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Prática de Sistemas Digitais para Mecatrônica

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**UTILIZAÇÃO DO LINUX**

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# Sumário

<b>1. OBJETIVOS.....</b>	<b>3</b>
<b>2. COMANDOS.....</b>	<b>4</b>
2.1. CAPÍTULO 1.....	4
2.2. CAPÍTULO 2.....	6
2.3. CAPÍTULO 3.....	7
2.4. CAPÍTULO 4.....	13
2.5. CAPÍTULO 5.....	19
2.6. CAPÍTULO 6.....	23
2.7. CAPÍTULO 7.....	26
2.8. CAPÍTULO 8.....	26
2.9. CAPÍTULO 9.....	27
2.10. CAPÍTULO 10 .....	33
2.11. CAPÍTULO 14 .....	34
<b>3. REFERÊNCIAS.....</b>	<b>38</b>

## **1. OBJETIVOS**

Esta atividade prática tem como objetivo introduzir ao aluno a utilização do sistema operacional Linux, onde o aluno irá explorar as ferramentas básicas de interação de um usuário com o sistema por meio da linha de comando utilizando como referência o livro “Linux: Comandos Básicos e Avançados” (2ª edição) de Vivas, Araújo, Pitangui e Assis.

## 2. COMANDOS

### 2.1. CAPÍTULO 1

A presente seção irá apresentar os comandos abordados no primeiro capítulo do livro, sendo que os *printscreens* dos resultados dos comandos serão demonstradas a seguir.

O primeiro comando apresentado foi o comando “*clear*” que é utilizado para limpar a tela do “*Terminal*”, conforme apresentado na Figura (1).

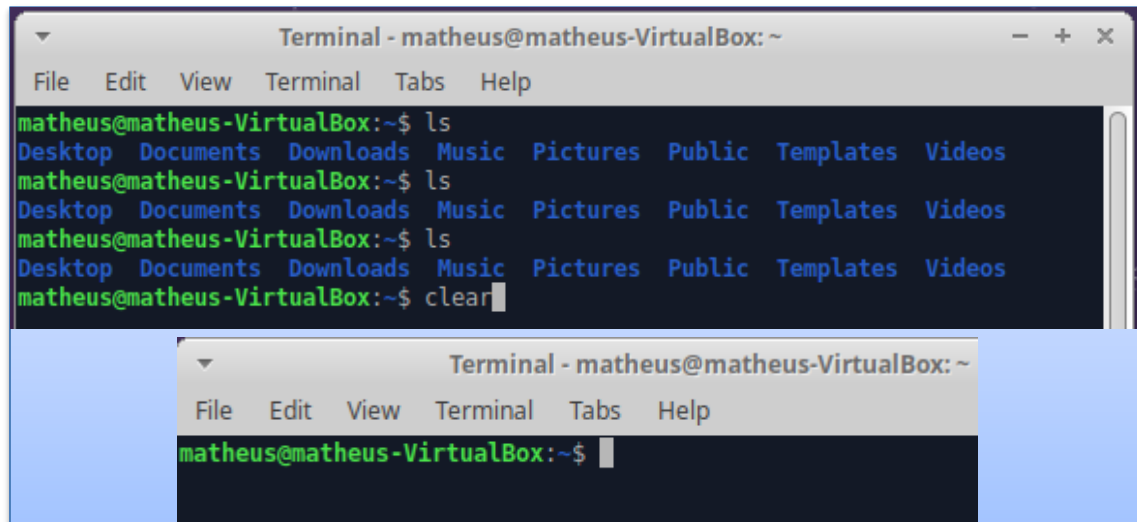


Figura 1 – Exemplo de aplicação do comando “clear”

Ademais, a combinação CTRL+L também executa o mesmo processo.

Os outros comandos apresentados no capítulo serão mostrados nas figuras a seguir.

```
matheus@matheus-VirtualBox:~$ echo
matheus@matheus-VirtualBox:~$ echo teste
teste
matheus@matheus-VirtualBox:~$ history
 1 cd /media/user/VBox_GAs_6.1.30/
 2 cd /media/matheus/VBox_GAs_6.1.30/
 3 ls
 4 sudo ./
 5 sudo
 6 sudo ./VBox
 7 sudo
 8 sudo ./
 9 clc
10 clear
11 sudo
12 sudo ./
13 cd /media/matheus/VBox_GAs_6.1.30/
14 ls
15 sudo
16 sudo ./
17 sudo ./VBoxLinuxAdditions.run
18 sudo reboot
```

```
19 ls
20 ls -IF
21 ls desktop
22 clear
23 ls
24 clear
25 ls
26 echo
27 echo teste
28 echo 'teste'
29 echo"teste"
30 echo -e
31 clear
32 echo
33 echo teste
```

Figura 2 – Comandos “echo” e “history”

```
matheus@matheus-VirtualBox:~$ !3
ls
Desktop Documents Downloads Music Pictures Public Templates Videos
matheus@matheus-VirtualBox:~$ history grep echo
bash: history: grep: numeric argument required
matheus@matheus-VirtualBox:~$ history | grep echo
 26 echo
 27 echo teste
 28 echo 'teste'
 29 echo"teste"
 30 echo -e
 32 echo
 33 echo teste
 36 history grep echo
 37 history | grep echo
matheus@matheus-VirtualBox:~$ history -c
matheus@matheus-VirtualBox:~$ echo $HISTSIZE
1000
matheus@matheus-VirtualBox:~$ export HISTSIZE=100
matheus@matheus-VirtualBox:~$ cat ~/.bash_history
cat: ~/.bash_history: No such file or directory
matheus@matheus-VirtualBox:~$
```

Figura 3 – Outros comandos no Linux

```

matheus@matheus-VirtualBox:~$ sudo apt install vim
[sudo] password for matheus:
Sorry, try again.
[sudo] password for matheus:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  vim-common vim-runtime vim-tiny
Suggested packages:
  ctags vim-doc vim-scripts indent
The following NEW packages will be installed:
  vim vim-runtime
The following packages will be upgraded:
  vim-common vim-tiny
2 upgraded, 2 newly installed, 0 to remove and 148 not upgraded.
Need to get 7.114 kB/7.778 kB of archives.
After this operation, 34,6 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-updates/main amd64 vim-runtime all 2:8.1.2269-1ubuntu5.4 [5.875 kB]
Get:2 http://br.archive.ubuntu.com/ubuntu focal-updates/main amd64 vim amd64 2:8.1.2269-1ubuntu5.4 [1.239 kB]
Fetched 7.114 kB in 3s (2.682 kB/s)
(Reading database ... 196791 files and directories currently installed.)
Preparing to unpack .../vim-tiny_2%3a8.1.2269-1ubuntu5.4_amd64.deb ...
Unpacking vim-tiny (2:8.1.2269-1ubuntu5.4) over (2:8.1.2269-1ubuntu5) ...
Preparing to unpack .../vim-common_2%3a8.1.2269-1ubuntu5.4_all.deb ...
Unpacking vim-common (2:8.1.2269-1ubuntu5.4) over (2:8.1.2269-1ubuntu5) ...
Selecting previously unselected package vim-runtime.
Preparing to unpack .../vim-runtime_2%3a8.1.2269-1ubuntu5.4_all.deb ...
Adding 'diversion of /usr/share/vim/vim81/doc/help.txt to /usr/share/vim/vim81/doc/help.txt.vim-tiny by vim-runtime'
Adding 'diversion of /usr/share/vim/vim81/doc/tags to /usr/share/vim/vim81/doc/tags.vim-tiny by vim-runtime'
Unpacking vim-runtime (2:8.1.2269-1ubuntu5.4) ...
Selecting previously unselected package vim.
Preparing to unpack .../vim_2%3a8.1.2269-1ubuntu5.4_amd64.deb ...
Unpacking vim (2:8.1.2269-1ubuntu5.4) ...
Setting up vim-common (2:8.1.2269-1ubuntu5.4) ...
Setting up vim-runtime (2:8.1.2269-1ubuntu5.4) ...
Setting up vim (2:8.1.2269-1ubuntu5.4) ...
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/vim (vim) in a
uto mode
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/vimdiff (vimdi
ff) in auto mode
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/rvim (rvim) in
 auto mode
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/rview (rview)
in auto mode
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/vi (vi) in aut
o mode
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/view (view) in
 auto mode
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/ex (ex) in aut
o mode
Setting up vim-tiny (2:8.1.2269-1ubuntu5.4) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for man-db (2.9.1-1) ...

```

Figura 4 – Comando para usuário Root

## 2.2. CAPÍTULO 2

O comando para sair do sistema é apresentado na Figura (5) e o resultado obtido é apresentado na Figura (6).

```

matheus@matheus-VirtualBox:~$ logout
bash: logout: not login shell: use `exit'
matheus@matheus-VirtualBox:~$ exit

```

Figura 5 – Comando “exit”

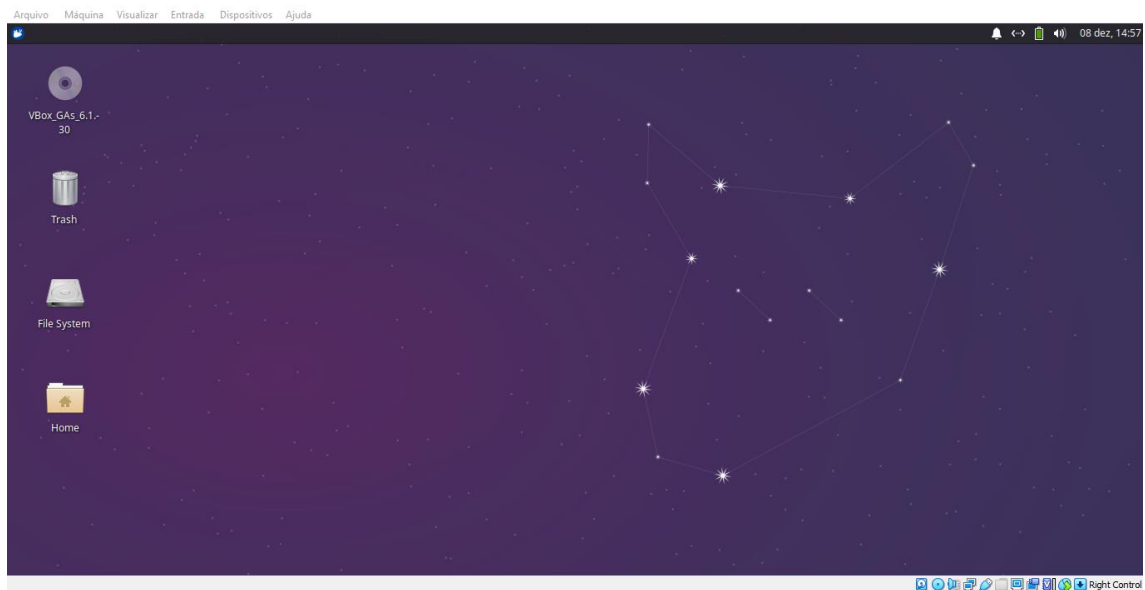


Figura 6 – Resultado do comando “exit”

Os comandos para desligar e reiniciar o sistema são apresentados nas figuras a seguir.

```
matheus@matheus-VirtualBox:~$ shutdown
Shutdown scheduled for Wed 2021-12-08 14:54:56 -03, use 'shutdown -c' to cancel.
matheus@matheus-VirtualBox:~$ shutdown -c
matheus@matheus-VirtualBox:~$
```

Figura 7 – Comando “shutdown”

```
matheus@matheus-VirtualBox:~$ shutdown -h +3
Shutdown scheduled for Wed 2021-12-08 15:07:30 -03, use 'shutdown -c' to cancel.
matheus@matheus-VirtualBox:~$ shutdown -c
matheus@matheus-VirtualBox:~$ shutdown -h +5
Shutdown scheduled for Wed 2021-12-08 15:10:04 -03, use 'shutdown -c' to cancel.
matheus@matheus-VirtualBox:~$ shutdown -c
matheus@matheus-VirtualBox:~$
```

Figura 8 – Comando “shutdown” com argumentos

O comando “*poweroff*” foi executado e como resultado a máquina virtual foi desligada imediatamente.

Da mesma forma, a máquina foi desligada para os comandos de reinicialização como “*reboot*” e “*shutdown -r now*”. Assim, as *printscreens* das execuções não serão apresentadas.

## 2.3. CAPÍTULO 3

Os comandos apresentados no capítulo 3 estão apresentados nas figuras a seguir.

```

matheus@matheus-VirtualBox:~$ /bin
bash: /bin: Is a directory
matheus@matheus-VirtualBox:~$ ps
  PID TTY          TIME CMD
  1384 pts/0    00:00:00 bash
  1412 pts/0    00:00:00 ps
matheus@matheus-VirtualBox:~$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
matheus@matheus-VirtualBox:~$ ping
ping: usage error: Destination address required
matheus@matheus-VirtualBox:~$ cp
cp: missing file operand
Try 'cp --help' for more information.
matheus@matheus-VirtualBox:~$ /sbin
bash: /sbin: Is a directory
matheus@matheus-VirtualBox:~$ iptables
iptables v1.8.4 (legacy): no command specified
Try `iptables -h' or 'iptables --help' for more information.
matheus@matheus-VirtualBox:~$ fdisk
fdisk: bad usage
Try 'fdisk --help' for more information.
matheus@matheus-VirtualBox:~$ ifconfig

Command 'ifconfig' not found, but can be installed with:

sudo apt install net-tools

matheus@matheus-VirtualBox:~$ /dev
bash: /dev: Is a directory
matheus@matheus-VirtualBox:~$ /etc
bash: /etc: Is a directory
matheus@matheus-VirtualBox:~$ /proc
bash: /proc: Is a directory
matheus@matheus-VirtualBox:~$ /var
bash: /var: Is a directory
matheus@matheus-VirtualBox:~$ /var/log
bash: /var/log: Is a directory
matheus@matheus-VirtualBox:~$ /tmp
bash: /tmp: Is a directory
matheus@matheus-VirtualBox:~$ /usr
bash: /usr: Is a directory
matheus@matheus-VirtualBox:~$ /home
bash: /home: Is a directory
matheus@matheus-VirtualBox:~$ /lib
bash: /lib: Is a directory
matheus@matheus-VirtualBox:~$ /opt
bash: /opt: Is a directory
matheus@matheus-VirtualBox:~$ /mnt
bash: /mnt: Is a directory
matheus@matheus-VirtualBox:~$ /media
bash: /media: Is a directory
matheus@matheus-VirtualBox:~$ /serv
bash: /serv: No such file or directory
matheus@matheus-VirtualBox:~$ /srv
bash: /srv: Is a directory

```

Figura 9 – Comandos apresentados no capítulo 3

O comando “ls” pode ser utilizados de diferentes formas, conforme apresentado nas figuras a seguir.



```

matheus@matheus-VirtualBox:~$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
matheus@matheus-VirtualBox:~$ ls -l
Desktop
Documents
Downloads
Music
Pictures
Public
Templates
Videos
matheus@matheus-VirtualBox:~$ /etc ls -l
bash: /etc: Is a directory
matheus@matheus-VirtualBox:~$ ls -l
total 32
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:05 Desktop
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:05 Documents
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:05 Downloads
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:05 Music
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:05 Pictures
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:05 Public
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:06 Templates
drwxr-xr-x 2 matheus matheus 4096 dez  3 00:05 Videos
matheus@matheus-VirtualBox:~$ ls -ld /etc
drwxr-xr-x 133 root root 12288 dez  8 14:44 /etc

```

Figura 10 – Comando “ls”

```

matheus@matheus-VirtualBox:~$ ls -la
.          .bash_logout .config  Documents .ICEauthority Pictures .sudo_as_admin_successful .vboxclient-display-svga-x11.pid Videos .xscreensaver
..         .bashrc     Desktop Downloads .local     .profile Templates .vboxclient-draganddrop.pid .Xauthority .xsession-errors
.bash_history .cache      .dmrc    .gnupg     Music      Public .vboxclient-clipboard.pid .vboxclient-seamless.pid .Xdefaults .xsession-errors.old
matheus@matheus-VirtualBox:~$ ls -all
total 120
drwxr-xr-x 14 matheus matheus 4096 dez  8 15:03 .
drwxr-xr-x  3 root    root    4096 dez  2 23:49 ..
-rw-r--r--  1 matheus matheus  581 dez  8 15:00 .bash_history
-rw-r--r--  1 matheus matheus  220 dez  2 23:49 .bash_logout
-rw-r--r--  1 matheus matheus 3771 dez  2 23:49 .bashrc
drwxr-xr-x  9 matheus matheus 4096 dez  8 15:03 .cache
drwxr-xr-x 11 matheus matheus 4096 dez  3 00:07 .config
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Desktop
-rw-r--r--  1 matheus matheus   26 dez  3 00:05 .dmrc
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Documents
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Downloads
drwxr-xr-x  3 matheus matheus 4096 dez  3 00:05 .gnupg
-rw-r--r--  1 matheus matheus   0 dez  3 00:09 .ICEauthority
drwxr-xr-x  3 matheus matheus 4096 dez  3 00:05 .local
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Music
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Pictures
-rw-r--r--  1 matheus matheus  807 dez  2 23:49 .profile
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Public
-rw-r--r--  1 matheus matheus   0 dez  3 00:10 .sudo_as_admin_successful
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:06 Templates
-rw-r--r--  1 matheus matheus   4 dez  8 15:03 .vboxclient-clipboard.pid
-rw-r--r--  1 matheus matheus   4 dez  8 15:03 .vboxclient-display-svga-x11.pid
-rw-r--r--  1 matheus matheus   4 dez  8 15:03 .vboxclient-draganddrop.pid
-rw-r--r--  1 matheus matheus   4 dez  8 15:03 .vboxclient-seamless.pid
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Videos
-rw-r--r--  1 matheus matheus   63 dez  8 15:02 .Xauthority
-rw-r--r--  1 matheus matheus 1600 dez  2 23:49 .Xdefaults
-rw-r--r--  1 matheus matheus   14 dez  2 23:49 .xscreensaver
-rw-r--r--  1 matheus matheus 6162 dez  8 15:03 .xsession-errors
-rw-r--r--  1 matheus matheus 6535 dez  8 15:00 .xsession-errors.old

```

Figura 11 – Comando “ls”

```

matheus@matheus-VirtualBox:~$ ls -ld .*
drwxr-xr-x 3 root root 4096 dez 2 23:49 ..
-rw-r----- 1 matheus matheus 381 dez 8 15:00 .bash_history
-rw-r--r-- 1 matheus matheus 220 dez 2 23:49 .bash_logout
-rw-r--r-- 1 matheus matheus 3771 dez 2 23:49 .bashrc
drwxrwxr-x 9 matheus matheus 4096 dez 8 15:03 .cache
drwxr-xr-x 11 matheus matheus 4096 dez 3 00:07 .config
-rw-r--r-- 1 matheus matheus 26 dez 3 00:05 .dmrc
drwx----- 3 matheus matheus 4096 dez 3 00:05 .gnupg
-rw-r----- 1 matheus matheus 0 dez 3 00:05 .ICEauthority
drwxrwxr-x 3 matheus matheus 4096 dez 3 00:05 .local
-rw-r--r-- 1 matheus matheus 807 dez 2 23:49 .profile
-rw-r--r-- 1 matheus matheus 0 dez 3 00:10 .sudo_as_admin_successful
-rw-r----- 1 matheus matheus 4 dez 8 15:03 .vboxclient-clipboard.pid
-rw-r----- 1 matheus matheus 4 dez 8 15:03 .vboxclient-display-svg-x11.pid
-rw-r----- 1 matheus matheus 4 dez 8 15:03 .vboxclient-draganddrop.pid
-rw-r----- 1 matheus matheus 4 dez 8 15:03 .vboxclient-seamless.pid
-rw-r----- 1 matheus matheus 63 dez 8 15:02 .Xauthority
-rw-r--r-- 1 matheus matheus 1600 dez 2 23:49 .Xdefaults
-rw-r--r-- 1 matheus matheus 14 dez 2 23:49 .xscreensaver
-rw-r----- 1 matheus matheus 6162 dez 8 15:03 .xsession-errors
-rw-r----- 1 matheus matheus 6535 dez 8 15:00 .xsession-errors.old

```

Figura 12 – Comando “ls”

```

matheus@matheus-VirtualBox:~$ ls -a | egrep '^\. '
.
..
.bash_history
.bash_logout
.bashrc
.cache
.config
.dmrc
.gnupg
.ICEauthority
.local
.profile
.sudo_as_admin_successful
.vboxclient-clipboard.pid
.vboxclient-display-svg-x11.pid
.vboxclient-draganddrop.pid
.vboxclient-seamless.pid
.Xauthority
.Xdefaults
.xscreensaver
.xsession-errors
.xsession-errors.old

```

Figura 13 – Comando “ls”

```

matheus@matheus-VirtualBox:~$ ls -F
Desktop/ Documents/ Downloads/ Music/ Pictures/ Public/ Templates/ Videos/
matheus@matheus-VirtualBox:~$ ls -s
total 32
4 Desktop 4 Documents 4 Downloads 4 Music 4 Pictures 4 Public 4 Templates 4 Videos
matheus@matheus-VirtualBox:~$ ls -alF
total 120
drwxr-xr-x 14 matheus matheus 4096 dez  8 15:03 ./
drwxr-xr-x  3 root    root    4096 dez  2 23:49 ../
-rw-----  1 matheus matheus  381 dez  8 15:00 .bash_history
-rw-r--r--  1 matheus matheus  220 dez  2 23:49 .bash_logout
-rw-r--r--  1 matheus matheus 3771 dez  2 23:49 .bashrc
drwxrwxr-x  9 matheus matheus 4096 dez  8 15:03 .cache/
drwxr-xr-x 11 matheus matheus 4096 dez  3 00:07 .config/
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Desktop/
-rw-r--r--  1 matheus matheus   26 dez  3 00:05 .dmrc
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Documents/
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Downloads/
drwx-----  3 matheus matheus 4096 dez  3 00:05 .gnupg/
-rw-----  1 matheus matheus    0 dez  3 00:05 .ICEauthority
drwxrwxr-x  3 matheus matheus 4096 dez  3 00:05 .local/
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Music/
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Pictures/
-rw-r--r--  1 matheus matheus  807 dez  2 23:49 .profile
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Public/
-rw-r--r--  1 matheus matheus    0 dez  3 00:10 .sudo_as_admin_successful
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:06 Templates/
-rw-r-----  1 matheus matheus   4 dez  8 15:03 .vboxclient-clipboard.pid
-rw-r-----  1 matheus matheus   4 dez  8 15:03 .vboxclient-display-svgx-x11.pid
-rw-r-----  1 matheus matheus   4 dez  8 15:03 .vboxclient-draganddrop.pid
-rw-r-----  1 matheus matheus   4 dez  8 15:03 .vboxclient-seamless.pid
drwxr-xr-x  2 matheus matheus 4096 dez  3 00:05 Videos/
-rw-----  1 matheus matheus   63 dez  8 15:02 .Xauthority
-rw-r--r--  1 matheus matheus 1600 dez  2 23:49 .Xdefaults
-rw-r--r--  1 matheus matheus   14 dez  2 23:49 .xscreensaver
-rw-----  1 matheus matheus 6162 dez  8 15:03 .xsession-errors
matheus@matheus-VirtualBox:~$ ls -ld /usr/
drwxr-xr-x 14 root root 4096 ago 19 07:32 /usr/
matheus@matheus-VirtualBox:~$

```

Figura 14 – Comando “ls”

O comando “cd” é utilizado para a navegação nos diretórios do sistema, conforme apresentado na Figura (15).

```

matheus@matheus-VirtualBox:~$ cd /home/matheus/
matheus@matheus-VirtualBox:~$ cd /home/matheus/Documents
matheus@matheus-VirtualBox:~/Documents$ cd /home/matheus/Downloads
matheus@matheus-VirtualBox:~/Downloads$ cd /home/matheus/Videos
matheus@matheus-VirtualBox:~/Videos$ cd /home/matheus/
matheus@matheus-VirtualBox:~$ cd /home/matheus/Music
matheus@matheus-VirtualBox:~/Music$ cd ~
matheus@matheus-VirtualBox:~$ echo ~
/home/matheus
matheus@matheus-VirtualBox:~$

```

Figura 15 – Comando “cd”

O comando “pwd” é utilizado para identificar o diretório em que se encontra, conforme apresentado na Figura (16).

```
matheus@matheus-VirtualBox:~$ pwd
/home/matheus
matheus@matheus-VirtualBox:~$ ls teste.txt
teste.txt
matheus@matheus-VirtualBox:~$ ls /home/matheus/teste.txt
/home/matheus/teste.txt
matheus@matheus-VirtualBox:~$ ls ~/teste.txt
/home/matheus/teste.txt
matheus@matheus-VirtualBox:~$
```

Figura 16 – Comando “pwd”

O comando “cp” é utilizado para a cópia de arquivos de um diretório para outro. A Figura (16) apresenta o comando e a Figura (17) apresenta o resultado da execução.

```
matheus@matheus-VirtualBox:~$ cp teste.txt /home/matheus/Documents
matheus@matheus-VirtualBox:~$
```

Figura 16 – Comando “cp”

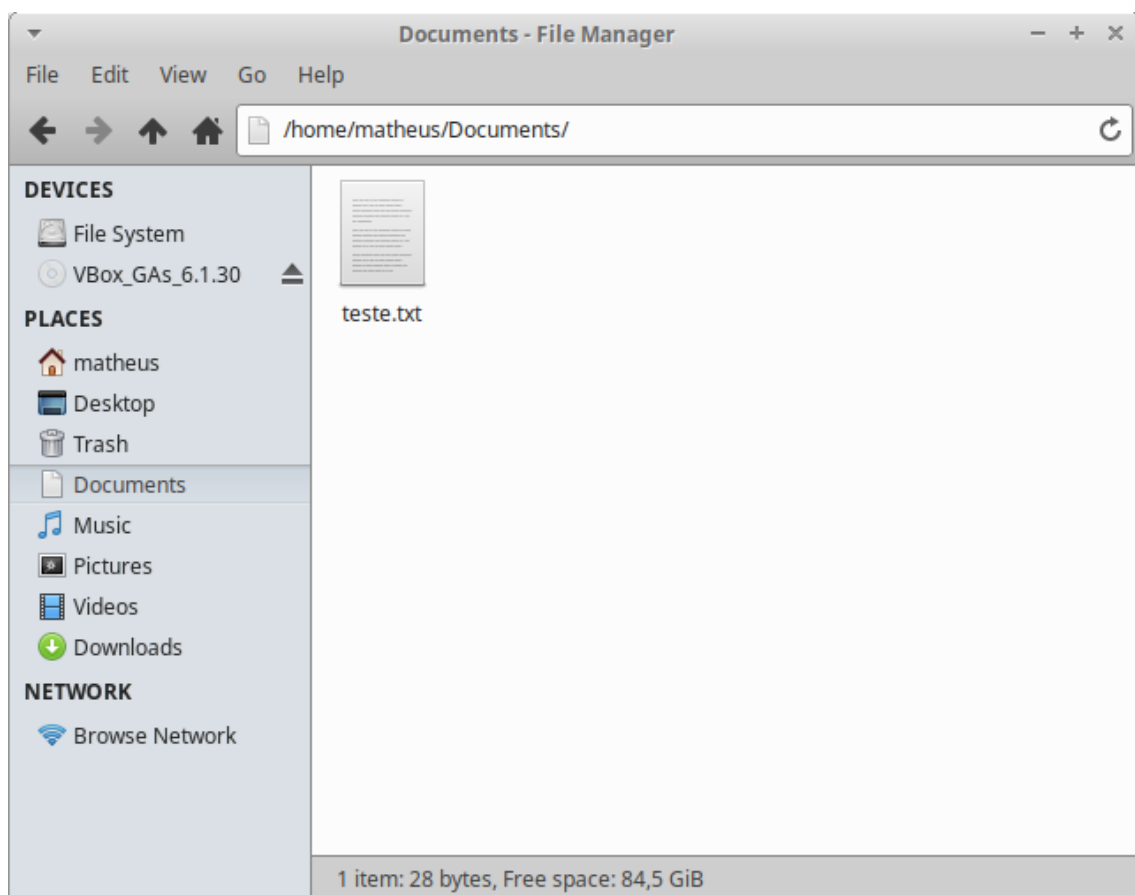


Figura 17 – Arquivo copiado

Os demais comandos apresentados no capítulo serão mostrados nas figuras a seguir.

```
matheus@matheus-VirtualBox:~$ cd /home/matheus/Documents
matheus@matheus-VirtualBox:~/Documents$ rename teste.txt teste2.txt
Bareword "teste" not allowed while "strict subs" in use at (user-supplied code) line 3.
matheus@matheus-VirtualBox:~/Documents$
```

Figura 18 – Comando “rename”

```

matheus@matheus-VirtualBox:~$ touch doc.txt
matheus@matheus-VirtualBox:~$ mktemp
/tmp/tmp.X3x0QFIJPO
matheus@matheus-VirtualBox:~$ rm teste.txt
matheus@matheus-VirtualBox:~$ rm *.txt
matheus@matheus-VirtualBox:~$ mkdir teste
matheus@matheus-VirtualBox:~$ rmdir teste
matheus@matheus-VirtualBox:~$ touch arq1
matheus@matheus-VirtualBox:~$ echo 'Laranja' >> arq1
matheus@matheus-VirtualBox:~$ ln -s arq1 arq1-soft
matheus@matheus-VirtualBox:~$ ls -l arq1*
-rw-rw-r-- 1 matheus matheus 8 dez  8 16:10 arq1
lrwxrwxrwx 1 matheus matheus 4 dez  8 16:10 arq1-soft -> arq1
matheus@matheus-VirtualBox:~$ cat arq1-soft
Laranja
matheus@matheus-VirtualBox:~$ mv arq1 arq2
matheus@matheus-VirtualBox:~$ cat arq1-soft
cat: arq1-soft: No such file or directory
matheus@matheus-VirtualBox:~$ ls -l arq1-soft
lrwxrwxrwx 1 matheus matheus 4 dez  8 16:10 arq1-soft -> arq1
matheus@matheus-VirtualBox:~$

```

Figura 19 – Comandos no Linux

## 2.4. CAPÍTULO 4

Os comandos apresentados no capítulo 4 serão mostrados nas figuras a seguir.

```

matheus@matheus-VirtualBox:~$ echo 'Olá, Matheus!'
Olá, Matheus!
matheus@matheus-VirtualBox:~$ echo -en 'Olá,\tMatheus!'
Olá,   Matheus!matheus@matheucat cidades.txt
cat: cidades.txt: No such file or directory
matheus@matheus-VirtualBox:~$ seq 1 5 > arq1.txt
matheus@matheus-VirtualBox:~$ seq 6 10 > arq2.txt
matheus@matheus-VirtualBox:~$ cat arq1.txt arq2.txt
1
2
3
4
5
6
7
8
9
10
matheus@matheus-VirtualBox:~$ echo 'matheus alves de paula' | cut -c 1-7
matheus
matheus@matheus-VirtualBox:~$ who | cut -c1-8 | sort | uniq
matheus

```

Figura 20 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat cidades.txt
SP Sao Paulo
SP Campinas
MG Belo Horizonte
MG Diamantina
MG Lavras
MG Bom Sucesso
RJ Rio de Janeiro

```

Figura 21 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat cidades.txt | cut -c 1-2
SP
SP
MG
MG
MG
MG
RJ
matheus@matheus-VirtualBox:~$ seq 3
1
2
3
matheus@matheus-VirtualBox:~$ seq 3 5
3
4
5
matheus@matheus-VirtualBox:~$ seq 1.1 0.1 1.3
1,1
1,2
1,3

```

Figura 22 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat cidades.txt
SP    Sao Paulo:pedro
SP    Campinas:andre
MG    Belo Horizonte:marta
MG    Diamantina:luccas
MG    Lavras:rafael
MG    Bom Sucesso:lisa
RJ    Rio de Janeiro:alexandro
matheus@matheus-VirtualBox:~$ cat cidades.txt | expand -t 1
SP Sao Paulo:pedro
SP Campinas:andre
MG Belo Horizonte:marta
MG Diamantina:luccas
MG Lavras:rafael
MG Bom Sucesso:lisa
RJ Rio de Janeiro:alexandro
matheus@matheus-VirtualBox:~$ cat cidades.txt | expand -t 10
SP    Sao Paulo:pedro
SP    Campinas:andre
MG    Belo Horizonte:marta
MG    Diamantina:luccas
MG    Lavras:rafael
MG    Bom Sucesso:lisa
RJ    Rio de Janeiro:alexandro
matheus@matheus-VirtualBox:~$ █

```

Figura 23 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat cidades.txt | tr '\t' ' '
SP Sao Paulo
SP Campinas
MG Belo Horizonte
MG Diamantina
MG Lavras
MG Bom Sucesso
RJ Rio de Janeiro

```

Figura 24 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ cat cidades.txt | tr '\t' ' ' | tr -s ' '
SP Sao Paulo
SP Campinas
MG Belo Horizonte
MG Diamantina
MG Lavras
MG Bom Sucesso
RJ Rio de Janeiro
```

Figura 25 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ tr 'A-Z' 'a-z' < cidades.txt
sp      sao      paulo
sp      campinas
mg      belo     horizonte
mg      diamantina
mg      lavras
mg      bom      sucesso
rj      rio de janeiro
matheus@matheus-VirtualBox:~$ cat cidades.txt | tr [:upper:] [:lower:]
sp      sao      paulo
sp      campinas
mg      belo     horizonte
mg      diamantina
mg      lavras
mg      bom      sucesso
rj      rio de janeiro
matheus@matheus-VirtualBox:~$ cat cidades.txt | tr -s [:space:] '\n'
SP
Sao
Paulo
SP
Campinas
MG
Belo
Horizonte
MG
Diamantina
MG
Lavras
MG
Bom
Sucesso
RJ
Rio
de
Janeiro
```

Figura 26 – Comandos no Linux

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

Figura 27 – Comandos no Linux



```

matheus@matheus-VirtualBox:~$ cat numeros.txt
1 Diamantina
2 Datas
3 Gouveia
4 Mendanha
5 Curvelo
matheus@matheus-VirtualBox:~$ cat numeros.txt | tr -d [:digit:]
Diamantina
Datas
Gouveia
Mendanha
Curvelo
matheus@matheus-VirtualBox:~$ cat numeros.txt | tr -d '0-9'
Diamantina
Datas
Gouveia
Mendanha
Curvelo

```

Figura 28 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ tr -dc 'aeiouAEIOU' < numeros.txt
iaaiaaaoueiaeeaaueomatheus@math]

```

Figura 29 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ fmt -w10 texto.txt
Antes da
chegada
dos
colonizadores
portugueses,
no
século
XVI (os
primeiros
relatos
dão
conta de
expedições
que
subiram
o Rio
Jequitinhonha
e São
Francisco),
Diamantina,
como toda
a região
do atual
estado
de Minas
Gerais,
era
ocupada
por povos
indígenas
do tronco
linguístico.

```

Figura 30 – Comandos no Linux



```
matheus@matheus-VirtualBox:~$ fold -w 10 texto.txt
Antes da c
hegada dos
colonizad
ores portu
gueses, no
século X
VI (os pri
meiros rel
atos dão
conta de e
xpedição
s que subi
ram o Rio
Jequitinho
nha e São
Francisco
),
Diamantina
, como tod
a a região
do atual
estado de
Minas Ger
ais, era o
cupada por
povos ind
ígenas do
tronco li
nguístico
.
```

Figura 31 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ fold -s -w 20 texto.txt
Antes da chegada
dos colonizadores
portugueses, no
século XVI (os
primeiros relatos
dão conta de
expedições que
subiram o Rio
Jequitinhonha e
São Francisco),
Diamantina, como
toda a região do
atual estado de
Minas Gerais, era
ocupada por povos
indígenas do
tronco linguístico.
```

Figura 32 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ cat lista.txt
SP Sao Paulo : pedro
SP Campinas : andre :(074) 2233 -1111
MG Belo Horizonte : marta :010 1222 0011
MG Diamantina : lucas :2
MG Lavras : rafael
MG Bom Sucesso : lisa
RJ Rio de Janeiro : alexandro
```

Figura 33 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ cat lista.txt | grep alexandro
RJ Rio de Janeiro : alexandro
matheus@matheus-VirtualBox:~$ grep '[0-9]' lista.txt
SP Campinas : andre :(074) 2233 -1111
MG Belo Horizonte : marta :010 1222 0011
MG Diamantina : lucas :2
matheus@matheus-VirtualBox:~$ grep '[0-9]\{2,\}' lista.txt
SP Campinas : andre :(074) 2233 -1111
MG Belo Horizonte : marta :010 1222 0011
matheus@matheus-VirtualBox:~$ grep '\([([0-9]\{3\})\|([0-9]\{3\})\)[- ]?[0-9]\{4\}[- ]?[0-9]\{4\}' lista.txt
matheus@matheus-VirtualBox:~$ grep '\([([0-9]\{1,3\})\|([0-9]\{3\})\)[- ]?[0-9]\{4\}[- ]?[0-9]\{4\}' lista.txt
```

Figura 34 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ dmesg | egrep "firmware|and"
[ 0.000000] Linux version 5.11.0-41-generic (buildd@lgw01-and64-005) (gcc (Ubuntu 9.3.0-17ubuntu1-20.04) 9.3.0, GNU ld (GNU Binutils for Ubuntu) 2.34) #45-20.04.1-Ubuntu SMP Wed Nov 10 10:2
0:10 UTC 2021 (Ubuntu 5.11.0-41.45-20.04.1-generic 5.11.22)
[ 33.528245] 18:02:48.704049 main VBoxService 6.1.30 r148432 (verbosity: 0) Linux.and64 (Nov 22 2021 16:16:32) release log
matheus@matheus-VirtualBox:~$ dmesg | fgrep "0"
[ 0.000000] Linux version 5.11.0-41-generic (buildd@lgw01-and64-005) (gcc (Ubuntu 9.3.0-17ubuntu1-20.04) 9.3.0, GNU ld (GNU Binutils for Ubuntu) 2.34) #45-20.04.1-Ubuntu SMP Wed Nov 10 10:2
0:10 UTC 2021 (Ubuntu 5.11.0-41.45-20.04.1-generic 5.11.22)
[ 0.438126] smpboot: CPU0: Intel(R) Core(TM) i5-2430M CPU @ 2.40GHz (family: 0x6, model: 0x2a, stepping: 0x7)
[ 0.591024] pps core: Software ver. 5.3.6 - Copyright 2005-2007 Rodolfo Giometti <giometti@linux.it>
[ 1.235980] device-mapper: ioctl: 4.43.0-ioctl (2020-10-01) initialised: dm-devel@redhat.com
[ 2.039740] ata3: SATA max UDMA/133 abar m0192@0xf0806000 port 0xf0806100 irq 21
[ 3.592293] systemd[1]: modprobe@firm.service: Succeeded.
```

Figura 35 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ head cidades.txt
Abadia de Goiás (GO)
Abadia dos Dourados (MG)
Abadiania (GO)
Abaete (MG)
Abaetetuba (PA)
Abaíara (CE)
Abaira (BA)
Abare (BA)
Abatia (PR)
Abdon Batista (SC)
matheus@matheus-VirtualBox:~$ head -2 cidades.txt
Abadia de Goiás (GO)
Abadia dos Dourados (MG)
matheus@matheus-VirtualBox:~$ tail cidades.txt
Xangri -la (RS)
Xanxere (SC)
Xapuri (AC)
Xavantina (SC)
Xaxim (SC)
Xexeu (PE)
Xinguara (PA)
Xique - Xique (BA)
Zabele (PB)
Zacarias (SP)
matheus@matheus-VirtualBox:~$ tail -2 cidades.txt
Zabele (PB)
Zacarias (SP)
matheus@matheus-VirtualBox:~$ tail -n 2 cidades.txt
Zabele (PB)
Zacarias (SP)
```

Figura 36 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ file lena.jpg
lena.jpg: cannot open `lena.jpg' (No such file or directory)
matheus@matheus-VirtualBox:~$ wget -q http://www.gutenberg.org/files/4300/4300-0.txt
file 4300-0.txt
matheus@matheus-VirtualBox:~$ file 4300-0.txt
4300-0.txt: UTF-8 Unicode (with BOM) text, with CRLF line terminators
matheus@matheus-VirtualBox:~$ file CETENFOLHA
CETENFOLHA: cannot open `CETENFOLHA' (No such file or directory)
matheus@matheus-VirtualBox:~$ iconv -f iso-8859-1 -t utf-8 cidades.txt > cidadeutf8.txt
matheus@matheus-VirtualBox:~$
matheus@matheus-VirtualBox:~$ echo -e "ação" | iconv -t ASCII -f UTF-8
aiconv: illegal input sequence at position 1
matheus@matheus-VirtualBox:~$ echo -e "ação" | iconv -t ASCII//TRANSLIT -f UTF-8
iconv: invalid option -- '8'
Try `iconv --help' or `iconv --usage' for more information.
```

Figura 37 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat nomes.txt
alessandro
pedro
marcos
andre
luciana
matheus@matheus-VirtualBox:~$ cat notas.txt
10 20
30 30
40 10
50 60
NC 10
matheus@matheus-VirtualBox:~$ paste nomes.txt notas.txt
alessandro      10 20
pedro    30 30
marcos   40 10
andre    50 60
luciana  NC 10

```

Figura 38 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ paste -d , <(seq 1 3) <(seq 4 6) <(seq 7 9)
1,4,7
2,5,8
3,6,9
matheus@matheus-VirtualBox:~$ cat nomes.txt | rev
ordnassela
ordep
socram
erdna
anaicul
matheus@matheus-VirtualBox:~$ echo 'teste' | rev
etset
matheus@matheus-VirtualBox:~$ cat teste.txt | sort -n
abacate
graviola
limao
maca
mamao
pera
uva

```

Figura 39 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ echo "áéíóú" | wc -c
11
matheus@matheus-VirtualBox:~$ echo "áéíóú" | wc -m
6
matheus@matheus-VirtualBox:~$ █

```

Figura 40 – Comandos no Linux

## 2.5. CAPÍTULO 5

Os comandos apresentados no capítulo 5 serão mostrados nas figuras a seguir.

```

matheus@matheus-VirtualBox:~$ whoami
matheus
matheus@matheus-VirtualBox:~$ pwd
/home/matheus

```

Figura 41 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat /etc/passwd
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
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuid:x:107:114::/run/uuid:/usr/sbin/nologin
tcpdump:x:108:116::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:117:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:118:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:121:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
lightdm:x:114:122:Light Display Manager:/var/lib/lightdm:/bin/false
speech-dispatcher:x:115:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:116:124:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:117:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:118:126:/var/lib/saned:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false

```

Figura 42 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ id
uid=1000(matheus) gid=1000(matheus) groups=1000(matheus),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),121(lpadmin),131(lxd),132(sambashare)

```

Figura 43 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ users
matheus
matheus@matheus-VirtualBox:~$ sudo apt-get install finger
[sudo] password for matheus:
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 148 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 (105 kB/s)
Selecting previously unselected package finger.
(Reading database ... 198642 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) ...

```

Figura 44 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ finger matheus
Login: matheus                               Name: matheus
Directory: /home/matheus                     Shell: /bin/bash
On since Wed Dec  8 15:02 (-03) on tty7 from :0
      3 hours 51 minutes idle
No mail.
No Plan.
matheus@matheus-VirtualBox:~$ finger -l matheus
Login: matheus                               Name: matheus
Directory: /home/matheus                     Shell: /bin/bash
On since Wed Dec  8 15:02 (-03) on tty7 from :0
      3 hours 51 minutes idle
No mail.
No Plan.
matheus@matheus-VirtualBox:~$ finger
Login      Name      Tty      Idle   Login Time   Office      Office Phone
matheus    matheus   tty7     3:51   Dec  8 15:02 (:0)
matheus@matheus-VirtualBox:~$ free
              total        used        free      shared  buff/cache   available
Mem:          2479640        446948       1129164         5896     903528      1862656
Swap:          2440188           0         2440188

```

Figura 45 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ su -
Password:
su: Authentication failure
matheus@matheus-VirtualBox:~$ uname -s
Linux
matheus@matheus-VirtualBox:~$ uname -r
5.11.0-41-generic
matheus@matheus-VirtualBox:~$ uname -i
uname: invalid option -- 'i'
Try 'uname --help' for more information.
matheus@matheus-VirtualBox:~$ uname -m
x86_64
matheus@matheus-VirtualBox:~$ uname -n
matheus-VirtualBox
matheus@matheus-VirtualBox:~$ uname -a
Linux matheus-VirtualBox 5.11.0-41-generic #45~20.04.1-Ubuntu SMP Wed Nov 10 10:20:10 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux

```

Figura 46 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ uptime
 18:57:54 up  3:55,  1 user,  load average: 0,01, 0,06, 0,03
matheus@matheus-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.
matheus@matheus-VirtualBox:~$ echo $PATCH

matheus@matheus-VirtualBox:~$ timeout 5 ping www.ufvjm.edu.br
PING www.ufvjm.edu.br (200.131.252.165) 56(84) bytes of data.
64 bytes from www.ufvjm.edu.br (200.131.252.165): icmp_seq=1 ttl=49 time=36.2 ms
64 bytes from www.ufvjm.edu.br (200.131.252.165): icmp_seq=2 ttl=49 time=49.9 ms
64 bytes from www.ufvjm.edu.br (200.131.252.165): icmp_seq=3 ttl=49 time=36.3 ms
64 bytes from www.ufvjm.edu.br (200.131.252.165): icmp_seq=4 ttl=49 time=35.4 ms
64 bytes from www.ufvjm.edu.br (200.131.252.165): icmp_seq=5 ttl=49 time=35.0 ms
matheus@matheus-VirtualBox:~$ w
 18:58:51 up  3:56,  1 user,  load average: 0,00, 0,05, 0,02
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
matheus   tty7     :0               15:02    3:56m  1:35   0.61s xfce4-session
matheus@matheus-VirtualBox:~$ whereis gcc
gcc: /usr/lib/gcc /usr/share/gcc

```

Figura 47 – Comandos no Linux



```

matheus@matheus-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/chgpasswd
/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
/usr/share/bash-completion/completions/gpasswd
/usr/share/bash-completion/completions/grub-mkpasswd-pbkdf2
/usr/share/bash-completion/completions/htpasswd
/usr/share/bash-completion/completions/ldappasswd
/usr/share/bash-completion/completions/passwd
/usr/share/bash-completion/completions/smbpasswd
/usr/share/doc/base-passwd
/usr/share/doc/passwd
/usr/share/doc/base-passwd/README
/usr/share/doc/base-passwd/changelog.gz
/usr/share/doc/base-passwd/copyright
/usr/share/doc/base-passwd/users-and-groups.html
/usr/share/doc/base-passwd/users-and-groups.txt.gz
/usr/share/doc/libnet-ssleay-perl/examples/passwd-cb.pl
/usr/share/doc/passwd/NEWS.Debian.gz
/usr/share/doc/passwd/README.Debian
/usr/share/doc/passwd/TODO.Debian
/usr/share/doc/passwd/changelog.Debian.gz

```

Figura 48 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ which ls
/usr/bin/ls
matheus@matheus-VirtualBox:~$ which gcc
matheus@matheus-VirtualBox:~$ whatis clear
clear (1) - clear the terminal screen
matheus@matheus-VirtualBox:~$ whatis ps
ps (1) - report a snapshot of the current processes.
matheus@matheus-VirtualBox:~$ whatis netstat
netstat: nothing appropriate.
matheus@matheus-VirtualBox:~$ whatis route
tc-route (8) - route traffic control filter
matheus@matheus-VirtualBox:~$ whatis ls
ls (1) - list directory contents
matheus@matheus-VirtualBox:~$ whatis touch
touch (1) - change file timestamps
matheus@matheus-VirtualBox:~$ whatis cat
cat (1) - concatenate files and print on the standard output
matheus@matheus-VirtualBox:~$ whatis output
output: nothing appropriate.
matheus@matheus-VirtualBox:~$ whatis date
date (1) - print or set the system date and time

```

Figura 49 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ who
matheus  tty7          2021-12-08 15:02 (:0)
matheus@matheus-VirtualBox:~$ hostname; date; ls;
matheus-VirtualBox
qua 08 dez 2021 19:04:12 -03
4300-0.txt  arq2.txt  cidadeutf8.txt  Documents  lista.txt  nomes.txt  numeros.txt  Public  teste.txt  Videos
arq1.txt   cidades.txt  Desktop        Downloads  Music     notas.txt  Pictures     Templates  texto.txt
matheus@matheus-VirtualBox:~$ test -f teste.existe && echo 'existe'
matheus@matheus-VirtualBox:~$ test -f teste.existe || echo 'existe'
existe
matheus@matheus-VirtualBox:~$ touch teste.existe && test -f teste.existe && echo 'existe'
existe
matheus@matheus-VirtualBox:~$ emacs &
[1] 3711
matheus@matheus-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

```

Figura 50 – Comandos no Linux

## 2.6. CAPÍTULO 6

Os comandos apresentados no capítulo 6 serão mostrados nas figuras a seguir.

```

matheus@matheus-VirtualBox:~$ ps -eaf
UID          PID    PPID  C  STIME TTY          TIME CMD
root           1        0  0   15:02 ?        00:00:02 /sbin/init splash
root           2        0  0   15:02 ?        00:00:00 [kthreadd]
root           3        2  0   15:02 ?        00:00:00 [rcu_gp]
root           4        2  0   15:02 ?        00:00:00 [rcu_par_gp]
root           6        2  0   15:02 ?        00:00:00 [kworker/0:0H-events_highpri]
root           8        2  0   15:02 ?        00:00:00 [mm_percpu_wq]
root           9        2  0   15:02 ?        00:00:00 [rcu_tasks_rude_]
root          10        2  0   15:02 ?        00:00:00 [rcu_tasks_trace]
root          11        2  0   15:02 ?        00:00:00 [ksoftirqd/0]
root          12        2  0   15:02 ?        00:00:01 [rcu_sched]
root          13        2  0   15:02 ?        00:00:00 [migration/0]
root          14        2  0   15:02 ?        00:00:00 [idle_inject/0]
root          15        2  0   15:02 ?        00:00:00 [kworker/0:1-cgroup_destroy]
root          16        2  0   15:02 ?        00:00:00 [cpuhp/0]
root          17        2  0   15:02 ?        00:00:00 [kdevtmpfs]
root          18        2  0   15:02 ?        00:00:00 [netns]
root          19        2  0   15:02 ?        00:00:00 [inet_frag_wq]
root          20        2  0   15:02 ?        00:00:00 [kauditd]
root          21        2  0   15:02 ?        00:00:00 [khungtaskd]
root          22        2  0   15:02 ?        00:00:00 [oom_reaper]
root          23        2  0   15:02 ?        00:00:00 [writeback]
root          24        2  0   15:02 ?        00:00:00 [kcompactd0]
root          25        2  0   15:02 ?        00:00:00 [ksmd]
root          26        2  0   15:02 ?        00:00:00 [khugepaged]

```

Figura 51 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ ps -u matheus
PID TTY          TIME CMD
864 ?            00:00:00 systemd
865 ?            00:00:00 (sd-pam)
870 ?            00:00:00 pulseaudio
873 ?            00:00:00 gnome-keyring-d
876 ?            00:00:00 xfce4-session
887 ?            00:00:04 dbus-daemon
966 ?            00:00:00 VBoxClient

```

Figura 52 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ ps -aef -r | head -5
  PID TTY          STAT TIME   COMMAND
  3786 pts/0      R+    0:00 ps -aef -r SHELL=/bin/bash SESSION_MANAGER=local/matheus
TY=1 COLORTERM=truecolor XDG_CONFIG_DIRS=/etc/xdg/xdg-xubuntu:/etc/xdg:/etc/xdg XDG_S
US LC_ADDRESS=pt_BR.UTF-8 LC_NAME=pt_BR.UTF-8 SSH_AUTH_SOCK=/run/user/1000/keyring/ss
E=matheus XDG_SESSION_DESKTOP=xubuntu QT_QPA_PLATFORMTHEME=gtk2 XDG_SESSION_TYPE=x11
/.Xauthority XDG_GREETER_DATA_DIR=/var/lib/lightdm-data/matheus GDM_LANG=en_US HOME=/
: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;
=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:*.t7z=01;31:*.zip
31:*.bz2=01;31:*.bz=01;31:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31
31:*.7z=01;31:*.rz=01;31:*.cab=01;31:*.wim=01;31:*.swm=01;31:*.dwm=01;31:*.esd=01;31:
1;35:*.tga=01;35:*.xbm=01;35:*.xpm=01;35:*.tif=01;35:*.tiff=01;35:*.png=01;35:*.svg=0
bm=01;35:*.ogm=01;35:*.mp4=01;35:*.m4v=01;35:*.mp4v=01;35:*.vob=01;35:*.qt=01;35:*.nu
l=01;35:*.dl=01;35:*.xcf=01;35:*.xwd=01;35:*.yuv=01;35:*.cgm=01;35:*.emf=01;35:*.ogv=
3=00;36:*.mpc=00;36:*.ogg=00;36:*.ra=00;36:*.wav=00;36:*.oga=00;36:*.opus=00;36:*.spx
r/Seat0 LESSCLOSE=/usr/bin/lesspipe %s %s XDG_SESSION_CLASS=user TERM=xterm-256color
:0.0 SHLVL=0 LC_TELEPHONE=pt_BR.UTF-8 LC_MEASUREMENT=pt_BR.UTF-8 XDG_VTNR=7 XDG_SESSI
ubuntu:/usr/share/xfce4:/usr/local/share:/usr/share:/var/lib/snapd/desktop:/usr/share
MSESSION=xubuntu DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/1000/bus LC_NUMERIC=pt_
matheus@matheus-VirtualBox:~$ ps -aef -m | head -5
  UID          PID    PPID  C STIME TTY          TIME CMD
  root           1        0  0 15:02 ?           00:00:02 /sbin/init splash
  root           -        -  0 15:02 -           00:00:02 -
  root           0        0  0 15:02 ?           00:00:00 [kthreadd]
  root           -        -  0 15:02 -           00:00:00 -

```

Figura 53 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ ps -aef | grep firefox
matheus      3793      2439  0 19:35 pts/0    00:00:00 grep --color=auto firefox
matheus@matheus-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}]
--2*[kerneloops]
--lightdm--Xorg--5*[{Xorg}]
--lightdm--xfce4-session--Thunar--2*[{Thunar}]
--applet.py
--blueman-applet--3*[{blueman-applet}]
--nm-applet--3*[{nm-applet}]
--polkit-gnome-au--2*[{polkit-gnome-au}]
--ssh-agent
--update-notifier--3*[{update-notifier}]
--xfce4-panel--panel-1-whisker--2*[{panel-1-whisker}]
--panel-10-pulsea--2*[{panel-10-pulsea}]
--panel-5-systray--2*[{panel-5-systray}]
--panel-6-notific--2*[{panel-6-notific}]
--panel-7-indicat--2*[{panel-7-indicat}]
--panel-8-statusn--2*[{panel-8-statusn}]
--panel-9-power-m--2*[{panel-9-power-m}]
--2*[{xfce4-panel}]
--xfdesktop--2*[{xfdesktop}]

```

Figura 54 – Comandos no Linux



```
matheus@matheus-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) SIGTSTP
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
```

Figura 55 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ ps -aef | grep paint
matheus      3797      2439  0 19:38 pts/0    00:00:00 grep --color=auto paint
matheus@matheus-VirtualBox:~$ find / -name boot.b &
[1] 3798
matheus@matheus-VirtualBox:~$ ps
  PID TTY          TIME CMD
 2439 pts/0    00:00:00 bash
 3798 pts/0    00:00:01 find
 3799 pts/0    00:00:00 ps
```

Figura 56 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ top &
[1] 3805
matheus@matheus-VirtualBox:~$ jobs -l
[1]+  3805 Stopped (signal)          top
matheus@matheus-VirtualBox:~$ kill -9 3805
matheus@matheus-VirtualBox:~$ jobs -l
[1]+  3805 Killed                    top
```

Figura 57 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ ps aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.4 101780 11224 ?        Ss   15:02   0:02 /sbin/init splash
root         2  0.0  0.0      0     0 ?        S    15:02   0:00 [kthreadd]
root         3  0.0  0.0      0     0 ?        I<   15:02   0:00 [rcu_gp]
root         4  0.0  0.0      0     0 ?        I<   15:02   0:00 [rcu_par_gp]
root         6  0.0  0.0      0     0 ?        I<   15:02   0:00 [kworker/0:0H-events_highpri]
root         8  0.0  0.0      0     0 ?        I<   15:02   0:00 [mm_percpu_wq]
root         9  0.0  0.0      0     0 ?        S    15:02   0:00 [rcu_tasks_rude_]
root        10  0.0  0.0      0     0 ?        S    15:02   0:00 [rcu_tasks_trace]
root        11  0.0  0.0      0     0 ?        S    15:02   0:00 [ksoftirqd/0]
root        12  0.0  0.0      0     0 ?        I    15:02   0:01 [rcu_sched]
```

Figura 58 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ ps x --forest
  PID TTY          STAT TIME COMMAND
   876 ?           Ssl   0:00 xfce4-session
   998 ?           Ss    0:00 \_ /usr/bin/ssh-agent /usr/bin/im-launch startxfce4
  1056 ?           Sl    0:11 \_ xfwm4 --replace
  1065 ?           Sl    0:03 \_ xfce4-panel
  1085 ?           Sl    0:04 | \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /u
  1087 ?           Sl    0:00 | \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /u
  1088 ?           Sl    0:00 | \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /u
  1089 ?           Sl    0:00 | \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /u
  1090 ?           Sl    0:00 | \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /u
  1091 ?           Sl    0:00 | \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /u
  1092 ?           Sl    0:15 | \_ /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /u
  1080 ?           Sl    0:39 \_ Thunar --daemon
  1086 ?           Sl    0:03 \_ xfdesktop
```

Figura 59 – Comandos no Linux

## 2.7. CAPÍTULO 7

Os comandos apresentados no capítulo 7 serão mostrados nas figuras a seguir.

```
matheus@matheus-VirtualBox:~$ ls -l
total 1624
-rw-rw-r-- 1 matheus matheus 1586336 mar  1  2021 4300-0.txt
-rw-rw-r-- 1 matheus matheus    10 dez  8 17:10 arq1.txt
-rw-rw-r-- 1 matheus matheus    11 dez  8 17:10 arq2.txt
-rw-rw-r-- 1 matheus matheus   137 dez  8 18:12 cidades.txt
-rw-rw-r-- 1 matheus matheus   137 dez  8 18:19 cidadeutf8.txt
drwxr-xr-x 2 matheus matheus  4096 dez  8 19:44 Desktop
drwxr-xr-x 2 matheus matheus  4096 dez  8 16:06 Documents
drwxr-xr-x 2 matheus matheus  4096 dez  3 00:05 Downloads
-rw-rw-r-- 1 matheus matheus   196 dez  8 18:00 lista.txt
drwxr-xr-x 2 matheus matheus  4096 dez  3 00:05 Music
-rw-rw-r-- 1 matheus matheus    38 dez  8 18:35 nomes.txt
-rw-rw-r-- 1 matheus matheus    30 dez  8 18:35 notas.txt
-rw-rw-r-- 1 matheus matheus    52 dez  8 17:38 numeros.txt
drwxr-xr-x 2 matheus matheus  4096 dez  3 00:05 Pictures
drwxr-xr-x 2 matheus matheus  4096 dez  3 00:05 Public
drwxr-xr-x 2 matheus matheus  4096 dez  3 00:06 Templates
-rw-rw-r-- 1 matheus matheus     0 dez  8 19:06 teste.existe
-rw-rw-r-- 1 matheus matheus    43 dez  8 18:38 teste.txt
-rw-rw-r-- 1 matheus matheus   286 dez  8 17:48 texto.txt
drwxr-xr-x 2 matheus matheus  4096 dez  3 00:05 Videos
```

Figura 60 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ ls -l cidades.txt
-rw-rw-r-- 1 matheus matheus 137 dez  8 18:12 cidades.txt
matheus@matheus-VirtualBox:~$ chmod g-r cidades.txt
matheus@matheus-VirtualBox:~$ chmod o-r cidades.txt
matheus@matheus-VirtualBox:~$ chmod u-r cidades.txt
matheus@matheus-VirtualBox:~$ ls -l cidades.txt
--w--w---- 1 matheus matheus 137 dez  8 18:12 cidades.txt
matheus@matheus-VirtualBox:~$ chmod a+r cidades.txt
matheus@matheus-VirtualBox:~$ ls -l cidades.txt
-rw-rw-r-- 1 matheus matheus 137 dez  8 18:12 cidades.txt
```

Figura 61 – Comandos no Linux

## 2.8. CAPÍTULO 8

Os comandos apresentados no capítulo 8 serão mostrados nas figuras a seguir.

```
matheus@matheus-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
```

Figura 62 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cut -d: -f1 /etc/passwd | head -10
root
daemon
bin
sys
sync
games
man
lp
mail
news
matheus@matheus-VirtualBox:~$ cat /etc/group | head -10
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,matheus
tty:x:5:syslog
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:

```

Figura 63 – Comandos no Linux

## 2.9. CAPÍTULO 9

Os comandos apresentados no capítulo 9 serão mostrados nas figuras a seguir.

```

matheus@matheus-VirtualBox:~$ sudo apt install net-tools
[sudo] password for matheus:
Reading package lists... Done
Building dependency tree
Reading state information... Done
net-tools is already the newest version (1.60+git20180626.aebd88e-1ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 150 not upgraded.
matheus@matheus-VirtualBox:~$ hostname
matheus-VirtualBox
matheus@matheus-VirtualBox:~$ cat /etc/hosts
127.0.0.1    localhost
127.0.1.1    matheus-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
matheus@matheus-VirtualBox:~$ arp -a
gateway (10.0.2.2) at 52:54:00:12:35:02 [ether] on enp0s3

```

Figura 64 – Comandos no Linux

```

matheus@matheus-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::9f65:50be:1162:e7c8 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:77:dc:a3 txqueuelen 1000 (Ethernet)
    RX packets 12959 bytes 18257957 (18.2 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 4701 bytes 306654 (306.6 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 212 bytes 18101 (18.1 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 212 bytes 18101 (18.1 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

Figura 65 – Comandos no Linux

```

matheus@matheus-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=53 time=40.8 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=2 ttl=53 time=40.2 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=3 ttl=53 time=40.2 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=4 ttl=53 time=40.5 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=5 ttl=53 time=40.1 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=6 ttl=53 time=41.3 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=7 ttl=53 time=40.8 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=8 ttl=53 time=40.2 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=9 ttl=53 time=41.2 ms
64 bytes from bulma.dr.ufu.br (200.19.145.55): icmp_seq=10 ttl=53 time=40.0 ms

--- www.ufu.br ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9013ms
rtt min/avg/max/mdev = 39.960/40.516/41.285/0.458 ms
matheus@matheus-VirtualBox:~$ ping -i 5 -c 3 www.google.com
PING www.google.com (142.251.129.228) 56(84) bytes of data.
64 bytes from grul4s34-in-f4.1e100.net (142.251.129.228): icmp_seq=1 ttl=56 time=15.1 ms
64 bytes from grul4s34-in-f4.1e100.net (142.251.129.228): icmp_seq=2 ttl=56 time=15.1 ms
64 bytes from grul4s34-in-f4.1e100.net (142.251.129.228): icmp_seq=3 ttl=56 time=14.0 ms

--- www.google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 10009ms
rtt min/avg/max/mdev = 14.049/14.730/15.088/0.481 ms

```

Figura 66 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ host www.google.com
www.google.com has address 142.251.129.228
www.google.com has IPv6 address 2800:3f0:4001:832::2004

```

Figura 67 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ sudo apt install dnsutils
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 150 not upgraded.
Need to get 2.756 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 1:9.16.1-0ubuntu2.9 [2.756 B]
Fetched 2.756 B in 0s (18,6 kB/s)
Selecting previously unselected package dnsutils.
(Reading database ... 198697 files and directories currently installed.)
Preparing to unpack .../dnsutils_1%3a9.16.1-0ubuntu2.9_all.deb ...
Unpacking dnsutils (1:9.16.1-0ubuntu2.9) ...
Setting up dnsutils (1:9.16.1-0ubuntu2.9) ...

```

Figura 68 – Comandos no Linux

```

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

; <<>> DiG 9.16.1-Ubuntu <<>> www.google.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 23391
;; 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.                45      IN      A      142.251.129.228

;; Query time: 0 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: qua dez 08 20:11:59 -03 2021
;; MSG SIZE rcvd: 59

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

Non-authoritative answer:
Name:   www.google.com
Address: 142.251.129.228
Name:   www.google.com
Address: 2800:3f0:4001:832::2004

```

Figura 69 – Comandos no Linux

```

matheus@matheus-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 150 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 (270 kB/s)
Selecting previously unselected package traceroute.
(Reading database ... 198701 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 mode
update-alternatives: using /usr/bin/traceproto.db to provide /usr/bin/traceproto (traceproto) in auto mode
update-alternatives: using /usr/sbin/tcptraceroute.db to provide /usr/sbin/tcptraceroute (tcptraceroute) in auto mode
Processing triggers for man-db (2.9.1-1) ...

```

Figura 70 – Comandos no Linux



```

matheus@matheus-VirtualBox:~$ traceroute www.google.com
traceroute to www.google.com (142.251.129.228), 30 hops max, 60 byte packets
 1 _gateway (10.0.2.2) 0.172 ms 0.231 ms 0.170 ms
 2 _gateway (10.0.2.2) 3.899 ms 3.728 ms 3.582 ms
matheus@matheus-VirtualBox:~$ traceroute www.ufmg.br
traceroute to www.ufmg.br (150.164.250.1), 30 hops max, 60 byte packets
 1 _gateway (10.0.2.2) 1.902 ms 1.862 ms 1.718 ms
 2 _gateway (10.0.2.2) 4.525 ms 4.405 ms 4.289 ms
matheus@matheus-VirtualBox:~$ traceroute www.mit.edu
traceroute to www.mit.edu (23.37.251.54), 30 hops max, 60 byte packets
 1 _gateway (10.0.2.2) 1.908 ms 1.872 ms 1.789 ms
 2 _gateway (10.0.2.2) 4.131 ms 3.954 ms 3.890 ms

```

Figura 71 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ netstat -s
Ip:
    Forwarding: 2
    5834 total packets received
    1 with invalid addresses
    0 forwarded
    0 incoming packets discarded
    5831 incoming packets delivered
    5037 requests sent out
Icmp:
    270 ICMP messages received
    3 input ICMP message failed
    ICMP input histogram:
        destination unreachable: 47
        timeout in transit: 9
        echo replies: 214
    428 ICMP messages sent
    0 ICMP messages failed
    ICMP output histogram:
        echo requests: 428
IcmpMsg:
    InType0: 214
    InType3: 47
    InType11: 9
    OutType8: 428
Tcp:
    14 active connection openings
    0 passive connection openings
    2 failed connection attempts
    0 connection resets received
    0 connections established
    5171 segments received
    4369 segments sent out
    2 segments retransmitted
    0 bad segments received
    5 resets sent
Udp:
    388 packets received

```

Figura 72 – Comandos no Linux

```

matheus@matheus-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   13107    0      0 0        4829    0      0    0 BMRU
lo       65536    279    0      0 0         279    0      0    0 LRU

```

Figura 73 – Comandos no Linux

```
matheus@matheus-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
```

Figura 74 – Comandos no Linux

```
matheus@matheus-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 150 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 1.0.2-1 [31,4 kB]
Get:4 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 nmap-common all 7.80+dfsg1-2build1 [3.676 kB]
Get:5 http://br.archive.ubuntu.com/ubuntu focal/universe amd64 nmap amd64 7.80+dfsg1-2build1 [1.662 kB]
Fetched 5.528 kB in 1s (6.592 kB/s)
Selecting previously unselected package liblinear4:amd64
```

Figura 75 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ nmap www.ufmg.br
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 20:29 -03
Nmap scan report for www.ufmg.br (150.164.250.1)
Host is up (0.026s latency).
Not shown: 998 filtered ports
PORT      STATE SERVICE
80/tcp    open  http
443/tcp   open  https

Nmap done: 1 IP address (1 host up) scanned in 4.77 seconds
matheus@matheus-VirtualBox:~$ nmap -v localhost
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 20:31 -03
Initiating Ping Scan at 20:31
Scanning localhost (127.0.0.1) [2 ports]
Completed Ping Scan at 20:31, 0.00s elapsed (1 total hosts)
Initiating Connect Scan at 20:31
Scanning localhost (127.0.0.1) [1000 ports]
Discovered open port 631/tcp on 127.0.0.1
Completed Connect Scan at 20:31, 0.10s elapsed (1000 total ports)
Nmap scan report for localhost (127.0.0.1)
Host is up (0.00032s 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 0.32 seconds
```

Figura 76 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ nmap www.google.com www.facebook.com
Starting Nmap 7.80 ( https://nmap.org ) at 2021-12-08 20:36 -03
Nmap scan report for www.google.com (142.251.129.228)
Host is up (0.029s latency).
Other addresses for www.google.com (not scanned): 2800:3f0:4001:832::2004
rDNS record for 142.251.129.228: gru14s34-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 (157.240.12.35)
Host is up (0.030s latency).
Other addresses for www.facebook.com (not scanned): 2a03:2880:f105:283:face:b00c:0:25de
rDNS record for 157.240.12.35: edge-star-mini-shv-02-gru2.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 6.92 seconds

```

Figura 77 – Comandos no Linux

```

matheus@matheus-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
matheus@matheus-VirtualBox:~$ telnet www.vivas.eng.br 80
Trying 92.242.140.6...
Connected to www.vivas.eng.br.
Escape character is '^]'.
Connection closed by foreign host.
matheus@matheus-VirtualBox:~$ sudo apt-get install openssh-client
Reading package lists... Done
Building dependency tree
Reading state information... Done
openssh-client is already the newest version (1:8.2p1-4ubuntu0.3).
openssh-client set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 150 not upgraded.

```

Figura 78 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ sudo apt-get install openssh-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass
The following NEW packages will be installed:
  ncurses-term openssh-server openssh-sftp-server ssh-import-id
0 upgraded, 4 newly installed, 0 to remove and 150 not upgraded.
Need to get 688 kB of archives.
After this operation, 6.010 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/main amd64 ncurses-term all 6.2-0ubuntu2 [249 kB]
Get:2 http://br.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-sftp-server amd64 1:8.2p1-4ubuntu0.3 [51,5 kB]
Get:3 http://br.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-server amd64 1:8.2p1-4ubuntu0.3 [377 kB]
Get:4 http://br.archive.ubuntu.com/ubuntu focal/main amd64 ssh-import-id all 5.10-0ubuntu1 [10,0 kB]

```

Figura 79 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ sudo apt install tcpdump
Reading package lists... Done
Building dependency tree
Reading state information... Done
tcpdump is already the newest version (4.9.3-4).
tcpdump set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 150 not upgraded.

```

Figura 80 – Comandos no Linux



```

matheus@matheus-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]
matheus@matheus-VirtualBox:~$ sudo apt install lynx
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 150 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 2.9.0dev.5-1 [626 kB]
Fetched 1.539 kB in 0s (3.674 kB/s)
Selecting previously unselected package lynx-common.
(Reading database ... 202449 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 ...
Unpacking lynx (2.9.0dev.5-1) ...
Setting up lynx-common (2.9.0dev.5-1) ...
Setting up lynx (2.9.0dev.5-1) ...
update-alternatives: using /usr/bin/lynx to provide /usr/bin/www-browser (www-browser) in auto mode
Processing triggers for doc-base (0.10.9) ...
Processing 1 added doc-base file...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for mime-support (3.64ubuntu1) ...

```

Figura 81 – Comandos no Linux

```

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```

Figura 82 – Comandos no Linux

## 2.10. CAPÍTULO 10

Os comandos apresentados no capítulo 10 serão mostrados nas figuras a seguir.

```

matheus@matheus-VirtualBox:~$ sudo apt update
[sudo] password for matheus:
Hit:1 http://br.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://br.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://br.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:4 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:5 http://br.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [277 kB]
Get:6 http://br.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [361 kB]
Get:7 http://br.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 DEP-11 Metadata [940 B]
Get:8 http://br.archive.ubuntu.com/ubuntu focal-backports/main amd64 DEP-11 Metadata [7.972 B]
Get:9 http://br.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [11,3 kB]
Get:10 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11 Metadata [35,6 kB]
Get:11 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11 Metadata [64,3 kB]
Get:12 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 DEP-11 Metadata [2.464 B]
Fetched 1.097 kB in 2s (441 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
150 packages can be upgraded. Run 'apt list --upgradable' to see them.

```

Figura 83 – Comandos no Linux

## 2.11. CAPÍTULO 14

Os comandos apresentados no capítulo 14 serão mostrados nas figuras a seguir.

```

matheus@matheus-VirtualBox:~$ uname -a
Linux matheus-VirtualBox 5.11.0-41-generic #45~20.04.1-Ubuntu SMP Wed Nov 10 10:20:10 UTC 2021 x86_64 x86_64 x86_64 GNU/Linux
matheus@matheus-VirtualBox:~$ uname -s
Linux
matheus@matheus-VirtualBox:~$ uname -n
matheus-VirtualBox
matheus@matheus-VirtualBox:~$ uname -r
5.11.0-41-generic
matheus@matheus-VirtualBox:~$ head -n1 /etc/issue
Ubuntu 20.04.3 LTS \n \l
matheus@matheus-VirtualBox:~$ lscpu
Architecture:            x86_64
CPU op-mode(s):          32-bit, 64-bit
Byte Order:               Little Endian
Address sizes:            36 bits physical, 48 bits virtual
CPU(s):                   1
On-line CPU(s) list:     0
Thread(s) per core:      1
Core(s) per socket:      1
Socket(s):                1
NUMA node(s):            1
Vendor ID:                GenuineIntel
CPU family:               6
Model:                   42
Model name:               Intel(R) Core(TM) i5-2430M CPU @ 2.40GHz
Stepping:                 7
CPU MHz:                  2394.558
BogoMIPS:                 4789.11
Hypervisor vendor:       KVM
Virtualization type:     full
L1d cache:                32 KiB
L1i cache:                32 KiB
L2 cache:                 256 KiB
L3 cache:                 3 MiB
NUMA node0 CPU(s):       0
Vulnerability Itlb multihit: KVM: Mitigation: VMX unsupported
Vulnerability L1tf:        Mitigation; PTE Inversion
Vulnerability Mds:         Mitigation; Clear CPU buffers; SMT Host state unknown
Vulnerability Meltdown:    Mitigation; PTI

```

Figura 84 – Comandos no Linux

```

matheus@matheus-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
matheus@matheus-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)
matheus@matheus-VirtualBox:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
sda 8:0 0 100G 0 disk
├─sda1 8:1 0 2,3G 0 part [SWAP]
└─sda2 8:2 0 97,7G 0 part /
sr0 11:0 1 58,3M 0 rom

```

Figura 85 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat /proc/partitions
major minor #blocks name

11 0 59672 sr0
8 0 104857600 sda
8 1 2440192 sda1
8 2 102415360 sda2
matheus@matheus-VirtualBox:~$ sudo fdisk -l
Disk /dev/sda: 100 GiB, 107374182400 bytes, 209715200 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xb189b128

Device Boot Start End Sectors Size Id Type
/dev/sda1 2048 4882431 4880384 2,3G 82 Linux swap / Solaris
/dev/sda2 * 4882432 209713151 204830720 97,7G 83 Linux

```

Figura 86 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ sudo apt-get install pcmciautils
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 150 not upgraded.

```

Figura 87 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ lspcmcia
matheus@matheus-VirtualBox:~$ free
              total        used        free      shared  buff/cache   available
Mem:           2479640       512508       502316          5900       1464816       1771660
Swap:          2440188           0       2440188
matheus@matheus-VirtualBox:~$ free -m
              total        used        free      shared  buff/cache   available
Mem:           2421         500         490           5         1430         1730
Swap:           2382           0         2382

```

Figura 88 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ cat /proc/meminfo
MemTotal:        2479640 kB
MemFree:         502316 kB
MemAvailable:    1771668 kB
Buffers:         178956 kB
Cached:          1114568 kB
SwapCached:      0 kB
Active:          656688 kB
Inactive:        1050800 kB
Active(anon):    1248 kB
Inactive(anon):  418616 kB
Active(file):    655440 kB
Inactive(file):  632184 kB
Unevictable:     32 kB
Mlocked:         32 kB
SwapTotal:       2440188 kB
SwapFree:        2440188 kB
Dirty:           0 kB
Writeback:       0 kB
AnonPages:       413996 kB
Mapped:          163044 kB
Shmem:           5900 kB
KReclaimable:    171292 kB
Slab:            213572 kB
SReclaimable:    171292 kB
SUnreclaim:     42280 kB
KernelStack:    4944 kB
PageTables:      9924 kB
NFS_Unstable:    0 kB
Bounce:          0 kB
WritebackTmp:    0 kB
CommitLimit:     3680008 kB
Committed_AS:    2063656 kB
VmallocTotal:    34359738367 kB
VmallocUsed:     33928 kB
VmallocChunk:    0 kB

```

Figura 89 – Comandos no Linux

```

matheus@matheus-VirtualBox:~$ vmstat -s
2479640 K total memory
512492 K used memory
656704 K active memory
1050912 K inactive memory
502324 K free memory
178972 K buffer memory
1285852 K swap cache
2440188 K total swap
0 K used swap
2440188 K free swap
56466 non-nice user cpu ticks
29044 nice user cpu ticks
20935 system cpu ticks
2014782 idle cpu ticks
2614 IO-wait cpu ticks
0 IRQ cpu ticks
332 softirq cpu ticks
0 stolen cpu ticks
1126939 pages paged in
1019828 pages paged out
0 pages swapped in
0 pages swapped out
10924404 interrupts
10867922 CPU context switches
1638986538 boot time
10470 forks

```

Figura 90 – Comandos no Linux

```
matheus@matheus-VirtualBox:~$ lsmem
RANGE                                SIZE  STATE REMOVABLE BLOCK
0x0000000000000000-0x000000009fffffff 2,5G online      yes  0-19

Memory block size:      128M
Total online memory:    2,5G
Total offline memory:    0B
```

Figura 91 – Comandos no Linux

```
matheus@matheus-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 150 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 0s (1.806 kB/s)
Selecting previously unselected package libx86emu2:amd64.
(Reading database ... 202557 files and directories currently installed.)
Preparing to unpack .../libx86emu2_2.4-1_amd64.deb ...
Unpacking libx86emu2:amd64 (2.4-1) ...
Selecting previously unselected package libhd21:amd64.
Preparing to unpack .../libhd21_21.68-1_amd64.deb ...
Unpacking libhd21:amd64 (21.68-1) ...
Selecting previously unselected package hwinfo.
Preparing to unpack .../hwinfo_21.68-1_amd64.deb ...
Unpacking hwinfo (21.68-1) ...
Setting up libx86emu2:amd64 (2.4-1) ...
Setting up libhd21:amd64 (21.68-1) ...
Setting up hwinfo (21.68-1) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
```

Figura 92 – Comandos no Linux

### **3. REFERÊNCIAS**

[1] Linux: Comandos Básicos e Avançados (2ª edição). Vivas, Araújo, Pitangui e Assis.