



UNIVERSIDADE FEDERAL DE UBERLÂNDIA
FACULDADE DE ENGENHARIA MECÂNICA
Curso de Graduação em Engenharia Mecatrônica



RELATÓRIO DA PRIMEIRA SEMANA DA DISCIPLINA
SISTEMAS DIGITAIS PARA MECATRÔNICA (FEELT 49081)

TAREFA SEMANA 01B - INSTALAÇÃO E
CONFIGURAÇÃO DO LINUX

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11811EMT015

Uberlândia, Maio de 2022

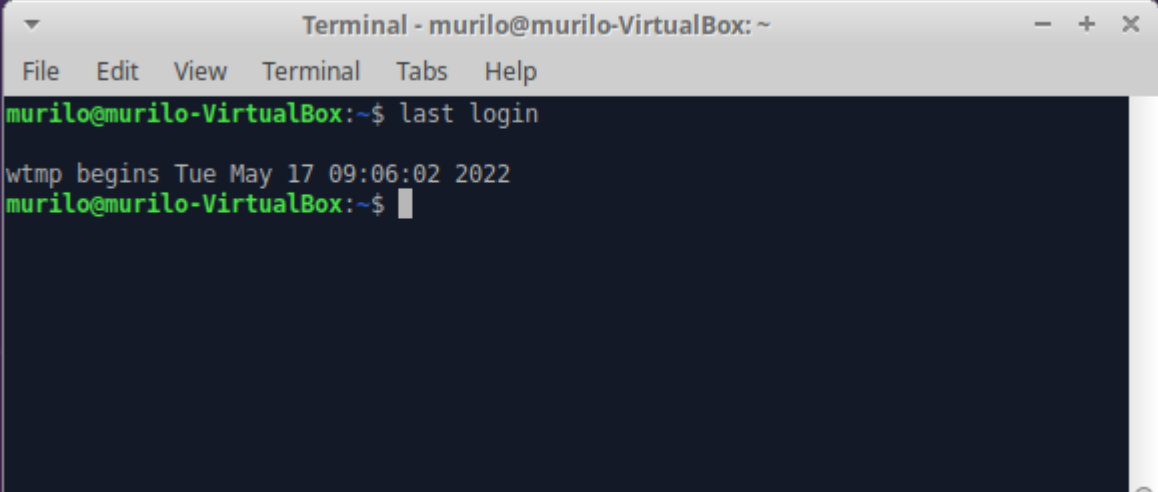
Universidade Federal de Uberlândia
Sistemas Embarcados II / Sistemas Digitais para Mecatrônica
Prof. Éder Alves de Moura
Semana 01b - Instalação e Configuração do Linux

Aluno: Murilo Rocioli - 11811EMT015

2. Utilizando o livro: “Linux: Comandos Básicos e Avançados”(2ª edição)de Vivas, Araújo, Pitangui e Assis, reproduza os comandos apresentados do capítulo 1 ao 10 e 14. Tire printscreen dos resultados dos comandos apresentados e produza um relatório, explicado e organizado,a ser submetido na plataforma TEAMS.

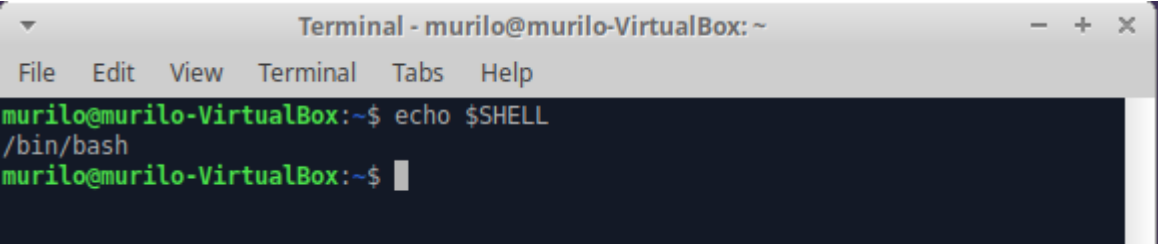
Capítulo 1

Listagem 1.2: Prompt de Login



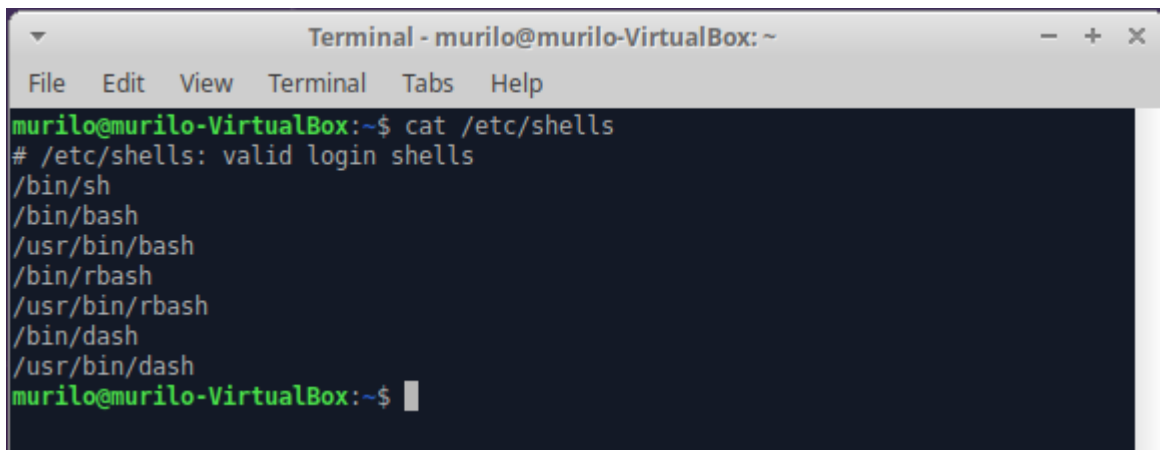
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ last login
wtmp begins Tue May 17 09:06:02 2022
murilo@murilo-VirtualBox:~$
```

Listagem 1.8: Shell Utilizado



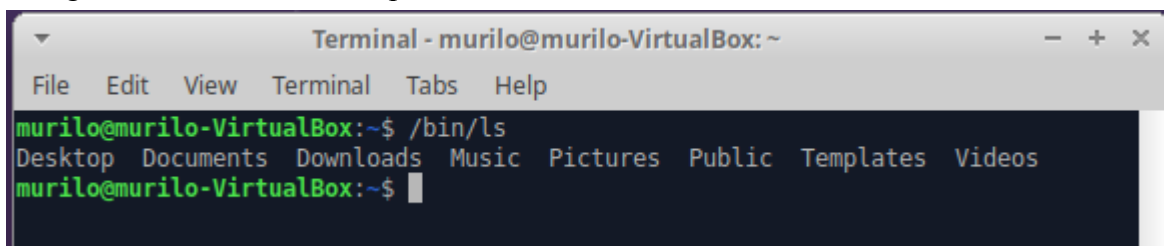
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ echo $SHELL
/bin/bash
murilo@murilo-VirtualBox:~$
```

Listagem 1.9: Shells Instalados



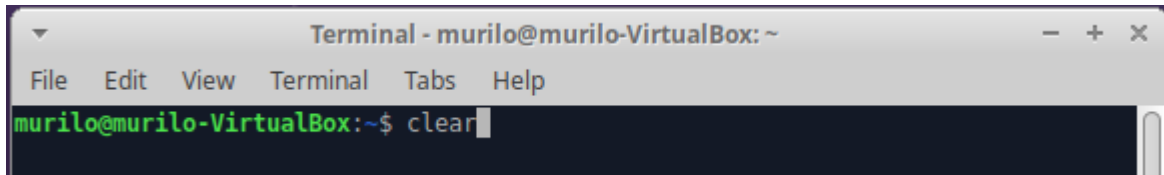
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ cat /etc/shells
# /etc/shells: valid login shells
/bin/sh
/bin/bash
/usr/bin/bash
/bin/rbash
/usr/bin/rbash
/bin/dash
/usr/bin/dash
murilo@murilo-VirtualBox:~$
```

Listagem 1.10: Caminho Completo



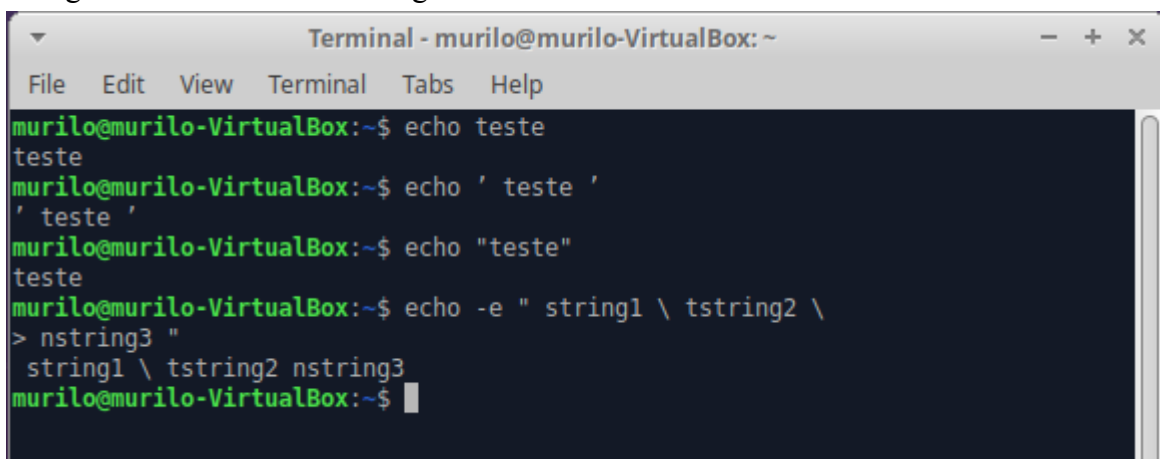
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ /bin/ls
Desktop Documents Downloads Music Pictures Public Templates Videos
murilo@murilo-VirtualBox:~$
```

Listagem 1.11: Limpando a Tela



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ clear
```

Listagem 1.12: Exibindo Mensagens no Terminal



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ echo teste
teste
murilo@murilo-VirtualBox:~$ echo ' teste '
' teste '
murilo@murilo-VirtualBox:~$ echo "teste"
teste
murilo@murilo-VirtualBox:~$ echo -e " string1 \ tstring2 \
> nstring3 "
string1 \ tstring2 nstring3
murilo@murilo-VirtualBox:~$
```

Listagem 1.13: Histórico

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ find / | grep a
```

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
/proc/1359/map_files/7fda48b89000-7fda48b8a000
/proc/1359/map_files/7fda48b8a000-7fda48b8b000
/proc/1359/map_files/7fda48b8b000-7fda48b8c000
/proc/1359/net/arp
/proc/1359/net/raw
/proc/1359/net/raw6
/proc/1359/net/stat
/proc/1359/net/stat/rt_cache
/proc/1359/net/stat/arp_cache
find: /proc/1359/net/stat/ndisc_cache
/proc/1359/net/packet
/proc/1359/net/netstat
/proc/1359/net/route
/proc/1359/net/route6
/proc/1359/net/route66
'/proc/1380/task/1380/fd': Permission denied
find: '/proc/1380/task/1380/fdinfo': Permission denied
find: '/proc/1380/task/1380/ns': Permission denied
/proc/1359/net/route66
/proc/1359/net/sockstat
/proc/1359/net/dev_mcast
/proc/1359/net/route6_stats
/proc/1359/net/sockstat6
/proc/1359/net/xfrm_stat
/proc/1359/net/ip_mr_cache
```

Listagem 1.14: Comando history

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ history
 1 cd /media/murilo/VBox_GAs_6.1.34/
 2 ls
 3 sudo ./VBoxLinuxAdditions.run
 4 sudo reboot
 5 Login: murilo
 6 Last login
 7 last login
 8 $ls < espaco > -a < espaco > - l
 9 echo $SHELL
10 cat /etc/shells
11 /bin/ls
12 clear
13 echo teste
14 echo ' teste '
15 echo "teste"
16 echo -e " string1 \ tstring2 \
17 nstring3 "
18 ( reverse -i - search ) 'fi ': find / | grep a
19 ( reverse -i - search ) 'fi': find / | grep a
20 find / | grep a
21 history
murilo@murilo-VirtualBox:~$
```

Listagem 1.15: Executar um determinado comando do history

```
murilo@murilo-VirtualBox:~$ !7
last login

wtmp begins Tue May 17 09:06:02 2022
murilo@murilo-VirtualBox:~$
```

Listagem 1.16: Exemplo de busca no history

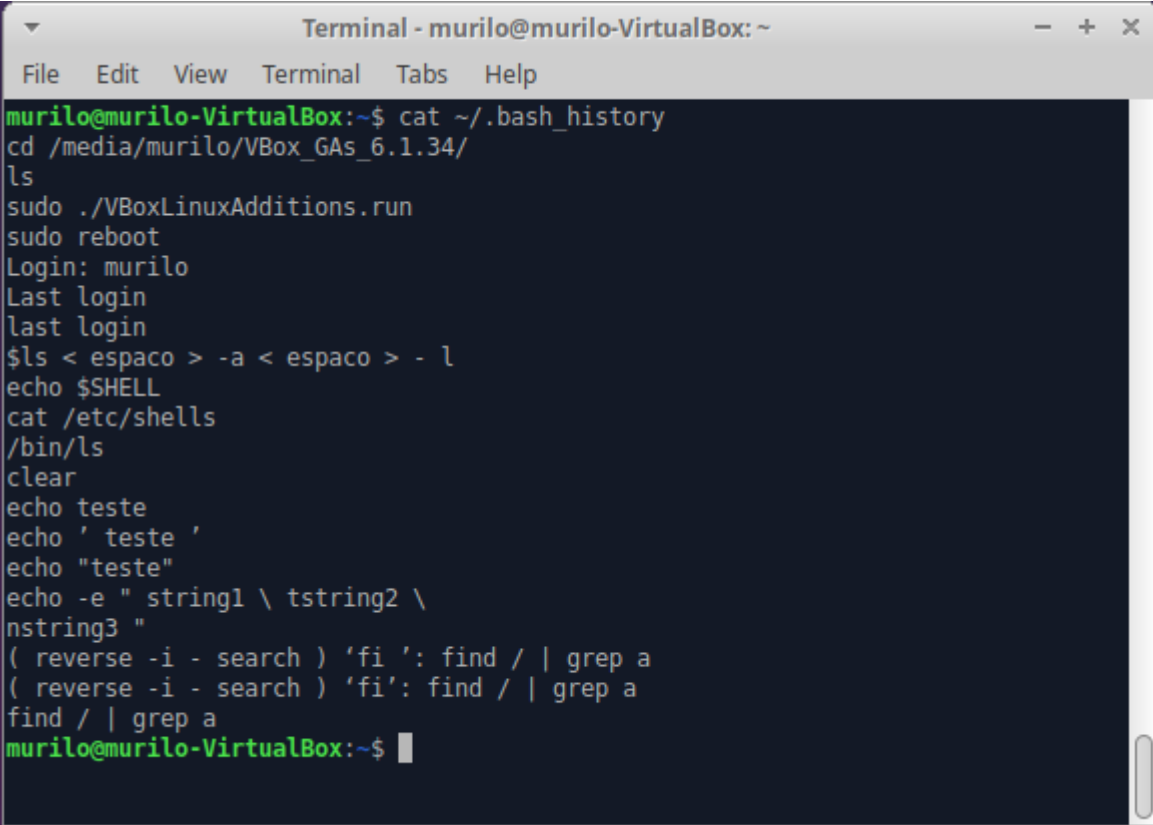
```
murilo@murilo-VirtualBox:~$ history | grep login
 6 Last login
 7 last login
22 last login
23 history | grep login
murilo@murilo-VirtualBox:~$
```

Listagem 1.17: Limpar o histórico

```
murilo@murilo-VirtualBox:~$ history -c
murilo@murilo-VirtualBox:~$ history
 1 history
murilo@murilo-VirtualBox:~$
```

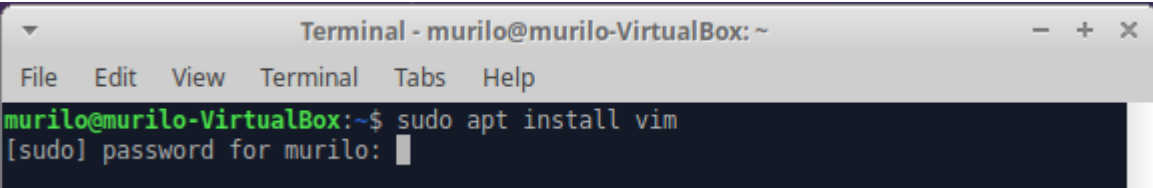
Capítulo 2

Listagem 1.21: Arquivo contendo o histórico de comandos



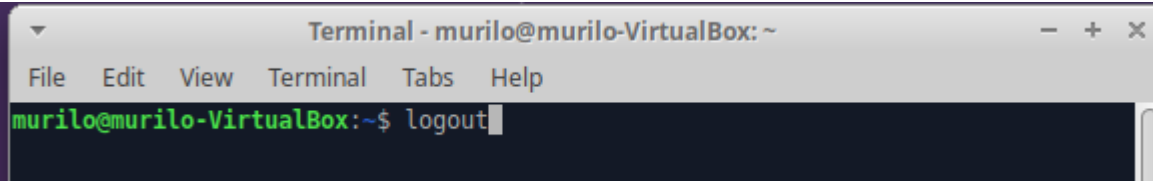
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ cat ~/.bash_history
cd /media/murilo/VBox_GAs_6.1.34/
ls
sudo ./VBoxLinuxAdditions.run
sudo reboot
Login: murilo
Last login
last login
$ls < espaco > -a < espaco > - l
echo $SHELL
cat /etc/shells
/bin/ls
clear
echo teste
echo ' teste '
echo "teste"
echo -e " string1 \ tstring2 \
nstring3 "
( reverse -i - search ) 'fi ': find / | grep a
( reverse -i - search ) 'fi': find / | grep a
find / | grep a
murilo@murilo-VirtualBox:~$
```

Listagem 1.23: Usuário Root no Ubuntu



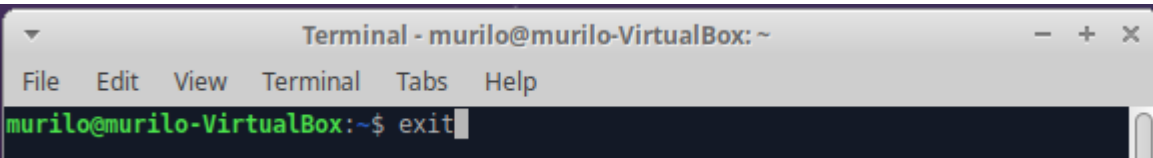
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ sudo apt install vim
[sudo] password for murilo:
```

Listagem 2.1: Comando logout



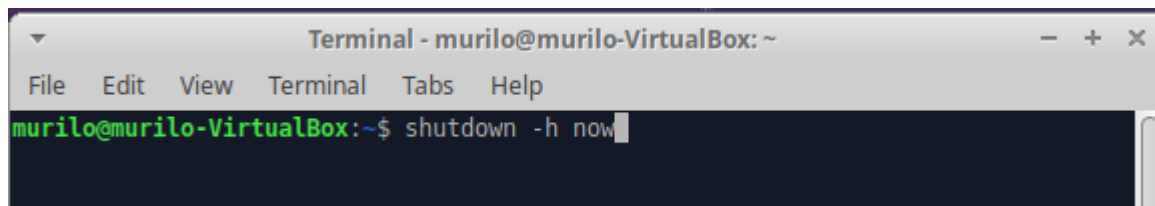
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ logout
```

Listagem 2.2: Comando exit



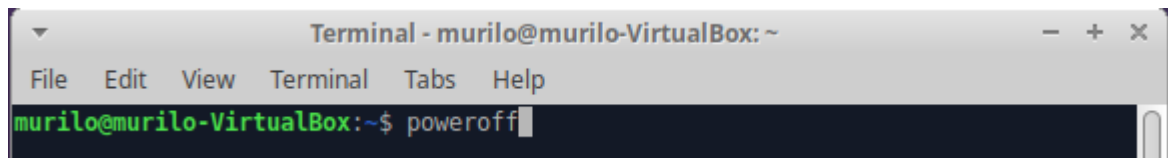
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ exit
```

Listagem 2.3: Desligando Imediatamente com shutdown

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "shutdown -h now" is entered and the cursor is at the end of the line.

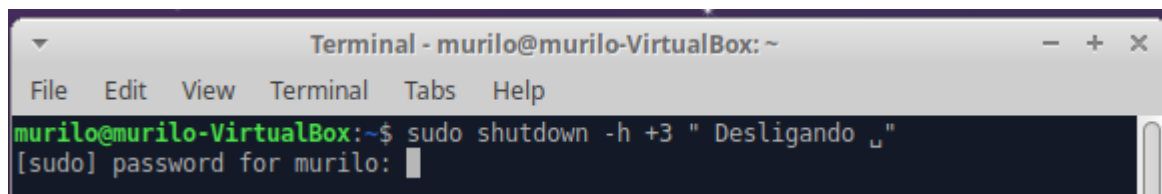
```
murilo@murilo-VirtualBox:~$ shutdown -h now
```

Listagem 2.4: Desligando Imediatamente com poweroff

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "poweroff" is entered and the cursor is at the end of the line.

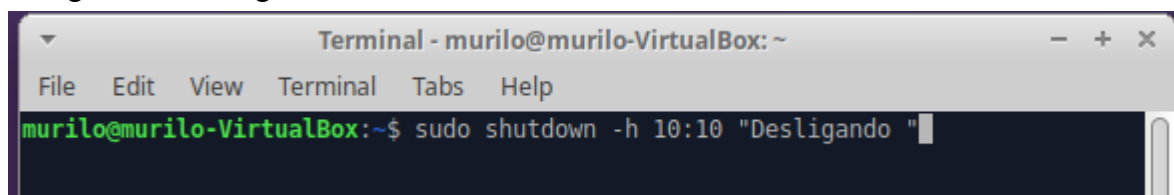
```
murilo@murilo-VirtualBox:~$ poweroff
```

Listagem 2.5: Desligando Após Determinado Intervalo de Tempo

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "sudo shutdown -h +3 'Desligando _'" is entered. The next line shows the prompt "[sudo] password for murilo:" followed by a cursor.

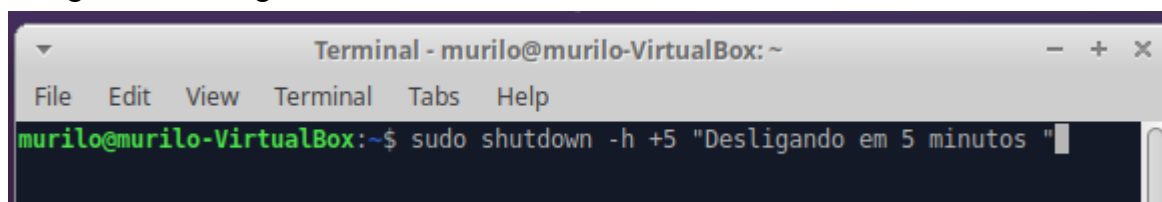
```
murilo@murilo-VirtualBox:~$ sudo shutdown -h +3 " Desligando _"  
[sudo] password for murilo:
```

Listagem 2.7: Desligando Imediatamente

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "sudo shutdown -h 10:10 'Desligando '" is entered and the cursor is at the end of the line.

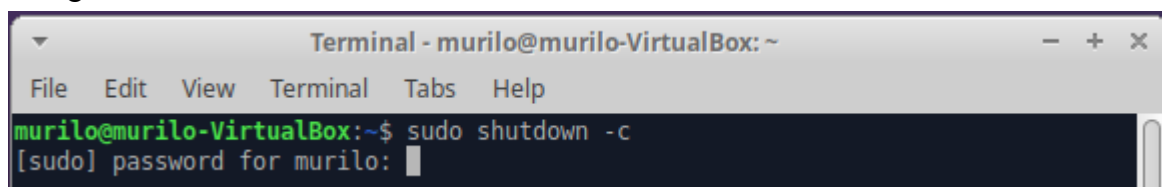
```
murilo@murilo-VirtualBox:~$ sudo shutdown -h 10:10 "Desligando "
```

Listagem 2.8: Desligando em 5 minutos

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "sudo shutdown -h +5 'Desligando em 5 minutos '" is entered and the cursor is at the end of the line.

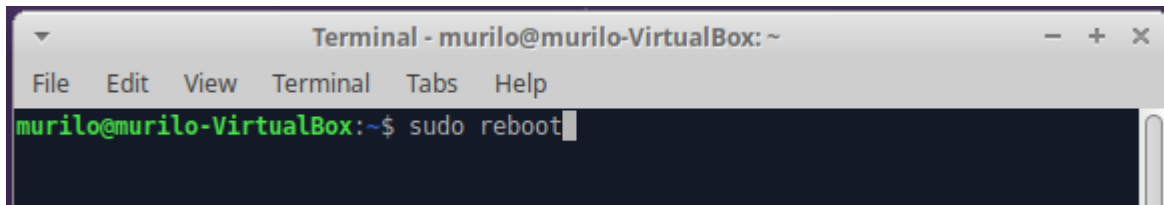
```
murilo@murilo-VirtualBox:~$ sudo shutdown -h +5 "Desligando em 5 minutos "
```

Listagem 2.9: Cancelando Shutdown

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "sudo shutdown -c" is entered. The next line shows the prompt "[sudo] password for murilo:" followed by a cursor.

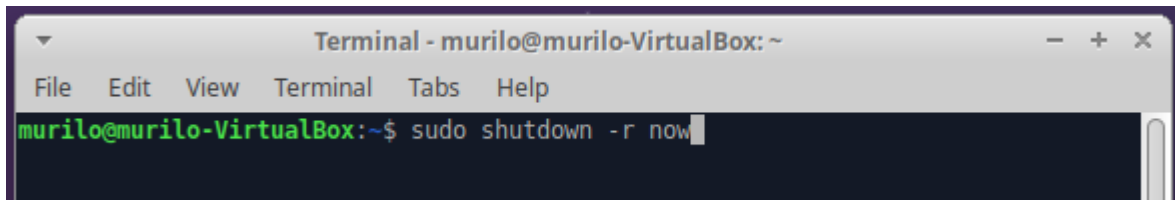
```
murilo@murilo-VirtualBox:~$ sudo shutdown -c  
[sudo] password for murilo:
```

Listagem 2.10: Reiniciando com reboot

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The command prompt shows "murilo@murilo-VirtualBox:~\$ sudo reboot" with a cursor at the end of the line.

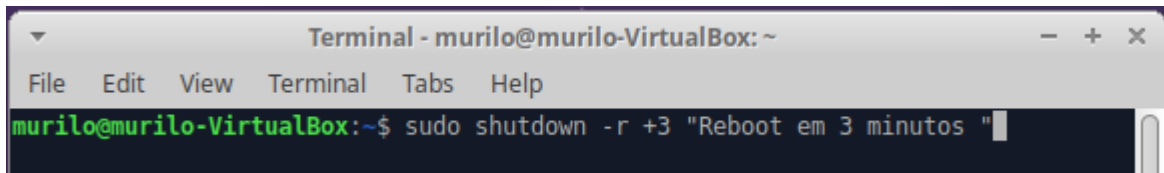
```
murilo@murilo-VirtualBox:~$ sudo reboot
```

Listagem 2.11: Reiniciando com shutdown

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The command prompt shows "murilo@murilo-VirtualBox:~\$ sudo shutdown -r now" with a cursor at the end of the line.

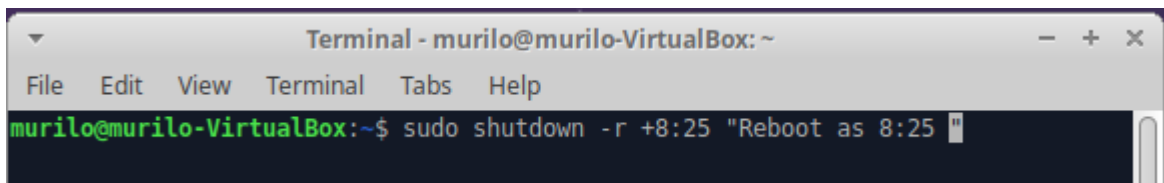
```
murilo@murilo-VirtualBox:~$ sudo shutdown -r now
```

Listagem 2.12: Reiniciando a Máquina após Determinado Intervalo de Tempo

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The command prompt shows "murilo@murilo-VirtualBox:~\$ sudo shutdown -r +3 \"Reboot em 3 minutos \"" with a cursor at the end of the line.

```
murilo@murilo-VirtualBox:~$ sudo shutdown -r +3 "Reboot em 3 minutos "
```

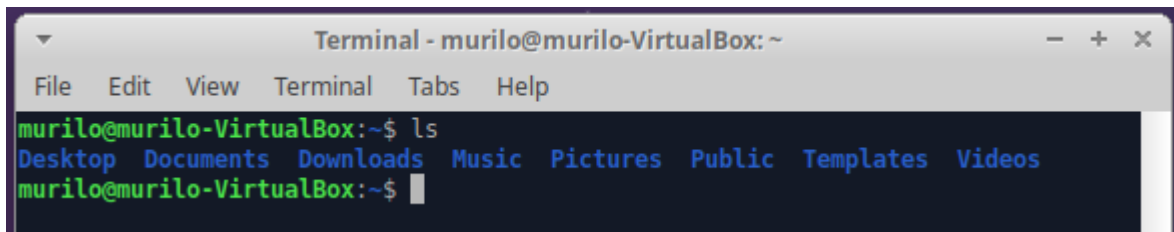
Listagem 2.13: Reiniciando a Máquina em Horário Específico

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The command prompt shows "murilo@murilo-VirtualBox:~\$ sudo shutdown -r +8:25 \"Reboot as 8:25 \"" with a cursor at the end of the line.

```
murilo@murilo-VirtualBox:~$ sudo shutdown -r +8:25 "Reboot as 8:25 "
```

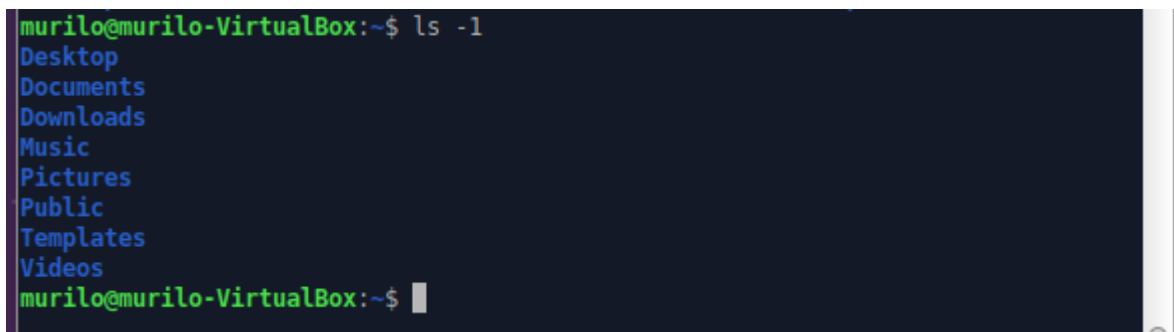

Capítulo 3

Listagem 3.1: Listando o Conteúdo de um Diretório



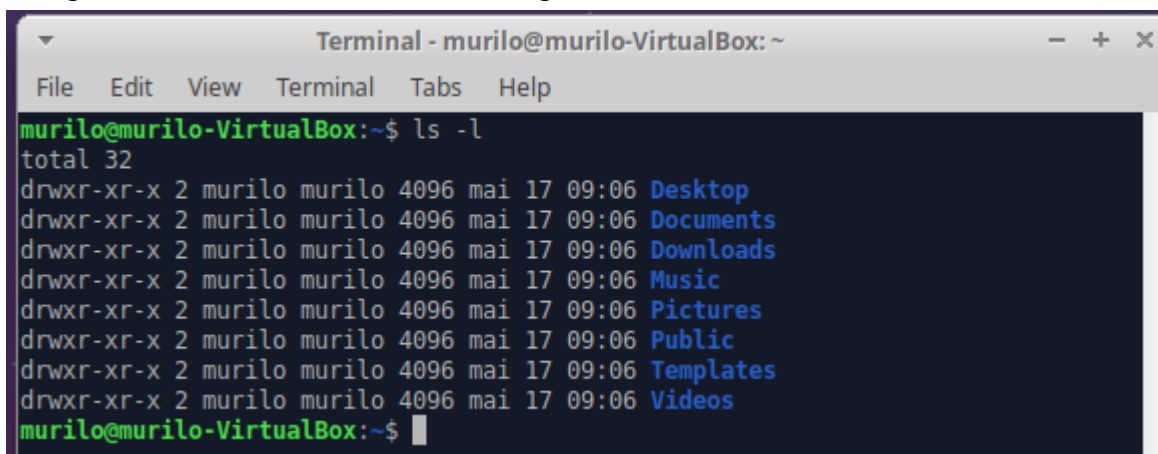
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
murilo@murilo-VirtualBox:~$
```

Listagem 3.2: Uma Entrada por Linha



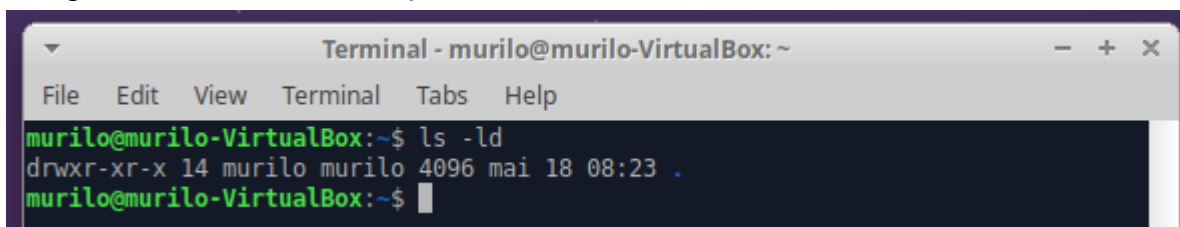
```
murilo@murilo-VirtualBox:~$ ls -l
Desktop
Documents
Downloads
Music
Pictures
Public
Templates
Videos
murilo@murilo-VirtualBox:~$
```

Listagem 3.3: Comando ls no formato longo



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -l
total 32
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Desktop
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Documents
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Downloads
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Music
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Pictures
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Public
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Templates
drwxr-xr-x 2 murilo murilo 4096 mai 17 09:06 Videos
murilo@murilo-VirtualBox:~$
```

Listagem 3.7: Obtendo informações sobre diretórios



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -ld
drwxr-xr-x 14 murilo murilo 4096 mai 18 08:23 .
murilo@murilo-VirtualBox:~$
```

Listagem 3.8: Listando Todos os Arquivos Inclusive os Ocultos

```
murilo@murilo-VirtualBox:~$ ls -a
.          .gnupg          .vboxclient-display-svga-x11.pid
..         .ICEauthority   .vboxclient-draganddrop.pid
.bash_history .local          .vboxclient-seamless.pid
.bash_logout Music           Videos
.bashrc     Pictures
.cache     .profile
.config    Public
Desktop    .sudo_as_admin_successful .xscreensaver
Documents  Templates       .xsession-errors
Downloads  .vboxclient-clipboard.pid .xsession-errors.old
murilo@murilo-VirtualBox:~$
```

Listagem 3.9: Listando Apenas os Arquivos Ocultos

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -ld .*
drwxr-xr-x 3 root root 4096 mai 17 08:57 ..
-rw-r--r-- 1 murilo murilo 553 mai 18 08:27 .bash_history
-rw-r--r-- 1 murilo murilo 220 mai 17 08:57 .bash_logout
-rw-r--r-- 1 murilo murilo 3771 mai 17 08:57 .bashrc
drwxrwxr-x 9 murilo murilo 4096 mai 18 08:22 .cache
drwxr-xr-x 11 murilo murilo 4096 mai 17 09:07 .config
drwx----- 3 murilo murilo 4096 mai 17 09:06 .gnupg
-rw-r--r-- 1 murilo murilo 0 mai 17 09:06 .ICEauthority
drwxrwxr-x 3 murilo murilo 4096 mai 17 09:06 .local
-rw-r--r-- 1 murilo murilo 807 mai 17 08:57 .profile
-rw-r--r-- 1 murilo murilo 0 mai 17 09:12 .sudo_as_admin_successful
-rw-r--r-- 1 murilo murilo 4 mai 18 08:22 .vboxclient-clipboard.pid
-rw-r--r-- 1 murilo murilo 4 mai 18 08:22 .vboxclient-display-svga-x11.pid
-rw-r--r-- 1 murilo murilo 4 mai 18 08:22 .vboxclient-draganddrop.pid
-rw-r--r-- 1 murilo murilo 4 mai 18 08:22 .vboxclient-seamless.pid
-rw-r--r-- 1 murilo murilo 62 mai 18 08:22 .Xauthority
-rw-r--r-- 1 murilo murilo 1600 mai 17 08:57 .Xdefaults
-rw-r--r-- 1 murilo murilo 14 mai 17 08:57 .xscreensaver
-rw-r--r-- 1 murilo murilo 6356 mai 18 08:34 .xsession-errors
-rw-r--r-- 1 murilo murilo 6596 mai 18 08:22 .xsession-errors.old
murilo@murilo-VirtualBox:~$
```

Listagem 3.10: Classificando Arquivos e Diretórios

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -F
Desktop/  Downloads/  Pictures/  Templates/
Documents/ Music/      Public/    Videos/
murilo@murilo-VirtualBox:~$
```

Listagem 3.11: Tamanho em Blocos

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -s
total 32
4 Desktop      4 Downloads    4 Pictures      4 Templates
4 Documents    4 Music        4 Public        4 Videos
murilo@murilo-VirtualBox:~$
```

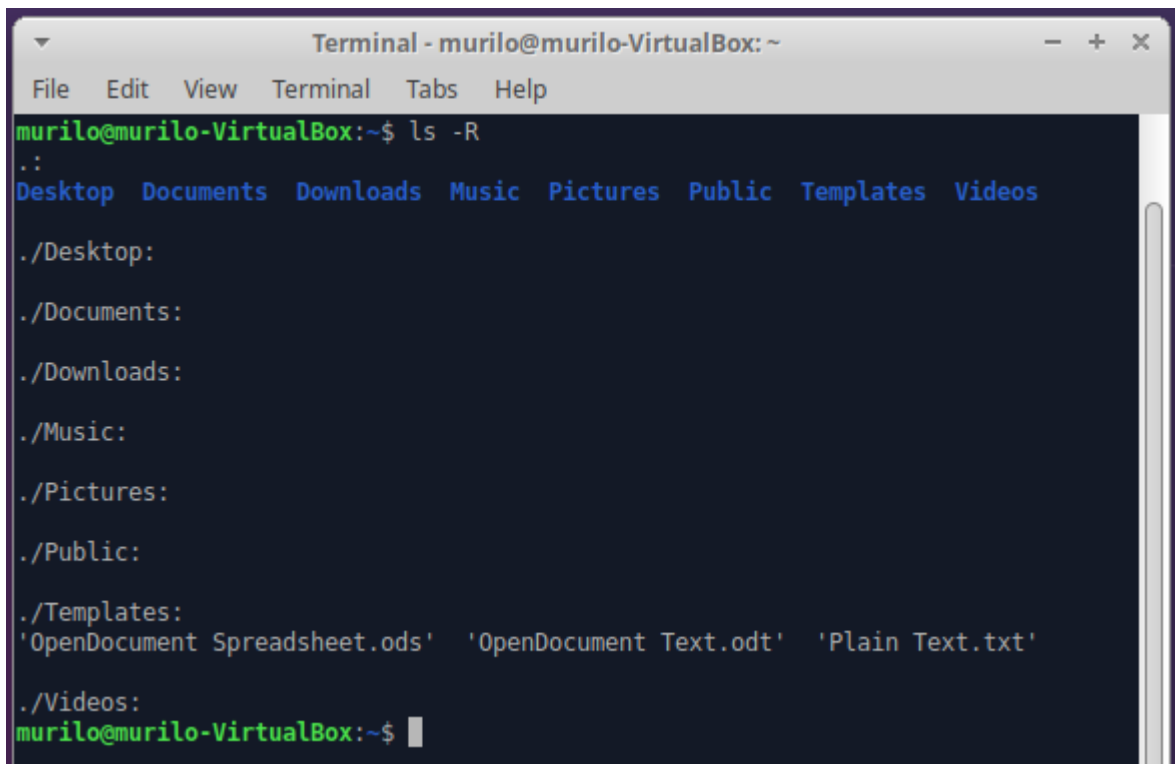
Listagem 3.13: Combinando Opções do Comando ls

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -alF
total 116
drwxr-xr-x 14 murilo murilo 4096 mai 18 08:23 ./
drwxr-xr-x  3 root   root   4096 mai 17 08:57 ../
-rw-r--r--  1 murilo murilo  553 mai 18 08:27 .bash_history
-rw-r--r--  1 murilo murilo  220 mai 17 08:57 .bash_logout
-rw-r--r--  1 murilo murilo 3771 mai 17 08:57 .bashrc
drwxrwxr-x  9 murilo murilo 4096 mai 18 08:22 .cache/
drwxr-xr-x 11 murilo murilo 4096 mai 17 09:07 .config/
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Desktop/
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Documents/
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Downloads/
drwx----- 3 murilo murilo 4096 mai 17 09:06 .gnupg/
-rw-r--r--  1 murilo murilo    0 mai 17 09:06 .ICEauthority
drwxrwxr-x  3 murilo murilo 4096 mai 17 09:06 .local/
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Music/
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Pictures/
-rw-r--r--  1 murilo murilo  807 mai 17 08:57 .profile
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Public/
-rw-r--r--  1 murilo murilo    0 mai 17 09:12 .sudo_as_admin_successful
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Templates/
-rw-r----- 1 murilo murilo    4 mai 18 08:22 .vboxclient-clipboard.pid
-rw-r----- 1 murilo murilo    4 mai 18 08:22 .vboxclient-display-svga-x11.pid
-rw-r----- 1 murilo murilo    4 mai 18 08:22 .vboxclient-draganddrop.pid
-rw-r----- 1 murilo murilo    4 mai 18 08:22 .vboxclient-seamless.pid
drwxr-xr-x  2 murilo murilo 4096 mai 17 09:06 Videos/
-rw-r--r--  1 murilo murilo   62 mai 18 08:22 .Xauthority
-rw-r--r--  1 murilo murilo 1600 mai 17 08:57 .Xdefaults
-rw-r--r--  1 murilo murilo   14 mai 17 08:57 .xscreensaver
-rw-r--r--  1 murilo murilo 6377 mai 18 08:37 .xsession-errors
-rw-r--r--  1 murilo murilo 6596 mai 18 08:22 .xsession-errors.old
murilo@murilo-VirtualBox:~$
```

Listagem 3.14: Visualizando Informações sobre o Diretório

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -ld /usr/
drwxr-xr-x 14 root root 4096 fev 23 05:48 /usr/
murilo@murilo-VirtualBox:~$
```

Listagem 3.15: Listando Recursivamente



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -R
.:
Desktop Documents Downloads Music Pictures Public Templates Videos

./Desktop:

./Documents:

./Downloads:

./Music:

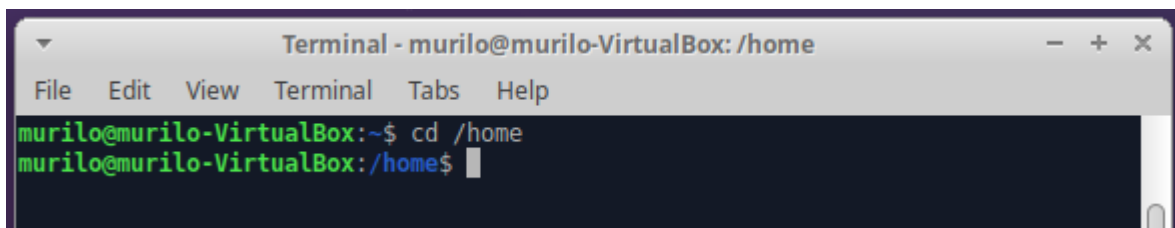
./Pictures:

./Public:

./Templates:
'OpenDocument Spreadsheet.ods' 'OpenDocument Text.odt' 'Plain Text.txt'

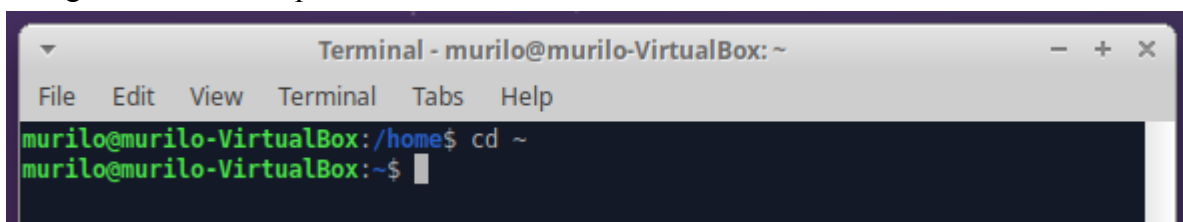
./Videos:
murilo@murilo-VirtualBox:~$
```

Listagem 3.16: Comando cd



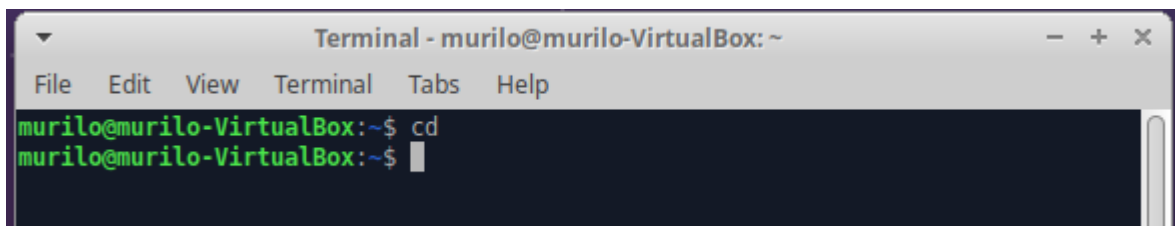
```
Terminal - murilo@murilo-VirtualBox: /home
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ cd /home
murilo@murilo-VirtualBox:/home$
```

Listagem 3.17: Atalho para o Diretório Raiz do Usuário



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:/home$ cd ~
murilo@murilo-VirtualBox:~$
```

Listagem 3.19: Comando cd Sem Opções

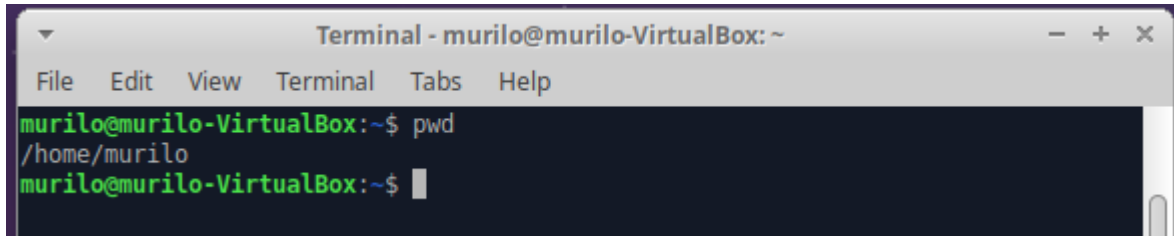


```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ cd
murilo@murilo-VirtualBox:~$
```

Listagem 3.20: Retornando ao Diretório do Usuário

```
murilo@murilo-VirtualBox:~$ cd /home/murilo
murilo@murilo-VirtualBox:~$
```

Listagem 3.21: Comando pwd



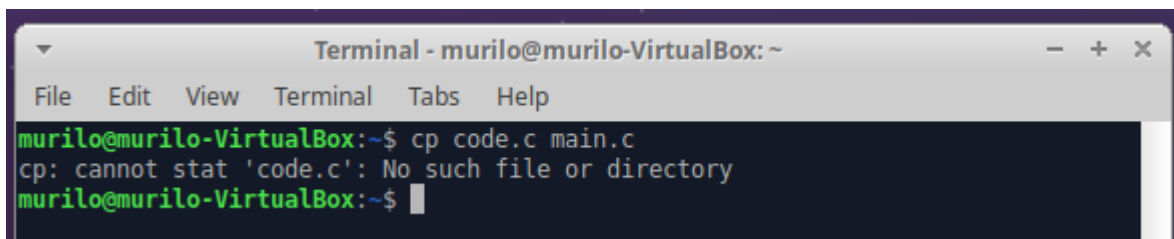
A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "pwd" is entered, and the output is "/home/murilo". The prompt is then "murilo@murilo-VirtualBox:~\$".

```
murilo@murilo-VirtualBox:~$ pwd
/home/murilo
murilo@murilo-VirtualBox:~$
```

Listagem 3.24: Copiando Arquivo para Diretório

```
murilo@murilo-VirtualBox:~$ cp code .c /home/murilo/documents
cp: target '/home/murilo/documents' is not a directory
murilo@murilo-VirtualBox:~$
```

Listagem 3.27: Copiando um Arquivo em Outro



A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The prompt is "murilo@murilo-VirtualBox:~\$". The command "cp code.c main.c" is entered, and the output is "cp: cannot stat 'code.c': No such file or directory". The prompt is then "murilo@murilo-VirtualBox:~\$".

```
murilo@murilo-VirtualBox:~$ cp code.c main.c
cp: cannot stat 'code.c': No such file or directory
murilo@murilo-VirtualBox:~$
```

Listagem 3.28: Copiando com a Opção -i

```
murilo@murilo-VirtualBox:~$ cp -i code.c main.c
cp: cannot stat 'code.c': No such file or directory
murilo@murilo-VirtualBox:~$
```

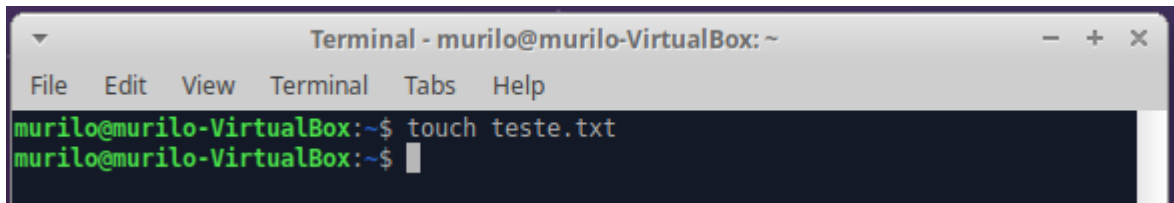
Listagem 3.30: Renomeando Arquivos com rename

```
murilo@murilo-VirtualBox:~$ rename teste.txt teste2.txt

Command 'rename' not found, but can be installed with:
sudo apt install rename

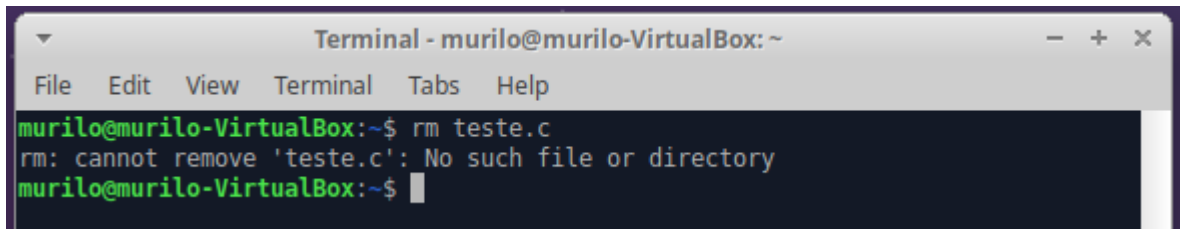
murilo@murilo-VirtualBox:~$
```

Listagem 3.31: Criando Arquivos com touch



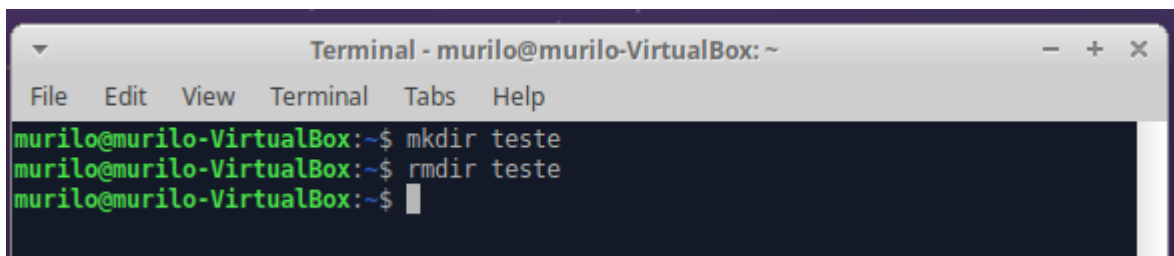
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ touch teste.txt
murilo@murilo-VirtualBox:~$
```

Listagem 3.33: Apagando um Arquivo



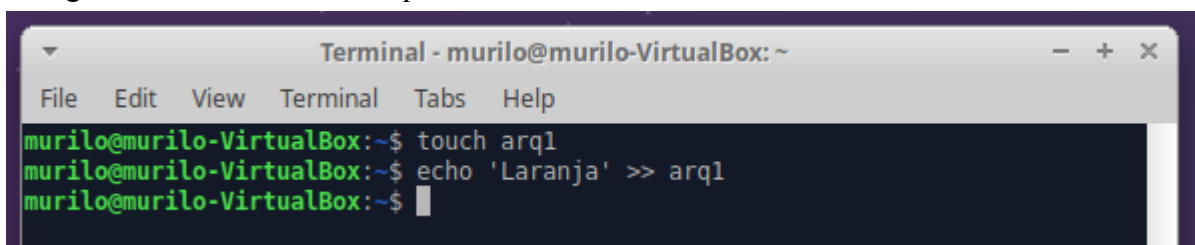
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ rm teste.c
rm: cannot remove 'teste.c': No such file or directory
murilo@murilo-VirtualBox:~$
```

Listagem 3.36: Apagando Diretório com rmdir



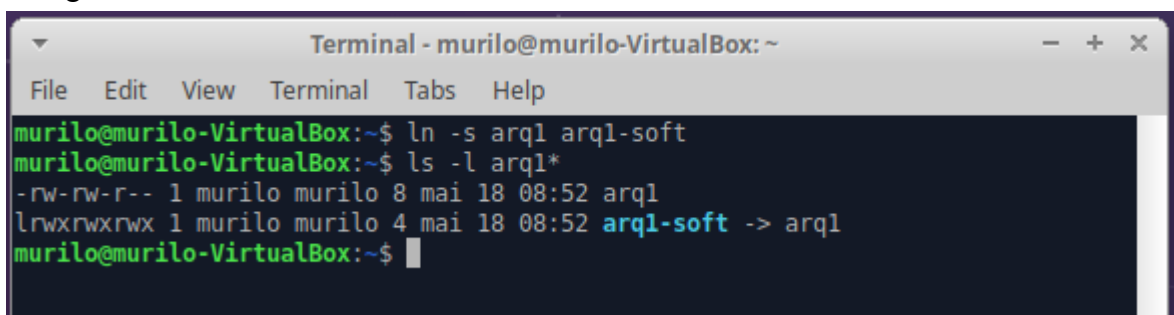
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ mkdir teste
murilo@murilo-VirtualBox:~$ rmdir teste
murilo@murilo-VirtualBox:~$
```

Listagem 3.42: Criando um Arquivo



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ touch arq1
murilo@murilo-VirtualBox:~$ echo 'Laranja' >> arq1
murilo@murilo-VirtualBox:~$
```

Listagem 3.43: Criando um Link Simbólico



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ln -s arq1 arq1-soft
murilo@murilo-VirtualBox:~$ ls -l arq1*
-rw-rw-r-- 1 murilo murilo 8 mai 18 08:52 arq1
lrwxrwxrwx 1 murilo murilo 4 mai 18 08:52 arq1-soft -> arq1
murilo@murilo-VirtualBox:~$
```

Listagem 3.44: Verificando o Conteúdo do Arquivo

```
murilo@murilo-VirtualBox:~$ cat arq1-soft
Laranja
murilo@murilo-VirtualBox:~$
```

Listagem 3.45: Movendo o Arquivo

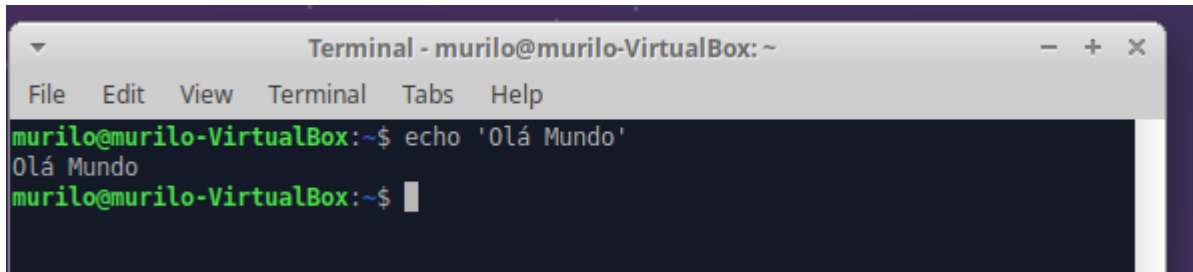
```
murilo@murilo-VirtualBox:~$ mv arq1 arq2
murilo@murilo-VirtualBox:~$ cat arq1-soft
cat: arq1-soft: No such file or directory
murilo@murilo-VirtualBox:~$
```

Listagem 3.46: Visualizando os Links

```
murilo@murilo-VirtualBox:~$ ls -l arq1-soft
lrwxrwxrwx 1 murilo murilo 4 mai 18 08:52 arq1-soft -> arq1
murilo@murilo-VirtualBox:~$
```

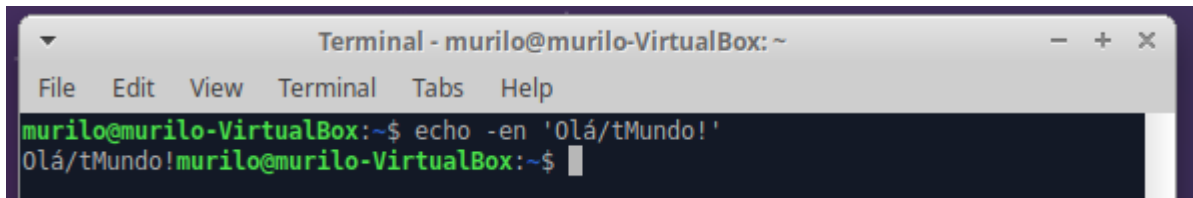
Capítulo 4

Listagem 4.1: Comando echo



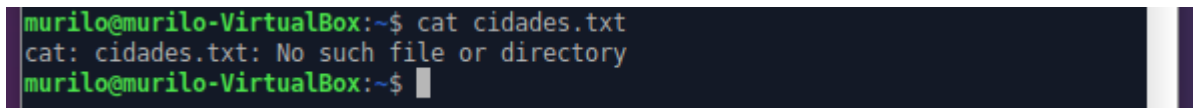
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ echo 'Olá Mundo'
Olá Mundo
murilo@murilo-VirtualBox:~$
```

Listagem 4.2: Comando echo



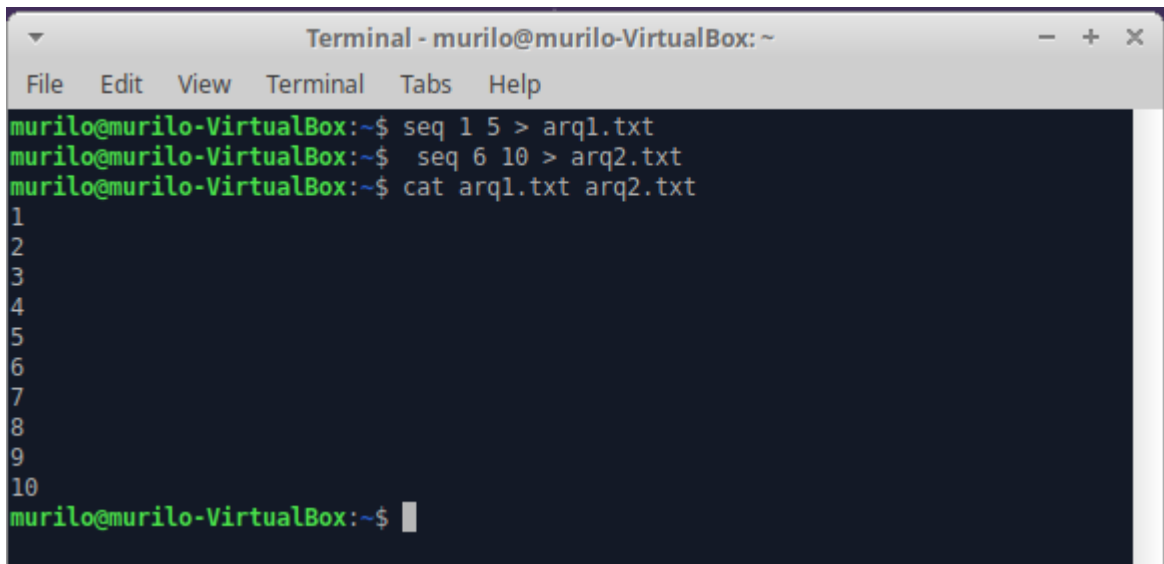
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ echo -en 'Olá/tMundo!'
Olá/tMundo!murilo@murilo-VirtualBox:~$
```

Listagem 4.3: Comando cat



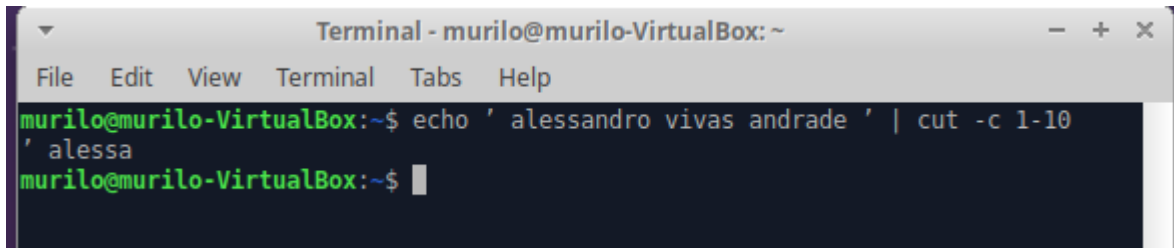
```
murilo@murilo-VirtualBox:~$ cat cidades.txt
cat: cidades.txt: No such file or directory
murilo@murilo-VirtualBox:~$
```

Listagem 4.4: Comando cat com dois arquivos



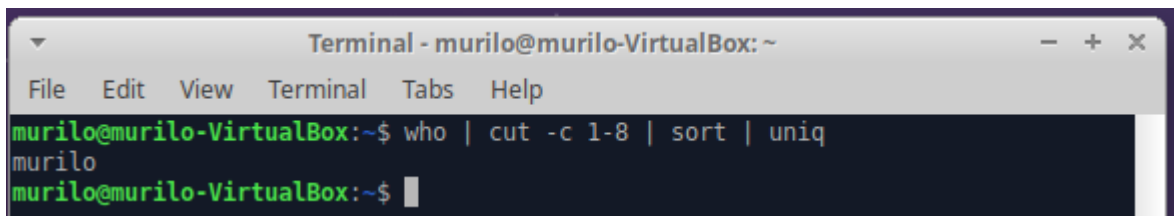
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ seq 1 5 > arq1.txt
murilo@murilo-VirtualBox:~$ seq 6 10 > arq2.txt
murilo@murilo-VirtualBox:~$ cat arq1.txt arq2.txt
1
2
3
4
5
6
7
8
9
10
murilo@murilo-VirtualBox:~$
```

Listagem 4.5: Comando cut



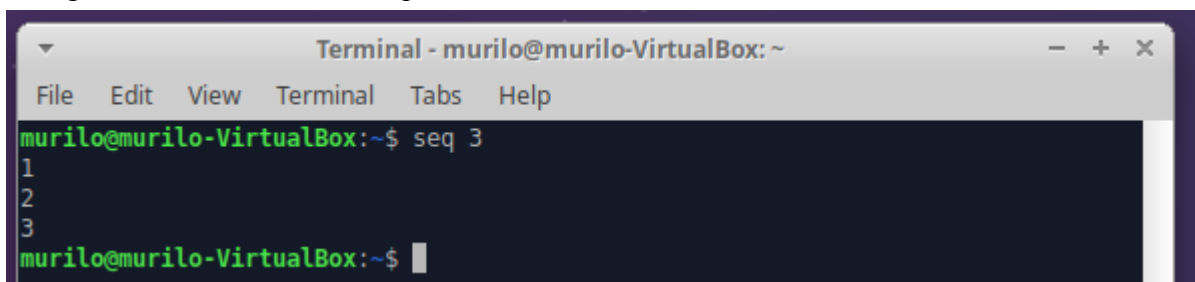
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ echo ' alessandro vivas andrade ' | cut -c 1-10
' alessa
murilo@murilo-VirtualBox:~$
```

Listagem 4.6: Usando o comando cut para listar os usuários logados



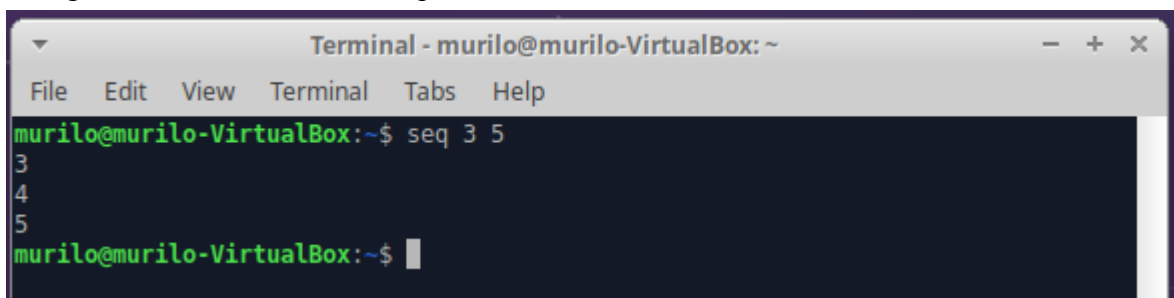
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ who | cut -c 1-8 | sort | uniq
murilo
murilo@murilo-VirtualBox:~$
```

Listagem 4.9: Gerando uma sequência de números



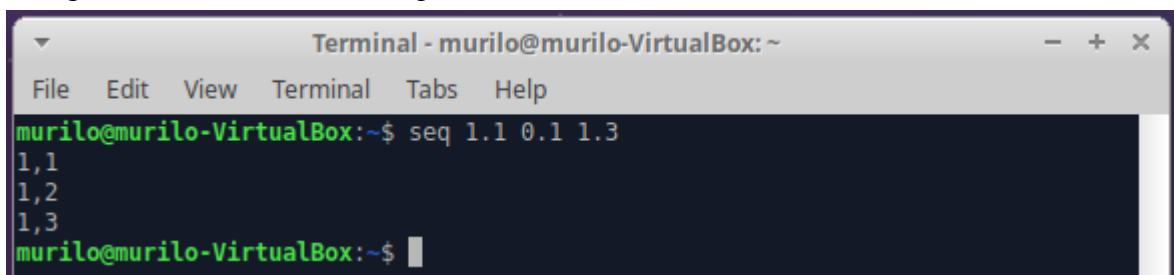
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ seq 3
1
2
3
murilo@murilo-VirtualBox:~$
```

Listagem 4.10: Gerando uma sequência de números



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ seq 3 5
3
4
5
murilo@murilo-VirtualBox:~$
```

Listagem 4.11: Gerando uma sequência de números

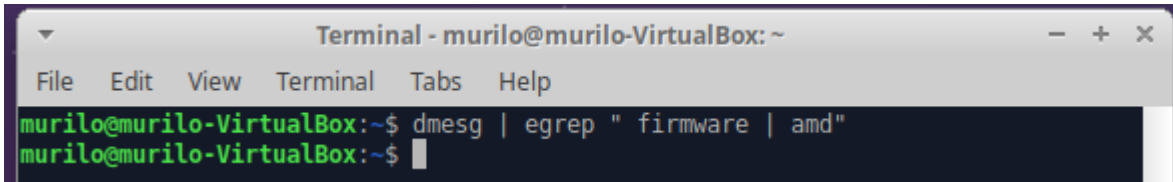


```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ seq 1.1 0.1 1.3
1,1
1,2
1,3
murilo@murilo-VirtualBox:~$
```

Listagem 4.20: Substituir chaves por parênteses

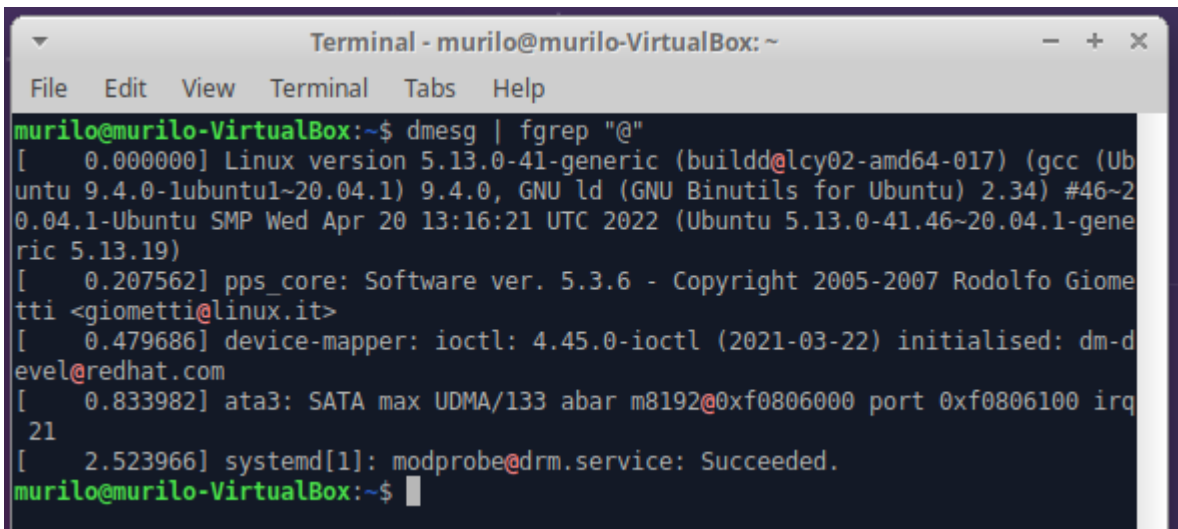
```
murilo@murilo-VirtualBox:~$ echo 'a{1}, b{2}' | tr '{}' '()'
a(1), b(2)
murilo@murilo-VirtualBox:~$
```

Listagem 4.32: Filtrando com egrep



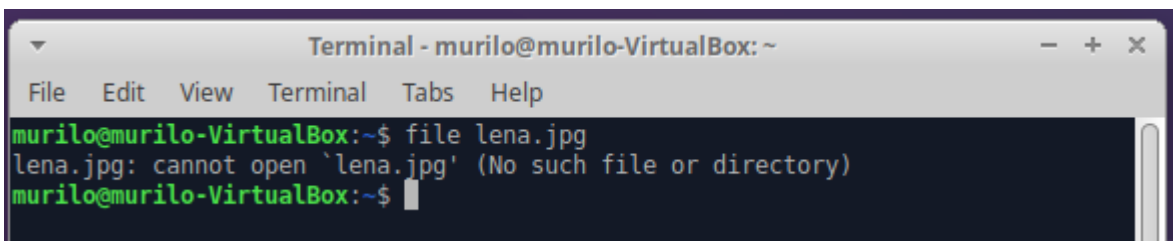
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ dmesg | egrep " firmware | amd"
murilo@murilo-VirtualBox:~$
```

Listagem 4.33: Filtrando com fgrep



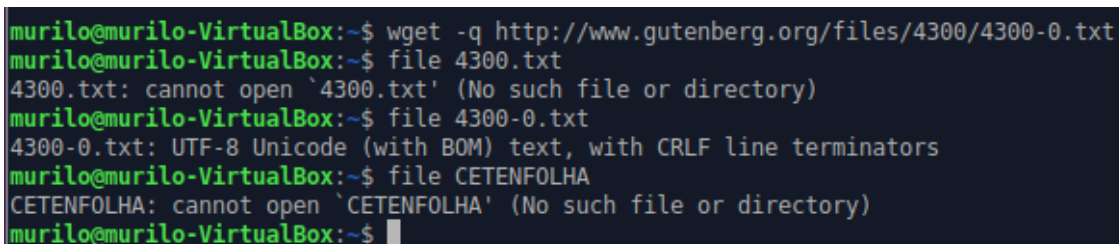
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ dmesg | fgrep "@"
[ 0.000000] Linux version 5.13.0-41-generic (buildd@lcy02-amd64-017) (gcc (Ubuntu 9.4.0-1ubuntu1~20.04.1) 9.4.0, GNU ld (GNU Binutils for Ubuntu) 2.34) #46~20.04.1-Ubuntu SMP Wed Apr 20 13:16:21 UTC 2022 (Ubuntu 5.13.0-41.46~20.04.1-generic 5.13.19)
[ 0.207562] pps_core: Software ver. 5.3.6 - Copyright 2005-2007 Rodolfo Giometti <giometti@linux.it>
[ 0.479686] device-mapper: ioctl: 4.45.0-ioctl (2021-03-22) initialised: dm-devel@redhat.com
[ 0.833982] ata3: SATA max UDMA/133 abar m8192@0xf0806000 port 0xf0806100 irq 21
[ 2.523966] systemd[1]: modprobe@drm.service: Succeeded.
murilo@murilo-VirtualBox:~$
```

Listagem 4.38: Determinando o tipo do arquivo lena.jpg



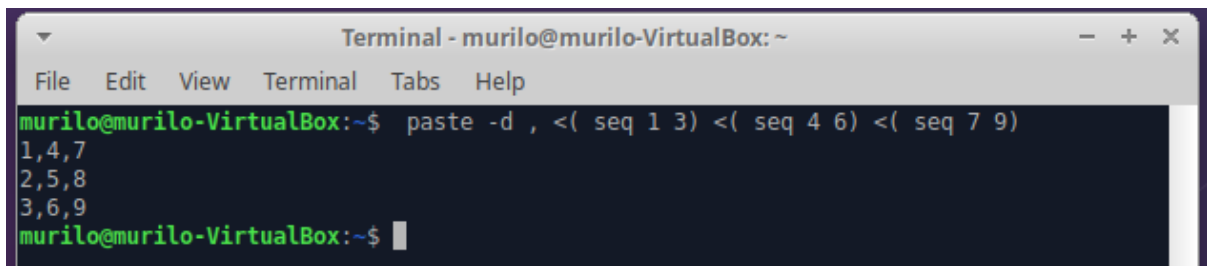
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ file lena.jpg
lena.jpg: cannot open 'lena.jpg' (No such file or directory)
murilo@murilo-VirtualBox:~$
```

Listagem 4.39: Determinando o tipo de um arquivo .txt



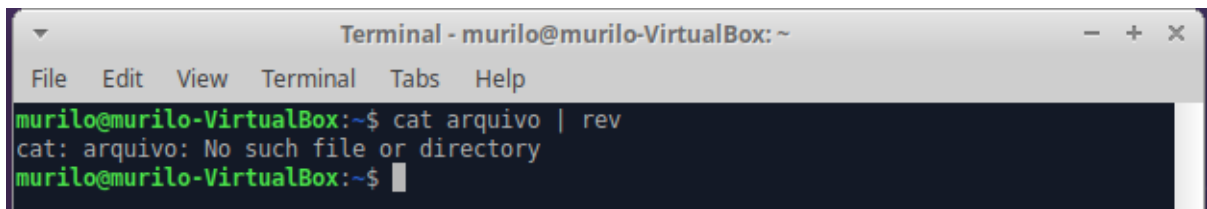
```
murilo@murilo-VirtualBox:~$ wget -q http://www.gutenberg.org/files/4300/4300-0.txt
murilo@murilo-VirtualBox:~$ file 4300.txt
4300.txt: cannot open '4300.txt' (No such file or directory)
murilo@murilo-VirtualBox:~$ file 4300-0.txt
4300-0.txt: UTF-8 Unicode (with BOM) text, with CRLF line terminators
murilo@murilo-VirtualBox:~$ file CETENFOLHA
CETENFOLHA: cannot open 'CETENFOLHA' (No such file or directory)
murilo@murilo-VirtualBox:~$
```

Listagem 4.47: Combinando arquivos para formar um arquivo CSV



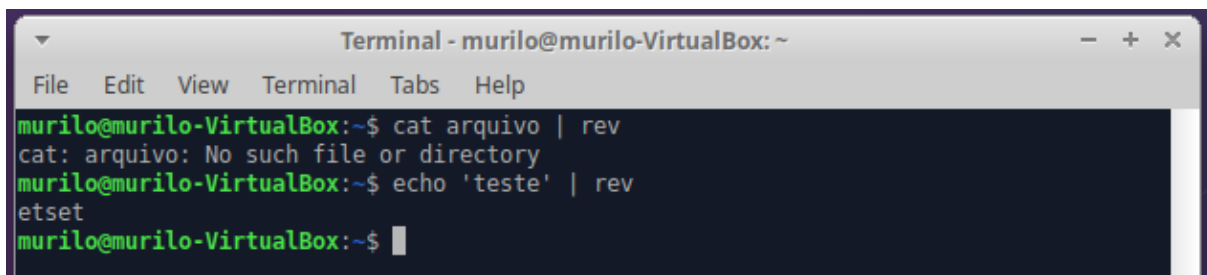
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ paste -d , <( seq 1 3) <( seq 4 6) <( seq 7 9)
1,4,7
2,5,8
3,6,9
murilo@murilo-VirtualBox:~$
```

Listagem 4.48: Comando para Inverter os Caracteres - rev



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ cat arquivo | rev
cat: arquivo: No such file or directory
murilo@murilo-VirtualBox:~$
```

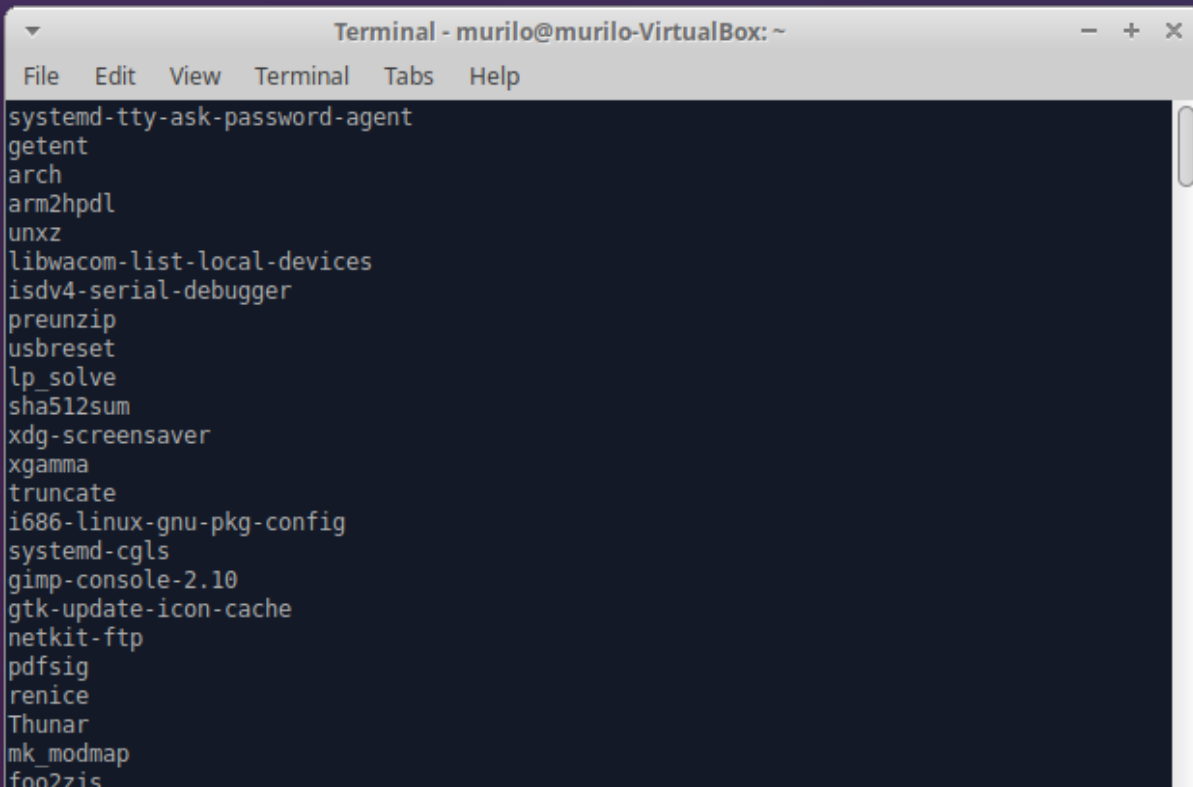
Listagem 4.49: Invertendo Caracteres com rev



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ cat arquivo | rev
cat: arquivo: No such file or directory
murilo@murilo-VirtualBox:~$ echo 'teste' | rev
etset
murilo@murilo-VirtualBox:~$
```

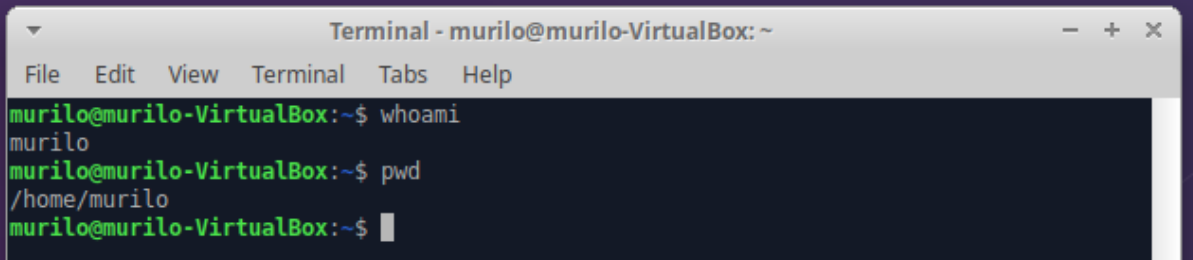
Capítulo 5

Listagem 5.1: Opções Múltiplas



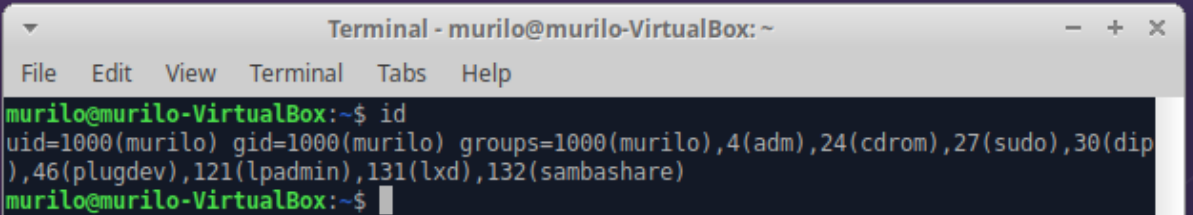
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
systemd-tty-ask-password-agent
getent
arch
arm2hpd1
unxz
libwacom-list-local-devices
isdv4-serial-debugger
preunzip
usbreset
lp_solve
sha512sum
xdg-screensaver
xgamma
truncate
i686-linux-gnu-pkg-config
systemd-cgls
gimp-console-2.10
gtk-update-icon-cache
netkit-ftp
pdfsig
renice
Thunar
mk_modmap
foo2zjs
```

Listagem 5.2: Comando whoami e pwd



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ whoami
murilo
murilo@murilo-VirtualBox:~$ pwd
/home/murilo
murilo@murilo-VirtualBox:~$
```

Listagem 5.4: Identificadores no Mac



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ id
uid=1000(murilo) gid=1000(murilo) groups=1000(murilo),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),121(lpadmin),131(lxd),132(sambashare)
murilo@murilo-VirtualBox:~$
```

Listagem 5.7: Usuários Logados

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ users
murilo
murilo@murilo-VirtualBox:~$
```

Listagem 5.8: Instalação do finger

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ sudo apt-get install finger
[sudo] password for murilo:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  finger
0 upgraded, 1 newly installed, 0 to remove and 56 not upgraded.
Need to get 16,9 kB of archives.
After this operation, 51,2 kB of additional disk space will be used.
Get:1 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 finger amd64 0.17-17 [16,9 kB]
Fetched 16,9 kB in 0s (64,0 kB/s)
Selecting previously unselected package finger.
(Reading database ... 190544 files and directories currently installed.)
Preparing to unpack .../finger_0.17-17_amd64.deb ...
Unpacking finger (0.17-17) ...
Setting up finger (0.17-17) ...
Processing triggers for man-db (2.9.1-1) ...
murilo@murilo-VirtualBox:~$
```

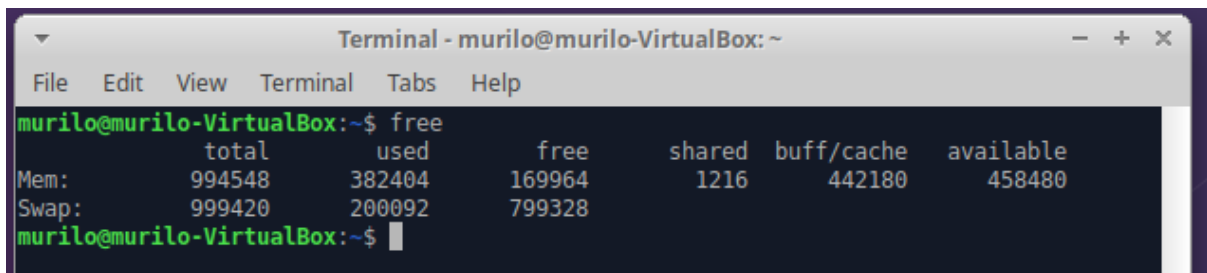
Listagem 5.9: Comando finger

```
murilo@murilo-VirtualBox:~$ finger murilo
Login: murilo                Name: Murilo
Directory: /home/murilo      Shell: /bin/bash
On since Wed May 18 08:22 (-03) on tty7 from :0
    1 hour 28 minutes idle
No mail.
No Plan.
murilo@murilo-VirtualBox:~$
```

Listagem 5.11: Comando finger no Linux

```
murilo@murilo-VirtualBox:~$ finger
Login    Name      Tty      Idle   Login Time   Office      Office Phone
murilo   Murilo    tty7     1:28   May 18 08:22 (:0)
murilo@murilo-VirtualBox:~$
```

Listagem 5.13: Comando free



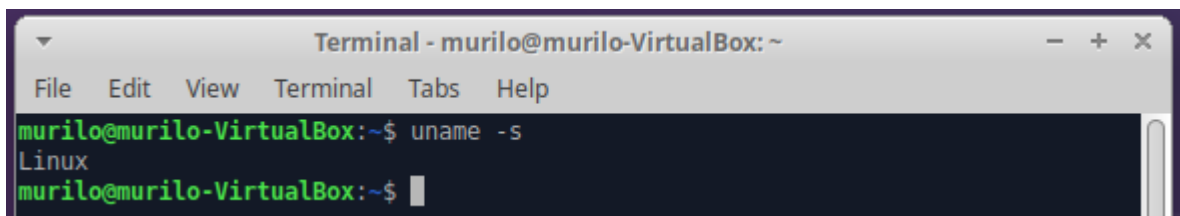
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ free
              total        used        free      shared  buff/cache   available
Mem:           994548        382404        169964         1216        442180        458480
Swap:          999420        200092        799328
```

Listagem 5.14: Logar como Super Usuário



```
murilo@murilo-VirtualBox:~$ su -
Password:
```

Listagem 5.15: Verificar Informações sobre o Linux



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ uname -s
Linux
murilo@murilo-VirtualBox:~$
```

Listagem 5.17: Verificar sua Versão do kernel



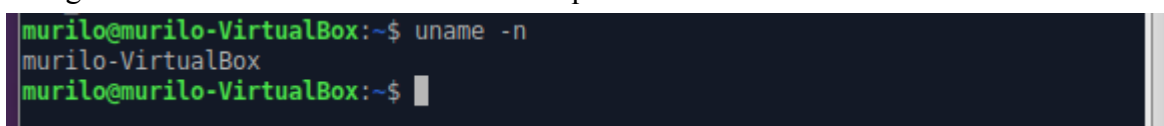
```
murilo@murilo-VirtualBox:~$ uname -r
5.13.0-41-generic
murilo@murilo-VirtualBox:~$
```

Listagem 5.18: Verificando a Plataforma



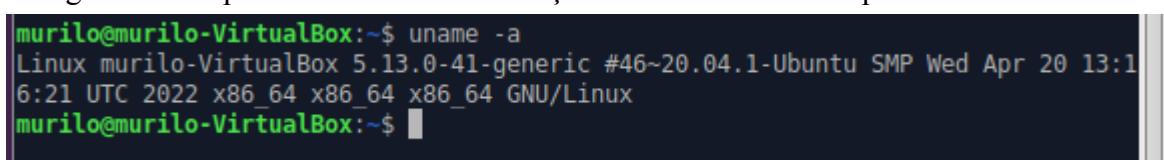
```
murilo@murilo-VirtualBox:~$ uname -m
x86_64
murilo@murilo-VirtualBox:~$
```

Listagem 5.19: Verificar o Nome de sua Máquina



```
murilo@murilo-VirtualBox:~$ uname -n
murilo-VirtualBox
murilo@murilo-VirtualBox:~$
```

Listagem 5.20: Apresenta todas as informações sobre seu sistema operacional



```
murilo@murilo-VirtualBox:~$ uname -a
Linux murilo-VirtualBox 5.13.0-41-generic #46~20.04.1-Ubuntu SMP Wed Apr 20 13:16:21 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux
murilo@murilo-VirtualBox:~$
```

Listagem 5.21: Tempo de Funcionamento

```
murilo@murilo-VirtualBox:~$ uptime
09:55:37 up 1:32, 1 user, load average: 0,06, 0,10, 0,09
murilo@murilo-VirtualBox:~$
```

Listagem 5.22: Versão de um comando

```
murilo@murilo-VirtualBox:~$ ls --version
ls (GNU coreutils) 8.30
Copyright (C) 2018 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Richard M. Stallman and David Mackenzie.
murilo@murilo-VirtualBox:~$
```

Listagem 5.24: Variável PATH

```
murilo@murilo-VirtualBox:~$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
murilo@murilo-VirtualBox:~$
```

Listagem 5.25: Comando timeout

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help

murilo@murilo-VirtualBox:~$ timeout 5 ping www.ufu.br
PING www.ufu.br (200.19.145.55) 56(84) bytes of data:
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=1 ttl=50 time=52.0 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=2 ttl=50 time=55.1 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=3 ttl=50 time=55.3 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=4 ttl=50 time=54.8 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=5 ttl=50 time=52.2 ms
murilo@murilo-VirtualBox:~$
```

Listagem 5.26: Comando w

```
murilo@murilo-VirtualBox:~$ w
09:58:02 up 1:35, 1 user, load average: 0,09, 0,08, 0,08
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
murilo    tty7     :0               08:22    1:35m 22.59s 0.34s  xfce4-session
murilo@murilo-VirtualBox:~$
```

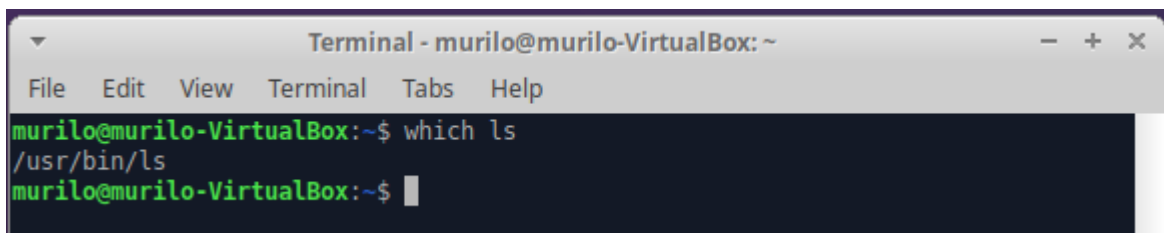
Listagem 5.27: Comando whereis

```
murilo@murilo-VirtualBox:~$ whereis gcc
gcc: /usr/lib/gcc /usr/share/gcc
murilo@murilo-VirtualBox:~$
```

Listagem 5.28: Comando locate

```
murilo@murilo-VirtualBox:~$ locate passwd
/etc/passwd
/etc/passwd-
/etc/pam.d/chpasswd
/etc/pam.d/passwd
/etc/security/opasswd
/usr/bin/gpasswd
/usr/bin/grub-mkpasswd-pbkdf2
/usr/bin/passwd
/usr/lib/libreoffice/share/config/soffice.cfg/svx/ui/passwd.ui
/usr/lib/tmpfiles.d/passwd.conf
/usr/lib/x86_64-linux-gnu/samba/libsmbpasswdparser.so.0
/usr/sbin/chpasswd
/usr/sbin/chpasswd
/usr/sbin/update-passwd
/usr/share/base-passwd
/usr/share/base-passwd/group.master
/usr/share/base-passwd/passwd.master
/usr/share/bash-completion/completions/chpasswd
```

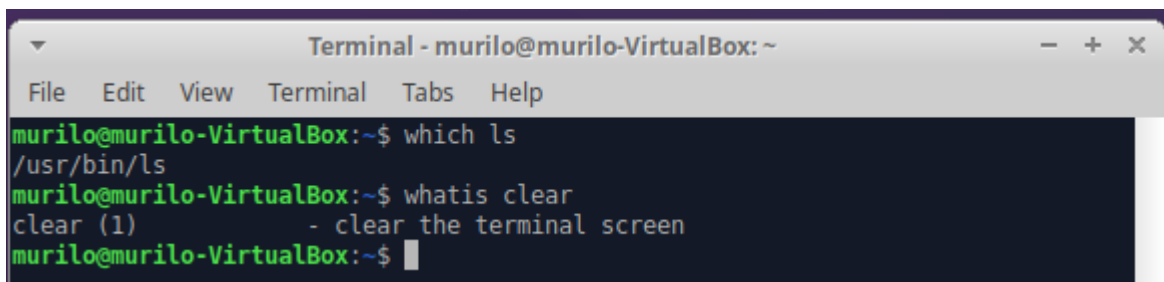
Listagem 5.29: Comando which



A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The command `which ls` is entered, and the output is `/usr/bin/ls`.

```
murilo@murilo-VirtualBox:~$ which ls
/usr/bin/ls
murilo@murilo-VirtualBox:~$
```

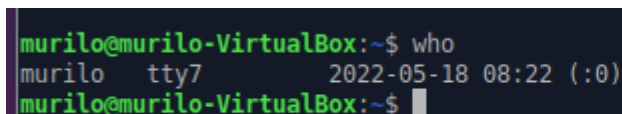
Listagem 5.30: Comando whatis



A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The command `which ls` is entered, and the output is `/usr/bin/ls`. Then, the command `whatis clear` is entered, and the output is `clear (1) - clear the terminal screen`.

```
murilo@murilo-VirtualBox:~$ which ls
/usr/bin/ls
murilo@murilo-VirtualBox:~$ whatis clear
clear (1) - clear the terminal screen
murilo@murilo-VirtualBox:~$
```

Listagem 5.31: Comando who



A terminal window titled "murilo@murilo-VirtualBox:~\$". The command `who` is entered, and the output is `murilo tty7 2022-05-18 08:22 (:0)`.

```
murilo@murilo-VirtualBox:~$ who
murilo tty7 2022-05-18 08:22 (:0)
murilo@murilo-VirtualBox:~$
```

Listagem 5.32: Rodando Múltiplos Comandos


```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ hostname; date; ls
murilo-VirtualBox
qua 18 mai 2022 10:02:29 -03
4300-0.txt  arq1.txt  arq2.txt  Documents Music      Public  teste.txt
arq1-soft  arq2      Desktop  Downloads Pictures  Templates Videos
murilo@murilo-VirtualBox:~$
```

Listagem 5.34: Rodando Comando em Background

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ emacs &
[1] 32076
murilo@murilo-VirtualBox:~$
Command 'emacs' not found, but can be installed with:

sudo apt install e3          # version 1:2.71-2, or
sudo apt install emacs-gtk   # version 1:26.3+1-1ubuntu2
sudo apt install emacs-lucid # version 1:26.3+1-1ubuntu2
sudo apt install emacs-nox    # version 1:26.3+1-1ubuntu2
sudo apt install jove         # version 4.17.2.7-1
```

Capítulo 6

Listagem 6.1: Todos os Processos em Execução

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ps -aef
UID      PID     PPID  C  STIME TTY          TIME CMD
root         1         0  0  22:08 ?        00:00:01 /sbin/init splash
root         2         0  0  22:08 ?        00:00:00 [kthreadd]
root         3         2  0  22:08 ?        00:00:00 [rcu_gp]
root         4         2  0  22:08 ?        00:00:00 [rcu_par_gp]
root         6         2  0  22:08 ?        00:00:00 [kworker/0:0H-events_highpri]
root         9         2  0  22:08 ?        00:00:00 [mm_percpu_wq]
root        10         2  0  22:08 ?        00:00:00 [rcu_tasks_rude_]
root        11         2  0  22:08 ?        00:00:00 [rcu_tasks_trace]
root        12         2  0  22:08 ?        00:00:00 [ksoftirqd/0]
root        13         2  0  22:08 ?        00:00:00 [rcu_sched]
root        14         2  0  22:08 ?        00:00:00 [migration/0]
root        15         2  0  22:08 ?        00:00:00 [idle_inject/0]
root        16         2  0  22:08 ?        00:00:00 [cpuhp/0]
root        17         2  0  22:08 ?        00:00:00 [cpuhp/1]
root        18         2  0  22:08 ?        00:00:00 [idle_inject/1]
root        19         2  0  22:08 ?        00:00:00 [migration/1]
root        20         2  0  22:08 ?        00:00:00 [ksoftirqd/1]
root        22         2  0  22:08 ?        00:00:00 [kworker/1:0H-events_highpri]
root        23         2  0  22:08 ?        00:00:00 [kdevtmpfs]
root        24         2  0  22:08 ?        00:00:00 [netns]
root        25         2  0  22:08 ?        00:00:00 [inet_frag_wq]
root        26         2  0  22:08 ?        00:00:00 [kauditd]
```

Listagem 6.2: Todos os Processos em Execução de um Usuário Específico

```
murilo@murilo-VirtualBox:~$ ps -u murilo
  PID TTY          TIME CMD
  801 ?        00:00:00 systemd
  802 ?        00:00:00 (sd-pam)
  807 ?        00:00:00 pulseaudio
  808 ?        00:00:00 xfce4-session
  822 ?        00:00:00 dbus-daemon
  898 ?        00:00:00 VBoxClient
  900 ?        00:00:00 VBoxClient
  910 ?        00:00:00 VBoxClient
  912 ?        00:00:00 VBoxClient
  918 ?        00:00:00 VBoxClient
  919 ?        00:00:02 VBoxClient
  922 ?        00:00:00 VBoxClient
  923 ?        00:00:00 VBoxClient
  930 ?        00:00:00 ssh-agent
  948 ?        00:00:00 at-spi-bus-laun
  951 ?        00:00:00 gvfsd
  956 ?        00:00:00 gvfsd-fuse
  960 ?        00:00:00 dbus-daemon
  968 ?        00:00:00 xfconfd
  975 ?        00:00:00 at-spi2-registr
```

Listagem 6.3: Processos que Mais Consomem CPU

```

murilo@murilo-VirtualBox:~$ ps -aef -r | head -5
  PID TTY          STAT       TIME COMMAND
  1316 pts/0    R+        0:00 ps -aef -r SHELL=/bin/bash SESSION_MANAGER=local/murilo-VirtualBox:@/tmp/.ICE-unix/808,unix/murilo-VirtualBox:/tmp/.ICE-unix/808 WINDOWID=71303171 QT_ACCESSIBILITY=1 COLORTERM=truecolor XDG_CONFIG_DIRS=/etc/xdg/xdg-xubuntu:/etc/xdg:/etc/xdg XDG_SESSION_PATH=/org/freedesktop/DisplayManager/Session0 XDG_MENU_PREFIX=xfce- CLUTTER_BACKEND=x11 LANGUAGE=en_US LC_ADDRESS=pt_BR.UTF-8 LC_NAME=pt_BR.UTF-8 SSH_AUTH_SOCK=/run/user/1000/keyring/ssh DESKTOP_SESSION=xubuntu LC_MONETARY=pt_BR.UTF-8 SSH_AGENT_PID=930 XDG_SEAT=seat0 PWD=/home/murilo LOGNAME=murilo XDG_SESSION_DESKTOP=xubuntu QT_QPA_PLATFORMTHEME=gtk2 XDG_SESSION_TYPE=x11 PANEL_GDK CORE_DEVICE_EVENTS=0 GPG_AGENT_INFO=/run/user/1000/gnupg/S.gpg-agent:0:1 XAUTHORITY=/home/murilo/.Xauthority XDG_GREETER_DATA_DIR=/var/lib/lightdm-data/murilo GDM_LANG=en_US HOME=/home/murilo LC_PAPER=pt_BR.UTF-8 LANG=en_US.UTF-8 LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33;01:cd=40;33;01:or=40;31;01:mi=00:su=37;41:sg=30;43:ca=30;41:tw=30;42:ow=34;42:st=37;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31:*.taz=01;31:*.lha=01;31:*.lz4=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:*.t7z=01;31:*.zip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz=01;

```

Listagem 6.4: Processos que Mais Consomem CPU

```

Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ps -aef -m | head -5
UID          PID    PPID  C STIME TTY          TIME CMD
root           1        0  0  22:08 ?           00:00:01 /sbin/init splash
root          -        0  0  22:08 -           00:00:01 -
root           2        0  0  22:08 ?           00:00:00 [kthreadd]
root          -        0  0  22:08 -           00:00:00 -
murilo@murilo-VirtualBox:~$

```

Listagem 6.5: Obtendo Informações de um Processo Específico

```

murilo@murilo-VirtualBox:~$ ps -aef | grep firefox
murilo      1352    1277  0  22:31 pts/0    00:00:00 grep --color=auto firefox
murilo@murilo-VirtualBox:~$

```

Listagem 6.6: Obtendo a Lista de Processos em forma de Árvore

```

murilo@murilo-VirtualBox:~$ pstree
systemd─┬─ModemManager─2*[{ModemManager}]
        ┬─NetworkManager─2*[{NetworkManager}]
        ┬─3*[VBoxClient─VBoxClient─2*[{VBoxClient}]]
        ┬─VBoxClient─VBoxClient─3*[{VBoxClient}]
        ┬─VBoxService─8*[{VBoxService}]
        ┬─accounts-daemon─2*[{accounts-daemon}]
        ┬─acpid
        ┬─agetty
        ┬─avahi-daemon─avahi-daemon
        ┬─blueman-tray─2*[{blueman-tray}]
        ┬─colord─2*[{colord}]
        ┬─cron
        ┬─cups-browsed─2*[{cups-browsed}]
        ┬─cupsd
        ┬─dbus-daemon
        ┬─gnome-keyring-d─3*[{gnome-keyring-d}]
        ┬─irqbalance─{irqbalance}
        ┬─2*[kerneloops]
        ┬─lightdm─┬─Xorg─{Xorg}
                └─lightdm─┬─xfce4-session─┬─Thunar─2*[{Thunar}]
                           └─aplet.py

```

Listagem 6.9: Comando kill

```

Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ kill -l
 1) SIGHUP      2) SIGINT      3) SIGQUIT     4) SIGILL      5) SIGTRAP
 6) SIGABRT     7) SIGBUS     8) SIGFPE      9) SIGKILL     10) SIGUSR1
11) SIGSEGV    12) SIGUSR2    13) SIGPIPE    14) SIGALRM    15) SIGTERM
16) SIGSTKFLT  17) SIGCHLD   18) SIGCONT    19) SIGSTOP    20) SIGSTP
21) SIGTTIN    22) SIGTTOU   23) SIGURG     24) SIGXCPU    25) SIGXFSZ
26) SIGVTALRM  27) SIGPROF   28) SIGWINCH   29) SIGIO       30) SIGPWR
31) SIGSYS     34) SIGRTMIN  35) SIGRTMIN+1 36) SIGRTMIN+2 37) SIGRTMIN+3
38) SIGRTMIN+4 39) SIGRTMIN+5 40) SIGRTMIN+6 41) SIGRTMIN+7 42) SIGRTMIN+8
43) SIGRTMIN+9 44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7
58) SIGRTMAX-6  59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIGRTMAX-2
63) SIGRTMAX-1  64) SIGRTMAX
murilo@murilo-VirtualBox:~$

```

Listagem 6.10: Comando kill

```

murilo@murilo-VirtualBox:~$ ps -aef | grep paint
murilo      1355      1277  0 22:33 pts/0    00:00:00 grep --color=auto paint
murilo@murilo-VirtualBox:~$

```

Listagem 6.11: Matando o Processo Firefox

```

murilo@murilo-VirtualBox:~$ kill -9 12005
bash: kill: (12005) - No such process
murilo@murilo-VirtualBox:~$

```

Listagem 6.13: Controlando Processos

```
murilo@murilo-VirtualBox:~$ ps
  PID TTY          TIME CMD
 1277 pts/0    00:00:00 bash
 1358 pts/0    00:00:00 ps
murilo@murilo-VirtualBox:~$
```

Listagem 6.14: Controlando Processos

```
murilo@murilo-VirtualBox:~$ ps u
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
murilo    1277  0.0  0.4 10624  4780 pts/0    Ss   22:10   0:00 bash
murilo    1359  0.0  0.3 11500  3132 pts/0    R+   22:36   0:00 ps u
murilo@murilo-VirtualBox:~$
```

Listagem 6.15: Controlando Processos

```
murilo@murilo-VirtualBox:~$ top &
[1] 1360
murilo@murilo-VirtualBox:~$
```

Listagem 6.16: Controlando Processos

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ jobs -l
[1]+ 1360 Stopped (signal) top
murilo@murilo-VirtualBox:~$
```

Listagem 6.22: Controlando Processos

```
murilo@murilo-VirtualBox:~$ ps aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  1.0 101540 10780 ?        Ss   22:08   0:01 /sbin/init sp
root         2  0.0  0.0      0     0 ?        S    22:08   0:00 [kthreadd]
root         3  0.0  0.0      0     0 ?        I<   22:08   0:00 [rcu_gp]
root         4  0.0  0.0      0     0 ?        I<   22:08   0:00 [rcu_par_gp]
root         6  0.0  0.0      0     0 ?        I<   22:08   0:00 [kworker/0:0H
root         9  0.0  0.0      0     0 ?        I<   22:08   0:00 [mm_percpu_wq
root        10  0.0  0.0      0     0 ?        S    22:08   0:00 [rcu_tasks_ru
root        11  0.0  0.0      0     0 ?        S    22:08   0:00 [rcu_tasks tr
root        12  0.0  0.0      0     0 ?        S    22:08   0:00 [ksoftirqd/0]
root        13  0.0  0.0      0     0 ?        I    22:08   0:00 [rcu_sched]
root        14  0.0  0.0      0     0 ?        S    22:08   0:00 [migration/0]
root        15  0.0  0.0      0     0 ?        S    22:08   0:00 [idle_inject/
root        16  0.0  0.0      0     0 ?        S    22:08   0:00 [cpuhp/0]
root        17  0.0  0.0      0     0 ?        S    22:08   0:00 [cpuhp/1]
root        18  0.0  0.0      0     0 ?        S    22:08   0:00 [idle_inject/
root        19  0.0  0.0      0     0 ?        S    22:08   0:00 [migration/1]
root        20  0.0  0.0      0     0 ?        S    22:08   0:00 [ksoftirqd/1]
root        22  0.0  0.0      0     0 ?        I<   22:08   0:00 [kworker/1:0H
root        23  0.0  0.0      0     0 ?        S    22:08   0:00 [kdevtmpfs]
root        24  0.0  0.0      0     0 ?        I<   22:08   0:00 [netns]
```

Capítulo 7

Listagem 7.1: Listando o Proprietário e as Permissões dos Arquivos

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ls -l
total 1596
-rw-rw-r-- 1 murilo murilo 1586336 mar  1  2021 4300-0.txt
lrwxrwxrwx 1 murilo murilo      4 mai 18 08:52 arq1-soft -> arq1
-rw-rw-r-- 1 murilo murilo    10 mai 18 09:23 arq1.txt
-rw-rw-r-- 1 murilo murilo     8 mai 18 08:52 arq2
-rw-rw-r-- 1 murilo murilo    11 mai 18 09:23 arq2.txt
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Desktop
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Documents
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Downloads
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Music
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Pictures
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Public
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Templates
-rw-rw-r-- 1 murilo murilo     0 mai 18 08:49 teste.txt
drwxr-xr-x 2 murilo murilo   4096 mai 17 09:06 Videos
murilo@murilo-VirtualBox:~$
```

Listagem 7.2: Criando arquivo cidadex.txt

```
murilo@murilo-VirtualBox:~$ touch arquivo.txt
murilo@murilo-VirtualBox:~$
```

Listagem 7.3: Criando arquivo cidadex.txt

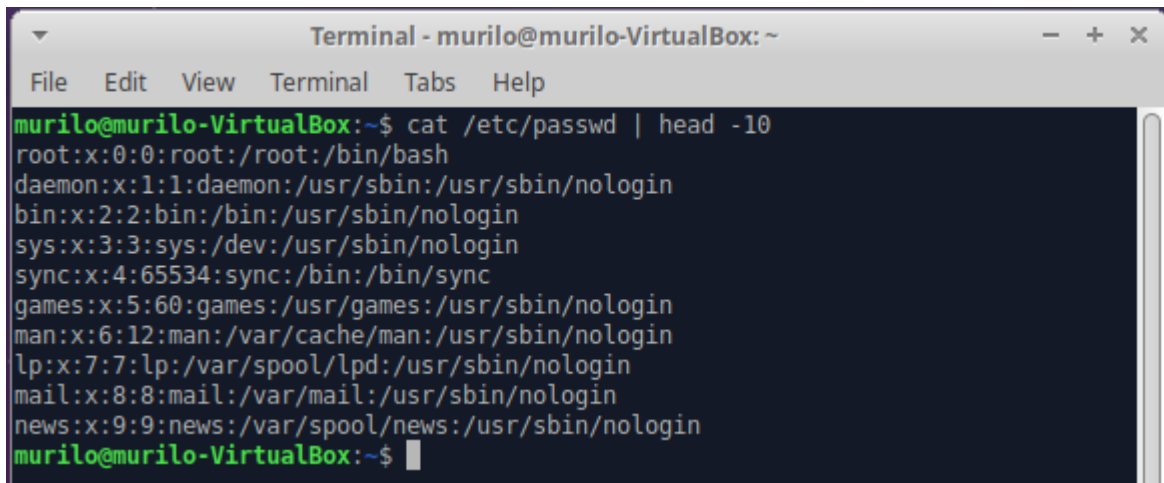
```
murilo@murilo-VirtualBox:~$ ls -l cidades.txt
ls: cannot access 'cidades.txt': No such file or directory
murilo@murilo-VirtualBox:~$
```

Listagem 7.10: Trocando as Permissões de um Arquivo

```
murilo@murilo-VirtualBox:~$ chmod 777 myfile
chmod: cannot access 'myfile': No such file or directory
murilo@murilo-VirtualBox:~$
```

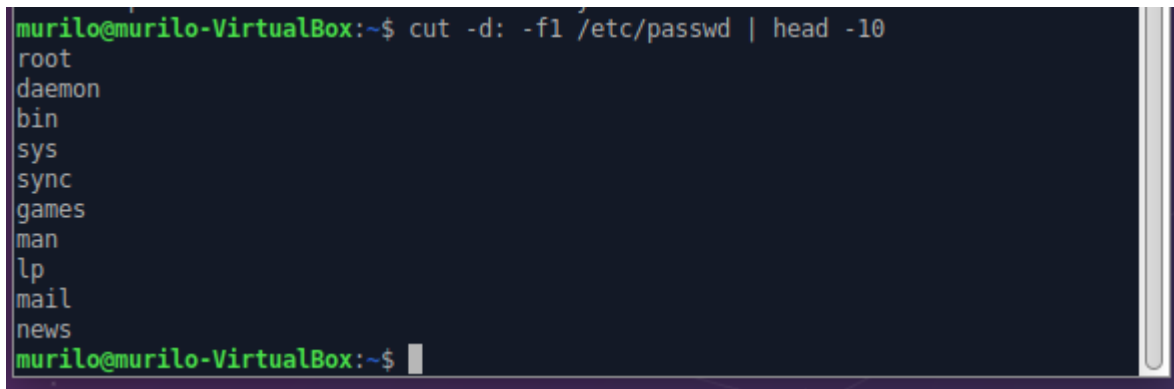

Capítulo 8

Listagem 8.1: Listando Todos os Usuários do Linux

A terminal window titled "Terminal - murilo@murilo-VirtualBox: ~" with a menu bar (File, Edit, View, Terminal, Tabs, Help). The command `cat /etc/passwd | head -10` has been executed, displaying the first 10 lines of the /etc/passwd file. The output shows system users: root, daemon, bin, sys, sync, games, man, lp, mail, and news, each with their respective UID, GID, home directory, and shell.

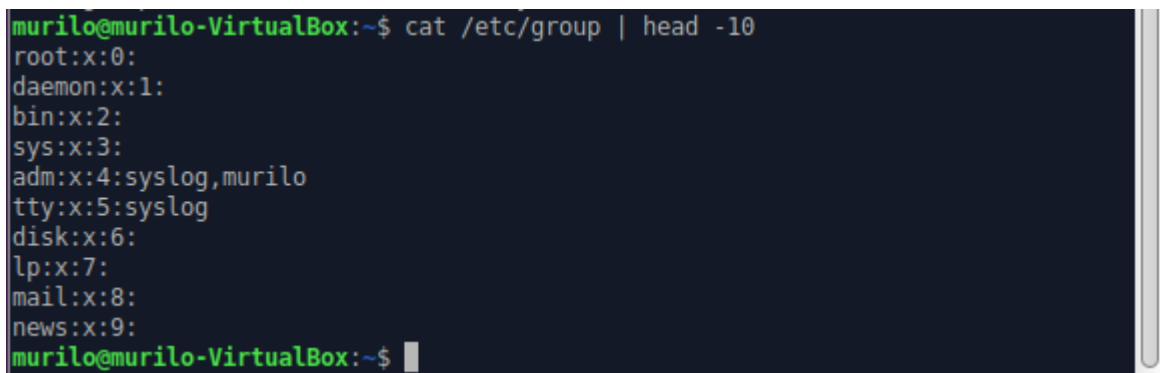
```
murilo@murilo-VirtualBox:~$ cat /etc/passwd | head -10
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
murilo@murilo-VirtualBox:~$
```

Listagem 8.2: Listando Todos os Usuários do Linux

A terminal window showing the command `cut -d: -f1 /etc/passwd | head -10` being executed. The output lists the usernames of the first 10 entries from /etc/passwd: root, daemon, bin, sys, sync, games, man, lp, mail, and news.

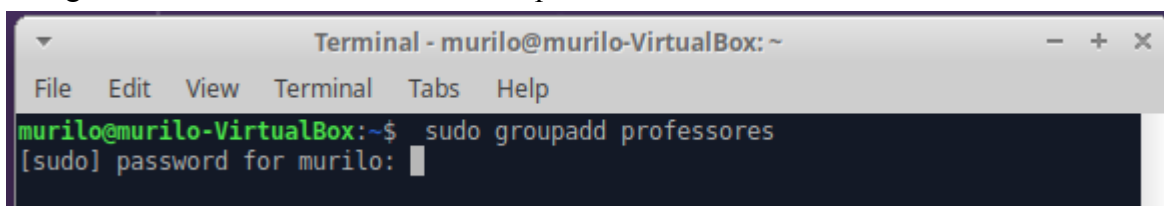
```
murilo@murilo-VirtualBox:~$ cut -d: -f1 /etc/passwd | head -10
root
daemon
bin
sys
sync
games
man
lp
mail
news
murilo@murilo-VirtualBox:~$
```

Listagem 8.3: Listando Todos os Usuários do Linux

A terminal window showing the command `cat /etc/group | head -10` being executed. The output shows the first 10 groups from /etc/group: root, daemon, bin, sys, adm, tty, disk, lp, mail, and news. The 'adm' group is shown with members 'syslog' and 'murilo'.

```
murilo@murilo-VirtualBox:~$ cat /etc/group | head -10
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,murilo
tty:x:5:syslog
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
murilo@murilo-VirtualBox:~$
```

Listagem 8.9: Adicionando um Novo Grupo

A terminal window showing the command `sudo groupadd professores` being executed. The prompt `[sudo] password for murilo:` is displayed, indicating that the user's password is being requested to authorize the command.

```
murilo@murilo-VirtualBox:~$ sudo groupadd professores
[sudo] password for murilo:
```

Capítulo 9

Listagem 9.1: Instalação do net-tools

```
murilo@murilo-VirtualBox:~$ sudo apt install net-tools
[sudo] password for murilo:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 56 not upgraded.
Need to get 196 kB of archives.
After this operation, 864 kB of additional disk space will be used.
Get:1 http://br.archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64 1.60+
git20180626.aebd88e-lubuntu1 [196 kB]
Fetched 196 kB in 1s (222 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 190550 files and directories currently installed.)
Preparing to unpack ../net-tools_1.60+git20180626.aebd88e-lubuntu1_amd64.deb ..
.
Unpacking net-tools (1.60+git20180626.aebd88e-lubuntu1) ...
Setting up net-tools (1.60+git20180626.aebd88e-lubuntu1) ...
Processing triggers for man-db (2.9.1-1) ...
murilo@murilo-VirtualBox:~$
```

Listagem 9.2: Comando hostname

```
murilo@murilo-VirtualBox:~$ hostname
murilo-VirtualBox
murilo@murilo-VirtualBox:~$
```

Listagem 9.3: Nome da Máquina com cat

```
murilo@murilo-VirtualBox:~$ cat /etc/hosts
127.0.0.1    localhost
127.0.1.1    murilo-VirtualBox

# The following lines are desirable for IPv6 capable hosts
::1         ip6-localhost ip6-loopback
fe00::0     ip6-localnet
ff00::0     ip6-mcastprefix
ff02::1     ip6-allnodes
ff02::2     ip6-allrouters
murilo@murilo-VirtualBox:~$
```

Listagem 9.4: Tabela ARP

```
murilo@murilo-VirtualBox:~$ arp -a
_gateway (10.0.2.2) at 52:54:00:12:35:02 [ether] on enp0s3
murilo@murilo-VirtualBox:~$
```

Listagem 9.5: Verificando o Endereço IP


```

murilo@murilo-VirtualBox:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::9f82:f712:733c:7745 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:45:af:a2 txqueuelen 1000 (Ethernet)
    RX packets 184 bytes 217698 (217.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 126 bytes 12958 (12.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 60 bytes 5896 (5.8 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 60 bytes 5896 (5.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

murilo@murilo-VirtualBox:~$

```

Listagem 9.6: Verificando Status da Rede Ethernet

```

murilo@murilo-VirtualBox:~$ ifconfig enol
enol: error fetching interface information: Device not found
murilo@murilo-VirtualBox:~$ ifconfig enol

```

Listagem 9.11: Verificando MTU da Rede Ethernet

```

murilo@murilo-VirtualBox:~$ ifconfig enp0s3
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::9f82:f712:733c:7745 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:45:af:a2 txqueuelen 1000 (Ethernet)
    RX packets 184 bytes 217698 (217.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 126 bytes 12958 (12.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

murilo@murilo-VirtualBox:~$

```

Listagem 9.13: Verificando o Endereço IP

```

murilo@murilo-VirtualBox:~$ ifconfig enp0s3
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::9f82:f712:733c:7745 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:45:af:a2 txqueuelen 1000 (Ethernet)
    RX packets 184 bytes 217698 (217.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 126 bytes 12958 (12.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

murilo@murilo-VirtualBox:~$

```

Listagem 9.15: Comando ping

```
ping: address error: destination address required
murilo@murilo-VirtualBox:~$ ping 10.1.212.1
PING 10.1.212.1 (10.1.212.1) 56(84) bytes of data.
```

Listagem 9.16: Exemplo do Comando ping

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ping www.ufu.br
PING www.ufu.br (200.19.145.55) 56(84) bytes of data.
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=1 ttl=50 time=53.7 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=2 ttl=50 time=54.6 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=3 ttl=50 time=56.0 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=4 ttl=50 time=56.7 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=5 ttl=50 time=56.3 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=6 ttl=50 time=86.9 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=7 ttl=50 time=55.0 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=8 ttl=50 time=52.2 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=9 ttl=50 time=56.9 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=10 ttl=50 time=56.6 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=11 ttl=50 time=54.9 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=12 ttl=50 time=54.4 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=13 ttl=50 time=56.7 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=14 ttl=50 time=56.4 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=15 ttl=50 time=56.7 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=16 ttl=50 time=55.0 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=17 ttl=50 time=52.6 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=18 ttl=50 time=74.3 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=19 ttl=50 time=56.2 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=20 ttl=50 time=55.7 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=21 ttl=50 time=55.8 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=22 ttl=50 time=55.4 ms
```

Listagem 9.17: Comando ping

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ ping -c 10 www.ufu.br
PING www.ufu.br (200.19.145.55) 56(84) bytes of data.
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=1 ttl=50 time=52.5 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=2 ttl=50 time=55.6 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=3 ttl=50 time=89.3 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=4 ttl=50 time=53.2 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=5 ttl=50 time=54.9 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=6 ttl=50 time=53.6 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=7 ttl=50 time=53.1 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=8 ttl=50 time=62.4 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=9 ttl=50 time=56.8 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=10 ttl=50 time=55.2 ms

--- www.ufu.br ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9012ms
rtt min/avg/max/mdev = 52.492/58.652/89.278/10.563 ms
murilo@murilo-VirtualBox:~$
```

Listagem 9.18: Comando ping com Opção de Tempo

```
murilo@murilo-VirtualBox:~$ ping -i 5 -c 3 www.google.com
PING www.google.com (142.250.218.36) 56(84) bytes of data.
64 bytes from rio06s12-in-f4.1e100.net (142.250.218.36): icmp_seq=1 ttl=55 time=
37.9 ms
64 bytes from rio06s12-in-f4.1e100.net (142.250.218.36): icmp_seq=2 ttl=55 time=
42.9 ms
64 bytes from rio06s12-in-f4.1e100.net (142.250.218.36): icmp_seq=3 ttl=55 time=
42.8 ms

--- www.google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 10010ms
rtt min/avg/max/mdev = 37.890/41.185/42.876/2.330 ms
murilo@murilo-VirtualBox:~$
```

Listagem 9.19: Descobrindo o Endereço Ip de um Host

```
murilo@murilo-VirtualBox:~$ host www.google.com
www.google.com has address 142.250.218.36
www.google.com has IPv6 address 2800:3f0:4004:80e::2004
murilo@murilo-VirtualBox:~$
```

Listagem 9.20: Instalação do dnsutils

```
murilo@murilo-VirtualBox:~$ sudo apt install dnsutils
[sudo] password for murilo:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  dnsutils
0 upgraded, 1 newly installed, 0 to remove and 56 not upgraded.
Need to get 2.760 B of archives.
After this operation, 47,1 kB of additional disk space will be used.
Get:1 http://br.archive.ubuntu.com/ubuntu focal-updates/universe amd64 dnsutils
all 1:9.16.1-0ubuntu2.10 [2.760 B]
Fetched 2.760 B in 0s (5.523 B/s)
Selecting previously unselected package dnsutils.
(Reading database ... 190599 files and directories currently installed.)
Preparing to unpack .../dnsutils_1%3a9.16.1-0ubuntu2.10_all.deb ...
Unpacking dnsutils (1:9.16.1-0ubuntu2.10) ...
Setting up dnsutils (1:9.16.1-0ubuntu2.10) ...
murilo@murilo-VirtualBox:~$
```

Listagem 9.21: Descobrir Informações sobre um Domínio

```

murilo@murilo-VirtualBox:~$ dig www.google.com

; <<>> DiG 9.16.1-Ubuntu <<>> www.google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 54588
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;www.google.com.                IN      A

;; ANSWER SECTION:
www.google.com.                28      IN      A      142.250.218.36

;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: qua mai 18 23:13:58 -03 2022
;; MSG SIZE rcvd: 59

murilo@murilo-VirtualBox:~$

```

Listagem 9.22: Utilizando o comando nslookup

```

murilo@murilo-VirtualBox:~$ nslookup www.google.com
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
Name:   www.google.com
Address: 142.251.132.68
Name:   www.google.com
Address: 2800:3f0:4004:80d::2004

murilo@murilo-VirtualBox:~$

```

Listagem 9.23: Instalação do Traceroute

```

murilo@murilo-VirtualBox:~$ sudo apt install traceroute
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  traceroute
0 upgraded, 1 newly installed, 0 to remove and 56 not upgraded.
Need to get 45,4 kB of archives.
After this operation, 152 kB of additional disk space will be used.
Get:1 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 traceroute amd64
1:2.1.0-2 [45,4 kB]
Fetched 45,4 kB in 0s (147 kB/s)
Selecting previously unselected package traceroute.
(Reading database ... 190603 files and directories currently installed.)
Preparing to unpack .../traceroute_1%3a2.1.0-2_amd64.deb ...
Unpacking traceroute (1:2.1.0-2) ...
Setting up traceroute (1:2.1.0-2) ...
update-alternatives: using /usr/bin/traceroute.db to provide /usr/bin/traceroute
(traceroute) in auto mode
update-alternatives: using /usr/bin/lft.db to provide /usr/bin/lft (lft) in auto

```

Listagem 9.24: Rotas

```
murilo@murilo-VirtualBox:~$ traceroute www.google.com
traceroute to www.google.com (142.251.132.68), 30 hops max, 60 byte packets
 1  _gateway (10.0.2.2)  1.452 ms  1.494 ms  1.525 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * * *
```

Listagem 9.26: Rotas com tracepath

```
murilo@murilo-VirtualBox:~$ tracepath www.ufu.br
1?: [LOCALHOST] pmtu 1500
 1:  _gateway 0.658ms
 1:  _gateway 0.267ms
 2:  no reply
 3:  no reply
 4:  no reply
 5:  no reply
^C
murilo@murilo-VirtualBox:~$
```

Listagem 9.27: Estatísticas de Rede com netstat

```
murilo@murilo-VirtualBox:~$ netstat -s
Ip:
  Forwarding: 2
  323 total packets received
  1 with invalid addresses
  0 forwarded
  0 incoming packets discarded
  320 incoming packets delivered
  480 requests sent out
Icmp:
  64 ICMP messages received
  0 input ICMP message failed
  ICMP input histogram:
    timeout in transit: 5
    echo replies: 59
  222 ICMP messages sent
  0 ICMP messages failed
  ICMP output histogram:
    echo requests: 222
```

Listagem 9.28: Comando netstat -i


```

murilo@murilo-VirtualBox:~$ netstat -i
Kernel Interface table
Iface      MTU      RX-OK RX-ERR RX-DRP RX-OVR      TX-OK TX-ERR TX-DRP TX-OVR Flg
enp0s3     1500      328    0      0 0        402    0      0    0 BMRU
lo         65536     123    0      0 0        123    0      0    0 LRU
murilo@murilo-VirtualBox:~$

```

Listagem 9.29: Visualizando Tabela de Roteamento com netstat

```

murilo@murilo-VirtualBox:~$ netstat -rn
Kernel IP routing table
Destination Gateway      Genmask      Flags   MSS Window  irtt Iface
0.0.0.0     10.0.2.2     0.0.0.0      UG        0 0        0 enp0s3
10.0.2.0    0.0.0.0     255.255.255.0 U        0 0        0 enp0s3
169.254.0.0 0.0.0.0     255.255.0.0  U        0 0        0 enp0s3
murilo@murilo-VirtualBox:~$

```

Listagem 9.30: Instalação do nmap

```

murilo@murilo-VirtualBox:~$ sudo apt-get install nmap
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  liblinear4 liblua5.3-0 lua-lpeg nmap-common
Suggested packages:
  liblinear-tools liblinear-dev ncat ndiff zenmap
The following NEW packages will be installed:
  liblinear4 liblua5.3-0 lua-lpeg nmap nmap-common
0 upgraded, 5 newly installed, 0 to remove and 56 not upgraded.
Need to get 5.528 kB of archives.
After this operation, 26,3 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 liblinear4 amd64
2.3.0+dfsg-3build1 [41,7 kB]
Get:2 http://br.archive.ubuntu.com/ubuntu focal/main amd64 liblua5.3-0 amd64 5.3
.3-1.1ubuntu2 [116 kB]
Get:3 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 lua-lpeg amd64 1.

```

Listagem 9.31: Verificando Portas Abertas

```

murilo@murilo-VirtualBox:~$ nmap www.ufu.br
Starting Nmap 7.80 ( https://nmap.org ) at 2022-05-18 23:21 -03
Nmap scan report for www.ufu.br (200.19.145.55)
Host is up (0.062s latency).
rDNS record for 200.19.145.55: bulma.dr.ufu.br
Not shown: 997 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https
8008/tcp   open  http

Nmap done: 1 IP address (1 host up) scanned in 10.42 seconds
murilo@murilo-VirtualBox:~$

```

Listagem 9.32: Comando nmap com opção -v

```

murilo@murilo-VirtualBox:~$ nmap -v localhost
Starting Nmap 7.80 ( https://nmap.org ) at 2022-05-18 23:22 -03
Initiating Ping Scan at 23:22
Scanning localhost (127.0.0.1) [2 ports]
Completed Ping Scan at 23:22, 0.00s elapsed (1 total hosts)
Initiating Connect Scan at 23:22
Scanning localhost (127.0.0.1) [1000 ports]
Discovered open port 631/tcp on 127.0.0.1
Completed Connect Scan at 23:22, 0.02s elapsed (1000 total ports)
Nmap scan report for localhost (127.0.0.1)
Host is up (0.000093s latency).
Not shown: 999 closed ports
PORT      STATE SERVICE
631/tcp   open ipp

Read data files from: /usr/bin/../share/nmap
Nmap done: 1 IP address (1 host up) scanned in 0.07 seconds
murilo@murilo-VirtualBox:~$

```

Listagem 9.34: Rastreado Múltiplos Domínios

```

murilo@murilo-VirtualBox:~$ nmap www.google.com www.facebook.com
Starting Nmap 7.80 ( https://nmap.org ) at 2022-05-18 23:23 -03
Nmap scan report for www.google.com (142.250.218.36)
Host is up (0.059s latency).
Other addresses for www.google.com (not scanned): 2800:3f0:4004:80d::2004
rDNS record for 142.250.218.36: rio06s12-in-f4.1e100.net
Not shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https

Nmap scan report for www.facebook.com (31.13.74.35)
Host is up (0.058s latency).
Other addresses for www.facebook.com (not scanned): 2a03:2880:f133:83:face:b00c
0:25de
rDNS record for 31.13.74.35: edge-star-mini-shv-01-gig2.facebook.com
Not shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https

Nmap done: 2 IP addresses (2 hosts up) scanned in 51.38 seconds
murilo@murilo-VirtualBox:~$

```

Listagem 9.35: Rastreado uma Sub-rede

```

murilo@murilo-VirtualBox:~$ nmap 192.168.0.*
Starting Nmap 7.80 ( https://nmap.org ) at 2022-05-18 23:39 -03
Nmap scan report for 192.168.0.1
Host is up (0.031s latency).
Not shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
5431/tcp  open  park-agent

Nmap done: 256 IP addresses (1 host up) scanned in 16.84 seconds
murilo@murilo-VirtualBox:~$

```

Listagem 9.36: Visualizando a Tabela de Roteamento

```
murilo@murilo-VirtualBox:~$ route
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
default          _gateway        0.0.0.0         UG    100    0      0 enp0s3
10.0.2.0         0.0.0.0         255.255.255.0   U     100    0      0 enp0s3
link-local       0.0.0.0         255.255.0.0     U     1000   0      0 enp0s3
murilo@murilo-VirtualBox:~$
```

Listagem 9.37: Uso do Telnet

```
murilo@murilo-VirtualBox:~$ telnet www.ufu.br 80
Trying 200.19.145.55...
Connected to www.ufu.br.
Escape character is '^['.
```

Listagem 9.41: Instalando ssh

```
murilo@murilo-VirtualBox:~$ sudo apt-get install openssh-client
[sudo] password for murilo:
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  keychain libpam-ssh monkeysphere ssh_askpass
The following packages will be upgraded:
  openssh-client
1 upgraded, 0 newly installed, 0 to remove and 55 not upgraded.
Need to get 671 kB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://br.archive.ubuntu.com/ubuntu focal-updates/main amd64 opens
t amd64 1:8.2p1-4ubuntu0.5 [671 kB]
Fetched 671 kB in 1s (668 kB/s)
(Reading database ... 191504 files and directories currently installed.)
Preparing to unpack .../openssh-client_1%3a8.2p1-4ubuntu0.5_amd64.deb ..
Unpacking openssh-client (1:8.2p1-4ubuntu0.5) over (1:8.2p1-4ubuntu0.4)
Setting up openssh-client (1:8.2p1-4ubuntu0.5) ...
Processing triggers for man-db (2.9.1-1) ...
murilo@murilo-VirtualBox:~$ sudo apt-get install openssh-server
Reading package lists... Done
```

Listagem 9.46: Abrindo Firefox Remotamente

```
Terminal - murilo@murilo-VirtualBox:~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ firefox &
[1] 6937
murilo@murilo-VirtualBox:~$
```

Listagem 9.49: Instalação do tcpdump


```
murilo@murilo-VirtualBox:~$ sudo apt install tcpdump
Reading package lists... Done
Building dependency tree
Reading state information... Done
tcpdump is already the newest version (4.9.3-4ubuntu0.1).
tcpdump set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 55 not upgraded.
murilo@murilo-VirtualBox:~$
```

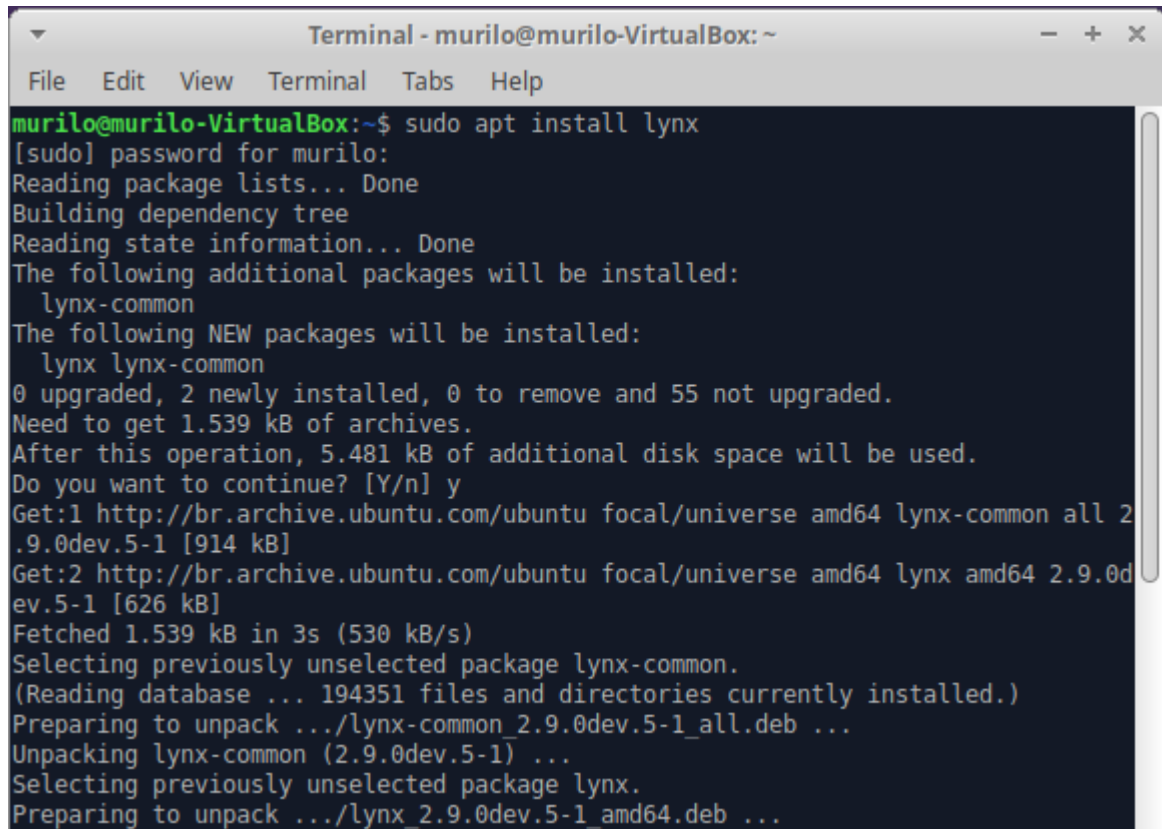
Listagem 9.50: Interfaces que podem ser utilizadas com tcpdump

```
murilo@murilo-VirtualBox:~$ tcpdump -D
1.enp0s3 [Up, Running]
2.lo [Up, Running, Loopback]
3.any (Pseudo-device that captures on all interfaces) [Up, Running]
4.bluetooth-monitor (Bluetooth Linux Monitor) [none]
5.nflog (Linux netfilter log (NFLOG) interface) [none]
6.nfqueue (Linux netfilter queue (NFQUEUE) interface) [none]
murilo@murilo-VirtualBox:~$
```

Listagem 9.51: Capturando Pacotes da Interface de Rede

```
murilo@murilo-VirtualBox:~$ tcpdump -i enp0s3
tcpdump: enp0s3: You don't have permission to capture on that device
(socket: Operation not permitted)
murilo@murilo-VirtualBox:~$
```

Listagem 9.53: Instalação do lynx



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ sudo apt install lynx
[sudo] password for murilo:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  lynx-common
The following NEW packages will be installed:
  lynx lynx-common
0 upgraded, 2 newly installed, 0 to remove and 55 not upgraded.
Need to get 1.539 kB of archives.
After this operation, 5.481 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 lynx-common all 2
.9.0dev.5-1 [914 kB]
Get:2 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 lynx amd64 2.9.0d
ev.5-1 [626 kB]
Fetched 1.539 kB in 3s (530 kB/s)
Selecting previously unselected package lynx-common.
(Reading database ... 194351 files and directories currently installed.)
Preparing to unpack .../lynx-common_2.9.0dev.5-1_all.deb ...
Unpacking lynx-common (2.9.0dev.5-1) ...
Selecting previously unselected package lynx.
Preparing to unpack .../lynx_2.9.0dev.5-1_amd64.deb ...
```

Listagem 9.54: Utilizando o lynx

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help

Pesquisa Imagens Maps Play YouTube Notícias Gmail Drive Mais »
Histórico da Web | Configurações | Fazer login

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(NORMAL LINK) Use right-arrow or <return> to activate.
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.
H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list
```

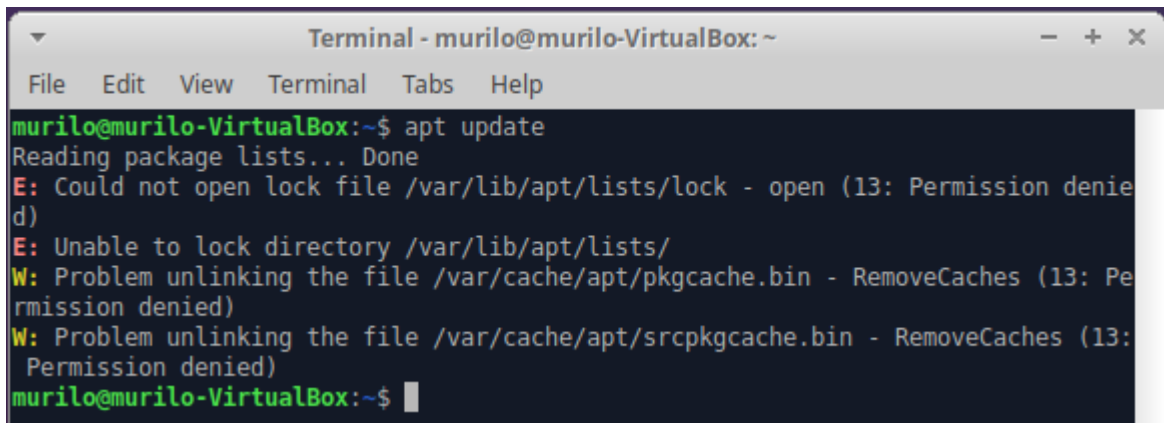
Listagem 9.55: Baixando Sites com wget

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help

murilo@murilo-VirtualBox:~$ wget --recursive www.vivas.eng.br
--2022-05-19 15:53:30-- http://www.vivas.eng.br/
Resolving www.vivas.eng.br (www.vivas.eng.br)... failed: Name or service not known.
wget: unable to resolve host address 'www.vivas.eng.br'
murilo@murilo-VirtualBox:~$
```

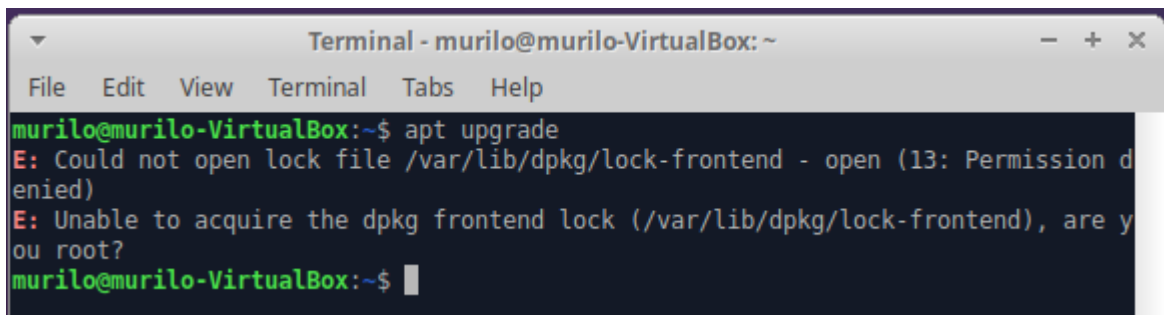
Capítulo 10

Listagem 10.1: Atualização da Lista de Pacotes Disponíveis



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ apt update
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
murilo@murilo-VirtualBox:~$
```

Listagem 10.2: Atualização de Pacotes



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ apt upgrade
E: Could not open lock file /var/lib/dpkg/lock-frontent - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontent), are you root?
murilo@murilo-VirtualBox:~$
```

Listagem 10.3: Lista de Pacotes para Upgrade

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ apt list --upgradable
Listing... Done
alsa-ucm-conf/focal-updates,focal-updates 1.2.2-1ubuntu0.13 all [upgradable from: 1.2.2-1ubuntu0.11]
apport-gtk/focal-security,focal-security 2.20.11-0ubuntu27.24 all [upgradable from: 2.20.11-0ubuntu27.21]
apport/focal-security,focal-security 2.20.11-0ubuntu27.24 all [upgradable from: 2.20.11-0ubuntu27.21]
apt-utils/focal-updates 2.0.8 amd64 [upgradable from: 2.0.6]
apt/focal-updates 2.0.8 amd64 [upgradable from: 2.0.6]
bolt/focal-updates 0.9.1-2~ubuntu20.04.1 amd64 [upgradable from: 0.8-4ubuntu1]
command-not-found/focal-updates,focal-updates 20.04.6 all [upgradable from: 20.04.5]
fwupd-signed/focal-updates 1.27.1ubuntu7+1.2-2~20.04.1 amd64 [upgradable from: 1.27.1ubuntu5+1.5.11-0ubuntu1~20.04.2]
fwupd/focal-updates 1.7.5-3~20.04.1 amd64 [upgradable from: 1.5.11-0ubuntu1~20.04.2]
gir1.2-gtk-3.0/focal-updates 3.24.20-0ubuntu1.1 amd64 [upgradable from: 3.24.20-0ubuntu1]
gtk-update-icon-cache/focal-updates 3.24.20-0ubuntu1.1 amd64 [upgradable from: 3.24.20-0ubuntu1]
gvfs-backends/focal-updates 1.44.1-1ubuntu1.1 amd64 [upgradable from: 1.44.1-1ubuntu1]
gvfs-common/focal-updates,focal-updates 1.44.1-1ubuntu1.1 all [upgradable from: 1.44.1-1ubuntu1]
```

Listagem 10.4: Instalação do Pacote vim

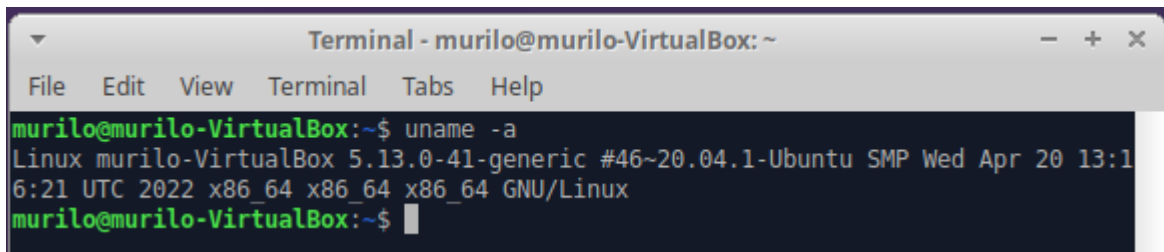
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ apt install vim
E: Could not open lock file /var/lib/dpkg/lock-frontent - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontent), are you root?
murilo@murilo-VirtualBox:~$
```

Listagem 10.5: Removendo o Pacote vim

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ apt remove vim
E: Could not open lock file /var/lib/dpkg/lock-frontent - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontent), are you root?
murilo@murilo-VirtualBox:~$
```

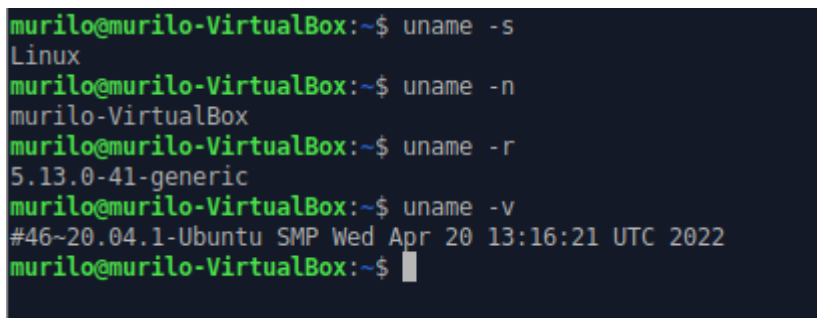
Capítulo 14

Listagem 14.1: Versão do Kernel



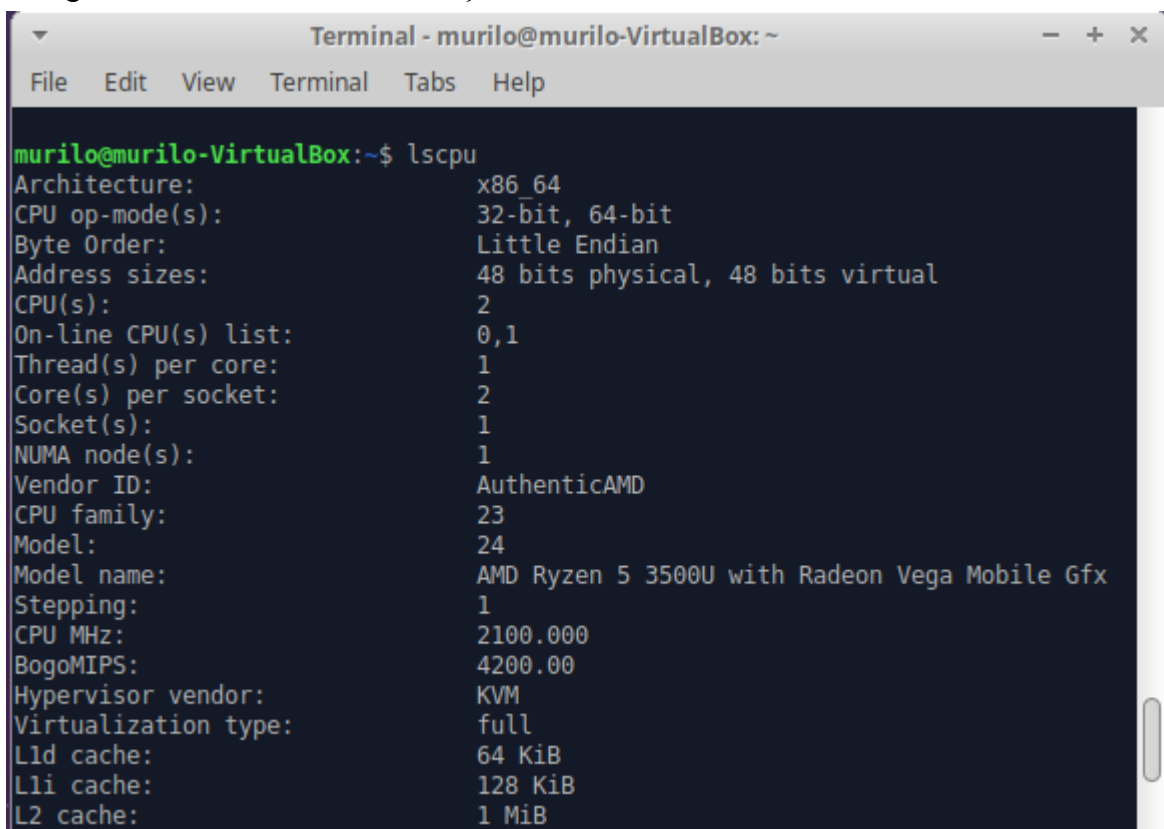
```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ uname -a
Linux murilo-VirtualBox 5.13.0-41-generic #46~20.04.1-Ubuntu SMP Wed Apr 20 13:16:21 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux
murilo@murilo-VirtualBox:~$
```

Listagem 14.2: Versão do Kernel



```
murilo@murilo-VirtualBox:~$ uname -s
Linux
murilo@murilo-VirtualBox:~$ uname -n
murilo-VirtualBox
murilo@murilo-VirtualBox:~$ uname -r
5.13.0-41-generic
murilo@murilo-VirtualBox:~$ uname -v
#46~20.04.1-Ubuntu SMP Wed Apr 20 13:16:21 UTC 2022
murilo@murilo-VirtualBox:~$
```

Listagem 14.4: Verificando Informações sobre a CPU



```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ lscpu
Architecture:            x86_64
CPU op-mode(s):          32-bit, 64-bit
Byte Order:               Little Endian
Address sizes:            48 bits physical, 48 bits virtual
CPU(s):                   2
On-line CPU(s) list:      0,1
Thread(s) per core:       1
Core(s) per socket:       2
Socket(s):                1
NUMA node(s):             1
Vendor ID:                AuthenticAMD
CPU family:               23
Model:                    24
Model name:               AMD Ryzen 5 3500U with Radeon Vega Mobile Gfx
Stepping:                  1
CPU MHz:                  2100.000
BogoMIPS:                  4200.00
Hypervisor vendor:        KVM
Virtualization type:      full
L1d cache:                64 KiB
L1i cache:                128 KiB
L2 cache:                 1 MiB
```

Listagem 14.5: Verificando a CPU

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ grep "model_name" /proc/cpuinfo
murilo@murilo-VirtualBox:~$
```

Listagem 14.6: Verificando a CPU

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ lsusb
Bus 001 Device 002: ID 80ee:0021 VirtualBox USB Tablet
Bus 001 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
murilo@murilo-VirtualBox:~$
```

Listagem 14.7: Listando Dispositivos PCI

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ lspci
00:00.0 Host bridge: Intel Corporation 440FX - 82441FX PMC [Natoma] (rev 02)
00:01.0 ISA bridge: Intel Corporation 82371SB PIIX3 ISA [Natoma/Triton II]
00:01.1 IDE interface: Intel Corporation 82371AB/EB/MB PIIX4 IDE (rev 01)
00:02.0 VGA compatible controller: VMware SVGA II Adapter
00:03.0 Ethernet controller: Intel Corporation 82540EM Gigabit Ethernet Controller (rev 02)
00:04.0 System peripheral: InnoTek Systemberatung GmbH VirtualBox Guest Service
00:05.0 Multimedia audio controller: Intel Corporation 82801AA AC'97 Audio Controller (rev 01)
00:06.0 USB controller: Apple Inc. KeyLargo/Intrepid USB
00:07.0 Bridge: Intel Corporation 82371AB/EB/MB PIIX4 ACPI (rev 08)
00:0d.0 SATA controller: Intel Corporation 82801HM/HEM (ICH8M/ICH8M-E) SATA Controller [AHCI mode] (rev 02)
murilo@murilo-VirtualBox:~$
```

Listagem 14.8: Listando Dispositivos Bloco

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
sda   8:0    0  40G  0 disk
├─sda1 8:1    0  976M  0 part [SWAP]
└─sda2 8:2    0   39G  0 part /
sr0   11:0    1 58,7M  0 rom
murilo@murilo-VirtualBox:~$
```

Listagem 14.9: Imprimindo as Partições

```

murilo@murilo-VirtualBox:~$ cat /proc/partitions
major minor #blocks name
11        0      60096 sr0
 8        0  41943040 sda
 8        1   999424 sda1
 8        2  40941568 sda2
murilo@murilo-VirtualBox:~$

```

Listagem 14.11: Instalando o pacote pcmciautils

```

murilo@murilo-VirtualBox:~$ sudo apt-get install pcmciautils
[sudo] password for murilo:
Reading package lists... Done
Building dependency tree
Reading state information... Done
pcmciautils is already the newest version (018-11).
pcmciautils set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 55 not upgraded.
murilo@murilo-VirtualBox:~$

```

Listagem 14.12: Listando Dispositivos PCMCIA

```

Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ lspcmcia
murilo@murilo-VirtualBox:~$

```

Listagem 14.13: Listando Informações sobre a Memória

```

Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ free
              total        used          free      shared  buff/cache   available
Mem:           994548       418864       134124         1584       441560       423308
Swap:          999420         8508       990912
murilo@murilo-VirtualBox:~$

```

Listagem 14.14: Listando Informações sobre a Memória

```

murilo@murilo-VirtualBox:~$ free -m
              total        used          free      shared  buff/cache   available
Mem:              971         409           130           1         431         413
Swap:             975           8           967
murilo@murilo-VirtualBox:~$

```

Listagem 14.15: Listando Informações sobre a Memória


```

murilo@murilo-VirtualBox:~$ cat /proc/meminfo
MemTotal:      994548 kB
MemFree:       134124 kB
MemAvailable:  423360 kB
Buffers:       30044 kB
Cached:        364876 kB
SwapCached:    304 kB
Active:        285220 kB
Inactive:      442012 kB
Active(anon):  2880 kB
Inactive(anon): 331016 kB
Active(file):  282340 kB
Inactive(file): 110996 kB
Unevictable:   16 kB
Mlocked:       16 kB
SwapTotal:     999420 kB
SwapFree:      990912 kB
Dirty:         0 kB
Writeback:     0 kB
AnonPages:     332196 kB
Mapped:        132384 kB
Shmem:         1584 kB

```

Listagem 14.16: Listando Informações sobre a Memória

```

murilo@murilo-VirtualBox:~$ vmstat -s
 994548 K total memory
 418812 K used memory
 285228 K active memory
 442148 K inactive memory
 134124 K free memory
 30052 K buffer memory
 411560 K swap cache
 999420 K total swap
  8508 K used swap
 990912 K free swap
  2670 non-nice user cpu ticks
  1563 nice user cpu ticks
  2626 system cpu ticks
513759 idle cpu ticks
  411 IO-wait cpu ticks
    0 IRQ cpu ticks
  456 softirq cpu ticks
    0 stolen cpu ticks
 927839 pages paged in
108520 pages paged out
   69 pages swapped in

```

Listagem 14.17: Listando Informações sobre a Memória

```

murilo@murilo-VirtualBox:~$ lsmem
RANGE                                SIZE  STATE  REMOVABLE  BLOCK
0x0000000000000000-0x000000003fffffff  1G online      yes    0-7

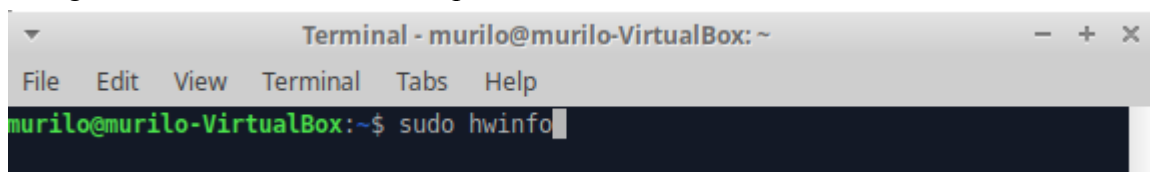
Memory block size:      128M
Total online memory:    1G
Total offline memory:   0B
murilo@murilo-VirtualBox:~$ █

```


Listagem 14.19: Instalando hwinfo

```
murilo@murilo-VirtualBox:~$ sudo apt-get install hwinfo
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libhd21 libx86emu2
The following NEW packages will be installed:
  hwinfo libhd21 libx86emu2
0 upgraded, 3 newly installed, 0 to remove and 55 not upgraded.
Need to get 793 kB of archives.
After this operation, 3.498 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 libx86emu2 amd64 2.4-1 [45,5 kB]
Get:2 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 libhd21 amd64 21.68-1 [729 kB]
Get:3 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 hwinfo amd64 21.68-1 [18,0 kB]
Fetched 793 kB in 1s (575 kB/s)
Selecting previously unselected package libx86emu2:amd64.
(Reading database ... 194459 files and directories currently installed.)
Preparing to unpack .../libx86emu2_2.4-1_amd64.deb ...
Unpacking libx86emu2:amd64 (2.4-1) ...
```

Listagem 14.20: Analisando os Dispositivos de Hardware

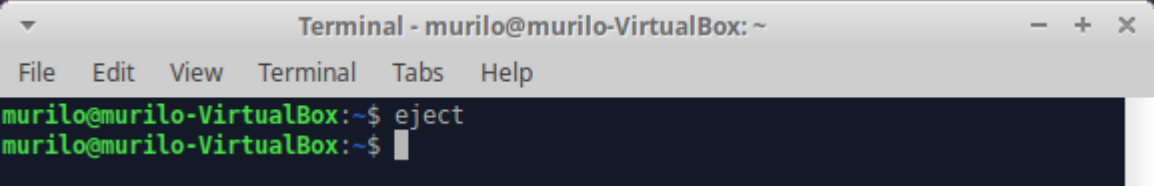


```
murilo@murilo-VirtualBox:~$ sudo hwinfo
```

Listagem 14.21: Versão Resumida do Relatório do lshw

```
murilo@murilo-VirtualBox:~$ sudo hwinfo --short
cpu:
    AMD Ryzen 5 3500U with Radeon Vega Mobile Gfx, 2100 MHz
    AMD Ryzen 5 3500U with Radeon Vega Mobile Gfx, 2100 MHz
keyboard:
    /dev/input/event2    AT Translated Set 2 keyboard
mouse:
    /dev/input/mice      VirtualBox USB Tablet
    /dev/input/mice      Mouse
    /dev/input/mice      VirtualBox mouse integration
graphics card:
    VMware VMWARE0405
sound:
    Intel 82801AA AC'97 Audio Controller
storage:
    Intel 82801HM/HEM (ICH8M/ICH8M-E) SATA Controller [AHCI m
ode]
    Intel 82371AB/EB/MB PIIX4 IDE
network:
    enp0s3               Intel PRO/1000 MT Desktop Adapter
network interface:
    enp0s3               Ethernet network interface
    lo                   Loopback network interface
```

Listagem 14.22: Comando para remover CDROM

A screenshot of a terminal window titled "Terminal - murilo@murilo-VirtualBox: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The terminal content shows two lines: "murilo@murilo-VirtualBox:~\$ eject" and "murilo@murilo-VirtualBox:~\$ " with a cursor at the end of the second line.

```
Terminal - murilo@murilo-VirtualBox: ~
File Edit View Terminal Tabs Help
murilo@murilo-VirtualBox:~$ eject
murilo@murilo-VirtualBox:~$
```