd:/# cd /var/lib/postgresql/data/
root@08632f39d0dd:/var/lib/postgresql/data# ls
root@08632f39d0dd:/var/lib/postgresql/data# ls
root@08632f39d0dd:/var/lib/postgresql/data# cd
root@08632f39d0dd:~# ls
root@08632f39d0dd:~# ls
root@08632f39d0dd:~# pg_basebackup -h prak_tbd_modul_3_primary -D /var/lib/postgresql/data -U replicator -v -P --wal-method=stream
Password:
pg_basebackup: initiating base backup, waiting for checkpoint to complete
pg_basebackup: checkpoint completed
pg_basebackup: write-ahead log start point: 0/2000028 on timeline 1
pg_basebackup: starting background WAL receiver
pg_basebackup: created temporary replication slot "pg_basebackup_41"
30607/30607 kB (100%), 1/1 tablespace
pg_basebackup: write-ahead log end point: 0/2000158
pg_basebackup: waiting for background process to finish streaming ...
pg_basebackup: syncing data to disk ...
pg_basebackup: renaming backup_manifest.tmp to backup_manifest
ubuntu@prak-tbd:~/prak_tbd$
root@08632f39d0dd:~# ubuntu@prak-tbd:~/prak_tbd$
```

9.

```
ubuntu@prak-tbd: ~/prak_tbd
ubuntu@prak-tbd:~/prak_tbd$
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# toouch /var/lib/postgresql/data/standby.signal
bash: toouch: command not found
root@08632f39d0dd:/# touch /var/lib/postgresql/data/standby.signal
root@08632f39d0dd:/# nano /var/lib/postgresql/data/standby.signal
bash: nano: command not found
root@08632f39d0dd:/# apt-get update
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]
Get:3 http://deb.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 Packages [8,787 kB]
Get:5 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [2,468 B]
Get:6 http://deb.debian.org/debian-security bookworm-security/main amd64 Packages [190 kB]
Get:7 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg InRelease [129 kB]
Get:8 http://apt.postgresql.org/pub/repos/apt bookworm-pgdg/main amd64 Packages [358 kB]
Fetched 9,721 kB in 2s (5,282 kB/s)
Reading package lists... Done
root@08632f39d0dd:/# apt-get install nano
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  hunspell
The following NEW packages will be installed:
  nano
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 690 kB of archives.
After this operation, 2,871 kB of additional disk space will be used.
Get:1 http://deb.debian.org/debian bookworm/main amd64 nano amd64 7.2-1+deb12u1 [690 kB]
Fetched 690 kB in 0s (32.6 MB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package nano.
(Reading database ... 12134 files and directories currently installed.)
Preparing to unpack .../nano_7.2-1+deb12u1_amd64.deb ...
Unpacking nano (7.2-1+deb12u1) ...
Setting up nano (7.2-1+deb12u1) ...
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group pico) doesn't exist
root@08632f39d0dd:/# nano /var/lib/postgresql/data/standby.signal
root@08632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
root@08632f39d0dd:/# root@08632f39d0dd:/#
root@08632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
root@08632f39d0dd:/#
```

```
ubuntu@prak-tbd: ~/prak_tbd
  GNU nano 7.2                                    /var/lib/postgresql/data/postgresql.conf *
# CONFIG FILE INCLUDES
#------------------------------------------------------------------------------

# These options allow settings to be loaded from files other than the
# default postgresql.conf.  Note that these are directives, not variable
# assignments, so they can usefully be given more than once.

#include_dir = '...'                    # include files ending in '.conf' from
                                        # a directory, e.g., 'conf.d'
#include_if_exists = '...'              # include file only if it exists
#include = '...'                        # include file


#------------------------------------------------------------------------------
# CUSTOMIZED OPTIONS
#------------------------------------------------------------------------------

# Add settings for extensions here
primary_conninfo = 'host=prak_tbd_modul_3_primary port=5432 user=replicator password=replica_password'
```

10-11.

```
ubuntu@prak-tbd: ~/prak_tbd
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"

[1]+  Stopped                 psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@08632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
root@08632f39d0dd:/#
exit
There are stopped jobs.
root@08632f39d0dd:/#
exit
ubuntu@prak-tbd:~/prak_tbd$ sudo docker restart prak_tbd_modul_3_standby
prak_tbd_modul_3_standby
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"

[1]+  Stopped                 psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@08632f39d0dd:/# psql -h prak_tbd_modul_3_primary -p 5432 -U replicator -W
Password:
psql: error: connection to server at "prak_tbd_modul_3_primary" (172.18.0.2), port 5432 failed: FATAL:  database "replicator" does not exist
root@08632f39d0dd:/# psql -h prak_tbd_modul_3_primary -p 5432 -U -W
Password for user -W:
psql: error: connection to server at "prak_tbd_modul_3_primary" (172.18.0.2), port 5432 failed: fe_sendauth: no password supplied
root@08632f39d0dd:/# psql -h prak_tbd_modul_3_primary -p 5432 -U replicator
Password for user replicator:
psql: error: connection to server at "prak_tbd_modul_3_primary" (172.18.0.2), port 5432 failed: FATAL:  database "replicator" does not exist
root@08632f39d0dd:/# nano /var/lib/postgresql/data/pg_hba.conf
root@08632f39d0dd:/# /var/lib/postgresql/data/postgresql.conf
bash: /var/lib/postgresql/data/postgresql.conf: Permission denied
root@08632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
root@08632f39d0dd:/# cd /var/lib/postgresql/data/
root@08632f39d0dd:/var/lib/postgresql/data# ls
backup_label.old  global        pg_hba.conf    pg_multixact  pg_serial     pg_stat_tmp  pg_twophase  pg_xact              postmaster.opts
backup_manifest   pg_commit_ts  pg_ident.conf  pg_notify     pg_snapshots  pg_subtrans  PG_VERSION   postgresql.auto.conf  postmaster.pid
base              pg_dynshmem   pg_logical     pg_replslot   pg_stat       pg_tblspc    pg_wal       postgresql.conf       standby.signal
root@08632f39d0dd:/var/lib/postgresql/data#
exit
There are stopped jobs.
root@08632f39d0dd:/var/lib/postgresql/data#
exit
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"

[1]+  Stopped                 psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@081ad4c618e5:/#
```

```
 pid | usesysid |  usename   | application_name | client_addr | client_hostname | client_port |         backend_start         | backend_xmin |   state   | s
ent_lsn  | write_lsn  | flush_lsn  | replay_lsn | write_lag | flush_lag | replay_lag | sync_priority | sync_state |          reply_time
-----+----------+------------+------------------+-------------+-----------------+-------------+-------------------------------+-------------+-----------+---
---------+------------+------------+------------+-----------+-----------+-----------+---------------+------------+-------------------------------
 248 |    16389 | replicator | walreceiver      | 172.18.0.3  |                 |       58262 | 2024-11-02 07:15:34.67144+00 |             | streaming | 0/
16000168 | 0/16000168 | 0/16000168 | 0/16000168 |           |           |           |             0 | async      | 2024-11-02 07:15:44.689679+00
(1 row)
```

12.

```
prak_tbd_modul_3_standby
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"

[1]+  Stopped                 psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@08632f39d0dd:/# psql -h prak_tbd_modul_3_primary -p 5432 -U replicator -W
Password:
psql: error: connection to server at "prak_tbd_modul_3_primary" (172.18.0.2), port 5432 failed: FATAL:  database "replicator" does not exist
root@08632f39d0dd:/# psql -h prak_tbd_modul_3_primary -p 5432 -U -W
Password for user -W:
psql: error: connection to server at "prak_tbd_modul_3_primary" (172.18.0.2), port 5432 failed: fe_sendauth: no password supplied
root@08632f39d0dd:/# psql -h prak_tbd_modul_3_primary -p 5432 -U replicator
Password for user replicator:
psql: error: connection to server at "prak_tbd_modul_3_primary" (172.18.0.2), port 5432 failed: FATAL:  database "replicator" does not exist
root@08632f39d0dd:/# nano /var/lib/postgresql/data/pg_hba.conf
root@08632f39d0dd:/# /var/lib/postgresql/data/postgresql.conf
bash: /var/lib/postgresql/data/postgresql.conf: Permission denied
root@08632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
root@08632f39d0dd:/# cd /var/lib/postgresql/data/
root@08632f39d0dd:/var/lib/postgresql/data# ls
backup_label.old  global        pg_hba.conf    pg_multixact  pg_serial     pg_stat_tmp  pg_twophase  pg_xact              postmaster.opts
backup_manifest   pg_commit_ts  pg_ident.conf  pg_notify     pg_snapshots  pg_subtrans  PG_VERSION   postgresql.auto.conf  postmaster.pid
base              pg_dynshmem   pg_logical     pg_replslot   pg_stat       pg_tblspc    pg_wal       postgresql.conf       standby.signal
root@08632f39d0dd:/var/lib/postgresql/data#
exit
There are stopped jobs.
root@08632f39d0dd:/var/lib/postgresql/data#
exit
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"

[1]+  Stopped                 psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@081ad4c618e5:/# psql -U postgres -c "CREATE TABLE test_replication (id SERIAL PRIMARY KEY, name TEXT);"
CREATE TABLE
root@081ad4c618e5:/#
exit
There are stopped jobs.
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~/prak_tbd$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -c "\dt"
          List of relations
 Schema |       Name       | Type  |  Owner
--------+------------------+-------+----------
 public | test_replication | table | postgres
(1 row)

root@08632f39d0dd:/#
```

Percobaan 2

1.

```
ubuntu@prak-tbd: ~

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

16 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


*** System restart required ***
Last login: Sat Nov  2 08:36:35 2024 from 182.253.218.121
ubuntu@prak-tbd:~$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS       PORTS
     NAMES
08632f39d0dd   postgres   "docker-entrypoint.s…"   16 hours ago   Up 2 hours   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp   prak_tbd_modul_3_standby
081ad4c618e5   postgres   "docker-entrypoint.s…"   16 hours ago   Up 2 hours   0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp   prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ cd prak_tbd
ubuntu@prak-tbd:~/prak_tbd$ ls
docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ cd
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/# psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.
prak_tbd_modul_3_db=# |
prak_tbd_modul_3_db=#
```

2.

```
ubuntu@prak-tbd: ~

  Memory usage: 3%                IPv4 address for ens3: 10.0.0.201
  Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

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Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


*** System restart required ***
Last login: Sat Nov  2 08:36:35 2024 from 182.253.218.121
ubuntu@prak-tbd:~$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS       PORTS
     NAMES
08632f39d0dd   postgres   "docker-entrypoint.s…"   16 hours ago   Up 2 hours   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp   prak_tbd_modul_3_standby
081ad4c618e5   postgres   "docker-entrypoint.s…"   16 hours ago   Up 2 hours   0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp   prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ cd prak_tbd
ubuntu@prak-tbd:~/prak_tbd$ ls
docker-compose.yml
ubuntu@prak-tbd:~/prak_tbd$ cd
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/# psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.
prak_tbd_modul_3_db=#
prak_tbd_modul_3_db=# CREATE TABLE akun (
id SERIAL PRIMARY KEY,
nama VARCHAR(50),
saldo INT
);
INSERT INTO akun (nama, saldo) VALUES ('User1', 1000);
CREATE TABLE
prak_tbd_modul_3_db=# BEGIN;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
```

3-5

```
ubuntu@prak-tbd: ~
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# BEGIN;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SELECT saldo FROM akun WHERE id = 1;

UPDATE akun SET saldo = saldo - 100 WHERE id = 1;
BEGIN
SET
 saldo
-------
  1000
(1 row)

^Z
[1]+  Stopped                 psql -U postgres -d prak_tbd_modul_3_db
root@081ad4c618e5:/#
exit
There are stopped jobs.
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/#  psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# BEGIN;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SELECT saldo FROM akun WHERE id = 1;

UPDATE akun SET saldo = saldo - 100 WHERE id = 1;
BEGIN
SET
 saldo
-------
  1000
(1 row)

UPDATE 1
prak_tbd_modul_3_db=*# COMMIT;
COMMIT
prak_tbd_modul_3_db=#
```

```
ubuntu@prak-tbd: ~
Type "help" for help.

prak_tbd_modul_3_db=#  BEGIN;
BEGIN
prak_tbd_modul_3_db=*# SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SET
prak_tbd_modul_3_db=*# UPDATE akun SET saldo = saldo - 200 WHERE id = 1;
^Z
[4]+  Stopped                 psql -U postgres -d prak_tbd_modul_3_db
root@081ad4c618e5:/#
exit
There are stopped jobs.
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/#  psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# BEGIN;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SELECT saldo FROM akun WHERE id = 1;

UPDATE akun SET saldo = saldo - 200 WHERE id = 1;
BEGIN
SET
 saldo
-------
  1000
(1 row)

UPDATE 1
prak_tbd_modul_3_db=*# COMMIT;
WARNING:  terminating connection because of crash of another server process
DETAIL:  The postmaster has commanded this server process to roll back the current
transaction and exit, because another server process exited abnormally and possibly
 corrupted shared memory.
HINT:  In a moment you should be able to reconnect to the database and repeat your
command.
server closed the connection unexpectedly
        This probably means the server terminated abnormally
        before or while processing the request.
prak_tbd_modul_3_db=?#
```

6.

```
ubuntu@prak-tbd: ~
prak_tbd_modul_3_db=# BEGIN;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SELECT saldo FROM akun WHERE id = 1;

UPDATE akun SET saldo = saldo - 100 WHERE id = 1;
BEGIN
SET
 saldo
-------
  1000
(1 row)

^Z
[1]+  Stopped                 psql -U postgres -d prak_tbd_modul_3_db
root@081ad4c618e5:/#
exit
There are stopped jobs.
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/#  psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# BEGIN;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SELECT saldo FROM akun WHERE id = 1;

UPDATE akun SET saldo = saldo - 100 WHERE id = 1;
BEGIN
SET
 saldo
-------
  1000
(1 row)

UPDATE 1
prak_tbd_modul_3_db=*# COMMIT;
COMMIT
prak_tbd_modul_3_db=# SELECT * FROM akun WHERE id = 1;
 id | nama  | saldo
----+-------+-------
  1 | User1 |   900
(1 row)

prak_tbd_modul_3_db=# SELECT * FROM akun WHERE id = 1;^Z
[1]+  Stopped                 psql -U postgres -d prak_tbd_modul_3_db
root@081ad4c618e5:/#
```

```
ubuntu@prak-tbd: ~
Type "help" for help.

prak_tbd_modul_3_db=#  BEGIN;
BEGIN
prak_tbd_modul_3_db=*# SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SET
prak_tbd_modul_3_db=*# UPDATE akun SET saldo = saldo - 200 WHERE id = 1;
^Z
[4]+  Stopped                 psql -U postgres -d prak_tbd_modul_3_db
root@081ad4c618e5:/#
exit
There are stopped jobs.
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/#  psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# BEGIN;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;
SELECT saldo FROM akun WHERE id = 1;

UPDATE akun SET saldo = saldo - 200 WHERE id = 1;
BEGIN
SET
 saldo
-------
  1000
(1 row)

UPDATE 1
prak_tbd_modul_3_db=*# COMMIT;
WARNING:  terminating connection because of crash of another server process
DETAIL:  The postmaster has commanded this server process to roll back the current transact
ion and exit, because another server process exited abnormally and possibly corrupted share
d memory.
HINT:  In a moment you should be able to reconnect to the database and repeat your command.
server closed the connection unexpectedly
        This probably means the server terminated abnormally
        before or while processing the request.
prak_tbd_modul_3_db=?#
```

Percobaan 3

1.

```
ubuntu@prak-tbd: ~
  https://ubuntu.com/engage/secure-kubernetes-at-the-edge

xpanded Security Maintenance for Applications is not enabled.

6 updates can be applied immediately.
o see these additional updates run: apt list --upgradable

nable ESM Apps to receive additional future security updates.
ee https://ubuntu.com/esm or run: sudo pro status


ast login: Sat Nov  2 09:24:44 2024 from 182.253.218.121
buntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
oot@081ad4c618e5:/# psql -U postgres -d prak_tbd_modul_3_db
sql (17.0 (Debian 17.0-1.pgdg120+1))
ype "help" for help.

rak_tbd_modul_3_db=# SELECT saldo FROM akun WHERE id = 1;
saldo
------
  900
1 row)

rak_tbd_modul_3_db=# SELECT saldo FROM akun;
saldo
------
  900
1 row)

rak_tbd_modul_3_db=#
```

2.

```
ubuntu@prak-tbd: ~
  https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

16 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


Last login: Sat Nov  2 09:24:44 2024 from 182.253.218.121
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/# psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# SELECT saldo FROM akun WHERE id = 1;
 saldo
-------
   900
(1 row)

prak_tbd_modul_3_db=# SELECT saldo FROM akun;
 saldo
-------
   900
(1 row)

prak_tbd_modul_3_db=#
\q
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker stop prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$
```

3.

```
ubuntu@prak-tbd: ~

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

16 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


Last login: Sat Nov  2 09:24:44 2024 from 182.253.218.121
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/# psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# SELECT saldo FROM akun WHERE id = 1;
 saldo
-------
   900
(1 row)

prak_tbd_modul_3_db=# SELECT saldo FROM akun;
 saldo
-------
   900
(1 row)

prak_tbd_modul_3_db=#
\q
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker stop prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_promote();"
 pg_promote
------------
 t
(1 row)
```

4.

```
ESM Apps to receive additional future security updates.
os://ubuntu.com/esm or run: sudo pro status


gin: Sat Nov  2 09:24:44 2024 from 182.253.218.121
rak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
lad4c618e5:/# psql -U postgres -d prak_tbd_modul_3_db
7.0 (Debian 17.0-1.pgdg120+1))
elp" for help.

d_modul_3_db=# SELECT saldo FROM akun WHERE id = 1;




d_modul_3_db=# SELECT saldo FROM akun;




d_modul_3_db=#

lad4c618e5:/#

rak-tbd:~$ sudo docker stop prak_tbd_modul_3_primary
d_modul_3_primary
rak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_promote();"
mote
-----



632f39d0dd:/# SELECT pg_is_in_recovery();
ntax error near unexpected token `('
632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_is_in_recovery();"
in_recovery
------------
```

5.

```
ubuntu@prak-tbd: ~

Type "help" for help.

prak_tbd_modul_3_db=# SELECT saldo FROM akun WHERE id = 1;
 saldo
-------
   900
(1 row)

prak_tbd_modul_3_db=# SELECT saldo FROM akun;
 saldo
-------
   900
(1 row)

prak_tbd_modul_3_db=#
\q
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker stop prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_promote();"
 pg_promote
------------
 t
(1 row)

root@08632f39d0dd:/# SELECT pg_is_in_recovery();
bash: syntax error near unexpected token `('
root@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_is_in_recovery();"
 pg_is_in_recovery
-------------------
 f
(1 row)

root@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# INSERT INTO akun (nama, saldo) VALUES ('User2', 500);
INSERT 0 1
prak_tbd_modul_3_db=# UPDATE akun SET saldo = saldo + 200 WHERE nama = 'User1';
UPDATE 1
prak_tbd_modul_3_db=#
```

6.

```
ubuntu@prak-tbd: ~

1 row)

rak_tbd_modul_3_db=# SELECT saldo FROM akun;
saldo
------
 900
1 row)

rak_tbd_modul_3_db=#
\
oot@081ad4c618e5:/#
xit
buntu@prak-tbd:~$ sudo docker stop prak_tbd_modul_3_primary
rak_tbd_modul_3_primary
buntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
oot@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_promote();"
g_promote
----------
t
1 row)

oot@08632f39d0dd:/# SELECT pg_is_in_recovery();
ash: syntax error near unexpected token `('
oot@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_is_in_recovery();"
g_is_in_recovery
-----------------
f
1 row)

oot@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db
sql (17.0 (Debian 17.0-1.pgdg120+1))
ype "help" for help.

rak_tbd_modul_3_db=# INSERT INTO akun (nama, saldo) VALUES ('User2', 500);
NSERT 0 1
rak_tbd_modul_3_db=# UPDATE akun SET saldo = saldo + 200 WHERE nama = 'User1';
PDATE 1
rak_tbd_modul_3_db=#
\
oot@08632f39d0dd:/#
xit
buntu@prak-tbd:~$ sudo docker start prak_tbd_modul_3_primary
rak_tbd_modul_3_primary
buntu@prak-tbd:~$
```

```
ubuntu@prak-tbd: ~/prak_tb
GNU nano 7.2                                   docker-compose.yml
ersion: '3.8'
ervices:
 postgres_primary:
   container_name: prak_tbd_modul_3_standby
   image: postgres
   environment:
     POSTGRES_USER: postgres
     POSTGRES_PASSWORD: password
     POSTGRES_DB: prak_tbd_modul_3_db
   volumes:
     - db_data:/var/lib/postgresql/data
   ports:
     - "6543:5432"
   networks:
     - prak_tbd_network
   restart: unless-stopped

 postgres_standby:
   container_name: prak_tbd_modul_3_primary
   image: postgres
   environment:
     POSTGRES_USER: postgres
     POSTGRES_PASSWORD: password
     POSTGRES_DB: prak_tbd_modul_3_db
   volumes:
     - db_data_standby:/var/lib/postgresql/data
   ports:
     - "6544:5432"
   networks:
     - prak_tbd_network
   restart: unless-stopped

olumes:
 db_data:
 db_data_standby:

etworks:
 prak_tbd_network:

                                   [ Read 38 lines ]
```

```
90
pw)

_tbd_modul_3_db=#

0081ad4c618e5:/#

tu@prak-tbd:~$ sudo docker stop prak_tbd_modul_3_primary
_tbd_modul_3_primary
tu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
008632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_promote();"
promote
--------

pw)

008632f39d0dd:/# SELECT pg_is_in_recovery();
: syntax error near unexpected token `('
008632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_is_in_recovery();"
is_in_recovery
---------------

pw)

008632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db
(17.0 (Debian 17.0-1.pgdg120+1))
"help" for help.

_tbd_modul_3_db=# INSERT INTO akun (nama, saldo) VALUES ('User2', 500);
RT 0 1
_tbd_modul_3_db=# UPDATE akun SET saldo = saldo + 200 WHERE nama = 'User1';
TE 1
_tbd_modul_3_db=#

008632f39d0dd:/#

tu@prak-tbd:~$ sudo docker start prak_tbd_modul_3_primary
_tbd_modul_3_primary
tu@prak-tbd:~$ sudo docker ps
AINER ID   IMAGE      COMMAND                  CREATED        STATUS          PORTS                                          NAMES
2f39d0dd   postgres   "docker-entrypoint.s…"   37 hours ago   Up 23 minutes   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp    prak_tbd_modul_3_standby
04c618e5   postgres   "docker-entrypoint.s…"   37 hours ago   Up 7 minutes    0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp    prak_tbd_modul_3_primary
tu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
0081ad4c618e5:/#

tu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
008632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
008632f39d0dd:/#
```

```
ubuntu@prak-tbd: ~
  GNU nano 7.2                                  /var/lib/postgresql/data/postgresql.conf *
# - Other Platforms and Clients -

#transform_null_equals = off
#allow_alter_system = on


#------------------------------------------------------------------------------
# ERROR HANDLING
#------------------------------------------------------------------------------

#exit_on_error = off                    # terminate session on any error?
#restart_after_crash = on               # reinitialize after backend crash?
#data_sync_retry = off                  # retry or panic on failure to fsync
                                        # data?
                                        # (change requires restart)
#recovery_init_sync_method = fsync      # fsync, syncfs (Linux 5.8+)


#------------------------------------------------------------------------------
# CONFIG FILE INCLUDES
#------------------------------------------------------------------------------

# These options allow settings to be loaded from files other than the
# default postgresql.conf.  Note that these are directives, not variable
# assignments, so they can usefully be given more than once.

#include_dir = '...'                    # include files ending in '.conf' from
                                        # a directory, e.g., 'conf.d'
#include_if_exists = '...'              # include file only if it exists
#include = '...'                        # include file


#------------------------------------------------------------------------------
# CUSTOMIZED OPTIONS
#------------------------------------------------------------------------------

# Add settings for extensions here
wal_level = replica
archive_mode = on
archive_command = 'cp %p /var/lib/postgresql/data/archive/%f'
max_wal_senders = 3
wal_keep_size = 64
```

```
ubuntu@prak-tbd: ~
prak_tbd_modul_3_db=#
\q
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker stop prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_promote();"
 pg_promote
------------
 t
(1 row)

root@08632f39d0dd:/# SELECT pg_is_in_recovery();
bash: syntax error near unexpected token `('
root@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db -c "SELECT pg_is_in_recovery();"
 pg_is_in_recovery
-------------------
 f
(1 row)

root@08632f39d0dd:/# psql -U postgres -d prak_tbd_modul_3_db
psql (17.0 (Debian 17.0-1.pgdg120+1))
Type "help" for help.

prak_tbd_modul_3_db=# INSERT INTO akun (nama, saldo) VALUES ('User2', 500);
INSERT 0 1
prak_tbd_modul_3_db=# UPDATE akun SET saldo = saldo + 200 WHERE nama = 'User1';
UPDATE 1
prak_tbd_modul_3_db=#
\q
root@08632f39d0dd:/#
exit
ubuntu@prak-tbd:~$ sudo docker start prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS          PORTS                                          NAMES
08632f39d0dd   postgres   "docker-entrypoint.s…"   37 hours ago   Up 23 minutes   0.0.0.0:6544->5432/tcp, [::]:6544->5432/tcp    prak_tbd_modul_3_standby
081ad4c618e5   postgres   "docker-entrypoint.s…"   37 hours ago   Up 7 minutes    0.0.0.0:6543->5432/tcp, [::]:6543->5432/tcp    prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@081ad4c618e5:/#
exit
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
root@08632f39d0dd:/# psql -U postgres -c "CREATE ROLE replicator WITH REPLICATION PASSWORD 'replica_password' LOGIN;"
ERROR:  role "replicator" already exists
root@08632f39d0dd:/# nano /var/lib/postgresql/data/pg_hba.conf
root@08632f39d0dd:/#
```

```
GNU nano 7.2                                  /var/lib/postgresql/data/pg_hba.conf
CAUTION: Configuring the system for local "trust" authentication
allows any local user to connect as any PostgreSQL user, including
the database superuser.  If you do not trust all your local users,
use another authentication method.


TYPE  DATABASE        USER            ADDRESS                 METHOD

"local" is for Unix domain socket connections only
cal   all             all                                     trust
IPv4 local connections:
st    all             all             127.0.0.1/32            trust
IPv6 local connections:
st    all             all             ::1/128                 trust
Allow replication connections from localhost, by a user with the
replication privilege.
cal   replication     all                                     trust
st    replication     all             127.0.0.1/32            trust
st    replication     all             ::1/128                 trust
st    replication     replicator      0.0.0.0/0               md5

st all all all scram-sha-256
```

```
ubuntu@prak-tbd: ~

root@08632f39d0dd:/# nano /var/lib/postgresql/data/postgresql.conf
root@08632f39d0dd:/# psql -U postgres -c "CREATE ROLE replicator WITH REPLICATION PASSWORD
'replica_password' LOGIN;"
CREATE ROLE
root@08632f39d0dd:/# nano /var/lib/postgresql/data/pg_hba.conf
root@08632f39d0dd:/#
exit
ubuntu@prak-tbd:~$ sudo docker restart prak_tbd_modul_3_standby
prak_tbd_modul_3_standby
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@331a35dee3a1:/# rm -rf /var/lib/postgresql/data/*
root@331a35dee3a1:/# pg_basebackup -h prak_tbd_modul_3_standby -D /var/lib/postgresql/data -U replicator -v -P --wal-method=stream
Password:
pg_basebackup: initiating base backup, waiting for checkpoint to complete
pg_basebackup: checkpoint completed
pg_basebackup: write-ahead log start point: 0/2000028 on timeline 1
pg_basebackup: starting background WAL receiver
pg_basebackup: created temporary replication slot "pg_basebackup_38"
30607/30607 kB (100%), 1/1 tablespace
pg_basebackup: write-ahead log end point: 0/2000158
pg_basebackup: waiting for background process to finish streaming ...
pg_basebackup: syncing data to disk ...
pg_basebackup: renaming backup_manifest.tmp to backup_manifest
pg_basebackup: base backup completed
root@331a35dee3a1:/# ubuntu@prak-tbd:~$
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@331a35dee3a1:/# touch /var/lib/postgresql/data/standby.signal
root@331a35dee3a1:/# nano /var/lib/postgresql/data/postgresql.conf

root@331a35dee3a1:/#
```

```
ubuntu@prak-tbd: ~
root@08632f39d0dd:/# psql -U postgres -c "CREATE ROLE replicator WITH REPLICATION PASSWORD
'replica_password' LOGIN;"
CREATE ROLE
root@08632f39d0dd:/# nano /var/lib/postgresql/data/pg_hba.conf
root@08632f39d0dd:/#
exit
ubuntu@prak-tbd:~$ sudo docker restart prak_tbd_modul_3_standby
prak_tbd_modul_3_standby
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@331a35dee3a1:/# rm -rf /var/lib/postgresql/data/*
root@331a35dee3a1:/# pg_basebackup -h prak_tbd_modul_3_standby -D /var/lib/postgresql/data -U replicator -v -P --wal-method=stream
Password:
pg_basebackup: initiating base backup, waiting for checkpoint to complete
pg_basebackup: checkpoint completed
pg_basebackup: write-ahead log start point: 0/2000028 on timeline 1
pg_basebackup: starting background WAL receiver
pg_basebackup: created temporary replication slot "pg_basebackup_38"
30607/30607 kB (100%), 1/1 tablespace
pg_basebackup: write-ahead log end point: 0/2000158
pg_basebackup: waiting for background process to finish streaming ...
pg_basebackup: syncing data to disk ...
pg_basebackup: renaming backup_manifest.tmp to backup_manifest
pg_basebackup: base backup completed
root@331a35dee3a1:/# ubuntu@prak-tbd:~$
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@331a35dee3a1:/# touch /var/lib/postgresql/data/standby.signal
root@331a35dee3a1:/# nano /var/lib/postgresql/data/postgresql.conf

root@331a35dee3a1:/#
exit
ubuntu@prak-tbd:~$ sudo docker restart prak_tbd_modul_3_standby
prak_tbd_modul_3_standby
ubuntu@prak-tbd:~$ sudo docker restart prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@331a35dee3a1:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@331a35dee3a1:/#
exit
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"


[1]+  Stopped                 psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@08632f39d0dd:/#
```

```
ubuntu@prak-tbd: ~
  GNU nano 7.2                                  /var/lib/postgresql/data/postgresql.conf *
# CONFIG FILE INCLUDES                         /var/lib/postgresql/data/postgresql.conf *
#------------------------------------------------------------------------------

# These options allow settings to be loaded from files other than the
# default postgresql.conf.  Note that these are directives, not variable
# assignments, so they can usefully be given more than once.

#include_dir = '...'                    # include files ending in '.conf' from
                                        # a directory, e.g., 'conf.d'
#include_if_exists = '...'              # include file only if it exists
#include = '...'                        # include file


#------------------------------------------------------------------------------
# CUSTOMIZED OPTIONS
#------------------------------------------------------------------------------

# Add settings for extensions here
primary_conninfo = 'host = prak_tbd_modul_3_standby port = 5432 user = replicator password = replica_password'
```

```
 | usesysid |  usename   | application_name | client_addr | client_hostname | client_port |         backend_start         | backend_xmin |   state   | s
lsn  | write_lsn | flush_lsn | replay_lsn | write_lag | flush_lag | replay_lag | sync_priority | sync_state |          reply_time
-+----------+------------+------------------+-------------+-----------------+-------------+-------------------------------+--------------+-----------+--
-----+-----------+-----------+-----------+-----------+-----------+-----------+---------------+------------+-------------------------------
 |    16389 | replicator | walreceiver      | 172.18.0.3  |                 |       36982 | 2024-11-03 06:19:45.906122+00 |              | streaming | 0
00D8 | 0/40000D8 | 0/40000D8 | 0/40000D8  |           |           |           |             0 | async      | 2024-11-03 06:20:22.740112+00
ow)
```

```
Password:
pg_basebackup: initiating base backup, waiting for checkpoint to complete
pg_basebackup: checkpoint completed
pg_basebackup: write-ahead log start point: 0/2000028 on timeline 1
pg_basebackup: starting background WAL receiver
pg_basebackup: created temporary replication slot "pg_basebackup_38"
30607/30607 kB (100%), 1/1 tablespace
pg_basebackup: write-ahead log end point: 0/2000158
pg_basebackup: waiting for background process to finish streaming ...
pg_basebackup: syncing data to disk ...
pg_basebackup: renaming backup_manifest.tmp to backup_manifest
pg_basebackup: base backup completed
root@331a35dee3a1:/# ubuntu@prak-tbd:~$
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@331a35dee3a1:/# touch /var/lib/postgresql/data/standby.signal
root@331a35dee3a1:/# nano /var/lib/postgresql/data/postgresql.conf

root@331a35dee3a1:/#
exit
ubuntu@prak-tbd:~$ sudo docker restart prak_tbd_modul_3_standby
prak_tbd_modul_3_standby
ubuntu@prak-tbd:~$ sudo docker restart prak_tbd_modul_3_primary
prak_tbd_modul_3_primary
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_primary bash
root@331a35dee3a1:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@331a35dee3a1:/#
exit
ubuntu@prak-tbd:~$ sudo docker exec -it prak_tbd_modul_3_standby bash
root@08632f39d0dd:/# psql -U postgres -c "SELECT * FROM pg_stat_replication;"


[1]+  Stopped                 psql -U postgres -c "SELECT * FROM pg_stat_replication;"
root@08632f39d0dd:/#
exit
There are stopped jobs.
root@08632f39d0dd:/# sudo docker exec -it prak_tbd_modul_3_standby bash
bash: sudo: command not found
root@08632f39d0dd:/# psql -U postgres -c "CREATE TABLE test_replication (id SERIAL PRIMARY
KEY, name TEXT);"
CREATE TABLE
root@08632f39d0dd:/# psql -U postgres -c "\dt"
             List of relations
 Schema |       Name       | Type  |  Owner
--------+------------------+-------+----------
 public | test_replication | table | postgres
(1 row)

root@08632f39d0dd:/#
```