

# Tópicos Especiais em Banco de Dados

---

Prof. Dr. Ulisses Rodrigues Afonseca

## Módulo 1: Infraestrutura

- Parte 1: Criação de Máquinas Virtuais
- Parte 2: Instalação do SO
- Parte 3: Configuração do SO e Gestão de Serviços

## Módulo 2: Banco de Dados

- Parte 4: Instalação do PostgreSQL
- Parte 5: Configuração do PostgreSQL

## Módulo 3: Desenvolvimento

- Parte 6: Criando um SGBD no PostgreSQL
- Parte 7: Conexão ao PostgreSQL usando Java
- Parte 8: Desenvolvimento de um CRUD Desktop

# Módulo 2: PostgreSQL

---

Parte 2

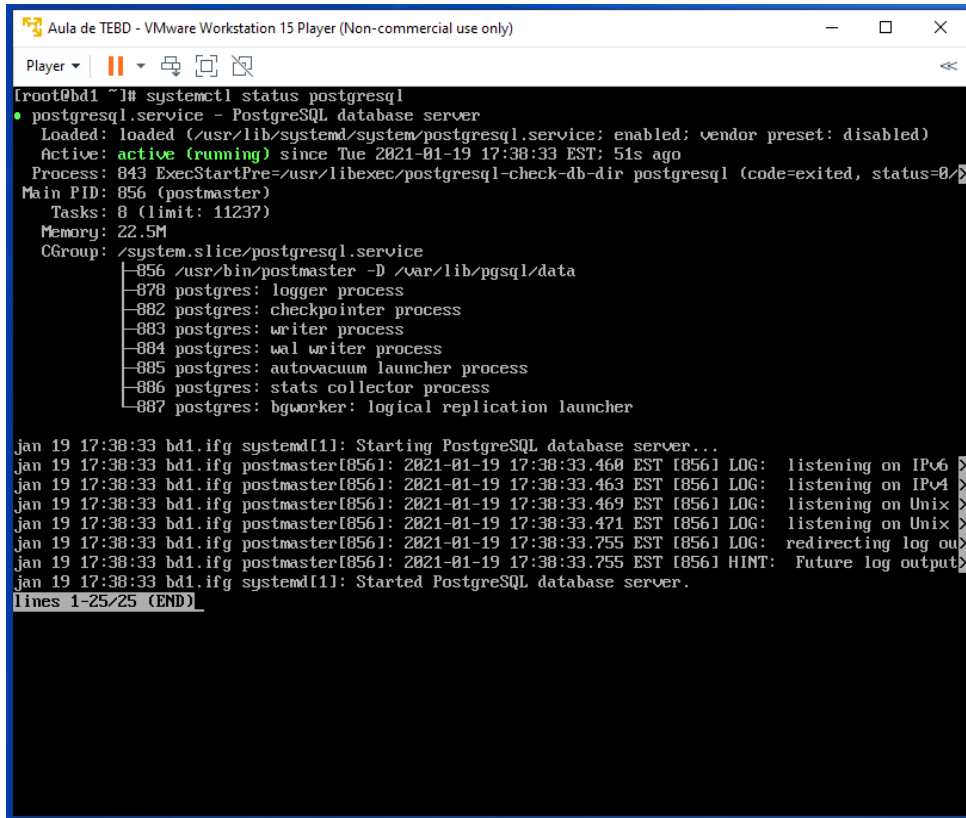
## Configuração do PostgreSQL



---

CentOS 8

# Configuração do PostgreSQL

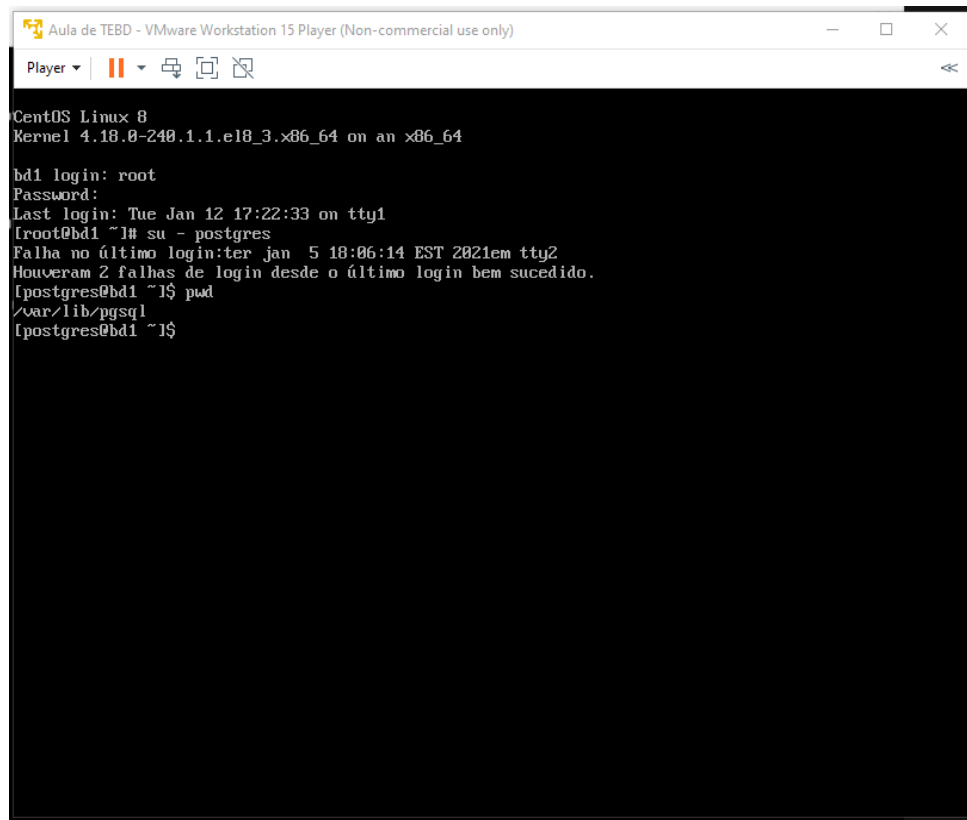


```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
Player
[root@bd1 ~]# systemctl status postgresql
● postgresql.service - PostgreSQL database server
   Loaded: loaded (/usr/lib/systemd/system/postgresql.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2021-01-19 17:38:33 EST; 51s ago
   Process: 843 ExecStartPre=/usr/libexec/postgresql-check-db-dir postgresql (code=exited, status=0/?)
   Main PID: 856 (postmaster)
   Tasks: 8 (limit: 11237)
   Memory: 22.5M
   CGroup: /system.slice/postgresql.service
           └─856 /usr/bin/postmaster -D /var/lib/pgsql/data
             └─878 postgres: logger process
               └─882 postgres: checkpoint process
                 └─883 postgres: writer process
                   └─884 postgres: wal writer process
                     └─885 postgres: autovacuum launcher process
                       └─886 postgres: stats collector process
                         └─887 postgres: bgworker: logical replication launcher

jan 19 17:38:33 bd1.ifg systemd[1]: Starting PostgreSQL database server...
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.460 EST [856] LOG:  listening on IPv6
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.463 EST [856] LOG:  listening on IPv4
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.469 EST [856] LOG:  listening on Unix
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.471 EST [856] LOG:  listening on Unix
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.755 EST [856] LOG:  redirecting log ou
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.755 EST [856] HINT:  Future log output
jan 19 17:38:33 bd1.ifg systemd[1]: Started PostgreSQL database server.
lines 1-25/25 (END)
```

- Verifique se o PostgreSQL está online
- Utilize a tecla 'q' para sair do relatório

# Configuração do PostgreSQL

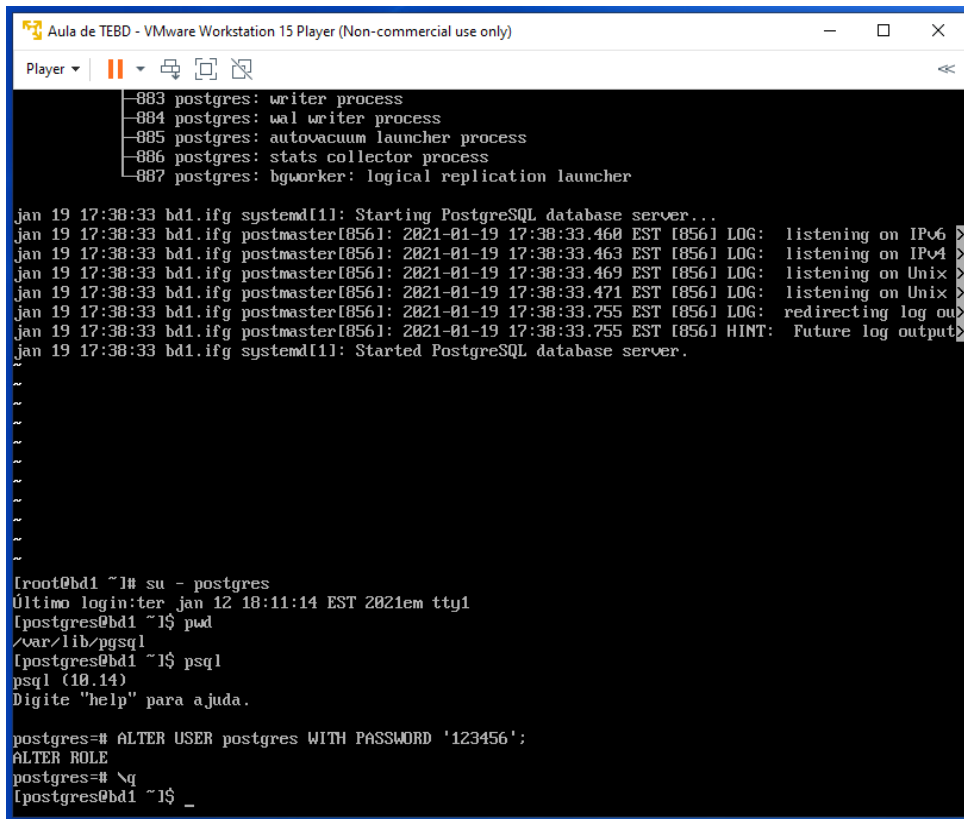


```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
Player
CentOS Linux 8
Kernel 4.18.0-240.1.1.el8_3.x86_64 on an x86_64

bd1 login: root
Password:
Last login: Tue Jan 12 17:22:33 on tty1
[root@bd1 ~]# su - postgres
Falha no último login:ter jan  5 18:06:14 EST 2021em tty2
Houveram 2 falhas de login desde o último login bem sucedido.
[postgres@bd1 ~]$ pwd
/var/lib/pgsql
[postgres@bd1 ~]$
```

- Com o usuário 'root', utilize o comando  
  
su – postgres
- Você obterá acesso ao usuário do postgresql criado no SO
- Verifique o diretório de trabalho com o comando  
  
pwd

# Configuração do PostgreSQL



```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
Player
-883 postgres: writer process
-884 postgres: wal writer process
-885 postgres: autovacuum launcher process
-886 postgres: stats collector process
-887 postgres: bgworker: logical replication launcher

jan 19 17:38:33 bd1.ifg systemd[1]: Starting PostgreSQL database server...
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.460 EST [856] LOG: listening on IPv6
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.463 EST [856] LOG: listening on IPv4
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.469 EST [856] LOG: listening on Unix
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.471 EST [856] LOG: listening on Unix
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.755 EST [856] LOG: redirecting log output
jan 19 17:38:33 bd1.ifg postmaster[856]: 2021-01-19 17:38:33.755 EST [856] HINT: Future log output
jan 19 17:38:33 bd1.ifg systemd[1]: Started PostgreSQL database server.

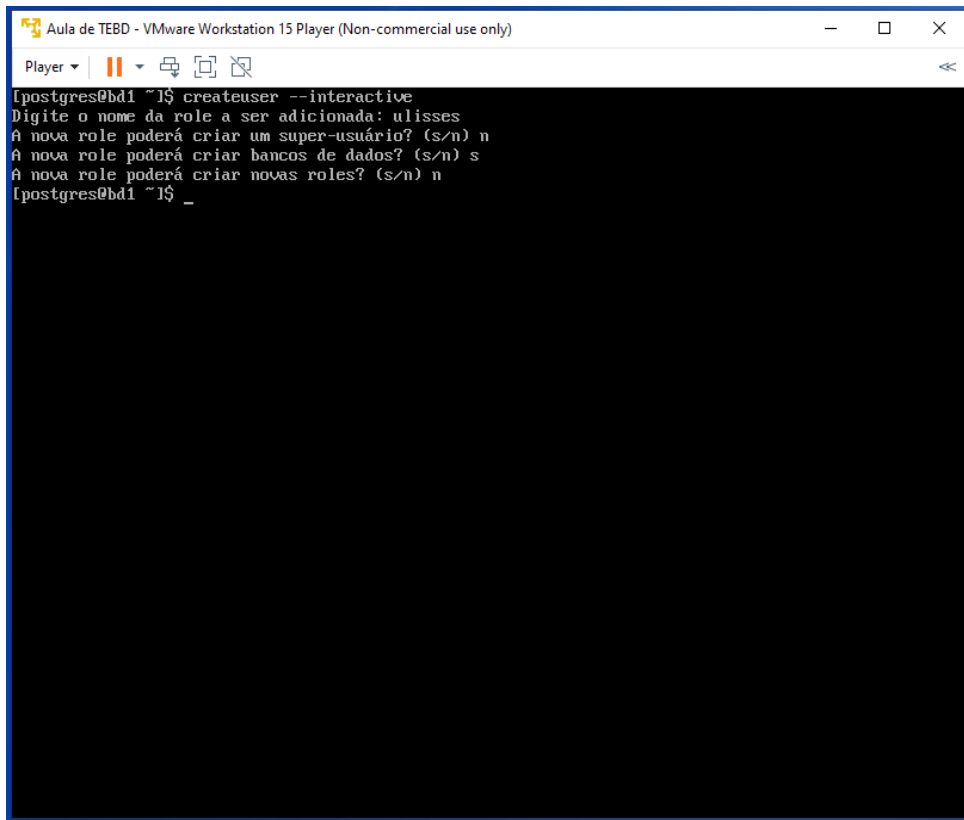
~
~
~
~
~
~
~
~

[root@bd1 ~]# su - postgres
Último login:ter jan 12 18:11:14 EST 2021em tty1
[postgres@bd1 ~]$ pwd
/var/lib/pgsql
[postgres@bd1 ~]$ psql
psql (10.14)
Digite "help" para ajuda.

postgres=# ALTER USER postgres WITH PASSWORD '123456';
ALTER ROLE
postgres=# \q
[postgres@bd1 ~]$ _
```

- Utilize o comando 'psql' para acessar o prompt do postgresql e em seguida o comando  
  
ALTER USER postgres WITH  
PASSWORD '123456'
- O usuário postgres é o superusuário do SGBD
- A senha do superusuário do SGBD foi alterada
- Não se esqueça do ';' ao final de cada comando enviado ao SGBD

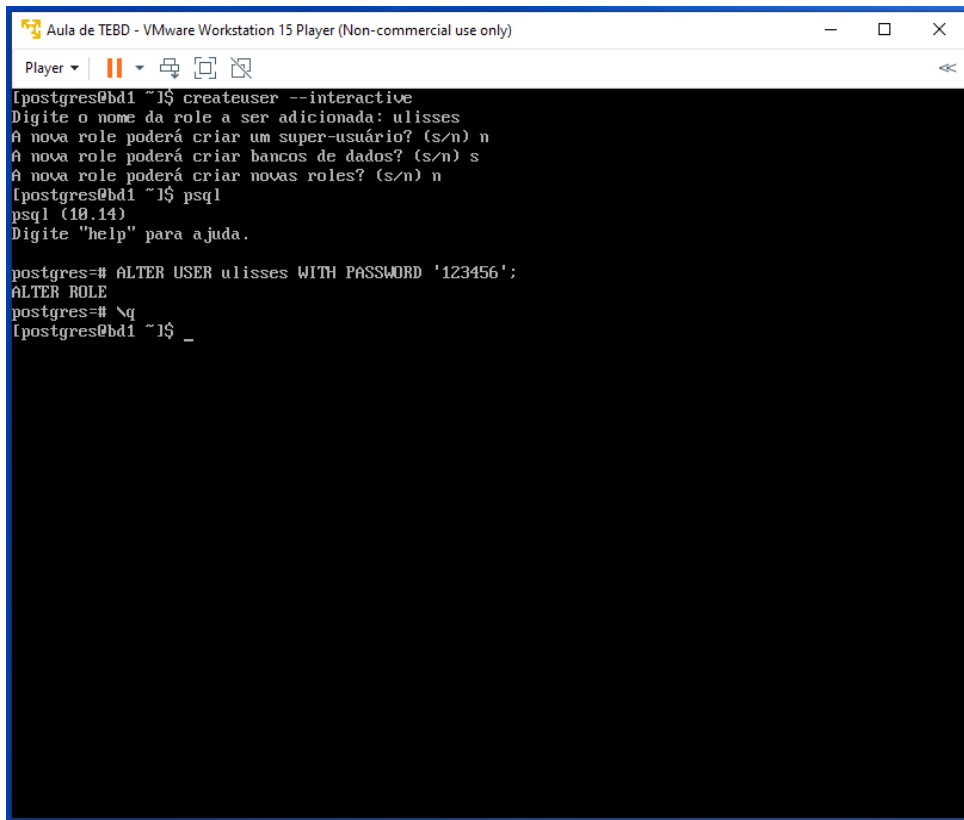
# Configuração do PostgreSQL



```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
Player
[postgres@bd1 ~]$ createuser --interactive
Digite o nome da role a ser adicionada: ulisses
A nova role poderá criar um super-usuário? (s/n) n
A nova role poderá criar bancos de dados? (s/n) s
A nova role poderá criar novas roles? (s/n) n
[postgres@bd1 ~]$ _
```

- Criaremos um usuário sem privilégios especiais para criar bancos de dados, tabelas e utilizar o SQL. Para isso utilize o comando  
`createuser --interactive`

# Configuração do PostgreSQL



```
[postgres@bd1 ~]$ createuser --interactive
Digite o nome da role a ser adicionada: ulisses
A nova role poderá criar um super-usuário? (s/n) n
A nova role poderá criar bancos de dados? (s/n) s
A nova role poderá criar novas roles? (s/n) n
[postgres@bd1 ~]$ psql
psql (10.14)
Digite "help" para ajuda.

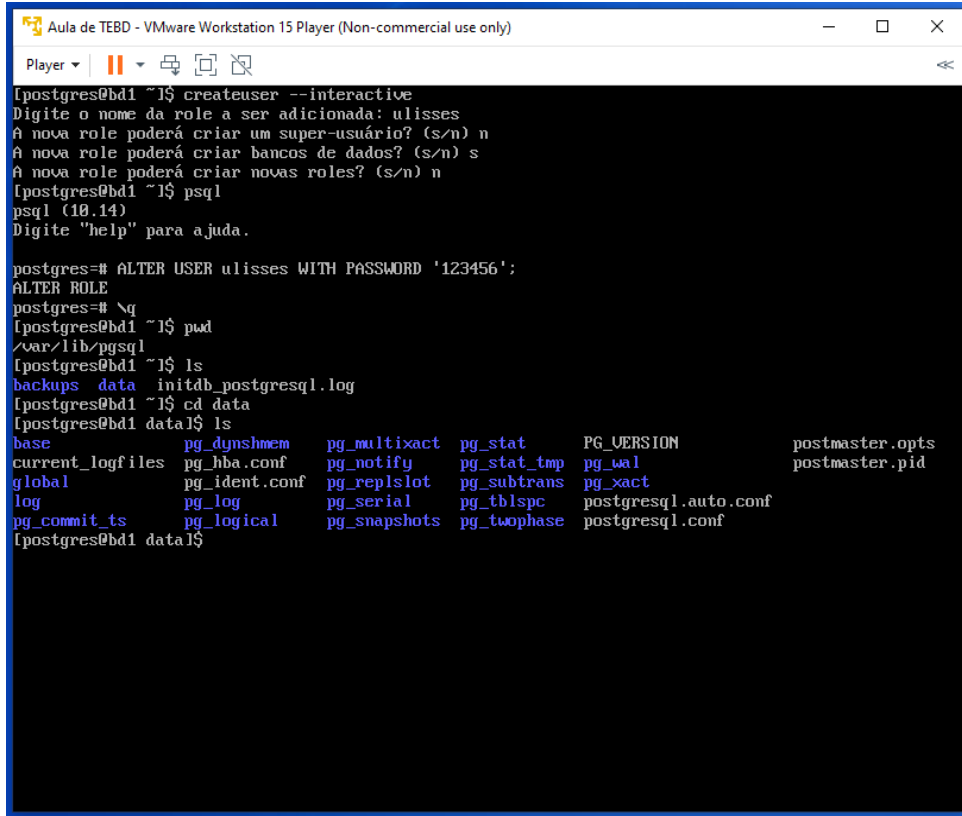
postgres=# ALTER USER ulisses WITH PASSWORD '123456';
ALTER ROLE
postgres=# \q
[postgres@bd1 ~]$ _
```

- Com o comando 'psql', utilizamos o comando abaixo para mudar a senha deste usuário

ALTER USER ulisses WITH  
PASSWORD '123456';



# Configuração do PostgreSQL

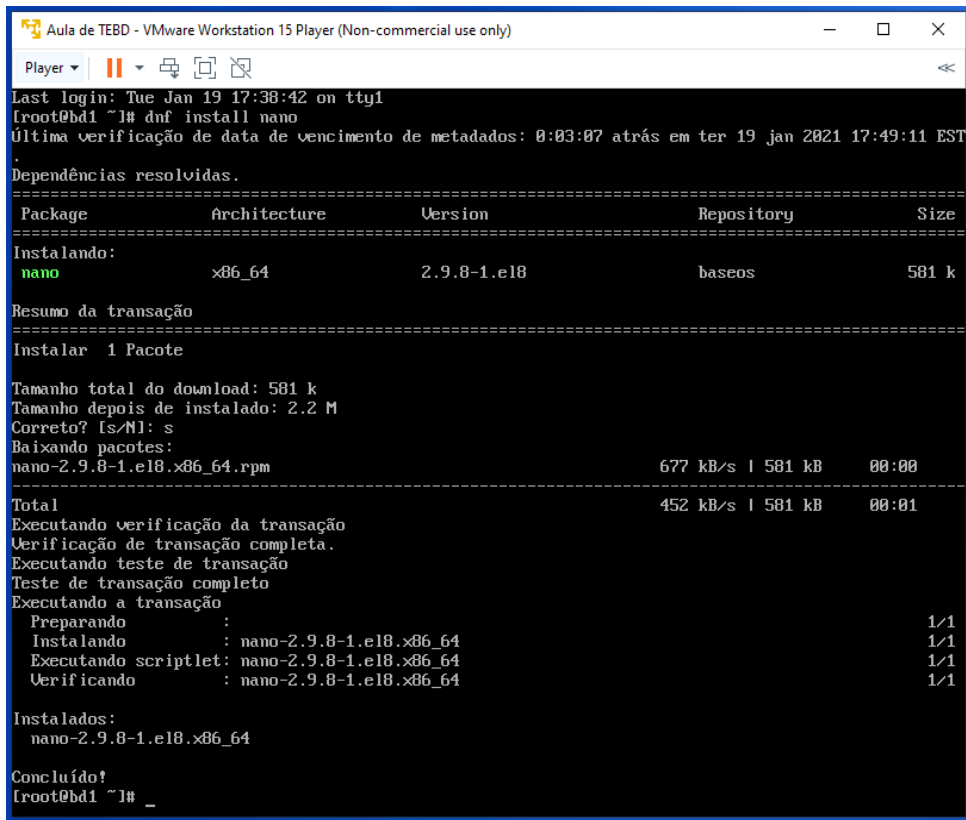


```
[postgres@bd1 ~]$ createuser --interactive
Digite o nome da role a ser adicionada: ulisses
A nova role poderá criar um super-usuário? (s/n) n
A nova role poderá criar bancos de dados? (s/n) s
A nova role poderá criar novas roles? (s/n) n
[postgres@bd1 ~]$ psql
psql (10.14)
Digite "help" para ajuda.

postgres=# ALTER USER ulisses WITH PASSWORD '123456';
ALTER ROLE
postgres=# \q
[postgres@bd1 ~]$ pwd
/var/lib/pgsql
[postgres@bd1 ~]$ ls
backups  data      initdb_postgresql.log
[postgres@bd1 ~]$ cd data
[postgres@bd1 data]$ ls
base                pg_dynshmem      pg_multixact      pg_stat            PG_VERSION         postmaster.opts
current_logfiles    pg_hba.conf      pg_notify          pg_stat_tmp        pg_wal              postmaster.pid
global              pg_ident.conf    pg_replslot       pg_subtrans        pg_xact
log                 pg_log           pg_serial          pg_tblspc          postgresql.auto.conf
pg_commit_ts        pg_logical        pg_snapshots      pg_twophase        postgresql.conf
```

- Verifique o conteúdo do diretório atual com o comando 'ls', verá que existe um diretório chamado 'data' que contém todo o banco inicial criado nas etapas anteriores
- Acesse o diretório 'data' com o comando  
cd data
- Verifique novamente o conteúdo com o comando 'ls'

# Configuração do PostgreSQL



```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
Player
Last login: Tue Jan 19 17:38:42 on tty1
[root@bd1 ~]# dnf install nano
Última verificação de data de vencimento de metadados: 0:03:07 atrás em ter 19 jan 2021 17:49:11 EST
Dependências resolvidas.
=====
Package            Architecture      Version           Repository        Size
=====
Instalando:
nano                x86_64            2.9.8-1.el8       baseos            581 k
Resumo da transação
=====
Instalar 1 Pacote

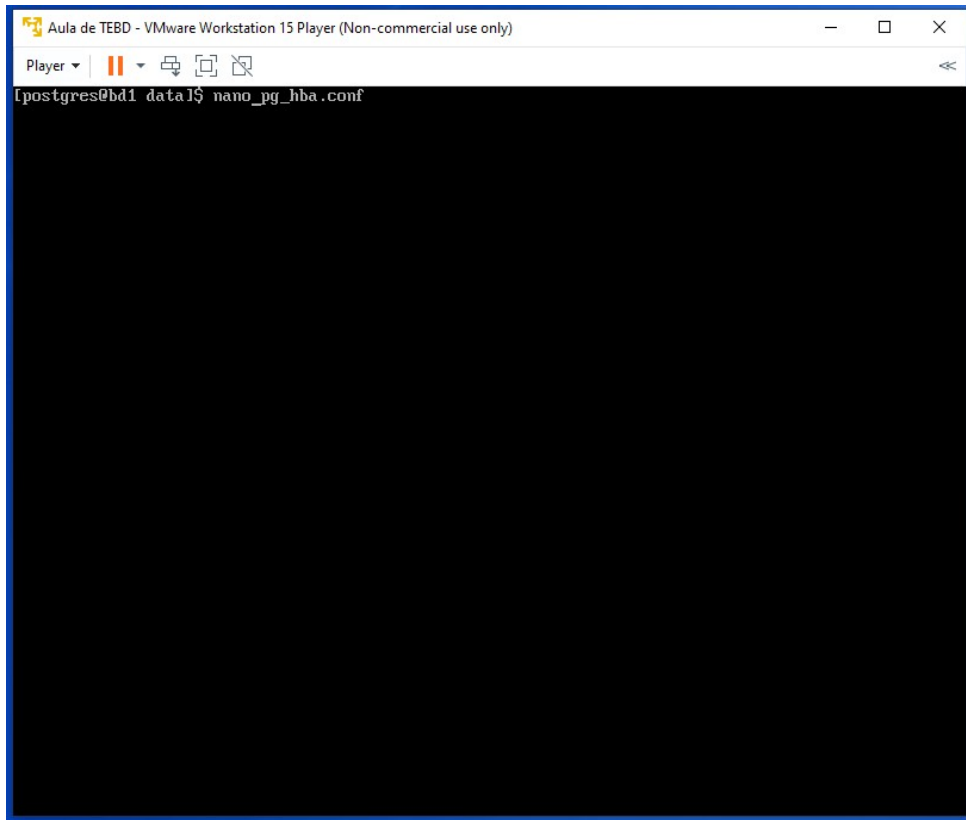
Tamanho total do download: 581 k
Tamanho depois de instalado: 2.2 M
Correto? [s/N]: s
Baixando pacotes:
nano-2.9.8-1.el8.x86_64.rpm                677 kB/s | 581 kB    00:00
-----
Total                                      452 kB/s | 581 kB    00:01
Executando verificação da transação
Verificação de transação completa.
Executando teste de transação
Teste de transação completo
Executando a transação
  Preparando      :
  Instalando      : nano-2.9.8-1.el8.x86_64      1/1
  Executando scriptlet: nano-2.9.8-1.el8.x86_64  1/1
  Verificando     : nano-2.9.8-1.el8.x86_64      1/1

Instalados:
 nano-2.9.8-1.el8.x86_64

Concluído!
[root@bd1 ~]#
```

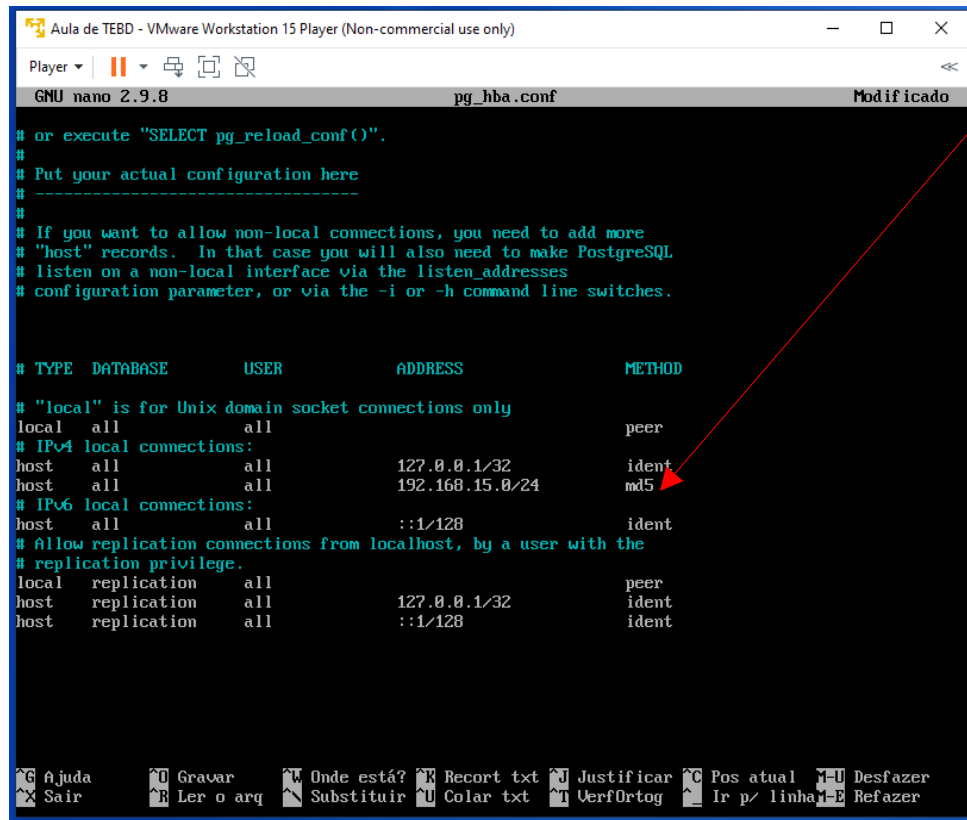
- Vamos editar estes arquivos
- Utilize o 'vi' e caso não tenha conhecimento desta ferramenta, abra uma nova 'janela' de comando com CTRL+ALT+2, faça login como root, e instale o editor 'nano' com o comando `dnf install nano`
- Utilize CTRL+ALT+1 para voltar para a primeira tela

# Configuração do PostgreSQL



- O primeiro arquivo a ser editado é o pg\_hba.conf, utilize o comando  
nano pg\_hba.conf

# Configuração do PostgreSQL



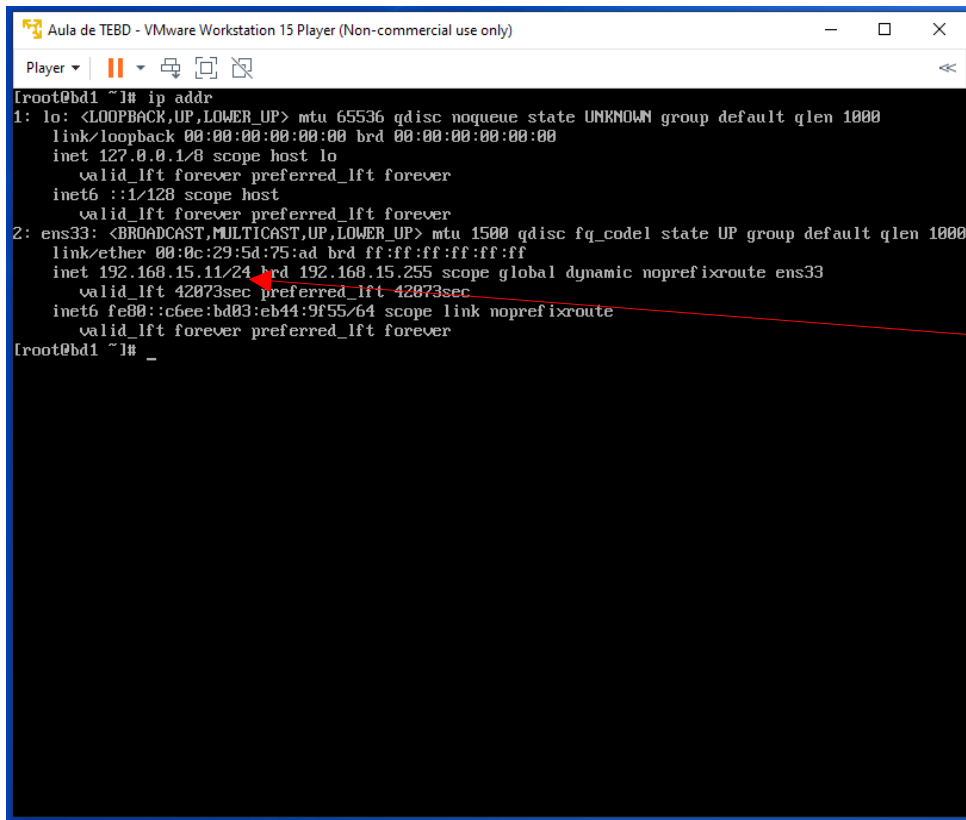
```
GNU nano 2.9.8 pg_hba.conf Modificado

# or execute "SELECT pg_reload_conf()".
#
# Put your actual configuration here
# -----
#
# If you want to allow non-local connections, you need to add more
# "host" records.  In that case you will also need to make PostgreSQL
# listen on a non-local interface via the listen_addresses
# configuration parameter, or via the -i or -h command line switches.


# TYPE DATABASE  USER  ADDRESS  METHOD
# "local" is for Unix domain socket connections only
local    all     all     peer
# IPv4 local connections:
host     all     all     127.0.0.1/32    ident
host     all     all     192.168.15.0/24 md5
# IPv6 local connections:
host     all     all     ::1/128        ident
# Allow replication connections from localhost, by a user with the
# replication privilege.
local    replication  all     peer
host     replication  all     127.0.0.1/32    ident
host     replication  all     ::1/128        ident
```

- Insira a linha com a sua rede
  - 192.168.15.0/24 é a rede local, verifique a sua
  - md5 é a forma de autenticação (usuário e senha)

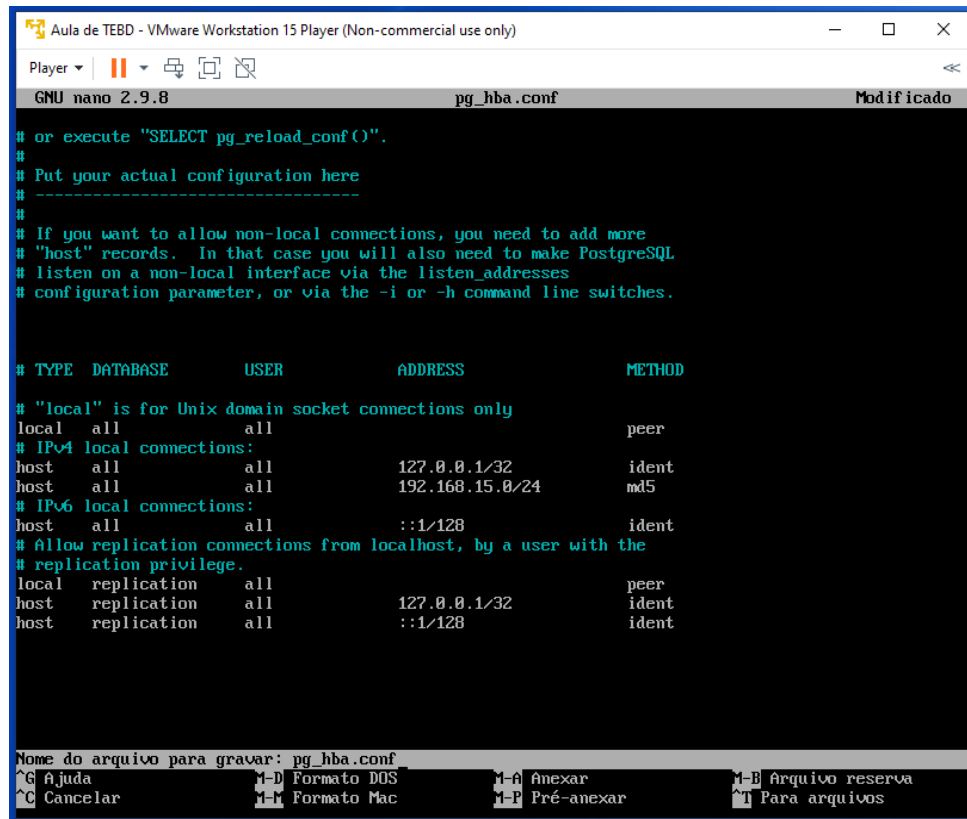
# Configuração do PostgreSQL



```
[root@bd1 ~]# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:5d:75:ad brd ff:ff:ff:ff:ff:ff
    inet 192.168.15.11/24 brd 192.168.15.255 scope global dynamic noprefixroute ens33
        valid_lft 42073sec preferred_lft 42073sec
    inet6 fe80::c6ee:bd03:eb44:9f55/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
[root@bd1 ~]# _
```

- Para verificar qual a sua rede, abra uma nova 'janela' e utilize o comando `ip addr`
- Vai aparecer o endereço e a máscara
- Você precisa interpretar para saber qual o endereço da rede
- Não se esqueça de configurar a placa de rede da VM no modo bridge para permitir a conexão remota. Faça isso antes de obter o endereço da rede.

# Configuração do PostgreSQL



```
GNU nano 2.9.8 pg_hba.conf Modificado

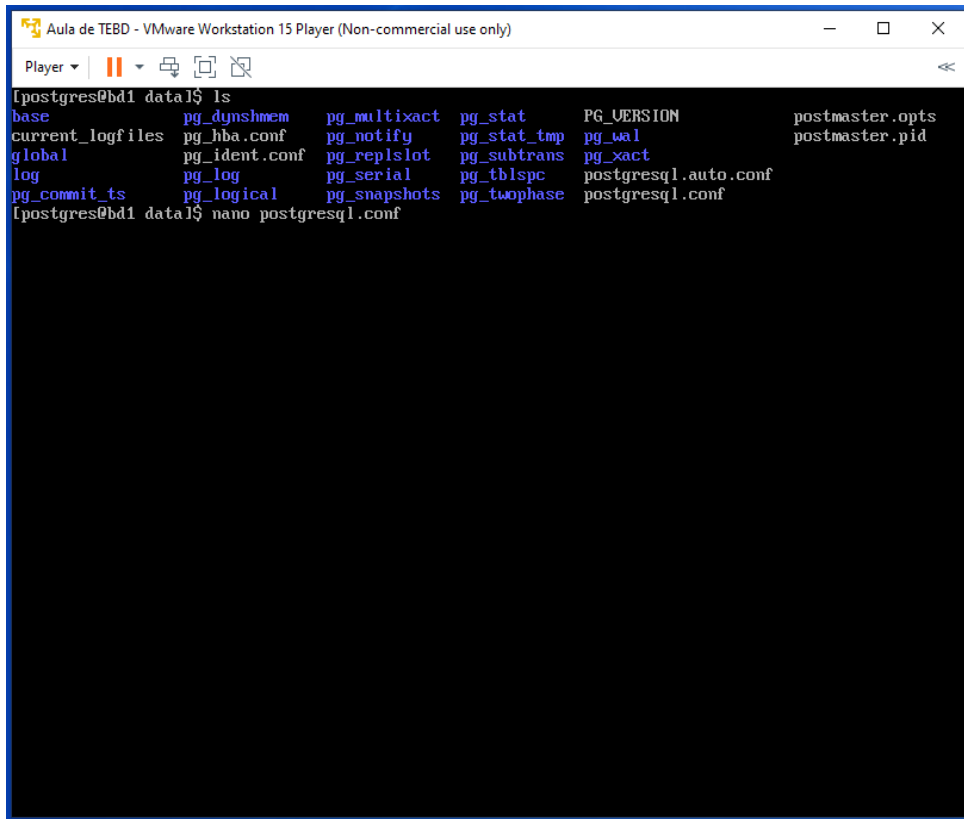
# or execute "SELECT pg_reload_conf()".
#
# Put your actual configuration here
# -----
#
# If you want to allow non-local connections, you need to add more
# "host" records.  In that case you will also need to make PostgreSQL
# listen on a non-local interface via the listen_addresses
# configuration parameter, or via the -i or -h command line switches.


# TYPE DATABASE  USER  ADDRESS  METHOD
# "local" is for Unix domain socket connections only
local    all             all                                     peer
# IPv4 local connections:
host     all             all             127.0.0.1/32    ident
host     all             all             192.168.15.0/24 md5
# IPv6 local connections:
host     all             all             ::1/128         ident
# Allow replication connections from localhost, by a user with the
# replication privilege.
local    replication     all                                     peer
host     replication     all             127.0.0.1/32    ident
host     replication     all             ::1/128         ident

Nome do arquivo para gravar: pg_hba.conf
^G Ajuda          M-D Formato DOS  M-A Anexar       M-B Arquivo reserva
^C Cancelar       M-M Formato Mac  M-P Pré-anexar   M Para arquivos
```

- Depois de configurado, utilize CTRL+o para gravar
- Não modifique o nome do arquivo
- Depois utilize CTRL+x para sair

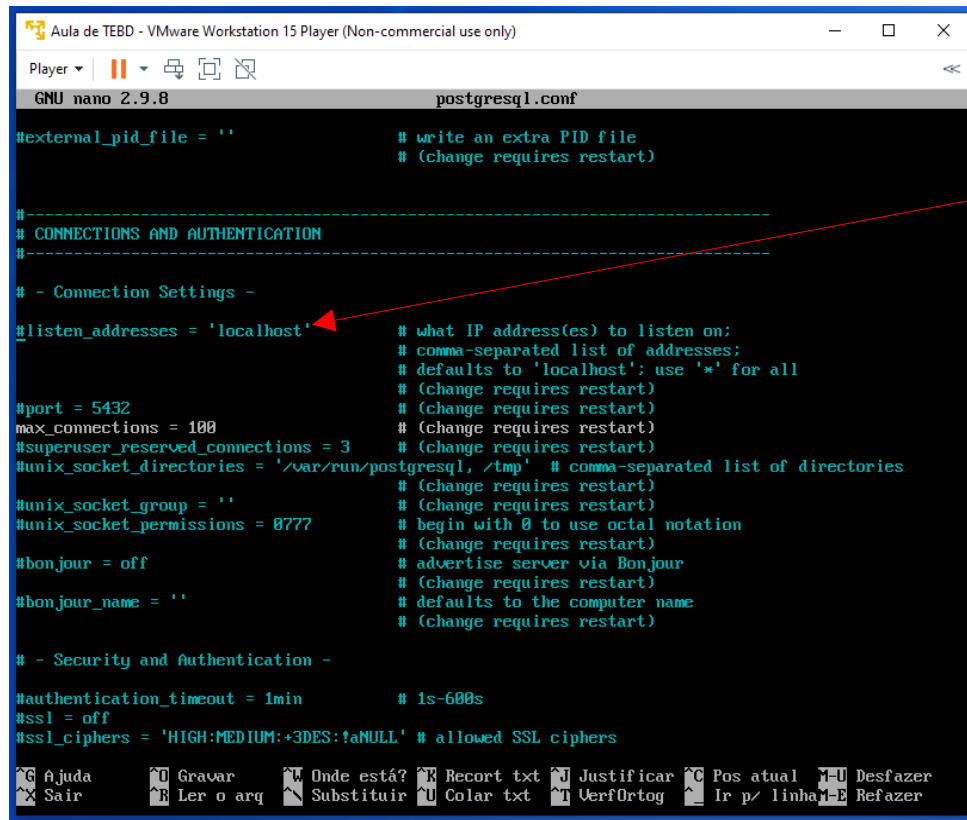
# Configuração do PostgreSQL



```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
Player
[postgres@bd1 data]$ ls
base                pg_dynshmem         pg_multixact         pg_stat             PG_VERSION          postmaster.opts
current_logfiles    pg_hba.conf         pg_notify            pg_stat_tmp         pg_wal              postmaster.pid
global              pg_ident.conf       pg_replslot         pg_subtrans         pg_xact
log                 pg_log              pg_serial            pg_tblspc           postgresql.auto.conf
pg_commit_ts        pg_logical           pg_snapshots         pg_twophase         postgresql.conf
[postgres@bd1 data]$ nano postgresql.conf
```

- O próximo arquivo a ser modificado é o `postgresql.conf`, utilize o comando  
`nano postgresql.conf`

# Configuração do PostgreSQL



```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
GNU nano 2.9.8 postgresql.conf

#external_pid_file = ''           # write an extra PID file
#                                 # (change requires restart)

#-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -

listen_addresses = 'localhost'   # what IP address(es) to listen on;
#                                 # comma-separated list of addresses;
#                                 # defaults to 'localhost'; use '*' for all
#                                 # (change requires restart)
port = 5432                       # (change requires restart)
max_connections = 100             # (change requires restart)
#superuser_reserved_connections = 3 # (change requires restart)
unix_socket_directories = '/var/run/postgresql, /tmp' # comma-separated list of directories
#                                 # (change requires restart)
#                                 # (change requires restart)
unix_socket_group = ''           # (change requires restart)
unix_socket_permissions = 0777  # begin with 0 to use octal notation
#                                 # (change requires restart)
#bonjour = off                   # advertise server via Bonjour
#                                 # (change requires restart)
#bonjour_name = ''               # defaults to the computer name
#                                 # (change requires restart)

# - Security and Authentication -

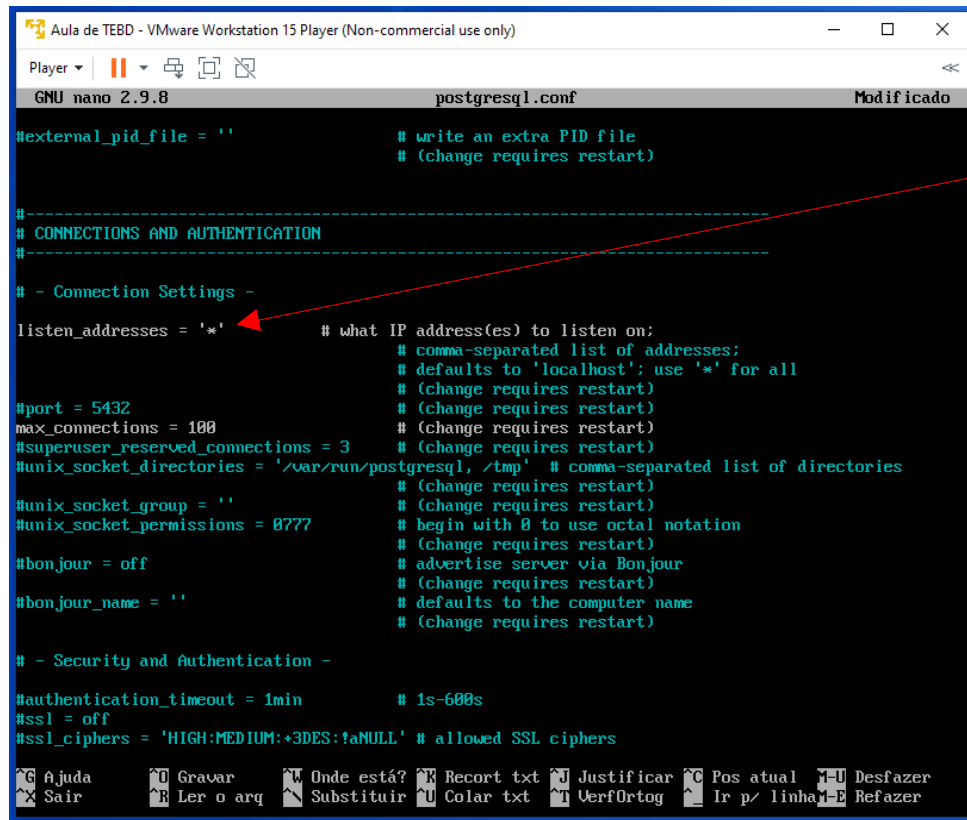
authentication_timeout = 1min     # 1s-600s
ssl = off
ssl_ciphers = 'HIGH:MEDIUM:+3DES:!aNULL' # allowed SSL ciphers

^G Ajuda  ^O Gravar  ^W Onde está? ^R Recort txt ^J Justificar ^C Pos atual  M-U Desfazer
^X Sair   ^R Ler o arq ^_ Substituir ^U Colar txt ^T VerfOrtog ^_ Ir p/ linha M-E Refazer
```

- Verifique que o SGBD está escutando apenas na interface loopback



# Configuração do PostgreSQL



```
GNU nano 2.9.8 postgresql.conf Modificado

#external_pid_file = ''           # write an extra PID file
                                   # (change requires restart)

-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -

listen_addresses = '*'           # what IP address(es) to listen on;
                                   # comma-separated list of addresses;
                                   # defaults to 'localhost'; use '*' for all
                                   # (change requires restart)
#port = 5432                       # (change requires restart)
max_connections = 100             # (change requires restart)
#superuser_reserved_connections = 3 # (change requires restart)
#unix_socket_directories = '/var/run/postgresql, /tmp' # comma-separated list of directories
                                   # (change requires restart)
#unix_socket_group = ''           # (change requires restart)
#unix_socket_permissions = 0777  # begin with 0 to use octal notation
                                   # (change requires restart)
#bonjour = off                   # advertise server via Bonjour
                                   # (change requires restart)
#bonjour_name = ''               # defaults to the computer name
                                   # (change requires restart)

# - Security and Authentication -

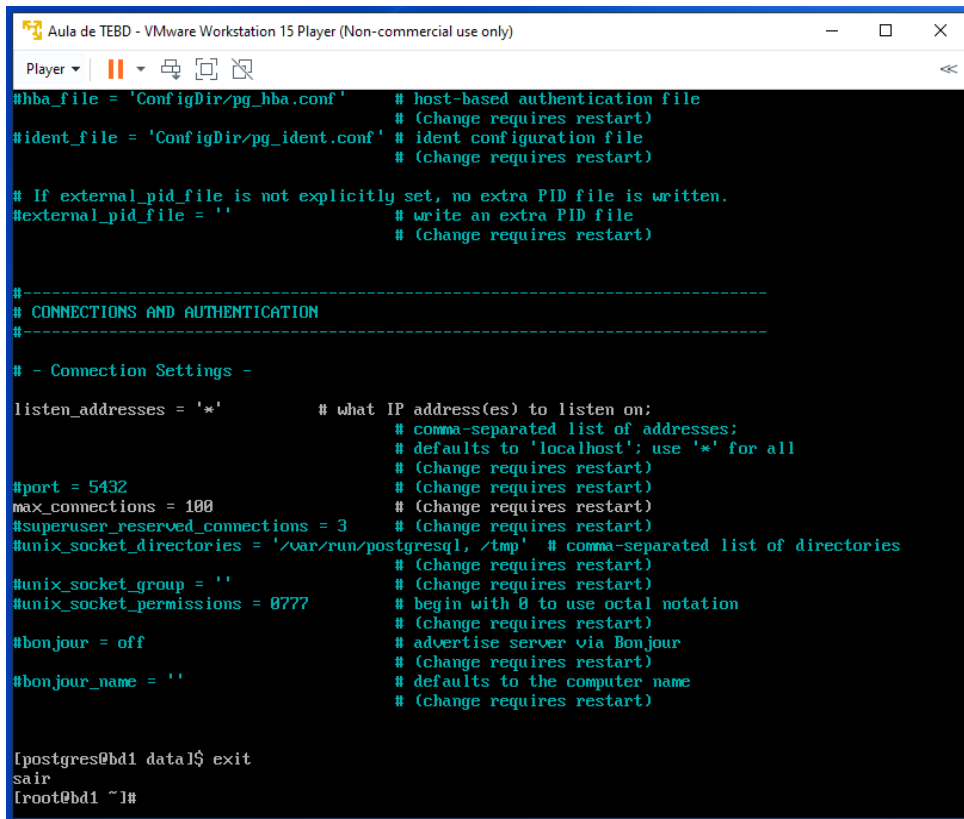
#authentication_timeout = 1min    # 1s-600s
#ssl = off
#ssl_ciphers = 'HIGH:MEDIUM:+3DES:!aNULL' # allowed SSL ciphers

^G Ajuda  ^O Gravar  ^W Onde está? ^R Recort txt ^J Justificar ^C Pos atual ^M-U Desfazer
^X Sair    ^B Ler o arq ^_ Substituir ^U Colar txt  ^T VerfOrtog ^_ Ir p/ linha ^M-E Refazer
```

- Retire o comentário desta linha e troque localhost por \* para aceitar conexões em qualquer placa de rede

# Configuração do PostgreSQL

- Salve o arquivo e saia do editor



```
Aula de TEBD - VMware Workstation 15 Player (Non-commercial use only)
Player
#hba_file = 'ConfigDir/pg_hba.conf'      # host-based authentication file
#                                     # (change requires restart)
#ident_file = 'ConfigDir/pg_ident.conf'  # ident configuration file
#                                     # (change requires restart)

# If external_pid_file is not explicitly set, no extra PID file is written.
#external_pid_file = ''                 # write an extra PID file
#                                     # (change requires restart)

#-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -

listen_addresses = '*'                  # what IP address(es) to listen on:
#                                     # comma-separated list of addresses;
#                                     # defaults to 'localhost'; use '*' for all
#                                     # (change requires restart)
#port = 5432                            # (change requires restart)
max_connections = 100                   # (change requires restart)
#superuser_reserved_connections = 3     # (change requires restart)
#unix_socket_directories = '/var/run/postgresql, /tmp' # comma-separated list of directories
#                                     # (change requires restart)
#unix_socket_group = ''                 # (change requires restart)
#unix_socket_permissions = 0777        # begin with 0 to use octal notation
#                                     # (change requires restart)
#bonjour = off                          # advertise server via Bonjour
#                                     # (change requires restart)
#bonjour_name = ''                      # defaults to the computer name
#                                     # (change requires restart)

[postgres@bd1 data]$ exit
sair
[root@bd1 ~]#
```

# Configuração do PostgreSQL

```

#(change requires restart)
# advertise server via Bonjour
#(change requires restart)
# defaults to the computer name
#(change requires restart)

[postgres@bd1 data]$ exit
sair
[root@bd1 ~]# systemctl restart postgresql
[root@bd1 ~]# systemctl status postgresql
● postgresql.service - PostgreSQL database server
   Loaded: loaded (/usr/lib/systemd/system/postgresql.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2021-01-19 18:13:59 EST; 9s ago
     Process: 10350 ExecStartPre=/usr/libexec/postgresql-check-db-dir postgresql (code=exited, status=0)
    Main PID: 10355 (postmaster)
       Tasks: 8 (limit: 11237)
      Memory: 16.7M
      CGroup: /system.slice/postgresql.service
              └─10355 /usr/bin/postmaster -D /var/lib/pgsql/data
                └─10356 postgres: logger process
                  └─10358 postgres: checkpoint process
                    └─10359 postgres: writer process
                      └─10360 postgres: wal writer process
                        └─10361 postgres: autovacuum launcher process
                          └─10362 postgres: stats collector process
                            └─10363 postgres: bgworker: logical replication launcher

jan 19 18:13:59 bd1.1fg systemd[1]: Starting PostgreSQL database server...
jan 19 18:13:59 bd1.1fg postmaster[10355]: 2021-01-19 18:13:59.141 EST [10355] LOG: listening on IP
jan 19 18:13:59 bd1.1fg postmaster[10355]: 2021-01-19 18:13:59.141 EST [10355] LOG: listening on IP
jan 19 18:13:59 bd1.1fg postmaster[10355]: 2021-01-19 18:13:59.143 EST [10355] LOG: listening on IP
jan 19 18:13:59 bd1.1fg postmaster[10355]: 2021-01-19 18:13:59.144 EST [10355] LOG: listening on IP
jan 19 18:13:59 bd1.1fg postmaster[10355]: 2021-01-19 18:13:59.154 EST [10355] LOG: redirecting log
jan 19 18:13:59 bd1.1fg postmaster[10355]: 2021-01-19 18:13:59.154 EST [10355] HINT: Future log ou
jan 19 18:13:59 bd1.1fg systemd[1]: Started PostgreSQL database server.
lines 1-25/25 (END)
```

- Encerre o prompt que está sendo utilizado com o usuário postgres por meio do comando  
exit
- Em seguida reinicie o serviço
- Verifique se ele iniciou corretamente, se houve erro, verifique mudanças indesejadas nos arquivos

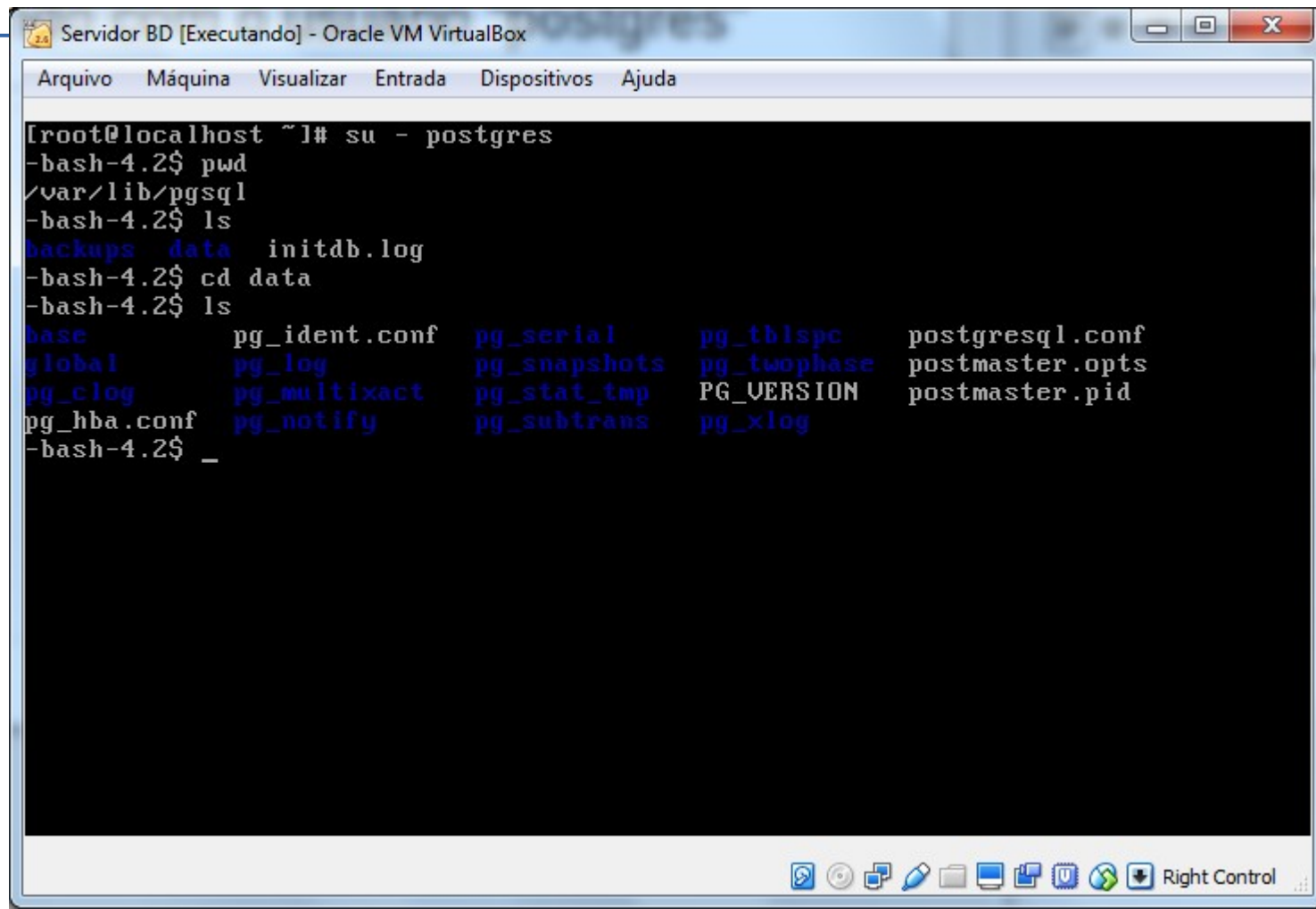


---

CentOS 7

# Acessando com o usuário “postgres”

- Acesso:  
su – postgres
- Pasta:  
pwd

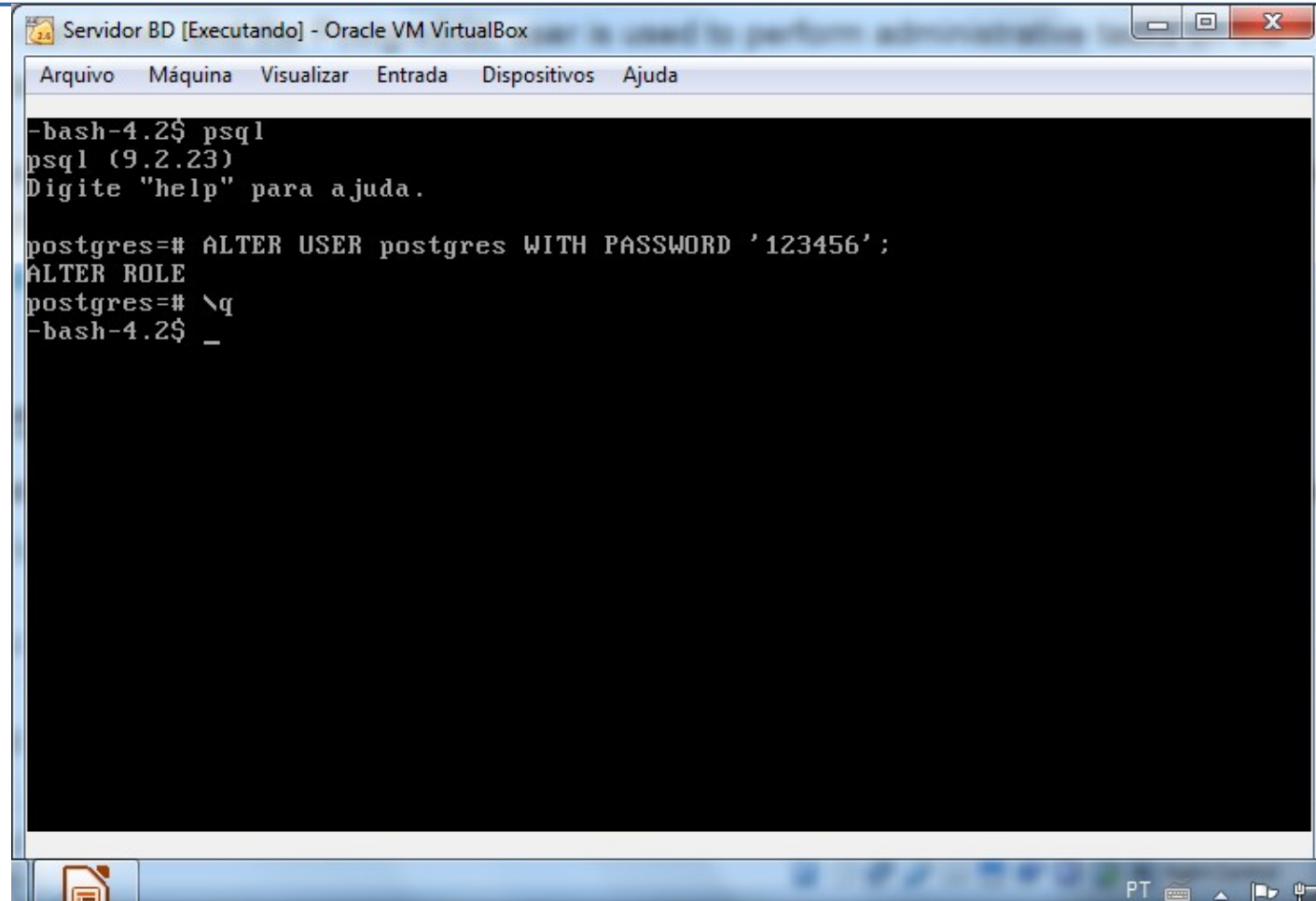


```
Servidor BD [Executando] - Oracle VM VirtualBox
Arquivo  Máquina  Visualizar  Entrada  Dispositivos  Ajuda

[root@localhost ~]# su - postgres
-bash-4.2$ pwd
/var/lib/pgsql
-bash-4.2$ ls
backups  data  initdb.log
-bash-4.2$ cd data
-bash-4.2$ ls
base          pg_ident.conf  pg_serial     pg_tblspc     postgresql.conf
global        pg_log         pg_snapshots  pg_twophase   postmaster.opts
pg_clog       pg_multixact   pg_stat_tmp   PG_VERSION    postmaster.pid
pg_hba.conf   pg_notify      pg_subtrans   pg_xlog
-bash-4.2$ _
```

# Definindo a senha para o PostgreSQL

- Acessar como postgres (unix)
- Acessar o SGBD  
psql
- Utilizar SQL para alterar a senha



The screenshot shows a terminal window titled "Servidor BD [Executando] - Oracle VM VirtualBox". The terminal displays the following commands and output:

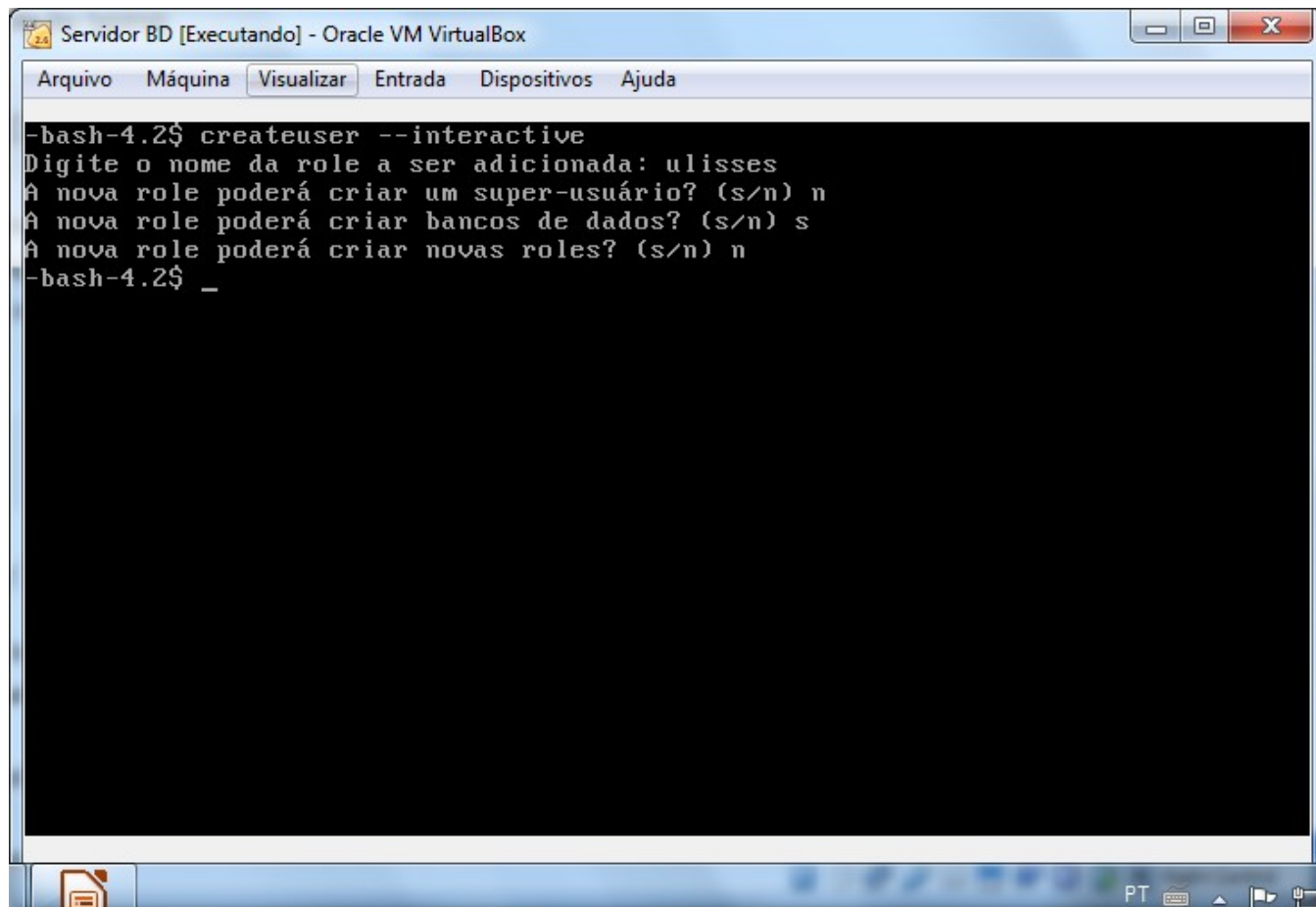
```
-bash-4.2$ psql
psql (9.2.23)
Digite "help" para ajuda.

postgres=# ALTER USER postgres WITH PASSWORD '123456';
ALTER ROLE
postgres=# \q
-bash-4.2$ _
```

The terminal window has a menu bar with "Arquivo", "Máquina", "Visualizar", "Entrada", "Dispositivos", and "Ajuda". The status bar at the bottom shows "PT" and some system icons.

# Criando um novo usuário

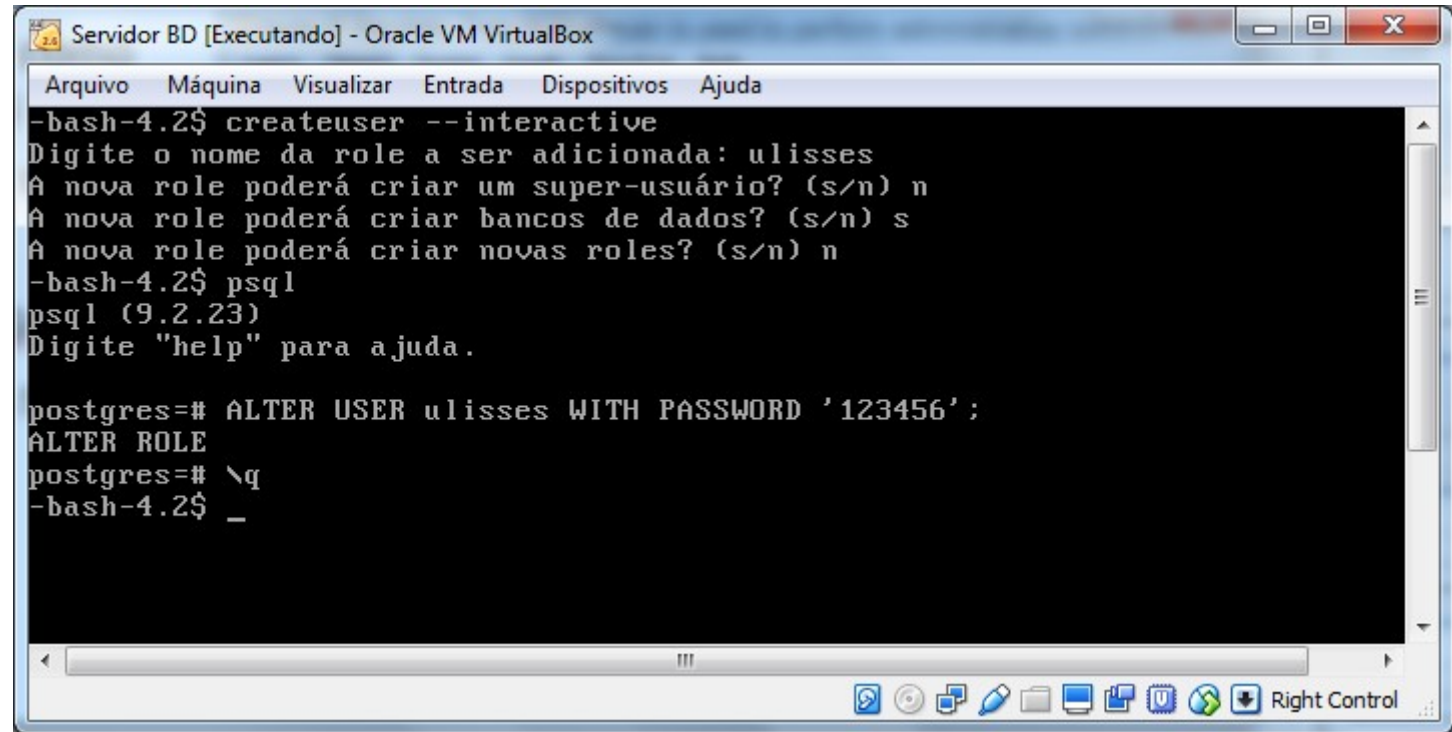
- Acessar como postgres (unix)
- Usar o comando `createuser --interactive`



```
Servidor BD [Executando] - Oracle VM VirtualBox
Arquivo  Máquina  Visualizar  Entrada  Dispositivos  Ajuda

-bash-4.2$ createuser --interactive
Digite o nome da role a ser adicionada: ulisses
A nova role poderá criar um super-usuário? (s/n) n
A nova role poderá criar bancos de dados? (s/n) s
A nova role poderá criar novas roles? (s/n) n
-bash-4.2$ _
```

# Mudando a senha do novo usuário



Servidor BD [Executando] - Oracle VM VirtualBox

Arquivo Máquina Visualizar Entrada Dispositivos Ajuda

```
-bash-4.2$ createuser --interactive
Digite o nome da role a ser adicionada: ulisses
A nova role poderá criar um super-usuário? (s/n) n
A nova role poderá criar bancos de dados? (s/n) s
A nova role poderá criar novas roles? (s/n) n
-bash-4.2$ psql
psql (9.2.23)
Digite "help" para ajuda.

postgres=# ALTER USER ulisses WITH PASSWORD '123456';
ALTER ROLE
postgres=# \q
-bash-4.2$ _
```



# Configurando a forma de acesso

- Faça o login como “postgres”
- Entre na pasta “data”
- Editar o arquivo pg\_hba.conf
- Configuração original:

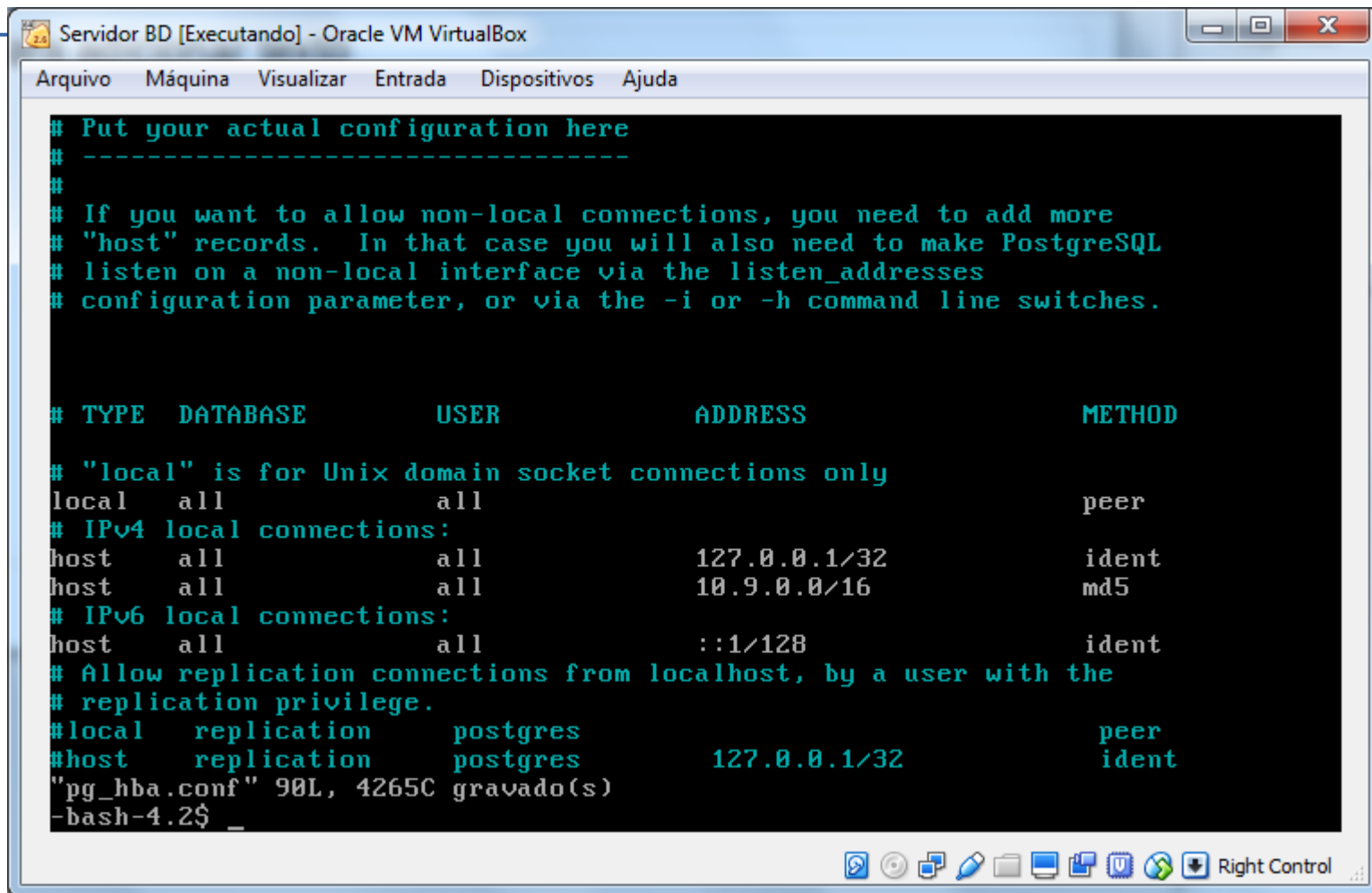
host	all	all	127.0.0.1/32	ident
------	-----	-----	--------------	-------

Nova configuração:

host	all	all	127.0.0.1/32	ident
------	-----	-----	--------------	-------

host	all	all	10.9.0.0/16	md5
------	-----	-----	-------------	-----

# Configurando a forma de acesso



The screenshot shows a window titled "Servidor BD [Executando] - Oracle VM VirtualBox". The window contains a terminal window with a PostgreSQL configuration file. The configuration file has a header section with instructions, followed by a table of host authentication settings. The table has columns for TYPE, DATABASE, USER, ADDRESS, and METHOD. The settings include local connections, IPv4 and IPv6 host connections, and replication connections. The terminal prompt is "-bash-4.2\$ \_".

```
# Put your actual configuration here
# -----
#
# If you want to allow non-local connections, you need to add more
# "host" records.  In that case you will also need to make PostgreSQL
# listen on a non-local interface via the listen_addresses
# configuration parameter, or via the -i or -h command line switches.


# TYPE      DATABASE        USER            ADDRESS                 METHOD

# "local" is for Unix domain socket connections only
local      all             all                                     peer
# IPv4 local connections:
host       all             all             127.0.0.1/32            ident
host       all             all             10.9.0.0/16             md5
# IPv6 local connections:
host       all             all             ::1/128                 ident
# Allow replication connections from localhost, by a user with the
# replication privilege.
#local      replication     postgres         peer
#host       replication     postgres         127.0.0.1/32            ident
"pg_hba.conf" 90L, 4265C gravado(s)
-bash-4.2$ _
```

# Configurar o acesso via rede

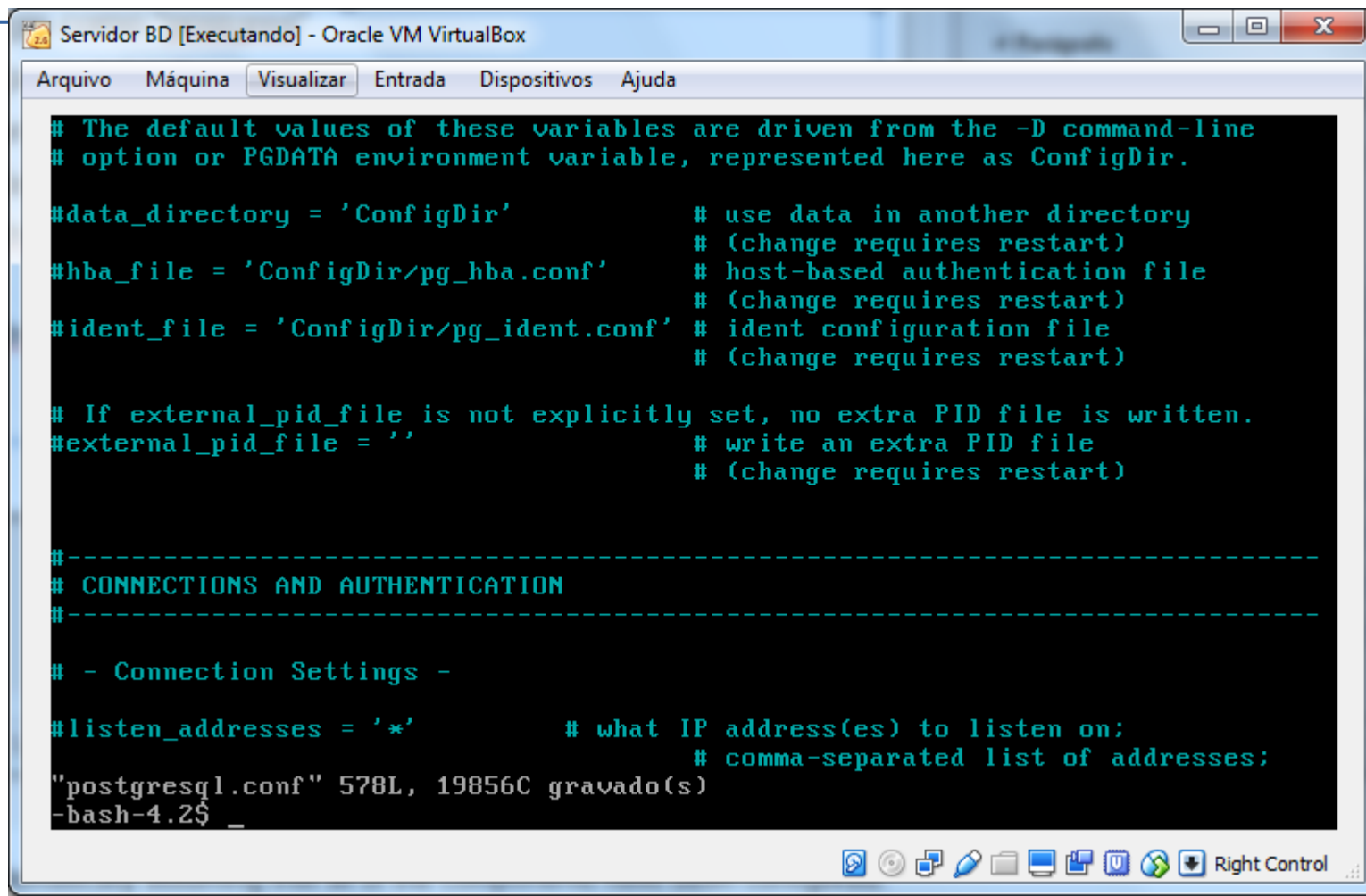
- Faça o login como “postgres”
- Entre na pasta “data”
- Editar o arquivo postgresql.conf
- Mudar a linha:

`#listen_addresses = 'localhost'`

Para:

`listen_addresses = '*'`

# Configurar o acesso via rede



```
Servidor BD [Executando] - Oracle VM VirtualBox
Arquivo  Máquina  Visualizar  Entrada  Dispositivos  Ajuda

# The default values of these variables are driven from the -D command-line
# option or PGDATA environment variable, represented here as ConfigDir.

#data_directory = 'ConfigDir'           # use data in another directory
                                         # (change requires restart)
#hba_file = 'ConfigDir/pg_hba.conf'     # host-based authentication file
                                         # (change requires restart)
#ident_file = 'ConfigDir/pg_ident.conf' # ident configuration file
                                         # (change requires restart)

# If external_pid_file is not explicitly set, no extra PID file is written.
#external_pid_file = ''                 # write an extra PID file
                                         # (change requires restart)

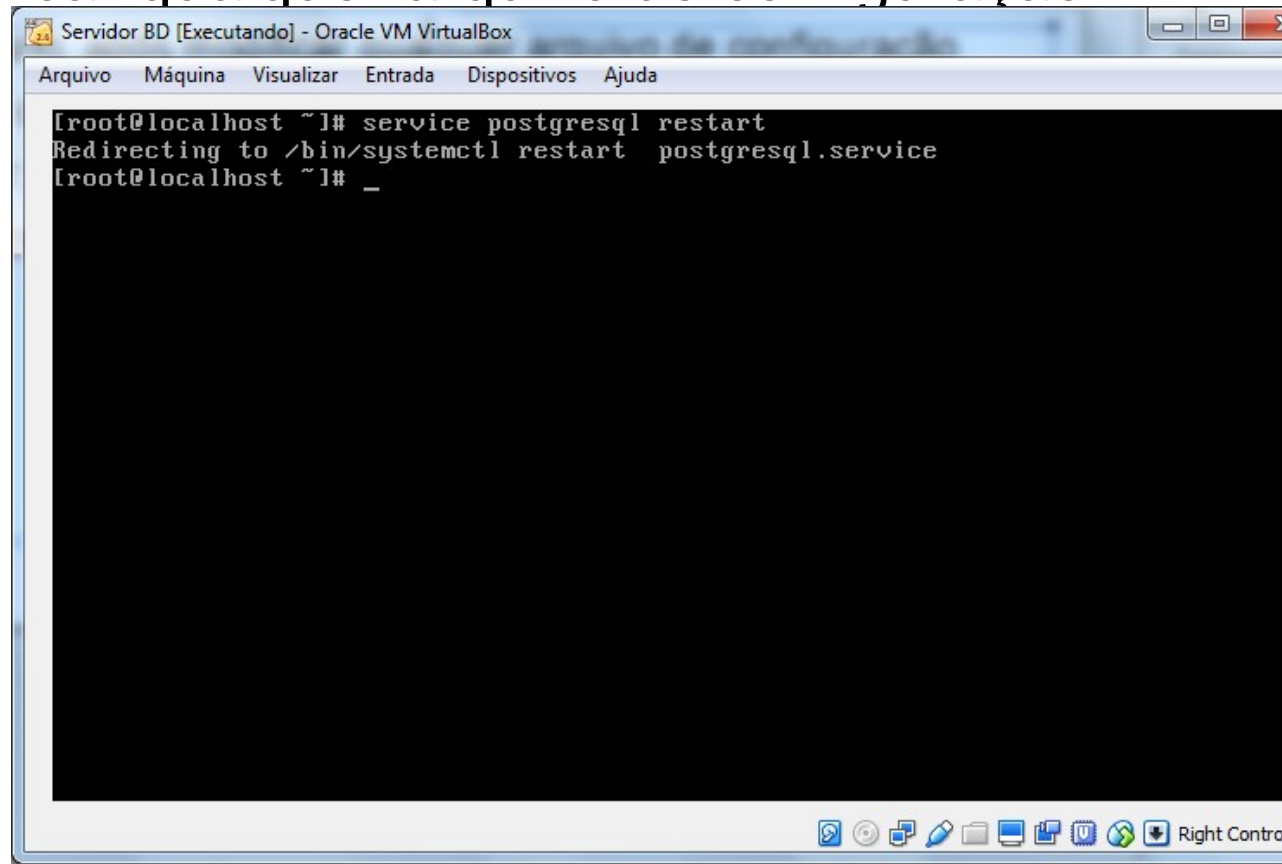
#-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -

#listen_addresses = '*'                # what IP address(es) to listen on;
                                         # comma-separated list of addresses;
"postgresql.conf" 578L, 19856C gravado(s)
-bash-4.2$ _
```

# Reiniciar o serviço

- Necessário, após modificar qualquer arquivo de configuração
- Acessar como “root”
- Reiniciar:  
systemctl restart postgresql



The screenshot shows a terminal window titled "Servidor BD [Executando] - Oracle VM VirtualBox". The window has a menu bar with "Arquivo", "Máquina", "Visualizar", "Entrada", "Dispositivos", and "Ajuda". The terminal content shows the following commands and output:

```
[root@localhost ~]# service postgresql restart
Redirecting to /bin/systemctl restart postgresql.service
[root@localhost ~]# _
```

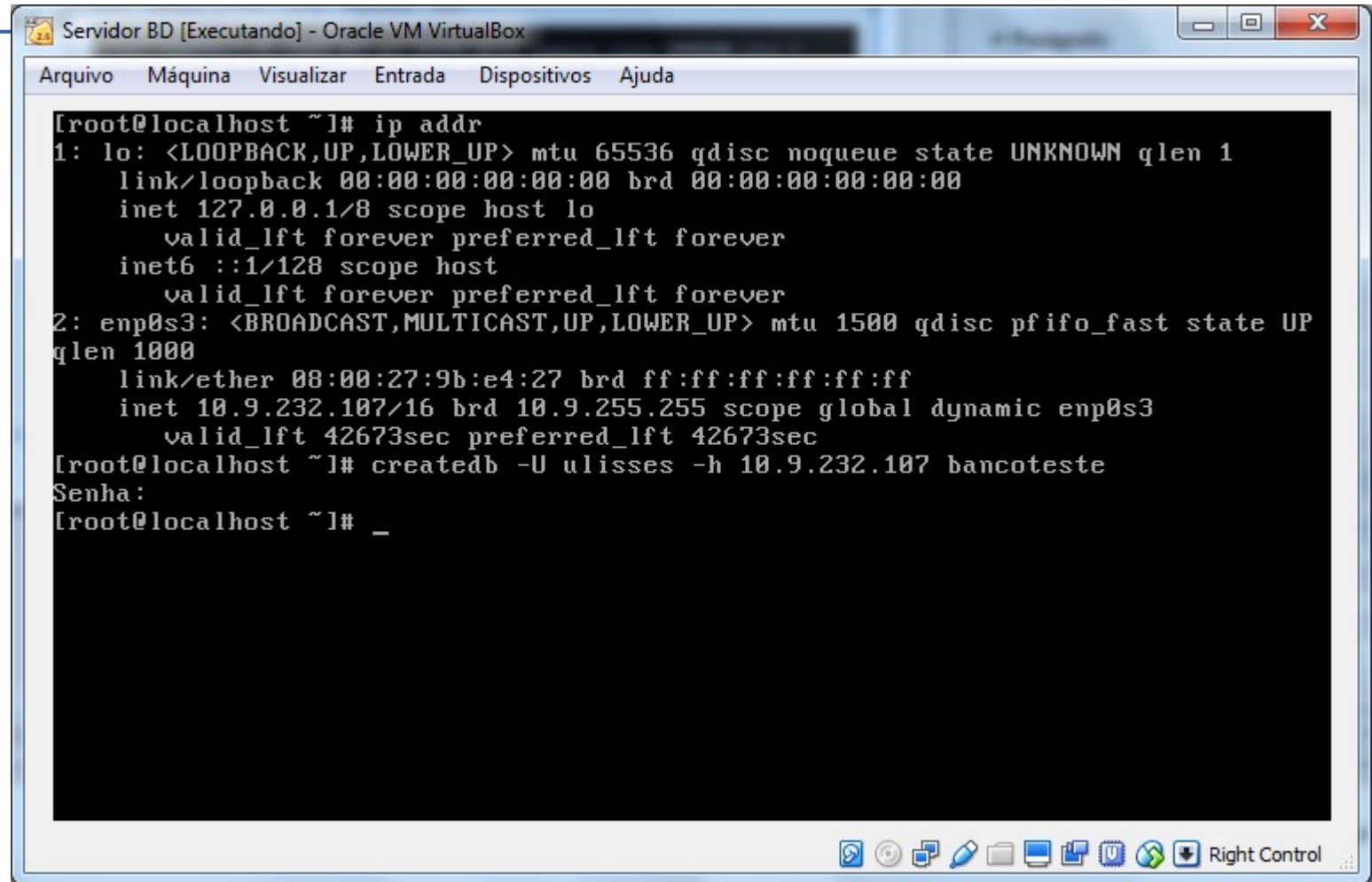
The terminal window has a standard Linux desktop environment with a taskbar at the bottom showing various icons and the text "Right Control".

# Criando um banco de dados

---

- Acesse o sistema como qualquer usuário existente
- Crie o banco com o comando:  
`createdb -U usuário -h endereçoIP nomeDoBanco`
- Verifique o seu endereço IP com o comando  
`ip addr`

# Criando um banco de dados



Servidor BD [Executando] - Oracle VM VirtualBox

Arquivo Máquina Visualizar Entrada Dispositivos Ajuda

```
[root@localhost ~]# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN qlen 1
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP
   qlen 1000
    link/ether 08:00:27:9b:e4:27 brd ff:ff:ff:ff:ff:ff
    inet 10.9.232.107/16 brd 10.9.255.255 scope global dynamic enp0s3
        valid_lft 42673sec preferred_lft 42673sec
[root@localhost ~]# createdb -U ulisses -h 10.9.232.107 bancoteste
Senha:
[root@localhost ~]# _
```

Right Control

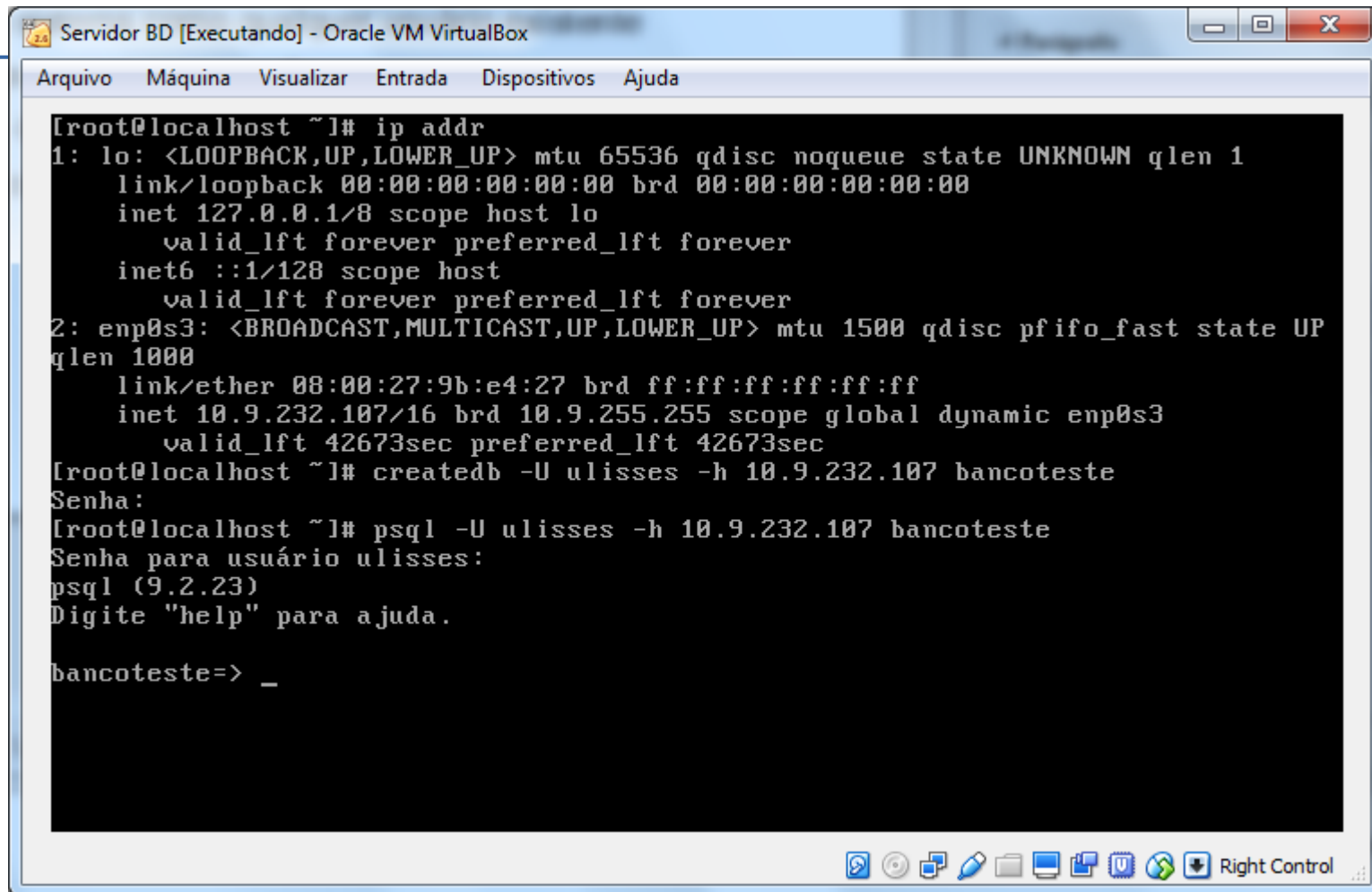
# Acessando o banco de dados

---

- Acesse o sistema como qualquer usuário existente
- Acesso o banco com o comando  
`psql -U usuário -h endereçoIP nomeDoBanco`
- Para sair, digite `\q`



# Acessando o banco de dados



Servidor BD [Executando] - Oracle VM VirtualBox

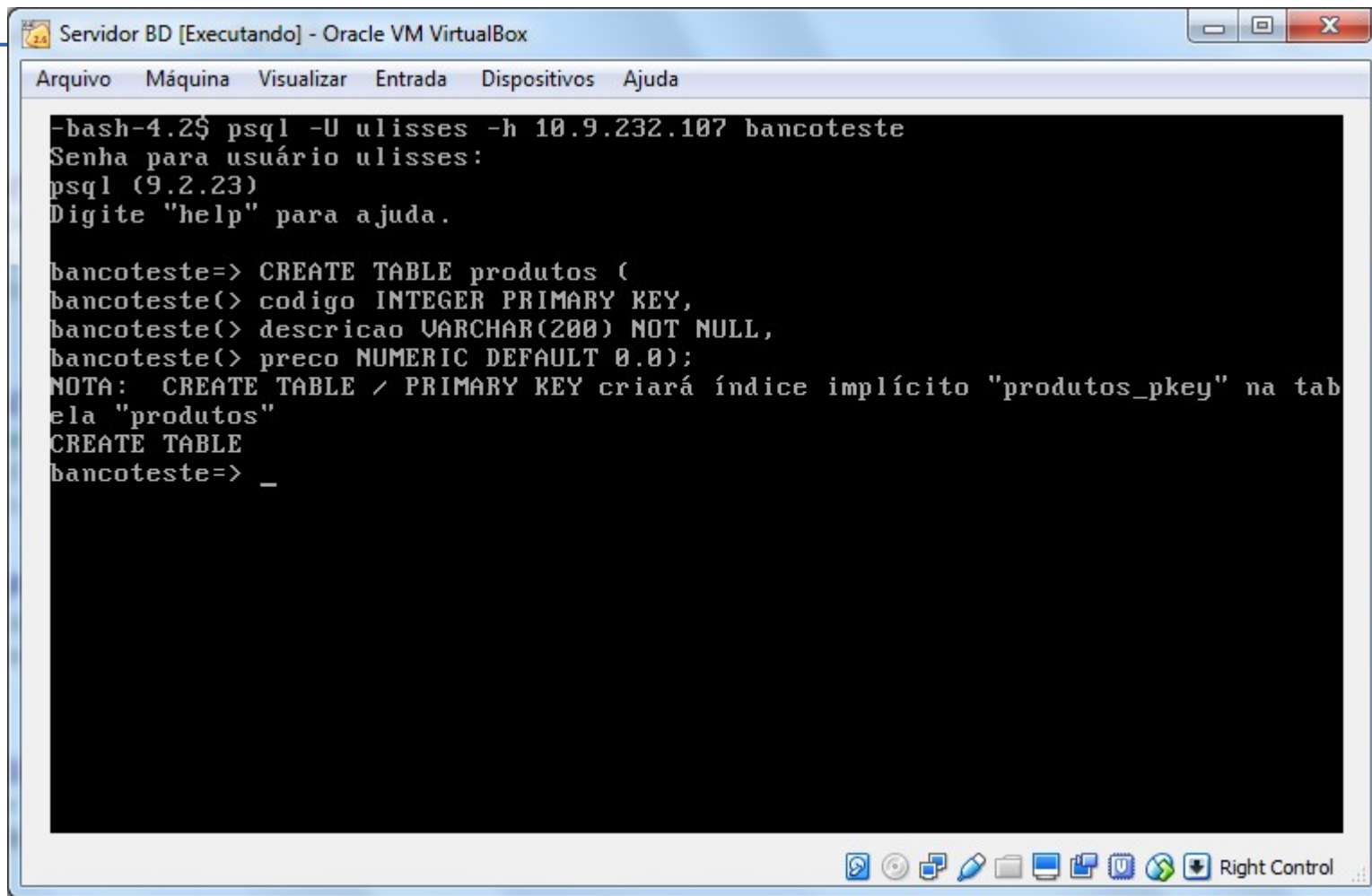
Arquivo Máquina Visualizar Entrada Dispositivos Ajuda

```
[root@localhost ~]# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN qlen 1
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP
   qlen 1000
    link/ether 08:00:27:9b:e4:27 brd ff:ff:ff:ff:ff:ff
    inet 10.9.232.107/16 brd 10.9.255.255 scope global dynamic enp0s3
        valid_lft 42673sec preferred_lft 42673sec
[root@localhost ~]# createdb -U ulisses -h 10.9.232.107 bancoteste
Senha:
[root@localhost ~]# psql -U ulisses -h 10.9.232.107 bancoteste
Senha para usuário ulisses:
psql (9.2.23)
Digite "help" para ajuda.

bancoteste=> _
```

Right Control

# Criando uma tabela



```
-bash-4.2$ psql -U ulisses -h 10.9.232.107 bancoteste
Senha para usuário ulisses:
psql (9.2.23)
Digite "help" para ajuda.

bancoteste=> CREATE TABLE produtos (
bancoteste(> codigo INTEGER PRIMARY KEY,
bancoteste(> descricao VARCHAR(200) NOT NULL,
bancoteste(> preco NUMERIC DEFAULT 0.0);
NOTA: CREATE TABLE / PRIMARY KEY criará índice implícito "produtos_pkey" na tab
ela "produtos"
CREATE TABLE
bancoteste=> _
```

